Chapter 2 Bridge Files and Documentation

2.01 General

This chapter establishes policies on how the Washington State Department of Transportation (WSDOT) and local agencies maintain bridge files, both to meet Federal Highway Administration (FHWA) requirements and effectively manage physical assets (also sometimes referred to as physical features) on WSDOT right of way. These policies apply to structures that are generally called bridges, culverts, tunnels, lids, detention vaults, overpasses, and undercrossings when they meet certain criteria commonly based on structure geometry, location, and use which will be described in more detail below.

These policies also apply differently depending on bridge ownership and location and fall into three main categories:

1. WSDOT-owned structures on WSDOT right of way.
2. Local agency-owned structures on WSDOT right of way.
3. Local agency-owned structures on local agency right of way.

Unless otherwise specifically noted below, all policies apply to WSDOT and local agency owned structures on WSDOT right of way. However, only those policies directly associated with FHWA requirements apply to local agency owned structures on local agency right of way. There are occasionally special circumstances in which WSDOT owns a structure on local agency right of way. This chapter has no specific policies in this case, except that the bridge file must be maintained under all circumstances.

This chapter addresses the following topics associated with bridge files:

- Maintaining physical paper and electronic bridge files.
- Maintaining a state bridge inventory.
- Submitting state bridge inventory data to FHWA.
- Responding to FHWA and Statewide Program Manager (SPM) requests for information.

Each topic has components that are mandated by FHWA and components that are required by WSDOT policy. The following sections clearly identify the authorizing environment.

2.02 Maintaining Bridge Files and Documentation

This section is largely based on requirements established by Section 2 of the AASHTO *Manual for Bridge Evaluation* (MBE) with Interim Revisions. The MBE emphasizes three main points for maintaining a bridge file:

A. Bridge owners should maintain a complete, accurate, and current file of each bridge under their jurisdiction.

B. A bridge file always contains the current and sometimes the cumulative information about an individual bridge.

C. A bridge file may be stored electronically, on paper, or a mixture of both.

The remainder of this Section 2.02 describes WSDOT Bridge Preservation Office policy for maintaining bridge records.

Electronic Files

Electronic bridge files are maintained on the BEISt internal website: http://beist/InventoryAndRepair/Inventory/BRIDGE

This website contains the following:

1. Scanned copies of signed inspection reports in pdf format dating back to approximately the year 1998.
2. Scanned copies of the Washington State Structural Inventory and Appraisal (SIA) sheet dating back to 2011.
3. Current inspection photographs in jpg format.
4. Current and historic repair recommendations displayed directly from the BPO database (See Section 2.03), dating back to approximately the year 2002.
5. Scanned copies of contract plans, as-builts when available, otherwise award plans. Note that the plan sheets on BEISt are not the official plans, which are owned by the WSDOT regions where the bridge is located.
6. In-house repair plans dating back to 2013.
7. Scanned copies of correspondence, historic repair and maintenance reports, miscellaneous studies, and other records are scanned from the paper files and loaded onto BEISt for selected bridges. This is generally done in response to a public disclosure request or a legal discovery requirement.

Paper Files

Appendix 2.06-A has a plan of the WSDOT Bridge Preservation Office indicating where paper files are maintained. Paper files must be maintained on WSDOT owned or maintained structures, including:

1. All signed bridge inspection reports, including but not limited routine, fracture critical, underwater, and special report types. Original signed reports are stored in paper files and digital copies are stored electronically. Signed damage inspections in response to fires, floods, earthquakes, etc shall also be included.

2. Any and all miscellaneous special inspections, studies, investigations, or file reviews. Examples include but are not limited to: load testing documentation, findings from FHWA technical advisory requests for information, survey results, or ground/slope stability studies.
3. A current printout of any specific inspection requirements/procedures, usually but not necessarily associated with fracture critical, underwater, or special inspection reports.
4. A stamped Load Rating Summary sheet which shows the controlling ratings shall be placed in the letter file. The original load rating calculations for state owned bridges shall be filed in the Risk Reduction section at the WSDOT Bridge Preservation Office.
5. Scour files are located in the Risk Reduction section at the WSDOT Bridge Preservation Office.
6. All current agreements with other agencies for maintenance, rehabilitation, or shared ownership.

Note: The inspection reports, miscellaneous studies and inventory data is cumulative, meaning that all historic as well as current data must be kept in the bridge file. All documents listed above, and others listed in the MBE, may be stored electronically as a supplement to the paper files. WSDOT bridge files stored electronically have a backup system intended to protect the electronic data for the life of the structures.

Other Files – Some bridge records are not available electronically at the BEISt internal website or in paper files as indicated in Appendix 2.06-A. The WSDOT *Bridge Design Manual* M 23-50 provides some guidance on where these records are located. The following provides some additional information:

Contract Documents – For contracts let thru WSDOT Contract Ad and Award, Washington State Archive maintains a paper cumulative file by contract number of awarded contracts and construction documents as required by the *Construction Manual* M 41-01, Section 10-3. WSDOT Records and Information maintains electronic copies of finalized As-Built Contract Plans.

WSDOT Bridge and Structures Office maintains structural plans and selected shop drawings which are stored electronically. Structural plans include culvert shop drawings that contain plan and design information along with plan contracts from other agencies that complete work on the WSDOT system. Shop drawings include: steel structures, expansion joints, specialized bearings (such as pot or seismic isolation bearings), prestressed girders, post-tensioned structures, and special structural designs (such as pontoon, suspension, or movable bridges).

WSDOT maintains a Contract History database that records all contract work completed on a structure. This database correlates contract number and contract work to structures maintained by the WSDOT bridge inventory. Contract work includes: new bridges, resurfacing bituminous pavement, expansion joints, rail retrofits, bridge widening, bridge painting, scour mitigation, contract bridge repairs, maintenance work by contract, other agency contract work, and concrete deck overlays and replacements.

In-House Repair Documents – WSDOT maintains a cumulative file of all in-house repair recommendations made by the Bridge Preservation Office, and follow-up verification information when repairs are completed. If maintenance reports prepared by region maintenance crews are provided to the bridge record, they are also permanently retained. In-house drawings and specifications supplementing the repair recommendations are also retained in the electronic record starting in 2013.

Correspondence on Significant Actions or Findings – WSDOT maintains a cumulative file of correspondence (letters, emails, memos, etc) related to significant actions or findings, including but not limited to:

- Urgent or emergency actions including posting, restricting or closing a bridge
- Critical findings, including Critical Damage Bridge Repair Reports (see WSBIM Chapter 6)
- Special reports, including deck delamination/chloride testing, settlement/movement monitoring, and life cycle studies

This correspondence may need a "summary memo to file" after the significant actions or findings are fully addressed. This memo is intended to provide full context and the final disposition of the actions or findings for the record.

2.02.01 Transferring Bridge Ownership

Whenever a bridge transfers ownership and/or program manager responsibility, the entire bridge file, both paper and electronic, must be transferred to the new owner/program manager. Bridge transfers must be acknowledged and documented by both program managers involved along with any additional deeds, agreements, plans or other documentation available. All transfer documentation must be retained in the bridge file. See Appendix 2.06-B for a checklist and SPM signoff sheet. In some cases, the acknowledgement of the transfer by the program managers may be the only documentation available.

In cases where WSDOT transfers a bridge file to another agency, a complete electronic copy of the entire bridge file is made and retained permanently. Other agencies are encouraged to follow this practice, but are not required to.

For more information about transferring electronic files in the WSBIS, see Section 2.03.03.

2.02.02 Dead / Obsolete Bridge Files

When a bridge is demolished or permanently removed from service and no longer considered appropriate for inclusion in the bridge inventory, the program manager for the "dead" bridge shall add documented acknowledgement of the removal from the inventory into the bridge file which then must be retained for a minimum of five years. WSDOT maintains dead bridge files permanently. Local agencies are encouraged to maintain permanent dead bridge files as well, though there is no requirement to do so.

See Section 2.03.04 for more information on processing "dead" bridge electronic records in the WSBIS.

2.02.03 Structures on WSDOT Right of Way

WSDOT shall maintain a bridge file for all structures considered appropriate for inclusion in the WSBIS that are on the WSDOT right of way, including local agency bridges passing over state routes or adjacent to state routes, whether or not the structure is subject to the NBIS or reported to the NBI. For more information, see Section 2.03.05.

2.03 Maintaining a State Bridge Inventory – WSBIS

Washington State is required by 23 CFR 650.315 to maintain an inventory of all bridges (structures) subject to the National Bridge Inspection Standards (NBIS), from which selected data is reported to FHWA as requested for entry into the National Bridge Inventory (NBI). FHWA has a Stewardship Agreement with Washington State to submit NBI data on April 1 and October 1 each year.

The Moving Ahead for Progress in the 21st Century Act by the US Congress (MAP-21) has partially superseded 23 CFR Part 500, and mandates that National Bridge Elements be submitted to FHWA for all NBI bridges carrying National Highway System (NHS) routes. See www.fhwa.dot.gov/map21 for more information about MAP-21.

Federal law under 23 CFR Part 500 provides an option for state agencies to maintain a Bridge Management System (BMS), with the incentive that federal funding can be used with more flexibility. Washington State has chosen to implement a BMS and integrally incorporate it into the state inventory for bridges managed under the WSDOT bridge program. In addition, Washington State maintains an inventory to meet WAC 136-20-020, which requires that each county maintain an inventory of bridges in the state inventory. The Washington State Bridge Inventory System (WSBIS) is maintained to meet these federal and state laws and regulations. The WSBIS is also maintained to meet the WSDOT mission statement with respect to operating the state bridge structures, and provides a means for local agencies to do the same.

In Washington State, there are currently two separate databases which hold bridge information, one mostly holding state owned structures (BPO database) and a second mostly holding local agency owned structures (LP database). A third database (the Bridge Reporting Database) draws data from these two databases and is the source for data reported to FHWA. This third BRD database is maintained by the WSDOT Information Technology Division (ITD). The Washington State Bridge Inventory System (WSBIS) consists of all the data held in the BRD.

In 2017, the BPO and LP databases will be merged into a single database, and the BRD database will be abandoned, with the source data for FHWA reporting coming from this single merged database.

The BPO database is maintained by the WSDOT Bridge Preservation Office, which maintains an associated coding guide available in Appendix 2.06-C. The LP database is maintained by the WSDOT Local Programs Office, which also maintains an associated LP coding guide available in Appendix 2.06-D. These coding guides are intended to define the fields maintained in the respective databases for use by bridge inspectors and inventory managers. These coding guides are largely based on the federal coding guide and must meet the following requirements:

1. Whenever a database field has to be translated to match the federal coding guide, this translation must be clearly defined.
2. The state or local agency coding guides cannot contradict the federal coding guide. In cases where the federal coding guide is either inconsistent with other FHWA requirements or vague, the state or local agency coding guide needs to clearly identify the issue and describe how the field should be coded into WSBIS.
3. Required and optional fields must be clearly identified.
4. Every field must clearly state whether or not it is required for under records, and if so, exactly how it is coded for these under records.
5. When bridge records are neither "on" nor "under" (pedestrian bridge adjacent to a highway bridge for example). The coding guide must provide clear and consistent guidance on how these are to be coded.

2.03.01 WSBIS Inventory and Data

The WSBIS needs to be understood clearly in two ways – which structures are included in the inventory and what data associated with these structures is maintained. Each of these categories has both mandated and optional components.

Beginning in October 2014 there is a requirement, from MAP-21, to collect National Bridge Element data for bridges carrying NHS routes. WSDOT is meeting this mandate by requiring these bridges to have BMS elements in WSBIS, which in turn will be translated into National Bridge Elements for submittal. See Appendix 2.06-E for the WSDOT BMS to NBE translation specifications. See www.fhwa.dot.gov/map21 for more information about MAP-21.

Mandated Bridges and Culverts in the WSBIS – Reported to the NBI

In general, a structure that is subject to the NBIS and must be reported to the NBI when it meets all of the following:

- Carries highway traffic.
- Is owned by a public agency or built on public right of way for a public agency. Bridges owned by road associations or individual property owners on private right of way do not qualify.
- Is open to the public. Bridges posted "no trespassing" or otherwise clearly identified that they are privately owned or restricted to authorized users are not considered public. Bridges behind locked gates are also not considered public.
- Has a clear span along centerline of roadway greater than 20 feet.

Utility and Detention Vaults – Based on an agreement between Washington State and FHWA, vaults under roadways are considered subject to the NBIS when the minimum clear span along the centerline of the roadway exceeds 20 feet AND is wider than 12 feet, including any structure that has any portion directly under a lane or shoulder.

There are a few special circumstances that affect whether or not a bridge is subject to the NBIS and reported to the NBI not mentioned above (see Section 2.03.06).

Structures over federal aid or STRAHNET highways must include an "under" record(s) in the WSBIS and be reported to the NBI.

Mandated Tunnels in the WSBIS – Reported to the NTI

In general, a tunnel that is subject to the NTIS and must be reported to the NTI when it meets all of the following:

- Carries highway traffic inside the tunnel.
- Is owned by a public agency or built on public right of way for a public agency. Bridges owned by railroads or other owners on private right of way do not qualify. Also tunnels under public roadways that do not carry traffic inside the tunnel do not qualify
- Is open to the public. Tunnels posted "no trespassing" or otherwise clearly identified that they are privately owned or restricted to authorized users are not considered public. Tunnels behind locked gates are also not considered public.

NBI and NTI cannot inventory the same structure twice – There are cases where a structure has features that make it possible to consider either a bridge or a tunnel. In these cases, the owning agency can make the determination, but a structure that is coded as a bridge cannot be reported to the NTI, and similarly a structure that is coded as a tunnel cannot be reported to the NBI.

Optional Structures in the WSBIS – Not reported to the NBI or NTI

Optional structures include any structure that the state or local agency manages as part of their structure inventory, but which do not qualify for reporting to the NBI or NTI. Typically this will include bridges with span lengths less than 20 feet (short spans), pedestrian structures that do not cross over or under a highway, "under" records for a route that is neither federal aid nor STRAHNET, and pedestrian or railroad tunnels under public roadways.

Note: Local agency structures on WSDOT right of way have special requirements as noted in Section 2.03.05.

Mandated Data in the WSBIS

All data fields defined in the FHWA Coding Guide are required in the WSBIS. In cases where structures are maintained in WSBIS but not reported to the NBI, it is still required to complete all these fields in some consistent manner defined in a coding guide.

The following additional fields or clarifications of NBI fields are required:

- **Bridge Number** – A 10-digit alphanumeric code that must always be populated.
- **Bridge Name** – A 24-digit alphanumeric code that must always be populated.
- **Washington State Region Code (Federal Coding Guide Item 2)** – Consist of the following 2 digit alphanumeric codes that always must be populated:

  NW – Northwest Region
  EA – Eastern Region
  NC – Northcentral Region
  OL – Olympic Region
  SC – Southcentral Region
  SW – Southwest Region

- **County Code (Federal Coding Guide Item 3)** – Consists of the numeric code representing the alphabetic order of Washington State counties. This field must always be populated. These codes are available in an Excel spreadsheet within the "County and City Codes" tab at www.ofm.wa.gov/pop/annex

  Use the 2-digit COUNTYN column in the County Codes spreadsheet tab.

Examples:	Adams	01
	Yakima	39

- **City Code** – Consists of the 1990 federal census place code, updated by OFM for cities incorporated after 1999. These codes are available in an Excel spreadsheet within the "County and City Codes" tab at www.ofm.wa.gov/pop/annex

  Use the 4-digit Place_1990 column in the City Codes spreadsheet tab.

Examples:	Aberdeen	0005
	Zillah	1500

National Bridge Element (NBE) Data

All bridges subject to the NBIS and carrying NHS routes are required to include WSDOT Bridge Management System (BMS) elements and translated to National Bridge Elements and included with the annual NBI data submittal. See Appendix 2.06-E for detailed information on the translation process.

Optional Data in the WSBIS

All other data, including BMS elements for bridges not on NHS routes, condition states, repairs, notes, and electronic photos and documents are not required in the WSBIS, and are not reported to the NBI.

2.03.02 New Bridge Inventory in the WSBIS

Newly built bridges must be added to the bridge inventory (WSBIS) and the Structure Inventory & Appraisal (SI&A) data entered within 90 days after the bridge is opened to public traffic in the anticipated final configuration as per 23 CFR 650.315(c).

New bridges to the inventory must have a unique Structure Identifier (Federal Coding Guide Item 8) in the WSBIS. In particular, when a bridge is replaced – either temporarily or permanently – with a new structure, this new structure must have a new Structure Identifier. The same Bridge Number and Bridge Name fields can be used.

Individuals who create new inventory records in the WSBIS need to be familiar with a wide variety of information sources. In preparation for creating a new inventory record, the following information should be available:

- Bridge plans
- Load rating calculations, or summary information to correctly code selected fields
- Scour calculations, or summary information to correctly code selected fields when bridge is over water
- Route information, including current State and/or Local Agency Linear Referencing System (LRS) data
- GIS location information
- Traffic information

Additional specific information may be required in many cases, including but not limited to maintenance agreements, navigable waterway permits, replacement cost estimates, and historical significance.

Individuals who create new inventory records need to coordinate closely with the inspectors who perform the initial routine/inventory inspection to ensure that all the data is collected. See Chapter 3 for inspection procedures and policies.

Temporary bridges that carry public traffic for less than 90 days or which are less than 20 feet in length do not need to be inventoried or inspected in accordance with the NBIS. In **all** other circumstances temporary bridges carrying public traffic must be inventoried and inspected in accordance with the NBIS, including:

- Temporary bridges installed either as an emergency response by agency staff or as a stand-alone contract without any other substantial work performed in the immediate vicinity of the bridge site.
- Temporary bridges that are an integral part of a larger construction project, located within that project, and maintained by a contractor.

2.03.03 Transferring Bridge Ownership in the WSBIS

Transferring bridge ownership between local agencies and state agencies requires transferring electronic records between the LP and BPO databases. This will be a manual process whereby the record will be "obsoleted" in the originating database, and a new record created in the receiving database. This new record will be created based on printouts of the established record in the originating database, and all associated electronic files (.jpg photos, .pdf images, plans, etc.) transmitted along with paper records on DVD or other compatible format. These electronic files will be associated with the database record and stored electronically.

2.03.04 Deleting (Obsoleting) Bridges in the WSBIS

Both the BPO and LP databases are designed to retain historical data indefinitely, including files of bridges that have been removed from service and no longer part of the current bridge inventory. These bridges are called "obsolete" in the WSBIS and are called "dead" in the paper files (see Section 2.02.02).

WSDOT policy guides the requirements for deleting (obsoleting) structures in the WSBIS, but in this case the policy applies to all bridges in the WSBIS that are reported to the NBI, including local agency bridges on local agency right of way. Obsoleting bridge records in both databases shall include the following steps:

- Create a new informational report describing the circumstances of the removal and the replacement structure information if appropriate. This informational shall include the completed and signed Record Change Form, see Appendix 2.06-B.
- The informational report is signed by the Statewide Program Manager (SPM).
- The paper bridge file (record), including the last signed informational report documenting removal from the bridge inventory, shall be retained for a minimum of five years.

See Section 2.02.02 for more information on maintaining "dead" bridge files.

2.03.05 Bridges with Multi-Agency Responsibility in the WSBIS

There are several ways in which a single bridge can have more than one agency responsible for the bridge inventory data. This section describes four cases where the responsibility is shared between WSDOT and a local agency, and where either WSDOT or a local agency shares responsibility with another state.

Shared Responsibility between WSDOT and Local Agencies

There are the four cases of shared responsibility between WSDOT and a local agency, based on the principle of assigning data responsibility to the agency in the best position to maintain and report the data. These cases are WSDOT policy for all structures on WSDOT right of way. However, they can apply equally to any two agencies (a county and a city, for example). Regardless of how local agencies address these cases, it is a requirement that all bridge data in WSBIS that is reported to the NBI must be complete, accurate and current. This WSDOT policy is superseded by any written agreement between two agencies regarding bridge inventory record keeping.

Case 1: WSDOT-Owned Bridges on WSDOT Right of Way – WSDOT will be responsible for maintaining all bridge inventory data and federal reporting in this situation.

Note: This situation applies to any combination of "on" and "under" records, route owners, and federal reporting status. However, WSDOT will ask local agencies for specific data regarding local agency route and traffic, both for routes "on" and "under" the bridge as applicable.

Case 2: Local Agency-Owned Bridges Carrying Highway Traffic Over State Routes – This situation assumes that the bridge must have a federally reported "on" record and at least one federally reported "under" record. The "on" record shall be maintained by the local agency and the "under" record(s) shall be maintained by WSDOT.

Case 3: Local Agency-Owned Pedestrian Bridges Over State Routes – This addresses all situations in which there is no federally reported "on" record, and assumes that there is a federally reported "under" record, and possibly additional "under" records for the *Bridge List* M 23-09. The "under" record(s) shall be maintained by WSDOT. If the local agency chooses to maintain a record, it cannot be federally reported.

Case 4: Local Agency-Owned Bridges on State Right of Way Adjacent to a State Route – This addresses all situations in which a local agency owns a structure (usually a pedestrian bridge) on state right of way that does not cross over or under any routes, and is deemed appropriate by WSDOT for inclusion in the bridge inventory. In this case, no records are federally reported

In all situations where there is shared responsibility between WSDOT and a local agency, both the BPO and LP database must use the same structure identifier (Federal Coding Guide Item 8) and coordinate the on/under code (Federal Coding Guide Item 5A) to maintain a unique combination of these fields (a composite key) for all bridge records in both databases, regardless of which ones are reported to the NBI. The BPO and LP data stewards shall coordinate closely to ensure these bridge files are kept complete, accurate and current. Any situations that do not fit into these four cases listed above shall be considered on a case-by-case basis by the program managers involved and should address the following questions:

- Does the bridge record include a federally reported "on" record? These are bridges that are subject to the NBIS.
- Does the bridge record include one or more federally reported "under" records? These are bridges with federal aid or STRAHNET routes under the bridge.
- Is this a bridge that doesn't qualify for either an "on" or "under" record? These are pedestrian or other bridges that are not subject to the NBIS, and do not cross over a highway.
- Who owns the bridge?
- What agency owns the route on the bridge, if applicable? It is relatively common for a state owned structure to carry a local agency route, usually over a state route.
- What agency owns the route (or routes) under the bridge, if applicable?
- Does either agency need to maintain "on" or "under" records that are not federally reported? WSDOT often maintains "under" records that are not reported to hold data for the *Bridge List* M 23-09.
- Are there any interagency agreements relevant to inspection and reporting responsibility?

Any interagency agreement should address these questions, and clearly assign bridge inspection and inventory responsibilities.

Shared Responsibility with Other States

WSDOT shares bridge recordkeeping and FHWA reporting responsibility for all bridges that cross state lines. For all but one bridge this shared responsibility also extends to bridge ownership and maintenance. For all bridges, responsibility to perform inspections is assigned to one state agency as established by agreement.

One local agency bridge crosses the state line between Washington and Idaho. Inspection, FHWA reporting, ownership, and maintenance responsibility is established by agreement.

See Appendix 2.06-F for bridge specific information.

2.03.06 Reporting WSBIS Data to the NBI – Special Circumstances

Section 2.03.01 outlined requirements for bridges subject to the NBIS and reported to the NBI. However, there are several special circumstances that warrant additional discussion.

Bridges Owned by Public Agencies That Are Not Open to the Public – Public agencies can own bridges that are not part of the public right of way, intended only for access by agency staff or other authorized personnel. In general, these bridges should not be reported to the NBI, and these bridges should be signed or gated so the public either does not have access to the bridge or is clearly warned that the bridge is not part of the public way. WSDOT bridges are posted "No Trespassing" at the entrance to the bridge if they are not gated.

Bridges Owned by Public Agencies That Are Closed – Bridges that are permanently closed to highway traffic but still in place may be retained in the WSBIS, but cannot be reported to the NBI. Bridges that are closed but the agency plans to either re-open or replace with a new structure can be federally reported for up to five years.

Privately-Owned Bridges – These bridges may belong to individuals, community road associations, railroads, or corporations, and may be open to the public. One relatively common example is a bridge in a shopping mall parking lot. FHWA and WSDOT promote the incorporation of these bridges in the WSBIS and recommend they be reported to the NBI if they qualify, but there is no federal or state requirement that they be inventoried.

Public Transit Bridges – Bridges carrying public transit buses in service (carrying passengers) are subject to the NBIS, even if these bridges are restricted to only public transit vehicles. Bridges carrying light rail public transit rolling stock without any vehicular or bus traffic are not currently subject to the NBIS.

Whenever a special circumstance affects the reporting of a structure, a brief explanation of the reporting status shall be kept in the electronic bridge record for all bridges inventoried in the WSBIS.

In any situation where it is unclear if a bridge should be included in the WSBIS and reported to the NBI, please consult with the SPM.

2.03.07 Washington State Bridge List M 23-09

The WSBIS is the source of data for the *Bridge List* M 23-09 published by the Bridge and Structures Office. It is a list of structures carrying or intersecting Washington State highways, and structures for which WSDOT has a maintenance responsibility. Data specific to this list is maintained for nearly all structures on WSDOT right of way, including local agency owned structures.

For more information on the data maintained for the *Bridge List* M 23-09, see the Washington State Bridge Inventory System Coding Guide in Appendix 2.06-C.

2.04 FHWA Data Submittal Process

The WSDOT Bridge Preservation Office extracts data from the WSBIS and submits it to FHWA for inclusion in the NBI and NBE twice per year. Submittals may also happen at other times at the request of the Washington Division of the FHWA. The scheduled submittals are April 1 and October 1, or the first work days following these dates. The data submitted includes all the data defined by the NBI federal coding guide and the NBE specifications, and is provided in a very specific format also defined by these documents. These submittals are performed by the Bridge Preservation Office with data taken from the Bridge Reporting Database (BRD and submitted to the FHWA User Profile and Access Control System (UPACS) under the authority of the SPM.

Data drawn for submittal to the NBI and NBE is taken only from the most current "released" data from the BRD, meaning that each bridge record has been through the quality control process described in Chapter 7, including acceptance by the BPO and LP data stewards. However, in addition to this quality control process, prior to the scheduled NBI submittals both the BPO and LP data stewards run systemic checks of the data to identify and correct data errors. In particular, these checks are intended to ensure the following:

- Bridges added to the inventory are reviewed to determine if they should be reported to the NBI.

- Bridges removed from the inventory are reviewed to determine if they should be reported to the NBI and to ensure the electronic records accurately and sufficiently document the obsolete record.
- Bridges that are transferred between agencies are reviewed to ensure the electronic records accurately document the transfer.
- Bridges with shared responsibility are reviewed to ensure the electronic records are complete and accurate.

The intent is to submit error free data each submittal. In cases when errors are found but cannot be corrected because a field visit is required, the intent is that these errors will be corrected at the next regularly scheduled inspection.

Data submitted to the NBI and NTI is used for performance measurements after the submittal, both by FHWA and WSDOT. Verifying timely inspections for the four federally reported inspection types (routine, fracture critical, underwater, and special feature) is a primary focus of these performance measures. For the April 1 data submittal, all inspection work due through December 31 of the previous year must be "released" into the BPO and LP databases prior to April 1; for the October 1 data, all inspection work due through June 30 of the same year must be "released" prior to October 1.

On August 17, 2017, WSDOT will submit complete NTI data to FHWA for the first time.

2.05 Responding to FHWA

Information Requests – FHWA requests bridge inspection information from WSDOT on a periodic basis. The information that is requested can be in response to national technical advisories, FHWA's oversight of the NBIS program in Washington State, or based on the WSDOT/FHWA Stewardship Agreement.

The bridge inspection requests for information from FHWA will typically be in the form of an email request with an assigned completion date based on the specific request, but can be in any format. The FHWA Division Bridge Engineer will submit the information request to the SPM. The SPM will review the FHWA information request and forward/disseminate the request to the necessary individuals for response. All information will be provided back to the SPM who will then forward the requested information to the Washington FHWA Division Bridge Engineer by the deadline in the original request.

Communication Between FHWA and WSDOT – Appendix 2.06-H identifies the standard communication protocol for normal operations. There is no protocol for urgent or emergency situations. The Washington SPM will be included in all written and email communications to or from FHWA regarding any bridge inspection, bridge emergency, or critical finding issues within the state of Washington. The WSDOT LP DPM and the Washington SPM will be included in all written and email communications to or from FHWA where local agency bridges are involved.

Annual NBIS Program Review – FHWA conducts an annual review of the bridge inspection organization within the state of Washington. The purpose of this review is to assure compliance with the NBIS. The review examines all facets of the inspection program – the effectiveness of the overall organization, delegated functions, inspection personnel, inspection procedures, bridge records and files, and the inventory of bridge data. It is intended to identify and correct any weaknesses while building upon existing strengths. In addition, site reviews of bridge inspections and interviews of inspection personnel are conducted. FHWA also conducts reviews of NBI data that is submitted for Washington by WSDOT.

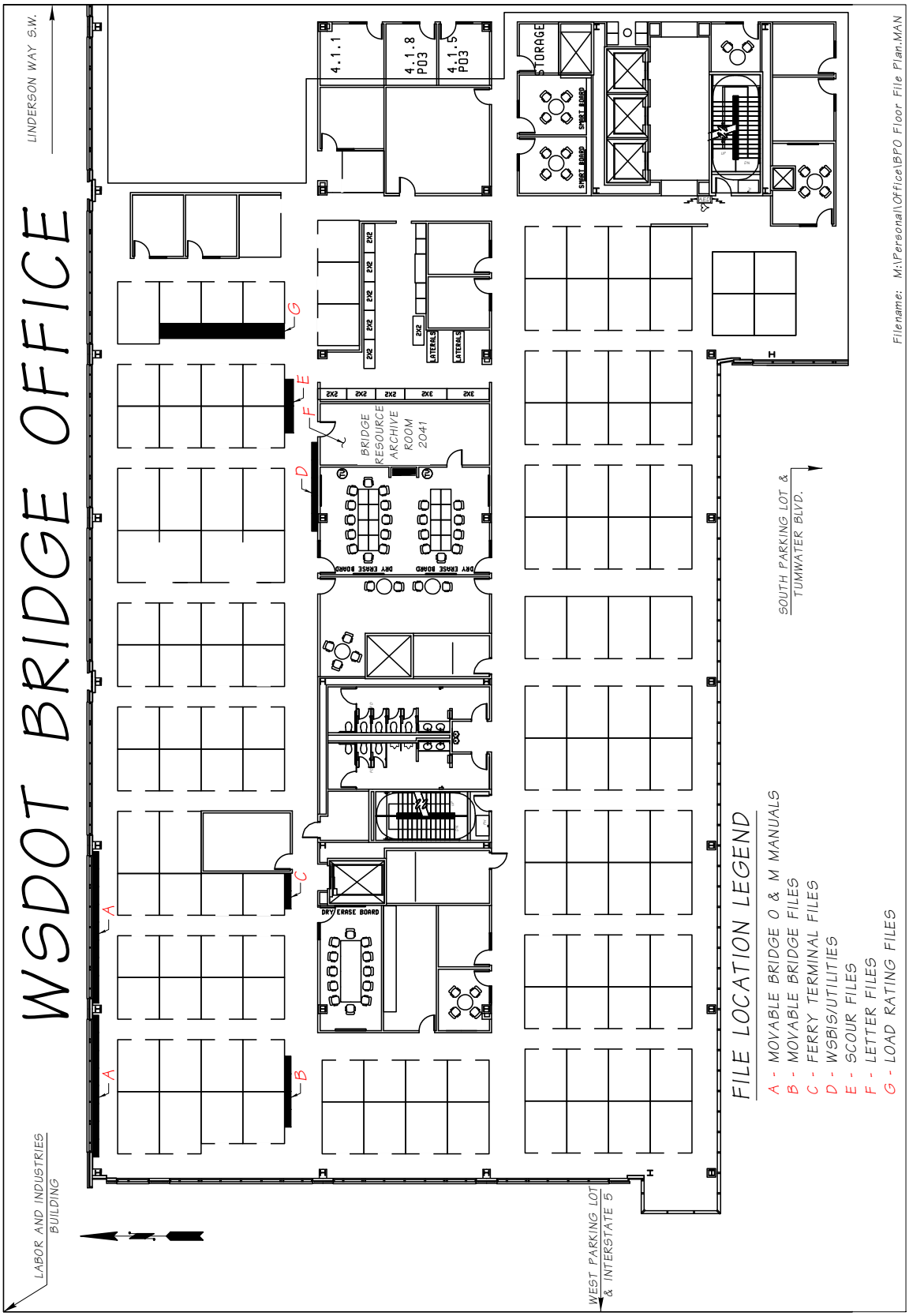
Additional information on the NBI and NBIS can be found on the FHWA Office of Bridges and Structures website at www.fhwa.dot.gov/bridge/nbis.htm.

2.06 Appendices

Appendix 2.06-A	WSDOT BPO Floor Plan with File Locations
Appendix 2.06-B	Record Change Form
Appendix 2.06-C	Washington State Bridge Inventory System Coding Guide
Appendix 2.06-D	Local Agency Bridge Inventory Coding Guide
Appendix 2.06-E	WSDOT BMS to NBE Translation
Appendix 2.06-F	Border Bridge Information
Appendix 2.06-G	Sufficiency Rating Calculation
Appendix 2.06-H	WSDOT/FHWA Communication Protocol Flowchart

Appendix 2.06-A

WSDOT BPO Floor Plan with File Locations



Washington State Department of Transportation

Record Change Form

Record change requiring Statewide Program Manager (SPM) approval

Structure Identifier	Structure Number
Structure Name	Date of Record Change
This structure has been obsoleted ☐ Yes ☐ No	
If replaced with new structure, provide new structure identifier, number and name	
Is obsoleted structure demolished, moved, repurposed as pedestrian, or other? Describe	
This structure ownership has been transferred. ☐ Yes ☐ No	
If Yes: Transferred from _____ to _____	
If replaced with new structure, provide new structure identifier, number and name	
Agreement Number (attach signed agreement)	

_____ _____

Delegated Program Manager, if local agency record obsoleted Date

_____ _____

Statewide Program Manager Date

WSDOT Form 222-033 EF
Revised 10/9/2014

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1990	Routine Inspection Date	90	-		1.1
1990	Fracture Critical Inspection Date	93A	-		1.2
1990	Underwater Inspection Date	93B	-		1.3
1990	Special Feature Inspection Date	93C	-		1.4
1991	Routine Inspection Frequency	91	-		1.5
1991	Fracture Critical Inspection Frequency	92A	-		1.6
1991	Underwater Inspection Frequency	92B	-		1.7
1991	Special Feature Inspection Frequency	92C	-		1.8
2921	Inspection Type	-	-	2.06-C-15	2
2646	Inspector Initials	-	-	2.06-C-16	3
2649	Inspector Certification Number	-	-	2.06-C-16	4
2654	Co-Inspector Initials	-	-	2.06-C-16	5
2642	Inspection Hours	-	-	2.06-C-16	6
2643	Inspection Overtime Hours	-	-	2.06-C-16	7
2900	Program Manager Oversight	-	-	2.06-C-16	8
1657	Structural Evaluation	67	-	2.06-C-18	9
1658	Deck Geometry	68	-	2.06-C-19	10
1659	Underclearances	69	-	2.06-C-22	11
1661	Alignment	72	-	2.06-C-23	12
1662	Waterway	71	-	2.06-C-24	13
1660	Operating Level	70	-	2.06-C-25	14
1293	Open, Closed or Posted	41	L.4	2.06-C-26	15
1663	Overall Deck Condition	58	-	2.06-C-28	16
1671	Superstructure Overall	59	-	2.06-C-29	17
2675	Number of Utilities	-	-	2.06-C-29	18
1676	Substructure Condition	60	-	2.06-C-30	19
1677	Channel Protection	61	-	2.06-C-31	20
1678	Culvert	62	-	2.06-C-32	21
1679	Pier/Abutment Protection	111	-	2.06-C-34	22
1680	Scour	113	-	2.06-C-35	23
2610	Asphalt Depth	-	-	2.06-C-37	24
2611	Design Curb Height	-	-	2.06-C-37	25
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1685	Transitions	36B	-	2.06-C-40	28
1686	Guardrails	36C	-	2.06-C-41	29
1687	Terminals	36D	-	2.06-C-41	30
2688	Revise Rating Flag	-	-	2.06-C-41	31
2691	Photos Flag	-	-	2.06-C-41	32
2693	Soundings Flag	-	-	2.06-C-42	33
2694	Clearance Flag	-	-	2.06-C-42	34
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2614	Subject to NBIS Flag	-	-	2.06-C-44	38
1001	Structure Identifier	8	I.1	2.06-C-45	39
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2010	Bridge Sort Number	-	-	2.06-C-47	41
2400	Program Manager	-	-	2.06-C-47	42
1019	Owner	22	C.1	2.06-C-48	43
1021	County Code	3	I.4	2.06-C-49	44
2023	City	-	-	2.06-C-49	45
1132	Bridge Name	-	I.2	2.06-C-50	46
1156	Location (Main Listings)	9	-	2.06-C-50	47
2181	Section	-	-	2.06-C-50	48
2183	Township	-	-	2.06-C-50	49
2185	Range	-	-	2.06-C-50	50
1188	Latitude	16	I.13	2.06-C-51	51
1196	Longitude	17	I.14	2.06-C-51	52
2615	Special Structures Flag	-	-	2.06-C-51	53
1232	Features Intersected	6	-	2.06-C-53	54
1256	Facilities Carried	7	I.10	2.06-C-53	55
1274	Region code	2	I.6	2.06-C-54	56
1276	FIPS Code	4	I.5	2.06-C-54	57
1285	Toll	20	C.4	2.06-C-55	58
1286	Custodian	21	C.2	2.06-C-56	59
1288	Parallel Structure	101	-	2.06-C-57	60
1289	Temporary Structure	103	-	2.06-C-57	61
1292	Historical Significance - NRHP	37	-	2.06-C-58	62
1332	Year Built	27	A.1	2.06-C-59	63
1336	Year Rebuilt	106	A.2	2.06-C-59	64
1340	Structure Length	49	-	2.06-C-60	65
2346	NBIS Length	-	-	2.06-C-62	66
1348	Maximum Span Length	48	-	2.06-C-62	67
1352	Lanes On	28A	-	2.06-C-62	68
1356	Curb-to-Curb Width	51	G.3	2.06-C-63	69
1360	Out-to-Out Deck Width	52	-	2.06-C-64	70
1364	Sidewalk/Curb Width Left	50A	G.4	2.06-C-65	71
1367	Sidewalk/Curb Width Right	50B	G.5	2.06-C-65	72
1370	Minimum Vertical Clearance Over Deck	53	-	2.06-C-67	73
1374	Minimum Vertical Clearance Under Bridge	54B	-	2.06-C-68	74
1378	Vertical Underclearance Code	54A	-	2.06-C-70	75
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1382	Lateral Underclearance Code	55B	-	2.06-C-73	77
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1312	Flared Flag	35	-	2.06-C-78	86
2000	Main Listing Flag	-	-	2.06-C-79	87
1432	Inventory Route On/Under	5A	-	2.06-C-79	88
1433	Inventory Route Highway Class	5B	-	2.06-C-80	89
1434	Inventory Route Service Level	5C	-	2.06-C-80	90
1435	Route	5D	I.7	2.06-C-81	91
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2436	Route Sequencer	-	-	2.06-C-81	93
2437	Bridge List Milepost Override	-	-	2.06-C-81	94
2438	Milepost Sequencer	-	-	2.06-C-81	95
2468	Directional Indicator	-	-	2.06-C-82	96
2470	Ahead/Back Indicator	-	-	2.06-C-82	97
1467	Linear Referencing System Route	13A	I.11	2.06-C-82	98
1477	Linear Referencing System Sub Route	13B	-	2.06-C-83	99
1469	LRS Milepost	11	I.12	2.06-C-83	100
1483	National Highway System	104	C.5	2.06-C-83	101
1484	Base Highway Network	12	-	2.06-C-84	102
1485	STRAHNET Highway	100	C.6	2.06-C-84	103
1486	Federal Lands Highways	105	-	2.06-C-84	104
1487	Functional Classification	26	C.7	2.06-C-85	105
1489	National Truck Network	110	-	2.06-C-85	106
1490	Lane Use Direction	102	C.3	2.06-C-86	107
1354	Lanes Under	28B	A.3	2.06-C-86	108
1445	ADT	29	A.4	2.06-C-87	109
1451	ADT Truck Percentage	109	A.5	2.06-C-87	110
1453	ADT Year	30	A.6	2.06-C-87	111
1457	Future ADT	114	-	2.06-C-88	112
1463	Future ADT Year	115	-	2.06-C-88	113
1413	Detour Length	19	A.7	2.06-C-89	114
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1533	Main Span Design	43B	-	2.06-C-96	125
1535	Approach Span Material	44A	-	2.06-C-97	126
1536	Approach Span Design	44B	-	2.06-C-97	127

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1544	Service On	42A	-	2.06-C-99	131
1545	Service Under	42B	-	2.06-C-99	132
1546	Deck type	107	-	2.06-C-100	133
1547	Wearing Surface	108A	-	2.06-C-101	134
1548	Membrane	108B	-	2.06-C-101	135
1549	Deck Protection	108C	-	2.06-C-101	136
1550	Design Load	31	-	2.06-C-102	137
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1552	Operating Rating Tons	64	-	2.06-C-108	152
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1555	Inventory Rating Tons	66	-	2.06-C-109	155
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2870	Proposed Improvement Eng. and Misc. Cost	-	-	2.06-C-112	167
1861	Proposed Improvement Total Cost	96	-	2.06-C-113	168
1879	Proposed Improvement Estimate Year	97	-	2.06-C-113	169
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1022	Urban Code	-	C.8	2.06-C-114	172
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1992	Routine Inspection Target Date	-	D.1	2.06-C-116	175
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1562	Posted Load – Type 3	-	L.7	2.06-C-117	177
1563	Posted Load – Type 3S2	-	L.8	2.06-C-117	178
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1408	Tunnel Hazardous Material Restriction	-	L.11	2.06-C-118	181
1409	Tunnel Other Restrictions	-	L.12	2.06-C-118	182
1510	Number of Bores	-	S.1	2.06-C-119	183
1511	Tunnel Shape	-	S.2	2.06-C-120	184
1512	Portal Shape	-	S.3	2.06-C-121	185
1513	Ground Conditions	-	S.4	2.06-C-121	186
1514	Complex	-	S.5	2.06-C-121	187

This list is sorted by WSBIS item number.

Table 1 - WSBIS Item Numbers by Sequence

WSBIS Item No.	WSBIS Item Name	NBI Item No.	NTI Item No.	Page No.	WSBIM sequence
1001	Structure Identifier	8	I.1	2.06-C-45	39
1019	Owner	22	C.1	2.06-C-48	43
1021	County Code	3	I.4	2.06-C-49	44
1022	Urban Code	-	C.8	2.06-C-114	172
1132	Bridge Name	-	I.2	2.06-C-50	46
1156	Location	9	-	2.06-C-50	47
1188	Latitude	16	I.13	2.06-C-51	51
1196	Longitude	17	I.14	2.06-C-51	52
1232	Features Intersected	6	-	2.06-C-53	54
1256	Facilities Carried	7	I.10	2.06-C-53	55
1274	Region code	2	I.6	2.06-C-54	56
1276	FIPS Code	4	I.5	2.06-C-54	57
1285	Toll	20	C.4	2.06-C-55	58
1286	Custodian	21	C.2	2.06-C-56	59
1288	Parallel Structure	101	-	2.06-C-57	60
1289	Temporary Structure	103	-	2.06-C-57	61
1291	Median	33	-	2.06-C-76	83
1292	Historical Significance - NRHP	37	-	2.06-C-58	62
1293	Open, Closed or Posted	41	L.4	2.06-C-26	15
1310	Skew	34	-	2.06-C-77	85
1312	Flared Flag	35	-	2.06-C-78	86
1332	Year Built	27	A.1	2.06-C-59	63
1336	Year Rebuilt	106	A.2	2.06-C-59	64
1340	Structure Length	49	-	2.06-C-60	65
1348	Maximum Span Length	48	-	2.06-C-62	67
1349	Tunnel Length	-	G.1	2.06-C-116	173
1352	Lanes On	28A	-	2.06-C-62	68
1354	Lanes Under	28B	A.3	2.06-C-86	108
1356	Curb-to-Curb Width	51	G.3	2.06-C-63	69
1360	Out-to-Out Deck Width	52	-	2.06-C-64	70
1364	Sidewalk/Curb Width Left	50A	G.4	2.06-C-65	71
1367	Sidewalk/Curb Width Right	50B	G.5	2.06-C-65	72
1370	Minimum Vertical Clearance Over Deck	53	-	2.06-C-67	73
1374	Minimum Vertical Clearance Under Bridge	54B	-	2.06-C-68	74
1378	Vertical Underclearance Code	54A	-	2.06-C-70	75
1379	Minimum Lateral Underclearance Right	55A	-	2.06-C-70	76
1382	Lateral Underclearance Code	55B	-	2.06-C-73	77
1383	Minimum Lateral Underclearance Route Left	56	-	2.06-C-73	78
1386	Navigation Control	38	-	2.06-C-74	79
1387	Navigation Vertical Clearance	39	-	2.06-C-74	80
1390	Navigation Horizontal Clearance	40	-	2.06-C-75	81
1394	Vertical Lift Minimum Navigation Clearance	116	-	2.06-C-75	82
1397	Approach Roadway Width	32	-	2.06-C-77	84
1401	Min. Vertical Clearance Over Tunnel Roadway	-	G.2	2.06-C-116	174
1402	Tunnel Height Restriction	-	L.10	2.06-C-118	180
1408	Tunnel Hazardous Material Restriction	-	L.11	2.06-C-118	181

Table 1 - WSBIS Item Numbers by Sequence

WSBIS Item No.	WSBIS Item Name	NBI Item No.	NTI Item No.	Page No.	WSBIM sequence
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1413	Detour Length	19	A.7	2.06-C-89	114
1432	Inventory Route On/Under	5A	-	2.06-C-79	88
1433	Inventory Route Highway Class	5B	-	2.06-C-80	89
1434	Inventory Route Service Level	5C	-	2.06-C-80	90
1435	Route	5D	I.7	2.06-C-81	91
1436	Route Direction	-	I.8	2.06-C-114	170
1445	ADT	29	A.4	2.06-C-87	109
1451	ADT Truck Percentage	109	A.5	2.06-C-87	110
1453	ADT Year	30	A.6	2.06-C-87	111
1457	Future ADT	114	-	2.06-C-88	112
1463	Future ADT Year	115	-	2.06-C-88	113
1467	Linear Referencing System Route	13A	I.11	2.06-C-82	98
1469	LRS Milepost	11	I.12	2.06-C-83	100
1477	Linear Referencing System Sub Route	13B	-	2.06-C-83	99
1483	National Highway System	104	C.5	2.06-C-83	101
1484	Base Highway Network	12	-	2.06-C-84	102
1485	STRAHNET Highway	100	C.6	2.06-C-84	103
1486	Federal Lands Highways	105	-	2.06-C-84	104
1487	Functional Classification	26	C.7	2.06-C-85	105
1489	National Truck Network	110	-	2.06-C-85	106
1490	Lane Use Direction	102	C.3	2.06-C-86	107
1491	Horizontal Clearance, Route Direction	47	-	2.06-C-90	116.9
1495	Horizontal Clearance, Reverse Direction	47	-	2.06-C-91	117
1499	Maximum Vertical Clearance, Route Direction	10	-	2.06-C-92	118
1510	Number of Bores	-	S.1	2.06-C-119	183
1511	Tunnel Shape	-	S.2	2.06-C-120	184
1512	Portal Shape	-	S.3	2.06-C-121	185
1513	Ground Conditions	-	S.4	2.06-C-121	186
1514	Complex	-	S.5	2.06-C-121	187
1532	Main Span Material	43A	-	2.06-C-95	124
1533	Main Span Design	43B	-	2.06-C-96	125
1535	Approach Span Material	44A	-	2.06-C-97	126
1536	Approach Span Design	44B	-	2.06-C-97	127
1538	Number of Main Spans	45	-	2.06-C-98	129
1541	Number of Approach Spans	46	-	2.06-C-99	130
1543	Service in Tunnel	-	A.8	2.06-C-114	171
1544	Service On	42A	-	2.06-C-99	131
1545	Service Under	42B	-	2.06-C-99	132
1546	Deck type	107	-	2.06-C-100	133
1547	Wearing Surface	108A	-	2.06-C-101	134
1548	Membrane	108B	-	2.06-C-101	135
1549	Deck Protection	108C	-	2.06-C-101	136
1550	Design Load	31	-	2.06-C-102	137
1551	Operating Rating Method	63	-	2.06-C-107	151
1552	Operating Rating Tons	64	-	2.06-C-108	152
1553	Operating Rating Factor	64	L.3	2.06-C-109	153

Table 1 - WSBIS Item Numbers by Sequence

WSBIS Item No.	WSBIS Item Name	NBI Item No.	NTI Item No.	Page No.	WSBIM sequence
1554	Inventory Rating Method	65	L.1	2.06-C-109	154
1555	Inventory Rating Tons	66	-	2.06-C-109	155
1556	Inventory Rating Factor	66	-	2.06-C-109	156
1560	Posted Load – Gross	-	L.5	2.06-C-116	175
1561	Posted Load – Axle	-	L.6	2.06-C-117	176
1562	Posted Load – Type 3	-	L.7	2.06-C-117	177
1563	Posted Load – Type 3S2	-	L.8	2.06-C-117	178
1564	Posted Load – Type 3-3	-	L.9	2.06-C-117	179
1585	Border Bridge State Code	98A	L.2	2.06-C-110	157
1588	Border Bridge Percent	98B	-	2.06-C-110	158
1590	Border Bridge Structure Identifier	99	-	2.06-C-110	159
1657	Structural Evaluation	67	-	2.06-C-18	9
1658	Deck Geometry	68	-	2.06-C-19	10
1659	Underclearances	69	-	2.06-C-22	11
1660	Operating Level	70	-	2.06-C-25	14
1661	Alignment	72	-	2.06-C-23	12
1662	Waterway	71	-	2.06-C-24	13
1663	Overall Deck Condition	58	-	2.06-C-28	16
1671	Superstructure Overall	59	-	2.06-C-29	17
1676	Substructure Condition	60	-	2.06-C-30	19
1677	Channel Protection	61	-	2.06-C-31	20
1678	Culvert	62	-	2.06-C-32	21
1679	Pier/Abutment Protection	111	-	2.06-C-34	22
1680	Scour	113	-	2.06-C-35	23
1684	Bridge Rails	36A	-	2.06-C-38	27
1685	Transitions	36B	-	2.06-C-40	28
1686	Guardrails	36C	-	2.06-C-41	29
1687	Terminals	36D	-	2.06-C-41	30
1844	Proposed Improvement Work Type	75A	-	2.06-C-111	160
1846	Proposed Improvement Work Method	75B	-	2.06-C-111	161
1847	Proposed Improvement Length	76	-	2.06-C-112	162
1867	Proposed Improvement Structure Cost	94	-	2.06-C-112	165
1873	Proposed Improvement Roadway Cost	95	-	2.06-C-112	166
1861	Proposed Improvement Total Cost	96	-	2.06-C-113	168
1879	Proposed Improvement Estimate Year	97	-	2.06-C-113	169
1990	Routine Inspection Date	90	-		1.1
1990	Fracture Critical Inspection Date	93A	-		1.2
1990	Underwater Inspection Date	93B	-		1.3
1990	Special Feature Inspection Date	93C	-		1.4
1991	Routine Inspection Frequency	91	-		1.5
1991	Fracture Critical Inspection Frequency	92A	-		1.6
1991	Underwater Inspection Frequency	92B	-		1.7
1991	Special Feature Inspection Frequency	92C	-		1.8
1992	Routine Inspection Target Date	-	D.1	2.06-C-116	175
2000	Main Listing Flag	-	-	2.06-C-79	87
2009	Bridge Number	-	-	2.06-C-46	40
2010	Bridge Sort Number	-	-	2.06-C-47	41

Table 1 - WSBIS Item Numbers by Sequence

WSBIS Item No.	WSBIS Item Name	NBI Item No.	NTI Item No.	Page No.	WSBIM sequence
2023	City	-	-	2.06-C-49	45
2157	Crossing Description	-	-		122
2181	Section	-	-	2.06-C-50	48
2183	Township	-	-	2.06-C-50	49
2185	Range	-	-	2.06-C-50	50
2346	NBIS Length	-	-	2.06-C-62	66
2400	Program Manager	-	-	2.06-C-47	42
2401	Crossing Manager	-	-	2.06-C-94	123
2402	Crossing Description	-	-		123.5
2409	NTI Reportable Flag	-	-	2.06-C-90	114.5
2410	NBI Reportable Flag	-	-	2.06-C-90	115
2411	Bridge List	-	-	2.06-C-90	116
2436	Route Sequencer	-	-	2.06-C-81	93
2437	Bridge List Milepost Override	-	-	2.06-C-81	94
2438	Milepost Sequencer	-	-	2.06-C-81	95
2440	Milepost	-	-	2.06-C-81	92
2468	Directional Indicator	-	-	2.06-C-82	96
2470	Ahead/Back Indicator	-	-	2.06-C-82	97
2500	Minimum Vertical Clearance, Route Direction	-	-	2.06-C-94	119
2501	Maximum Vertical Clearance, Reverse Direction	-	-	2.06-C-94	120
2502	Minimum Vertical Clearance, Reverse Direction	-	-	2.06-C-94	121
2537	Alphabetic Span Type	-	-	2.06-C-98	128
2580	Reference Inspection Date	-	-	2.06-C-104	138
2581	Load Rating Date	-	-	2.06-C-104	139
2582	Rated By	-	-	2.06-C-104	140
2587	Type 3 Rating Factor	-	-	2.06-C-104	141
2588	Type 3S2 Rating Factor	-	-	2.06-C-104	142
2589	Type 3-3 Rating Factor	-	-	2.06-C-105	143
2590	Notional Rating Load (NRL) Rating Factor	-	-	2.06-C-105	144
2591	Single Unit 4 (SU4) Rating Factor	-	-	2.06-C-105	145
2592	Single Unit 5 (SU5) Rating Factor	-	-	2.06-C-105	146
2593	Single Unit 6 (SU6) Rating Factor	-	-	2.06-C-106	147
2594	Single Unit 7 (SU7) Rating Factor	-	-	2.06-C-106	148
2596	Overload 1 (OL-1) Rating Factor	-	-	2.06-C-106	149
2597	Overload 2 (OL-2) Rating Factor	-	-		150
2610	Asphalt Depth	-	-	2.06-C-37	24
2611	Design Curb Height	-	-	2.06-C-37	25
2612	Bridge Rail Height	-	-	2.06-C-37	26
2614	Subject to NBIS Flag	-	-	2.06-C-44	38
2615	Special Structures Flag	-	-	2.06-C-51	53
2642	Inspection Hours	-	-	2.06-C-16	6
2643	Inspection Overtime Hours	-	-	2.06-C-16	7
2646	Inspector Initials	-	-	2.06-C-16	3
2649	Inspector Certification Number	-	-	2.06-C-16	4
2654	Co-Inspector Initials	-	-	2.06-C-16	5
2675	Number of Utilities	-	-	2.06-C-29	18
2688	Revise Rating Flag	-	-	2.06-C-41	31

Table 1 - WSBIS Item Numbers by Sequence

WSBIS Item No.	WSBIS Item Name	NBI Item No.	NTI Item No.	Page No.	WSBIM sequence
2691	Photos Flag	-	-	2.06-C-41	32
2693	Soundings Flag	-	-	2.06-C-42	33
2694	Clearance Flag	-	-	2.06-C-42	34
2695	QA Flag	-	-	2.06-C-42	35
2710	Sufficiency Rating	-	-	2.06-C-42	36
2711	Structurally Deficient/Functionally Obsolete	-	-	2.06-C-43	37
2853	Proposed Improvement Roadway Width	-	-	2.06-C-112	163
2860	Proposed Improvement Cost Per SF of Deck	-	-	2.06-C-112	164
2870	Proposed Improvement Eng. and Misc. Cost	-	-	2.06-C-112	167
2900	Program Manager Oversight	-	-	2.06-C-16	8
2920	Report Type	-	-	2.06-C-15	1
2921	Inspection Type	-	-	2.06-C-15	2

Coding Guide Instructions

1. Throughout this appendix, each item heading potentially has two parts. The text above the line is the WSBIS item number and name. The equivalent FHWA item number and name (if they exist) are below the line.
2. With the exception of WSBIS Item 1435 – Route Number, WSBIS does not record leading zeroes. When leading zeroes are required for FHWA items, they are added in the translation for the NBI submittal.
3. For any NBI or NTI item, where WSBIS codes differ from the NBI or NTI codes, the WSBIS code will be automatically translated for the NBI and NTI data submittals.
4. The following is a discussion of On and Under records for bridges.

   Each bridge has data elements related to the structure. This data describes the bridge itself, including the structure type, quantities and dimensions, location, etc.

   In addition, each bridge has data elements related to the roadway associated with the bridge. This data describes the roadway that is either on or under the structure, including route number, highway classifications, vertical and horizontal clearances, etc. This data is called a crossing record. A bridge will have either one or two National Bridge Inventory (NBI) reportable crossing records.

   A bridge that carries vehicular traffic will have an On crossing record. This On record exists for any public roadway on the bridge, whether it is a state route or a local agency route.

   A bridge that crosses a state route roadway, regardless of what is on the bridge, will have an Under crossing record in the Bridge Preservation Office (BPO) database. (A local agency may or may not have an Under crossing record for a state owned bridge that crosses a local route. That record would reside in the Local Programs database, not in the BPO database.)

   For crossing records, a flag known as the Main Listing or Secondary Listing is used. All structure data elements are related to the Main Listing. A Secondary Listing, if it exists, is reported to the NBI in a record separate from the structure record. For state owned structures, Secondary Listings are coded by the BPO Information Group, and are displayed in the BridgeWorks application in Inventory Management mode.

   The Structural Inventory and Appraisal (SI&A) sheet will display the data relevant to the structure and to the Main Listing. If a Secondary Listing exists, a second SI&A sheet will display only the data relevant to that crossing record.

   State owned bridges that meet the NBIS definition, and are located over a state route, are reported to the NBI by BPO. This includes all the structural and inspection data, as well as the crossing record for the roadway on and the crossing record for the roadway under.

   Local agency owned bridges that meet the NBIS definition, and are located over a state route, are reported to the NBI. The structural and inspection data, and the crossing record for the roadway on the bridge, are reported by the local agency. The crossing record for the roadway under the bridge is reported by BPO.

   Bridges that do not meet the NBIS definition, but are located over a state route, are reported to the NBI but with a truncated amount of structural data, no inspection data, and the crossing record for the roadway under.

Examples:

Bridge 90/327 Schoessler Rd Over I-90 – This bridge has an On crossing record for Shoessler Rd (the Main Listing) and an Under crossing record for I-90 (the Secondary Listing). Both these records are reported to the NBI.

Bridge 90/531N I-90 Over Abbott Rd – This bridge has an On crossing record for I-90 (the Main Listing). There is not an Under crossing record for Abbott Rd. in the BPO database. The On crossing record is reported to the NBI.

Bridge 90/564P Pedestrian Br Over I-90 – This bridge has an Under crossing record for I-90 (the Main Listing). This crossing record is reported to the NBI.

Bridge 90/179.25 Schnebly Coulee – This bridge, a short span, has an On crossing record for I-90 (the Main Listing). This record is not reported to the NBI because short span bridges are not NBIS bridges. WSDOT maintains a crossing record by BPO policy.

Pedestrian and railroad bridges over routes carrying public highways are inventoried in WSBIS primarily to manage restrictions to roadway traffic imposed by these structures. WSBIS maintains less data for these structures, as compared to bridges carrying public highways themselves. Table 2 provides a listing of the WSBIS fields maintained for these structures.

Table 2 - WSBIS Items Coded for Pedestrian, Railroad, and Utility Bridges Over Highways[1]

WSBIS Item Name	WSBIS Item No.	NBI Item No.	WSBIS Item Name	WSBIS Item No.	NBI Item No.
Structure Identifier	1001	8	Horizontal Clearance Reverse Dir	1495	47
Location	1156	9	Max Vertical Clearance Route Dir	1499	10
Latitude	1188	16	Detour Length	1413	19
Longitude	1196	17	Main Span Material	1532	43A
County Code	1021	3	Main Span Design	1533	43B
Features Intersected	1232	6A	Service On	1544	42A
Facilities Carried	1256	7	Service Under	1545	42B
FIPS Place Code	1276	4	Main Listing Flag	2000	-
Toll	1285	20	Bridge Number	2009	-
Parallel Structure	1288	101	City	2023	-
Temporary Structure	1289	103	Bridge Name	2132	-
Year Built	1332	27	Section	2181	-
Bridge Length	1340	49	Township	2183	-
Maximum Span Length	1348	48	Range	2185	-
Lanes On	1352	28A	Program Manager	2400	-
Lanes Under	1354	28B	Crossing Manager	2401	-
On/Under	1432	5A	Milepost	2440	-
Highway Class	1433	5B	Min Vert Clr, Route Direction	2500	-
Service Level	1434	5C	Max Vert Clr, Reverse Direction	2501	-
Route Number	1435	5D	Min Vert Clr, Reverse Direction	2502	-
ADT On Inventory Route	1445	29	Subject to NBIS Flag	2614	-
Truck ADT PCT	1451	109	Photos Flag	2691	-
ADT Year	1453	30	Clearance Flag	2694	-
LRS Route	1467	13A	Report Type	2920	-
LRS Sub Route	1477	13B	Inspection Hours	2642	-
LRS Milepost	1469	11	Inspection OT Hours	2643	-
National Highway System	1483	104	Inspector Initials	2646	-
Base Highway Network	1484	12	Inspector Cert No.	2649	-
Strahnet	1485	100	Co-Inspector Initials	2654	-
Fed Funct Class	1487	26			
National Truck Net	1489	110			
Lane Use Direction	1490	102			
Horizontal Clearance Route Dir	1491	47			

Notes:

1. These structures are managed as Main Listing Under Records in WSBIS.

5. The following is a discussion of On and Under records for tunnels.

   Tunnels do not have On and Under records as reported to the NTI. Within WSBIS, all tunnels are coded as Main Listing Under records. The National Tunnel Inventory (NTI) does not consider routes above a tunnel, and only one tunnel record is ever reported to the NTI and maintained in WSBIS.

Table 3 - WSBIS Items Coded for NTI Records

WSBIS Item Name	WSBIS Item No.	NTI Item No.
Tunnel Number	1001	I.1
Owner	1019	C.1
County Code	1021	I.4
Urban Code	1022	C.8
Bridge Name	1132	I.2
Location (Main Listings)	1156	-
Tunnel Portal's Latitude	1188	I.13
Tunnel Portal's Longitude	1196	I.14
Feature Intersected	1232	-
Facility Carried	1256	I.10
Highway Agency District	1274	I.6
Place Code	1276	I.5
Toll	1285	C.4
Operator	1286	C.2
Historical Significance - NRHP	1292	-
Tunnel Load Posting Status	1293	L.4
Year Built	1332	A.1
Year Rehabilitated	1336	A.2
Tunnel Length	1349	G.1
Total Number of Lanes	1354	A.3
Roadway Width, Curb-to-Curb	1356	G.3
Left Sidewalk Width	1364	G.4
Right Sidewalk Width	1367	G.5
Min Vert Clr over Tunnel Rdwy	1401	G.2
Height Restriction	1402	L.10
Hazardous Material Restriction	1408	L.11
Other Restrictions	1409	L.12
Detour Length	1413	A.7
Inventory Route, On/Under	1433	-
Route Type	1433	I.9
Route Number	1435	I.7
Route Direction	1436	I.8
Average Daily Traffic	1445	A.4
Average Daily Truck Traffic	1451	A.5
Year of Average Daily Traffic	1453	A.6
LRS Route ID	1467	I.11
LRS Mile Point	1469	I.12
NHS Designation	1483	C.5
STRAHNET Designation	1485	C.6
Functional Classification	1487	C.7
Direction of Traffic	1490	C.3
Max. Vert. Clearance, Route Dir.	1499	-
Number of Bores	1510	S.1
Tunnel Shape	1511	S.2
Portal Shapes	1512	S.3
Ground Conditions	1513	S.4
Complex	1514	S.5

WSBIS Item Name	WSBIS Item No.	NTI Item No.
Service in Tunnel	1543	A.8
Operating Load Rating Factor	1553	L.3
Load Rating Method	1554	L.1
Inventory Load Rating Factor	1556	L.2
Posting Load – Gross	1560	L.5
Posting Load – Axle	1561	L.6
Posting Load – Type 3	1562	L.7
Posting Load – Type 3S2	1563	L.8
Posting Load – Type 3-3	1564	L.9
Routine Inspection Date	1990	D.2
Routine Inspection Frequency	1991	D.3
Routine Inspection Target Date	1992	D.1
Bridge Number	2009	-
Bridge Sort Number	2010	-
City	2023	-
Section	2181	-
Township	2183	-
Range	2185	-
Program Manager	2400	-
Milepost	2440	-
Min. Vert Clearance. Route Dir.	2500	-
Max. Vert. Clearance, Rev. Dir.	2501	-
Min. Vert. Clearance, Rev. Dir.	2502	-
Alphabetic Span Type	2537	-
Reference Inspection Date	2580	-
Load Rating Date	2581	-
Rated By	2582	-
Type 3 Rating Factor	2587	-
Type 3S2 Rating Factor	2588	-
Type 3-3 Rating Factor	2589	-
NRL Rating Factor	2590	-
SU4 Rating Factor	2591	-
SU5 Rating Factor	2592	-
SU6 Rating Factor	2593	-
SU7 Rating Factor	2594	-
OL-1 Rating Factor	2595	-
OL-2 Rating Factor	2596	-
Special Structures Flag	2615	-
Inspection Hours	2642	-
Inspection Overtime Hours	2643	-
Inspector Initials	2646	-
Co-Inspector Initials	2654	-
Revise Rating Flag	2688	-
Photos Flag	2691	-
Clearance Flag	2694	-
QA Flag	2695	-

Report Types

WSBIS Items 1990, 1991, and 2920 – Report Type

WSBIS Item 2921 – Inspection Type

Table 2920 - Report Types and Inspection Types

Report Type	Inspection Type Code	Inspection Type	NBI Item		NTI Item	
			Insp. Date	Insp. Freq.	Insp. Date	Insp. Freq.
Routine[1]	N/A		90	91	D.2	D.3
Fracture Critical[1]	N/A		93A	92A	-	-
Underwater[1]	N/A		93B	92B	-	-
Special Feature[1]	1	Movable	93C	92C	-	-
	2	Floating	93C	92C	-	-
	3	Suspension	93C	92C	-	-
	4	Redundant Pin and Hanger	93C	92C	-	-
	5	Segmental	93C	92C	-	-
	6	Ferry Terminal	93C	92C	-	-
	7	High Strength Steel	93C	92C	-	-
	8	Structure with Temporary Support	93C	92C	-	-
	9	Cable Stayed	93C	92C	-	-
	0	Other	93C	92C	-	-
Interim	-		-	-	D.6	-
UW Interim	-		-	-	-	-
Equipment	-		-	-	-	-
Damage	A	Overheight	-	-	D.5	-
	B	Lateral Damage to Vertical Member	-	-	D.5	-
	E	Flood	-	-	D.5	-
	G	Earthquake	-	-	D.5	-
	H	Bridge Rail	-	-	D.5	-
	O	Other	-	-	D.5	-
	S	Reported by Others - Overheight	-	-	D.5	-
	T	Reported by Others - Lateral	-	-	D.5	-
	U	Reported by Others - Bridge Rail	-	-	D.5	-
Safety	-		-	-	-	-
Short Span	-		-	-	-	-
2 Man UBIT	-		-	-	-	-
In-Depth	-		-	-	D.4	-
Inventory	-		-	-	-	-
Geometric	-		-	-	-	-
Feature	-		-	-	-	-
Informational	-		-	-	-	-

1. These report types are used only for structures subject to the NBIS or NTIS. If a structure does not meet this criteria, another report type must be used (usually Short Span or Safety report types). Refer to Chapter 3 for more detailed descriptions of the Report Types.

WSBIS Item 2646 – Inspector Initials

(Cannot be null.)

These are the initials of the team leader at the bridge site performing the inspection for the designated report type.

WSBIS Item 2649 – Inspector Certification Number

(Cannot be null.)

This is the certification number of the team leader.

WSBIS Item 2654 – Co-Inspector Initials

(May be null only for Damage, Informational and Inventory report types.)

These are the initials of the individual who assisted the team leader in performing the inspection for the designated report type.

WSBIS Item 2642 – Inspection Hours

(Null only for Informational and Inventory report types.)

This is the total number of inspection hours (to the nearest half hour), excepting overtime hours, that the inspection team spent on the bridge while performing an inspection of the designated report type.

WSBIS Item 2643 – Inspection Overtime Hours

(Null unless overtime hours utilized during inspection.)

This is the total number of overtime inspection hours (to the nearest half hour) that the inspection team spent on the bridge while performing an inspection of the designated report type.

WSBIS Item 2900 – Program Manager Oversight

The Program Manager Oversight information is made up of the following three fields:

Late Inspection Explanation

For any NBI or NTI reportable inspection type, when an inspection is, or is to be, performed later than the calculated month due, an explanation must be provided for the delinquency.

Program Manager Response Date

Enter the date of the Program Manager's response to the Late Inspection Explanation.

Program Manager Approval

Enter a Y – Approved or N – Disapproved to indicate the Program Manager's response.

NBI

Adequacy Appraisals

WSBIS Items 1657, 1658, 1659, 1661, and 1662

FHWA Items 67, 68, 69, 71, and 72

The items in the appraisal section are used to evaluate a bridge in relation to the level of service which it provides on the highway system of which it is a part. The structure will be compared to a new one which is built to current standards for that particular type of road as further defined in this section except for WSBIS Item 1661 – Approach Roadway Alignment. See WSBIS Item 1661 for special criteria for rating that item.

WSBIS Items 1657, 1658, 1659, 1661, and 1662 will be coded with a 1-digit code that indicates the appraisal rating for the item. The ratings and codes are as follows:

Table 4 - NBI Adequacy Appraisal Ratings

WSBIS Code	NBI Code	Description
9	N	Not applicable
8	9	Superior to present desirable criteria
8	8	Equal to present desirable criteria
7	7	Better than present minimum criteria
6	6	Equal to present minimum criteria
5	5	Better than minimum tolerable limits
4	4	Meets minimum tolerable limits to be left in place as is
3	3	Basically intolerable requiring high priority corrective action
2	2	Basically intolerable requiring high priority replacement
1	1	This value of rating code not used
0	0	Bridge closed

WSBIS Items 1657, 1658, 1659 are calculated automatically based on other coded items.

Completed bridges not yet opened to traffic, if rated, shall be appraised as if open to traffic. Design values, for example ADT, shall be used for the evaluation. The data provided will include a code of G for WSBIS Item 1293 – Structure Open, Posted, or Closed to Traffic.

NBI Commentary:

WSBIS uses the 9 code to indicate “Not applicable,” which is translated to N when reported to the NBI. WSBIS uses code 8 for “Superior or equal to present desirable criteria,” which is a combination of NBI codes 8 and 9. (WSBIS does not submit a code 9 to the NBI.)

WSBIS Item 1657 Structural Evaluation

FHWA Item 67 Structural Evaluation

This item is calculated automatically and cannot be edited.

Structural Evaluation rates the adequacy of the structure's condition, taking into account any major structural deficiencies. This rating is based on the overall condition of the superstructure, substructure, the inventory rating, and the ADT.

Table 1657 explains how the inventory rating and Proposed Improvements may further lower this code. The code for this item is no higher than the lowest of the condition codes for Superstructure Overall, Substructure Condition, or Culvert Condition.

Table 1657 - Structural Adequacy Appraisal Rating

Inventory Rating HS Truck (Tons)			Structural Adequacy Appraisal Rating Code
ADT 0-500	ADT 501-5000	ADT >5000	
>36	>36	>36	9
36	36	36	8
31	31	31	7
23	25	27	6
18	20	22	5
12	14	18	4
Inventory rating less than value in rating code of 4 and requiring corrective action.			3
Inventory rating is less than above and bridge requires replacement (WSBIS Item 1844, Proposed Improvement Work Type is coded 31 or 32).			2
Bridge is closed and requires replacement.			0

NBI Commentary:

The use of the Proposed Improvement Work Type code in the calculation is not documented in the FHWA Coding Guide.

WSBIS Item 1658 – Deck Geometry

FHWA Item 68 – Deck Geometry

This item is calculated automatically and cannot be edited.

The level of service provided by the bridge is evaluated with respect to the highway system of which it is a part. This appraisal is based on the number of traffic lanes, the curb-to-curb width, the minimum vertical clearance over the bridge deck, the ADT, and the federal functional classification.

The following tables explain how the values are determined with respect to the highway system of which the bridge is a part. The lowest code determined from the tables is used.

Use this guide to determine which table to use.

Table 1658a - Deck Geometry Guide to Cases

Direction of Traffic	Number of Lanes	Curb to Curb Width	Table to Use
2 way non-interstate	3+		Table 1658d
2 way non-interstate	2		Table 1658b
2 way non-interstate	1	< 16’	Table 1658c
2 way non-interstate	1	≥16’	Table 1658b
1 way non-interstate	1		Table 1658b
1 way non-interstate	2 or more		Table 1658d
Ramp	any		Table 1658e
1 way interstate	any		Table 1658d
2 way interstate	any		Table 1658d

For all bridges with a vertical clearance restriction over the deck, also use Table WSBIS-1658f. Use whichever rating code is lower.

Table 1658b - Deck Geometry Appraisal Rating Case 1

Curb-to-Curb Bridge Roadway Width						Deck Geometry Appraisal Rating Code
ADT 0-100	ADT 101-400	ADT 401-1000	ADT 1-2k	ADT 2-5k	ADT >5k	
not applicable						9
≥32	≥36	≥40	≥44	≥44	≥44	8
28	32	36	40	44	44	7
24	28	30	34	40	44	6
20	24	26	28	34	38	5
18	20	22	24	28	32(28)[2]	4
16	18	20	22	26	30(26)[2]	3
Bridge is open and has a width less than required for a rating code of 3 and bridge is open.						2
Bridge is closed.						0

Notes:

1. Use the lower rating code for roadway widths between those shown.
2. For structures longer than 200 feet, use the values shown in parentheses.

Table 1658c - Deck Geometry Appraisal Rating Case 2

Curb-to-Curb Bridge Roadway Width		Deck Geometry Appraisal Rating Code
ADT 0-100	ADT >100	
not applicable		9
<16	-	8
15	-	7
14	-	6
13	-	5
12	-	4
11	<16	3
Bridge is open and has a width less than required for a rating code of 3.		2
Bridge is closed.		0

Note:
Use the lower rating code for roadway widths between those shown.

Table 1658d - Deck Geometry Appraisal Rating Case 3

Curb-to-Curb Bridge Roadway Width - 2 or More Lanes in Each Direction				Deck Geometry Appraisal Rating Code
Number of Lanes (N) (Interstate)		Number of Lanes (N) (Other Roadways)		
2 Lanes	> 2 Lanes	2 Lanes	> 2 Lanes	
not applicable				9
≥ 42	≥ 12N + 24	≥ 42	≥ 12N + 18	8
40	12N + 20	38	12N + 15	7
38	12N + 16	36	12N + 12	6
36	12N + 14	33	11N + 10	5
34 (29)[2]	11N + 12	30	11N + 6	4
	(11N + 7)[2]			
33 (28)[2]	11N + 11	27	11N + 5	3
	(11N + 6)[2]			
Bridge is open and has a width less than required for rating code of 3 and bridge open to traffic.				2
Bridge is closed.				0

Notes:

1. Use the lower rating code for roadway widths between those shown.
2. For structures longer than 200 feet, use the values shown in parentheses.

Table 1658e - Deck Geometry Appraisal Rating Case 4

Curb-to-Curb Ramp Bridge Roadway Width		Deck Geometry Appraisal Rating Code
1 Lane	> 1 Lane	
Not Applicable		9
≥ 26	≥ 12N + 12	8
24	12N + 10	7
22	12N + 8	6
20	12N + 6	5
18	12N + 4	4
16	12N + 2	3
Bridge is open and has deck width less than required for a rating code of 3.		2
Bridge is closed.		0

Note:
Use the lower rating code for roadway widths between those shown.

Table 1658f - Deck Geometry Appraisal Rating Case 5

Functional Class				Deck Geometry Appraisal Rating Code
Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	
Designated Routes[2]	Undesignated Routes[2]			
Minimum Vertical Clearance				
not applicable				9
≥ 17' - 0"	≥ 16' - 0"	≥ 16' - 6"	≥ 16' - 6"	8
16' - 9"	15' - 6"	15' - 6"	15' - 6"	7
16' - 6"	14' - 6"	14' - 6"	14' - 6"	6
15' - 8"	14' - 3"	14' - 3"	14' - 3"	5
15' - 0"	14' - 0"	14' - 0"	14' - 0"	4
Vertical clearance is less than value for rating of 4; corrective action is required.				3
Vertical clearance is less than value for rating of 4 and bridge requires replacement (WSBIS Item 1844 Proposed Improvement Work Type is coded 31 or 32).				2
Bridge is closed.				0

Notes:

1. Use the lower rating code for vertical clearances between those shown.
2. Use the first column (Designated Routes) for all routes except designated routes in urban areas where there is an alternative interstate or freeway facility with a minimum clearance of at least 16' - 0″. Use the second column (Undesignated Routes) for all undesignated interstate or freeway facilities.

WSBIS Item 1659 – Underclearances

FHWA Item 69 – Underclearances, Vertical and Horizontal

This item is calculated automatically and cannot be edited.

This appraisal is based on the vertical and lateral underclearances beneath the bridge as related to the federal functional classification of the roadway carried beneath the bridge. If the bridge is not over a highway or a railroad, the field will be set to 9.

Minimum vertical underclearance, minimum lateral underclearance on right, and minimum lateral underclearance on left are used to evaluate this item.

See the following tables for an explanation of how the values are calculated.

The functional classification used in the tables is for the route under the bridge. If no Under record exits, it is assumed that the route under the bridge is a major or minor collector or a local road for the purpose of using the tables.

Table 1659a - Vertical Underclearance Adequacy Appraisal Rating

Functional Class				Railroads	Underclearance Adequacy Appraisal Rating Code
Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals		
Designated Routes[2]	Undesignated Routes[2]				
Minimum Vertical Underclearance					
not applicable					9
≥ 17' - 0"	≥ 16' - 0"	≥ 16' - 6"	≥ 16' - 6"	≥ 23' - 0"	8
16' - 9"	15' - 6"	15' - 6"	15' - 6"	22' - 6"	7
16' - 6"	14' - 6"	14' - 6"	14' - 6"	22' - 0"	6
15' - 9"	14' - 3"	14' - 3"	14' - 3"	21' - 0"	5
15' - 0"	14' - 0"	14' - 0"	14' - 0"	20' - 0"	4
Vertical Clearance is less than value for rating of 4; corrective action is required.					3
Vertical clearance is less than value for rating of 4 and bridge requires replacement (WSBIS Item 1844 Proposed Improvement Work Type is coded 31 or 32).					2
Bridge closed.					0

Notes:

1. Use the lower rating code for vertical clearances between those shown.
2. Use the first column (Designated Routes) for all routes except designated routes in urban areas where there is an alternative interstate or freeway facility with a minimum clearance of at least 16' - 0″. Use the second column (Undesignated Routes) for all undesignated interstate or freeway facilities.

Table 1659b - Lateral Underclearance Adequacy Appraisal Rating

Functional Class							Underclearance Adequacy Appraisal Rating Code
1-Way Traffic				2-Way Traffic		Railroads	
Principal Arterials (Interstate, etc.)				Other Principal and Minor Arterials	Major and Minor Collectors and Locals		
Main Line		Ramp					
Lt.	Rt.	Lt.	Rt.				
Minimum Lateral Underclearance							
not applicable							9
≥ 30	≥ 30	≥ 4	≥ 10	≥ 30	≥ 12	≥ 20	8
18	21	3	9	21	11	17	7
6	12	2	8	12	10	14	6
5	11	2	6	10	8	11	5
4	10	2	4	8	6	8	4
Underclearance is less than value for rating of 4; corrective action is required.							3
Underclearance is less than value for rating of 4 and bridge requires replacement (WSBIS Item 1844 Proposed Improvement Work Type is coded 31 or 32).							2
Bridge is closed.							0

Notes:
1. Use the lower rating code for lateral clearances between those shown.
2. Use the value from thew Right Ramp column to determine the rating code when acceleration or deceleration lanes or ramps are provided under 2-way traffic.

WSBIS Item 1661 – Alignment

FHWA Item 72 – Approach Roadway Alignment

(Cannot be null.)

Code the rating based on the adequacy of the approach roadway alignment. This item identifies those bridges which do not function properly or adequately due to the alignment of the approaches. It is not intended that the approach roadway alignment be compared to current standards but rather to the existing highway alignment. This concept differs from other appraisal evaluations. The establishment of set criteria to be used at all bridge sites is not appropriate for this item. The basic criteria is how the alignment of the roadway approaches to the bridge relate to the general highway alignment for the section of highway the bridge is on.

Speed reductions necessary because of structure width and not alignment shall not be considered in evaluating this item.

Table 1661 - Approach Roadway Alignment Appraisal Rating

WSBIS Code	Description
9	Not applicable (non-vehicular traffic on the structure).
8	No reduction in speed required for vehicle as it approaches the bridge.
6	Minor reduction in speed required for vehicle (less than 10 mph) as it approaches the bridge.
3	Substantial reduction in the speed of vehicle (10 mph or greater) as it approaches the bridge.

WSBIS Item 1662 – Waterway

FHWA Item 71 – Waterway Adequacy

(Cannot be null.)

This item appraises the waterway opening with respect to passage of flow through the bridge. Site conditions may warrant somewhat higher or lower ratings than indicated by the table (e.g., flooding of an urban area due to a restricted bridge opening).

Where overtopping frequency information is available, the descriptions given in the table for chance of overtopping mean the following:

Remote – greater than 100 years
Slight – 11 to 100 years
Occasional – 3 to 10 years
Frequent – less than 3 years

Adjectives describing traffic delays mean the following:

Insignificant – Minor inconvenience. Highway passable within hours.
Significant – Traffic delays of up to several days.
Severe – Long term delays to traffic.

Table 1662 - Waterway Adequacy Appraisal Rating

WSBIS Item 1487 – Functional Class			Description
01, 11, 12	02, 06, 07, 14, 16, 17	08, 09, 18, 19	
Waterway Adequacy Appraisal Rating			
9	9	9	Bridge not over a waterway.
8	8	8	Bridge deck and roadway approaches above flood water elevations. Remote chance of overtopping OR bridge deck above roadway approaches. Slight chance of overtopping roadway approaches.
6	6	7	Slight chance of overtopping bridge deck and roadway approaches.
4	5	6	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with insignificant traffic delays.
3	4	5	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with significant traffic delays.
2	3	4	Occasional overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	3	Frequent overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	2	Occasional or frequent overtopping of bridge deck and roadway approaches with severe traffic delays.
0	0	0	Bridge closed.

BPO Specific Instructions:

BPO inspection staff inspecting bridges with records maintained by BPO do not code this field, which is maintained by the BPO Scour Engineer. If an inspector has information relevant to this code, that information should be brought to the attention of the Scour Engineer and entered into the notes for this field under his/her direction.

NBI Commentary:

WSBIS uses the 9 code to indicate “Not applicable,” which is translated to N when reported to the NBI.

WSBIS Item 1660 – Operating Level

FHWA Item 70 – Bridge Posting

(Cannot be null.)

The National Bridge Inspection Standards require the posting of load limits if the operating rating factor (RF) for any of the legal load configurations in the State is less than 1 based on the Load Factor Method (LFR) or the Allowable Stress Method (ASR); and less than 1 based on the Load and Resistance Factor Method. If the load capacity is such that posting is required, this item shall be coded 4 or less. If no posting is required at the operating rating, this item shall be coded 5.

This item evaluates the load capacity of a bridge in comparison to the State legal loads.

Although posting a bridge for load-carrying capacity is required only when the RF for any of the legal loads is less than 1, highway agencies may choose to post at a lower level. This posting practice may appear to produce conflicting coding when WSBIS Item 1293 – Structure Open, Posted or Closed to Traffic is coded to show the bridge as actually posted at the site and WSBIS Item 1660 – Bridge Posting is coded as bridge posting is not required. Since different criteria are used for coding these 2 items, this coding is acceptable and correct.

The use or presence of a temporary bridge affects the coding. The actual operating rating of the temporary bridge should be used to determine this item. However, the highway agency may choose to post at a lower level. This also applies to bridges shored up or repaired on a temporary basis.

The coding shall be based on the lowest rating factor of the legal loads.

The following are Washington State maximum legal load configurations and tonnages:

Table 1660a - Legal Loads

Configuration	Tonnage
AASHTO Type 3	25 Tons
AASHTO Type 3-2	36 Tons
AASHTO Type 3-3	40 Tons
SU4	27 Tons
SU5	31 Tons
SU6	34.7 Tons
SU7	38.7 Tons

See the *Bridge Design Manual* M 23-50 Chapter 13 for more information.

For WSDOT owned structures, the BPO Load Rating Engineer shall make the change to the code, and not the field inspector.

Table 1660b - Operating Level Code

WSBIS Code	Operating Rating Factors based on LFR or ASR Methods or Rating Factors based on LRFR
5	RF ≥ 1
4	1 < RF ≥ 0.9
3	0.9 < RF ≥ 0.8
2	0.8 < RF ≥ 0.7
1	0.7 < RF ≥ 0.6
0	0.6 < RF
N	No rating analysis performed (bridge does not carry traffic)

NBI Commentary:

WSDOT added code N to address structures which do not carry traffic.

Text supplemented to explicitly list Washington State legal loads and tonnages.

WSBIS Item 1293 – Open, Closed or Posted

FHWA Item 41 – Structure Open, Posted, or Closed to Traffic

NTI Item L.4 – Tunnel Load Posting Status

(Cannot be null if bridge has an On record, must be null if the bridge does not have an On record.)

This item provides information about the actual operational status of a structure. One of the following codes shall be used:

Table 1293 - Open, Closed, Posted Code

WSBIS Code	Description
A	Open, no restriction
B	Open, posting recommended but not legally implemented (all signs not in place or not correctly implemented)
D	Open, would be posted or closed except for temporary shoring, etc., to allow for unrestricted traffic
E	Open, temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation
G	New structure not yet open to traffic
K	Structure closed to all traffic
P	Posted for load (may include other restrictions such as temporary structures which are load posted)
R	Posted for other load-capacity restriction (speed, number of vehicles on structure, etc.)

Condition Ratings

WSBIS Items 1663, 1671, 1676, 1677, and 1678

FHWA Items 58, 59, 60, 61, and 62

In order to promote uniformity between bridge inspectors, these guidelines will be used to rate and code WSBIS Items 1663, 1671, 1676, 1677, and 1678.

Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. Evaluation is for the materials related, physical condition of the deck, superstructure, and substructure components of a bridge. The condition evaluation of channels and channel protection and culverts is also included. Condition codes are properly used when they provide an overall characterization of the general condition of the entire component being rated. Conversely, they are improperly used if they attempt to describe localized or nominally occurring instances of deterioration or disrepair. Correct assignment of a condition code must, therefore, consider both the severity of the deterioration or disrepair and the extent to which it is widespread throughout the component being rated.

The load-carrying capacity will not be used in evaluating condition items. The fact that a bridge was designed for less than current legal loads and may be posted shall have no influence upon condition ratings.

Portions of bridges that are being supported or strengthened by temporary members will be rated based on their actual condition; that is, the temporary members are not considered in the rating of the item. (See WSBIS Item 1289 – Temporary Structure Designation for the definition of a temporary bridge.)

Completed bridges not yet opened to traffic, if rated, shall be coded as if open to traffic.

The following general condition ratings shall be used as a guide in evaluating WSBIS Items 1663, 1671 and 1676:

Table 5 - Condition Rating

WSBIS Code	Description
9	Not applicable
8	Very good condition – no problems noted.
7	Good condition – some minor problems.
6	Satisfactory condition – structural elements show some minor deterioration.
5	Fair condition – all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
4	Poor condition – advanced section loss, deterioration, spalling or scour.
3	Serious condition – loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical condition – advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	"Imminent" failure condition – major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
0	Failed condition – out of service beyond corrective action.

NBI Commentary:

WSBIS uses the 9 code to indicate "Not applicable," which is translated to N when reported to the NBI. WSDOT uses condition code 8 for all cases where a bridge is in "Excellent" or "Very good" condition.

WSBIS Item 1663 – Deck

FHWA Item 58 – Deck

(Cannot be null.)

This item describes the overall condition rating of the deck. Rate and code the condition in accordance with the above general condition ratings.

The following structures shall be coded 9:

- Culverts
- Filled arch bridges
- Buried structures (bridges with fill depth greater than B/2, using B as defined in WSBIS Item 1340 Structure Length)

Bridges with fill depth less than B/2 shall be considered to have a deck and coded appropriately.

Deck condition ratings are also associated with deck BMS elements as shown in WSBIM Chapter 4. If the inspector determines a deck code should be different from that indicated in Chapter 4 guidance, an explanation for this difference should be noted in the inspection report.

Concrete decks should be inspected for cracking, scaling, spalling, leaching, chloride contamination, potholing, delamination, and full or partial depth failures. Steel grid decks should be inspected for broken welds, broken grids, section loss, and growth of filled grids from corrosion. Timber decks should be inspected for splitting, crushing, fastener failure, and deterioration from rot.

The condition of the wearing surface/protective system, joints, expansion devices, curbs, sidewalks, parapets, fascias, bridge rail, and scuppers shall not be considered in the overall deck evaluation. However, their condition should be noted on the inspection form under the appropriate BMS element note.

Decks integral with the superstructure will be rated as a deck only and not how they may influence the superstructure rating (for example, rigid frame, slab, deck girder or T-beam, voided slab, box girder, etc.). Similarly, the superstructure of an integral deck type bridge will not influence the deck rating.

Inspection report comments are required when the condition is coded 5 or less.

NBI Commentary:

This item has been modified to incorporate BMS deck element condition states into the coding criteria.

WSBIS Item 1671 – Superstructure

FHWA Item 59 – Superstructure

(Cannot be null.)

This item describes the physical condition of all structural members. Rate and code the condition in accordance with the previously described general condition ratings. Code 9 for culverts.

The structural members should be inspected for signs of distress which may include cracking, deterioration, section loss, and malfunction and misalignment of bearings.

The condition of bearings, joints, paint system, etc., shall not be included in this rating, except in extreme situations, but should be noted on the inspection form under the appropriate BMS element note.

On bridges where the deck is integral with the superstructure, the superstructure condition rating may be affected by the deck condition. The resultant superstructure condition rating may be lower than the deck condition rating where the girders have deteriorated or been damaged.

Fracture critical components should receive careful attention because failure could lead to collapse of a span or the bridge.

Inspection report comments are required when the condition is coded 5 or less.

WSBIS Item 2675 – Number of Utilities

(Null only when there is no On record associated with the bridge.)

This field indicates the number of franchise utilities attached to the bridge. Utilities include, but are not limited to, water pipes, sewer lines, telephone lines, power lines, and gas lines. Conduit for electricity used on the bridge is not considered a utility. A conduit cluster (e.g., a telephone cluster) is considered one utility. This field is not used to evaluate the condition of utilities on the bridge, only the number of utilities present. If more than nine utilities are attached to the bridge, code 9. If there are no utilities, code 0.

WSBIS Item 1676 – Substructure

FHWA Item 60 – Substructure

(Cannot be null.)

This item describes the physical condition of piers, abutments, piles, fenders, footings, or other components. Rate and code the condition in accordance with the previously described general condition ratings. Code 9 for culverts.

All substructure elements should be inspected for visible signs of distress including evidence of cracking, section loss, settlement, misalignment, scour, collision damage, and corrosion.

The substructure condition rating shall be made independent of the deck and superstructure.

Integral-abutment wingwalls to the first construction or expansion joint shall be included in the evaluation. For non-integral superstructure and substructure units, the substructure shall be considered as the portion below the bearings. For structures where the substructure and superstructure are integral, the substructure shall be considered as the portion below the superstructure.

In all cases, if WSBIS Item 1680 – Scour is 2 or less, WSBIS Item 1676 – Substructure shall be coded the same.

Inspection report comments are required when the condition is coded 5 or less.

NBI Commentary:

This item has been modified based on an April 27, 2001, FHWA memo regarding FHWA Items 60 and 113 (WSBIS Items 1676 and 1680). This memo is available at www.fhwa.dot.gov/engineering/hydraulics/policymemo/revguide.cfm.

WSBIS Item 1677 – Channel Protection

FHWA Item 61 – Channel and Channel Protection

(Cannot be null.)

This item describes the physical conditions associated with the flow of water through the bridge such as stream stability and the condition of the channel, riprap, slope protection, or stream control devices including spur dikes. The inspector should be particularly concerned with visible signs of excessive water velocity which may affect undermining of slope protection, erosion of banks, and realignment of the stream. Accumulation of drift and debris on the superstructure and substructure should be noted on the inspection form but not included in the condition rating.

Inspection report comments are required when the condition is coded 7 or less.

Note: A bridge with no scour potential (piles founded or on bedrock) can have a very low channel rating based on a threat to the approach fill. In this situation this code is the only way to flag the problem. Also note that roadway embankment erosion due to bridge or roadway runoff is NOT included in this field. These issues are addressed in the abutment BMS field.

Rate and code the condition in accordance with the following descriptive codes:

Table 1677 - Channel Protection Condition Rating

WSBIS Code	Description
9	Not applicable. Use when bridge is not over a waterway (channel).
8	There are no noticeable or noteworthy deficiencies. Banks are protected or well vegetated. River control devices such as spur dikes and embankment protection are not required or are in a stable condition.
7	Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift.
6	Bank is beginning to slump. River control devices and embankment protection have widespread minor damage. There is minor stream bed movement evident. Debris is restricting the channel slightly.
5	Bank protection is being eroded. River control devices and/or embankment have major damage. Trees and brush restrict the channel.
4	Bank and embankment protection is severely undermined. River control devices have severe damage. Large deposits of debris are in the channel.
3	Bank protection has failed. River control devices have been destroyed. Stream bed aggradation, degradation or lateral movement has changed the channel to now threaten the bridge and/or approach roadway.
2	The channel has changed to the extent the bridge is near a state of collapse.
1	Bridge closed because of channel failure. Corrective action may put back in light service.
0	Bridge closed because of channel failure. Replacement necessary.

WSBIS Item 1678 – Culvert

FHWA Item 62 – Culverts

(Cannot be null.)

This item evaluates the alignment, settlement, joints, structural condition, scour, and other items associated with culverts. The rating code is intended to be an overall condition evaluation of the culvert. Integral wingwalls to the first construction or expansion joint shall be included in the evaluation.

Inspection report comments are required when the condition is coded 5 or less.

Defining culverts:

- Culverts always carry water, with only a few exceptions. These exceptions may include ancillary structures, for utility passage, old cattle undercrossing or other purposes, where the type and scope of construction may more realistically be quantified as a culvert. Most will only be non-reportable short spans, but Regional Supervisors must be consulted on these exceptions.
- Water Detention Vaults shall be coded as culverts.
- Concrete Boxes (continuous 4-sided) with or without roadway fill that carry water are coded as culverts.
- Circular and arch shaped structures with fill and no defined abutment or approach are coded as culverts.
- For Culverts, code Deck, Superstructure and Substructure (WSBIS Items 1663, 1671, and 1676) as 9.
- Code Bridge Rails and Transitions (WSBIS Items 1684 and 1685) N if there is sufficient roadway fill that there is no attachment to the structure. Guardrails and Terminals (WSBIS Items 1686 and 1687) are to be coded 0 or 1 as appropriate.
- When inspecting culverts, document the depth of the fill on both ends of the culvert. For cases where there is a significant amount of fill compared to the span length of the culvert, or total length of culverts where there are multiple barrels, estimate and document the depth of fill.
- Three sided rigid frames with fill greater than B/2 are coded as culverts.
- Culverts with structure lengths greater than 20 feet are NBI reportable regardless of fill depth.
- Culverts with structure lengths less than or equal to 20 feet are inventoried and coded in accordance with short span inspection requirements.

Rate and code the condition in accordance with the following descriptive codes:

Table 1678a - Concrete Culvert Condition Rating

WSBIS Code	Description
9	Not applicable. Structure is not a culvert.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7	Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls or pipes.
6	Minor deterioration or initial disintegration, minor chloride contamination, minor cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls or pipes.
5	Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls or pipes.
4	Major deterioration (large spalls, heavy scaling, wide cracks, considerable efflorescence, or opened construction joint permitting loss of backfill). Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls or pipes.
3	Excessive deterioration (any condition described in Code 4 but which is excessive in scope). Severe movement or differential settlement of the segments, or loss of fill. Holes may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls or pipes.
2	Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic.
1	Culvert closed – corrective action may put back in light service.
0	Culvert closed – replacement necessary.

Table 1678b - Metal Culvert Condition Rating

WSBIS Code	Description
9	Not applicable. Structure is not a culvert.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift. Bolts are in good condition, in place and tight.
7	Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near wingwalls or pipes. Smooth, symmetrical curvature with superficial corrosion and no pitting. Bolts may have superficial corrosion, are in place and tight.
6	Smooth curvature, non-symmetrical shape, and significant corrosion or moderate pitting. Bolts may have significant corrosion and 10 percent of the bolts in a panel seam may be missing or loose. Local minor scouring at wingwalls or pipes.
5	Minor settlement or misalignment. Noticeable scouring or erosion at wingwalls or pipes. Significant distortion and deflection in one section. Significant corrosion or deep pitting. Bolts may have significant corrosion and 20 percent of the bolts in a panel seam may be missing or loose.
4	Considerable settlement or misalignment. Considerable scouring or erosion at wingwalls or pipes. Significant distortion and deflection throughout. Extensive corrosion or deep pitting. Bolts may have extensive corrosion and 30 percent of the bolts in a panel seam may be missing or loose.
3	Any condition described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Wingwalls nearly severed from culvert. Severe scour or erosion at wingwalls or pipes. Extreme distortion and deflection in one section. Extensive corrosion or deep pitting with scattered perforations. Bolts may have extensive corrosion and 40 percent of the bolts in a panel seam may be missing or loose.
2	Wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Extreme distortion and deflection throughout with extensive perforations due to corrosion. Bolts may have extensive corrosion and 50 percent of the bolts in a panel seam may be missing or loose.
1	Culvert closed – corrective action may put back in light service.
0	Culvert closed – replacement necessary.

Table 1678c - Timber Culvert Condition Rating

WSBIS Code	Description
9	Not applicable. Structure is not a culvert.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7	Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls, Insignificant decay with no structural loss.
6	Minor deterioration or decay. All primary structural elements are sound. Local minor scouring at curtain walls or wingwalls.
5	Moderate deterioration or decay. All primary structural elements are sound but have some section loss. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls or wingwalls.
4	Major deterioration or decay. Considerable scour or erosion at curtain walls or wingwalls. Advanced section loss or scour that affects the load capacity of the structure. Considerable settlement or misalignment.
3	Any condition described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls or wingwalls. Extensive deterioration or decay. Advanced section loss or scour that significantly affects the load capacity of the culvert.
2	Severe deterioration or decay. Wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls. Corrective action required to maintain traffic. Critical structural members have obvious vertical or horizontal movement affecting structural stability.
1	Culvert closed – corrective action may put back in light service.
0	Culvert closed – replacement necessary.

WSBIS Item 1679 – Pier/Abutment Protection

FHWA Item 111 – Pier or Abutment Protection (for Navigation)

(Cannot be null.)

If WSBIS Item 1386 – Navigation Control has been coded 1, use the codes 1 through 5 below to indicate the presence and adequacy of pier or abutment protection features such as fenders, dolphins, etc. The condition of the protection devices may be a factor in the overall evaluation of WSBIS Item 1676 – Substructure.

If WSBIS Item 1386 is coded 0, code N for this field.

Table 1679 - Pier/Abutment Protection Rating

WSBIS Code	NBI Code	Description
1	1	Navigation protection not required
2	2	In place and functioning
3	3	In place but in a deteriorated condition
4	4	In place but reevaluation of design suggested
5	5	None present but reevaluation suggested
N	null	Not applicable, not a navigable waterway

NBI Commentary:

WSDOT codes N where the NBI codes a blank. This field is translated in the NBI text file.

WSBIS Item 1680 – Scour

FHWA Item 113 – Scour Critical Bridges

(Cannot be null.)

Code as indicated below to identify the current status of the bridge regarding its vulnerability to scour:

Table 1680 - Scour Rating

WSBIS Code	Description
N	Bridge not over waterway.
U	Bridge with unknown foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during or immediately after a flood event (see HEC 23).
T	Bridge over tidal waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections. (Unknown foundations in tidal waters should be coded U.)
9	Bridge foundations (including piles) on dry land well above flood water elevations.
8	Bridge foundations determined to be stable for the assessed or calculated scour conditions. Scour is determined to be above top of footing (Example A) by: • assessment (e.g., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), or • calculation, or • installation of properly designed countermeasures (see HEC 23).
7	Countermeasures have been installed to mitigate an existing problem with scour and to reduce the risk of bridge failure during a flood event. Instructions contained in a plan of action have been implemented to reduce the risk to users from a bridge failure during or immediately after a flood event.
6	Scour calculation/evaluation has not been made.
5	Bridge foundations determined to be stable for assessed or calculated scour conditions. Scour is determined to be within the limits of footing or piles (Example B) by: • assessment (e.g., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), or • calculations, or • installation of properly designed countermeasures (see HEC 23).
4	Bridge foundations determined to be stable for assessed or calculated scour conditions; field review indicates action is required to protect exposed foundations (see HEC 23).
3	Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions: • Scour within limits of footing or piles (Example B) • Scour below spread-footing base or pile tips (Example C)
2	Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by: • a comparison of calculated scour and observed scour during the bridge inspection, or • an engineering evaluation of the observed scour condition reported by the bridge inspector in WSBIS Item 1676 – Substructure.
1	Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic. Failure is imminent based on: • a comparison of calculated and observed scour during the bridge inspection, or • an engineering evaluation of the observed scour condition reported by the bridge inspector in WSBIS Item 1676 – Substructure.
0	Bridge is scour critical. Bridge has failed and is closed to traffic.

These codes are generally determined based on scour analyses made by hydraulic, geotechnical, or structural engineers. However, bridge inspectors play a key role in determining selected scour codes:

- Scour code 4 can be determined by the bridge inspector regardless of any previous higher scour code, based on observed conditions.
- For scour codes of 2 or less, the WSBIS Item 1676 – Substructure code must have a matching code.

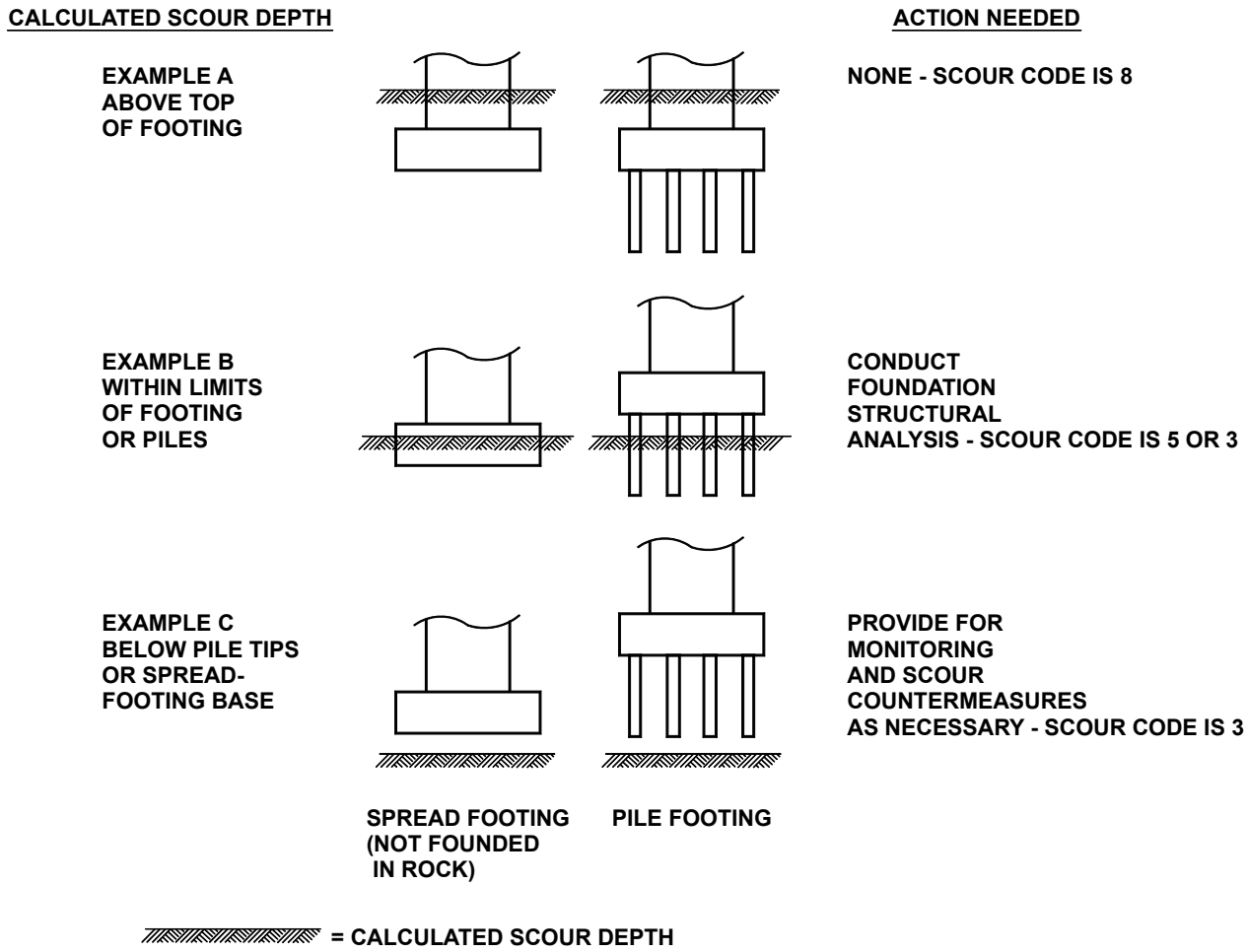


Figure WSBIS 1680

NBI Commentary:

This item has been modified based on an April 27, 2001 FHWA memo regarding FHWA Items 60 and 113 (WSBIS Items 1676 and 1680). This memo is available at www.fhwa.dot.gov/engineering/hydraulics/policymemo/revguide.cfm.

WSBIS Item 2610 – Asphalt Depth (XX.XX inches)

(Null only when there is no On record associated with the bridge.)

Code the average depth of asphalt in inches on the deck as observed from field measurements, or as determined from comparing the design curb height against the measured curb height from the top of asphalt. In cases where there is ballast, such as on timber decks, enter the full thickness of ballast and asphalt.

Code 0 when:

There is no asphalt on the deck.

When the structure does not have a deck, including when asphalt pavement is placed on fill over a culvert. In cases where there is ballast, such as on timber decks, enter the full thickness of ballast and asphalt.

WSBIS Item 2611 – Design Curb Height (XX.XX inches)

(Null only when there is no On record associated with the bridge.)

Code the curb height shown on current bridge plans in inches. Code 0 when there is no curb.

WSBIS Item 2612 – Bridge Rail Height (XX.XX inches)

(Null only when there is no On record associated with the bridge.)

Code the rail height as measured in the field, from the top of the rail system to the bridge deck.

WSBIS Items 1684, 1685, 1686, 1687 – Traffic Safety

FHWA 36 – Traffic Safety Features
(Cannot be null.)

Bridge inspection shall include the recording of information on traffic safety features so that the evaluation of their adequacy can be made.

Use the following codes for each of the four traffic safety segments:

Table 6 - Traffic Safety Feature Codes

WSBIS Code	Description
0	Inspected feature does not meet currently acceptable standards or a safety feature is required and none is provided.
1	Inspected feature meets currently acceptable standards.
N	Not applicable (structure does not carry traffic) or a safety feature is not required (see item description for requirements).

NBI Commentary:

WSDOT has applied state safety standards to determine how these fields are coded.

WSBIS Item 1684 – Bridge Rails

FHWA Item 36A – Traffic Safety Features, Bridge Railings

Bridge railings should be coded to reflect the current WSDOT standards. Refer to *Design Manual* M 22-01, Section 1610.04(3) Bridge Traffic Barriers.

Acceptable crash tested bridge rails fall into two general categories.

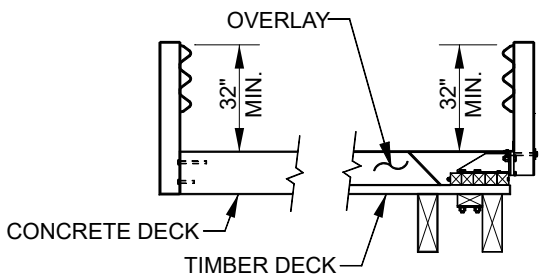
Thrie-beam Retrofit

- Thrie-beam mounted to baluster rail
- Steel truss and Thrie-beam
- Edge mounted Thrie-beam
- Thrie-beam mounted to steel posts on concrete deck
- Thrie-beam mounted to open girder

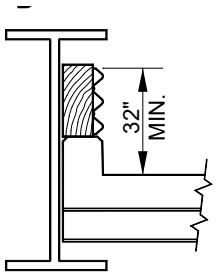
Concrete Rail

- New Jersey style rail
- F-shaped concrete rail
- Single slope concrete rail
- 32” vertical concrete parapet
- Type 7 concrete rail

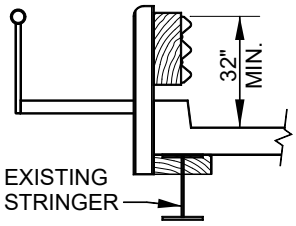
Bridge rails are coded as N when there is sufficient roadway fill that there is no attachment to the structure.



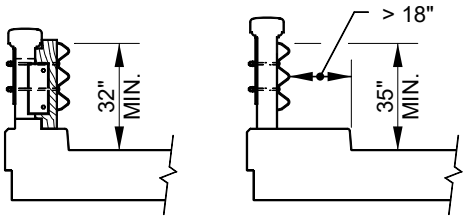
EDGE MOUNTED THRIEBEAM (Fig. a)



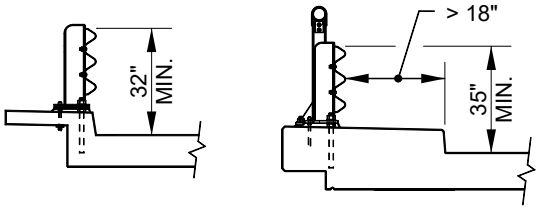
THRIE BEAM MOUNTED TO OPEN GIRDER (Fig. b)



STEEL TRUSS & THRIE BEAM (Fig. c)

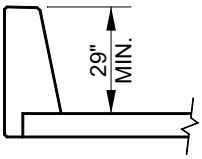


THRIE BEAM MOUNTED TO BALLUSTER RAIL (Fig. d)



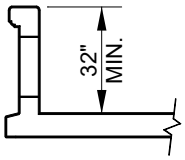
THRIE BEAM MOUNTED TO STEEL POSTS ON CONCRETE DECK (Fig. e)

THRIE BEAM RETROFIT



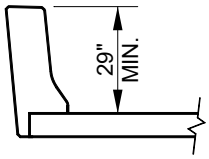
SINGLE SLOPE CONCRETE RAIL (Fig. a)

(NOTE: BARRIER IS ACCEPTABLE WITH ANY TYPE OF METAL RAIL MOUNTED TO IT)



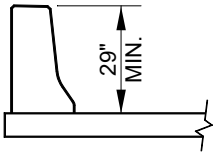
32" INCH VERTICAL CONCRETE PARAPET (Fig. b)

(NOTE: BARRIER IS ACCEPTABLE WITH ANY TYPE OF METAL RAIL MOUNTED TO IT)



F-SHAPE TYPE CONCRETE RAIL (Fig. c)

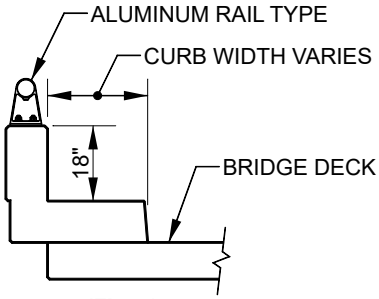
(NOTE: BARRIER IS ACCEPTABLE WITH ANY TYPE OF METAL RAIL MOUNTED TO IT)



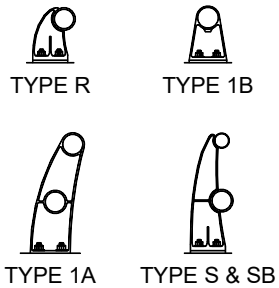
NEW JERSEY STYLE RAIL (Fig. d)

(NOTE: BARRIER IS ACCEPTABLE WITH ANY TYPE OF METAL RAIL MOUNTED TO IT)

CONCRETE RAIL



(Fig. a)



ALUMINUM RAIL TYPE	CURB WIDTH	
	9 INCHES OR LESS	GREATER THAN 9 INCHES
TYPE R, S, OR SB	CODE 1	CODE 1
TYPE 1B OR 1A	CODE 1	CODE 0

TYPE 7 BRIDGE RAIL

Figure WSBIS 1684

WSBIS Item 1685 – Transitions

FHWA Item 36B – Traffic Safety Features, Transitions

Transition details are shown in WSDOT Standard Plans Section C. Features that the inspector should note are:

- If guardrails are not required, the absence of transitions is automatically acceptable and coded as 1.
- Transitions must be nested (two layers). In most cases this will be Thriebeam. W-beam is allowed only when there is insufficient bridge rail height to accommodate the Thrie-beam transition, for example Type 7 bridge rail.
- Post spacing should decrease in the transition resulting in gradual stiffening as a vehicle moves along the transition from a flexible guardrail to the more rigid concrete bridge rail.
- Type III transitions (hollow steel post) have generally been retrofitted, but are only acceptable if they have been retrofitted with a block out less than or equal to 1' – 6" from rail to anchor. On oneway highways, the non-retrofitted posts are acceptable on the trailing edge. Unless further investigation shows that it meets current standards, this is the criteria for acceptance that will be used.
- Transitions are coded as N when there is sufficient roadway fill that there is no attachment to the structure.

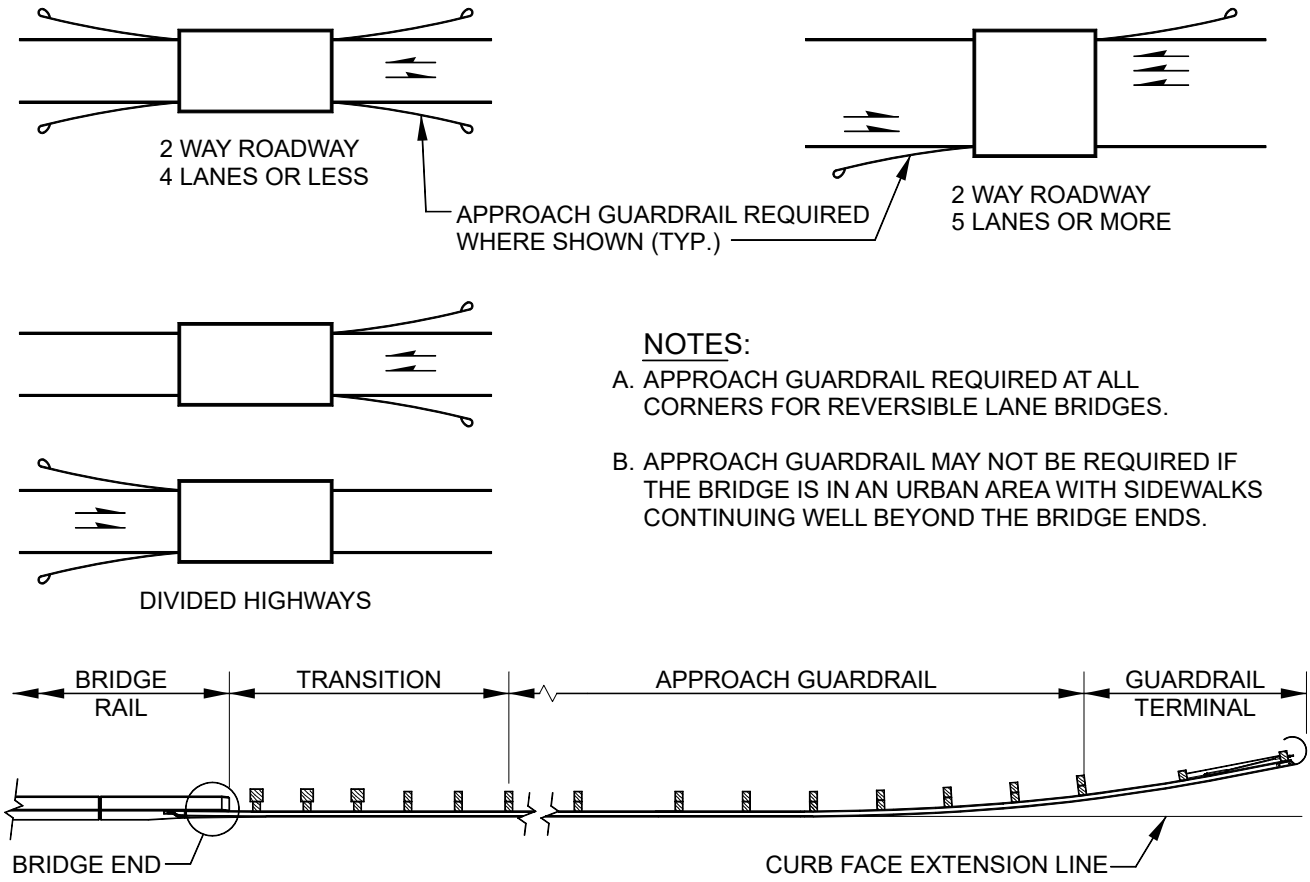


Figure WSBIS 1685

WSBIS Item 1686 – Guardrails

FHWA 36C – Traffic Safety Features, Approach Guardrail

W-beam and Thrie-beam are acceptable rail types. Details of these rails are shown in Standard Plans Section C. Features that the inspector should pay close attention to while inspecting the approach rail are:

- Rails are not necessarily required at all four corners of the bridge. Code Guardrails as 1 when not required.
- Posts should be 6″ x 8″ timber (nominal), or W6x9's, spaced at 6′ 3″ o.c. Nested Thrie-beam is also acceptable but requires lower post spacing.
- Guardrail height (from ground to top of W-beam) should be between 26″ and 28″.
- Guardrail height (from ground to top of Thrie-beam) should be 32″.
- Concrete rail is acceptable.

WSBIS Item 1687 – Terminals

FHWA 36D – Traffic Safety Features, Approach Guardrail Ends

- Terminals are to be coded as 1 or 0 if they are within a reasonable distance of the bridge. On a fill embankment, this would be near the bottom of the fill slope (*Design Manual* M 22-01). Otherwise they will be coded as an N.
- If guardrails are not required, the absence of terminals is automatically acceptable and coded as 1.
- Acceptable guardrail terminals are shown in the Washington State Standard Plans Section C or *Design Manual* M 22-01.

WSBIS Item 2688 – Revise Rating Flag

This code indicates whether or not the structure should be reviewed for a revised rating based on field conditions. A note shall be added by the inspector identifying the reason/condition that prompts reevaluation of the load rating.

Y	Yes, review rating
*	Null field, rating review is not required

See Section 5.02.

WSBIS Item 2691 – Photos Flag

This code indicates whether or not the structure needs photos taken.

D	Deck or tunnel portal photo needed
E	Elevation photo needed
P	Deck and Elevation photos needed
*	Null field, photos are not required

WSBIS Item 2693 – Soundings Flag

This code indicates whether or not soundings of the streambed (streambed cross sections at the bridge) are required.

Y Soundings need to be taken.
* Null field, soundings are not required

This field is coded as part of the inspection planning process, and instructs the inspector to take soundings. When soundings are taken, the flag should be changed to null.

Note: Pedestrian bridges over waterways are managed for soundings and may be coded Y as appropriate.

WSBIS Item 2694 – Clearance Flag

This field identifies which clearances need to be checked on a structure.

C Measure horizontal/lateral and vertical clearances.
H Measure horizontal/lateral clearances.
V Measure vertical clearances.
* Null field, measurements are not required

This field is coded as part of the inspection planning process, and instructs the inspector to take, document and code clearance measurements. Unless otherwise instructed, all vertical and horizontal clearances in, on, or under the structure are to be verified. When measurements are taken, documented and coded, this field should be made null.

WSBIS Item 2695 – QA Flag

This code indicates whether or not a quality assurance report was created for this structure.

Y Quality assurance report on file.
* Null field

WSBIS Item 2710 – Sufficiency Rating

This item is calculated automatically and cannot be edited.

The Sufficiency Rating (SR) formula provides a method of evaluating highway bridge data by calculating four separate factors to obtain a numeric value which is indicative of bridge sufficiency to remain in service. The result of this method is a percentage in which 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient or deficient bridge. The formula considers the structural adequacy, functional obsolescence, level of service and essentiality for public use.

See Appendix 2.06-G for the Sufficiency Rating formula.

WSBIS Item 2711 – Structurally Deficient/Functionally Obsolete

This item is calculated automatically and cannot be edited.

Bridges are considered Structurally Deficient (SD) if significant load carrying elements are found to be in poor condition due to deterioration and/or damage, or the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to the point of causing overtopping with intolerable traffic interruptions.

SD is numerically defined as follows:

- A bridge component (deck, superstructure, substructure or culvert) having a condition rating of 4 or less (poor condition).

  or

- Structural Evaluation or Waterway Adequacy rated 2 or less (a bridge with a very low load rating capacity, or a bridge that is subject to overtopping with significant or severe traffic delays).

For a structure to be considered SD, one of the following items must be true:

Table 2711a - Structurally Deficient Guide

WSBIS Item	Condition/Appraisal Rating
1657 – Structural Evaluation	≤ 2
1662 – Waterway Adequacy	≤ 2
1663 – Deck	≤ 4
1671 – Superstructure	≤ 4
1676 – Substructure	≤ 4
1678 – Culvert	≤ 4

Bridges are considered Functionally Obsolete (FO) when the deck geometry, load carrying capacity (comparison of the original design load to the current State legal load), clearance or approach roadway alignment no longer meet the usual criteria for the system of which it is an integral part. In general, FO means that the bridge was built to standards that are not used today. Examples of characteristics leading to an FO classification:

- Low load carrying capacity
- Low waterway adequacy
- Deck geometry (insufficient deck roadway width)
- Insufficient horizontal and vertical clearances
- Poor approach roadway alignment

For a structure to be considered FO, one of the following items must be true:

Table 2711b - Functionally Obsolete Guide

WSBIS Item	Appraisal Rating
1657 – Structural Evaluation	3
1658 – Deck Geometry	≤ 3
1659 – Underclearances	≤ 3
1661 – Approach Roadway Alignment	≤ 3
1662 – Waterway Adequacy	3

WSBIS Item 2614 – Subject to NBIS Flag

(Cannot be null.)

This field identifies whether or not the bridge is subject to the National Bridge Inspection Standards (NBIS).

Y Bridge is subject to the NBIS
N Bridge is not subject to the NBIS.

This field is based on 23 CFR 650.305, found at www.fhwa.dot.gov/legsregs/directives/fapg/cfr0650c.htm, and the Questions and Answers paragraphs Q303-1 through Q303-6, found at www.fhwa.dot.gov/bridge/nbis/index.cfm. Structures subject to the NBIS include all publicly owned highway structures carrying public roads over a depression or obstruction and having an opening measured along the center of the roadway of more than 20 feet between one of the following:

- Undercopings of abutments
- Spring lines of arches
- Extreme ends of openings for multiple box culverts
- Extreme ends of openings for multiple pipe culverts where the clear distance between pipes is less than half of the smaller contiguous pipe

Structures not subject to the NBIS include:

- Sign support structures
- High mast lighting
- Retaining walls
- Noise barrier structures
- Overhead traffic signs
- Tunnels
- Structures carrying only pedestrians
- Structures carrying only railroad

Ownership and access are also important factors. To be subject to the NBIS, a structure must be both publicly owned and publicly accessible. Structures not subject to the NBIS include:

- Privately owned structures accessible to the public (e.g., road association structures)
- Publicly owned bridges that are not accessible to the public (e.g., structures behind gates used to access dams for agency employees and contractors)

Bridge ID Tab (formerly WB71)

WSBIS Item 1001 – Structure Identifier

FHWA Item 8 – Structure Number
NTI Item I.1 – Tunnel Number
(Cannot be null.)

This field must be unique for every structure in the Washington State Bridge Inventory, and cannot change for the life of the structure. Furthermore, when a new structure replaces an old structure, a new unique structure identifier must be coded. The old identifier cannot be recycled.

The WSDOT Inventory Engineer at the Bridge Preservation Office assigns the structure identifier when the original structure inventory record is processed. When initially creating a new structure in BridgeWorks, a temporary structure ID is generated with an X as the first character. This temporary structure ID will be changed when the record is "released" into the database.

NBI and NTI Commentary:

This field is translated to the NBI by adding 7 zeroes to the end of the 8-digit WSBIS code. This translation is done automatically with the generation of the NBI text file and NTI xml file. The NBI coding guide states that all structures with a closed median should be considered one structure, not two, presumably even in cases when they are actually structurally distinct. In some instances WSDOT has coded these structures separately.

WSBIS Item 2009 – Bridge Number

(Cannot be null.)

This is a unique (to the owner agency) alphanumeric code assigned by the owner of the structure. This field does not require all spaces to be filled; however, the field cannot be left blank. This field is maintained for tunnels and culverts.

WSDOT owned structure numbers are formatted as follows:

[route number] / [alphanumeric character string]

WSDOT structure numbers follow several rules:

1. The forward slash (/) is always in the 4th position, with leading blanks as needed. For example, structure on I-5 are coded with two leading blanks followed by a 5 and a forward slash. Structure on US 395 have no leading blanks.
2. In general, every structure must have a unique structure number. The exception is when structures are replaced the structure number usually doesn't change. In this case, the obsoleted structure will have the same structure number.
3. The alphanumeric character string following the forward slash is numerically sequenced by increasing route milepoint, and is often followed by letter characters:

   Characters providing route-related information:

E	east structure of a pair on a divided south-north route
W	west structure of a pair on a divided south-north route
N	north structure of a pair on a divided west-east route
S	south structure of a pair on a divided west-east route
E-N	ramp carrying from eastbound to northbound (vary as needed)
ECD	eastbound collector distributor (vary as needed)
A	structure not on mainline
F	structure on frontage road
ALT	structure on alternate route mainline
SP	structure on spur route

   Characters providing structure design type information:

C	culvert
P	pedestrian bridge
DV	detention vault
LID	structure intended to reconnect severed residential areas

   Examples:

90/43S	Eastbound I-90 bridge at Mercer Slough in South Bellevue
5/26N-N	Ramp carrying northbound I-5 traffic to northbound 139th St.
5/313P	Pedestrian bridge over I-5 in Tumwater

4. Short span structure numbers are followed by a decimal point and a two digit number, e.g. 5/300.25.
5. The second portion of WSDOT structure numbers range from 1 to 99 within the first county in which the route occurs, 100 to 199 in the second county, 200 to 299 in the third county, and so on.

WSBIS Item 2010 – Bridge Sort Number

(Cannot be null.)

This field is used for sorting structure numbers within the application and in various database queries. This field is maintained for tunnels and culverts.

The Structure Sort Number uses three digits for the route number and three digits for the structure number, with leading zeroes as necessary. Any following alpha characters are included. A total of 20 characters can be used.

When a decimal place is used in the Structure number, the character z is used in the structure sort number. This facilitates correct sorting.

Many local agency Structure Sort Numbers begin with a 99 and a space.

Examples:

Structure Number	Structure Sort Number
97/140W	097140W
97/285.6C	097285z6C
5/344S-E	005344S-E
241/2	241002
1135-2	99 1135-2

For state owned structures, this item is coded by the BPO Information Group and is visible in the BridgeWorks Inventory Management mode.

WSBIS Item 2400 – Program Manager

(Cannot be null.)

This field identifies the individual responsible for bridge and tunnel inspection and reporting as described in the National Bridge Inspection Standards Title 23 CFR 650.307 and the National Tunnel Inspection Standards Title 23 CFR 650. 507. Both the NBI/NTI program manager and delegated program managers are listed in this field as appropriate.

In cases when the bridge is not subject to the NBIS or NTIS, this field identifies who is responsible for inspecting the structure and maintaining the structure records in accordance with WSDOT policies.

WSBIS Item 1019 – Owner

FHWA Item 22 – Owner
NTI Item C.1 - Owner
(Cannot be null.)

The actual name of the owner of the structure shall be recorded on the inspection form. The code shall be used to represent the type of agency that is the primary owner of the structure. If more than one agency has equal ownership, code one agency in the hierarchy of State, Federal, county, city, railroad, and other private.

Table 1019 - Owner Code

WSBIS Code	NBI Code	NTI Code	Description
1	001	001	State Highway Agency
2	002	002	County Highway Agency
4	004	004	City or Municipal Highway Agency
11	011	011	State Park, Forest, or Reservation Agency
12	012	012	County Park, Forest, or Reservation Agency
13	012	012	City Park, Forest, or Reservation Agency
21	021	021	Other State Agencies
22	001	001	Washington State Ferries
24	025	025	Other County Agency
25	025	025	Other City or Local Agencies
26	026	026	Private (other than railroad)
27	027	027	Railroad
28	027	027	Light Rail
31	031	031	State Toll Authority
32	032	032	County Toll Authority
33	032	032	City or Other Toll Authority
60	060	060	Other Federal Agencies (not listed below)
61	061	061	Indian Tribal Government
62	062	062	Bureau of Indian Affairs
63	063	063	Bureau of Fish and Wildlife
64	064	064	U.S. Forest Service
66	066	066	National Park Service
68	068	068	Bureau of Land Management
69	069	069	Bureau of Reclamation
70	070	070	Corps of Engineers (Civil)
71	071	070	Corps of Engineers (Military)
72	072	072	Air Force
73	073	073	Navy/Marines
74	074	074	Army
80	080	080	Unknown
92	001	001	Idaho maintenance responsibility
93	001	001	Oregon maintenance responsibility

NBI and NTI Commentary:

Selected codes have been eliminated because they are not used by any structures in Washington State (NSA, Pentagon, etc.). Selected codes were added, generally to differentiate county agencies from other local agencies, provide a unique code for Washington State Ferries, and codes for Oregon and Idaho border bridges maintained by these other state agencies.

WSBIS Item 1021 – County Code

FHWA Item 3 – County Code
NTI Item I.4 – County Code

(Cannot be null.)

This code identifies the county in which the structure is located. If this is a jointly owned structure, the county that is responsible for reporting the data to the inventory should be entered here.

Table 1021 - County Codes

WSBIS Code	NBI/NTI Code	County Name
1	001	Adams
2	003	Asotin
3	005	Benton
4	007	Chelan
5	009	Clallam
6	011	Clark
7	013	Columbia
8	015	Cowlitz
9	017	Douglas
10	019	Ferry
11	021	Franklin
12	023	Garfield
13	025	Grant
14	027	Grays Harbor
15	029	Island
16	031	Jefferson
17	033	King
18	035	Kitsap
19	037	Kittitas
20	039	Klickitat
21	041	Lewis
22	043	Lincoln
23	045	Mason
24	047	Okanogan
25	049	Pacific
26	051	Pend Oreille
27	053	Pierce
28	055	San Juan
29	057	Skagit
30	059	Skamania
31	061	Snohomish
32	063	Spokane
33	065	Stevens
34	067	Thurston
35	069	Wahkiakum
36	071	Walla Walla
37	073	Whatcom
38	075	Whitman
39	077	Yakima

NBI and NTI Commentary:

The WSBIS county code is translated to the NBI county code using the formula (WSBIS Code x 2) – 1 = NBI code and as shown above.

WSBIS Item 2023 – City

(Cannot be null.)

This is the 1990 federal census place code, updated by OFM for cities incorporated after 1999. These codes are available in an Excel spreadsheet within the "County and city codes" tab at www.ofm.wa.gov/pop/geographic/codes/geographic_codes.xlsx.

Use the 4-digit Place_1990 column in the City Codes spreadsheet tab.

If the bridge is not in a city, code all zeroes.

Examples:

Aberdeen = 0005
Zillah = 1500

WSBIS Item 1132 – Bridge Name

NTI Item I.2 – Tunnel Name

(Cannot be null.)

This is the name of the structure, either as determined by legislative action or as determined by the structure owner. If the structure name is more than one word, separate words with a blank space. If the name of the structure is too long to fit in the field, use abbreviations to shorten it. This field is maintained for tunnels and culverts.

WSBIS Item 1156 – Location

FHWA Item 9 – Location

(Cannot be null.)

This item contains a narrative description of the structure location for the inventory route. Descriptions should be oriented ahead on station whenever possible. Do not use city limits, as these boundaries may move. This item shall be left justified.

Examples:

19.3 E JCT SR 203
14.7 E MASON CO

WSBIS Items 2181, 2183, and 2185 – Section, Township, and Range

(Cannot be null.)

Section, township, and range numbers are location markers established by survey mapping. If the structure runs along a section, township, or range line, use the smaller of the two numbers. If a structure crosses any line, use the number at the beginning of the structure.

WSBIS Item 2181 – Section

This is the number of the section in which the structure is located. Enter a numeric code from 01 to 36.

WSBIS Item 2183 – Township

This is the number of the township in which the structure is located. Enter a numeric code from 01 to 41. Township designations carry a directional suffix (north or south); however, since all townships in Washington are north, this directional indicator need not be entered.

WSBIS Item 2185 – Range

This is the number of the range in which this structure is located. There are two parts to this field. In the first two places, enter the number of the range in which the structure is located. Valid ranges are:

01 through 47 if the third column is E
01 through 16 If the third column is W.

In the third place, enter the directional suffix which indicates the position of the range in relation to the Willamette Meridian. Enter one of the following codes:

E	East
W	West

A map of section, township and range information is available at www.wsdot.wa.gov/data/tools/geoportal/.

WSBIS Item 1188 – Latitude (XX degrees XX minutes XX.XX seconds)

WSBIS Item 1196 – Longitude (XXX degrees XX minutes XX.XX seconds)

FHWA Item 16 – Latitude
FHWA Item 17 – Longitude
NTI Item I.13 – Tunnel Portal's Latitude
NTI Item I.14 – Tunnel Portal's Longitude
(Cannot be null.)

Code the latitude and longitude in degrees, minutes and seconds to the nearest hundredth of a second using the NAD 83/91 - North American Datum of 1983, with 1991 adjustments.

Accurate data can be acquired using internet resources such as Google Maps or Bing Maps. For On records, the reading should be taken at the beginning of the structure at centerline. When the route being inventoried has a Linear Referencing System (LRS) designation, the beginning of the structure is the lower milepoint for the LRS route. For Under records, the reading should be taken at the centerline of the roadway under the bridge or in the tunnel.

When data is acquired in the field, note that GPS devices will show the longitude as a negative number, but this field must be coded as a positive number. For On records, the reading should be taken at the beginning of the bridge at the centerline of the roadway if traffic allows, at the shoulder as necessary. For bridge Under records, the reading should be taken at the centerline of the inventory route where it crosses under the bridge. Generally this can be most easily taken from the deck of the bridge crossing over the route. For tunnel Under records, the reading should be taken at the beginning of the tunnel at the centerline of the roadway.

WSBIS Item 2615 – Special Structures Flag

This code flags structures that are inspected by the BPO Special Structures group.

Y Yes, structure inspected by the BPO Special Structures group.
N No, structure not inspected by the BPO Special Structures group.

Facilities Tab (formerly WB72)

WSBIS Item 1232 – Features Intersected

FHWA Item 6 – Features Intersected
(Cannot be null.)

This item contains a description of the features intersected by the structure. When the structure is a bridge, the feature will always describe something under the bridge. When the structure is a tunnel, it will always describe something on top of the tunnel. The data in this segment shall be left justified and is limited to 24 characters. When one of the features intersected is another highway, the signed number or name of the highway shall appear first in the field. The names of any other features shall follow, separated by a comma.

Examples:

SR 99, BLUE R, RR
I-405 N-E & N-W RAMPS
GOOSE CREEK
SR 524 SPUR/44TH AVE W
TERRAIN

NBI Commentary:
The NBI coding guide separates this field into two segments (6A with 24 characters and 6B with 1 character). However, it's also stated that 6B is not used. The WSBIS coding guide eliminates any reference to 6B, but a blank space is created automatically in the NBI text file.

WSBIS Item 1256 – Facilities Carried

FHWA Item 7 – Facility Carried by Structure
NTI Item I.10 – Facility Carried
(Cannot be null.)

The facility being carried by the structure shall be recorded and coded. For all bridges this item describes the use on the structure, and for all tunnels this describes the use in the tunnel. This item shall be left justified and is limited to 18 characters.

Examples:

US 12	RAILROAD
MAIN STREET	PEDESTRIANS
ISRAEL RD	

WSBIS Item 1274 – Region Code

FHWA Item 2 – Highway Agency District
NTI Item I.6 – Highway Agency District
(Cannot be null.)

This is the WSDOT region in which the bridge is located.

Table 1274 - Region Code

WSBIS Code	NBI Code	NTI Code	Region Name
NW	1	NW	Northwest Region
NC	2	NC	North Central Region
OL	3	OL	Olympic Region
SW	4	SW	Southwest Region
SC	5	SC	South Central Region
EA	6	EA	Eastern Region

A region boundary map can be found at www.wsdot.wa.gov/mapsdata/products/digitalmapsdata.htm.

NBI and NTI Commentary:
This field is translated as shown in the table above for the NBI, but is not translated for the NTI.

WSBIS Item 1276 – Federal Information Processing Standards (FIPS) Code

FHWA Item 4 – Place Code
NTI Item I.5 – Place Code
(Cannot be null.)

Code all zeroes for this 5-digit field.

NBI and NTI Commentary:
Federal Information Processing Standards were withdrawn by the National Institute of Standards and Technology on January 1, 2006, with the intent to replace them with the Geographic Names Information System (GNIS). On this basis, WSDOT has chosen not to maintain FIPS codes. See the following links for more information:
http://geonames.usgs.gov/docs/fips55_change.pdf
http://nhd.usgs.gov/gnis.html

WSBIS Item 1285 – Toll

FHWA Item 20 – Toll

NTI Item C.4 - Toll

(Cannot be null.)

The toll status of the structure is indicated by this item. Interstate toll segments under Secretarial Agreement (Title 23 - United States Code - Highways Section 129 as amended by 1991 ISTEA and prior legislation) shall be identified separately. Use one of the following codes:

Table 1285 - Toll Code

WSBIS Code	NBI Code	NTI Code	Description
1	1	1	Toll bridge. Tolls are paid specifically to use the structure.
2	2	2	On toll road. The structure carries a toll road, that is, tolls are paid to use the facility, which includes both the highway and the structure.
3	3	0	On free road. The structure is tollfree and carries a tollfree highway.
4	4	2	On Interstate toll segment under Secretarial Agreement. Structure functions as a part of the toll segment.
5	5	2	Toll bridge is a segment under Secretarial Agreement. Structure is separate agreement from highway segment.

NTI Commentary:

Toll codes translated for the NTI as shown in the table above.

WSBIS Item 1286 – Custodian

FHWA Item 21 – Maintenance Responsibility
NTI Item C.2 - Operator

(Cannot be null.)

The codes below shall be used to represent the type of agency that has primary responsibility for maintaining the structure. If more than one agency has equal maintenance responsibility, code one agency in the hierarchy of State, Federal, county, city, railroad, and other private.

Table 1286 - Custodian Code

WSBIS Code	NBI Code	NTI Code	Description
1	001	001	State Highway Agency
2	002	002	County Highway Agency
4	004	004	City or Municipal Highway Agency
11	011	011	State Park, Forest, or Reservation Agency
12	012	012	County Park, Forest, or Reservation Agency
13	012	012	City Park, Forest, or Reservation Agency
21	021	021	Other State Agencies
22	001	001	Washington State Ferries
24	025	025	Other County Agency
25	025	025	Other City or Local Agencies
26	026	026	Private (other than railroad)
27	027	027	Railroad
28	027	027	Light Rail
31	031	031	State Toll Authority
32	032	032	County Toll Authority
33	032	032	City or Other Toll Authority
60	060	060	Other Federal Agencies (not listed below)
61	061	061	Indian Tribal Government
62	062	062	Bureau of Indian Affairs
63	063	063	Bureau of Fish and Wildlife
64	064	064	U.S. Forest Service
66	066	066	National Park Service
68	068	068	Bureau of Land Management
69	069	069	Bureau of Reclamation
70	070	070	Corps of Engineers (Civil)
71	071	070	Corps of Engineers (Military)
72	072	072	Air Force
73	073	073	Navy/Marines
74	074	074	Army
80	080	080	Unknown
92	001	001	Idaho maintenance responsibility
93	001	001	Oregon maintenance responsibility

NBI and NTI Commentary:

Selected codes have been eliminated because they are not used by any structures in Washington State (NSA, Pentagon, etc.). Selected codes were added, generally to differentiate county agencies from other local agencies, provide a unique code for Washington State Ferries, and codes for Oregon and Idaho border bridges maintained by these other state agencies.

WSBIS Item 1288 – Parallel Structure

FHWA Item 101 – Parallel Structure Designation

(Cannot be null.)

Code this item to indicate situations where separate structures carry the inventory route in opposite directions of travel over the same feature. The lateral distance between structures has no bearing on the coding of this item. One of the following codes shall be used:

Table 1288 - Parallel Structure Code

WSBIS Code	Description
R	The right structure of parallel bridges carrying traffic in the direction of increasing mileposts.
L	The left structure of parallel bridges carrying traffic in the direction of decreasing mileposts.
N	No parallel structure exists.

WSBIS Item 1289 – Temporary Structure

FHWA Item 103 – Temporary Structure Designation

(Leave this field blank unless there are a temporary structure or conditions.)

Code this item to indicate situations where a temporary structure or conditions exist.

Table 1289 - Temporary Structure Code

WSBIS Code	Description
T	Temporary structure or conditions exist.
null	No temporary structure or conditions

A temporary structure or conditions are those which are required to facilitate traffic flow. This may occur either before or during the modification or replacement of a structure found to be deficient. Such conditions include the following:

- Bridges shored up, including additional temporary supports.
- Temporary repairs made to keep a bridge open.
- Temporary structures, temporary runarounds or bypasses.
- Other temporary measures, such as barricaded traffic lanes to keep the bridge open.

Any repaired structure or replacement structure which is expected to remain in place without further project activity, other than maintenance, for more than 5 years shall not be considered temporary. Under such conditions, that structure, regardless of its type, shall be considered the minimum adequate to remain in place and evaluated accordingly.

If this item is coded T, then all data recorded for the structure shall be for the condition of the structure without temporary measures, except for the following items which shall be for the temporary structure:

WSBIS Item

1499 – Inventory Route, Minimum Vertical Clearance
1293 – Structure Open, Posted, or Closed to Traffic
1491 – Inventory Route, Total Horizontal Clearance
1370 – Minimum Vertical Clearance Over Bridge Roadway
1374 – Minimum Vertical Underclearance
1379 – Minimum Lateral Underclearance on Right
1383 – Minimum Lateral Underclearance on Left
1660 – Bridge Posting

NBI Commentary:

WSDOT has defined a 5 year time period for which temporary structures or conditions can be in place and still considered temporary. The NBI coding guide refers to "a significant period of time."

WSBIS Item 1292 – Historic Significance - NRHP

FHWA Item 37 – Historical Significance

(Cannot be null.)

Structures are considered historically significant based on a review and listing on the National Register of Historic Places (NRHP). Generally this review is performed by the Washington State Department of Archaeology and Historic Preservation (DAHP).

Use one of the following codes:

Table 1292 - Historical Significance Code

WSBIS Code	NBI Code	Description
1	1	Structure is on the NRHP.
2	2	Structure is eligible for the NRHP.
3	3	Structure is possibly eligible for the NRHP but requires further investigation before determination can be made. Alternately, structure is on a State or local historic register.
4	4	Historical significance has not been determined at this time. (This code should be used for all new structures.)
5	5	Structure is not eligible for the NRHP – reviewed by the DAHP.
6	5	Structure is not eligible for the NRHP – reviewed by agency other than the DAHP.

Layout Tab (Formerly WB73)

WSBIS Item 1332 – Year Built

FHWA Item 27 – Year Built
NTI Item A.1 – Year Built
(Cannot be null.)

Code all 4 digits of the year in which construction of the structure was completed. If the year built is unknown, code 1900. If the year built is earlier than 1900, code 1900.

WSBIS Item 1336 – Year Rebuilt

FHWA Item 106 – Year Reconstructed
NTI Item A.2 – Year Rehabilitated
(Cannot be null.)

Code the year of the last major rehabilitation of the structure. Code all four digits of the year in which reconstruction was completed. If there has been no reconstruction, code 0000.

For a structure to be defined as rebuilt, the type of work performed, whether or not it meets current minimum standards, must have been eligible for funding under any of the federal aid funding categories. The eligibility criteria would apply to the work performed regardless of whether all state or local funds or federal aid funds were used.

Some types of work to be considered as rebuilt are widenings and retrofits designed to increase the original structural capacity.

Some types of eligible work **not** to be considered as rebuilt are:

- Safety feature replacement or upgrading (for example, bridge rail, approach guardrail or impact attenuators).
- Painting of structural steel.
- Overlay of bridge deck as part of a larger highway surfacing project (for example, overlay carried across bridge deck for surface uniformity without additional bridge work).
- Utility work.
- Emergency repair to restore structural integrity to the previous status following an accident.
- Retrofitting to correct a deficiency which does not substantially alter physical geometry or increase the load-carrying capacity.
- Work performed to keep a structure operational while plans for complete rehabilitation or replacement are under preparation (for example, adding a substructure element or extra girder).

WSBIS Item 1340 – Structure Length (XXXX feet)

FHWA Item 49 – Structure Length

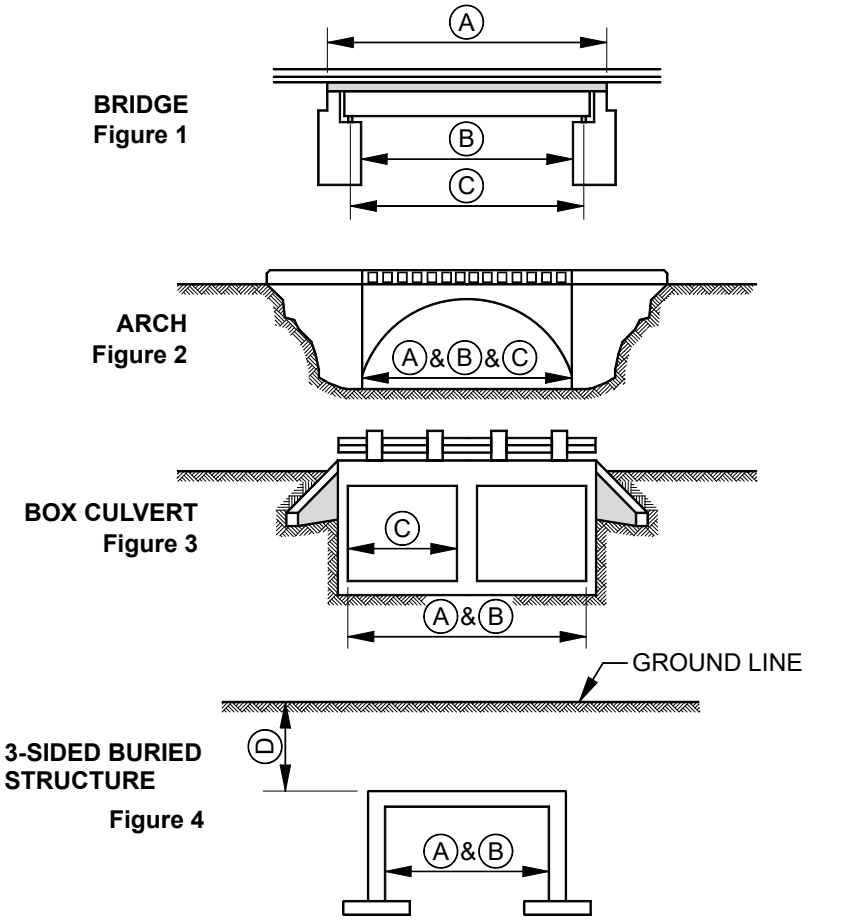
(Cannot be null.)

The structure length is recorded in whole feet, rounded up. For example 22.1 feet measured shall be coded as 23 feet.

Bridge lengths are taken along the centerline of the bridge and back to back of backwalls of abutments or from paving notch to paving notch.

Culvert lengths are measured from inside face to inside face of the exterior walls or from spring line to spring line. When the culvert is not perpendicular to the roadway, the centerline length must be calculated.

This field is not used for tunnels, see WSBIS Item 1349.



WHEN D > B/2 CODE STRUCTURE AS CULVERT.

WHEN D ≤ B/2 CODE STRUCTURE AS BRIDGE.

A = STRUCTURE LENGTH (WSBIS ITEM 1340)
B = NBIS LENGTH (WSBIS ITEM 2346) OR MAXIMUM OPENING
C = MAXIMUM SPAN LENGTH (WSBIS ITEM 1348)
D = FILL DEPTH

Figure WSBIS 1340a

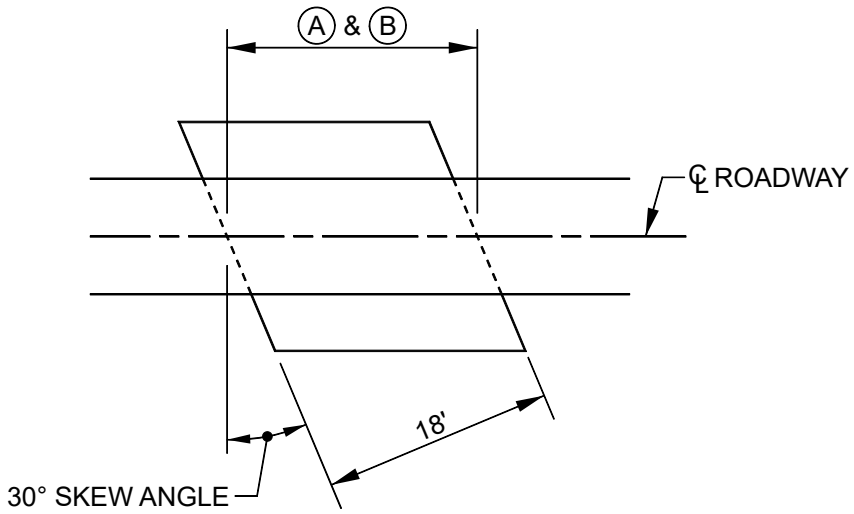


Figure 1

$$\text{A \& B} = \frac{18'}{\cos 30^\circ} = 20.78' = 21'$$

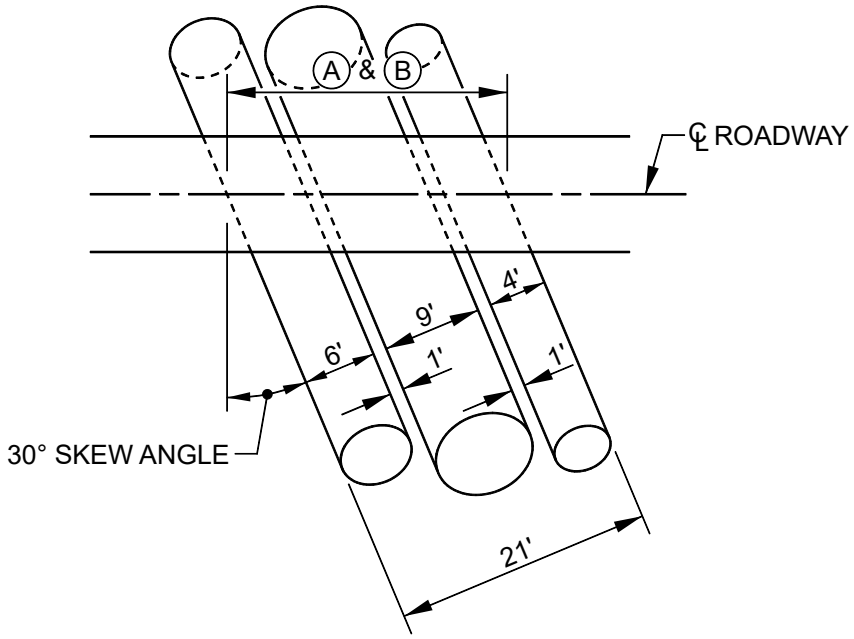


Figure 2

$$\text{A \& B} = \frac{21'}{\cos 30^\circ} = 24.25' = 25'$$

NOTE: THE DISTANCE BETWEEN CONSECUTIVE PIPES MUST BE EQUAL TO (=) OR LESS THAN (<) THE DIAMETER OF THE SMALLEST PIPE IN THE SERIES FOR THE SERIES TO BE CONSIDERED ONE STRUCTURE.

Figure WSBIS 1340b

WSBIS Item 2346 – NBIS Length (XX.X feet)

(Leave this field blank if the measurement as entered in Structure Length is less than 19 feet or greater than 23 feet.)

The NBIS bridge length is a measurement along the center of the roadway between undercopings of abutments, spring lines of arches, or the extreme ends of openings for multiple boxes. This measurement is coded to the nearest tenth of a foot and may be different from the measurement entered in WSBIS Item 1340 – Structure Length. See Structure Length for examples on how to determine the NBIS Length. If a measurement is even very minimally over 20 feet long, round up to the next 10th of a foot.

If the measurement as entered in Structure Length is between 19 and 23 feet inclusive, a measurement of the NBIS length shall be coded in this field. The NBIS criteria defines a bridge as being greater than 20 feet in length. The NBIS length is used to assist in determining if the structure meets the NBIS definition.

WSBIS Item 1348 – Maximum Span Length (XXXX feet)

FHWA Item 48 – Length of Maximum Span
(Cannot be null.)

The length of the maximum span shall be recorded in whole feet. The measurement shall be along the centerline of the bridge. Measure center to center of bearing points or clear open distance between piers, bents, or abutments otherwise.

A span that contains a drop-in span with cantilevers is counted as one span, and the length shall be measured from pier to pier.

See WSBIS Item 1340 – Structure Length for examples on how to determine the length of maximum span.

WSBIS Item 1352 – Lanes On

FHWA Item 28A – Lanes On the Structure
(Cannot be null.)

Code the number of lanes being carried on the structure.

Include all lanes carrying highway traffic (e.g., cars, trucks, buses) which are striped or otherwise operated as a full width traffic lane for the entire length of the structure. This shall include any full width merge lanes and ramp lanes, and shall be independent of directionality of usage (e.g., a 1-lane bridge carrying 2-directional traffic is still considered to carry only one lane on the structure).

It should be noted here that for the purpose of evaluating WSBIS Item 1658 Deck Geometry, any 1-lane bridge, not coded as a ramp (WSBIS Item 1434 = 7), which has a WSBIS Item 1356 Curb-to-Curb coded 16 feet or greater shall be evaluated as 2 lanes.

Double deck bridges may be coded as 1 or 2 structures, but all related data must be compatible with the method selected.

WSBIS Item 1356 – Curb-to-Curb Width (XXX.X feet)

FHWA Item 51 – Bridge Roadway Width, Curb-to-Curb
NTI Item G.3 – Roadway Width, Curb-to-Curb
(Cannot be null.)

Code the curb-to-curb width to the nearest tenth of a foot. The information to be recorded is the most restrictive minimum distance between curbs or rails on the structure roadway. The measurement should be exclusive of flared areas for ramps.

For structures with closed medians and usually for double decked structures, coded data will be the sum of the most restrictive minimum distances for all roadways carried by the structure*. The data recorded for this item must be compatible with other related route and structure data (e.g., Lanes On, Lanes Under, ADT, etc.). See examples in WSBIS Items 1364 and 1367.

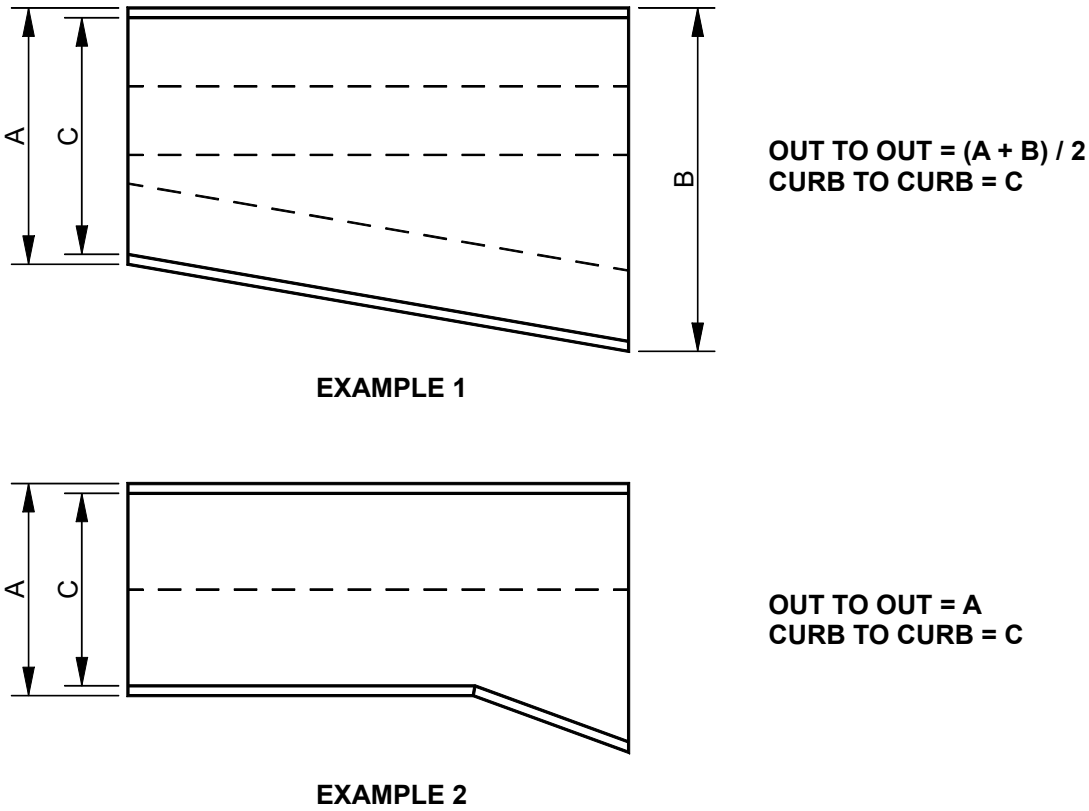


Figure WSBIS 1356a

Where traffic runs directly on the top slab (or wearing surface) of a culvert-type structure (e.g., an R/C box without fill), code the actual roadway width (curb-to-curb or rail-to-rail). This will also apply where the fill is minimal and headwalls or parapets affect the flow of traffic.

Where the roadway is on fill carried across a structure and the headwalls or parapets do not affect the flow of traffic, code 0. This is considered proper inasmuch as a filled section simply maintains the roadway cross section.

*Raised or non-mountable medians, open medians, and barrier widths are to be excluded from the summation along with barrier-protected bicycle and equestrian lanes.

Coding a sidehill viaduct (half bridge):

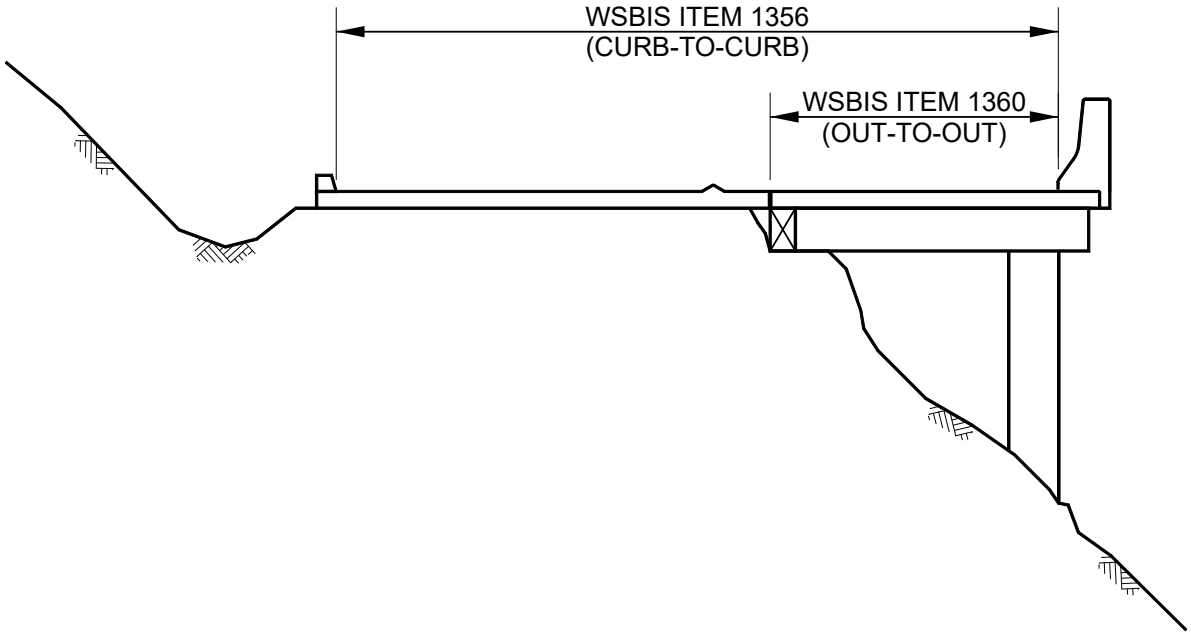


Figure WSBIS 1356b

WSBIS Item 1360 – Out-to-Out Deck Width (XXX.X feet)

FHWA Item 52 – Deck Width, Out-to-Out
(Cannot be null.)

Code the out-to-out width to the nearest tenth of a foot. If the structure is a through structure, the number to be coded will represent the lateral clearance between superstructure members. See example in Figure WSBIS 1364a.

The measurement will be the most representative out-to-out width on the bridge, and should be exclusive of flared areas for ramps. See examples in Figures WSBIS 1356a and 1364b.

Where traffic runs directly on the top slab (or wearing surface) of the culvert (e.g., an R/C box without fill) code the actual width (out-to-out). This will also apply where the fill is minimal and the culvert headwalls affect the flow of traffic. However, for sidehill viaduct structures code the actual out-to-out structure width. See Figure WSBIS 1356b.

Where the roadway is on a fill carried across a pipe or box culvert and the culvert headwalls do not affect the flow of traffic, code 0. This is considered proper inasmuch as a filled section over a culvert simply maintains the roadway cross-section.

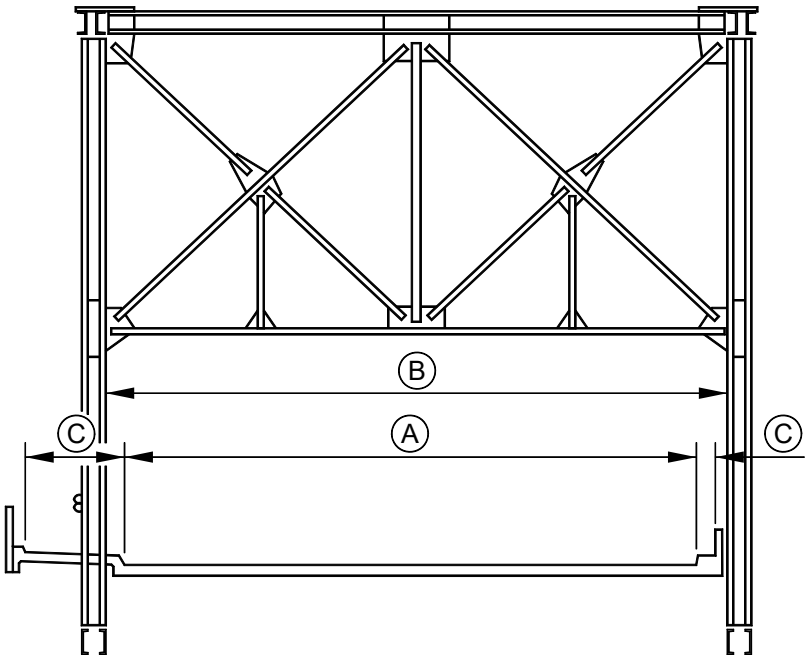
WSBIS Item 1364 – Sidewalk/Curb Width Left (XX.X feet)

NBI Item 50A – Curb or Sidewalk Width – Left
NTI Item G.4 – Left Sidewalk Width

WSBIS Item 1367 – Sidewalk/Curb Width Right (XX.X feet)

FHWA Item 50B – Curb or Sidewalk Widths Curb or Sidewalk Width – Right
NTI Item G.5 – Right Sidewalk Width
(Cannot be null.)

Code the widths of the left and right curbs or sidewalks to the nearest tenth of a foot. Code zeroes when there are no curbs or sidewalks.



(A) WSBIS 1356 - ROADWAY WIDTH, CURB-TO-CURB
(B) WSBIS 1360 - DECK WIDTH, OUT-TO-OUT
(C) WSBIS 1364 AND 1367 - CURB OR SIDEWALK WIDTH

(1) WSBIS 1356 – Roadway Width, Curb-to-Curb
(2) WSBIS 1360 – Deck Width, Out-to-Out
(3) WSBIS 1364 and 1367 – Curb or Sidewalk Width

Figure WSBIS 1364a

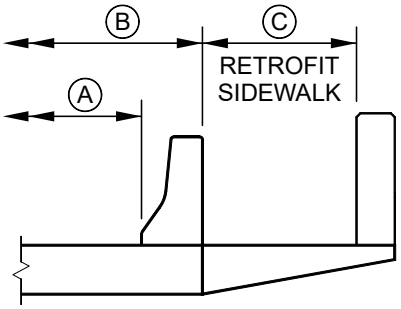


Figure 1

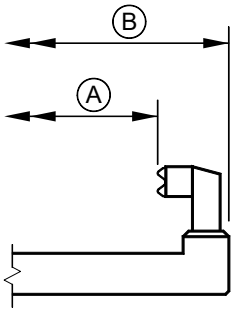


Figure 2

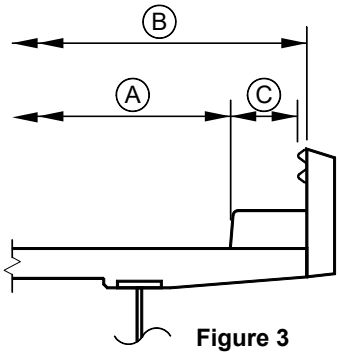


Figure 3

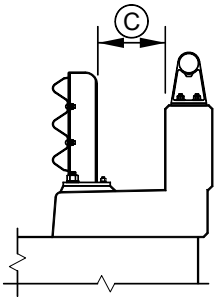


Figure 4

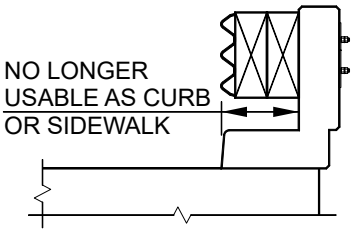


Figure 5

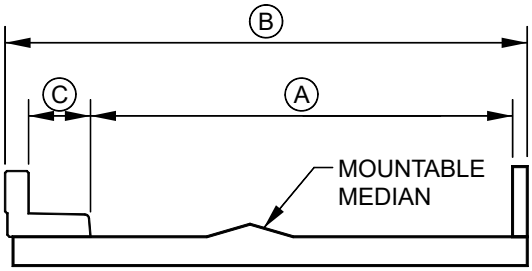


Figure 6

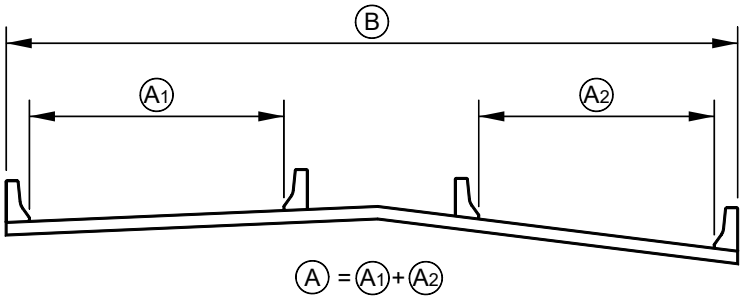


Figure 7

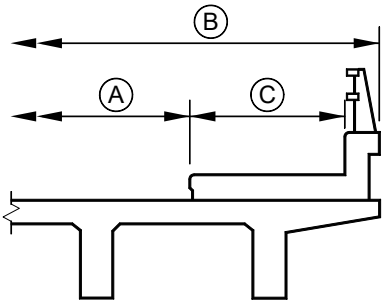


Figure 8

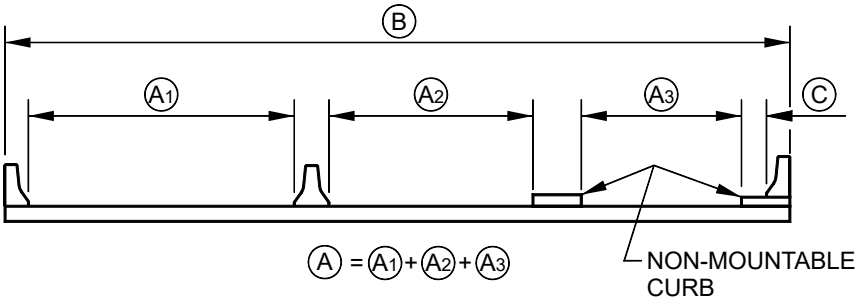


Figure 9

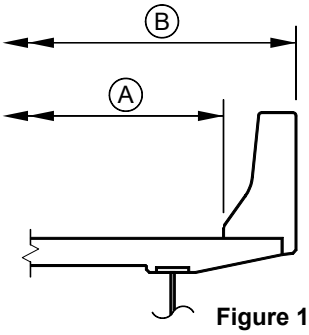


Figure 10

(A) WSBIS 1356 - ROADWAY WIDTH, CURB-TO-CURB

(B) WSBIS 1360 - DECK WIDTH, OUT-TO-OUT

(C) WSBIS 1364 AND 1367 - CURB OR SIDEWALK WIDTH

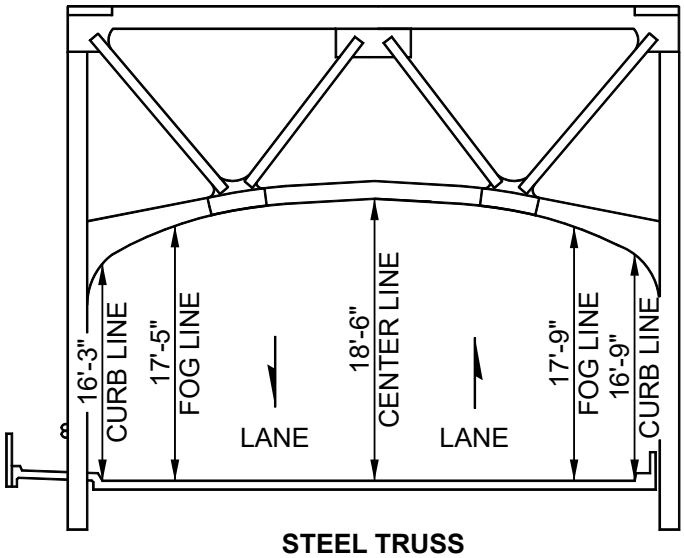
Figure WSBIS 1364b

WSBIS Item 1370 – Minimum Vertical Clearance Over Deck (XXXX feet and inches)

FHWA Item 53 – Minimum Vertical Clearance Over Bridge Roadway

(Cannot be null.)

The information to be recorded for this item is the actual minimum vertical clearance over the bridge roadway, including shoulders, to any superstructure restriction, in feet and inches, rounded to the lesser inch (e.g., 16′ 3¾″ is to be coded 1603). For double decked structures code the minimum, regardless whether it is pertaining to the top or bottom deck. When no superstructure restriction exists above the bridge roadway code 9999. When a restriction is 100 feet or greater code 9912.



STEEL TRUSS

CODE: **1603**

Figure WSBIS 1370

WSBIS Item 1374 – Minimum Vertical Clearance Under Bridge (XXXX feet and inches)

FHWA Item 54B – Minimum Vertical Underclearance

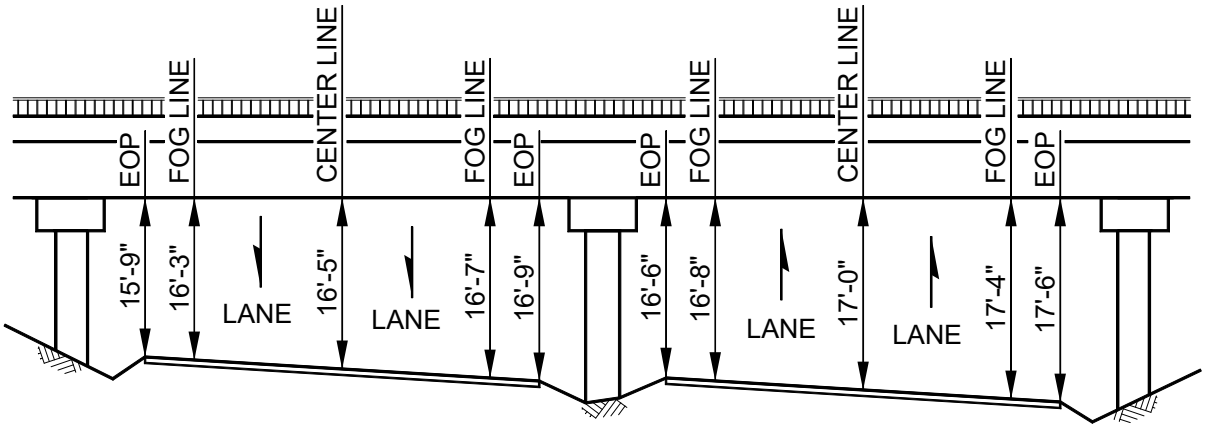
(Cannot be null.)

Code the minimum vertical clearance from the roadway (travel lanes only) or railroad track beneath the structure to the underside of the superstructure. Traveled way, or travel lanes, is between fog lines and excludes shoulders or gore areas.

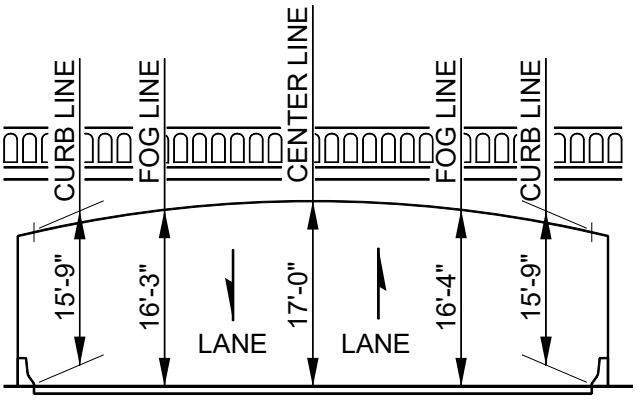
If the bridge crosses both a highway and a railroad, code the highway clearance UNLESS the railroad has a substandard clearance based on current design criteria and the roadway is NOT substandard.

The information to be recorded is the actual minimum vertical clearance over the traveled way to the structure, in feet and inches, rounded to the lesser inch (e.g., 16′ 3¾″ is to be coded 1603). When a restriction is 100 feet or greater, code 9912.

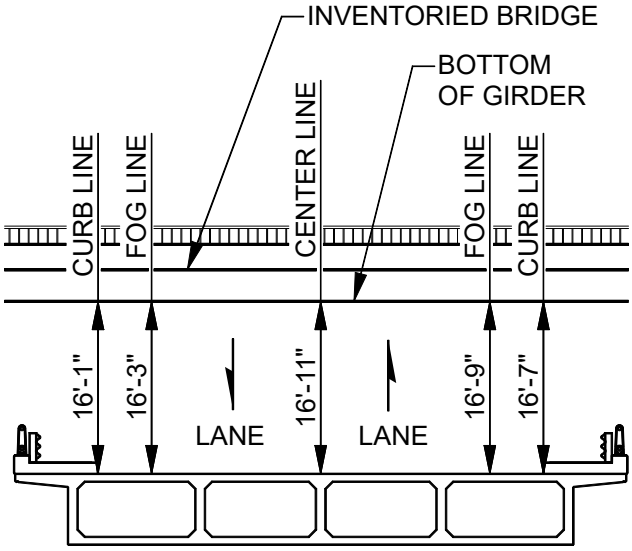
If the feature is not a highway or railroad, code the minimum vertical clearance 0. A highway is to be considered any functionally classified, public road. Private roads are not to be included.



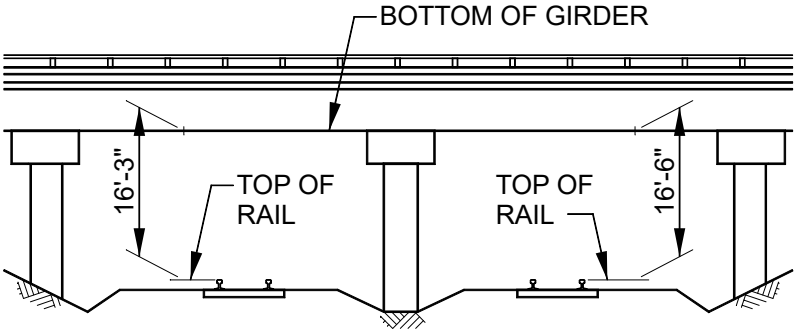
DIVIDED HIGHWAY (Fig. 1374a)
CODE: **1603**



UNDIVIDED HIGHWAY (Fig. 1374b)
CODE: **1603**



BRIDGE OVER BRIDGE (Fig. 1374c)
CODE: **1603**



RAILROAD (Fig. 1374d)
CODE: **1603**

Figure WSBIS 1374

WSBIS Item 1378 – Vertical Underclearance Code

FHWA Item 54A – Reference feature

(Cannot be null.)

Code the reference feature from which the clearance measurement is taken:

Table 1378 - Vertical Underclearance Code

WSBIS Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad

WSBIS Item 1379 – Minimum Lateral Underclearance Right (XX.X feet)

FHWA Item 55B – Minimum Lateral Underclearance on Right

(Cannot be null if bridge has an On record, must be null if the bridge does not have an On record.)

The purpose of this item is to identify the lateral restrictions caused by the structure on the railroad or roadway underneath.

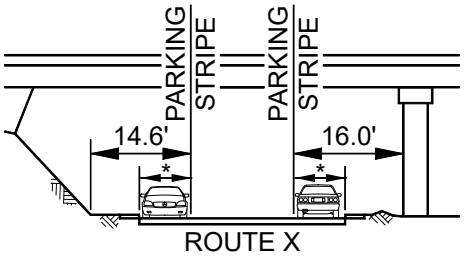
Code the minimum lateral underclearance on the right to the nearest tenth of a foot. When both a railroad and highway are under the structure, code the most critical dimension.

The lateral clearance should be measured from the right edge of the roadway excluding shoulders (fog line) or from the centerline (between rails) of the right-hand track of a railroad to the nearest substructure unit (pier, abutment, etc.), a retaining wall or to a slope. If no fog line exists on the roadway, assume a 12 foot lane. The right/left orientation is based on traffic direction. The clearance measurements to be recorded will be the minimum after measuring the clearance in both directions of travel, perpendicular to the centerline of the undercrossing.

If two related features are below the bridge, measure both and record the lesser of the two. An explanation should be written on the inspection form as to what was recorded. When the clearance is 100 feet or greater, code 99.9.

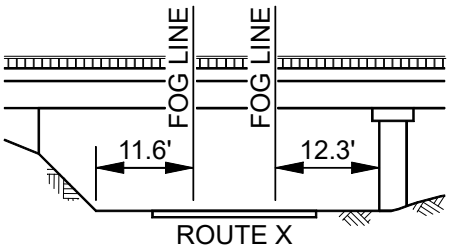
If the feature beneath the structure is not a railroad or highway, code 0 to indicate not applicable.

The presence of ramps and acceleration or turning lanes is not considered in this item; therefore, the minimum lateral clearance on the right should be measured from the right edge of the through roadway.



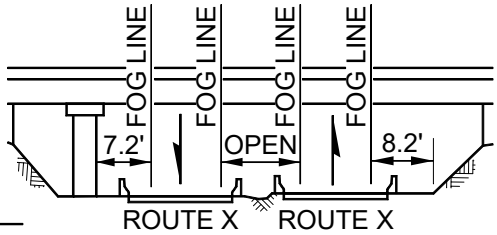
CITY STREET (Figure 1)

2-WAY TRAFFIC: RT. = 14.6 LT. = 0.0
1-WAY TRAFFIC LOOKING IN THE DIRECTION OF TRAFFIC: RT. = 16.0 LT. = 14.6
* = PARKING AREA, INSPECTORS PLEASE DOCUMENT DIMENSION.



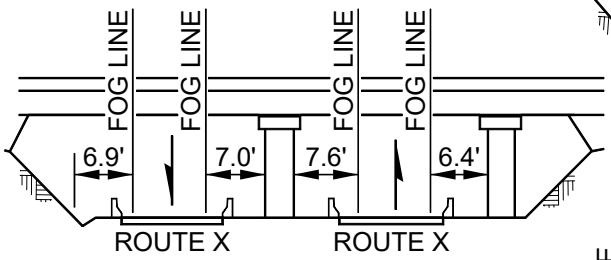
HIGHWAY (Figure 2)

2-WAY TRAFFIC: RT. = 11.6 LT. = 0.0
1-WAY TRAFFIC LOOKING IN THE DIRECTION OF TRAFFIC:
RT. = 12.3 LT. = 11.6



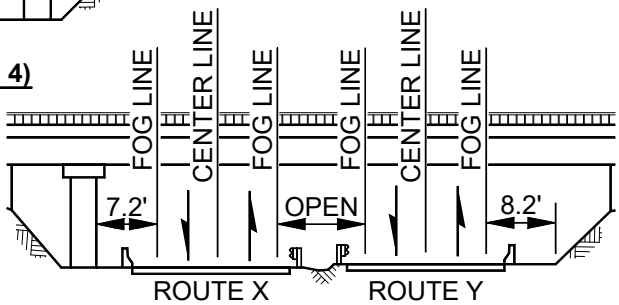
FREEWAY OPEN MEDIAN (Figure 3)

RT. = 7.2 LT. = 99.9



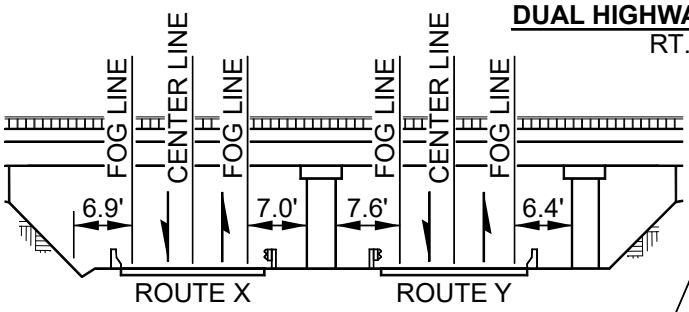
FREEWAY PIER MEDIAN (Figure 4)

RT. = 6.4 LT. = 7.0



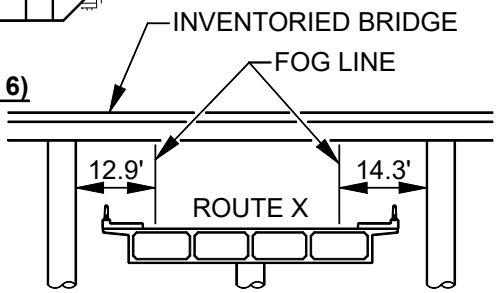
DUAL HIGHWAY OPEN MEDIAN (Figure 5)

RT. = 7.2 LT. = 99.9



DUAL HIGHWAY PIER MEDIAN (Figure 6)

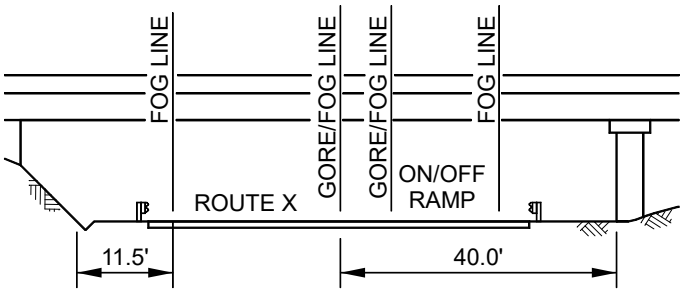
RT. = 6.4 LT. = 0.0



MULTIPLE LEVEL INTERCHANGE (Figure 7)

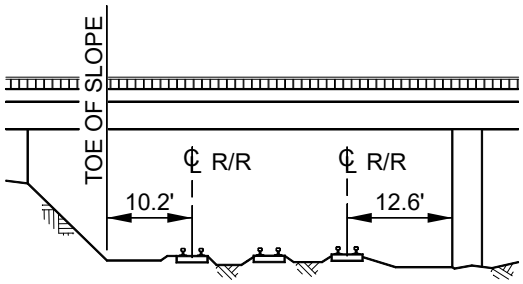
2-WAY TRAFFIC: RT. = 12.9 LT. = 0.0
1-WAY TRAFFIC LOOKING IN THE DIRECTION OF TRAFFIC: RT. = 14.3 LT. = 12.9

Figure WSBIS 1379a



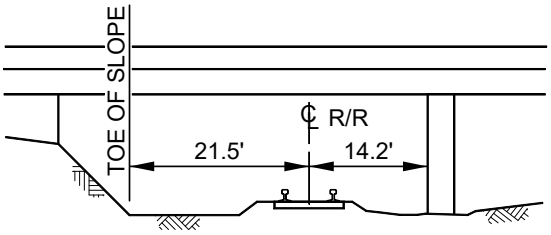
FREEWAY ON/OFF RAMP (Figure 1)

2-WAY TRAFFIC: RT. = 11.5 LT. = 0.0
1-WAY TRAFFIC LOOKING IN THE DIRECTION OF TRAFFIC: RT. = 40.0 LT. = 11.5



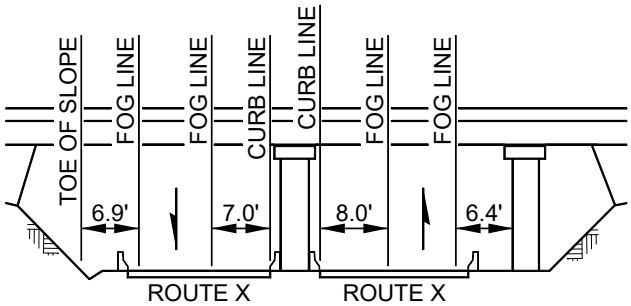
RAILROAD MULTIPLE TRACK (Figure 2)

RT. = 10.2 LT. = 0.0



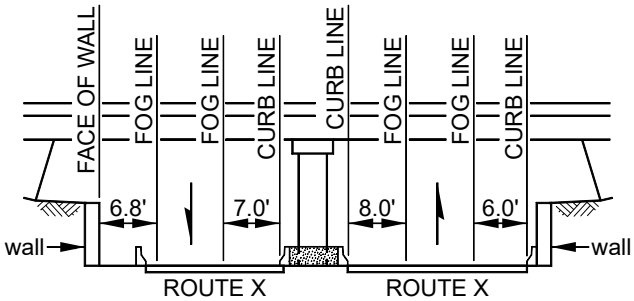
RAILROAD SINGLE TRACK (Figure 3)

RT. = 14.2 LT. = 0.0



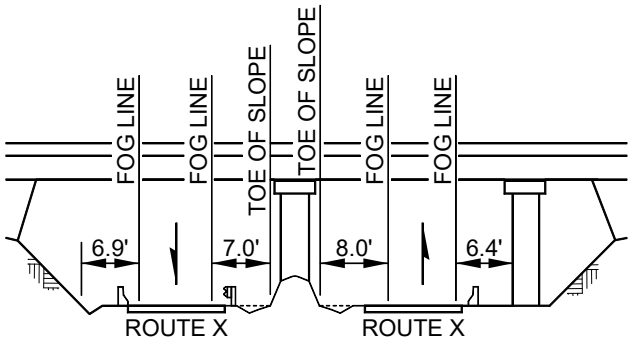
FREEWAY PIER MEDIAN WITH BARRIER ADJACENT TO SUBSTRUCTURE (Figure 4)

RT. = 6.4 LT. = 7.0



FREEWAY PIER MEDIAN WITH CONCRETE/DIRT FILL BETWEEN BARRIERS AROUND SUBSTRUCTURE (Figure 5)

RT. = 6.0 LT. = 7.0



FREEWAY PIER MEDIAN WITH MOUNDED DIRT AROUND SUBSTRUCTURE (Figure 6)

RT. = 6.4 LT. = 7.0

Figure WSBIS 1379b

NBI Commentary:

The NBI coding guide text and drawings are not clear or consistent, particularly with respect to determining whether or not the lateral measurements extend to guardrails, concrete rails, non-mountable curbs, substructure units, or slopes. Attempts to define the steepness of slopes was also problematic. This coding guide clarifies that all measurements are to substructure units or "slopes" without defining the steepness. In addition, the NBI coding guide was not entirely clear about how to code dual highways in relation to substructure units or medians. This coding guide clarifies this through illustration.

WSBIS Item 1382 – Lateral Underclearance Code

FHWA Item 55A – Minimum Lateral Underclearance on Right
(Cannot be null if bridge has an On record)

This code identifies the type of reference feature from which the clearance measurement is taken.

Table 1382 - Lateral Underclearance Code

WSBIS Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Neither highway or railroad beneath structure

WSBIS Item 1383 – Minimum Lateral Underclearance Route Left (XX.X feet)

FHWA Item 56 – Minimum Lateral Underclearance on Left
(Cannot be null if bridge has an On record)

The purpose of this code is to identify the lateral restrictions caused by the structure on the railroad or roadway underneath.

This field is intended to record measurements on the left side of highway based on traffic direction for divided highways, 1 way streets, and ramps. For railroads and all 2 direction, 2 lane routes which are undivided, code 000.

Code the minimum lateral underclearance on the left (median side for divided highways) to the nearest tenth of a foot. The lateral clearance should be measured from the left edge of the roadway (excluding shoulders) to the nearest substructure unit, or to a slope. Refer to examples for WSBIS Item 1379 – Minimum Lateral Underclearance on Right.

For clearances greater than 100 feet, code 99.8.

In cases where there is an open median (no piers in median), code 99.9.

Code 0 to indicate not applicable (railroads and other non highway undercrossings).

NBI Commentary:
See WSBIS Item 1379 NBI Commentary.

WSBIS Item 1386 – Navigation Control

FHWA Item 38 – Navigation Control

(Cannot be null.)

Indicate for this item whether or not navigation control (a bridge permit for navigation) is required. Use one of the following codes:

Table 1386 - Navigation Control Code

WSBIS Code	Description
N	Not applicable, no waterway
0	No navigation control on waterway (bridge permit not required or bridge has received advance approval by the USCG[1]
1	Navigation control on waterway (bridge permit required)

1. The USCG provides "advance approval" of certain navigable waters. This item should be coded 0 when Title 33, Code of Federal Regulations, Section 115.70, as amended states that the U.S. Coast Guard Commandant has given advance approval to the location and plans of bridges to be constructed across reaches of waterways navigable in law, but not actually navigated other than by logs, log rafts, rowboats, canoes and small motorboats.

For state owned structures, this item is coded by the BPO Information Group.

NBI Commentary:

This coding guide provides additional guidance on how to code bridges crossing advance approval waterways.

WSBIS Item 1387 – Navigation Vertical Clearance (XXX feet)

FHWA Item 39 – Navigation Vertical Clearance

(Cannot be null.)

If WSBIS Item 1386 – Navigation Control has been coded 1, record the minimum vertical clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. The measurement shall be coded to the foot. This measurement will show the clearance that is allowable for navigational purposes. In the case of a swing or bascule bridge, the vertical clearance shall be measured with the bridge in the closed position (i.e., open to vehicular traffic). The vertical clearance of a vertical lift bridge shall be measured with the bridge in the raised or open position. Also, WSBIS Item 1394 – Vertical Lift Minimum Navigation Clearance shall be coded to provide clearance in a closed position. If WSBIS Item 1386 – Navigation Control has been coded 0 or N, code 0 to indicate not applicable.

For state owned structures, this item is coded by the BPO Information Group.

WSBIS Item 1390 – Navigation Horizontal Clearance (XXXX feet)

FHWA Item 40 – Navigation Horizontal Clearance
(Cannot be null.)

If WSBIS Item 1386 – Navigation Control has been coded 1, record the horizontal clearance measurement imposed at the site that is shown on the navigation permit. This may be less than the structure geometry allows. If a navigation permit is required but not available, use the minimum horizontal clearance between fenders, if any, or the clear distance between piers or bents. Code the clearance to the foot. If WSBIS Item 1386 – Navigation Control has been coded 0 or N, code 0 to indicate not applicable.

For state owned structures, this item is coded by the BPO Information Group.

WSBIS Item 1394 – Vertical Lift Minimum Navigation Clearance (XXX feet)

FHWA Item 116 – Minimum Navigation Vertical Clearance, Vertical Lift Bridge
(Code this item only for vertical lift bridges in the dropped or closed position, otherwise leave blank.)

Code the minimum vertical clearance to the nearest lesser foot imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency.

For state owned structures, this item is coded by the BPO Information Group.

NBI Commentary:

Per 3/6/2013 email from Debbie Lehmann, FHWA, ferry terminal structures coded as lift spans should have 000 coded in this field.

WSBIS Item 1291 – Median

FHWA Item 33 – Bridge Median

(Cannot be null.)

Indicate with a 1-digit code if the median is nonexistent, open or closed. The median is closed when the area between the 2 roadways at the structure is bridged over and is capable of supporting traffic. All bridges that carry either 1-way traffic or 2-way traffic separated only by a centerline will be coded 0 for no median.

Table 1291 - Median Code

WSBIS Code	NBI Code	Description
0	0	No median (undivided highway)
1	1	Open median
2	2	Closed median – painted only
3	2	Closed median – mountable curb (<6" vertical surface, or sloped surface)
4	3	Closed median – flex or thrie beam
5	3	Closed median – box beam guardrail
6	3	Closed median – concrete barrier
8	3	Closed median – non-mountable curb (6" or greater vertical surface)
9	3	Other median

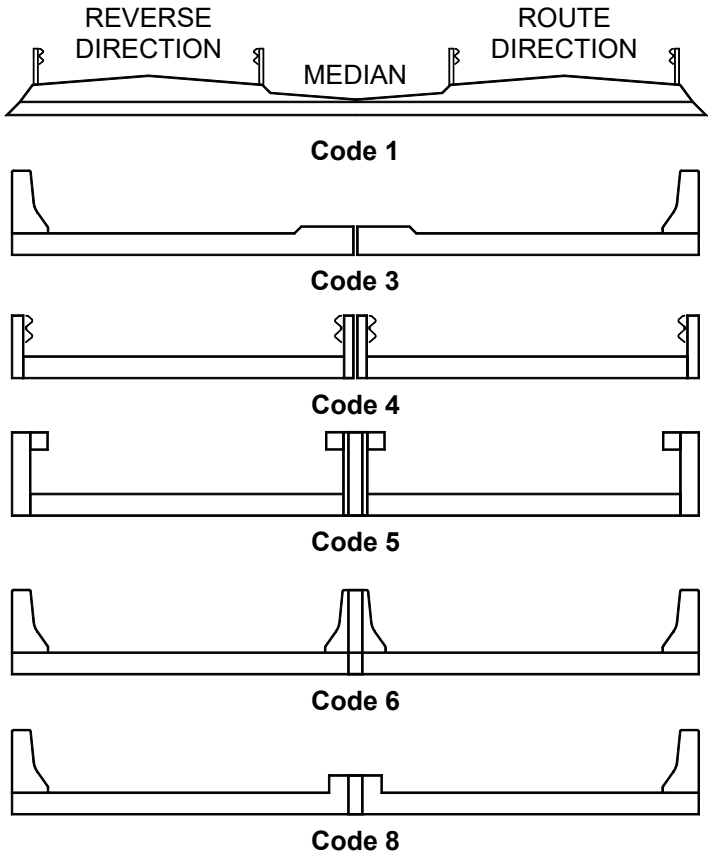


Figure WSBIS 1291

NBI Commentary:

This coding guide split out various types of medians that are translated to the NBI coding guide as described above.

WSBIS Item 1397 – Approach Roadway Width (XXX feet)

FHWA Item 32 – Approach Roadway Width
(Cannot be null if bridge has an On record, must be null if the bridge does not have an On record.)

Code the normal width of usable roadway approaching the structure measured to the nearest foot. Usable roadway width will include the width of traffic lanes and the widths of shoulders where shoulders are defined as follows:

Shoulders must be constructed and normally maintained flush with the adjacent traffic lane, and must be structurally adequate for all weather and traffic conditions consistent with the facility carried. Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane, is not to be considered a shoulder for this item.

For structures with medians of any type and double decked structures, this item should be coded as the sum of the usable roadway widths for the approach roadways (i.e., all median widths which do not qualify as shoulders should not be included in this dimension). When there is a variation between the approaches at either end of the structure, code the most restrictive of the approach conditions.

If a ramp is adjacent to the through lanes approaching the structure, it shall be included in the approach roadway width.

WSBIS Item 1310 – Skew (XX degrees)

FHWA Item 34 – Skew
(Cannot be null.)

The skew angle is the angle between the centerline of a pier and a line normal to the roadway centerline. When plans are available, the skew angle can be taken directly from the plans. If no plans are available, the angle is to be field measured if possible. Record the skew angle to the nearest degree. If the bridge piers are perpendicular to roadway centerline, code 0. When the structure is on a curve or if the skew varies for some other reason, the average skew should be recorded, if reasonable. Otherwise, record 99 to indicate a major variation in skews of substructure units.

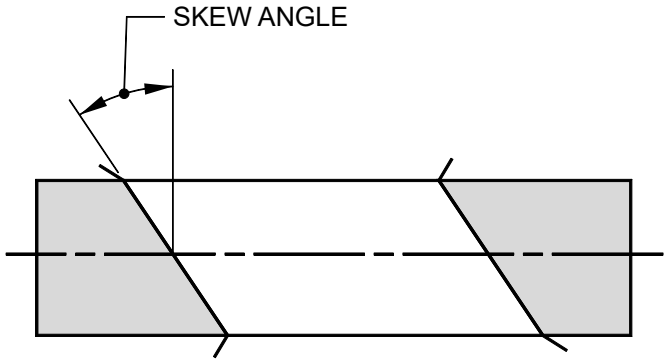


Figure WSBIS 1310

WSBIS Item 1312 – Flared Flag

FHWA 35 – Structure Flared

(Cannot be null.)

Code this item to indicate if the structure is flared (i.e., the width of the structure varies). Generally, such variance will result from ramps converging with or diverging from the through lanes on the structure, but there may be other causes. Minor flares at ends of structures should be ignored.

Table 1312 - Flared Flag

WSBIS Code	NBI Code	Description
N	0	No flare
Y	1	Yes, flared

Crossing Tab (Formerly WB74)

WSBIS Item 2000 – Main Listing Flag

See Coding Guide Clarifications for a description of the Main Listing Flag.

This item is visible in the BridgeWorks Inventory Management mode.

WSBIS Items 1432, 1433, 1434, and 1435

FHWA Item 5 – Inventory Route

The inventory route is composed of 4 segments.

Table 7 - Inventory Route Items

WSBIS Item	NBI Item	NTI Item	Description
1432	5A	n/a	Record Type
1433	5B	I.9	Route Signing Prefix
1434	5C	n/a	Designated Level of Service
1435	5D	I.7	Route Number

WSBIS Item 1432 – Inventory Route On/Under

FHWA Item 5A – Record type

(Cannot be null.)

There are two types of WSBIS and NBI records: On and Under. The NTI makes no distinction for tunnels, and WSBIS treats all tunnel records as Under records.

Table 1432 - On/Under Code

WSBIS Code	NBI Code	NTI Code	Description
1	1	n/a	Route carried on a bridge (not used for routes over a tunnel)
2	2	n/a	Single route goes under a bridge or through a tunnel
A – Z	A – Z	n/a	Multiple routes go under a bridge (no provision to code multiple routes through a tunnel)
0	n/a	n/a	No route on or under a structure

On signifies that the inventory route is carried on a bridge, but not over a tunnel. All of the NBI data items must be coded, unless specifically excepted, with respect to the bridge and the inventory route on it.

Under signifies that the inventory route goes under the structure if it's a bridge, and through a structure if it's a tunnel. If an inventory route beneath a bridge is a Federal-aid highway, is a STRAHNET route or connector or is otherwise important, it must be reported to the NBI. The type code must be 2 or an alphabetic letter A through Z. Code 2 for a single route under a bridge and for all tunnels. If two or more routes go under a bridge, code A, B, C, D, etc., consecutively for multiple routes on separate roadways under the same structure. STRAHNET routes shall be listed first. When this item is coded 2 or A through Z for bridges, only selected items are coded, as specified in the item descriptions and in the list in Table 2.

It cannot be overemphasized that all route-oriented data must agree with the coding as to whether the inventory route is on or under a bridge.

There are situations of a route under a bridge, where the bridge does not carry a highway, but may carry a railroad, pedestrian traffic, or even a building. These are coded the same as any other Under record and no On record shall be coded.

For additional clarification of On and Under records, refer to the Coding Guide Instructions.

NBI Commentary:

WSDOT created code 0 to indicate the bridge does not carry nor cross over a highway. An example would be a pedestrian structure over a waterway. These are not NBI bridges but may be included in the inventory at each agency's discretion.

WSBIS Item 1433 – Inventory Route Highway Class

FHWA Item 5B – Route Signing Prefix
NTI Item I.9 – Route Type
(Cannot be null.)

Identify the highway class for the inventory route using one of the following codes:

Table 1433 - Inventory Route Highway Class

WSBIS Code	Description
1	Interstate highway
2	U.S. numbered highway
3	State highway
4	County road
5	City street
6	Federal lands road
7	State lands road
8	Other (include toll roads not otherwise identifiable above)

When 2 or more routes are concurrent, the highest class of route will be used. The hierarchy is in the order listed above.

WSBIS Item 1434 – Inventory Route Service Level

FHWA Item 5C – Designated Level of Service
(Cannot be null.)

Identify the service level for the inventory route using one of the following codes:

Table 1434 - Inventory Route Service Level

WSBIS Code	Description
1	Mainline (includes reversible routes)
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, Wye, Connector, etc.
8	Service and/or unclassified frontage road
0	None of the above

WSBIS Item 1435 – Route XXXXX

FHWA Item 5D – Route Number
NTI Item I.7 – Route Number
(Cannot be null.)

Code the route number of the inventory route. This value shall be a five digit number, right justified with leading zeroes filled in.

If concurrent routes are of the same hierarchy level, denoted by the highway class, the lowest numbered route shall be coded. Code 00000 for structures on roads without route numbers.

WSBIS Item 2440 – Milepost (XXX.XX) miles

(Cannot be null.)

The milepost is displayed on the inspection report header with the associated route (WSBIS Item 1435). Both are intended to provide information about the location of the structure on the primary route used for inspection access, and should represent the structure milepost relative to nearby milepost signs.

WSBIS Item 2436 – Route Sequencer XX

(Cannot be null.)

The route sequencer is a two digit number used for placement of crossing records in the *Bridge List* M 23-09.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2437 – Bridge List Milepost Override (XXX.XX) miles

(Cannot be null.)

The bridge list milepost override is used for placement of crossing records in the *Bridge List* M 23-09.

For state owned structures, this item is coded by the BPO Information Group and is visible in the BridgeWorks Inventory Management mode.

WSBIS Item 2438 – Milepost Sequencer XX

(Cannot be null.)

The milepost sequencer is a two digit number used for placement of crossing records in the *Bridge List* M 23-09.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2468 – Directional Indicator

(Cannot be null.)

The directional indicator specifies if the inventory route carries traffic in the direction of increasing mileposts, decreasing mileposts or both.

I	Increasing
D	Decreasing
B	Both
*	Null field, does not apply

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2470 – Ahead/Back Indicator

(Cannot be null.)

The ahead/back indicator specifies whether a milepost value is the 'back' (B) duplicate of a milepost value 'ahead' (A) on the route.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 1467 – Linear Referencing System Route XXXXXXXXXXXX

FHWA Item 13A – LRS Inventory Route Number
NBI Item I.11 – LRS Route ID
(Cannot be null.)

Linear Reference is coded to correspond to the location of the crossing as it relates to the WSDOT standard Linear Referencing System (LRS). The LRS used must correspond to the LRS reported by our state's Highway Performance Monitoring System (HPMS).

Primarily the State Route LRS representation will be seen in this field, but there will be some form of a local LRS to use as well. For the State Route mainline, code the LRS as a three digit number (e.g., 090, 002). When coding other State Route types (e.g., ramps, couplets, spurs) maintain the 3 digit route designator along with additional information signifying a related route.

Examples:

599S500035
529SPEVERET (reported to NBI as 529SPEVERE)
005
005LX10130

NBI and NTI Commentary:

WSDOT maintains a 12 character, alphanumeric LRS route number, but the NBI receives only 10 digits. In most cases WSDOT does not use the 11th or 12th character. For the NBI submittal, any additional characters to the right of the 10th character are trimmed. Route numbers with fewer than 10 characters get reported with no additional leading zeroes added.

WSDOT codes LRS route numbers for all crossing records, but only routes on the Base Highway Network are submitted to the NBI.

The NTI allows up to 120 characters for this field, so complete data is submitted to the NTI.

WSBIS Item 1477 – Linear Referencing System Subroute

FHWA Item 13B – LRS Subroute Number
(Cannot be null.)

The LRS subroute number is always coded 00.

NBI Commentary:
WSDOT codes LRS subroute numbers for all crossing records, but only routes on the Base Highway Network are submitted to the NBI.

WSBIS Item 1469 – LRS Milepost (XXX.XX) miles

FHWA Item 11 – Kilometerpoint
NTI Item I.12 – LRS Milepoint
(Cannot be null.)

The linear referencing system (LRS) milepost is used to establish the location of the structure on the Base Highway Network (see WSBIS Item 1484). It must be from the same LRS route and milepost system as reported in the Highway Performance Monitoring System (HPMS). The milepost coded in this item directly relates to WSBIS Item 1467 – LRS Route.

This item records the milepost at the beginning of the structure (the lowest milepost on the structure). When the LRS Route goes under the structure (WSBIS Item 1432 coded 2 or A-Z), then code the milepost on the under passing route where the structure is first encountered.

Code to two decimal places. Code all zeroes in this field if the milepost is not available.

WSBIS Item 1483 – National Highway System

FHWA Item 104 – Highway System of the Inventory Route
NTI Item C.5 – NHS Designation
(Cannot be null.)

For the inventory route identified in WSBIS Item 1435, indicate whether the route is on the National Highway System (NHS) or not on that system. Ramps associated with NHS routes are included as NHS routes. Use one of the following codes:

Table 1483 - NHS Code

WSBIS Code	Description
0	Inventory Route is not on the NHS
1	Inventory Route is on the NHS

NBI and NTI Commentary:
WSDOT codes ramps as NHS routes when the associated mainline route is also NHS, in accordance with the NBI federal coding guide, and applied to both bridges and tunnels. However, in accordance with the FHWA Highway Performance Monitoring System (HPMS), ramps are coded 0. The NTI coding guide doesn't specify how ramps in tunnels are coded.

WSBIS Item 1484 – Base Highway Network

FHWA Item 12 – Base Highway Network

(Cannot be null.)

The Base Highway Network includes the mainline portions of the NHS (WSBIS Item 1483 is coded 1), rural/urban principal arterial system and rural minor arterial system. Ramps, frontage roads and other roadways are not included in the Base Network. For the inventory route identified in WSBIS Item 1435 – Inventory Route, use one of the following codes:

Table 1484 - Base Highway Network Code

WSBIS Code	Description
0	Inventory Route is not on the Base Network
1	Inventory Route is on the Base Network

WSBIS Item 1485 – STRAHNET Highway

FHWA Item 100 – STRAHNET Highway Designation

NTI Item C.6 – STRAHNET Designation

(Cannot be null.)

This item shall be coded for all records in the inventory that are designated as part of the Strategic Highway Network. For the purposes of this item, the STRAHNET Connectors are considered included in the term STRAHNET. For the inventory route identified in WSBIS Item 1435, indicate STRAHNET highway conditions using one of the following codes:

Table 1485 - STRAHNET Highway Code

WSBIS Code	NTI Code	Description
0	0	The inventory route is not a STRAHNET route
1	1	The inventory route is on an Interstate STRAHNET route
2	1	The inventory route is on a Non-Interstate STRAHNET route
3	1	The inventory route is on a STRAHNET connector route

NTI Commentary:

Toll codes translated for the NTI as shown in the table above.

WSBIS Item 1486 – Federal Lands Highways

FHWA Item 105 – Federal Lands Highways

(Cannot be null.)

Code zeroes for this field.

NBI Commentary:

WSDOT has not been able to identify a source for this data, and will code zeroes until an information source is identified.

WSBIS Item 1487 – Functional Classification

FHWA Item 26 – Functional Classification of Inventory Route
NTI Item C.7 – Functional Classification

(Cannot be null.)

For the inventory route, code the functional classification using one of the following codes:

Table 1487 - Functional Classification Code

WSDOT Code	NBI Code	NTI Code	Description
1	1	1	Rural Principal Arterial – Interstate
5	2	2	Rural Principal Arterial - Other Freeways or Expressways
2	2	3	Rural Principal Arterial – Other
6	6	4	Rural Minor Arterial
7	7	5	Rural Major Collector
8	8	6	Rural Minor Collector
9	9	7	Rural Local
11	11	1	Urban Principal Arterial – Interstate
12	12	2	Urban Principal Arterial – Other Freeways or Expressways
14	14	3	Urban Principal Arterial - Other
16	16	4	Urban Minor Arterial
17	17	5	Urban Major Collector
18	17	6	Urban Minor Collector
19	19	7	Urban Local

The structure shall be coded rural if not inside a designated urban area. The urban or rural designation shall be determined by the structure location and not the character of the roadway. The WSDOT Functional Classification Map is available at www.wsdot.wa.gov/mapsdata/travel/hpms/functionalclass.htm.

NBI and NTI Commentary:

Functional Classification codes are translated for the NBI and NTI as shown in the table above.

WSBIS Item 1489 – National Truck Network

FHWA Item 110 – Designated National Network

(Cannot be null.)

The national network for trucks includes most of the Interstate System and those portions of Federal-aid highways identified in the Code of Federal Regulations (23 CFR 658). The national network for trucks is available for use by commercial motor vehicles of the dimensions and configurations described in these regulations. For the inventory route identified in WSBIS Item 1435, indicate conditions using one of the following codes:

Table 1489 - National Truck Network Code

WSBIS Code	NBI Code	Description
N	0	The inventory route is not part of the national network for trucks
Y	1	The inventory route is part of the national network for trucks

WSBIS Item 1490 – Lane Use Direction

FHWA Item 102 – Direction of Traffic
NTI Item C.3 – Direction of Traffic
(Cannot be null.)

Code the direction of traffic of the inventory route identified in WSBIS Item 1435 as a 1-digit number using one of the codes below. This item must be compatible with other traffic-related items such as WSBIS Item 1352 – Lanes on the Structure, WSBIS Item 1445 – Average Daily Traffic, WSBIS Item 1491 – Total Horizontal Clearance and WSBIS Item 1356 – Curb-to-Curb.

Table 1490 - Lane Use Direction Code

WSBIS Code	NBI Code	NTI Code	Description
0	0	0	No highway traffic on inventory route
1	1	1	1 way traffic on inventory route
2	2	2	2 way traffic on inventory route
3	2	3	2 way and reversible traffic on inventory route
4	1	3	Reversible traffic only on inventory route
5	3	4	2 way traffic on 1 lane bridge (curb-to-curb must be <16 ft.)

NBI and NTI Commentary:

WSDOT provides additional codes to address reversible traffic lanes, which are translated to NBI and NTI codes as shown above.

WSBIS Item 1354 – Lanes Under

FHWA Item 28B – Lanes Under the Structure
NTI Item A.3 – Total Number of Lanes
(Cannot be null.)

Code the number of lanes under the structure.

For On records, code WSBIS Item 1354 for all lanes under the bridge for all routes that are functionally classified (see WSBIS Item 1487).

For Under records, code WSBIS Item 1354 for only the lanes associated with the inventory route under.

For Tunnels, code all the lanes in the tunnel.

Include all lanes carrying highway traffic (e.g., cars, trucks, buses) which are striped or otherwise operated as a full width traffic lane under the structure. This shall include any full width merge lanes and ramp lanes, and shall be independent of directionality of usage.

WSBIS Item 1445 – ADT XXXXXX

FHWA Item 29 – Average Daily Traffic
NTI Item A.4 – Average Daily Traffic
(Cannot be null.)

Code the average daily traffic (ADT) volume for the inventory route. Code the most recent ADT counts available. Included in this item are the trucks referred to in WSBIS Item 1451 – Average Daily Truck Traffic. If the structure is closed, code the actual ADT from before the closure occurred.

The ADT must be compatible with the other items coded for the structure. For example, parallel bridges with an open median are coded as follows: if WSBIS Item 1352 – Lanes On the Structure and WSBIS Item 1356 – Curb-to-Curb are coded for each bridge separately, then the ADT must be coded for each bridge separately (not the total ADT for the route).

ADT information is available at www.wsdot.wa.gov/mapsdata/tools/traffictrends/.

WSBIS Item 1451 – ADT Truck Percentage (XX percent)

FHWA Item 109 – Average Daily Truck Traffic
NTI Item A.6 – Average Daily Truck Traffic
(Cannot be null.)

Code the percentage of WSBIS Item 1445 – Average Daily Traffic that is truck traffic on the inventory route. Do not include vans, pickup trucks and other light delivery trucks in this percentage.

NBI Commentary:

The NBI does not require data for Average Daily Truck Traffic if WSBIS Item 1445, ADT, is less than 100. WSDOT requires this data for all routes, regardless of ADT.

NTI Commentary:

The NTI maintains an average daily truck count, not a percentage. WSBIS translates the percentage to a total count using the following formula: ADT x ADT Truck Percentage = ADT Count

WSBIS Item 1453 – ADT Year

FHWA Item 30 – Year of Average Daily Traffic
NTI Item A.6 – Year of Average Daily Traffic
(Cannot be null.)

Record the year represented by the ADT in WSBIS Item 1445. Code all four digits of the year.

ADT Year information is available at the link in WSBIS Item 1445.

WSBIS Item 1457 – Future ADT

FHWA Item 114 – Future Average Daily Traffic
(Cannot be null if inventory route is on the bridge, must be null if inventory route is under the bridge.)

Code the forecasted average daily traffic (ADT) for the inventory route. This shall be projected at least 17 years but no more than 22 years from the last year of routine inspection. If planning data is not available, use the best estimate based on site familiarity.

The future ADT must be compatible with the other items coded for the structure. For example, parallel bridges with an open median are coded as follows: if WSBIS Item 1352 – Lanes On the Structure and WSBIS Item 1356 – Curb-to-Curb are coded for each bridge separately, then the future ADT must be coded for each bridge separately (not the total for the route).

WSBIS Item 1463 – Future ADT Year

FHWA Item 115 – Year of Future Average Daily Traffic
(Cannot be null if inventory route is on the bridge, must be null if inventory route is under the bridge.)

Code the year represented by the future ADT in WSBIS Item 1457. The projected year of future ADT shall be at least 17 years but no more than 22 years from the year of routine, short span, or safety inspection.

WSBIS Item 1413 – Detour Length (XX miles)

FHWA Item 19 – Bypass, Detour Length
NTI Item A.7 – Detour Length
(Cannot be null.)

Indicate the actual length to the nearest mile of the detour length, which is considered the additional travel needed to return to the original route if the structure is closed.

If a ground level bypass is available at the structure site for the inventory route (ramps at a diamond interchange, for example), code the detour length as 0. If the detour exceeds 99 miles, code 99. If the bridge is one of twin bridges and is not at an interchange, code 1 where the other twin bridge can be used as a temporary bypass with a reasonable amount of crossover grading.

Code 0 for routes under a bridge, on the basis that a failed bridge over the route can be removed to allow passage. Routes through tunnels should be the actual detour length.

To the extent practical, the detour route should match the capacity and functionality of the original route. When this is not possible the following minimum standards shall apply:

1. The detour route cannot have weight restrictions lower than the original route.
2. The detour route cannot have vertical clearance limits over the roadway lanes less than 14 feet 3 inches (as measured) unless the original route also has vertical clearance restrictions, in which case the detour cannot further restrict clearances.

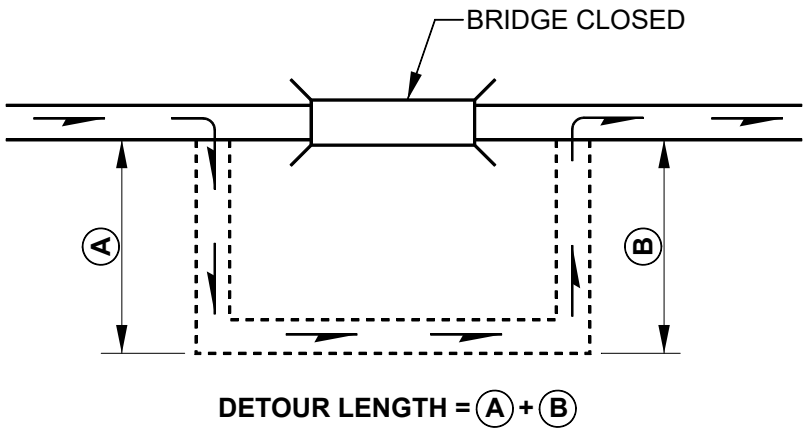


Figure 1413

NBI Commentary:
This coding guide provides additional direction on how to code routes under the structure, and additional criteria for determining acceptable detour routes.

WSBIS Item 2409 – NTI Reportable Flag

(Cannot be null.)

Indicate if the crossing record is to be included in the National Tunnel Inventory data submittal or not.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2410 – NBI Reportable Flag

(Cannot be null.)

Indicate if the crossing record is to be included in the National Bridge Inventory data submittal or not.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2411– Bridge List

(Cannot be null.)

Indicate if the crossing record is to be included or not in the *Bridge List* M 23-09.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

Table 2411 - Bridge List Code

WSBIS Code	Description
1	The crossing record is included in the Bridge List.
2	The crossing record is NOT included in the Bridge List.

WSBIS Item 1491 – Horizontal Clearance, Route Direction (XXXX feet & inches)

WSBIS Item 1495 – Horizontal Clearance, Reverse Direction (XXXX feet & inches)

FHWA Item 47 – Inventory Route, Total Horizontal Clearance
(Cannot both be null.)

The horizontal clearance for the inventory route should be measured and recorded for each opening between restrictive features – curbs, rails, guardrails, walls, piers, slopes, or other structural features limiting the roadway (surface and shoulders).

The purpose of this item is to give the largest available clearance for the movement of wide loads. Flush and mountable medians are not considered to be restrictions. This clearance is defined in two ways:

1. Clear distance between restrictions of the inventory route either on or under the structure.
2. Roadway surface and shoulders when there are no other restrictions.

When the entire inventory route passes through a single opening, code the measurement in WSBIS Item 1491 and WSBIS Item 1495 blank.

When the inventory route passes through multiple openings, code WSBIS Item 1491 and WSBIS Item 1495 for the mainline as appropriate.

When a restriction is 100 feet or greater, code 9912.

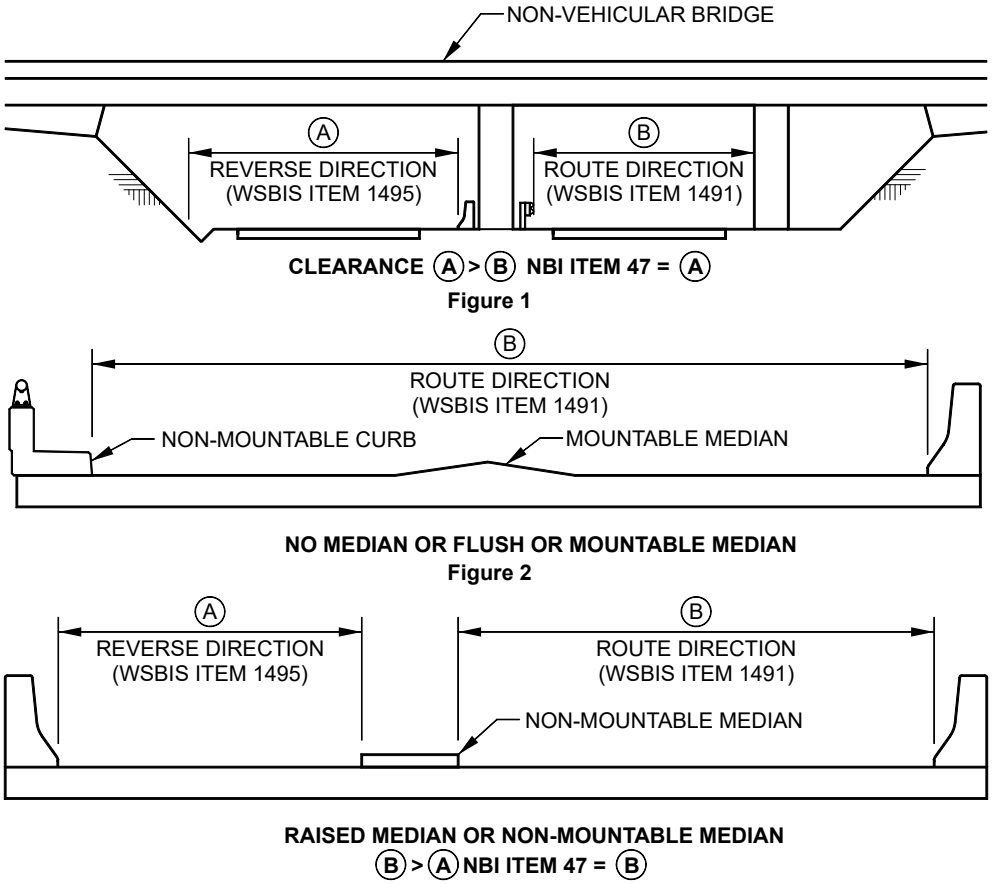


Figure 1495

NBI Commentary:

The NBI requires coding only the maximum horizontal clearance for divided highways. WSBIS has two fields. When the NBI submittal is prepared, the largest dimension is selected and reported.

WSBIS Item 1499 – Maximum Vertical Clearance Route Direction (XXXX feet & inches)

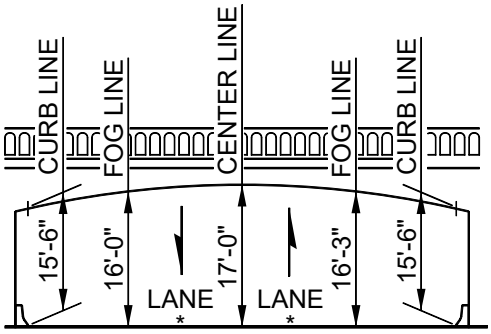
FHWA Item 10 – Inventory Route, Minimum Vertical Clearance

(Null when no restriction exists.)

Code the practical maximum vertical clearance over the inventory route identified in WSBIS Item 1435, in the direction of increasing mileposts, whether the route is on the structure or under the structure. This field identifies the minimum vertical clearance for the lane that will carry the highest load, regardless of the direction of travel. When no restriction exists leave this item blank. When the restriction is 100 feet or greater code 9912.

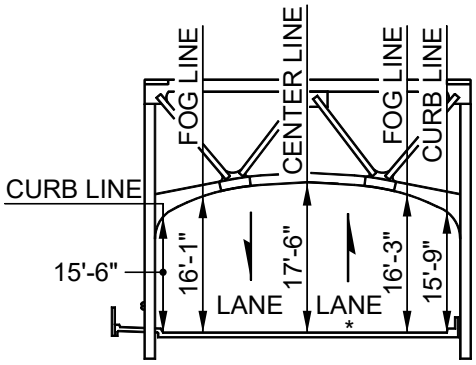
To accurately code this field, all vertical clearance measurements for the inventory route must be collected over all lane stripes and at edges of pavement, recorded in a vertical clearance card, and kept on file.

Example:



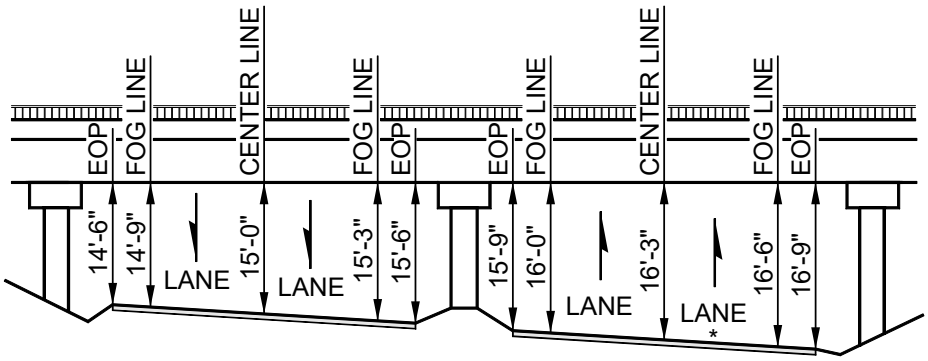
UNDIVIDED HIGHWAY EXAMPLE

Figure 1499a



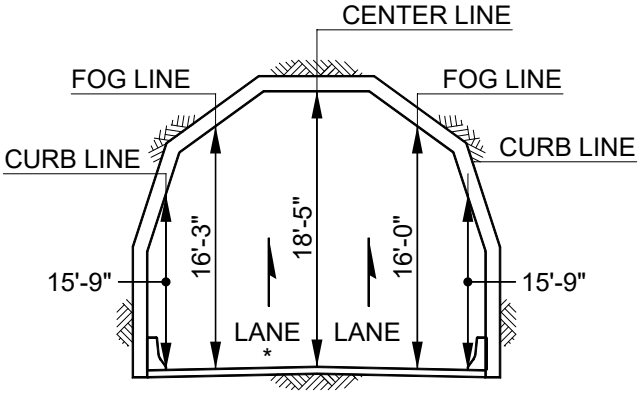
STEEL TRUSS EXAMPLE

Figure 1499b



DIVIDED HIGHWAY EXAMPLE

Figure 1499c



TUNNEL

Figure 1499d

Code "1603": THE MAXIMUM VERTICAL HEIGHT ALLOWED IN ANY 10 FOOT ROADWAY WIDTH IS THE LEAST VERTICAL CLEARANCE IN THE LANE OF ROADWAY WITH THE MAXIMUM VERTICAL CLEARANCE.

* CONTROLLING LANE.

Figure 1499

NBI Commentary:

The NBI coding guide indicates that this measurement should be the minimum clearance for a 10 foot width of pavement or travelled part of the roadway. However, from a practical perspective this has been interpreted in this coding guide as the clearance for the lane that will pass the tallest load. The lanes are defined by striping.

WSBIS Item 2500 – Minimum Vertical Clearance Route Direction (XXXX feet & inches)

(Null when no restriction exists.)

Code the practical minimum vertical clearance over the inventory route identified in WSBIS Item 1435, in the direction of increasing mileposts, whether the route is on the structure or under the structure.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2501 – Maximum Vertical Clearance Reverse Direction (XXXX feet & inches)

(Null when route is an undivided highway or when no restriction exists.)

Code the practical maximum vertical clearance over the inventory route identified in WSBIS Item 1435, in the direction of decreasing mileposts, whether the route is on the structure or under the structure.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2502 – Minimum Vertical Clearance Reverse Direction (XXXX feet & inches)

(Null when route is an undivided highway or when no restriction exists.)

Code the practical minimum vertical clearance over the inventory route identified in WSBIS Item 1435, in the direction of decreasing mileposts, whether the route is on the structure or under the structure.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2401– Crossing Manager

(Cannot be null.)

The Crossing Manager is the Program Manager responsible for the route identified in WSBIS Item 1435, whether that route is on or under the structure.

For state owned structures, this item is coded by the BPO Information Group and is visible in BridgeWorks Inventory Management mode.

WSBIS Item 2402 – Crossing Description

(Cannot be null.)

This item describes the bridge crossing from the perspective of the inventory route. When a bridge both carries a state route and crosses over another state route, each crossing record will have a separate crossing description:

Main listing On Record crossing description: SR 512 OVER I-5
Secondary listing Under Record crossing description: I-5 UNDER SR 512

Design Tab (Formerly WB75)

WSBIS Item 1532 – Main Span Material

FHWA Item 43A – Structure Type, Main, Kind of Material

(Cannot be null.)

Indicate the kind of material and/or design for the main span.

Table 1532 - Main Span Material Code

WSBIS Code	Description
1	Concrete
2	Concrete continuous
3	Steel
4	Steel continuous
5	Prestressed and/or post-tensioned concrete
6	Prestressed and/or post-tensioned concrete continuous
7	Wood or Timber
8	Masonry
9	Aluminum, Wrought Iron, or Cast Iron
0	Other (also to be used when not applicable for approach spans)

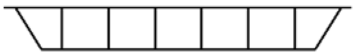
WSBIS Item 1533 – Main Span Design

FHWA Item 43B – Structure Type, Main, Type of Design

(Cannot be null.)

Indicate the predominant type of design and/or type of construction.

Table 1533 - Main Span Design Code

WSBIS Code	NBI Code	Description
1	01	Slab
2	02	Stringer/Multibeam or Girder
3	03	Girder and Floorbeam System
4	04	Tee Beam
5	05	Box Beam or Girders – Multiple 
6	06	Box Beam or Girders – Single or Spread
7	07	Frame (except frame culverts)
8	08	Orthotropic
9	09	Truss – Deck
10	10	Truss – Thru
11	11	Arch – Deck
12	12	Arch – Thru
13	13	Suspension
14	14	Stayed Girder
15	15	Movable – Lift
16	16	Movable – Bascule
17	17	Movable – Swing
18	18	Tunnel (this code designates reporting to the NTI instead of the NBI)
19	19	Culvert (includes frame culverts)
20*	20*	Mixed types
21	21	Segmental Box Girder
22	22	Channel Beam (Bathtub Unit)
0	00	Other (also to be used when not applicable for approach spans)
*Applicable only to approach spans – WSBIS Item 1536		

Examples:

Wood or Timber Through Truss = 710
Masonry Culvert = 819
Steel Suspension = 313
Continuous Concrete Multiple Box Girders = 205
Simple Span Concrete Slab = 101
Tunnel in Rock = 018

WSBIS Item 1535 – Approach Span Material

FHWA Item 44A – Structure Type, Approach Spans, Kind of Material
(Cannot be null.)

Indicate the type of structure for the approach spans to a major bridge or for the spans where the structural material is different. The codes are the same as for WSBIS Item 1532. If the kind of material is varied, code the most predominant.

Code 0 if this item is not applicable.

WSBIS Item 1536 – Approach Span Design

FHWA Item 44B – Structure Type, Approach Spans, Type of Design
(Cannot be null.)

Indicate the type of structure for the approach spans to a major bridge or for the spans where the structural material is different using Table 1533. Use code 20 when no one type of design and/or construction is predominant for the approach units.

Code 00 if this item is not applicable.

WSBIS Item 2537 – Alpha Span Type

(Cannot be null.)

The alphabetic span type is coded in BridgeWorks application in Inventory Management mode. Use one of the following acronyms:

Table 2537 - Alpha Span Type Codes

Alpha Span Type	Description	Alpha Span Type	Description
3SCCulv	3 Sided Concrete Culvert	PTCSeg	Post-Tensioned Segmental Box Girder
3STCulv	3 Sided Timber Culvert	PTCTB	Post-Tensioned Concrete T-Beam
BAS	Bascule Lift Span	SA	Steel Arch
CA	Concrete Arch	SBox	Steel Box Girder
CBox	Concrete Box Girder	SCulv	Steel Culvert
CCulv	Concrete Culvert	SFP	Steel Floating Pontoon
CEFA	Concrete Earth Filled Arch	SG	Steel Girder (weld or rivet)
CESB	Concrete Encased Steel Beam	SLS	Steel Lift Span
CFP	Concrete Floating Pontoon	SRB	Steel Rolled Beam
CG	Concrete Girder	SSCG	Steel Stayed Concrete Girder
CLTun	Concrete Lined Tunnel	SSusS	Steel Suspension Span
CS	Concrete Slab	SSwS	Steel Swing Span
CSS	Cable Stayed Span	STA	Steel Tied Arch
CSTP	Concrete Slab on Timber Piling	STrus	Steel Truss
CTB	Concrete T-Beam	TCulv	Timber Culvert
CTrus	Concrete Truss	TLTun	Timber Lined Tunnel
CVS	Concrete Voided Slab	TS	Timber Slab
LIDTun	Cut and Cover (LID) Tunnel	TTC	Treated Timber (Creosote) Bridge
MCulv	Masonry Culvert	TTLB	Treated Timber Laminated Beam
PCBTG	Prestressed Concrete Bulb-T Girder	TTS	Treated Timber (Salts) Bridge
PCG	Prestressed Concrete Girder	TTTrus	Treated Timber Truss
PCMWG	Prestressed Concrete Multi-Web Girder	UT	Untreated Timber Bridge
PCS	Prestressed Concrete Slab	UTLB	Untreated Timber Laminated Beam
PCTG	Prestressed Concrete Trapizoidal Girder	UTTrus	Untreated Timber Truss
Plaza	Park Plaza Structures	UTun	Unlined Tunnel
PRCB	Precast Reinforced Concrete Beam	WSBox	Weathering Steel Box Girder
PTCBox	Post-Tensioned Concrete Box Girder	WSG	Weathering Steel Girder

WSBIS Item 1538 – Number of Main Spans

FHWA Item 45 – Number of Spans in Main Unit

(Cannot be null.)

Record the number of spans in the main or major unit. This item will include all spans of most bridges, the major unit only of a sizable structure, or a unit of material or design different from that of the approach spans.

A span that contains a drop-in span with cantilevers, or two cantilever spans with a hinge, is counted as one span (from pier to pier). Cantilever end spans are counted separately.

WSBIS Item 1541 – Number of Approach Spans

FHWA Item 46 – Number of Approach Spans

(Cannot be null.)

Record the number of approach spans to the major bridge, or the number of spans of material different from that of the major bridge.

Code 0 if this item is not applicable.

NBI Commentary:

This coding guide requires coding zeroes when there are no approach spans. The NBI coding guide doesn't provide guidance.

WSBIS Item 1544 – Service On

FHWA Item 42A – Type of Service On Bridge

(Cannot be null.)

Table 1544 - Service On Code

WSBIS Code	Description
1	Highway
2	Railroad
3	Pedestrian-bicycle
4	Highway-railroad
5	Highway-pedestrian
6	Overpass structure at an interchange or second level of a multilevel interchange
7	Third level (Interchange)
8	Fourth level (Interchange)
9	Building or plaza
0	Other

WSBIS Item 1545 – Service Under

FHWA Item 42B – Type of Service Under Bridge

(Cannot be null.)

Table 1545 - Service Under Code

WSBIS Code	Description
1	Highway, with or without pedestrian
2	Railroad
3	Pedestrian-bicycle
4	Highway-railroad
5	Waterway
6	Highway-waterway
7	Railroad-waterway
8	Highway-waterway-railroad
9	Relief for waterway
0	Other

WSBIS Item 1546 – Deck Type

FHWA Item 107 – Deck Structure Type

(Cannot be null.)

Record the type of deck system on the bridge. If more than one type of deck system is on the bridge, code the most predominant. Code A for a filled culvert or arch with the approach roadway section carried across the structure.

Main Listing Under records (e.g., railroad bridges and pedestrian bridges) are to be coded N, with the following exception: WSDOT owned pedestrian bridges are to be coded with the appropriate Deck Type.

Use one of the following codes:

Table 1546 - Deck Type Code

WSBIS Code	NBI Code	Description
1	1	Concrete Cast-in-Place
2	2	Concrete Precast Panels
3	3	Steel Grating – Open
4	4	Steel Grating – Filled with Concrete
5	5	Steel plate (includes orthotropic)
6	6	Corrugated Steel
7	7	Aluminum
8	8	Treated timber
9	8	Untreated timber
0	9	Other
A	N	Filled arches / Culverts
B	9	Precast integral with beam
N	N	Bridges with no deck

NBI Commentary:

WSDOT provides additional codes which are translated to NBI codes as shown above.

FHWA Item 108 – Wearing Surface/Protective System

(Cannot be null.)

Information on the wearing surface and protective system of the bridge deck shall be coded using a 3-digit code composed of three segments, WSBIS Items 1547, 1548 and 1549.

Main Listing Under records (e.g., railroad bridges and pedestrian bridges) are to be coded N, with the following exception: WSDOT owned pedestrian bridges are to be coded with the appropriate Wearing Surface/Protective system codes.

WSBIS Item 1547 – Wearing Surface

FHWA Item 108A – Type of Wearing Surface

Table 1547 - Wearing Surface Code

WSBIS Code	Description
1	Monolithic Concrete (concurrently placed with structural deck)
2	Integral Concrete (separate non-modified layer of concrete added to structural deck)
3	Latex Concrete or similar additive
4	Low Slump Concrete
5	Epoxy Overlay
6	Bituminous (ACP or BST)
7	Timber
8	Gravel
9	Other
0	None (no additional concrete thickness or wearing surface is included in the bridge deck)
N	Bridges with no deck

WSBIS Item 1548 – Membrane

FHWA Item 108B – Type of Membrane

Table 1548 - Membrane Code

WSBIS Code	Description
1	Built-up
2	Preformed Fabric
3	Epoxy
8	Unknown
9	Other
0	None
N	Bridges with no deck

WSBIS Item 1549 – Deck Protection

FHWA Item 108C – Deck Protection

Table 1549 - Deck Protection Code

WSBIS Code	Description
1	Epoxy Coated Reinforcing
2	Galvanized Reinforcing
3	Other Coated Reinforcing
4	Cathodic Protection
6	Polymer Impregnated
7	Internally Sealed
8	Unknown
9	Other
0	None
N	Bridges with no deck

WSBIS Item 1550 – Design Load

FHWA Item 31 – Design Load

(Cannot be null if bridge has an On record, must be null if the bridge does not have an On record.)

Use the codes below to indicate the live load for which the structure was designed. The numerical value of the railroad loading should be recorded on the form. Classify any other loading, when feasible, using the nearest equivalent of the loadings given below.

Table 1550 - Design Load Code

WSBIS Code	Metric Description	English Description
0	Unknown	Unknown
1	M 9	H 10
2	M 13.5	H 15
3	MS 13.5	HS 15
4	M 18	H 20
5	MS 18	HS 20
6	MS 18 + Mod	HS 20 + Mod
7	Pedestrian	Pedestrian
8	Railroad	Railroad
9	MS 22.5 or greater	HS 25 or greater
A	HL 93	HL 93
B	Greater than HL 93	Greater than HL 93
C	Other	Other

NBI Commentary:

This field has been revised based on a February 2, 2011 FHWA memo available at www.fhwa.dot.gov/bridge/110202.cfm.

TEMPLATE
To
UPDATE LOAD RATINGS

(Actual Summary Sheets may vary)

BRIDGE RATING SUMMARY

Bridge Name: *WSBIS Item 1132 – check for accuracy*
Bridge Number: *WSBIS Item 2009 – check for accuracy*
Structure ID *WSBIS Item 1001 – check for accuracy*
Span Types: *WSBIS Item 2537 – check for accuracy*
Bridge Length: *WSBIS Item 1340 – check for accuracy*
Design Load: *WSBIS Item 1550 – check for accuracy*
Rated By: WSBIS Item 2582 – code/update
Checked By: _____
Date: WSBIS Item 2581 – code/update

Inspection Report Date:	2580 – code/update	Deck Condition	
Rating Method:	1551 – code/update	Superstructure Condition	
Overlay Thickness:	_____	Substructure Condition	

Truck	RF (INV)	RF (OPR)	Controlling Point
AASHTO 1	WSBIS Item 2587 – code/update		
AASHTO 2	WSBIS Item 2588 – code/update		
AASHTO 3	WSBIS Item 2589 – code/update		
NRL	WSBIS Item 2590 – code/update		
SU4	WSBIS Item 2591 – code/update		
SU5	WSBIS Item 2592 – code/update		
SU6	WSBIS Item 2593 – code/update		
SU7	WSBIS Item 2594 – code/update		
OL-1	WSBIS Item 2595 – code/update		
OL-2	WSBIS Item 2596 – code/update		

NBI Rating	RF	TONS	Controlling Point
Inventory (HS20)	WSBIS Items 1552 and/or 1553 – code/update		
Operating (HS20)	WSBIS Items 1555 and/or 1556 – code/update		

Remarks:

WSBIS Item 2580 – Reference Inspection Date

(Cannot be null if bridge has an On record)

Code the inspection report date used for the load rating calculations. Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2581 – Load Rating Date

(Cannot be null if bridge has an On record)

Code the load rating calculation date. Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2582 – Rated By

(Cannot be null if bridge has an On record)

Code the initials or engineering firm name indicating who performed the load rating. Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2587 – Type 3 Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the AASHTO Type 3 legal load truck as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2588 – Type 3S2 Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the AASHTO Type 3S2 legal load truck as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2589 – Type 3-3 Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the AASHTO Type 3-3 legal load truck as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2590 – Notional Rating Load (NRL) Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the AASHTO Notional Rating Load (NRL) as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2591 – Single Unit 4 (SU4) Rating Factor (XX.XX rating factor)

Code the rating factor for the AASHTO SU4 legal load truck as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

This field can be null if WSBIS Item 2590 (NRL) is populated and equal to or greater than 1.00.

WSBIS Item 2592 – Single Unit 5 (SU5) Rating Factor (XX.XX rating factor)

Code the rating factor for the AASHTO SU5 legal load truck as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

This field can be null if WSBIS Item 2590 (NRL) is populated and equal to or greater than 1.00.

WSBIS Item 2593 – Single Unit 6 (SU6) Rating Factor (XX.XX rating factor)

Code the rating factor for the AASHTO SU6 legal load as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

This field can be null if WSBIS Item 2590 (NRL) is populated and equal to or greater than 1.00.

WSBIS Item 2594 – Single Unit 7 (SU7) Rating Factor (XX.XX rating factor)

Code the rating factor for the AASHTO SU7 legal load as defined within the AASHTO *Manual for Bridge Evaluation* (MBE) Section 6. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

This field can be null if WSBIS Item 2590 (NRL) is populated and equal to or greater than 1.00.

WSBIS Item 2595 – Overload 1 (OL-1) Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the WSDOT Overload 1 (OL-1) permit load as defined within the *Bridge Design Manual* M 23-50.14, Chapter 13. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 2596 – Overload 2 (OL-2) Rating Factor (XX.XX rating factor)

(Cannot be null if bridge has an On record)

Code the rating factor for the WSDOT Overload 2 (OL-2) permit load as defined within the *Bridge Design Manual* M 23-50.14, Chapter 13. If the Load Factor or Working Stress method is used to rate this structure, enter the Operating Rating factor only.

Usually this field will be coded or updated by transcribing information from the most current Load Rating Summary Sheet, see Figure WSBIS 2580.

WSBIS Item 1551 – Operating Rating Method

FHWA Item 63 – Method Used to Determine Operating Rating

(Cannot be null if bridge has an On record)

Code this field with one of the following codes to indicate which load rating method was used to determine the rating for this bridge.

Table 1551 - Operating Rating Method Code

WSBIS Codes		NTI Codes	Description
Used by WSDOT	Used by Local Agencies		
0	0	0	Field evaluation and documented engineering judgment reported in tons using HS20 loading
1	1	-	Load Factor (LF) reported in tons using HS20 loading
2	2	-	Allowable Stress (AS) reported in tons using HS20 loading
-	3	-	Load and Resistance Factor (LRFR) reported in tons
4	4	-	Load Testing reported in tons using HS20 loading
5	5	5	No rating analysis or evaluation performed
-	6	1	Load Factor (LF) rating reported by rating factor using HS20 loading
-	7	2	Allowable Stress (AS) rating reported by rating factor using HS20 loading
8	8	3	Load and Resistance Factor Rating (LRFR) reported by rating factor using HL93 loading
F	-	A	Assigned rating method based on Load and Resistance Factor Design (LRFD) reported by rating factor using HL93 loading
Note: WSDOT uses codes 0, 1, 2, 4, 5, 8 and F for bridges and culverts. Local Agencies uses codes 0 through 8 for bridges and culverts. For tunnels, all agencies use WSBIS codes 0, 1, 2, 3, 5, and A.			

Code 0 is to be used when the load rating is determined by field evaluation and documented engineering judgment, typically done when plans are not available for concrete structures or in cases of severe deterioration. Field evaluation and engineering judgment ratings must be documented. See Chapter 5 for additional guidance.

Code 5 is to be used when the structure has not been load rated or load rating documentation does not exist.

NBI and NTI Commentary:

WSBIS Item 1551 has been modified based on a November 15, 2011 FHWA Memo available at www.fhwa.dot.gov/bridge/nbi/111115.cfm.

The NTI does not report load ratings in tons, only rating factors. This restricts load rating methods to only those that report in rating factors.

Codes A through E are not available in WSBIS because there are no agencies which use these methods.

WSBIS Item 1552 – Operating Rating Tons (XX tons)

FHWA Item 64 – Operating Rating
NTI Item L.3 – Operating Rating Factor

(Cannot be null if structure has an On record and WSBIS Item 1551 is coded 0 through 4. Must be null if WSBIS Item 1551 is coded 5 through 8 or F.)

WSDOT enters rating data into the database as English tonnage for all cases noted in WSBIS Items 1551 and 1554 which have methods coded 0 through 4. For methods coded 5 through 8 or F, use WSBIS Items 1553 and 1556 to enter the rating factor.

The following text defines both WSBIS Item 1552 – Operating Rating Tons and WSBIS Item 1555 – Inventory Rating Tons.

WSDOT enters rating tons as a 2-digit number. For values greater than 99 tons, enter 99.

If the bridge will not carry a minimum of 3 tons of live load, the operating rating tons shall be coded 0; and, consistent with the direction of the AASHTO Manual, it shall be closed.

The use or presence of a temporary bridge requires special consideration in coding. In such cases, since there is no permanent bridge, the inventory and operating rating tons should be coded 0 even though the temporary structure is rated for as much as full legal load.

A bridge shored up or repaired on a temporary basis is considered a temporary bridge and the inventory and operating rating tons shall be coded as if the temporary shoring were not in place. See WSBIS Item 1289 – Temporary Structure Designation for definition of a temporary bridge.

For a bridge that is closed (WSBIS Item 1293 is coded K), operating and inventory rating tons shall be coded 0.

Code 99 for a structure under sufficient fill such that, according to AASHTO design, the live load stress on the structure is insignificant in the structure load capacity.

NBI Commentary:

WSBIS Items 1552 and 1555 have been modified based on a March 22, 2004, FHWA Memo available at www.fhwa.dot.gov/bridge/032204.htm.

Note: This field is no longer restricted to reporting HS20 loads only – by WSBIS Item 1551 definition, in some cases HL93 load cases are reported here. Additional clarification on how to code these fields was also added.

For reporting to the FHWA, this 2-digit number is converted to metric tons and reported as a 3-digit number, rounded to tenths.

WSBIS Item 1553 – Operating Rating Factor (X.XX rating factor)

FHWA Item 64 – Operating Rating

(Cannot be null if bridge has an On record and WSBIS Item 1551 is coded 5 through 8 or F. Must be null if WSBIS Item 1551 is coded 0 through 4.)

WSDOT enters rating data as factors for all cases noted in WSBIS Items 1551 and 1554 which have methods coded 5 through 8 or F. For methods coded 0 through 4, use WSBIS Items 1552 and 1555 to enter rating tonnage.

If WSBIS Item 1551 – Operating Rating Method has been coded 5, for new structures, the operating rating shall be coded with a rating factor of 1.30.

If WSBIS Item 1554 – Inventory Rating Method has been coded 5, for new structures, the inventory rating shall be coded with a rating factor of 1.00.

NBI Commentary:

When this 3-digit number is reported in the NBI submittal, the FHWA multiplies it by 32.4 and rounds it to tenths. This number represents metric tons. Due to the fact the FHWA cannot currently process metric tons greater than 99.9, any rating factor greater than 3.08 is truncated to 99.9 metric tons upon conversion.

WSBIS Item 1554 – Inventory Rating Method

FHWA Item 65 – Method Used to Determine Inventory Rating
NTI Item L.1 – Load Rating Method

See WSBIS Item 1551 for coding instructions.

WSBIS Item 1555 – Inventory Rating Tons (XX tons)

FHWA Item 66 – Inventory Rating

For Inventory Rating Methods coded 0 through 4, see WSBIS Item 1552 for rating tons coding instructions.

WSBIS Item 1556 – Inventory Rating Factor (X.XX rating factor)

FHWA Item 66 – Inventory Rating
NTI Item L.2 – Inventory Load Rating Factor

For Inventory Rating Methods coded 5 through 8 or F, see WSBIS Item 1553 for rating factor coding instructions.

WSBIS Item 1585 – Border Bridge State Code

FHWA Item 98A – Border Bridge, Neighboring State Code
(If the bridge is not on a border, leave blank.)

Use this item to indicate structures crossing to Oregon or Idaho. Code a 3-digit number specifying which border state.

The neighboring state codes are:

Oregon 410
Idaho 160

NBI Commentary:
This field has been limited to codes relevant to Washington State.

WSBIS Item 1588 – Border Bridge Percent

FHWA Item 98B – Border Bridge, Percent Responsibility
(If the bridge is not on a border, leave blank.)

Code a 2-digit number specifying the percent responsibility for any bridge improvements born by the border state.

WSBIS Item 1590 – Border Bridge Structure Identifier

FHWA Item 99 – Border Bridge Structure Number
(If the bridge is not on a border, leave blank.)

Code the neighboring State's 15-digit National Bridge Inventory structure number for any structure noted in WSBIS Item 1585 – Border Bridge. This number must match exactly the neighboring State's submitted NBI structure number. The entire 15-digit field must be accounted for including zeroes and blank spaces whether they are leading, trailing, or embedded in the 15-digit field.

Proposed Improvements Tab (Formerly WB78)

The following Proposed Improvement items must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. To be eligible, a bridge must carry highway traffic, be structurally deficient and have a sufficiency rating of 80.0 or less. This item may be coded for other bridges at the option of the highway agency.

WSDOT maintains all proposed improvement data for all bridges. These codes are automatically populated for every bridge, but can be manually overridden as appropriate. If manual entry is to be done, use WSBIS Item 2883 to prevent automatic calculation.

NBI Commentary:

WSBIS allows up to seven digits each for Structure, Roadway and Total Costs (in thousands of dollars). Amounts coded greater than six digits will be converted to 999999 for the NBI data submittal.

WSBIS Item 1844 – Work Type

FHWA Item 75A – Type of Work ProposedUse one of the following codes to represent the proposed work type:

Table 1844 - Work Type Code

WSBIS Code	Description
31	Replacement of bridge or other structure because of substandard load carrying capacity or substandard bridge roadway geometry.
32	Replacement of bridge or other structure because of relocation of road.
33	Widening of existing bridge or other major – structure without deck rehabilitation or replacement; includes culvert lengthening.
34	Widening of existing bridge with deck rehabilitation or replacement.
35	Bridge rehabilitation because of general structure deterioration or inadequate strength.
36	Bridge deck rehabilitation with only incidental widening.
37	Bridge deck replacement with only incidental widening.
38	Other structural work, including hydraulic replacements.

WSBIS Item 1846 – Work Method

FHWA Item 75B – Work Done By

Use one of the following codes to indicate whether the proposed work is to be done by contract or by force account:

Table 1846 - Work Method Code

WSBIS Code	Description
1	Work to be done by contract
2	Work to be done by owner's forces

WSBIS Item 1847 – Structure Length (XXXX feet)

FHWA Item 76 – Length of Structure Improvement

Code the length of the proposed bridge improvement to the nearest foot. For replacement or rehabilitation of the entire bridge, the length should be back to back of backwalls of abutments or from pavement notch to pavement notch. For replacement or rehabilitation of only part of the structure, use the length of the portion to be improved.

For culvert improvements, use the proposed length measured along the centerline of the barrel regardless of the depth below grade. The measurement should be made between the inside faces of the top parapet or edge-stiffening beam of the top slab.

WSBIS Item 2853 – Roadway Width (XXX feet)

Code the curb-to-curb width of the roadway on the proposed bridge. This measurement is coded to the nearest foot.

WSBIS Item 2860 – Cost per S.F. of Deck (XXX dollars)

Code the estimated cost per square foot of proposed deck. For State bridges, this number is provided by the WSDOT Bridge Management Engineer.

WSBIS Item 1867 – Structure Cost (XXXXXX in thousands of dollars)

FHWA Item 94 – Bridge Improvement Cost

Code a number to represent the estimated cost of the proposed bridge improvements (including replacement) in thousands of dollars. Numbers exceeding 6 digits will be converted to 999999 for the NBI submittal. This cost does not include roadway, right of way, detour, demolition, or preliminary engineering costs.

WSBIS Item 1873 – Roadway Cost (XXXXXX in thousands of dollars)

FHWA Item 95 – Roadway Improvement Cost

Code a number to represent the cost of the proposed roadway improvement in thousands of dollars. Numbers exceeding 6 digits will be converted to 999999 for the NBI submittal. This shall include only roadway construction costs, excluding bridge, right-of-way, detour, extensive roadway realignment costs, preliminary engineering, etc. Do not use this item for estimating maintenance costs.

WSBIS Item 2870 – Engineering and Miscellaneous Cost (in thousands of dollars)

Code the estimated cost of engineering and other miscellaneous items. For State bridges, this number is provided by the WSDOT Bridge Management Engineer.

WSBIS Item 1861 – Total Cost (XXXXXX in thousands of dollars)

FHWA Item 96 – Total Project Cost

Code a number to represent the total project cost in thousands of dollars, including incidental costs not included in Structure Cost and Roadway Cost. Numbers exceeding 6 digits will be converted to 999999 for the NBI submittal. This item should include all costs normally associated with the proposed bridge improvement project. The Total Project Cost will therefore usually be greater than the sum of Structure and Roadway Costs.

WSBIS Item 1879 – Estimate Year

FHWA Item 97 – Year of Improvement Cost Estimate

Code the year that the costs of proposed work were estimated. The data provided for these items must be current; that is, the estimate year shall be no more than 8 years before the current year.

WSBIS Item 2883 – Proposed Improvement Calculation

This checkbox directs the WSBIS system to compute costs for any proposed bridge improvements. It is checked by default for all structures. To prevent automatic calculation and to perform manual entry, uncheck the box.

The following method is used to perform the automatic calculation:

If Work Type 31 or 32 is chosen:

Work Method = 1
Structure Length = Bridge Length + 10 feet
Roadway Width = (Lanes On x 12 feet) + 14 feet
Cost per SF of Deck = $800 (as of 2014)
Structure Cost = 0.50 x Total Cost
Roadway Cost = 0.10 x Total Cost
Engineering & Misc Cost = 0.4 x Total Cost
Total Cost = (Structure Imp Length x Prop Roadway Width) x Cost Per SF of Prop Deck
Estimate Year = (current year)

If Work Type 33 through 38 is chosen:

Work Method = 1
Structure Length = Bridge Length
Roadway Width = Approach Roadway Width + 2 feet
Cost per SF of Deck = $400 (as of 2014)
Structure Cost = 0.50 x Total Cost
Roadway Cost = 0.10 x Total Cost
Engineering & Misc Cost = 0.40 x Total Cost
Total Cost = (Structure Imp Length x Prop Roadway Width) x Cost Per SF of Prop Deck
Estimate Year = (current year)

WSBIS Item 1436 – Tunnel Route Direction

NTI Item I.8 –Route Direction

Record the route direction for the route in the tunnel using one of the following codes:

Table 1436 - Tunnel Route Direction Code

WSBIS Code	Description
0	Two route directions
1	North
2	East
3	South
4	West

Use code 0 when the tunnel carries both directions of a divided highway, and when the roadway is undivided. Route direction is considered the designated direction of the route, not geographic orientation.

WSBIS Item 1543 – Service In Tunnel

NTI Item A.8 –Service In Tunnel

Record the type of service for the route in the tunnel using one of the following codes:

Table 1543 - Service In Tunnel Code

WSBIS Code	Description
1	Highway
2	Highway and Railroad
3	Highway and Pedestrian
4	Highway, Railroad, and Pedestrian
5	Other

Use code 0 when the tunnel carries both directions of a divided highway, and when the roadway is undivided. Route direction is considered the designated direction of the route, not geographic orientation.

WSBIS Item 1022 – Urban Code

NTI Item C.8 – Urban Code

Record the urbanized area code:

Table 1022 - Urban Code

WSBIS Code	Urban Area Name
Urban Areas with Populations of 50,000 or more as of 2017	
06652	Bellingham-Ferndale
09946	Bremerton-Port Orchard-Bainbridge Island
44479	Kennewick-Pasco-Richland
49312	Lewiston-Clarkston
51283	Longview-Kelso
55333	Marysville-Tulalip
60490	Mount Vernon-Burlingto-Sedro-Woolley
65242	Olympia-Lacey-Tumwater

Table 1022 - Urban Code

WSBIS Code	Urban Area Name
Urban Areas with Populations of 50,000 or more as of 2017	
80389	Seattle-Tacoma-Everett
83764	Spokane-Spokane Valley
71317	Vancouver-Camas-Battle Ground
91405	Walla Walla-Milton-Freewater
93862	Wenatchee-East Wenatchee
97507	Yakima-Selah-Union Gap
Urban Areas with Populations of 5,000 - 49,000 as of 2017	
99998	Aberdeen-Hoquiam
99998	Anacortes
99998	Birch Bay-Blaine
99998	Camano Island
99998	Centralia-Chehalis
99998	Chelan-Manson
99998	Cheney
99998	Ellensburg
99998	Ephrata
99998	Grandview
99998	Granite Falls
99998	Indianola-Kingston
99998	Lynden
99998	Montesano-Elma
99998	Moses Lake
99998	Oak Harbor
99998	Ocean Shores
99998	Omak-Okanogan
99998	Othello
99998	Port Angeles
99998	Port Townsend
99998	Pullman
99998	Quincy
99998	Sequim
99998	Shelton
99998	Snoqualmie-North Bend
99998	Stanwood
99998	Sultan-Gold Bar
99998	Sunnyside
99998	Toppenish-Zillah
99998	Wapato
99998	Woodland
99998	Yelm
All Other Locations	
99999	Non Urbanized area

WSBIS Item 1349 – Tunnel Length

NTI Item G.1 – Tunnel Length

Record the length of the tunnel to the nearest foot., measured along the centerline of the roadway.

When a tunnel is divided into segments, record the length of the segment. For example: if a 1000 foot tunnel is divided into 4-250 foot segments, each segment will have a tunnel length of 250 feet.

When multiple bores are reported as a single tunnel, record the length of the longest bore.

WSBIS Item 1401 – Minimum Vertical Clearance Over Tunnel Roadway

NTI Item G.2 – Minimum Vertical Clearance Over Tunnel Roadway

Record the minimum vertical clearance between the mainline tunnel roadway surface and any overhead restriction, i.e. tunnel ceiling, overhead signs, lighting, etc. The roadway surface includes any surface on which a vehicle can travel, including shoulders. Ramps should be excluded when included as part of a tunnel system. The intent is to determine the restrictions of the primary route of the tunnel.

WSBIS Item 1992 – Routine Inspection Target Date

NTI Item D.1 – Routine Inspection Target Date

The target date is set by the program manager and cannot be modified without prior notification to the FHWA division office.

This date is intended to provide the baseline for scheduling future routine inspections. Routine inspection dates should be within 2 months (+/-) of this target month. The year represents the target date was set.

WSBIS Item 1560 – Posted Load - Gross

NTI Item L.5 – Posting Load - Gross

Record the gross weight limit shown on the load posting sign rounded down to the nearest US ton. Leave this item blank if there is no load posting sign.

WSBIS Item 1561 – Posted Load - Axle

NTI Item L.5 – Posting Load - Axle

Record the axle weight limit shown on the load posting sign rounded down to the nearest US ton. Leave this item blank if there is no load posting sign.

WSBIS Item 1562 – Posted Load – Type 3

NTI Item L.5 – Posting Load – Type 3

Record the Type 3 weight limit shown on the load posting sign rounded down to the nearest US ton. Leave this item blank if there is no load posting sign.

WSBIS Item 1563 – Posted Load – Type 3S2

NTI Item L.5 – Posting Load – Type 3S2

Record the Type 3S2 weight limit shown on the load posting sign rounded down to the nearest US ton. Leave this item blank if there is no load posting sign.

WSBIS Item 1564 – Posted Load – Type 3-3

NTI Item L.5 – Posting Load – Type 3-3

Record the Type 3-3 weight limit shown on the load posting sign rounded down to the nearest US ton. Leave this item blank if there is no load posting sign.

WSBIS Item 1402 – Tunnel Height Restriction

NTI Item L.10 – Height Restriction

Record the height restriction status for the route in the tunnel using one of the following codes:

Table 1402 - Tunnel Height Restriction Code

WSBIS Code	Description
1	Yes, there is a height restriction
2	No, there is no height restriction

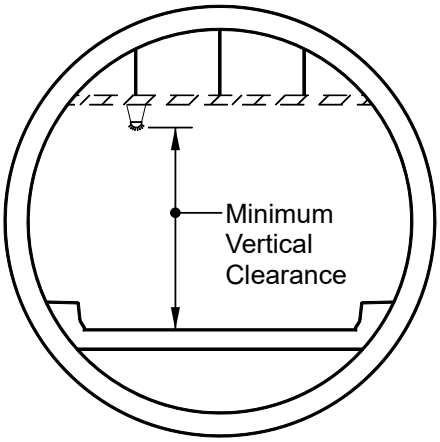


Figure WSBIS 1402a

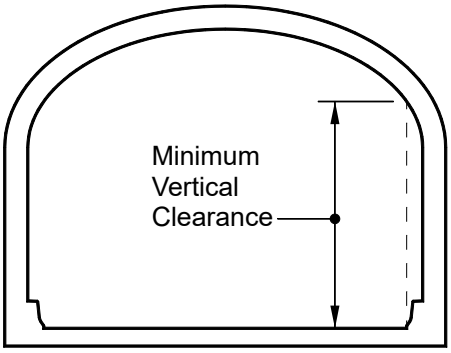


Figure WSBIS 1402b

WSBIS Item 1408 – Tunnel Hazardous Material Restriction

NTI Item L.11 – Hazardous Material Restriction

Record the hazardous material restriction status for the route in the tunnel using one of the following codes:

Table 1408 - Tunnel Hazardous Material Code

WSBIS Code	Description
1	Yes, there is a hazardous material restriction
2	No, there is no hazardous material restriction

WSBIS Item 1409 – Other Tunnel Restrictions

NTI Item L.11 – Other Restrictions

Record any other restriction status (not including height or hazardous material restrictions) for the route in the tunnel using one of the following codes:

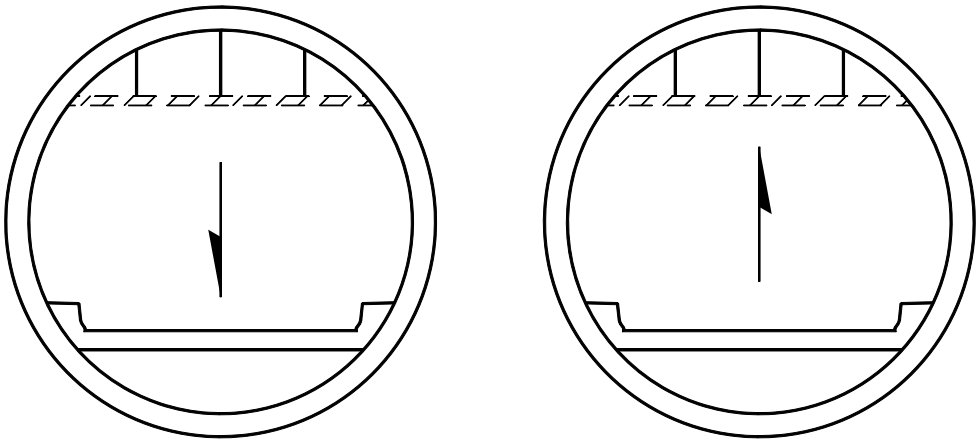
Table 1409 - Other Tunnel Restriction Code

WSBIS Code	Description
1	Yes, there are other restrictions
2	No, there are no other restrictions

WSBIS Item 1510 – Number of Tunnel Bores

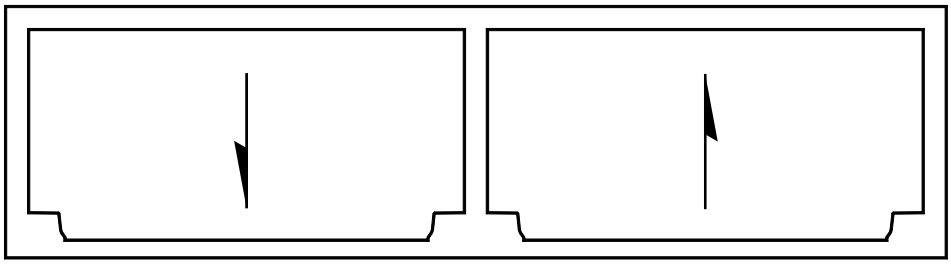
NTI Item S.1 – Number of Bores

Record the number of bores in the tunnel.



TWO BORES

Figure WSBIS 1510a



ONE BORE

Figure WSBIS 1510b

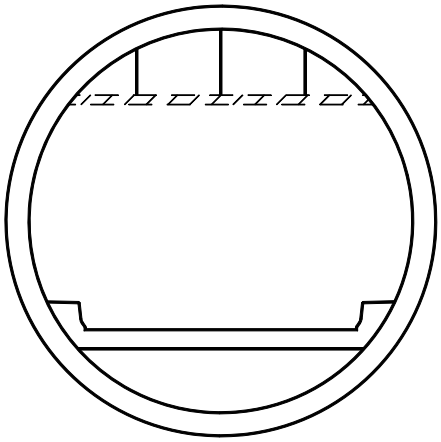
WSBIS Item 1511 – Tunnel Shape

NTI Item S.2 – Tunnel Shape

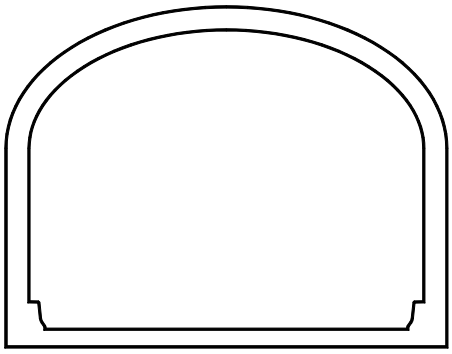
Record the tunnel shape using one of the following codes:

Table 1511 - Tunnel Shape Code

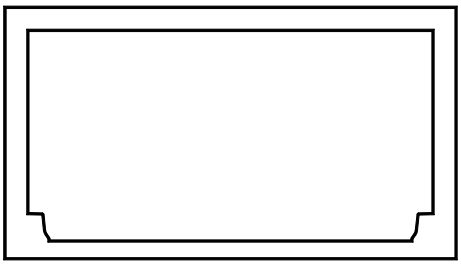
WSBIS Code	Description
1	Oval
2	Horseshoe
3	Rectangular
4	Circular



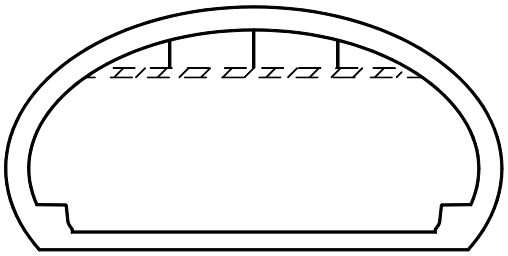
CIRCULAR TUNNEL
Figure WSBIS 1511a



HORSESHOE TUNNEL
Figure WSBIS 1511b



RECTANGULAR TUNNEL
Figure WSBIS 1511c



OVAL TUNNEL
Figure WSBIS 1511d

WSBIS Item 1512 – Portal Shape

NTI Item S.3 – Portal Shape

Record the portal shape using one of the following codes:

Table 1512 - Portal Shape Code

WSBIS Code	Description
1	Oval
2	Horseshoe
3	Rectangular
4	Circular
5	Other

See example shapes shown for WSBIS 1511 Tunnel Shape.

WSBIS Item 1513 – Ground Conditions

NTI Item S.4 – Ground Conditions

Record the ground conditions using one of the following codes:

Table 1513 - Ground Conditions Code

WSBIS Code	Description
1	Soil
2	Rock
3	Mixed Face

Soil is used to define ground conditions consisting primarily of clay, silt, sand, gravel or a mixture. Rock is used to define ground conditions consisting primarily of material that has rock structure in weathered to sound condition. The term “mixed face” usually refers to a situation where the soil conditions vary along the length and/or height of the tunnel.

WSBIS Item 1514 – Complex Tunnel

NTI Item S.5 – Complex

Record whether the tunnel is complex using one of the following codes:

Table 1514 - Complex Tunnel Code

WSBIS Code	Description
0	The tunnel is not complex
1	The tunnel is complex

A complex tunnel is characterized by advanced or unique structural elements or functional systems. Complex tunnels may include mechanical or fire suppression equipment to ventilate exhaust from the tunnel or provide protection against tunnel fires. A non-complex tunnel in contrast is typically shorter, not actively ventilated, and may or may not have lighting installed.

FHWA and NTI Items not maintained in the WSBIS

FHWA Item 1 and NTI Item I.3 – State Code

The Washington State Code is 530, and is created automatically for insertion in NBI reports. This data field is not maintained in the Washington State Bridge Inventory.

NBI Item 5E – Route Directional Suffix

Washington State does not maintain directional suffixes to route numbers, so this information is not maintained in the Washington State Bridge Inventory. This code is automatically generated as 0 (not applicable) to the NBI.

FHWA Item 112 – NBIS Bridge Length

The NBIS bridge length = Y for all On records reported to the NBI by definition, and is created automatically for insertion in NBI text file. This data field is not maintained in the Washington State Bridge Inventory.

NTI Items I.15 through I.18– Border Tunnel Data

Washington State has no tunnels across it's borders. These 4 fields are automatically reported as null to the NTI.

NTI Items N.1 through N.3 – Navigable Waterway Data

Washington State has no tunnels under navigable waters. These 3 fields are automatically reports as 0 to the NTI.

General

This appendix describes how to create a Washington State Bridge Inventory System (WSBIS) record (Inventory Record). It also describes the procedures which must be followed in order to add, update, and/or delete this inventory information.

The National Bridge Inspection Standards (NBIS) require that a bridge inventory record be established and maintained for each bridge in the state meeting certain qualifications.

1. An inventory record must be kept for all bridges greater than 20 feet* in length and located on public roads which carry vehicular traffic. This is regardless of whether or not the bridge is on the Federal Aid System. Bridges less than 20 feet in length may be inventoried when they meet the qualifications enumerated in Chapter 7. However these records will not be reported to the Federal Highway Administration (FHWA).

   *(6.1 meters)

2. An inventory record must also be kept for all bridges over a federal aid route, Strategic Highway Corridor Network (STRAHNET) route, or any otherwise important route. This can include a pedestrian bridge, a tunnel or even a pipeline. An Agency may also choose to maintain a record for bridges over public routes not listed above.

   Bridges that do not intersect a public road must be carefully coded to avoid submittal to the FHWA.

In Washington, to facilitate the collection and storage of such a volume of information, a computer system called the Washington State Bridge Inventory System (WSBIS) has been developed. WSBIS is composed of two distinct databases and data management applications. The data management applications are known as Bridge Works. This computer system allows the bridge inventory records for every bridge in the state to be stored in their respective computer database, One for State owned Bridges and one for Local Agency owned bridges. This system was developed by the Washington State Department of Transportation (WSDOT) so that all public bridge information in the state could be coded and stored in a standard, consistent, and accessible format. The bridge inventory data from these two databases is then combined in a central database managed by the WSDOT Office of Information Technologies (OIT). From this central database, information can easily be gathered into reports or transferred to the national database called the National Bridge Inventory (NBI).

The correctness of the bridge information stored in WSBIS is the responsibility of the owner agency. Maintaining the databases' is the responsibility of the WSDOT Bridge Preservation Office (BPO) for State owned bridges and WSDOT Local Programs (LP) for local agency owned bridges. BPO and LP each maintain a version of BridgeWorks to be used by bridge program personnel to enter inspection data, correct inventory information, attached files and photos, and submit updated information to the WSBIS.

In some instances, a local agency will contract with WSDOT or a consultant to inspect and update the inventory for a local agency bridge (i.e., when the local agency does not have the equipment or resources needed). In both cases, the inspection information shall be entered in the Local Agency Bridge Inventory through the Local Agency BridgeWorks application. No matter who does the bridge inspection, the Local Agency bridge owner is responsible for the accuracy of all of their bridge data. It is ultimately the owner's responsibility to ensure that all inspection data is correctly entered into the Local Agency Bridge Inventory. The Local Agency Bridge Inventory is the only valid source of Local Agency bridge data used to populate the overall bridge inventory managed by WSDOT OIT. Failure to enter updated inspection data in the Local Agency Bridge Inventory will cause the inspection data to be omitted from the overall bridge inventory and omitted from subsequent submittals to the NBI. This failure will also cause discontinuities in the inspection history available through BridgeWorks and will, in effect, corrupt the Local Agency Bridge Inventory.

The first part of this chapter describes the procedures which must be followed to add, update, and delete an individual bridge inventory record.

The second part provides a field-by-field description of the WSBIS Inventory Report, defining each field and giving the acceptable coding values which may be entered.

The last part describes the computer editing process performed by the WSBIS system to check the values entered on the report as the inventory record is added or updated.

WSBIS Inventory Report

A WSBIS Inventory Report is produced for every bridge record that has been established in the WSBIS database. This report is the hard copy record of an individual bridges' inventory information and should be reviewed for accuracy whenever updates to the record have been made.

The format of this report is a holdover from a time when coding was submitted on paper forms for entry into the database. To make information easier to enter and retrieve, the form was arranged into four distinct sections: Control Fields, card indicator boxes, data entry fields, and a space for error notifications. While data is no longer collected on a paper form an understanding of the reports' layout is useful.

The first three sections are composed of boxes called fields. Each field is uniquely named. Each has numbered tic marks denoting columns, which indicates the number of characters each field is allowed.

A. Control Fields

Along the top of the report (columns 1 to 27) are six fields known as Control Fields. They uniquely identify the individual bridge record in the following manner. First a unique alphanumeric number is assigned to the record called the Structure Identification (SID) Number. The Bridge Number uniquely identifies the bridge within each agency's system. The Owner Code, County Code and City Code uniquely identify the political subdivision which has control over that bridge. The Update Code is no longer used.

There is one other control field that is made up of several fields from the Inventory Report. This field is called the crossing key. It is a 14-character field that combines the owner code, route, and milepost to create a unique address for Main and Secondary Listing records (see WB74-32).

B. Card Indicator Boxes

Along the left-hand side of the Report (columns 28 to 31) are eight boxes (called Cards) numbered WB71 to WB78. These numbered boxes identify information on the Report as belonging to the WSBIS Inventory. These Cards (WB71, etc.) are duplicated on the forms (Tabs) in BridgeWorks where the data is entered. They are also used in field call-outs.

C. Data Display Fields

The data display fields are stacked directly beneath the Control Fields. This has been done so that all the information can be contained on a single page. The data display fields are where the coding information specific to the given bridge is displayed. They are a reflection of the data entered in the BridgeWorks on the forms indicated by that Card Indicator Box. The middle row of each field displays the data as it is recorded in the WSBIS. The bottom row will display any updates made during a specific inspection or informational update when the report is printed from the BridgeWorks application. These fields will be blank again after the next update to the WSBIS and only current changes will be displayed in the bottom row.

D. Error Reporting

The BridgeWorks application calculates and displays error codes to indicate that inventory information is incorrect. If an error code is reported, the record should be reviewed and the error(s) corrected before the submittal is made. In the rare case where an error code is incorrectly reported it can be ignored.

An example of such a case would be the recording of a side hill viaduct (half bridge). The quality control program will return the error code E489, Curb-to-Curb Width is greater than Out-to-Out Deck Width. However, since the correct coding of the Curb-to-Curb Width is the roadway width and the Out-to-Out Width is the actual deck width the coding is not in error. The quality control program simply cannot recognize this record as a half bridge which has unique coding requirements.

Coding Procedures

To establish and maintain the bridge inventory information, the inspector must enter the information into the BridgeWorks application. Currently two versions of the BridgeWorks application are used in Washington State, One maintained by BPO and one maintained by LP. The Local Agency version of BridgeWorks is available for download at www.wsdot.wa.gov/localprograms/bridge/bridgeworks.htm.

This section provides instructions for proper preparation of an Inventory Report.

The Inventory Report is a valuable reference of the bridges' recorded inventory information. It is also useful for determining the number of characters each field allows. The Report format is used as a method of locating the named field on the report, as well as the forms in the BridgeWorks application and Item call out numbers in the error descriptions.

This method combines the last number of the Card identification from the boxes on the left margin with the column number listed below the field being referenced. For example, the field "Bridge Name" would be referenced as (132), and would be found in BridgeWorks under the WB71 tab and referenced in parenthesis as 132 to the right of the field label. The field "ADT Year" would be referenced as (453), and found under the WB74 tab in BridgeWorks with 453 in parenthesis.

Usually, numeric coded values will be right-justified and alpha coded entries will be left-justified. Some fields must have all columns filled in, others do not.

Examples:

1. For ROUTE NUMBER, the value 101 shall be entered as 00101.
2. For BRIDGE NAME, the name Tule Creek Bridge would be left justified. It has 17 characters so there would be 7 trailing spaces (it is not required to enter trailing spaces in Bridge Works).

Special characters from a keyboard should be limited (i.e., the slash (/), the apostrophe (‘), or the ampersand (&) are allowable but others should be avoided). Abbreviations may also be used where space is limited, but the abbreviations must be kept meaningful.

Refer to the descriptions of each field to determine the proper code to enter. Each description should be read carefully as a code having a particular meaning in one field may mean something else entirely in another field. For example, when information does not apply, in some instances a nine will be entered in the field, in other instances a zero will be entered, and in still other instances, the field will be left blank. The field description will explain the proper procedure to follow.

A. Establishing/Reestablishing the Inventory Record

The original inventory record needs to be established only once and is required when:

- A new bridge has been built (usually before it is placed in service).
- An existing bridge has been replaced with a new bridge **(it is required that the existing record and its' SID be deleted before a new record for the bridge is established with a new unique SID)**.
- A detour bridge has been built and remains in service for more than three years or beyond the life of the contract under which it was built.
- An existing bridge not previously inventoried is added to the statewide inventory.

A bridge's original inventory record can be established by the following steps.

1. In Bridge Works, select "Database/Create Structure" from the menu at the top of the main page. A new window will pop up with twelve data entry fields. Two of these fields are automatically filled in by the BridgeWorks application. First, the Provisional (or temporary) SID will be assigned. Second, the "Sort Bridge Number" will be created when you fill the "Bridge Number" field. The last two digits of the Provisional SID are for sequencing the creation of multiple new records (i.e., "01", 02). The permanent SID is assigned by WSDOT when the new record is released to the WSBIS. Enter valid data in all of the other fields.

After completing all fields, click in the "Sort Bridge Number" field to activate the "Create Structure" button. Click the "Create Structure" button to close the window and add the new record to your inventory list. You can then choose the new record off the bridge list and continue adding the required inventory information.

2. Enter appropriate values in the data entry fields on the application forms. The following conditions will apply:
   - Information must be entered in all Fatal Fields. These fields are reviewed during the update process for values that are within a predetermined range. If a Fatal Field is blank or out of range, the record cannot be created.
   - Required Fields should be completed if the information is known. These fields are cross-referenced by the program for relational logic and valid range entries. Normally if the information for one of these fields is unknown, it should be left blank until the correct information can be determined. There are some exceptions that are noted in the field descriptions.

     The Sufficiency Rating generator (described in the appendix) uses a number of the Fatal and Required fields to generate some of the Adequacy Appraisals, the Sufficiency Rating and Deficiency Status. Therefore for accurate ratings these fields must be entered.
   - Other information should then be entered in the Optional Fields, as applicable, to create a complete record. Information entered here is not edited. (See the field descriptions on the following pages for an explanation of what information can be entered in these Optional Fields.)
3. A copy of this Inventory Report shall be kept in the bridge file.

Reestablishing the Inventory Record

If an Inventory record for a bridge has been mistakenly deleted or obsoleted (as sometimes happens when a bridge has changed ownership), it can be recovered by emailing a request to the Local Agency Bridge Inventory Engineer for local agency bridges or to the BPO Bridge Inventory Engineer for State owned bridges. In the request, be sure to provide correct control field information.

Once the record has been recovered, it must be reviewed for errors and corrected. Submit the updated data in the manner described for updating the inventory.

B. Updating the Inventory

The original bridge inventory record needs to be updated whenever new data must be added or whenever changes must be made to the existing record.

Updates to the original inventory data may be required as a result of damage to the bridge, changed conditions noted during an inspection, safety improvements or rehabilitation, when new computations or measurements are made, or when the bridge changes ownership. Updates to a bridges' inventory record must be reported to the Local Agency Bridge Inventory Engineer or the BPO Bridge Inventory Engineer within 90 days. Updates that have not been Released to their respective inventories will not be included in the data for the overall bridge inventory managed by WSDOT OIT and will not be included in any submittals and reports prepared using that data.

To start the update process, select the bridge record from the Bridge List you want to change. Be sure the latest Master Control Data (MCD) in the Control Data Grid is highlighted and then click "edit" to create an updatable copy. This new copy will be in a state of "work" and is called an Update Control Data (UCD). To complete an update, this procedure will be followed.

1. Review the data displayed in the BridgeWorks forms (tabs). All of the forms except BMS, Notes, Repairs, Photos, Files, and Letters are arranged with two data fields after the field name. The left side data field will display existing information. The right side data field is for entering update information.
2. Enter new coding values in each Data Entry Field that must be updated. Make sure your entry is complete. Choosing F9 from your keyboard or clicking the "Check Control Data" button on the NBI tab will cause BridgeWorks to run the error checking process for the selected Control Data (CD). BridgeWorks will then provide you with a list of errors or will let you know that no errors were found. This process can be run on UCD's or MCD's.
   - If you are entering new data, simply enter the appropriate values in the field.
   - If you are making a change to existing data, the entire field must be re coded. For example, if the name shown in Item 232 - Features Intersected, has been misspelled, the entire name must be reentered, not just one or two letters corrected.
   - If you want to blank out an entire field, type an asterisk (*) in the update field. If the field is not a fatal field, the existing data contained in that field will be erased and the field will be blank after the record is processed. Fatal Fields can only be updated.
4. When all updates are complete to the satisfaction of the Team Leader responsible for the bridge inspection, the report is submitted to the state of "review." At this point it is forwarded to the Team Leader's Program Manager or supervisor for their review. This internal review falls under the heading of Quality Control (QC) and is an important step in the release process. Once the Program Manager or supervisor is satisfied with the UCD it is submitted to the state of "Approved."
5. Next, a Selection Set of approved UCD's are sent to the Local Agency Bridge Inventory Engineer for review. The UCD's are then reviewed during a Quality Assurance (QA) process to ensure correctness and consistency before the data is released to the Inventory.

   Any errors found will be noted and returned to the bridge owner for corrections. Once the corrections are made, the UCD is again submitted for review. Once the Inventory Engineer is satisfied with the correctness of the UCD it is released to the Bridge Inventory. At this point, the UCD becomes an MCD and can no longer be changed. An MCD is a permanent part of the bridge record history and further changes must be made through the UCD process.

6. After release, the Bridge Inspection Report and the WSBIS Bridge Inventory Report are printed. The final validation of the inspection report is completed when the Bridge Inspection Team members sign the report. The report is then added to the inspection history in the official bridge file and the previous WSBIS Inventory Report is replaced with the current report.

This process must be completed within 90 days but it is recommended that the release is done as soon as possible. The quality of the inspection report tends to degrade through an extended review. Instead, complete the release process on the UCD and make any later corrections through an Informational UCD.

C. Deleting/Transferring the Inventory Record

When an inventory record becomes obsolete, it needs to be changed from "Active" to "Inactive" status in the WSBIS database. The reasons a record may become obsolete include:

- A bridge has been bypassed and is no longer in use, or
- A bridge has been demolished, or
- A bridge has been permanently closed to traffic.

If a new bridge is built on the site of an old bridge, the agency should first obsolete the old record before establishing a new inventory record. (This will ensure that each new bridge is assigned a unique Structure Identifier.)

To obsolete the inventory record:

1. An email listing the control data for each bridge to be deleted shall be sent to the Local Agency Bridge Inventory Engineer. This email shall include the Structure Identification Number and Bridge Name along with instructions that the record is to be deleted.

   If the jurisdiction of a bridge is being transferred from one agency to another, **the bridge record shall not be obsoleted**.

   Instead, the Owner Code, Custodian Code and, if necessary, the City Code shall be updated by the original owner prior to sending the bridge records to the new owner. For example:

   The city of Selah has expanded its boundaries and annexed a bridge from Yakima County.

   Yakima County would update the Owner Code from 02 to 04, the Custodian Code the same if appropriate, and the City Code from 0000 to 1155 prior to the data being submitted for update. Selah would then be responsible to correct the Bridge Number and all other data for the Inventory record.

   This will ensure that a given bridge retains its unique Structure Identifier throughout the life of the bridge.

   A sample of the entire WSBIS Inventory Report is shown in the forms section.

D. Type of Records

In general, there are two distinct types of Crossing Records (how a highway relates to a bridge and the feature it crosses). The most common is a bridge that carries a highway and the other is a bridge that crosses a highway. Since the design of the Inventory Report only allows the recording of one highway the determination of how that highway relates to the bridge must be made so that all of the Inventory Report fields are consistent.

Structures that carry a public highway are considered "On Records" regardless of the feature crossed. Route information shall be recorded for the highway carried.

An "On Record" shall also be recorded for those bridges that carry a public highway and cross a public highway. Route information shall be recorded for the route on the bridge regardless of classification.

Structures that do not carry a public highway are considered "Under Records" and information about the route the bridge crosses shall be recorded.

Before entering information for a new record, a determination must be made as to whether the record applies to a route "on" the bridge or a route "under" the bridge. There is a distinct difference between the two, and the coding requirements are not the same (see Item 432).

With that in mind, the following is a field-by-field description of the WSBIS Inventory Report.

2.04 Inventory Coding Fields

The following describes the valid codes that may be used and the purpose of each field. It also defines the control fields, fatal fields, required fields, and optional fields.

structure_id
Control Field
FHWA Item 8A

Structure Identifier *(Fatal)*

This is a unique, eight-character code assigned by the WSDOT Inventory Engineer when the original bridge inventory record is processed. The Structure Identifier is a Primary Key which ties all tables with related information for that bridge together in the WSBIS database. It will not change throughout the life of the bridge.

bridge_no
Control Field

Bridge Number *(Fatal)*

This is a unique (to the owner agency) alphanumeric code assigned by the owner of the bridge. This field does not require all spaces to be filled; however, the field cannot be left blank.

For local agencies, the bridge number should conform to their agency's numbering system.

The inspector should be aware that special characters can cause undesirable results; therefore, the bridge number should be limited to an alpha-numeric code as much as possible. However, the characters '/' and '-' are acceptable.

Owner Code
Control Field
FHWA Item 022
agency_id

Owner Code *(Fatal)*

This code identifies the agency of record which owns the bridge. Jointly-owned bridges must be reported by only one of the owner agencies.

There will need to be an agreement between the owner agencies as to which agency will be reporting the bridge to WSBIS. This will prevent both agencies from reporting the same bridge under a different Structure Identifier.

Use one of the following codes.

01	State Highway Agency
02	County Highway Agency
03	Town or Township Highway Agency
04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	County Park, Forest, or Reservation Agency
13	City/Other Park, Forest, or Reservation Agency
21	Other State Agencies
24	Other County Agencies
25	Other City or Local Agencies
26	Private (Ports and non-Railroad)
27	Railroad
28	Light Rail
31	State Toll Authority
32	County Toll Authority
33	City or Other Toll Authority
60	Other Federal Agencies (not listed below)
61	Indian Tribal Government
62	Bureau of Indian Affairs
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers (Civilian)
71	Corps of Engineers (Military)
72	Air Force
73	Navy/Marines
74	Army
75	NASA
76	Metropolitan Washington Airport Services
80	Unknown
91	Canada
92	Idaho
93	Oregon

county_id
Control Field
FHWA Item 003

County Number *(Fatal)*

This is a two-digit code which identifies the county in which the bridge is located. If this is a jointly owned bridge, the county that is responsible for reporting the data to the inventory should be entered here. Use one of the following codes.

County Name	County Code	Region Code
Adams	01	EA
Asotin	02	SC
Benton	03	SC
Chelan	04	NC
Clallam	05	OL
Clark	06	SW
Columbia	07	SC
Cowlitz	08	SW
Douglas	09	NC
Ferry	10	EA
Franklin	11	SC
Garfield	12	SC
Grant	13	NC
Grays Harbor	14	OL
Island	15	NW
Jefferson	16	OL
King	17	NW
Kitsap	18	OL
Kittitas	19	SC
Klickitat	20	SW
Lewis	21	SW
Lincoln	22	EA
Mason	23	OL
Okanogan	24	NC
Pacific	25	SW
Pend Oreille	26	EA
Pierce	27	OL
San Juan	28	NW
Skagit	29	NW
Skamania	30	SW
Snohomish	31	NW
Spokane	32	EA
Stevens	33	EA
Thurston	34	OL
Wahkiakum	35	SW
Walla Walla	36	SC
Whatcom	37	NW
Whitman	38	EA
Yakima	39	SC

city_id **City Number** *(Fatal)*
Control Field

This is the city in which the bridge is located. (Codes for cities and towns are identified according to the most recent U.S. Bureau of the Census Identification Schedule.) Contact the Bridge Engineer for Local Agencies for newly incorporated municipalities.

If the bridge is outside of corporate limits or in an unincorporated city, code all zeros. Use the following codes.

City	Code	City	Code	City	Code	City	Code
Unincorporated	0000	Chehalis	0190	Entiat	0405	Kenmore	0609
Aberdeen	0005	Chelan	0195	Enumclaw	0410	Kennewick	0610
Airway Heights	0010	Cheney	0200	Ephrata	0415	Kent	0615
Bucoda	0013	Chewelah	0205	Everett	0420	Kettle Falls	0620
Albion	0015	Clarkston	0215	Everson	0425	Kirkland	0625
Algona	0020	Cle Elum	0220	Fairfield	0430	Kittitas	0630
Almira	0025	Clyde Hill	0225	Farmington	0440	Krupp	0635
Anacortes	0030	Colfax	0230	Federal Way	0443	La Center	0640
Arlington	0045	College Place	0235	Ferndale	0445	Lacey	0643
Asotin	0050	Colton	0240	Fife	0450	La Conner	0650
Auburn	0055	Colville	0250	Fircrest	0455	La Crosse	0655
Bainbridge Island	0058	Conconully	0255	Forks	0465	Lake Forest Park	0657
Battle Ground	0060	Concrete	0260	Friday Harbor	0470	Lake Stevens	0664
Beaux Arts Village	0070	Connell	0265	Garfield	0480	Lakewood	0665
Bellevue	0075	Cosmopolis	0270	George	0489	Lamont	0668
Bellingham	0080	Coulee City	0275	Gig Harbor	0490	Langley	0670
Benton City	0085	Coulee Dam	0280	Gold Bar	0495	Latah	0675
Bingen	0090	Coupeville	0290	Goldendale	0500	Leavenworth	0680
Black Diamond	0095	Creston	0295	Grand Coulee	0510	Liberty Lake	0684
Blaine	0100	Cusick	0300	Grandview	0515	Lind	0685
Bonney Lake	0105	Darrington	0305	Granger	0520	Long Beach	0690
Bothel	0110	Davenport	0310	Granite Falls	0525	Longview	0695
Bremerton	0115	Dayton	0315	Hamilton	0535	Lyman	0705
Brewster	0120	Deer Park	0320	Harrah	0540	Lynden	0710
Bridgeport	0125	Des Moines	0325	Harrington	0545	Lynnwood	0715
Brier	0127	Dupont	0330	Hartline	0550	Mabton	0725
Buckley	0130	Duval	0335	Hatton	0555	Mccleary	0728
Burien	0138	East Wenatchee	0350	Hoquiam	0560	Malden	0730
Burlington	0140	Eatonville	0360	Hunts Point	0570	Mansfield	0735
Camas	0145	Edgewood	0364	Ilwaco	0575	Marcus	0740
Carbonado	0150	Edmonds	0365	Index	0580	Marysville	0745
Carnation	0155	Electric City	0375	Ione	0585	Mattawa	0750
Cashmere	0165	EllensbuRg	0380	IssaqUah	0590	Medical Lake	0755
Castle Rock	0170	Elma	0385	Kahlotus	0595	Medina	0760
CaThlamet	0175	Elmer City	0390	Kalama	0600	Mercer Island	0763
Centralia	0180	Endicott	0395	Kelso	0605	Mesa	0765

City	Code	City	Code	City	Code	City	Code
Metaline	0770	Port Orchard	1000	Spokane Valley	1221	Winthrop	1465
Metaline Falls	0775	Port Townsend	1005	Sprague	1225	Woodinville	1469
Mill Creek	0778	Poulsbo	1010	Springdale	1230	Woodland	1470
Millwood	0780	Prescott	1015	Stanwood	1235	Woodway	1475
Milton	0785	Prosser	1020	Starbuck	1240	Yacolt	1480
Monroe	0790	Pullman	1025	Steilacoom	1245	Yakima	1485
MOntesano	0795	Puyallup	1030	Stevenson	1250	Yarrow Point	1490
Morton	0800	Quincy	1040	Sulton	1255	Yelm	1495
Moses Lake	0805	Rainier	1050	Sumas	1265	Zillah	1500
Mossyrock	0810	Raymond	1055	Sumner	1270		
Mountlake Terrace	0815	Reardan	1060	Sunnyside	1275		
Mount Vernon	0820	Redmond	1065	Tacoma	1280		
Moxee City	0825	Renton	1070	Tekoa	1285		
Mukilteo	0830	Republic	1075	Tenino	1290		
Naches	0835	Richland	1080	Tieton	1295		
Napavine	0840	Ridgefield	1085	Toledo	1300		
Nespelem	0855	Ritzville	1090	Tonasket	1305		
Newcastle	0858	Riverside	1095	Toppenish	1310		
Newport	0860	Rockford	1100	Tukwila	1320		
Newcastle	0861	Rock Island	1105	Tumwater	1325		
Nooksack	0865	Rosalia	1115	Twisp	1330		
Normandy Park	0870	Roslyn	1120	Union Gap	1335		
North Bend	0875	Roy	1125	Uniontown	1340		
North Bonneville	0877	Royal City	1127	University Place	1343		
Northport	0885	Ruston	1130	Vader	1345		
Oakesdale	0890	St John	1135	Vancouver	1350		
Oak Harbor	0895	Sammamish	1136	Waitsburg	1360		
Oakville	0900	Seatac	1139	Walla Walla	1365		
Ocean Shores	0907	Seattle	1140	Wapato	1375		
Odessa	0910	Sedro-Woolley	1150	Warden	1380		
Okanogan	0915	Selah	1155	Washougal	1385		
Olympia	0920	Sequim	1160	Washtucna	1390		
Omak	0925	Shelton	1165	Waterville	1395		
Oroville	0935	Shoreline	1169	Waverly	1400		
Orting	0940	SKykomish	1175	Wenatchee	1405		
Ohello	0945	Snohomish	1180	Westport	1420		
Pacific	0950	Snoqualmie	1185	West Richland	1425		
Palouse	0955	Soap Lake	1190	White Salmon	1435		
Pasco	0960	South Bend	1195	Wilbur	1440		
Pateros	0970	South Cle Elum	1205	Wilkeson	1445		
Pe Ell	0975	South Prairie	1210	Wilson Creek	1450		
Pomeroy	0985	Spangle	1215	Winlock	1455		
Port Angeles	0990	Spokane	1220	Winslow	1460		

WB71

bridge_name
WB71-32

Bridge Name *(Fatal)*
This is the name of the bridge.

If the bridge name is more than one word, separate words with a blank space. If the name of the bridge is too long to fit in the field, use abbreviations to shorten it. Left-justify the entry and leave following columns blank. This field does not require a complete entry, but must **not** be left blank.

location
WB71-56
FHWA Item 009

Location *(Fatal)*

This field gives a narrative description of the physical location of the bridge with respect to the route being inventoried. The location should be keyed to a permanent, distinguishable feature, such as a road junction or a county line. Descriptions should be oriented ahead on station whenever possible. Do not use city limits, as these boundaries may move.

Left-justify this description and do not enter zeroes in remaining blank spaces (otherwise, the zeroes will be considered part of the location description). This field does not require a complete entry, but must **not** be left blank.

section
WB71-81

Section *(Fatal)*
This is the number of the section in which the bridge is located. Enter a numeric code from '01' to '36'.

Section, township, and range numbers are location markers established by survey mapping.

If the bridge runs along a section, township, or range line, use the smaller of the two numbers. If a bridge crosses any line, use the number at the beginning of the bridge.

township
WB71-83

Township *(Fatal)*
This is the number of the township in which the bridge is located. Enter a numeric code from '01' to '41'.

Township designations carry a directional suffix (north or south); however, since all townships in Washington are north, this directional indicator need not be entered.

range
WB71-85

Range *(Fatal)*

This field contains the number of the range in which this bridge is located.

There are two parts to this field. In the first two columns, enter the number of the range in which the bridge is located. Valid ranges are:

01 through 47	If the third column is E
01 through 16	If the third column is W

In the third column, enter the directional suffix which indicates the position of the range in relation to the Willamette Meridian. Enter one of the following codes:

E	East
W	West

latitude
WB71-88
FHWA Item 016

Latitude *(Fatal)*

This field contains the degrees of latitude at the centerline of the bridge at its beginning milepost. Latitude is designated in degrees, minutes, and seconds to the hundredth of a second. Since all of Washington is located in northern latitudes, the directional suffix (N) need not be entered. It is recommended this field be coded using GPS or an accurate digital mapping program.

longitude
WB71-96
FHWA Item 017

Longitude *(Fatal)*

This field contains the degrees of longitude at the centerline of the bridge at its beginning milepost. Longitude is indicated in degrees, minutes, and seconds to the hundredth of a second. Since all of Washington is located in western longitudes, the directional suffix (W) need not be entered. It is recommended this field be coded using GPS or an accurate digital mapping program.

WB72

feature_intersected **Features Intersected** *(Fatal)*
WB72-32
FHWA Item 006A This is the name or names of the features intersected by the bridge, i.e., the features under the bridge. If full names will not fit in the field, abbreviations may be used where necessary but an effort shall be made to keep them meaningful. Left-justify the name or names entered without using trailing zeroes. This field does not require a complete entry, but must not be left blank.

If one of the features intersected is another roadway, indicate the signed route number or name of the highway (i.e., SR 99).

If there is an alternate name for a feature, enclose this second identifier in parentheses. For example a signed number route that is also a named memorial route (i.e., SR 99 (Aurora Avenue)).

If more than one feature is intersected, give both names, signed route first separated by a comma (i.e., SR 99, Blue R, UPR).

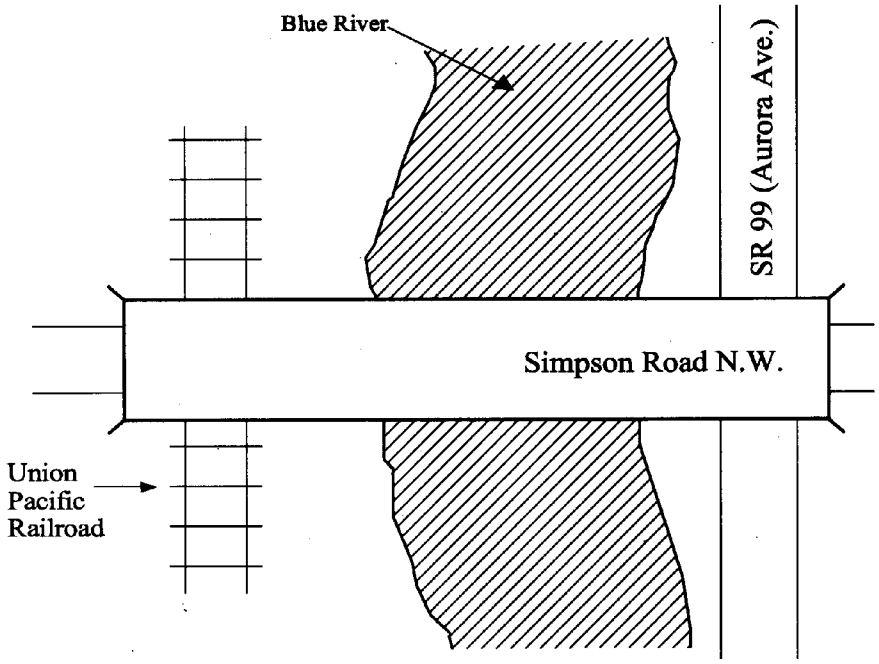


Figure WB72-32

facilities_carried **Facilities Carried** *(Fatal)*
WB72-56
FHWA Item 007

This is the name (or names) of the facility carried by the bridge. In all situations this describes the use "on" the bridge.

Left-justify the roadway name or names (use abbreviations If necessary) and do not enter trailing zeroes.

If there is an alternate name for a feature, enclose this second identifier in parentheses. For example a signed number route that is also a named memorial route (i.e., SR 99 (Aurora Avenue)).

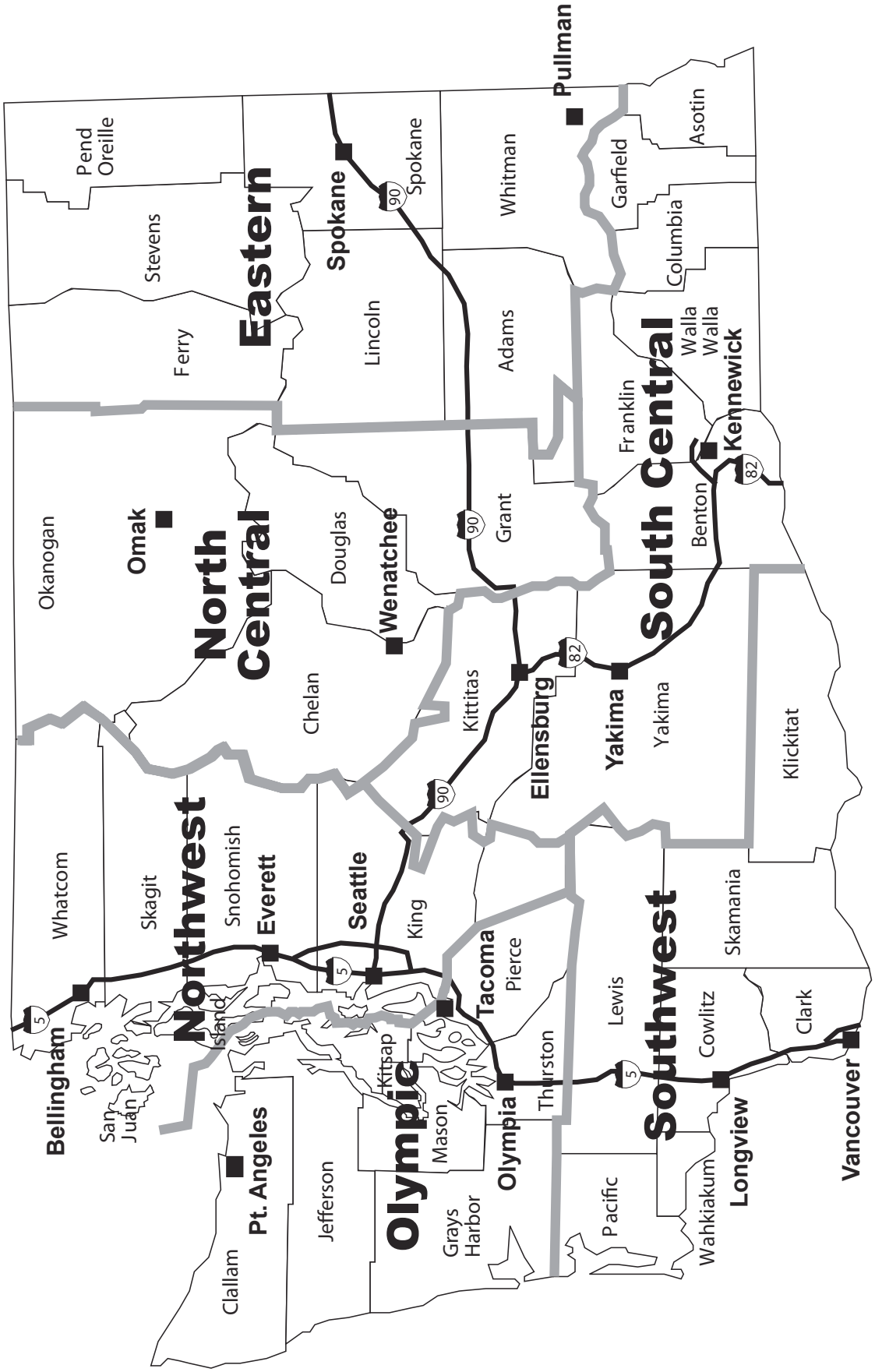
This field does not require a complete entry, but must not be left blank.

region_code **WSDOT Region** *(Fatal)*
WB72-74
FHWA Item 002

This is the WSDOT region in which the bridge is located. Use the following codes. Some counties may be shared by more than one region. Local Agencies should use the regions assigned below.

Region Names (Code)	County Names
Eastern Region (EA)	Adams
	Ferry
	Lincoln
	Pend Oreille
	Spokane
	Stevens
	Whitman
North Central Region (NC)	Chelan
	Douglas
	Grant
	Okanogan
Northwest Region (NW)	Island
	King
	San Juan
	Skagit
	Snohomish
	Whatcom
Olympic Region (OL)	Clallam
	Grays Harbor
	Jefferson
	Kitsap
	Mason
	Pierce
	Thurston

Region Names (Code)	County Names
South Central Region (SC)	Asotin
	Benton
	Columbia
	Franklin
	Garfield
	Kittitas
	Walla Walla
	Yakima
Southwest Region (SW)	Clark
	Cowlitz
	Klickitat
	Lewis
	Pacific
	Skamania
	Wahkiakum


Eastern
North Central
Northwest
Olympic
South Central
Southwest
Pullman
Spokane
Omak
Wenatchee
Ellensburg
Yakima
Kennewick
Bellingham
Everett
Seattle
Tacoma
Olympia
Pt. Angeles
Longview
Vancouver
Pend Oreille
Stevens
Ferry
Lincoln
Spokane
Whitman
Garfield
Asotin
Columbia
Adams
Franklin
Walla Walla
Okanogan
Douglas
Grant
Benton
Chelan
Kittitas
Yakima
Klickitat
Whatcom
Skagit
Snohomish
King
Pierce
Lewis
Skamania
Cowlitz
Clark
San Juan
Island
Kitsap
Mason
Thurston
Jefferson
Grays Harbor
Pacific
Wahkiakum
Clallam
5
90
82

fips_code
WB72-76
FHWA Item 004

FIPS Place Code *(Required)*

This field identifies the census-designated place in which the bridge is located using the Federal Information Processing Standards (FIPS 55) code, given in the current version of the Census of Population and Housing – Geographic Identification Code Scheme.

If no code is applicable, enter all zeroes.

leg_dist_code_1
WB72-81
WSBIS Item 7281

Legislative District Number (1) *(Required)*

This field identifies the first or only State Legislative District in which the bridge is located (see Section 2.08).

If the legislative district number is followed by a letter (District 19A, for example), disregard the letter and enter the two-digit number only.

leg_dist_code_2
WB72-83
WSBIS Item 7283

Legislative District Number (2) *(Required)*

For bridges which span a State Legislative District dividing line, use this field to identify the second State Legislative District number.

Use both this and the Legislative District Number (1) field to enter the two separate State Legislative District numbers. If no code is applicable, enter all zeroes.

toll_code
WB72-85
FHWA Item 020

Toll *(Fatal)*

This code indicates if a toll is required for use of the bridge. One of the following codes will apply:

1. Toll bridge – a toll must be paid specifically to use the bridge.
2. On toll road – a toll must be paid to use the roadway carried by the bridge.
3. Non-toll bridge – no tolls are paid to use the bridge or the roadway carried by the bridge.
4. On interstate toll segment under secretarial agreement. Bridge functions as a part of the toll segment.
5. Toll bridge is a segment under secretarial agreement. Bridge is separate agreement from highway segment.

custodian_id **Custodian** *(Fatal)*
WB72-86
FHWA Item 021

This code describes the type of agency that has primary responsibility for maintaining the bridge (may not be the same as the owner). Acceptable values to enter in this field are as follows:

01	State Highway Agency
02	County Highway Agency
03	Town or Township Highway Agency
04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	County Park, Forest, or Reservation Agency
13	City/Other Park, Forest, or Reservation Agency
21	Other State Agencies
24	Other County Agencies
25	Other City or Local Agencies
26	Private (other than Railroad)
27	Railroad
28	Light Rail
31	State Toll Authority
32	County Toll Authority
33	City or Other Toll Authority
60	Other Federal Agencies (not listed below)
62	Bureau of Indian Affairs
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers (Civilian)
71	Corps of Engineers (Military)
72	Air Force
73	Navy/Marines
74	Army
75	NASA
76	Metropolitan Washington Airport Services
80	Unknown
91	Canada
92	Idaho
93	Oregon

parallel_structure_ **Parallel Structure** *(Fatal)*
WB72-88
FHWA Item 101

This field contains a code to identify situations in which separate bridges carry the same inventory route in opposite directions of travel over the same feature. The lateral distance between bridges has no bearing on the coding of this field.

Right and left are determined by facing in the direction of increasing mileposts or, in the absence of milepost markers, by facing north or east.

R	To indicate the right-hand bridge of the pair
L	To indicate the left-hand bridge of the pair
N	To indicate the bridge is not a parallel bridge

temporary_structure_ **Temporary Structure** *(Required)*
WB72-89
FHWA Item 103

This code indicates If a temporary bridge has been built or temporary measures have been taken on an existing bridge to maintain a flow of traffic. Temporary bridges or temporary repair measures may be required during the modification or replacement of a bridge found to be deficient.

Any one of the following conditions will require that a code of "T" be entered in this field:

- The bridge has been shored up or additional temporary supports have been installed.
- Temporary repairs have been made to keep the bridge open.
- A temporary bridge has been built to provide an interim bypass that is not under the control of a contractor, such as an emergency bailey type bridge.
- Other temporary measures have been taken, such as barricaded traffic lanes, to keep the bridge open to traffic.

If none of these conditions exist, leave the field blank.

Any repaired bridge or replacement bridge expected to remain in service without further project activity (other than maintenance) for a significant period of time shall not be considered temporary. Under such conditions, that bridge, regardless of its type, shall be considered the minimum adequate to remain in place and shall be evaluated accordingly.

If this item is coded T, then all data recorded for the bridge shall be for the condition of the bridge without temporary measures, except for the following items which shall be coded for the temporary bridge:

WB72-93	Structure Open, Posted, or Closed to Traffic
WB73-70	Minimum Vertical Clearance Over Bridge Deck
WB73-74	Minimum Vertical Clearances Under Bridge
WB73-79	Minimum Lateral Under clearance Right
WB73-83	Minimum Lateral Under clearance Left
WB74-91	Horizontal Clearance Route Direction
WB74-95	Horizontal Clearance Reverse Direction
WB76-60	Operating Level

median_code **Median** *(Fatal)*
WB72-91
FHWA Item 033

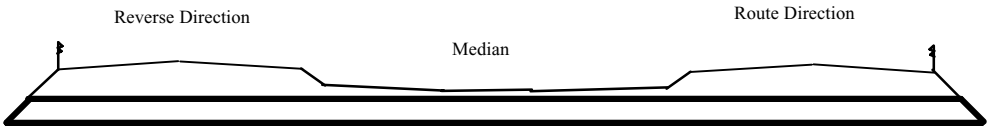
This code indicates If there is a median on the bridge. By definition, a bridge median can only exist on divided highways.

A divided highway can be identified by the use of traffic control devices separating the route and reverse route directions of travel. Devices such as a concrete barrier, or yellow crosshatching between solid double yellow lines 18 inches or more apart, or others, such that vehicles are restricted to the right-hand lanes unless directed or permitted in the left-hand lanes by a police officer, or other official traffic control devices.

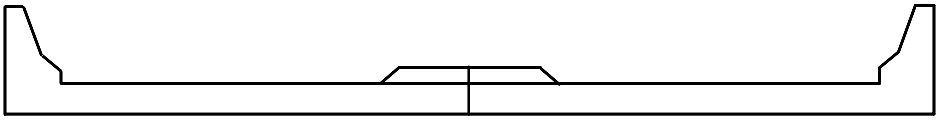
If a structure has been divided into a left and a right bridge so that the median is between the two structures then no median is considered to be on the bridge. Culverts will often have a median similar to the diagram for Code 1.

Use the following diagrams to identify the median device on the bridge.

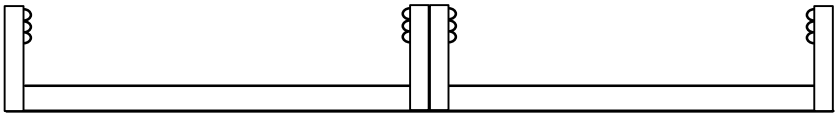
0 No median (undivided roadway).
1 Open median.
2 Closed median – painted (Traffic lanes are separated only by painted median).
3 Closed median – mountable curb or center island.
4 Closed median – flex or thrie beam guardrail.
5 Closed median – box beam guardrail.
6 Closed median – Concrete (i.e., NJB, Type F barrier).
7 Open median – with safety modifications (i.e., a net has been installed).
9 Other type of median.



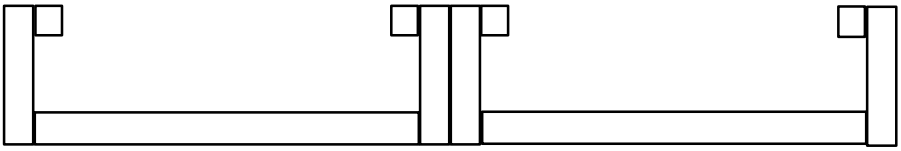
Code 1



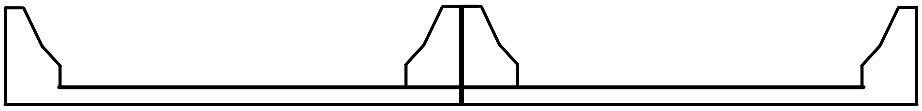
Code 3



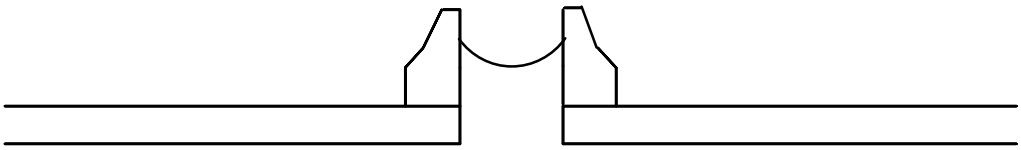
Code 4



Code 5



Code 6



Code 7

Figure WB72-91

hist_signif
WB72-92
FHWA Item 037

Historical Significance *(Fatal)*

A bridge may be considered historically significant If it is a particularly unique example of the history of engineering, the crossing itself is historically significant, the bridge is associated with historical property, or the bridge was involved in events of historical significance.

If the bridge is only on the National Register of Historic Places (NRHP) list, use the numeric code. If the bridge is only on the Historical American Engineering Record (HAER) list, use the alpha code. If the bridge is on both NRHP and HAER lists, use the numeric code.

1 or A	Bridge is on the NRHP or HAER.
2 or B	Bridge is eligible for the NRHP or HAER.
3 or C	Bridge is possibly eligible for the NRHP or HAER. (Further investigation is required before a determination can be made.)
4	Bridge's historical significance has not been determined at this time. (This code should be used if the bridge is less than 50 years old.)
5	Bridge has been reviewed by the State Office of Archaeology and Historic Preservation and is not eligible for the NRHP, HAER.
6	Bridge has been reviewed and a determination has been made that this bridge has no historical significance.

open_closed
WB72-93
FHWA Item 041

Open, Closed, or Posted *(Fatal)*

This field provides information about the actual weight capacity status of a bridge. The field review could show that a structure is posted, but WB76-60 Operating Level may indicate that posting is not required. This is possible and acceptable coding since WB76-60 is based on the operating stress level and the governing agency's posting procedures may specify posting at some stress level less than the operating rating. One of the following codes shall be used:

A	Bridge is open with no restrictions.
B	Bridge is open. Posting has been recommended but has not been legally implemented (all signs are not in place).
D	Bridge is open. It would be posted or closed except that temporary shoring, etc., has been used to allow for unrestricted traffic flow. If this code is used, WB72-89 shall be coded T.
E	Bridge is open, but it is a temporary bridge carrying traffic while the original bridge is being replaced or rehabilitated. If this code is used, WB72-89 shall be coded T.
G	Bridge is new and not yet open to traffic.
K	Bridge is closed to traffic.
P	Bridge is posted for weight restrictions.
R	Bridge is posted for other load-capacity restrictions such as speed or limiting the number of vehicles allowed on the bridge at one time.

program_year
WB72-94

Program Year *(Required)*
If the bridge has been included in an approved six-year construction program, this field contains the year that work is to start on the project, including preliminary engineering.

Work to be performed on the bridge must be major construction or reconstruction. If the bridge is not included in a six-year program, code zeroes in this field.

Hist_signif_LP
WB72-96
WSBIS Item 7296

Historical Significance – Local Programs

This item only applies to a Local Agency registry. The definition for WB72-92 applies here but only as it relates to criteria set forth by a Local Agency.
Use one of the following codes.

0 Neither bridge or crossing are on the Local Agencies registry or a determination has not been made.

1 Bridge is on the Local Agencies registry

2 Crossing is on the Local Agencies registry

WB73

built_year **Year Built** *(Fatal)*
WB73-32
FHWA Item 027

This is the year that original construction of the bridge was completed.

If the year the bridge was built is not known, enter an estimate of that date. If the bridge was built during or before the year 1900, enter 1900 in the field.

There are cases where a careful evaluation of the year built and year rebuilt must be made. The first is when an existing bridge has been moved to a new site. The second is when parts of a dismantled bridge from another site are used at a new site. And the third is when parts of the old bridge are used at the same site.

Excluding engineering and safety considerations, an evaluation of the impact on future funding is a factor. The year built and year rebuilt are key fields used to determine If a bridge is eligible for federal funding. Another consideration would be the percentage of used material in relation to new material. The greater the percentage of new material used in the bridge the less need there is of capturing the original date of construction in the inventory.

Since every occasion of these instances will be unique in its application guidance should be sought from your Program Manager when there is question as to the proper year to use.

rebuilt_year **Year Rebuilt** (*Fatal)*
WB73-36
FHWA Item 106

This is the year in which the last major rehabilitation of the existing bridge was completed.

Record and code the year of most recent reconstruction of the structure. Code all four digits of the latest year in which reconstruction of the structure was completed. If there has been no reconstruction, code 0.

For a bridge to be defined as rebuilt, the type of work performed, whether or not it meets current minimum standards must have been eligible for funding under any of the federal aid funding categories. The eligibility criteria would apply to the work performed regardless of whether all state or local funds or federal aid funds were used.

Some types of eligible work not to be considered as rebuilt are listed:

- Safety feature replacement or upgrading (for example, bridge rail, approach guardrail, or impact attenuators).
- Painting of structural steel.
- Overlay of bridge deck as part of a larger highway surfacing project (for example, overlay carried across bridge deck for surface uniformity without additional bridge work).
- Utility work.
- Emergency repair to restore structural integrity to the previous status following an accident.

- Retrofitting to correct a deficiency which does not substantially alter physical geometry or increase the load-carrying capacity.
- Work performed to keep a bridge operational while plans for complete rehabilitation or replacement are under preparation (for example, adding a substructure element or extra girder).

Example	Code
Rebuild completed 1970	1970
Bridge has NOT been Rebuilt	0

structure_length
WB73-40
FHWA Item 49

Bridge Length *(Fatal)*

This is the measurement for the length of roadway supported by the bridge. This measurement is taken along the center of the roadway from the back of the backwall of each abutment or from the back of paving notch (seat) to paving notch (seat). Culvert lengths are measured along the centerline of the roadway from inside face to inside face of the exterior walls, or from spring line to spring line, regardless of depth below grade. When the culvert is not perpendicular to the roadway, the centerline length must be calculated. Code this measurement to the nearest foot.

The bridge length entered in this field is considered the length when determining eligibility for federal funding, except when the bridge length is near 20 feet. If that is the case, the length of the bridge as entered in NBIS Length will be used. See Figure WB73-40A and Figure WB73-40B.

nbi_length
WB73-46
FHWA Item 112

NBIS Length *(Fatal, If WB73-40 is between 20 and 23 feet)*

The NBIS bridge length is a measurement along the center of the roadway between undercopings of abutments, spring lines of arches, or the extreme ends of openings for multiple boxes.

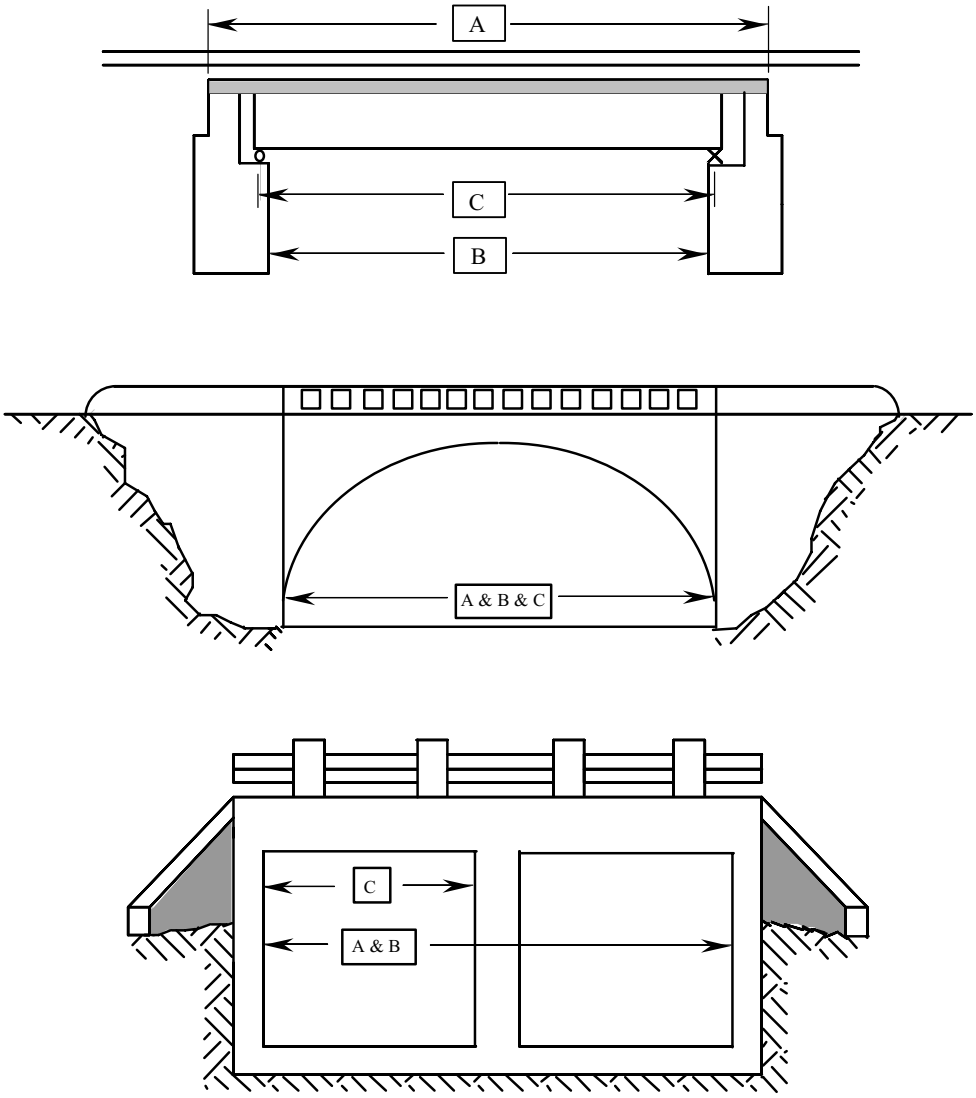
This measurement is coded to the nearest tenth of a foot and may be different from the measurement entered in Bridge Length.

If the measurement as entered in Bridge Length is between 20 and 23 feet, a measurement of the NBIS length shall be coded in this field.

If the measurement as entered in Structure Length is greater than 23 feet, this field shall be left blank. See Figure WB73-40A and Figure WB73-40B.

max_span_length **Maximum Span Length** *(Fatal)*
WB73-48
FHWA Item 048

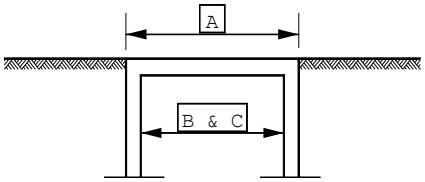
This is the number of feet which the bridge spans at its maximum opening. This length is measured along the centerline of the bridge. The span length is measured either as the center-to-center distance between bearings or the clear distance between piers, bents, or abutments. The preferred measurement to enter is the center-to-center distance between bearings. The span may be either a main span or approach span. See Figure WB73-40A and Figure WB73-40B.



A = Structure Length (WB73-40)
B = NBIS Length (WB 73-46)
C = Maximum Span Length (WB73-48)

For a culvert, it doesn't matter if the roadway is on the slab or on ballast, "A" will remain unchanged.

Figure WB73-40A



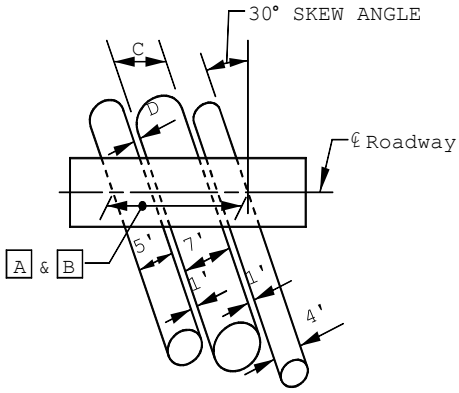
For a structure with ballast (where the ballast is > A/2) such that the live load is not transferred into the deck, "A" will be inside the face of the exterior walls.

A = Structure length (WSBIS Item 340)

B = NBIS Length (WSBIS Item 346)

C = Maximum span length (WSBIS Item 348)

D = the distance between consecutive pipes, which must be = or < the diameter of the smallest pipe in the series



Opening Distance = 18' = 5'+1'+7'+1'+4'

$$A \text{ (normal to the pipes)} = \frac{18'}{\cos(30)} = \frac{18'}{.867} = 20.76' \text{ (Code 21')}$$

$$C = \frac{7}{\cos(30)} = 8.08' \quad \text{(code 8')}$$

Figure WB73-40B

lane_on **Lanes On** *(Fatal)*
WB73-52
FHWA Item 028A

The number of lanes of motor vehicle traffic carried by the bridge must be entered in this field. It includes all traffic lanes which are striped or otherwise marked as full-width lanes for the entire length of the ridge.

Include any full-width merge lanes or ramp lanes carried on the bridge. The number of traffic lanes is independent of the direction in which these lanes carry traffic. That is, a one-lane bridge which carries traffic in two directions is considered to have only one lane on the bridge.

It should be noted here for purposes of the Deck Geometry Evaluation any one-way bridge (excluding ramps, WB74-34 coded 7) which has a curb-to-curb width 16 feet or greater shall be evaluated as two lanes. Also, If the curb-to-curb is less than 16 feet and the bridge carries two way traffic, then WB73-52 is coded Ø1 and WB74-90 is coded 5. For information to code a half bridge, see Figure WSBIS-1356b.

lane_under **Lanes Under** *(Fatal)*
WB73-54
FHWA Item 028B

This field contains the number of lanes of motor vehicle traffic carried by the highway or highways which pass underneath the bridge.

If the bridge carries highway traffic (WB74-32 is coded 1, regardless of ownership and/or maintenance responsibility), it is the total number of lanes of all inventory routes passing underneath.

If the route being inventoried is under the bridge (WB74-32 coded 2 or A-Z), this is the number of lanes of the inventoried route only.

There may be a separate record of some or all of the routes located under the bridge (see WB74-32 for routes requiring a record in the NBI).

curb_to_curb_width **Curb-to-Curb Width** *(Fatal)*
WB73-56
FHWA Item 051

The curb-to-curb width is the measurement, in feet, of the most restrictive width of the structure from curb-to-curb (or inside face of rail to inside face of rail if no curb). This is a Fatal Field.

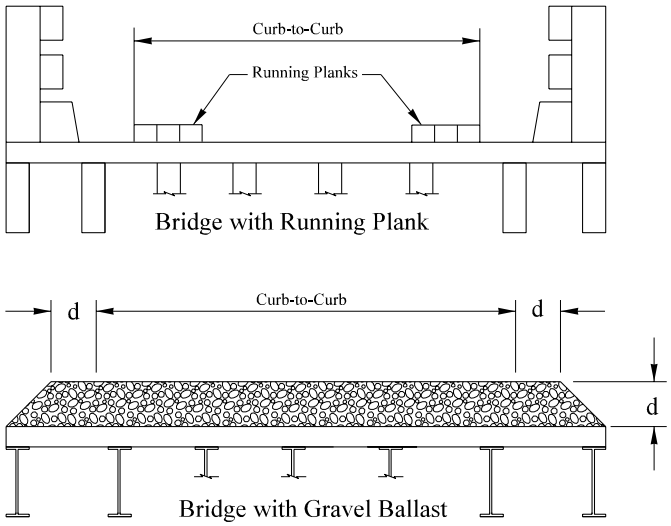
This measurement is recorded to the nearest tenth of a foot. For structures that carry lanes of traffic separated by a median barrier, the curb-to-curb width is the sum of the most restrictive minimum widths of each roadway carried on the structure. The widths of any open medians, raised or non-mountable medians, barrier-protected horse or bicycle lanes, or flared ramps should be excluded from this measurement.

When the roadway runs directly on the top slab or wearing surface of a culvert (such as a reinforced concrete box without fill), the actual roadway width from curb-to-curb or from rail-to-rail is entered in this field. This is also the case If the fill is minimal and the culvert headwalls reduce the roadway width. When there are no lateral restrictions such as curbs or rails the actual usable roadway width is recorded as the curb-to-curb measurement.

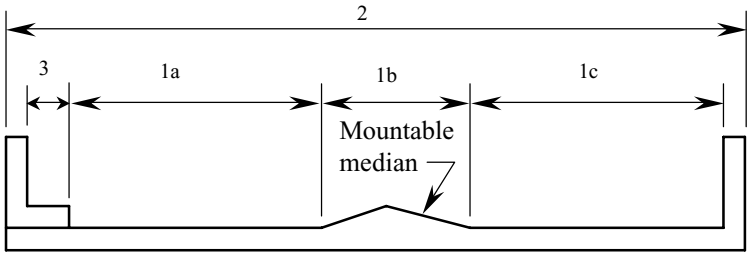
When the roadway is carried on sufficient fill covering a pipe or box culvert so that the load is not transferred into the structure, and when headwalls or parapets do not affect the flow of traffic, a value of Ø should be entered in this field. The filled section over the culvert simply maintains the roadway cross-section, the structure itself is considered to have no deck and thus no curb-to-curb width.

It should be noted, however, that for purposes of Sufficiency Rating calculations the program will default to a curb-to-curb width of 36´ for the S2, D, and E calculations.

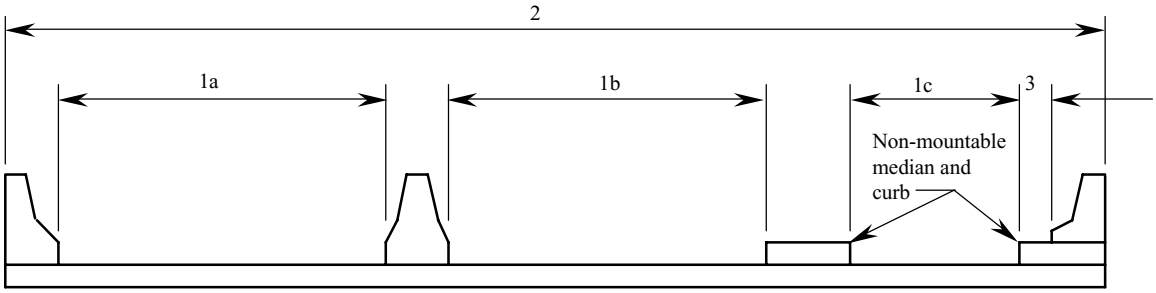
For the correct coding of a Side Hill Viaduct (Half Bridge), see Figure WSBIS-1356b.



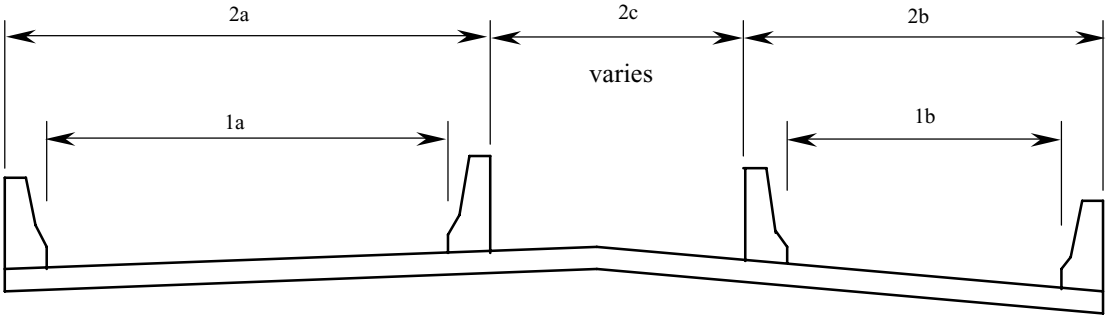
Curb-to-Curb Roadway Width
Figure WB73-56



1 = 1a + 1b + 1c

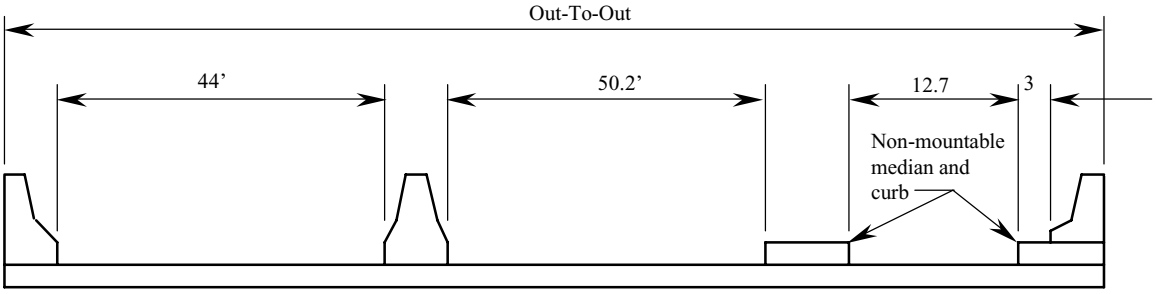


1 = 1a + 1b + 1c



1 = 1a + 1b 2 = 2a + 2b + 2c

WB73-56 (1) Bridge Roadway Width, Curb-to-Curb
WB73-60 (2) Deck Width, Out-to-Out
WB73-64 (3) Curb or Sidewalk Width



Curb-to-Curb Width = 44'+50.2'+12.7' = 106.9'

Curb-to-Curb Roadway Width
Figure WB73-56

out_to_out_width **Out-to-Out Deck Width** *(Fatal)*
WB73-60
FHWA Item 052

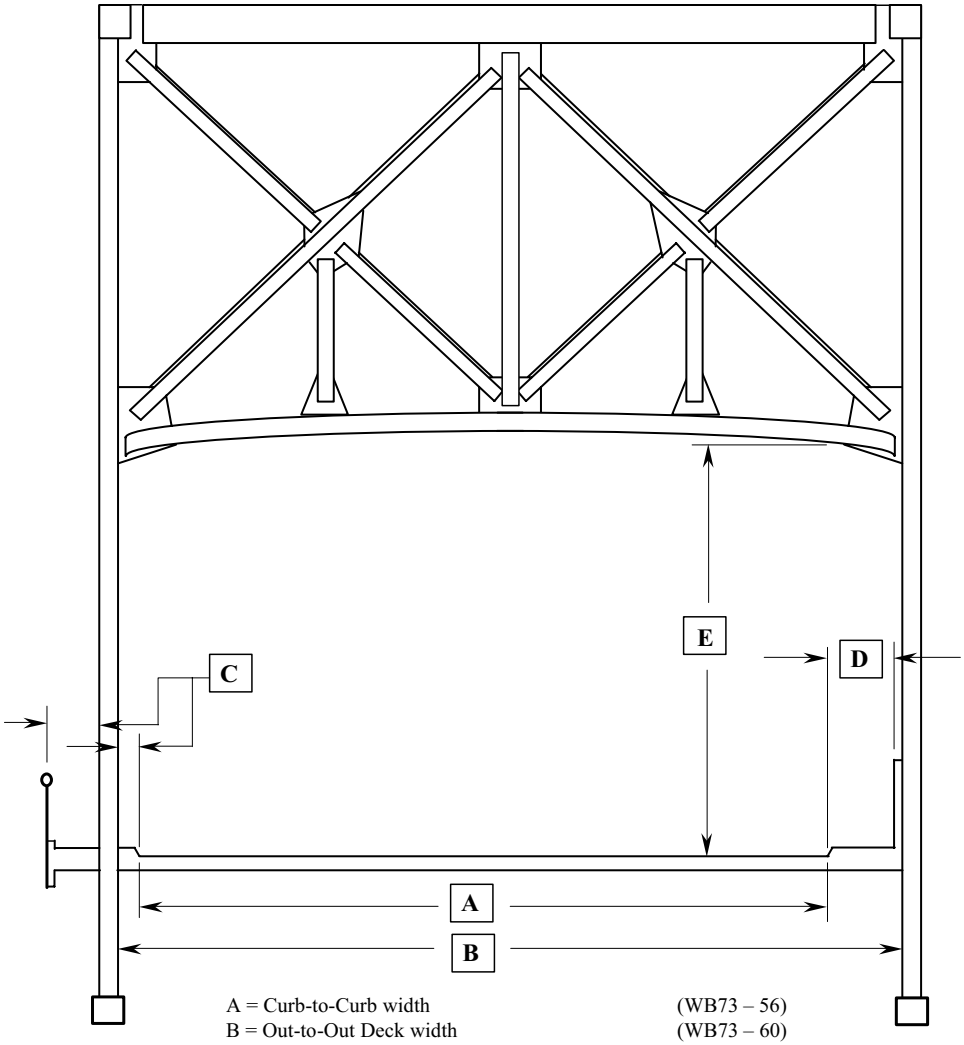
This field contains the measurement of the most representative out-to-out width on the bridge. This measurement should be taken normal to centerline from the outside edges of each side of the deck and coded to the nearest tenth of a foot. The widths of any open medians, or flared ramps should be excluded from this measurement. For through structures, the out-to-out width is a measurement of the lateral clearance between superstructure members. See Figures WB73-56 and WB73-60.

When the roadway runs directly on the culvert (as described in Curb-to-Curb Width), the width of the culvert itself, from outside edge to outside edge, should be entered in this field. When the roadway is carried on fill over a buried culvert (also described in Curb-to-Curb Width), a value of zero should be entered.

See Figure WSBIS-1356b for Side Hill Viaduct (Half Bridge) coding.

HORIZONTAL / VERTICAL MEASUREMENTS

(Looking Ahead on Mileposts)



A = Curb-to-Curb width	(WB73 – 56)
B = Out-to-Out Deck width	(WB73 – 60)
C = Sidewalks and Curb – Left	(WB73 – 64)
D = Sidewalks and Curb – Right	(WB73 – 67)
E = Minimum Vertical Clearance Over Bridge Deck	(WB73 – 70)

Figure WB73-60

sdwk_curb_left **Sidewalk/Curb Width, Left** *(Required)*
WB73-64
FHWA Item 050A

The combined usable width of the left-hand sidewalk and curb on the bridge is entered in this field. The left-hand side of the bridge is determined by facing in the direction of increasing mileposts. If no mileposts are in use, left is determined by facing north or east. See Figure WB73-64.

This measurement is coded to the nearest tenth of a foot.

If the bridge has no functional sidewalks and/or curbs, code zeroes in this field. If the bridge has concrete barriers for rails and no sidewalks, also code zeroes.

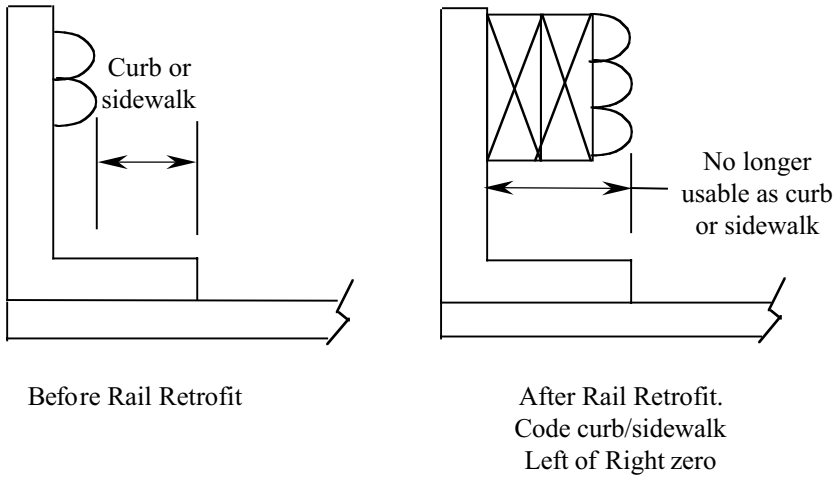


Figure WB73-64

sdwk_curb_right **Sidewalk/Curb Width, Right** *(Required)*
WB73-67
FHWA Item 050B

The combined usable width of the right-hand sidewalk and curb on the bridge is entered in this field. The right-hand side of the bridge is determined by facing in the direction of increasing mileposts. If no mileposts are in use, right is determined by facing north or east.

This measurement is coded to the nearest tenth of a foot.

If the bridge has no functional sidewalks and/or curbs, code zeroes in this field. If the bridge has concrete barriers for rails and no sidewalks, also code zeroes.

min_vert_deck **Minimum Vertical Clearance Over Deck** *(Required)*
WB73-70
FHWA Item 053

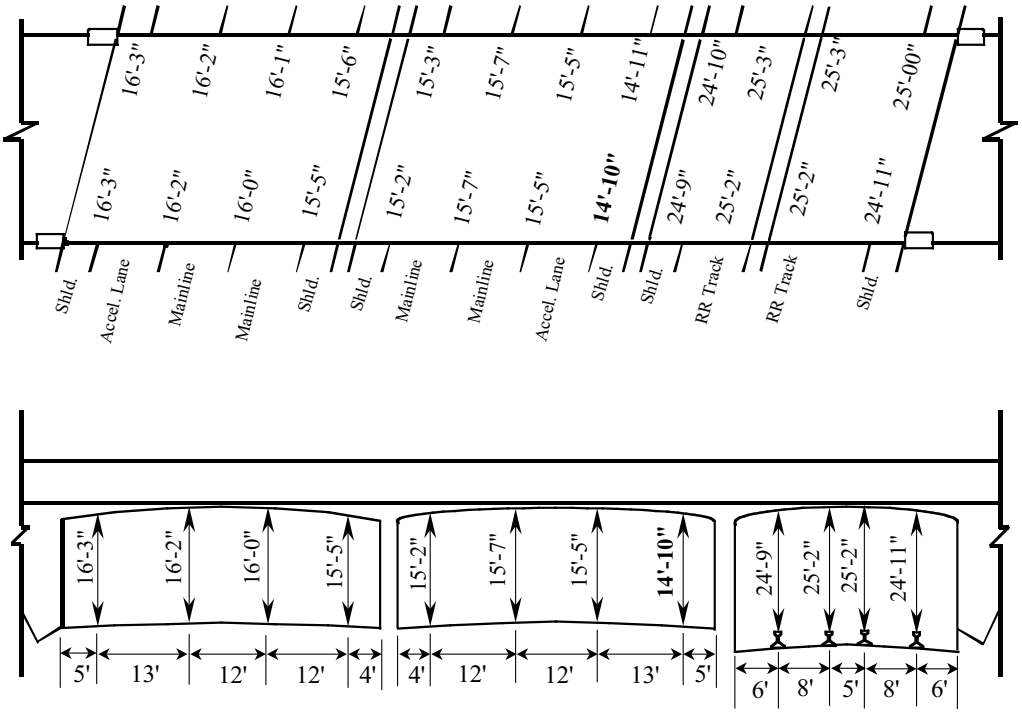
The minimum vertical clearance over the bridge deck is entered in this field. This measurement is coded to the nearest lesser inch and should be taken from the top of the traffic lane or shoulder to a point where the clearance is the most restrictive to include bridge mounted elements. The foot (′) and inch (″) symbols are already marked in the field. See Figure WB73-60.

If there is no restriction, code 9999 in this field. If the minimum restriction is a distance greater than 100 feet, code 9912.

min_vert_under **Minimum Vertical Clearance Under Bridge**
WB73-74 *(Required)*
FHWA Item 054B This field contains the minimum vertical clearance measured under the bridge. This is the minimum vertical clearance from the roadway (travel lanes only) or railroad track beneath the bridge to the underside of the superstructure. See Figure WB73-74.

The value is coded to the nearest lesser inch. The posted clearance is typically less than the measured value. The measured value should be reported in this field. WSDOT typically posts bridges with clearance less than 15′-3″.

If the bridge does not cross a highway or a railroad, zeroes should be entered. If the bridge crosses both a highway and a railroad, code the most critical dimension and note why it is the one recorded in the inspection report. See Figure WB73-78.



Code the most Restrictive Clearances:
WB73 – 74 would be coded **1410**
WB73 – 78 would be coded **H**

Figure WB73-74 and WB73-78

vert_under **Vertical Underclearance Code** *(Required)*
WB73-78
FHWA Item 054A

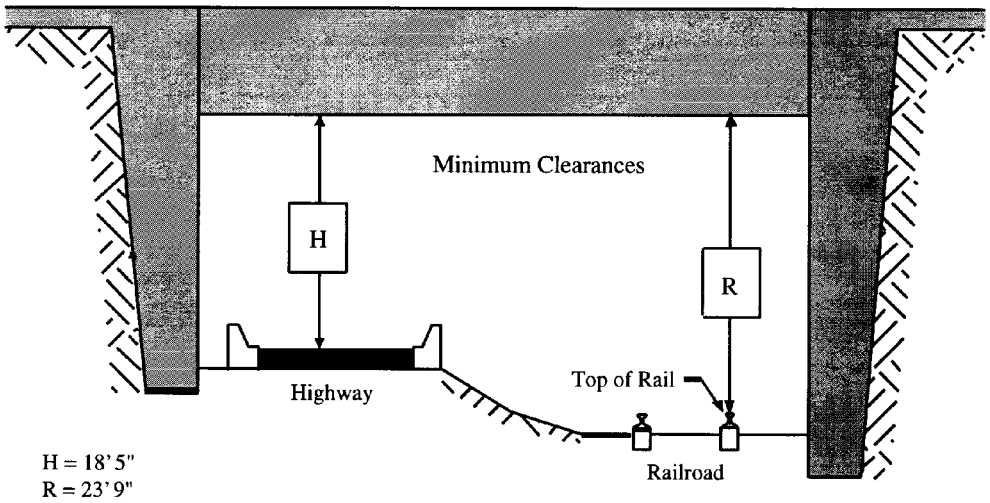
The code in this field identifies the feature from which the minimum vertical underclearance was taken. If the bridge does not cross a highway or a railroad, the letter "N" shall be entered. If the bridge crosses both a highway and a railroad, the measurement of the minimum vertical underclearance should be taken to the most critical feature. See Figure WB73-78.

H	Highway
R	Railroad
N	Neither

From the WSDOT Design Manual 1120.03(5) revised December 1997, the minimum clearance over railroad is 22 feet 6 inches, and minimum clearance over a roadway is 14 feet 6 inches. Select the most restrictive measurement.

The current coding for WB73-74 and WB73-78 is as follows:

- If the bridge crosses neither a highway nor a railroad, code ØØØØN.
- If the bridge crosses a highway with a minimum vertical underclearance of 18 feet 5 inches, code 18Ø5H.
- If the bridge crosses a railroad with a minimum vertical underclearance of 23 feet 9 inches, code 23Ø9R.
- If the bridge crosses both a highway and a railroad, and the highway has a clearance greater than minimum design standards but the railroad is less than design standards, code the measurement to the railroad.



Vertical Clearances
Figure WB73-78

lateral_route_right **Minimum Lateral Underclearance Right** *(Required)*
WB73-79
FHWA Item 055B

Using a three-digit number and a one-digit code (WB73-82), record the minimum lateral underclearance on the right to the nearest tenth of a foot (with an assumed decimal point). When both a railroad and highway are under the bridge, code the most critical dimension. This measurement is determined while facing the direction the traffic flows.

The lateral clearance should be measured from the right edge of the roadway (excluding shoulders) or from the centerline (between rails) of the right hand track of a railroad to the nearest substructure unit (pier, abutment, etc.), to a rigid barrier (concrete bridge rail, etc.), or to the toe of a slope steeper than 3:1. The clearance measurements to be recorded will be the minimum after measuring the clearance in both directions of travel. In the case of a divided highway, this would mean the outside clearances of both roadways should be measured and the smaller distance recorded and coded (see Figures WB73-79 through WB73-83).

If two related features are below the bridge, measure both and record the lesser of the two. An explanation should be written on the inspection form as to what was recorded. When the clearance is 100 feet or greater, code 999.

If the feature beneath the bridge is not a railroad or highway, code ØØØN to indicate not applicable.

The presence of ramps and acceleration or turning lanes is not considered in this item; therefore, the minimum lateral clearance on the right should be measured from the right edge of the **through** roadway.

Examples	Code
Railroad 6.22 feet centerline to pier	062
Highway 6.16 feet edge of pavement to pier	062
Creek beneath bridge	000

lateral_route **Lateral Underclearance Code** *(Required)*
WB73-82
FHWA Item 055A

This code identifies the type of reference feature from which the minimum lateral underclearance measurement on the right was taken. See Figures WB73-79 through WB73-83.

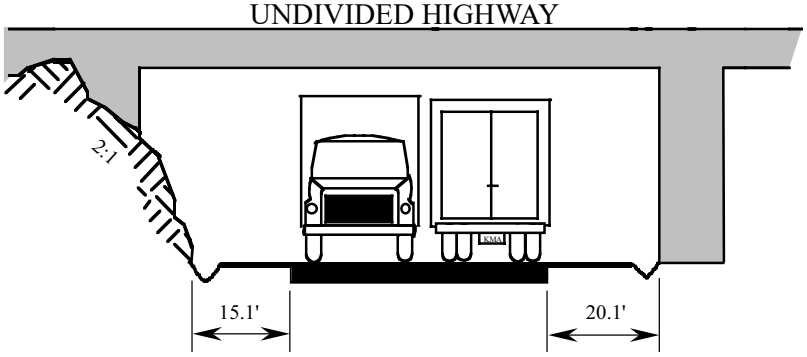
H Highway beneath bridge.
R Railroad beneath bridge.
N Feature beneath the bridge is neither a highway nor a railroad.

lateral_route_left **Minimum Lateral Underclearance Route Left**
WB73-83 *(Required)*
FHWA Item 056 Code only for divided highways, one way streets, and ramps. This is not applicable to railroads or two-way roads with closed medians. Using a three-digit number, record and code the minimum lateral underclearance on the left (median side for divided highways) to the nearest tenth of a foot (with an assumed decimal point). The lateral clearance should be measured from the left edge of the roadway (excluding shoulders) to the nearest substructure unit, to a rigid barrier, or to the toe of slope steeper than 1 to 3. Refer to Figures WB73-79 through WB73-83.

In the case of a divided highway, the median side clearances of both roadways should be measured and the smaller distance recorded and coded. If there is no obstruction in the **median area**, a notation of "open" should be recorded and 999 should be coded. For clearances greater than 100 feet, code 998. Code ØØØ to indicate not applicable.

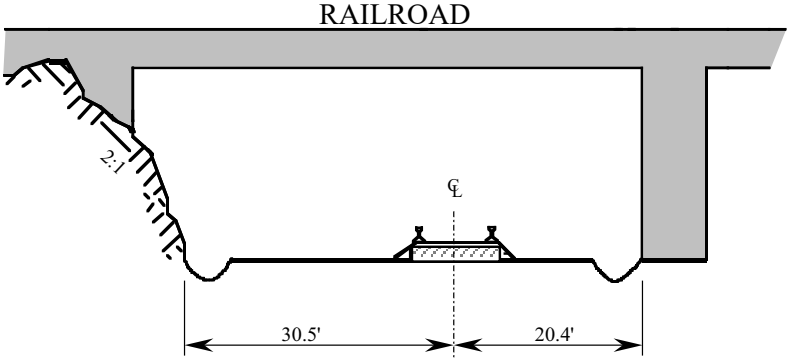
Code	Description
000	Not applicable.
998	Clearance equal to 99.8 feet or greater.
999	Divided highway with no obstructions.

UNDIVIDED HIGHWAY



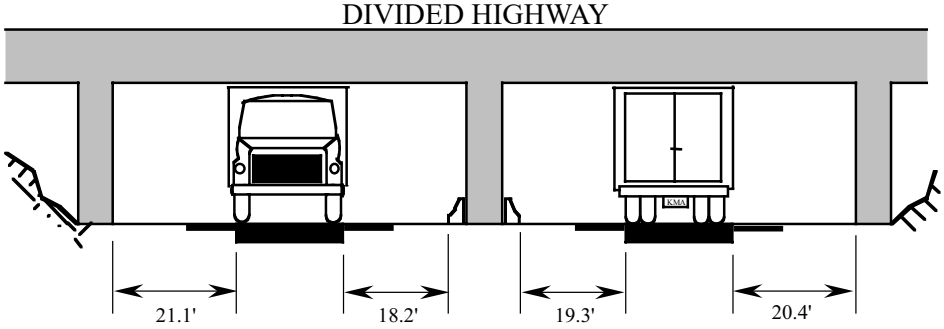
For Minimum Lateral Underclearance Right, Code 15.1H
For Minimum Lateral Underclearance Left, Code ØØØ

RAILROAD



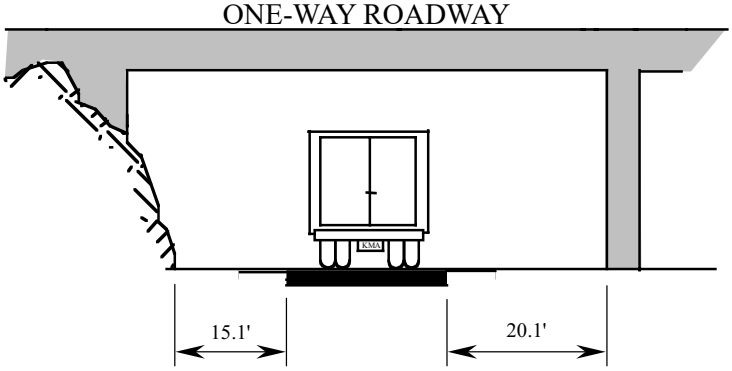
For Minimum Lateral Underclearance Right, Code 2Ø.4R
For Minimum Lateral Underclearance Left, Code ØØØ

DIVIDED HIGHWAY



For Minimum Lateral Underclearance Right, Code 2Ø.4H
For Minimum Lateral Underclearance Left, Code 18.2

ONE-WAY ROADWAY



For Minimum Lateral Underclearance Right, Code 2Ø.1H
For Minimum Lateral Underclearance Left, Code 15.1

Figures WB73-79 through WB73-83

nav_control_code **Navigation Control Code** *(Fatal)*
WB73-86
FHWA Item 038

This field indicates whether or not a navigation control (a bridge permit for navigation as issued by the United States Coast Guard) is required.

0	No navigation control on waterway (bridge permit does not exist).
1	Yes, navigation control on waterway (a bridge permit exists).
N	Not applicable (bridge does not cross a waterway).

nav_vert_clrnc **Navigation Vertical Clearance** *(Required)*
WB73-87
FHWA Item 039

This field contains the minimum vertical clearance allowable for navigational purposes. If the Navigation Control code has been coded 1, this field will show the number of feet (to the nearest foot rounded down) of minimum vertical clearance imposed at the site. This is not a field measurement but is the number of feet as measured above a datum point specified on the navigation permit.

In the case of a swing or bascule bridge, the clearance should be measured with the bridge in the closed position. In the case of a vertical lift bridge, the clearance should be measured with the bridge in the raised or open position.

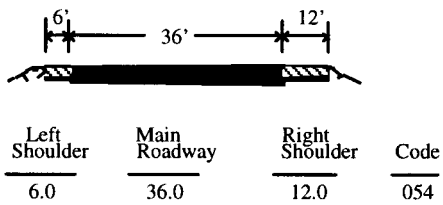
If the Navigation Control code has been coded Ø or N, enter zeros in this field to indicate there is no navigational clearance.

nav_horiz_clrnc **Navigation Horizontal Clearance** *(Required)*
WB73-90
FHWA Item 040

This field contains the minimum horizontal clearance allowable for navigational purposes. If the Navigation Control code has been coded 1, this field will show the number of feet (to the nearest foot rounded down) of minimum horizontal clearance between fenders (If any), or the minimum clear distance between piers or bents. This is the measurement shown on the navigation permit and may be less than the actual clearance distance measured on site.

If the Navigation Control code has been coded Ø or N, enter zeros in this field to indicate there is no navigational clearance.

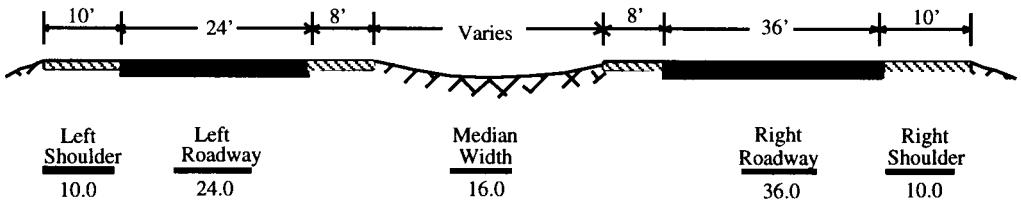
UNDIVIDED HIGHWAY
(as approach roadway)



If the approach roadway is an undivided highway, measure and code the full width of the roadway, including shoulders.

Code: Ø54

DIVIDED HIGHWAY
(as approach roadway)



If the approach roadway is part of a divided highway carried on parallel bridges, there will be two records. Code the width of the approach roadway for the appropriate bridge record.

Code: Ø42 - for left bridge
Code: Ø54 - for right bridge

If the approach roadway is part of a divided highway with a median (one structure record), measure and code the width of the left shoulder and roadway, the right shoulder and roadway, plus the average median width of the approach roadway.

Code: Ø96 (34' + 46' + 16')

Figure WB73-97

vert_lift_min_clrnc **Vertical Lift Minimum Navigation Clearance** *(Required)*
WB73-94
FHWA Item 116

For vertical lift bridges, this value indicates the minimum vertical clearance for navigational purposes when the bridge is in the closed position (that is, when the bridge allows vehicular traffic to cross).

If the Navigation Control code has been coded 1 and the bridge is a vertical lift bridge, this field will show the number of feet (to the nearest foot rounded down) of minimum vertical clearance imposed at the site. This is the number of feet as measured above a datum point specified on a navigation permit.

If the Navigation Control code has been coded 1, but the bridge is not a vertical lift bridge, leave the field blank.

aprch_width **Approach Roadway Width** *(Fatal)*
WB73-97
FHWA Item 032

This is the normal width to the nearest foot of the roadway approaching the bridge. This measurement should include the width of shoulders If the shoulders have been constructed so that they are maintained flush with the adjacent traffic lane and are structurally consistent with these traffic lanes.

This measurement should disregard localized widening. Grass or dirt adjacent to the traffic lanes but not within the maintained roadway should not be considered part of the approach roadway for this item.

For bridges with closed medians, the normal width of the median between the roadways approaching the bridge should not be included in this measurement. Where there is a variation between the approach widths at either end of the bridge, code the narrowest of the approach widths in this field. See Figure WB73-97.

nominal_skew_angle **Skew Angle** *(Fatal)*
WB73-100
FHWA Item 034

The skew angle is a measurement of the angle of intersection between the centerline of a pier and a line drawn perpendicular to the roadway centerline. This angle is coded to the nearest whole degree. See Figure WB73-100.

If the bridge is not skewed, enter 00 in this field. If the skew angle varies from pier to pier, enter the average skew angle, provided it is a representative figure. If it is not, code 99 in this field to indicate that a major variation exists in the skew angles measured from the separate piers supporting the bridge.

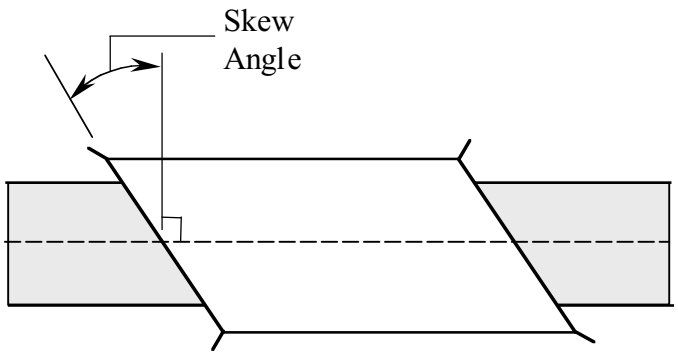


Figure WB73-100

flared_flag **Flared Flag** *(Fatal)*
WB73-102
FHWA Item 035

This code indicates whether or not the width of the bridge varies (or flares). Although there may be other causes, generally such variance is the result of ramps converging or diverging from the structure's through lanes. Minor widening at the four corners of the bridge (i.e., for aesthetic reasons) is not to be considered a flare.

N No, bridge does not flare.
Y Yes, bridge flares.

WB74

on_under_code **Inventory Route On/Under** *(Fatal)*
WB74-32
FHWA Item 005A

This field identifies whether the route being inventoried is carried on or is under the bridge. It cannot be overemphasized that all route-oriented data must agree in the coding as to whether the route being inventoried is "on" or "under" the bridge.

For all records, there are data elements related to the structure and data elements related to the inventory route. The data elements related to the structure (structure data) will not change whether you are coding for the route on the bridge or for the route under the bridge. However, the data elements related to the inventory route (crossing data) are related to the specific route being inventoried.

These two data element types are maintained in two separate tables in the database and are related to each other by the Structure Identifier and a Crossing Key. The Crossing Key is created from the owner code, route number, and mile post to create a unique addressing code for each crossing. Therefore, each bridge will have only one structure record but may have multiple crossing records.

In order for the computer to keep multiple crossings related to their structure elements, it uses a flag known as the Main listing and Secondary listing flag. All structure records are related to the Main listing. The first or only crossing record for a route is also related to the Main listing. The same is true for under routes where no "on" record is coded, such as a tunnel.

However, where a record for a route is coded "on" a bridge and another record(s) will be coded for a route(s) under the same bridge, there must be a Secondary listing(s) created. This Inventory Coding Form was not designed to report Secondary listings. Regardless of whether the code in this field is 1 or 2, this report always displays the Main listing information.

For Secondary listings, another form must be used. If your agency has a bridge over a federal aid route that fits into this category, contact the Bridge Engineer for Local Agencies for the proper procedures.

For entering the code in this field for the Main listing, use one of the following codes:

Code	Description
0	Highways not carried On or Under structure.
1	Route being inventoried is On the bridge.
2	Route being inventoried is Under the bridge. This would be the code for a single route under the bridge, for tunnels, pedestrian, and railroad undercrossings or even a building.
A-Z	Multiple routes go Under the bridge. The code A will be used for the most important of the multiple routes on separate roadways under the bridge. Z will be for the 26th route under the bridge. The level of importance is determined by STRAHNET designation and the highway class.

If the code entered here is 0, 2 or A-Z, only the following fields need to be entered:

Field Name	WSBIS Code	FHWA No.
Location	WB71-56	009
Latitude	WB71-88	016
Longitude	WB71-96	017
Features Intersected	WB72-32	006A
Facilities Carried	WB72-56	007
FIPS Place Code	WB72-76	004
Toll	WB72-85	020
Parallel Structure	WB72-88	101
Temporary Structure	WB72-89	103
Critical	WB72-90	06B
Year Built	WB73-32	027
Bridge Length	WB73-40	049
NBIS Length	WB73-46	112
Maximum Span Length	WB73-48	048
Lanes On	WB73-52	028A
Lanes Under	WB73-54	028B
Min Vertical Clearance Under Bridge	WB73-74	054B
Vertical Underclearance Code	WB73-78	054B
Minimum Lateral Underclearance Right	WB73-79	055B
Lateral Underclearance Code	WB73-82	055A
Minimum Lateral Underclearance Route Left	WB73-83	056
On/Under	WB74-32	005A
Highway Class	WB74-33	005B
Service Level	WB74-34	005C
Route Number	WB74-35	005D
Mile Post	WB74-40	01}
ADT On Inventory Route	WB74-45	029
Truck ADT PCT	WB74-51	109
ADT Year	WB74-53	030
National Highway System	WB74-83	104
Base Highway Network	WB74-84	012
Strahnet	WB74-85	100
Fed Functional Class	WB74-87	026
National Truck Net	WB74-89	110
Lane Use Direction	WB74-90	102
Horizontal Clearance Route Dir	WB74-91	047
Horizontal Clearance Reverse Dir	WB74-95	047
Max Vertical Clearance Route Dir	WB74-99	110
Detour Length	WB74-103	119
Main Span Material	WB75-32	043A
Main Span Design	WB75-33	043B
Service On	WB75-44	042A
Service Under	WB75-45	042B

Tunnels shall be coded as an “under” record only; that is, they shall not be coded as a bridge carrying highway traffic.

hwy_class
WB74-33
FHWA Item 005B

Inventory Route Highway Class *(Fatal)*

This code identifies what type of highway the inventoried route is on using the following:

1 Interstate highway
2 U.S. numbered highway
3 State highway
4 County road
5 City street
6 Federal lands road
7 State lands road
8 Other (include toll roads not otherwise identified.)

When two or more routes are concurrent, the highest class of route will be used. The hierarchy is in the order listed above.

serv_level_
WB74-34
FHWA Item 005C

Inventory Route Service Level *(Fatal)*

This code describes the designated level of service provided by the inventoried route:

1 Mainline (most local agency bridges)
2 Alternate
3 Bypass
4 Spur
6 Business
7 Ramp or "Y"
8 Service and/or unclassified Frontage Road
Ø None of the above

route
WB74-35
FHWA Item 005D

Route *(Fatal)*

The number of the inventory route on (or under) the bridge must be entered in this field. County agencies should enter the County Road Log Number as the inventory route number. City agencies should enter a route number If one has been assigned. If not, the city can enter any unique number in this field; however, rather than arbitrarily assigning a random number, it is recommended that city agencies enter their city number code. This will ensure that two cities within the same county will not enter an identical route number.

Example:

If the bridge is located on highway 14, code **00014**.
If the bridge is located in Sprague, code **01225**.

traffic_flow
WB74-40
FHWA Item 01

Milepost *(Fatal)*

The Linear Referencing System (LRS) milepost is used to establish the location of the bridge on the Base Highway Network (see WB74-84). It must be from the same LRS Inventory Route and milepost system as reported in the Highway Performance Monitoring System (HPMS). The milepost coded in this item directly relates to WB74-67 and WB74-77, the LRS Inventory Route, and Subroute Number.

This item must be coded for all bridges reportable to the NBI. Code a five-digit number to represent the milepost distance in miles to the nearest hundredth (with an assumed decimal point). For bridges carrying the Inventory Route, code the milepost at the beginning of the bridge (i.e., the lowest milepost on the bridge). When the Inventory Route goes under the bridge (WB74-32 coded 2 or A-Z), then code the milepost on the underpassing route where the bridge is first encountered.

For records where mileposts are not provided, use a logical referencing system. Mileposts of zero are undesirable. Mileposts may be coded for bridges that are not located on the Base Highway Network; however, WB74-84, Base Highway Network shall be coded 0 for these records.

Examples	Code
milepost is 130.34	13034
milepost is 9.60	960

adt
WB74-45
FHWA Item 029

ADT on the Inventory Route *(Required)*

This is the Average Daily Traffic (ADT) volume carried on the route being inventoried. If bridges on a divided highway are coded as parallel, then the ADT is the volume carried on the individual bridge, not the cumulative volume carried on the route. The determined ADT volume must be **no more than four (4) years old**. Add leading zeros to fill all spaces in the field.

adt_truck_pct
WB74-51
FHWA Item 109

Truck ADT Percentage *(Required)*

This is the percentage of the ADT volume that is truck traffic. It does not include vans, pickups, or other light delivery trucks. Code to the nearest whole percent.

adt_year
WB74-53
FHWA Item 030

ADT Year *(Required)*

This is the year in which the estimate of the ADT volume was determined. If the year entered in this field is more than four years in the past, a new ADT volume must be determined and entered in the **ADT (WB74-45)** and the year the ADT was determined in this field.

future_adt
WB74-57
FHWA Item 114

Future ADT *(Required)*

This is the ADT volume that the inventory route is expected to carry 20 years in the future. This field may be updated whenever a new projection is made. The field must be updated any time the projected date of this forecast is less than 17 years, but not more than 22 years from the current year.

This volume is intended to provide a basis for forecasting future construction needs.

future_adt_year
WB74-63
FHWA Item 115

Future ADT Year *(Required)*

This is the year for which WB74-57 has been projected.

This date must be at least 17, but no more than 22 years from the current year. If the date in this field is outside these limits, then a new value will be required for WB74-57 and a new year will need to be entered in this field.

lrs_route
WB74-67
FHWA Item 013A

Linear Referencing System Route *(Required)*

If WB74-84, Base Highway Network, has been or is to be coded Ø, then this field should be left blank.

The LRS inventory route and subroute numbers are a 12-digit code composed of two segments. These items must correspond to the LRS inventory route and subroute numbers reported by Washington State for the Highway Performance Monitoring System (HPMS).

If WB74-84, Base Highway Network, has been coded 1, the LRS inventory route number is ten digits, right justified, and zero filled. The code can be alphanumeric but cannot contain blanks. The LRS inventory route number is not necessarily the same as the route number posted along the roadway, but is a number used to uniquely identify a route within at least a county and perhaps throughout the state.

George will identify where this can be located.

Example 1: WB74-84 has been coded zero, structure carries route 99
WB74-67 LRS code will be: blank

Example 2: WB74-84 has been coded one, structure carries route 99
WB74-67 LRS code will be: 0000000099

lrs_sub_route
WB74-77
FHWA Item 013B

LRS Sub Route *(Required)*

If WB74-84, Base Highway Network, has been or is to be coded 0, then this two-digit field should be left blank.

This is the second segment of the LRS inventory route number. It is a number that uniquely identifies portions of an inventory route sections where duplicate mileposts occur or where a route passes through another agencies jurisdiction. If there is no sub route number, code 00 in this segment.

fed_aid_route
WB74-79
WSBIS Item 7479

Federal Aid Route Number *(Required)*

If the route being inventoried is a federal aid highway, enter its federal aid route number in this field.

Federal Aid Route Numbers are shown on the Statewide National Functional Classification System Maps. These maps are located at local agency planning departments or at WSDOT Service Center Planning.

If the bridge is not on a federal aid highway, the field should be filled with zeros.

fed_hwy_system_
WB74-83
FHWA Item 104

National Highway System *(Required)*

This item shall be coded for all records in the inventory. For the inventory route identified in WB74-35, indicate whether the inventory route is on the NHS or not on that system. This code shall reflect an inventory route on the NHS as described in the TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA21). State of Washington National Highway System Maps are located at local agency planning departments or at WSDOT Planning.

If more than one federal aid highway is carried on or under the bridge, indicate only the classification of the more primary route.

0 Inventory Route is not on the NHS.
1 Inventory Route is on the NHS.

base_hwy_net
WB74-84
FHWA Item 012

Base Highway Network *(Fatal)*

This item shall be coded for all records in the inventory, both on and under records.

For the inventory route identified in WB74-35 (Route), indicate whether or not the inventory route is a part of the Base Highway Network.

The Base Highway Network includes the through lane (mainline) portions of the NHS system, rural and urban principal arterials, and rural minor arterials. Ramps, frontage roads, and other roadways are not included in the Base Highway Network. If WB74-87 (Federal Function Class) is coded one of the following: 01, 02, 06, 11, 12, 14, this field should be coded 1.

0 Inventory route is not on the Base Highway Network.
1 Inventory route is on the Base Highway Network.

strahnet_hwy
WB74-85
FHWA Item 100

STRAHNET Highway *(Required)*

This item shall be coded for all records in the inventory.

For identification of STRAHNET routes, see the State of Washington National Highway System map. State of Washington Highway System maps are located at local agency planning departments or at WSDOT Service Center Planning.

For the inventory route identified in WB74-35, indicate STRAHNET highway status using one of the following codes:

0 The inventory route is not a STRAHNET highway.
1 The inventory route is an Interstate STRAHNET highway.
2 The inventory route is a non-Interstate STRAHNET highway.
3 The inventory route connects with a Department of Defense facility.

fed_lands_hwy_
WB74-86
FHWA Item 105

Federal Lands Highway *(Required)*

This code identifies bridges on roads which lead to and traverse through federal lands. These bridges may be eligible to receive funding from the Federal Lands Highway Program.

Washington State Forest Highways maps can be found in the Emergency Relief chapter of the *Local Agencies Guidelines* (LAG) manual.

As of January 1, 2000, there are three Land Management Systems. There are two in Douglas County and one in Lincoln County.

Use one of the following codes:

0 Not Applicable
1 Indian Reservation Road (IRR)
2 Forest Highway (FH)
3 Land Management Highway System (LMHS)
4 Both IRR and FH
5 Both IRR and LMHS
6 Both FH and LMHS
9 Combined IRR, FH, and LMHS

For definition of IRR (Indian Reservation Roads), see Title 23 USC Chapter 1, Part 973

fed_functional_class **Federal Functional Class** *(Required)*
WB74-87

FHWA Item 026

This code describes the Federal Functional classification of the inventory route as classified according to Statewide National Functional Classification System maps. Statewide National Functional Classification System maps are located at local agency planning departments or online at www.wsdot.wa.gov/mapsdata/travel/hpms/functionalclass.htm.

Separate codes are used to distinguish roadways located in rural or in urban areas. Routes shall be coded rural If they are not inside a designated urban area, Codes 08, 09, and 19 are for roads off the Federal Aid System. See WB74-79, Federal Aid Route Number to reference whether the bridge is on or off the Federal Aid Route system.

Rural Codes	Urban Codes
01 Principal Arterial-Interstate	11 Principal Arterial-Interstate
02 Principal Arterial-Other	12 Principal Arterial-Other Freeway or Expressway
06 Minor Arterial	14 Other Principal Arterial
07 Major Collector (Federal Aid Secondary)	16 Minor Arterial
08 Minor Collector	17 Collector
09 Local	19 Local

nat_truck_ntwrk_ **National Truck Network** *(Required)*
WB74-89

FHWA Item 110

A one letter code is entered in this field to indicate whether the inventory route carried on or under the bridge is part of the National Network for Trucks. This network includes the Interstate System and the Federal Aid Primary System. Routes considered to be a part of the Federal Aid Primary System are “rural arterials and their extensions into or through urban areas in existence on June 1, 1991” (as identified in the Code of Federal Regulations (23 CFR 658)). Roadways on this network are available for use by commercial motor vehicles of the dimensions and configurations described in the Code of Federal Regulations.

Y Inventory route is part of the National Truck Network.
N Inventory route is not part of the National Truck Network.

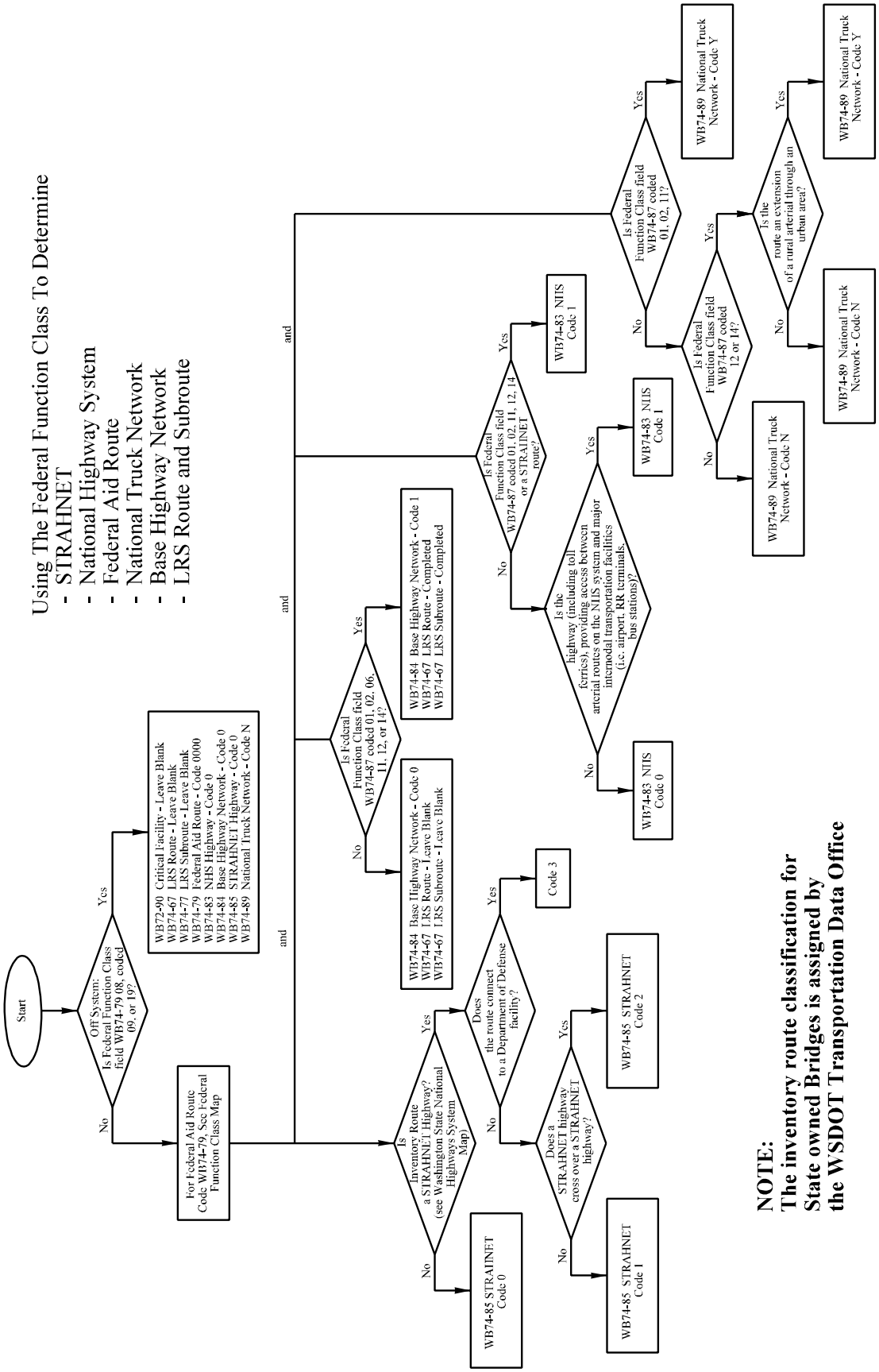


Figure WB74-67 through 89

lane_direction_
WB74-90
FHWA Item 102

Lane Use Direction *(Required)*

Code the direction of traffic on the inventory route identified in WB74-35 as a one-digit number using one of the codes below. This item must be compatible with other traffic-related items such as WB73-52, WB73-56, WB74-45, and WB74-91.

0	No highway traffic carried.
1	One-way traffic carried.
2	Two-way traffic carried.
3	Two-way and reversible traffic carried.
4	Reversible traffic only carried.
5	Two-way traffic carried on one-lane bridge (curb-to-curb distance must be < 16′).

horiz_clrnc_route
WB74-91
FHWA Item 047

Horizontal Clearance, Route Direction *(Required)*

This clearance is the maximum horizontal distance available for wide loads moving across (or under) the bridge or culvert. This measurement shall be coded in feet and inches. See Figure WB74-91.

For undivided highways (or one-way ramps or streets), the measurement of horizontal clearance is taken from one side of the roadway to the other.

The measurement of horizontal clearance for divided highways is taken only for one side of the roadway, which carries traffic in the direction of increasing mileposts or, in the absence of mileposts, toward the east or north. The measurement of horizontal clearance for the lanes carrying traffic in the opposite direction, called the Reverse Direction, is entered in WB74-95 (Horizontal Clearance Reverse Direction).

If the inventory route is carried on the bridge, measure and code the smallest distance between the inside faces of the bridge rail, nonmountable curbs, or the truss members.

If the inventory route is carried under the bridge, measure and code the smallest distance between a substructure element and the median barrier. (If the horizontal clearance is restricted by an embankment, measure to the toe of the slope.)

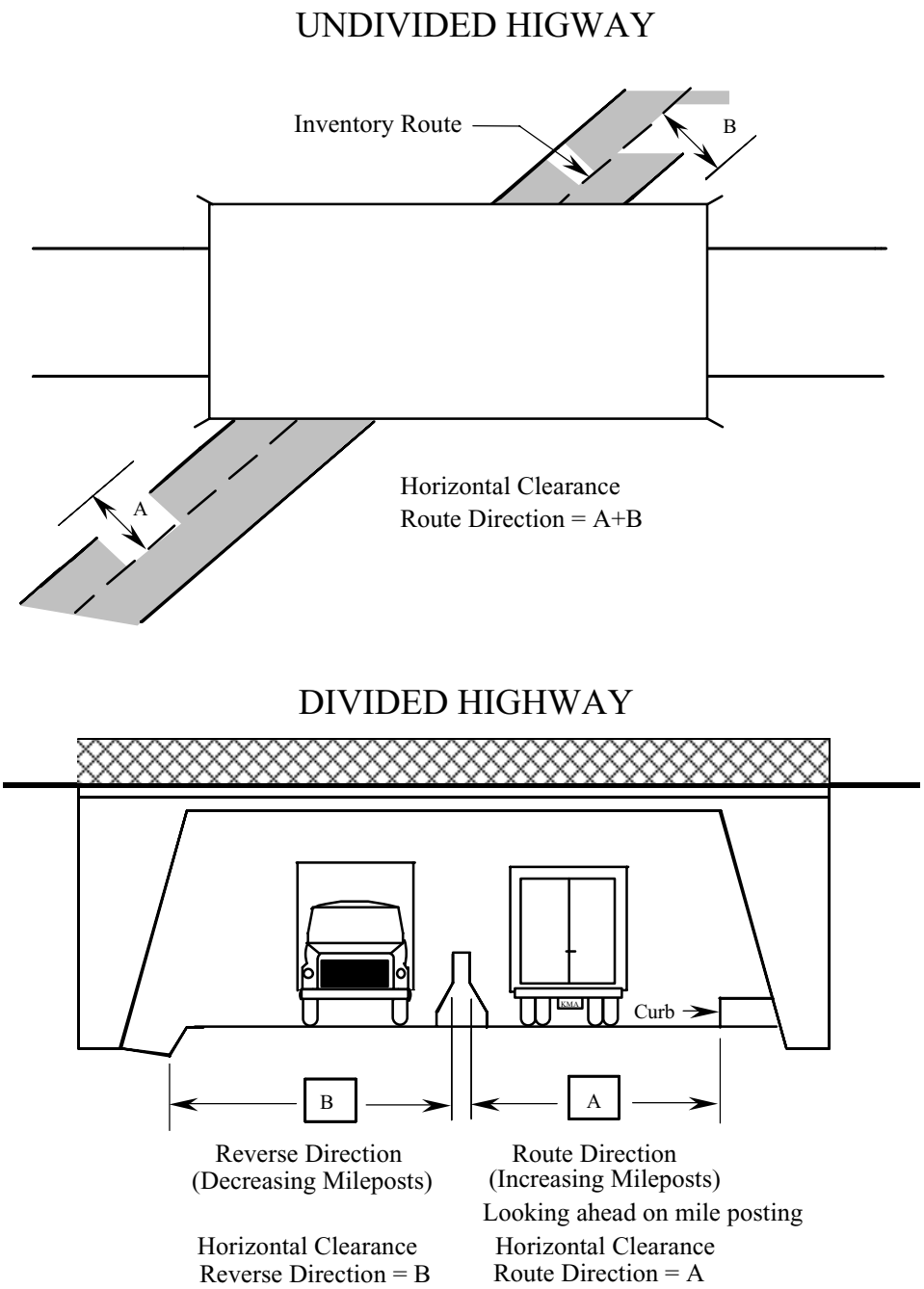


Figure WB74-91 through WB74-95

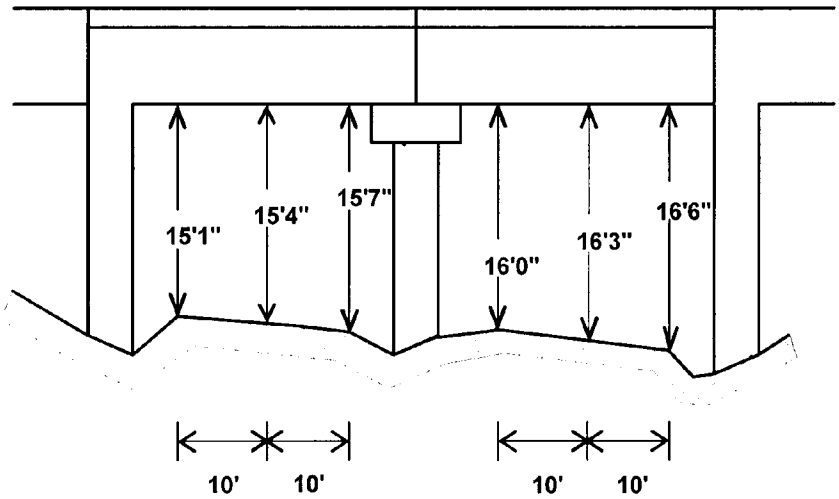
horiz_clrnc_rvrs **Horizontal Clearance, Reverse Direction** *(Required)*
WB74-95
FHWA Item 047

This is the minimum horizontal clearance for that side of the divided roadway which carries traffic in the direction of decreasing mileposts, or, in the absence of mileposts, to the south or west (see Figure WB74-91). This is called the reverse direction. The measurement shall be coded in feet and inches.

If the inventory route is not a divided highway, leave this field blank.

vert_clrnc_route_max **Maximum Vertical Clearance Route Direction**
WB74-99
FHWA Item 010

A value must be entered in this field to indicate If any height restrictions (imposed by a structural member such as sway bracing on trusses, a bridge passing over this route, the mouth of a tunnel) apply to loads carried **on the inventory** route. This measurement is coded in feet and inches. If the inventory route is carried **on or under the bridge**, code the vertical clearance for the 10-foot width of the traveled part of the roadway which will allow passage of the highest vehicle without striking the bridge. The maximum vertical height allowed in any 10 foot roadway width is the least vertical clearance in the 10 foot width of the roadway with the maximum vertical clearance. If there is no vertical restriction leave the field blank (see Figure WB74-99).



Code "1603": The maximum vertical height allowed in any 10 foot roadway width is the least vertical clearance in the 10 foot width of roadway with the maximum vertical clearance.

Figure WB74-99

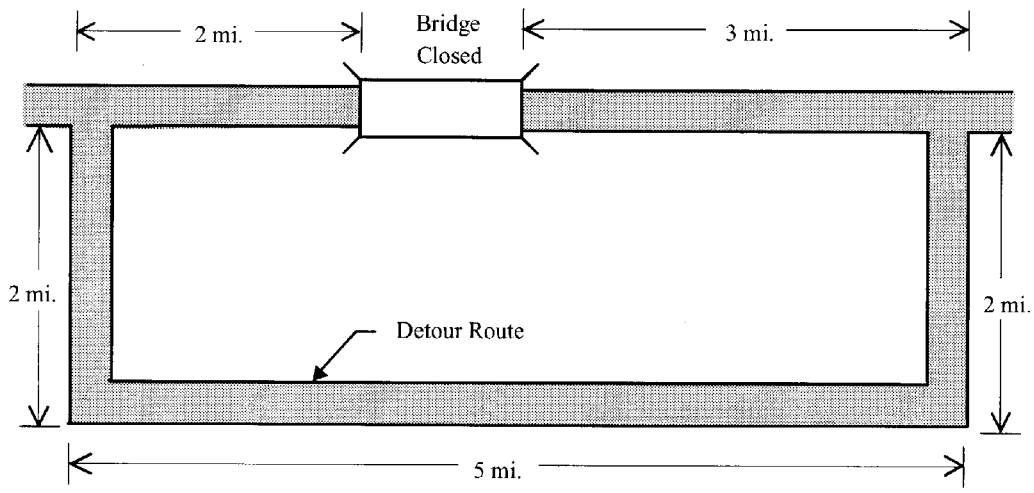
detour_length **Detour Length** *(Fatal)*
WB74-103
FHWA Item 019

The detour length is the distance a vehicle, when starting at one end of the bridge, must travel along the shortest alternate route to reach the opposite end of the bridge. The total detour length is coded to the nearest mile. To be an acceptable detour, an alternate route must be a public road and must be able to provide a similar level of load-carrying capacity as the inventory route (see Figure WB74-103).

If the bridge is at an interchange and a ground-level bypass or the other side of a parallel bridge can be used as the detour route, code Ø in this field.

If the bridge is not at an interchange and a ground level bypass or parallel bridge can be used as a detour route, code Ø1.

If the bridge is on a dead-end road where there is no alternate route, or if the distance that must be traveled is greater than 98 miles, code 99 in the field.



Detour Length = 2 + 2 + 5 + 2 + 3 = 14 miles

Figure WB74-103

WB75

fed_main_material_ **Main Span Material** *(Required)*
WB75-32
FHWA Item 043A

This code describes the kind of material and /or design used in the bridge's main span.

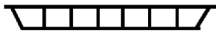
When coding this field, indicate the composition of the superstructure's main load carrying member. That is, if the bridge has a concrete deck carried on timber stringers, code 7 (for timber). Or, if the bridge has a concrete deck carried on steel beams, code 3 (for steel).

1 Concrete
2 Concrete continuous
3 Steel
4 Steel continuous
5 Prestressed concrete
6 Prestressed concrete continuous
7 Timber
8 Masonry
9 Aluminum, wrought iron, cast iron
0 Other

Both pre-tensioned concrete and post-tensioned concrete are considered prestressed concrete.

fed_main_design_ **Main Span Design** *(Required)*
WB75-33
FHWA Item 043B

This code describes the predominant type of design and/or type of construction used in the bridge's main span. This is a Fatal Field for WSDOT only.

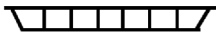
01 Slab
02 Stringer/multi-beam or girder
03 Girder and floorbeam system
04 Tee beam
05 Box beam/box girder-multiple 
06 Box beam/box girder-single or spread
07 Rigid frame
08 Orthotropic
09 Truss-deck
10 Truss – through (Includes Pony Truss)
11 Arch-deck
12 Arch – through (With or without overhead lateral bracing)
13 Suspension
14 Stayed girder
15 Movable-lift
16 Movable-bascule
17 Movable-swing
18 Tunnel
19 Culvert
21 Segmental box girder
22 Channel beam (bathtub unit)
00 Other

fed_aprch_material_ **Approach Span Material** *(Required)*
WB75-35
FHWA Item 044A This code identifies the kind of material used in the bridge's approach spans.

1 Concrete
2 Concrete continuous
3 Steel
4 Steel continuous
5 Prestressed concrete
6 Prestressed concrete continuous
7 Timber
8 Masonry
9 Aluminum, wrought iron, cast iron
0 Other or Not Applicable

When coding this field, indicate the composition of the superstructure's main load carrying member. That is, If the bridge has a concrete deck carried on timber stringers, code 7 (for timber). Or, if the bridge has a concrete deck carried on steel beams, code 3 (for steel).

fed_aprch_design_ **Approach Span Design** *(Required)*
WB75-36
FHWA Item 044B This code identifies the predominant type of design and/or type of construction used in the bridge's approach spans. BMS element descriptions may differ from the following approach span design types.

01 Slab
02 Stringer/multi-beam or girder
03 Girder and floorbeam system
04 Tee beam
05 Box beam/box girder-multiple 
06 Box beam/box girder-single or spread
07 Rigid frame
08 Orthotropic
09 Truss-deck
10 Truss-through
11 Arch-deck
12 Arch-through
13 Suspension
14 Stayed girder
15 Movable-lift
16 Movable-bascule
17 Movable-swing
18 Tunnel
19 Culvert
20 Mixed types
21 Segmental box girder
22 Channel beam (bathtub unit)
00 Other or Not Applicable

main_span_qty **Number of Main Spans** *(Required)*
WB75-38
FHWA Item 045

This is the number of spans in the main or major unit of the bridge. A bridge will contain at least one span. Most bridges will contain a main unit with no approach spans. In such cases, code the number of spans in this field and enter zero in WB75-41. If the bridge contains a main section and approach sections, code the number of spans in the main section only in this field, and code the number of spans in the approach section(s) in WB75-41.

aprch_span_qty **Number of Approach Spans** *(Required)*
WB75-41
FHWA Item 046

This is the number of spans in the approach(es) to the main section of the bridge.

If the bridge has no approach spans, enter zero.

serv_on_code **Service On** *(Fatal)*
WB75-44
FHWA Item 042A

This field describes the type of service carried on the bridge.

1 Highway
2 Railroad
3 Pedestrian exclusively
4 Highway and railroad
5 Highway and pedestrian
6 Overpass bridge at an interchange or second level of a multilevel interchange
7 Third level of a multilevel interchange
8 Fourth level of a multilevel interchange
9 Building or plaza
0 Other

serv_under_code **Service Under** *(Required)*
WB75-45
FHWA Item 042B

This field describes the type of service under the bridge.

1 Highway, with or without pedestrian traffic
2 Railroad
3 Pedestrians exclusively
4 Highway and railroad
5 Waterway
6 Highway and waterway
7 Railroad and waterway
8 Highway, waterway, and railroad
9 Relief for waterway
0 Other

fed_deck_type **Deck Type** *(Required)*
WB75-46
FHWA Item 107

This is the federal code for the type of deck system on the bridge.

If the deck is composed of more than one type of material, indicate what type of material is the most predominant.

If the bridge is a culvert and the roadway is carried on fill, code N to indicate that the deck type is not applicable. WB75-47, Wearing Surface, WB75-48, Membrane, and WB75-49, Deck Protection will also be coded N in this case.

1	Concrete cast-in-place
2	Concrete precast panels
3	Steel grating-open
4	Steel grating-filled with concrete
5	Steel plate (including orthotropic)
6	Corrugated steel
7	Aluminum
8	Treated timber
9	Untreated timber
Ø	Other
A	Filled arches
B	Precast integral with beam
N	Not applicable (bridge has no deck)

fed_wear_surf **Wearing Surface** *(Required)*
WB75-47
FHWA Item 108A

This is the federal code for the type of wearing surface on the bridge deck.

1	Concrete (also monolithic decks)
2	Integral concrete (non-modified concrete layer added)
3	Latex modified or other modified concrete
4	Low slump concrete
5	Protective overlays (epoxy, methyl methacrylate, polyester)
6	Bituminous (i.e., ACP or BST)
7	Timber
8	Gravel (ballast)
9	Other
Ø	None (traffic does not ride on wearing surface)
N	Not applicable (bridge has no deck)

fed_membrane **Membrane** *(Required)*
WB75-48
FHWA Item 108B

This is the federal code for the type of deck membrane used on the bridge.

1	Built-up (roofing tar or liquid asphalt)
2	Preformed fabric
3	Epoxy
8	Unknown
9	Other
Ø	None
N	Not applicable (bridge has no deck)

fed_deck_prot **Deck Protection** *(Required)*
WB75-49
FHWA Item 108C

This is the federal code for the type of deck-protective system on the bridge.

1 Epoxy coated reinforcing
2 Galvanized reinforcing
3 Other coated reinforcing bar
4 Cathodic protection
6 Polymer impregnated
7 Internally sealed
8 Unknown
9 Other
Ø None
N Not applicable (bridge has no deck)

design_load_ **Design Load** *(Required)*
WB75-50
FHWA Item 031

This code expresses the type and amount of live load the bridge has been designed to carry. Classify any other loading, when feasible, using the nearest equivalent valid code.

1 H 10
2 H 15
3 HS 15
4 H 20
5 HS 20
6 HS 20 + Military Mod
7 Pedestrian
8 Railroad
9 HS 25 or Greater
0 Unknown
A HL-93
B Greater than HL-93
C Other

oper_rtng_meth **Operating Rating Method** *(Required)*
WB75-51
FHWA Item 063

Code this field with one of the following codes to indicate which load rating method was used to determine the Operating Rating for this bridge. FHWA has chosen the Load Factor Method as the standard for computing Operating and Inventory ratings reported to the NBI. For proper coding, see load rating section of Chapter 5.

F Load Factor reported in tons
W Working Stress reported in tons
L Load and Resistance Factor reported in tons
T Load Testing
N No rating analysis was performed
A Administrative
6 Load Factor Rating reported by Rating Factor using HS-20 loading
7 Working Stress Rating reported by Rating Factor using HS-20 loading
8 Load and Resistance Factor reported by Rating Factor using HL-93 loading

oper_rtng_tons **Operating Rating Tons** *(Required)*
WB75-52
FHWA Item 064

This field contains a value which indicates the absolute maximum gross weight (in tons) to which the bridge may be subjected for the type of vehicle used in the operating rating.

HS loading shall be used in the rating. The following conditions will apply:

- If the bridge will not carry a minimum of 3 tons of live load, code zero, and consistent with the direction of the AASHTO Manual for Bridge Evaluation, it shall be closed.
- If the bridge is a temporary bridge, code zero in this field (since there is no permanent bridge) even though the temporary bridge is rated for as much as a full legal load.
- If the bridge is shored up or repaired on a temporary basis, it is considered a temporary bridge and should be coded as If the shoring were not in place.
- Code 99 for a bridge under sufficient fill such that according to AASHTO design the live load is insignificant in the bridge load capacity.

invt_rtng_meth **Inventory Rating Method** *(Required)*
WB75-54
FHWA Item 065

Code this field with one of the codes listed below to indicate which load rating method was used to determine the Inventory Rating coded for this bridge. FHWA has chosen the Load Factor Method as the standard for computing Operating and Inventory rating reported to the NBI.

F Load Factor reported in tons
W Working Stress reported in tons
L Load and Resistance Factor reported in tons
T Load Testing
N No rating analysis was performed
A Administrative
6 Load Factor Rating reported by Rating Factor using HS-20 loading
7 Working Stress Rating reported by Rating Factor using HS-20 loading
8 Load and Resistance Factor reported by Rating Factor using HL-93 loading

invt_rtng_tons **Inventory Rating Tons** *(Required)*
WB75-55
FHWA Item 066

This is the capacity rating, in tons, which results in a load level which can safely utilize an existing bridge for an indefinite period of time. HS loading shall be used in the rating. The following conditions will apply:

- If the bridge is a temporary bridge, code zero in this field (since there is no permanent bridge) even though the temporary bridge is rated for as much as a full legal load.
- If the bridge is shored up or repaired on a temporary basis, it is considered a temporary bridge and should be coded as If the shoring were not in place.
- Code 99 for a bridge under sufficient fill such that according to AASHTO design the live load is insignificant in the bridge load capacity.

op_rating_factor **Operating Rating Factor**
If Item 551 is coded 6, 7, or 8, the operating rating factor is entered here as a 3-digit number without the decimal point.

inv_rating_factor **Inventory Rating Factor**
If Item 554 is coded 6, 7, or 8, the inventory rating factor is entered here as a 3-digit number without the decimal point.

design_exception_date **Design Exception Date** *(Optional)*
WB75-57
WSBIS Item 7557 If a design exception has been granted by the FHWA to permit a deviation from required standards, this is the effective date of FHWA approval.

For example, if approval to build a one-lane bridge on a low volume road was granted, enter the date approval was given for this exception. Indicate the date in the MMDDYYYY format. If no design exception has been granted, leave the field blank.

fed_aid_project **Federal Aid Project** *(Optional)*
WB75-65
WSBIS Item 7565 This is the most recent federal aid project number under which federal funds have been used for construction or reconstruction from the year 1970 forward.

Left justify and leave unused columns blank. If the construction work has been assigned more than one federal aid project number, enter the number for the most recently completed (or current) portion of the project. If federal funds have not been used, leave the field blank.

border_state_code **Border Bridge State Code** *(Required)*
WB75-85
FHWA Item 098A For bridges which do not cross a Washington State border, leave this field blank.

This is the code of the neighboring state with which Washington State, or a Local Agency within Washington State, shares responsibility for improvements on the existing bridge which crosses state borders. Valid codes are:

160	Idaho
410	Oregon
CAN	Canada

border_pct **Border Bridge Percent** *(Required)*
WB75-88
FHWA Item 098B For bridges which do not cross a Washington State border, leave the field blank.

This is the percentage of responsibility a neighboring state accepts for improvements on an existing bridge which crosses state borders.

Code the percentage of square footage of the existing bridge that the neighbor is responsible for funding.

border_structure_id **Border Bridge Structure Identifier** *(Required)*

WB75-90

FHWA Item 099

If the bridge does not cross a Washington State border, leave this field blank.

This is the neighboring state's 15 character National Bridge Inventory Structure Number.

The entire 15 character field must be filled in exactly, including any blank spaces and any leading, trailing, or imbedded zeros.

The Bridge Inspection Report (BIR) NBI section has numbers in parentheses that reflect the inventory form WB76. For example, WB76-57, Structural Adequacy Appraisal, is (657) on the BIR.

WB76

alphabetic_span **Alphabetic Span Type(s)** *(Optional)*

Use the table below to identify each group of span types that make up the entire bridge. Separate each span group by a space. List the Main Span first. The sequence for listing the Approach Spans should be longest to shortest but is somewhat arbitrary. The Alphabetic Span type for the Main and Approach spans must be compatible with Items 532, 533, 535 and 536 respectively.

As an example suppose you have a Steel Through Truss with a 140' Creosote Treated Timber approach at one end of the truss and a 30' Concrete t-beam at the other approach.

Items 532 would = 3 and 533 would = 10. Items 535 would = 1 or 7 and 536 would = 04 or 02 depending on which approach you choose to list.

The Alphabetic Span would be entered as follows:

STrus TTC CTB

Alphabetic Span	Definition	Alphabetic Span	Definition
Aculv	Aluminum Culvert	PRCB	Precast Reinforced Concrete Beam
BAS	Bascule Lift Span	SA	Steel Arch
CA	Concrete Arch	STA	Steel Tied Arch
CEFA	Concrete Earth Filled Arch	SRB	Steel Rolled Beam
CBox	Concrete Box Girder	SBG	Steel Box Girder
CCulv	Concrete Culvert	SCulv	Steel Culvert
CFP	Concrete Floating Pontoon	SFP	Steel Floating Pontoon
CG	Concrete Girder	SG	Steel Girder (weld or rivet)
CS	Concrete Slab	SLS	Steel Lift Span
CSS	Cable Stayed Span	SSCG	Steel Stayed Concrete Girder
CVS	Concrete Voided Slab	SSwS	Steel Swing Span
CSTP	Concrete Slab on Timber Piling	Strus	Steel Truss
CTB	Concrete T-Beam	SSusS	Steel Suspension Span
CTrus	Concrete Truss	TCulv	Timber Culvert
CTun	Concrete Lined Tunnel	TS	Timber Slab
CESB	Concrete Encased Steel Beam	TTLB	Treated Timber Laminated Beam
LIDTun	Cut and Cover (LID) Tunnel	TTTrus	Treated Timber Truss
MCulv	Masonry Culvert	TTS	Treated Timber (Salts) Bridge
PCG	Prestressed Concrete Girder	TTC	Treated Timber (Creosote) Bridge
PCS	Prestressed Concrete Slab	TLTun	Timber Lined Tunnel
PCBTG	Prestressed Concrete Bulb-T Girder	UTun	Unlined Tunnel
PCMWG	Prestressed Concrete Multi-Web Girder	Plaza	Park Plaza Structures
PCTG	Prestressed Concrete Trapezoidal Girder	UTTrus	Untreated Timber Truss
PTCTB	Post-Tensioned Concrete T-Beam	UT	Untreated Timber Bridge
PTCBox	Post-Tensioned Concrete Box Girder	UTLB	Untreated Timber Laminated Beam
PTCSeg	Post-Tensioned Segmental Box Girder	WSG	Weathering Steel Girder

Type	Field Name	WSBIS	FHWA
Item Inspection Elements			
Reqd.	Routine Inspection Frequency	WB76-32	091
Fatal	Date of Last Routine Inspection	WB76-34	090
Reqd..	Routine Inspection Hours on Site	WB76-42	
Reqd.	Inspector's Initials	WB76-46	
Fatal	Inspector's Certification Number	WB76-49	
Optl.	Co-Inspector's Initials	WB76-54	
Adequacy Appraisals			
Gen.	Structural	WB76-57	067
Gen.	Deck Geometry	WB76-58	068
Gen.	Underclearance	WB76-59	069
Reqd.	Operating Level	WB76-60	070
Reqd.	Alignment	WB76-61	072
Reqd.	Waterway	WB76-62	071
Inspection Conditions			
Reqd.	Overall Deck Condition	WB76-63	058
Optl.	Drain Condition	WB76-64	
Optl.	Drain Status	WB76-65	
Optl.	Deck Scaling Severity	WB76-66	
Optl.	Deck Scaling Percent	WB76-67	
Optl.	Deck Rutting	WB76-69	
Optl.	Deck Exposed Steel Code	WB76-70	
Reqd.	Superstructure Overall	WB76-71	059
Optl.	Curb Condition	WB76-72	
Optl	Sidewalk Condition	WB76-73	
Optl.	Paint Condition	WB76-74	
Optl	Number of Utilities	WB76-75	
Reqd.	Substructure Condition	WB76-76	060
Reqd.	Channel Protection	WB76-77	061
Reqd.	Culvert Condition	WB76-78	062
Reqd.	Pier / Abutment Protection	WB76-79	111
Reqd.	Scour	WB76-80	113
Reqd.	Approach Roadway Condition	WB76-81	
Optl.	Retaining Walls Condition	WB76-82	
Optl.	Pier Protection Condition	WB76-83	
Reqd.	Traffic Safety, Bridge Rails	WB76-840	36A
Reqd.	Traffic Safety, Bridge Rails	WB76-850	36B
Reqd.	Traffic Safety, Bridge Rails	WB76-860	36C
Reqd.	Traffic Safety, Bridge Rails	WB76-870	36D

Bridge Condition Inspection Fields
Table WB76-32

inspn_freq **Routine Inspection Frequency** *(Required)*
WB76-32
FHWA Item 091

This is the number of months between consecutive routine inspections.

The standard maximum frequency of NBI bridges for Routine Inspections is 24 months.

last_inspn_date **Date of Last Routine Inspection** *(Fatal)*
WB76-34
FHWA Item 090

This is the date the most recent routine inspection was performed on this bridge.

inspn_hours **Routine Inspection Hours on Site** *(Optional)*
WB76-42

This is the total number of inspection hours (to the tenth of an hour) that the inspection team spent on the bridge during a Routine Inspection.

inspr_initials **Inspector's Initials** *(Required)*
WB76-46

These are the initials of the inspector whose certification number appears in WB76-49.

cert_no **Inspector's Certification Number** *(Fatal)*
WB76-49

This is the certification number of the lead inspector at the bridge site performing the routine inspection.

co_inspr_initials **Co-Inspector's Initials** *(Optional)*
WB76-54

These are the initials of the individual who assisted the lead inspector in performing a routine inspection.

Adequacy Appraisal There are six fields used to appraise the adequacy of the bridge in relation to the level of service it provides on the highway system of which it is a part. To make this appraisal, the present condition of the bridge is compared to the condition of a new bridge built to current standards for that particular classification of road (with the exception of underclearance).

The appraisal codes for Structural Adequacy Appraisal, Deck Geometry Appraisal, and Underclearance Adequacy Appraisal are computed automatically by the WSBIS system.

The appraisal codes for Operating Level, Alignment Adequacy Appraisal, and Water Way Adequacy Appraisal are not computed automatically and must be entered by the bridge inspector. See the field descriptions that follow.

structure_adqcy **Structural Adequacy Appraisal** *(Generated)*
WB76-57
FHWA Item 067

The value in this field is generated by the WSBIS system and rates the adequacy of the structure's condition, taking into account any major structural deficiencies. This rating is based on the overall condition of the superstructure, substructure, the inventory rating, and the ADT.

Table WB76-57 explains how the inventory rating may further lower this code. The code for this item is no higher than the lowest of the condition codes for Superstructure Overall, Substructure Condition, or Culvert Condition.

ADT			Structural Adequacy Appraisal Rating Code
0-500	501-5000	>5000	
Inventory Rating HS Truck (Tons)			
	Not Applicable		**9**
36	36	36	8
31	31	31	7
23	25	27	6
18	20	22	5
12	14	18	4
Inventory rating less than value in rating code of 4 and requiring corrective action.			3
Inventory rating is less than above and bridge requires replacement, WB78-44 is coded 31 or 32.			2
Bridge is closed and requires replacement.			Ø

Structural Adequacy Appraisal Rating
Table WB76-57

deck_geometry_aprsl Deck Geometry Appraisal *(Generated)*
WB76-58
FHWA Item 068

The value in this field is generated by the WSBIS system. This is the adequacy appraisal rating of the bridge's deck geometry. The level of service provided by the bridge is evaluated with respect to the highway system of which it is a part. This appraisal is based on the number of traffic lanes, the curb-to-curb width, the minimum vertical clearance over the bridge deck, the ADT, and the federal functional classification.

The following Tables, WB76-58A through E, explain how the values are determined with respect to the highway system of which the bridge is a part. The lowest code determined from the tables is used.

Curb-to-Curb Bridge Roadway Width (In Feet)						Deck Geometry Appraisal Rating Code
Average Daily Traffic (ADT) (Both Directions)						
0-100	**101-400**	**401-1000**	**1001-2000**	**2001-5000**	**>5000**	
Not Applicable						**9**
≥ 32	≥ 36	≥ 40	≥ 44	> 44	> 44	8
28	32	36	40	44	44	7
24	28	30	34	40	44	6
20	24	26	28	34	38	5
18	20	22	24	28	32 (28)	4
16	18	20	22	26	30 (26)	3
Bridge is open and has a width less than required for a rating code of 3 and WB78-44 is coded 31.						2
Bridge is closed.						Ø

Notes:
1. For bridges longer than 200 feet, use the values shown in parentheses.
2. Use the lower rating code for roadway widths between those shown.
3. For bridges with three or more undivided lanes of two-way traffic, use Table WB76-58C under the column NUMBER of LANES (Other Roadways).
4. For bridges with one-lane and one-way traffic.

Deck Geometry Appraisal Rating Two-Lane Bridge With Two-Way Traffic or One-Lane With One-Way Traffic

Table WB76-58A

Curb-to-Curb Bridge Roadway Width (In Feet)		Deck Geometry Appraisal Rating Code
Average Daily Traffic (ADT) (Both Directions)		
0-100	>100	
Not Applicable		9
15′11″	–	8
15	–	7
14	–	6
13	–	5
12	–	4
11	15′11″	3
Bridge is open and has a width less than required for a rating code of 3 and WB78-44 is coded 31.		2
Bridge is closed.		Ø

Notes:
1. Use the lower rating code for a roadway widths between those shown.
2. All single lane bridges with a deck width less than 16 feet and an ADT > 100 should be rated at 3 or below.

Deck Geometry Appraisal Rating One-Lane Bridge With Two-Way Traffic
Table WB76-58B

Curb-to-Curb Bridge Roadway Width (In Feet) Two or More Lanes in Each Direction				Deck Geometry Appraisal Rating Code
Number of Lanes (Interstate)		Number of Lanes (Other Roadways)		
2 Lanes	> 2 Lanes	2 Lanes	> 2 Lanes	
Not Applicable				9
≥ 42	≥ 12N + 24	≥ 42	≥ 12N + 18	8
40	12N + 20	38	12N + 15	7
38	12N + 16	36	12N + 12	6
36	12N + 14	33	11N + 10	5
34 (29)	11N + 12 (11N + 7)	30	11N + 6	4
33 (28)	11N + 11 (11N + 6)	27	11N + 5	3
Bridge is open and has a width less than required for rating code of 3 and WB78-44 is coded 31.				2
Bridge is closed				Ø

Notes:
1. N = Number of traffic lanes.
2. Use the lower rating code for roadway widths between those shown.
3. For bridges longer than 200 feet, use the values shown in parentheses.

Deck Geometry Appraisal Rating Bridges With Two-Way Traffic
Table WB76-58C

Bridge/Ramp Width (In feet)		Deck Geometry Appraisal Rating Code
Number of Lanes		
1 Lane	> 1 Lane	
Not applicable		9
≥ 26	≥ 12N + 12	8
24	12N + 10	7
22	12N + 8	6
20	12N +6	5
18	12N +4	4
16	12N + 2	3
Bridge is open and has deck width less than required for a rating code of 3 and WB78-44 is coded 31.		2
Bridge is closed.		Ø

Notes:
1. N = Number of traffic lanes.
2. Use the lower rating code for a roadway width between those shown.

Deck Geometry Appraisal Rating for Ramps With One-Way Traffic (Service Level = 7)
Table WB76-58D

Functional Class				Deck Geometry Appraisal Rating Code
Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	
Designated Routes*	Undesignated Routes*			
Minimum Vertical Clearance				
Not Applicable				9
≥ 17′0″	≥ 16′0″	≥ 16′6″	≥ 16′6″	8
16′9″	15′6″	15′6″	15′6″	7
16′6″	14′6″	14′6″	14′6″	6
15′9″	14′3″	14′3″	14′3″	5
15′0″	14′0″	14′0″	14′0″	4
Vertical clearance is less than value for rating of 4; corrective action is required.				3
Vertical clearance is less than value for rating of 4 and WB78-44 is coded 31; replacement is required.				2
Bridge is closed.				Ø

Notes:
*Use the first column (Designated Routes) for all routes except designated routes in urban areas where there is an alternative interstate of freeway facility with a minimum clearance of at least 16′ 0″. Use the second column (Undesignated Routes) for all undesignated interstate or freeway facilities.
1. Use the lower rating code for any vertical clearance measurements between those shown.

Deck Geometry Appraisal Rating
Table WB76-58E

underclrnc_aprsl **Underclearance Adequacy Appraisal** *(Generated)*
WB76-59
FHWA Item 069

The code for this field is generated by the WSBIS system.

It rates the adequacy of the bridge's underclearance. This appraisal is based on the vertical and lateral underclearances beneath the bridge as related to the federal functional classification of the roadway carried beneath the bridge. If the bridge is not over a highway or a railroad, the field will be set to 9.

See Tables WB76-59A and B for an explanation of how the values are calculated.

Functional Class					Under-Clearance Adequacy Appraisal Rating Code
Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroads	
Designated Routes*	Undesignated Routes*				
Minimum Vertical Underclearance					
Not Applicable					9
≥ 17′0″	≥ 16′0″	≥ 16’6″	≥ 16′6″	≥ 23′0″	8
16′9″	15′6″	15′6″	15′6″	22′6″	7
16′6″	14′6″	14′6″	14′6″	22′0″	6
15′9″	14′3″	14′3″	14′3″	21′0″	5
15′0″	14′0″	14′0″	14′0″	20′0″	4
Vertical clearance is less than value for rating of 4; corrective action is required.					3
Vertical clearance is less than value for rating of 4 and WB78-44 is coded 31; replacement is required.					2
Bridge is closed.					Ø

Notes:
*Use the first column (Designated Routes) for all routes except designated routes in urban areas where there is an alternative interstate of freeway facility with a minimum clearance of at least 16′ 0″. Use the second column (Undesignated Routes) for all undesignated interstate or freeway facilities.
1. Use the lower rating code for any vertical clearance measurements between those shown.

Underclearance Adequacy Appraisal Rating
Table WB76-59A

Functional Class							Under-clearance Adequacy Appraisal Rating Code
One-Way Traffic				Two-Way Traffic		Railroads	
Principal Arterials (Interstate, etc.)				Other Principal and Minor Arterials	Major and Minor Collectors and Locals		
Main Line		Ramp					
Lt.	Rt.	Lt.	Rt.				
Minimum Lateral Underclearance (Feet)							
Not Applicable							9
≥ 30	≥ 30	≥ 4	≥ 10	≥ 30	≥ 12	≥ 20	8
18	21	3	9	21	11	17	7
6	12	2	8	12	10	14	6
5	11	2	6	10	8	11	5
4	10	2	4	8	6	8	4
Underclearance is less than value for rating of 4; corrective action is required.							3
Underclearance is less than value for rating of 4 and WB78-44 is coded 31; replacement is required.							2
Bridge is closed.							Ø

Notes:
1. Use the lower rating code for any underclearance measurements between those shown.
2. Use the value from the Right Ramp column to determine the rating code when acceleration or deceleration lanes or ramps are provided under two-way traffic.

Underclearance Adequacy Rating
Table WB76-59B

safe_load_code **Operating Level** *(Required)*
WB76-60
FHWA Item 070

This appraisal is a consideration of the relationship between the load that may legally use the bridge and the desired load capacity for this type of bridge in the state of Washington. It is to be based on the bridge's operating rating.

When the maximum legal load allowed in the state exceeds the operating rating, the bridge must be posted. This is in accordance with the requirements of the NBIS. Agencies, however, may elect to post bridges at lower rating capacities. If this is done, WB72-93 may show that the bridge is posted while the field may show that posting is not required. Such coding information is not in conflict but is acceptable and correct.

If the bridge is a temporary bridge, the operating level appraisal rating must reflect its actual load-carrying capacity at the operating rating. The rating should be made based on the loads the bridge is actually carrying. This also applies to bridges which have been shored up or repaired on a temporary basis.

Refer to the Operating Rating Factors Table on page 2.06-C-21 to determine the proper code to enter in this field.

alignment_aprsl **Alignment Adequacy Appraisal** *(Required)*
WB76-61
FHWA Item 072

The evaluation of the approach roadway alignment is based on an assessment of how that alignment relates to the general alignment of the section of highway the bridge is on. The approach roadway alignment is not intended for comparison to current standards, but rather to the existing highway alignment. This field identifies bridges which do not function properly or safely due to the alignment of their approach roadways.

Speed reductions necessary because of the width of the bridge deck will not be considered.

The following codes are to be used:

9 Not applicable (non-vehicular traffic use).
8 No reduction in speed required for vehicle as it approaches the bridge.
6 Minor reduction in speed required for vehicle as it approaches the bridge.
3 Horizontal or vertical curvature of approach roadway requires substantial reduction in the speed of vehicle as it approaches the bridge.

waterway_aprsl **Waterway Adequacy Appraisal** *(Required)*
WB76-62
FHWA Item 071

This item appraises the waterway opening with respect to passage of flow beneath the bridge. The following codes shall be used in evaluating waterway adequacy (interpolate where appropriate). Site conditions may warrant somewhat higher or lower rating than indicated by Table WB76-62 (i.e., flooding of an urban area due to a restricted bridge opening).

The frequency of overtopping means the following:

Remote	greater than 100 years
Slight	11 to 100 years
Occasional	3 to 10 years
Frequent	less than 3 years

Adjectives describing traffic delays mean the following:

Insignificant	Minor inconvenience. Highway passable in a matter of hours.
Significant	Traffic delays of up to several days.
Severe	Long-term delays to traffic with resulting hardship.

Description	Functional Class*		
	1	2	3
	Code		
Bridge not over a waterway	9	9	9
Bridge deck and roadway approaches above flood (high) water elevations. Chance of overtopping remote.	8	8	8
Bridge deck above roadway approaches. Slight chance of over topping roadway approaches.	7	7	8
Slight chance of over topping bridge deck and roadway approaches.	6	6	7
Bridge deck is higher than approaches. Occasional over topping of roadway approaches with insignificant delays.	4	5	6
Bridge deck is higher than approaches. Occasional overtopping of roadway approaches with significant delays.	3	4	5
Occasional overtopping of both bridge deck and roadway approaches with significant delays.	2	3	4
Frequent overtopping of both bridge deck and roadway approaches with significant delays.	2	2	3
Occasional or frequent overtopping of both bridge deck and roadway approaches with severe delays.	2	2	2
Bridge closed – hydraulics problem	Ø	Ø	Ø

*Functional Class:
1 = Principal arterials, interstates, freeways, or expressways.
2 = Other principal arterials, minor arterials, and major collectors.
3 = Minor collectors and local roadways.

Waterway Adequacy Appraisal Rating
Table WB76-62

Condition Rating Codes

Codes are entered in WB76-63 to WB76-83 to describe (rate) the current condition of the existing, in-place bridge as compared to its as built condition. WB76-71 and WB76-76 are based on the overall condition of the bridge elements that comprise either the superstructure or substructure.

Condition codes are properly used when they provide an overall characterization of the general condition of the entire set of components being rated. They are improperly used If they attempt to describe localized or nominally occurring instances of deterioration or disrepair. In assigning condition codes, therefore, the engineer should consider both the severity of deterioration or disrepair and the extent to which it is widespread throughout the components being rated.

The existing condition of the bridge should be the only consideration in making these evaluations. The fact that a bridge may be posted or may have been designed for less than the current legal load should have no bearing on the evaluation of its present condition. Similarly, the fact that portions of a bridge are being supported or strengthened by temporary braces should not be considered. In such instances, the bridge is to be rated **as If the temporary braces were not in place**.

A completed bridge not yet open to traffic should be coded as If it were open to traffic.

Use Table WB76-63A to determine the proper code to enter for all primary load carrying bridge members (i.e., superstructure, substructure). Use Table WB76-64 to determine the proper code to enter for all secondary bridge members (i.e., curbs, sidewalks, rails). Where other coding values are appropriate, the field description will specify what codes to enter.

deck_overall_cond **Overall Deck Condition** *(Required)*
WB76-63
FHWA Item 058

This item describes the overall condition rating of the deck. BMS will address local conditions (see Chapter 4). Rate and code the deck condition in accordance with the general condition ratings by using Table WB76-63 Condition Codes for Primary Bridge Members (Deck) based on a visual inspection.

Use a code of "9" for culverts and other bridges without a deck (i.e., filled arch bridge).

The condition of the wearing surface/protective system, joints, expansion devices, curbs, sidewalks, parapets, facias, bridge rail, and scuppers shall not be considered in the overall deck evaluation. However, their condition should be noted on the inspection form.

Decks integral with the superstructure will be rated as a deck only and may influence the superstructure rating (for example, rigid frame, slab, deck girder or T-beam, voided slab, box girder, etc.). The superstructure of an integral deck-type bridge will not influence the deck rating.

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.
3	Serious Condition. Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete maybe present.
2	Critical Condition. Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete maybe present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure Condition. Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
Ø	Failed Condition. Out of service. Beyond corrective action.

Condition Rating for Primary Bridge Members (Deck)
Table WB76-63

drain_cond **Drains Condition** *(Optional)*
WB76-64
WSBIS Item 7664

This is the condition rating of the drains in the bridge deck.

A rating of 5 should be used to indicate the drains are completely plugged with dirt and debris. Use Table WB76-64 Condition Rating for Secondary Bridge Members (Drains).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.

Condition Rating for Secondary Bridge Members (Drains)
Table WB76-64

drain_status_ **Drains Status** *(Optional)*
WB76-65
WSBIS Item 7665

This code describes the present status of the drains on the bridge.

0 Drains do not exist
1 Drains exist as built
2 Drains have been permanently blocked
3 Drains have been replaced by another type
4 Drains have been disconnected
9 Drains status is unknown

deck_scaling_ **Deck Scaling Severity** *(Optional)*
WB76-66
WSBIS Item 7666

This code describes the severity of any deck scaling present.

The amount and type of deterioration present in the top surface of concrete bridge decks is to be rated. If the bridge does not have a concrete deck (for example, it has an asphalt overlay or a steel or timber deck), code N.

N None
L Light (scaling up to ¼″ deep)
M Moderate (scaling up to ½″ deep)
H Heavy (scaling or spalls up to 1″ deep)
S Severe (over 1″ deep)

deck_scaling_pct **Deck Scaling Percent** *(Optional)*
WB76-67
WSBIS Item 7667

This value is the percentage of the total deck area where scaling and/or spalling are present. It includes any areas which have been patched.

In scaled areas of more than 1 percent, estimate the percentage at 5 percent increments. The amount and type of deterioration present in the top surface of concrete bridge decks is to be calculated. If the bridge does not have a concrete deck (for example, it has an asphalt overlay or a steel or timber deck), code 00.

deck_rutting_ **Deck Rutting** *(Optional)*
WB76-69
WSBIS Item 7669 The amount and type of deterioration present in the top surface of concrete bridge decks is to be rated using the following codes. If the bridge does not have a concrete deck (i.e., it has an asphalt overlay or a steel or timber deck), code Ø.

8 No wear
7 Exposed aggregate
5 Visible wheel track rutting
3 Wheel track rutting has exposed reinforcing steel
0 Not applicable

deck_exposed_steel_ **Deck Exposed Steel** *(Optional)*
WB76-70
WSBIS Item 7670 This code describes the degree to which the deck area shows exposed reinforcing steel.

The amount and type of deterioration present in the top surface of concrete bridge decks is to be rated. If the bridge does not have a concrete deck (for example, it has an asphalt overlay or a steel or timber deck), code Ø.

8 None
7 Some cracking in deck over reinforcing steel
5 0 to 5 percent of deck area shows exposed reinforcing steel
3 More than 5 percent of deck area shows exposed reinforcing steel
0 Not applicable

superstructure_cond **Superstructure Overall** *(Required)*
WB76-71
FHWA Item 059 This item describes the physical condition of all structural members comprising the superstructure. Rate and code the condition in accordance with the previously described general condition ratings. BMS will address local conditions (see Chapter 4). Code 9 for all culverts.

The condition of secondary members such as bracing, diaphragms, bearings, joints, paint system, etc., shall not be included in this rating, except in extreme situations, but should be noted on the inspection form.

On bridges where the deck is integral with the superstructure, the superstructure condition rating may be affected by the deck condition. The resultant superstructure condition rating may be lower than the deck condition rating where the girders have deteriorated or been damaged.

Use Table WB76-71 Condition Rating for Primary Bridge Members (Superstructure).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.
3	Serious Condition. Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical Condition. Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete maybe present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure Condition. Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
Ø	Failed Condition. Out of service. Beyond corrective action.

Condition Rating for Primary Bridge Members (Superstructure)
Table WB76-71

curb_cond
WB76-72

Curb Condition *(Optional)*
This is the condition rating of any curbs located on the bridge. Use Table WB76-72 Condition Rating for Secondary Bridge Members (Curbs).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.

Condition Rating for Secondary Bridge Members (Curbs)
Table WB76-72

sdwk_cond
WB76-73

Sidewalk Condition *(Optional)*
This is the condition rating of any sidewalks which are an integral part of or are attached to the bridge. This rating considers the condition of any structural members (i.e., stringers) which may support the sidewalk.

To be considered a sidewalk, the member must be greater than or equal to three feet in width. Use Table WB76-73 Condition Rating for Secondary Bridge Members (Sidewalk).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking or spalling.

Condition Rating for Secondary Bridge Members (Sidewalk)
Table WB76-73

paint_cond
WB76-74

Paint Condition *(Optional)*
This field contains the condition rating of any paint applied to the bridge to protect the primary structural steel members.

If paint has been applied only on secondary members such as bridge rails or light posts, code 9 in this field.

9 Not applicable.
8 Bridge has recently been painted.
7 Paint is in good condition with only minor weathering.
6 Bridge needs to be painted within five years.
5 Bridge needs to be painted within three years.
4 Bridge needs to be painted within two years.

A paint code of ‘5’ or ‘4’ needs to have at least one paint inspection form completed as part of the inspection report in the bridge file. The bridge is also a candidate for paint testing.

utilities_qty
WB76-75

Number of Utilities *(Optional)*
This field indicates the number of franchise utilities attached to the bridge. Utilities include — but are not limited to — water pipes, sewer lines, telephone lines, power lines, and gas lines. Conduit for electricity used on the bridge is not considered a utility. A conduit cluster (i.e., a telephone cluster) is considered one utility.

This field is not used to evaluate the condition of utilities on the bridge, only the number of utilities present.

If more than nine utilities are attached to the bridge, code 9. If there are no utilities, code Ø. If the number of utilities is not known, leave this field blank.

substructure_cond **Substructure Condition** *(Required)*
WB76-76
FHWA Item 060

This item describes the overall physical condition of piers, abutments, piles, fenders, footings, or other components. Rate and code the condition in accordance with the previously described general condition ratings. Code 9 for all culverts. BMS will address local conditions (see Chapter 4).

The condition of secondary members such as bracing, diaphragms, bearings, joints, paint system, etc., shall not be included in this rating, except in extreme situations, but should be noted on the inspection form.

The Substructure Condition code should be consistent with Scour code WB76-80. A Scour code of 2 or below should result in a corresponding Substructure code of 2 or below.

The substructure condition rating shall be made independent of the deck and superstructure.

Integral-abutment wing walls to the first construction or expansion joint shall be included in the evaluation. For non-integral superstructure and substructure units, the substructure shall be considered as the portion below the bearings.

Use Table WB76-76 Condition Rating for Primary Bridge Members (Substructure).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.
3	Serious Condition. Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical Condition. Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete maybe present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure Condition. Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
Ø	Failed Condition. Out of service. Beyond corrective action.

Condition Rating for Primary Bridge Members (Substructure)
Table WB76-76

channel_prot **Channel Protection** *(Required)*
WB76-77
FHWA Item 061

This item describes the physical conditions associated with the flow of water beneath the bridge such as stream stability and the condition of the channel, riprap, slope protection, or stream control devices including spur dikes.
The inspector should be particularly concerned with visible signs of excessive water velocity which may affect undermining of slope protection, erosion of banks, and realignment of the stream which may result in immediate or potential problems. Accumulation of drift and debris on the superstructure and substructure should be noted on the inspection form but not included in the condition rating.

If more than one condition is present, enter the lowest of the codes that apply. Use Table WB76-77.

Code	Devices Description
9	Bridge is not over a waterway.
8	Protected, well vegetated banks. No river control devices required or they are in stable condition.
7	Bank protection needs minor repair. River control devices/slope protection show minor damage. Banks and/or channel show minor accumulation of drift.
6	Bank beginning to slump. River control devices/slope protection show wide spread damage. Minor movement of streambed. Debris restricts waterway.
5	Eroded bank protection. River control devices/slope protection have major damage. Trees and brush restrict waterway.
4	Banks severely undermined. River control devices/slope protection have severe damage. Large deposits of debris in waterway.
3	Failed bank protection. River control devices are destroyed. Waterway has changed course so it now threatens the bridge and/or approach roadway.
2	Waterway has changed course to extent that bridge is now near collapse.
1	Bridge closed – may be able to be repaired.
0	Bridge closed – beyond repair.

Rating for Channel and Channel Protection
Table WB76-77

culvert_cond **Culvert Condition** *(Required)*
WB76-78
FHWA Item 062

This is the general overall condition rating of any bridge which is a culvert.

A culvert is defined in the FHWA *Culvert Inspection Manual* as a drainage opening beneath an embankment, usually a pipe, which has been designed to allow the even flow of water beneath a roadway and designed to take advantage of submergence. This is a bridge with WB75-33 coded 19.

If the bridge is not a culvert, code 9 in this field.

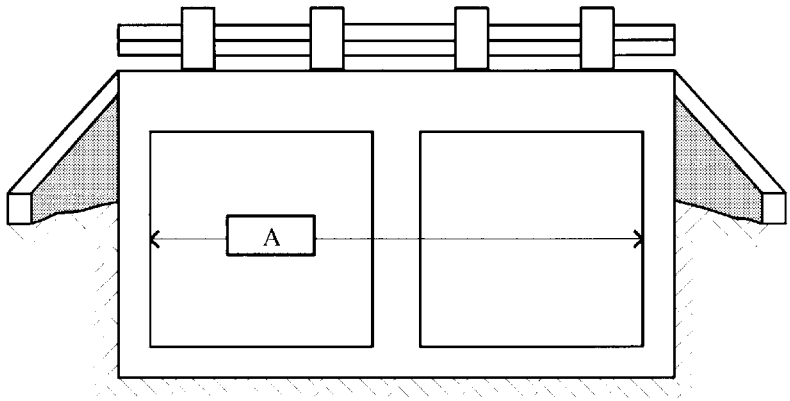
Any culvert with a clear opening of more than 20 feet when measured along the center of the roadway, must be inventoried. In addition, any multiple pipes with a total span of more than 20 feet and a clear distance between openings of less than half of the smaller contiguous opening must also be inventoried. Culverts or multiple pipes which measure less than 20 feet may be inventoried at the agency's discretion.

When rating the general condition of the culvert, evaluate the alignment, degree of settlement, and structural integrity. Wingwalls which have been poured integral to the culvert's first construction or expansion joint should be included in this evaluation. Refer to the FHWA *Culvert Inspection Manual* for a detailed discussion regarding the inspection and rating of culverts. See Figure WB76-78 and Table WB76-78A Rating for Concrete Culverts or Table WB76-78B Rating for Metal Culverts.

When culvert condition is coded (not including 9), code the following fields a 9.			
Type	**Field Name**	**WSBIS**	**FHWA Item**
Reqd.	Overall Deck Condition	WB76-63	058
Reqd.	Superstructure Overall	WB76-71	059
Reqd.	Substructure Condition	WB76-76	060

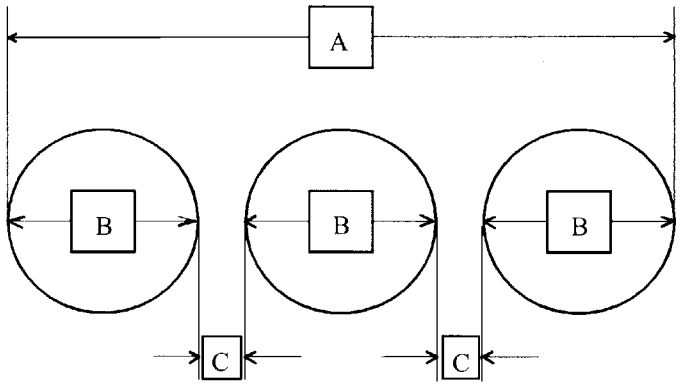
Table WB76-78

BOX CULVERT



If A > 20'
then culvert's condition must be rated.

MULTIPLE PIPES



If A > 20' and B/2 > C
then culvert's condition must be rated.

Figure WB76-78

Code	Description
9	Bridge is not a culvert.
8	No noticeable or noteworthy defects.
7	Cracking, light scaling and spalling which does not expose reinforcing steel. Minor damage from drift. Insignificant scouring near wingwalls or pipes.
6	Minor deterioration, chloride contamination cracking, leaching, or spalling. Minor scouring near wingwalls or pipes.
5	Moderate to major deterioration, cracking, leaching or spalling. Minor settlement or misalignment. Moderate scouring or erosion at wingwalls or pipes.
4	Major deterioration (large spalls, heavy scaling, wide cracks, open construction joints, etc). Considerable settlement or misalignment. Considerable scouring or erosion at wingwalls or pipes.
3	Extensive deterioration. Severe movement, differential settlement of segments, loss of fill. Holes in walls or slab. Wingwalls nearly severed. Severe scouring or erosion at wingwalls or pipes.
2	Collapsed wingwalls, severe settlement of roadway due to loss of fill. Section failure of culvert. Complete undermining at wingwalls or pipes.
1	Bridge closed – culvert may be able to be repaired.
Ø	Bridge closed – culvert beyond repair.

Rating for Concrete Culverts
Table WB76-78A

Code	Description
9	Bridge is not a culvert
8	No noticeable or noteworthy defects. Bolts are in good condition, in place, and tight.
7	Smooth, symmetrical curvature with superficial corrosion and no pitting. Bolts may have superficial corrosion, are in place and tight.
6	Smooth curvature, non-symmetrical shape, and significant corrosion or moderate pitting. Bolts may have significant corrosion and 10 percent of the bolts in a panel seam maybe missing or loose.
5	Significant distortion and deflection in one section. Significant corrosion or deep pitting. Bolts may have significant corrosion and 20 percent of the bolts in a panel seam maybe missing or loose.
4	Significant distortion and deflection throughout. Extensive corrosion or deep pitting. Bolts may have extensive corrosion and 30 percent of the bolts in a panel seam maybe missing or loose.
3	Extreme distortion and deflection in one section. Extensive corrosion or deep pitting with scattered perforations. Bolts may have extensive corrosion and 40 percent of the bolts in a panel seam maybe missing or loose.
2	Extreme distortion and deflection in one section. Extensive perforations due to corrosion. Bolts may have extensive corrosion and 50 percent of the bolts in a panel seam maybe missing or loose.
1	Bridge closed – culvert may be able to be repaired.
Ø	Bridge closed – culvert beyond repair.

Rating for Metal Culverts
Table WB76-78B

Code	Description
9	Bridge is not a culvert
8	No noticeable or noteworthy defects
7	Insignificant deterioration, decay or scour. No structural loss.
6	Minor deterioration, decay or scour. All primary structural elements are sound.
5	Moderate deterioration, decay or scour. All primary structural elements are sound but have some section loss.
4	Major deterioration, decay or scour. Advanced section loss or scour that affects the load capacity of the structure.
3	Extensive deterioration, decay or scour. Advanced section loss or scour that significantly affects the load capacity of the structure.
2	Severe deterioration, decay or scour. Critical structural members have obvious vertical or horizontal movement affecting structural stability.
1	Bridge closed – culvert may be able to be repaired.
Ø	Bridge closed – culvert beyond repair.

Rating for Timber Culverts
Table WB76-78C

pier_abutment_prot Pier / Abutment Protection *(Required)*
WB76-79
FHWA Item 111

This is only required If the bridge crosses a navigable channel (Item 386 = 1). This item contains a code which indicates the presence and adequacy of pier and/or abutment navigation protection features (i.e., fenders and dolphins).

WB76-79 evaluates the adequacy of the pier protection features and is **not** an evaluation of their general condition. WB76-83 is to be used for rating their general condition. However, the adequacy evaluation of these features should correspond to condition ratings entered in WB76-83 in the manner noted.

If WB73-86 has not been coded 1, code N in this field.

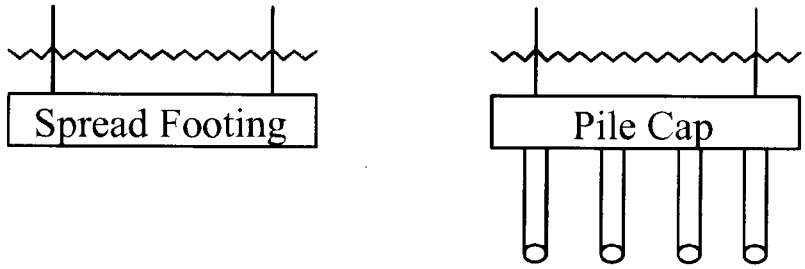
1 No pier protection is required.
2 Pier protection is in place and functioning properly (it has a condition rating of 6, 7, or 8).
3 Pier protection is in place but is in a deteriorating condition (it has a condition rating of 4 or 5),
4 Pier protection is in place but a reevaluation of its design is needed.
5 No pier protection is present but a reevaluation of the need for it should be made.
N Not applicable.

scour_ **Scour** *(Required)*
WB76-80
FHWA Item 113

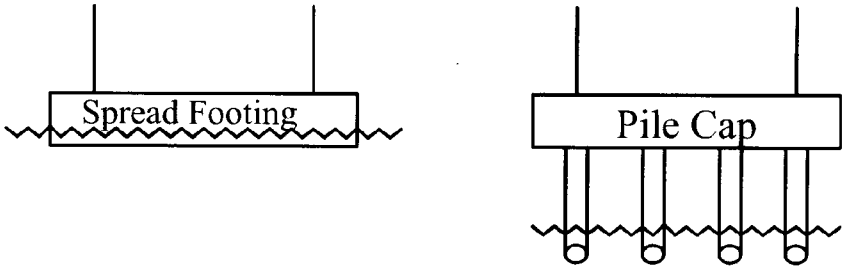
This rating is used to identify the current status of a bridge regarding its vulnerability to scour. Details on conducting a scour analysis are included in Chapter 5. Whenever a rating factor of 4 or below is determined for this item, the rating factor for WB76-76, Substructure may need to be revised to reflect the severity of actual scour and resultant damage to the bridge. A scour critical bridge is one with abutment or pier foundations which are rated as unstable due to (1) observed scour at the bridge site or (2) a scour potential as determined from a scour evaluation study.

When a bridge inspector identifies an actual or potential scour problem, the bridge must be further evaluated to determine whether or not it should be considered scour critical. This evaluation process includes field observations by an individual (or individuals) with a knowledge of foundation, hydraulic, and geotechnical engineering and may require that calculations of anticipated scour depths be made.

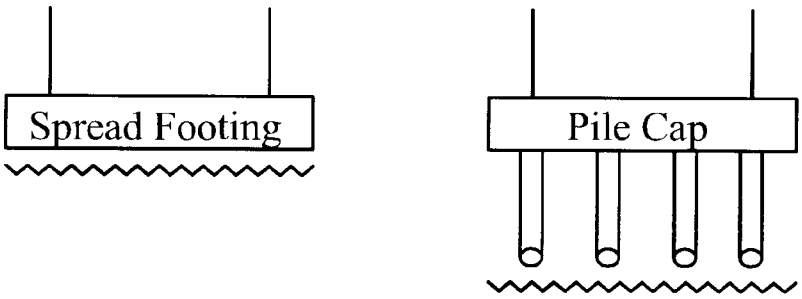
See Figure WB76-80 and Table WB76-80 Rating for Scour.



Example A: If calculated scour depth is above top of footing, code 8. (No action is required.)



Example B: If calculated scour depth is within limits of footing, code 5 or 3 and conduct foundation structural analysis.



Example C: If calculated scour depth is below pile tips or spread footing base, code 3 and provide for monitoring and scour countermeasures as needed.

= Calculated Scour Depth

Figure WB76-80

Code	Description
N	Bridge is not over a waterway.
U	Bridge with “unknown” foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event (see HEC 23).
T	Bridge over “tidal” waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections until an evaluation is performed (“Unknown” foundations in “tidal” waters should be coded U.)
9	Bridge foundations (including piles) well above flood water elevations.
8	Bridge foundations determined to be stable for the assessed or calculated scour condition. Scour is determined to be above top of footing (Example A) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge[4]), by calculation or by installation of properly designed countermeasures (see HEC 23).
7	Countermeasures have been installed to mitigate an existing problem with scour and to reduce the risk of bridge failure during a flood event. Instructions contained in a plan of action have been implemented to reduce the risk to users from a bridge failure during or immediately after a flood event.
6	Scour calculation/evaluation has not been made.
5	Bridge foundations determined to be stable for assessed or calculated scour condition. Scour is determined to be within the limits of footing or piles (Example B) by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), by calculations or by installation of properly designed countermeasures (see HEC 23).
4	Bridge foundations determined to be stable for assessed or calculated scour conditions; field review indicates action is required to protect exposed foundations (see HEC 23).
3	Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions: • Scour within limits of footing or piles (see Figure WB76-80B). • Scour below spread-footing base or pile tips (see Figure WB76-80C).
2	Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by: • A comparison of calculated scour and observed scour during the bridge inspection, or • An engineering evaluation of the observed scour condition reported by the bridge inspector in WB76-76.
1	Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic. Failure is imminent based on: • A comparison of calculated and observed scour during the bridge inspection, or • An engineering evaluation of the observed scour condition reported by the bridge inspector in WB76-76.
Ø	Bridge is scour critical. Bridge has failed and is closed to traffic.

Rating for Scour
Table WB76-80

aprch_cond **Approach Roadway Condition** *(Optional)*
WB76-81 This is the general physical condition rating of the approach roadway. This evaluation takes into consideration visible signs of wear, cracking, spalling, etc., but does not consider the alignment or width of this roadway.

9 Not applicable.
8 Smooth approach onto the bridge structure.
6 Less than 1″ of settlement of the approach roadway causing minor bouncing and load impact onto the bridge. Monitor the settlement.
3 More than 1″ of settlement of the approach roadway causing bouncing and load impact onto the bridge. Needs to be ACP feather repaired to provide a smooth transition onto the bridge.

Note: Code 6 for well maintained gravel roads. Code 3 for gravel roads in rough condition.

retaining_wall_cond **Retaining Walls Condition** *(Optional)*
WB76-82 This field contains the general condition rating of any retaining walls associated with the bridge. This evaluation should take into consideration whether movement, cracking, or settling has occurred.

Wingwalls and curtain walls should not be considered under this code as they are considered part of the abutment. Use Table WB76-82 Condition Rating for Retaining Walls.

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.
3	Serious Condition. Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Critical Condition. Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete maybe present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
1	Imminent Failure Condition. Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
Ø	Failed Condition. Out of service. Beyond corrective action.

Condition Rating for Retaining Walls
Table WB76-82

pier_prot
WB76-83

Pier Protection Condition *(Optional)*

This rating describes the general condition rating of any pier and/or abutment protection features (i.e., fenders and dolphins) which have been put in place to protect the bridge against collisions from vessels or objects in tow.

This field is used for rating the general condition of the bridge's pier protection features and does not evaluate the adequacy of those features.

If no pier protection exists, code 9. Use Table WB76-83 Condition Rating for Secondary Bridge Members (Pier Protection).

9	Not Applicable.
8	Very Good Condition. No problems noted.
7	Good Condition. Some minor problems.
6	Satisfactory Condition. Structural elements show some minor deterioration.
5	Fair Condition. All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.
4	Poor Condition. Advanced deficiencies such as section loss, deterioration, cracking, spalling, or scour.

Condition Rating for Secondary Bridge Members (Pier Protection)
Table WB76-83

bridge_rail_adqcy
WB76-84
FHWA Item 036A

Traffic Safety, Bridge Rails *(Required)*

This code indicates whether or not the bridge railings meet current design standards as established by the AASHTO Standards Specifications for Highway Bridges. To meet current design standards, bridge railings must be capable of smoothly redirecting an impacting vehicle and meet current crash test standards. Factors which may affect this capability are bridge rail height, strength, type of material, and geometric design. See Figure WB76-84.

0 Does not meet currently acceptable standards or a feature is required but not provided.
1 Meets currently acceptable standards.
N Not applicable, or not required, such as a non-vehicular bridge.

rail_trans_adqcy **Traffic Safety, Transitions** *(Required)*
WB76-85
FHWA Item 036B

This rating indicates whether or not the transition between the bridge rail and the approach guardrail meets current design standards. See Figure WB76-87. To meet design standards, the transition must provide for the following:

- A gradual stiffening of the approach guardrail in a manner that will not cause sagging or pocketing due to vehicle impact.
- A firm attachment between the approach guardrail and the bridge by a WSDOT Type F anchor, a WSDOT Type 3 beam guardrail anchor, or extension of the concrete barrier.
- A gradual tapering out of the curb ends.

0 Does not meet currently acceptable standards or a feature is required but not provided.
1 Meets currently acceptable standards.
N Not applicable, or not required, such as a non-vehicular bridge.

aprch_rail_adqcy **Traffic Safety, Guardrails** *(Required)*
WB76-86
FHWA Item 036C

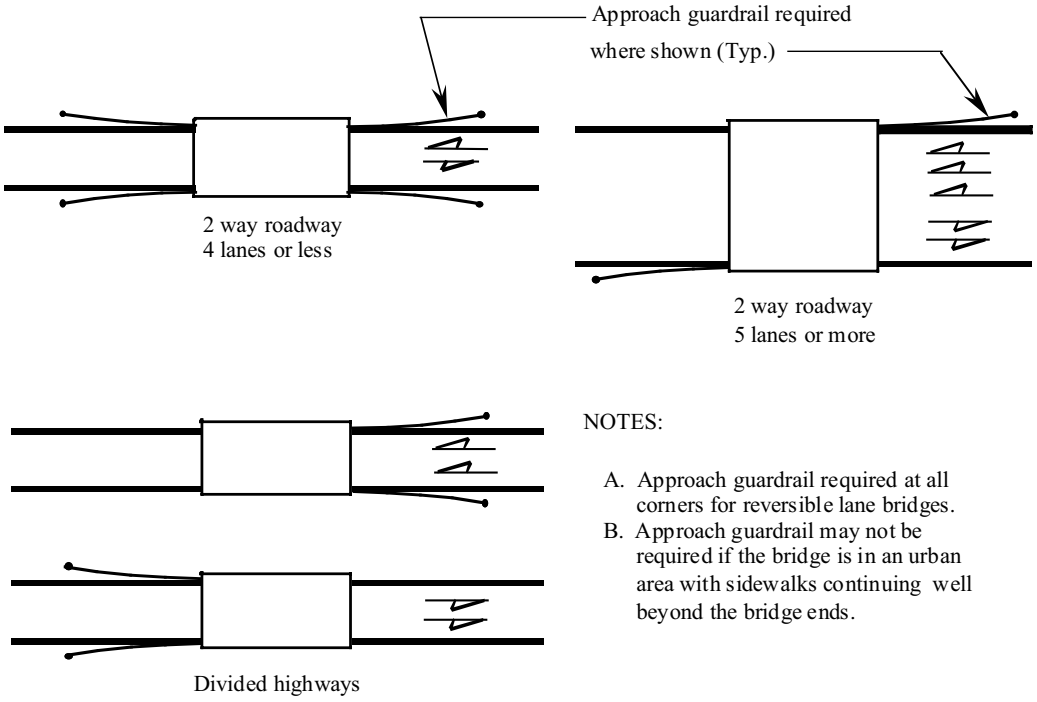
This rating indicates whether or not the approach guardrail meets current design standards. To meet standards, the approach guardrail should be of adequate length, height, and structural quality to shield motorists from bridge ends or from other hazards at the bridge site. Design standards are given in the *AASHTO Roadside Design Guide*. See Figure WB76-87.

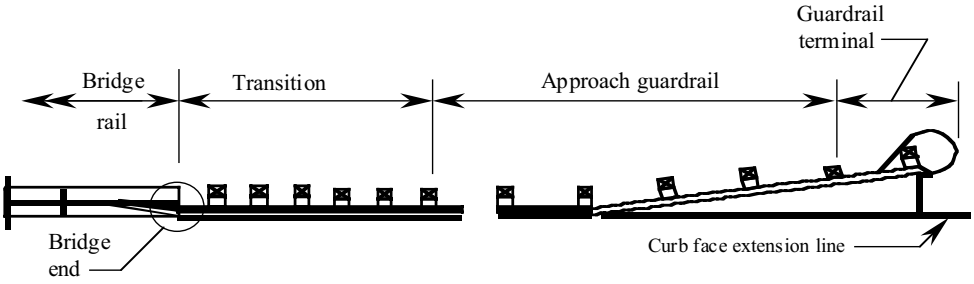
Ø Does not meet currently acceptable standards or a feature is required but not provided.
1 Meets currently acceptable standards.
N Not applicable, or not required, such as a non-vehicular bridge.

rail_end_adqcy **Traffic Safety, Terminals** *(Required)*
WB76-87
FHWA Item 036D

This code indicates whether or not the terminals (guardrail ends) meet current design standards. To meet standards, the terminals should either be flared, buried, shielded, or able to break away. Design standards for terminals are given in the *AASHTO Roadside Design Guide*. See Figure WB76-87.

Ø Does not meet currently acceptable standards or a feature is required but not provided.
1 Meets currently acceptable standards.
N Not applicable, or not required, such as a non-vehicular bridge.





Note: See Standard Plans Section C for current standards.

Approach Rail Requirements
Figures WB76-84 through WB76-87

rating_calc_ **Rating** *(Optional)*
WB76-88 This code indicates whether or not the load ratings WB75-52 and WB75-55 need to be reviewed or calculated.

Y Yes, operating and/or inventory ratings need to be reviewed, or original ratings need to be established.
N No, operating and/or inventory ratings need not be reviewed.

repair_status_
WB76-89

Repair Status *(Optional)*
The inspector should code this field Y If there are recommended repairs.

Y Recommended repair add to Bridge Repair List items.
N No Recommended Repairs.

inspn_photo_
WB76-91

Photographs *(Optional)*
This code identifies the types of photographs to be taken during this inspection.

D Take deck photographs.
E Take elevation photographs.
P Take both deck and elevation photographs.

Leave this field blank If photographs are not required. Use an asterisk to remove a code.

inspn_season_
WB76-92

Season *(Optional)*
This field specifies the time of year in which this bridge should be inspected, either summer, winter, or another seasonal inspection.

L During low water
S Summer
W Winter
B Outside bird nesting season
F Outside fish windows
K Call for utility

Use an asterisk to remove a code.

inspn_soundings_
WB76-93

Soundings *(Optional)*
This code indicates whether or not soundings of the streambed are required.

Y Soundings should be taken.
N Soundings need not be taken.

measure_clrnc_
WB76-94

Clearances *(Optional)*
This field identifies which clearances need to be checked on a bridge.

C Measure both horizontal and vertical clearances.
H Measure horizontal clearances.
V Measure vertical clearances.

Leave this field blank If clearances are not required. Use an asterisk to remove a code.

monitor_structure_
WB76-95

Monitor Structure *(Optional)*
This field prompts the inspector to review comments from the previous inspection to identify what to monitor during an inspection.

Y Yes
N No

inspn_rpt_hours
WB76-42
WSBIS Item 7696

Inspection Report Hours *(Optional)*
This is the total number of hours (to the tenth of an hour) that the inspection team spent on writing the inspection report for the most recent inspection.

WB77

inspn_fracture_type Fracture Critical/UBIT Inspection, Type *(Required)*
WB77-32
FHWA Item 92A Code If a fracture critical inspection is required or whether an Under Bridge Inspection Truck (UBIT) is needed.

- U A Fracture Critical inspection is required (using a UBIT).
- Y A Fracture Critical inspection is required (without using a UBIT).
- I Requires UBIT for inspection, not Fracture Critical.
- N No Fracture Critical inspection is required.

fracture_inspn_freq Fracture Critical/UBIT Inspection, Frequency *(Required)*
WB77-33
FHWA Item 92A A two-digit code representing the number of months between consecutive fracture critical or UBIT inspections.

fracture_inspn_date Fracture Critical/UBIT Inspection Last Inspection Date *(Fatal)*
WB77-35
FHWA Item 93A The date on which the most recent fracture critical inspection was completed. Code this field in the mmddyyyy format.

fracture_inspn_hours Fracture Critical/UBIT Inspection Hours *(Required)*
WB77-43 The total number of inspection hours (to the nearest tenth of an hour) that the inspection team spent on the bridge during the most recent fracture critical/UBIT inspection. Use leading zeros.

fracture_inspr_initials Fracture Critical/UBIT Inspection Inspector (Optional)
WB77-47 The initials of the lead inspector of the inspection team who performed the most recent fracture critical/UBIT inspection.

fracture_cert_no Fracture Critical/UBIT Inspector Identification No *(Fatal)*
WB77-50 The certification number of the lead inspector at the bridge site during the most recent fracture critical /UBIT inspection.

fracture_co_inspr_initials Fracture Critical/UBIT Co-Inspector *(Optional)*
WB77-55 The initials of the individual who assisted the lead inspector in performing the most recent fracture critical /UBIT inspection.

inspn_underwater_type Underwater Inspection, Type *(Required)*
WB77-58
FHWA Item 92B The type of underwater inspection that is required for the bridge.

- D Underwater inspection with a diver (and fathometer, If necessary) is required.
- N No underwater inspection is required.
- O Other type of underwater inspection is required (submarine, ROV, etc.).
- W Underwater inspection w/o diver (wading) is required.

underwater_inspn_freq Underwater Inspection, Frequency *(Required)*
WB77-59
FHWA Item 92B A two-digit code representing the number of months between consecutive underwater inspections.

underwater_inspn_date Underwater Inspection Last Inspection Date *(Fatal)*
WB77-61
FHWA Item 93B The date on which the most recent underwater inspection was completed. Code this field in the mmddyyyy format.

underwater_inspn_hours Underwater Inspection Hours *(Optional)*
WB77-69 The total number of inspection hours (to the nearest tenth of an hour) that the inspection team spent at the bridge during the most recent underwater inspection. Use leading zeros.

underwater_inspr_initials Underwater Inspection Inspector *(Required)*
WB77-73 The initials of the lead inspector of the inspection team who performed the most recent underwater inspection.

underwater_cert_no Underwater Inspection Inspector Identification No *(Fatal)*
WB77-76 The certification number of the lead inspector at the bridge site during the most recent underwater inspection.

underwater_co_inspr_initials Underwater Inspection Co-Inspector *(Optional)*
WB77-81 The initials of the individual who assisted the lead inspector in performing the most recent underwater inspection.

inspn_special_type Other Special Inspections, Type *(Required)*
WB77-84
FHWA Item 92C This field identifies the type of special inspection that is required for the bridge.

1 Movable bridge.
2 Floating bridge.
3 Suspension bridge.
4 Redundant pin/hanger bridge.
5 Segmental.
6 Ferry terminal.
7 High strength steel bridge.
8 Bridges with temporary supports (require intermediate inspections).
9 Cable stayed.
Ø Other special features.
N No special inspection is required.

special_inspn_freq Special Inspection Frequency *(Required)*
WB77-85
FHWA Item 92C A two-digit code representing the number of months between consecutive special inspections.

special_inspn_date Special Inspection Date *(Fatal)*
WB77-87
FHWA Item 93C The date on which the most recent special inspection was completed. Code this field in the mmddyyyy format.

special_inspn_hours Special Inspection Hours *(Optional)*
WB77-95 The total number of inspection hours (to the nearest tenth of an hour) that the inspection team spent at the bridge during the most recent special inspection.

special_inspr_initials **Other Special Inspector's Initials** *(Required)*
WB77-99 The initials of the lead inspector of the inspection team who performed the most recent special inspection.

special_cert_no **Other Special Inspector Certification No.** *(Fatal)*
WB77-102 The certification number of the lead inspector at the bridge site during the most recent special inspection.

special_co_inspr_initials **Other Special Co-Inspector's Initials** *(Optional)*
WB77-107 The initials of the individual who assisted the lead inspector in performing the most recent special inspection.

WB78

water_type **Water Type** *(Required)*
WB78-32
WSBIS Item 7832 This field describes the type of water the bridge crosses over.

- B Brackish (a mixture of fresh and salt water).
- F Fresh water.
- S Salt water.
- T Tidal.

Leave blank if not over water.

flood_plain_intrusion_ **Flood Plain Intrusion** *(Required)*
WB78-33
WSBIS Item 7833 This code indicates whether or not the structure's approach roadway or abutment intrude into the flood plain of the waterway (i.e., whether or not previous or possible flooding could cause or has caused water to rise so it touches the structure's approach roadway embankment or abutment).

- A No intrusion into the flood plain.
- B Bridge or approaches intrude into the waterway causing minor backwater.
- C Overtopping of approach roadway has occurred.
- D A portion of the superstructure has been under water.
- U Flood plain intrusion is unknown.

Leave blank if not over water.

flood_control_ **Flood Control** *(Required)*
WB78-34
WSBIS Item 7834 This field indicates If there is any existing type of flood control on the waterway the bridge crosses. To be considered, this flood control must be in place either upstream or downstream from the bridge and must be near enough to have an effect on the bridge. Flood control may be provided by dams, dikes, fill, or other means.

- B Both upstream and downstream.
- U Upstream.
- D Downstream.
- N No flood control.

Leave blank if not over water.

scour_history_ **Scour History** *(Required)*
WB78-35
WSBIS Item 7835 This code describes scour conditions at the bridge site.

- C Current scour problems.
- H History of scour problems but scour conditions are now stable.
- N No history of scour.
- U Scour history is unknown.

Leave blank if not over water.

streambed_material_type **Streambed Material Type** *(Required)*
WB78-36
WSBIS Item 7836 This code describes the composition of the streambed at the bridge site. Enter one of the following codes to indicate the predominant type of material that is evident.

1 Bedrock
2 Sediment
3 Gravel
4 Sand
5 Cobbles
6 Lined Canal
7 Vegetation
8 Alluvial Fan
9 Unknown

Leave blank if not over water.

substructure_stability_ **Substructure Stability** *(Required)*
WB78-37
WSBIS Item 7837 This code describes the type of material upon which the bridge's substructure rests. This code is used to determine the degree of stability that can be expected in the bridge substructure.

Code the lower number value If different sections of a continuous span bridge are supported by different materials.

1 Spread footing, simple spans.
2 Spread footing, continuous spans.
3 Pile foundation, simple spans.
4 Pile foundation, continuous spans.
5 Bedrock, simple spans.
6 Bedrock, continuous spans.
7 Unknown, simple spans.
8 Unknown, continuous spans

Leave blank if not over water.

waterway_obstruction **Waterway Obstruction** *(Required)*
WB78-38
WSBIS Item 7838 This code indicates any conditions in the waterway which affect the flow of water beneath the bridge.

A Debris accumulates at the bridge.
B Ice accumulates at the bridge.
C The waterway is overgrown with vegetation.
D A and C above.
E A and B above.
F B and C above.
G A, B, and C above.
N No obstruction to the flow of water beneath the bridge.

Leave blank if not over water.

streambed_stability_ Streambed Stability *(Required)*
WB78-39
WSBIS Item 7839 This code describes any existing stream conditions which may influence scour at the bridge site.

A Sharp bends.
B Significant lateral shifts.
C Steep slopes.
D High water velocity.
E Degradation.
F Aggredation.
G No conditions influencing scour exist.
H Streambed conditions are unknown.

Leave blank if not over water.

streambed_anabranch_ Streambed Anabranch *(Required)*
WB78-40
WSBIS Item 7840 This field indicates whether or not confluences or shifting anabranches are present in the waterway. A confluence is a flowing together of two or more streams. An anabranch is a river branch that re-enters the main stream, creating an island in the waterway.

Code only those conditions which exist near the bridge site.

A Anabranches are present.
B Both anabranches and confluences are present.
C Confluences are present.
N Neither anabranches nor confluences are present.
U Waterway configuration is unknown.

Leave blank if not over water.

piers_in_waterway Piers in Water *(Required)*
WB78-41
WSBIS Item 7841 This field contains the number of the structure's piers in the water at normal yearly high water.

If the bridge is inspected at low water, look for evidence that the piers or pile bents have been in the water.

0 No piers in the water.
1-9 Number of piers in the water.
M More than nine piers in the water.

Leave blank if not over water.

prpsed_serv_on_code Proposed Improvement Service On *(Required)*
WB78-42

This field identifies the type of service to be carried on the proposed bridge.

1 Highway.
2 Railroad.
3 Pedestrian exclusively.
4 Highway and railroad.
5 Highway and pedestrian.
6 Overpass bridge at an interchange or second level of a multilevel interchange.
7 Third level of a multilevel interchange.
8 Fourth level of a multilevel interchange.
9 Building or plaza.
0 Other or Not Applicable.

The code Ø means "Other" only If there are proposed improvements. If there are no proposed improvements to the bridge, the code Ø means "not applicable."

prpsed_serv_under_code Proposed Improvement Service Under *(Required)*
WB78-43

This field identifies the type of service under the proposed bridge.

1 Highway, with or without pedestrian traffic.
2 Railroad.
3 Pedestrians exclusively.
4 Highway and railroad.
5 Waterway.
6 Highway and waterway.
7 Railroad and waterway.
8 Highway, waterway, and railroad.
9 Relief.
0 Other or Not Applicable

The code 0 means "Other" only If there are proposed improvements. If there are no proposed improvements to the bridge, the code 0 means "not applicable."

prpsed_work_type **Proposed Improvement Work Type** *(Required)*
WB78-44
FHWA Item 075A

This field identifies the type of work to be accomplished on the proposed improvement. The proposed work should improve the bridge to the degree that it can provide the type of service needed. This field must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. To be eligible, a bridge must carry highway traffic, be deficient and have a sufficiency rating of 80.0 or less.

- 31 Replacement of bridge because of substandard load-carrying capacity or substandard bridge roadway geometry.
- 32 Replacement of bridge because of relocation of road.
- 33 Widening of existing bridge without deck rehabilitation or replacement OR lengthening of a culvert.
- 34 Widening of existing bridge with deck rehabilitation or replacement.
- 35 Rehabilitation of bridge because of general structural deterioration or inadequate strength.
- 36 Rehabilitation of bridge deck with only incidental widening.
- 37 Replacement of bridge deck with only incidental widening.
- 38 Other structural work, includes hydraulic replacements.
- 00 If there are no proposed improvements to the bridge, the code 00 means "not applicable."

If there are no proposed improvements to the bridge, the code 00 means "not applicable."

prpsed_work_meth **Proposed Improvement Work Method** *(Required)*
WB78-46
FHWA Item 075B

This field indicates who will perform the work (as indicated in WB78-44) on the proposed improvement.

- 1 Work to be done by contract.
- 2 Work to be done by the agency which owns the bridge.

prpsed_length **Proposed Improvement Length** *(Required)*
WB78-47
FHWA Item 76

This field contains the length of the proposed improvement. The measurement is to the nearest foot. This should be a measurement of the proposed length of the bridge only, not the length of the project. (Do not include the length of approach guardrails.)

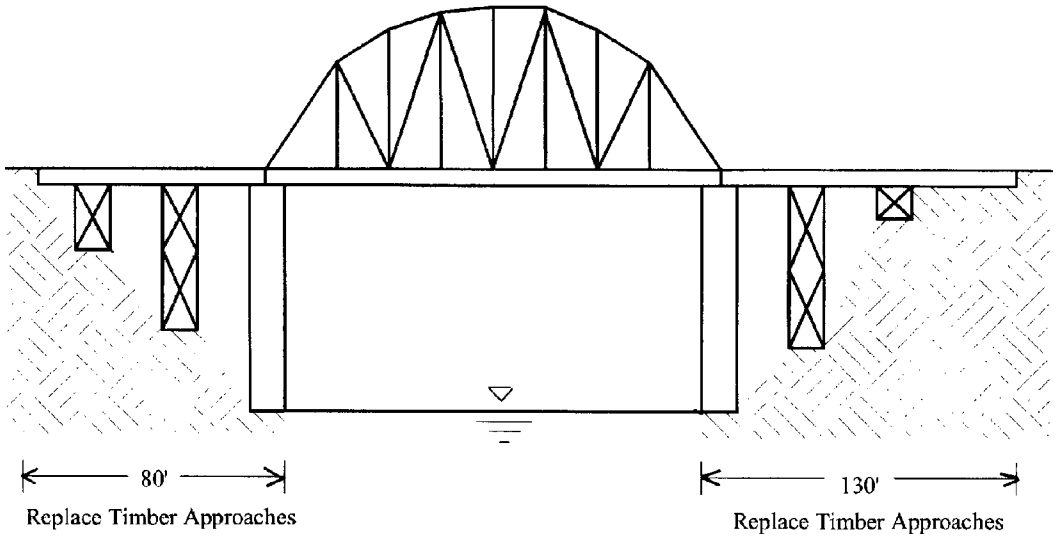
If only a portion of the bridge is to be rehabilitated or replaced, the improvement length is a measurement of the portion being improved only. If the entire bridge is being rehabilitated or replaced, the improvement length is measured from back to back of abutment backwalls or from pavement notch to pavement notch. See Figure WB78-47A.

If the bridge is a pipe or culvert, the improvement length is measured along the centerline of the barrel, regardless of pipe or culvert depth below grade. For pipes, code the total length of the pipe before ends have been mitered. This is not the length as is referenced in WB74-40. See Figure WB78-47B.

If the proposed improvement is to the substructure or channel beneath the bridge, code the length of the bridge directly over, or supported by, the substructure or channel.

This field must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program.

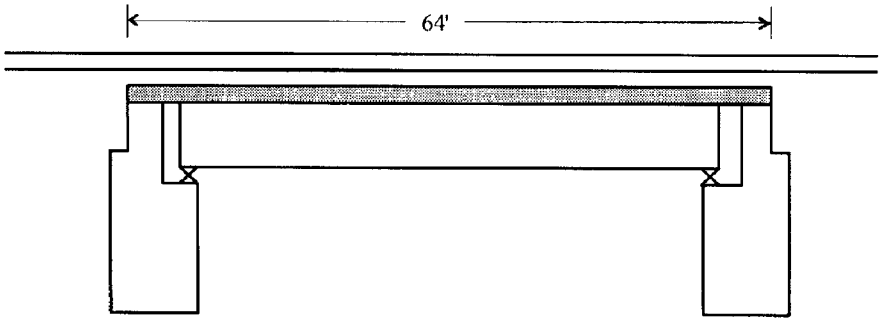
Example A



If the proposed improvement is to replace the timber approaches of both ends of the structure, the total length of improvement is:

80' + 130' = Code 000210

Example B

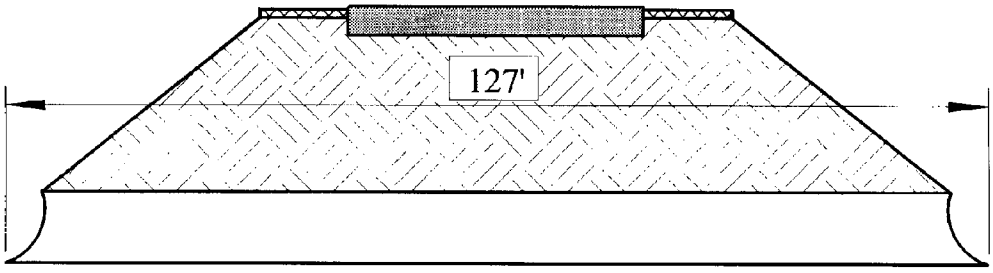


If the proposed improvement is to replace the entire structure, the total length of improvement is a measurement from paving notch to paving notch, or 64 feet , in the example above.

Code: 000064

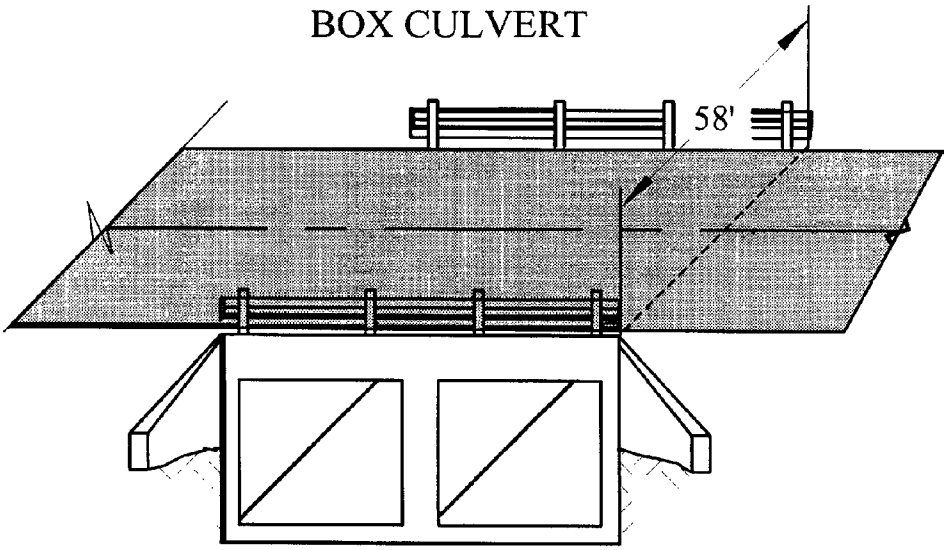
Figure WB78-47A

PIPE CULVERT
CROSS SECTION



If the proposed improvement is to replace a length of pipe, the total length of improvement is the length of the pipe (before ends have been mitered).
Code: 000127

BOX CULVERT



If the proposed improvement is to replace a box culvert, the total length of improvement is the length of the culvert between parapet walls.
Code: 000058

Figure WB78-47B

prpsed_roadway_width **Proposed Improvement Roadway Width** *(Required)*
WB78-53 This field contains the curb-to-curb width of the roadway on the proposed bridge. This measurement is coded to the nearest foot.

prpsed_lanes_on **Proposed Improvement Lanes On** *(Required)*
WB78-57 This field contains the number of through lanes the proposed bridge will carry.

prpsed_lanes_under **Proposed Improvement Lanes Under** *(Required)*
WB78-59 This field contains the number of lanes that will pass beneath the proposed bridge.

prpsed_total_cost **Proposed Improvement Total Cost** *(Required)*
WB78-61
FHWA Item 096 This field must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. This field contains the total cost of the proposed improvements in thousands of dollars. This value includes the bridge cost, the roadway cost, and all incidental costs normally associated with the proposed bridge improvement project. The total project cost will, therefore, usually be greater than the sum of the bridge and roadway costs.

If WB78-83 is coded N, the cost will not be automatically generated.

If no improvement is needed, code all zeroes.

Do not use this field to estimate maintenance costs.

prpsed_structure_cost **Proposed Improvement Structure Cost** *(Required)*
WB78-67
FHWA Item 094 This field must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. This field contains the estimated cost, in thousands of dollars, for the proposed bridge or major bridge improvements. This total should include only bridge construction costs.

It excludes any roadway, right of way, detour, demolition, preliminary engineering, maintenance, guardrail, or paving costs that are not part of the bridge cost.

If WB78-83 is coded N, the cost will not automatically be generated.

If no improvement is needed, code all zeroes.

prpsed_roadway_cost **Proposed Improvement Roadway Cost** *(Required)*
WB78-73
FHWA Item 095 This field contains the estimated cost, in thousands of dollars, for any proposed roadway improvements. This total includes all roadway construction costs, including guardrail and paving costs, but does not include bridge, right of way, detour, extensive roadway realignment, preliminary engineering, or maintenance costs.

If WB78-83 is coded N, the cost will not automatically be generated.

This field must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program.

prpsed_estimate_year **Proposed Improvement Estimate Year** *(Required)*
WB78-79
FHWA Item 097

This field contains the year in which the project cost estimates have been made. If this date is more than eight years old, the cost estimates entered in WB78-61, WB78-67, and WB78-73 must be revised and a new estimate year must be entered in this field.

prpsed_cost_calc_ **Proposed Improvement Calculation** *(Required)*
WB78-83

This field directs the WSBIS system to compute costs for any proposed bridge improvements.

If no improvements are proposed for the bridge, this field should be left blank.

Y Yes, compute the replacement costs automatically.
N No, do not automatically compute the replacement costs.

inspn_agency_id **Inspecting Agency** *(Optional)*
WB78-84
WSBIS Item 7884

If the agency which owns the bridge does not have primary responsibility for inspecting it, this field describes the type of agency inspecting the bridge.

If the owner agency has primary responsibility for inspecting the bridge, leave this field blank, otherwise enter a code to indicate the type of agency inspecting the bridge.

When the agency which owns the bridge performs routine inspections on it and uses other agencies to perform special inspections (for example, a consultant performs underwater inspections), the primary responsibility for inspecting the bridge is still considered to rest with the owner agency. The field should be left blank. Use the following codes.

01 State Highway Agency
02 County Highway Agency
03 Town or Township Highway Agency
04 City or Municipal Highway Agency
11 State Park, Forest, or Reservation Agency
12 County Park, Forest, or Reservation Agency
13 City/Other Park, Forest, or Reservation Agency
21 Other State Agencies
24 Other County Agencies
25 Other City or Local Agencies
26 Private (Consultant)
27 Railroad
31 State Toll Authority
32 County Toll Authority
33 City or Other Toll Authority
60 Other Federal Agencies (not listed below)
61 Indian Tribal Government
62 Bureau of Indian Affairs
63 Bureau of Fish and Wildlife
64 U.S. Forest Service
66 National Park Service

68 Bureau of Land Management
69 Bureau of Reclamation
70 Corps of Engineers (Civilian)
71 Corps of Engineers (Military)
72 Air Force
73 Navy/Marines
74 Army
75 NASA
76 Metroplitan Washington Airport Services
80 Unknown
91 Canada
92 Idaho
93 Oregon

city_inspn_no **Inspecting Agency Number** *(Optional)*
WB78-86
WSBIS Item 7886

If the agency which owns the bridge does not have primary responsibility for inspecting it, this field contains a code which indicates the entity which is performing the inspections.

Use the following criteria for determining the proper code to enter:

1 If the inspecting entity is a county, code that county's number in the first two field positions and leave the last two field positions blank.

2 If the inspecting agency is a city, code that city's four-digit number in the field.

3 If the inspecting entity is WSDOT or an agency outside Washington State, code all zeroes in the field.

If the owner agency is inspecting the bridge, leave this field blank

seismic_superstrctr_main_b **Seismic Status Superstructure Main Biennium** *(Optional)*
WB78-90

This field contains the biennium in which the superstructure main span group was fitted with seismic restraining devices.

Enter the beginning and ending years of the biennium. For example, code the 1997-1999 biennium as 9799.

Leave this field blank If the superstructure of the main span group has not been fitted with seismic restraining devices.

seismic_superstrctr_aprch_b **Seismic Status Superstructure Approach Biennium** *(Optional)*
WB78-94

This field contains the biennium in which the superstructure approach span group was fitted with seismic restraining devices.

Enter the beginning and ending years of the biennium. For example, code the 1997-1999 biennium as 9799.

Leave this field blank If either there are no approach spans or If the superstructure of the approach span group has not been fitted with seismic restraining devices.

seismic_substrctr_main_b Seismic Status Substructure Main Biennium *(Optional)*

WB78-98 This field contains the biennium in which the substructure main span group was fitted with seismic restraining devices.

Enter the beginning and ending years of the biennium. For example, code the 1997-1999 biennium as 9799.

Leave this field blank If the substructure of the main span group has not been fitted with seismic restraining devices.

seismic_substrctr_aprch_b Seismic Status Substructure Approach Biennium *(Optional)*

WB78-102 This field contains the biennium in which the substructure approach span group was fitted with seismic restraining devices.

Enter the beginning and ending years of the biennium. For example, code the 1997–1999 biennium as 9799.

Leave this field blank If either there are no approach spans or If the substructure of the approach span group has not been fitted with seismic restraining devices.

Edit Process

The WSBIS system has been designed so that various checks of the coded values are made before the form is processed and the information stored in WSBIS. These edit checks are made each time information is added or updated. There are four different types of edit checks performed and each is described below.

A. Valid Range Edits

Each field is edited to see If a complete entry was made and whether the coded values fall within the acceptable range of values for that field. For example, acceptable values for SECTION (WB71-81) are the numbers Ø1 through 36. The number 42, therefore, is an invalid entry in this field.

When a valid range error is found during processing, the error is underlined in the field and asterisks are printed in the Card Indicator Box corresponding to that field. (Card WB71 in the example above). These errors should be corrected and the form resubmitted. Refer to the VALID RANGE EDITS table on the following pages for a listing of valid values for each field.

B. Fatal Field Edits

Certain fields are considered critical and must contain acceptable values for information to be added or updated on the form. These are called Fatal Fields. For example, COUNTY NUMBER is considered a Fatal Field. Therefore, an acceptable value (a number between Ø1 and 39) must be coded in the field.

If a Fatal Field error is found when data is first being added, the inventory record will not be created. When a Fatal Field error is found as the form is being updated, the original data will be left in the field and an error message will be displayed. Refer to the FATAL FIELD EDITS table on the following pages for a list of Fatal Fields, and the field descriptions.

C. Dependency Edits

Certain fields are cross-checked against each other to confirm compatibility of codes in related fields. For example, If the MAXIMUM SPAN LENGTH has been coded ØØ78, then the BRIDGE LENGTH (WB73-40) must be coded as greater than ØØ78 (since the total length of the structure is usually greater than the length of the maximum span). Similarly, If NAVIGATION CONTROL (WB73-86) has been coded 1 (to indicate that navigation control exists) then NAVIGATION VERTICAL CLEARANCE and NAVIGATION HORIZONTAL CLEARANCE must be coded with values greater than Ø (since a navigable channel must have some vertical and horizontal clearance).

When a dependency error is found during processing of the form, the problematic fields are marked and an error message code is printed at the top of the form. These messages are preceded by the letter E and indicate the source of the problem. For a listing of the error codes which may appear on the form and what each means, refer to the ERROR CODES table on the following pages.

D. Logical Edits

Values coded in certain fields are checked to see If they are reasonable. For example, for the MINIMUM VERTICAL CLEARANCE UNDER BRIDGE (WB73-74) to be coded at 8 feet, would be questionable. Values coded in certain fields are also checked against other values to see If a reasonable relationship exists between two fields. For example, If YEAR BUILT (WB73-32) has been coded to show that the bridge has been built in the past five years, it would be unreasonable for the DECK CONDITION OVERALL to be coded Ø through 4 (how could a five year old bridge deck be in such deteriorated condition?)

When logical coding errors are found during the processing of the form, the problematic fields are marked and an error message code is printed at the top of the form. These messages are preceded either by the letter R or the letter L and indicate the source of the problem. For a listing of error codes which may appear on the form and what each means, refer to the ERROR CODES table on the following pages.

Error Codes

E400 One of the following conditions is true:

- **National Highway System (WB74-83)** is coded "1" *and* **Highway Class (WB74-33)** is in the range "4" through "8"

  OR

- **National Highway System (WB74-83)** is not coded "1" *and* **Highway Class (WB74-33)** is coded "1"

E401 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* one of the following conditions is true:

- **Lanes On (WB73-52)** is greater than "/ØØ" *and* **Service On (WB75-44)** is coded "Ø", "2", "3", or "9"

  OR

- **Lanes On (WB73-52)** is coded "/ØØ" *and* **Service On (WB75-44)** code is coded "1" or is in the range "4" through "8"

E402 One of the following conditions is true:

- **Lanes Under (WB73-54)** is greater than "/ØØ" *and* **Service Under (WB75-45)** is not "1", "4", "6", or "8"

  OR

- **Lanes Under (WB73-54)** is coded "/ØØ" *and* **Service Under (WB75-45)** is not "2", "3", "5", "7", "9", or "Ø"

E403 One of the following conditions is true:

- **National Highway System (WB74-83)** is coded "Ø" *and* **Federal Functional Classification (WB74-87)** is coded "Ø1", "Ø2", "11", "12", or "14")

  OR

- **National Highway System (WB74-83)** is coded "1" *and* **Federal Functional Classification (WB74-87)** is coded "Ø6", "Ø7", "Ø8", "Ø9", "16", "17", or "19"

E404 **Deck Geometry (WB76-58)** is coded in the range "Ø" through "5" *and* one of the following conditions is true:

- **Year Built (WB73-32)** is within 10 years of current year

  OR

- **Year Rebuilt (WB73-36)** is within 10 years of current year

E405 If **Year Rebuilt (WB73-36)** > ' ØØØØ' *and* **Year Rebuilt (WB73-36)** is earlier than **Year Built (WB73-32)**

E406 **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "5" *and* one of the following conditions is true:

- **Year Built (WB73-32)** is within 10 years of current year

  OR

- **Year Rebuilt (WB73-36)** is within 10 years of current year

E407 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Lanes Under (WB73-54)** is coded "/ØØ"

E408 **On/Under (WB74-32)** is coded "1" *and* one of the following conditions is true:

- **Navigation Control (WB73-86)** is coded "1" *and* **Navigation Horizontal Clearance (WB73-90)** is coded " ØØØØ"

  OR

- **Navigation Control (WB73-86)** is coded "Ø" or "N" *and* **Navigation Horizontal Clearance (WB73-90)** is greater than " ØØØØ"

E409 **On/Under (WB74-32)** is coded "1" *and* one of the following conditions is true:

- **Navigation Control (WB73-86)** is coded "1" *and* **Navigation Vertical Clearance (WB73-87)** is coded " ØØØØ"

  OR

- **Navigation Control (WB73-86)** is coded "Ø" or "N" *and* **Navigation Vertical Clearance (WB73-87)** is greater than "ØØØØ"

E410 **Maximum Span Length (WB73-48)** is greater than **Bridge Length (WB73-40)**

E411 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "3" *and* none of the following are true:

- **Service Under (WB75-45)** is coded "1" or "6" *and* **Minimum Vertical Clearance Under Bridge (WB73-74)** is less than 15 feet *and* **STRAHNET (WB74-85)** is coded "2"

  OR

- **Service Under (WB75-45)** is coded "1" or "6" *and* **Minimum Vertical Clearance Under Bridge (WB73-74)** is less than 14 feet *and* **STRAHNET (WB74-85)** is coded "Ø" or "1"

  OR

- **Service Under (WB75-45)** is coded "2", "4", "7", or "8" *and* **Minimum Vertical Clearance Under Bridge (WB73-74)** is less than 20 feet

  OR

- **Service Under (WB75-45)** is coded "Ø", "3", "5", or "9"

E412 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "3" *and* **Service Under (WB75-45)** is coded "2", "4", "7", or "8" *and* the lesser of **Horizontal Clearance Route Direction (WB74-91)** *and* **Horizontal Clearance Reverse Direction (WB74-95)** is less than 8 feet.

E415 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "3" *and* **Service Under (WB75-45)** is coded "1", "4", "6", or "8" *and* **Median (WB72-91)** is greater than "Ø" *and* either of the following is false:

- **ADT (WB74-45)** is greater than 249 *and* less than 999999 *and* **Minimum Lateral Underclearance Left (WB73-83)** is less than 2 feet

  OR

- **ADT (WB74-45)** is less than 25Ø or equal to 999999 *and* **Minimum Lateral Underclearance Left (WB73-83)** is less than 1´Ø6″

E416 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "3" *and* **Minimum Lateral Underclearance Right Code (WB73-82)** is "H" *and* one of the following is false:

- **ADT (WB74-45)** is greater than 249 *and* less than 999999 *and* **Minimum Lateral Underclearance Right (WB73-79)** is less than 6 feet

  OR

- **ADT (WB74-45)** is less than 25Ø or equal to 999999 *and* **Minimum Lateral Underclearance Right (WB73-79)** is less than 4´ Ø6″

E417 **STRAHNET (WB74-85)** is coded "1" or "2" *and* **Horizontal Clearance Route Direction (WB74-91)** is zero *and* **Horizontal Clearance Reverse Direction (WB74-95)** is zero

E418 **STRAHNET (WB74-85)** is coded "1" or "2" and **Latitude (WB71-88)** is not within range

E419 **STRAHNET (WB74-85)** is coded "1" or "2" *and* **Longitude (WB71-96)** is not within range

E420 **Curb to Curb Width (WB73-56)** is coded "ØØØØ" *and* **Main Span Design (WB75-33)** does not equal "19"

E421 **Out to Out Deck Width (WB73-60)** is coded "ØØØØ" *and* **Main Span Design (WB75-33)** does not equal "19"

E422 One of the following conditions is true:

- **Main Span Design (WB75-33)** is coded "19" *and* **Deck Overall (WB76-63)** is in the range "Ø" through "8"

  OR

- **Main Span Design (WB75-33)** is not coded "19" *and* **Deck Overall (WB76-63)** is coded "9"

E423 One of the following conditions is true:

- **Main Span Design (WB75-33)** is coded "19" *and* **Superstructure Overall (WB76-71)** is in the range "Ø" through "8"

  OR

- **Main Span Design (WB75-33)** is not coded "19" *and* **Superstructure Overall (WB76-71)** is coded "9"

E424 One of the following conditions is true:

- **Main Span Design (WB75-33)** is coded "19" *and* **Substructure Overall (WB76-76)** is in the range "Ø" through "8"

  OR

- **Main Span Design (WB75-33)** is not coded "19" *and* **Substructure Overall (WB76-76)** is coded "9"

E425 One of the following conditions is true:

- **Main Span Design (WB75-33)** is coded "19" *and* **Culvert (WB76-78)** is coded "9"

  OR

- **Main Span Design (WB75-33)** is not coded "19" *and* **Culvert (WB76-78)** is in the range "Ø" through "8"

E426 **Open Closed (WB72-93)** is coded "E" or "K" *and* **Operating Rating Tons (WB75-52)** is greater than zero

E427 **Open Closed (WB72-93)** is coded "E" or "K" *and* **Inventory Rating Tons (WB75-55)** is greater than zero

E428 **Proposed Improvements Total Cost (WB78-61)** is less than the sum of **Proposed Improvements Structure Cost (WB78-67)** *plus* **Proposed Improvements Roadway Cost (WB78-73)**

E429 **Proposed Improvements Estimate Year (WB78-79)** is greater than " ØØØØ" *and* one of the following conditions is true:

- **Proposed Improvements Structure Cost (WB78-67)** is zero

  OR

- **Proposed Improvements Roadway Cost (WB78-73)** is zero

  OR

- **Proposed Improvements Total Cost (WB78-61)** is zero

E430 **Main Span Design (WB75-33)** is coded "15" *and* **Vertical Lift Minimum Clearance (WB73-94)** is blank

E431 **ADT (WB74-45)** is greater than 1ØØ *and* **Truck ADT Percent (WB74-51)** is blank

E432 **NBIS Length (WB73-46)** is greater than or equal to 2Ø feet *and* **Bridge Length (WB73-40)** is less than 2Ø feet

E433 One of the following conditions is not met:

- **Border State Code (WB75-85)** = spaces *and* **Border State Percent (WB75-88)** = spaces *and* **Border State Structure Identifier (WB75-90)** = spaces

  OR

- **Border State Code (WB75-85)** not = spaces *and* **Border State Percent (WB75-88)** not = spaces *and* **Border State Structure Identifier (WB75-90)** not = spaces

E437 Sufficiency Rating is less than or equal to 8 Ø. ØØ *and* the Deficient Obsolete Status is "1" (SD) or "2" (FO) *and* one or more of the following fields are coded zero:

- **Proposed Improvement Work Type (WB78-44)**
- **Proposed Improvement Work Method (WB78-46)**
- **Proposed Improvement Structure Improvement Length (WB78-47)**
- **Proposed Improvement Structure Cost (WB78-67)**
- **Proposed Improvement Roadway Cost (WB78-73)**
- **Proposed Improvement Total Cost (WB78-61)**

E450 **On/Under (WB74-32)** is coded "1" *and* **Lanes On (WB73-52)** is coded "/ØØ"

E451 **On/Under (WB74-32)** is coded "1" and **Service On (WB75-44)** is coded "Ø", "2", "3", or "9"

E452 **On/Under (WB74-32)** is coded "2" or is in the range "A" through "Z" *and* **Service Under (WB75-45)** is coded "Ø", "2", "3", "5", "7", or "9"

E453 **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "8" *and* **Service Under (WB75-45)** is coded "Ø", "3", "5", or "9"

E454 **Waterway Adequacy (WB76-62)** is in the range "Ø" through "8" *and* **Service Under (WB75-45)** is coded "1", "2", "3", or "4"

E455 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Substructure Stability (WB78-37)** is blank

E456 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Flood Control (WB78-34)** is blank

E457 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Flood Plain Intrusion (WB78-33)** is blank

E459 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Piers in Water (WB78-41)** is blank

E460 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Scour (WB76-80)** is "N" or blank

E461 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Waterway Obstruction (WB78-38)** is blank

E462 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Streambed Anabranch (WB78-40)** is blank

E463 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Streambed Material (WB78-36)** is blank

E464 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Scour History (WB78-35)** is blank

E465 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Streambed Stability (WB78-39)** is blank

E466 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Channel Protection (WB76-77)** is coded "9"

E467 **Service Under (WB75-45)** is in the range "5" through "9" *and* **Water Type (WB78-32)** is blank

E468 One of the following conditions is true:

- **Navigation Control (WB73-86)** is coded "1" *and* **Pier / Abutment (WB76-79)** is coded "N" or blank

  OR

- **Navigation Control (WB73-86)** is coded "N" *and* **Pier / Abutment (WB76-79)** is in the range "1" through "5"

E470 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Substructure Stability (WB78-37)** is not blank

E471 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Flood Control (WB78-34)** is not blank

E472 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Flood Plain Intrusion (WB78-33)** is not blank

E473 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Navigation Control (WB73-86)** is coded "Ø" or "1"

E474 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Navigation Horizontal Clearance** is greater than zero

E475 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Navigation Vertical Clearance** is greater than zero

E476 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Pier / Abutment (WB76-79)** is in the range "1" through "5"

E477 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Piers in Water (WB78-41)** is not blank

E478 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Channel Protection (WB76-77)** is in the range "Ø" through "8"

E479 One of the following conditions is true:

- **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Scour (WB76-80)** is coded "U" or "T" or in the range "Ø" through "9")

  OR

- **Service Under (WB75-45)** is in the range "5" through "9" *and* **Scour (WB76-80)** is coded "N"

E480 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Waterway Obstruction (WB78-38)** is not blank

E481 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Streambed Anabranch (WB78-40)** is not blank

E482 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Streambed Material (WB78-36)** is not blank

E483 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Scour History (WB78-35)** is not blank

E484 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Streambed Stability (WB78-39)** is not blank

E485 **Service Under (WB75-45)** is in the range "1" through "4" or "Ø" *and* **Water Type (WB78-32)** is not blank

E489 **Curb to Curb Width (WB73-56)** is greater than **Out to Out Deck Width (WB73-60)**

E490 **Inventory Rating Tons (WB75-55)** is greater than **Operating Rating Tons (WB75-52)**

E491 **Superstructure Overall (WB76-71)** is coded "Ø" or "1" *and* **Open Closed (WB72-93)** is not coded "D", "E", or "K"

E492 **Substructure Overall (WB76-76)** is coded "Ø" or "1" *and* **Open Closed (WB72-93)** is not coded "D", "E", or "K"

E493 **Culvert (WB76-78)** is coded "Ø" or "1" *and* **Open Closed (WB72-93)** is not coded "D", "E", or "K"

E494 One of the following conditions is true:

- **Temporary Structure (WB72-89)** is coded "T" *and* **Open Closed (WB72 93)** is not coded "D", "E", or "P"

  OR

- **Open Closed (WB72-93)** is coded "D" or "E" *and* **Temporary Structure (WB72-89)** is not coded "T"

E495 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Estimate Year (WB78-79)** is coded zero or is blank

E496 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Lanes On (WB73-52)** is coded zero or is blank

E497 **Proposed Improvements Work Type (WB78-44)** greater than "/ØØ" *and* **Proposed Improvements Structure Improvement Length (WB78-47)** is coded zero or is blank

E499 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Roadway Width (WB78-53)** is coded zero or is blank

E500 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Service On (WB75-44)** is coded zero or is blank

E501 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Structure Cost (WB78-67)** is coded zero or is blank

E502 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Total Cost (WB78-61)** is coded zero or blank

E504 **Proposed Improvements Work Type (WB78-44)** is greater than "/ØØ" *and* **Proposed Improvements Work Method (WB78-46)** is coded zero or is blank

E507 One of the following conditions is true:

- **Inspecting Agency Code (WB78-84)** is in the group ("Ø1", "11", "21", "26", "27", "31", "62", "63", "64", "66" thru "71", or "8Ø") *and* **Inspecting Agency Number (WB78-86)** does not = spaces

  OR

- **Inspecting Agency Code (WB78-84)** is in the group ("Ø2", "12", "24", or "32") *and* **Inspecting Agency Number (WB78-86)** is not in County Table

  OR

- **Inspecting Agency Code (WB78-84)** is in the group ("Ø3", "Ø4", "13", "25", or "33") *and* **Inspecting Agency Number (WB78-86)** is not in City Table

E511 One of the following conditions is true:

- **Base Highway Network (WB74-84)** = "1" *and* Linear **Referencing System Route (WB74-67)** *and* **Linear Referencing System Sub Route (WB74-77)** are not coded

  OR

- **Base Highway Network (WB74-84)** = "Ø" *and* Linear **Referencing System Route (WB74-67)** is coded or **Linear Referencing System Sub Route (WB74-77)** is coded

E512 **Base Highway Network (WB74-84)** is coded "1" *and* **Federal Functional Classification (WB74-87)** is not coded "Ø1", "Ø2", "Ø6", "11", "12", or "14"

E513 **Lanes On (WB73-52)** is coded "1" *and* **Lane Use Direction (WB74-90)** is not coded "1" or "5"

E515 **On/Under (WB74-32)** is coded "2" or in the range "A" through "Z" *and* **Lanes Under (WB73-54)** is coded "1" *and* **Lane Use Direction (WB74-90)** is not coded "1" or "5"

E516 One of the following conditions is true:

- **Lanes On (WB73-52)** is coded "/ØØ" *and* **Service On (WB75-44)** not = "Ø", "2", "3", or "9"

  OR

- **Lanes On (WB73-52)** is greater than "/ØØ" *and* **Service On (WB75-44)** is coded "Ø", "2", "3", or "9"

E603 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Curb Condition (WB76-72)** is blank

E605 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Sidewalk Condition (WB76-73)** is blank

E613 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Paint Condition (WB76-74)** is blank

E616 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Pier Protection (WB76-83)** is blank

E617 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Number of Utilities (WB76-75)** is blank

E618 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Scaling Severity (WB76-66)** is blank

E619 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Scaling Percent (WB76-67)** is blank

E620 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Deck Rutting (WB76-69)** is blank

E621 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Exposed Reinforcing Steel (WB76-70)** is blank

E622 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Drain Condition (WB76-64)** is blank

E623 **Owner (Control Field)** is coded "Ø1" *and* **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Retaining Walls (WB76-82)** is blank

E630 One of the following conditions is true

- **Lane Use Direction (WB74-90)** is coded "Ø" *and* **Lanes On (WB73-52)** is greater than zero

  OR

- **On/Under (WB74-32)** is coded "1" *and* **Lane Use Direction (WB74-90)** is in the range "1" through "5" *and* **Lanes On (WB73-52)** is equal to zero

L007 **Future ADT (WB74-57)** is greater than 2ØØ,ØØØ

L008 **Future ADT Year (WB74-63)** is not in the range of 17 to 23 years in the future

L009 **ADT (WB74-45)** is greater than 2ØØ,ØØØ

L010 **Truck ADT Percent (WB74-51)** is greater than 4Ø

L011 **ADT Year (WB74-53)** is more than 4 years old

L012 **Alignment Adequacy (WB76-61)** is coded "Ø" or "1"

L047 **Channel Protection (WB76-77)** is coded "Ø" or "1"

L085 **Deck Geometry (WB76-58)** is coded "Ø" or "1"

L092 **Deck Overall (WB76-63)** is coded "Ø" or "1"

L132 One of the following conditions is true:

- **Main Span Design (WB75-33)** is coded "/ØØ"

  OR

- **Main Span Material (WB75-32)** is coded "Ø"

L158 **Horizontal Clearance Reverse Direction (WB74-95)** is less than 8 feet

L159 **Horizontal Clearance Route Direction (WB74-91)** is less than 8 feet

L163 **Routine Inspection Frequency (WB76-32)** is greater than 24 months

L183 **Lanes On (WB73-52)** is greater than 14

L184 **Lanes Under (WB73-54)** is greater than 2 Ø

L185 **Routine Inspection Last Inspection Date (WB76-34)** is more than three years old

L210 **Maximum Span Length (WB73-48)** is greater than 984 feet

L223 **Minimum Vertical Clearance Under Bridge (WB73-74)** is greater than zero *and* less than 7 feet

L228 **Navigation Horizontal Clearance (WB73-90)** is greater than 984 ft.

L229 **Navigation Vertical Clearance (WB73-87)** is greater than 25Ø feet.

L231 **Proposed Improvements Estimate Year (WB78-79)** is more than 8 years old

L232 **Number of Main Spans (WB75-38)** is greater than 5Ø

L233 **Number of Approach Spans (WB75-41)** is greater than 5Ø

L318 **Operating Level (WB76-60)** is coded "Ø" or "1"

L321 **Sidewalk Curb Left (WB73-64)** is greater than 12 feet

L322 **Sidewalk Curb Right (WB73-67)** is greater than 12 feet

L339 **Bridge Length (WB73-40)** is greater than 3937 feet

L341 **Structural Adequacy (WB76-57)** is coded "Ø" or "1"

L368 **Underclearance Adequacy (WB76-59)** is coded "Ø" or "1"

L378 **Maximum Vertical Clearance Route Direction (WB74-99)** is less than 8 feet

L382 **Waterway Adequacy (WB76-62)** is coded "Ø" or "1"

R700 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Deck Overall (WB76-63)** is less than 5

R701 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Superstructure Overall (WB76-71)** is less than 5

R702 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Substructure Overall (WB76-76)** is less than 5

R703 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Channel Protection (WB76-77)** is less than 5

R704 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Culvert (WB76-78)** is less than 5

R705 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Structural Adequacy (WB76-57)** is less than 5

R706 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Deck Geometry (WB76-58)** is less than 5

R707 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Underclearance Adequacy (WB76-59)** is less 5

R708 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Operating Level (WB76-60)** is less than 5

R709 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Waterway Adequacy (WB76-62)** is less than 5

R710 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Alignment Adequacy (WB76-61)** is less than 5

R711 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Inventory Rating Tons (WB75-55)** is less than 2Ø tons

R712 **On/Under (WB74-32)** is coded "1" *and* **Year Built (WB73-32)** is within the last 5 years *and* **Operating Rating Tons (WB75-52)** is less than 2Ø tons

R713 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Deck Overall (WB76-63)** is in the range "Ø" through "5"

R714 **On/Under (WB74-32)** is code d "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Superstructure Overall (WB76-71)** is in the range "Ø" through "4"

R715 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Substructure Overall (WB76-76)** is in the range "Ø" through "4"

R716 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Channel Protection (WB76-77)** is in the range "Ø" through "4"

R717 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Culvert (WB76-78)** is in the range "Ø" through "4"

R718 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Structural Adequacy (WB76-57)** is in the range "Ø" through "4"

R719 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Deck Geometry (WB76-58)** is in the range "Ø" through "4"

R720 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Underclearance Adequacy (WB76-59)** is in the range "Ø" through "4"

R721 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Operating Level (WB76-60)** is in the range "Ø" through "4"

R722 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Waterway Adequacy (WB76-62)** is in the range "Ø" through "4"

R723 **On/Under (WB74-32)** is coded "1" *and* **Year Rebuilt (WB73-36)** is within 5 years *and* **Alignment Adequacy (WB76-61)** is in the range "Ø" through "4"

R727 **Median (WB72-91)** is coded "Ø", or in the range "2" through "7", or "9" *and* **Minimum Lateral Underclearance Left (WB73-83)** is coded 99.9

R729 **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Approach Roadway Width (WB73-97)** is less than 8 feet

R730 **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Curb to Curb Width (WB73-56)** is less than 9 feet

R731 **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Out to Out Deck Width (WB73-60)** is less than 9 feet

R732 **Service On (WB75-44)** is coded "1" or is in the range "4" through "8" *and* **Minimum Vertical Clearance Over Deck (WB73-70)** is less than 7 feet

R733 **Service Under (WB75-45)** is coded "1", "2", "4", "6", "7" or "8" *and* **Minimum Vertical Clearance Under Bridge (WB73-74)** is zero

R736 **Main Span Design (WB75-33)** is in the range "/ØØ" through "18", or "21", or "22" *and* **Curb to Curb Width (WB73-56)** is between Ø *and* 9 feet or between 15Ø feet *and* 999 feet

R737 **Main Span Design (WB75-33)** is in the range "/ØØ" through "18", or "21", or "22" *and* **Out to Out Deck Width (WB73-60)** is between Ø *and* 9 feet or between 15Ø feet *and* 999 feet.

R738 **Bridge Length (WB73-40)** is between 19 feet *and* 23 feet *and* **NBIS Length (WB73-46)** is blank

R742 **Open Closed (WB72-93)** is coded "A" *and* **Superstructure Overall (WB76-71)** is in the range "Ø" through "4"

R743 **Open Closed (WB72-93)** is coded "A" *and* **Substructure Overall (WB76-76)** is in the range "Ø" through "4"

R744 **Open Closed (WB72-93)** is coded "A" *and* **Culvert (WB76-78)** is in the range "Ø" through "4"

R745 **Open Closed (WB72-93)** is coded "A" *and* **Superstructure Overall (WB76-71)** is greater than "4" *and* **Substructure Overall (WB76-76)** is greater than "4" *and* **Culvert (WB76-78)** is greater than "4" *and* **Operating Rating Tons (WB75-52)** is greater than 36 tons *and* **Structural Adequacy (WB76-57)** is in the range "Ø" through "3"

R746 **Open Closed (WB72-93)** is coded "A" *and* **Operating Level (WB76-60)** is in the range "Ø" through "4"

R747 **On/Under (WB74-32)** is coded "1" *and* **Operating Rating Tons (WB75-52)** is coded zero *and* **Open Closed (WB72-93)** is not coded "K" *and* **Temporary Structure (WB72-89)** is blank

R762 **Routine Inspection Last Inspection Date (WB76-34)** is less than the current date minus **Routine Inspection Frequency (WB76-32)**

R763 **Curb to Curb Width (WB73-56)** does not equal zero *and* **Lanes On (WB73-52)** is greater than 3 *and* **Approach Roadway Width (WB73-97)** is greater than 1.5 times **Curb to Curb Width (WB73-56)**

R764 **Curb to Curb Width (WB73-56)** does not equal zero *and* **Lanes On (WB73-52)** is less or equal to 3 *and* **Approach Roadway Width (WB73-97)** is greater than or equal to 2 times **Curb to Curb Width (WB73-56)**

R765 **Open Closed (WB72-93)** is coded "B", "D", "E", "P" or "R" *and* **Routine Inspection Frequency (WB76-32)** is not less than 24 months

R766 **Open Closed (WB72-93)** is not coded "D", "E", or "K" *and* any of the following fields is coded "Ø" *and* all others of this group are coded "2" or greater

- **Deck Overall (WB76-63)**
- **Superstructure Overall (WB76-71)**
- **Substructure Overall (WB76-76)**
- **Culvert (WB76-78)**
- **Structural Adequacy (WB76-57)**
- **Deck Geometry (WB76-58)**
- **Underclearance Adequacy (WB76-59)**
- **Waterway Adequacy (WB76-62)**

R767 **Operating Level (WB76-60)** is coded "5" *and* **Superstructure Overall (WB76-71)** is coded "Ø", "1", "2", or "3"

R768 **Operating Level (WB76-60)** is coded "5" *and* **Substructure Overall (WB76-76)** is coded "Ø", "1", "2", or "3"

R769 **Operating Level (WB76-60)** is coded "5" *and* **Culvert (WB76-78)** is coded "Ø", "1", "2", or "3"

R770 **Fracture Critical/UBIT Inspection Type (WB77-32)** is not coded "N" *and* Fracture **Critical/UBIT Inspection Frequency (WB77-33)** is greater than "/ØØ" *and* **Fracture Critical/UBIT Inspection Last Inspection Date (WB77-35)** is older than current date minus the Fracture **Critical/UBIT Inspection Frequency (WB77-33)**

R771 **Underwater Inspection Type (WB77-58)** is not coded "N" *and* **Underwater Inspection Frequency (WB77-59)** is greater than "/ØØ" *and* **Underwater Inspection Last Inspection Date (WB77-61)** is older than current date minus the **Underwater Inspection Frequency (WB77-59)**

R772 **Other Special Inspection Type (WB77-84)** is not coded "N" *and* **Other Special Inspection Frequency (WB77-85)** is greater than "/ØØ" *and* **Other Special Inspection Last Inspection Date (WB77-87)** is older than current date minus the **Other Special Inspection Frequency (WB77-85)**

R773 **Future ADT (WB74-57)** is less than four-tenths **ADT (WB74-45)**

R774 **Future ADT (WB74-57)** is greater than 4 times **ADT (WB74-45)**

R775 **Minimum Vertical Clearance Under Bridge (WB73-74)** is coded "R" *and* **Minimum Vertical Clearance Under Bridge (WB73-74)** is less than 15′ Ø9″

R776 **Minimum Lateral Underclearance Right (WB73-79)** is coded "R" *and* **Minimum Lateral Underclearance Right (WB73-79)** is less than 4¢11″

R777 **Curb to Curb Width (WB73-56)** is less than 16′ /ØØ″ *and* **Lanes On (WB73-52)** is greater than 1

R778 The following conditions are not met:

- **Curb to Curb Width (WB73-56)** is greater than 16′ /ØØ″ *and*
- **Lanes On (WB73-52)** is 2 or greater *and*
- **Service Level (WB74-34)** is not coded "7"

R779 **Curb to Curb Width (WB73-56)** is less than half of **Out to Out Deck Width (WB73-60)**

R780 One of the following conditions is true:

- **National Highway System (WB74-83)** is coded "1" *and* **Federal Functional Classification (WB74-87)** is not coded "Ø1", "Ø2", "11", "12", *and* "14"

  OR

- **National Highway System (WB74-83)** is coded "Ø" *and* **Federal Functional Classification (WB74-87)** is not coded "Ø6", "Ø7", "Ø8", "Ø9", "16", "17", and "19"

R781 **National Highway System (WB74-83)** is coded "1" *and* **Highway Class (WB74-33)** is coded "2" or "3"

Appendix

2-A Half Bridges

Forms

WSBIS Inventory Coding Form

Washington State Legislative Districts Map

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
12	Concrete Deck (See Note 9)	SF			intentionally blank	
8217	Concrete Deck (See Note 9)	SF			intentionally blank	
14	Fully Supported Concrete Deck (See Note 9)	SF			intentionally blank	
20	Concrete Deck - Lightweight Aggregate (See Note 9)	SF		12	Reinforced Concrete Deck	SF
26	Concrete Deck w/Coated Bars (See Note 9)	SF			intentionally blank	
35	Concrete Deck Soffit (See Note 9)	SF			intentionally blank	
8216	Concrete Deck Soffit (See Note 9)	SF			intentionally blank	
15	Post Tensioned Concrete Deck **New for 2017**	SF	**New for 2017**	13	Prestressed Concrete Deck	SF
	no state element equivalent			15	Prestressed Concrete Top Flange	SF
13	Bridge Deck Surface	SF		16	Reinforced Concrete Top Flange	SF
8213	Bridge Deck Surface	SF			intentionally blank	
27	Steel Orthotropic Deck	SF			intentionally blank	
30	Deck-Corrugated or Other Steel System	SF		30	Steel Deck—Corrugated/Orthotropic/Etc.	SF
8222	Deck-Corrugated or Other Steel System	SF			intentionally blank	
28	Steel Deck Open Grid	SF		28	Steel Deck—Open Grid	SF
8218	Steel Deck Open Grid	SF			intentionally blank	
29	Steel Deck - Concrete Filled Grid	SF		29	Steel Deck—Concrete Filled Grid	SF
8219	Steel Deck - Concrete Filled Grid	SF			intentionally blank	
31	Timber Deck	SF		31	Timber Deck	SF
8221	Timber Deck	SF			intentionally blank	
32	Fiber Reinforced Polymer (FRP) Deck	SF		60	Other Deck	SF
36	Deck Rebar Cover Flag	SF			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
38	Concrete Slab	SF			intentionally blank	
49	Concrete Hollow Slab	SF			intentionally blank	
50	Prestressed Concrete Slab	SF			intentionally blank	
8150	Prestressed Concrete Slab	SF		38	Reinforced Concrete Slab	SF
51	Prestressed Conc Slab w/Coated Bars	SF			intentionally blank	
8151	Prestressed Conc Slab w/Coated Bars	SF			intentionally blank	
52	Concrete Slab w/Coated Bars	SF			intentionally blank	
54	Timber Slab	SF		54	Timber Slab	SF
	no state element equivalent			65	Other Slab	SF
89	Prestressed Concrete Girder w/Coated Strands	LF			intentionally blank	
98	Thin Flange Girder	LF			intentionally blank	
103	Prestressed Concrete Super Girder	LF			intentionally blank	
108	Prestressed Concrete Bulb-T Girder	LF			intentionally blank	
8108	Prestressed Concrete Bulb-T Girder	LF		109	Girder/Beam - Prestressed Concrete	LF
109	Prestressed Concrete Multiple Web Girder Units	LF			intentionally blank	
8109	Prestressed Concrete Multiple Web Girder Units	LF			intentionally blank	
115	Prestressed Concrete Girder	LF			intentionally blank	
8111	Prestressed Concrete Girder	LF			intentionally blank	
97	Prestressed Concrete Tub Girder	LF			intentionally blank	
100	Post-Tensioned Concrete Segmental Box Girder	LF		104	Closed Web/Box Girder - Prestressed Concrete	LF
104	Post-Tensioned Concrete Box Girder	LF			intentionally blank	
90	Steel Rolled Girder	LF			intentionally blank	
91	Steel Riveted Girder	LF			intentionally blank	
92	Steel Welded Girder	LF		107	Girder/Beam - Steel	LF
107	Steel Open Girder	LF			intentionally blank	
8201	Steel Open Girder	LF			intentionally blank	
96	Concrete Encased Steel Girder	LF			intentionally blank	
	no state element equivalent			112	Girder/Beam - Other	LF

STATE ELEMENTS			Calendar Year 2017 TRANSLATION	NATIONAL ELEMENTS		
element_id		unit		element_id	name	unit
102	Steel Box Girder	LF		102	Closed Web/Box Girder - Steel	LF
8200	Steel Box Girder	LF			intentionally blank	
105	Concrete Box Girder	LF		105	Closed Web/Box Girder - Reinforced Concrete	LF
	no state element equivalent			106	Closed Web/Box Girder - Other	LF
110	Concrete Girder	LF			intentionally blank	
8110	Concrete Girder	LF		110	Girder/Beam - Reinforced Concrete	LF
114	Concrete Multiple Web Girder Unit	LF			intentionally blank	
111	Timber Glue-Lam Girder	LF			intentionally blank	
117	Timber Sawn Girder	LF		111	Girder/Beam - Timber	LF
8112	Timber Sawn Girder	LF			intentionally blank	
113	Steel Stringer	LF		113	Stringer - Steel	LF
8209	Steel Stringer	LF			intentionally blank	
	no state element equivalent			115	Stringer - Prestressed Concrete	LF
116	Concrete Stringer	LF		116	Stringer - Reinforced Concrete	LF
118	Timber Stringer	LF		117	Stringer - Timber	LF
	no state element equivalent			118	Stringer - Other	LF
119	Concrete Truss	LF		136	Truss - Other	LF
126	Steel Thru Truss	LF			intentionally blank	
8204	Steel Thru Truss	LF		120	Truss - Steel	LF
131	Steel Deck Truss	LF			intentionally blank	
133	Truss Gusset Plates	EA		162	Gusset Plate	EA
135	Timber Truss	LF		135	Truss - Timber	LF
139	Timber Arch	LF		146	Arch - Timber	LF
141	Steel Arch	LF		141	Arch - Steel	LF
142	Steel Tied Arch	LF			intentionally blank	
	no state element equivalent			143	Arch - Prestressed Concrete	LF
	no state element equivalent			145	Arch - Masonry	LF

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
144	Concrete Arch	LF		144	Arch - Reinforced Concrete	LF
145	Earth Filled Concrete Arch	LF			intentionally blank	
	no state element equivalent			142	Arch - Other	LF
143	Steel Suspender - Rolled Shape (see note 7)	EA			intentionally blank	
147	Steel Suspender - Cable (see note 7)	EA		148	Cable - Steel Secondary	EA
146	Suspension - Main Cable (see note 8)	EA		147	Cable - Steel Main	LF
149	Cable Stayed Bridge - Cable (see note 8)	EA			intentionally blank	
150	Concrete Column on Spandrel Arch	EA			intentionally blank	
160	Steel Column on Spandrel Arch	EA			intentionally blank	
152	Steel Floor Beam	LF			intentionally blank	
8206	Steel Floor Beam	LF		152	Floor Beam - Steel	LF
8341	Lift Beam (FC)	LF			intentionally blank	
154	Prestressed Concrete Floorbeam	LF		154	Floor Beam - Prestressed Concrete	LF
155	Concrete Floor Beam	LF		155	Floor Beam - Reinforced Concrete	LF
156	Timber Floor Beam	LF		156	Floor Beam - Timber	LF
	no state element equivalent			157	Floor Beam - Other	LF
161	Steel Hanger (See Note 10)	EA			intentionally blank	
162	Steel Pin	EA		161	Pin, Pin & Hanger Assembly, or both	EA
8343	Apron Two Hinge Pin System/LL Hanger Pins (FC)	EA			intentionally blank	
8342	Live Load Hanger Bars (FC) (See Note 10)	EA			intentionally blank	
163	Tension Hold Down Anchor Assembly **New for 2017**					
200	Abutment Fill	EA			intentionally blank	
202	Steel Pile/Column	EA		202	Column/Pile Extension - Steel	EA
203	Prestressed Concrete Hollow Pile **New for 2017**		**New for 2017**	204	Column/Pile Extension - Prestressed Concrete	EA
204	Prestressed Concrete Pile/Column	EA			intentionally blank	
205	Concrete Pile/Column	EA			intentionally blank	
207	Concrete Pile/Column - w/Steel Jacket	EA		205	Column/Pile Extension - Reinforced Concrete	EA
208	Concrete Pile/Column w/Composite Wrap	EA			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
206	Timber Pile/Column	EA		206	Column/Pile Extension - Timber	EA
	no state element equivalent			203	Column - Other	EA
	no state element equivalent			207	Column Tower (Trestle) - Steel	EA
	no state element equivalent			208	Column Tower (Trestle) - Timber	EA
209	Submerged Concrete Pile/Column w/Steel Jacket	EA			intentionally blank	
227	Concrete Submerged Pile/Column	EA		227	Submerged Pile - Reinforced Concrete	EA
8125	Concrete Submerged Pile/Column	EA			intentionally blank	
210	Concrete Pier Wall	LF		210	Pier Wall - Reinforced Concrete	LF
212	Concrete Submerged Pier Wall	LF			intentionally blank	
211	Other Pier Wall	LF		211	Pier Wall - Other	LF
213	Other Submerged Pier Wall	LF			intentionally blank	
214	Concrete Web Wall between Columns	LF			intentionally blank	
	no state element equivalent			212	Pier Wall - Timber	LF
	no state element equivalent			213	Pier Wall - Masonry	LF
215	Concrete Abutment	LF			intentionally blank	
8102	Concrete Abutment	LF		215	Abutment - Reinforced Concrete	LF
219	Concrete Cantilevered Span Abutment	LF			intentionally blank	
216	Timber Abutment	LF		216	Abutment - Timber	LF
8103	Timber Abutment	LF			intentionally blank	
217	Other Abutment	LF		218	Abutment - Other	LF
218	Steel Abutment	LF		219	Abutment - Steel	LF
8101	Steel Abutment				intentionally blank	
	no state element equivalent			217	Abutment - Masonry	LF
220	Concrete Submerged Foundation	EA			intentionally blank	
8136	Concrete Submerged Foundation	EA		220	Pile Cap/Footing - Reinforced Concrete	EA
221	Concrete Foundation	EA			intentionally blank	
222	Timber Foundation	LF			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
225	Steel Submerged Pile/Column	EA			intentionally blank	
8129	Transfer Span/OHL Supercolumn	EA		225	Submerged Pile - Steel	EA
8128	Steel Submerged Pile/Column	EA			intentionally blank	
226	Prestressed Concrete Submerged Pile/Column	EA			intentionally blank	
232	Prestressed Concrete Hollow Submerged Pile/Column **New for 2017**	EA	**New for 2017**	226	Submerged Pile - Prestressed Concrete	EA
8127	Prestressed Concrete Submerged Pile/Column	EA			intentionally blank	
228	Timber Submerged Pile/Column	EA		228	Submerged Pile - Timber	EA
8124	Timber Submerged Pile/Column	EA			intentionally blank	
	no state element equivalent			229	Pile - Other	EA
229	Timber Cap Rehab with Steel	LF			intentionally blank	
231	Steel Pier Cap/Crossbeam	LF		231	Pier Cap - Steel	LF
8130	Steel Pier Cap/Crossbeam	LF			intentionally blank	
233	Prestressed Concrete Pier Cap/Crossbeam	LF		233	Pier Cap - Prestressed Concrete	LF
234	Concrete Pier Cap/Crossbeam	LF		234	Pier Cap - Reinforced Concrete	LF
8132	Concrete Pier Cap/Crossbeam	LF			intentionally blank	
235	Timber Pier Cap	LF		235	Pier Cap - Timber	LF
8131	Timber Pier Cap	LF			intentionally blank	
	no state element equivalent			236	Pier Cap - Other	LF
236	Concrete Floating Pontoon	Cell			intentionally blank	
237	Pontoon Hatch/Bulkhead	EA			intentionally blank	
238	Floating Bridge - Anchor Cable	EA		149	Cable - Other Secondary	EA
240	Metal Culvert	LF		240	Culvert - Steel	LF
241	Concrete Culvert	LF		241	Culvert - Reinforced Concrete	LF
242	Timber Culvert	LF		242	Culvert - Timber	LF
	no state element equivalent			244	Culvert - Masonry	LF
243	Other Culvert	LF		243	Culvert - Other	LF
	no state element equivalent			245	Culvert - Prestressed Concrete	LF

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
260	Steel Open Grid Sidewalk & Supports	SF			intentionally blank	
261	Steel Filled Grid Sidewalk & Supports	SF			intentionally blank	
8261	Steel Filled Grid Sidewalk & Supports	SF			intentionally blank	
262	Corrugated/Orthotropic Sidewalk & Supports	SF			intentionally blank	
8262	Corrugated/Orthotropic Sidewalk & Supports	SF			intentionally blank	
264	Timber Sidewalk & Supports	SF			intentionally blank	
8264	Timber Sidewalk & Supports	SF			intentionally blank	
266	Concrete Sidewalk & Supports	SF			intentionally blank	
8266	Concrete Sidewalk & Supports	SF			intentionally blank	
267	Fiber Reinforced Polymer(FRP) Sidewalk & Supports	SF			intentionally blank	
8265	Fiber Reinforced Polymer(FRP) Sidewalk & Supports	SF			intentionally blank	
310	Elastomeric Bearing	EA		310	Elastomeric Bearing	EA
311	Moveable Bearing (roller, sliding, etc)	EA		311	Moveable Bearing (roller, sliding, etc)	EA
8391	Moveable Bearing (roller, sliding, etc)	EA			intentionally blank	
312	Concealed Bearing or Bearing System	EA		312	Enclosed/Concealed Bearing	EA
313	Fixed Bearing	EA		313	Fixed Bearing	EA
8390	Fixed Bearing	EA			intentionally blank	
316	Isolation Bearing	EA		316	Bearing - Other	EA
314	Pot Bearing	EA		314	Pot Bearing	EA
315	Disc Bearing	EA		315	Disk Bearing	EA
321	Concrete Roadway Approach Slab	SF			intentionally blank	
322	Bridge Impact	EA			intentionally blank	
330	Metal Bridge Railing	LF		330	Metal Bridge Railing	LF
8810	Metal Bridge Railing	LF			intentionally blank	
331	Concrete Bridge Railing	LF		331	Reinforced Concrete Bridge Railing	LF
8811	Concrete Bridge Railing	LF			intentionally blank	
332	Timber Bridge Railing	LF		332	Timber Bridge Railing	LF
8812	Timber Bridge Railing	LF			intentionally blank	

STATE ELEMENTS			Calendar Year 2017 TRANSLATION	NATIONAL ELEMENTS		
element_id		unit		element_id	name	unit
333	Other Bridge Railing	LF		333	Other Bridge Railing	LF
8813	Other Bridge Railing	LF			intentionally blank	
	no state element equivalent			334	Masonry Bridge Railing	LF
340	Metal Pedestrian Railing	LF			intentionally blank	
8815	Metal Pedestrian Railing	LF			intentionally blank	
341	Concrete Pedestrian Railing	LF			intentionally blank	
8816	Concrete Pedestrian Railing	LF			intentionally blank	
342	Timber Pedestrian Railing	LF			intentionally blank	
8817	Timber Pedestrian Railing	LF			intentionally blank	
343	Other Pedestrian Railing	LF			intentionally blank	
8818	Other Pedestrian Railing	LF			intentionally blank	
355	Damaged Bolts or Rivets	EA			intentionally blank	
8355	Damaged Bolts or Rivets	EA			intentionally blank	
356	Steel Cracking	EA			intentionally blank	
8356	Steel Cracking	EA			intentionally blank	
357	Pack Rust	EA			intentionally blank	
8357	Pack Rust	EA			intentionally blank	
360	Bridge Movement	EA			intentionally blank	
8360	Bridge Movement	EA			intentionally blank	
361	Scour	EA			intentionally blank	
8361	Scour	EA			intentionally blank	
362	Impact Damage	EA			intentionally blank	
8362	Impact Damage	EA			intentionally blank	
366	Undercrossing-Safety Inspection	EA			intentionally blank	
367	Movable Bridge	EA			intentionally blank	
368	Seismic Pier Crossbeam Bolster	EA			intentionally blank	
369	Seismic Pier Infill Wall	EA			intentionally blank	
370	Seismic - Longitudinal Restrainer	EA			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
8370	Seismic - Longitudinal Restrainer	EA			intentionally blank	
371	Seismic - Transverse Restrainer	EA			intentionally blank	
8371	Seismic - Transverse Restrainer	EA			intentionally blank	
372	Seismic - Link/Pin Restrainer	EA			intentionally blank	
373	Seismic - Catcher Block	EA			intentionally blank	
374	Seismic - Column Silo	EA			intentionally blank	
375	Cathodic Protection	EA			intentionally blank	
8375	Cathodic Protection	EA			intentionally blank	
376	Concrete Deck Delamination Testing	SF			intentionally blank	
8376	Concrete Deck Delamination Testing	SF			intentionally blank	
400	Asphalt Butt Joint Seal (see note 11)	LF			intentionally blank	
403	Concrete Bulb-T (see note 11)	LF		301	Pourable Joint	LF
417	Silicone Rubber Joint Filler (see note 11)	LF			intentionally blank	
401	Asphalt Open Joint Seal (see note 11)	LF			intentionally blank	
402	Open Concrete Joint (see note 11)	LF			intentionally blank	
407	Steel Angle Header (see note 11)	LF		304	Open Joint	LF
8407	Steel Angle Header (see note 11)	LF			intentionally blank	
419	Steel Angle w/Raised Bars (see note 11)	LF			intentionally blank	
408	Steel Sliding Plate (see note 11)	LF			intentionally blank	
8408	Steel Sliding Plate (see note 11)	LF			intentionally blank	
409	Steel Sliding Plate w/Raised Bars (see note 11)	LF		305	Assembly Joint without Seal	LF
414	Bolt Down - Sliding Plate w/Springs (see note 11)	LF			intentionally blank	
410	Steel Fingers (see note 11)	LF			intentionally blank	
411	Steel Fingers w/Raised Bars (see note 11)	LF			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
404	Compression Seal / Concrete Header (see note 11)	LF			intentionally blank	
8404	Compression Seal / Concrete Header (see note 11)	LF			intentionally blank	
405	Compression Seal / Polymer Header (see note 11)	LF		302	Compression Seal	LF
406	Compression Seal / Steel Header (see note 11)	LF			intentionally blank	
8406	Compression Seal / Steel Header (see note 11)	LF			intentionally blank	
412	Strip Seal - Anchored (see note 11)	LF		300	Strip Seal	LF
413	Strip Seal - Welded (see note 11)	LF			intentionally blank	
416	Assembly Joint Seal (Modular) (see note 11)	LF		303	Assembly Joint Seal (Modular)	LF
415	Bolt Down Panel - Molded Rubber (see note 11)	LF			intentionally blank	
418	Asphalt Plug (see note 11)	LF		306	Joint - Other	LF
422	Flexible Joint Seal **New for 2017**	LF	**New for 2017**		intentionally blank	
420	Joint Paved Over Flag	LF			intentionally blank	
421	Joint Over Steel Corbel Bearings **New for 2017**	LF			intentionally blank	
501	Movable Bridge Steel Tower	LF			intentionally blank	
705	Bridge Luminaire Pole and Base	EA			intentionally blank	
8705	Bridge Luminaire Pole and Base	EA			intentionally blank	
707	Fender System/Pier Protection **New for 2017**	EA			intentionally blank	
709	Ceramic Tile **New for 2017**	SF			intentionally blank	
710	Bridge Mounted Sign Structure	EA			intentionally blank	
800	Asphaltic Concrete (AC) Overlay (see note 11)	SF			intentionally blank	
8223	Asphaltic Concrete (AC) Overlay (see note 11)	SF			intentionally blank	
801	AC Overlay with Waterproofing Membrane (see note 11)	SF			intentionally blank	
802	Thin Polymer Overlay (see note 11)	SF			intentionally blank	
8224	Thin Polymer Overlay (see note 11)	SF		510	Wearing Surfaces	SF
803	Modified Concrete Overlay (see note 11)	SF			intentionally blank	
804	Polyester Concrete Overlay (see note 11)	SF			intentionally blank	
805	AC Over a Polymer Overlay (see note 11)	SF			intentionally blank	
807	AC Overlay with High Performance Membrane **New for 2017**	SF	**New for 2017**			

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
806	BST on Concrete (Chip Seal)	SF			intentionally blank	
901	Red Lead Alkyd Paint System (see note 12)	SF			intentionally blank	
8901	Red Lead Alkyd Paint System (see note 12)	SF			intentionally blank	
902	Inorganic-Zinc/Vinyl Paint System (see note 12)	SF			intentionally blank	
8902	Inorganic-Zinc/Vinyl Paint System (see note 12)	SF			intentionally blank	
903	Inorganic Zinc/Urethane Paint System (see note 12)	SF			intentionally blank	
8903	Inorganic Zinc/Urethane Paint System (see note 12)	SF			intentionally blank	
904	Organic Zinc/Urethane Paint System (see note 12)	SF			intentionally blank	
8904	Organic Zinc/Urethane Paint System (see note 12)	SF			intentionally blank	
905	Coal Tar Epoxy Paint System (see note 12)	SF		515	Steel Protective Coating	SF
8905	Coal Tar Epoxy Paint System (see note 12)	SF			intentionally blank	
906	Metallizing (see note 12)	SF			intentionally blank	
907	Galvanizing (see note 12)	SF			intentionally blank	
8907	Galvanizing (see note 12)	SF			intentionally blank	
908	Epoxy Paint for Weathering Steel (see note 12)	SF			intentionally blank	
909	Zinc Primer (see note 12)	SF			intentionally blank	
8909	Zinc Primer (see note 12)	SF			intentionally blank	
910	Weathering Steel Patina (see note 12)	SF			intentionally blank	
	no state element equivalent			521	Concrete Protective Coating	SF
8225	Non-skid Metal Surfacing	SF			intentionally blank	
8263	Steel Open Grid Sidewalk w/Cover Plate & Suppt.	SF			intentionally blank	
8301	Apron Steel Orthotropic Deck	SF			intentionally blank	
8305	Apron Hinge Multi-Pin & Plate	EA			intentionally blank	
8307	Apron Lips & Pins	EA			intentionally blank	
8309	Counterweight Cables for Vehicle Span or Apron	LF			intentionally blank	
8310	Apron Hoist/Cables/Spool/Platform/Supports/Rigging	EA			intentionally blank	
8312	Span Apron/Cab Gangplank Pivot/Raise/Rams/Fittings	EA			intentionally blank	
8348	Span Hoist/Cables/Spool/Platform/Supports/Rigging	EA			intentionally blank	

STATE ELEMENTS			Calendar Year 2017	NATIONAL ELEMENTS		
element_id		unit	TRANSLATION	element_id	name	unit
8413	Steel Tower	EA			intentionally blank	
8414	Timber Tower	EA			intentionally blank	
8415	Steel Headframe	LF			intentionally blank	
8416	Timber Headframe	LF			intentionally blank	
8418	Counterweight Guides	EA			intentionally blank	
8419	Concrete Counterweights	EA			intentionally blank	
8420	CTWT Sheaves/Shafts(FC)/Bearings/Anchor Blts.	EA			intentionally blank	
8421	Counterweight Cable Protective Systems	LF			intentionally blank	
8423	Steel Counterweights	EA			intentionally blank	
8450	Timber Wingwalls	LF			intentionally blank	
8451	Steel Pile Frame Wingwalls	LF			intentionally blank	
8460	Timber Pile Dolphins	EA			intentionally blank	
8462	Steel Pile Frame Dolphins	EA			intentionally blank	
8463	Timber Floating Dolphin	LF			intentionally blank	
8464	Concrete Pontoon Floating Dolphin	LF			intentionally blank	
8640	Moveable Pedestrian Gangplank	LF			intentionally blank	
8650	Overhead Passenger Loading Cab	SF			intentionally blank	
8653	Passenger Cab Floor System and Lift Beam(FC)	LF			intentionally blank	
8669	Tower Base Platform	SF			intentionally blank	
8701	Ferry Concrete Floating Pontoon	CELL			intentionally blank	
8702	Ferry Steel Floating Pontoon	CELL			intentionally blank	
8703	Spud Piling & Wells	EA			intentionally blank	
8704	Pontoon Anchors, Anchor Chain/Cables/Clamps	EA			intentionally blank	
8906	Epoxy Paint System	SF			intentionally blank	
8910	Safety Access Ladders	EA			intentionally blank	
8911	Safety Railing & Catwalks	LF			intentionally blank	

Translation Notes

1.	State elements highlighted in light blue are used for structures owned and maintained by the Washington State Ferry system.
2.	National bridge elements that do not have a state element equivalent are highlighted in orange.
3.	A green arrow: indicates that the state element should be directly translated to the national element, including total quantities and each quantity for each condition state.
4.	A green bracket with a green arrow: indicates that all state elements on a given bridge need total quantity and the quantity in each condition state to be summed prior to translation to the indicated national element.
5.	A green drop arrow: indicates the state element is not translated to a national element.
6.	A red arrow: indicates special treatment is required for the translation. See associated note for details.
7.	Element 143 and 147 have been re-named to more clearly describe the existing intent of these elements. WSDOT owned bridges have 12 bridges with element 143 (for example 5/140E&W) and 3 bridges with element 147 (for example TNB 16/110E).
8.	State Elements 146 and 149 will remain EA units. Quantities in each condition state and the total will be summed and reported in NBI element 147 as LF units without alteration.
9	Deck Translation Specifications - see separate worksheet
10	Pin and Pin & Hanger Translation Specifications - see separate worksheet.
11	Joint and Wearing Surface Specifications - see separate worksheet.
12	Paint System Specifications - see separate worksheet.

Note 9 - Deck Translation Specifications

For WSDOT elements 12, 14, 20, 26, and 8217, perform the following steps towards translation to NBE element 12:

Step	Description
1	Sum total quantities and all quantities in each condition state into an NBE Temp element 12.
2	Move all quantities in WSDOT CS4 into NBE Temp CS2, adding to the quantity of NBE Temp CS2 added in Step 1. NBE Temp CS4 will have zero quantity at this point.
3	Move all quantities in WSDOT CS3 into NBE Temp CS4.
4	Add WSDOT elements 35 and 8216 CS2 to NBE Temp CS2.
5	Add WSDOT elements 35 and 8216 CS3 to NBE Temp CS4.
6	If NBE Temp total quantity = NBE Temp CS1 + CS2 + CS3 + CS4, go to Step 11.
7	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS1 to zero limit, then go to Step 6.
8	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS2 to zero limit, then go to Step 6.
9	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS3 to zero limit, then go to Step 6.
10	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, set NBE Temp CS4 = NBE Temp total quantity, then go to Step 11.
11	Move NBE Temp total quantity and all Temp CS1 through CS4 quantities to final NBE element
12	Note that CS3 will have zero quantity in the final translation.

For WSDOT elements 13 and 8413, perform the following steps towards translation to NBE element 16:

Step	Description
1	Sum total quantities and all quantities in each condition state into NBE element 16.
2	Move all quantities in WSDOT CS4 into NBE CS2, adding to the quantity of NBE CS2 added in Step 1. NBE CS4 will have zero quantity at this point.
3	Move all quantities in WSDOT CS3 into NBE CS4. Note that NBE CS3 will have zero quantity in the final translation.

Note 10 - Pin, Pin & Hanger Translation Specifications

For WSDOT elements 162 and 8343, perform the following steps towards translation to NBE element 161:

Step	Description
1	Sum the WSDOT elements 162 and 8243 total quantities and all condition state quantiies into NBE Temp element 161.
2	Add the WSDOT element 161 and 8342 CS1 through CS4 to corresponding NBE Temp element 161 CS1 through CS4.
3	If NBE Temp total quantity = NBE Temp CS1 + CS2 + CS3 + CS4, go to Step 8.
4	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS1 to zero limit, then go to Step 3.
5	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS2 to zero limit, then go to Step 3.
6	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, deduct difference from NBE Temp CS3 to zero limit, then go to Step 3.
7	If NBE Temp total quantity > NBE Temp CS1 + CS2 + CS3 + CS4, set NBE Temp CS4 = NBE Temp total quantity, then go to Step 8.
8	Move NBE Temp total quantity and all Temp CS1 through CS4 quantities to final NBE element 161.

Note 11 - Joint and Wearing Surface Translation Specifications

For WSDOT elements 400, 403 and 417, perform the following steps towards translation to NBE element 301:

Step	Description
1	Sum the WSDOT element total quantities and into NBE element total quantities.
2	Sum the WSDOT element CS1 quantities into NBE element CS2 quantities. Note that NBE will have zero quantities in CS1.
3	Sum the WSDOT element CS2 quantities into NBE element CS3 quantities.
4	Sum the WSDOT element CS3 quantities into NBE element CS4 quantities.

Perform these same steps listed above for the following translations:

- WSDOT elements 401, 402, 407 8407, and 419 translated into NBE element 304
- WSDOT elements 408, 8408, 409, 414, 410 and 411 translated into NBE element 305
- WSDOT elements 404, 8404, 405, 406 and 8406 translated into NBE element 302
- WSDOT elements 412 and 413 translated into NBE element 300
- WSDOT element 416 translated into NBE element 303
- WSDOT elements 415 and 418 translated into NBE element 306
- WSDOT elements 800, 8223, 801, 802, 8224, 803, 804, and 805 translated into NBE element 510

Note 12 - Paint/Coating Translation Specifications

For WSDOT elements 901, 8901, 902, 8902, 903, 8903, 904, 8904, 905, 8905, 906, 907, 8907, 908, 909, 8909, and 910, perform the following steps towards translation to NBE element 515:

Step	Description
1	Sum the WSDOT element total quantities and into NBE element total quantities.
2	Sum the WSDOT element CS1 quantities into NBE element CS1 quantities.
3	Sum the WSDOT element CS2 quantities into NBE element CS2 quantities.
4	Sum the WSDOT element CS3 quantities into NBE element CS4 quantities. Note that NBE CS3 will always have zero quantities.

Oregon

Send all reports and any requests for their reports to

Erick Cain, OPMA, Erick.j.cain@odot.state.or.us
Bridge Inventory Coordinator
4040 Fairview Industrial Dr. SE MS #4
Salem, OR 97302
Phone: 503 986 3384
Fax: 503 986 3407

Region 1 - (Longview to Hood River) –

Joel Boothe, Joel.E.BOOTHE@odot.state.or.us
Office 503-652-5691, Cell 503-969-1091, Fax 503-653-3085

Inspected by Oregon:
5/1E – 000000PR – Columbia R Interstate (Oregon #01377A)
5/1W – 0005216A – Columbia R Interstate (Oregon #07333)
205/1 – 0010833A – Glen Jackson Bridge (Oregon #09555)
0259228300 – 08712700 – Br of the Gods (Oregon # 02592)

Inspected by Washington:
433/1 – 0003760A – Lewis & Clark (Oregon #02046)

Region 2 -

Bill Burns, 503-986-2659, Robert.W.BURNS@odot.state.or.us

Inspected by Oregon:
101/1 – 0007666A - Megler (Oregon #07949D) – Spans 1-4
101/1(A) – 0007666B - Megler(A) (Oregon #07949A) – Spans 5-19
101/1(B) – 0007666C - Megler(B) (Oregon #07949B) – Spans 20-159
101/1(C) – 0007666D - Megler(C) (Oregon #07949C) – Span 160

Region 4 - (Hood River to Biggs Jct.) –

Mike Pulzone, James.M.PULZONE@odot.state.or.us
Office 541-388-6188, Cell 541-419-1688, Fax 541-388-6108

Inspected by Oregon:
197/1 – 000000PC – The Dalles (Oregon #06635Q)

Inspected by Washington:
97/1 – 0006539A – Biggs Rapids-Sam Hill (Oregon #00849A)

Inspected by Consultants
06645 – 000000PH – Hood River (Oregon #06645)

Region 5 -

Kelley McAlister, Kelley.T.MCALISTER@odot.state.or.us
541-963-1371

Inspected by Washington:
82/280N – 0012819A – Umatilla (Oregon #16424)
82/280S – 000000PD – Umatilla (Oregon #02230A)

Oregon Underwater Reports –

Rick Shorb, Rick.L.SHORB@odot.state.or.us

Idaho

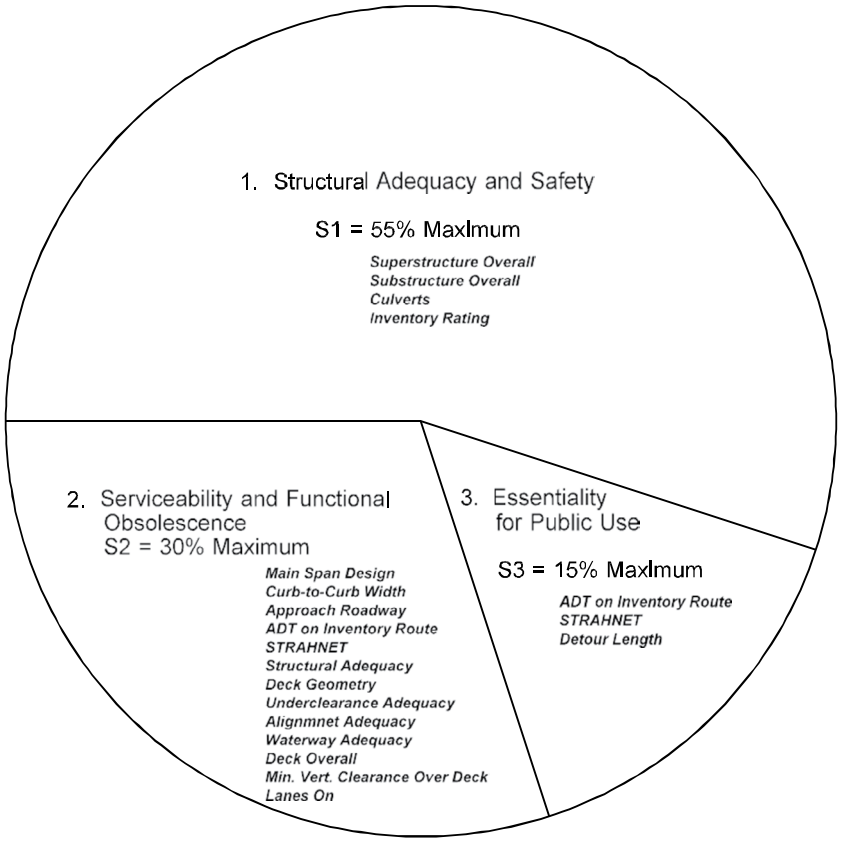
Patty Fish, patty.fish@itd.idaho.gov, 208-334-8847
cc to Kathleen Slinger, Kathleen.Slinger@itd,idaho.gov

Inspected by Washington
12/915 – 0002348A – Snake R Clarkston (ID SID 000000000010360)

Inspected by Idaho
41/10 – 00000LLV – BNRR OC (ID SID 000000000014255)
5700-1 – 08374400 – Southway Bridge (ID SID 000000000021495) – Local Agency owned (Asotin County) – Idaho works directly with them

Sufficiency Rating Worksheet

An Illustration of Sufficiency Rating (SR) Factors



4. Special Reductions
S4 = 13% Maximum

Detour Length
Main Span Design
Bridge Rail
Transition
Guardrail
Terminal

Sufficiency Rating = S1 + S2 + S3 - S4

Sufficiency Rating shall not be < 0 nor > 100

If S1 + S2 + S3 ≥ 50, then subtract S4, otherwise SR = S1 + S2 + S3

Structure ID: _____

Bridge Number: _____

Bridge Name: _____

Sufficiency Rating = S1 + S2 + S3 – S4 (Range: 0 to 100)

= ( ) + ( ) + ( ) - ( )

= _____

SD/FO (WSBIS Item 2711) = _____

Calculated by: _____

Date: _____

Note:

These calculations use English units. The final value may differ slightly from WSBIS Item 2710 as it is calculated using metric values.

STRUCTURAL ADEQUACY & SAFETY (S1)

1. Determine the value of A:

(a) Enter the condition codes for:

WSBIS 1671	*SUPERSTRUCTURE OVERALL*	_____
WSBIS 1676	*SUBSTRUCTURE CONDITION*	_____
WSBIS 1678	*CULVERT CONDITION*	_____

(b) Find A:

A = 55 : If the lowest code above is less than or equal to 2
A = 40 : If the lowest code is equal to 3
A = 25: If the lowest code is equal to 4
A = 10 : If the lowest code is equal to 5
A = 0 : If the lowest code is greater than 5

A **=** _____

2. Determine the value of B:

***Either*:**

when the Inventory Rating uses Tons:

(a) Enter the Inventory Rating (IR):

*WSBIS 1555 INVENTORY RATING (IR)=*_____TONS

(b) Find the value of B:

$B = (36 - IR)^{1.5} \times 0.2778$

B **=** _____

***Or*:**

when the Inventory Rating uses a Factor*:

(a) Enter the Inventory Rating (IR):

*WSBIS 1556 INVENTORY RATING (IR)=*_____FACTOR

(b) Find the value of B:

$B = (36 - (IR \times 36))^{1.5} \times 0.2778$

B **=** _____

3. Determine S1:

S1 = 55 - (A + B)

S1 = _____ (points range from 0 to 55)

* See article at http://www.fhwa.dot.gov/bridge/bridgeload01.cfm

SERVICEABILITY & FUNCTIONAL OBSOLESCENCE (S2)

1. Determine the value of C:

(a) Enter the adequacy or condition codes for the fields listed.
(b) Determine corresponding values for these codes from Table 1.
(c) For codes higher than those listed, use a value of 0.

TABLE 1

	Code	Value
If *STRUCTURAL EVALUATION* is:	≤ 3	= 4
WSBIS 1657	= 4	= 2
	= 5	= 1
If *DECK GEOMETRY* is:	≤ 3	= 4
WSBIS 1658	= 4	= 2
	= 5	= 1
If *UNDERCLEARANCES* is:	≤ 3	= 4
WSBIS 1659	= 4	= 2
	= 5	= 1
If *ALIGNMENT* is:	≤ 3	= 4
WSBIS 1661	= 4	= 2
	= 5	= 1
If *WATERWAY* is:	≤ 3	= 4
WSBIS 1662	= 4	= 2
	= 5	= 1
If *OVERALL DECK CONDITION* is:	≤ 3	= 5
WSBIS 1663	= 4	= 3
	= 5	= 1

(d) Add the values to determine C.

		Code	Value
WSBIS 1657	*STRUCTURAL EVALUATION*	_____	_____
WSBIS 1658	*DECK GEOMETRY*	_____	_____
WSBIS 1659	*UNDERCLEARANCES*	_____	_____
WSBIS 1661	*ALIGNMENT*	_____	_____
WSBIS 1662	*WATERWAY*	_____	_____
WSBIS 1663	*OVERALL DECK CONDTION*	_____	_____

TOTAL C = _____(13 maximum)

2. Determine the value of D:

(a) Enter measurements for the following fields:

WSBIS 1397 *APPROACH ROADWAY WIDTH* _____
WSBIS 1356 *CURB-TO-CURB WIDTH* _____

(b) Find the value of D: (For bridges that are not culverts (i.e., Main Span Design is not 19))

APPROACH ROADWAY WIDTH > (*CURB-TO-CURB WIDTH* + 2.0'), D = 5
APPROACH ROADWAY WIDTH ≤ (*CURB-TO-CURB WIDTH* + 2.0'), D = 0

D = _____

3. Determine the value of E:

(a) Enter or determine the following values:

WSBIS 1352 *LANES ON* _____
WSBIS 1356 *CURB-TO-CURB WIDTH* _____
WSBIS 1445 *ADT ON INVENTORY ROUTE* _____
Lane Width (rounded to tenths):
CURB-TO-CURB WIDTH/LANES ON _____
ADT/Lane:
ADT ON INVENTORY ROUTE/LANES ON _____

(b) Find the value of E: (where the following conditions apply)

For One-Lane Bridges:
- Lane Width < 14, E = 15
- 14 ≤ Lane Width < 18, E = 15 ((18-Lane Width)/4) = _____
- Lane Width ≥ 18, E = 0

For Two or More Lane Bridges:
- *LANES ON* = 02 and Lane Width ≥ 16, E = 0
- *LANES ON* = 03 and Lane Width ≥ 15, E = 0
- *LANES ON* = 04 and Lane Width ≥ 14, E = 0
- *LANES ON* > 05 and Lane Width ≥ 12, E = 0

If the above calculations apply, do not continue.

- ADT/Lane > 50 and Lane Width < 9, E =15
- ADT/Lane ≤ 50 and Lane Width < 9, E =7.5
- ADT/Lane ≤ 50 and Lane Width ≥ 9, E = 0

- 50 < ADT/Lane ≤ 125 and Lane Width <10, E = 15
- 50 < ADT/Lane ≤ 125 and 10 ≤ Lane Width <13,
  E = 15 (13 - Lane Width)/3 = _____
- 50 < ADT/Lane ≤ 125 and Lane Width ≥13, E = 0

- 125 < ADT/Lane ≤ 375 and Lane Width < 11, E = 15
- 125 < ADT/Lane ≤ 375 and 11 ≤ Lane Width < 14,
  E = 15 (14 - Lane Width)/3 = _____
- 125 < ADT/Lane ≤ 375 and Lane Width ≥ 14, E = 0

- 375 < ADT/Lane ≤ 1350 and Lane Width < 12, E= 15
- 375 < ADT/Lane ≤ 1350 and 12 ≤ Lane Width < 16,
  E = 15 (16 - Lane Width)/4 = _____
- 375 < ADT/Lane ≤ 1350 and Lane Width ≥ 16, E = 0

- ADT/Lane > 1350 and Lane Width < 15, E=15
- ADT/Lane > 1350 and 15 ≤ Lane Width < 16,
  E = 15 (16 - Lane Width) = _____
- ADT/Lane > 1350 and Lane Width ≥ 16, E = 0

E **=** _____

4. Determine the value of F:

(a) Enter the following values:

WSBIS 1370 *MIN. VERT. CLEARANCE OVER DECK* _____

WSBIS 1485 *STRAHNET* _____

(b) Find the value of F: (using the following conditions)

- *STRAHNET* > 0 and *MIN. VERT. CLEARANCE OVER DECK* ≥ 16 00, F = 0
- *STRAHNET* > 0 and *MIN. VERT. CLEARANCE OVER DECK* < 16 00, F = 2
- *STRAHNET* = 0 and *MIN. VERT. CLEARANCE OVER DECK* ≥ 14 00, F = 0
- *STRAHNET* = 0 and *MIN. VERT. CLEARANCE OVERDECK* < 14 00, F = 2

F **=** _____

5. Determine S2:

S2 = 30 - (C +(D + E)+ F*)* *((D + E) cannot be more than 15*)

S2 = _____ (points range from 0 to 30)

ESSENTIALITY FOR PUBLIC USE (S3)

1. Determine the value of G:

(a) Enter the following values:

WSBIS 1445 *ADT ON INVENTORY ROUTE* _____

WSBIS 1413 *DETOUR LENGTH* _____

S1 POINTS _____

S2 POINTS _____

(b) Calculate the value of G:

$$G = \frac{(\textit{ADT ON INVENTORY ROUTE})(\textit{DETOUR LENGTH})(7.5)}{[(S1 + S2)/85](100{,}000)}$$

$$G = \frac{(_____)(_____)\ (7.5)}{[(_____+_____)/85](100{,}000)}$$

G **=** _____ (15 maximum)

2. Determine the value of H:

(a) Enter the following value:

WSBIS 1485 *STRAHNET* _____

(b) Find the value of H:

- *STRAHNET* code is 1 or 2, H = 2
- *STRAHNET* code is 0, H = 0

H = _____

3. Determine S3:

S3 = 15 - (G + H)

S3 = _____ (points range from 0 to 15)

SPECIAL REDUCTIONS (S4)

Use only if S1 + S2 + S3 $\geq$ 50

1. Determine the value of I:

(a) Enter the following value:

WSBIS 1413 *DETOUR LENGTH* _____

(b) Calculate the value of I:

$I = (DETOUR\ LENGTH)^4(5.205)(10^{-8})$

I =_____(5 maximum)

2. Determine the value of J:

(a) Enter the following value:

WSBIS 1533 *MAIN SPAN DESIGN* _____

(b) Find the value of J:

- If *MAIN SPAN DESIGN* is 10, 12, 13, 14, 15, 16, or 17, then J = 5
- Otherwise, J = 0

J = _____

3. Determine the value of K:

(a) Enter the following coding values:

WSBIS 1684 *BRIDGE RAIL* _____
WSBIS 1685 *TRANSITION* _____
WSBIS 1686 *GUARDRAIL* _____
WSBIS 1687 *TERMINAL* _____

(b) Find the value of K:

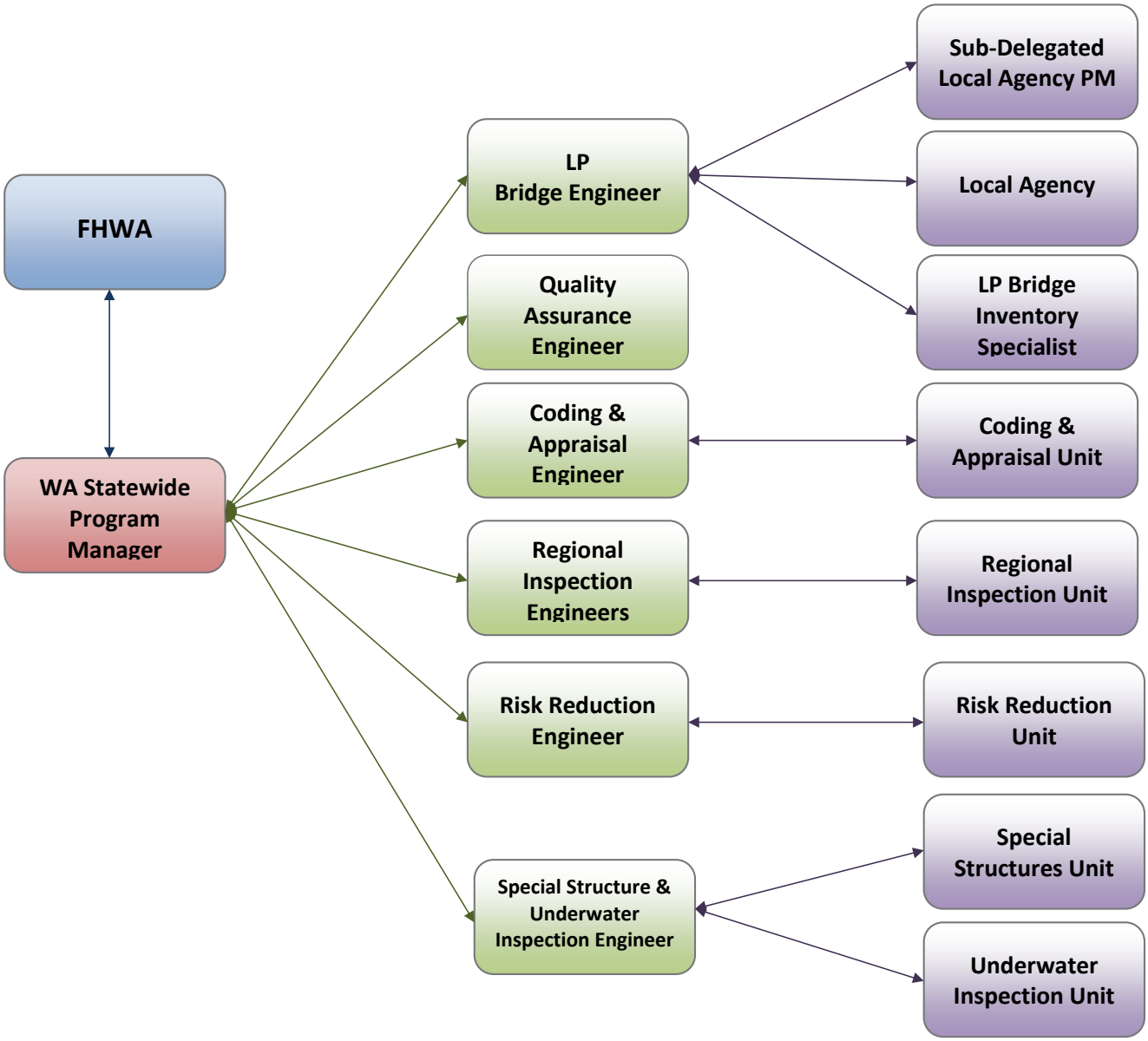
- If 2 of the above values are 0, then K = 1
- If 3 of the above values are 0, then K = 2
- If 4 of the above values are 0, then K = 3

***K* = _____**

4. Determine S4:

S4 = I + J + K

S4 = _____ (points range from 0 to 13)


FHWA
WA Statewide Program Manager
LP Bridge Engineer
Quality Assurance Engineer
Coding & Appraisal Engineer
Regional Inspection Engineers
Risk Reduction Engineer
Special Structure & Underwater Inspection Engineer
Sub-Delegated Local Agency PM
Local Agency
LP Bridge Inventory Specialist
Coding & Appraisal Unit
Regional Inspection Unit
Risk Reduction Unit
Special Structures Unit
Underwater Inspection Unit