

# INVENTORY AND APPRAISAL CODING GUIDE FOR VIRGINIA'S STRUCTURES



Structure and Bridge

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## **FHWA** **NBI Data Checks**

Additionally, the FHWA has several 'NBI Data Check' documents that are in the back of this manual, on the Team Site (See "FHWA - Error and Safety Checks") and can be accessed at: [www.fhwa.dot.gov/bridge/nbi/checks/](http://www.fhwa.dot.gov/bridge/nbi/checks/)

These data checks will write to the error report during the FHWA annual data submittal process and must be corrected.

The "Edit Checks" shown with each Federal Item are older FHWA reasonableness checks but are still considered valid direction by Virginia for coding all items with which they are associated. Please note that the validate button in BrM does not consider many of these "Edit Checks". See the Appendix for more information on these checks.

### **IMPORTANT NOTE:**

In some cases, there may be values present in data fields that do not match the selections available in the BrM menus or the BrM field is not formatted to accept the current value stored in the field (including some "null" values). These will be displayed with the notation "(FIX\_PARAM\_VALUE)" until populated with an accepted value.

## Significant Updates to the Inventory Coding Guide

<b>Item No.</b>	<b>Description of Update</b>	<b>Date of Update</b>
F31	Updated all notes under the table per FHWA guidance	1-30-19
F54	Updated the term for improved shoulders	1-30-19
F55	Updated the term for improved shoulders	1-30-19
F56	Updated the term for improved shoulders	1-30-19
F58	Returned previously deleted federal guidance; added Virginia Note to clarify coding of roadways over fill.	8-17-20
F71	Added Virginia Note to clarify a numerical code is needed for any structure type crossing a waterway.	8-17-20
F92	Added Virginia Note to clarify use of "Element Inspection" type and "Other Special" inspection type.	1-30-19
S41	Removed this item from the coding guide	1-30-19
S170	Removed this item from the coding guide	1-30-19
S171	Removed this item from the coding guide	1-30-19
S53	Added additional posting vehicles to the description and the images of the posting signs	1-30-19
S54	Added additional posting vehicles to the description and the images of the posting signs	1-30-19
S213 – S214	Added additional posting vehicles to the description and the images of the posting signs	1-30-19
S215 – S230	Added additional posting vehicles and sign fields to accommodate new requirements	5-19-20
Bridge Status	Added flowchart and examples for coding "temporarily closed" and "permanently closed" structures	5-19-20
Appendix	Removed the definition of Functionally Obsolete per FHWA guidance	1-30-19
Appendix	Updated the definition of Poor per FHWA guidance	1-30-19
Appendix	Added table of NBI checks	1-30-19

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## FEDERAL ITEMS

**BELOW EACH ITEM NAME "TABLE" PLUS "FIELD" INDICATES THE LOCATION OF THE ITEM IN THE DATABASE. THIS CAN BE USED BY ANY DATA RETRIEVAL SOFTWARE TO 'PULL' THE ASSOCIATED DATA. "LOCATION" CAN BE USED TO FIND THE ITEM IN THE BrM DISPLAY. THE FEDERAL FIELDS AND FORMATS SHOWN IN THIS MANUAL FOLLOW THE FEDERAL MANUAL AND MAY VARY FROM THE BrM PRODUCTION DATABASE.**

### **FED ITEM 1 – STATE CODE – XX X (3)**

TABLE - BRIDGE

FIELD - FIPS\_STATE (1A)

FIELD - FHWA\_REGN (1B)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The state code is composed of 2 segments (Federal Items 1A and 1B). See below.

### **FED ITEM 1A – FIPS STATE– XX (2)**

TABLE - BRIDGE

FIELD - FIPS\_STATE (1A)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The FIPS STATE shall be coded using one of the following codes:

<b><u>FED ITEM 1A</u></b>			
<b><u>Code</u></b>	<b><u>State</u></b>	<b><u>Code</u></b>	<b><u>State</u></b>
01	Alabama	30	Montana
02	Alaska	31	Nebraska
04	Arizona	32	Nevada
05	Arkansas	33	New Hampshire
06	California	34	New Jersey
08	Colorado	35	New Mexico
09	Connecticut	36	New York
10	Delaware	37	North Carolina
11	District of Columbia	38	North Dakota
12	Florida	39	Ohio
13	Georgia	40	Oklahoma
15	Hawaii	41	Oregon
16	Idaho	42	Pennsylvania
17	Illinois	44	Rhode Island
18	Indiana	45	South Carolina
19	Iowa	46	South Dakota
20	Kansas	47	Tennessee
21	Kentucky	48	Texas
22	Louisiana	49	Utah
23	Maine	50	Vermont
24	Maryland	51	Virginia
25	Massachusetts	53	Washington
26	Michigan	54	West Virginia
27	Minnesota	55	Wisconsin
28	Mississippi	56	Wyoming
29	Missouri	72	Puerto Rico

**FED ITEM 1B – FHWA REGION – X (1)**

TABLE - BRIDGE

FIELD - FHWA\_REGN (1B)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

The FIPS STATE shall be coded using one of the following codes:

**FED ITEM 1B**

Region No.	Region Area	Region No.	Region Area
1	Albany	7	Kansas City
2	NY / NJ	8	Denver
3	Baltimore	9	San Francisco
4	Atlanta	10	Portland
5	Homewood	[BLANK]	Not Applicable (P)
6	Ft. Worth	[BLANK]	Unknown (NBI)

**FED ITEM 2 – STATE HIGHWAY DEPARTMENT DISTRICT – XX (2)**

TABLE - BRIDGE

FIELD - DISTRICT

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The highway agency district (State or Federal) in which the bridge is located shall be represented by a 2-digit code. Existing district numbers shall be used where districts are identified by number. Where districts are identified by name a code number shall be assigned based on an alphabetical or organizational listing of the districts.

<b><u>Code</u></b>	<b><u>Displayed</u></b>
1	Bristol District
2	Salem District
3	Lynchburg District
4	Richmond District
5	Hampton Roads District
6	Fredericksburg District
7	Culpeper District
8	Staunton District
9	Northern Virginia District
[BLANK]	Central Office
[BLANK]	Unknown
[BLANK]	Not Applicable
[BLANK]	External

**FED ITEM 3 – COUNTY (PARISH) CODE – XXX (3)**

TABLE - BRIDGE

FIELD - COUNTY

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Counties shall be identified using the Federal Information Processing Standards (FIPS) codes given in the current version of the Census of Population and Housing - Geographic Identification Code Scheme. This information is available on the Team Site (See FIPS CODES) and online at <https://www.census.gov/geographies/reference-files/2018/demo/popest/2018-fips.html>.

**FED ITEM 4 – PLACE CODE – XXXXX (5)**

**TABLE - BRIDGE**

**FIELD - PLACECODE**

**LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Cities, towns, townships, villages, and other census-designated places shall be identified using the Federal Information Processing Standards (FIPS) code given in the current version of the Census of Population and Housing - Geographic Identification Code Scheme. If there is no FIPS code, then code "Unknown". Using "Not Applicable" will cause a validation error. This information is available on the Team Site (See FIPS CODES) and online at <https://www.census.gov/geographies/reference-files/2018/demo/popest/2018-fips.html>.

**FED ITEM 5 – INVENTORY ROUTE – XXXXXXXXX (9)**

**TABLE - ROADWAY**

**FIELD - ON\_UNDER (5A)**

**FIELD - KIND\_HWY (5B)**

**FIELD - LEVL\_SRVC (5C)**

**FIELD - ROUTENUM (5D)**

**FIELD - DIRSUFFIX (5E)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

BrM uses a dropdown menu to facilitate coding of fields 5A, 5B, 5C and 5E. No other entry is allowed.

The inventory route is composed of 5 segments (Federal Items 5A, 5B, 5C, 5D and 5E). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
5A	Record Type	1 digit
5B	Route Signing Prefix	1 digit
5C	Designated Level of Service	1 digit
5D	Route Number	5 digits
5E	Directional Suffix	1 digit

**FED ITEM 5A – RECORD TYPE – X (1)**

**TABLE - ROADWAY**

**FIELD - ON\_UNDER (5A)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

There are two types of National Bridge Inventory records: "on" and "under."

<u>Code</u>	<u>Description</u>
1	Route carried "on" the structure
2	Single route goes "under" the structure
A through Z	Multiple routes go "under" the structure
	"A" signifies the first of multiple routes under the structure.
	"B" signifies the second of multiple routes under the structure.
	"Z" signifies 26 routes under the structure.

"Route on Structure" signifies that the inventory route is carried "on" the structure. "Route on Structure" is the default selection when a new record is created. For this selection, all of the NBI data items must be coded, unless otherwise noted, with respect to the structure and the inventory route "on" it.

"Under" signifies that the inventory route goes under the structure. "Under" records must be coded using the "Create" button next to the Record Type drop down menu. If only one "under" record is needed, code "One Route Under". If more than one "under" record is needed, multiple records can be created subsequently by using the "create" button, up to 26 distinct records. Code subsequent records in numerical order; if more than one route under a structure exists, begin with "1st Route Under" and continue coding with "2nd Route Under" until all the necessary records are accounted for. **All "under" records must be identified and coded at the time the initial inspection is entered into BrM**; the user interface does not correctly add or delete "under" records during subsequent inspections. If an inventory route beneath the structure is on a Federal-aid highway, is a STRAHNET route or connector or is otherwise important, a record must be coded to identify it. STRAHNET routes shall be listed first. The following items must be coded: Federal Items 1, 3-13, 16, 17, 19, 20, 26-30, 42, 43, 47-49, 100-104, 109 and 110; all other Federal items are to remain blank.

**Virginia Note:**

Overlapping under routes (single roadways carrying multiple routes) use only one "under" record which must correspond to VDOT's roadway network system.

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

Tunnels shall be coded only as an "under" record; that is, they shall not be coded as a structure carrying highway traffic.

There are situations of a route "under" a structure, where the structure 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. In cases where the "on" record is not needed, it can be deleted once the "under" record has been coded. As described above, **this action must be completed at the time of the initial inspection**. The user interface does not correctly add or delete "under" records during subsequent inspections.

**Virginia Notes:**

- The "under" records described above are used to capture the roadway data along with any associated restrictions (vertical or horizontal clearances) for the "under" route.
- However, structures that do not carry highway traffic and are VDOT owned, shall be coded as an "on" record with the appropriate condition and geometric data entered, and "under" records will be added when appropriate.



**FED ITEM 5B – ROUTE SIGNING PREFIX – X (1)**

**TABLE - ROADWAY**

**FIELD - KIND\_HWY (5B)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

In the second position, identify the route signing prefix for the inventory route using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
1	Interstate Highway
2	U.S. Numbered Highway
3	State Highway
4	County Highway <b>Virginia Note:</b> This code shall be used for secondary routes in any county, including the counties of Arlington, Buchanan, Henrico, etc.
5	City Street
6	Federal Lands Roads
7	State Lands Roads
8	Other (include toll roads not otherwise indicated or identified above) Not Applicable (P)

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

**EDIT CHECK**

Federal Item 5B must not equal 1 if Federal Item 104 does not equal 1.

**FED ITEM 5C – DESIGNATED LEVEL OF SERVICE – X (1)**

**TABLE - ROADWAY**

**FIELD - LEVL\_SRVC (5C)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

In the third position, identify the designated level of service for the inventory route using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
0	None of the below
1	Mainline <b>Virginia Note:</b> (HOV lanes shall be coded as Mainline)
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, Wye, Connector, etc.
8	Service and/or Unclassified Frontage Road

**FED ITEM 5D – ROUTE NUMBER – XXXXX (5)**

TABLE - ROADWAY

FIELD - ROUTENUM (5D)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

Code the route number of the inventory route in the next 5 positions. This value shall be right justified in the field with leading zeros filled in.

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

**Virginia Note:**

- Structures that do not have an “on” record, Federal Item 5D "Route Number" are to be coded as the route that passes under the structure.
- In accordance with Federal Item 5A - Record Type above, structures that do not carry highway traffic and are VDOT owned will be coded as an “on” record. For these structures, Federal Item 5D - Route Number will be coded 00000, and “under” records will be added when appropriate.

**FED ITEM 5E – DIRECTIONAL SUFFIX – X (1)**

TABLE - ROADWAY

FIELD - DIRSUFFIX (5E)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

In the last position, code the directional suffix to the route number of the inventory route when it is part of the route number, using one of the following codes based on the Roadway Network System:

<u>Code</u>	<u>Description</u>
0	Not applicable
1	North
2	East
3	South
4	West
[BLANK]	Unknown (NBI)

In some cases, letters may be used with route numbers and as part of route numbers and not to indicate direction. In such cases, the letter should be included in the 5-position route number field.

**EDIT CHECK**

- If Federal Item 5A does not = 1 then Federal Item 28B must be > 00 (except as noted above in Federal Items 5A and 5D)
- If Federal Item 5B = 1 then Federal Item 26 must = 1 or 11 and Federal Item 104 must = 1

**FED ITEM 6 – FEATURE INTERSECTED/CRIT FEATURE – XXXXXXXXXXXXXXXXXXXXXXXXXXXX**

**(25)**

**TABLE - BRIDGE**

**FIELD - FEATINT (6A)**

**LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION**

**TABLE - ROADWAY**

**FIELD - CRIT\_FEAT (6B) - (Always Blank)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

This item is composed of 2 segments (Federal Items 6A and 6B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
6A	Feature Intersected	24 digits
6B	Critical Feature	1 digit

**FED ITEM 6A – FEATURE INTERSECTED – XXXXXXXXXXXXXXXXXXXXXXXXXXXX (24)**

**TABLE - BRIDGE**

**FIELD - FEATINT (6A) (24 Digits)**

**LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION**

This item contains a description of the features intersected by the structure.

The information to be recorded for this item in the first 24 digits shall be the name or names of the features intersected by the structure. When one of the features intersected is another highway, the signed number or name of the highway shall appear first (leftmost) in the field. The names of any other features shall follow, separated by a semicolon or a comma. Parentheses shall be used to provide a second identification of the same feature (see third example below). Abbreviations may be used where necessary, but an effort shall be made to keep them meaningful. The data in this segment shall be left justified in the first 24 positions without trailing zeros.

**EXAMPLES:**

- I-81, US 51, MILL ROAD
- MISSISSIPPI RIVER
- SR 42 (POND ROAD)

**FED ITEM 6B – FEATURE INTERSECTED – X (1)**

**TABLE - ROADWAY**

**FIELD - CRIT\_FEAT (6B) -(Always Blank)**

**LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION**

BrM uses a dropdown menu to facilitate coding of Item 6B. No other entry is allowed.

**Note From Latest FHWA Errata:**

Item 6B, Critical Facility Indicator, will no longer be coded. A blank space will be inserted in its place.

**FED ITEM 7 – FACILITY CARRIED BY STRUCTURE – XXXXXXXXXXXXXXXXXXXX (18)**

TABLE - BRIDGE

FIELD - FACILITY

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

The facility being carried by the structure shall be recorded and coded. This item shall be left justified without trailing zeros.

**EXAMPLES:**

US 66

MAIN STREET

COUNTY ROAD 450

C & O RAILROAD

(appropriate for "under" record only)

PEDESTRIAN BRIDGE

(appropriate for "under" record only)

**FED ITEM 8 – STRUCTURE NUMBER – XXXXXXXXXXXXXXXXXXXX (15)**

TABLE - BRIDGE

FIELD - STRUCT\_NUM

LOCATION - INSPECTION / INVENTORY / ADMIN / STRUCTURAL IDENTIFICATION

**Virginia Note:**

The Federal length of this field is XXXXXXXXXXXXXXXXXXXX (15). Only when providing our annual report to the Federal government are the first three digits filled in with our state number (513). The last five digits are a number unique to the structure. The remaining digits are filled in with zeros. As an example the Federal Item 8 - NBI Structure Number shown in BrM could be 00000000028910.

The Agency Bridge ID also shown at INSPECTION / INVENTORY / ADMIN / STRUCTURAL IDENTIFICATION begins with a combination of the numerical equivalent of the State Item 2 - Jurisdiction Code and State Item 4 - VA Structure Number and ends with Federal Item 8. As an example, using the above structure, the Agency Bridge ID would be 0051939-00000000028910.

It is required that the official structure number be recorded. It is not necessary to code this number according to an arbitrary national standard. Each agency should code the structure number according to its own internal processing procedures. When recording and coding for this item and following items, any structure or structures with a closed median should be considered as one structure, not two. Closed medians may have either mountable or non-mountable curbs or barriers.

The structure number must be unique for each bridge within the State, and once established should preferably never change for the life of the bridge. If it is essential that structure number(s) must be changed, all 15 digits are to be filled. For any structure number changes, a complete cross reference of corresponding "old" and "new" numbers must be provided to the FHWA Bridge Division. The cross reference shall include both a computer tape or diskette and a printed listing in the FHWA required format.

The identical structure number must appear on the "on" and all "under" records associated with a particular structure. (Refer to Federal Item 5 - Inventory Route).

**FED ITEM 9 – LOCATION – XXXXXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - BRIDGE

FIELD - LOCATION

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

This item contains a narrative description of the bridge location. It is recommended that the location be keyed to a distinguishable feature on any official highway department map such as road junctions and topographical features. This item shall be left justified without trailing zeros.

**EXAMPLES:**

6 MI. SW. OF RICHMOND

3.5 MI. S. OF JCT. SR 69

**FED ITEM 10 – INVENTORY ROUTE, MINIMUM VERTICAL CLEARANCE – XX.XX (4)**

TABLE - ROADWAY

FIELD - VCLRINV

LOCATION - INSPECTION / INVENTORY / ROADS / CLEARANCES

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

**See Virginia Note under Federal Item 54.**

Code the minimum vertical clearance over the inventory route identified in Federal Item 5, whether the route is "on" the structure or "under" the structure. The minimum clearance for a 10-foot width of the pavement or travel part (See Virginia Note under Federal Item 54 for definition of where to measure) of the roadway where the clearance is the greatest shall be recorded and coded in feet. For structures having multiple openings, clearances for each opening shall be recorded, but only the greatest of the "minimum clearances" for the two or more openings shall be coded regardless of the direction of travel. This would be the practical maximum clearance. When no restriction exists or when the restriction is 100 feet or greater, code 99.99.

**EDIT CHECK**

- A warning is issued if Federal Item 10 is coded < 8 feet.

**FED ITEM 11 – KILOMETER POINT(MILE POINT) – (XXXX.XXX MILES) (7)**

TABLE - ROADWAY

FIELD - KMPOST

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

**Virginia Note:** Working to update automatic entry.

The linear referencing system (LRS) kilometer/mile point is used to establish the location of the bridge on the Base Highway Network (see Federal Item 12). It must be from the same LRS Inventory Route and kilometer/mile point system as reported in the Highway Performance Monitoring System (HPMS). The kilometer/mile point coded in this item directly relates to Federal Item 13 – LRS Inventory Route, Subroute Number.

This item must be coded for all structures located on or overpassing the Base Highway Network. Code a 7-digit number to represent the LRS kilometer/mile point distance in kilometers/mile to the nearest thousandth. For structures carrying the LRS Inventory Route, code the kilometer/mile point at the beginning of the structure (i.e. the lowest kilometer/mile point on the bridge). When the LRS Inventory Route goes under the structure (Federal Item 5A coded 2 or A - Z), then code the kilometer/mile point on the underpassing route where the structure id is first encountered.

Code all zeros in this field for all records where kilometer/mile points are not provided. Kilometer/mile points may be coded for bridges that are not located on the Base Highway Network, however Federal Item 12 – Base Highway Network shall be coded 0 for these records.

<u>EXAMPLES:</u>		<u>Code</u>
Kilometer/mile point is	130.34	130.34
	9.60	9.6

**Virginia Note:**

- Millionth of a foot is allowed in BrM but is not considered practical.
- The Traffic Engineering Division reports kilometer/mile points to the FHWA with the beginning kilometer/mile point (0000.000000) at the beginning of a route and ignores county lines as the kilometer/mile points increase i.e. kilometer/mile points do not 'begin again' at each county line.

**FED ITEM 12 – BASE HIGHWAY NETWORK – X (1)**

TABLE - ROADWAY

FIELD - ONBASENET

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This item is to be coded for all records in the inventory. The Base Highway Network includes the through lane (mainline) portions of the NHS, 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 Federal Item 5 - Inventory Route, indicate whether the inventory route is on the Base Highway Network or not on that network. Use one of the following codes:

<u>Code</u>	<u>Description</u>
0	Not on Base Network
1	On Base Network
[BLANK]	Unknown (NBI)

**FED ITEM 13– LRS INVENTORY ROUTE, SUBROUTE NUMBER – XXXXXXXXXXXX XX (12)**

TABLE - ROADWAY

FIELD - LRSINVRT (13A)

FIELD - SUBRTNUM (13B)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

**Virginia Note:** Working to update automatic entry.

If Federal Item 12 - Base Highway Network has been coded "On Base Network", the information to be recorded for this item is the inventory route for the State's linear referencing system (LRS). If Federal Item 12 has been coded "Not on Base Network", this entire item should be left blank. This item is a 12-digit code composed of 2 segments (Federal Items 13A and 13B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
13A	LRS Inventory Route	10 digits
13B	Subroute Number	2 digits

**FED ITEM 13A – LRS INVENTORY ROUTE – XXXXXXXXXX (10)**

TABLE - ROADWAY

FIELD - LRSINVRT (13A)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

**Virginia Note:** Working to update automatic entry.

The LRS inventory route and subroute numbers to be reported in this item must correspond to the LRS inventory route and subroute numbers reported by the State for the HPMS. The LRS inventory route number is coded in the ten positions of segment 13A, right justified and zero filled. The subroute number, if it exists, is coded in the two positions of segment 13B, right justified and zero filled.

The LRS inventory route number can be alphanumeric, but must not contain blanks. The LRS inventory route number is not necessarily the same as that posted along the roadway, but is a number used to uniquely identify a route within at least a county and perhaps throughout the State.

**FED ITEM 13B – SUBROUTE NUMBER – XX (2)**

TABLE - ROADWAY

FIELD - SUBRTNUM (13B)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

**Virginia Note:** Working to update automatic entry.

The subroute number is a number that uniquely identifies portions of an inventory route sections where duplicate kilometer/mile points occur. These subroute numbers, if they exist, are identified in the State's HPMS-LRS records. If there is no subroute number, code 00 in this segment.

**EXAMPLES:**

**Code**

Inventory Route 2775, Subroute Number 0	000000277500
Inventory Route 2775, Subroute Number 3	000000277503

**FED ITEM 16 – LATITUDE – XX XX XX.XX (8)**

TABLE - BRIDGE

FIELD - LATITUDE

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

**Virginia Note:** Working to update automatic entry.

For bridges on STRAHNET and STRAHNET Connector highways and on the NHS, record and code the latitude of each in **degrees, minutes and seconds to the nearest hundredth of a second**. The point of the coordinate should be the beginning of the bridge in the direction of the inventory route or any other consistent point of reference on the bridge that is compatible with the LRS. **If the bridge is not on a STRAHNET highway or the NHS, a code of all zeros is acceptable, but it is preferable to code the latitude if available.**

**EXAMPLE:**

**Code**

Latitude is 35° 27' 18.55" (current precision)	352718.55
--	-----------

**EDIT CHECK**

If Federal Item 100 > 0 then Federal Item 16 must be > 000000.00.

## **FED ITEM 17 – LONGITUDE – XXX XX XX.XX (9)**

TABLE - BRIDGE

FIELD - LONGITUDE

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

**Virginia Note:** Working to update automatic entry.

For bridges on STRAHNET and STRAHNET Connector highways and on the NHS, record and code the latitude of each in **degrees, minutes and seconds to the nearest hundredth of a second**. The point of the coordinate should be the beginning of the bridge in the direction of the inventory route or any other consistent point of reference on the bridge that is compatible with the LRS. **If the bridge is not on a STRAHNET highway or the NHS, a code of all zeros is acceptable, but it is preferable to code the latitude if available.**

### **EXAMPLE:**

Longitude is 81° 5' 50.65 ' (current precision)      Code  
0810550.650

### **EDIT CHECK**

If Federal Item 100 > 0 then Federal Item 17 must be > 0000000.00.

## **FED ITEM 19 – BYPASS, DETOUR LENGTH – XXX (3) MILES**

TABLE - ROADWAY

FIELD - BYPASSLEN

LOCATION - INSPECTION / INVENTORY / ROADS / DETOURS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

If a ground level bypass is available at the structure site for the inventory route, record and code the detour length as 000. This code is not used for partial lane closures on the subject bridge; detour length assumes the entire structure is not available for use and reflects the nearest alternate route.

If the bridge is one of twin bridges and is not at an interchange, code 001 where the other twin bridge can be used as a temporary bypass with a reasonable amount of crossover grading. BrM will display "1.000000" upon entry but the value will store correctly as entered.

In other cases, indicate the actual length to the nearest mile of the detour length.

The detour length should represent the total **additional** travel for a vehicle that would result from closing the bridge. The factor to consider when determining if a bypass is available at the site is the potential for moving vehicles, including military vehicles, around the structure. This is particularly true when the structure is in an interchange. For instance, a bypass likely would be available in the case of diamond interchanges, interchanges where there are service roads available, or other interchanges where the positioning and layout of the ramps is such that they could be used without difficulty to get around the structure. Code 199 for any value of 199 miles or more.

### **Virginia Note:**

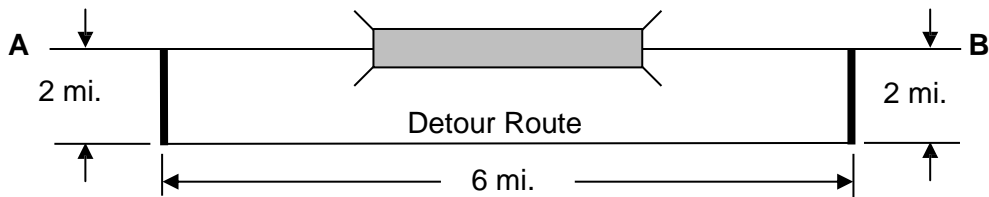
The route must not contain structures with a lower posting than the subject bridge and must be a comparable type of road.

(continued next page)



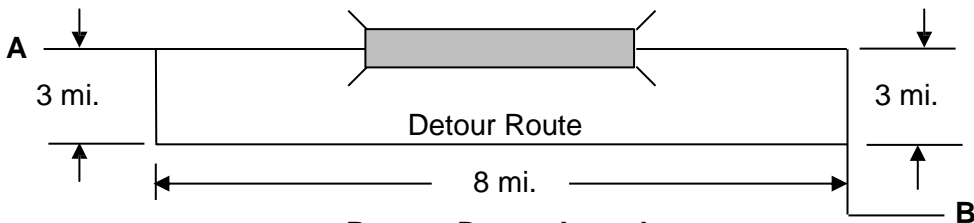
**EXAMPLES:**

	<b>Code</b>
One structure of twin bridges or twin tunnels	001
A ground level bypass is available	000
Diamond interchange, structure bypassable	000
Cloverleaf, not bypassable; 8-mile detour	008
Structure over river; 121-mile detour	121
Structure over highway, no interchange, by passable at ground level	000
Structure on dead end road	199



**Bypass Detour Length**

Additional travel distance required to go from point A to point B = 4 miles.



**Bypass Detour Length**

Additional travel distance required to go from point A to point B = 0 miles.

**FED ITEM 20 – TOLL – X (1)**

TABLE - ROADWAY

FIELD - TOLLFAC

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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:

<b><u>Code</u></b>	<b><u>Description</u></b>
1	Toll bridge. Tolls are paid specifically to use the structure.
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	On free road. The structure is toll-free and carries a toll-free highway.
4	On Interstate toll segment under Secretarial Agreement. Structure functions as a part of the toll segment.
5	Toll bridge is a segment under Secretarial Agreement. Structure is separate agreement from highway segment.
	Not Applicable (P)
	Unknown (NBI)

**FED ITEM 21 – MAINTENANCE RESPONSIBILITY – XX (2)**

TABLE - BRIDGE

FIELD - CUSTODIAN

LOCATION - INSPECTION / INVENTORY / ADMIN / OPERATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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.

<u>Code</u>	<u>Description</u>	<u>Code</u>	<u>Description</u>
	Not Applicable (P)		
	Unknown (P)		
01	* State Highway Agency	63	*** Bureau of Fish and Wildlife
02	** County Highway Agency	64	*** U.S. Forest Service
03	** Town or Township Highway Agency	66	*** National Park Service
04	** City or Municipal Highway Agency	67	*** Tennessee Valley Authority
11	* State Park, Forest, or Reservation Agency	68	*** Bureau of Land Management
12	** Local Park, Forest, or Reservation Agency	69	*** Bureau of Reclamation
21	* Other State Agencies	70	*** Corps of Engineers (Civil)
25	** Other Local Agencies	71	*** Corps of Engineers (Military)
26	Private (non-Railroad)	72	*** Air Force
27	Railroad	73	*** Navy/Marines
31	* State Toll Authority	74	*** Army
32	** Local Toll Authority	75	*** NASA
57	*** GSA	76	Metro Washington Airports Service
58	*** Zoo/Smithsonian	77	*** Pentagon
59	*** NSA	78	*** USDA/ARS
60	*** Other Federal Agencies (Not Listed)	79	*** DOE
61	*** Indian Tribal Government	80	Unknown (NBI)
62	*** Bureau of Indian Affairs		

**Virginia Note:**

- \* Denotes codes which could indicate state responsibility
- \*\* Denotes codes which could indicate municipal responsibility
- \*\*\* Denotes codes that indicate Federal responsibility

**FED ITEM 22 – OWNER – XX (2)**

TABLE - BRIDGE

FIELD - OWNER

LOCATION - INSPECTION / INVENTORY / ADMIN / OPERATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The codes used in Federal Item 21 - Maintenance Responsibility 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 hierarchy of State, Federal, county, city, railroad, and other private.

**FED ITEM 23 THROUGH ITEM 25**

(Reserved)

**FED ITEM 26 – FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE – XX (2)**

TABLE - ROADWAY

FIELD - FUNCCLASS

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

<u>Code</u>	<u>Description</u>	<u>* Equivalent VDOT Shown for Reference Only</u>
[BLANK]	Unknown	
[BLANK]	Not Applicable	
<b><u>Rural</u></b>		<b><u>TMPD</u></b>
01	Principal Arterial - Interstate	1
02	Principal Arterial - Other	2
06	Minor Arterial	3
07	Major Collector	4
08	Minor Collector	5
09	Local	6
<b><u>Urban</u></b>		
11	Principal Arterial - Interstate	A
12	Principal Arterial - Other Freeways or Expressways	B
14	Other Principal Arterial	E
16	Minor Arterial	H
17	Collector	I
19	Local	J

The bridge shall be coded rural if not inside a designated urban area. The urban or rural designation shall be determined by the bridge location and not the character of the roadway.

**Virginia Note:**

- Codes of 08, 09 and 19 indicate non-Federal aid (off-system) routes. All others are Federal aid (on-system) routes.
- TMPD = Transportation & Mobility Planning Division

**EDIT CHECK**

If Federal Item 26 = 1 or 11 then Federal Item 5B must = 1 and Federal Item 104 must = 1.

**ALSO:**

<u>If Federal Item 26 is:</u>	<u>Federal Item 104 must be:</u>
01, 02, 11, 12 or 14	1 (NHS Route)
06, 07, 08, 09, 16, 17 or 19	0 (not on NHS Route)

**FED ITEM 27 – YEAR BUILT – XXXX (4)**

TABLE - BRIDGE

FIELD - YEARBUILT

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

Record and code the year of construction of the structure. Code all 4 digits of the year in which construction of the structure was completed. If the year built is unknown, provide a best estimate. See Federal Item 106 - Year Reconstructed.

<b><u>EXAMPLES:</u></b>		<b><u>Code</u></b>
Construction completed	1956	1956
Construction completed	1892	1892

**EDIT CHECK**

- If Federal Item 106 > 0 then Federal Item 106 must be > Federal Item 27.
- First two digits of Federal Item 27 must be 18, 19 or 20.
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N.

**FED ITEM 28 – LANES ON AND UNDER THE STRUCTURE – XX XX (4)**

TABLE - ROADWAY

FIELD - LANES (28A)

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

TABLE - BRIDGE

FIELD - SUMLANES (28B)

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

Record and code the number of lanes being carried by the structure and being crossed over by the structure each as a 2-digit number composed of 2 segments (Federal Items 28A and 28B). The number of lanes should be right justified in each segment with leading zeros coded as required. See below.

<b><u>Segment</u></b>	<b><u>Description</u></b>	<b><u>Length</u></b>
28A	Lanes on the structure	2 digits
28B	Lanes under the structure	2 digits

**FED ITEM 28A – LANES ON THE STRUCTURE – XX (2)**

TABLE - ROADWAY

FIELD - LANES (28A)

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

Include all lanes carrying highway traffic (i.e., cars, trucks, buses) that are striped or otherwise operated as a full width traffic lane for the entire length of the structure or under the structure by the owning/maintaining authority. This shall include any full width merge lanes and ramp lanes, and shall be independent of directionality of usage (i.e., 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 the Federal Item 68 - Deck Geometry, any "1-lane" bridge, not coded as a ramp (Federal Item 5C = 7), which has a Bridge Roadway Width, Curb-to-Curb - Federal Item 51 coded 16 feet (4.9 meters) or greater shall be evaluated as 2 lanes.

When the inventory route is "on" the bridge (the first digit of Federal Item 5 - Inventory Route is coded 1), the sum of the total number of lanes on all inventoried routes under the bridge shall be coded.

Double deck bridges may be coded as 1 or 2 structures as noted in the examples. Either method is acceptable; however, all related data must be compatible with the method selected.

## **FED ITEM 28B – LANES UNDER THE STRUCTURE – XX (2)**

TABLE - BRIDGE

FIELD - SUMLANES (28B)

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

When the inventory route is "under" the bridge (the first digit of Federal Item 5 - Inventory Route is coded 2 or A through Z), the number of lanes being identified by that "under" record shall be coded in Federal Item 28B.

When the inventory route is "under" the structure, the obstruction over the inventory route may be other than a highway bridge (railroad, pedestrian, pipeline, etc.). Code 00 for these cases if there are no highway lanes on the obstructing structure.

Double deck bridges may be coded as 1 or 2 structures as noted in the examples. Either method is acceptable; however, all related data must be compatible with the method selected.

### **EXAMPLES :**

	<b><u>Item 28A</u></b>	<b><u>Item 28B</u></b>
1 lane on, 0 lanes under	01	00
3 lanes on, 1 lane under	03	01
8 lanes on 2-way, 12 lanes under**	08	12
5 lanes on double deck each direction, - 2 lanes under***	10	02
5 lanes on double deck each direction, - 2 lanes under****	05	02
Railroad and pedestrian on, 4 lanes under	00	04

For the inventory route on the bridge, the first digit of Federal Item 5 - Inventory Route is coded 1

\*\* This example has 3 inventory routes under the bridge of 6, 4, and 2 lanes of 2-way traffic respectively. When coding an "under" record for each of these inventory routes, the first digit of Federal Item 5 - Inventory Route is coded A, B, and C, and Federal Item 28 is coded 0806, 0804, and 0802 respectively for the 3 required records.

\*\*\* Acceptable if coded as 1 bridge. However, other data such as ADT, curb-to-curb width, etc., must be for both decks (preferred method).

\*\*\*\* Acceptable if coded as 2 separate bridges. However, other data such as ADT, curb-to-curb width, etc., must be for each respective bridge.

### **EDIT CHECK**

- If this Federal Item 28A > 00 then Federal Item 5A = 1.
- If this Federal Item 28A = 00 then Federal Item 42A must = 0, 2, 3 or 9.
- If Federal Item 28A > 00 then Federal Item 42A must = 1, 4, 5, 6, 7 or 8.
- If this Federal Item 28A = 01 then Federal Item 102 must = 1 or 3.
- If this Federal Item 28B > 00 then Federal Item 42B must = 1, 4, 6 or 8.
- If this Federal Item 28B = 00 then Federal Item 42B must = 0, 2, 3, 5, 7 or 9.
- A warning is issued if Federal Item 28A is > 14.
- A warning is issued if Federal Item 28A is > 3 and Federal Item 32 is 1.5 times or more than Federal Item 51.
- A warning is issued if Federal Item 28A <= 3 and Federal Item 32 is 2.0 times or more than Federal Item 51.
- For an "under" record, If Federal Item 5A does not = 1 then Federal Item 28B must be > 00.
- For an "under" record, If Federal Item 28A > 00 then Federal Item 42A must be 1, 4, 5, 6, 7 or 8.
- For an "under" record, If Federal Item 28A = 00 then Federal Item 42A must be 2, 3, 9 or 0.

**FED ITEM 29 – AVERAGE DAILY TRAFFIC – XXXXXX (6)**

TABLE - ROADWAY

FIELD - ADTTOTAL

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code a 6-digit number that shows the average daily traffic volume for the inventory route identified in Federal Item 5. Make certain the unit's position is coded even if estimates of ADT are determined to tens or hundreds of vehicles; that is, appropriate trailing zeros shall be coded. The ADT coded should be the most recent ADT counts available. Included in this item are the trucks referred to in Federal Item 109 - Average Daily Truck Traffic. If the bridge is closed, code the actual ADT from before the closure occurred.

The ADT must be compatible with the other items coded for the bridge. For example, parallel bridges with an open median are coded as follows: If Federal Item 28 - Lanes On and Under the Structure and Federal Item 51 - Bridge Roadway Width, 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).**

<u>EXAMPLE:</u>		<u>Code</u>
Average Daily Traffic	540	000540
	15,600	015600
	24,000	024000

**EDIT CHECK**

- If Federal Item 29 > 100 then Federal Item 109 must NOT be blank.
- A warning is issued if Federal Item 29 is coded > 200,000.

**FED ITEM 30 – YEAR OF AVERAGE DAILY TRAFFIC – XXXX (4)**

TABLE - ROADWAY

FIELD - ADTYEAR

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

Record the year represented by the ADT in Federal Item 29. Code all four digits of the year so recorded.

**Virginia Note:** Working to update automatic entry.

<u>EXAMPLE:</u>	<u>Code</u>
Year of ADT is 1994	1994

**EDIT CHECK**

A warning is issued if Federal Item 30 is greater than 4 years old.

**FED ITEM 31 – DESIGN LOAD – X (1)**

**TABLE - BRIDGE**

**FIELD - DESIGNLOAD**

**LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

Use the codes below to indicate the live load for which the structure was designed.

<b><u>Code</u></b>	<b><u>English Description</u></b>	<b><u>Metric Description</u></b>
1	H 10	M 9
2	H 15	M 13.5
3	HS 15	MS 13.5
4	H 20	M 18
5	HS 20	MS 18
6	HS 20+Mod	MS 18+Mod
7	Pedestrian	Pedestrian
8	Railroad	Railroad
9	HS 25 or greater	MS 22.5 or greater
0	Unknown	Unknown
A	HL 93	HL 93
B	Greater than HL 93	Greater than HL 93
C	Other	Other
[BLANK]	Not Applicable (P)	
NOT USED	Unknown (P)	DO NOT USE
NOT USED	Unknown (NBI)	DO NOT USE

Code other H, M, HS, or MS design live loads using the nearest equivalent of the numerical portion of the loading.

Code 0 refers to situations where the design live load is unknown due to the absence of plans, design calculations, or other information.

Code 6 references MS 18 + Mod (HS20+Mod). In this context 'Mod' indicates the inclusion of military loading.

Use Code 9 in situations where the design live load is MS 22.5 (HS 25) or greater.

Code A refers to the standard AASHTO LRFD HL 93 design live load.

Code B refers to the standard AASHTO LRFD HL 93 configuration modified to be greater than the standard HL 93 design live load.

Code C refers to other situations where the design live load is not based upon AASHTO design live load configurations, such as designs based on specific truck loads.

**FED ITEM 32 – APPROACH ROADWAY WIDTH – XXX.X (4)**

TABLE - ROADWAY

FIELD - AROADWIDTH

LOCATION - INSPECTION / INVENTORY / ROADS / WIDTHS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Code a 4-digit number that represents the normal width of usable roadway approaching the structure. 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.

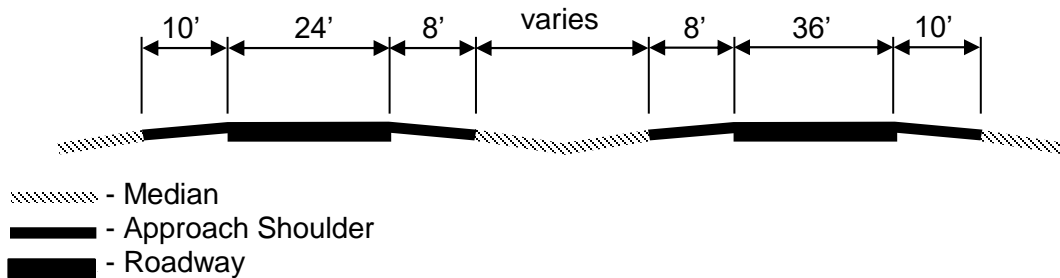
Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item.

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, record and code the most restrictive of the approach conditions.

**EXAMPLES:**

<u>Left Shoulder</u>	<u>Left Roadway</u>	<u>Median Shoulders</u>	<u>Right Roadway</u>	<u>Right Shoulder</u>	<u>Code</u>
4.0	-	-	16	6.0	026.0
6.0	-	-	36	12.0	054.0
12.0	48	30	48	12.0	150.0
10.0	24	16	36	10.0	096.0

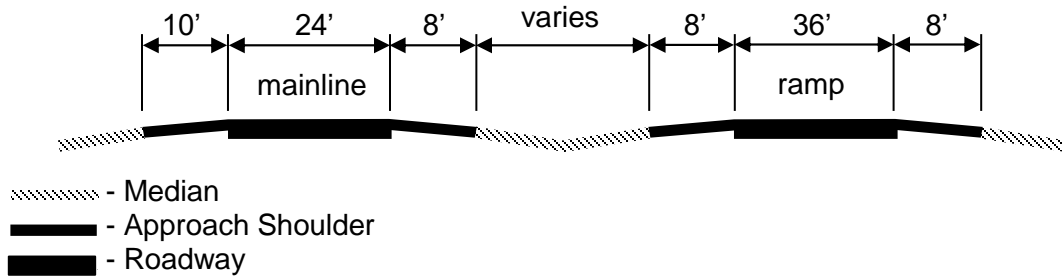
The last example above represents the coding method for a structure in which the most restrictive approach has the cross-section shown below:



Regardless of whether the median is open or closed, the data coded must be compatible with the other related route and bridge data (i.e., if Federal Item 51 - Bridge Roadway Width, Curb-to-Curb is for traffic in one direction only, then Federal Items 28, 29, 32, etc. must be for traffic in one direction only).



If a ramp is adjacent to the through lanes approaching the structure, it **shall** be included in the approach roadway width. The total approach roadway width for the example below is 94 feet (a code of 094.0).



### EDIT CHECK

- A warning is issued if Federal Item 32 is < 8 feet.
- A warning is issued if Federal Item 28A is > 3 and Federal Item 32 is 1.5 times or more than Federal Item 51.
- A warning is issued if Federal Item 28A <= 3 and Federal Item 32 is 2.0 times or more than Federal Item 51.

**FED ITEM 33 – BRIDGE MEDIAN – X (1)**

TABLE - BRIDGE

FIELD - BRIDGEMED

LOCATION - INSPECTION / INVENTORY / DESIGN / DECK

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Indicate with a 1-digit code if the median is non-existent, 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 (see below).

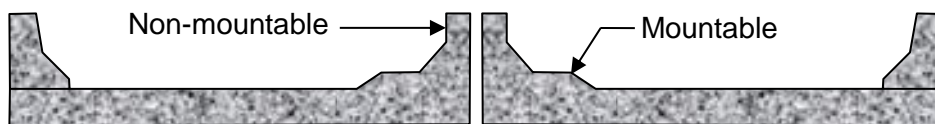
<u>Code</u>	<u>Description</u>
0	No median
1	Open median
2	Closed median (without barriers)
3	Closed median (with non-mountable barriers)
[BLANK]	Not Applicable (P)
[BLANK]	Unknown (NBI)



Open Median



Closed Median



Closed Median with Non-mountable Barrier

**Virginia Note:**

Non-mountable curbs and/or medians will be defined as curbs being greater than 6" in height.

**FED ITEM 34 – SKEW – XX (2)**

TABLE - BRIDGE

FIELD - SKEW

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

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 skew angle is 0 degrees, it should be so coded. 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. A 2-digit number should be coded.

<u>EXAMPLES</u>	<u>Code</u>	
Skew angle	0°	00
	10°	10
	8°	08
	29°	29

**FED ITEM 35 – STRUCTURE FLARED – X (1)**

TABLE - BRIDGE

FIELD - STRFLARED

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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.

<u>Code</u>	<u>Description</u>
0	No flare
1	Yes, flared
[BLANK]	Not Applicable (P)
[BLANK]	Unknown (NBI)

**FED ITEM 36 – TRAFFIC SAFETY FEATURES – XXXX (4)**

TABLE - INSPEVNT

FIELD - RAILRATING (36A)

FIELD - TRANSRATIN (36B)

FIELD - ARAILRATIN (36C)

FIELD - AENDRATING (36D)

LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL

BrM uses a dropdown menu to facilitate coding of these fields. No other entry is allowed.

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

**Virginia Note:**

Several Federal Manuals are referenced within the explanations. Also, the Virginia Road and Bridge Specifications can be of assistance.

A link to Federal Bridge Railing Data is:

<https://safety.fhwa.dot.gov/rsdp/hsm.aspx>

A link to VDOT Road and Bridge Standards is:

[http://www.extranet.vdot.state.va.us/LocDes/Electronic\\_Pubs/2016\\_Road%20and%20Bridge/CS500.pdf](http://www.extranet.vdot.state.va.us/LocDes/Electronic_Pubs/2016_Road%20and%20Bridge/CS500.pdf)

However, coding this item will be as noted below.

**(36A) Bridge railings:**

Some factors that affect the proper functioning of bridge railing are height, material, strength, and geometric features. Railings must be capable of smoothly redirecting an impacting vehicle. Bridge railings should be evaluated using the current AASHTO Standard Specifications for Highway Bridges, which calls for railings to meet specific geometric criteria and to resist specified static loads without exceeding the allowable stresses in their elements. Bridge railing should be crash tested per FHWA policy. Railings that meet these criteria and loading conditions are considered acceptable. Other railings that have been successfully crash tested are considered acceptable even though they may not meet the static loading analysis and geometric requirements. Acceptable guidelines for bridge railing design and testing are also found in the AASHTO Guide Specifications for Bridge Railings 1989. Additional guidance for testing is found in National Cooperative Highway Research Program - Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features 1993.

**(36B) Transitions:**

The transition from approach guardrail to bridge railing requires that the approach guardrail be firmly attached to the bridge railing. It also requires that the approach guardrail be gradually stiffened as it comes closer to the bridge railing. The ends of curbs and safety walks need to be gradually tapered out or shielded.

**Virginia Note:**

Federal Item 36B shall be coded 0 if Federal Item 36A is coded 0.

**(36C) Approach guardrail:**

The structural adequacy and compatibility of approach guardrail with transition designs should be determined. Rarely does the need for a barrier stop at the end of a bridge. Thus, an approach guardrail with adequate length and structural qualities to shield motorists from the hazards at the bridge site needs to be installed. In addition to being capable of safely redirecting an impacting vehicle, the approach guardrail must also facilitate a transition to the bridge railing that will not cause snagging or pocketing of an impacting vehicle. Acceptable guardrail design suggestions are contained in the AASHTO Roadside Design Guide and subsequent FHWA or AASHTO guidelines.

**(36D) Approach guardrail ends:**

As with guardrail ends in general, the ends of approach guardrails to bridge should be flared, buried, made breakaway, or shielded. Design treatment of guardrail ends is given in the AASHTO Roadside Design Guide.

The data collected shall apply only to the route **on** the bridge. Collision damage or deterioration of the elements is not considered when coding this item. 'Traffic Safety Features' is a 4-digit code composed of 4 segments.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
36A	Bridge railings	1 digit
36B	Transitions	1 digit
36C	Approach guardrail	1 digit
36D	Approach guardrail ends	1 digit

**Virginia Note:**

The reporting of this feature shall be as follows which is a different explanation than given within the Federal Manual:

<u>Code</u>	<u>Description (As Defined by VDOT)</u>
0	Substandard - Inspected feature is in place at all locations and <b><u>DOES NOT</u></b> meet currently acceptable standards at <b><u>ONE OR MORE</u></b> locations or inspected feature is not in place at one or more locations.
1	Meets Standard - Inspected feature is in place at ALL locations and <b><u>MEETS</u></b> currently acceptable standards at all locations.
Not Applicable	Not Applicable or there is <b><u>written notice from Traffic Engineering Division</u></b> that guardrail feature(s) is not required.
Unknown	<b>NOT USED</b>

### Virginia Note for Culverts

- If the guardrail extends across the fill and all parts of the guardrail are the same (post spacing, type of rail, etc.) the Bridge Railing and Transition are to be coded 'N' and the Approach Guardrail and End Treatment will be coded '1' or '0' using the criteria shown in the 'Virginia Note' above.
- If the guardrail is physically attached to the culvert all items will be coded '1' or '0' using the criteria shown in the 'Virginia Note' above.

### **EXAMPLE:**

	<u>Code</u>
All features meet currently acceptable standards except transition	1011

### **FED ITEM 37 – HISTORICAL SIGNIFICANCE – X (1)**

TABLE - BRIDGE

FIELD - HISTSIGN

LOCATION - INSPECTION / INVENTORY / ADMIN / CLASSIFICATION INFORMATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The historical significance of a bridge involves a variety of characteristics: the bridge may be a particularly unique example of the history of engineering; the crossing itself might be significant; the bridge might be associated with a historical property or area; or historical significance could be derived from the fact the bridge was associated with significant events or circumstances. Use one of the following codes:

<u>Code</u>	<u>Description</u>
1	Bridge is on the National Register of Historic Places (NHRP).
2	Bridge is eligible for the National Register of Historic Places (NHRP).
3	Bridge is possibly eligible for the National Register of Historic Places (NHRP) (requires further investigation before determination can be made) or structure is on a State or local historic register.
4	Historical Significance is not determinable at this time.
5	Bridge is not eligible for the National Register of Historic Places (NHRP).
[BLANK]	Not Applicable (P)
[BLANK]	Unknown (NBI)

**FED ITEM 38 – NAVIGATION CONTROL – X (1)**

TABLE - BRIDGE

FIELD - NAVCNTROL

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / NAVIGATION DATA

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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

<u>Code</u>	<u>Description</u>
N	Not applicable, <b>no waterway</b>
0	No navigation control on waterway (bridge <b>permit not required</b> )
1	Navigation control on waterway (bridge <b>permit required</b> )
Unknown (NBI)	

**EDIT CHECK**

- If Federal Item 38 is = 1 then Federal Item 111 must NOT be blank.
- If Federal Item 38 is = 1, then Federal Item 39 must be > 000.
- If Federal Item 38 is = 0 or N, then Federal Item 39 must be = 000.
- If Federal Item 38 is = 0 or N, then Federal Item 40 must be = 000.

**FED ITEM 39 – NAVIGATION VERTICAL CLEARANCE – XXX.X (4)**

TABLE - BRIDGE

FIELD - NAVVC

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / NAVIGATION DATA

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

If Federal Item 38 - Navigation Control has been coded 1, record in feet 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 as a 4-digit number rounded down to the nearest tenth of a 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 vertical lift bridge shall be measured with the bridge in the raised or open position. Also, Federal Item 116 - Minimum Navigation Vertical Clearance Vertical Lift Bridge shall be coded to provide clearance in a closed position. If Federal Item 38 - Navigation Control has been coded 0 or N, code 0000 to indicate not applicable.

<b>EXAMPLES:</b>		<u>Code</u>
Measured Vertical Clearance	150.0 ft.	150.0
	020.6 ft.	20.6
	024.2 ft.	24.2

**EDIT CHECK**

- If Federal Item 38 is = 1, then Federal Item 39 must be > 0000.
- If Federal Item 38 is = 0 or N, then Federal Item 39 must be = 0000. A warning is issued if Federal Item 39 is > 250 feet.

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**FED ITEM 40 - NAVIGATION HORIZONTAL CLEARANCE – XXXX.X (5)**

TABLE - BRIDGE

FIELD - NAVHC

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / NAVIGATION DATA

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

If Federal Item 38 - 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 as a 5-digit number truncated to the tenth of a foot. Code 00000 if Federal Item 38 - Navigation Control is coded 0 or N.

<b>EXAMPLES:</b>		<b><u>Code</u></b>
Horizontal Clearance	95 feet	0095.0
	538 feet	0538.0
	1,200 feet	1200.0

**EDIT CHECK**

- If Federal Item 38 = 1, then Federal Item 40 must be > 00000.
- If Federal Item 38 is = 0 or N, then Federal Item 40 must be = 00000.
- A warning is issued if Federal Item 40 is > 1000 feet.

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**FED ITEM 41 – OPEN, POSTED, OR CLOSED TO TRAFFIC – X (1)**

TABLE - INSPEVNT

FIELD - OPOSTCL

LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This item provides information about the actual operational status of a structure. The field review could show that a structure is posted, but Federal Item 70 - Bridge Posting may indicate that posting is not required. This is possible and acceptable coding since Federal Item 70 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:

<b><u>Code</u></b>	<b><u>Description</u></b>
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	Bridge closed to all traffic
P	Posted for load (may include other restrictions such as temporary bridges which are load posted)
R	Posted for other load-capacity restriction (speed, number of vehicles on bridge, etc.)
	Not Applicable (P)
[BLANK]	Unknown – DO NOT USE

## EDIT CHECK

- If Federal Item 59 = 0 or 1 then Federal Item 41 must = D, E or K.
- If Federal Item 60 = 0 or 1 then Federal Item 41 must = D, E or K.
- If Federal Item 62 = 0 or 1 then Federal Item 41 must = D, E or K.
- If Federal Item 103 = T then Federal Item 41 must = D, E or P.
- If Federal Item 41 = E or K then Federal Item 64 must = 000.
- If Federal Item 41 = E or K then Federal Item 66 must = 000.
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K.
- If Federal Item 64= 000 and Federal Item 41 = D or E then Federal Item 103 must = T.
- A warning is issued if Federal Item 41 = B, D, E, P, or R and Federal Item 91 is not less than 24.

## **FED ITEM 42 – TYPE OF SERVICE – X X (2)**

TABLE - BRIDGE

FIELD - SERVYPON (42A)

FIELD - SERVYPUND (42B)

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

BrM uses a dropdown menu to facilitate coding of fields 42A and 42B. No other entry is allowed.

The type of service is composed of 2 segments (Federal Items 42A and 42B). See below.

## **FED ITEM 42A– TYPE OF SERVICE ON – X (1)**

TABLE - BRIDGE

FIELD - SERVYPON (42A)

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
42A	Type of service on bridge	1 digit

The type of service "on" the bridge and shall be coded using one of the following codes:

<u>Code</u>	<u>Description</u>
1	Highway
2	Railroad
3	Pedestrian – bicycle
4	Highway-railroad
5	Highway-pedestrian
6	Overpass structure at an interchange or second level of multilevel interchange
7	Third level (Interchange)
8	Fourth level (Interchange)
9	Building or plaza
[BLANK]	Other (NBI)
[BLANK]	Not Applicable (P) – DO NOT USE
[BLANK]	Unknown (NBI) – DO NOT USE



**FED ITEM 42B – TYPE OF SERVICE UNDER – X (1)**

TABLE - BRIDGE

FIELD - SERV TYPUND (42B)

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
42B	Type of service under bridge	1 digit

The type of service "under" the bridge and shall be coded using one of the following codes:

<u>Code</u>	<u>Description</u>
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 (overflow)
0	Other

[BLANK] Not Applicable (P) – DO NOT USE

[BLANK] Unknown (NBI) – DO NOT USE

**EDIT CHECK**

- If Federal Item 28A > 00 then Federal Item 42A must = 1, 4, 5, 6, 7 or 8.
- If Federal Item 28A is = 00 then Federal Item 42A must = 0, 2, 3 or 9.
- If Federal Item 28B > 00 then Federal Item 42B must = 1, 4, 6 or 8.
- If Federal Item 28B = 00 then Federal Item 42B must = 0, 2, 3, 5, 7 or 9.
- If Federal Item 69 is numeric then Federal Item 42B must be 1, 2, 4, 6, 7 or 8.
- If Federal Item 71 is numeric then Federal Item 42B must be 5, 6, 7, 8, 9 or 0.
- If Federal Item 42B = 5, 6, 7, 8 or 9 then Federal Item 113 must be numeric.
- If Federal Item 42B = 1, 2, 3 or 4 then Federal Item 113 must be N.
- For an under record, If Federal Item 28A > 00 then Federal Item 42A must be 1, 4, 5, 6, 7 or 8.
- For an under record, If Federal Item 28A = 00 then Federal Item 42A must be 2, 3, 9 or 0.

**FED ITEM 43 – STRUCTURE TYPE, MAIN – X XX (3)**

**TABLE - BRIDGE**

**FIELD - MATERIALMAIN (43A)**

**FIELD - DESIGNMAIN (43B)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Record the description on the inspection form and indicate the type of structure for the main span(s) with a 3-digit code composed of 2 segments (FEDERAL ITEMS 43A AND 43B). See below.

**FED ITEM 43A– MAIN SPANS MATERIAL – X (1)**

**TABLE - BRIDGE**

**FIELD - MATERIALMAIN (43A)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
43A	Kind of material and/or design	1 digit

The kind of material shall be coded using one of the following codes:

<u>Code</u>	<u>Description</u>	
1	Concrete	
2	Concrete continuous	
3	Steel	
4	Steel continuous	
5	Prestressed concrete*	* Post-tensioned concrete should be coded as prestressed concrete.
6	Prestressed concrete continuous *	
7	Wood or Timber (including glulam)	
8	Masonry	
9	Aluminum, Wrought Iron, or Cast Iron	
0	Other	
[BLANK]	Not Applicable (P) – DO NOT USE	
[BLANK]	Unknown (NBI) – DO NOT USE	

**FED ITEM 43B – MAIN SPANS DESIGN – XX (2)**

**TABLE - BRIDGE**

**FIELD - DESIGNMAIN (43B)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

<b><u>Segment</u></b>	<b><u>Description</u></b>	<b><u>Length</u></b>
43B	Type of design and/or construction	2 digits

The predominate type of design and/or type of construction shall be coded using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
01	Slab
02	Stringer/Multi-beam or Girder
03	Girder and Floorbeam System
04	Tee Beam (See Virginia Note Below)
05	Box beam or Girders - Multiple
06	Box beam or Girders - Single or Spread
07	Frame (except frame culverts)
08	Orthotropic
09	Truss – Deck
10	Truss – Thru
11	Arch – Deck
12	Arch – Thru
13	Suspension
14	Stayed Girder
15	Movable – Lift
16	Movable – Bascule
17	Movable – Swing
18	Tunnel
19	Culvert (includes frame culverts)
20	Mixed types – Applicable only to approach spans (Federal Item 44B)
21	Segmental Box Girder
22	Channel Beam
00	Other (NBI)
[BLANK]	Not Applicable (P)
[BLANK]	Unknown (P)

<b>EXAMPLES:</b>	<b>Code</b>
Timber Through Truss	710
Masonry Culvert	819
Steel Suspension	313
Continuous Concrete Multiple Box Girders	205
Simple Span Concrete Slab	101
Tunnel Rock	018
Conspan-type R/C Arch	211

### EDIT CHECK

- If Federal Item 51 = 000.000 then Federal Item 43B must = 19
- If Federal Item 52 = 000.000 then Federal Item 43B must = 19
- If Federal Item 43B = 19 then Federal Item 58 must = N
- If Federal Item 43B = 19 then Federal Item 59 must = N
- If Federal Item 43B = 19 then Federal Item 60 must = N
- If Federal Item 43B = 19 then Federal Item 62 must be numeric
- If Federal Item 43B = 15 then Federal Item 116 must NOT be blank

### **FED ITEM 44 – STRUCTURE TYPE, APPROACH SPANS – X XX (3)**

TABLE - BRIDGE

FIELD - MATERIALAPPR (44A)

FIELD - DESIGNAPPR (44B)

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Indicate with a 3-digit code composed of 2 segments (Federal Items 44A and 44B), 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 Federal Item 43.** Use code 20 (Federal Item 44B) when no one type of design and/or construction is predominate for the approach units. If the kind of material (Federal Item 44A) is varied, code the most predominant.

### **FED ITEM 44A–APPROACH SPAN MATERIAL – X (1)**

TABLE - BRIDGE

FIELD - MATERIALAPPR (44A)

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
44A	Kind of material and/or design	1 digit

### **FED ITEM 44B – APPROACH SPAN DESIGN – XX (2)**

TABLE - BRIDGE

FIELD - DESIGNAPPR (44B)

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
44B	Type of design and/or construction	2 digits

<u>EXAMPLES:</u>	<u>Code</u>
Simple prestressed concrete I-beam	502
Continuous concrete T-beam	204
Continuous steel deck truss	409

### **FED ITEM 45 – NUMBER OF SPANS IN MAIN UNIT – XXX (3)**

TABLE - BRIDGE

FIELD - MAINSPANS

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

Record the number and indicate with a 3-digit number 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.

### EDIT CHECK

A warning is issued if Federal Item 45 > 50.

**FED ITEM 46 – NUMBER OF APPROACH SPANS – XXXX (4)**

TABLE - BRIDGE

FIELD - APPSPANS

LOCATION - INSPECTION / INVENTORY / DESIGN / SPANS

Record the number and indicate with a 4-digit number the number of spans in the approach spans to the major bridge, or the number of spans of material different from that of the major bridge.

**EDIT CHECK**

A warning is issued if Federal Item 46 > 50.

**FED ITEM 47 – INVENTORY ROUTE, TOTAL HORIZONTAL CLEARANCE – XX.X (3)**

TABLE - ROADWAY

FIELD - HCLRINV

LOCATION - INSPECTION / INVENTORY / ROADS / CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The total horizontal clearance for the inventory route identified in Federal Item 5 should be measured and recorded. The clearance should be the available clearance measured between the restrictive features - curbs, rails, walls, piers or other structural features limiting the roadway (surface and shoulders) (ignore guardrail for this item). The measurement should be recorded and coded to the nearest thousandth of a foot. When the restriction is 100 feet or greater, code 99.9. Flush and mountable medians are not considered to be restrictions.

The purpose of this item is to give the largest available clearance for the movement of wide loads. This clearance has been identified in 2 ways; use the most applicable:

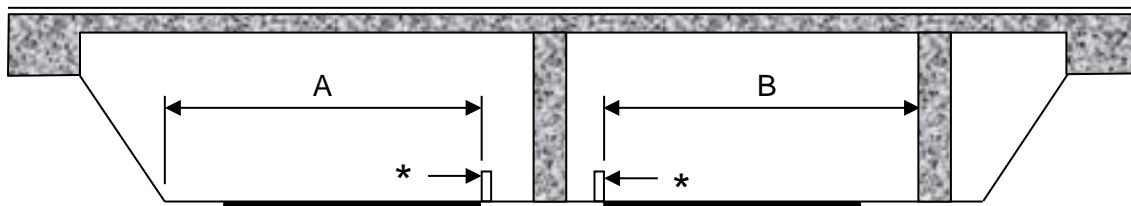
1. Clear distance between restrictions of the inventory route either "on" or "under" the structure.
2. Roadway surface and shoulders - when there are no restrictions.

For a divided facility with a raised or non-mountable median, or an "under" route divided by piers, record the greater of the restricted widths in either direction, not both directions.

**EXAMPLES:**

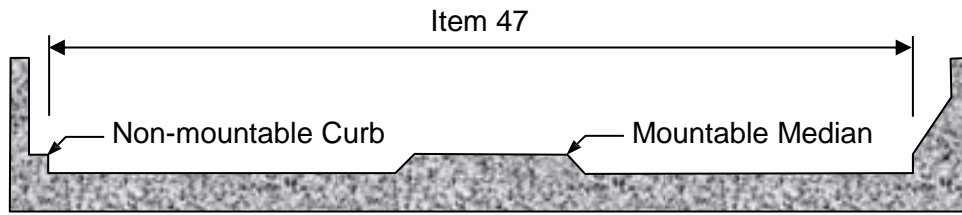
**NOTE:**

IGNORE GUARDRAILS FOR THIS ITEM.

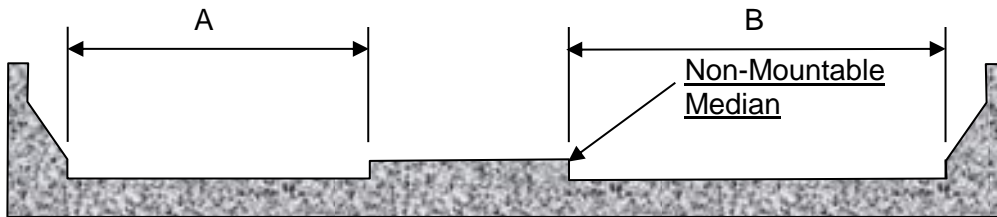


\* - Face of a rigid barrier, not face of guardrail

Clearance A > B    Item Federal 47 = A



No Median or Flush or Mountable Median



Raised Median or Non-mountable Median  
 $B > A$       Federal Item 47 = B

**Virginia Note:**

- Non-mountable curbs and/or medians will be defined as curbs being greater than 6” in height.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**EDIT CHECK**

- If Federal Item 100 = 1 or 2 then Federal Item 47 must be > 000.
- A warning is issued if Federal Item 47 < 8 feet.

**FED ITEM 48 – LENGTH OF MAXIMUM SPAN – XXXX.X (5) (FEET)**

TABLE - BRIDGE

FIELD - MAXSPAN

LOCATION - INSPECTION / INVENTORY / DESIGN / LENGTH

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

The length of the maximum span shall be recorded. It shall be measured center-to-center of bearing points; however, if these are not available then use the clear open distance for the span or opening. The measurement shall be along the centerline of the bridge. For this item, code a 5-digit number to represent the measurement to the nearest tenth of a foot.

**EXAMPLES:**

		<b><u>Code</u></b>
Length of Maximum	50 feet	0050.0
	117 feet	0117.0
	1,050 feet	1050.0

**EDIT CHECK**

- Federal Item 48 must be <= Federal Item 49.
- A warning is issued if Federal Item 48 > 1000 feet.

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**FED ITEM 49 – STRUCTURE LENGTH – XXXXX.X (6) (FEET)**

**TABLE - BRIDGE**

**FIELD - LENGTH**

**LOCATION - INSPECTION / INVENTORY / DESIGN / LENGTH**

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code a 6-digit number to represent the length of the structure to the nearest tenth of a foot. This shall be the length of roadway that is supported on the bridge structure. The length should be measured back to back of backwalls of abutments or from paving notch to paving notch.

Culvert length should be measured along the centerline of roadway regardless of their depth below grade. Measurement should be made between inside faces of exterior walls. Tunnel length should be measured along the centerline of the roadway. Be sure to code Federal Item 5A = 2 for all tunnels.

**EXAMPLES:**

		<b><u>Code</u></b>
Structure Length	50 feet	00050.0
	5,421 feet	05421.0
	333 feet	00333.0
	10,235 feet	10235.0

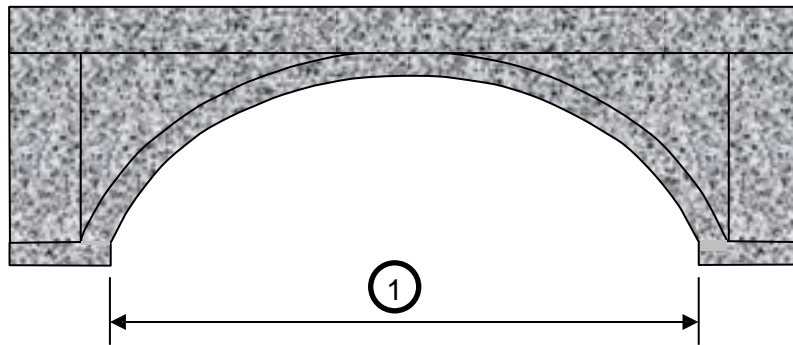
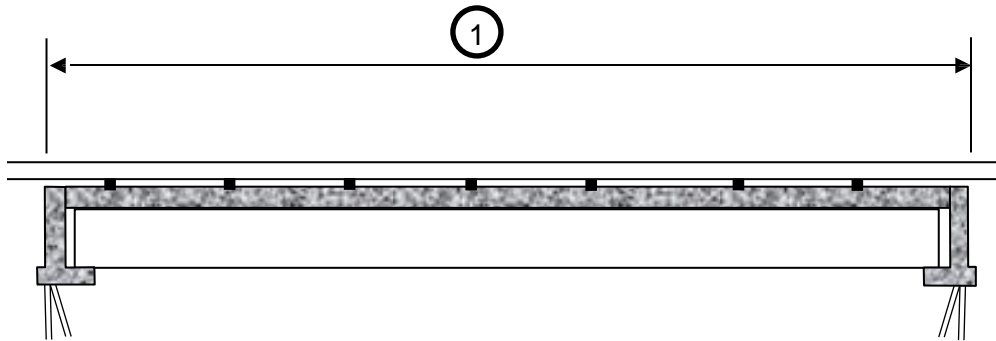
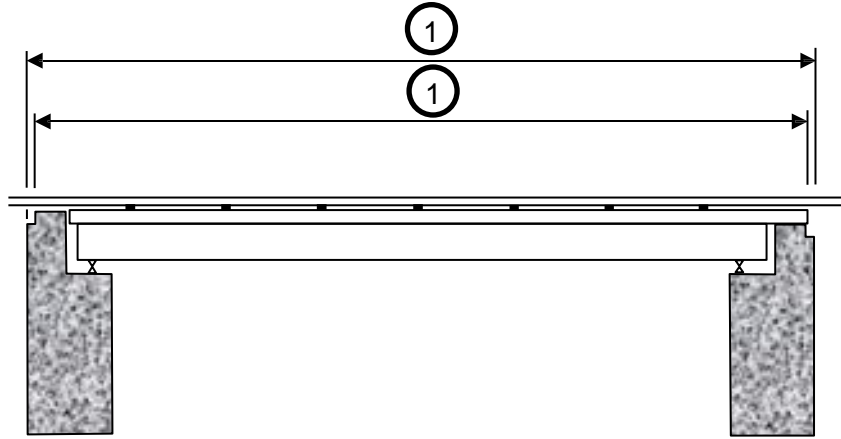
**EDIT CHECK**

- Federal Item 48 must be  $\leq$  Federal Item 49.
- If Federal Item 112 = Y then Federal Item 49 must be  $\geq$  20 feet.
- A warning is issued if Federal Item 49 > 4000 feet.

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

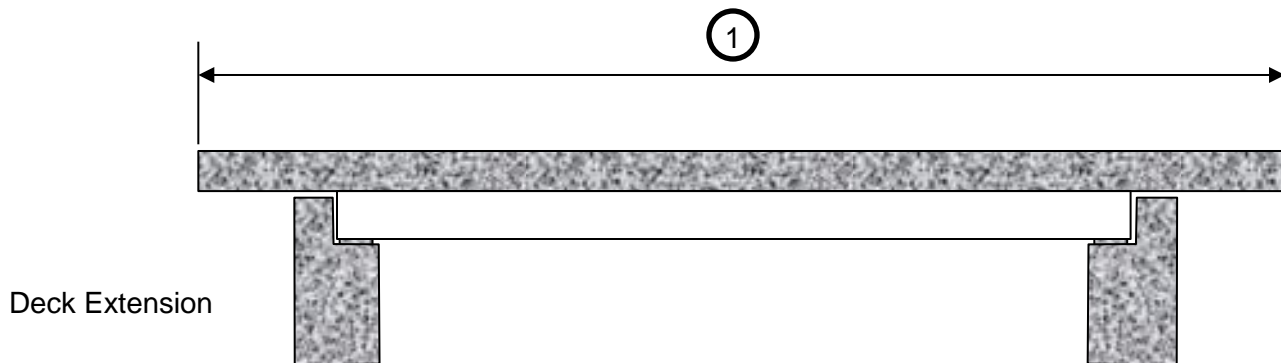
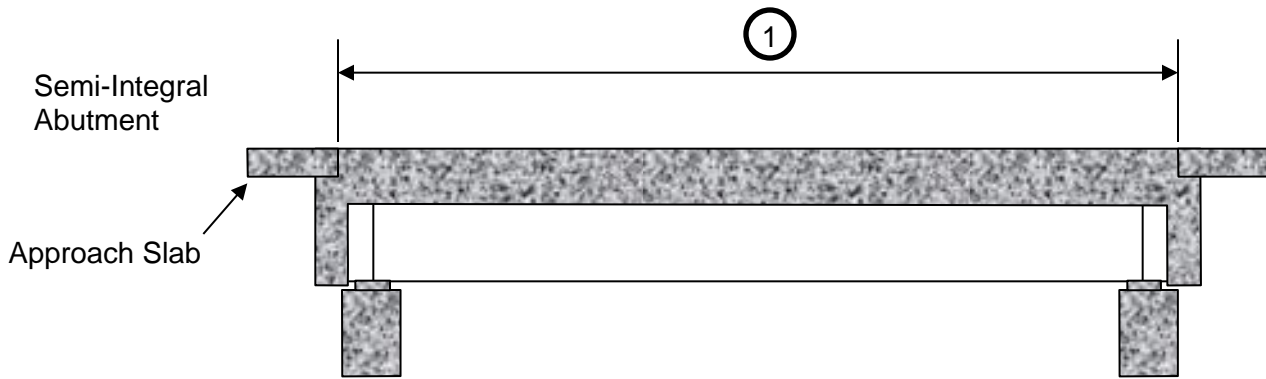
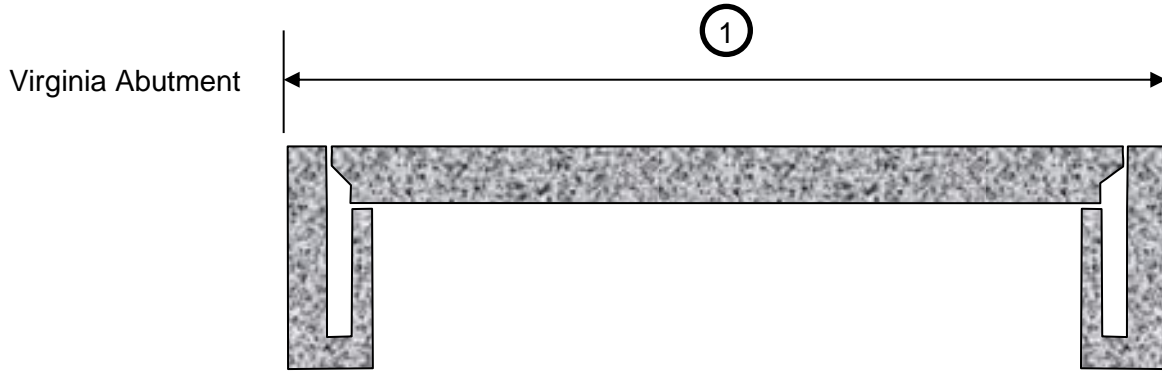
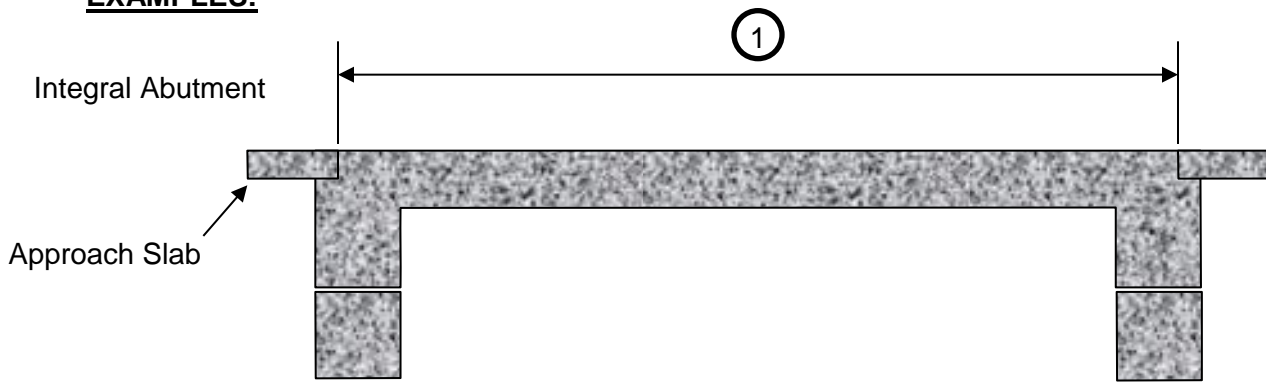
**EXAMPLES:**



① Item 49 - Structure Length

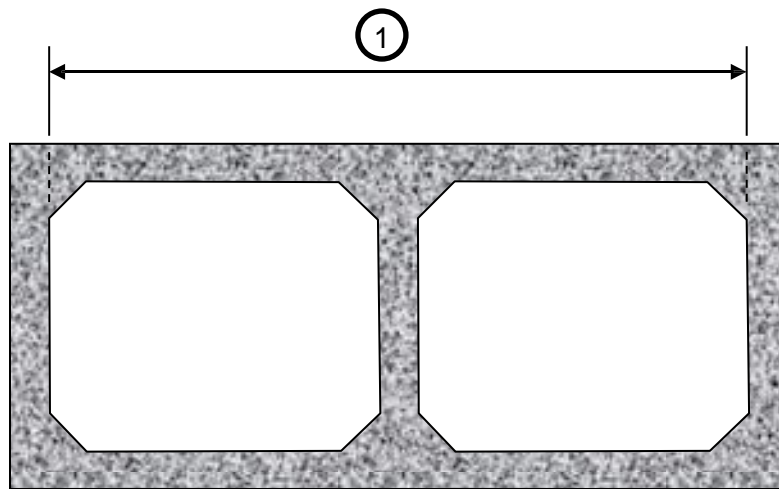
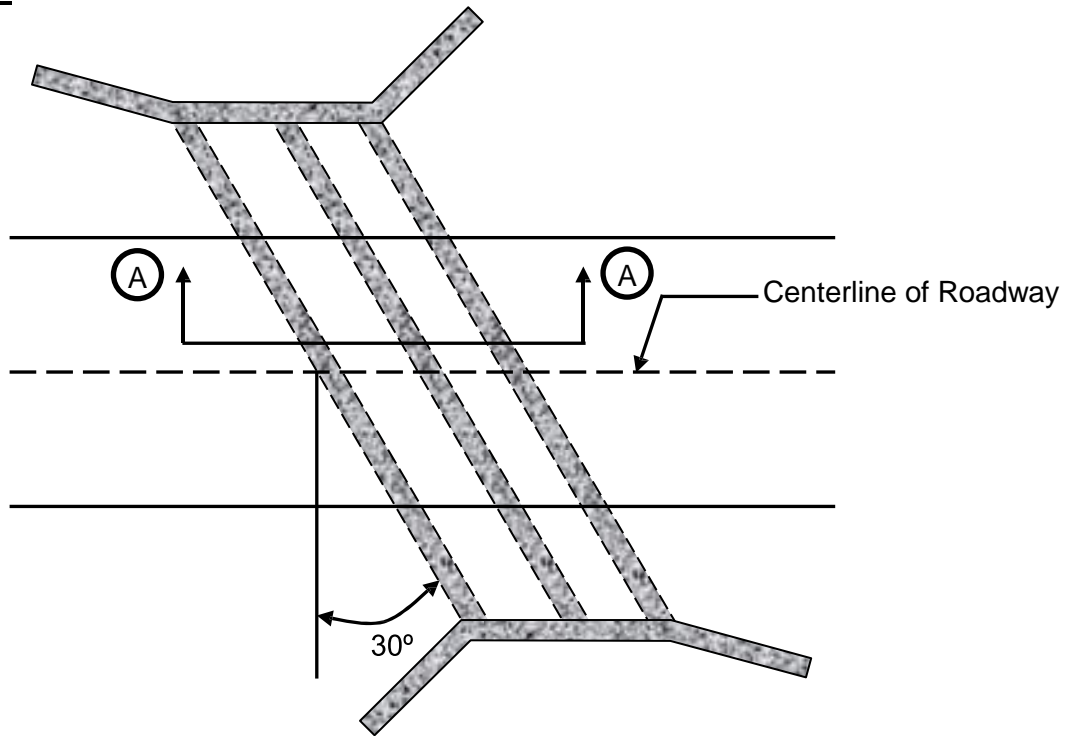


**EXAMPLES:**



① Item 49 - Structure Length

**EXAMPLES:**



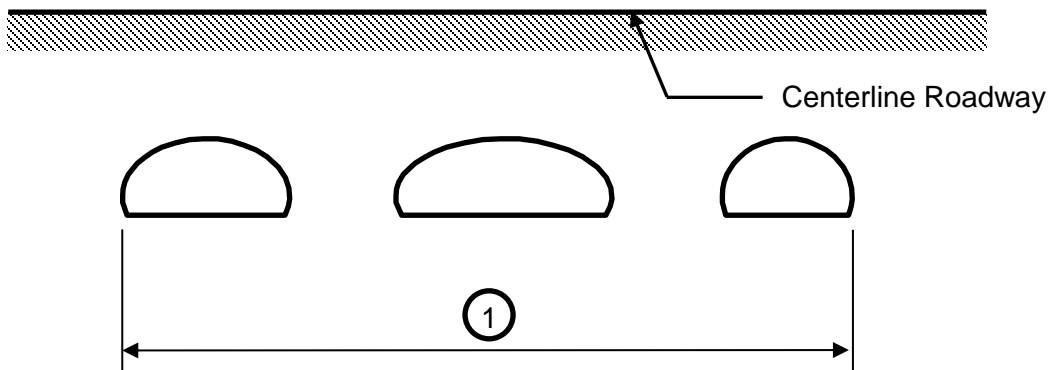
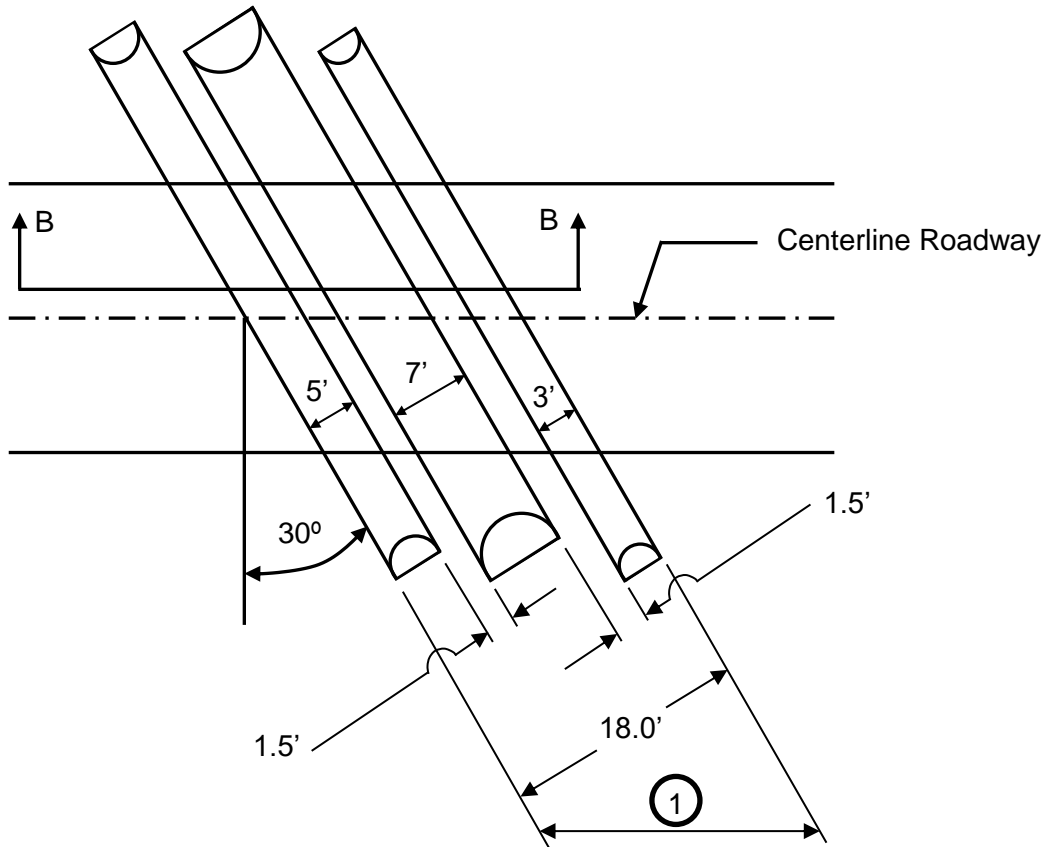
**SECTION A - A**

① Item 49 - Structure Length

**EXAMPLES:**

① Item 49 - Structure Length =  $\frac{18'}{\cos 30^\circ} = 20.78'$

Code  
00020.780



**SECTION B - B**

**FED ITEM 50 – CURB OR SIDEWALK WIDTHS – XX.X XX.X (6)**

**TABLE - BRIDGE**

**FIELD - LFTCURBSW (50A)**

**FIELD - RTCURBSW (50B)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code two contiguous 3-digit numbers to represent the widths of the left and right curbs or sidewalks to nearest tenth of a foot. This is a 6-digit number composed of two segments, with the leftmost 3 digits representing the left curb or sidewalk and the rightmost 3 digits representing the right curb or sidewalk. "Left" and "Right" should be determined on the basis of direction of the inventory route.

**FED ITEM 50A – CURB OR SIDEWALK WIDTHS LEFT – XX.X (3)**

**TABLE - BRIDGE**

**FIELD - LFTCURBSW (50A)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code the contiguous 3-digit number to represent the widths of the left curb or sidewalk to nearest tenth of a foot.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
50A	Left curb or sidewalk width	3 digits

**FED ITEM 50B – CURB OR SIDEWALK WIDTHS RIGHT – XX.X (3)**

**TABLE - BRIDGE**

**FIELD - RTCURBSW (50B)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code the contiguous 3-digit number to represent the widths of the right curb or sidewalk to nearest tenth of a foot.

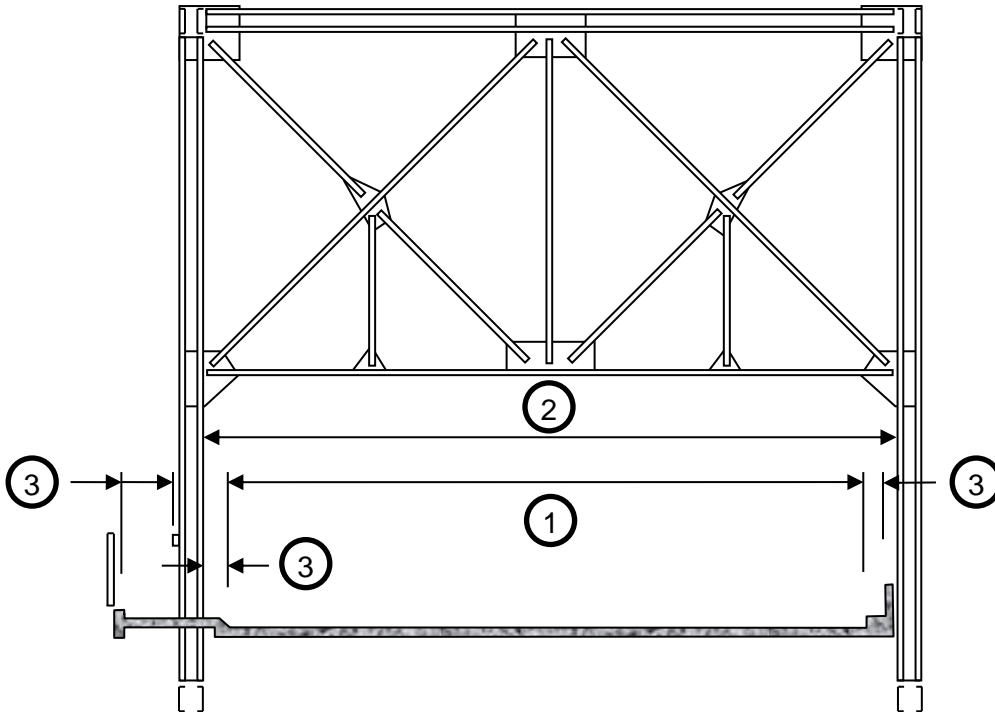
<u>Segment</u>	<u>Description</u>	<u>Length</u>
50B	Right curb or sidewalk width	3 digits

<u>EXAMPLES:</u>	<u>Left Side</u>	<u>Right Side</u>	<u>Code</u>
Curb or sidewalk	None	8.3'	000083
	10.0'	4.1'	100041
	8.3'	None	083000
	12.1'	11.5'	121115
	None	None	000000
	0.6'	1.5'	006015

### EDIT CHECK

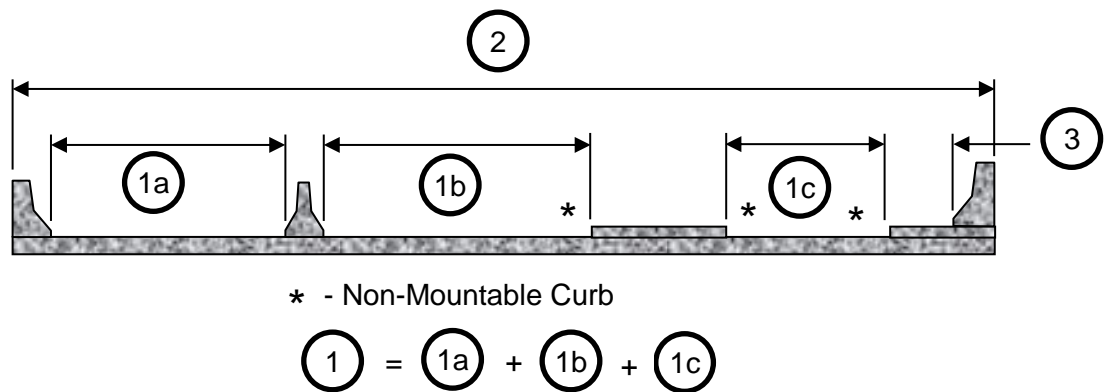
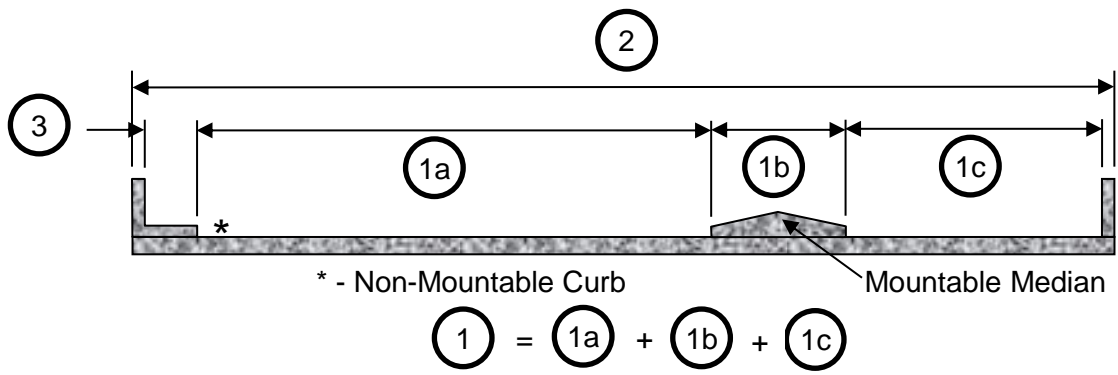
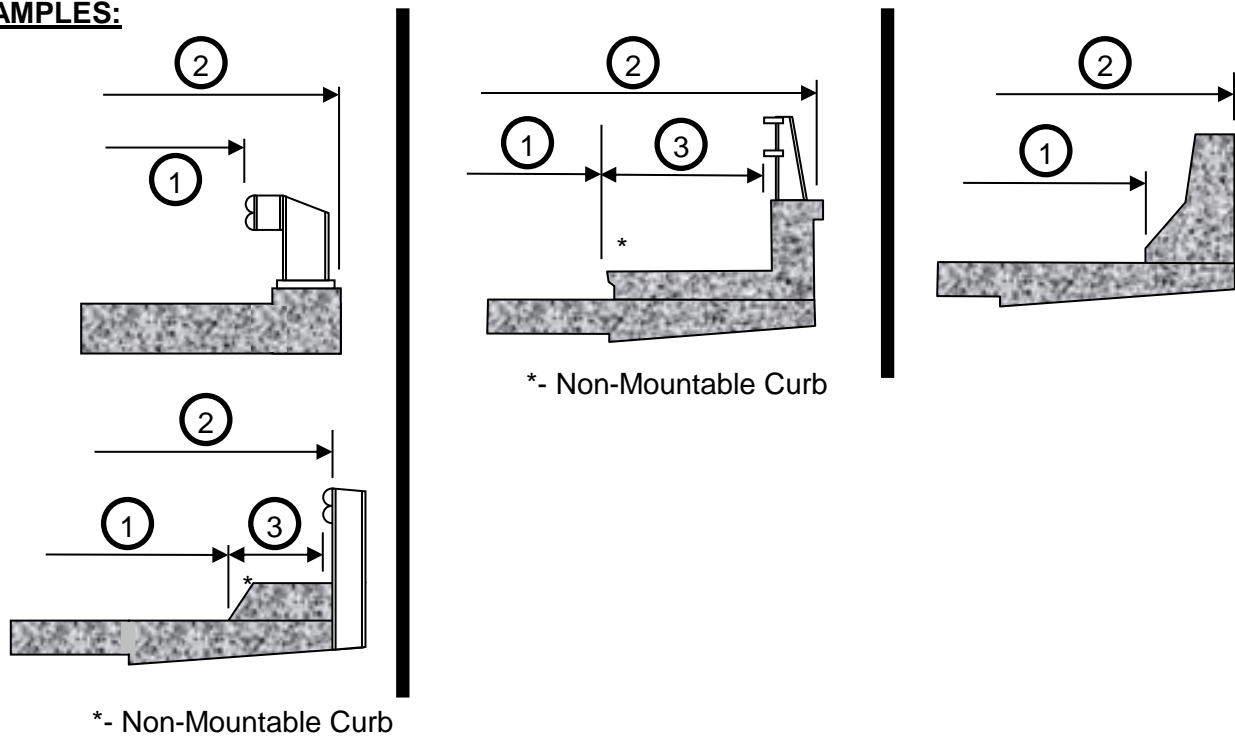
- A warning is issued if Federal Item 50A > 12 feet
- A warning is issued if Federal Item 50B > 12 feet.

### EXAMPLES:

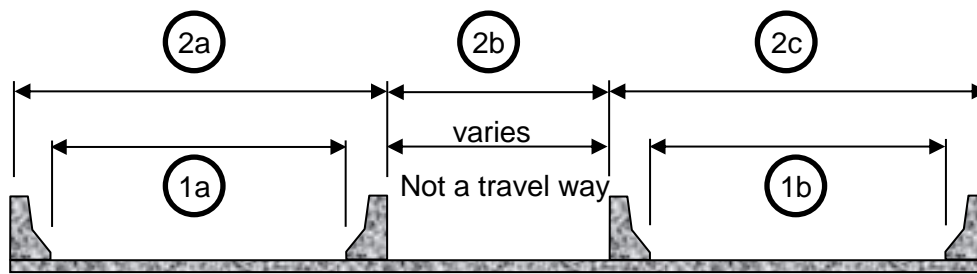


- ① - Federal Item 51 - Bridge Roadway Width, Curb-to-Curb
- ② - Federal Item 52 - Deck Width, Out-to-Out
- ③ - Federal Item 50 - Curb or Sidewalk Width

**EXAMPLES:**



**EXAMPLES:**



$$\textcircled{1} = \textcircled{1a} + \textcircled{1b}$$

$$\textcircled{2} = \textcircled{2a} + \textcircled{2b} + \textcircled{2c}$$

- $\textcircled{1}$  - Item 51 - Bridge Roadway Width, Curb-to-Curb
- $\textcircled{2}$  - Item 52 - Deck Width, Out-to-Out
- $\textcircled{3}$  - Item 50 - Curb or Sidewalk Width

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**FED ITEM 51 – BRIDGE ROADWAY WIDTH, CURB-TO-CURB – XXX.X (4)**

TABLE - ROADWAY

FIELD - ROADWIDTH

LOCATION - INSPECTION / INVENTORY / ROADS / WIDTHS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The information to be recorded is the most restrictive minimum distance between curbs or rails on the structure roadway. 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 except as noted below. The data recorded for this item must be compatible with other related route and bridge data (i.e. Federal Items 28, 29, 32, etc.). The measurement should be exclusive of flared areas for ramps. A 4-digit number should be used to represent the distance to the nearest tenth of a foot.

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 0000. This is considered proper inasmuch as a filled section simply maintains the roadway cross-section. However, for sidehill viaduct structures code the actual full curb-to-curb roadway width. See Figure 2 in Appendix for coding of sidehill viaducts.

**FHWA NOTE:**

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.

<b>EXAMPLES:</b>		<u><b>Code</b></u>
Bridge Roadway Width	36.00' wide	036.0
	66.37' wide	066.4
	110.13' wide	110.1

**Virginia Note:**

- Non-mountable curbs and/or medians will be defined as curbs being greater than 6" in height. See sketches under Federal Item 50 for additional examples.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

See sketches under Federal Item 50 for examples.

**EDIT CHECK**

- Federal Item 51 must be <= Federal Item 52
- If Federal Item 51 = 000.0 then Federal Item 43B must = 19
- A warning is issued if Federal Item 51 is > 150 feet or < 9 feet
- A warning is issued if Federal Item 28A is > 3 and Federal Item 32 is 1.5 times or more than Federal Item 51
- A warning is issued if Federal Item 28A <= 3 and Federal Item 32 is 2.0 times or more than Federal Item 51

**FED ITEM 52 – DECK WIDTH, OUT-TO-OUT – XXX.X (4)**

TABLE - BRIDGE

FIELD - DECKWIDTH

LOCATION - INSPECTION / INVENTORY / DESIGN / DECK

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code a 4-digit number to show 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. The measurement should be exclusive of flared areas for ramps.

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 (outside edge of culvert to outside edge of culvert). 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 Illustrating Coding of Sidehill Viaducts in Appendix for coding of sidehill viaducts.

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 000.0. This is considered proper inasmuch as a filled section over a culvert simply maintains the roadway cross-section.

See sketches under Federal Item 50 for examples.

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**EDIT CHECK**

- Federal Item 51 must be <= Federal Item 52
- If Federal Item 52 = 0000 then Federal Item 43B must = 19
- A warning is issued if Federal Item 52 is > 150 feet or < 9 feet



**FED ITEM 53 – MINIMUM VERTICAL CLEARANCE OVER BRIDGE ROADWAY – XX.XX (4)**

TABLE - BRIDGE

FIELD - VCLROVER

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM VERTICAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The information to be recorded for this item is the actual minimum vertical clearance over the bridge roadway, including shoulders, to any superstructure restriction, rounded down to the hundredth of a foot. For double decked structures code the minimum, regardless whether it is pertaining to the top or bottom deck. When no restriction exists above the bridge roadway, code 99.99.

**Virginia Note:**

- When no restriction exists above the bridge roadway, or when a restriction is 100 feet or greater code 99.99. The restriction should be measured to any item that creates a vertical clearance restriction, including ancillary structures.
- See Virginia Note under Federal Item 54.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**EXAMPLES:**

		<u>Code</u>
Minimum Vertical Clearance	17'-3"	17.25
	75'-11"	75.92
	No restriction	99.99
	115'-6"	99.99

**EDIT CHECK**

A warning is issued if Federal Item 53 is < 7 feet.

**FED ITEM 54 – MIN VERTICAL UNDERCLEARANCE – X XX.XX (5)**

TABLE - BRIDGE

FIELD - REFVUC (54A)

FIELD - VCLRUNDER (54B)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM VERTICAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Using a 1-digit code and a 4-digit number, record and code the minimum vertical clearance from the roadway (travel lanes only - See Virginia Notes below) or railroad track beneath the structure to the underside of the superstructure rounded down to the hundredth of a foot. When both a railroad and highway are under the structure, code the most critical dimension (Refer to Federal Item 69 – Underclearances, Horizontal – Table 3A).

**FED ITEM 54A – UNDER (REFERENCE) – X (1)**

TABLE - BRIDGE

FIELD - REFVUC (54A)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM VERTICAL CLEARANCES

BrM uses a dropdown menu to facilitate coding of 54A. No other entry is allowed.

<u>Segment</u>		<u>Length</u>
54A	Reference feature	1 digit

Using one of the codes below, code the reference feature from which the clearance measurement is taken:

<u>Code</u>	<u>Description</u>
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad
[BLANK]	Unknown (NBI)

### **FED ITEM 54B – UNDERCLEARANCE – XX.XX (4)**

TABLE - BRIDGE

FIELD - VCLRUNDER (54B)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM VERTICAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

<u>Segment</u>		<u>Length</u>
54B	Minimum Vertical Underclearance	4 digit

In the next 4 positions, code a 4-digit number to represent the minimum vertical clearance from that feature to the structure rounded down to the hundredth of a foot. If the feature is not a highway or railroad, code the minimum vertical clearance 00.00.

#### **Virginia Note:**

- When a restriction is 100 feet or greater code 99.99. For clearances less than or equal to 25 feet the clearance should be the actual measured clearance. For clearances between 25 feet and equal to or less than 100 feet the clearance should be the actual measured clearance or estimated from the plans and recorded.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

#### **Where to measure**

The traveled part of the roadway and/or the travel lane will include the width of traffic lanes and **will not** include the widths of shoulders **unless** they are designated for use as a travel lane during certain traffic conditions **and** the least vertical clearance is included within the improved shoulder lane. For example, improved shoulders utilized to carry HOV, bus or other vehicles during certain times or traffic conditions are considered travel lanes and shall be considered when taking vertical clearance measurements to determine if they control low clearance. Shoulders are defined as follows:

Improved 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 surfaces with no base course, flush with and adjacent to the traffic lane is not to be considered a shoulder.

Therefore, measurements for all vertical clearances should be checked across all portions of the 'traveled part of the roadway' and/or 'travel lane', as defined above, and the minimum clearance recorded for the item which is being checked (Federal Item 10, Federal Item 53, Federal Item 54, State Item 36 and State Item 37, etc.).

#### **EDIT CHECK**

A warning is issued if Federal Item 54B is < 7 feet and not = 00000

**EXAMPLES:**

River beneath structure

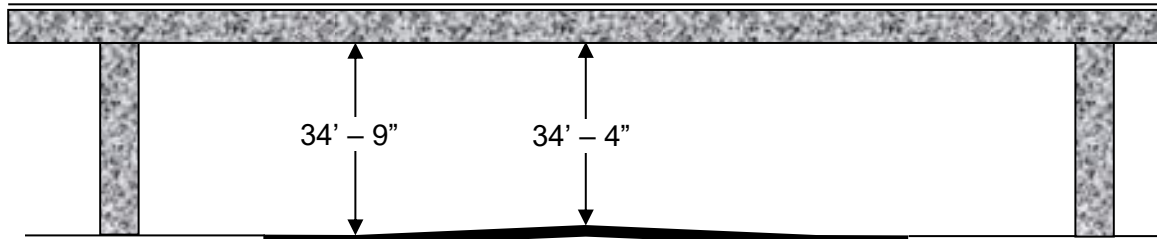
**Code**

N00000



Railroad 31'- 3" beneath structure

**Code** - R31.25



Highway 34'- 4" beneath structure

**Code** - H34.33

**FED ITEM 55 – MINIMUM LATERAL UNDERCLEARANCE ON RIGHT – X XX.XX (5)**

TABLE - BRIDGE

FIELD - REFHUC (55A)

FIELD - HCLRURT (55B)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM LATERAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Using a 1-digit code and a 4-digit number, record and code the minimum lateral underclearance on the right to the nearest hundredth of a foot. When both a railroad and highway are under the structure, code the most critical dimension (Refer to Federal Item 69 – Underclearances, Horizontal – Table 3B).

**FED ITEM 55A – REFERENCE FEATURE – X (1)**

TABLE - BRIDGE

FIELD - REFHUC (55A)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM LATERAL CLEARANCES

BrM uses a dropdown menu to facilitate coding of 55A. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
55A	Reference feature	1 digit

Using one of the codes below, code the reference feature from which the clearance measurement is taken:

<u>Code</u>	<u>Description</u>
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad
[BLANK]	Unknown (NBI)

**FED ITEM 55B – MINIMUM LATERAL UNDERCLEARANCE ON RIGHT –XX.XX (4)**

TABLE - BRIDGE

FIELD - HCLRURT (55B)

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM LATERAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
55B	Minimum Lateral Underclearance	4 digit

In the next positions, code a 4-digit number to represent the minimum lateral underclearance on the right.

**Virginia Note:**

The traveled part of the roadway and/or the travel lane will include the width of traffic lanes and will not include the widths of shoulders unless they are designated for use as a travel lane during certain traffic conditions. For example, improved shoulders utilized to carry HOV, bus or other vehicles during certain times or traffic conditions are considered travel lanes and shall be considered when taking minimum lateral underclearance measurements. Shoulders are defined as follows:

Improved 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 surfaces with no base course, flush with and adjacent to the traffic lane is not to be considered a shoulder.

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical

The lateral clearance should be measured from the right edge of the roadway (excluding shoulders, except as noted above) or from the centerline (between rails) of the right-hand track of a railroad to the nearest of the restrictive features - curbs, rails, walls, piers or other structural features limiting the roadway (ignore guardrail for this item) or the toe of slope steeper than 3 to 1 (e.g. 1 to 1 or 2 to 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 dual highway this would mean the outside clearances of both roadways should be measured and the smaller distance recorded and coded.

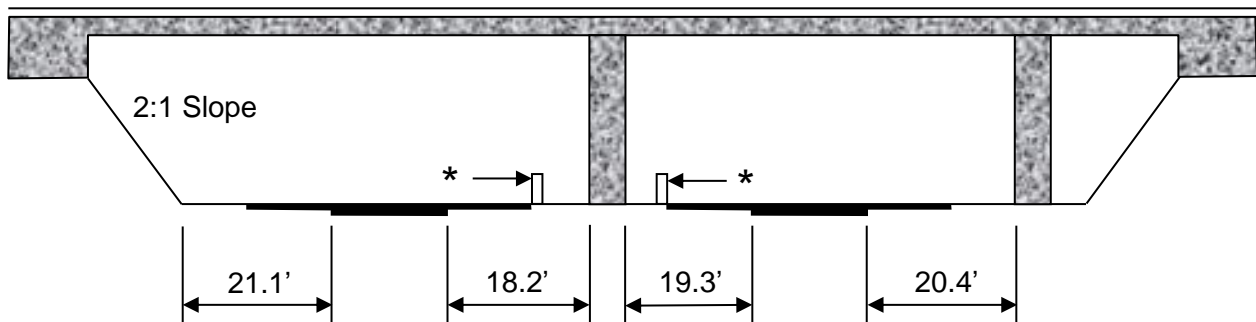
If two related features are below the bridge, measure both and record the lesser of the 2. An explanation should be written on the inspection form as to what was recorded. When the clearance is 100 feet or greater, code 9999.

If the feature beneath the structure is not a railroad or highway, code N 00.00 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.

<b><u>EXAMPLES:</u></b>	<b><u>Code</u></b>
Railroad centerline 29.4' to pier	R29.40
Highway edge of pavement 20.2' to pier	H20.20
Creek beneath structure	N0000

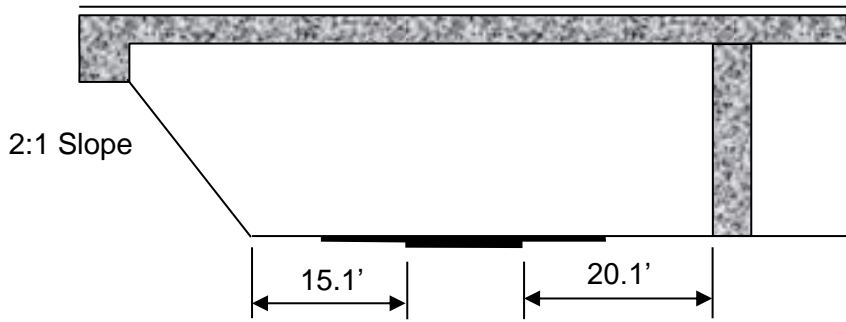
**EXAMPLES:**



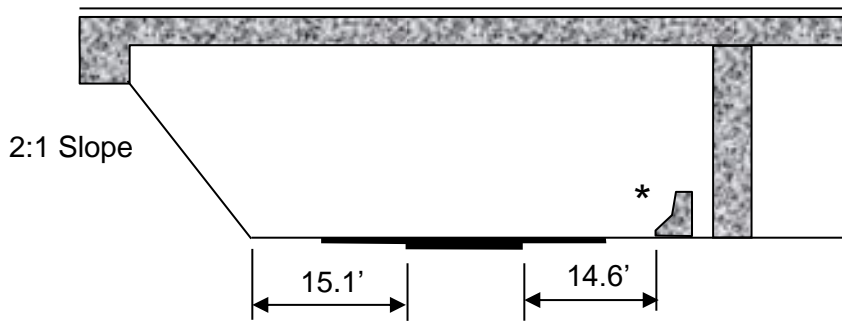
\* - Non-Rigid barrier (example guardrail)

18.200' Left    20.400' Right

**NOTE: IGNORE GUARDRAILS FOR THIS ITEM.**



--- Left 15.100' Right for 2-way traffic  
 15.100' Left 20.100' Right for 1-way traffic



--- Left 14.600' Right for 2-way traffic  
 15.100' Left 14.600' Right for 1-way traffic

\* - Rigid barrier **NOT** guardrail

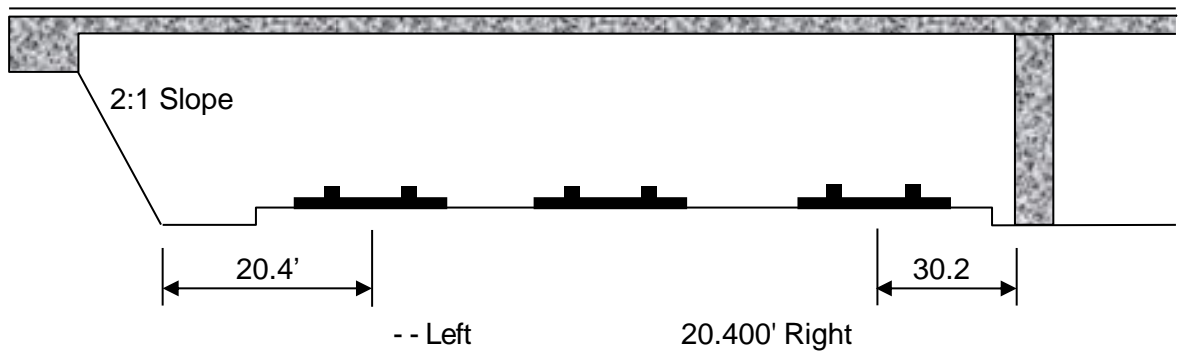
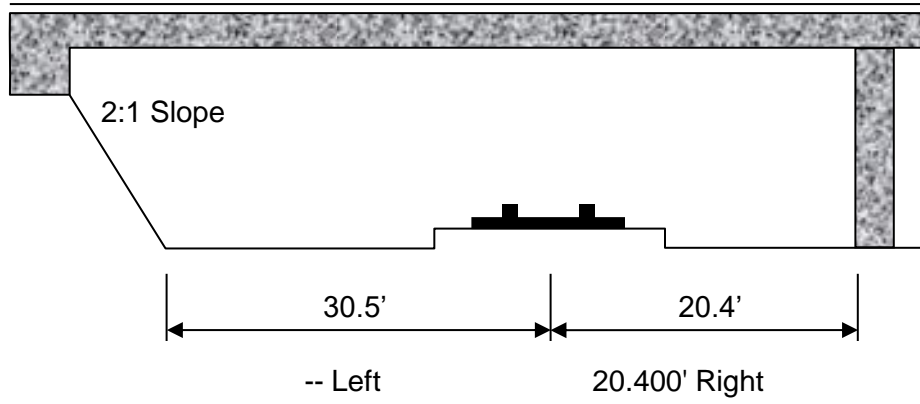


OPEN Left 14.600' Right

\* - Rigid barrier **NOT** guardrail

**NOTE:**

Instructions under Federal Item 56B state that left would be noted as "Open".  
 Coding should be 99.999



## **FED ITEM 56 – MINIMUM LATERAL UNDERCLEARANCE ON LEFT – XX.X (3)**

**(Code only for divided highway, 1-way streets, and ramps; not applicable to railroads)**

TABLE - BRIDGE

FIELD - HCLRULT

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / MINIMUM LATERAL CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Using a 3-digit number, record and code the minimum lateral underclearance on the left (median side for divided highways) to the nearest tenth of a foot.

### **Virginia Note:**

The traveled part of the roadway and/or the travel lane will include the width of traffic lanes and will not include the widths of shoulders unless they are designated for use as a travel lane during certain traffic conditions. For example, improved shoulders utilized to carry HOV, bus or other vehicles during certain times or traffic conditions are considered travel lanes and shall be considered when taking minimum lateral underclearance measurements. Shoulders are defined as follows:

Improved 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 surfaces with no base course, flush with and adjacent to the traffic lane is not to be considered a shoulder.

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

The lateral clearance should be measured from the left edge of the roadway (excluding shoulders, except as noted above) to the nearest restrictive features - curbs, rails, walls, piers or other structural features limiting the roadway or the toe of slope steeper than 3 to 1 (e.g. 1 to 1 or 2 to 1) (ignore guardrail for this item). Refer to examples on under Federal Item 55 - Minimum Lateral Underclearance on Right.

In the case of a dual 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 99.9 should be coded. For clearance greater than 100 feet, code 99.9

If the feature beneath the structure is not a railroad or highway or when this field is not applicable, code 00.0.

### **GENERAL CONDITION RATINGS - Federal Items 58, 59, 60, 61 and 62**

In order to promote uniformity between bridge inspectors, these guidelines will be used to rate and code Federal Items 58, 59, 60, 61 and 62.

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 Federal Item 103 - 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 Federal Items 58, 59, and 60.

**NOTE THE MODIFICATIONS OF THE CODES FOR FEDERAL ITEMS 61 AND 62 UNDER THEIR RESPECTIVE SECTIONS.**

<u>Code</u>	<u>Description</u>
<b>N</b>	<b>NOT APPLICABLE</b>
<b>9</b>	<b>EXCELLENT CONDITION</b>
<b>8</b>	<b>VERY GOOD CONDITION</b> No problems noted.
<b>7</b>	<b>GOOD CONDITION</b> Some minor problems.
<b>6</b>	<b>SATISFACTORY CONDITION</b> Structural elements show some minor deterioration.
<b>5</b>	<b>FAIR CONDITION</b> All primary structural elements are sound but may have some minor section loss, cracking, spalling or scour
<b>4</b>	<b>POOR CONDITION</b> Advanced section loss, deterioration, spalling or scour.
<b>3</b>	<b>SERIOUS CONDITION</b> Loss of section, deterioration, spalling or scour has seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
<b>2</b>	<b>CRITICAL CONDITION</b> 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.
<b>1</b>	<b>"IMMINENT" FAILURE CONDITION</b> 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.
<b>0</b>	<b>FAILED CONDITION</b>
[BLANK]	Out of service - beyond corrective action.
[BLANK]	<b>Unknown</b>

## **FED ITEM 58 – DECK – X (1)**

TABLE - INSPEVNT

FIELD - DKRATING

LOCATION - INSPECTION / CONDITION / CONDITION RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

This item describes the overall condition rating of the deck. Rate and code the condition in accordance with the above general condition ratings. Code N for all culverts and other structures without decks e.g., filled arch bridge.

### **Virginia Note:**

**The statement highlighted in gray above has been restored to match the FHWA Recording and Coding Guide.**

A structure which has a wearing surface or roadway carried by fill material is considered to be a "roadway over fill", and as such may not have a deck component or a deck rating. As an example, the cut-off is generally a minimum 8"-10" of fill material for a slab span structure to be considered "under fill". Multiple layers of asphaltic wearing surface is typically not considered infill. Note that when the roadway (traveling surface) is on fill carried across a structure and the headwalls or parapets do not affect the flow of traffic, code Federal Item 51 – Roadway Width and Federal Item 52 – Deck Width as 000.0

Consult with the Bridge Safety Inspection Engineer (or their designee) for cases where the structural components are not clearly delineated.

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 device, 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.

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, void slab, box girder, etc.). Similarly, the superstructure of an integral deck-type bridge **will not** influence the deck rating.

### **EDIT CHECK**

- If Federal Item 58 <= 3 then Federal Item 70 must be < 5
- If Federal Item 43B = 19 then Federal Item 58 must = N
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K

## **FED ITEM 59 – SUPERSTRUCTURE – X (1)**

**TABLE - INSPEVNT**

**FIELD - SUPRATING**

**LOCATION - INSPECTION / CONDITION / CONDITION RATINGS**

**BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.**

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

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 of a component would likely lead to the loss of a span or the entire structure.

### **EDIT CHECK**

- If Federal Item 59 = 0 or 1 then Federal Item 41 must = D, E or K
- If Federal Item 59 is  $\leq 3$  then Federal Item 70 must be  $< 5$
- If Federal Item 43B = 19 then Federal Item 59 must = N
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is  $< 5$  and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded  $\geq 2$  and Federal Item 41 is NOT = to D, E or K
- A warning is issued if Federal Item 70 = 5 and Federal Item 59 = 0, 1, 2 or 3

## **FED ITEM 60 – SUBSTRUCTURE – X (1)**

TABLE - INSPEVNT

FIELD - SUBRATING

LOCATION - INSPECTION / CONDITION / CONDITION RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

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 N for all 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 rating given by Federal Item 113 - Scour Critical Bridges, may have a significant effect on Item 60 if scour has substantially affected the overall condition of the substructure.

### **Note From Latest FHWA Errata:**

**The rating given to Federal Item 60 should be consistent with the one given to Federal Item 113 - Scour Critical Bridges whenever a rating factor of 2 or below is determined for Federal Item 113.**

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 (i.e. wings poured separately and falling away from the substructure unit will not affect the condition rating of the substructure). 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.

### **EDIT CHECK**

- If Federal Item 60 = 0 or 1 then Federal Item 41 must = D, E or K.
- If Federal Item 60 is < = 3 then Federal Item 70 must be < 5
- If Federal Item 43B = 19 then Federal Item 60 must = N
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K
- A warning is issued if Federal Item 70 = 5 and Federal Item 60 = 0, 1, 2 or 3

**FED ITEM 61 – CHANNEL AND CHANNEL PROTECTION – X (1)**

TABLE - INSPEVNT

FIELD - CHANRATING

LOCATION - INSPECTION / CONDITION / CONDITION RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

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 that may affect undermining of slope protection or footings, erosion of banks, and realignment of the stream that 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.

Rate and code the condition in accordance with the previously described general condition ratings and the following descriptive codes:

<u>Code</u>	<u>Description</u>
N	Not applicable. Use only when the bridge is not over a waterway (channel).
9	No Deficiencies - There are no noticeable or noteworthy deficiencies, which affect the condition of the channel.
8	Protected - 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	Minor Damage - 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 Slumping - Bank is beginning to slump. River control devices and embankment protection have widespread minor damage. There is minor streambed movement evident. Debris is restricting the waterway slightly.
5	Bank Protection Eroded - River control devices and/or embankment have major damage. Trees and brush restrict the channel.
4	Protection Undermined - Bank and embankment protection is severely undermined. River control devices have severe damage. Large deposits of debris are in the waterway.
3	Bank Protection Failed - River control devices have been destroyed. Streambed aggradation, degradation or lateral movement has changed the waterway to now threaten the bridge and/or approach roadway.
2	Bridge Threatened - The waterway has changed to the extent the bridge is near a state of collapse.
1	Bridge Closed Correct - Bridge closed because of channel failure. Corrective action may put back in light service.
0	Bridge Closed Replace - Bridge closed because of channel failure. Replacement necessary.
[BLANK]	Unknown

**EDIT CHECK**

- If Federal Item 61 is < = 3 then Federal Item 70 must be < 5
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N

## **FED ITEM 62 – CULVERTS – X (1)**

TABLE - INSPEVNT

FIELD - CULVRATING

LOCATION - INSPECTION / CONDITION / CONDITION RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

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.

**(Virginia Note** - The FHWA Coding Guide refers to the 'Culvert Inspection Manual' which is obsolete and replaced by the BIRM).

Federal Item 58 - Deck, Federal Item 59 - Superstructure and Federal Item 60 - Substructure shall be coded N for all culverts.

Rate and code the condition in accordance with the previously described general condition ratings and the following descriptive codes:

### **Code   Description**

- |   |   |
|---|---|
| N | Not applicable. Use if structure is not a culvert.  |
| 9 | No deficiencies.  |
| 8 | No Major Problem - No noticeable or noteworthy deficiencies that affect the condition of the culvert. Insignificant scrape marks caused by drift.   |
| 7 | Minor Deterioration - 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. Metal culverts have a smooth symmetrical curvature with superficial corrosion and no pitting.   |
| 6 | Deterioration - Deterioration or initial disintegration, minor chloride contamination, cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have a smooth curvature, non-symmetrical shape, significant corrosion or moderate pitting.   |
| 5 | Moderate Damage - 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. Metal culverts have significant distortion and deflection in one section, significant corrosion or deep pitting.  |
| 4 | Considerable Damage - 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. Metal culverts have significant distortion and deflection throughout, extensive corrosion or deep pitting.  |
| 3 | Excessive Damage - 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. Metal culverts have extreme distortion and deflection in one section, extensive corrosion, or deep pitting with scattered perforations. |
| 2 | Severe Settlement - 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 is required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.   |
| 1 | Bridge closed - Corrective action may put back in light service.  |
| 0 | Bridge closed - Replacement necessary.<br>Unknown   |

## EDIT CHECK

- If Federal Item 62 = 0 or 1 then Federal Item 41 must = D, E or K
- If Federal Item 43B is = 19 then Federal Item 62 must be numeric
- If Federal Item 62 is < = 3 then Federal Item 70 must be < 5
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K
- A warning is issued if Federal Item 70 = 5 and Federal Item 62 = 0, 1, 2 or 3

## **FED ITEM 63 – METHOD USED TO DETERMINE OPERATING RATING – X (1)**

TABLE - BRIDGE

FIELD - ORTYPE

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM uses a dropdown to facilitate coding of this item. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

Use one of the codes below to indicate which load rating method was used to determine the Operating Rating coded in Federal Item 64 for this structure.

<b><u>Code</u></b>	<b><u>Description</u></b>
0	Field evaluation and documented engineering judgment
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)
4	Load Testing
5	No rating analysis or evaluation performed
6	Load Factor (LF) rating reported by rating factor (RF) method using HS20 Loading
7	Allowable Stress (AS) rating reported by rating factor (RF) method using HS20 loading
8	Load and Resistance Factor Rating (LRFR) rating reported by rating factor (RF) method using HL-93 loadings
A	Assigned rating based on Load Factor Design (LFD) reported in tons
B	Assigned ratings based on Allowable Stress Design (ASD) reported in tons
C	Assigned ratings based on Load and Resistance Factor Design (LRFD) reported in tons
D	Assigned rating based on Load Factor Design (LFD) reported by rating factor (RF) using HS20 loading
E	Assigned ratings based on Allowable Stress Design (ASD) reported by rating factor (RF) using HS20 loadings
F	Assigned ratings based on Load and Resistance Factor Design (LRFD) reported by rating factor (RF) using HL93 loadings
	Unknown (NBI)
	Not Applicable (P)

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 or in cases of severe deterioration. Field evaluation and engineering judgment ratings must be documented.

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

For further information see <https://www.fhwa.dot.gov/bridge/loadrating/>

### **FED ITEM 64 – OPERATING RATING – XXX (3)**

TABLE - BRIDGE

FIELD - ORLOAD

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

This capacity rating, referred to as the operating rating, will result in the absolute maximum permissible load level to which the structure may be subjected for the vehicle type used in the rating. Code the operating rating as a 3-digit code number to the nearest ton.

#### **Virginia Note:**

The newest Federal coding guide uses only MS loading, the metric equivalent of HS loading, to determine operating rating. Continue to use **HS20** loading to determine operating rating. For HS loading, total weight in tons of entire vehicle should be coded, i.e. HS20 shall be coded 36 even though HS20 lane loading controls and is used to determine rating. Similarly HS10 shall be coded 18. For structures with an Operating Rating which exceeds 99 metric tons, enter "99" in order to prevent rounding errors in the database. **The Hauling Permit section uses the HS20 Operating values to administer the Hauling Permit program. This is another reason that values need to be input in tonnages and not Rating Factors (RFs) as would be done for HL-93.**

The AASHTO Manual for Bridge Evaluation provides a choice of load rating methods, such as load and resistance factor (LRFR) rating method, in addition to the traditional allowable stress (AS) and load factor (LF) methods. Of the three rating methods, the LF method is the most suitable for use as a national standard; therefore the FHWA has chosen the LF method as the standard for computing inventory and operating ratings reported to the NBI. The highway agencies may, however, elect to use LF, AS or LRFD to establish load limits for purposes of load posting.

If the bridge will not carry a minimum of 3 tons of live load, the operating rating shall be coded '0'; and, 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, Federal Items 64 and 66 should be coded as "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 should be coded as if the temporary shoring were not in place. See Federal Item 103 - Temporary Structure Designation for definition of a temporary bridge.

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

#### **EXAMPLES:**

	<b><u>Code</u></b>	
HS30	54	
Temporary bridge	0	
Shored-up bridge	3	This is Load Capacity without shoring
Structure under fill (live load is insignificant *.)	99	



**Virginia Note:**

For steel pipes/culverts code State Item 48 'Method of Analysis' as 'L'. See Virginia charts for pipes/culverts under fill.

\* - Insignificant is defined as fill depths greater than 8 feet.

**EDIT CHECK**

- If Federal Item 41 = E or K then Federal Item 64 must = 0
- Federal Item 66 must be <= Federal Item 64
- If Federal Item 64 = 0 and Federal Item 41 = D or E then Federal Item 103 must = T

**FED ITEM 65 – METHOD USED TO DETERMINE INVENTORY RATING – X (1)**

TABLE - BRIDGE

FIELD - IRTYPE

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

Use one of the codes shown for Fed Item 63 to indicate which load rating method was used to determine the Inventory Rating coded in Federal Item 66 for this structure.

**FED ITEM 66 – INVENTORY RATING – XXX (3)**

TABLE - BRIDGE

FIELD - IRLOAD

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

This capacity rating, referred to as the inventory rating, for the vehicle type used in the rating, will result in a load level which can safely utilize an existing structure for an indefinite period of time. Only the HS loading shall be used to determine the inventory rating. Code the Inventory Rating as a 3-digit number to represent the total mass in tons of the entire vehicle measured to the nearest ton. The statements in Federal Item 64 Operating Rating apply to this item also. For structures with an Inventory Rating which exceeds 99.0 metric tons, enter "99" in order to prevent rounding errors in the database.

Code 99 for a structure which is under sufficient fill such that (according to AASHTO design) the live load is insignificant in the structure load capacity.

See Federal Item 64 - Operating Rating for additional information.

**EDIT CHECK**

- If Federal Item 41 = E or K then Federal Item 66 must = 0 and Federal Item 66 must be <= Federal Item 64

## **APPRAISAL RATINGS FOR FEDERAL 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 that is built to current standards for that particular type of road as further defined in this section except for Federal Item 72 - Approach Roadway Alignment. See Federal Item 72 for special criteria for that item.

Federal Items 67, 68, 69, 71 and 72 will be coded with a 1- digit code that indicates the appraisal rating for that item. The ratings and codes are as follows:

### **Virginia Note:**

Federal items 67, 68 and 69 are fields calculated by the inventory program and cannot be filled in manually.

<b><u>Code</u></b>	<b><u>Description</u></b>
N	Not Applicable
9	Superior to present desirable criteria
8	Equal present desirable criteria
7	Better than present desirable criteria
6	Equal to present desirable criteria
5	Somewhat better than minimum adequacy to tolerate being left in place as is
4	Meets minimum tolerable limits to be left in place as is
3	Basically intolerable requiring high priority of corrective action
2	Basically intolerable requiring high priority of replacement
1	This value of rating code not used
0	Bridge Closed Unknown (NBI)

The FHWA Edit/Update computer program calculates values for Federal Items 67, 68 and 69 according to the tables provided in this manual. Tables are provided to evaluate Federal Items 67, 68, 69 and 71 and shall be used by all evaluators to code these items (see **Virginia Note** for this section). They have been developed to closely match the descriptions for the appraisal evaluation codes of 0 to 9. The tables shall be used in all instances to evaluate the item based on the designated data in the inventory, even if a table does not appear to match the descriptive codes. For unusual cases where the site data does not exactly agree with the table criteria, use the most appropriate table to evaluate the item. The code of "N" is not valid for use with Federal Items 67 and 72.

Complete bridges not yet open to traffic, if rated, shall be appraised as if open to traffic. Design values, for projected ADT, shall be used for the evaluation. The data provided will include a code of G for Federal Item 41 - Structure Open, Posted or Closed to Traffic.

### **FED ITEM 67 – STRUCTURAL EVALUATION – X (1) (CALCULATED)**

TABLE - INSPEVNT

FIELD - STRRATING

LOCATION - INSPECTION / APPRAISAL / CALCULATED APPRAISAL RATINGS

**This item is calculated by the inventory program and cannot be coded by the bridge inspector.**

Also see information in the "APPRAISAL RATINGS FOR FEDERAL ITEMS 67, 68, 69, 71 AND 72" section above.

The following specifications are used to determine this coding:

- For structures other than culverts, the lowest of the codes obtained from Federal Item 59 - Superstructure, Federal Item 60 - Substructure, or Table 1 is used.
- For culverts, the lowest of the codes obtained from Federal Item 62 - Culverts, or Table 1 is used.
- If Federal Item 59, Federal Item 60 or Federal Item 62 is coded 1, then Federal Item 67 is coded 0, regardless of whether the structure is actually closed.

**Table 1. Rating by Comparison of Federal Item 29 - ADT and Federal Item 66 - Inventory Rating**

Structural Evaluation Rating Code	Inventory Rating		
	Average Daily Traffic (ADT)		
	0-500	501-5000	>5000
9	>36 (HS20) *	>36 (HS20)	>36 (HS20)
8	36 (HS20)	36 (HS20)	36 (HS20)
7	31 (HS17)	31 (HS17)	31 (HS17)
6	23 (HS13)	25 (HS14)	27 (HS15)
5	18 (HS10)	20 (HS11)	22 (HS12)
4	12 (HS7)	14 (HS8)	18 (HS10)
3	Inventory rating less than value in rating code of 4 and requiring corrective action.		
2	Inventory rating less than value in rating code of 4 and requiring replacement.		
0	Bridge Closed.		

\* HS Designation (typical)

**Table 1 Notes:**

- Use the lower rating code for values between those listed in the table
- To use Table 1, Federal Item 66 - Inventory Rating must be the coded HS rating or its equivalent. If the comparable HS equivalent is not calculated for the controlling rating, using a factor to determine the HS equivalent is acceptable even though converting other rating loads to an HS equivalent is not a constant
- **All bridges with Federal Item 26 - Functional Class coded Interstate, Freeway or Expressway shall be evaluated using the ADT column of > 5000 regardless of the actual ADT on the bridge.**

**EDIT CHECK**

- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K

**FED ITEM 68 – DECK GEOMETRY – X (1) (CALCULATED)**

**TABLE - INSPEVNT**

**FIELD - DECKGEOM**

**LOCATION - INSPECTION / APPRAISAL / CALCULATED APPRAISAL RATINGS**

**This item is calculated by the inventory program and cannot be coded by the bridge inspector.**

Also see information in the “APPRAISAL RATINGS FOR FEDERAL ITEMS 67, 68, 69, 71 AND 72” section above.

The overall rating for deck geometry includes two evaluations:

- The curb-to-curb or face-to-face of rail bridge width using Table 2A, 2B, 2C, or 2D and
- The minimum vertical clearance over the bridge roadway using Table 2E.

The lower of the codes obtained from these tables shall be used. When an individual table lists several deck geometry rating codes for the same roadway width under a specific ADT, use the lower code. (For example, Table 2A lists deck geometry rating codes 6, 7 and 8 for a 44-foot roadway width and an ADT > 5000. Use the code of 6.)

The curb-to-curb or face-to-face of rail dimension shall be taken from Federal Item 51 - Bridge Roadway Width, Curb-to-Curb. Federal Item 53 - Minimum Vertical Clearance Over Bridge Roadway shall be used to evaluate the vertical clearance.

For culverts which have Federal Item 51 - Bridge Roadway Width coded 0000, the Deck Geometry code will be N.

The values provide in the tables are for rating purposes only. Current design standards must be used for structure design or rehabilitation.

**Table 2A & 2B. Rating by Comparison of Federal Item 29 – ADT and  
Federal Item 51 - Bridge Roadway Width, Curb-to-Curb**

TABLE 2A							TABLE 2B	
Deck Geometry Rating Code	Bridge Roadway Width 2 Lanes; 2 Way Traffic						Bridge Roadway Width 1 Lane; 2 Way Traffic	
	ADT (Both Directions)						ADT (Both Directions)	
	0 - 100	101 - 400	401 - 1000	1001 - 2000	2001 - 5000	> 5000	0 - 100	> 100
9	> 32'	> 36'	> 40'	> 44'	> 44'	> 44'	-	-
8	32'	36'	40'	44'	44'	44'	15'-11"	-
7	28'	32'	36'	40'	44'	44'	15'	-
6	24'	28'	30'	34'	40'	44'	14'	-
5	20'	24'	26'	28'	34'	38'	13'	-
4	18'	20'	22'	24'	28'	32' (28') *	12'	-
3	16'	18'	20'	22'	26'	30' (26') *	11'	15'-11"
2	Any width less than required for a code of 3 & structure open.							
0	Bridge closed.							

\* Use value in parentheses for bridges longer than 200 feet.

**Table 2A and 2B Notes:**

- Use the lower rating code for values between those listed in the table
- Dimensions are in feet
- For 1 lane of one way traffic Table 2A is used
- For 3 or more undivided lanes of 2-way traffic, use Table 2C, Other Multilane Div. Facilities.
- Do not use Table 2B for code 9 or codes 8 through 4 inclusive when ADT > 100. Single lane bridges less than 16 feet wide carrying 2 way traffic are always appraised at 3 or below if they have ADT > 100
- One-lane bridges 16 feet and greater in roadway width, which are not ramps, are evaluated as a 2 lane bridge using Table 2A

**Table 2C & 2D. Rating by Comparison of Federal Item 28 - Number of Lanes and  
Federal Item 51 - Bridge Roadway Width, Curb-to-Curb**

TABLE 2C					TABLE 2D	
Deck Geometry Rating Code	Bridge Roadway Width 2 or More Lanes Each Direction				Bridge Roadway Width 1 Way Traffic	
	Interstate and Other Divided Freeways		Other Multilane Divided Facilities		Ramps Only	
	2 Lanes	3 or more	2 Lanes	3 or more	1 Lane	2 or more
9	>42'	>12N+24'	>42'	>12N+18'	>26'	>12N+12'
8	42'	12N+24'	42'	12N+18'	26'	12N+12'
7	40'	12N+20'	38'	12N+15'	24'	12N+10'
6	38'	12N+16'	36'	12N+12'	22'	12N+8'
5	36'	12N+14'	33'	11N+10'	20'	12N+6'
4	34' (29') *	11N+12 '(11N+7) *	30'	11N+6'	18'	12N+4'
3	33' (28') *	11N+11' (11N+6) *	27'	11N+5'	16'	12N+2'
2	Any width less than required for a code of 3 & structure open.					
0	Bridge closed.					

\* Use value in parentheses for bridges longer than 200 feet.

N = number of lanes of traffic.

**Table 2C and 2D Notes:**

- Use the lower rating code for values between those listed in the tables
- Dimensions in feet
- Use Table 2C, Other Multilane Divided Facilities, for 3 or more undivided lanes of 2 way traffic

**Table 2E. Rating by Comparison of Federal Item 53 - Minimum Vertical Clearance over Bridge Roadway and Federal Item 26 - Functional Classification**

Deck Geometry Rating Code	Minimum Vertical Clearance			
	Functional Class			
	Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals
	All Routes Except as noted for Urban Areas	Undesignated Routes, Urban Areas *		
9	>17'-0"	>16'-6"	>16'-6"	>16'-6"
8	17'-0"	16'-6"	16'-6"	16'-6"
7	16'-9"	15'-6"	15'-6"	15'-6"
6	16'-6"	14'-6"	14'-6"	14'-6"
5	15'-9"	14'-3"	14'-3"	14'-3"
4	15'-0"	14'-0"	14'-0"	14'-0"
3	Vertical clearance less than value in rating code of 4 and requiring corrective action.			
2	Vertical clearance less than value in code 4 and requiring replacement.			
0	Bridge Closed			

\* Use for routes in highly developed urban areas only when there is an alternative Interstate, freeway or expressway facility with a minimum of 16'- 0" clearance.

**Table 2E Notes:**

- Use the lower rating code for values between those listed in the table

**EDIT CHECK**

- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Items 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K.

**FED ITEM 69 – UNDERCLEARANCE, VERTICAL & HORIZONTAL – X (1)**

TABLE - INSPEVNT

FIELD - UNDERCLR

LOCATION - INSPECTION / APPRAISAL / CALCULATED APPRAISAL RATINGS

**This item is calculated by the inventory program and cannot be coded by the bridge inspector.**

See information in the “APPRAISAL RATINGS FOR FEDERAL ITEMS 67, 68, 69, 71 AND 72” section above.

This item is calculated by the FHWA program and need not be coded by the inspector.

Vertical and horizontal underclearances are measured from the through roadway to the superstructure or substructure units, respectively. Code N is used unless the bridge is over a highway or railroad.

The vertical underclearance is evaluated using Table 3A. The horizontal underclearance is evaluated using Table 3B. The lower of the codes obtained from Table 3A and Table 3B is used by the Edit/Update Program.

Bridges seldom are closed due to deficient underclearances; however, these bridges may be good candidates for rehabilitation or replacement.

Federal Item 54 - Minimum Vertical Underclearance, Federal Item 55 - Minimum Lateral Underclearance on Right, and Federal Item 56 - Minimum Lateral Underclearance on Left are used to evaluate this item.

**Table 3A. Rating by Comparison of Minimum Vertical Underclearance - Federal Item 54 and Functional Classification of Underpassing Route**

Underclearance Rating Code	Minimum Vertical Clearance				
	Functional Class				Railroad
	Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	
	All Routes Except as noted for Urban Areas	Undesignated Routes, Urban Areas *			
9	>17'-0"	>16'-6"	>16'-6"	>16'-6"	>23'-0"
8	17'-0"	16'-6"	16'-6"	16'-6"	23'-0"
7	16'-9"	15'-6"	15'-6"	15'-6"	22'-6"
7	16'-6"	14'-6"	14'-6"	14'-6"	22'-0"
5	15'-9"	14'-3"	14'-3"	14'-3"	21'-0"
4	15'-0"	14'-0"	14'-0"	14'-0"	20'-0"
3	Vertical clearance less than value in rating code 4 and requiring corrective action.				
2	Vertical clearance less than value in rating code 4 and requiring replacement.				
0	Bridge Closed.				

\* Use for routes in highly developed urban areas only when there is an alternative Interstate, freeway or expressway facility with a minimum of 16'- 0" clearance.

**Table 3A Notes:**

- Use the lower rating code for values between those listed in the table
- The functional classification of the underpassing route shall be used in the evaluation. If an "under" record is not coded, the underpassing route shall be considered a major or minor collector or a local road.



**Table 3B. Rating by Comparison of Minimum Lateral Underclearances Right & Left - Federal Items 55 & 56 and Functional Classification of Underpassing Route**

Under-clearance Rating Code	Minimum Lateral Underclearance						
	Functional Class						Railroad
	1 Way Traffic				2 Way Traffic		
	Principal Arterials Interstate, Freeways or Expressways				Other Principal and Minor Arterials	Major and Minor Collectors and Locals	
	Main Line		Ramp				
Left	Right	Left	Right				
9	>30'	>30'	>4'	>10'	>30'	>12'	>20'
8	30'	30'	4'	10'	30'	12'	20'
7	18'	21'	3'	9'	21'	11'	17'
6	6'	12'	2'	8'	12'	10'	14'
5	5'	11'	2'	6'	10'	8'	11'
4	4'	10'	2'	4'	8'	6'	8'
3	Underclearance less than value in code 4 and requiring corrective action.						
2	Underclearance less than value in code 4 and requiring replacement.						
0	Bridge Closed.						

**Table 3B Notes:**

- Use the lower rating code for values between those listed in the table
- When acceleration or deceleration lanes or ramps are provided under 2 Way traffic, use the value from the right ramp column to determine code
- The functional classification of the underpassing route shall be used in the evaluation. If an "under" record is not coded, the underpassing route shall be considered a major or minor collector or a local road.

**EDIT CHECK**

- If Federal Item 69 is numeric then Federal Item 42B must be 1, 2, 4, 6, 7 or 8
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K

**FED ITEM 70 – BRIDGE POSTING – X (1)**

TABLE - BRIDGE

FIELD - POSTING

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

The National Bridge Inspection Standards require the posting of load limits only if the maximum legal load configurations in the State exceed the load permitted under the operating rating. If the load capacity at the **operating or legal rating** is such that posting is required, this item shall be coded 4 or less. If no posting is required at the **operating or legal rating**, this item shall be coded 5.

This item evaluates the load capacity of a bridge in comparison to the State legal loads. It differs from Federal Item 67 - Structural Evaluation in that Federal Item 67 uses Federal Item 66 - Inventory Rating, while the bridge posting requirement is based on Operating Rating for the State legal loads.

Although posting a bridge for load-carrying capacity is required only when the maximum legal load exceeds the operating or legal rating for the legal load vehicles, highway agencies may choose to post at a lower level. This posting practice may appear to produce conflicting coding when Federal Item 41 - Structure Open, Posted or Closed to Traffic is coded to show the bridge as actually posted at the site and Federal Item 70 - Bridge Posting is coded as bridge posting is not required. Since different criteria are used for coding these items, this coding is acceptable and correct when the highway agency elects to post at less than the operating rating. Federal Item 70 shall be coded 4 or less only if the legal load of the State exceeds that permitted under the operating rating for the legal load vehicles.

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.

<u>Code</u>	<u>Description</u>
4 or less	Posting required
5	No posting required

The degree that the legal load operating rating is less than the maximum legal load level may be used to differentiate between codes. As a guide and for coding purposes only, the following values are used to code this item:

**Virginia Note:**

Given that this guidance has not been updated to incorporate the changes in the philosophy of the LRFR code that establishes legal and permit level ratings in addition to the Inventory and Operating level ratings for design vehicles, we are editing the coding guidance to provide direction on how to incorporate the new LRFR rating code philosophy while retaining the intent of the original guidance for this federal inventory item.

<u>Code</u>	<u>Relationship of Posting Stress to Legal or Operating Load Stress</u>
5	Equal to or above legal loads
4	0.1 - 9.9% below
3	10.0 - 19.9% below
2	20.0 - 29.9% below
1	30.0 - 39.9% below
0	> 39.9% below

**Virginia Note:**

At present, Virginia posts structures using loads produced by Virginia legal vehicles, i.e. the three axle 27 ton vehicle and the 5 axle 40 ton vehicle, the Specialized Hauling Vehicle fleet (SHV), and the FAST Act Emergency Vehicles. Therefore, for Federal Item 70, we must figure the capacity of Virginia legal vehicles at the legal or operating stress level and compare whether the structure would be posted at that level.

### Virginia Example 1:

The 27 ton Virginia legal vehicle rates for a capacity of 23 tons at the operating stress level using Load Factor Rating (LFR). Since this Virginia legal vehicle is a 27 ton vehicle, we compare the 23 ton capacity at the operating stress level to the 27 ton vehicle, the difference is 4 tons.  $4/27 = .148$  which is 14.8%, then Federal Item 70 would be coded 3, 10.0 - 19.9% below legal loads.

### Virginia Example 2:

The 27 ton Virginia legal vehicle produces a capacity of 28 tons at operating stress level using LFR. Since this Virginia legal vehicle is a 27 ton vehicle, we compare the 28 ton capacity at the operating stress level to the 27 ton vehicle, the capacity is above the legal load of 27 tons, then Federal Item 70 would be coded a 5, since a code of 5 is for capacities at the operating stress level equal to or above legal loads.

### Virginia Example 3:

The 31 ton SU5 vehicle produces a capacity of 24 tons at legal stress level using Load and Resistance Factor Rating (LRFR). Since this legal vehicle is a 31 ton vehicle, we compare the 24 ton capacity at the legal stress level to the 31 ton vehicle, the difference is 7 tons.  $7/31 = 0.226$  which is 22.6%, then Federal Item 70 would be coded 2, 20.0 – 29.9% below legal loads.

### Virginia NOTE:

The structure used in Example 2 may be posted since Virginia uses the posting capacity at a stress level below operating stress level for other than concrete spans. In these instances, the posting capacity that Virginia uses is not considered in the coding of Federal Item 70. Therefore, the structure used in Example 2 may still have a coding of 5 for Federal Item 70 and be posted. In the examples only the 27 ton vehicle was cited, however, both the 27 ton, 40 ton, and all SHV vehicles must be checked in each case and the maximum % below coded for Federal Item 70.

### EDIT CHECK

- If Federal Items 58 - 62 are coded 3 or less Federal Item 70 must be coded < 5.
- OPERATING or LEGAL stress is used to determine Federal Item 70, and some structures may be posted and yet be coded 5 (since we use a stress less than operating or legal to determine posting).
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N.
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded  $\geq 2$  and Federal Item 41 is NOT = to D, E or K
- A warning is issued if Federal Item 70 = 5 and Federal Item 59 = 0, 1, 2 or 3
- A warning is issued if Federal Item 70 = 5 and Federal Item 60 = 0, 1, 2 or 3
- A warning is issued if Federal Item 70 = 5 and Federal Item 62 = 0, 1, 2 or 3

## **FED ITEM 71 – WATERWAY ADEQUACY – X (1)**

**TABLE - INSPEVNT**

**FIELD - WATERADEQ**

**LOCATION - INSPECTION / CONDITION / CONDITION RATINGS/ NO CAPTION**

**BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.**

Also see information in the “APPRAISAL RATINGS FOR FEDERAL ITEMS 67, 68, 69, 71 AND 72” section above.

This item appraises the waterway opening with respect to passage of flow through the bridge. The following codes shall be used in evaluating waterway adequacy (interpolate where appropriate). 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 give 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 delay mean the following:

Insignificant	Minor inconvenience. Highway passable in a matter of hours
Significant	Traffic delay of up to several days.
Severe	Long term delay to traffic with resulting hardship.

### **Virginia NOTE:**

Culverts, arches and other structures are not exempt from this item; if a structure intersects a waterway, FHWA requires a numerical code for this item. Code “N” only if the structure does not intersect a waterway.

<b>Functional Classification</b>			<b>Description</b>
<b>Principal Arterials, Interstates, Freeways, or Expressways</b>	<b>Other Principal and Minor Arterials and Major Collector</b>	<b>Minor Collectors, Local</b>	
<b>Code</b>			
N	N	N	Bridge not over a waterway.
9	9	9	Bridge deck and roadway approaches above floodwater elevations (high water). Chance of overtopping is remote.
8	8	8	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.

#### **EDIT CHECK**

- If Federal Item 71 is numeric then Federal Item 42B must be 5, 6, 7, 8, 9 or 0
- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through Federal Item 62 or any one Federal Item 67 through Federal Item 72 is < 5 and not N

#### **FED ITEM 72 – APPROACH ROADWAY ALIGNMENT – X (1)**

TABLE - INSPEVNT

FIELD - APPRALIGN

LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Also see information in the “APPRAISAL RATINGS FOR FEDERAL ITEMS 67, 68, 69, 71 AND 72” section above.

Code the rating based on the adequacy of the approach roadway alignment. This item identifies those bridges that 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 relates to the general highway alignment for the section of highway the bridge is on.

The individual structure shall be rated in accordance with the general appraisal rating guide in lieu of specific design values. Approach roadway alignment will be rated intolerable (a code of 3 or less) only if the horizontal or vertical curvature requires a substantial reduction in the vehicle operating speed from that on the highway section. A very minor speed reduction will be rated a 6, and when a speed reduction is not required, the appraisal code will be an 8. Additional codes may be selected between these general values.

The following codes are available in BrM to indicate which rating applies to the adequacy of the approach roadway alignment for this structure.

<u>Code</u>	<u>Description</u>
0	Bridge Closed
1	Rating Not Used
2	Intolerable - Replace
3	Intolerable - Correct
4	Minimum Tolerable
5	Above Tolerable
6	Equal Minimum Criteria
7	Above Minimum Criteria
8	Equal Desirable Criteria
9	Above Desirable Criteria
	Unknown (NBI)
	Not Applicable

For example, if the highway section requires a substantial speed reduction due to vertical or horizontal alignment, and the roadway approach to the bridge requires only a very minor additional speed reduction at the bridge, the appropriate code would be a 6. This concept shall be used at each bridge site.

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

#### **EDIT CHECK**

- A review flag occurs if Federal Item 27 is younger than 4 years old or equal to current year and any one Federal Item 58 through 62 or any one Federal Item 67 through 72 is < 5 and not N
- A warning is issued if any one of Federal Items 58, 59, 60, 62, 67, 68, 69, 70 or 72 is coded 0 and all others are coded >= 2 and Federal Item 41 is NOT = to D, E or K

**FED ITEM 75 – TYPE OF WORK – XX X (3)**

**TABLE - BRIDGE**

**FIELD - PROPWORK (75A)**

**FIELD - WORKBY (75B)**

**LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA**

BrM uses a dropdown to facilitate coding of these fields. No other entry is allowed.

The information to be recorded for this item will be the type of work proposed to be accomplished on structure to improve it to the point that it will provide the type of service needed and who will do the proposed work. Code a 3-digit number composed of 2 segments (FEDERAL ITEMS 75A AND 75B). See below.

**FED ITEM 75A – TYPE OF WORK PROPOSED – XX (2)**

**TABLE - BRIDGE**

**FIELD - PROPWORK (75A)**

**LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA**

BrM uses a dropdown to facilitate coding of these fields. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
75A	Type of Work Proposed	2 digit

**This item must be coded for bridges eligible for the Highway Bridge Program.** To be eligible, a bridge must carry highway traffic, and be rated in poor condition. This item may be coded for bridges at the option of the highway agency. Use one of the following codes to represent the proposed work type (75A), otherwise leave blank:

<u>Code</u>	<u>Description</u>
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.
[BLANK]	Unknown (P)
[BLANK]	Not Applicable (P)

**FED ITEM 75B – TYPE OF WORK BY – X (1)**

**TABLE - BRIDGE**

**FIELD - WORKBY (75B)**

**LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA**

**BrM uses a dropdown to facilitate coding of these fields. No other entry is allowed.**

<b><u>Segment</u></b>	<b><u>Description</u></b>	<b><u>Length</u></b>
75B	Work Done by	1 digit

If segment 75A is blank, leave segment 75B blank. Otherwise, the third digit shall be coded using one of the following codes to indicate whether proposed work is to be done by contract or by force account:

<b><u>Code</u></b>	<b><u>Description</u></b>
1	Work to be done by contract
2	Work to be done by owner's forces
	Unknown (NBI)
	Not Applicable (P)

**EXAMPLES:**

<b><u>Code</u></b>	
311	A bridge is to be replaced by contract because it has deteriorated to the point that it can no longer carry legal loads. The same code should be used if the bridge is replaced because it is now too narrow or the original design was too light to accommodate today's legal loads.
321	A bridge is to be replaced because the roadway must be straightened to eliminate a dangerous curve. The work will be done by contract.
331	A bridge is to be widened to increase shoulder width or the number of traffic lanes. Existing deck is in good condition and will be incorporated as is into the new structure. The work is to be done by contract.
331	A culvert is to be extended by contract to accommodate additional roadway width as part of a reconstruction contract to improve the safety of the adjacent slopes.
341	A deck is to be rehabilitated and the bridge widened to provide a full 12-foot shoulder. The existing shoulder is only 8 inches wide and an extra line of girders with appropriate substructure widening must be added. The work will be done by contract.
352	A bridge superstructure and substructure are to be rehabilitated by State forces to increase the bridge's load capacity.
361	A bridge deck is to be rehabilitated by contract and a safety curb to be removed which results in incidental widening of 2 feet.
371	A bridge deck is to be replaced by contract and the deck cantilever overhang extended 2 feet, which is the maximum that can be done without adding another line of stringers or girders to the superstructure.
382	A bridge that is no longer needed is to be demolished and an at-grade crossing built by State forces. (This code could also be used to designate incidental safety work on a bridge such as bridge-rail upgrading or replacement.)

**EDIT CHECK**

- If Federal Item 75A is > 00 then Federal Item 96 must be > 00000
- If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0



**FED ITEM 76 – LENGTH OF STRUCTURE IMPROVEMENT – XXXXXX (6)**

TABLE - BRIDGE

FIELD - IMPLEN

LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA

Code a 6-digit number that represents 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.

**This item must be coded for bridges eligible for the Highway Bridge Program.** It may be coded for other bridges at the option of the highway agency. 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 headwall.

**EXAMPLES:**

		<u>Code</u>
Length of Structure Improvement	250 feet	000250
	1,200 feet	001200
	12,345 feet	012345

For substructure or channel work only, code the length of superstructure over or supported by, the substructure or channel.

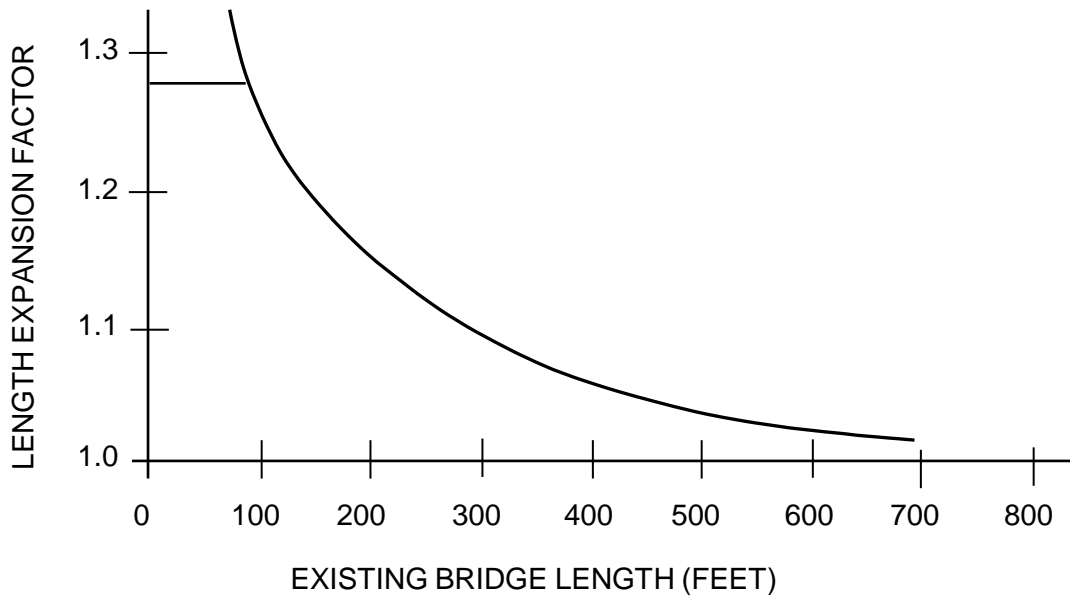
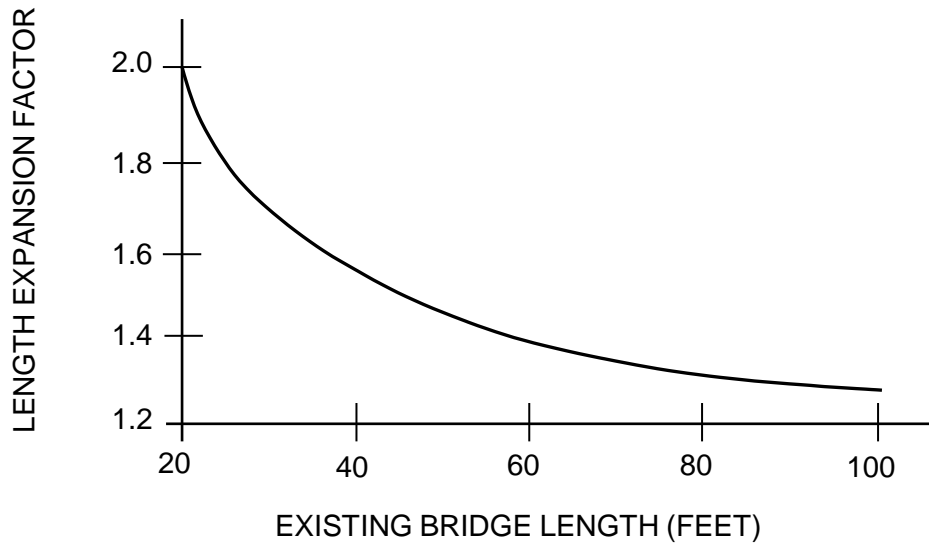
Typically, a replacement bridge is longer than the existing bridge. Nationwide averages for the increase in bridge length with replacement as a function of the existing length are given in the following figures. The length-expansion factors represent data for the years 1981 to 1985. Where site-specific data is lacking, these factors are suggested for estimating the length of replacement bridges. For exceedingly long bridges (i.e., 1000 feet or more) the length-expansion factor approaches 1.0.

**EDIT CHECK**

If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0.

### INCREASED LENGTH OF REPLACEMENT BRIDGES

X = EXISTING BRIDGE LENGTH  
Y = LENGTH EXPANSION FACTOR



REPLACEMENT BRIDGE LENGTH =  
EXISTING BRIDGE LENGTH x LENGTH EXPANSION FACTOR

**FED ITEM 90 – INSPECTION DATE – XX/XX/XXXX (10)**

TABLE - INSPEVNT

FIELD - INSPDATE

LOCATION - INSPECTION / SCHEDULE / SUMMARY

BrM offers a calendar menu to facilitate coding of this field.

**Virginia Note:**

- The notes for this item are direct from the Federal coding guide
- BrM allows entry by month/day/year (XX / XX / XXXX) which is the way VDOT wants this date to be coded rather than month and 2 digit year (see Federal Manual).

Record the month/day/year that the last routine inspection of the structure was performed. This inspection date may be different from those recorded in Federal Item 93 - Critical Feature Inspection Date. Code a 10-digit number to represent the month/day/year. (SEE VIRGINIA NOTE ABOVE).

**EXAMPLE:**

	<u>Fed Code</u>	<u>VDOT Code</u>
Inspection date November 15, 1986	1186	11/15/1986
March 3, 1987	0387	3/3/1987

**EDIT CHECK**

A warning is issued if Federal Item 90 is older than the current date less 36 months.

**FED ITEM 91 – DESIGNATED INSPECTION FREQUENCY – XX (2)**

TABLE - INSPEVNT

FIELD - BRINSPFREQ

LOCATION - INSPECTION / SCHEDULE / SCHEDULE

2 digits to represent the number of months between designated inspections of the structure. A leading zero shall be coded as required. This interval is usually determined by the individual in charge of the inspection program. For posted, understrength bridges, this interval should be substantially less than the 24-month standard. The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

**EXAMPLES:**

Code

- 01 Posted bridge with heavy truck traffic and questionable structural details which is designated to be inspected each month
- 24 Bridge is scheduled to be inspected every 24 months

It should be noted that bridges require special non-scheduled inspections after unusual physical traumas such as floods, earthquakes, fires or collisions. These special inspections may range from a very brief visual examination to a detailed in-depth evaluation depending upon the nature of the trauma. For example, when a substructure unit (pier or abutment) is struck by an errant vehicle, in most cases only a visual examination of the bridge is necessary. After major collisions or earthquakes, in- depth

inspections may be warranted as directed by the engineer in overall charge of the program. After and during severe floods, the stability of the substructure of bridges may have to be determined by probing, underwater sensors or other appropriate measures. Underwater inspection by divers may be required for some scour critical bridges immediately after floods. See Federal Item 113 - Scour Critical Bridges.

**EDIT CHECK**

- Fed Item 91 must be between 00 and 48 inclusive. A warning is issued if Fed Item 91 is > 24 months.
- Warning issued if Fed Item 41 = B, D, E, P, or R and Fed Item 91 is not less than 24.

**FED ITEM 92 – CRITICAL FEATURE INSPECTION – X XX (3)**

**TABLE - INSPEVNT**

**FIELD - FCINSPREQ (92AA – SEGMENT 1)**

**FIELD - FCINSPFREQ (92AB – SEGMENT 2)**

**FIELD - UWINSPREQ (92BA – SEGMENT 1)**

**FIELD - UWINSPFREQ (92BB – SEGMENT 2)**

**FIELD - OSINSPREQ (92CA – SEGMENT 1)**

**FIELD - OSINSPFREQ (92CB - SEGMENT 2)**

**LOCATION - INSPECTION / SCHEDULE / SUMMARY and SCHEDULE**

BrM offers a check box to indicate the type(s) of inspection(s) performed or required.

BrM offers a calendar to facilitate coding of the date for these fields.

Record the denoted critical features that need special inspection or special emphasis during inspections and the designated inspection interval in months as determined by the individual in charge of the inspection program with a 3-digit code composed of 2 segments (FEDERAL ITEMS 92AA, 92AB; 92BA, 92BB; 92CA, 92CB). The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

**Virginia Note:**

The "Element Inspection" type shall not be used as a standalone inspection type.

**FED ITEM 92AA AND 92AB – CRITICAL FEATURE INSPECTION – X (1) XX (2)**

**TABLE - INSPEVNT**

**FIELD - FCINSPREQ (92AA – SEGMENT 1)**

**FIELD - FCINSPFREQ (92AB – SEGMENT 2)**

**LOCATION - INSPECTION / SCHEDULE / SUMMARY and SCHEDULE**

BrM offers a check box to indicate the type(s) of inspection(s) performed or required.

BrM offers a calendar to facilitate coding of the date for these fields.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
92AA	Fracture Critical Details	(check box)

92AA must be coded for all structures to designate either a yes or no answer (a check box is now used in BrM). 92AB must be coded with a 2-digit number to indicate the number of months between inspections only if the first digit checked in BrM. If 92AA is not checked in BrM, 92AB is left blank.

Current guidelines for the maximum allowable interval between inspections are summarized as follows:

<u>Segment</u>	<u>Description</u>	<u>Maximum Intervals Between Inspections</u>
92AB	Fracture Critical Details	24 months

**FED ITEM 92BA AND 92BB – CRITICAL FEATURE INSPECTION – X (1) XX (2)**

**TABLE - INSPEVNT**

**FIELD - UWINSPREQ (92BA – SEGMENT 1)**

**FIELD - UWINSPFREQ (92BB – SEGMENT 2)**

**LOCATION - INSPECTION / SCHEDULE / SUMMARY and SCHEDULE**

BrM offers a check box to indicate the type(s) of inspection(s) performed or required.

BrM offers a calendar to facilitate coding of the date for these fields.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
92BA	Underwater Inspection	(check box)

92BA must be coded for all structures to designate either a yes or no answer (a check box is now used in BrM). 92BB must be coded with a 2-digit number to indicate the number of months between inspections only if the first digit checked in BrM. If 92BA is not checked in BrM, 92BB is left blank.

Current guidelines for the maximum allowable interval between inspections are summarized as follows:

<u>Segment</u>	<u>Description</u>	<u>Maximum Intervals Between Inspections</u>
92BB	Underwater Inspection	60 months

**FED ITEM 92CA AND 92CB – CRITICAL FEATURE INSPECTION – X (1) XX (2)**

TABLE - INSPEVNT

FIELD - OSINSPREQ (92CA – SEGMENT 1)

FIELD - OSINSPFREQ (92CB - SEGMENT 2)

LOCATION - INSPECTION / SCHEDULE / SUMMARY and SCHEDULE

BrM offers a check box to indicate the type(s) of inspection(s) performed or required.

BrM offers a calendar to facilitate coding of the date for these fields.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
92CA	Other Special Inspection	(check box)

92CA must be coded for all structures to designate either a yes or no answer (a check box is now used in BrM). 92CB must be coded with a 2-digit number to indicate the number of months between inspections only if the first digit checked in BrM. If 92CA is not checked in BrM, 92CB is left blank.

Current guidelines for the maximum allowable interval between inspections are summarized as follows:

<u>Segment</u>	<u>Description</u>	<u>Maximum Intervals Between Inspections</u>
92CB	Other Special Inspection	60 months

**Virginia Note:**

These items denote critical features that require special inspection or special emphasis during routine inspection procedures. **Unscheduled inspections intended to capture isolated repairs should generally be recorded as Other Special inspections in BrM, although other inspection types defined in the NBIS may be appropriate and acceptable as well.** For items 92AA, 92BA and 92CA, utilize the check box to indicate that a given category of inspection is required during the next inspection cycle. If a given category of inspection is no longer required following the current inspection due to repairs or a change in condition, make sure the box is not checked. Checking the box will cause the system to create a due date for an unnecessary inspection; if no future inspection of a given type is required, the “Next Date” category should be coded as “1/1/1901”.

**FEDERAL MANUAL EXAMPLES:**

	<u>Federal Item</u>	<u>Code</u>
A structure with a 2-girder system being inspected yearly and no other special inspections are required	92A	Y12
	92B	N
	92C	N
A structure where both fracture critical and an underwater inspections are being performed on a 1-year interval. Other special inspections are not required.	92A	Y12
	92B	Y12
	92C	N
A structure has been temporarily shored and is being inspected on a 6-month interval. Other special inspections are not required.	92A	N
	92B	N
	92C	Y06

**EDIT CHECK**

- If Federal Item 92 A, B or C are checked, then Federal Item 91 must be < 25
- Warning issued if the first digit of Federal Item 92A is checked, and Federal Item 93A is older than the current date minus the last two digits of Federal Item 92A in months

- Warning is issued if the first digit of Federal Item 92B is checked, and Federal Item 93B is older than the current date minus the last two digits of Federal Item 92B in months
- Warning is issued if the first digit of Federal Item 92C is checked, and Federal Item 93C is older than the current date minus the last two digits of Federal Item 92C in months

**FED ITEM 93 – CRITICAL FEATURE INSPECTION DATE – XX/XX/XXXX (10)**

**TABLE - INSPEVNT**

**FIELD** - FCLASTINSP (93A)

**FIELD** - UWLASTINSP (93B)

**FIELD** - OSLASTINSP (93C)

**LOCATION** - INSPECTION / SCHEDULE / SCHEDULE

BrM offers a calendar to facilitate coding of this field.

**Virginia Note:**

- The notes and examples for this item are direct from the Federal coding guide
- BrM allows entry by month/day/year (XX/XX/XXXX) which is the way VDOT wants this date coded

Code only if one or more of the boxes for Federal Items 92A, 92B or 92C are checked. Record each field as a series of 10-digit code segments, the month/day/year that the last inspection of the denoted critical feature was performed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
93A	Fracture Critical Details	10 digits
93B	Underwater Inspection	10 digits
93C	Other Special Inspection	10 digits

For each segment of this item, when applicable, code a 10-digit number to represent the month and year. If the first digit of any part of Federal Item 92 is coded N (not checked in BrM), then the corresponding part of this item shall be blank (SEE VIRGINIA NOTE BELOW).

**Virginia Note:**

Record each field as a 10 digit date in the format “MM/DD/YYYY” or use the provided calendar pop-up to facilitate coding. If the box for the corresponding Federal Item 93 is not checked, leave the date field blank.

**EXAMPLES:**

	<u>Federal Item</u>	<u>Code</u>
A structure has fracture critical members that were last inspected in March 22, 1986. It does not require underwater or other special feature inspections.	93A	03/22/1986
	93B	(blank)
	93C	(blank)
A structure has no fracture critical details, but requires underwater inspection and has other special features (for example, a temporary support) for which the State requires special inspection. The last underwater inspection was done in April 4, 1986 and the last special feature inspection was done in November 19, 1985.	93A	(blank)
	93B	04/04/1986
	93C	11/19/1985

**EDIT CHECK**

- A warning is issued if the box for Federal Item 92A is checked and Federal Item 93A is older than the current date minus the last two digits of Federal Item 92A in months.
- A warning is issued if the box for of Federal Item 92B is checked and Federal Item 93B is older than the current date minus the last two digits of Federal Item 92B in months.
- A warning is issued if the box for Federal Item 92C is checked and Federal Item 93C is older than the current date minus the last two digits of Federal Item 92C in months.

**FED ITEM 94 – BRIDGE IMPROVEMENT COST – XXXXXX (6)**

TABLE - BRIDGE

FIELD - NBIIMPCOST

LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA

Code a 6-digit number to represent the estimated cost of the proposed bridge or major structure improvements in thousands of dollars. This cost shall include only bridge construction costs, excluding roadway, right of way, detour, demolitions, preliminary engineering, etc. Code the base year for the cost in Federal Item 97 - Year of Improvement Cost Estimate. **Do not use this item for estimating maintenance costs.**

**This item must be coded for bridges eligible for the Highway Bridge Program (HBBRP).** It may be coded for other bridges at the option of the highway agency.

<b>EXAMPLES:</b>		<b><u>Code</u></b>
Bridge Improvement Cost	\$55,850	000056
	\$250,000	000250
	\$7,451,233	007451

Nationally, the deck area of replaced bridges is averaging 2.2 times the deck area before replacement. The deck area of rehabilitated bridges is averaging 1.5 times the deck area before rehabilitation. Widening square foot costs are typically 1.8 times the square foot cost of new bridges with similar spans. For example, if the average cost of a new bridge were \$50 per square foot, the average cost of the widening area would be \$90 per square foot.

Each highway agency is encouraged to use best available information and established procedures to determine bridge improvement costs. In the absence of these procedures, the highway agency may wish to use the following procedure as a guide in preparing bridge improvement cost estimates.

Apply a construction unit cost to the proposed bridge area developed by using (1) current State deck geometry design standards and (2) proposed bridge length from Federal Item 76 - Length of Structure Improvement.

**EDIT CHECK**

- Federal Item 96 must be > the sum of Federal Item 94 and Federal Item 95
- If Federal Item 97 is not blank then Federal Items 94, 95 and 96 cannot be blank
- If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0

**FED ITEM 95 – ROADWAY IMPROVEMENT COST – XXXXXX (6)**

TABLE - BRIDGE

FIELD - NBIRWCOST

LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA

Code a 6-digit number to represent the cost of the proposed roadway improvement in thousands of dollars. This shall include only roadway construction costs, excluding bridge, right-of way, detours, extensive roadway realignment costs, preliminary engineering, etc. Code the base year for the cost in Federal Item 97 - Year of Improvement Cost Estimate. **Do not use this item for estimating maintenance costs.**

**This item must be coded for bridges eligible for the Highway Bridge Program.** It may be coded for other bridges at the option of the highway agency.  
 In the absence of a procedure for estimating roadway improvement costs, a guide of 10 percent of the bridge costs is suggested.

**EDIT CHECK**

- Federal Item 96 must be > the sum of Federal Item 94 and Federal Item 95
- If Federal Item 97 is not blank then Federal Items 94, 95 and 96 cannot be blank
- If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0

**FED ITEM 96 – TOTAL PROJECT COST – XXXXXX (6)**

TABLE - BRIDGE

FIELD - NBITOTCOST

LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA

Code a 6-digit number to represent the total project cost in thousands of dollars, including incidental costs not included in Federal Items 94 and 95. 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 Federal Items 94 and 95. Code the base year for the cost in Federal Item 97 - Year of Improvement Cost Estimate. **Do not use this item for coding maintenance costs.**

**This item must be coded for bridges eligible for the Highway Bridge Program.** It may be coded for other bridges at the option of the highway agency.

In the absence of a procedure for estimating the total project cost, a guide of 150 percent of the bridge cost is suggested.

**EDIT CHECK**

- If Federal Item 75A is > 00 then Federal Item 96 must be > 00000. Federal Item 96 must be > the sum of Federal Item 94 and Federal Item 95
- If Federal Item 97 is not blank then Federal Items 94, 95 and 96 cannot be blank
- If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0

**FED ITEM 97 – YEAR OF IMPROVEMENT COST ESTIMATE – XXXX (4)**

TABLE - BRIDGE

FIELD - NBIYRCOST

LOCATION - INSPECTION / WORK / PROJECT INFORMATION / NBI PROJECT DATA

Record and code the year that the costs of work estimated in Federal Item 94 - Bridge Improvement Cost, Federal Item 95 - Roadway Improvement Cost, and Federal Item 96 - Total Project Cost were based upon. This date and the data provided for Federal Item 94 through Federal Item 96 must be current; that is, **Federal Item 97 shall be no more than 8 years old.**

**EXAMPLES:**

		<u>Code</u>
Year of Cost Estimate	1994 costs	1994
	2000 costs	2000

**EDIT CHECK**

- Federal Item 97 must be no more than eight years old
- If Federal Item 97 is not blank then Federal Items 94, 95 and 96 cannot be blank
- If the bridge is in Poor condition (see appendix for definitions) and Federal Item 5A = 1 then Federal Items 75, 76, 94, 95, 96 and 97 must be numeric and > 0



**FED ITEM 98 – BORDER BRIDGE – XXX X XX (6)**

TABLE - BRIDGE

FIELD - NSTATECODE (98AA)

FIELD - N\_FHWA\_REG (98AB)

FIELD - BB\_PCT (98B)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of Federal Items 98AA and 98AB. No other entry is allowed.

Use this item to indicate structures crossing borders of States. Code a 6-digit number composed of 3 segments specifying the percent responsibility for improvements to the existing structure when it is on a border with a neighboring State (FEDERAL ITEMS 98AA, 98AB, 98B).

**FED ITEM 98AA – BORDER STATE – XXX (3)**

TABLE - BRIDGE

FIELD - NSTATECODE (98AA)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of Federal Item 98AA. No other entry is allowed.

Use this item to indicate structures crossing borders of States. Code the first 3 digits with the neighboring FHWA State code using State codes listed in Federal Item 1A - State Code.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
098AA	Neighboring State Code for structures crossing a state border.	3 digits

**FED ITEM 98AB – BORDER FHWA REGION – X (1)**

TABLE - BRIDGE

FIELD - N\_FHWA\_REG (98AB)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

BrM uses a dropdown menu to facilitate coding of Federal Item 98AB. No other entry is allowed.

Use this item to indicate structures crossing borders of States. Code using the Region codes listed in Federal Item 1B - Region Code.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
098AB	Neighboring FHWA Region for structures crossing a state border.	1 digit

**FED ITEM 98B – BORDER BRIDGE SHARE PERCENTAGE– XX (2)**

TABLE - BRIDGE

FIELD - BB\_PCT (98B)

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

Use this item to indicate structures crossing borders of States. Code the percentage of total deck area of the existing bridge that the neighboring State is responsible for funding.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
098B	Percent of the deck area of the structure for which the neighbor state is responsible for funding, for structures crossing a state border.	2 digits

If a neighboring State codes the structure and accepts 100% of the responsibility, but your State still codes a record for the structure, then Federal Item 98B in your State’s record should be coded 99 to represent that your State has no responsibility for the structure.

Use one of the codes below to indicate which state boundary the structure crosses. For the special case of a structure on the border with Canada or Mexico, code the State code value = CAN or MEX respectively. If structure is not on a border, leave blank.

<b><u>Code</u></b>	<b><u>Border State</u></b>
	Not Applicable (P)
	Unknown (P)
01	Alabama
02	Alaska
04	Arizona
05	Arkansas
06	California
08	Colorado
09	Connecticut
10	Delaware
11	D.C.
12	Florida
13	Georgia
15	Hawaii
16	Idaho
17	Illinois
18	Indiana
19	Iowa
20	Kansas
21	Kentucky
22	Louisiana
23	Maine
24	Maryland
25	Massachusetts
26	Michigan
27	Minnesota
28	Mississippi
29	Missouri
30	Montana
31	Nebraska
32	Nevada
33	New Hampshire
34	New Jersey
35	New Mexico
36	New York
37	North Carolina
38	North Dakota
39	Ohio
40	Oklahoma
41	Oregon
42	Pennsylvania
44	Rhode Island
45	South Carolina
46	South Dakota
47	Tennessee
48	Texas
49	Utah
50	Vermont
51	Virginia
53	Washington
54	West Virginia

55	Wisconsin
56	Wyoming
72	Puerto Rico
CAN	Canada
MEX	Mexico

**EXAMPLES:**

<b><u>Code</u></b>	<b><u>Description</u></b>
034245	A structure connects your State with New Jersey and New Jersey is responsible for funding 45 percent of future improvement costs.
MEX000	A structure connects your State with Mexico and Mexico is not responsible for any funding of future improvement costs.

**FED ITEM 99 – BORDER BRIDGE STRUCTURE NUMBER – XXXXXXXXXXXXXXXX (15)**

TABLE - BRIDGE

FIELD - BB\_BRDGEID

LOCATION - INSPECTION / INVENTORY / ADMIN / LOCATION

Code the neighboring State's 15 digit National Bridge Inventory structure number for any structure noted in Federal Item 98 - 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 zeros and blank spaces whether they are leading, trailing, or embedded in the 15-digit field. If Federal Item 98 is blank, this item is blank.

In the above example where Mexico (or a neighboring State) has 00% responsibility, and, if there is no NBI Structure Number in that State's inventory file, then the entire 15-digit field shall be coded zeroes.

**FED ITEM 100 – STRAHNET HIGHWAY DESIGNATION – X (1)**

TABLE - ROADWAY

FIELD - DEFHWY

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This item shall be coded for all records in the inventory. For the purposes of this item, the STRAHNET Connectors are considered included in the term STRAHNET. For the inventory route identified in Federal Item 5, indicate STRAHNET highway conditions using one of the following codes:

<b><u>Codes</u></b>	<b><u>Description</u></b>
0	The inventory route is not a STRAHNET route.
1	The inventory route is on an Interstate STRAHNET route.
2	The inventory route is on a Non-Interstate STRAHNET route.
3	The inventory route is on a STRAHNET connector route.
[BLANK]	Unknown (NBI)

**Virginia Note:**

More information can be found at

[http://www.fhwa.dot.gov/planning/national\\_highway\\_system/](http://www.fhwa.dot.gov/planning/national_highway_system/).

**EDIT CHECK**

- If Federal Item 100 = 1 or 2 then Federal Item 47 must be > 000
- If Federal Item 100 > 0 then Federal Item 16 must be > 00000.
- If Federal Item 100 > 0 then Federal Item 17 must be > 00000

**FED ITEM 101 – PARALLEL STRUCTURE DESIGNATION – X (1)**

TABLE - BRIDGE

FIELD - PARALSTRUC

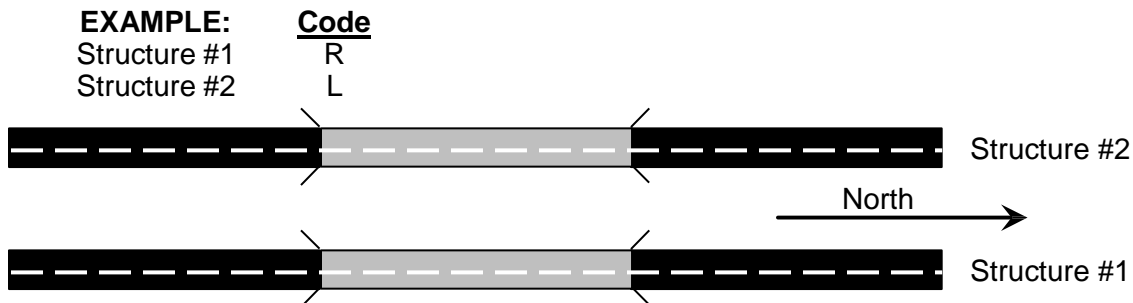
LOCATION - INSPECTION / INVENTORY / ADMIN / CLASSIFICATION INFORMATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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:

<u>Code</u>	<u>Description</u>
R	The right structure of parallel bridges carrying the roadway in the direction of the inventory route. (For a STRAHNET highway, this is west to east and south to north.)
L	The left structure of parallel bridges. This structure carries traffic in the opposite direction.
N	No parallel structure
[BLANK]	Unknown (NBI)



**FED ITEM 102 – DIRECTION OF TRAFFIC – X (1)**

TABLE - ROADWAY

FIELD - TRAFFICDIR

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & SERVICE CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Code the direction of traffic of the inventory route identified in Federal Item 5 as a 1-digit number using one of the codes below.

<u>Code</u>	<u>Description</u>
0	Highway traffic not carried
1	1-way traffic
2	2-way traffic
3	One lane bridge for 2-way traffic
[BLANK]	Unknown (NBI)

**EDIT CHECK**

- If Federal Item 28A is = 01 then Federal Item 102 must = 1 or 3.
- If 5A <> 1 and Item 28B = 1, then Item 102 Must = 1 or 3.

**FED ITEM 103 – TEMPORARY STRUCTURE DESIGNATION – X (1)**

TABLE - BRIDGE

FIELD - TEMPSTRUC

LOCATION - INSPECTION / INVENTORY / ADMIN / CLASSIFICATION INFORMATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Code this item to indicate situations where temporary structures or conditions exist. This item should be blank if not applicable.

<u>Code</u>	<u>Description</u>
T	Temporary structure(s) or conditions exist. Unknown (NBI) Not Applicable (P)

Temporary structure(s) or conditions are those that 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 that is expected to remain in place without further project activity, other than maintenance, for a significant period of time 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.

<u>Federal Item</u>	<u>Description</u>
10	Inventory Route, Minimum Vertical Clearance
41	Structure Open, Posted, or Closed Traffic
47	Inventory Route, Total Horizontal Clearance
53	Minimum Vertical Clearance Over Bridge Roadway
54	Minimum Vertical Underclearance
55	Minimum Lateral Underclearance on Right
56	Minimum Lateral Underclearance on Left
70	Bridge Posting

**EDIT CHECK**

- If Federal Item 103 = T then Federal Item 41 must = D, E or P
- If Federal Item 64 = 000 and Federal Item 41 = D or E then Federal Item 103 must = T

## **FED ITEM 104 – HIGHWAY SYSTEM OF THE INVENTORY ROUTE – X (1)**

TABLE - ROADWAY

FIELD - NHS\_IND

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

More information can be found at

[http://www.fhwa.dot.gov/planning/national\\_highway\\_system/](http://www.fhwa.dot.gov/planning/national_highway_system/)

This item is to be coded for all records in the inventory. For the inventory route identified in Federal Item 5, indicate whether the inventory route is on the National Highway System (NHS) or not on that system. Use one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
0	Inventory Route <u>is not</u> on the NHS
1	Inventory Route <u>is</u> on the NHS

### **EDIT CHECK**

- If Federal Item 26 = 1 or 11 then Federal Item 5B must = 1 and Federal Item 104 must = 1.
- Federal Item 5B must not equal 1 if Federal Item 104 does not equal 1
- If Federal Item 104 = 1 then Federal Item 26 must be 01, 02, 11, 12 or 14
- If Federal Item 104 = 0 then Federal Item 26 must be 06, 07, 08, 09, 16, 17 or 19

## **FED ITEM 105 – FEDERAL LANDS HIGHWAY – X (1)**

TABLE - ROADWAY

FIELD - FEDLANDHWY

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

Structures owned by State and local jurisdictions on roads that lead to and traverse through Federal lands sometimes require special coded unique identification because they are eligible to receive funding from the Federal Lands Highway Program. One of the following codes shall be used:

<b><u>Code</u></b>	<b><u>Description</u></b>
0	Not applicable (NBI)
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 Unknown (NBI)

## **FED ITEM 106 – YEAR RECONSTRUCTED – XXXX (4)**

TABLE - BRIDGE

FIELD - YEARRECON

LOCATION - INSPECTION / INVENTORY / ADMIN / AGE AND SERVICE

Record and code the year of the most recent reconstruction of the structure. Code all 4 digits of the latest year in which reconstruction of the structure was completed. If there has been no reconstruction code 0000.

For a bridge to be defined as reconstructed, 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 reconstruction 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 that 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).

<b><u>EXAMPLE:</u></b>	<b><u>Code</u></b>
Reconstruction completed 1970	1970

**EDIT CHECK**

- If Federal Item 106 > 0 then Federal Item 106 must be > Federal Item 27
- A warning is issued if Federal Item 106 > 0000 and the first two digits are not = 19 or 20

**FED ITEM 107 – DECK STRUCTURE TYPE – X (1)**

**TABLE - BRIDGE**

**FIELD - DKSTRUCTYP**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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

**Virginia Note:**

Where prestressed box beams have a no overlay or a non-rigid overlay such as asphalt, use code 9 - Other.

<b><u>Code</u></b>	<b><u>Description</u></b>
1	Concrete Cast-in-Place
2	Concrete Pre-cast Panels
3	Open Grating
4	Closed Grating
5	Steel Plate (includes orthotropic)
6	Corrugated Steel
7	Aluminum
8	Wood or Timber
9	Other (FRP, etc.)
N	Not Applicable (NBI)
[BLANK]	Unknown (NBI)

**FED ITEM 108 - WEARING SURFACE/PROTECTIVE SYSTEM – XXX (3)**

TABLE - BRIDGE

FIELD - DKSURFTYPE (108A)

FIELD - DKMEMBTYPE (108B)

FIELD - DKPROTECT (108C)

LOCATION - INSPECTION / INVENTORY / DESIGN / DECK

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Information on the wearing surface and protective system of the bridge deck shall be coded using a 3-digit code composed of 3 segments (FEDERAL ITEMS 108A, 108B AND 108C). See below.

**FED ITEM 108A – DECK SURFACE TYPE – X (1)**

TABLE - BRIDGE

FIELD - DKSURFTYPE (108A)

LOCATION - INSPECTION / INVENTORY / DESIGN / DECK

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
108A	Type of Wearing Surface	1 digit

<u>Code</u>	<u>Description</u>
1	Monolithic Concrete - (concurrently placed with structural deck)
2	Integral Concrete - (separate non-modified layer of concrete added to structural deck) <b>Virginia Note: Not latex modified, low slump, etc.</b>
3	Latex Concrete or similar additive such as Silica Fume
4	Low Slump Concrete
5	Epoxy Overlay
6	Bituminous (Asphalt/Surface Treatment)
7	Wood or Timber
8	Gravel
9	Other
0	None (no additional concrete thickness or wearing surface included in bridge deck)
N	Not Applicable (applies only to structures with no deck)
[BLANK]	Unknown (NBI)

**Virginia Note:**

For something to be called a wearing surface, it must be placed separately from the time the deck is placed. Therefore, monolithically placed concrete (the 1/2" that designers call a wearing surface) is not a wearing surface. Wearing surfaces may include, but are not limited to the following: asphaltic concrete overlays, latex overlays, epoxy overlays or overlays of A-4 concretes.

**Exceptions are as follows**

- If an application is placed separately from the time the deck is placed and if it is considered as a structural component and a part of the structural deck system, it will not be considered an overlay. Therefore, reinforced A-4 overlays (the concrete placed over pre-stressed deck panels, etc.) are not wearing surfaces and are considered part of the deck.



**FED ITEM 108B – DECK MEMBRANE TYPE – X (1)**

**TABLE - BRIDGE**

**FIELD - DKMEMBTYPE (108B)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

<u>Segment</u>	<u>Description</u>	<u>Length</u>
108B	Type of Membrane	1 digit

<u>Code</u>	<u>Description</u>
1	Built-up
2	Preformed Fabric
3	Epoxy
8	Unknown
9	Other
0	None
N	Not Applicable (applies only to structures with no deck)
[BLANK]	Unknown (NBI) – DO NOT USE

**FED ITEM 108C – DECK PROTECTION – X (1)**

**TABLE - BRIDGE**

**FIELD - DKPROTECT (108C)**

**LOCATION - INSPECTION / INVENTORY / DESIGN / DECK**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

<u>Segment</u>	<u>Description</u>	<u>Length</u>
108C	Type of Protective System	1 digit

<u>Code</u>	<u>Description</u>
1	Epoxy Coated Reinforcing
2	Galvanized Reinforcing
3	Other Coated Reinforcing ( <b>Virginia Note:</b> Also applies to corrosion resistant and stainless clad reinforcing.)
4	Cathodic Protection
6	Polymer Impregnated
7	Internally Sealed
8	Unknown
9	Other (Includes 'corrosion resistant reinforcement' such as stainless steel)
0	None (Includes 'black' steel with no coating)
N	Not Applicable (applies only to structures with no deck)
[BLANK]	Unknown (NBI) – DO NOT USE

**FED ITEM 109 – AVERAGE DAILY TRUCK TRAFFIC – XX (2)**

TABLE - ROADWAY

FIELD - TRUCKPCT

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code a 2-digit percentage that shows the percentage of Federal Item 29 - Average Daily Traffic that is truck traffic. Do not include vans, pickup trucks and other light delivery trucks in this percentage.

If this information is not available, an estimate that represents the average percentage for the category of road carried by the bridge may be used. Leave blank if Federal Item 29 - Average Daily Traffic is not greater than 100.

<b><u>EXAMPLES:</u></b>		<b><u>Code</u></b>
Average Daily Traffic	7% trucks	07
	12% trucks	12

**Virginia Note:**

This information is available on the Team Site at “Average Annual Daily Traffic (Primary and Interstate) - 2012 (Latest Available)”

**EDIT CHECK**

If Federal Item 29 is > 100 then Federal Item 109 must NOT be blank. A warning is issued if Federal Item 109 is > 40.

**FED ITEM 110 – DESIGNATED NATIONAL NETWORK – X (1)**

TABLE - ROADWAY

FIELD - TRUCKNET

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

The national network for truck includes most of the Interstate System and those portions of the Federal-Aid Primary System 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 Federal Item 5, indicate conditions using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
0	The inventory route is <b>not</b> part of the national network for trucks.
1	The inventory route is part of the national network for trucks.
[BLANK]	Unknown (NBI)

**Virginia Note:**

This information is available on the following link.  
<http://gis.vdot.virginia.gov/vatruckweb/VaTruckRestrictions.aspx>

**STAA Routes - Designated National Network is also available on VDOT’s Inspection Team Site.**

**FED ITEM 111 – PIER OR ABUTMENT PROTECTION (FOR NAVIGATION) – X (1)**

**TABLE - INSPEVNT**

**FIELD – PIERPROT**

**LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

If Federal Item 38 - Navigation Control has been coded 1 use the codes 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 Federal Item 60 - Substructure. If Federal Item 38 - Navigation Control has been coded 0 or N, leave blank to indicate not applicable.

<u>Code</u>	<u>Description</u>
1	Navigation protection not required
2	In place and functioning
3	In place but in a deteriorated condition
4	In place but reevaluation of design suggested
5	None present but reevaluation suggested
[BLANK]	Not Applicable (P)
[BLANK]	Unknown (NBI)

**EDIT CHECK**

If Federal Item 38 = 1 then Federal Item 111 must NOT be blank.

**FED ITEM 112 – NBIS LENGTH – X (1)**

**TABLE - BRIDGE**

**FIELD - NBISLEN**

**LOCATION - INSPECTION / INVENTORY / ADMIN / CLASSIFICATION INFORMATION**

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Does this structure meet or exceed the minimum length specified to be designated as a bridge for National Bridge Inspection Standards purposes? The following definition of a bridge is to be used:

A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

**Virginia Note:**

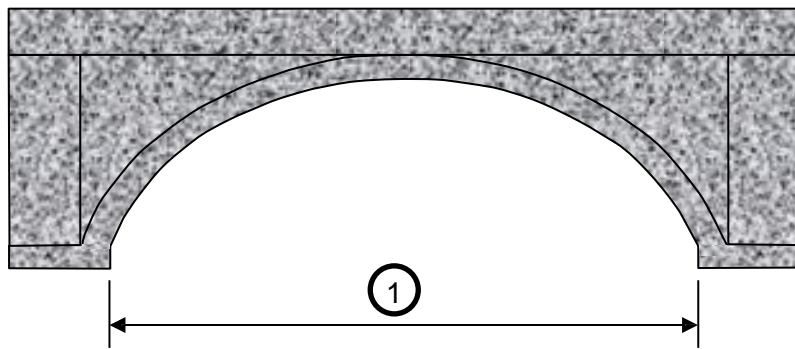
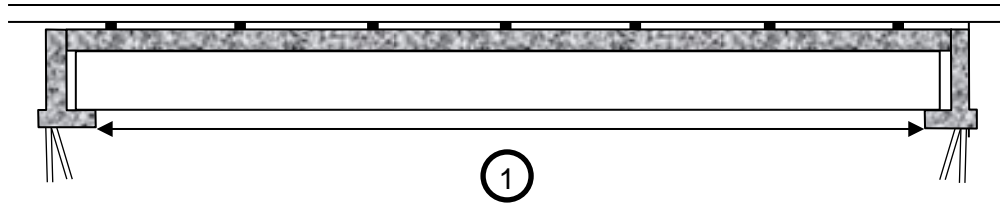
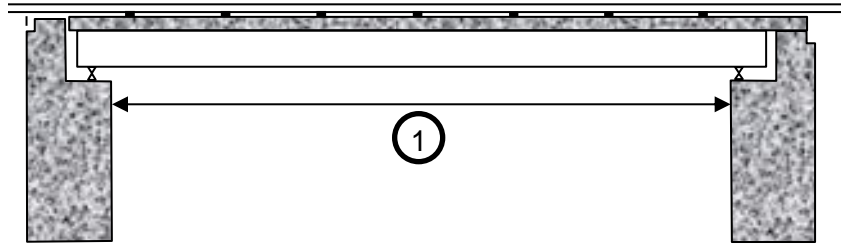
In addition to the above, the structure must carry a highway.

<u>Code</u>	
Long Enough	Y
Too Short	N
Unknown (NBI)	[BLANK]

**EDIT CHECK**

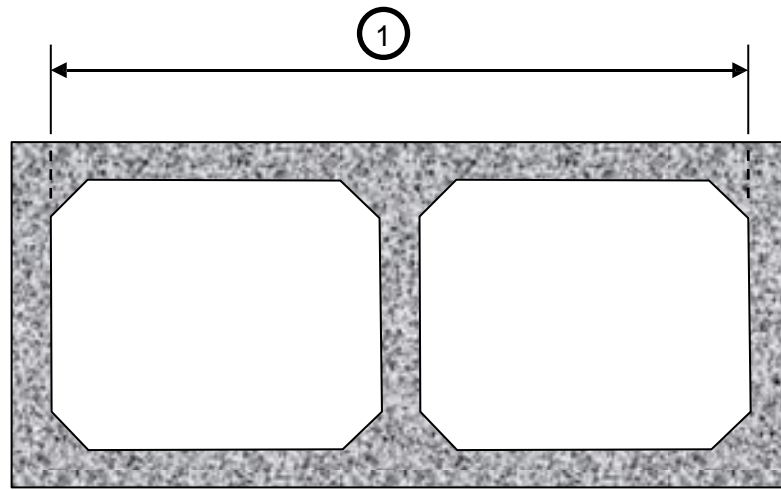
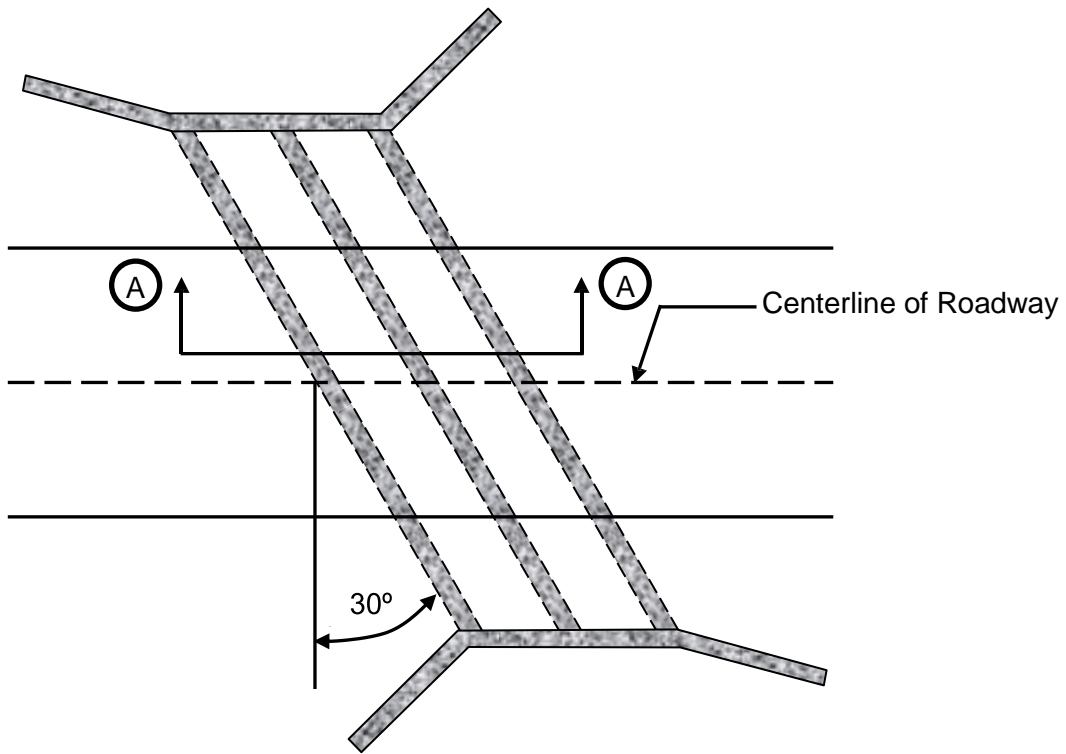
If Federal Item 112 = Long Enough then Federal Item 49 must be > 20

**EXAMPLES**



① Item 112 - NBIS Bridge Length

**EXAMPLES, cont.**



**SECTION A - A**

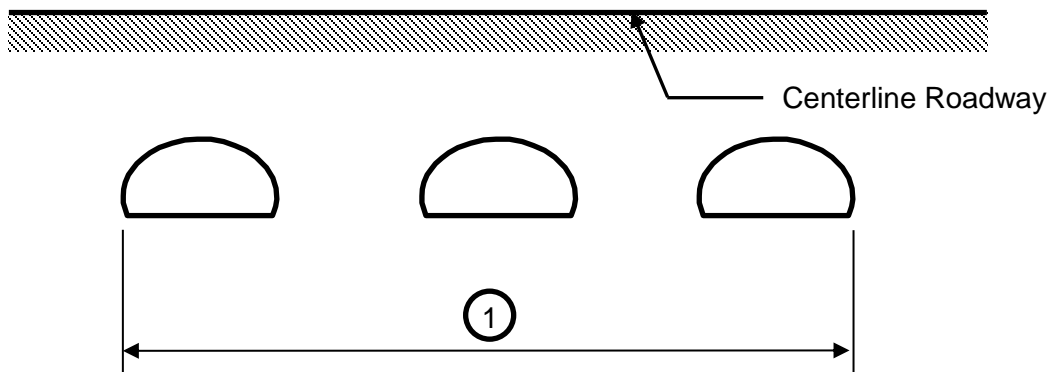
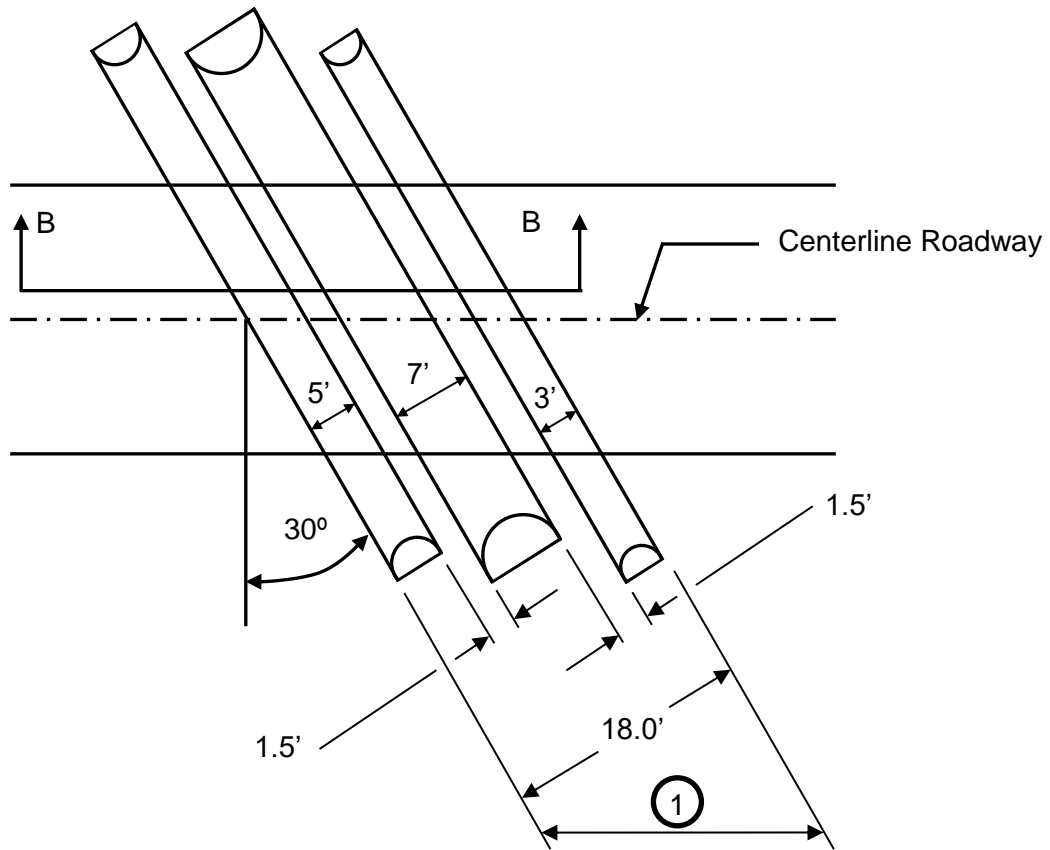
① Item 112 - NBIS Bridge Length

**Example:**

$$\frac{18 \text{ feet}}{\cos 30^\circ} = 20.78 \text{ feet} \quad 00020.780 \text{ feet}$$

In the example note above, the inspector should code Federal Item 112 “Long Enough” because the structure exceeds the minimum length requirement.

**EXAMPLES, cont.**



**Example:**

① Item 112 - Structure Length =  $\frac{18'}{\cos 30^\circ} = 20.78'$       Code  
000020.780

In the example note above, the inspector should code Federal Item 112 "Long Enough" because the structure exceeds the minimum length requirement.

## **FED ITEM 113 – SCOUR CRITICAL BRIDGES – X (1)**

**TABLE - INSPEVNT**

**FIELD - SCOURCRIT**

**LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL**

**BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.**

Use a single-digit code as indicated below to identify the current status of the bridge regarding its vulnerability to scour. Evaluations shall be made by hydraulic / geotechnical / structural engineers. Guidance on conducting a scour evaluation is included in the FHWA Technical Advisory T 5140.23 titled, "Evaluating Scour at Bridges"(1). Detailed engineering guidance is provided in the Hydraulic Engineering Circular (HEC) 18 titled "Evaluating Scour at Bridges."(2) Whenever a rating factor of 2 or below is determined for this item, the rating factor for Federal Item 60 - Substructure and other affected items (i.e., load ratings, superstructure rating) should be revised to be consistent with the severity of observed scour and resultant damage to the bridge. A plan of action should be developed for each scour critical bridge (see FHWA Technical Advisory T 5140.23, HEC 18 (2) and HEC 23(3)). A scour critical bridge is one with abutment or pier foundation rated as unstable due to (1) observed scour at the bridge site (Federal Item 113 is coded 2, 1, or 0) or (2) a scour potential as determined from a scour evaluation study (Federal Item 113 is coded 3). It is assumed that the coding of this item has been based on an engineering evaluation, which includes consultation of the NBIS field inspection findings.

### **Virginia Note:**

Whenever a rating factor of 4 or below is determined for this item, the rating factor for Federal Item 60 - Substructure may need to be revised to reflect the severity of actual scour and resultant damage to the bridge.

A link to referenced HEC books is below:

[https://www.fhwa.dot.gov/engineering/hydraulics/library\\_listing.cfm](https://www.fhwa.dot.gov/engineering/hydraulics/library_listing.cfm)

**Referenced HEC books are also available on VDOT's Inspection Team Site.**

**Culverts shall be coded similar to bridges for Federal Item 113 (Scour Critical Bridges)**

See Codes on the following page:

<b>Code</b>	<b>Description</b>
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 and immediately after a flood event (see HEC 23)(3).
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) on dry land 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) (3).
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. ( <u>Use only to describe case where bridge has not yet been evaluated for scour potential.</u> )
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) (3).
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).
3	Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions: <ul style="list-style-type: none"> <li>- Scour within limits of footing or piles. (Example B)</li> <li>- Scour below spread-footing base or pile tips. (Example C)</li> </ul>
2	Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, and are determined to be unstable by: <ul style="list-style-type: none"> <li>- a comparison of calculated scour and observed scour during the bridge inspection, or</li> <li>- an engineering evaluation of the observed scour condition reported by the bridge inspector in Federal Item 60.</li> </ul>
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: <ul style="list-style-type: none"> <li>- a comparison of calculated and observed scour during the bridge inspection, or</li> <li>- an engineering evaluation of the observed scour condition reported by the bridge inspector in Federal Item 60.</li> </ul>
0	Bridge is scour critical. Bridge has failed and is closed to traffic.

Reference numbers for the paragraph and table above:

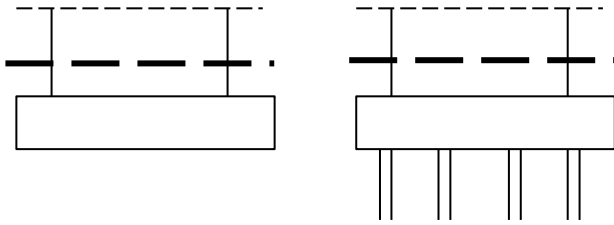
1. FHWA Technical Advisory T 5140.23 Evaluating Scour at Bridges dated October 28 1991.
2. HEC 18 Evaluating Scour at Bridges Fourth Edition.
3. HEC 23 Bridge Scour and Stream Instability Countermeasures Second Edition.
4. FHWA Memorandum "Scourability of Rock Formations" dated July 19 1991.



**EXAMPLES:**

**CALCULATED SCOUR DEPTH**

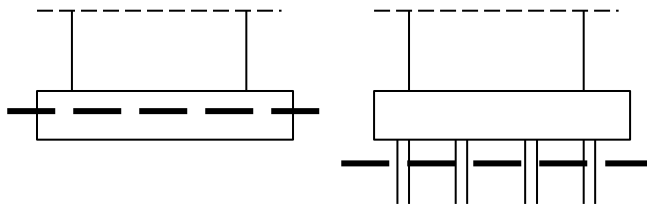
**A. Above top of Footing**



**ACTION NEEDED**

None – Indicating rating of 8 for this item.

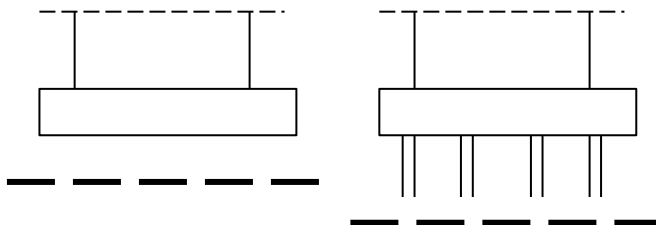
**B. Within limits of footing or piles**



**ACTION NEEDED**

Conduct foundation structural analysis

**C. Below pile tips or spread footing base**



**ACTION NEEDED**

Provide for monitoring and scour countermeasures as necessary.

SPREAD FOOTING  
(NOT FOUNDED IN ROCK)

PILE FOOTING

— — — — — = **Calculated or Assessed Scour Depth**

**EDIT CHECK**

If Federal Item 42B = 5, 6, 7, 8, or 9 then Federal Item 113 must be numeric.

If Federal Item 42B = 1, 2, 3, or 4 then Federal Item 113 must be N.

**FED ITEM 114 – FUTURE AVERAGE DAILY TRAFFIC – XXXXXX (6)**

TABLE - ROADWAY

FIELD - ADTFUTURE

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code for all bridges the forecasted average daily traffic (ADT) for the inventory route identified in Federal Item 5. This shall be projected at least 17 years but no more than 22 years from the year data is submitted to the NBI. The intent is to provide a basis for a 20-year forecast. This item may be updated anytime, but must be updated when the forecast falls below the 17-year limit. 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 bridge. For example, parallel bridges with an open median are coded as follows: if Federal Item 28 - Lanes On and Under the Structure and Federal Item 51 - Bridge Roadway Width, 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).

<b>EXAMPLES</b>		<b><u>Code</u></b>
Future ADT	540	000540
	15,600	015600
	240,000	240000

**EDIT CHECK**

Federal Item 114 must be < or = 4.0 times Federal Item 29 and Federal Item 114 must be > or = 0.4 times Federal Item 29. A warning is issued if Federal Item 114 is > 200,000.

**FED ITEM 115 – YEAR OF FUTURE AVERAGE DAILY TRAFFIC – XXXX (4)**

TABLE - ROADWAY

FIELD - ADTFUTYEAR

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Record and code the year represented by the future ADT in Federal Item 114. The projected year of future ADT shall be at least 17 years but no more than 22 years from the year of inspection.

<b>EXAMPLE:</b>		<b><u>Code</u></b>
Year of Future ADT is	2014	2014

**EDIT CHECK**

Federal Item 115 must be >= 17 years and <= 22 years since date of last inspection.

**FED ITEM 116 – MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE – XXX.X (4)**

TABLE - BRIDGE

FIELD - LFTBRNAVCL

LOCATION - INSPECTION / APPRAISAL / CLEARANCES / NAVIGATION DATA

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

Record and code as a four-digit number truncated to the nearest tenth of a foot (rounding down) 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. Code this item only for vertical lift bridges in the dropped or closed position, otherwise leave blank.

<b>EXAMPLES:</b>		<b><u>Code</u></b>
Vertical Clearance	20.6	020.6
	24.2	024.2

**Virginia Note:**

Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**EDIT CHECK**

If Federal Item 43B = 15 then Federal Item 116 must NOT be blank.

## STATE ITEMS

BELOW EACH ITEM NAME "TABLE" PLUS "FIELD" INDICATES THE LOCATION OF THE ITEM IN THE DATABASE. THIS CAN BE USED BY ANY DATA RETRIEVAL SOFTWARE TO 'PULL' THE ASSOCIATED DATA. "LOCATION" CAN BE USED TO FIND THE ITEM IN THE BrM DISPLAY.

In some cases, there may be old values present in data fields that do not match the selections available in the BrM menus. The BrM field may not be formatted to accept the old value. These will be displayed with the notation "(FIX\_PARAM\_VALUE)" and should be updated by inspectors if possible. See the "Agency Code" table in the Appendix for a list of jurisdictions.

### **STATE ITEM 1 – RESIDENCY CODE – XX (2)**

TABLE - USERBRDG

FIELD - RESID\_CODE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This is the number of the Residency in which the structure is geographically located.

Refer to the "Residency Code" table in Appendix.

### **STATE ITEM 2 – JURISDICTION CODE – XXX (3)**

TABLE - USERBRDG

FIELD - CITY\_CNTY\_CODE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**There are jurisdictions shown in the dropdown that may not be in current use. See the "Agency Code" table in the Appendix for a list of jurisdictions.**

The jurisdiction of a structure is ordinarily inventoried under the county/city where that structure is geographically located.

The jurisdiction of structures located in towns or cities with a population over 3,500 are inventoried in that city or town regardless of the maintenance responsibility.

The jurisdiction of structures located in towns with a population under 3,500 which have chosen to maintain their own streets are inventoried in the county in which the town is located and the maintenance responsibility field should reflect the town code.

If the structure is on a county-county line, county-city line or city-city line, and the maintenance county/city is on the line, the jurisdiction of the structure is inventoried using the maintenance responsibility code.

If the structure is maintained jointly, inventory the jurisdiction of the structure based on the county/city that has the majority of maintenance responsibility. If the structure has equal maintenance responsibility code the lowest numbered county or city.

If the structure is within a county or city but is maintained by another county or city, inventory the jurisdiction the structure under the county or city where it is geographically located.

**STATE ITEM 4 – VA STRUCTURE NUMBER – XXXX (4)**

TABLE - USERBRDG

FIELD - VA\_STRUCT\_NO

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

This is the four digit structure number assigned by the State of Virginia. It is unique within each county, municipality or other entity.

As described in IIM-S&B-27.X, when assigning a structure number to a replacement structure on the same or similar alignment, the existing Virginia Structure Number shall be reused.

**STATE ITEM 5 – LANE ON ROUTE – X (1)**

TABLE - USERRWAY

FIELD - LANE\_ON\_RTE

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The direction of traffic on the structure according to the Roadway Network System shall be used for all routes including ramps.

<u>Code</u>	<u>Description</u>
Blank	Not Applicable
N	Northbound
E	Eastbound
S	Southbound
W	Westbound
R	Reversible
P	Parallel Route
1	Express Northbound
2	Express Eastbound
3	Express Southbound
4	Express Westbound
Z	Express Reversible

**STATE ITEM 6 – NAME – XXXXXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - BRIDGE

FIELD - STRUCNAME

LOCATION - INSPECTION / INVENTORY / ADMIN / STRUCTURE IDENTIFICATION

NOTE: This item is not numbered in BrM.

This is a State Field shown without an identifying Item Code. This is the name of a bridge officially assigned by the General Assembly, Commonwealth Transportation Board or the local Board of Supervisors. If no official name exists an unofficial local name of a bridge can be used. More information on naming transportation facilities can be found in the Code of Virginia Section 33.2-213.

**STATE ITEM 10 – ADJACENT JURISDICTION CODE – XXX (3)**

TABLE - USERBRDG

FIELD - ADJ\_CITY\_CNTY

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

If the structure is on a county or city line the code for the county or city adjacent to the structure that is being inventoried.

**STATE ITEM 12 – SPECIAL USE CODE – X (1)**

**TABLE - USERBRDG**

- FIELD - SPEC\_USAGE\_B (This is the code for Brush Removal)
- FIELD - SPEC\_USAGE\_FS (This is the code for Fender System)
- FIELD - SPEC\_USAGE\_PE (This is the code for Fatigue/Electroslag)
- FIELD - SPEC\_USAGE\_U (This is the code for Ultrasonic Required)
- FIELD - SPEC\_USAGE\_AS (This is the code for Asbestos Present)
- FIELD - SPEC\_USAGE\_SP (This is the code for Stand Pipes)
- FIELD - SPEC\_USAGE\_C (This is the code for BARS Checked)
- FIELD - SPEC\_USAGE\_P (This is the code for Fatigue Prone)
- FIELD - SPEC\_USAGE\_SV (This is the code for Seismic Vulnerability)
- FIELD - SPEC\_USAGE\_MS (This is the code for Materials Storage)
- FIELD - SPEC\_USAGE\_FA (This is the code for Facilities Adjacent)
- LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / SPECIAL USAGE CODES

BrM offers a check box to whether or not each special use code is applicable.

This code is used to indicate a special use or need or other items not covered elsewhere. This is a user define table and will be maintained by the Central Office. Districts may ask for additions to the list.

BrM offers check boxes to allow indications of as many as are appropriate for a particular structure. The checkboxes offered are shown below.

<u>CODE</u>	<u>DESCRIPTION</u>
B	Brush Removal
PE	Fatigue Prone and Electroslag
U	Ultrasonic Inspection Required
C	BARS Checked
P	Fatigue Prone
FS	Fender System
AS	Asbestos
SP	Stand Pipes
SV	Seismic Vulnerability
MS	Materials Storage
FA	Facilities Adjacent

**STATE ITEM 13A – ORIGINAL PLAN NUMBER – XXX-XXX (6)**

**TABLE - USERBRDG**

- FIELD - ORIG\_PLAN
- LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Code the original design plan number for the structure in place. When a structure is built with multiple standard plans and has a plan number, this field should be coded.

**STATE ITEM 13B – ORIGINAL STANDARD PLAN NUMBER – XXXXXXXXXXXXXXXX (16)**

**TABLE - USERBRDG**

- FIELD - ORIG\_STD\_PLAN
- LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Code the original standard plan number for the structure in place. This should be coded when there is no original design plan number.

**STATE ITEM 14A – RECONSTRUCTION PLAN NUMBER – XXX-XXX (6)**

**TABLE - USERBRDG**

- FIELD - RECON\_PLAN
- LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Code the reconstruction design plan number for the structure in place. When a structure is reconstructed with multiple standard plans and has a plan number, this field should be coded. Code the most current plan number.

**STATE ITEM 14B – RECONST STANDARD PLAN NO. – XXXXXXXXXXXXXXXX (16)**

TABLE - USERBRDG

FIELD - RECON\_STD\_PLAN

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Code the reconstruction standard plan number for the structure in place. This should be coded when there is no reconstruction design plan number. Code the most current plan number.

**STATE ITEM 15 – MAINTENANCE RESPONSIBILITY – STATE – XXX (3)**

TABLE - USERBRDG

FIELD - MAINT\_RESP\_STATE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This indicates the agency having responsibility for the maintenance for the structure. For VDOT or city maintenance, code the county or city number indicating the maintenance of the structure. For other state facilities; railroads; Arlington, Henrico, and Buchanan counties; or other agency maintenance code accordingly. (See the Maintenance Code in the Appendix.)

For an interstate route within a city, code the number of the county that maintains the structure.

Where there is joint maintenance between a city and county, code the county number.

Where there is joint maintenance with an outside agency, code the county or city number as appropriate.

**STATE ITEM 19 – ABUT/CULV MAT & TYP OF FOUNDATION/PILES – X (1) XX (2) X (1) XX (2) FOR EACH ABUTMENT**

TABLE - USERBRDG

FIELD - ABUT\_A\_MATER (Abutment A Main Material)

FIELD - ABUT\_A\_TYPE (Abutment A Design Type)

FIELD - ABUT\_A\_PMATER (Abutment A Foundation/Pile Material)

FIELD - ABUT\_A\_PTYPE (Abutment A Foundation/Pile Design Type)

FIELD - ABUT\_B\_MATER (Abutment B Main Material)

FIELD - ABUT\_B\_TYPE (Abutment B Design Type)

FIELD - ABUT\_B\_PMATER (Abutment B Foundation/Pile Material)

FIELD - ABUT\_B\_PTYPE (Abutment B Foundation/Pile Design Type)

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / ABUTMENTS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This item records the material and type of Abutment A, Abutment B or Culvert and the material and type of the foundation or piles.

**FOR EACH ABUTMENT**

Main Material	X
Type	XX
Fnd/Piles Material	X
Fnd/Piles Type	XX

Code for Abutments A & B and Culverts.  
(Code culvert foundation material in Abutment A Foundation/Piles Material and Type)

### **Abutment Material and Type**

Leave blank for Culverts.

The first position indicates **kind of MATERIAL**.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
1	Concrete
2	Steel
3	Timber
4	Masonry
0	Other
	Not Applicable

The second and third positions indicate **TYPE of design and/or construction**.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
01	Shelf or stub
02	Solid or Gravity
03	Column or Open
04	Curtain Wall
05	Cantilever
06	Bent
07	Cribwall
08	Integral
09	Reinforced Earth, etc.
00	Other
	Not Applicable

### **Foundation/Piles Material and Type**

The first position indicates the **type of/ or kind of MATERIAL** used for the foundation or piles.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
1	Solid Rock
2	Improved Foundation (Select Aggregate, geo-grid)
3	Firm Material
4	Pre-consolidated Fill
5	Steel
6	Concrete
7	Prestressed Concrete
8	Timber
0	Other
—	Not Applicable



The second and third position indicated **spread footing or pile design TYPE**.

<b>CODE</b>	<b>DESCRIPTION</b>
01	Spread Footing
02	Piles, Precast or Prefabricated
03	Piles, C-I-P
04	Drilled Shaft
00	Other (used for culverts not on piles.)
-1	Not Applicable

**EXAMPLES**

1 02 1 01	Concrete Abutment (1) Designed as a Solid or Gravity Abutment (02) Located on Solid Rock (1) using a Spread Footing (01)
0 00 3 00	Material (0) and Type (00) for Culverts, Firm Material Foundation (3) and Type Foundation (00) for culverts not on piles.

**STATE ITEM 20 – PIERS TYPE – MAIN – SEE BELOW**

**TABLE - USERBRDG**

- FIELD - MAIN\_PIER\_A\_MATER (Main Pier - Group 1 - Material)
- FIELD - MAIN\_PIER\_A\_TYPE (Main Pier - Group 1 - Type)
- FIELD - MAIN\_PIER\_A\_PMATER (Main Pier - Group - 1 Foundation/Pile Material)
- FIELD - MAIN\_PIER\_A\_PTYPE (Main Pier - Group 1 - Foundation/Pile Type)
- FIELD - MAIN\_PIER\_A\_NO (Main Pier - Group 1 - Count)
- FIELD - MAIN\_PIER\_B\_MATER (Main Pier - Group 2 - Material)
- FIELD - MAIN\_PIER\_B\_TYPE (Main Pier - Group 2 - Type)
- FIELD - MAIN\_PIER\_B\_PMATER (Main Pier - Group 2 - Foundation/Pile Material)
- FIELD - MAIN\_PIER\_B\_PTYPE (Main Pier - Group 2 - Foundation/Pile Type)
- FIELD - MAIN\_PIER\_B\_NO (Main Pier - Group 2 - Count)
- FIELD - MAIN\_PIER\_C\_MATER (Main Pier - Group 3 - Material)
- FIELD - MAIN\_PIER\_C\_TYPE (Main Pier - Group 3 - Type)
- FIELD - MAIN\_PIER\_C\_PMATER (Main Pier - Group 3 - Foundation/Pile Material)
- FIELD - MAIN\_PIER\_C\_PTYPE (Main Pier - Group 3 - Foundation/Pile Type)
- FIELD - MAIN\_PIER\_C\_NO (Main Pier - Group 3 - Count)
- FIELD - MAIN\_PIER\_D\_MATER (Main Pier - Group 4 - Material)
- FIELD - MAIN\_PIER\_D\_TYPE (Main Pier - Group 4 - Type)
- FIELD - MAIN\_PIER\_D\_PMATER (Main Pier - Group 4 - Foundation/Pile Material)
- FIELD - MAIN\_PIER\_D\_PTYPE (Main Pier - Group 4 - Foundation/Pile Type)
- FIELD - MAIN\_PIER\_D\_NO (Main Pier - Group 4 - Count)
- FIELD - MAIN\_PIER\_E\_MATER (Main Pier - Group 5 - Material)
- FIELD - MAIN\_PIER\_E\_TYPE (Main Pier - Group 5 - Type)
- FIELD - MAIN\_PIER\_E\_PMATER (Main Pier - Group 5 - Foundation/Pile Material)
- FIELD - MAIN\_PIER\_E\_PTYPE (Main Pier - Group 5 - Foundation/Pile Type)
- FIELD - MAIN\_PIER\_E\_NO (Main Pier - Group 5 - Count)

**LOCATION** - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / MAIN PIER - GROUP 1, 2, 3, 4 AND 5

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This item records the material and type of up to 5 different types of piers. Record the number of piers made of the same material, type, foundation/pile material and foundation/pile material.

Count	XX
Material	X
Type	XX
Fnd/Piles Material	X
Fnd/Piles Type	XX

**Pier - Count**

The number of any one type of pier and foundation combination (i.e. one type of pier may be used in combination with two or more foundations.)

**Pier - Material and Type**

The first position of this code will indicate **kind of MATERIAL**.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
1	Concrete
2	Steel
3	Timber
4	Masonry
0	Other
	Not Applicable

The second and third positions will indicate **TYPE of design and/or construction**.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
01	Solid
02	Column - single
03	Column - webwall
04	Drilled-In-Caisson
05	Bent - column
06	Bent - pile
07	Single Stem - Hammerhead
08	Collision Wall
09	Pivot
10	Bascule
11	Rest Bent
00	Other
-1	Not Applicable

**Pier Foundation or Piles**

The first position indicates the **kind of MATERIAL** used for piles or for bearing for spread footing.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
1	Solid Rock
2	Improve Foundation (select aggregate, geo-grid)
3	Firm Material
4	Pre-consolidated Fill
5	Steel
6	Concrete
7	Prestressed Concrete
8	Timber
0	Other
-	Not Applicable

The second and third positions will indicate the **spread footing or piles design TYPE**.

<b><u>CODE</u></b>	<b><u>DESCRIPTION</u></b>
01	Spread Footing
02	Piles, Precast or Prefabricated
03	Piles, C-I-P
04	Drilled Shaft
00	Other
-1	Not Applicable

**EXAMPLE**

1 01 1 01 2 Concrete (1) Solid (01) Pier constructed on Solid Rock (1) using a Spread Footing (01). There are 2 piers (2) with this configuration

## **STATE ITEM 21 – PIERS TYPE – APPROACH**

### **TABLE - USERBRDG**

**FIELD** - APPR\_PIER\_A\_MATER (Approach Pier - Group 1 - Material)  
**FIELD** - APPR\_PIER\_A\_TYPE (Approach Pier - Group 1 - Type)  
**FIELD** - APPR\_PIER\_A\_PMATER (Approach Pier - Group - 1 Foundation/Pile Material)  
**FIELD** - APPR\_PIER\_A\_PTYPE (Approach Pier - Group 1 - Foundation/Pile Type)  
**FIELD** - APPR\_PIER\_A\_NO (Approach Pier - Group 1 - Count)  
**FIELD** - APPR\_PIER\_B\_MATER (Approach Pier - Group 2 - Material)  
**FIELD** - APPR\_PIER\_B\_TYPE (Approach Pier - Group 2 - Type)  
**FIELD** - APPR\_PIER\_B\_PMATER (Approach Pier - Group 2 - Foundation/Pile Material)  
**FIELD** - APPR\_PIER\_B\_PTYPE (Approach Pier - Group 2 - Foundation/Pile Type)  
**FIELD** - APPR\_PIER\_B\_NO (Approach Pier - Group 2 - Count)  
**FIELD** - APPR\_PIER\_C\_MATER (Approach Pier - Group 3 - Material)  
**FIELD** - APPR\_PIER\_C\_TYPE (Approach Pier - Group 3 - Type)  
**FIELD** - APPR\_PIER\_C\_PMATER (Approach Pier - Group 3 - Foundation/Pile Material)  
**FIELD** - APPR\_PIER\_C\_PTYPE (Approach Pier - Group 3 - Foundation/Pile Type)  
**FIELD** - APPR\_PIER\_C\_NO (Approach Pier - Group 3 - Count)  
**FIELD** - APPR\_PIER\_D\_MATER (Approach Pier - Group 4 - Material)  
**FIELD** - APPR\_PIER\_D\_TYPE (Approach Pier - Group 4 - Type)  
**FIELD** - APPR\_PIER\_D\_PMATER (Approach Pier - Group 4 - Foundation/Pile Material)  
**FIELD** - APPR\_PIER\_D\_PTYPE (Approach Pier - Group 4 - Foundation/Pile Type)  
**FIELD** - APPR\_PIER\_D\_NO (Approach Pier - Group 4 - Count)  
**FIELD** - APPR\_PIER\_E\_MATER (Approach Pier - Group 5 - Material)  
**FIELD** - APPR\_PIER\_E\_TYPE (Approach Pier - Group 5 - Type)  
**FIELD** - APPR\_PIER\_E\_PMATER (Approach Pier - Group 5 - Foundation/Pile Material)  
**FIELD** - APPR\_PIER\_E\_PTYPE (Approach Pier - Group 5 - Foundation/Pile Type)  
**FIELD** - APPR\_PIER\_E\_NO (Approach Pier - Group 5 - Count)  
**LOCATION** - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / APPROACH PIER GROUP 1, 2, 3, 4 AND 5

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This item records the material and type of up to 5 different types of approach piers. Record the number of approach piers made of the same material, type, foundation/pile material and foundation/pile material.

This item uses the same codes as shown for State Item 20 (see above).

Count	XX
Material	X
Type	XX
Fnd/Piles Material	X
Fnd/Piles Type	XX

## **STATE ITEM 22 – NUMBER OF DRAIN OPENINGS – XXX (3)**

### **TABLE - USERBRDG**

**FIELD** - DRAIN\_OPEN

**LOCATION** - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

The number of openings in the given drainage structure for culverts only.

## **STATE ITEM 23 – SMALLEST OPENING (FT) – XXXX.X (5)**

### **TABLE - USERBRDG**

**FIELD** - DRAIN\_WIDTH

**LOCATION** - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

Code width or diameter of an opening to the nearest tenth of a foot for culverts only. For multiple openings in culverts unequal openings, this shall be the width or diameter of the **SMALLEST** opening.

**STATE ITEM 24 – HEIGHT OF OPENING (FT.) – XXXX.X (4)**

TABLE - USERBRDG

FIELD - DRAIN\_HT

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

Height of an opening to the nearest tenth of a foot for culverts only. For multiple culverts or non-circular pipes, this shall be the height of the **SMALLEST** opening. **For circular openings leave this item blank.**

**STATE ITEM 25 – DRAIN BARREL LENGTH (FT.) – XXXXXX.X (7)**

TABLE - USERBRDG

FIELD - DRAIN\_BARL LENG

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

Code the total barrel length **along the flowline** to the nearest tenth of a foot for culverts only. When the extension of an existing structure is of a different size, code the data for the entire portion (all sizes) and note the difference(s) in the report.

**STATE ITEM 26 – DEPTH OF FILL – XXXX.X (5)**

TABLE - USERBRDG

FIELD - DRAIN\_DEPTH\_FILL

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

This is the maximum amount of fill above the culvert. Code to the nearest tenth of a foot for culverts only.

**STATE ITEM 27 – YEAR RECONSTRUCTED – XXXX (4)**

TABLE - USERBRDG

FIELD - YR\_RECON

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

Code the last year reconstructed for any reconstruction where a plan is involved and the entire structure is **not** replaced. This field would be coded whether or not Item 106 is coded.

**STATE ITEM 28 – HORIZONTAL CLEARANCE UNDER RTE – LEFT – XXXX.X (5)**

**STATE ITEM 29 – HORIZONTAL CLEARANCE UNDER RTE – RIGHT (SINGLE) – XXXX.X (5)**

TABLE - USERRWAY

FIELD - HORIZ\_UNDER\_LEFT (28)

FIELD - HORIZ\_UNDER\_RIGHT (29)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

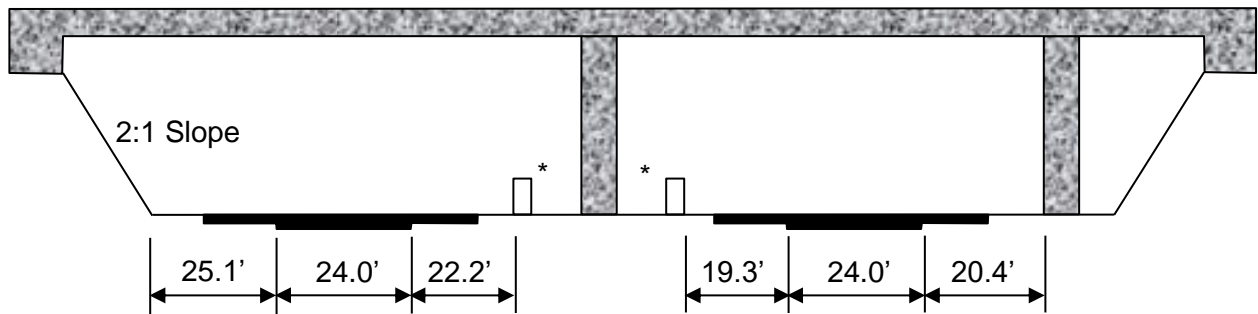
The **minimum** horizontal clearance for each route passing under the structure should be measured and recorded. The clearance should be the least available clearance measured between the most restrictive features -- curbs, guardrails, walls, or other structural features limiting the roadway (travel way and shoulders). The measurement should be recorded and coded to the nearest tenth of a foot.

The purpose of this item is to determine the **width** available for the movement of wide loads. This item will include the roadway surface and shoulders, distance from face of pier or toe of slope or to the face of guardrail or non-mountable medians (Federal Item 33 - Bridge Median coded 3) whichever is the most restrictive. See sketch below for further details

The purpose of this item is to determine the roadway for the movement of the largest available clearance for the movement of wide loads. This clearance has been identified in 3 ways; use the most applicable:

- 1 Roadway surface and shoulders – when there are no restrictions.
- 2 Distance from face of pier (or rail around pier) to face of guardrail or toe of slope.
- 3 Include flush or mountable medians (Item 33 - Bridge Median coded 2) but not raised medians (Item 33 - Bridge Median coded 3).

**EXAMPLE:** (Looking in the direction of increasing milepost)



\* - Face of a rigid barrier or face of raised median or face of non-mountable curb or face of guardrail

State Item 28 = 71.3

State Item 29 = 63.7

**STATE ITEM 30 – SCOUR CRITICAL EVALUATION – X (1)**

TABLE - USERBRDG

FIELD - SCOUR\_CRIT\_IND

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

No longer in use.

**STATE ITEM 31 – SCOUR CRITICAL REMARK – XX (2)**

TABLE - USERBRDG

FIELD - SCOUR\_CRIT\_REMRK

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

No longer in use.

**STATE ITEM 33 – BRIDGE ROADWAY WIDTH – LEFT SIDE – XXXX.X (5)**

MINIMUM CURB-TO-CURB OF MAINLINE ROUTE (LEFT) (FT)

TABLE - USERRWAY

FIELD - WIDTH\_ROAD\_LEFT

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

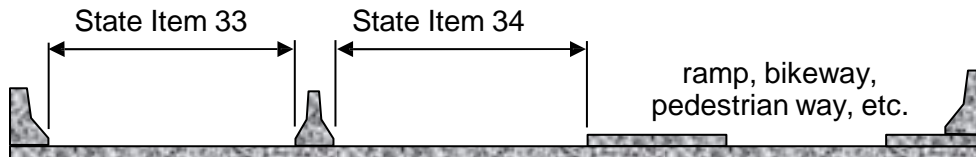
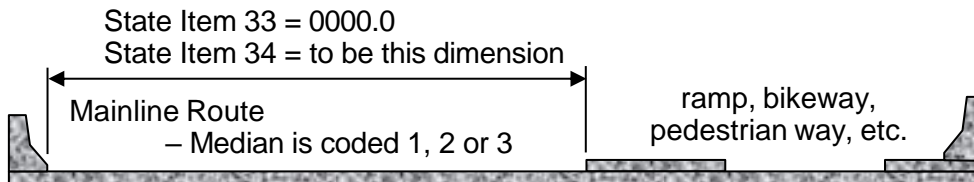
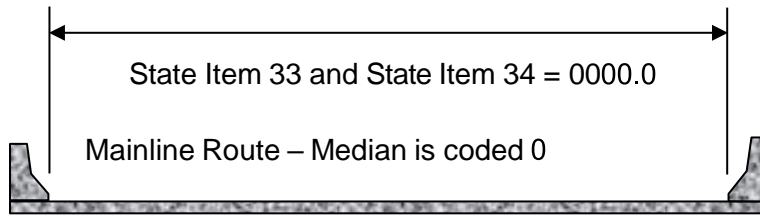
If Federal Item 33 is coded 0 then this item should be 0000.0.

If Federal Item 33 is coded 1, 2 or 3 and the median that exists separates a mainline road from a ramp, bikeway, pedestrian way, etc. **only** State Item 34 will be coded and the measurement will be from curb-to-curb of the mainline route.

Should be coded to the nearest tenth of a foot.

Refer to example sketches on the following page.

**EXAMPLES:**



Looking in the Direction of the Mainline Route  
Median is coded 1, 2 or 3

**STATE ITEM 34 – BRIDGE ROADWAY WIDTH – RIGHT SIDE – XXXX.X (5)**  
**MINIMUM CURB-TO-CURB OF MAINLINE ROUTE (RIGHT) (FT)**

TABLE - USERRWAY

FIELD - WIDTH\_ROAD\_RIGHT

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

If Federal Item 33 is coded 0 then this item should be 0000.0.

If Federal Item 33 is coded 1, 2 or 3 then this item must be coded.

If Federal Item 33 is coded 1, 2 or 3 and the median that exists separates a mainline road from a ramp, bikeway, pedestrian way, etc. **only** this item will be coded and the measurement will be from curb-to-curb of the mainline route.

Should be coded to the nearest tenth of a foot.

See sketches for State Item 33 above.

**STATE ITEM 35 – WIDTH OF MEDIAN (FT) – XXXXX.X (6)**

TABLE - USERRWAY

FIELD - WIDTH\_MEDIAN

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

Record the measurement to the nearest tenth of a foot for the distance from edge to edge of non-mountable medians. If Federal Item 33 is coded 1, 2 or 3 then this item must be coded. If Federal Item 33 is coded 0 then this item will be blank.

**STATE ITEM 36 – MIN. VERT. UNDERCLEAR. RIGHT SINGLE – X XXXXXXXX.XX (10)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_RIGHT\_CODE (36A)

FIELD - VERT\_UNDER\_RIGHT (36B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 36A. No other entry is allowed.

**See Virginia Note under Federal Item 54.**

The minimum vertical underclearance right single is composed of 2 segments (State Items 36A and 36B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
36A	Reference feature	1 digit
36B	Minimum Vertical Underclearance	9 digit

**STATE ITEM 36A – MIN. VERT. UNDERCLEAR. RIGHT CODE – X (1)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_RIGHT\_CODE (36A)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 36A. No other entry is allowed.

Using a 1-digit code, record the feature from which the minimum vertical clearance from the right/single roadway or right/single railroad track beneath the structure to the underside of the superstructure is taken. (When both a railroad and highway are under the structure, always code the highway.)

Using the code below, code in the first position, the reference feature from which the clearance measurement is taken:

<u>Code</u>	<u>Description</u>
H	Highway Beneath
R	Railroad Beneath
N	Not Highway / Railroad

**STATE ITEM 36B – MIN. VERT. UNDERCLEAR. RIGHT– XXXXXXXX.XX (9)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_RIGHT (36B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

Using a 9-digit number, record the minimum vertical clearance from the right/single roadway or right/single railroad track beneath the structure to the underside of the superstructure. If the reference feature is not a highway or railroad, leave blank. (When both a railroad and highway are under the structure, always code the highway.)

**STATE ITEM 37 – MIN. VERT. UNDERCLEAR – LEFT – X XXXXXXXX.XX (10)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT\_CODE (37A)

FIELD - VERT\_UNDER\_LEFT (37B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 37A. No other entry is allowed.

**See Virginia Note under Federal Item 54.**

The minimum vertical underclearance left is composed of 2 segments (State Items 37A and 37B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
37A	Reference feature	1 digit
37B	Minimum Vertical Underclearance	9 digit

**STATE ITEM 37A – MIN. VERT. UNDERCLEAR – LEFT CODE – X ( 1 )**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT\_CODE (37A)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 37A. No other entry is allowed.

If the feature beneath the structure has more than a single roadway or single railroad then using a 1- digit code record the feature from which the clearance from the left roadway or left railroad track beneath the structure is taken. ( When both a railroad and highway are under the structure, always code the highway.)

Using the code below, code in the first position, the reference feature from which the clearance measurement is taken:

<u>Code</u>	<u>Description</u>
H	Highway Beneath
R	Railroad Beneath
N	Not Highway / Railroad

**STATE ITEM 37B – MIN. VERT. UNDERCLEAR – LEFT – XXXXXXXX.XX (9)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT (37B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

If the feature beneath the structure has more than a single roadway or single railroad then using a 9-digit number, record and code the minimum vertical clearance from the left roadway or left railroad track beneath the structure to the underside of the superstructure.

In the next 9 positions, code numbers to represent the minimum vertical clearance in a hundredth of a foot from the reference feature to the structure. If the reference feature is not a highway or railroad, leave blank. ( When both a railroad and highway are under the structure, always code the highway.)



**STATE ITEM 38 – REPLACEMENT STRUCTURE – X (1)**

TABLE - USERBRDG

FIELD - REPL\_STRUC

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Indicates that this structure is a replacement structure.

**CODE ONLY WHEN NO PORTION OF THE PREVIOUS STRUCTURE EXISTS.**

This field must be coded when a structure is replaced.

<u>Code</u>	<u>Description</u>
Y	New structure totally replaces an existing structure.
N	New structure does not totally replace an existing structure.

**STATE ITEM 39 – TYPE OF CONSTRUCTION – X (1)**

TABLE - USERBRDG

FIELD - TYPE\_CONSTR

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

Using one of the codes below, indicate the construction type of the structure.

<u>Code</u>	<u>Description</u>
B	Precast Concrete Box Culvert
C	Culvert or Drainage structure
D	Parking Deck
F	Footbridge (structure which carries <u>only</u> pedestrians over a non-highway)
L	Landing Dock or Wharf
N	Bridges carrying a highway or highway/railroad not covered by another coding
P	Pedestrian Overpass (structure which carries <u>only</u> pedestrians over a highway)
R	Railroad
S	Scales
T	Tunnel (Tunnels shall be coded as under records)
Z	Plaza

**STATE ITEM 40 – TYPE OF RECONSTRUCTION – X (1)**

TABLE - USERBRDG

FIELD - TYPE\_RECONST

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

Indicates the last type of modification to the structure.

<u>Code</u>	<u>Description</u>
A	Altered or remodeled (includes any change to the structure which increases the original design load capacity or otherwise alters the functional use except for widening of the bridge roadway deck, also includes all modifications made to existing culverts or pipes)
D	Deck Replacement
M	New Superstructure on existing substructure
R	Repaired Bridge (does not include culverts or pipes)
W	Widened Bridge (does not include culverts or pipes)
	No modification has been made to structure - Not Applicable

**STATE ITEM 42 – TIDAL INDICATOR – X (1)**

TABLE - USERBRDG

FIELD - TIDAL\_IND

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / HYDRAULICS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

This is a single-digit code indicating whether the structure crosses tidal water.

<u>Code</u>	<u>Description</u>
Y	Tidal Water.
N	Not Tidal Water.

**STATE ITEM 44 – DESIGN LOAD – HIGH (STATE) – X (1)**

TABLE - USERBRDG

FIELD - DESIGN\_LOAD\_HIGH

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

Code the highest design capacity for a structure that has been widened or otherwise altered so that different portions have different live-load designs. Uses the same codes as Federal Item 31, which are also shown below.

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

**STATE ITEM 45 – RATED CAPACITY, SINGLE UNIT – XXX (3)**

TABLE - USERBRDG

FIELD - RATG\_CAPAC\_SINGLE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

Code the rated capacity in gross tons for the Virginia Legal 27 Ton vehicle. This field should be rounded down to the nearest ton, and reflect the actual capacity rating of the structure. There is no assumed decimal point.

<u>Code</u>	<u>Description</u>
007	7 tons
020	20 tons
120	120 tons

**STATE ITEM 46 – RATED CAPACITY, SEMI – XXX (3)**

TABLE - USERBRDG

FIELD - RATG\_CAPAC\_SEMI

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

Code the rated capacity in gross tons for the Virginia Legal 40 Ton Vehicle. This field should be rounded down to the nearest ton, and reflect the actual capacity rating of the structure. There is no assumed decimal point. Refer to the example above.

**STATE ITEM 47 – STRESS LEVEL – X (1)**

TABLE - USERBRDG

FIELD - STRESS\_LEVEL

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed.

(Inventory, Operating, or Mid-Range). The Stress Level used to determine the rated capacity of the structure.

<u>Code</u>	<u>Description</u>
I	Inventory
O	Operating
M	Mid-Range
L	Legal Load
	Not Applicable

**STATE ITEM 48 – STRESS ANALYSIS – X (1)**

TABLE - USERBRDG

FIELD - STRESS\_METHOD

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

BrM uses a dropdown to facilitate coding of this item. No other entry is allowed.

The Methodology used to calculate the capacity/capacities.

	Federal Item	<u>AND</u>	State Item
	64 & 66		45 & 46
A	Assumed		Assumed
L	Fed LF		State LF
M	Fed LF		State WS
N	Fed LF		State LRF
R	Fed LRF		State LRF
S	Fed LRF		State WS
T	Fed LRF		State LF
W	Fed WS		State WS
X	Fed WS		State LF
Y	Fed WS		State LRF

**STATE ITEM 49 – COMPUTER FILE NAME AND LAST RUN DATE – XXXXXXXX XXXXXXXX (8)**

TABLE - USERBRDG

FIELD - BARS\_PROG\_NO

FIELD - BARS\_PROG\_NO

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

The computer file name and last run date are composed of 2 segments (State Items 49A and 49B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
49A	Computer file name	8 digit
49B	Last run date	8 digit

**STATE ITEM 49A – COMPUTER FILE NAME – XXXXXXXX (8)**

TABLE - USERBRDG

FIELD - BARS\_PROG\_NO

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

Follow the guidance in “VDOT Bridge and Load Rating Information” located in the link below for the file nomenclature:

[http://www.virginiadot.org/business/bridge\\_load\\_rating.asp](http://www.virginiadot.org/business/bridge_load_rating.asp)

Code the first digit with the “Analysis Type” as shown below, and the remaining digits with the 5 digit Federal ID

Code the first digit for **Analysis Type** shown below.

<b><u>Code</u></b>	<b><u>Analysis Type</u></b>
J	STAAD
K	Descus
L	Brass
M	Hand Calculations
N	Not enough information known for analysis
P	Conspan
V	BrR (formerly Virtis)
X	Analysis performed by other method (See below)
Z	Analysis performed deck / substructure controls (See below)
S	Bridge Software Development International (BSDI)
T	LARSA
U	RM
W	MIDAS
A	<b>OBSOLETE</b> - was Structural Steel
B	<b>OBSOLETE</b> - was Reinforced Concrete
C	<b>OBSOLETE</b> - was Composite Steel and Concrete
D	<b>OBSOLETE</b> - was Pre-stressed Concrete
E	<b>OBSOLETE</b> - was Composite Pre-stressed Concrete
F	<b>OBSOLETE</b> - was Timber
G	<b>OBSOLETE</b> - was Composite Reinforced Concrete
H	<b>OBSOLETE</b> - was Truss
R	<b>OBSOLETE</b> - BARS

**NOTE:**

The OBSOLETE codes were only used when BARS was our main analysis tool. They are included here only for the possibility that some structures may still use these codes.

Structure specific information can be found by clicking on the link below  
[VDOT File Nomenclature and Dummy File Content for AASHTOWare Bridge Rating Database Files](#)

**STATE ITEM 49B – ANALYSIS RUN DATE – XX/XX/XXXX (8)**

TABLE - USERBRDG

FIELD - BARS\_RUN\_DATE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

BrM does not provide a calendar to assist with the coding.

This is the most current date the structure was analyzed by any method. The format is MM/DD/YYYY.

**EXAMPLE:**

<b><u>Code</u></b>	<b><u>Description</u></b>
11/05/1985	Bridge Analyzed November 5, 1985

**STATE ITEM 50 – POSTED STATUS (POSTED OR CLOSED BRIDGE) – X (1)**

TABLE - USERBRDG

FIELD - POSTED\_STAT

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

This item provides information about the operational status of a structure.

<u>Code</u>	<u>Description</u>
P	Non-State Posted. For structures with a permanent posting but not the responsibility of the state - i.e. structures inspected and owned by a municipality.
T	45T LIST. See the guidance in IIM-S&B-86. Vehicles grossing more than 45 tons may not use the structure.
M	M50 LIST
0	Not Posted

**STATE ITEM 51 – POSTED DATE – XX/XX/XXXX (8)**

TABLE - USERBRDG

FIELD - POSTED\_DATE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

BrM does not provide a calendar to assist with the coding.

This is the date the structure was posted or closed. The format is MM/DD/ YYYY.

The date should change each time a re-evaluation of load capacity requires changing the restriction signs on a bridge. To the extent possible, this data should represent the actual date that a bridge is posted or that the posting is removed.

**EXAMPLE:**

<u>Code</u>	<u>Description</u>
11/05/1985	Bridge Posted November 5, 1985
05/16/1986	Bridge Posting removed May 16, 1986

**STATE ITEM 52 – POSTED CAPACITY STD – XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_STD

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted on a R12-1 Sign for a standard vehicle.



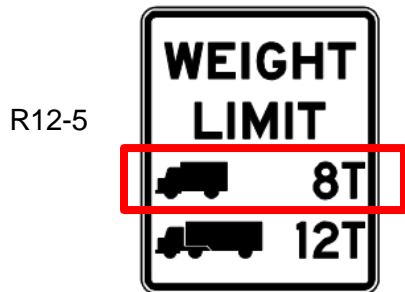
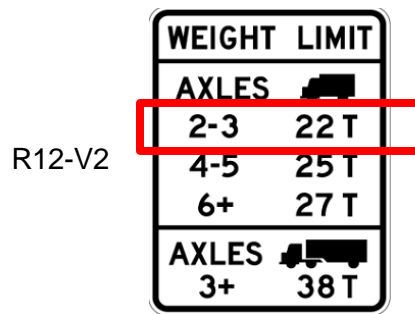
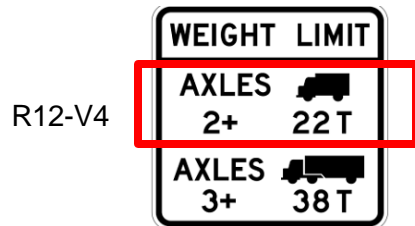
**STATE ITEM 53 – POSTED CAPACITY SINGLE XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_SINGLE

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted for a single unit vehicle (2+ AXLES) on R12-V4 Sign, (2-3 AXLES) on a R12-V2 Sign and on the R12-5 Sign. **Note the R12-5 signs may currently be in service, however, they are no longer included in the VA Supplement to the MUTCD.**



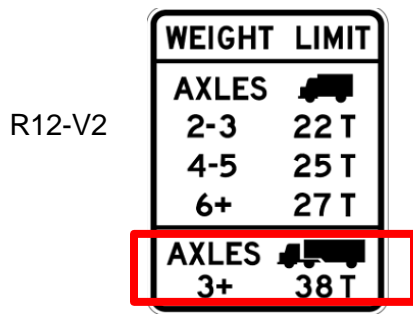
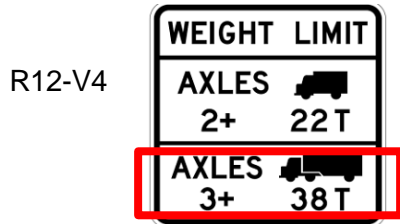
**STATE ITEM 54 – POSTED CAPACITY SEMI – XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_SEMI

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted for a semi vehicle (3+ AXLES) on R12-V4 and R12-V2 Signs and the R12-5 Sign. Note the R12-5 signs may currently be in service, however, they are no longer included in the VA Supplement to the MUTCD.



**STATE ITEM 55 – POSTED SIGN MAINTENANCE REQUIRED – X (1)**

TABLE - USERBRDG

FIELD - POST\_REQ

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

No longer in use.

**STATE ITEM 56 – MAINTENANCE REPAIR COST – XXXXXXXXX (9)**

TABLE - USERINSP

FIELD - MAINT\_REPAIR\_COST

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / MAINTENANCE

Code a six-digit number to nearest thousand to represent the maintenance replacement cost required to satisfy the level of service established by the Maintenance Division. This cost is not included for structure in the six year improvement program unless the work is required to safely maintain traffic before the scheduled improvement can be made.

If no repairs are necessary, this field should be zero.

**STATE ITEM 57 – MAINTENANCE FUNDING CODE – X (1)**

TABLE - USERINSP

FIELD - MAINT\_FUND\_CODE

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / MAINTENANCE

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This is a single-digit code indicating the highway system that funds/maintains the structure.

**NOTE:**

This item should be coded exclusive of State Item 185 Virginia Highway System. For example, it is possible for a structure to receive Interstate funding and be located on the Secondary System.

The coding description below will be true for the majority of the structures. A special agreement between a municipality and the State could affect the source of funding. If you are not aware of a special agreement, use the codes below.

	<u>Code</u>	<u>Description</u>
I	<b>Interstate Funding</b>	Structures on an Interstate, crossing an Interstate or on a frontage road of an Interstate, regardless of the jurisdiction in which they reside.
P	<b>Primary Funding</b>	Structures on a Primary or a frontage road of a Primary that do not cross an Interstate and are not maintained by a municipality.
S	<b>Secondary Funding</b>	Structures on a Secondary that do not cross an Interstate, are not on the frontage road of an Interstate, are not on the frontage road of a Primary and are not maintained by a municipality. In the counties of Arlington and Henrico, all structures that are NOT part of an Interstate or Primary system receive secondary funding.
U	<b>Urban Funding</b>	Structures maintained by a municipality and are on a Primary or on a city street (non-numbered highway) and not crossing an Interstate. (See 'Secondary Funding' for coding of structures in the counties of Arlington and Henrico.)

**STATE ITEM 58 – PPMS PROJECT ID NUMBER – XXXXXXXXXXXXX (13)**

TABLE - USERBRDG

FIELD - UPC

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

**Virginia Note:** Working to update automatic entry.

This is the identification number the FMSII system assigns to projects. This number is used across the enterprise to identify projects. It is unique to the project and will never be assigned to any other project.

**STATE ITEM 62 – CRITICAL FEATURES CLASSIFICATION – X (1)**

TABLE - USERINSP

FIELD - CRIT\_FEAT\_CLASS

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

No longer in use.



**STATE ITEM 63 – SPECIAL EQUIPMENT – X (1)**

TABLE - USERBRDG

- FIELD - SPEC\_EQUIP\_LADDER
- FIELD - SPEC\_EQUIP\_SNOOPER
- FIELD - SPEC\_EQUIP\_BOAT
- FIELD - SPEC\_EQUIP\_MANLIFT
- FIELD - SPEC\_EQUIP\_BUCKET\_TRUCK
- FIELD - SPEC\_EQUIP\_PONTOON
- FIELD - SPEC\_EQUIP\_SCAFFOLD
- FIELD - SPEC\_EQUIP\_RIGGING
- FIELD - SPEC\_EQUIP\_PLATFORM\_TRUCK

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / SPECIAL EQUIPMENT

BrM offers a check box to indicate whether or not each special equipment code is applicable.

The equipment to be chosen is shown below.

This code is used to indicate special equipment necessary to facilitate a total inspection of the structure.

Ladder	ManLift	Scaffold
Snooper	Bucket Truck	Rigging
Boat	Pontoon	Platform Truck

**STATE ITEM 65 – SUFFICIENCY RATING – CALCULATED (3)**

TABLE - INSPEVNT

FIELD - SUFF\_RATE

LOCATION - INSPECTION / APPRAISAL / CALCULATED APPRAISAL RATINGS

OBSOLETE - ITEM NO LONGER IN USE

This item is calculated by the program and need not be coded by the bridge inspector.

**STATE ITEM 94 – LAST PAINTED DATE – XXXX (4)**

TABLE - USERBRDG

FIELD - YR\_PAINTED

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

The year the structure was last painted. The format is YYYY.

**STATE ITEM 169 – FOOT BRIDGE POSTING– X (1)**

TABLE - USERBRDG

FIELD - FOOT\_BRIDGE\_POST

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / RATINGS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Indicates whether the footbridge is posted in accordance with the policy manual.

<u>Code</u>	<u>Description</u>
Y	Foot bridge is posted for tonnage or number of persons
N	Foot bridge is not posted
N/A	Structure is not a foot bridge

**STATE ITEM 170 – POSTING SIGN LEGIBILITY – X (1)**

TABLE - USERINSP

FIELD - POST\_SIGN\_LEGIB

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / MAINTENANCE

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

This item is no longer in use.

**STATE ITEM 171 – POSTING SIGN VISIBILITY – X (1)**

TABLE - USERINSP

FIELD - POST\_SIGN\_VIS

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / MAINTENANCE

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

This item is no longer in use.

**STATE ITEM 172 – INTERSECTION SKETCH– XXX (3)**

TABLE - USERBRDG

FIELD - SKETCH\_NO

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

**Virginia Note:** Working to update automatic entry.

This field identifies the page number of the appropriate schematic sketch of an interchange in which the structure is located.

**STATE ITEM 173 – SPECIAL STRUCTURE CODE – X (1)**

TABLE - USERBRDG

FIELD - SPEC\_STRUCT\_CODE\_01 THRU SPEC\_STRUCT\_CODE\_18

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / SPECIAL STRUCTURES CODES

BrM offers a check box to indicate whether or not each special structure code is applicable. The codes to be chosen from are shown below.

This code is used to supplement the Federal Structure Types. This code will indicate a special type of design and/or construction. The choices are as follows:

<u>Code</u>	<u>Description</u>
01	Lowwater
02	Bailey Bridge
03	Covered Bridge
04	Army H 10
05	Stabilized Fill
06	Pin and Hanger (non-redundant)
07	Pin and Hanger (redundant)
08	Curved Girder
09	Bebo Arch
10	Pin and Hanger curved
11	Integral Backwalls
12	Metal Culvert/Concrete
13	Hinge Pin
14	Modified Earth (MSE)
15	Metal Culvert/Asphalt
16	Encroachment present
17	Pre-Cast Slab Span
18	Post-tensioning
99	Vertical Clearance Check for records that do not have “on” records, used to verify clearances for VDOT maintained roadways

**STATE ITEM 185 – VIRGINIA HIGHWAY SYSTEM CODE – X (1)**

TABLE - USERRWY

FIELD - VA\_HWY\_SYS

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This is a single-digit code indicating the highway road system for this structure.

**NOTE:**

This item should be coded exclusive of State Item 57 Maintenance Replacement Funding Code. It is possible for a structure to be located on the Secondary System and receive Interstate funding. For example, Route 600 over the interstate will receive interstate funding even though it carries a secondary system road.

<b><u>Code</u></b>	<b><u>Description</u></b>
<b>Interstate Road System</b>	Structures on an Interstate or on the frontage road of an Interstate, regardless of the jurisdiction in which they reside.
<b>Primary Road System</b>	Structures on a Primary or on the frontage road of a Primary, regardless of the jurisdiction in which they reside.
<b>Secondary Road System</b>	Structures on a Secondary and may cross an Interstate, may be on the frontage road of an Interstate or may be on the frontage road of a Primary. The structure is not within the limits of a municipality.
<b>Urban Road System</b>	Structures located within the limits of a municipality and not on an Interstate or a Primary, or on the frontage road of an Interstate or a Primary. Structures can cross an Interstate or a Primary and still be part of the Urban Road System. (Structures not on an Interstate or Primary and located in and maintained by the counties of Arlington, Buchanan and Henrico are considered to be on the urban road system.)
<b>Other</b>	Structures not on one of the above systems.
<b>Unknown</b>	

**STATE ITEM 186 – PAINT CLASSIFICATION – XX (2)**

TABLE - USERBRDG

FIELD - PAINT\_SYS

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

This item is to be used for coding the type of paint system on the structure.

<b>Code</b>	<b>Field Name</b>	<b>Description</b>
A	Alum w/ Lead Primer	Aluminum topcoat with lead primer (old system #1, #2 and #3)
B	Color with Lead Primer	Color topcoat with lead primer (old system #2, #7, #8 and #50+)
C	Mastic w/ Lead Primer	Mastic topcoat with lead primer (old system #1, #2 and #14)
D	Various w/ Zinc Primer	Various top coats with zinc rich primer or uncoated zinc rich primer (old system #4, #6 and system B)
E	A588 Not Paint	A588 Steel - not painted (includes those structures where only the bearing assemblies were painted or galvanized)
F	A588 Part. Paint	A588 Steel - partially painted (system #4, #6 and systems B, B1 and B2)
G	A588 Totally Paint	A588 Steel - totally painted (system #4, #6 and systems B, B1 and B2)
H	Galvanized or Metali.	Galvanized or Metallized
I	Other, or Several Sys.	Other or several systems present
X	Non-steel Structure	Non-steel structure (not typically used for concrete structures)
N	Not Applicable	Not Applicable

**STATE ITEM 189 – PROJECT STATUS CODE – XX (2)**

TABLE - USERBRDG

FIELD - PROJECT\_STATUS\_CODE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / CONSTRUCTION AND MAINTENANCE

BrM uses an entry box to facilitate coding of this field. An error message will appear next to the field if a two-digit code is entered.

**Virginia Note:** Working to update automatic entry.

This is a code that indicates the current status of a project as a whole.

<b>Code</b>	<b>Description</b>
A	Active
T	Temporarily Deferred
I	Indefinitely Deferred
D	Advertised
W	Awarded

**STATE ITEM 190 – UTILITIES (A thru I) – X (1) each**

TABLE - USERBRDG

- FIELD - UTILITY\_WATER (State Item 190A)
- FIELD - UTILITY\_GAS (State Item 190B)
- FIELD - UTILITY\_ELECTRIC (State Item 190C)
- FIELD - UTILITY\_SEWER (State Item 190D)
- FIELD - UTILITY\_CABLE (State Item 190E)
- FIELD - UTILITY\_TELEPHONE (State Item 190F)
- FIELD - UTILITY\_LIGHTING (State Item 190G)
- FIELD - UTILITY\_FIBER\_OPTIC (State Item 190H)
- FIELD - UTILITY\_OTHER (State Item 190I)
- LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / UTILITIES

This is a code that indicates whether a particular utility exists on the structure and BrM offers a check box to indicate whether or not each utility is applicable The utilities to be chosen are shown below.

The choices are as follows.

Water	Sewer	Lighting
Gas	Cable	Fiber Optic
Electric	Telephone	Other

**STATE ITEM 191(A) – RAILROAD DIVISION ID – XXXXXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERRWAY

- FIELD – RR\_DIV
- LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Rail lines may be split into regions, divisions and finally into subdivisions. This field indicates the division in which the structure resides.

**STATE ITEM 191(B) – RAILROAD MILE POST – XXXXXXXX.X (8)**

TABLE - USERRWAY

- FIELD – RR\_MILE\_POST
- LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Railroads have mile markers similar to highways, they are called mile posts. These mile posts are the geographical measure of a railroad line and allow train crews to determine their exact location along otherwise nondescript stretches of geography. They are also referenced when numbering bridges. Each railroad has its own style of mile post and its own way of numbering mile posts.

**STATE ITEM 191(C) – FEDERAL RR REFERENCE ID – XXXXXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERRWAY

- FIELD – RR\_RR\_ID
- LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Reference to be reviewed during the Right of Entry permitting process.

**STATE ITEM 192 – PARALLEL STRUCTURE – XXXXXXXXXXXXXXXX (15)**

TABLE - USERBRDG

FIELD - PARALLEL\_STR\_NO

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

Code the parallel structure's 15 digit Federal ID in this field. Parallel structures are defined as separate structures that typically carry opposing traffic, i.e. traffic flowing in the opposite direction such as if the inventoried structure is carrying only south/east bound traffic then the separate parallel structure would carry the north/west bound traffic.

It is possible that two parallel structures could carry traffic in the same direction. In this situation code the separate structure parallel to the structure being inventoried.

**STATE ITEM 193 – ALTERNATE LOCATION – XXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERBRDG

FIELD - ALTERNATE\_LOCATION

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / INVENTORY

No definition is available at this time.

**STATE ITEM 194 – DRAINAGE AREA – XXXXXXXX (7)**

TABLE - USERRWAY

FIELD - DRAIN\_AREA

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ADDITIONAL INFORMATION

This is the geographical area, in square miles (rounded up), drained by a river and its tributaries which will include all runoff conveyed to structure. It typically can be found on the plans.

**STATE ITEM 195 – MAP BOOK REFERENCE NAME – XXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERRWAY

FIELD - BOOK\_REF

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / LOCATION/MAP REFERENCE

A narrative description of the name of the map book indicating the location of the bridge.

**STATE ITEM 195A – BOOK PAGE NUMBER – XXXXXXXXX (9)**

TABLE - USERRWAY

FIELD - BOOK\_PAGE

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / LOCATION/MAP REFERENCE

The page number in the referenced book in State Item 195 that indicates the location of the structure.

**STATE ITEM 195B – BOOK PAGE COLUMN ID – XXX (3)**

TABLE - USERRWAY

FIELD - BOOK\_PAGE\_COLUMN

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / LOCATION/MAP REFERENCE

The column in the referenced book in State Item 195 that indicates the location of the structure.

**STATE ITEM 195C – BOOK PAGE ROW ID – XXXXXXXXX (9)**

TABLE - USERRWAY

FIELD - BOOK\_PAGE\_COLUMN\_ROW

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / LOCATION/MAP REFERENCE

The row in the referenced book in State Item 195 that indicates the location of the structure.

**STATE ITEM 196 – APPURTENANCE – X (1)**

TABLE - USERBRDG

FIELD - APPURTENANCE\_SIGN

FIELD - APPURTENANCE\_SOUNDWALL

FIELD - APPURTENANCE\_PED\_FENCE

LOCATION - INSPECTION / STATE INVENTORY / STATE INVENTORY DATA / APPURTENANCE

BrM offers a check box to indicate whether or not each appurtenance is applicable. The appurtenances to be chosen are shown below.

The choices are as follows.

Sign	Sound Wall	Ped. Fence
------	------------	------------

**STATE ITEM 208 – BLANKET VA90 – XXX.X(4)**

TABLE - USERBRDG

FIELD – BLANKET\_VA\_90

LOCATION - INSPECTION / STATE INVENTORY / RATINGS

BrM does not allow manual entry for this field at this time.

Record the load rating for The Virginia Blanket Permit 90 (BP-90) vehicle configuration to the nearest tenth of a ton.

**STATE ITEM 209 – BLANKET VA115 – XXX.X(4)**

TABLE - USERBRDG

FIELD – BLANKET\_VA\_115

LOCATION - INSPECTION / STATE INVENTORY / RATINGS

BrM does not allow manual entry for this field at this time.

Record the load rating for The Virginia Blanket Permit 115 (BP-115) vehicle configuration to the nearest tenth of a ton.

**STATE ITEM 210A – SPEC. LOAD RATING – XXX.X(4)**

TABLE - USERBRDG

FIELD – SPEC\_LOAD\_RATING

LOCATION - INSPECTION / STATE INVENTORY / RATINGS

BrM does not allow manual entry for this field at this time.

This field is intended for use with load ratings that fall outside of the standard categories provided. Record the designated special load rating to the nearest tenth of a ton. This field is to be utilized at the discretion of the District Load Rating Engineer.

**STATE ITEM 210B – SPEC. LOAD RATING REMARKS – X[...] (255)**

TABLE - USERBRDG

FIELD – SPEC\_LOAD\_RATING\_REMARKS

LOCATION - INSPECTION / STATE INVENTORY / RATINGS

BrM does not allow manual entry for this field at this time.

Record the description of the special load rating recorded in State Item 210A. This field is to be utilized at the discretion of the District Load Rating Engineer.

**STATE ITEM 211 – GPS LATITUDE – XXX.XXXXXXX (9)**

TABLE - USERRWAY

FIELD – GPS\_LATITUDE

LOCATION - INSPECTION / STATE ROADWAY / LOCATION/MAP REFERENCE

BrM uses a manual entry field to facilitate coding of this item.

**This item is currently not in use.** This field contains the precise latitude loaded from GIS/GPS. Up to six decimal places may be utilized when coding this item.

**Virginia Note:** Working to update automatic entry.

**STATE ITEM 212 – GPS LONGITUDE – XXXX.XXXXXXX (10)**

TABLE - USERRWAY

FIELD - GPS\_LONGITUDE

LOCATION - INSPECTION / STATE ROADWAY / LOCATION/MAP REFERENCE

BrM uses a manual entry field to facilitate coding of this item.

This item is currently not in use. This field contains the precise longitude loaded from GIS/GPS. Up to six decimal places may be utilized when coding this item.

**Virginia Note:** Working to update automatic entry.

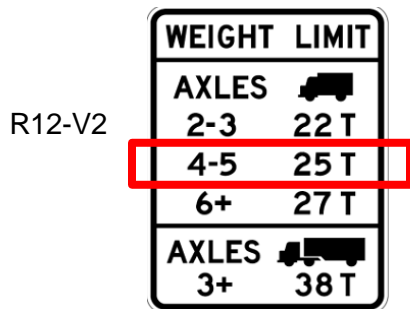
**STATE ITEM 213 – POSTED CAPACITY – SHV4/SHV5 – XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_SHV4\_SHV5

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage for a Specialized Hauling Vehicle in a four or five (4-5 AXLES) axle configuration on a R12-V2 Sign.



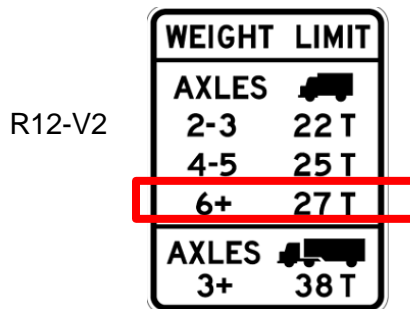
**STATE ITEM 214 – POSTED CAPACITY – SHV6/SHV7 – XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_SHV6\_SHV7

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage for a Specialized Hauling Vehicle in a more than six (6+ AXLES) axle configuration on a R12-V2 Sign.





## **STATE ITEM 215 – LAST RUN DATE**

**TABLE** - USERBRDG

**FIELD** – LAST\_RUN\_DATE

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

BrM offers a calendar to facilitate coding of this field

Record the most recent date that the FAST Act Emergency Vehicles load rating was completed. The format is MM/DD/YYYY.

## **STATE ITEM 216 – EV RATING METHOD**

**TABLE** - USERBRDG

**FIELD** – STRESS\_ANALYSIS

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

BrM utilizes an entry field to facilitate coding of this item

Record the load rating method utilized to rate FAST Act Emergency Vehicles. Use one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
!	Not Applicable (p)
0	Field eval and docs
1	LF Load Factor
2	AS Allowable Stress
3	LRFR Load and Res. Fact
4	Load Testing
5	No rating or eval
6	Load Factor (MS18)
7	Allowable Stress (MS18)
8	LRFR (HL93)
A	LFD (metric tons)
B	ASD (metric tons)
C	LRFD (metric tons)
D	LFD (MS18)
E	ASD (MS18)
F	LRFD (HL93)

## **STATE ITEM 217 - EV 2 SINGLE AXLE**

**TABLE** - USERBRDG

**FIELD** – EV2\_SINGLE\_AXILE

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

Record the single axle load rating in tonnage of FAST Act Emergency Vehicle EV2 rating.

## **STATE ITEM 218 - EV2 GROSS WEIGHT**

**TABLE** - USERBRDG

**FIELD** – EV2\_GROSS\_WEIGHT

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

Record the gross weight load rating in tonnage of FAST Act Emergency Vehicle EV2 rating.

### **STATE ITEM 219 - EV3 SINGLE AXLE**

**TABLE** - USERBRDG

**FIELD** – EV3\_SINGLE\_AXILE

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

Record the single axle load rating in tonnage of FAST Act Emergency Vehicle EV3 rating.

### **STATE ITEM 220 - EV3 TANDEM AXLES**

**TABLE** - USERBRDG

**FIELD** – EV3\_TANDEM\_AXILE

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

Record the tandem axle load rating in tonnage of FAST Act emergency vehicle EV3 rating.

### **STATE ITEM 221 – EV3 GROSS WEIGHT**

**TABLE** - USERBRDG

**FIELD** – EV3\_GROSS\_WEIGHT

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTINGS / EMERGENCY VEHICLE RATINGS

Record the gross weight load rating in tonnage of FAST Act emergency vehicle EV3 rating.

### **STATE ITEM 222 – NOTIONAL VEHICLE NV1 –XXX (3)**

**TABLE** - USERBRDG

**FIELD** – NOTIONAL\_NV1

**LOCATION** - INSPECTION / STATE INVENTORY/LOAD RATING & POSTING

Code the rated capacity in gross tons for The Virginia Notional Vehicle (NV-1). This field should be rounded down to the nearest ton, and reflect the actual capacity rating of the structure. There is no assumed decimal point.

### **STATE ITEM 223 – NOTIONAL VEHICLE NV2 –XXX (3)**

**TABLE** - USERBRDG

**FIELD** – NOTIONAL\_NV2

**LOCATION** - INSPECTION / STATE INVENTORY/LOAD RATING & POSTING

Code the rated capacity in gross tons for The Virginia Notional Vehicle (NV-2). This field should be rounded down to the nearest ton, and reflect the actual capacity rating of the structure. There is no assumed decimal point.

### **STATE ITEM 224 – NOTIONAL VEHICLE NV3 – XXX (3)**

**TABLE** - USERBRDG

**FIELD** – NOTIONAL\_NV3

**LOCATION** - INSPECTION / STATE INVENTORY / LOAD RATING & POSTING

Record the load rating of The Virginia Notional Vehicle (NV-3) configuration to the nearest tenth of a ton.

### **STATE ITEM 225 – NOTIONAL VEHICLE NV4 – XXX (3)**

**TABLE** - USERBRDG

**FIELD** – NOTIONAL\_NV4

**LOCATION** - INSPECTION / STATE INVENTORY/LOAD RATING & POSTING

Record the load rating of The Virginia Notional Vehicle (NV-4) configuration to the nearest tenth of a ton.

**STATE ITEM 226 – POSTED SIGN TYPE – X (1)**

TABLE - USERBRDG

FIELD – POSTED\_SIGN

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

BrM uses a dropdown menu to facilitate coding of this item. No other entry is allowed

This is a single-digit code indicating the type of weight restriction sign posted at the structure.

<u>Code</u>	<u>Description</u>
0	None
1	R12-1
2	R12-V6
3	RA12-V2
4	RA12-V3
5	R12-V4
6	R12-V5
7	R12-5
8	R12-V7
9	R12-V8

**STATE ITEM 227 – POSTED CAPACITY EVS– XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_EVS

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted on a R12-V7 Sign for Fast Act Emergency Vehicles.

R12-V7



**STATE ITEM 228 – POSTED CAPACITY EV2 – XX (2)**

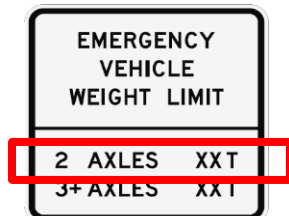
TABLE - USERINSP

FIELD - POST\_CAPAC\_EV2

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted on a R12-V8 Sign for Fast Act Emergency Vehicle EV2.

R12-V8



**STATE ITEM 229 – POSTED CAPACITY EV3 – XX (2)**

TABLE - USERINSP

FIELD - POST\_CAPAC\_EV3

LOCATION - INSPECTION / STATE INSPECTION / STATE INSPECTION DATA / POSTING

This is the gross vehicle weight limit in tonnage posted on a R12-V8 Sign for Fast Act Emergency Vehicle EV3.

R12-V8



**STATE ITEM 230 – POSTED VERTICAL CLEARANCE – XX.XXX (5)**

TABLE - USERWAY

FIELD – POSTED\_CLEARANCE

LOCATION - INSPECTION / STATE ROADWAY / CLEARANCES

Record the minimum vertical clearance posted on the inventory route, whether the route is "on" the structure or "under" the structure. Measured in feet.

## ITEMS WITH NEITHER A STATE OR FEDERAL NUMBER

### **FHWA SHV SU4 – XXXX (4)**

TABLE - BRIDGE

FIELD - SU4

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS / POSTING LOADS / SHVS

Record the load rating for AASHTO Specialized Hauling Vehicles (SHVs) configured with four (4) axles to the nearest tenth of a ton.

### **FHWA SHV SU5 – XXXX (4)**

TABLE - BRIDGE

FIELD - SU5

LOCATION -

INSPECTION / APPRAISAL / NBI LOAD RATINGS / POSTING LOADS / SHVS

Record the load rating for AASHTO Specialized Hauling Vehicles (SHVs) configured with five (5) axles to the nearest tenth of a ton.

### **FHWA SHV SU6 – XXXX (4)**

TABLE - BRIDGE

FIELD - SU6

LOCATION -

INSPECTION / APPRAISAL / NBI LOAD RATINGS / POSTING LOADS / SHVS

Record the load rating for AASHTO Specialized Hauling Vehicles (SHVs) configured with six (6) axles to the nearest tenth of a ton.

### **FHWA SHV SU7 – XXXX (4)**

TABLE - BRIDGE

FIELD - SU7

LOCATION -

INSPECTION / APPRAISAL / NBI LOAD RATINGS / POSTING LOADS / SHVS

Record the load rating for AASHTO Specialized Hauling Vehicles (SHVs) configured with seven (7) axles to the nearest tenth of a ton.

### **FHWA SHV NRL – XXXX (4)**

TABLE - BRIDGE

FIELD - NRL

LOCATION -

INSPECTION / APPRAISAL / NBI LOAD RATINGS / POSTING LOADS / SHVS

Record the load rating for AASHTO Notional Load Rating (NRL) configuration to the nearest tenth of a ton.

### **NAME – XX (50)**

TABLE - BRIDGE

FIELD - STRUCNAME

LOCATION - INSPECTION / INVENTORY / ADMIN / STRUCTURE IDENTIFICATION

This is the name of a bridge officially assigned by the General Assembly, Commonwealth Transportation Board or the local Board of Supervisors. If no official name exists an unofficial local name of a bridge can be used. More information on naming transportation facilities can be found in the Code of Virginia Section 33.2-213.

**NEXT REGULAR INSPECTION – CALCULATED – XX XX XXXX (8)**

TABLE - INSPEVNT

FIELD - NEXTINSP

LOCATION - INSPECTION / SCHEDULE / SCHEDULE

BrM offers a calendar to facilitate coding of this field.

This is the date that will be calculated by a program at the time of changes to the inspection data. The value is determined by adding the frequency to the actual inspection date or by adding the frequency to the last scheduled date. Format is MM/DD/YYYY.

**AGENCY BRIDGE ID – XXXXXX-XXXXXXXXXXXXXXXX (22)**

TABLE - BRIDGE

FIELD - BRIDGE\_ID

LOCATION - INSPECTION / INVENTORY / ADMIN / STRUCTURAL IDENTIFICATION

Manual entry at present - Note that this is the combination of several fields

This is a unique number assigned when a structure is added to the system. The first 7 seven digits are composed of the three digit count and the four digit state structure number. The last 15 digits are the federal structure number. Its purpose is to allow a structure record to be maintained without limitation of county or structure number. A replacement structure will be assigned a new federal structure number but will most likely carry the old county and structure number. History and inspection Data records are linked by the federal structure number. The federal structure number is referred to as the Structure ID.

For Example:

Structure 0626006-000000000027769

If replaced could carry the new Agency Bridge ID of 0626006-000000000098765

**UNREPAIRED SPALLS – XXXXXXXXXXX (10)**

TABLE - INSPEVNT

FIELD - DECKDISTR

LOCATION - INSPECTION / CONDITION / CONDITION RATINGS / NO CAPTION

BrM uses a manual entry field to facilitate coding of this item.

Code the actual area of distressed deck material in square feet, rounded to the nearest whole foot.

**FRACTURE CRITICAL DETAILS – XXXXX (5)**

TABLE - BRIDGE

FIELD – FC\_DETAIL

LOCATION - INSPECTION / APPRAISAL / STRUCTURAL APPRAISAL

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Use the codes on the next page to indicate the primary fracture critical detail or area of concern for the structure. BrM has character limits applied to menus; refer to the right-hand column for a description of the abbreviated options.

<b><u>Code</u></b>	<b><u>Description</u></b>
1 or 2 Stl-girder systms	Steel 1- or 2- girder systems
Hinges w/pin&hngr assmbl	Hinges with pin and hanger assembly
Stl bent caps-tensil str	Steel bent caps
Steel trusses	Steel trusses
Stl tns elm w<3 mlt i-br	Steel tension elements without redundancy
Susp or cable structures	Suspended or cable structures
Sgl&mult cell stl bx grd	Single and multi-cell steel box girders
Hi-fatigue prn weld det	Fatigue prone weld details
Hi-strngth steel girders	High strength steel girders
Horizontally curved gird	Horizontally curved girders
Det. Prn out-of-pln bend	Details prone to out-of-plane bending
Electroslg weld fab proc	Electro-slag weld fabrication or procedure detail
Partial ln weld cov plat	Partial length weld cover plates
Exposed prestrss tendons	Exposed pre-stressed tendons
No FC Details	No fracture critical details
Sup/sub integral fram det	Superstructure / substructure integral frame detail
Tied arches	Tied arches

**LOAD RATING REVIEW RECOMMENDED – XX (2)**

TABLE - BRIDGE

FIELD – REQ\_OP\_RAT

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag to indicate whether a load rating review is recommended.

**RATING DATE – XXXXXXXXXX (10)**

TABLE - BRIDGE

FIELD - RATINGDATE

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM does not provide a calendar to facilitate coding of this field.

**Virginia Note:**

- BrM allows entry by month/day/year (XX / XX / XXXX)
- Dates below assume structure was rated on the 15<sup>th</sup> of the month noted

Record the date which the most recent rating was completed. Code a 8-digit number to represent the month and year. The number of the month and day should be coded with leading zeros as required.

**EXAMPLE:**

Rating date November 1986  
Rating date March 1987

**VDOT preferred Code**

11/15/1986 \*  
03/15/1987 \*

**INITIALS – XXX (3)**

TABLE - BRIDGE

FIELD – RATER\_INI

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM utilizes an entry field to facilitate coding of this item.

Record the initials of the load rater or engineer responsible for the current load rating analysis. Code a 3-digit string to represent the first, middle and last initials (if applicable).

**ALTERNATE OPERATING TYPE – XXXX (4)**

TABLE - BRIDGE

FIELD – ALTORMETH

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM utilizes a dropdown menu to facilitate coding of this item.

Only one option for this field is currently provided in BrM.

**ALTERNATE OPERATING RATING – XXXX (4)**

TABLE - BRIDGE

FIELD – ALTORLOAD

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM utilizes an entry field to facilitate coding of this item.

Record the alternate operating load rating.

**ALTERNATE INVENTORY RATING TYPE – XXXX (4)**

TABLE - BRIDGE

FIELD – ALTIRMETH

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM utilizes a dropdown menu to facilitate coding of this item.

Only one option for this field is currently provided in BrM.

**ALTERNATE INVENTORY RATING – XXXX (4)**

TABLE - BRIDGE

FIELD – ALTIRLOAD

LOCATION - INSPECTION / APPRAISAL / NBI LOAD RATINGS

BrM utilizes an entry field to facilitate coding of this item.

Record the alternate inventory load rating.



**APPLY IMPROVEMENT POLICY – X (1)**

TABLE - BRIDGE

FIELD – DEF\_OP\_RAT

LOCATION - INSPECTION / INVENTORY / ADMIN / PROGRAMMING

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag to indicate whether the functional improvement policy is recommended to be implemented.

**SIMULATION TRACE – X (1)**

TABLE - BRIDGE

FIELD – TRACEFLAG

LOCATION - INSPECTION / INVENTORY / ADMIN / PROGRAMMING

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for structure simulation tracing.

**FORMULAS TRIGGER – X (1)**

TABLE - BRIDGE

FIELD – BTRIGGER

LOCATION - INSPECTION / INVENTORY / ADMIN / PROGRAMMING

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for triggering formula calculation.

**SR CALCULATE STATUS - X (1)**

TABLE - BRIDGE

FIELD – SRSTATUS

LOCATION - INSPECTION / INVENTORY / ADMIN / PROGRAMMING

BrM utilizes a dropdown menu to facilitate coding of this item.

OBSOLETE - ITEM NO LONGER IN USE

This field tracks whether the sufficiency rating needs to be recalculated.

**Code**

Not Applicable

SR Calculated

SR Recalc Required

**AGENCY ADMIN AREA - XX (2)**

TABLE - BRIDGE

FIELD – ADMINAREA

LOCATION - INSPECTION / INVENTORY / ADMIN / OPERATION

BrM utilizes a dropdown menu to facilitate coding of this item.

This field represents the administration area or geographic stratification of the structure.

**Code**

900 – Not NBI

State Maintained

Not Applicable

902 – Not Applicable

VMS Maintained

VMS/VDOT Comparison

On six-year plan

**ON/OFF AGENCY SYSTEM - X (1)**

TABLE - BRIDGE

FIELD - ON\_OFF\_SYS

LOCATION - INSPECTION / INVENTORY / ADMIN / OPERATION

BrM utilizes a dropdown menu to facilitate coding of this item.

This field specifies whether a structure is on or off the agency system.

**Code**

Off System

On System

**DECK AREA - XXXXXXXXX.XXX (12)**

TABLE - BRIDGE

FIELD - DECK\_AREA

LOCATION - INSPECTION / INVENTORY / DESIGN / DECK

BrM utilizes an entry field to facilitate coding of this item.

Record the structure deck area by multiplying the out-to-out of deck by the back-to-back of backwalls.

**BRIDGE STATUS - XXXXXXXX (8)**

**TABLE - BRIDGE**

**FIELD – BRIDGE\_STATUS**

**LOCATION - INSPECTION / INVENTORY / DESIGN / STRUCTURE STATUS**

BrM utilizes a dropdown menu to facilitate coding of this item.

This field allows for marking the structure with any of several status values. Active status is not currently tracked via this field; use only for structures who are being removed from service. Code via the dropdown menu to indicate if the bridge inventory is permanently closed or inactive.

For Bridge Status, structures that are temporarily closed to traffic shall be coded “Closed” (bridge status = 2). Structures that are permanently closed to traffic shall be coded “Permanently Closed” (bridge status = 6). Once the Bridge Status is changed to "Permanently Closed" for a given record, it should **never** be changed back.

**Structures coded as "permanently closed" under the *Bridge Status* field in the bridge inventory will be excluded from FHWA submittals of NBI and NBE data. Structures not included in the NBI submittal to FHWA are not eligible to apply for federal funding.**

Code	Short Label	Description
0	Unknown	BrM default value - not used.
1	Inactive	BrM default value - not used.
2	Closed	Bridge has been temporarily closed to traffic. Federal Item 41 must also be set to K.
3	Active	Bridge is under construction, or completed and open to traffic.
4	Proposed	Bridge is in the planning or design phase i.e. not yet built.
5	Obsolete	BrM default value - not used.
6	Permanently Closed	The Structure has been abandoned for traffic, has to be removed for replacement or due to roadway realignment. Federal Item 41 must also be set to K.
Null	Null (FIX PARAM VALUES)	This is the default code when a record is created – not intended to be used.

Refer to the flowchart and examples on the following page for reference in coding this item for structures designated “temporarily closed” or “permanently closed”.

CLOSED STRUCTURE STATUS						
CLOSED STATUS	IMPACTS OF STATUS			DESCRIPTIONS/EXAMPLES OF STATUS	BrM	
	FEDERAL FUNDING (SGR/NBI)	PERFORMANCE MEASURES (NBI & Non NBI)	FEDERAL TAPE (NBI)		OPEN, POSTED, or CLOSED	BRIDGE STATUS
Permanently Closed	Ineligible	Excluded	Excluded	<p><b>Example A</b></p> <ul style="list-style-type: none"> <li>- No intention of reopening structure at that location.</li> <li>- Roadway to be legally closed at Structure location.</li> <li>- Structure abandoned and superstructure (and possibly substructure) to be removed.</li> <li>- Structure to be removed using State M&amp;O Funds or other similar type funds.</li> </ul>	K	Permanently Closed
	Remains Eligible	Excluded	Excluded	<p><b>Example B (Part-Width Construction)</b></p> <ul style="list-style-type: none"> <li>- Existing Structure closed and to be removed.</li> <li>- Replacement Structure is open to traffic.</li> <li>- New Federal Structure ID has been issued.</li> </ul> <p>(Structure can be removed from inventory (Inactive record in BrM) once it has been physically demolished/removed)</p>		
Temporarily Closed	Eligible	Included	Included	<p><b>Example C</b></p> <p>Temporarily closed during construction phase, but Structure will remain including existing Federal Structure ID. (e.g. Full Width Deck Replacement or Superstructure Replacement).</p>	K	Temporarily Closed
				<p><b>Example D</b></p> <p>Temporarily Closed due to condition, Structure to be repaired and reopened to traffic.</p>		
				<p><b>Example E</b></p> <p>Temporarily Closed, uncertain if Structure will be abandoned/removed, repaired or replaced.</p>		
				<p><b>Example F</b></p> <p>Structure to be replaced but future Structure not yet open to traffic (e.g. future structure requires funding, is under design, or is under construction).</p> <ul style="list-style-type: none"> <li>- For Part-Width Construction: See Case PC-B for when Replacement Structure is opened to traffic.</li> <li>- For Full-Width Replacement: Existing Structure can simply be removed from inventory (Inactive record in BrM) once it has been physically demolished/removed.</li> </ul>		

**BRIDGE LIFECYCLE PHASE - XXXXXXXX (8)**

TABLE - BRIDGE

FIELD - BRIDGE\_LIFECYCLE\_PHASE

LOCATION - INSPECTION / INVENTORY / DESIGN / STRUCTURE STATUS

BrM utilizes a dropdown menu to facilitate coding of this item.

This field denotes the structure lifecycle phase.

**Code**

- 0 Unknown
- 1 Service
- 2 Design
- 3 Preconstruction

**TOTAL LENGTH - XXXXXXXXXX (9)**

TABLE - BRIDGE

FIELD - TOT\_LENGTH

LOCATION - INSPECTION / INVENTORY / DESIGN / LENGTH

BrM utilizes an entry field to facilitate coding of this item.

Record the total length of the structure, including the approach roadways. This field should always be greater than or equal to the structure length.

**ROAD / ROUTE NAME - XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (30)**

TABLE - ROADWAY

FIELD - ROADWAY\_NAME

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM utilizes an entry field to facilitate coding of this item.

Record the name of the roadway. This is a non-NBI field.

**MEDIANS - X (1)**

TABLE - ROADWAY

FIELD - NUM\_MEDIAN

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

BrM utilizes an entry field to facilitate coding of this item.

Record the number of medians on the roadway.

**SPEED - XXXX (4)**

TABLE - ROADWAY

FIELD - ROAD\_SPEED

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

BrM utilizes an entry field to facilitate coding of this item.

Record the posted speed limit on the roadway.

## **ADT CLASS - XX (2)**

TABLE - BRIDGE

FIELD – ADT\_CLASS

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

BrM utilizes a dropdown menu to facilitate coding of this item.

Record the traffic volume class of the roadway. The options provided in the dropdown menu are listed below. This information is obtained from Traffic Engineering Division and updated by Central Office.

### **Code**

ADT Class 1

ADT Class 2

ADT Class 3

ADT Class 4

ADT Class 5

## **SCHOOL BUS ROUTE – X (1)**

TABLE - ROADWAY

FIELD – SCHOOL\_BUS

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for a designated school bus route.

## **TRANSIT ROUTE – X (1)**

TABLE - ROADWAY

FIELD – TRANSIT\_RT

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for a designated transit bus route.

## **EMERGENCY ROUTE – X (1)**

TABLE - ROADWAY

FIELD – CRIT\_TRAV

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for a designated emergency / critical travel route.

## **NBI ROUTE – X (1)**

TABLE - ROADWAY

FIELD – NBI\_RW\_FLAG

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a check box to facilitate coding of this item. No manual code entry is permitted.

This item serves as a flag for a designated NBI roadway. NBI roadways are included in the NBI export files.

**DETOUR SPEED – XXXX (4)**

TABLE - ROADWAY

FIELD – DET\_SPEED

LOCATION - INSPECTION / INVENTORY / ROADS / DETOURS

BrM utilizes an entry field to facilitate coding of this item.

Record the designated speed limit for detouring vehicles.

**COUNT – XXXXXX (6)**

TABLE - ROADWAY

FIELD – ACC\_COUNT

LOCATION - INSPECTION / INVENTORY / ROADS / ACCIDENTS

BrM utilizes an entry field to facilitate coding of this item.

Record the average annual accident count.

**RATE – XXXXXX (6)**

TABLE - ROADWAY

FIELD – ACC\_COUNT

LOCATION - INSPECTION / INVENTORY / ROADS / ACCIDENTS

BrM utilizes an entry field to facilitate coding of this item.

Record the annual accident rate in incidents per 100 million vehicle miles traveled for the roadway.

**AGENCY ROADWAY FIELDS – XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (32)**

TABLE - ROADWAY

FIELD – USERRWKEY1, USERRWKEY2, USERRWKEY3, USERRWKEY4, USERRWKEY5

LOCATION - INSPECTION / INVENTORY / ROADS / AGENCY ROADWAY FIELDS

BrM utilizes a series of entry fields to facilitate coding of these items.

AASHTOWare Bridge Management provides five fields in the roadway table for agencies to customize for their own use. A specific description for these items is unavailable at this time.

**AGENCY BRIDGE ITEMS – XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (32)**

TABLE - BRIDGE

FIELD – USERKEY1 through USERKEY15

LOCATION - INSPECTION / INVENTORY / AGENCY ITEMS / AGENCY BRIDGE ITEMS

BrM utilizes a series of entry fields to facilitate coding of these items.

Fifteen fields are provided in the AASHTOWare Bridge Management bridge table to be used for storing agency-specific information that the standard AASHTOWare Bridge Management database does not include. These fields could be used to indicate special types of functional improvement need not covered by the standard AASHTOWare Bridge Management action categories. A specific description for these items is unavailable at this time.

**INSPECTOR - XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (32)**

TABLE - INSPEVNT

FIELD – INSPUSRGUID

LOCATION - INSPECTION / SCHEDULE / SUMMARY

BrM utilizes a dropdown menu to facilitate coding of this item.

Record the inspector’s name. The dropdown menu features a list of agency users and contractors for selection.

**PRIMARY TYPE - X (1)**

TABLE - INSPEVNT

FIELD – INSPTYPE

LOCATION - INSPECTION / SCHEDULE / SUMMARY

BrM utilizes a dropdown menu to facilitate coding of this item.

Record the primary type of inspection performed.

**Code**

Unknown

Regular

Interim

Nonscheduled

Special

Other

UW-State Force

UW-Contract

UW- wade and prob depth \*NO LONGER IN USE

UW-State Force SCUBA \*NO LONGER IN USE

UW-Contract SCUBA \*NO LONGER IN USE

UW-Hyperbaric Diving \*NO LONGER IN USE

Fracture Critical

Special-Accidental Damage

Special-Nat disaster damage

Special-Posted bridge

Special-other

**TYPES OF INSPECTION PERFORMED - X (1)**

TABLE - INSPEVNT

FIELD – NBINSPDONE

FIELD – ELINSPDONE

FIELD – FCINSPDONE

FIELD – UWINSPDONE

FIELD – OSINSPDONE

LOCATION - INSPECTION / SCHEDULE / SUMMARY

BrM utilizes checkboxes to facilitate coding of these items.

Record the type(s) of inspection performed. Multiple selections are permitted.

**Check Boxes**

National Bridge Inventory

Element Condition

Fracture Critical

Underwater

Other Special



**ELEMENT INSPECTION DATE - XXXXXXXXXX (10)**

TABLE - INSPEVNT

FIELD - ELINSPDATE

LOCATION - INSPECTION / SCHEDULE / SCHEDULE

BrM provides a calendar to facilitate coding of this field.

**Virginia Note:**

- BrM allows entry by month/day/year (XX / XX / XXXX)
- Dates below assume structure was inspected on the 15<sup>th</sup> of the month noted

Record the date which the most recent element inspection was completed. Code a 8-digit number to represent the month and year. The number of the month and day should be coded with leading zeros as required.

**EXAMPLE:**

Inspection date May 1986  
Inspection date March 1987

**VDOT preferred Code**

05/15/1986  
03/15/1987

**ELEMENT CONDITION INSPECTION FREQUENCY - XX (2)**

TABLE - INSPEVNT

FIELD - ELINSPFREQ

LOCATION - INSPECTION / SCHEDULE / SCHEDULE

BrM utilizes an entry field to facilitate coding of this item.

2 digits to represent the number of months between designated inspections of the structure. A leading zero shall be coded as required. This interval is usually determined by the individual in charge of the inspection program. For posted, understrength bridges, this interval should be substantially less than the 24-month standard. The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

**EXAMPLES:**

**Code**

- 01 Posted bridge with heavy truck traffic and questionable structural details which is designated to be inspected each month
- 24 Bridge is scheduled to be inspected every 24 months

**NEXT INSPECTION DATE - XXXXXXXXXX (10)**

TABLE - INSPEVNT

FIELD - NEXTINSP

FIELD - ELNEXTDATE

FIELD - FCNEXTDATE

FIELD - UWNEXTDATE

FIELD - OSNEXTDATE

LOCATION - INSPECTION / SCHEDULE / SCHEDULE

BrM utilizes a series of calendars to facilitate coding of these items.

Record the date which the next inspection of a given type will be completed. Code a 8-digit number to represent the month and year. The number of the month and day should be coded with leading zeros as required. BrM allows this field to be calculated based upon the previous inspection date and the specified inspection interval. To calculate the date of the next inspection, click the "Calculate Next" button located adjacent to the entry fields.

**NEXT INSPECTOR - XXXX (4)**

TABLE - BRIDGE

FIELD – NEXTINSPID

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes a dropdown menu to facilitate coding of this item.

Record the name of the planned next inspector. The dropdown menu features a list of agency users and contractors for selection.

**BRIDGE GROUP - XXXXXXXXXXXXXXXXXXXXX (20)**

TABLE - BRIDGE

FIELD – BRIDGEGROUP

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes a dropdown menu to facilitate coding of this item.

This field is not currently in use.

**ELEMENT CONDITION INSPECTION FREQUENCY - XXXXXXXXXXXXXXXXXXXXX (20)**

TABLE - BRIDGE

FIELD - BRIDGEGROUP

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the agency defined group for the bridge.

**CREW HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD - CREWHRS

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of inspection crew hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**SNOOPER HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD – SNOOPERHRS

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of snooper truck hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**FLAGGER HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD - FLAGGERHRS

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of flagger hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**SPECIAL CREW HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD - SPCREWHR

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of special inspection crew hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**HELPER HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD - HELPERHRS

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of helper hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**SPECIAL EQUIPMENT HOURS – XXX.XX (5)**

TABLE - BRIDGE

FIELD - SPEQUIPHRS

LOCATION - INSPECTION / SCHEDULE / INSPECTION RESOURCES

BrM utilizes an entry field to facilitate coding of this item.

Record the number of special equipment hours required for a regular inspection. Precision of up to two decimal places is allowed by BrM.

**CODING UNDER-RECORDS**

## INSTRUCTIONS

This section is a trimmed version of the Coding Guide which only includes fields that pertain to “under” records. Items which pertain to “on” records only and items such as federal error checks are not repeated here. Refer to the main body of the Coding Manual when coding “on” records. The fields below are presented in order of their appearance on the BrM screen, separated by page and section.

BrM is configured to set the number of “under” records for a given structure at the time of initial structure creation. When requesting a new structure record in BrM, please note the correct number of “under” records required to match the available plans or known construction. Additional “under” records may be added to an existing structure after initial creation, but this will require IT support outside of the BrM interface and incur additional wait time. Contact Manjil Devkota or James Lightfoot (Structure and Bridge, Central Office) for assistance.

Coding the properties of “under” records will require navigation to two screens: the Inspection > Inventory > Roads screen and the Inspection > State Roadway screen. The Roadway Record Type (Federal Item 5A) is a dropdown menu on the former of these screens which controls the record being displayed on the page. Select the “under” record you wish to edit and wait a few seconds for the page to refresh. For each under record, code each state and federal item as if the route “under” is the primary route. Any editable characteristics on the “under” record such as number of lanes, traffic counts, and clearances should apply only to the route “under”. Many inventory items are tied to the “on” record and will not be editable, but are reproduced here for reference.

### INSPECTION > INVENTORY > ROADS

Select the desired “under” record from the drop-down menu. The “Create” button will not allow additional under-records to be created on older bridges in most cases; this must be done outside of BrM with IT support. If the correct number of “under” records is not present, contact Manjil Devkota or James Lightfoot (Structure and Bridge, Central Office) for assistance. For each under record, code each state and federal item as if the route “under” is the primary route.

### IDENTIFICATION

#### **ROAD / ROUTE NAME – XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX (30)**

TABLE - ROADWAY

FIELD – ROADWAY\_NAME

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM utilizes an entry field to facilitate coding of this item.

Record the name of the roadway. This is a non-NBI field.

#### **FED ITEM 5A – RECORD TYPE – X (1)**

TABLE – ROADWAY

FIELD - ON\_UNDER (5A)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Displays the selected record chosen at the top of the page.

**FED ITEM 5B – ROUTE SIGNING PREFIX – X (1)**

TABLE - ROADWAY

FIELD - KIND\_HWY (5B)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

In the second position, identify the route signing prefix for the under record route using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
1	Interstate Highway
2	U.S. Numbered Highway
3	State Highway
4	County Highway <b>Virginia Note:</b> This code shall be used for secondary routes in any county, including the counties of Arlington, Buchanan, Henrico, etc.
5	City Street
6	Federal Lands Roads
7	State Lands Roads
8	Other (include toll roads not otherwise indicated or identified above) Not Applicable (P)

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

**FED ITEM 5C – DESIGNATED LEVEL OF SERVICE – X (1)**

TABLE - ROADWAY

FIELD - LEVL\_SRVC (5C)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

In the third position, identify the designated level of service for the under record route using one of the following codes:

<b><u>Code</u></b>	<b><u>Description</u></b>
0	None of the below
1	Mainline <b>Virginia Note:</b> (HOV lanes shall be coded as Mainline)
2	Alternate
3	Bypass
4	Spur
6	Business
7	Ramp, Wye, Connector, etc.
8	Service and/or Unclassified Frontage Road

**FED ITEM 5D – ROUTE NUMBER – XXXXX (5)**

TABLE - ROADWAY

FIELD - ROUTENUM (5D)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

Code the route number of the under record route in the next 5 positions. This value shall be right justified in the field with leading zeros filled in. If concurrent routes are of the same hierarchy level, denoted by the route signing prefix, the lowest numbered route shall be coded. Code 00000 for bridges on roads without route numbers.

**Virginia Note:**

- Structures that do not have an “on” record, Federal Item 5D "Route Number" are to be coded as the route that passes under the structure.
- In accordance with Federal Item 5A - Record Type above, structures that do not carry highway traffic and are VDOT owned will be coded as an “on” record. For these structures, Federal Item 5D - Route Number will be coded 00000, and “under” records will be added when appropriate.

**FED ITEM 5E – DIRECTIONAL SUFFIX – X (1)**

TABLE - ROADWAY

FIELD - DIRSUFFIX (5E)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

In the last position, code the directional suffix to the route number of the inventory route when it is part of the route number, using one of the following codes based on the Roadway Network System:

<u>Code</u>	<u>Description</u>
0	Not applicable (NBI)
1	North
2	East
3	South
4	West
	Unknown (NBI)

In some cases, letters may be used with route numbers and as part of route numbers and not to indicate direction. In such cases, the letter should be included in the 5-position route number field.

**HIGHWAY NETWORKS AND SERVICE CLASSIFICATION**

**FED ITEM 11 – KILOMETER POINT(MILE POINT) – (XXXX.XXX MILES) (7)**

TABLE - ROADWAY

FIELD - KMPOST

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

The linear referencing system (LRS) kilometer/mile point is used to establish the location of the bridge on the Base Highway Network (see Federal Item 12). It must be from the same LRS Inventory Route and kilometer/mile point system as reported in the Highway Performance Monitoring System (HPMS). The kilometer/mile point coded in this item directly relates to Federal Item 13 – LRS Inventory Route, Subroute Number.

This item must be coded for all structures located on or overpassing the Base Highway Network. Code a 7-digit number to represent the LRS kilometer/mile point distance in kilometers/mile to the nearest thousandth. For structures carrying the LRS Inventory Route, code the kilometer/mile point at the beginning of the structure (i.e. the lowest kilometer/mile point on the bridge). When the LRS Inventory

Route goes under the structure (Federal Item 5A coded 2 or A - Z), then code the kilometer/mile point on the underpassing route where the structure id is first encountered.

Code all zeros in this field for all records where kilometer/mile points are not provided. Kilometer/mile points may be coded for bridges that are not located on the Base Highway Network, however Federal Item 12 – Base Highway Network shall be coded 0 for these records.

<u>EXAMPLES:</u>		<u>Code</u>
Kilometer/mile point is	130.34	130.34
	9.60	9.6

**Virginia Note:**

- Millionth of a foot is allowed in BrM but is not considered practical.
- The Traffic Engineering Division reports kilometer/mile points to the FHWA with the beginning kilometer/mile point (0000.000000) at the beginning of a route and ignores county lines as the kilometer/mile points increase i.e. kilometer/mile points do not 'begin again' at each county line.

**FED ITEM 12 – BASE HIGHWAY NETWORK – X (1)**

TABLE - ROADWAY

FIELD - ONBASENET

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

This item is to be coded for all records in the inventory. The Base Highway Network includes the through lane (mainline) portions of the NHS, 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 Federal Item 5 - Inventory Route, indicate whether the inventory route is on the Base Highway Network or not on that network. Use one of the following codes:

<u>Code</u>	<u>Description</u>
0	Not on Base Network
1	On Base Network
	Unknown (NBI)

**FED ITEM 13– LRS INVENTORY ROUTE, SUBROUTE NUMBER – XXXXXXXXXXXX XX (12)**

TABLE - ROADWAY

FIELD - LRSINVRT (13A)

FIELD - SUBRTNUM (13B)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

If Federal Item 12 - Base Highway Network has been coded "On Base Network", the information to be recorded for this item is the inventory route for the State's linear referencing system (LRS). If Federal Item 12 has been coded "Not on Base Network", this entire item should be left blank. This item is a 12-digit code composed of 2 segments (Federal Items 13A and 13B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
13A	LRS Inventory Route	10 digits
13B	Subroute Number	2 digits



**FED ITEM 13A – LRS INVENTORY ROUTE – XXXXXXXXXX (10)**

TABLE - ROADWAY

FIELD - LRSINVRT (13A)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

**Virginia Note:** Working to update automatic entry.

The LRS inventory route and subroute numbers to be reported in this item must correspond to the LRS inventory route and subroute numbers reported by the State for the HPMS. The LRS inventory route number is coded in the ten positions of segment 13A, right justified and zero filled. The subroute number, if it exists, is coded in the two positions of segment 13B, right justified and zero filled.

The LRS inventory route number can be alphanumeric, but must not contain blanks. The LRS inventory route number is not necessarily the same as that posted along the roadway, but is a number used to uniquely identify a route within at least a county and perhaps throughout the State.

**FED ITEM 13B – SUBROUTE NUMBER – XX (2)**

TABLE - ROADWAY

FIELD - SUBRTNUM (13B)

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

**Virginia Note:** Working to update automatic entry.

The subroute number is a number that uniquely identifies portions of an inventory route sections where duplicate kilometer/mile points occur. These subroute numbers, if they exist, are identified in the State's HPMS-LRS records. If there is no subroute number, code 00 in this segment.

**EXAMPLES:**

**Code**

Inventory Route 2775, Subroute Number 0	000000277500
Inventory Route 2775, Subroute Number 3	000000277503

**FED ITEM 20 – TOLL – X (1)**

TABLE - ROADWAY

FIELD - TOLLFAC

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

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:

Code	Description
1	Toll bridge. Tolls are paid specifically to use the structure.
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	On free road. The structure is toll-free and carries a toll-free highway.
4	On Interstate toll segment under Secretarial Agreement. Structure functions as a part of the toll segment.
5	Toll bridge is a segment under Secretarial Agreement. Structure is separate agreement from highway segment.
	Not Applicable (P)
	Unknown (NBI)

**FED ITEM 26 – FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE – XX (2)**

TABLE - ROADWAY

FIELD - FUNCCLASS

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

<u>Code</u>	<u>Description</u>	<u>* Equivalent VDOT Shown for Reference Only</u>
	Unknown	
	Not Applicable	
<b><u>Rural</u></b>		<b><u>TMPD</u></b>
01	Principal Arterial - Interstate	1
02	Principal Arterial - Other	2
06	Minor Arterial	3
07	Major Collector	4
08	Minor Collector	5
09	Local	6
<b><u>Urban</u></b>		
11	Principal Arterial - Interstate	A
12	Principal Arterial - Other Freeways or Expressways	B
14	Other Principal Arterial	E
16	Minor Arterial	H
17	Collector	I
19	Local	J

The bridge shall be coded rural if not inside a designated urban area. The urban or rural designation shall be determined by the bridge location and not the character of the roadway.

**Virginia Note:**

- Codes of 08, 09 and 19 indicate non-Federal aid (off-system) routes. All others are Federal aid (on-system) routes.
- TMPD = Transportation & Mobility Planning Division

**EDIT CHECK**

If Federal Item 26 = 1 or 11 then Federal Item 5B must = 1 and Federal Item 104 must = 1.

**ALSO:**

<u>If Federal Item 26 is:</u>	<u>Federal Item 104 must be:</u>
01, 02, 11, 12 or 14	1 (NHS Route)
06, 07, 08, 09, 16, 17 or 19	0 (not on NHS Route)

## **FED ITEM 102 – DIRECTION OF TRAFFIC – X (1)**

TABLE - ROADWAY

FIELD - TRAFFICDIR

LOCATION - INSPECTION / INVENTORY / ROADS / HIGHWAY NETWORKS & SERVICE CLASSIFICATION

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

Code the direction of traffic of the inventory route identified in Federal Item 5 as a 1-digit number using one of the codes below.

<b><u>Code</u></b>	<b><u>Description</u></b>
0	Highway traffic not carried
1	1-way traffic
2	2-way traffic
3	One lane bridge for 2-way traffic

Unknown (NBI)

### **EDIT CHECK**

- If Federal Item 28A is = 01 then Federal Item 102 must = 1 or 3.
- If 5A <> 1 and Item 28B = 1, then Item 102 Must = 1 or 3.

### **TRAFFIC**

## **FED ITEM 28A – LANES ON THE STRUCTURE – XX (2)**

TABLE - ROADWAY

FIELD - LANES (28A)

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

Include all lanes carrying highway traffic (i.e., cars, trucks, buses) that are striped or otherwise operated as a full width traffic lane for the entire length of the structure or under the structure by the owning/maintaining authority. This shall include any full width merge lanes and ramp lanes, and shall be independent of directionality of usage (i.e., 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 the Federal Item 68 - Deck Geometry, any "1-lane" bridge, not coded as a ramp (Federal Item 5C = 7), which has a Bridge Roadway Width, Curb-to-Curb - Federal Item 51 coded 16 feet (4.9 meters) or greater shall be evaluated as 2 lanes.

When the inventory route is "on" the bridge (the first digit of Federal Item 5 - Inventory Route is coded 1), the sum of the total number of lanes on all inventoried routes under the bridge shall be coded.

Double deck bridges may be coded as 1 or 2 structures as noted in the examples. Either method is acceptable; however, all related data must be compatible with the method selected.

### **Virginia Note:**

- Code ONLY the number of lanes for the individual route, not the "on" record or the entire structure.

**ADT CLASS - XX (2)**

TABLE - BRIDGE

FIELD – ADT\_CLASS

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

BrM utilizes a dropdown menu to facilitate coding of this item.

Record the traffic volume class of the roadway. The options provided in the dropdown menu are listed below. This information is obtained from Traffic Engineering Division and updated by Central Office.

**Code**

- ADT Class 1
- ADT Class 2
- ADT Class 3
- ADT Class 4
- ADT Class 5

**FED ITEM 29 – AVERAGE DAILY TRAFFIC – XXXXXX (6)**

TABLE - ROADWAY

FIELD - ADTTOTAL

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code a 6-digit number that shows the average daily traffic volume for the inventory route identified in Federal Item 5. Make certain the unit's position is coded even if estimates of ADT are determined to tens or hundreds of vehicles; that is, appropriate trailing zeros shall be coded. The ADT coded should be the most recent ADT counts available. Included in this item are the trucks referred to in Federal Item 109 - Average Daily Truck Traffic. If the bridge is closed, code the actual ADT from before the closure occurred.

The ADT must be compatible with the other items coded for the bridge. For example, parallel bridges with an open median are coded as follows: If Federal Item 28 - Lanes On and Under the Structure and Federal Item 51 - Bridge Roadway Width, 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).**

**EXAMPLE:**

		<b><u>Code</u></b>
Average Daily Traffic	540	000540
	15,600	015600
	24,000	024000

**EDIT CHECK**

- If Federal Item 29 > 100 then Federal Item 109 must NOT be blank.
- A warning is issued if Federal Item 29 is coded > 200,000.

**FED ITEM 30 – YEAR OF AVERAGE DAILY TRAFFIC – XXXX (4)**

TABLE - ROADWAY

FIELD - ADTYEAR

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

Record the year represented by the ADT in Federal Item 29. Code all four digits of the year so recorded.

**Virginia Note:** Working to update automatic entry.

<b><u>EXAMPLE:</u></b>	<b><u>Code</u></b>
Year of ADT is 1994	1994

**EDIT CHECK**

A warning is issued if Federal Item 30 is greater than 4 years old.

**FED ITEM 109 – AVERAGE DAILY TRUCK TRAFFIC – XX (2)**

TABLE - ROADWAY

FIELD - TRUCKPCT

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code a 2-digit percentage that shows the percentage of Federal Item 29 - Average Daily Traffic that is truck traffic. Do not include vans, pickup trucks and other light delivery trucks in this percentage.

If this information is not available, an estimate that represents the average percentage for the category of road carried by the bridge may be used. Leave blank if Federal Item 29 - Average Daily Traffic is not greater than 100.

<b><u>EXAMPLES:</u></b>	<b><u>Code</u></b>
Average Daily Traffic      7% trucks	07
12% trucks	12

**FED ITEM 114 – FUTURE AVERAGE DAILY TRAFFIC – XXXXXX (6)**

TABLE - ROADWAY

FIELD - ADTFUTURE

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Code for all bridges the forecasted average daily traffic (ADT) for the inventory route identified in Federal Item 5. This shall be projected at least 17 years but no more than 22 years from the year data is submitted to the NBI. The intent is to provide a basis for a 20-year forecast. This item may be updated anytime, but must be updated when the forecast falls below the 17-year limit. 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 bridge. For example, parallel bridges with an open median are coded as follows: if Federal Item 28 - Lanes On and Under the Structure and Federal Item 51 - Bridge Roadway Width, 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).

<b><u>EXAMPLES</u></b>	<b><u>Code</u></b>
Future ADT                      540	000540
15,600	015600
240,000	240000

### EDIT CHECK

Federal Item 114 must be  $\leq 4.0$  times Federal Item 29 and Federal Item 114 must be  $\geq 0.4$  times Federal Item 29. A warning is issued if Federal Item 114 is  $> 200,000$ .

### FED ITEM 115 – YEAR OF FUTURE AVERAGE DAILY TRAFFIC – XXXX (4)

TABLE - ROADWAY

FIELD - ADTFUTYEAR

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

**Virginia Note:** Working to update automatic entry.

Record and code the year represented by the future ADT in Federal Item 114. The projected year of future ADT shall be at least 17 years but no more than 22 years from the year of inspection.

<b>EXAMPLE:</b>		<u>Code</u>
Year of Future ADT is	2014	2014

### EDIT CHECK

Federal Item 115 must be  $\geq 17$  years and  $\leq 22$  years since date of last inspection.

### ALTERNATE CLASSIFICATIONS

### FED ITEM 100 – STRAHNET HIGHWAY DESIGNATION – X (1)

TABLE - ROADWAY

FIELD - DEFHWY

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This item shall be coded for all records in the inventory. For the purposes of this item, the STRAHNET Connectors are considered included in the term STRAHNET. For the inventory route identified in Federal Item 5, indicate STRAHNET highway conditions using one of the following codes:

<u>Codes</u>	<u>Description</u>
0	The inventory route is not a STRAHNET route.
1	The inventory route is on an Interstate STRAHNET route.
2	The inventory route is on a Non-Interstate STRAHNET route.
3	The inventory route is on a STRAHNET connector route.
[BLANK]	Unknown (NBI)

### Virginia Note:

More information can be found at

[http://www.fhwa.dot.gov/planning/national\\_highway\\_system/](http://www.fhwa.dot.gov/planning/national_highway_system/).

### EDIT CHECK

- If Federal Item 100 = 1 or 2 then Federal Item 47 must be  $> 000$
- If Federal Item 100  $> 0$  then Federal Item 16 must be  $> 00000$ .
- If Federal Item 100  $> 0$  then Federal Item 17 must be  $> 00000$

### FED ITEM 104 – HIGHWAY SYSTEM OF THE INVENTORY ROUTE – X (1)

TABLE - ROADWAY

FIELD - NHS\_IND

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

More information can be found at  
[http://www.fhwa.dot.gov/planning/national\\_highway\\_system/](http://www.fhwa.dot.gov/planning/national_highway_system/)

This item is to be coded for all records in the inventory. For the inventory route identified in Federal Item 5, indicate whether the inventory route is on the National Highway System (NHS) or not on that system. Use one of the following codes:

<u>Code</u>	<u>Description</u>
0	Inventory Route <u>is not</u> on the NHS
1	Inventory Route <u>is</u> on the NHS

#### EDIT CHECK

- If Federal Item 26 = 1 or 11 then Federal Item 5B must = 1 and Federal Item 104 must = 1.
- Federal Item 5B must not equal 1 if Federal Item 104 does not equal 1
- If Federal Item 104 = 1 then Federal Item 26 must be 01, 02, 11, 12 or 14
- If Federal Item 104 = 0 then Federal Item 26 must be 06, 07, 08, 09, 16, 17 or 19

#### **FED ITEM 105 – FEDERAL LANDS HIGHWAY – X (1)**

TABLE - ROADWAY

FIELD - FEDLANDHWY

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

Structures owned by State and local jurisdictions on roads that lead to and traverse through Federal lands sometimes require special coded unique identification because they are eligible to receive funding from the Federal Lands Highway Program. One of the following codes shall be used:

<u>Code</u>	<u>Description</u>
0	Not applicable (NBI)
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
[BLANK]	Unknown (NBI)

#### **FED ITEM 110 – DESIGNATED NATIONAL NETWORK – X (1)**

TABLE – ROADWAY

FIELD - TRUCKNET

LOCATION - INSPECTION / INVENTORY / ROADS / ALTERNATE CLASSIFICATIONS

BrM uses a dropdown to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

The national network for truck includes most of the Interstate System and those portions of the Federal-Aid Primary System 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 Federal Item 5, indicate conditions using one of the following codes:

<u>Code</u>	<u>Description</u>
0	The inventory route is <b>not</b> part of the national network for trucks.
1	The inventory route is part of the national network for trucks.
[BLANK]	Unknown (NBI)

### Virginia Note:

This information is available on the following link.

<http://gis.vdot.virginia.gov/vatruckweb/VaTruckRestrictions.aspx>

**STAA Routes - Designated National Network is also available on VDOT's Inspection Team Site.**

## CLEARANCES

### **FED ITEM 10 – INVENTORY ROUTE, MINIMUM VERTICAL CLEARANCE – XX.XX (4)**

TABLE - ROADWAY

FIELD - VCLRINV

LOCATION - INSPECTION / INVENTORY / ROADS / CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

#### **See Virginia Note under Federal Item 54.**

Code the minimum vertical clearance over the inventory route identified in Federal Item 5, whether the route is "on" the structure or "under" the structure. The minimum clearance for a 10-foot width of the pavement or travel part (See Virginia Note under Federal Item 54 for definition of where to measure) of the roadway where the clearance is the greatest shall be recorded and coded in feet. For structures having multiple openings, clearances for each opening shall be recorded, but only the greatest of the "minimum clearances" for the two or more openings shall be coded regardless of the direction of travel. This would be the practical maximum clearance. When no restriction exists or when the restriction is 100 feet or greater, code 99.99. Coding of actual clearances between 100 feet and 300 feet to an exact measurement is optional.

#### **EDIT CHECK**

- A warning is issued if Federal Item 10 is coded < 8 feet.

### **FED ITEM 47 – INVENTORY ROUTE, TOTAL HORIZONTAL CLEARANCE – XX.X (3)**

TABLE - ROADWAY

FIELD - HCLRINV

LOCATION - INSPECTION / INVENTORY / ROADS / CLEARANCES

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The total horizontal clearance for the inventory route identified in Federal Item 5 should be measured and recorded. The clearance should be the available clearance measured between the restrictive features - curbs, rails, walls, piers or other structural features limiting the roadway (surface and shoulders) (ignore guardrail for this item). The measurement should be recorded and coded to the nearest thousandth of a foot. When the restriction is 100 feet or greater, code 99.9. Flush and mountable medians are not considered to be restrictions.

The purpose of this item is to give the largest available clearance for the movement of wide loads. This clearance has been identified in 2 ways; use the most applicable:

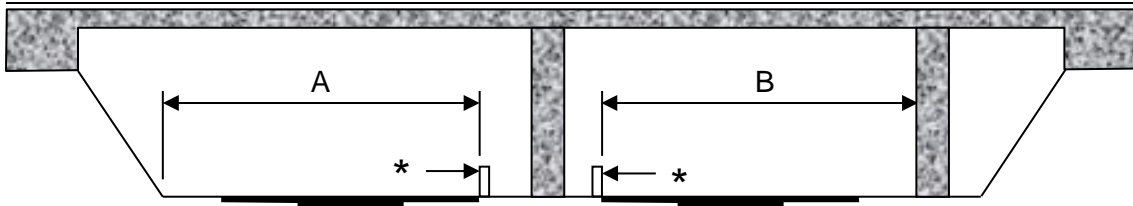
3. Clear distance between restrictions of the inventory route either "on" or "under" the structure.
4. Roadway surface and shoulders - when there are no restrictions.

For a divided facility with a raised or non-mountable median, or an "under" route divided by piers, record the greater of the restricted widths in either direction, not both directions.

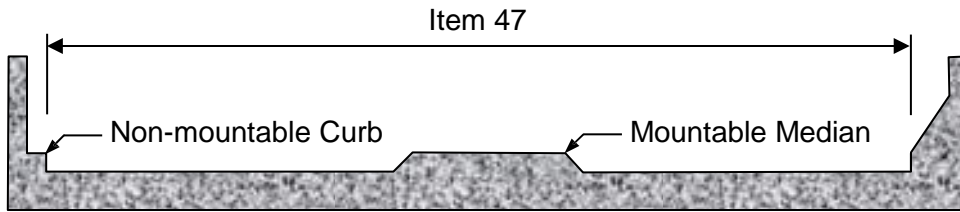
#### **EXAMPLES:**



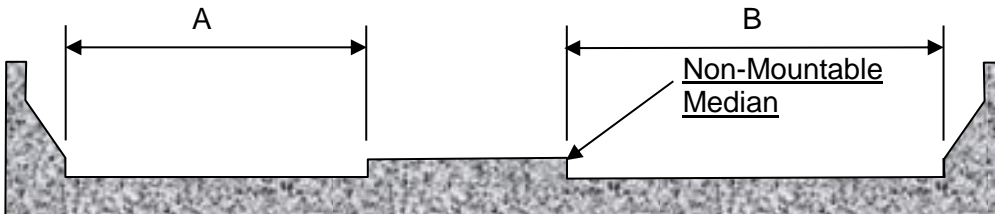
**NOTE:**  
 IGNORE GUARDRAILS FOR THIS ITEM.



\* - Face of a rigid barrier, not face of guardrail  
 Clearance  $A > B$  Item Federal 47 = A



No Median or Flush or Mountable Median



Raised Median or Non-mountable Median  
 $B > A$  Federal Item 47 = B

**Virginia Note:**

- Non-mountable curbs and/or medians will be defined as curbs being greater than 6” in height.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

**EDIT CHECK**

- If Federal Item 100 = 1 or 2 then Federal Item 47 must be  $> 000$ .
- A warning is issued if Federal Item 47  $< 8$  feet.

**WIDTHS**

**FED ITEM 32 – APPROACH ROADWAY WIDTH – XXX.X (4)**

TABLE - ROADWAY

FIELD - AROADWIDTH

LOCATION - INSPECTION / INVENTORY / ROADS / WIDTHS

NOTE: BrM’s field allows additional digits, however please follow the format in the item described above.

Code a 4-digit number that represents the normal width of usable roadway approaching the structure. 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.

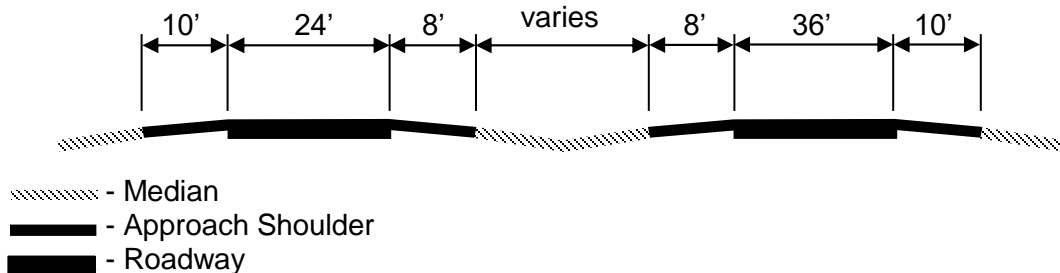
Unstabilized grass or dirt, with no base course, flush with and beside the traffic lane is not to be considered a shoulder for this item.

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, record and code the most restrictive of the approach conditions.

**EXAMPLES:**

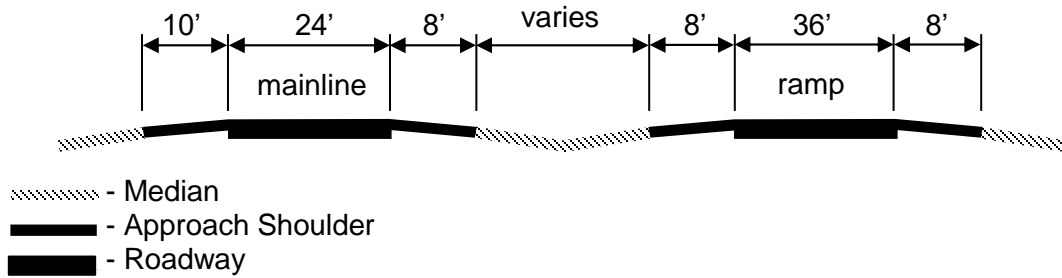
<u>Left Shoulder</u>	<u>Left Roadway</u>	<u>Median Shoulders</u>	<u>Right Roadway</u>	<u>Right Shoulder</u>	<u>Code</u>
4.0	-	-	16	6.0	026.0
6.0	-	-	36	12.0	054.0
12.0	48	30	48	12.0	150.0
10.0	24	16	36	10.0	096.0

The last example above represents the coding method for a structure in which the most restrictive approach has the cross-section shown below:



Regardless of whether the median is open or closed, the data coded must be compatible with the other related route and bridge data (i.e., if Federal Item 51 - Bridge Roadway Width, Curb-to-Curb is for traffic in one direction only, then Federal Items 28, 29, 32, etc. must be for traffic in one direction only).

If a ramp is adjacent to the through lanes approaching the structure, it **shall** be included in the approach roadway width. The total approach roadway width for the example below is 94 feet (a code of 094.0).



#### EDIT CHECK

- A warning is issued if Federal Item 32 is < 8 feet.
- A warning is issued if Federal Item 28A is > 3 and Federal Item 32 is 1.5 times or more than Federal Item 51.
- A warning is issued if Federal Item 28A <= 3 and Federal Item 32 is 2.0 times or more than Federal Item 51.

**FED ITEM 51 – BRIDGE ROADWAY WIDTH, CURB-TO-CURB – XXX.X (4)**

TABLE - ROADWAY

FIELD - ROADWIDTH

LOCATION - INSPECTION / INVENTORY / ROADS / WIDTHS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

The information to be recorded is the most restrictive minimum distance between curbs or rails on the structure roadway. 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 except as noted below. The data recorded for this item must be compatible with other related route and bridge data (i.e. Federal Items 28, 29, 32, etc.). The measurement should be exclusive of flared areas for ramps. A 4-digit number should be used to represent the distance to the nearest tenth of a foot.

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 0000. This is considered proper inasmuch as a filled section simply maintains the roadway cross-section. However, for sidehill viaduct structures code the actual full curb-to-curb roadway width. See Figure 2 in Appendix for coding of sidehill viaducts.

**FHWA NOTE:**

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.

**EXAMPLES:**

		<u>Code</u>
Bridge Roadway Width	36.00' wide	036.0
	66.37' wide	066.4
	110.13' wide	110.1

**Virginia Note:**

- Non-mountable curbs and/or medians will be defined as curbs being greater than 6" in height. See sketches under Federal Item 50 for additional examples.
- Precision of up to a thousandth of a foot is allowed in BrM but is not considered practical.

See sketches under Federal Item 50 for examples.

**EDIT CHECK**

- Federal Item 51 must be <= Federal Item 52
- If Federal Item 51 = 000.0 then Federal Item 43B must = 19
- A warning is issued if Federal Item 51 is > 150 feet or < 9 feet
- A warning is issued if Federal Item 28A is > 3 and Federal Item 32 is 1.5 times or more than Federal Item 51
- A warning is issued if Federal Item 28A <= 3 and Federal Item 32 is 2.0 times or more than Federal Item 51

## DETOURS

### **FED ITEM 19 – BYPASS, DETOUR LENGTH – XXX (3) MILES**

TABLE - ROADWAY

FIELD - BYPASSLEN

LOCATION - INSPECTION / INVENTORY / ROADS / DETOURS

NOTE: BrM's field allows additional digits, however please follow the format in the item described above.

If a ground level bypass is available at the structure site for the inventory route, record and code the detour length as 000. This code is not used for partial lane closures on the subject bridge; detour length assumes the entire structure is not available for use and reflects the nearest alternate route.

If the bridge is one of twin bridges and is not at an interchange, code 001 where the other twin bridge can be used as a temporary bypass with a reasonable amount of crossover grading. BrM will display "1.000000" upon entry but the value will store correctly as entered.

In other cases, indicate the actual length to the nearest mile of the detour length.

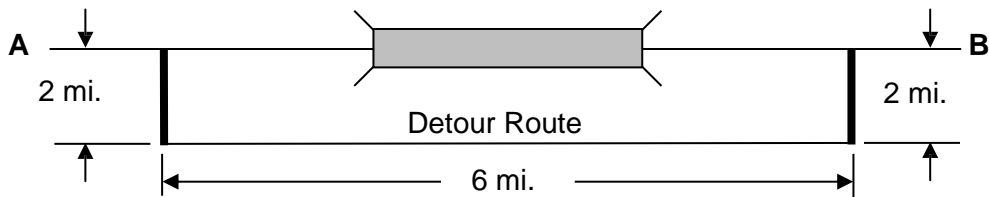
The detour length should represent the total **additional** travel for a vehicle that would result from closing the bridge. The factor to consider when determining if a bypass is available at the site is the potential for moving vehicles, including military vehicles, around the structure. This is particularly true when the structure is in an interchange. For instance, a bypass likely would be available in the case of diamond interchanges, interchanges where there are service roads available, or other interchanges where the positioning and layout of the ramps is such that they could be used without difficulty to get around the structure. Code 199 for any value of 199 miles or more.

#### **Virginia Note:**

The route must not contain structures with a lower posting than the subject bridge and must be a comparable type of road.

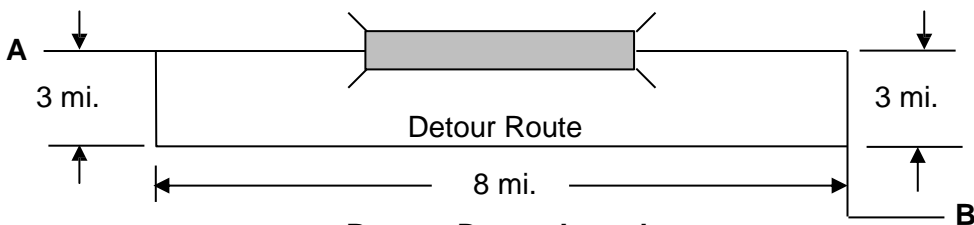
**EXAMPLES:**

	<b>Code</b>
One of the bridges of twin bridges	001
A ground level bypass is available	000
Diamond interchange, structure bypassable	000
Cloverleaf, not bypassable; 8-mile detour	008
Structure over river; 121-mile detour	121
Structure over highway, no interchange, by passable at ground level	000
Structure on dead end road	199



**Bypass Detour Length**

Additional travel distance required to go from point A to point B = 4 miles.



**Bypass Detour Length**

Additional travel distance required to go from point A to point B = 0 miles.

**SPEED – XXXX (4)**

TABLE - ROADWAY

FIELD – ROAD\_SPEED

LOCATION - INSPECTION / INVENTORY / ROADS / TRAFFIC

BrM utilizes an entry field to facilitate coding of this item.

Record the posted speed limit on the roadway.

## INSPECTION > STATE ROADWAY

### ROADWAY

#### **STATE ITEM 185 – VIRGINIA HIGHWAY SYSTEM CODE – X (1)**

TABLE - USERRWY

FIELD - VA\_HWY\_SYS

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

**Virginia Note:** Working to update automatic entry.

This is a single-digit code indicating the highway road system for this structure.

#### **NOTE:**

This item should be coded exclusive of State Item 57 Maintenance Replacement Funding Code. It is possible for a structure to be located on the Secondary System and receive Interstate funding. For example, Route 600 over the interstate will receive interstate funding even though it carries a secondary system road.

<b><u>Code</u></b>	<b><u>Description</u></b>
<b>Interstate Road System</b>	Structures on an Interstate or on the frontage road of an Interstate, regardless of the jurisdiction in which they reside.
<b>Primary Road System</b>	Structures on a Primary or on the frontage road of a Primary, regardless of the jurisdiction in which they reside.
<b>Secondary Road System</b>	Structures on a Secondary and may cross an Interstate, may be on the frontage road of an Interstate or may be on the frontage road of a Primary. The structure is not within the limits of a municipality.
<b>Urban Road System</b>	Structures located within the limits of a municipality and not on an Interstate or a Primary, or on the frontage road of an Interstate or a Primary. Structures can cross an Interstate or a Primary and still be part of the Urban Road System. (Structures not on an Interstate or Primary and located in and maintained by the counties of Arlington, Buchanan and Henrico are considered to be on the urban road system.)
<b>Other</b>	Structures not on one of the above systems.
<b>Unknown</b>	

#### **FED ITEM 5A – RECORD TYPE – X (1)**

TABLE - ROADWAY

FIELD - ON\_UNDER (5A)

LOCATION - INSPECTION / INVENTORY / ROADS / IDENTIFICATION

The on / under dropdown menu is displayed here for reference purposes only. The record type cannot be switched on this screen due to a design constraint in BrM. Return to the Inspection > Inventory > Roadway screen to switch the roadway record which is being displayed.

**STATE ITEM 5 – LANE ON ROUTE – X (1)**

TABLE - USERRWAY

FIELD - LANE\_ON\_RTE

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

BrM uses a dropdown menu to facilitate coding of this field. No other entry is allowed.

The direction of traffic on the structure according to the Roadway Network System shall be used for all routes including ramps.

<b>Code</b>	<b>Description</b>
Blank	Not Applicable
N	Northbound
E	Eastbound
S	Southbound
W	Westbound
R	Reversible
P	Parallel Route
1	Express Northbound
2	Express Eastbound
3	Express Southbound
4	Express Westbound
Z	Express Reversible

**STATE ITEM 191(A) – RAILROAD DIVISION ID – XXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERRWAY

FIELD – RR\_DIV

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Rail lines may be split into regions, divisions and finally into subdivisions. This field indicates the division in which the structure resides.

**STATE ITEM 191(B) – RAILROAD MILE POST – XXXXXXX.X (8)**

TABLE - USERRWAY

FIELD – RR\_MILE\_POST

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Railroads have mile markers similar to highways, they are called mile posts. These mile posts are the geographical measure of a railroad line and allow train crews to determine their exact location along otherwise nondescript stretches of geography. They are also referenced when numbering bridges. Each railroad has its own style of mile post and its own way of numbering mile posts.

**STATE ITEM 191(C) – FEDERAL RR REFERENCE ID – XXXXXXXXXXXXXXXXXXXXXXXXX (25)**

TABLE - USERRWAY

FIELD – RR\_RR\_ID

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / ROADWAY

This code is for information concerning the railroad beneath or on the structure. Coordinate with the VDOT Right of Way and Utilities Rail Section to determine this Railroad Information.

Reference to be reviewed during the Right of Entry permitting process.



## CLEARANCES

Code the following items while considering the constraints of the “under” route only. If multiple adjacent routes exist, follow the guidelines below for the presence of barriers or medians between adjacent routes.

### **STATE ITEM 33 – BRIDGE ROADWAY WIDTH – LEFT SIDE – XXXX.X (5)**

**MINIMUM CURB-TO-CURB OF MAINLINE ROUTE (LEFT) (FT)**

**TABLE - USERRWAY**

**FIELD - WIDTH\_ROAD\_LEFT**

**LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES**

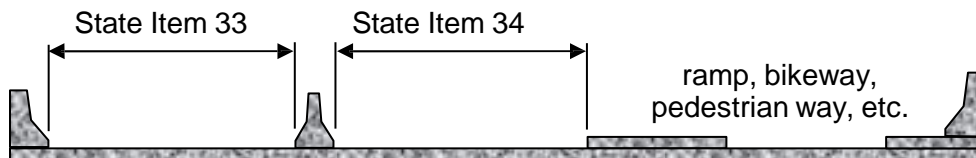
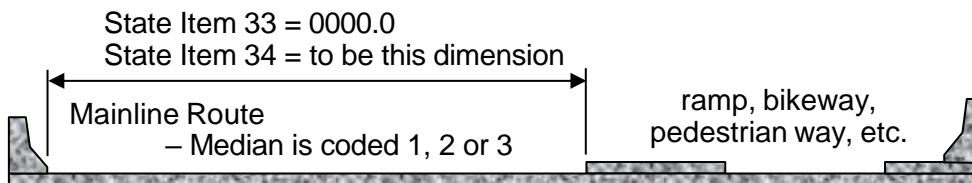
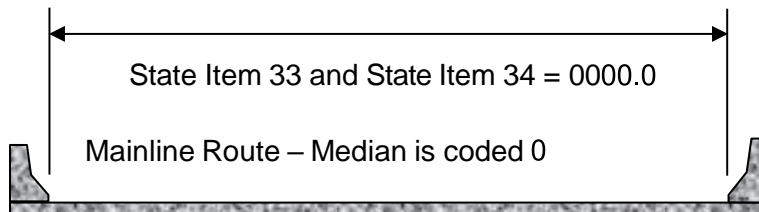
If Federal Item 33 is coded 0 then this item should be 0000.0.

If Federal Item 33 is coded 1, 2 or 3 and the median that exists separates a mainline road from a ramp, bikeway, pedestrian way, etc. **only** State Item 34 will be coded and the measurement will be from curb-to-curb of the mainline route.

Should be coded to the nearest tenth of a foot.

Refer to example sketches on the following page.

### **EXAMPLES:**



Looking in the Direction of the Mainline Route  
Median is coded 1, 2 or 3

**STATE ITEM 34 – BRIDGE ROADWAY WIDTH – RIGHT SIDE – XXXX.X (5)**

**MINIMUM CURB-TO-CURB OF MAINLINE ROUTE (RIGHT) (FT)**

TABLE - USERRWAY

FIELD - WIDTH\_ROAD\_RIGHT

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

If Federal Item 33 is coded 0 then this item should be 0000.0.

If Federal Item 33 is coded 1, 2 or 3 then this item must be coded.

If Federal Item 33 is coded 1, 2 or 3 and the median that exists separates a mainline road from a ramp, bikeway, pedestrian way, etc. **only** this item will be coded and the measurement will be from curb-to-curb of the mainline route.

Should be coded to the nearest tenth of a foot.

See sketches for State Item 33 above.

**STATE ITEM 35 – WIDTH OF MEDIAN (FT) – XXXXX.X (6)**

TABLE - USERRWAY

FIELD - WIDTH\_MEDIAN

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

Record the measurement to the nearest tenth of a foot for the distance from edge to edge of non-mountable medians. If Federal Item 33 is coded 1, 2 or 3 then this item must be coded. If Federal Item 33 is coded 0 then this item will be blank.

**STATE ITEM 28 – HORIZONTAL CLEARANCE UNDER RTE – LEFT – XXXX.X (5)**

**STATE ITEM 29 – HORIZONTAL CLEARANCE UNDER RTE – RIGHT (SINGLE) – XXXX.X (5)**

TABLE - USERRWAY

FIELD - HORIZ\_UNDER\_LEFT (28)

FIELD - HORIZ\_UNDER\_RIGHT (29)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

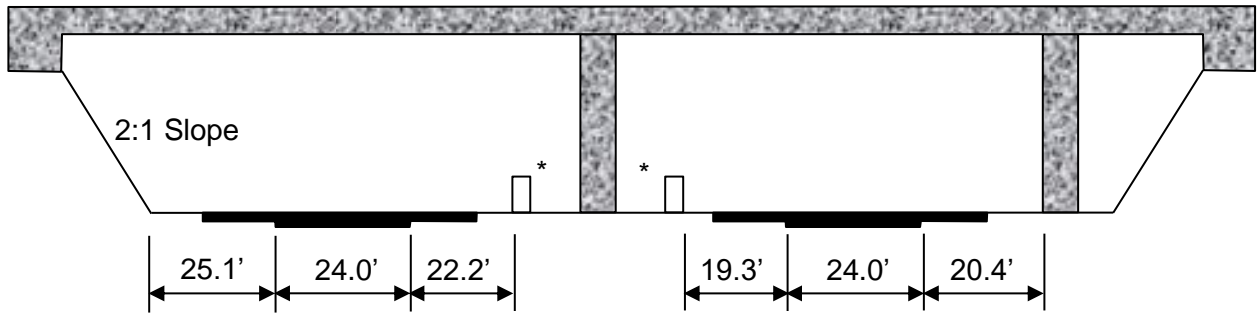
The minimum horizontal clearance for each route passing under the structure should be measured and recorded. The clearance should be the least available clearance measured between the most restrictive features -- curbs, guardrails, walls, or other structural features limiting the roadway (travel way and shoulders). The measurement should be recorded and coded to the nearest tenth of a foot.

The purpose of this item is to determine the width available for the movement of wide loads. This item will include the roadway surface and shoulders, distance from face of pier or toe of slope or to the face of guardrail or non-mountable medians (Federal Item 33 - Bridge Median coded 3) whichever is the most restrictive. See sketch below for further details

The purpose of this item is to determine the roadway for the movement of the largest available clearance for the movement of wide loads. This clearance has been identified in 3 ways; use the most applicable:

- 1 Roadway surface and shoulders – when there are no restrictions.
- 2 Distance from face of pier (or rail around pier) to face of guardrail or toe of slope.
- 3 Include flush or mountable medians (Item 33 - Bridge Median coded 2) but not raised medians (Item 33 - Bridge Median coded 3).

**EXAMPLE:** (Looking in the direction of increasing milepost)



\* - Face of a rigid barrier or face of raised median or face of non-mountable curb or face of guardrail

State Item 28 = 71.3

State Item 29 = 63.7

**STATE ITEM 36 – MIN. VERT. UNDERCLEAR. RIGHT SINGLE – X XXXXXXXX.XX (10)**

**TABLE - USERRWAY**

**FIELD - VERT\_UNDER\_RIGHT\_CODE (36A)**

**FIELD - VERT\_UNDER\_RIGHT (36B)**

**LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES**

**BrM uses a dropdown menu to facilitate coding of State Item 36A. No other entry is allowed.**

**See Virginia Note under Federal Item 54.**

The minimum vertical underclearance right single is composed of 2 segments (State Items 36A and 36B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
36A	Reference feature	1 digit
36B	Minimum Vertical Underclearance	9 digit

**STATE ITEM 36A – MIN. VERT. UNDERCLEAR. RIGHT CODE – X (1)**

**TABLE - USERRWAY**

**FIELD - VERT\_UNDER\_RIGHT\_CODE (36A)**

**LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES**

**BrM uses a dropdown menu to facilitate coding of State Item 36A. No other entry is allowed.**

Using a 1-digit code, record the feature from which the minimum vertical clearance from the right/single roadway or right/single railroad track beneath the structure to the underside of the superstructure is taken. (When both a railroad and highway are under the structure, always code the highway.)

Using the code below, code in the first position, the reference feature from which the clearance measurement is taken:

<b><u>Code</u></b>	<b><u>Description</u></b>
H	Highway Beneath
R	Railroad Beneath
N	Not Highway / Railroad

**STATE ITEM 36B – MIN. VERT. UNDERCLEAR. RIGHT– XXXXXXXX.XX (9)**

**TABLE - USERRWAY**

**FIELD - VERT\_UNDER\_RIGHT (36B)**

**LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES**

Using a 9-digit number, record the minimum vertical clearance from the right/single roadway or right/single railroad track beneath the structure to the underside of the superstructure. If the reference feature is not a highway or railroad, leave blank. (When both a railroad and highway are under the structure, always code the highway.)

**STATE ITEM 37 – MIN. VERT. UNDERCLEAR – LEFT – X XXXXXXXX.XX (10)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT\_CODE (37A)

FIELD - VERT\_UNDER\_LEFT (37B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 37A. No other entry is allowed.

**See Virginia Note under Federal Item 54.**

The minimum vertical underclearance left is composed of 2 segments (State Items 37A and 37B). See below.

<u>Segment</u>	<u>Description</u>	<u>Length</u>
37A	Reference feature	1 digit
37B	Minimum Vertical Underclearance	9 digit

**STATE ITEM 37A – MIN. VERT. UNDERCLEAR – LEFT CODE – X ( 1 )**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT\_CODE (37A)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

BrM uses a dropdown menu to facilitate coding of State Item 37A. No other entry is allowed.

If the feature beneath the structure has more than a single roadway or single railroad then using a 1- digit code record the feature from which the clearance from the left roadway or left railroad track beneath the structure is taken. ( When both a railroad and highway are under the structure, always code the highway.)

Using the code below, code in the first position, the reference feature from which the clearance measurement is taken:

<u>Code</u>	<u>Description</u>
H	Highway Beneath
R	Railroad Beneath
N	Not Highway / Railroad

**STATE ITEM 37B – MIN. VERT. UNDERCLEAR – LEFT – XXXXXXXX.XX (9)**

TABLE - USERRWAY

FIELD - VERT\_UNDER\_LEFT (37B)

LOCATION - INSPECTION / STATE ROADWAY / ROADWAY TABLE FIELDS / CLEARANCES

If the feature beneath the structure has more than a single roadway or single railroad then using a 9-digit number, record and code the minimum vertical clearance from the left roadway or left railroad track beneath the structure to the underside of the superstructure.

In the next 9 positions, code numbers to represent the minimum vertical clearance in a hundredth of a foot from the reference feature to the structure. If the reference feature is not a highway or railroad, leave blank. ( When both a railroad and highway are under the structure, always code the highway.)

**APPENDIX**

## **DEFINITION - POOR**

For a structure to be considered poor condition one of the following items must be true.

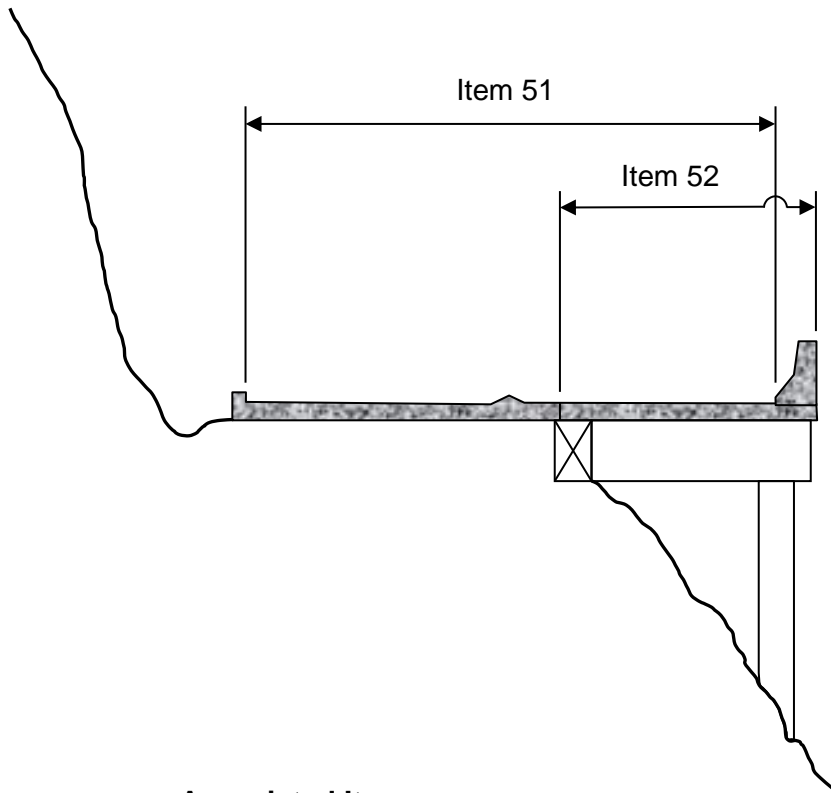
### **Poor Condition**

A condition rating of 4 or less for

- Item 58 - Deck; or
- Item 59 - Superstructures; or
- Item 60 - Substructures; or
- Item 62 - Culvert and Retaining Walls  
(If Federal Item 43 is coded 19)

# FIGURE ILLUSTRATING CODING OF SIDEHILL VIADUCTS

## Coding of Sidehill Viaducts



### **Associated Items:**

- Item 28A Lanes On Structure
- Item 29 ADT = Total for entire structure
- Item 32 Approach Roadway Width
- Item 102 Direction of Traffic = 2 for 2-way



# RESIDENCY CODES (STATE ITEM 1)

## Residency Codes (S1)

	Unknown
03	Abingdon
36	Accomack
20	Appomattox
28	Ashland
16	Bedford
43	Charlottesville
26	Chesterfield
11	Christiansburg
19	Farmville
55	Edinburg
47	Fairfax
31	Franklin
40	Fredericksburg
18	Halifax
54	Harrisonburg
04	Lebanon
42	Louisa
49	Leesburg
50	Lexington
48	Manassas
12	Martinsville
34	Norfolk
39	Northern Neck
42	Louisa
25	Petersburg
14	Salem
37	Saluda
23	South Hill
33	Suffolk
59	Tolls
46	Warrenton
32	Waverly
35	Williamsburg
01	Wise
08	Wytheville



## JURISDICTION CODES (STATE ITEM 2)

267 Nassawadox	287 Quantico	307 Stuart (M)	328 Windsor
268 New Castle	288 Remington	308 Surry	329 Wise (M)
269 New Market	289 Rich Creek	309 Tangier	330 Woodstock
270 Newsoms	290 Ridgeway	310 Tappahannock	331 Hurt
271 Nickelsville	291 Round Hill	311 The Plains	339 Clinchco
272 Occoquan	292 Rural Retreat	312 Timberville	340 Castlewood
273 Onancock	293 Saint Charles	313 Toms Brook	District of Columbia
274 Onley	294 Saint Paul	314 Troutdale	Kentucky
275 Orange (M)	295 Saltville	315 Troutville	Maryland
276 Painter	296 Saxis	316 Urbanna	North Carolina
277 Pamplin_city	297 Scottsburg	317 Victoria	Tennessee
278 Parksley	298 Scottsville	318 Virgilina	U.S. (Federal)
279 Pearisburg	299 Shenandoah (M)	319 Wachapreague	Virginia
280 Pembroke	300 Smithfield	320 Wakefield	West Virginia
281 Pennington Gap	301 South Hill	321 Warsaw	
282 Phenix	302 Stanardsville	322 Washington (M)	
283 Pocahontas	303 Stanley	323 Waverly	
284 Port Royal	304 Stephens City	324 Weber City	
285 Pound	305 Stoney Creek	325 West Point	
286 Purcellville	306 Strasburg ** & ****	327 White Stone	

**NOTE:**

\* 27 Elizabeth City (Now City of Hampton)  
 \* 61 Nansemond (Now City of Suffolk)  
 \* 64 Norfolk (Now City of Norfolk)  
 \* 75 Princess Anne (Now City of Va. Beach)  
 \* 94 Warwick (Now City of Newport News)  
 \*\* No Interstate maintained  
 \*\*\*\* Structures Maintained by VDOT

Designations of 27, 61, 64, 75 and 94 are old and only used to charge time (mostly by maintenance crews)

**ADJACENT JURISDICTION CODES**  
**(STATE ITEM 10)**

**JURISDICTION CODES (S10)**

None	64 Norfolk	130 South Boston
0 Arlington	65 Northhampton	131 Chesapeake
1 Accomack	66 Northumberland	132 Staunton
2 Albemarle	67 Nottoway	133 Suffolk
3 Alleghany	68 Orange	134 Virginia Beach
4 Amelia	69 Page	136 Waynesboro
5 Amherst	70 Patrick	137 Williamsburg
6 Appomattox	71 Pittsylvania	138 Winchester
7 Augusta	72 Powhatan	139 Wytheville
8 Bath	73 Prince Edward	140 Abingdon
9 Bedford	74 Prince George	141 Bedford (M)
10 Bland	75 Princess Anne	142 Blackstone
11 Botetourt	76 Prince William	143 Bluefield
12 Brunswick	77 Pulaski	144 Farmville
13 Buchanan	78 Rappahannock	145 Franklin (M)
14 Buckingham	79 Richmond	146 Norton
15 Campbell	80 Roanoke	147 Poquoson
16 Caroline	81 Rockbridge	148 Richlands
17 Carroll	82 Rockingham	149 Vinton
18 Charles city	83 Russell	150 Blacksburg
19 Charlotte	84 Scott	151 Fairfax (M)
20 Chesterfield	85 Shenandoah	152 Manassas Park
21 Clarke	86 Smyth	153 Vienna
22 Craig	87 Southampton	154 Christiansburg
23 Culpeper	88 Spotsylvania	155 Manassas
24 Cumberland	89 Stafford	156 Warrenton
25 Dickenson	90 Surry	157 Rocky Mount
26 Dinwiddie	91 Sussex	158 Tazewell (M)
27 Elizabeth city	92 Tazewell	159 Luray
28 Essex	93 Warren	160 Accomack
29 Fairfax	94 Warwick	161 Alberta
30 Fauquier	95 Washington	162 Altavista
31 Floyd	96 Westmoreland	163 Amherst
32 Fluvanna	97 Wise	164 Appalachia
33 Franklin	98 Wythe	165 Appomattox (M)
34 Frederick	99 York	166 Ashland
35 Giles	100 Alexandria	167 Belle Haven
36 Gloucester	101 Big Stone Gap	168 Berryville
37 Goochland	102 Bristol	169 Bloxom
38 Grayson	103 Buena Vista	170 Boones Mill
39 Greene	104 Charlottesville	171 Bowling Green
40 Greensville	105 Clifton Forge	172 Boyce
41 Halifax	106 Colonial Heights	173 Boydton
42 Hanover	107 Covington	174 Boykins
43 Henrico	108 Danville	175 Branchville
44 Henry	109 Emporia	176 Bridgewater
45 Highland	110 Falls Church	177 Broadway
46 Isle of Wight	111 Fredericksburg	178 Brodnax
47 James city	112 Front Royal	179 Brookneal
48 King George	113 Galax	180 Buchanan (M)
49 King & Queen	114 Hampton	181 Burkeville
50 King William	115 Harrisonburg	182 Cape Charles
51 Lancaster	116 Hopewell	183 Capron
52 Lee	117 Lexington	184 Cedar Bluff
53 Loudon	118 Lynchburg	185 Charlotte Court House
54 Louisa	119 Marion	186 Chase City
55 Lunenburg	120 Martinsville	187 Chatham
56 Madison	121 Newport News	188 Cheriton
57 Matthews	122 Norfolk (M)	189 Chilhowie
58 Mecklenberg	123 Petersburg	190 Chincoteague
59 Middlesex	124 Portsmouth	191 Clarendon
60 Montgomery	125 Pulaski (M)	192 Clarksville
61 Nansemond	126 Radford	193 Cleveland
62 Nelson	127 Richmond (M)	194 Clifton
63 New Kent	128 Roanoke (M)	195 Clinchport
	129 Salem	196 Clintwood

**ADJACENT JURISDICTION CODES**  
**(STATE ITEM 10)**

197	Clover	264	Mt. Crawford	331	Hurt
198	Coeburn	265	Mt. Jackson	339	Clinchco
199	Colonial Beach	266	Narrows	340	Castlewood
200	Columbia	267	Nassawadox		Unknown
201	Courtland	268	New Castle		District of Columbia
202	Craigsville	269	New Market		Kentucky
203	Crewe	270	Newsoms		Maryland
204	Culpeper (M)	271	Nickelsville		North Carolina
205	Damascus	272	Occoquan		Tennessee
206	Dayton	273	Onancock		U.S. (Federal)
207	Dendron	274	Onley		Virginia
208	Dillwyn	275	Orange (M)		West Virginia
209	Drakes Branch	276	Painter		
210	Dublin	277	Pamplin_city		
211	Duffield	278	Parksley		
212	Dumfries	279	Pearisburg		
213	Dungannon	280	Pembroke		
214	Eastville	281	Pennington Gap		
215	Edinburg	282	Phenix		
216	Elkton	283	Pocahontas		
217	Exmore	284	Port Royal		
218	Fincastle	285	Pound		
219	Floyd (M)	286	Purcellville		
220	Fries	287	Quantico		
221	Gate City	288	Remington		
222	Glade Spring	289	Rich Creek		
223	Glasgow	290	Ridgeway		
224	Glen Lyn	291	Round Hill		
225	Gordonsville	292	Rural Retreat		
226	Goshen	293	Saint Charles		
227	Gretna	294	Saint Paul		
228	Grottoes	295	Saltville		
229	Grundy	296	Saxis		
230	Halifax (M)	297	Scottsburg		
231	Hallwood	298	Scottsville		
232	Hamilton	299	Shenandoah (M)		
233	Haymarket	300	Smithfield		
234	Haysi	301	South Hill		
235	Herndon	302	Standardsville		
236	Hillsboro	303	Stanley		
237	Hillsville	304	Stephens City		
239	Honaker	305	Stoney Creek		
240	Independence	306	Strasburg (M)		
241	Iron Gate	307	Stuart		
242	Irvington	308	Surry		
243	Ivor	309	Tangier		
244	Jarrat	310	Tappahannock		
245	Jonesville	311	The Plains		
246	Keller	312	Timberville		
247	Kenbridge	313	Toms Brook		
248	Keysville	314	Troutdale		
249	Kilmarnock	315	Troutville		
250	La Crosse	316	Urbanna		
251	Lawrenceville	317	Victoria		
252	Lebanon	318	Virgilina		
253	Leesburg	319	Wachapreague		
254	Louisa (M)	320	Wakefield		
255	Lovettsville	321	Warsaw		
256	Madison (M)	322	Washington (M)		
257	McKenney	323	Waverly		
258	Melfa	324	Weber City		
259	Middleburg	325	West Point		
260	Middletown	327	White Stone		
261	Mineral	328	Windsor		
262	Monterey	329	Wise (M)		
263	Montross	330	Woodstock		

# MAINTENANCE CODES (STATE ITEM 15)

## MAINTENANCE CODES (S15)

<u>COUNTIES</u>							
00	Arlington **	64	Norfolk *	127	Richmond (M)	194	Clifton
01	Accomack	65	Northampton	128	Roanoke (M)	195	Clinchport
02	Albemarle	66	Northumberland	129	Salem	196	Clintwood
03	Alleghany	67	Nottoway	130	South Boston	197	Clover
04	Amelia	68	Orange	131	Chesapeake	198	Coeburn
05	Amherst	69	Page	132	Staunton	199	Colonial Beach
06	Appomattox	70	Patrick	133	Suffolk	200	Columbia
07	Augusta	71	Pittsylvania	134	Virginia Beach	201	Courtland
08	Bath	72	Powhatan	136	Waynesboro	202	Craigsville
09	Bedford	73	Prince Edward	137	Williamsburg	203	Crewe
10	Bland	74	Prince George	138	Winchester	204	Culpeper
11	Botetourt	75	Princess Anne *	139	Wytheville	205	Damascus
12	Brunswick	76	Prince William	140	Abingdon	206	Dayton
13	Buchanan ***	77	Pulaski	141	Bedford (M)	207	Dendron
14	Buckingham	78	Rappahannock	142	Blackstone	208	Dillwyn
15	Campbell	79	Richmond	143	Bluefield	209	Drakes Branch
16	Caroline	80	Roanoke	144	Farmville	210	Dublin
17	Carroll	81	Rockbridge	145	Franklin (M)	211	Duffield
18	Charles City	82	Rockingham	146	Norton	212	Dumfries
19	Charlotte	83	Russell	147	Poquoson	213	Dungannon
20	Chesterfield	84	Scott	148	Richlands	214	Eastville
21	Clarke	85	Shenandoah	149	Vinton	215	Edinburg
22	Craig	86	Smyth	150	Blacksburg	216	Elkton
23	Culpeper	87	Southampton	151	Fairfax (M)	217	Exmore
24	Cumberland	88	Spotsylvania	152	Manassas Park	218	Fincastle
25	Dickenson	89	Stafford	153	Vienna	219	Floyd (M)
26	Dinwiddie	90	Surry	154	Christiansburg	220	Fries
27	Elizabeth City *	91	Sussex	155	Manassas	221	Gate City
28	Essex	92	Tazewell	156	Warrenton	222	Glade Spring
29	Fairfax	93	Warren	157	Rocky Mount	223	Glasgow
30	Fauquier	94	Warwick *	158	Tazewell	224	Glen Lyn
31	Floyd	95	Washington	159	Luray	225	Gordonsville
32	Fluvanna	96	Westmoreland	160	Accomac	226	Goshen
33	Franklin	97	Wise	161	Alberta	227	Gretna
34	Frederick	98	Wythe	162	Altavista	228	Grottoes
35	Giles	99	York	163	Amherst (M)	229	Grundy
36	Gloucester			164	Appalachia	230	Halifax (M)
37	Goochland		<b><u>CITIES AND TOWNS</u></b>	165	Appomattox (M)	231	Hallwood
38	Grayson	100	Alexandria	166	Ashland	232	Hamilton
39	Greene	101	Big Stone Gap	168	Berryville	233	Haymarket
40	Greensville	102	Bristol	169	Bloxom	234	Haysi
41	Halifax	103	Buena Vista	170	Boones Mill	235	Herndon
42	Hanover	104	Charlottesville	171	Bowling Green	236	Hillsboro
43	Henrico **	105	Clifton Forge	172	Boyce	237	Hillsville
44	Henry	106	Colonial Heights	173	Boydton	239	Honaker
45	Highland	107	Covington	174	Boykins	240	Independence
46	Isle of Wight	108	Danville	175	Branchville	241	Iron Gate
47	James City	109	Emporia	176	Bridgewater	242	Irvington
48	King George	110	Falls Church	177	Broadway	243	Ivor
49	King & Queen	111	Fredericksburg	178	Brodnax	244	Jarrat
50	King William	112	Front Royal	179	Brookneal	245	Jonesville
51	Lancaster	113	Galax	180	Buchanan (M)	246	Keller
52	Lee	114	Hampton	181	Burkeville	247	Kenbridge
53	Loudoun ***	115	Harrisonburg	182	Cape Charles	248	Keysville
54	Louisa	116	Hopewell	183	Capron	249	Kilmarnock
55	Lunenburg	117	Lexington	184	Cedar Bluff	250	La Crosse
56	Madison	118	Lynchburg	185	Charlotte Courthouse	251	Lawrenceville
57	Mathews	119	Marion	186	Chase City	252	Lebanon
58	Mecklenburg	120	Martinsville	187	Chatham	253	Leesburg
59	Middlesex	121	Newport News	188	Cheriton	254	Louisa (M)
60	Montgomery	122	Norfolk (M)	189	Chilhowie	255	Lovettsville
61	Nansemond *	123	Petersburg	190	Chincoteague	256	Madison (M)
62	Nelson	124	Portsmouth	191	Claremont	257	McKenney
63	New Kent	125	Pulaski (M)	192	Clarksville	258	Melfa
		126	Radford	193	Cleveland	259	Middleburg

# MAINTENANCE CODES

## (STATE ITEM 15)

260 Middletown	294 Saint Paul	328 Windsor	MWA Metro Washington Authority
261 Mineral	295 Saltville	329 Wise	North Carolina
262 Monterey	296 Saxis	330 Woodstock	NPS National Park Service
263 Montross	297 Scottsburg	331 Hurt	NRT New River Trail
264 Mt. Crawford	298 Scottsville	339 Clinchco	NS Norfolk Southern (RWY)
265 Mt. Jackson	299 Shenandoah (M)	340 Castlewood	PRV
266 Narrows	300 Smithfield		PVT Private
267 Nassawadox	301 South Hill	<b>OTHER</b>	RMA Richmond Metro Authority
268 New Castle	302 Stanardsville	66E I-66 Express Mobility	SVR Shenandoah Valley RR
269 New Market	303 Stanley	95E 95 Express LLC	TAZ Tazewell County **
270 Newsoms	304 Stephens City	ACO Arlington County **	TJF Thomas Jefferson
271 Nickelsville	305 Stoney Creek	BBX Buckingham Branch (RWY)	Foundation
272 Occoquan	306 Strasburg ** &	BUC Buchanan County ***	TMS Maintained by Contract
273 Onancock	****	CBT Chesapeake Bay Bridge	Tennessee
274 Onley	307 Stuart	Tunnel	TUG DBI Services (Previously
275 Orange	308 Surry (M)	CHE Chessie System (RWY)	Transurban Group)
276 Painter	309 Tangier	CSX CSX (RWY)	U.S. (Federal)
277 Pamplin City	310 Tappahannock	CTY	USG United States Game
278 Parksley	311 The Plains	DCL District of Columbia	UVA
279 Pearisburg	312 Timberville	DCR Dept. of Conservation and	Virginia (Rarely used when
280 Pembroke	313 Toms Brook	Recreation	Agency Code is unknown)
281 Pennington Gap	314 Troutdale	DGT Dulles Greenway Toll	VCU
282 Phenix	315 Troutville	DMV Department of Motor	VMI
283 Pocahontas	316 Urbanna	Vehicles	WMA Washington Metro Authority
284 Port Royal	317 Victoria	DOD Department of Defense	West Virginia
285 Pound	318 Virgilina	ERC Elizabeth River Crossings	
286 Purcellville	319 Wachapreague	GIF Game and Inland Fisheries	
287 Quantico	320 Wakefield	HCO Henrico County **	<b>NOTE:</b>
288 Remington	321 Warsaw	HOT Hot Lanes	All of the above presently maintain
289 Rich Creek	322 Washington (M)	Kentucky	structures reportable to the FHWA.
290 Ridgeway	323 Waverly	LOU Loudoun County **	
291 Round Hill	324 Weber City	LU Liberty University	Additional areas shown in the
292 Rural Retreat	325 West Point	Maryland	dropdown of BrM do not maintain
293 Saint Charles	327 White Stone	MDL Maryland State	structures reportable to the FHWA,
			at present, and are not listed here.

* 27	Elizabeth City (Now City of Hampton)
* 61	Nansemond (Now City of Suffolk)
* 64	Norfolk (Now City of Norfolk)
* 75	Princess Anne (Now City of Va. Beach)
* 94	Warwick (Now City of Newport News)
**	No Interstate maintained
***	Maintains some of its own structures
****	Structures Maintained by VDOT

<b>Designations of 27, 61, 64, 75 and 94 are old and only used to charge time (mostly by maintenance crews)</b>
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# NBI Data Checks

## NBI Data Checks

### Cross Checks

Checks are made on all records; An error is written to the error report only if the bridge carries highway traffic (item 42a=1,4,5,6,7. or 8)

#### Reasonableness Error Description

- ITEM 16 - A VALID ITEM 100 IS ENTERED -- SO ITEM 16 MUST BE > 0.
- ITEM 17 - A VALID ITEM 100 IS ENTERED -- SO ITEM 17 MUST BE > 0.
- ITEM 102 - ITEM 28A EQUALS 1 SO ITEM 102 MUST EQUAL 1 OR 3.
- ITEM 102 - ITEM 28B = 1 -- SO ITEM 102 MUST = 1 OR 3.
- ITEM 39 - ITEM 38 = 1 -- SO ITEM 39 MUST BE GREATER THAN ZERO.
- ITEM 39 - ITEM 38 = 0 - SO ITEMS 39 AND 40 MUST = 0.
- ITEM 40 - ITEM 38 = 1 -- SO ITEM 40 MUST BE GREATER THAN ZERO.
- ITEM 41 - ITEM 59 = 0 OR 1 --- SO ITEM 41 MUST = D E OR K.
- ITEM 41 - ITEM 60 = 0 OR 1 --- SO ITEM 41 MUST = D E OR K.
- ITEM 41 - ITEM 62 = 0 OR 1 --- SO ITEM 41 MUST = D E OR K.
- ITEM 41 - ITEM 103 IS = T AND ITEM 41 IS NOT = D E OR P.
- ITEM 42A - ITEM 28A > 0 -- SO ITEM 42A MUST BE 1 4 5 6 7 OR 8.
- ITEM 42B - ITEM 28B > 0 -- SO ITEM 42B MUST BE 1 4 6 OR 8.
- ITEM 42B - ITEM 28B = 0 -- SO ITEM 42B MUST BE 0 2 3 5 7 OR 9.
- ITEM 42B - ITEM 69 IS NUMERIC - 42B MUST BE = 1 2 4 6 7 OR 8
- ITEM 42B - ITEM 71 IS NUMERIC - 42B MUST BE = 5 6 7 8 9 OR 0
- ITEM 43B - ITEM 62 IS NUMERIC -- SO ITEM 43B MUST BE 19.
- ITEM 47 - A VALID ITEM 100 IS ENTERED -- SO ITEM 47 MUST BE > 0.
- ITEM 49 - ITEM 48 MUST NOT BE GREATER THAN ITEM 49.
- ITEM 49 - ITEM 112 = Y -- SO ITEM 49 MUST BE > OR = 6.1 METERS
- ITEM 58 - ITEM 43B = 19 -- SO ITEM 58 MUST BE N.
- ITEM 59 - ITEM 43B = 19 -- SO ITEM 59 MUST BE N.
- ITEM 60 - ITEM 43B = 19 -- SO ITEM 60 MUST BE N.
- ITEM 62 - ITEM 43B = 19 -- SO ITEM 62 MUST BE NUMERIC.
- ITEM 64 - ITEM 41 = E -- SO ITEM 64 MUST BE = 0.
- ITEM 64 - ITEM 66 MUST NOT BE GREATER THAN ITEM 64.
- ITEM 66 - ITEM 41 = E -- SO ITEM 66 MUST BE = 0.
- ITEM 103 - ITEM 41 = D OR E -- SO ITEM 103 MUST BE T.
- ITEM 106 - ITEM 106 > 0 SO ITEM 106 MUST BE GREATER THAN ITEM 27.
- ITEM 29 - ITEM 29 IS > 100 -- SO ITEM 109 MUST BE ENTERED.
- ITEM 111 - ITEM 38 = 1 -- SO ITEM 111 MUST BE ENTERED.



# NBI Data Checks

## Null Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
1	State Code	Y	Y
2	Highway Agency District	Y	Y
3	County (Parish) Code	Y	Y
4	Place Code	Y	Y
7	Facility Carried By Structure	Y	Y
8	Structure Number	Y	Y
9	Location	Y	Y
10	Inventory Rte, Min Vert Clearance	Y	Y
11	Kilometerpoint	Y	N
12	Base Highway Network	N	N
16	Latitude	N	N
17	Longitude	N	N
19	Bypass/Detour Length	Y	N
20	Toll	Y	N
21	Maintenance Responsibility	Y	N
22	Owner	Y	Y
26	Functional Class Of Inventory Rte.	Y	N
27	Year Built	Y	N
29	Average Daily Traffic	Y	N
30	Year Of Average Daily Traffic	Y	N

## NBI Data Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
31	Design Load	Y	N
32	Approach Roadway Width	Y	N
33	Bridge Median	Y	N
34	Skew	Y	N
35	Structure Flared	Y	N
37	Historical significance	Y	N
38	Navigation Control	Y	N
39	Navigation Vertical Clearance	Y	N
40	Navigation Horizontal Clearance	Y	N
41	Structure Open/Posted/Closed	Y	N
45	Number Of Spans In Main Unit	Y	Y
46	Number Of Approach Spans	Y	Y
47	Inventory Rte Total Horz Clearance	Y	Y
48	Length Of Maximum Span	Y	Y
49	Structure Length	Y	Y
51	Bridge Roadway Width Curb-To-Curb	Y	N
52	Deck Width, Out-To-Out	Y	Y
53	Min Vert Clear Over Bridge Roadway	Y	Y
56	Min Lateral Underclear on Left	Y	Y
58	Deck	Y	N
59	Superstructure	Y	N

## NBI Data Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
60	Substructure	Y	N
61	Channel/Channel Protection	Y	N
62	Culverts	Y	N
63	Method Used To Determine Operating Rating	Y	N
64	Operating Rating	Y	N
65	Method Used To Determine Inventory Rating	Y	N
66	Inventory Rating	Y	N
67	Structural Evaluation	N	N
68	Deck Geometry	N	N
69	Underclear, Vertical & Horizontal	N	N
70	Bridge Posting	Y	N
71	Waterway Adequacy	Y	N
72	Approach Roadway Alignment	Y	N
76	Length Of Structure Improvement	N	N
90	Inspection Date	Y	N
91	Designated Inspection Frequency	Y	N
94	Bridge Improvement Cost	N	N
95	Roadway Improvement Cost	N	N
96	Total Project Cost	N	N
97	Year Of Improvement Cost Estimate	N	N
99	Border Bridge Structure Number	N	N

## NBI Data Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
100	STRAHNET Highway Designation	Y	N
101	Parallel Structure Designation	Y	N
102	Direction Of Traffic	Y	N
103	Temporary Structure Designation	N	N
104	Highway System Of Inventory Route	Y	N
105	Federal Lands Highways	Y	N
106	Year Reconstructed	N	N
107	Deck Structure Type	Y	N
109	Average Daily Truck Traffic	N	N
110	Designated National Network	Y	N
111	Pier/Abutment Protection	N	N
112	NBIS Bridge Length	Y	N
113	Scour Critical Bridges	Y	N
114	Future Average Daily Traffuc	Y	N
115	Year Of Future Avg Daily Traffic	Y	N
116	Min Navig Vertical Clear Vertical Lift Br	N	N
108A	Type of Wearing Surface	Y	N
108B	Type of Membrane	Y	N
108C	Deck Protection	Y	N
13A	LRS Inventory Route (edit disabled)	N	N
13B	Subroute Number (edit disabled)	N	N

## NBI Data Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
28A	Lanes On Structure	Y	Y
28B	Lanes Under Structure	Y	Y
36A	Bridge Railings	Y	N
36B	Transitions	Y	N
36C	Approach Guardrail	Y	N
36D	Approach Guardrail Ends	Y	N
42A	Type of Service On Bridge	Y	Y
42B	Type of Service Under Bridge	Y	Y
43A	Kind of Material/Design Main	Y	Y
43B	Type of Design/Construction Main	Y	Y
44A	Kind of Material/Design Approach	Y	Y
44B	Type of Design/Construction Approach	Y	Y
50A	Left Curb/Sidewalk Width	Y	N
50B	Right Curb/Sidewalk Width	Y	N
54A	Reference Feature	Y	Y
54B	Minimum Vertical Underclearance	Y	Y
55A	Reference Feature	Y	Y
55B	Minimum Lateral Underclearance	Y	Y
5A	Record Type	Y	Y
5B	Route Signing Prefix	Y	N
5C	Designated Level of Service	Y	N

## NBI Data Checks

Item #	Item Name	Generate Error if HWY BR	Generate Error if NON HWY Br
5D	Route Number	Y	N
5E	Directional Suffix	Y	N
6A	Features Intersected	Y	Y
6B	Critical Facility Indicator	N	N
75A	Type of Work Proposed	Y	N
75B	Work Done By	Y	N
92A	Fracture Critical Details	Y	N
92B	Underwater Inspection	Y	N
92C	Other Special Inspection	Y	N
93A	Fracture Critical Details Date	N	N
93B	Underwater Inspection Date	N	N
93C	Other Special Inspection Date	N	N
98A	Neighboring State Code	N	N
98B	Percent Responsibility	N	N

# NBI Data Checks

## Safety Checks

1. Bridges carrying highway traffic and Item 64 is less than 2.7 metric tons, and item 41=A,B,P, or R, and Item 103 is blank.
2. Bridges carrying highway traffic and Item 60 is less than 2, Item 103 is blank, and Item 41 is A, B, D, P or R
3. Bridges carrying highway traffic and Item 59 is less than 2, Item 103 is blank, and Item 41 is A, B, D, P or R

## Follow Up Checks

The bridge carries highway traffic and Item 64 between 2.7 metric tons and 19.9, Item 41 = A, Item 43b<>19, and Item 103 is blank	Structures in this category likely need posting; further investigation may be needed to verify that posting is actually required
The bridge carries highway traffic and Item 41 coded B	Follow up for these structures is required to make sure bridge posting is implemented

## Other Checks

The field for the Inventory and Operating Rating is 3 digits. When a rating factor greater than 3 when it is converted for storage (to metric tons) it would be too large for the field so the rating factor is assumed to be 3.0 and converted for storage.

ITEM 64 - THE OPERATING RATING IS > 3. THE VALUE HAS BEEN STORED AS 3.	If 63 or 65 >5 and 64 or 66 > 3.0 Then the value is stored as a 3.0
ITEM 66 - THE INVENTORY RATING IS > 3. THE VALUE HAS BEEN STORED AS 3.	If 63 or 65 >5 and 64 or 66 > 3.0 Then the value is stored as a 3.0

The following messages could be coding errors or could be exceptions because of unusual structure configuration. These require follow up to verify which condition exists.

ITEM 51 - ITEM 51 MUST NOT BE GREATER THAN ITEM 52.

ITEM 43B - ITEM 51 = 0 SO ITEM 43B MUST BE CODED 19.

ITEM 43B - ITEM 52 = 0 SO ITEM 43B MUST BE CODED 19.

# NBI Data Checks

## Item Checks

Error Description	Explanation	Range of Values
ITEM 1 - STATE/REGION CODE NOT VALID - FATAL ERROR.	Checked for valid state code	State Codes listed in coding guide
ITEM 2 - HIGHWAY DISTRICT IS NOT A VALID NUMBER.	No Edits Performed	
ITEM 3 - COUNTY CODE IS NOT A VALID NUMBER.	Must be numeric. We use look up table to validate codes in each state	link on HIBT web site
ITEM 4 - PLACE CODE IS NOT A VALID NUMBER.	Must be numeric	link on HIBT web site
ITEM 5A - INVENTORY ROUTE IS NOT A VALID VALUE - FATAL ERROR.	Must be Entered	1, 2, A through Z
ITEM 5B - ROUTE SIGNING PREFIX IS NOT VALID.	Must be numeric. Range of values checked	1 through 8
ITEM 5C - LEVEL OF SERVICE IS NOT VALID.	Must be numeric. Range of values checked	0 through 8
ITEM 5D - ROUTE NUMBER IS NOT ENTERED.	Must be Entered; 00000 if N/A	
ITEM 5E - DIRECTIONAL SUFFIX IS NOT VALID.	Must be numeric. Range of values checked	0 through 4
ITEM 6A - FEATURES INTERSECTED MUST BE ENTERED.	Must be Entered	
ITEM 7 - THE FACILITY CARRIED MUST BE ENTERED.	Must be Entered	
ITEM 8 - STRUCTURE NUMBER IS NOT ENTERED - FATAL ERROR.	Must be Entered	
ITEM 8 - STRUCTURE NUMBER IS NOT UNIQUE - FATAL ERROR.	Flags two structures in the input file with same #. First one loaded, second written to report	
ITEM 9 - THE LOCATION MUST BE ENTERED.	Must be entered	
ITEM 10 - VERTICAL CLEARANCE IS NOT A VALID NUMBER.	Must be numeric	
ITEM 11 - MILEPOINT IS NOT A VALID NUMBER.	Must be numeric	
ITEM 16 - LATITUDE IS NOT A VALID NUMBER.	Must be numeric	



## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 17 - LONGITUDE IS NOT A VALID NUMBER.	Must be numeric	
ITEM 19 - DETOUR IS NOT A VALID NUMBER.	Must be numeric	
ITEM 20 - TOLL CODE IS NOT VALID.	Numeric range of values checked	1 through 5
ITEM 21 - MAINTENANCE RESPONSIBILITY IS NOT VALID.	Numeric range of values checked	01,02,03,04,11,12,21,25,26,27,31,32,57 through 80
ITEM 22 - OWNER CODE IS NOT VALID.	Numeric range of values checked	01,02,03,04,11,12,21,25,26,27,31,32,57 through 80
ITEM 26 - FUNCTIONAL CLASSIFICATION IS NOT VALID.	Numeric range of values checked	01,02,06,07,08,09,11,12,14,16,17,19
ITEM 27 - YEAR BUILT IS NOT A VALID NUMBER.	Must be numeric	
ITEM 27 - YEAR BUILT CENTURY IS NOT VALID.	First two digits checked to see if 16, 17, 18, 19 or 20	
ITEM 28A - TRAFFIC LANES ON IS NOT A VALID NUMBER.	Must be numeric	
ITEM 28A - LANES FOR AN INVENTORY ROUTE(5A=1) CANNOT BE ZERO.	if 5a=1 cannot be 00	
ITEM 28B - TRAFFIC LANES UNDER IS NOT A VALID NUMBER.	Must be numeric	
ITEM 29 - AVERAGE DAILY TRAFFIC IS NOT A VALID NUMBER.	Must be numeric	
ITEM 30 - YEAR OF AVERAGE DAILY TRAFFIC IS NOT A VALID NUMBER.	Must be numeric	
ITEM 30 - YEAR OF AVERAGE DAILY TRAFFIC IS IN THE FUTURE.	Must nto be greater than current year	
ITEM 31 - DESIGN LOAD IS NOT A VALID CODE.	Numeric range of values checked	0 through 9; A,B,C
ITEM 32 - APPROACH ROADWAY WIDTH IS NOT NUMERIC.	Must be numeric	
ITEM 33 - BRIDGE MEDIAN CODE IS NOT VALID.	Numeric range of values checked	0 through 3
ITEM 34 - THE SKEW ANGLE IS NOT NUMERIC.	Must be numeric	

## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 35 - THE STRUCTURE FLARED INDICATOR IS NOT A VALID CODE.	Numeric range of values checked	0 and 1
ITEM 36A - THE BRIDGE RAILINGS CODE IS NOT VALID.	Range of values checked	0, 1 and N
ITEM 36B - THE TRANSITIONS CODE IS NOT VALID.	Range of values checked	0, 1 and N
ITEM 36C - THE APPROACH GUARDRAIL CODE IS NOT VALID.	Range of values checked	0, 1 and N
ITEM 36D - THE APPROACH GUARDRAIL END CODE IS NOT VALID.	Range of values checked	0, 1 and N
ITEM 37 - THE HISTORICAL SIGNIFIGANCE CODE IS NOT VALID.	Numeric range of values checked	1 through 5
ITEM 38 - THE NAVAGATION CONTROL CODE IS NOT VALID.	Range of values checked	0, 1 and N
ITEM 39 - THE NAVAGATION VERTICAL CLEARANCE IS NOT NUMERIC.	Must be numeric	
ITEM 40 - THE NAVAGATION HORIZONTAL CLEARANCE IS NOT NUMERIC.	Must be numeric	
ITEM 41 - THE STRUCTURE OPEN CODE IS NOT VALID.	Range of values checked	A,B,D,E,G,K,P,R
ITEM 42 - THE TYPE OF SERVICE CODE NOT NUMERIC-ON AND/OR UNDER	Numeric range of values checked	0 through 9
ITEM 43A - THE KIND OF MATERIAL CODE IS NOT NUMERIC.	Numeric range of values checked	0 through 9
ITEM 43B - THE TYPE OF DESIGN CODE IS NOT VALID.	Numeric range of values checked	00 through 22
ITEM 44A - THE APPROACH KIND OF MATERIAL CODE IS NOT NUMERIC.	Numeric range of values checked	0 through 9
ITEM 44B - THE APPROACH TYPE OF DESIGN CODE IS NOT VALID.	Numeric range of values checked	00 through 22
ITEM 45 - THE NUMBER OF MAIN SPANS IS NOT NUMERIC.	Must be numeric	

## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 46 - THE NUMBER OF APPROACH SPANS IS NOT NUMERIC.	Must be numeric	
ITEM 47 - THE TOTAL HORIZONTAL CLEARANCE IS NOT NUMERIC.	Must be numeric	
ITEM 48 - THE MAX SPAN LENGTH IS NOT NUMERIC.	Must be numeric	
ITEM 49 - THE STRUCTURE LENGTH IS NOT NUMERIC.	Must be numeric	
ITEM 50A - THE LEFT CURB WIDTH IS NOT NUMERIC.	Must be numeric	
ITEM 50B - THE RIGHT CURB WIDTH IS NOT NUMERIC.	Must be numeric	
ITEM 51 - THE ROADWAY WIDTH IS NOT NUMERIC.	Must be numeric	
ITEM 52 - THE DECK WIDTH IS NOT NUMERIC.	Must be numeric	
ITEM 53 - THE MIN VERTICAL OVER CLEARANCE IS NOT NUMERIC.	Must be numeric	
ITEM 54A - THE UNDERCLEARANCE REF. FEATURE IS NOT A VALID CODE.	Range of values checked	H,R,N
ITEM 54B - THE MIN VERT. UNDERCLEARANCE IS NOT NUMERIC.	Must be numeric	
ITEM 55A - THE LATERAL REFERENCE FEATURE CODE IS NOT VALID.	Range of values checked	H,R,N
ITEM 55B - THE MIN LATERAL UNDERCLEARANCE CODE IS NOT NUMERIC.(R)	Must be numeric	
ITEM 56 - THE MIN LATERAL UNDERCLEARANCE CODE IS NOT NUMERIC.(L)	Must be numeric	
ITEM 58 - THE DECK RATING CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 59 - THE SUPERSTRUCTURE RATING CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 60 - THE SUBSTRUCTURE RATING CODE	Range of values checked	0 through 9 and N

## NBI Data Checks

Error Description	Explanation	Range of Values
IS NOT VALID.		
ITEM 61 - THE CHANNEL RATING CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 62 - THE CULVERT RATING CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 63 - THE OPERATING RATING MUST BE CODED 1 THRU 8, OR A THRU F	Numeric range of values checked	0 through 8; A through F
ITEM 64 - THE OPERATING RATING IS NOT NUMERIC.	Must be numeric	
ITEM 65 - THE INVENTORY RATING MUST BE CODED 1 THRU 8, OR A THRU F	Numeric range of values checked	0 through 8; A through F
ITEM 66 - THE INVENTORY RATING IS NOT NUMERIC.	Must be numeric	
ITEM 70 - THE BRIDGE POSTING EVALUATION CODE IS NOT VALID.	Numeric range of values checked	0 through 5
ITEM 71 - THE WATERWAY ADEQUACY EVALUATION CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 72 - THE APPROACH ROAD ALIGNMENT EVAL CODE IS NOT VALID	Range of values checked	0 through 8
ITEM 75A - THE TYPE OF WORK PROPOSED CODE IS NOT VALID.	Numeric range of values checked	31 through 38
ITEM 75B - THE WORK DONE BY CODE IS NOT VALID.	Numeric range of values checked	1 and 2
ITEM 76 - THE LENGTH OF IMPROVEMENT CODE IS NOT NUMERIC.	Must be numeric	
ITEM 90 - THE DATE OF INSPECTION IS NOT NUMERIC.	Must be numeric	
ITEM 90 - THE DATE OF INSPECTION MONTH IS NOT < 13.	Month cannot be greater than 12	
ITEM 91 - THE INSPECTION FREQUENCY MONTHS ARE NOT NUMERIC.	Must be numeric	
ITEM 91 - THE INSPECTION FREQUENCY MONTHS IS GREATER THAN 48.	Frequency cannot be greater than 48	

## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 92A - THE FRACTURE INSPECTION CODE IS NOT VALID.	Range of values checked	Y or N
ITEM 92A - THE FRACTURE INSP. MONTH CODE IS NOT NUMERIC.	Must be numeric	
ITEM 92A - THE FRACTURE INSP. MONTH CODE IS NOT WITHIN RANGE.	Frequency limit up to 99	
ITEM 92B - THE UNDERWATER INSPECTION CODE IS NOT VALID.	Range of values checked	Y or N
ITEM 92B - THE UNDERWATER INSP. MONTH CODE IS NOT NUMERIC.	Must be numeric	
ITEM 92B - THE UNDERWATER INSP. MONTH CODE IS NOT WITHIN RANGE.	Frequency limit up to 99	
ITEM 92C - THE OTHER SPECIAL INSPECTION CODE IS NOT VALID.	Range of values checked	Y or N
ITEM 92C - THE OTHER SPECIAL INSP. MONTH CODE IS NOT NUMERIC.	Must be numeric	
ITEM 92C - THE OTHER SPECIAL INSP MONTH CODE IS NOT WITHIN RANGE.	Frequency limit up to 99	
ITEM 93A - THE FRACTURE LAST DATE IS NOT NUMERIC.	If 92a=Y then this must be numeric	
ITEM 93A - THE FRACTURE LAST DATE - MONTH FIELD IS > 12.	Month cannot be greater than 12	
ITEM 93B - THE UNDERWATER LAST DATE CODE IS NOT NUMERIC.	If 92a=Y then this must be numeric	
ITEM 93B - THE UNDERWATER LAST MONTH IS > 12.	Month cannot be greater than 12	
ITEM 93C - THE OTHER SPECIAL LAST DATE IS NOT NUMERIC.	If 92a=Y then this must be numeric	
ITEM 93C - THE OTHER SPECIAL LAST MONTH IS > 12.	Month cannot be greater than 12	
ITEM 98A - THE NEIGHBORING STATE CODE IS NOT VALID.	Validate state code, MEX & CAN	

## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 98B - THE OTHER STATE PERCENTAGE CODE IS NOT NUMERIC.	Must be numeric	
ITEM 99 - THE OTHER STATE BRIDGE STRUCTURE NUMBER IS NOT ENTERED	Validated against 98, Cannot be null if 98a present	
ITEM 100 - THE DEFENSE HIGHWAY DESIGNATION CODE IS NOT VALID.	Numeric range of values checked	0 through 3
ITEM 101 - THE PARALLEL STRUCTURE DESIGNATION CODE IS NOT VALID.	Range of values checked	R, L, N
ITEM 102 - THE DIRECTION OF TRAFFIC CODE IS NOT VALID.	Numeric range of values checked	0 through 3
ITEM 103 - THE TEMPORARY STRUCTURE DESIGNATION CODE IS NOT VALID.	Range of values checked	T
ITEM 104 - THE HIGHWAY SYSTEM CODE IS NOT VALID.	Numeric range of values checked	0 or 1
ITEM 105 - FEDERAL LANDS HIGHWAYS MUST BE 0 THRU 6 OR 9.	Numeric range of values checked	0 through 9
ITEM 106 - THE YEAR OF RECONSTRUCTION CODE IS NOT VALID.	Must be numeric if coded	
ITEM 107 - THE DECK STRUCTURE TYPE CODE IS NOT VALID.	Range of values checked	1 through 9 and N
ITEM 108A - THE WEARING SURFACE TYPE CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 108B - THE MEMBRANE TYPE CODE IS NOT VALID.	Range of values checked	0,1,2,3,8,9,N
ITEM 108C - THE DECK PROTECTION CODE IS NOT VALID.	Range of values checked	0 through 9 and N
ITEM 109 - THE ADT TRUCK TRAFFIC PERCENTAGE IS NOT VALID.	Must be numeric	
ITEM 110 - THE NATIONAL NETWORK CODE IS NOT VALID.	Numeric range of values checked	0 and 1
ITEM 111 - THE PIER PROTECTION CODE IS NOT VALID.	Numeric range of values checked	1 through 5

## NBI Data Checks

Error Description	Explanation	Range of Values
ITEM 112 - THE NBIS BRIDGE LENGTH CODE IS NOT VALID.	Range of values checked	Y or N
ITEM 113 - THE SCOUR CRITICAL CODE IS NOT VALID.	Range of values checked	0 through 9 and N, U, T
ITEM 114 - THE FUTURE ADT IS NOT NUMERIC.	Must be numeric	
ITEM 115 - THE YEAR OF FUTURE ADT IS NOT NUMERIC.	Must be numeric	
ITEM 115 - THE YEAR OF FUTURE ADT IS < 17 YEARS FROM INSP DATE.	Date cannot be less than 17 years from current date	
ITEM 115 - THE YEAR OF FUTURE ADT IS > 22 YEARS FROM INSP DATE.	Date cannot be more than 22yrs into the future	
ITEM 116 - THE MIN NAV VERT CLEAR LIFT BRIDGE CODE IS NOT NUMERIC	Must be numeric	

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