



Colorado Structure Inventory and Appraisal Coding Guide

(BrM)

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INTRODUCTION

The earliest record of bridge inventory and inspection conducted on a Colorado structure is dated 1921 and was done by the State Engineer's office before the Department of Highways was established. The Department established a formal bridge inspection program since 1941 under the supervision of the Staff Bridge Engineer. Extensive inventory and rating systems have been implemented since that time evolving into the current BrM database.

Nationwide, a formal bridge inspection program was established following the 1967 catastrophic failure of the Silver Bridge due to the fracture of an eye bar link in the bottom chord. The bridge spanned over the Ohio River between Point Pleasant, West Virginia and Gallipolis, Ohio. In 1971, the National Bridge Inspection Standards (NBIS) were established and defined bridge inspector qualifications, bridge inspection procedures, and bridge inspection interval. The data to be collected and documented is prescribed in the Federal Highway Administration's [Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges](#), 1995, commonly referred to as the Federal Coding Guide. The data recorded includes inventory, appraisal, and condition information for each bridge. The basic coding guide is still in effect today, although it is being replaced with the [Specifications for the National Bridge Inventory \(SNBI\)](#) in 2025.

The purpose of this Colorado NBI Coding Guide is to enhance, and clarify, the Federal guide and to serve as a supplement that provides inspectors more guidelines and direction to properly, and uniformly, complete the Federal Structure Inventory and Appraisal (SI&A) forms necessary to report the structure conditions. All the items in the Federal Coding Guide have been addressed. Many items have been added to each structure record by the Colorado Department of Transportation (CDOT) to assist them, and local agencies, with management of their bridge inventories.

The definition of a bridge as used throughout this coding guide is defined in the [National Bridge Inspection Standards published in the Code of Federal Regulations \(23 CFR 650.3\)](#) as follows:

“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 under copings 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.”

Public bridges meeting this definition fall under the provisions of the [National Bridge Inspection Standards \(NBIS\)](#) and must be inspected on a regular basis. The results of the inspections become a part of the National Bridge Inventory (NBI). A public bridge is one that is on a public road, open to public travel, and under the jurisdiction of, and maintained by, a public authority.

The words “structure” and “bridge” may be used interchangeably in this guide, and both will mean a bridge as defined above.

In general, CDOT owned and maintained bridges are [On-System](#) while bridges owned and maintained by a city, county, or other local or regional governmental unit are [Off-System](#).



CDOT has added many new items not related to the structure inventory but are used to document elements of design and load rating important to CDOT.

Each item has a header broken into four sections from left to right:

- First section indicates item number and title
- Second section is color coded with an abbreviation identifying the SIA data responsibility group
 - AM (white) for Asset Management
 - I (yellow) for Inspection
 - LR (blue) for Load Rating
- Third section indicates the source of the item coding information
 - FHWA is for items required by the Federal Highway Administration (FHWA)
 - MOD FHWA are FHWA items that have been modified for CDOT to manage the state's structure inventory
 - CDOT are items created by CDOT to manage the state's structure inventory
 - These items are not forwarded to FHWA
- Fourth section indicates the crossover item ID in the 2022 Specifications for the National Bridge Inventory (SNBI)
 - N/A indicates there is no corresponding item ID in the SNBI

Each item and/or sub-item has four sections below the header:

- Description identifies the item's size and purpose
- Procedure outlines or lists the input options or requirements and how to enter the information into CDOT's BrM database
 - BrM data field titles are written in blue font for ease of identification. These references are subject to change or updates as CDOT modifies BrM
- Commentary has CDOT comments and references
- Coding Example shows written and/or visual examples of how item should be coded
 - Examples for 'Bridge A' and 'Bridge B' are shown for each item, where items are not applicable example coding may be blank following the proper coding procedure. Appendix L shows the full report for both structures as an overall comprehensive example. The examples are based off actual structures, some data may have been adjusted to show specific examples and does not indicate real world values.

FHWA uses required items to publish statistical structure condition information for the entire nation and to provide guidance for the distribution of Federal funds.

This guide outlines how and where to code items in the CDOT database and is not intended to be a comprehensive outline of the CDOT database. There may be options and inputs in the CDOT database beyond what is listed in this guide. CDOT's database is subject to change at anytime and references may become outdated. Current software does not always show preceding zeroes or succeeding decimal places. Examples show actual values.

Address questions regarding this manual to the CDOT Bridge and Structures Asset Management Group or CDOT Bridge Inspection Unit at 303-757-9309.



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SECTION 1 Structure Information (Items 1 through 56)

The items in Section 1 identify a structure's location, dimensions, type of design, and clearances. Some of the items in this section directly affect, or are affected by, items in other sections.

All routes at a structure (on and under) must be inventoried and the conditions for each route being inventoried must be recorded. Grade separations, railroad overpasses, pedestrian facilities, and interchange structures where more than one highway/roadway is involved require special coding as noted in the appropriate items.

For state highway structures, much of the information for the items in this section can be found on construction plans. When plans are not available, the information must be obtained from other sources or by on-site measurements and investigation.

For structures owned and maintained by local jurisdictions, such as cities and counties, the structure information will generally be obtained from on-site measurements and investigation because of the lack of available plans in many, if not most, cases.



Item 1A – State Code	AM	MOD FHWA	B.L.01
Item 1B – FHWA Region (not used)			

DESCRIPTION

ITEM1A: A two-digit code identifying the Federal Information Processing Standards (FIPS) code for the state in which the structure is located.

ITEM1B: **Item is no longer used.** A one-digit code identifying the FHWA region in which the structure is located.

PROCEDURE

The FIPS and FHWA Region codes for Colorado and surrounding states are listed below.

ITEM1A Code	ITEM1B Code	State
08	8	Colorado
04	9	Arizona
20	7	Kansas
31	7	Nebraska
35	6	New Mexico
40	6	Oklahoma
49	8	Utah
56	8	Wyoming

In the case of a structure straddling the border between two states, ITEM1A and ITEM1B should indicate the state that owns majority of the structure with the corresponding FHWA region.

Select “08 Colorado” from the [FIPS State \(001A\)](#) dropdown menu and “Region 8-Denver” from the [FHWA Region \(001B\)](#) dropdown menu. This field is populated by the CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

Code “088” because Colorado has no known structures straddling a bordering state line.

ITEM1 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM1A	ITEM1B
Bridge A example: Denver, CO	08	8
Bridge B example: Denver, CO	08	8
A structure located in Summit County, Colorado	08	8
A structure with 55% of length in Colorado, and 45% of length in New Mexico	08	8
A structure with 45% of length in Colorado and 55% of length in Kansas	REPORTED BY KANSAS	



Item 2 – State Highway Regions / Maintenance Sections	AM	MOD FHWA	B.L.04
Item 2E – Engineering Region			
Item 2M – Maintenance Section			

DESCRIPTION

ITEM2: A two-digit concatenated code identifying **ITEM2E** Engineering Region (1 digit), and **ITEM2M** Maintenance Section (1 digit) that defines the engineering and maintenance responsibilities for the structure.

PROCEDURE

The Engineering Region numbers, Maintenance Section numbers within each Engineering Region, and main office locations are listed below. For the most current contact information visit <https://www.codot.gov/topcontent/contact-cdot>.

ITEM2E Region	ITEM2M Maint. Section	Location	Office Address	Office Phone #
1		DENVER METRO	2829 W. Howard Pl., Denver	303-759-2368
	SEC 5	KOA / Aurora Maintenance	18500 E. Colfax Ave., Aurora	303-365-7110
	SEC 9	Eisenhower Tunnel	P.O. Box 397, Idaho Spgs.	303-278-2053
2		PUEBLO	5615 Wills Blvd., Pueblo	719-562-5568
	SEC 4	Pueblo Maintenance	905 Erie Avenue, Pueblo	719-546-5419
3		GRAND JUNCTION / CRAIG	222 So. 6 TH St. #317, Grand Jct.	970-243-2368
	SEC 2	Grand Junction Maint.	606 So. Ninth St., Grand Jct.	970-683-6305
	SEC 6	Craig Maintenance	260 Ranney St., Craig	970-826-5162
	SEC 7*	Alamosa Maintenance	1205 West Ave, Grand Jct.	970-385-1651
4		GREELEY	10601 W 10th St., Greeley	970-350-2368
	SEC 1	Greeley Maintenance	1420 2 nd St., Greeley	970-350-2120
	SEC 4*	Pueblo Maintenance	905 Erie Avenue, Pueblo	719-546-5419
	SEC 5*	Aurora Maintenance	18500 E. Colfax, Aurora	303-365-7110
5		DURANGO / ALAMOSA	3803 N. Main Ave #306, Durango	970-385-1423
	SEC 2*	Grand Junction Maint.	606 S. Ninth, Grand Jct.	970-683-6305
	SEC 3	Durango Maintenance	20581 Highway 60 W., Durango	970-385-1651
	SEC 7	Alamosa Maintenance	1205 West Avenue, Alamosa	970-385-1651

* The Maintenance Section’s office is located in a different Engineering Region but the Maintenance Section has some maintenance responsibility within the listed Engineering Region’s boundary.

Appendix A has a map showing the boundaries of the region and maintenance sections.

Select the appropriate Region/Maintenance Section combination from the **District (002)** dropdown menu.

Enter corresponding Engineer Region number into the **Region (002E)** field.

Enter corresponding Maintenance Section number into the **Maint (002M)** field.



Item 2 – State Highway Regions/Maintenance Sections (cont.)
 Item 2E – Engineering Region (cont.)
 Item 2M – Maintenance Section (cont.)

COMMENTARY

Maintenance Sections are generally within the boundaries of an Engineering Region. An Engineering Region generally follows county boundaries and may have multiple Maintenance Sections within the Engineering Region. There are a few locations that have roadways and structures assigned to a Maintenance Section not attached to the structure’s Engineering Region. This occurs where it is more expedient, or cost effective, to overlap responsibilities because of geography, efficient deployment of equipment, or other extenuating circumstance(s).

Former Region 6 and former Maintenance Section 8 have been absorbed into Region 1 and Maintenance Section 5. There is no longer a Region 6 or a Maintenance Section 8.

For Off-System bridges, follow the same procedure above to determine the CDOT Engineering Region and Maintenance Section.

CODING EXAMPLE

Example	ITEM2	ITEM2E	ITEM2M
Bridge A example: Denver, CO	Reg 1 MSec 5	1	5
Bridge B example: Denver, CO	Reg 1 MSec 5	1	5
A structure located within Engineering Region 1 (Denver), Maintenance Section 9 (Eisenhower Tunnel).	Reg 1 MSec 9	1	9
A structure located within Engineering Region 5 (Durango) but assigned to Maintenance Section 2 within Engineering Region 3 (Grand Junction).	Reg 3 MSec 2	3	2



Item 2T – CDOT Transportation Planning Region (TPR)	AM	CDOT	N/A
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DESCRIPTION

A two-digit code identifying the Transportation Planning Region (TPR) in which the structure is located.

PROCEDURE

The Transportation Planning Regions for Colorado are listed below.

ITEM2T Code	Title	Area(s) Covered
01	Pikes Peak	Colorado Springs, portion of El Paso County, Teller
02	Greater Denver	Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, Jefferson
03	North Front Range	Fort Collins Area, portions of Larimer and Weld Counties
04	Pueblo Area	Pueblo County
05	Grand Valley	Mesa County
06	Eastern	Cheyenne, Elbert, Kit Carson, Lincoln, Logan, Phillips, Sedgwick, Washington, Yuma
07	Southeast	Baca, Bent, Crowley, Kiowa, Otero, Prowers
08	San Luis Valley	Alamosa, Chaffee, Conejos, Costilla, Mineral, Rio Grande, Saguache
09	Gunnison Valley	Delta, Gunnison, Hinsdale, Montrose, Ouray, San Miguel
10	Southwest	Archuleta, Dolores, La Plata, Montezuma, San Juan
11	Intermountain	Eagle, Garfield, Lake, Pitkin, Summit
12	Northwest	Grand, Jackson, Moffat, Rio Blanco, Routt
13	Upper Front Range	Larimer, Morgan, Weld
14	Central Front Range	Custer, El Paso outside of Pikes Peak, Fremont, Park, Teller
15	South Central	Huerfano, Las Animas

Appendix A has a map showing the boundaries of the TPRs. For the most recent maps visit <https://dtdapps.coloradodot.info/otis/MapSearch>.

Select the appropriate CDOT TPR from the [Agency Admin Area](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM2T
Bridge A example: Denver, CO	02
Bridge B example: Denver, CO	02
A structure located in Colorado Springs, CO	01
A structure located in Pagosa Springs, CO	10



Item 2MPO – CDOT Metropolitan Planning Organization	AM	CDOT	B.L.12
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DESCRIPTION

A two-digit code identifying the Metropolitan Planning Organization (MPO) in which the structure is located.

PROCEDURE

The CDOT Metropolitan Planning Organizations are listed below.

ITEM2MPO Code	Title	Area(s) Covered
01	Denver Regional Council of Government	Adams, Boulder, Broomfield, Denver, Douglas, Jefferson
02	North Front Range	Fort Collins Area, portions of Larimer and Weld Counties
03	Pikes Peak Area Council of Governments	Colorado Springs, portion of El Paso County, portion of Teller County
04	Pueblo Area Council of Governments	City of Pueblo and portion of Pueblo County
05	Grand Valley	Grand Junction area
N	Not Applicable	All areas not covered in other codes

Appendix A has a map showing the boundaries of the MPOs. For the most recent maps visit <https://dtdapps.coloradodot.info/otis/MapSearch>.

Select the appropriate CDOT MPO from the **MPO** dropdown menu.

COMMENTARY

Data previously recorded in User_Brdg_Key05, information shall be transposed to ITEM2MPO.

CODING EXAMPLE

Example	ITEM2MPO
Bridge A example: Denver, CO	01
Bridge B example: Denver, CO	01
A structure located in Colorado Springs, CO	03
A structure located in Pagosa Springs, CO	N

Item 3 – County Code	AM	MOD FHWA	B.L.02
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DESCRIPTION

A three-digit code identifying the county in which the structure is located.

PROCEDURE

Appendix B contains a complete list of the codes for Colorado’s counties, cities, towns, municipalities, and Census Designated Places (CDP).

Select the County Code with corresponding County Name from the [County \(003\)](#) dropdown menu.

COMMENTARY

Both County Code and County Name are printed on the CDOT SIA reports, but only the County Code (ITEM3) is reported to the FHWA.

The source of these codes is the current version of the U.S. Census of Population and Housing - Geographic Identification Code Scheme, commonly known as the [FIPS Code](#). When a city is encountered that is not in the dropdown or on the list, contact the Bridge Management Unit for a proper code and to update the information.

ITEM3 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

	Example	ITEM3
Bridge A example: Denver, CO		031 DENVER
Bridge B example: Denver, CO		031 DENVER
Structure O-18-AX carries I25 NB over the Rugby Arroyo in Las Animas County		071 LAS ANIMAS
Structure YUMMM-35.80-A carries County Road MM over the Arikaree River in Yuma County		125 YUMA



Item 4 – City / Town Name	AM	MOD FHWA	B.L.03
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DESCRIPTION

A twenty-five character code identifying the city, town, or municipality name.

PROCEDURE

Appendix B contains a complete list of the codes for Colorado’s counties, cities, towns, municipalities, and census designated places (CDP).

Select the City / Town Name from the [City/Town/Placecode \(004\)](#) dropdown menu. The dropdown menu only shows the City / Town Name, the five-digit FHWA Place Code identifying the municipality is auto-populated from the Parameters Table for submittal to FHWA.

COMMENTARY

Both the FHWA Place Code and City / Town Name are printed on the CDOT SIA reports, but only the Place Code is reported to the FHWA.

The source of these codes is the current version of the U.S. Census of Population and Housing - Geographic Identification Code Scheme, commonly known as the [FIPS Code](#). When a city is encountered that is not in the dropdown or on the list, contact the CDOT Bridge and Structures Asset Management Group for a proper code and to update the information.

ITEM4 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

	Example	ITEM4
	Bridge A example: Denver, CO	20000
	Bridge B example: Denver, CO	20000
	A structure within the city limits of Pagosa Springs	56860
	A structure on a county road, or state highway, but not within the limits of a municipality	00000
When there is no code for the municipality in which the structure is located, select “no existing code” and contact CDOT Bridge and Structures Asset Management Group.		



Item 5A, 5B, 5C, 5D, 5E – Inventory Route Group	AM
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DESCRIPTION

A five-part, nine-character code identifying the following:

Item Number	Item Name	Length
5A	Record Type (route on or under the bridge)	1 character
5B	Route Prefix (kind of highway)	1 digit
5C	Designated Level of Service	1 digit
5D	Route Number	5 characters
5E	Directional Suffix (not used in Colorado)	1 digit
Total		9 characters

PROCEDURE

Each sub-part of this item must be completed for each route that intersects a structure. Inventory routes are only generated for public roads; private roads and railroads are not currently inventoried per FHWA regulations.

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

- **"ON"** indicates the route being inventoried is carried on, or by, the structure and ITEM5A must be coded “1”. All NBI data items must be coded, unless specifically excepted, with respect to the structure and the inventory route “on” it.
- **"UNDER"** indicates a single route being inventoried goes under the structure and ITEM5A must be coded “2”.
- **MULTIPLE ROUTES UNDER:** When multiple separate routes pass under a structure, code ITEM5A for each separate under route with the letters A through Z sequentially in the following order:
 - 1) STRAHNET route mainline, when multiple STRAHNET routes are present under a structure list highest Functional Classification hierarchy routes first
 - When route is divided at bridge, each mainline directional lanes shall be coded as an inventory route
 - Report northbound or eastbound lanes first, followed by southbound or westbound lanes
 - 2) STRAHNET route ramps, when separated by physical barrier under structure (grade separation, barrier, median, pier, etc.)
 - Ramps only separated from mainline by striping shall be included with mainline route
 - 3) Routes in order following the bridge’s direction of inventory (beginning at Abutment 1)

When an under route is added after the initial inspection, subsequent added routes shall be coded beginning with the next letter in the sequence following the structure’s direction of inventory. Do not reassign route letters after being entered into the database.



Item 5A, 5B, 5C, 5D, 5E – Inventory Route (cont.)

COMMENTARY

It cannot be overemphasized that all route-related data must agree for the route being inventoried and identified in ITEM5A whether it is "ON" or "UNDER" the structure.

ITEM5DN and ITEM5DX are no longer used because ITEM5 is now a variable character field.

For each inventoried route the following structure and route specific items must be updated:

Structure specific items should match the "Route On" metrics unless the route under is carried by another structure.

- ITEM1 – State Code*
- ITEM3 – County Code*
- ITEM4 – Place Code*
- ITEM6A – Feature Intersected*
- ITEM6B – Critical Facility
- ITEM7 – Facility Carried by Structure*
- ITEM8 – Structure Number*
- ITEM9 – Location*
- ITEM16DD – Latitude
- ITEM17DD – Longitude
- ITEM27 – Year Built*
- ITEM28A/B* – Lanes On/Under
- ITEM42A/B – Service On/Under*
- ITEM43 – Main Structure Type*
- ITEM47 – Horizontal Clearance
- ITEM48 – Maximum Span*
- ITEM49 – Structure Length*
- ITEM101 – Parallel Structure*
- ITEM103 – Temporary Structure*

Route specific items should vary for each inventoried route and are not tied to the "Route On" metrics.

- Road/Route Name
- ITEM5A – Record Type, On/Under
- ITEM5B – Route Prefix
- ITEM5C – Designated Level of Service
- ITEM5D – Route Number
- ITEM5E – Directional Suffix
- ITEM10 – Maximum Usable Vertical Clearance
- ITEM11 – Reference Point
- ITEM12 – Base Highway Network
- ITEM13A/B – LRS Inventory / Sub Route Number
- ITEM19 – Detour Length
- ITEM20 – Toll
- ITEM26 – Functional Classification
- ITEM29 – ADT
- ITEM30 – ADT Year
- ITEM32 – Approach Roadway Width
- ITEM42C – Wildlife Crossing
- ITEM51 – Roadway Width
- ITEM90VC – Vertical Clearance Date
- ITEM100 – STRAHNET Highway
- ITEM102 – Traffic Direction
- ITEM104 – Highway System
- ITEM105 – Federal Lands Highway
- ITEM109 – ADTT
- ITEM110 – ADTT Year
- ITEM114 – Future ADT
- ITEM115 – Future ADT Year

* FHWA lists item to be coded for each route, single input option only available for inventoried structure



Item 5A, 5B, 5C, 5D, 5E – Inventory Route (cont.)

Route specific items continued:

- ITEM134A/B/C – Vertical Clearance NB/EB
- ITEM134BP/CP – Max./Min. Posting Sign
- ITEM134EOA – Vert. Clearance Edge of Asphalt
- ITEM134S – Vertical Clearance at Striping
- ITEM134SHLD – Vertical Clearance at Shoulder
- ITEM134L – Vertical Clearance in Lane
- ITEM134LP – Vert. Clearance Posting over Lane
- ITEM135A/B/C – Vertical Clearance SB/WB
- ITEM135BP/CP – Max./Min. Posting Sign
- ITEM135EOA – Edge of Asphalt Vert. Clearance
- ITEM135SHLD – Vertical Clearance at Shoulder
- ITEM135S – Vertical Clearance at Striping
- ITEM135L – Vertical Clearance in Lane
- ITEM135LP – Vert. Clearance Posting over Lane
- Roadway Medians
- Route Speed
- Future ADT Classification
- Detour Length Speed
- Accident Count
- Accident Rate
- Roadway Userkeys 1-5

* FHWA lists item to be coded for each route, single input option only available for inventoried structure



Item 5A – Record Type, On/Under	AM	FHWA	N/A
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DESCRIPTION

A one-character code identifying whether the inventoried route is "ON" or "UNDER" the structure.

PROCEDURE

Code "1" signifies that the route is carried on the structure.

Code "2" signifies that only a single route passes under a structure.

When multiple routes pass under a structure, do not use the code of "2". Instead, use codes "A" thru "Z" in alphabetical order with STRAHNET routes first then following back station (Abutment 1) to forward station looking in the direction of inventory.

ITEM5A Code	Description
1	Inventory route is carried ON the structure
2	Inventory route is the <u>only</u> route passing UNDER the structure
A-Z	Multiple routes pass UNDER the structure, use codes A through Z. <u>Do not use "2"</u> .

Determine the correct roadway description from the table above for each route.

Select appropriate description from [Roadway \(005A\)](#) dropdown menu for each inventoried route.

Routes in database are listed:

- "Route on Structure" (ITEM5A = "1")
- "1st route under" (ITEM5A = "2" for single route under or "A" when multiple routes are present)
- "2nd route under" (ITEM5A = "B")
- "3rd route under" (ITEM5A = "C")
- and so on.....

When a route is not yet included in database, select "Create" next to [Roadway \(005A\)](#) dropdown menu, then follow steps above.

COMMENTARY

Database roadway descriptions are automatically translated to the appropriate NBI codes shown above for submittal to the FHWA, "1" or "2" or "A" thru "Z" is not actually input.

Code ITEM5A = "2" as an "under" route when a structure is a tunnel, carries only railroads or pedestrian traffic, or is a building spanning over a roadway.



Item 5B – Route Prefix	AM	FHWA	B.RT.04
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DESCRIPTION

A one-digit code identifying the inventoried route highway type.

PROCEDURE

The Route Prefix options are listed below.

ITEM5B Code	Description
1	Interstate Highway
2	U.S. Numbered Highway
3	State Highway
4	County Highway
5	City Street
6	Federal Lands Road
7	State Land Road
8	Other (describe)

Select the appropriate Route Prefix from the [Kind Hwy \(Rt. Prefix\) \(005B\)](#) dropdown menu for each inventoried route.

ITEM5B is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

Item 5C – Designated Level of Service	AM	FHWA	B.RT.05
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DESCRIPTION

A one-digit code identifying the Level of Service for the inventoried route.

PROCEDURE

The Designated Level of Service options are listed below. Only those routes legally designated and signed will be identified with a code other than Mainline.

ITEM5C Code	Description
0	None of the Below
1	Mainline
2	Alternate
3	Bypass
4	Spur
6	Business Route
7	Ramp, Wye, Connector
8	Service and/or unclassified frontage road

Select the appropriate Level of Service from the [Desig. level service \(005C\)](#) dropdown menu for each inventoried route.

ITEM5C is route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 5D – Route Number	AM	FHWA	B.RT.02
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DESCRIPTION

A five-character code identifying the inventoried route number.

PROCEDURE

On-System: Use the Highway Number and Section Letter for the inventoried route. Use ITEM7 to add additional descriptive information.

- The Section Letter is assigned to all Highway Numbers by the Division of Transportation Development starting with Section Letter “A”. This Section Letter continues until overlapped by a higher hierarchy route (ITEM5B). When the overlap ends and the route resumes in its own right-of-way, the Section Letter becomes the next sequential letter.

Off-System: Code “00000” and use ITEM7 to further describe the route.

Enter the Route Number into the [Rte# \(005D\)](#) field for each inventoried route.

ITEM5D is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

Item 5E – Directional Suffix	AM	FHWA	B.RT.02
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DESCRIPTION

A one-digit code identifying the directional suffix added to the route number when one is part of the route number.

PROCEDURE

The Designated Level of Service options are listed below.

ITEM5E Code	Description
0	Not applicable
1	North
2	East
3	South
4	West

Code “0” because Colorado has no routes with a suffix.

Select “0 N/A (NBI)” from the [Suffix \(005E\)](#) dropdown menu for each inventoried route.

ITEM5E is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

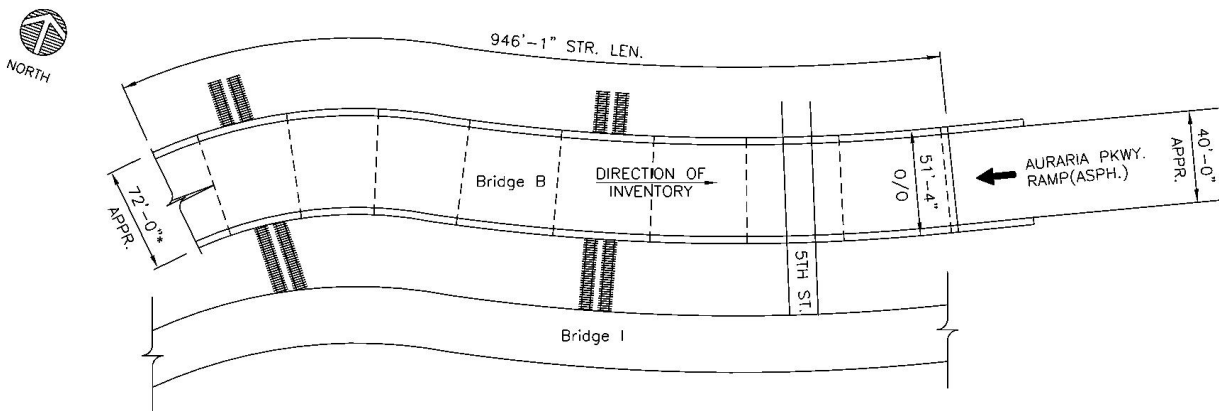


Item 5A, 5B, 5C, 5D, 5E – Inventory Route (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 5B	ITEM 5C	ITEM 5D	ITEM 5E
<i>I-270 over South Platte River</i> Roadway (005A) dropdown select "Route on Structure"	1	1	1	0270A	0
<i>Speer Blvd. over Platte St.</i> Roadway (005A) dropdown select "Route on Structure"	1	5	1	00000	0
Roadway (005A) dropdown select "Route under Structure" for Platte St.	2	5	1	00000	0
Bridge B example (Off-System) <i>WB Auraria Pkwy over 5th St, BNSF RR, RTD</i> Roadway (005A) dropdown select "Route On Structure"	1	5	7	00000	0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	5	1	00000	0

Bridge B example: Plan view showing single route under structure





Item 5A, 5B, 5C, 5D, 5E – Inventory Route (cont.)

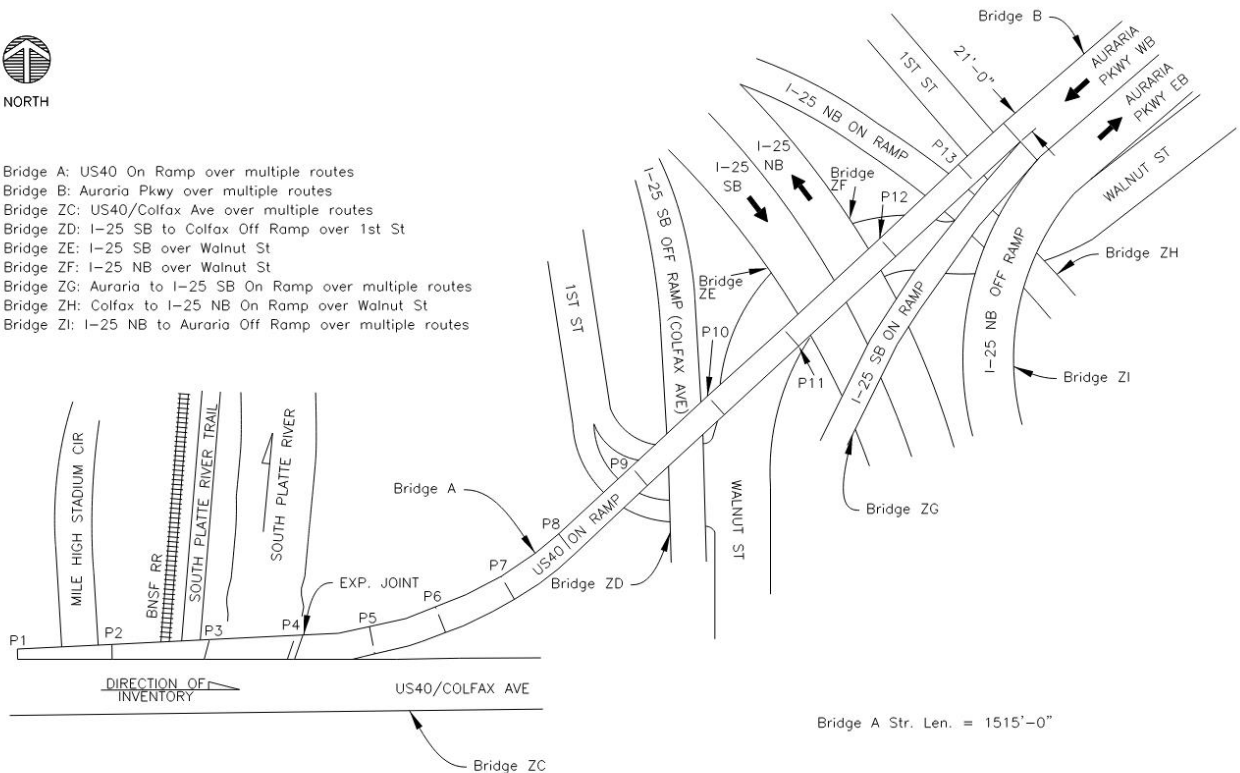
CODING EXAMPLE

Example	ITEM 5A	ITEM 5B	ITEM 5C	ITEM 5D	ITEM 5E
Bridge A example (On-System)					
<i>US40 On Ramp over I-25, Mile High Stadium Cir, RR, trail, South Platte River, Walnut St, 1st St</i>					
Roadway (005A) dropdown select "Route On Structure"	1	2	7	0040C	0
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	1	1	0025A	0
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	1	1	0025A	0
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	1	7	0025A	0
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	1	7	0025A	0
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	5	1	00000	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	5	1	00000	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	5	1	00000	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	5	1	00000	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	5	1	00000	0

Bridge A example: Plan view showing multiple routes and bridges under structure



- Bridge A: US40 On Ramp over multiple routes
- Bridge B: Auraria Pkwy over multiple routes
- Bridge ZC: US40/Colfax Ave over multiple routes
- Bridge ZD: I-25 SB to Colfax Off Ramp over 1st St
- Bridge ZE: I-25 SB over Walnut St
- Bridge ZF: I-25 NB over Walnut St
- Bridge ZG: Auraria to I-25 SB On Ramp over multiple routes
- Bridge ZH: Colfax to I-25 NB On Ramp over Walnut St
- Bridge ZI: I-25 NB to Auraria Off Ramp over multiple routes



PLAN



Item 6A, 6B – Feature Intersected	AM	MOD FHWA	B.F.03
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DESCRIPTION

ITEM6A: A twenty-four character code identifying the feature(s) intersected by the structure. Item is left justified.

ITEM6B: A single-digit character identifying if the structure qualifies as a Critical Facility.

PROCEDURE

When more than one feature is intersected by the structure, list the feature names in the following order:

- (leftmost) Highway - Signed number or name
- (second) Railroad - abbreviated as RR
- (third) Waterway - common or local name

Enter the Features Intersected into [Feature Intersected \(006A\)](#) field.

ITEM6B must be left as Not Applicable. CDOT Bridge and Structures Asset Management Group will determine when the structure is designated a Critical Facility.

COMMENTARY

The Bridge Management Unit has designated some common abbreviations or spellings to be used for this item, shown in Appendix C. It is suggested that these common abbreviations be used as often as possible to facilitate database searches. Periods may be omitted for extra space and a pipe (|) separator may be used between features.

ITEM6A, ITEM6B are structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM6A
Bridge A example	I25 ML US40 ML PLTE RVR
Bridge B example	5 TH STREET BNSF RR RTD
Interstate 25 over D&RGW Railroad	D&RGW RR
D&RGW Railroad over Interstate 25	I 25 ML
U.S. 85 over Platte River	S. PLATTE RIVER

Refer to Item 5 or Appendix L for Bridge example plan views.



Item 7 – Facility Carried by Structure	AM	FHWA	B.F.03
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DESCRIPTION

An eighteen-character code identifying the facilities carried by the structure. Item is left justified.

PROCEDURE

When more than one facility is carried by the structure, list the facility names in the following order:

- (leftmost) Highway - Signed number or name
- (second) Railroad - abbreviated as RR
- (third) Waterway - common or local name

Enter the Facilities Carried into [Facility Carried \(007\)](#) field.

COMMENTARY

The Bridge Management Unit has designated some common abbreviations or spellings to be used for this item, shown in Appendix C. It is suggested that these common abbreviations be used as often as possible to facilitate database searches. Periods may be omitted for extra space and a plus (+) sign may be used for the word "and".

ITEM7 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM7
Bridge A example	US40 ON RAMP
Bridge B example	WB AURARIA PKWY
25 Mainline, Southbound	I 25 ML SBND
I 25 under Otero Street & D&RGW RR	OTERO ST + D&RGW RR
I 25 under County Road 82	COUNTY ROAD 82
City street on structure	Name of City Street
City street under I25	I 25 ML

Refer to Item 5 or Appendix L for Bridge example plan views.



Item 8 – Structure Number	AM	FHWA	B.ID.01
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DESCRIPTION

A fifteen-character code identifying the structure number. Parallel structures of similar construction with a closed median should be considered one structure. This is one of the most important items of information in the inventory. **Once a structure number is assigned, it is unique and must never be revised or reused.**

PROCEDURE

When the structure is replaced, a new number must be assigned to the replacement structure and the number of the replacement structure documented in ITEM8R of the old structure record. DO NOT reuse the old number and DO NOT delete the old structure data from the database. See the CDOT BIM for more information on closing out database information for a replaced structure.

On-System: Structure numbers are assigned by the Bridge Management Systems Unit as follows:

- Major structure numbers (X-00-XXX) are assigned based on Colorado quadrangle divisions as noted along the Colorado Travel Map borders. The “X-00” portion identifies the quadrangle and the “XXX” portion is assigned sequentially from A to ZZZ as structures are built within the quadrangle and is not related to anything else. See Appendix D for details.
- Minor Structures have a bridge length less than or equal to 20 feet, typically culverts under the roadway. The first 10 characters are related to the structure’s highway, section and mile point. The final two characters define the extent of the structure under the roadway and the location of the inlet. See Appendix D for details.

Off-System: Structure numbers are assigned by the owner and have no specific naming convention.

Enter the Structure Number into the **NBI Structure No (008)** field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

For new structures, email CDOT Bridge and Structures Asset Management Group the Owner, Structure Number, Latitude, Longitude, Plans/Sketch file, and inspection cycle (Userkey4). These fields are not editable in BrM.

COMMENTARY

Per FHWA Memorandum 2/3/2011, ITEM8 must not be changed even when ownership of a bridge is transferred. However, ITEM8A – Alias Structure Number or ITEM8B – Structure Name may be changed to identify the bridge per local needs.

For parallel structures with a closed median, the Structure Number shall use ITEM8 from the structure carrying traffic in the direction of inventory (typically northbound or eastbound traffic unless the direction of inventory is opposite of standard).

ITEM8 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.



Item 8 – Structure Number (cont.)

CODING EXAMPLE

	Example	ITEM8
On-System Major Structures (See Appendix D)	Bridge A example	Bridge A
	A structure located within the A-25 Quadrangle	A-25-AJ
	A structure located on US 287 at mile point 344.869	B-16-H
On-System Minor Structures (See Appendix D)	A structure located on US287C at mile point 344.926 under both lanes with the inlet on the left side looking in the direction of inventory	287C344926BL
	A minor concrete culvert under the west bound lane of I-70A at mile point 211.058, the inlet is in the median	070A211058WM
Off-System Major or Minor	Bridge B example	Bridge B
	Baca County CBC on Road	14BA15 15 43.7-18
	Alamosa County Bridge on Road 15	003001503.9006A



Item 8A – Alias Structure Number	AM	CDOT	B.ID.02
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DESCRIPTION

A fifteen-character code identifying the alternate name or structure number, when one exists. Item is left justified. When recording alternate names or numbers, be sure that they are recorded exactly like they have been assigned.

PROCEDURE

Enter the Alias Structure Number into [Agency Bridge ID](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

It is important to identify those structures that must be carried on both the state highway system and city or county road system. This circumstance, although rare, must be noted to avoid duplication in the FHWA submittal.

To comply with the FHWA rule not allowing a change in a structure’s ITEM8 name, this item can be used where the ownership of a structure has changed, and the new owner wants to assign a number in accordance with the new owner’s naming convention. Details of the transaction can be noted in the CDOT Bridge Userkey 7 Added, Removed, Transfer Information.

CODING EXAMPLE

Example	ITEM8	ITEM8A
Bridge A example	Bridge A	D-03-V-230
Bridge B example	Bridge B	FORMERLY CDOT #F-16-MW
CDOT Bridge H-02-GG has been transferred to Mesa County and named MESA-23.95-E.96	H-02-GG	MESA-23.95-E.96



Item 8B – Structure Name	AM	CDOT	B.ID.02
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DESCRIPTION

A fifteen-character code identifying the commonly used structure name when one exists. Item is left justified. When recording commonly used name, be sure that it is recorded exactly as assigned.

PROCEDURE

Enter the Structure Name into [Name](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM8	ITEM8B
Bridge A example: None	Bridge A	
Bridge B example: None	Bridge B	
Bridge F-11-T is also known as Red Cliff Arch	F-11-T	Red Cliff Arch



Item 8P – Parallel Structure Number	AM	CDOT	N/A
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DESCRIPTION

A fifteen-character code identifying the parallel structure number, when a parallel structure exists.

PROCEDURE

Leave this item blank when there is no parallel structure.

When a parallel structure exists, record the parallel structure number. When parallel structures have been combined, enter the surviving structure number into ITEM8R of the bridge whose number is no longer used. Do not delete the structure whose number is no longer used from the database.

Enter the Parallel Structure Number into [Parallel_Struc \(008P\)](#) field.

COMMENTARY

The surviving structure number is from the structure carrying traffic in the direction of inventory, typically northbound or eastbound traffic unless the direction of inventory is opposite of standard.

It is important to identify parallel structures as this information can be useful as a quick reference for coding average daily traffic (ADT's) or other inventory related items.

See the CDOT BIM for more information on closing out database information for a replaced/combined structure.

The procedure is the same for On- and Off-System bridge replacements.

REFERENCE(S): CDOT BRIAR Process Document 039, Inactivating Structures in BrM.docx

CODING EXAMPLE

Refer to ITEM8 for coding requirements and coding examples.

Example	ITEM8P
Bridge A example: None	
Bridge B example	Bridge ZI



Item 8R – Replaced Structure Number	AM	CDOT	B.ID.03
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DESCRIPTION

A fifteen-character code identifying the structure number previously associated with the bridge that has been replaced by the inventoried bridge.

PROCEDURE

Upon notification that a bridge replacement has occurred, or is pending, enter the structure number of the replaced bridge into ITEM8R of the report for the new structure. The new structure number entered in must be in accordance with the description and procedures for ITEM8.

The database record for the replaced bridge must be retained, do not delete the old structure record from the database.

Enter the Replaced Structure Number into the [Replaced_Structure_Id \(008R\)](#) field in the new structure report. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

For new structures, email CDOT Bridge and Structures Asset Management Group the Owner, Structure Number, Latitude, Longitude, Plans/Sketch file, and Agency Userkey 4 Routine Inspection Schedule for the new structure. These fields are not editable in BrM.

COMMENTARY

See the CDOT BIM for more information on closing out database information for a replaced structure.

The procedure is the same for On- and Off-System bridge replacements.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”
- CDOT BRIAR Process Document 039, Inactivating Structures in BrM.docx

CODING EXAMPLE

	Example (Coding of new structure’s record)	ITEM8	ITEM8R
On-System	Bridge A example not applicable		
	H-02-GG replaced by H-02-GX	H-02-GX	H-02-GG
Off-System	Bridge B example not applicable		
	GRJ-29-E6 replaced by GRJ-29-E6A	GRJ-29-E6A	GRJ-29-E6



Item 8RR – Replaced with Structure Number	AM	CDOT	B.ID.03
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DESCRIPTION

A fifteen-character code identifying the structure number of a structure that replaced, or will replace, an existing structure.

PROCEDURE

Upon notification that a bridge replacement has occurred, or is pending, enter the structure number of the new bridge into ITEM8RR of the report for the replaced bridge. The new structure number must be in accordance with the description and procedures for ITEM8.

The database record for the bridge being replaced must be retained, do not delete the old structure record from the database.

Enter the Replaced with Structure Number into the [Replacedwith \(008RR\)](#) field in the replaced structure report. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

For new structures, email CDOT Bridge and Structures Asset Management Group the Owner, Structure Number, Latitude, Longitude, Plans/Sketch file, and inspection cycle (Agency Userkey 4). These fields are not editable in BrM.

COMMENTARY

See the CDOT BIM for more information on closing out database information for a replaced structure.

The procedure is the same for On- and Off-System bridge replacements.

REFERENCE(S): CDOT BRIAR Process Document 039, Inactivating Structures in BrM.docx

CODING EXAMPLE

	Example (Coding of replaced structure’s record)	ITEM8	ITEM8RR
On-System	Bridge A example not applicable	Bridge A	
	H-02-GG replaced by H-02-GX	H-02-GG	H-02-GX
Off-System	Bridge B example not applicable	Bridge B	
	GRJ-29-E6 replaced by GRJ-29-E6A	GRJ-29-E6	GRJ-29-E6A



Item 9 – Location	I	FHWA	B.L.11
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DESCRIPTION

A twenty-five character code identifying the geographical location of the structure.

PROCEDURE

On-System: Relate the location to a distance from a distinguishable feature on the route such as a road junction or topographical feature. Except for multi-lane facilities, record the distance from the feature to the structure in the direction of inventory. For multi-lane facilities the location should be recorded in the direction of travel of the lane that the structure is in.

Off-System: For structures in cities and towns, only the city or town needs to be identified. However, it is recommended that a location, based on a feature, is added especially when it helps to locate structures not easily spotted such as culverts under city streets.

Enter the Location into the [Location \(009\)](#) field.

COMMENTARY

ITEM9 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

	Example	ITEM9
On-System	Bridge A example	WB COLFAX RAMP OVER I25
	Structure Number A-24-M on SH 113	12.5 MI N OF JCT SH 138
	Structure Number F-20-BJ on I-70 WBND	5.1 MI W OF DEER TRAIL
Off-System	Bridge B example	WB AURARIA PKWY AT I25
	Structure Number 003000102.3010A	8.1 MI SW OF MOSCA
	Structure Number Walsenburg-3	12th Street in Walsenburg
	Structure Number USFS112-4.8	Brainard Lake Overflow



Item 10 – Inventory Route Max. Usable Vertical Clearance	I	FHWA	B.H.12
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DESCRIPTION

A five-digit code identifying the maximum usable vertical clearance over a travel lane for each route identified in ITEM5A.

PROCEDURE

The practical maximum clearance shall be measured at all striping locations, when no striping is present measurements shall be at 10-foot intervals across the roadway width. For obstructions with multiple openings, the lane with the largest minimum clearance shall be reported regardless of the direction of travel. ITEM10 must be completed for any overhead obstruction to the inventoried route.

Record measurement in feet truncated to the nearest thousandth of a foot. Follow the procedure in Appendix E to evaluate the measurements and determine the proper clearance for this item. Identify and record the maximum practical vertical clearance for a lane (excluding shoulders) over the inventoried route.

Code “99.999” when no vertical restriction exists, or where a clearance is greater than 100 feet.

Code “55.555” when an obstruction exists but the clearance is unknown.

Enter Max. Usable Vertical Clearance into [Vertical \(010\)](#) field for each inventoried route.

COMMENTARY

CDOT ITEM10F and ITEM10I are no longer used.

ITEM10 can be confusing in that this is the least restrictive minimum clearance for a travel lane under an obstruction and represents the maximum height of a vehicle, or load, which can pass under the obstruction. This is the practical maximum clearance.

An obstruction may be a bridge, railroad, pedestrian overpass, tunnel, overhead members of thru trusses, powerlines, or a building to name a few.

ITEM10 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM10
Unrestricted	99.999
Unknown or not measured	55.555

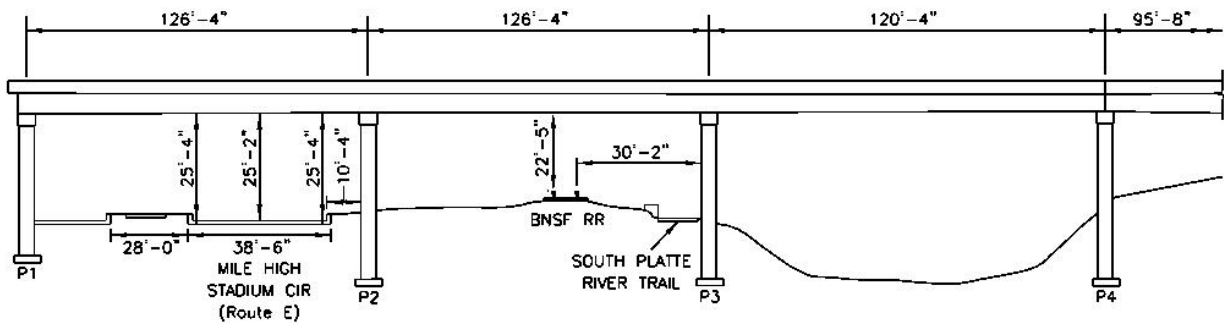


Item 10 – Inventory Route Max. Usable Vertical Clearance (cont.)

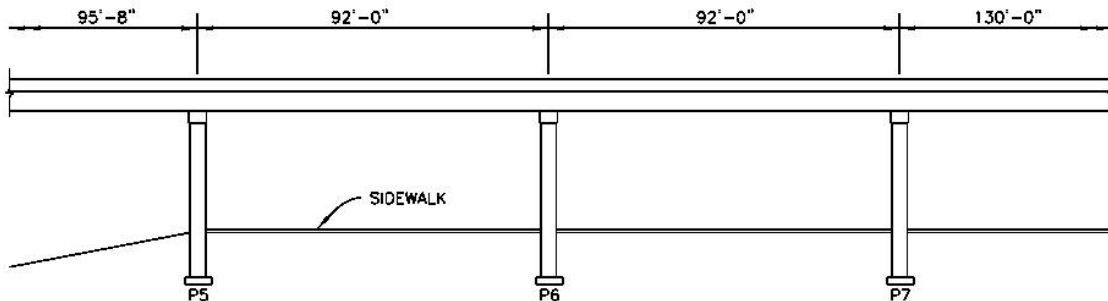
CODING EXAMPLE (cont.)

Example	ITEM 5A	ITEM 10
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	99.999
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	18.917
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	18.833
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	19.750
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	16.417
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	25.167
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	46.167
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	45.333
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	41.833
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	32.917

Bridge A example: Elevation view showing clearance measurements for Spans 1 through 7



ELEVATION
LOOKING NORTH, SPANS 1-4



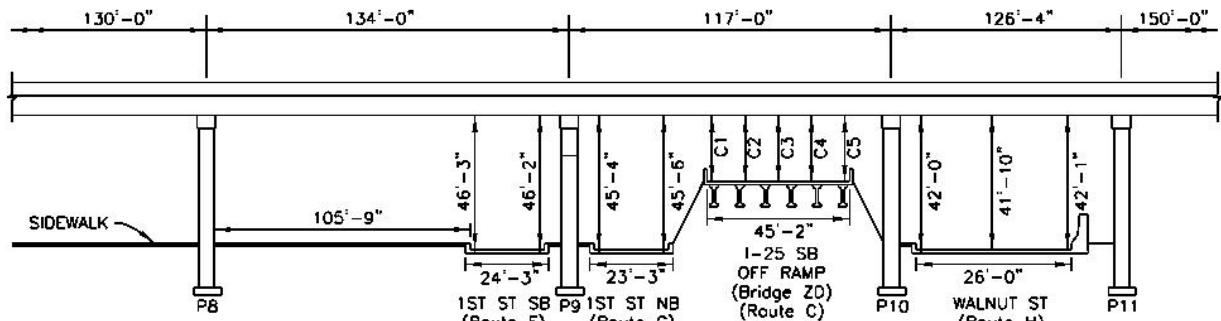
ELEVATION
LOOKING NORTH, SPANS 4-7



Item 10 – Inventory Route Max. Usable Vertical Clearance (cont.)

CODING EXAMPLE (cont.)

Bridge A example: Elevation view showing clearance measurements for Spans 7 through 13

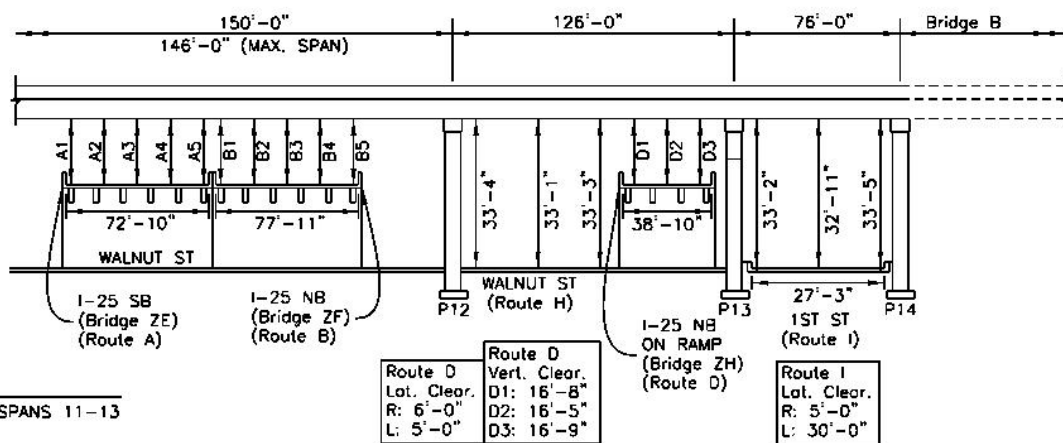


ELEVATION
LOOKING NORTH, SPANS 7-11

Route A	
Vert. Clear.	
A1:	20'-0"
A2:	18'-9"
A3:	17'-8"
A4:	18'-11"
A5:	19'-10"
Lat. Clear.	
R:	10'-0"
L:	10'-0"

Route B	
Vert. Clear.	
B1:	19'-11"
B2:	18'-9"
B3:	17'-9"
B4:	18'-10"
B5:	19'-8"
Lat. Clear.	
R:	5'-0"
L:	16'-0"

ELEVATION
LOOKING NORTH, SPANS 11-13



Route D	
Vert. Clear.	
D1:	16'-8"
D2:	16'-5"
D3:	16'-9"
Lat. Clear.	
R:	6'-0"
L:	5'-0"

Route I	
Lat. Clear.	
R:	5'-0"
L:	30'-0"

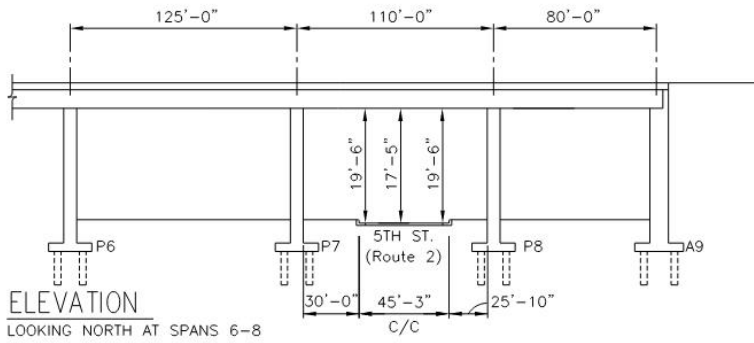
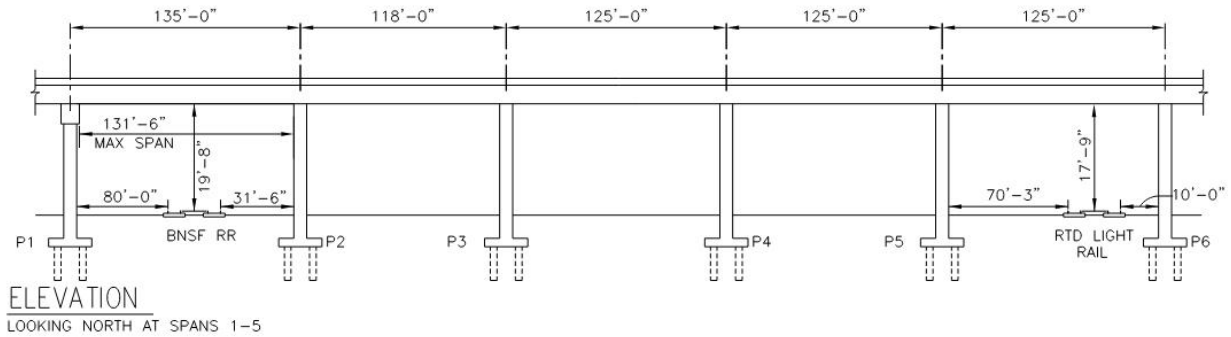


Item 10 – Inventory Route Max. Usable Vertical Clearance (cont.)

CODING EXAMPLE (cont.)

Example	ITEM 5A	ITEM10
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	99.999
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	17.417

Bridge B example: Elevation view showing clearance measurements





Item 11 – Linear Referencing System (LRS)

AM

FHWA

B.H.07

DESCRIPTION

A seven-digit code identifying the structure location along each route identified in ITEM5A according to a common reference point system.

PROCEDURE

Code the number of miles to a structure from the route’s beginning point. Code the mileage to the thousandth of a mile. When parallel structures at the same location appear in the highway system, the structure carrying traffic in the direction of inventory is identified as the first reference point. The parallel structure in the opposite direction of inventory will be identified with a reference point one thousandth (0.001) of a mile larger. For intermittent routes, see the dissertation below.

On-System:

- The Reference Point System has been established for state highways to identify the location of a structure on a route based on the mileage measured from the beginning of the route. The beginning of a route is usually the western or southern state line, or it may be the junction with another highway. Reference points for odd numbered highways increase from south to north, reference points for even numbered highways increase from west to east.
- Stub routes are measured from their southern or western beginning intersection with another highway.
- Intermittent routes merge, and diverge, with higher numbered highways through portions of their length. Sections are identified with a letter added to the end of the route number.

Off-System: Code “0” for county roads, city streets or other roads that do not record a mile point or establish a local system to input to this field. This item will not be reported when ITEM12 = 0.

Enter the LRS into the [Kilometer/Mile Point \(011\)](#) field for each inventoried route.

COMMENTARY

Do not change this item without explicit approval from BMS Data Manager.

ITEM11 is displayed on the SIA in the “Linear Ref. Sys. MP:” field and is only used for the Annual Federal Submission.

US6 is an example of an intermittent route which is identified by sections A through Z as it diverges from, or coincides with, I70. The mile point for each section of the route is continuous and not restarted at each divergence from I70 and the route may have gaps in the mile points between sections.

ITEM11 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

REFERENCE(S):

- CDOT Memorandum “Field Log of Structures, 2014”
- [CDOT Division of Transportation Development \(DTD\)](#) website



Item 11 – Linear Referencing System (LRS) (cont.)

CODING EXAMPLE

Example	ITEM 5A	Highway	ITEM11
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	40C EB	0.938
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	25A SB	210.080
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	25A NB	210.080
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	25A SB	210.170
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	25A NB	210.183
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E		0.000
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F		0.000
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G		0.000
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H		0.000
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I		0.000
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1		0.000
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2		0.000
F-16-EO (parallels F-16-EW)	1	25A NB	211.464
F-16-EW (parallels F-16-EO)	1	25A SB	211.465



Item 12 – Base Highway Network	AM	FHWA	N/A
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DESCRIPTION

A one-digit code identifying whether each route identified in ITEM5A is on the Base Highway Network (BHN) or not. 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.

PROCEDURE

Indicate whether the inventoried route is on the Base Highway Network.

ITEM12 Code	Description
0	Inventory Route is not on the Base Highway Network
1	Inventory Route is on the Base Highway Network

Select the appropriate BHN code from the [National Base Net \(012\)](#) dropdown menu for each inventoried route.

COMMENTARY

Refer to the [CDOT Division of Transportation Development \(DTD\)](#) website for more details or contact the Bridge Management Unit for the correct input.

ITEM12 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 12
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	1
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	0
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	0
Structure on I25 is on BHN	1	1
Structure on SH 13 is not on BHN	1	0
Structure Number USFS112-4.8 is not on BHN	1	0



Item 13A, 13B – LRS Inventory Route, Sub Route Number	AM	FHWA	B.H.06
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DESCRIPTION

A two-part, twelve-digit code identifying **ITEM13A** the Linear Referencing System (LRS) Inventory Route and **ITEM13B** the Sub Route numbers for each route identified in ITEM5A.

PROCEDURE

This field is populated by the CDOT Asset Management Group.

When ITEM12 = 0, ITEM13A and ITEM13B should be left blank.

When ITEM12 = 1, the LRS Inventory Route and Sub Route Numbers reported must match those submitted by the state for the Highway Performance Monitoring System (HPMS). The LRS Inventory Route Number can be alphanumeric but must not contain blanks. The LRS Inventory 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.

ITEM13A: The LRS Inventory Route Number is coded in the ten positions of segment 13A, right justified with zeros for placeholders.

Enter the LRS Route Number into the [LRS Inventory Rte \(013A\)](#) field for each inventoried route.

ITEM13B: The Sub Route Number is a number that uniquely identifies portions of Inventory Route sections where duplicate kilometer points occur. These Sub Route Numbers are identified in the state's HPMS-LRS records. Code "00" when there is no Sub Route Number.

Enter the LRS Sub Route Number into the [Sub# \(013B\)](#) field for each inventoried route.

COMMENTARY

CDOT stores available LRS information in ITEM13A for all structures regardless of ITEM12 code.

ITEM13A/13B are route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 13A, 13B – LRS Inventory Route, Sub Route Number (cont.)

CODING EXAMPLE

Description	ITEM 5A	ITEM13A	ITEM 13B
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	000000040C	00
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	000000025A	00
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	000000025A	00
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	000000025A	00
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	000000025A	00
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E		
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F		
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G		
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H		
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I		
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	031-0-2013	00
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2		
Inventory Route 2775, Sub route Number 3		0000002775	03



Item 16 – Latitude	AM	FHWA	N/A
Item 16DD – Latitude Decimal Degrees		CDOT	B.L.05

DESCRIPTION

ITEM16: An eight-digit code identifying the latitude at the back left corner of bridge in degrees, minutes, seconds.

ITEM16DD: A nine-digit code identifying the latitude at the back left corner of bridge in decimal degrees.

PROCEDURE

The latitude can be computed from existing U.S. Geological Survey maps or determined using Global Positioning System (GPS) data.

ITEM16: The coordinate shall be recorded at Abutment 1 left and shall be coded in degrees, minutes, and seconds to the nearest hundredth of a second, with an implied two-decimal field.

Enter the Latitude into the [Latitude \(016\)](#) field.

ITEM16DD: The coordinate shall be recorded at Abutment 1 left and shall be coded in decimal degrees with six decimal points.

Enter the Latitude into the [DD Latitude \(016DD\)](#) field for each inventoried route.

COMMENTARY

The reason for increased precision is to facilitate the use of Global Positioning System (GPS) data directly into this item. The increased precision is not currently mandatory and, when GPS readings are not available, the current measuring methods, and level of precision, should be to the nearest minute, but the preferred precision is to the nearest hundredth of a second using GPS coordinates.

ITEM16DD is bridge specific and coded for each inventoried route (ITEM5A) on and under a structure.

REFERENCE(S): CDOT Bridge Inspection Manual (BIM)

CODING EXAMPLE

Example	ITEM 5A	ITEM16	ITEM16DD
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	39442636	39.740656
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	39442993	39.741647
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	39443036	39.741767
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	39442608	39.740278
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	39443182	39.742172
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	39442617	39.740603
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	39442617	39.740603
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	39442617	39.740603
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	39442617	39.740603
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	39442617	39.740603
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	39443367	39.742686
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	39443367	39.742686



Item 17 – Longitude	AM	FHWA	N/A
Item 17DD – Longitude Decimal Degrees		CDOT	B.L.06

DESCRIPTION

ITEM17: A nine-digit code identifying the longitude at the back left corner of bridge in degrees, minutes, seconds.

ITEM17DD: A ten-digit code identifying the longitude at the back left corner of bridge in decimal degrees.

PROCEDURE

The longitude can be computed from existing U.S. Geological Survey maps or determined using Global Positioning System (GPS) data.

ITEM17: The coordinate shall be recorded at Abutment 1 left and shall be coded in degrees, minutes, and seconds to the nearest hundredth of a second, with an implied two-decimal field.

Enter the Longitude into the [Longitude \(017\)](#) field.

ITEM17DD: The coordinate shall be recorded at Abutment 1 left and shall be coded in decimal degrees with six decimal points.

Enter the Latitude into the [DD Longitude \(017DD\)](#) field for each inventoried route.

COMMENTARY

The reason for increased precision is to facilitate the use of Global Positioning System (GPS) data directly into this item. The increased precision is not currently mandatory and, when GPS readings are not available, the current measuring methods, and level of precision, should be to the nearest minute, but the preferred precision is to the nearest hundredth of a second using GPS coordinates.

ITEM17DD is bridge specific and coded for each inventoried route (ITEM5A) on and under a structure.

REFERENCE(S): CDOT Bridge Inspection Manual (BIM)

CODING EXAMPLE

Example	ITEM 5A	ITEM17	ITEM17DD
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	105010081	-105.016892
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	105005335	-105.014819
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	105005255	-105.014597
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	105005607	-105.015575
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	105005068	-105.014078
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	105010087	-105.016908
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	105010087	-105.016908
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	105010087	-105.016908
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	105010087	-105.016908
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	105010087	-105.016908
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	105004914	-105.013650
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	105004914	-105.013650



Item 18A, 18B, 18C – Range, Township and Section (not used)	AM	CDOT	N/A
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Items are no longer used.

DESCRIPTION

A three-part, nine-character code identifying the Range, Township and Section for the location of the structure.

PROCEDURE

These items provided an additional geographic locator for the location of the structure.

ITEM18A: Range, can usually be found on a county map. The Range number is always identified by the "R" at the beginning of the number and followed by an "E" or "W". Record just the number and the "E" or "W" indicating east or west range. Right justify the range.

ITEM18B: Township, can usually be found on a county map. The Township number is always identified by the "T" at the beginning of the number and followed by an "N" or "S". Record just the number and the "N" or "S" indicating North or South township. Right justify the township.

ITEM18C: Section, is identified within the Township and Range boundaries and noted in the appropriate square mile box. Record the Section indicator by using the appropriate two digit number between 1 and 36.

COMMENTARY

Historic information for these items is still in the database.

CODING EXAMPLE

None.



Item 19 – Bypass Detour Length	AM	FHWA	B.H.17
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DESCRIPTION

A nine-digit code identifying the detour length for each route identified in ITEM5A.

PROCEDURE

The detour length should identify the total additional travel for a vehicle which would result from closing of the structure. This additional travel will usually be the sum of the distance traveled perpendicular to the route the structure is located on. The parallel distance traveled is not to be counted as part of the detour length. Record the distance in miles to 6 decimal places.

Code “1” when the structure is one of twin structures, not an interchange, and where the other twin structures can be used as a temporary bypass with a reasonable amount of crossover grading.

Code “0” when the structure is an interchange or is otherwise a bypass.

Code “99” when the detour is 99 miles or more or when the bridge is on a dead-end road.

Enter the Detour Length into the [Length \(019\)](#) field for each inventoried route.

COMMENTARY

Colorado allows any paved roadway to be used as a detour route for state highway structures when the route can carry state legal loads. Any passable roadway can be used for Off-System structures. These detours may or may not allow overloads depending on the roadway condition.

When determining if a bypass is available at the site, vehicles (including military vehicles) must be able to move around the structure. For instance, a bypass would be available for a diamond interchange, an interchange where a service road is 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.

ITEM19 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	ITEM 5A	ITEM19
Example		
Bridge A example (On-System)		
Roadway (005A) dropdown select “Route On Structure”	1	0.630000
Roadway (005A) dropdown select “1 st Route Under” for I-25 SB ML	A	0
Roadway (005A) dropdown select “2 nd Route Under” for I-25 NB ML	B	0
Roadway (005A) dropdown select “3 rd Route Under” for I-25 SB Off-Ramp	C	0.940000
Roadway (005A) dropdown select “4 th Route Under” for I-25 NB On-Ramp	D	1.390000
Roadway (005A) dropdown select “5 th Route Under” for Mile High Stadium Cir	E	1.280000
Roadway (005A) dropdown select “6 th Route Under” for 1 St SB	F	99
Roadway (005A) dropdown select “7 th Route Under” for 1 st St NB	G	99
Roadway (005A) dropdown select “8 th Route Under” for Walnut St	H	0.680000
Roadway (005A) dropdown select “9 th Route Under” for 1 st St	I	99
Bridge B example (Off-System)		
Roadway (005A) dropdown select “Route On Structure”	1	0.630000
Roadway (005A) dropdown select “1 st Route Under” for 5 th St	2	0.240000

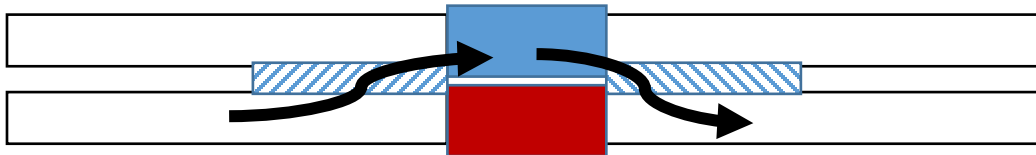


Item 19 – Bypass Detour Length (cont.)

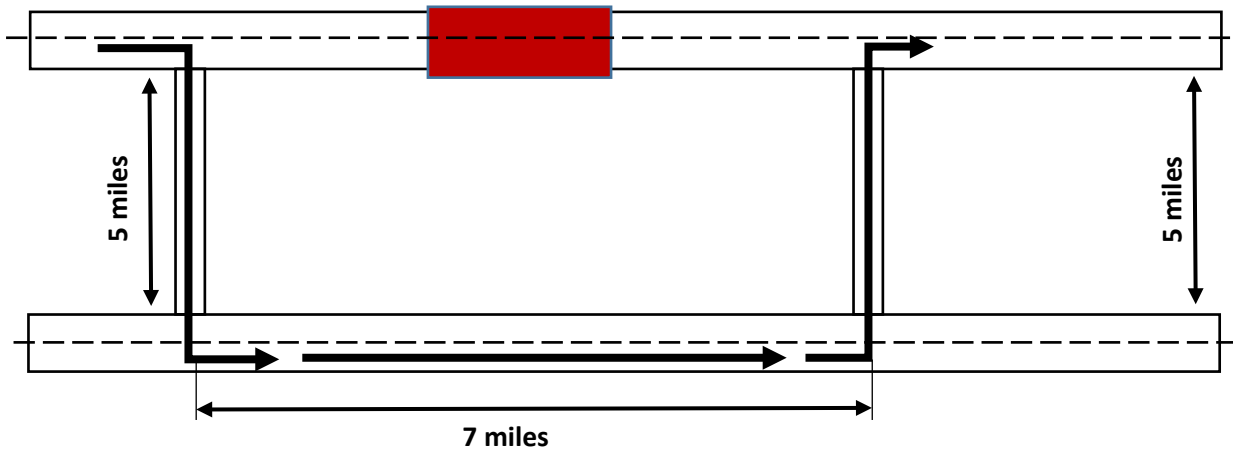
CODING EXAMPLE (cont.)

	Example	ITEM19
	Diamond interchange, structure bypass	0
	Structure over highway, no interchange, a bypass at ground level	0
	Structure over river with 121 mile detour, or Structure on dead end road	99
	Cloverleaf, not a bypass; 8.3 mile detour	8.333333
	Structure is one of twin structures with temporary crossover bypass (Example 1)	1
	Structure is closed with detour (Example 2)	10.000000

Example 1: Structure is one of twin structures with temporary crossover bypass



Example 2: Structure is closed with detour as shown.



Only the part diverging from the intended route counts (5 miles out, 7 miles in intended direction, and 5 miles back to route). The detour length is 10 miles.



Item 20 – Toll	AM	FHWA	B.CL.05
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DESCRIPTION

A one-digit code identifying whether tolls are paid to use each route identified in ITEM5A.

PROCEDURE

The Toll options are listed below.

ITEM20 Code	Description
1	Toll Bridge, tolls are paid specifically to use the structure
2	On Toll Roads, structure carries a toll road where tolls are paid to use the facility, which includes both the highway and the structure
3	On Toll Free Road, structure is toll free and carries a toll-free highway
4	On Interstate Road, structure on Interstate toll segment under Secretarial Agreement. Structure functions as a part of the toll segment
5	Toll Bridge-Secretarial, structure is a separate agreement from the highway segment

Select the appropriate Toll code from the [Toll Facility \(020\)](#) dropdown menu for each inventoried route.

COMMENTARY

ITEM20 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 20
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	3
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	3
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	3
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	3
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	3
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	3
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	3
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	3
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	3
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	3
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	3
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	3
Structure on E470	1	2



Item 21 – Maintenance Responsibility	AM	FHWA	B.CL.02
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DESCRIPTION

A two-digit code identifying the agency with maintenance responsibility for the structure.

PROCEDURE

The agency Maintenance Responsibility options are listed below.

ITEM21 Code	Description
01	State Highway Agency
02	County Highway Agency
03	Town or Township Highway Agency
04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	Local Park, Forest, or Reservation Agency
21	Other State Agencies
25	Other Local Agencies
26	Private (other than railroad)
27	Railroad
31	State Toll Authority
32	Local Toll Authority
57	General Services Administration (GSA)
58	Zoo / Smithsonian
59	National Security Administration (NSA)
60	Other Federal Agencies (not listed below)
61	Indian Tribal Government
62	Bureau of Indian Affairs

ITEM21 Code	Description
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
67	Tennessee Valley Authority
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers (Civil)
71	Corps of Engineers (Military)
72	Air Force
73	Navy/Marines
74	Army
75	Nat'l. Aeronautics and Space Admin. (NASA)
76	Metropolitan Washington Airports Authority
77	Pentagon
78	U.S. Dept. of Agriculture (USDA) U.S. Agriculture Research Service (ARS)
79	Department of Energy (DOE)
80	Unknown

When more than one agency has equal maintenance responsibility, code one agency in the hierarchy of state, federal, county, city, railroad, and other private.

Select the appropriate Maintenance Responsibility from the [Maint. Resp. \(021\)](#) dropdown menu.

COMMENTARY

For railroad (UP, BNSF, etc) or other agencies not specifically included in the list, add agency identification in report Inspection Access Requirements.

CODING EXAMPLE

Example	ITEM21
Bridge A example (On-System)	01
Bridge B example (Off-System)	04
State Highway	01
County Highway Agency	02
Forest Service Road	64



Item 22 – Owner	AM	FHWA	B.CL.01
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DESCRIPTION

A two-digit code identifying the agency with primary ownership of the structure.

PROCEDURE

The Owner options are listed below.

ITEM22 Code	Description
01	State Highway Agency
02	County Highway Agency
03	Town or Township Highway Agency
04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	Local Park, Forest, or Reservation Agency
21	Other State Agencies
25	Other Local Agencies
26	Private (other than railroad)
27	Railroad
31	State Toll Authority
32	Local Toll Authority
57	General Services Administration (GSA)
58	Zoo / Smithsonian
59	National Security Administration (NSA)
60	Other Federal Agencies (not listed below)
61	Indian Tribal Government
62	Bureau of Indian Affairs

ITEM22 Code	Description
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
67	Tennessee Valley Authority
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers (Civil)
71	Corps of Engineers (Military)
72	Air Force
73	Navy/Marines
74	Army
75	Nat'l. Aeronautics and Space Admin. (NASA)
76	Metropolitan Washington Airports Authority
77	Pentagon
78	U.S. Dept. of Agriculture (USDA) U.S. Agriculture Research Service (ARS)
79	Department of Energy (DOE)
80	Unknown

When more than one agency has equal ownership responsibility, code one agency in the hierarchy of state, federal, county, city, railroad, and other private.

Select the appropriate Owner from the [Owner \(022\)](#) dropdown menu.

COMMENTARY

For railroad (UP, BNSF, etc) or other agencies not specifically included in the list, add agency identification in report Inspection Access Requirements.

CODING EXAMPLE

Example	ITEM22
Bridge A example (On-System)	01
Bridge B example (Off-System)	04
State Highway	01
County Highway Agency	02
Forest Service Road	64
Private ownership, not railroad	26



Item 23 – Original Construction Project Number (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying a project number related to the structure referred to in ITEM8.

PROCEDURE

Record the project number related to work being performed on the structure noted in ITEM8. Any work performed during a construction project on the structure that would upgrade or improve the condition of the structure should be reported.

For those structures where no project number is available, record "BRIDGE SURVEY" indicating that the structure was located during a structure inventory survey.

COMMENTARY

ITEM23A thru ITEM23K are obsolete and no longer used.

CODING EXAMPLE

None.



Item 26 – Functional Classification	AM	FHWA	B.H.01
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DESCRIPTION

A two-digit code identifying the functional classification for each route identified in ITEM5A. Functional Classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

PROCEDURE

The Functional Classification options are listed below.

	ITEM26 Code	ITEM104 Code	Description
Rural	01	1	Principal Arterial-Interstate
	02	1	Principal Arterial-Other
	06	0	Minor Arterial
	07	0	Major Collector
	08	0	Minor Collector
	09	0	Local
Urban	11	1	Principal Arterial-Interstate
	12	1	Principal Arterial-Other Freeways or Expressways
	14	1	Other Principal Arterial
	16	0	Minor Arterial
	17	0	Collector
	19	0	Local

When the structure carries a ramp, frontage road or access road and carries the main line number in Item5A, then it must be coded with the same functional classification (ITEM26) and NHS number (ITEM104) as the main line.

When the structure carries a county road or city street over an NHS route, the "ON" condition must reflect the appropriate codes for the route and the "UNDER" condition must reflect the NHS codes.

The appropriate code is based on the inventoried route identified in ITEM5A and ITEM104. A functional classification map is included in Appendix A.

Select the appropriate Classification from the [Functional Class \(026\)](#) dropdown menu for each inventoried route.

COMMENTARY

The classifications are determined through a statewide planning process and approved by the Transportation Commission and provided to BMS by the Division of Transportation Development (DTD). Any changes to this classification must be addressed through the DTD and approved by the Transportation Commission.

ITEM26 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 26 – Functional Classification (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 26	ITEM 104
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	14	1
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	11	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	11	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	11	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	11	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	19	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	19	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	19	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	19	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	19	0
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	14	0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	19	0
I-25 in Denver	1	11	1
Street in Vail	1	19	0



Item 27 – Year Built	AM	FHWA	B.W.01
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DESCRIPTION

A four-digit code identifying the year in which the structure was originally constructed.

PROCEDURE

Code all four digits of the year the structure was built. This year should be the date the construction was completed. When widening, rehabilitation or other re-construction work is performed on the structure, the date this work is completed should be coded in Year Re-constructed (ITEM106).

Code 1901 when the year of original construction is unknown.

Enter the Year into the [Year Built \(027\)](#) field for each inventoried route.

COMMENTARY

ITEM27 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM27
Bridge A example: Built in 1987	1987
Bridge B example: Built in 1987	1987
Found in Bridge Survey, 1954	1954
Structure is estimated to be built circa 1941	1941
Date of Original Construction is unknown	1901



Item 28A, 28B – Lanes On and Under	I	FHWA	B.H.08
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DESCRIPTION

A two-part, four-digit code identifying **ITEM28A** the number of lanes ON and **ITEM28B** the number of lanes UNDER a structure for each route identified in ITEM5A.

PROCEDURE

These codes identify the travel lanes which are striped or otherwise operated as a full width traffic lane.

ITEM28A: Record the number of vehicular lanes being carried by the structure. Count the lanes that cross for the entire structure length. This includes any full width merge lanes and ramp lanes that run the entire structure length, independent of direction of travel. Structures shall be classified as one lane when the roadway is less than 16'0" curb-to-curb or when one set of runners is placed on the structure.

ITEM28B: Record the total of all lanes for the inventoried routes passing completely under the structure, independent of direction of travel.

BrM PROCEDURE

1. Enter the Total Number of Lanes Under into the [Lanes Under \(028B\)](#) field. CDOT currently only codes this item for the inventoried structure.
2. For "Route On Structure", enter the Total Number of Lanes On into the [Lanes \(028A\)](#) field.
3. For each "Route Under", enter the Number of Lanes for the route into the [Lanes \(028A\)](#) field for each inventoried route. BrM distinguishes the difference for NBI reporting purposes based on the value recorded in ITEM5A.

When ITEM5A = 1, ITEM28A equals the number of lanes on the structure.

When ITEM5A = "2" or "A" thru "Z", then the value recorded in the [Lanes \(028A\)](#) field is reported as ITEM28B.

COMMENTARY

ITEM28A, 28B are structure specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 28A, 28B – Lanes On and Under (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 28A	ITEM 28B
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	1	22
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	4	2*
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	4	2*
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	4	2*
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	2	2*
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	2	0*
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	1	0*
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	1	0*
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	2	0*
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	2	0*
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	3	2
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	2	0*

*CDOT database doesn't currently allow for multiple ITEM28B inputs, only input "Route On" value

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 28A, 28B – Lanes On and Under (cont.)

CODING EXAMPLE (cont.)

For Bridge A example:

- ITEM5A = 1 “Route On Structure”
 - Lanes (028A) = 1, only a single striped lane on the structure
 - Lanes Under (028B) = 22, sum of Route A to I ITEM28A values
- ITEM5A = A “1st Route Under”
 - Lanes (028A) = 4, Bridge ZE carries 4 striped lanes of I-25 over 2 lanes of Walnut St
 - Lanes Under (028B) currently only coded for the inventoried structure
- ITEM5A = B “2nd Route Under”
 - Lanes (028A) = 4, Bridge ZF carries 4 striped lanes of I-25 over 2 lanes of Walnut St
 - Lanes Under (028B) currently only coded for the inventoried structure
- ITEM5A = C “3rd Route Under”
 - Lanes (028A) = 4, Bridge ZD carries 4 striped lanes of I-25 ramp over 2 lanes of Walnut St
 - Lanes Under (028B) currently only coded for the inventoried structure
- ITEM5A = D “4th Route Under”
 - Lanes (028A) = 2, Bridge ZE carries 2 striped lanes of I-25 ramp over 2 lanes of Walnut St
 - Lanes Under (028B) currently only coded for the inventoried structure
- ITEM5A = E “5th Route Under”
 - Lanes (028A) = 2, Mile High Stadium Cir has 2 striped lanes under inventoried structure
 - Lanes Under (028B) currently only coded for the inventoried structure, no lanes under
- ITEM5A = F “6th Route Under”
 - Lanes (028A) = 1, 1ST St SB has 1 striped lane under inventoried structure
 - Lanes Under (028B) currently only coded for the inventoried structure, no lanes under
- ITEM5A = G “7th Route Under”
 - Lanes (028A) = 1, 1ST St NB has 1 striped lane under inventoried structure
 - Lanes Under (028B) currently only coded for the inventoried structure, no lanes under
- ITEM5A = H “8th Route Under”
 - Lanes (028A) = 2, Walnut St has 2 striped lanes under inventoried structure
 - Lanes Under (028B) currently only coded for the inventoried structure, no lanes under
- ITEM5A = I “9th Route Under”
 - Lanes (028A) = 2, 1St St has 2 striped lanes under inventoried structure
 - Lanes Under (028B) currently only coded for the inventoried structure, no lanes under



Item 29 – Annual Average Daily Traffic	AM	FHWA	B.H.09
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DESCRIPTION

An eight-digit code identifying the Average Daily Traffic (ADT) OR Annual Average Daily Traffic (AADT) volume for each route identified in ITEM5A.

PROCEDURE

Code the ADT volume for the route being inventoried on the structure, including truck traffic from Average Daily Truck Traffic (ITEM109). The ADT count must be the most current count available, and the data must be compatible with other items coded for the structure.

- For parallel structures, divide the total traffic count equally between them.
- For routes under a railroad or pedestrian structure, code a number that represents the ADT volume for the route being inventoried under the structure.
- When a bridge is closed, code the ADT from before the closure occurred.

Enter the ADT Value into the [Recent ADT \(029\)](#) field for each inventoried route.

COMMENTARY

When taking a traffic count, as for Off-System structures, the counter shall be placed and operated for a minimum period of forty-eight hours, which will include two weekdays. The raw data obtained from the counters shall be adjusted using the seasonal adjustment rate tables annually provided by the Division of Transportation Development.

ADT provided by local entity must meet the minimum outlined criteria.

ITEM29 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

REFERENCE(S): Refer to the CDOT [Online Traffic Information System \(OTIS\) Traffic Data](#) website for the most up-to-date current and future ADT information to complete this item.

CODING EXAMPLE

Example	ITEM 5A	ITEM29
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	49000
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	120500
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	120500
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	19750
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	23480
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	100
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	10
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	10
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	630
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	20
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	12760
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	50



Item 30 – Year of Annual Average Daily Traffic	AM	FHWA	B.H.11
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DESCRIPTION

A four-digit code identifying the year the Average Daily Traffic count in ITEM29 was taken for each route identified in ITEM5A.

PROCEDURE

Record the four-digit year the ADT was taken.

Code “1901” when the year of ADT count is unknown.

Enter the ADT Year into the [Year \(030\)](#) field for each inventoried route.

COMMENTARY

ITEM30 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	ITEM 5A	ITEM30
Example		
Bridge A example (On-System)		
Roadway (005A) dropdown select “Route On Structure”	1	2020
Roadway (005A) dropdown select “1 st Route Under” for I-25 SB ML	A	2021
Roadway (005A) dropdown select “2 nd Route Under” for I-25 NB ML	B	2021
Roadway (005A) dropdown select “3 rd Route Under” for I-25 SB Off-Ramp	C	2021
Roadway (005A) dropdown select “4 th Route Under” for I-25 NB On-Ramp	D	2021
Roadway (005A) dropdown select “5 th Route Under” for Mile High Stadium Cir	E	1901
Roadway (005A) dropdown select “6 th Route Under” for 1 St SB	F	1901
Roadway (005A) dropdown select “7 th Route Under” for 1 st St NB	G	1901
Roadway (005A) dropdown select “8 th Route Under” for Walnut St	H	1901
Roadway (005A) dropdown select “9 th Route Under” for 1 st St	I	1901
Bridge B example (Off-System)		
Roadway (005A) dropdown select “Route On Structure”	1	2021
Roadway (005A) dropdown select “1 st Route Under” for 5 th St	2	1901



Item 31 – Design Load	LR	MOD FHWA	B.LR.01
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DESCRIPTION

A one-character code identifying the live load for which the structure was designed. This item includes railroad and pedestrian loadings.

PROCEDURE

The Design Load options are listed below. Identify the live load for which the structure was designed. The design live load description can usually be found on the title sheet of the structure design plans.

ITEM31 Code	Metric Description	English Description
1	M 9	H 10
2	M 13.5	H 15
3	MS 13.5	HS 15
4	M 18	H 20
5	MS 18	HS 20
6	MS 18 + Mod	HS 20 + Mod
7	Pedestrian	Pedestrian
8	Railroad	Railroad
9	MS 22.5 or greater	HS 25 or greater
A	HL 93	HL 93
B	Greater than HL 93	Greater than HL 93
* C	Other	Other
* 0	Unknown	Unknown

*Describe in CDOT Rating Structure Notes

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

Code “0” when the design is unknown due to absence of plans, design calculations, or other information and describe design load assumptions in comments. Assumptions can be pulled from the CDOT Bridge Rating Manual.

Code “6” when the military loading is included with the MS 18 (HS 20). Note: Interstate Alternate is frequently used on plan sheets when HS 20 plus Military was used as the design load.

Code “C” when the design live load is not based on AASHTO design live load configurations, such as designs based on specific vehicle configurations and loads (e.g. overhead runways with airplane loads, or overhead snow shed loads) and describe the design load in comments.

Select the appropriate Design Load from the [Design Load \(031\)](#) dropdown menu.



Item 31 – Design Load (cont.)

COMMENTARY

Do not confuse this item with ITEM64, Operating Rating or ITEM66, Inventory Rating that describe the load capacity of the structure.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”
- CDOT Bridge Rating Manual (BRM) Section 1.7.2A

CODING EXAMPLE

Example	ITEM31
Bridge A example: HS20	6
Bridge B example: HS20	6
HS 20 Interstate Alternate Loading	6
HL93	A
Railroad (Cooper EM Series)	8
Pedestrian	7
Design load is other than those listed*	C

*Describe in CDOT Rating Structure Notes



Item 31D – Design Method	LR	CDOT	B.LR.02
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DESCRIPTION

A one-character code identifying the method used to design the structure.

PROCEDURE

The Design Method options are listed below.

ITEM31D Code	Description
U	Unknown
W	Allowable Stress (ASD), Working Stress or Service Load
L	Load Factor (LFD)
R	Load and Resistance Factor (LRFD)
X	Railroad
* O	Other Design Method

*Describe in CDOT Rating Structure Notes

The design method description can usually be found on the title sheet of the structure design plans.

Code “O” when the design method is not a standard specification listed above and describe in comments.

Code “U” when the design is unknown and describe design load assumptions in comments. Assumptions can be pulled from the CDOT Bridge Rating Manual.

Select the appropriate Design Method from the [Design Method \(031D\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”
- CDOT Bridge Rating Manual (BRM) Section 1.7.2A

CODING EXAMPLE

	Example	ITEM31D
	Bridge A example: LFD	L
	Bridge B example: LFD	L
	A Railroad structure was designed using the working stress method	X
	A structure was designed based on the Load and Resistance factor method	R
	A structure was designed using an alternate method that is not listed*	O

*Describe in CDOT Rating Structure Notes



Item 32 – Approach Roadway Width	I	FHWA	B.G.09
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DESCRIPTION

A six-digit code identifying the normal width of usable roadway approaching the structure for each route identified in ITEM5A.

PROCEDURE

The approach roadway is the minimum usable approach roadway width including traffic lanes and shoulders. Record width to the nearest thousandth of a foot.

Usable shoulders are "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". Unstable grass or dirt, with no base course, flush with or beside the traffic lane is not to be considered a shoulder for this item. Median widths that do not qualify as shoulders shall not be included.

For structures with any median type, ITEM32 shall be coded as the sum of the usable roadway widths.

When there is a variation between the approaches at either end of the structure, record the narrowest roadway condition as compared to the curb-to-curb condition of the structure.

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

Enter the Roadway Width into the [Approach Road \(032\)](#) field for each inventoried route.

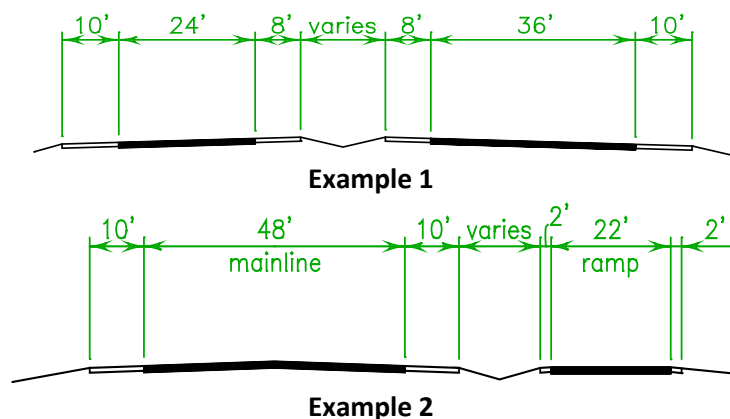
COMMENTARY

ITEM32 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM32
Bridge A example: Roadway is 21'-0" between approach rails	21.000
Bridge B example: Roadway is 40'-0" at bridge	40.000
Mainline separated with median (Example 1)	96.000
Mainline with ramp lane (Example 2)	94.000

Refer to Item 51 or Appendix L for Bridge example section views.





Item 33 – Bridge Median	I	FHWA	B.G.10
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DESCRIPTION

A one-digit code identifying the structure median type. The area between two roadways or directional traffic on the structure is considered the median.

PROCEDURE

The Bridge Median options are listed below.

ITEM33 Code	Description
0	No median
1	Open Median
2	Closed median (no barrier)
3	Closed median (non-mountable barrier)
N	Not applicable
U	Unknown

Code “0” for a structure carrying one-way traffic.

Code “0” for a structure carrying two-way traffic separated only by a painted centerline or lane line.

Open median: the area between two roadways on the structure is not covered or connected in such a way as to support traffic.

Closed median: the area between two roadways on the structure is bridged over and capable of supporting traffic. When two structures are widened, but not connected and the approach roadway is built with a closed median, consider the structure to have a closed median.

Non-mountable barrier: curbs greater than 6 inches high.

Select the appropriate Median code from the [Bridge Median \(033\)](#) dropdown menu.

COMMENTARY

Code “N” for structures only receiving a clearance inspection.

Code “U” should be corrected during a field inspection.

Item 33 – Bridge Median (cont.)

CODING EXAMPLE

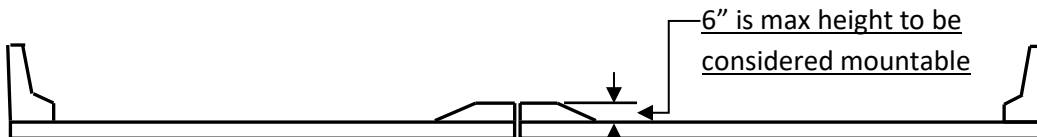
Example	ITEM33
Bridge A example: No median (similar to Example 1)	0
Bridge B example: No median (similar to Example 1)	0
Parallel structures with open median between structures (Example 2)	1
Parallel structures with closed median capable of supporting traffic (Example 3)	2
Parallel structures with raised median less than or equal to 9 inches (Example 3)	2
Parallel structures with closed median and non-mountable barrier (Example 4)	3



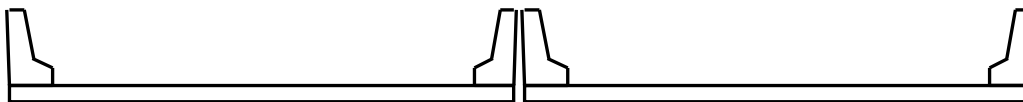
Example 1: No Median (ITEM33 = 0)



Example 2: Open Median (ITEM33 = 1)



Example 3: Closed Median with mountable barrier (ITEM33 = 2)



Example 4: Closed Median with Non-Mountable Barrier (ITEM33 = 3)



Item 34 – Skew Angle	I	FHWA	B.G.11
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DESCRIPTION

A two-digit code identifying the skew angle of the structure.

PROCEDURE

The skew angle is the angle between the centerline of a pier or abutment and a line perpendicular to the centerline of the roadway. Record the skew angle to the nearest degree.

When plans are available, the skew angle should be taken directly from the plans.

When no plans are available, the angle should be field measured when possible.

Code “0” when the abutment or pier is perpendicular to the centerline of the roadway, i.e., there is no skew angle.

When the structure is on a curve, or when the skew varies for some other reason, record the average skew angle, when reasonable.

Code “99” to identify a major variation in the skews of substructure units.

Enter the Skew Angle into the [Skew \(034\)](#) field.

COMMENTARY

A satellite image can also provide the detail necessary to determine the skew angle, example calculations are shown in the coding example.

CODING EXAMPLE

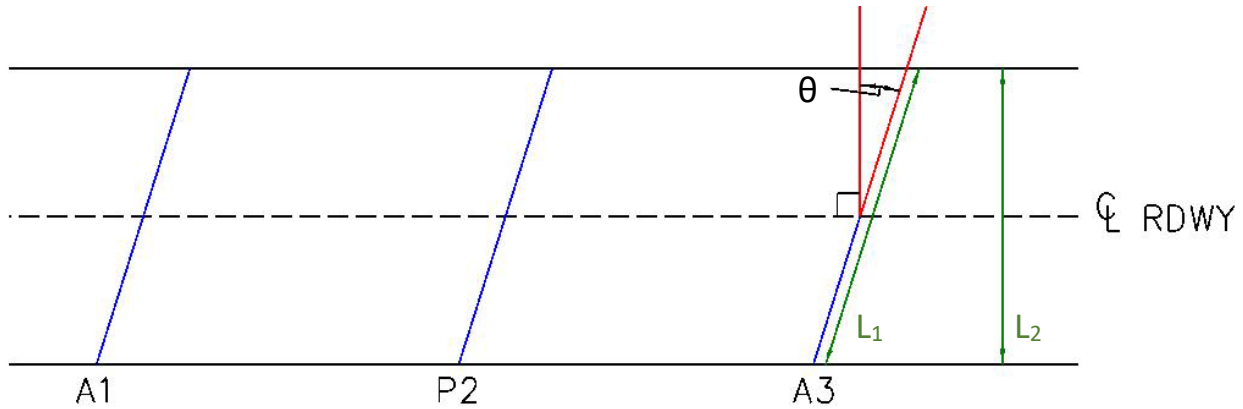
Example	ITEM34
Bridge A example: Variable skew	99
Bridge B example: No skew	0
Structure with 7° 43’ skew	8
Structure with 27° 12’ skew	27
Example 1 shown on next page	38
Example 2 shown on next page	39

Refer to Item 5 or Appendix L for Bridge example plan views.

Item 34 – Skew Angle (cont.)

CODING EXAMPLE (cont.)

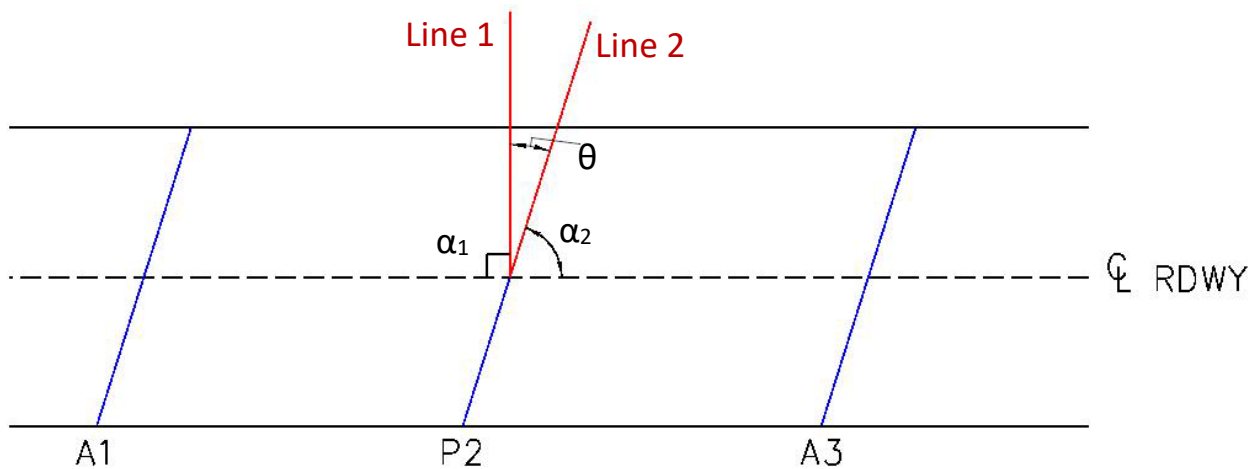
Skew Calculation Example 1: Measuring roadway width



Skew Angle (ITEM34) = ABS(Azimuth of Line1- Azimuth of Line2) = $\cos^{-1}(L_2 / L_1)$

- L_1 = Roadway width in feet along abutment or pier joint = 51.5 ft for Example 1
- L_2 = Roadway width in feet perpendicular to roadway centerline = 40 ft for Example 1
- θ = Bridge skew angle
- Example: $\theta = \cos^{-1}(L_2 / L_1) = \cos^{-1}(40\text{ft} / 51.5\text{ft}) = 38.34^\circ$

Skew Calculation Example 2: Measuring pier skew from roadway centerline or deck edge



Skew Angle (ITEM34) = ABS(Azimuth of Line1- Azimuth of Line2) = $\text{ABS}(\alpha_1 - \alpha_2)$

- α_1 = Azimuth of **Line 1** perpendicular to the roadway centerline = 90° always
- α_2 = Azimuth of **Line 2** parallel to abutment or pier = 51° for Example 2
- θ = Bridge skew angle
- Example: $\theta = \text{ABS}(\alpha_1 - \alpha_2) = \text{ABS}(90^\circ - 51^\circ) = 39^\circ$



Item 35 – Structure Flared	I	FHWA	N/A
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DESCRIPTION

A one-digit code identifying if the structure is flared (i.e., the width of the structure varies).

PROCEDURE

The Structure Flared options are listed below.

ITEM35 Code	Description
0	Not flared
1	Yes, flared

When the structure width varies along the length it is considered to be flared. Generally, a variance in the deck width will occur because of ramps converging with or diverging from the through lanes on the structure, but there may be other causes. Minor flares at the ends of structures should be ignored.

Select the appropriate Flare code from the [Structure Flared \(035\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM35
Bridge A example: No flare	0
Bridge B example: No flare	0



Item 36A, 36B, 36C, 36D – Traffic Safety Features	I	FHWA	B.RH.01 B.RH.02
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DESCRIPTION

A four-part, four-character code identifying whether each Traffic Safety Feature for the route on the structure meets current acceptable standards based on original design, **regardless of condition**.

Item Number	Item Name	Length
36A	Bridge rail	1 character
36B	Approach rail transition	1 character
36C	Approach guardrails	1 character
36D	Approach guardrail ends	1 character
Total		4 characters

PROCEDURE

The Traffic Safety Feature options are listed below.

ITEM36 Code	Description
0	Inspected feature does not meet currently acceptable standards or a safety feature is required but none is provided
1	Inspected feature meets currently acceptable standards
N	Not applicable, or a safety feature is not required, or no vehicular traffic is on the structure, e.g., pedestrian structure or railroad structure over the highway

Use references listed in Commentary to determine current standards for adequacy.

ITEM36A: Select the appropriate Safety Feature code from the [Bridge Railings \(036A\)](#) dropdown menu.

ITEM36B: Select the appropriate Safety Feature code from the [Transitions \(036B\)](#) dropdown menu.

ITEM36C: Select the appropriate Safety Feature code from the [Approach Guardrail \(036C\)](#) dropdown menu.

ITEM36D: Select the appropriate Safety Feature code from the [Approach Guardrail Ends \(036D\)](#) dropdown menu.

COMMENTARY

All items are currently evaluated for highway speeds unless the owner provides documentation that the traffic safety features meet site specific standards.

The FHWA requires all bridge railing used on the National Highway System (NHS) to meet full-scale crash criteria as documented in the *AASHTO Manual for Assessing Safety Hardware (MASH)*.

Each of the four digits of this item relates to a specific part of the traffic rail system and is coded for the route on the structure only. The important factor in determining adequacy is that each part of the rail system must meet currently acceptable standards. Below is information regarding the four specific parts of the Traffic Safety Features in ITEM36, and currently acceptable standards with which to rate the rail system for adequacy. See Appendix F for additional information and sketches of rails encountered in the field with the suggested coding of ITEM36A and ITEM125A for each rail type.



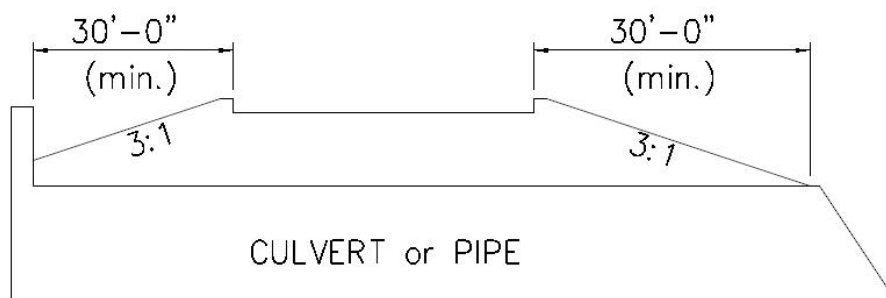
Item 36A, 36B, 36C, 36D – Traffic Safety Features (cont.)

COMMENTARY (cont.)

1. **BRIDGE RAIL (ITEM36A):** Some factors that affect the proper function of bridge railings are height, material, strength, and geometric features. Railings must be capable of smoothly redirecting an impacting vehicle. Bridge railings should be evaluated using *AASHTO Standard Specifications for Highway Bridges* as a guide for establishing a currently acceptable standard. However, a bridge rail design must be tested and approved by the FHWA.
2. **TRANSITION RAIL (ITEM36B):** The transition requires the approach rail be gradually stiffened as it comes closer to the bridge rail and firmly attached to the bridge rail. The ends of curbs and safety walks need to be gradually tapered out or shielded when they do not continue along the route beyond the structure.
3. **APPROACH GUARDRAIL (ITEM36C):** 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 a bridge site needs to be installed. In addition to being capable of safely redirecting an impacting vehicle, the approach rail 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 Guide for Selecting, Locating and Designing Traffic Barriers*.
4. **APPROACH GUARDRAIL ENDS (ITEM36D):** As with guardrail ends in general, the ends of the approach rails to bridges should be flared, made breakaway, or shielded. Acceptable design treatment of guardrail ends is given in the *AASHTO Guide for Selecting, Locating and Designing Traffic Barriers*.

Refer to the most current CDOT M & S standards for detailed descriptions and drawings.

Culverts and pipes with horizontal distance from the outside of the travel lanes to the headwall of a culvert or to the end of a pipe is 30 feet or greater and the fill slopes at 3 horizontal to 1 vertical (3:1), or flatter, are considered to not need traffic safety features. When the distance to the headwall or pipe end is less than 30 feet, safety rail is required regardless of slope.



Culvert Traffic Feature Requirements: Minimum slope and horizontal clearance for traffic features to not be required, steepest allowed slope shown



Item 36A, 36B, 36C, 36D – Traffic Safety Features (cont.)

COMMENTARY (cont.)

REFERENCE(S):

- AASHTO’s Task Force 13 web site [TF13 Guide to Bridge Railing Systems](#) provides specifications for bridge railing hardware/systems, including test level (TL) designation for various bridge rails and FHWA status letters of eligibility for each rail design tested. However, do not assume that a design that is submitted and listed has been tested and approved. Refer to the FHWA Letters of Eligibility to determine when a rail type has been approved, rejected or not yet tested.
- AASHTO *Manual for Assessing Safety Hardware* (MASH), 2009 or most current revisions/updates
- CDOT’s Standard Plans/ M&S Standards, 2013 or most current revisions/updates thereto.

CODING EXAMPLE

Example	ITEM 36A	ITEM 36B	ITEM 36C	ITEM 36D
Bridge A example: Meets standards	1	1	1	1
Bridge B example: Meets standards	1	1	1	1
Approach rail transition does not meet currently acceptable standards	1	0	1	1
Culvert with 2:1 slope and no safety features (Example 1)	0	0	0	0
Pipe with 4:1 slope 20 feet long to edge of structure, no safety features (Example 2)	0	0	0	0
Culvert with 4:1 slope 25 feet long to headwall, no safety features (Example 3)	0	0	0	0
Culvert with 3:1 slope 35 feet long and no safety features (Commentary Example)	N	N	N	N

Example 1: Culvert has no traffic safety features with a 2:1 slope over 30 feet long. Slope is steeper than 3:1 so traffic safety features are required.

The diagram shows a cross-section of a culvert or pipe. A slope of 2:1 is indicated. A dimension line above the slope shows a length of $\geq 30'-0''$. The culvert is labeled "CULVERT or PIPE".

Example 2: Culvert has no traffic safety features with a 4:1 slope less than 30 feet long. Edge of culvert is less than 30 feet from roadway edge so traffic safety features are required.

The diagram shows a cross-section of a culvert or pipe. A slope of 4:1 is indicated. A dimension line above the slope shows a length of $< 30'-0''$. The culvert is labeled "CULVERT or PIPE".

Example 3: Culvert has no traffic safety features with a 4:1 slope less than 30 feet long. Headwall is less than 30 feet from roadway edge so traffic safety features are required.

The diagram shows a cross-section of a culvert or pipe. A slope of 4:1 is indicated. A dimension line above the slope shows a length of $< 30'-0''$. The culvert is labeled "CULVERT or PIPE".



Item 36H – Guardrail Height	I	CDOT	N/A
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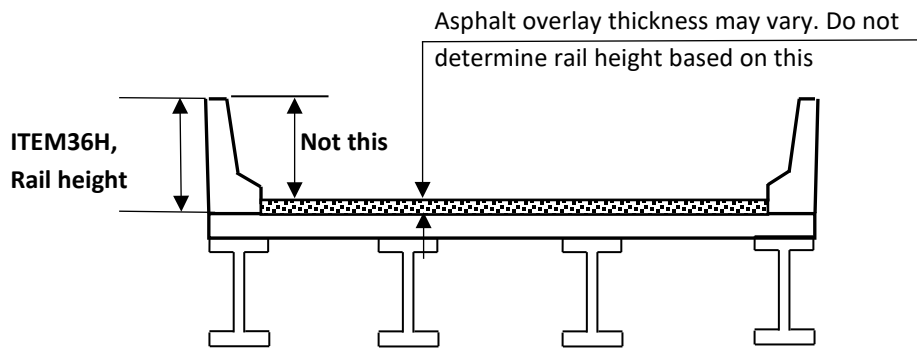
DESCRIPTION

A four-digit code identifying the structural bridge rail height measured from the top of the bare deck.

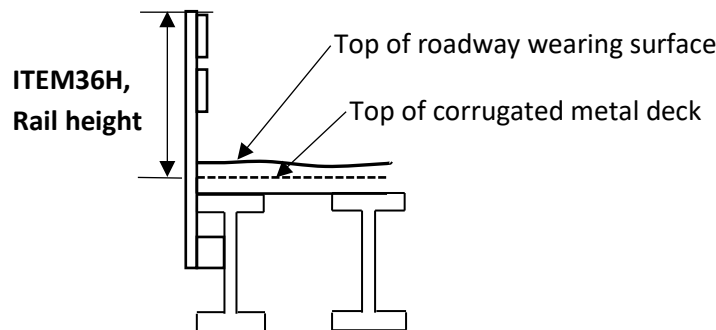
PROCEDURE

For bridge structures, determine the height from the top of the bare deck to the top of the structural rail. Record to the nearest tenth of an inch. Do not code height from the top of the asphalt since this can vary.

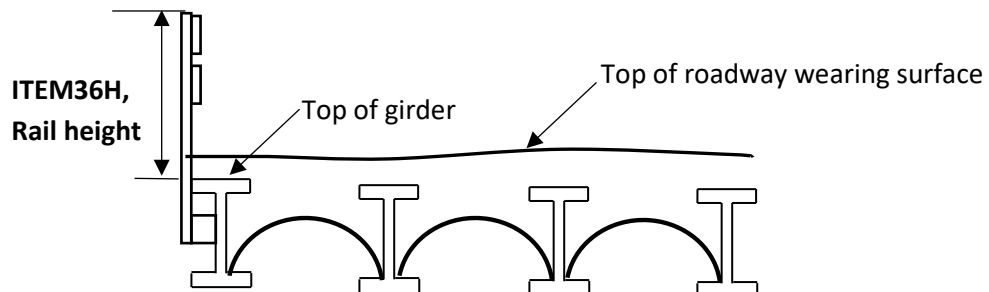
- Typical asphalt wearing surface over concrete deck, measure from top of concrete deck:



- Corrugated metal deck on girder (typically on off-system), measure from top of corrugation:



- Earth filled over culvert halves (typically on off-system), measure from top of girder:

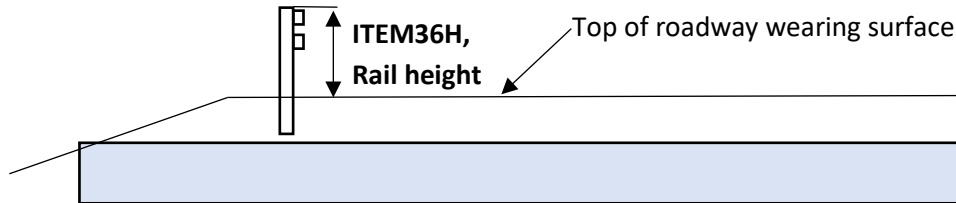




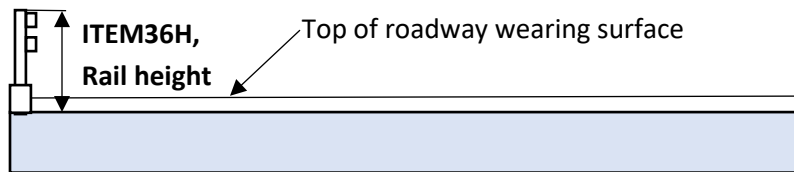
Item 36H – Guardrail Height (cont.)

PROCEDURE (cont.)

- Buried structures, measure from the roadway surface:



- Rail is mechanically, or integrally connected to non-buried structure, measure from top slab:



Enter the Rail Height into the [Railheight \(036H\)](#) field.

COMMENTARY

Guardrail is roadside hardware protecting vehicular traffic from leaving the roadway. Only structural traffic railing should be included in the measurement. Do not include pedestrian fence or railing.

CODING EXAMPLE

	Example	ITEM36H
	Bridge A example	34.0
	Bridge B example	36.0
	The top of the rail is measured to be 36 inches above the top of the concrete deck	36.0
	The rail height, obtained from the plans is 36 inches	36.0
	The rail height measured from the top of the asphalt is 29 inches and the field measured asphalt thickness is 4 inches	33.0

Refer to Item 51 or Appendix L for Bridge example section views.



Item 37 – Historical Significance	AM	FHWA	B.CL.04
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DESCRIPTION

A one-digit code identifying the bridge status as it relates to eligibility to the National Register of Historic Places (NHRP), the State Register of Historic Places (SRHP), or as a local landmark.

PROCEDURE

The Historical Significance options are listed below.

ITEM37 Code	Description
1	Structure is on the National Register of Historic Places
2	Structure is eligible for the National Register of Historic Places
3	Structure is possibly eligible for the National Register of Historic Places or is on a State or local historic register (requires further research before determination can be made)
4	Historic significance is not determinable at this time
5	Structure is not eligible for the National Register of Historic Places

When item is blank, reach out to CDOT to code "4" unless otherwise determined.

Select the appropriate Historic code from the [Historic Significance \(037\)](#) dropdown menu.

COMMENTARY

Codes are based on the CDOT statewide historic bridge inventories and can only be changed by the CDOT History Program staff, which maintains and updates this information. Any requests for changes to the code should be directed to the [CDOT Cultural Resources Section Manager](#) at the CDOT Headquarters/Environmental Programs Branch.

CDOT has completed four statewide historic bridge inventories since 1983. These studies include evaluations of all on-system bridges built through 1968 and a subset of off-system bridges built through 1958. Additional statewide historic bridge inventories may take place in the future. Bridges were evaluated to determine when they meet NRHP Criteria A through D, which are summarized below.

- A. Association with events that have made a significant contribution to the broad patterns of history
- B. Association with the lives of persons significant in our past
- C. Embody distinctive characteristics of a type, period or method of construction or represent the work of a master or possess high artistic values
- D. Yield or may be likely to yield information important to prehistory or history.

Most bridges that are determined eligible to the NRHP will be historically significant under Criteria A or C, either for association with important events in history, such the development of transportation in a region (Criterion A) or as a good example of or bridge type or for engineering (Criterion C).

CODING EXAMPLE

Example	ITEM37
Bridge A example: Not eligible	5
Bridge B example: Not eligible	5
M-09-D, on SH 149 is of unique engineering design	3



Item 38 – Navigation Control	AM	FHWA	B.N.01
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DESCRIPTION

A one-character code identifying whether navigation control (a permit) is required.

PROCEDURE

The Navigation Control options are listed below.

ITEM38 Code	Description
0	No navigation control on waterway
1	Navigation control on waterway (permit required)
N	Not applicable, no waterway

Code “0” when a structure is over a waterway.

Code “N” when the structure is not over a waterway.

Select the appropriate code from the [Navigation Control Exists \(038\)](#) dropdown menu. This field is populated by CDOT Asset Management Group and is not editable.

COMMENTARY

Code “0” because there are no navigable rivers or water courses in Colorado.

CODING EXAMPLE

Example	ITEM38
Bridge A example: Crosses South Platte River	0
Bridge B example: Does not cross over a waterway	N



Item 39 – Navigation Vertical Clearance	AM	FHWA	B.N.02
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DESCRIPTION

A four-digit code identifying the minimum navigation vertical clearance at the structure.

PROCEDURE

Record the vertical clearance to the nearest thousandth of a foot.

Enter “0” into the [Navigation Vertical Clearances \(039\)](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

Code “0” because there are no navigable rivers or water courses in Colorado.

CODING EXAMPLE

Example	ITEM39
Bridge A example	0
Bridge B example	0



Item 40 – Navigation Horizontal Clearance	AM	FHWA	B.N.04
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DESCRIPTION

A five-digit code identifying the minimum navigation horizontal clearance at the structure.

PROCEDURE

Record the horizontal clearance to the nearest thousandth of a foot.

Enter “0” into the [Navigation Horizontal Clearances \(040\)](#) field. This field is populated by CDOT Bridge and Structure Asset Management Group and is not editable.

COMMENTARY

Code “0” because there are no navigable rivers or water courses in Colorado.

CODING EXAMPLE

Example	ITEM40
Bridge A example	0
Bridge B example	0



Item 41 – Structure Open, Posted, or Closed to Traffic	I	MOD FHWA	B.PS.01
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DESCRIPTION

A one-character code identifying the operational status of the structure regarding load carrying capacity.

PROCEDURE

The structure operational status options are listed below.

ITEM41 Code	Description
A	Open, no restriction
B	Open, posting required but not legally implemented (i.e. all signs not in place, illegible, etc.)
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 rehabilitation or replacement
G	New structure, not yet open to traffic
K	Bridge closed to all traffic
P	Posted for load (may include other restrictions)
R	Posted for other restriction (i.e. speed, number of vehicles on structure, or restricting commercial vehicles in general)

A field review will identify the operational status of a structure. Inspections, re-ratings or structural damage can cause the status to change. A structure may be posted in the field but ITEM70 "Bridge Posting" may indicate that posting is not required. This is acceptable because ITEM70 is based on the operating stress level but the governing agency's posting procedures may specify posting at some stress level less than the operating rating.

Select the appropriate Operational Status from the [Open/Posted/Closed \(041\)](#) dropdown menu.

COMMENTARY

For special circumstances or unique circumstances (such as posting does not follow rating summary), summarize discrepancy in Inspection Notes.

- Code “B” when posting is required but no signs are in-place, until load posting signs are installed.
- Code “B” when posting is required but posting signs show values above the required values, leave “B” until correct load posting signs are installed.
- Code “D” when 25%, or more of the timber girders have been repaired, the bridge is considered temporary.
- Code “P” when posting is required but posting signs show values below the required values, add a clarifying note in Admin Structure Notes.
- Code “P” when posting has not been required but there are posting signs erected at the bridge, add a clarifying note in Admin Structure Notes.



Item 41 – Structure Open, Posted, or Closed to Traffic (cont.)

CODING EXAMPLE

Example	ITEM41
Bridge A example: No posting required or in-place	A
Bridge B example: No posting required or in-place	A
F 15 AJ Load Posted, all signs in place	P
F 15 FA Open with temporary shoring	D
Temporary structure posted for load	P
A posted structure shows load limits less than recommended*	P
Posting signs have been placed at a structure where posting is not recommended or required*	P

*Place note in Admin Structure Notes



Item 41A to 41C- Legal Truck Postings	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the operational status of the structure regarding load carrying capacity.

Item Number	Load Type	Description	BrM Entry Fields
41A	CO Legal Trucks	Interstate/Colorado T3, T3S2, and T3-2 trucks	OPPOSTCL (041A) – CO Legal Trucks
41B	Specialized Haul Vehicles	SU4, SU5, SU6, and SU7 trucks	OPPOSTCL (041B) – SHV Trucks
41C	Emergency Vehicles	EV2, and EV3 trucks	OPPOSTCL (041C) – EV Trucks

PROCEDURE

The structure operational status options are listed below.

Item Code	Description
A	Open, no restriction
B	Open, posting required but not legally implemented (i.e. all signs not in place, illegible, etc.)
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 rehabilitation or replacement
G	New structure, not yet open to traffic
K	Bridge closed to all traffic
P	Posted for load (may include other restrictions)
R	Posted for other restriction (i.e. speed, number of vehicles on structure, or restricting commercial vehicles in general)

A field review will identify the operational status of a structure. Inspections, re-ratings or structural damage can cause the status to change. A structure may be posted in the field but ITEM70 "Bridge Posting" may indicate that posting is not required. This is acceptable because ITEM70 is based on the operating stress level but the governing agency's posting procedures may specify posting at some stress level less than the operating rating.

Enter the Operational Status code into the BrM Entry Field under Description.



Item 41A to 41C- Legal Truck Postings (cont.)

COMMENTARY

Previously called CDOT Inspections Userkeys 1-3. CDOT Inspection Userkeys are carried over from each inspection and record the structure’s posting history.

For special circumstances or unique circumstances (such as posting does not follow rating summary), summarize discrepancy in Inspection Notes.

- Code “B” when posting is required but no signs are in-place, until load posting signs are installed.
- Code “B” when posting is required but posting signs show values above the required values, leave “B” until correct load posting signs are installed.
- Code “D” when 25%, or more of the timber girders have been repaired, the bridge is considered temporary.
- Code “P” when posting is required but posting signs show values below the required values, add a clarifying note in Admin Structure Notes.
- Code “P” when posting has not been required but there are posting signs erected at the bridge, add a clarifying note in Admin Structure Notes.

The controlling value for Items 41A, 41B, and 41C will be recorded in Item 41.

CODING EXAMPLE

Example	ITEM 41A	ITEM 41B	ITEM 41C
Bridge A example: No posting implemented or required	A	A	A
Bridge B example: No posting implemented or required	A	A	A



Item 42A, 42B – Type of Service On and Under	AM	MOD FHWA	B.F.01
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DESCRIPTION

A two-part, two-digit code identifying the type of service on (ITEM42A) and under (ITEM42B) the structure.

PROCEDURE

The Type of Service options are listed below.

ITEM42A: Type of service on the structure	
ITEM42A Code	Description
1	Highway
2	Railroad
3	Pedestrian/Bicycle
4	Highway/Railroad
5	Highway/Pedestrian
6	Overpass structure at an interchange, or second level of multilevel interchange
7	Third level interchange
8	Fourth level interchange
9	Building or plaza
0	Other (INCLUDES TUNNELS)

ITEM42B: Type of service under the structure	
ITEM42B Code	Description
1	Highway, with or without pedestrian
2	Railroad
3	Pedestrian/Bicycle
4	Highway/Railroad
5	Waterway
6	Highway/Waterway
7	Railroad/Waterway
8	Highway/Waterway/Railroad
9	Relief
0	Other (includes tunnels)

ITEM42A code “6” pertains to interchange structures where traffic may change from one route to another by a system of ramps or a cloverleaf, rather than a grade separation, which would be coded “1”.

Code “0” when the service is unknown, until a determination can be made at the site. No code exists for unknown for either part of this item.

Select the appropriate Service code from the [Type of Service on \(042A\)](#) dropdown menu.

Select the appropriate Service code from the [Under \(042B\)](#) dropdown menu.

COMMENTARY

Sidewalks must have a minimum 3-foot clear distance to be considered as carrying pedestrian traffic.

ITEM42A, 42B is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM42A	ITEM42B
Bridge A example	5	8
Bridge B example	5	4
I 25 over Platte River	1	5
I 76 under I 225 Interchange with ramps	6	1
U.S. 40 over D&RGW RR	1	2

Refer to Item 5 or Appendix L for Bridge example plan views.



Item 42C – Wildlife Crossing	AM	CDOT	N/A
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DESCRIPTION

A one-digit code identifying whether the route is used for wildlife crossing for each route identified in ITEM5A.

PROCEDURE

The Wildlife options are listed below.

ITEM42C Code	Description
0	Not applicable
1	Wildlife crossing

When ITEM42C = “1” then code ITEM42B = “0”.

Code “0” when the service is unknown, until a determination can be made at the site. No code exists for unknown for this item.

Select the appropriate Wildlife code from the [Service Type \(Other\) \(042C\)](#) dropdown menu for each inventoried route.

COMMENTARY

ITEM42C is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM42C
Bridge A example: Not a wildlife crossing	0
Bridge B example: Not a wildlife crossing	0



Item 42CNE – Vertical Clearance Lane Usage NBND & EBND (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-digit code identifying the use for each lane in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

The Lane Use options are listed below.

ITEM42CNE Code	Description
00	Not applicable
01	Mainline
02	Auxiliary lane
03	Ramp
04	Right turn lane
05	Left turn lane
06	Managed
07	Toll
08	HOV lane
09	Bike lane
10	Other

Select the appropriate Usage code from the [Lane Usage # \(42CNE#\)](#) dropdown menu for each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the northbound or eastbound traffic direction. Lane 1 is located along the left shoulder.

ITEM42CNE is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 42CSW – Vertical Clearance Lane Usage SBND & WBND (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-digit code identifying the use for each lane in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

The Lane Use options are listed below.

ITEM42CNE Code	Description
00	Not applicable
01	Mainline
02	Auxiliary lane
03	Ramp
04	Right turn lane
05	Left turn lane
06	Managed
07	Toll
08	HOV lane
09	Bike lane
10	Other

Select the appropriate Usage code from the [Lane Usage # \(42CNW#\)](#) dropdown menu for each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the southbound or westbound traffic direction. Lane 1 is located along the left shoulder.

ITEM42CNW is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 43A, 43B – Main Span Structure Type	I	FHWA	B.SP.04 B.SP.06
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DESCRIPTION

A two-part, three-digit code identifying the original material and/or design type (ITEM43A) and the original design and/or construction type (ITEM43B) used for the structure’s main span.

PROCEDURE

The Main Span Structure Type options are listed below.

ITEM43A: Material and/or design type	
ITEM43A Code	Description
1	Concrete
2	Concrete Continuous
3	Steel
4	Steel Continuous
5*	Prestressed Concrete
6*	Prestressed Concrete Continuous
7	Timber
8	Masonry
9	Aluminum, Wrought Iron or Cast Iron
0	Other

ITEM43B: Structure design construction type	
ITEM43B Code	Description
01	Slab
02	Stringer/Multi beam or Girder (I Beam)
03	Girder and Floor Beam System
04	Tee Beam (cast in place or pre cast)
05	Box Beam or Girder - Multiple (Adjacent)
06	Box Beam or Girder - Single or Spread
07	Frame
08	Orthotropic
09	Truss - Deck
10	Truss - Thru/Pony
11	Arch - Deck
12	Arch - Thru
13	Suspension
14	Stayed Girder
15	Movable – Lift
16	Movable – Bascule
17	Movable – Swing
18	Tunnel
19	Culvert
21	Segmental Box Girder
22	Channel Beam
00	Other

*Pre/post tensioned concrete should be coded as prestressed concrete.

See ITEM120A and Appendix G for a cross reference list of standard bridge types and codes used by CDOT.

Code ITEM43B = “07” for open bottom culverts.

Select the appropriate Material code from the [Main Spans Material \(043A\)](#) dropdown menu.

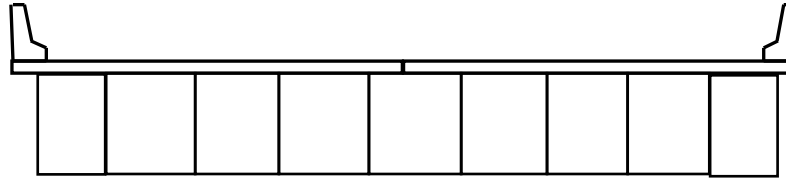
Select the appropriate Design code from the [Main Spans Design \(043B\)](#) dropdown menu.

Item 43A, 43B – Main Span Structure Type (cont.)

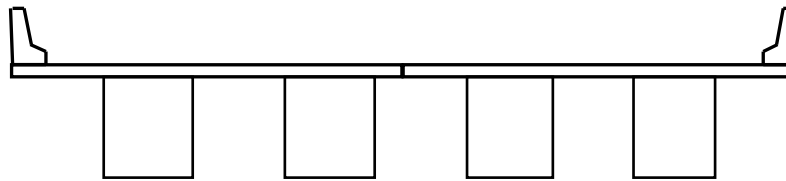
COMMENTARY

BOX GIRDERS

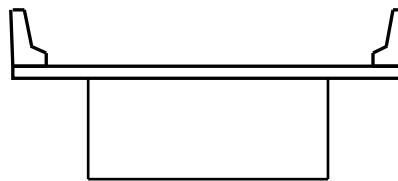
The following sketches indicate how to identify the different types of boxes:



Multiple Boxes



Spread Boxes



Single Box

ITEM43A, 43B is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM43A	ITEM43B
Bridge A example: Prestress Open Girders	6	02
Bridge B example: Prestressed Multi-box Girders	6	05
A single span steel through truss with (3) timber approach spans	3	10
Concrete Arch – open bottom	1	07
A 3-span rigid frame with (2) concrete slab approach spans	1	07
Treated Timber Stringer Structure	7	02
Continuous Concrete Prestressed Box Girder widened with Steel I-beams	6	05
Concrete Slab on I Beam	3	12
RC Box Culvert	1	19

Refer to Item 51 or Appendix L for Bridge example section views.



Item 44A, 44B – Approach Span Structure Type	I	FHWA	B.SP.04 B.SP.06
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DESCRIPTION

A two-part, three-digit code identifying the type of material and/or design (ITEM44A) and the type of design and/or construction (ITEM44B) used for the structure’s approach spans.

PROCEDURE

The Approach Span Structure Type options are listed below.

ITEM44A: Material and/or design type	
ITEM43A Code	Description
1	Concrete
2	Concrete Continuous
3	Steel
4	Steel Continuous
5*	Prestressed Concrete
6*	Prestressed Concrete Continuous
7	Timber
8	Masonry
9	Aluminum, Wrought Iron or Cast Iron
0	Other

ITEM44B: Structure design construction type	
ITEM43B Code	Description
01	Slab
02	Stringer/Multi beam or Girder (I Beam)
03	Girder and Floor Beam System
04	Tee Beam (cast in place or pre cast)
05	Box Beam or Girder - Multiple (Adjacent)
06	Box Beam or Girder - Single or Spread
07	Frame
08	Orthotropic
09	Truss - Deck
10	Truss - Thru/Pony
11	Arch - Deck
12	Arch - Thru
13	Suspension
14	Stayed Girder
15	Movable – Lift
16	Movable – Bascule
17	Movable – Swing
18	Tunnel
19	Culvert
21	Segmental Box Girder
22	Channel Beam
00	Other

*Pre/post tensioned concrete should be coded as prestressed concrete.

See ITEM120A and Appendix G for a cross reference list of standard bridge types and codes used by CDOT.

Code ITEM44A = “0” and ITEM44B = “20” when a single material, design or construction type is predominant.

Code ITEM44A = “0” and ITEM44B = “00” when all the spans in the structure are the same, they are considered as not having approach spans.

Select the appropriate Material code from the [Approach Span Material \(044A\)](#) dropdown menu.

Select the appropriate Design code from the [Approach Span Design \(044B\)](#) dropdown menu.

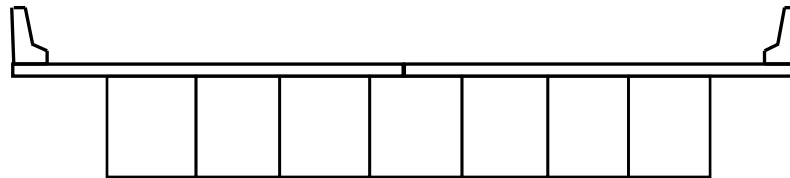


Item 44A, 44B – Approach Span Structure Type (cont.)

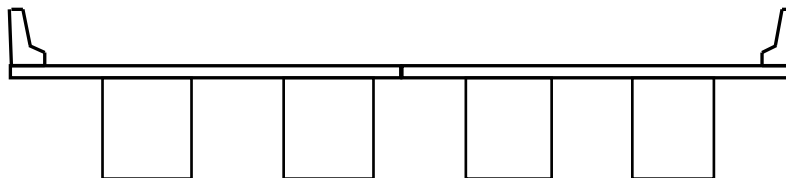
COMMENTARY

BOX GIRDERS

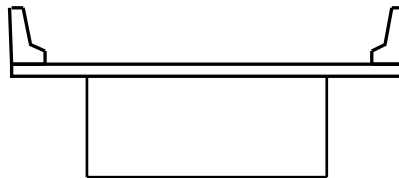
The following sketches indicate how to identify the different types of boxes:



Multiple Boxes



Spread Boxes



Single Box

CODING EXAMPLE

	Example	ITEM44A	ITEM44B
Bridge A example: All spans are same material and design		0	00
Bridge B example: All spans are same material and design		0	00
A single span steel through truss with (3) timber approach spans		7	02
A 3-span rigid frame with (2) concrete slab approach spans		1	01

Refer to Item 51 or Appendix L for Bridge example section views.



Item 45 – Number of Main Unit Spans	I	FHWA	B.SP.02
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DESCRIPTION

A three-digit code identifying the number of spans in the main unit of a structure.

PROCEDURE

Record the number of spans in the main or major unit of the structure corresponding to ITEM43A/B structure type. This item will include all spans of most structures, the major unit of a sizable structure only, or a unit of material or design different from that of the approach spans.

Enter the Number of Spans into the [Number of Main Spans \(045\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM45
Bridge A example: All spans are same material and design	13
Bridge B example: All spans are same material and design	8
A single span steel through truss with (3) timber approach spans	1
Tunnel in Rock	1
A 3-span rigid frame with (2) concrete slab approach spans	3

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 46 – Number of Approach Spans	I	FHWA	B.SP.02
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DESCRIPTION

A four-digit code identifying the number of approach spans to the main unit of a structure, or the number of spans of material different from that of the main unit span.

PROCEDURE

Record the number of approach spans with different material, design, or construction from that in the main unit spans, corresponding to ITEM44A/B structure type.

Enter the Number of Spans into the [Number of Approach Spans \(046\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

	Example	ITEM46
Bridge A example: All spans are same material and design		0
Bridge B example: All spans are same material and design		0
A single span steel through truss with (3) timber approach spans		3
Tunnel in Rock		0
A 3-span rigid frame with (2) concrete slab approach spans		2

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 47 – Inventory Route, Total Horizontal Clearance	I	FHWA	B.H.16
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DESCRIPTION

A five-digit code identifying the largest available horizontal clearance for each route identified in ITEM5A.

PROCEDURE

The horizontal clearance should be the largest value of all minimum clearances measured between restrictive features for each roadway: curbs, rails, walls, or other structural features limiting the surface and shoulders of the roadway. Record the measurement to nearest tenth of a foot.

The purpose of this item is to give the largest available clearance for the movement of wide loads across or under the structure. This clearance is identified in 3 ways:

- Roadway surface and usable shoulders, not including sidewalks.
- Distance from face of pier, or guardrail around pier, to face of opposite guardrail or toe of slope.
- Include flush or mountable medians when ITEM33 = "2", but not raised medians when ITEM33 = "3". For a raised or non-mountable median record the greater of the restricted widths in either direction, not both directions.

Mountable medians are curbs 6-inches high or less.

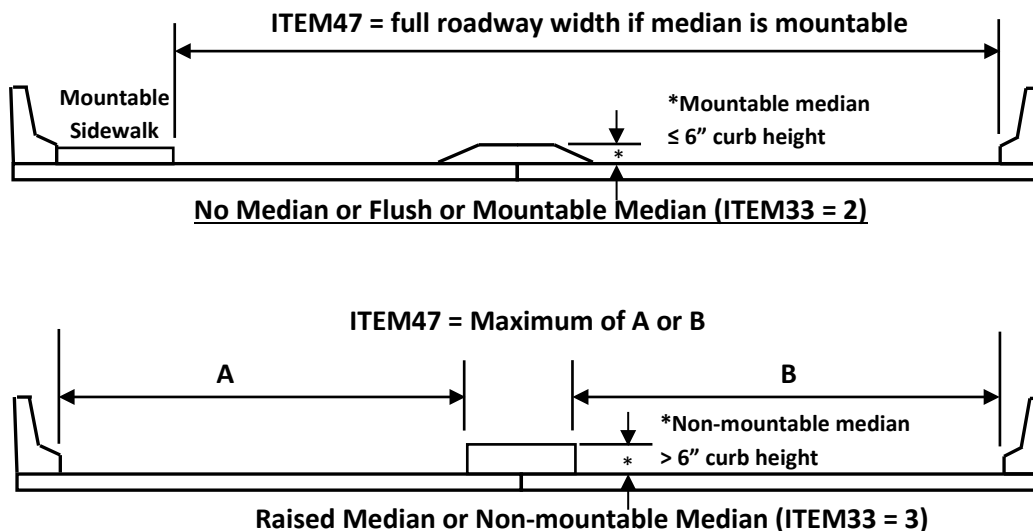
Code "99.900" for clearances at or over 100 feet.

Buried structures follow the same procedure as non-buried structures.

For flared structures, record the most restrictive portion of the flare.

Enter the Clearance into the [Horizontal \(047\)](#) field for each inventoried route.

For an inventoried route on a structure, ITEM5A = 1:

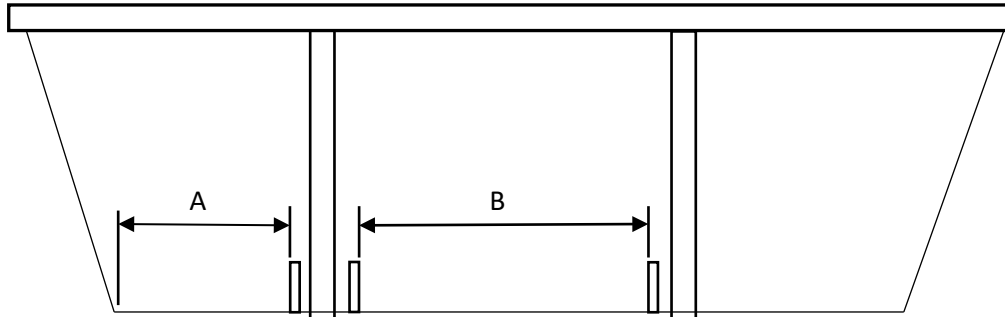




Item 47 – Inventory Route, Total Horizontal Clearance (cont.)

PROCEDURE (cont.)

For an inventory route under a structure, ITEM5A = 2 or letter:



ITEM47 = Maximum of A or B

COMMENTARY

Shoulders are included when they are contiguous with the traveled way and structurally adequate for all weather and traffic conditions consistent with the facility carried.

ITEM47 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	ITEM 5A	ITEM47
Example		
Bridge A example (On-System)		
<i>US40 On Ramp over I-25, Mile High Stadium Cir, RR, trail, South Platte River, Walnut St, 1st St</i>		
Roadway (005A) dropdown select "Route On Structure"	1	21.0
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	72.8
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	77.9
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	45.2
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	38.8
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	38.5
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	24.3
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	23.3
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	26.0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	27.3
Bridge B example (Off-System)		
<i>WB Auraria Pkwy over 5th St, BNSF RR, RTD</i>		
Roadway (005A) dropdown select "Route On Structure"	1	40.0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	45.3
Roadway flares from 25'-8" to 37'-6"		25.7

Refer to ITEM10 or Appendix L for Bridge example elevation views.

Refer to ITEM51 or Appendix L for Bridge example section views.



Item 48 – Maximum Span Length	I	MOD FHWA	B.G.01
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DESCRIPTION

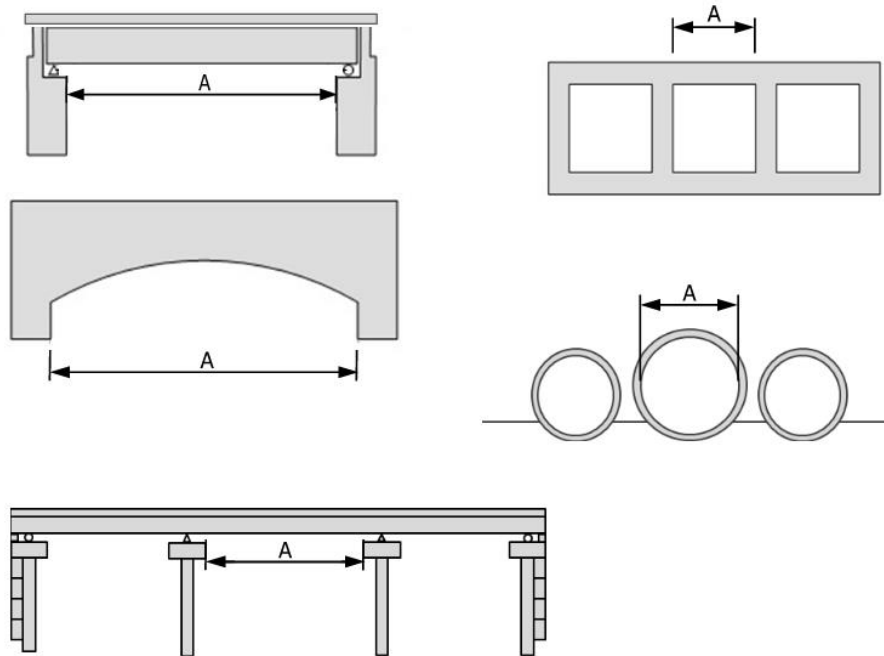
A seven-digit code identifying the maximum clear span length.

PROCEDURE

Record the length of the maximum span in the structure by measuring the open/clear distance between piers, bents, or abutment faces along roadway centerline. Record distance to nearest tenth of a foot.

Enter the Span Length into the [Maximum Span Length \(048\)](#) field.

Maximum Span Length Measurements (A): Measurement examples



COMMENTARY

Existing data may only be measured to the nearest foot, only update for new or rehabilitated structures.

ITEM48 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure.

CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

	Example	ITEM48
	Bridge A example	146.0
	Bridge B example	131.5
	Major culvert on 25 skew with 4ft, 6ft, and 5ft diameter pipes (see Item 49 Example 1)	6.6

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 49 – Total Structure Length	I	MOD FHWA	B.G.02
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DESCRIPTION

An eight-digit code identifying the total length of the structure.

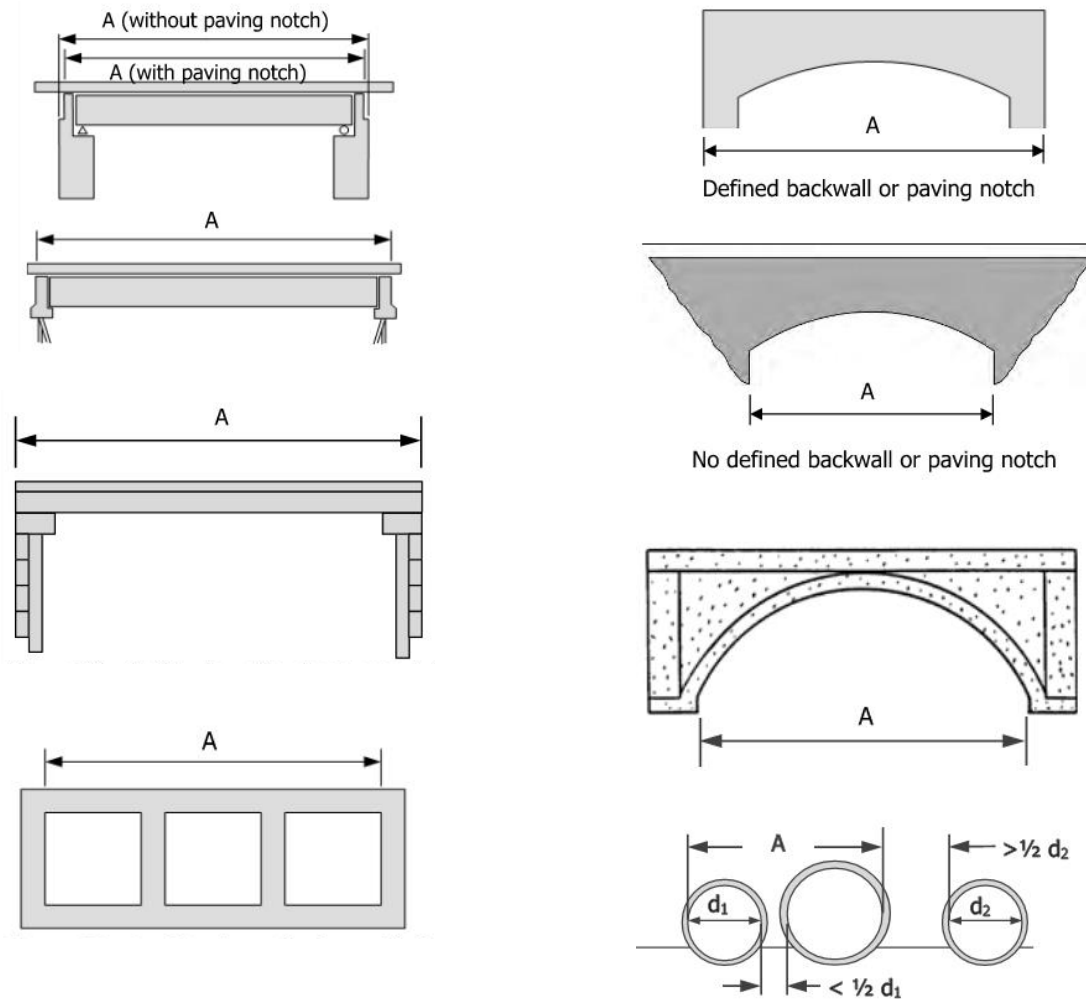
PROCEDURE

Record the length of roadway supported on the structure by measuring from the back of the abutment backwalls or from paving notch to paving notch along centerline. Record the distance to nearest thousandth of a foot.

For box culverts, pipes, and arches, code the structure length between the inside faces of exterior walls along the roadway centerline. Multiple pipes are considered contiguous when the clear distance between openings is less than half of the smaller contiguous opening.

Enter the Structure Length into the [Structure Length \(049\)](#) field.

Total Structure Length Measurements (A): Measurement examples





Item 49 – Total Structure Length (cont.)

COMMENTARY

Existing data may only be measured to the nearest foot, only update for new structures.

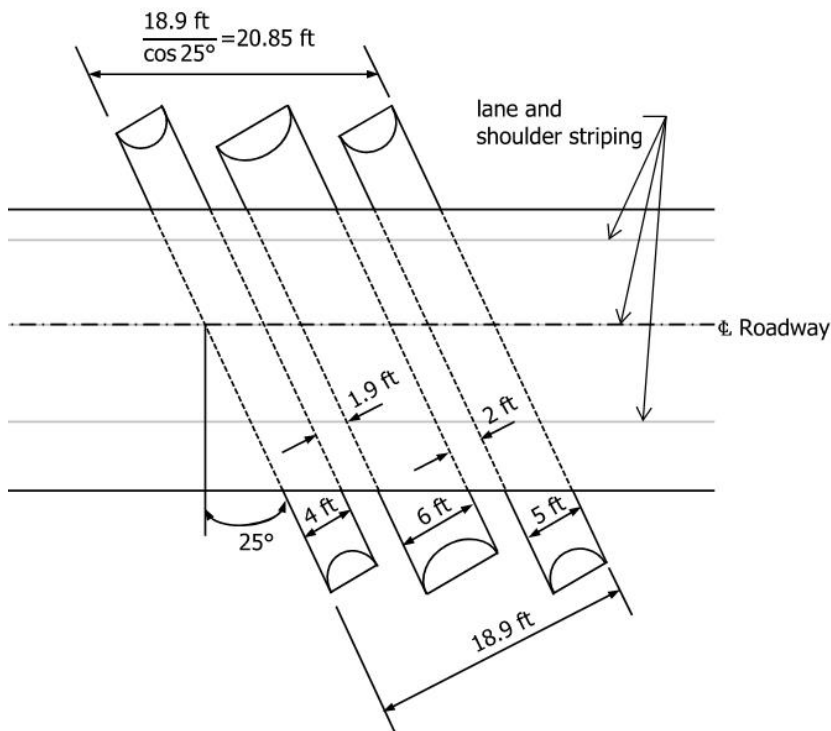
ITEM49 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. CDOT currently only codes this item for the inventoried structure.

CODING EXAMPLE

Example	ITEM48
Bridge A example	1515.000
Bridge B example	946.083
Major culvert on 25 skew with 4ft, 6ft, and 5ft diameter pipes (Example 1)	20.854

Refer to Item 5 or Appendix L for Bridge example plan views.

Example 1: Major pipe culvert on a skew





Item 50A, 50B – Curb or Sidewalk Widths	I	MOD FHWA	B.G.07 B.G.08
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DESCRIPTION

A two-part, 10-digit code identifying the widths of the left and right curbs or sidewalks on a structure.

Item Number	Item Name	Length
50A	Left curb or sidewalk	5 digits
50B	Right curb or sidewalk	5 digits
Total		10 digits

PROCEDURE

Record the minimum width of the curb or sidewalk from the face of the rail to the face of the curb to nearest thousandth of a foot. Left and right shall be determined by following the direction of the inventory.

Code “0” when there is no curb or sidewalk or the curb does not extend beyond the face of the rail.

Code “0” when the roadway is on fill carried across a culvert and the headwalls or parapets are below the roadway.

Code “20” when the curb or sidewalk is greater than 20’-0”.

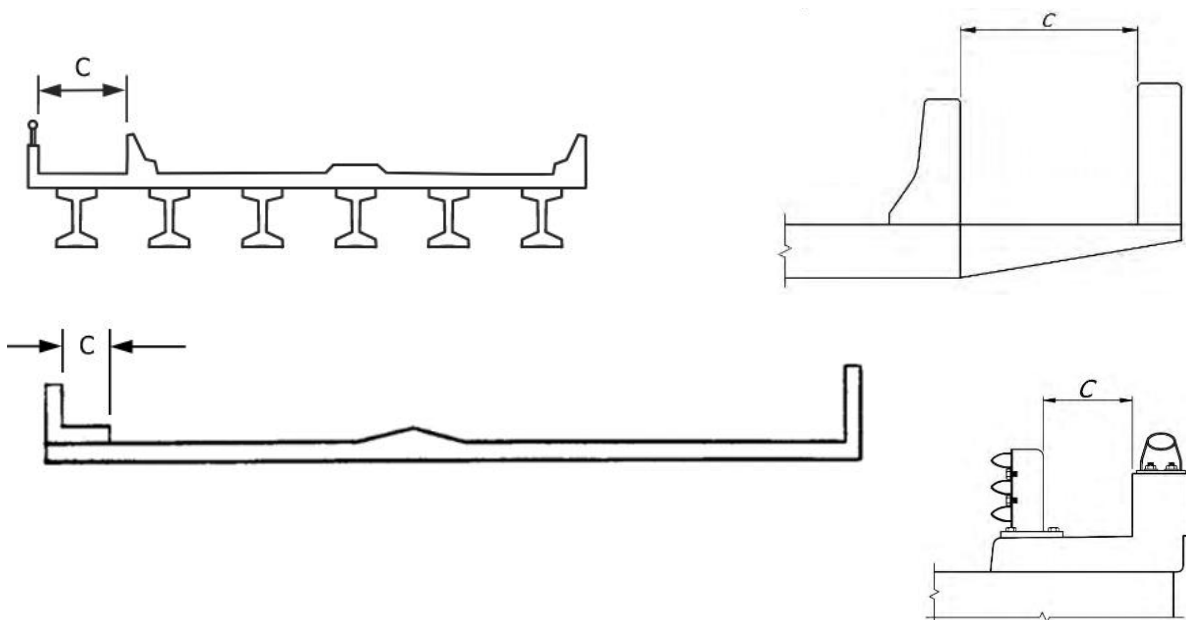
Sidewalks must have a minimum 3-foot clear distance to be considered as carrying pedestrian traffic, ITEM42A = “5”.

Curb must have a minimum of 6 inches clear distance beyond rail to be considered for ITEM50A/B.

Enter the Left Curb/Sidewalk Width into the [Curb Sidewalk width/Left \(050A\)](#) field.

Enter the Right Curb/Sidewalk Width into the [Curb Sidewalk width/Right \(050B\)](#) field.

Curb or Sidewalk Width (C): Measurement examples





Item 50A, 50B – Curb or Sidewalk Widths (cont.)

COMMENTARY

For a structure with direction of inventory toward the north, the west side would be the left sidewalk and the east side would be the right sidewalk.

REFERENCE(S): CDOT Bridge Inspection Manual (BIM)

CODING EXAMPLE

	Example	ITEM50A	ITEM50B
	Bridge A example	8.000	0.000
	Bridge B example	8.000	0.000

Refer to Item 51 or Appendix L for Bridge example section views.



Item 51 – Roadway Width, Curb-To-Curb	I	FHWA	B.G.06
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DESCRIPTION

A six-digit code identifying the most restrictive roadway width at the structure for each route identified in ITEM5A.

PROCEDURE

Record the most restrictive point, summing the minimum distance between curbs or rails perpendicular to roadway centerline for all roadways at the structure to nearest thousandth of a foot.

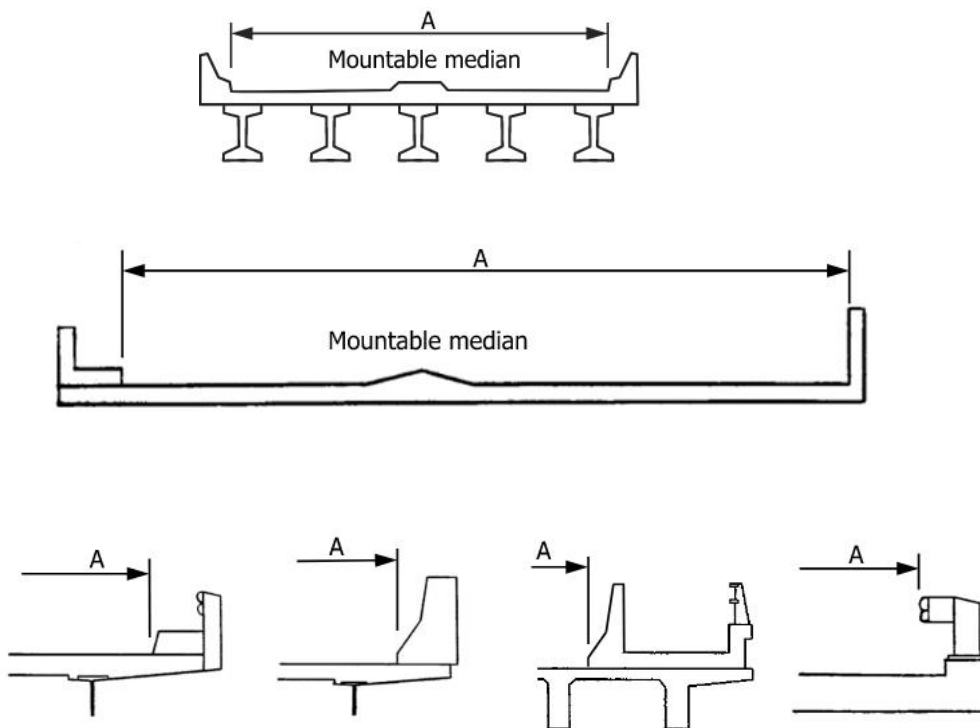
Measurement should exclude:

- Flared areas for ramps or turn lanes (should be the minimum or nominal width)
- Raised or non-mountable medians (> 6 inches)
- Open medians
- Barrier widths
- Barrier-protected bicycle and equestrian lanes

Buried structures shall be coded using rail or curb restrictions the same as non-buried structures, commonly the same value as ITEM32 Approach Roadway Width.

Enter the Roadway Width into the [Roadway \(051\)](#) field for each inventoried route.

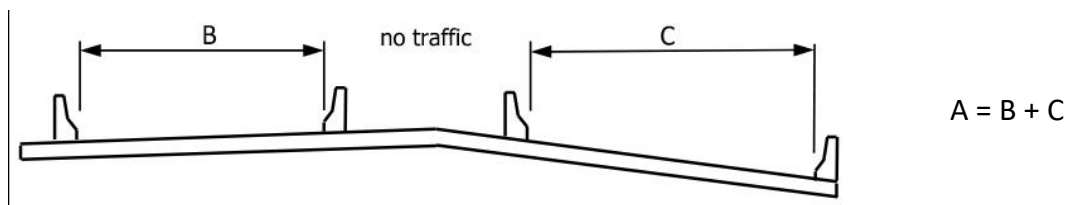
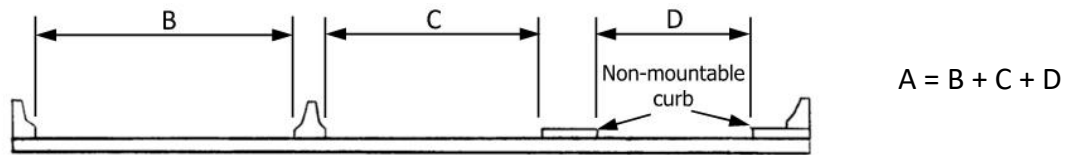
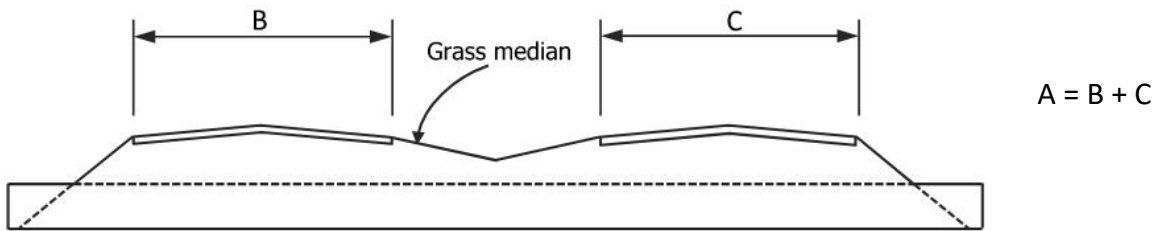
Roadway Width (A): Measurement examples





Item 51 – Bridge Roadway Width, Curb-To-Curb (cont.)

PROCEDURE (cont.)



COMMENTARY

Usable roadway width includes width of traffic lanes and shoulders are included when they are contiguous with the traveled way and structurally adequate for all weather and traffic conditions consistent with the facility carried.

For Off-System: When the distance between the rails is greater than the width of the deck, code the width of the deck.

ITEM51 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	Example	ITEM51
Roadway widths above are: B = 24'-6", C = 32'-0"		56.500
Roadway widths above are: B = 24'-6", C = 32'-0", D = 18'-0"		74.500

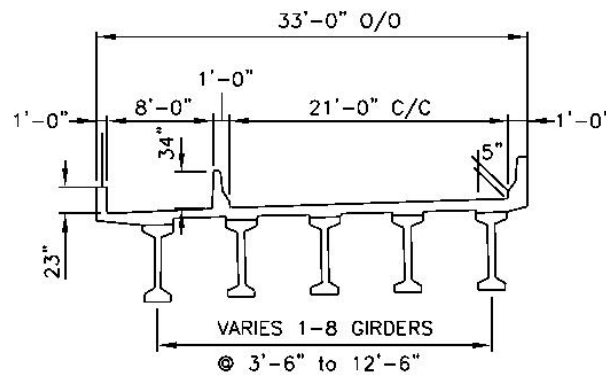


Item 51 – Bridge Roadway Width, Curb-To-Curb (cont.)

CODING EXAMPLE (cont.)

Example	ITEM 5A	ITEM51
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	21.000
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	72.833
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	77.917
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	45.167
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	38.833
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	38.500
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	24.250
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	23.250
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	26.000
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	27.250

Bridge A example: Section view showing structure measurements



SECTION
LOOKING EAST

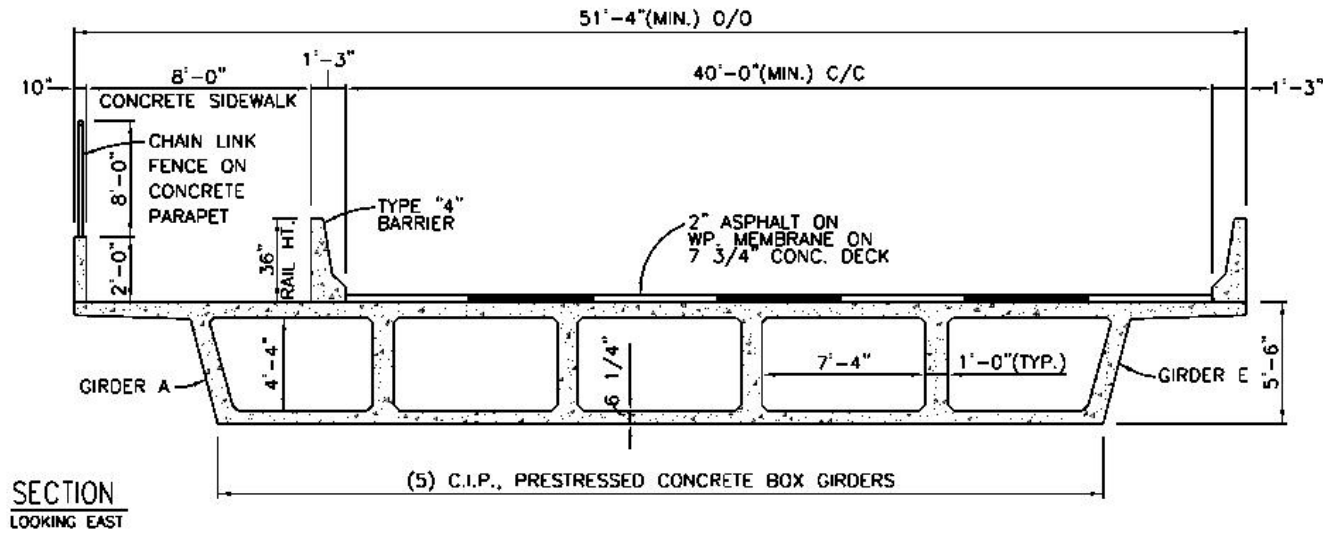


Item 51 – Bridge Roadway Width, Curb-To-Curb (cont.)

CODING EXAMPLE (cont.)

Example	ITEM 5A	ITEM51
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	40.000
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	45.300

Bridge B example: Section view showing structure measurements





Item 52 – Deck Width, Out-to-Out	I	MOD FHWA	B.G.05
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DESCRIPTION

A six-digit code identifying the out-to-out width of the deck or buried structure.

PROCEDURE

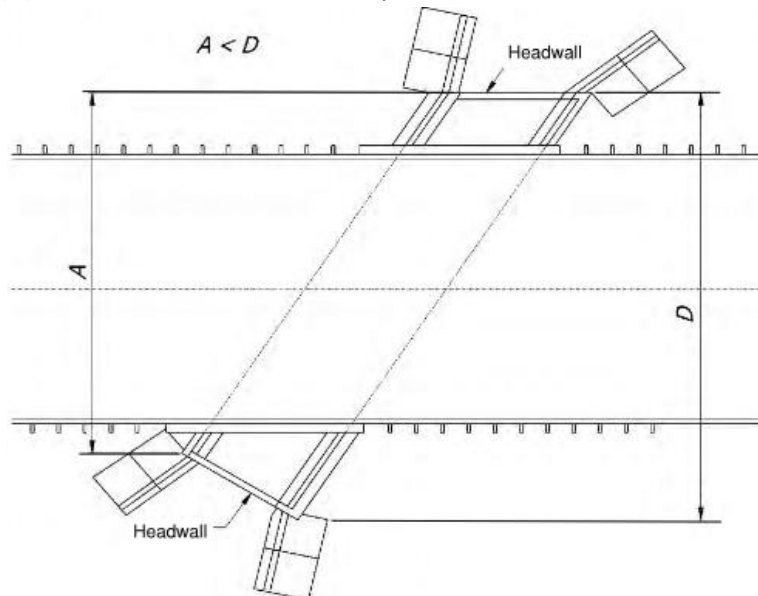
Record the out-to-out width perpendicular to roadway centerline to nearest thousandth of a foot. When the structure is a through structure, the coded width will identify the lateral clearance between superstructure members. The measurement should be exclusive of flared areas for ramps, should be the minimum or nominal width.

For buried structures, measure the distance along the length of the culvert from outside of headwall to outside of headwall or end to end of pipe perpendicular to the roadway. When the headwalls are not parallel to the roadway centerline, code the most restrictive distance perpendicular to centerline.

Code ITEM52 = ITEM51 for buried structures with no defined limits or that continue far beyond the roadway cross-section.

Enter the Deck Width into the [Deck Width \(052\)](#) field.

Out-to-Out Width (A): Culvert measurement example

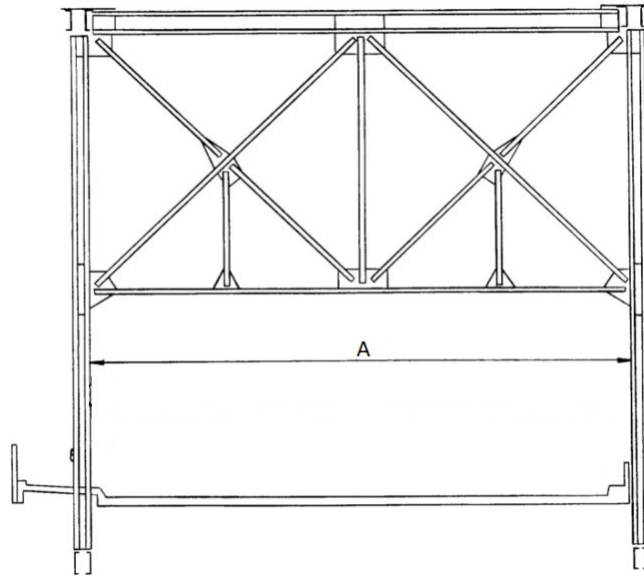




Item 52 – Deck Width, Out-to-Out (cont.)

PROCEDURE (cont.)

Out-to-Out Width (A): Truss measurement example, code lateral superstructure clearance



COMMENTARY

None.

CODING EXAMPLE

Example	ITEM52
Bridge A example	33.000
Bridge B example	51.333

Refer to Item 51 or Appendix L for Bridge example section views.



Item 53 – Minimum Vertical Clearance Over Bridge Roadway	I	FHWA	B.H.13
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DESCRIPTION

A five-digit code identifying the actual minimum vertical clearance over the structure roadway.

PROCEDURE

Record the actual minimum vertical clearance above the structure roadway, including shoulders, to any overhead restriction rounded down to the nearest thousandth of a foot. When there is more than one roadway on the structure, note the minimum clearance for each roadway on the sketch, but record and code the lowest clearance.

Code “99.999” when the vertical restriction is greater than 100 feet, or there is no vertical restriction.

Code “55.555” when a vertical restriction exists but the clearance is unknown.

Enter the Clearance into the [Over Structure \(053\)](#) field.

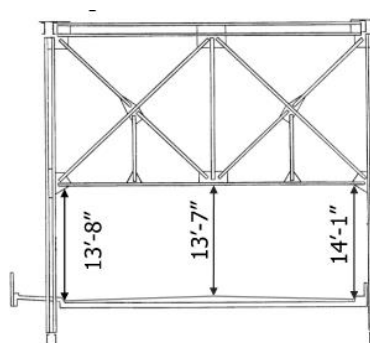
COMMENTARY

ITEM53F AND ITEM53I are no longer valid.

CODING EXAMPLE

Example	ITEM53
Bridge A example: No restriction	99.999
Bridge B example: No restriction	99.999
Thru-truss minimum clearance 13’-7” (Example 1)	13.583
Unknown vertical clearance	55.555
Minimum vertical clearance greater than 100’	99.999

Example 1: Thru-truss





Item 54A, 54B – Minimum Vertical Under-Clearance	I	FHWA	B.H.13 B.RR.02
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DESCRIPTION

A two-part, six-character code identifying the minimum vertical clearance beneath the structure.

Item Number	Item Name	Length
54A	Feature under structure	1 character
54B	Minimum vertical clearance	5 digits
Total		6 characters

PROCEDURE

ITEM54A: This mandatory code identifies the type of feature under the structure. The Feature Types that the under-clearance is measured to are listed below:

ITEM54A: Feature under structure

ITEM54A Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad

ITEM54B: When applicable, record the minimum vertical under-clearance from the roadway travel lanes or top of the railroad track to the bottom of the superstructure, truncated to the nearest thousandth of a foot.

Code the minimum clearance of all features, be sure ITEM54A corresponds to the feature type.

Code ITEM54A = “N” and ITEM54B = “0” when structure is not over a highway or railroad.

Code ITEM54B = “55.555” when the vertical under-clearance is unknown, or not measured.

Code ITEM54B = “99.999” when the vertical restriction is greater than 100 feet, or there is no restriction.

Select the appropriate Feature code from the [Under \(Reference\) \(054A\)](#) dropdown menu.

Enter the Clearance into the [Under Clearance \(054B\)](#) field.

COMMENTARY

Proper permits must be secured prior to conducting any work within railroad right of way.

ITEM54BF AND ITEM54BI are no longer valid.

CODING EXAMPLE

	Example	ITEM54A	ITEM54B
	Bridge A example: Route D I-25 NB On-Ramp	H	16.417
	Bridge B example: 5 th St	H	17.417
	Minimum vertical clearance over railroad tracks is 26’-8” and minimum vertical clearance over railroad tracks is 38’-0”	R	26.667

Refer to ITEM10 or Appendix L for Bridge example elevation views.



Item 55A, 55B – Minimum Lateral Under-Clearance On Right	I	FHWA	B.H.15 B.RR.03
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DESCRIPTION

A two-part, six-character code identifying the minimum right lateral under-clearance from a roadway or railroad to the nearest obstruction.

Item Number	Item Name	Length
55A	Feature under structure	1 character
55B	Minimum lateral under-clearance on right	5 digits
Total		6 characters

PROCEDURE

ITEM55A: This mandatory code identifies the type of feature under the structure. The Feature Types that the under-clearance is measured to are listed below:

ITEM55A: Feature under structure

ITEM55A Code	Description
H	Highway beneath structure
R	Railroad beneath structure
N	Feature not a highway or railroad

ITEM55B: When applicable, record the minimum right lateral under-clearance from the feature to the nearest substructure unit, rigid barrier, or toe of a slope steeper than 1:3, truncated to the nearest thousandth of a foot. Code the most restrictive right lateral under-clearance of all features, be sure ITEM55A corresponds to the feature type.

The clearance should always be measured from the right edge of the through travel lane, measurement will include shoulder width and ramp, acceleration, or turning lanes.

Code ITEM55A = “N” and ITEM55B = “0” when structure is not over a highway or railroad.

Code ITEM55B = “55.555” when the lateral under-clearance is unknown, or not measured.

Code ITEM55B = “99.999” when the lateral restriction is greater than 100 feet, or there is no restriction.

For a 2-direction roadway, measure the minimum lateral clearance from the outer edge of each outer through lane and record the more restrictive.

For a 1-direction roadway (including divided highways), orient with the direction of traffic and record the minimum lateral clearance from the edge of the right outer through lane.

For a railroad, measure the minimum lateral under-clearance from the centerline of each outer track and record the more restrictive.

Select the appropriate Feature code from the [Reference Feature \(055A\)](#) dropdown menu.

Enter the Clearance into the [Right Side \(055B\)](#) field.



Item 55A, 55B – Minimum Lateral Under-Clearance On Right (cont.)

COMMENTARY

When a structure has a minimum vertical under clearance to a highway or railroad, it will also have a lateral under clearance on the right.

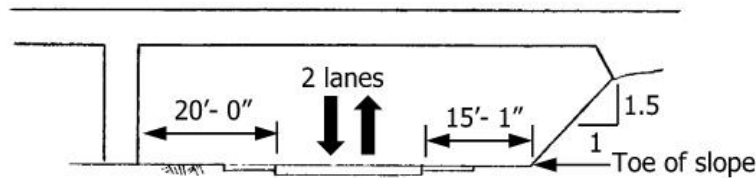
Rigid barriers include concrete and masonry traffic safety features. Metal and timber railings are not considered rigid barriers.

CODING EXAMPLE

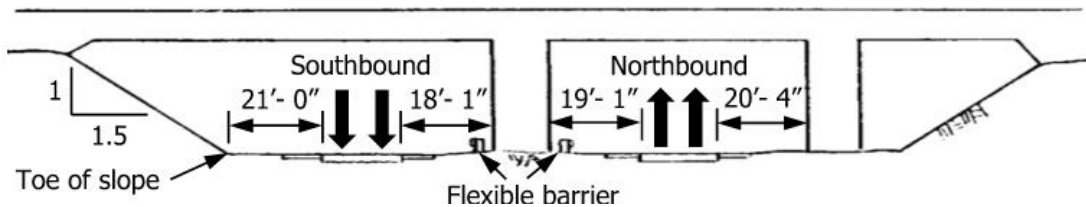
Example	ITEM55A	ITEM55B
Bridge A example: Route H Walnut St	H	0.000
Bridge B example: RTD Light Rail	R	10.000
Minimum vertical clearance over railroad tracks is 26'-8" and minimum vertical clearance over railroad tracks is 38'-0"	R	26.667
2-way route under structure (see Example 1)	H	15.083
Divided highway with directional traffic in separate spans (see Example 2)	H	20.333
Divided highway with open median under single span (see Example 3)	H	20.333

Refer to Item 10 or Appendix L for Bridge example elevation views.

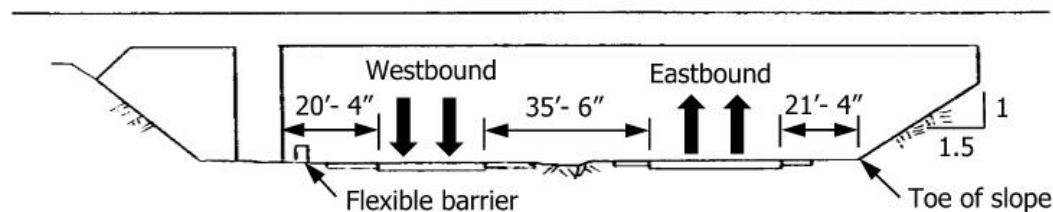
Example 1: 2-way route under structure



Example 2: Divided highway with directional traffic in separate spans



Example 3: Divided highway with open median under single span





Item 56 – Minimum Lateral Under-Clearance On Left	I	MOD FHWA	B.H.14
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DESCRIPTION

A five-digit code identifying the minimum lateral under-clearance from the left edge of a roadway.

PROCEDURE

When applicable, record the minimum left lateral under-clearance from the feature to the nearest substructure unit, rigid barrier, or toe of a slope steeper than 1:3, truncated to the nearest thousandth of a foot. Code the most restrictive left lateral under-clearance of all features corresponding with the type listed for ITEM55A.

The clearance should always be measured from the left edge of the through travel lane. Measurement will include shoulder width and ramp, acceleration, or turning lanes.

Code “0” when structure is not over a highway or railroad.

Code “0” for a 2-direction roadway under the structure.

Code “0” for a railroad, ITEM55A = “R”.

Code “55.555” when the lateral under-clearance is unknown, or not measured.

Code “99.800” when the lateral restriction is greater than 100 feet, or there is no restriction.

For a 1-direction roadway (including divided highways), orient with the direction of traffic and record the minimum lateral clearance from the edge of the left outer through lane. Code “99.999” when there are no obstructions in the median area, and a notation of "open" should be noted on the sketch.

Enter the Clearance into the [Left Side \(056\)](#) field.

COMMENTARY

Rigid barriers include concrete and masonry traffic safety features. Metal and timber railings are not considered rigid barriers.

CODING EXAMPLE

Example	ITEM56
Bridge A example: Route H Walnut St, 2-way road	0
Bridge B example: RTD Light Rail ITEM55A = “R”	0
2-way route under structure (see ITEM55 Example 1)	0
Divided highway with directional traffic in separate spans (see ITEM55 Example 2)	18.083
Divided highway with open median under single span (see ITEM55 Example 3)	99.999

Refer to Item 10 or Appendix L for Bridge example elevation views.



SECTION 2 Condition and Ratings (Items 58 through 66)

The items in Section 2 identify the major structure components overall condition, surrounding channel overall condition, and some load rating information. These items provide guidelines to:

- Promote uniformity between bridge inspectors
- Promote continuity between inspection cycles
- Define bridge condition with consistent tangible language
- Provide items to document load capacity calculations, analysis methods, and responsible personnel
- Provide direction as to archiving pertinent documents

Condition codes provide an overall characterization of the general condition of the entire component being evaluated. Condition codes should not be used to describe localized or nominally occurring instances of deterioration or disrepair. Correct assignment of a condition code must consider both the severity of the deterioration or disrepair and the extent to which it is widespread throughout the component being evaluated. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

	Condition Code	Description
	N	Not applicable
Good	9	<u>Excellent Condition</u> : Isolated inherent defects
	8	<u>Very Good Condition</u> : Some inherent defects
	7	<u>Good Condition</u> : Some minor defects
Fair	6	<u>Satisfactory Condition</u> : Widespread minor or isolated moderate defects
	5	<u>Fair Condition</u> : Some moderate defects; strength and performance of component not affected
Poor	4	<u>Poor Condition</u> : Widespread moderate or isolated major defects; strength and/or performance of component is affected
	3	<u>Serious Condition</u> : Major defects; strength and/or performance of component is seriously affected. Condition typically necessitates more frequent monitoring, load restrictions, and/or corrective actions.
	2	<u>Critical Condition</u> : Major defects; component is severely compromised. Condition typically necessitates frequent monitoring, significant load restrictions, and/or corrective actions to keep bridge open.
	1	<u>Imminent Failure Condition</u> : Bridge closed to traffic due to component condition. Repair or rehabilitation may return bridge to service.
	0	<u>Failed Condition</u> : Bridge closed due to component condition, and is beyond taking corrective action. Replacement required to restore service.



SECTION 2 (cont.)

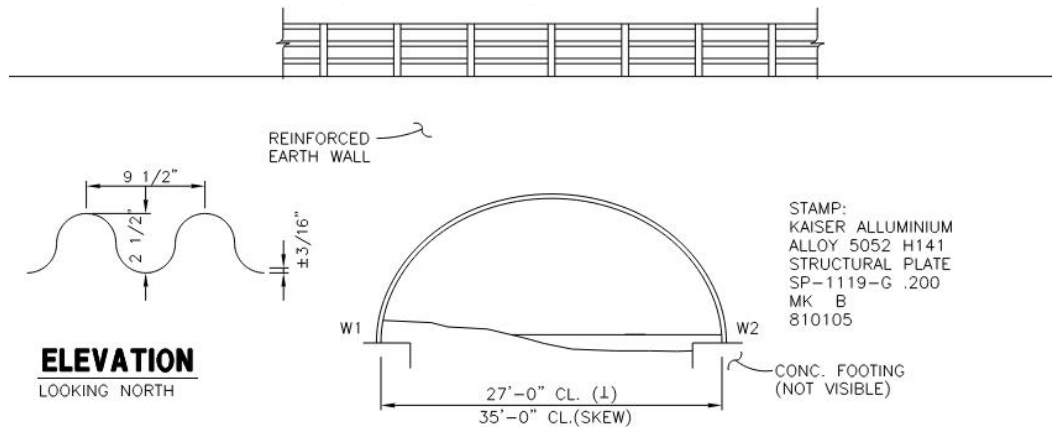
The load-carrying capacity will not be used in evaluating condition items. The fact that a structure was designed for less than current legal loads and may be posted shall have no influence upon condition ratings.

Portions of a structure that are being supported or strengthened by temporary members will be evaluated based on their actual condition; temporary members are not considered in the evaluation of the item. Temporary structure(s) or conditions are those which are required to facilitate traffic flow. See ITEM103 Temporary Structure Designation for the definition and examples of a temporary structure.

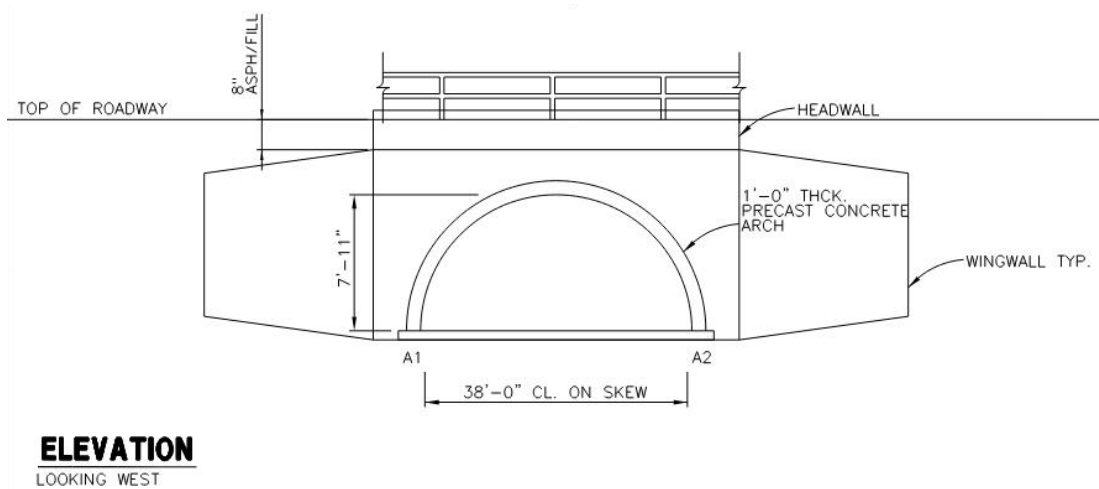
A newly completed structure not yet opened to traffic, shall be evaluated and coded as if open to traffic.

Buried structures with no structural floor will be appraised as a bridge and condition codes should be completed for ITEM58, ITEM59 and ITEM60. Code "N" for ITEM58 when structure is buried, and no deck is present and code "N" for ITEM62. Both structure examples below are coded as bridges.

Example: Aluminum arch on concrete footings with an open bottom.



Example: Precast concrete arch on concrete footings with a non-structural floor





Item 58 – Deck	I	FHWA	B.C.01
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DESCRIPTION

A one-character code identifying the overall deck condition.

PROCEDURE

Deck condition coding definitions with examples are listed below. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

	ITEM58 Code	Description / Examples
	N	Not applicable – All buried structures
Good	9	Isolated inherent defects (CS1) R. Concrete: Shrinkage cracks, isolated poor consolidation P/S Concrete: Shrinkage cracks Steel: Surface rolling flaws Timber: Discoloration
	8	Some inherent defects (CS1) or isolated minor defects (CS2) R. Concrete: Insignificant flexural cracks, poor consolidation, rough finish (CS1) P/S Concrete: Rough finish (CS1), isolated small shallow spalls Steel: Minor bends from construction Timber: Surface checks/shakes, wear lines in wheel path initiated
	7	Some minor defects (CS2) R. Concrete: Minor spalls, surface efflorescence, widespread sound patches P/S Concrete: Insignificant shear cracks, some minor spalls no exposed strands Steel: Surface R1 corrosion Timber: Displaced clips, minor checks/shakes/cracks/splits, minor rutting in wheel path
Fair	6	Widespread minor (CS2) or isolated moderate defects (CS3) R. Concrete: Medium flexural cracks, moderate spalls, efflorescence stalactites P/S Concrete: Moderate spalls exposing strands with R1 corrosion Steel: Widespread R1 to R2 corrosion, broken welds, minor cracks, isolated R3 corrosion Timber: Missing clips, loose boards, moderate section loss/crushing, moderate split
	5	Some moderate defects (CS3) R. Concrete: Wide flexural cracks, rust staining, moderate abrasion P/S Concrete: Exposed strands with R2 to R3 corrosion Steel: R2 to R3 corrosion, broken welds, moderate cracks Timber: Moderate checks/shakes, moderate rutting in wheel path



Item 58 – Deck (cont.)

PROCEDURE (cont.)

ITEM58 Code	Description / Examples	
Poor	4	Widespread moderate (CS3) or isolated major defects (CS4) – strength affected R. Concrete: Spalls over half deck thickness, structural reinforcement exposed P/S Concrete: Exposed strands with R3 to R4 corrosion Steel: R3 to R4 corrosion, displaced panels, moderate to major cracks Timber: Major section loss/crushing, major splits, missing boards
	3	Major defects (CS4) – strength seriously affected ; inspection interval ≤ 12 months R. Concrete: Full depth spalls, structural reinforcement exposed with moderate section loss P/S Concrete: Isolated failed strands Steel: R4 corrosion, deflected panels, major cracks Timber: Major checks/shakes, major rutting in wheel path
	2	Major defects (CS4) – strength severely compromised R. Concrete: Structural reinforcement has major sections loss P/S Concrete: Exposed strands failed Steel: Widespread holes Timber: Crushing
	1	Bridge closed – repair or rehabilitation possible
	0	Bridge closed – replacement required

Code “N” for all buried structures.

For girders where traffic travels directly on the superstructure top flange, or a concrete topping slab less than 4 inches thick, the top flange shall be evaluated as the deck element.

Decks integral with the superstructure may affect the superstructure condition rating, however the superstructure will not influence deck rating.

Slab bridges shall have the same condition rating for deck and superstructure.

Select the appropriate Condition code from the [Deck \(058\)](#) dropdown menu.

Elements not considered in overall deck evaluation, but condition should be noted in the inspection report:

- Non-monolithic wearing surfaces/protective systems
- Stay-in-place forms*
- Joints, expansion devices
 - Headers are only considered when deck acts as joint header
- Curbs, sidewalks, parapets, fascia, structure rail, and scuppers

* Stay-in-place (SIP) forms span between girders/beams while steel decking is continuous over girders/beams.



Item 58 – Deck (cont.)

COMMENTARY

None.

CODING EXAMPLE

	Example	ITEM58
<p>Bridge A example: RC deck on SIP forms Deck covered with asphalt wearing surface Corrugated SIP forms between girders with R1 corrosion Overhangs have isolated insignificant efflorescent cracks</p>		7
<p>Bridge B example: Box girder top flange Deck covered with asphalt wearing surface Overhangs have isolated insignificant efflorescent cracks Overhang has 1SF CS2 delamination, edge has a 1SF CS3 spall</p>		7
<p>Corrugated steel asphalt filled deck covered with gravel Corrugation has R3 corrosion at seams and isolated tears along beam lines</p>		4
<p>Concrete deck with open holes covered by steel plates, exposed bars with R3 to R4 corrosion</p>		3



Item 59 – Superstructure	I	FHWA	B.C.02
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DESCRIPTION

A one-character code identifying the overall superstructure condition.

PROCEDURE

Superstructure condition coding definitions with examples are listed below. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

ITEM59 Code	Description / Examples
N	Not applicable – All culverts
Good	9 Isolated inherent defects (CS1) R. Concrete: Shrinkage cracks, isolated poor consolidation P/S Concrete: Shrinkage cracks Steel: Surface rolling flaws, surface patina Timber: Discoloration Masonry: Discoloration, isolated small natural voids
	8 Some inherent defects (CS1) or isolated minor defects (CS2) R. Concrete: Insignificant flexural cracks, sealed medium width cracks, poor consolidation P/S Concrete: Rough finish (CS1), isolated small shallow spalls Steel: Minor bends from construction Timber: Surface checks/shakes, some small shallow impacts Masonry: Some small natural voids
	7 Some minor defects (CS2), sound repairs R. Concrete: Isolated medium flexural cracks, minor spalls, surface efflorescence P/S Concrete: Insignificant shear cracks, some minor spalls no exposed stirrups or strands Steel: Surface R1 corrosion; NSTM with arrested fatigue cracks, fatigue retrofit in-place, and no other defects Timber: Minor checks/shakes/cracks/splits Masonry: Mortar cracking or missing in isolated areas, split stone with no shifting
Fair	6 Widespread minor (CS2) or isolated moderate defects (CS3) R. Concrete: Medium flexural cracks, moderate spalls, efflorescence stalactites/build-up P/S Concrete: Moderate spalls exposing stirrups or strands with R1 corrosion Steel: R1 to R2 corrosion, NSTM with arrested fatigue cracks and no other defects Timber: Moderate section loss/crushing, moderate split Masonry: Minor distortion or block shifting
	5 Some moderate defects (CS3) R. Concrete: Some wide flexural cracks, rust staining, moderate abrasion P/S: Exposed stirrups or strands with R2 to R3 corrosion Steel: R2 to R3 corrosion, secondary member or weld fatigue cracks not affecting NSTM Timber: Moderate checks/shakes, isolated missing diaphragms Masonry: Moderate spalls, widespread areas of missing mortar



Item 59 – Superstructure (cont.)

PROCEDURE (cont.)

ITEM59 Code	Description / Examples	
Poor	4	<p>Widespread moderate (CS3) or isolated major defects (CS4) – strength affected</p> <p>R. Concrete: Spalls over half member thickness/depth, structural reinforcement exposed</p> <p>P/S Concrete: Exposed stirrups or strands with R3 to R4 corrosion</p> <p>Steel: R3 to R4 corrosion, minor out-of-plane bending</p> <p>Timber: Major section loss/crushing, major splits, minor out-of-plane bending</p> <p>Masonry: Moderate distortion or block shifting, voids behind stones</p>
	3	<p>Major defects (CS4) – strength seriously affected; inspection interval ≤ 12 months</p> <p>R. Concrete: Structural reinforcement exposed with R3 to R4 corrosion</p> <p>P/S Concrete: Isolated failed stirrups or strands</p> <p>Steel: R4 corrosion, primary NSTM with fatigue cracks confirmed visually or with NDT, secondary member or weld fatigue cracks affecting NSTM</p> <p>Timber: Major checks/shakes, major out-of-plane bending</p> <p>Masonry: Major distortion or block shifting, backfill on ground or between stones</p>
	2	<p>Major defects (CS4) – strength severely compromised</p> <p>R. Concrete: Exposed structural reinforcement failed</p> <p>P/S Concrete: Exposed stirrups or strands failed</p> <p>Steel: Widespread holes, major out-of-plane bending</p> <p>Timber: Major crushing</p> <p>Masonry: Missing stones</p>
	1	Bridge closed – repair or rehabilitation possible
	0	Bridge closed – replacement required

Code “N” for all culverts.

Decks integral with the superstructure may affect the superstructure condition rating, however the superstructure will not influence deck rating.

Slab bridges shall have the same condition rating for deck and superstructure.

Select the appropriate Condition code from the [Superstructure \(059\)](#) dropdown menu.

Elements included in overall superstructure evaluation:

- Primary load carrying members
- Members above bearings for non-integral superstructure and substructure
 - Includes cross-frames and diaphragms for curved girder bridges
- Girders/beams for integral superstructures
- Arch bridge members above spring line
- Concrete rigid frame bridge slabs
- Concrete and steel rigid K-frame or Delta-frame legs, knees, and girders
- Integral headwalls and wingwalls at bearing level and above to the deck outside edge limits
- Secondary members only when adversely impacting primary members



Item 59 – Superstructure (cont.)

PROCEDURE (cont.)

Elements not considered in overall superstructure evaluation, but condition should be noted in the inspection report:

- Paint systems; weathering steel well-formed patina is considered a protective coating, not a defect
- Bearings, unless causing distress on the superstructure
- Joints, expansion devices
- Drift, debris, and soil accumulation

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM59
Bridge A example: P/S Open Girders, continuous Isolated girders have isolated minor spalls	8
Bridge B example: R/C Multi-Box Girder, continuous Widespread insignificant cracks, isolated minor efflorescence	8
Structure with 12 rocker bearings. One of the bearings has become misaligned. No other superstructure problems are detected	8*
Steel girders, widespread minor measurable section loss	5
Concrete girders, widespread minor spalls with exposed structural reinforcement	4
Timber girder in a wheel line is cracked and adjacent one is split	3

*Make special note, sketch, and/or photos to document the location of misaligned bearing and bring to the attention of the Bridge Inspection Engineer



Item 60 – Substructure	I	MOD FHWA	B.C.03
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DESCRIPTION

A one-character code identifying the overall substructure condition.

PROCEDURE

Substructure condition coding definitions with examples are listed below. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

ITEM60 Code	Description / Examples
N	Not applicable – All culverts
Good	9 Isolated inherent defects (CS1) R. Concrete: Shrinkage cracks, isolated poor consolidation P/S Concrete: Shrinkage cracks Steel: Surface rolling flaws, surface patina Timber: Discoloration Masonry: Discoloration, isolated small natural voids
	8 Some inherent defects (CS1) or isolated minor defects (CS2) R. Concrete: Insignificant cracks, sealed medium width cracks, poor consolidation P/S Concrete: Insignificant cracks, rough finish (CS1), isolated small shallow spalls Steel: Minor bends from construction Timber: Surface checks/shakes, some small shallow impacts Masonry: Some small natural voids
	7 Some minor defects (CS2), sound repairs R. Concrete: Culvert insignificant horizontal cracks, minor spalls, surface efflorescence P/S Concrete: Some minor spalls no exposed stirrups or strands Steel: Surface R1 corrosion; NSTM with arrested fatigue cracks, fatigue retrofit in-place, and no other defects Timber: Minor checks/shakes/cracks/splits Masonry: Mortar cracking or missing in isolated areas, split stone with no shifting
Fair	6 Widespread minor (CS2) or isolated moderate defects (CS3) R. Concrete: Medium horizontal cracks, moderate spalls, efflorescence build-up P/S Concrete: Moderate spalls exposing stirrups or strands with R1 corrosion Steel: R1 to R2 corrosion, NSTM with arrested fatigue cracks and no other defects Timber: Moderate section loss/crushing, moderate split Masonry: Minor distortion or block shifting
	5 Some moderate defects (CS3) R. Concrete: Some wide cracks, rust staining, moderate abrasion P/S: Exposed stirrups or strands with R2 to R3 corrosion Steel: R2 to R3 corrosion, secondary member or weld fatigue cracks not affecting NSTM Timber: Moderate checks/shakes, isolated missing diaphragms Masonry: Moderate spalls, widespread areas of missing mortar



Item 60 – Substructure (cont.)

PROCEDURE (cont.)

ITEM60 Code	Description / Examples	
Poor	4	<p>Widespread moderate (CS3) or isolated major defects (CS4) – strength affected</p> <p>R. Concrete: Spalls over half member thickness/depth, structural reinforcement exposed</p> <p>P/S Concrete: Exposed stirrups or strands with R3 to R4 corrosion</p> <p>Steel: R3 to R4 corrosion, minor out-of-plane bending</p> <p>Timber: Major section loss/crushing, major splits, minor out-of-plane bending</p> <p>Masonry: Moderate distortion or block shifting, voids behind stones</p>
	3	<p>Major defects (CS4) – strength seriously affected; inspection interval ≤ 12 months</p> <p>R. Concrete: Structural reinforcement exposed with R3 to R4 corrosion</p> <p>P/S Concrete: Isolated failed stirrups or strands</p> <p>Steel: R4 corrosion, primary NSTM with fatigue cracks confirmed visually or with NDT, secondary member or weld fatigue cracks affecting NSTM</p> <p>Timber: Major checks/shakes, major out-of-plane bending</p> <p>Masonry: Major distortion or block shifting</p>
	2	<p>Major defects (CS4) – strength severely compromised</p> <p>R. Concrete: Exposed structural reinforcement failed</p> <p>P/S Concrete: Exposed stirrups or strands failed</p> <p>Steel: Widespread holes, major out-of-plane bending</p> <p>Timber: Major crushing</p> <p>Masonry: Missing stones</p>
	1	Bridge closed – repair or rehabilitation possible
	0	Bridge closed – replacement required

Code “N” for all culverts.

Select the appropriate Condition code from the [Substructure \(060\)](#) dropdown menu.

Elements included in overall substructure evaluation:

- Backwalls and members below bearings for non-integral superstructure and substructure
 - Includes pile cross-frames and pile cross-bracing
- Members below girders/beams for integral superstructures
- Arch bridge thrust blocks and members below spring line
- Concrete rigid frame bridge legs
- Concrete and steel rigid K-frame or Delta-frame abutments and foundations below leg bearings
- Foundation piles exposed by erosion or scour
- Integral headwalls and wingwalls below bearing level or beyond deck outside edge limits

Elements not considered in overall substructure evaluation, but condition should be noted in the inspection report:

- Protective systems, and other substructure protection systems
- Drift, debris, and soil accumulation



Item 60 – Substructure (cont.)

PROCEDURE (cont.)

The substructure condition rating will be made independent of the deck and superstructure. Integral-abutments and wingwalls below the bearing or the first construction/expansion joint shall be included in the evaluation.

COMMENTARY

Use the Channel and Substructure Scour Charts for guidance on coding ITEM60 and ITEM61. **Each situation is unique, the severity depends on the scour location and extent.**

When scour has substantially affected the substructure, ITEM113 Scour Vulnerability should be consistent with the condition rating given to ITEM60. Use the following guidelines:

- When ITEM113 = 4 then ITEM60 ≤ 5
- When ITEM113 = 2 then ITEM60 ≤ 3
- When ITEM113 = 1 then ITEM60 = 1
- When ITEM113 = 0 then ITEM60 = 0

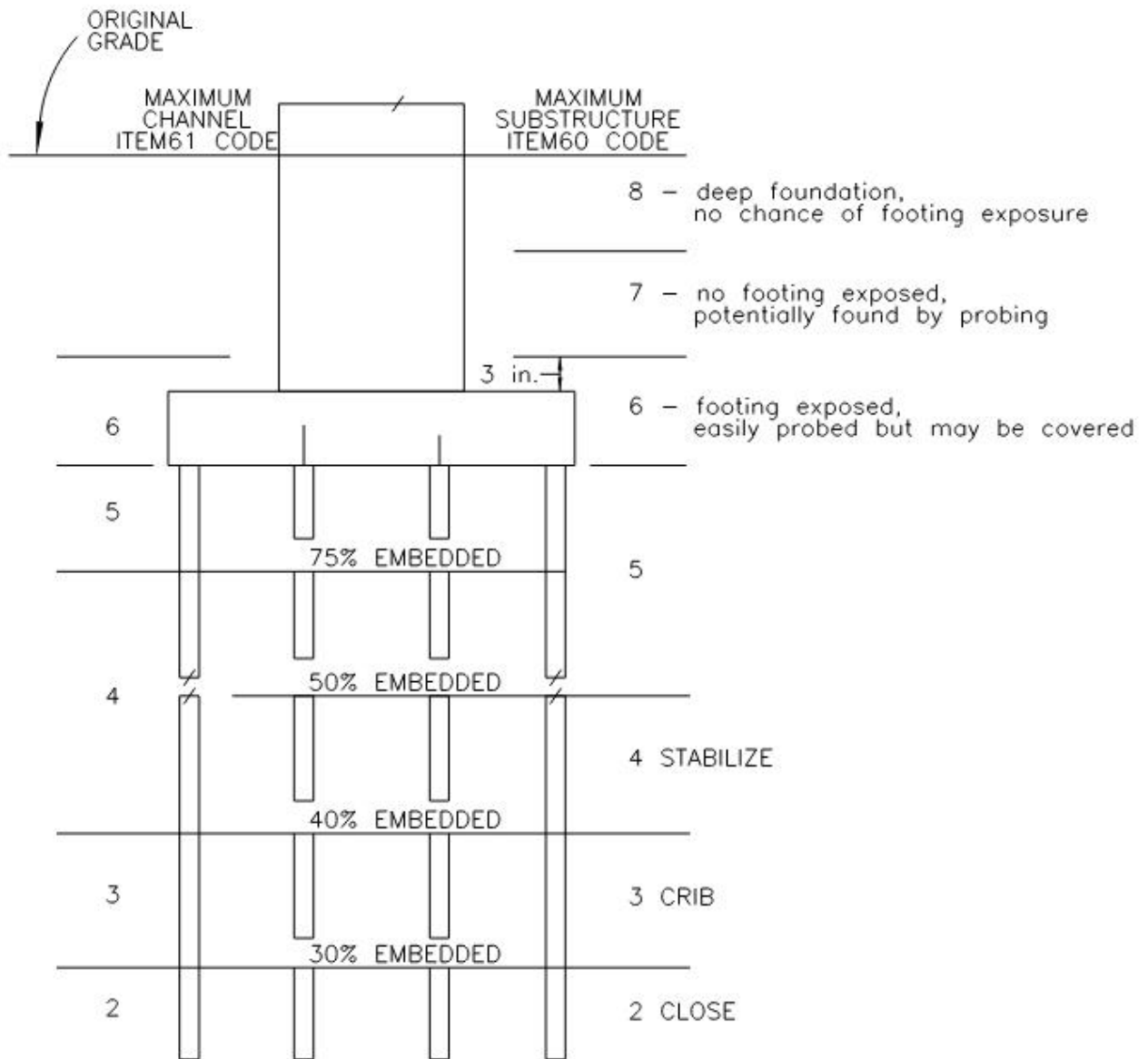
When ITEM61 = “6” or lower based on scour conditions, this identifies active scour.

CODING EXAMPLE

Example	ITEM60	ITEM61	ITEM113
Bridge A example: RC abutments, RC pier cap on RC pier walls and columns Pier caps have isolated minor (3%) and moderate (2%) defects Pier walls and columns have insignificant defects No scour documented	7	8	8
Bridge B example: RC abutments, RC pier cap on RC pier walls Pier cap has very isolated major defect (<1%) Pier walls have isolated minor defects (<5%) No waterway under structure	7	N	N
Steel piles have widespread minor section loss No scour documented	5	7	5
Abutments and piers have isolated minor defects, scour is exposing the bottom of all pier spread footings	4	3	4
Scour has undermined the footing, close or monitor monthly, re-inspect right after heavy rain fall, provide countermeasures	2	2	2
Slope paving has some minor defects	7	7	8
Aluminum arch on spread footings with some minor defects Footings are exposed full height	4	4	4



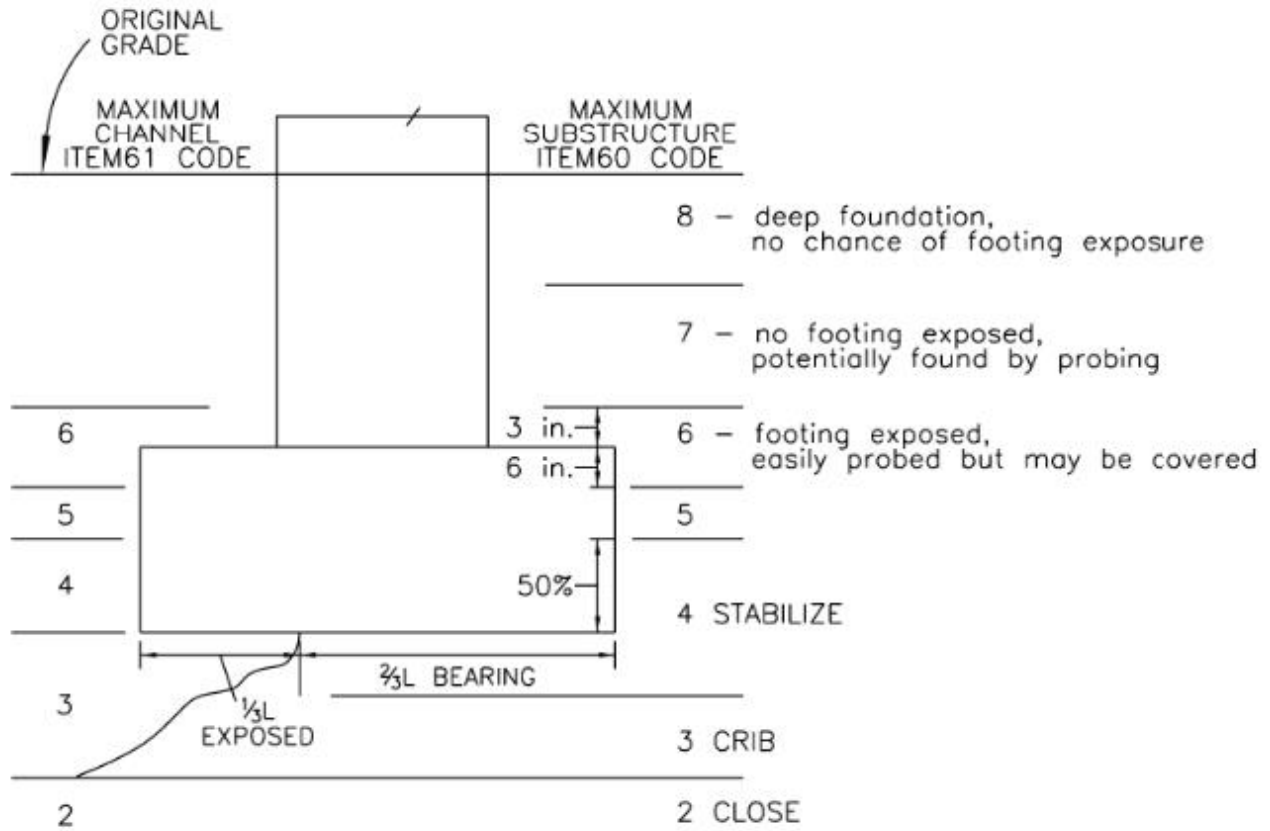
Channel and Substructure Scour Chart – Footing on Pile



When ITEM60 = 4 due to scour, include recommendation to STABILIZE and protect from further erosion
 When ITEM60 = 3 due to scour, include recommendation to CRIB and shore or rehabilitate substructure for structural stability



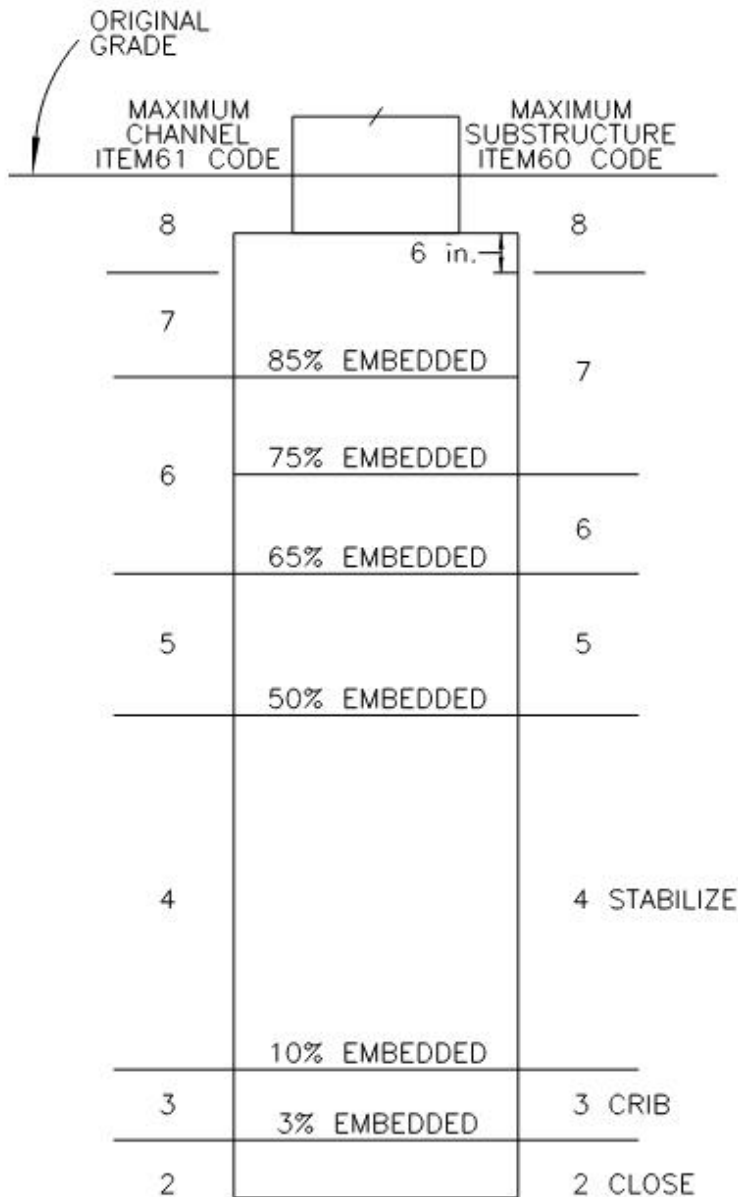
Channel and Substructure Scour Chart – Spread Footing



When ITEM60 = 4 due to scour, include recommendation to STABILIZE and protect from further erosion
 When ITEM60 = 3 due to scour, include recommendation to CRIB and shore or rehabilitate substructure for structural stability



Channel and Substructure Scour Chart – Drilled Shaft



When ITEM60 = 4 due to scour, include recommendation to STABILIZE and protect from further erosion

When ITEM60 = 3 due to scour, include recommendation to CRIB and shore or rehabilitate substructure for structural stability



Item 61 – Channel and Channel Protection	I	FHWA	B.C.09
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DESCRIPTION

A one-character code identifying the overall channel and channel protection condition.

PROCEDURE

Channel condition coding definitions with examples are listed below. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

	ITEM60 Code	Description / Examples
	N	Not applicable – only for structures not over waterway
Good	9	No noticeable deficiencies
	8	Banks are well vegetated Embankment protection not required or in stable condition
	7	Bank protection needs minor repairs Embankment protection has isolated minor damage Minor drift accumulation
Fair	6	Banks beginning to slump Embankment protection has widespread minor damage Drift accumulation slightly restricting waterway Minor streambed movement
	5	Banks protection being eroded Embankment protection has major damage Trees and brush restrict channel
Poor	4	Banks severely undermined Embankment protection has severe damage, undermined Large drift accumulation restricting waterway Bridge and/or approach roadway are threatened
	3	Banks protection failed Embankment protection destroyed Major streambed movement, aggradation, or degradation Bridge or approach roadway are seriously threatened
	2	Bridge or approach roadway are severely threatened due to waterway course change
	1	Bridge closed – repair or rehabilitation possible
	0	Bridge closed – replacement required; bridge location/design no longer accommodates channel

Select the appropriate Condition code from the [Channel \(061\)](#) dropdown menu.

Rate the physical conditions associated with the flow of water through the structure and the condition of the channel, riprap, slope protection, or stream control devices, including spur dikes. Note visible signs of excessive water velocity such as scour, undermining or erosion, and/or channel migration.



Item 61 – Channel and Channel Protection (cont.)

COMMENTARY

Use the Channel and Substructure Scour Charts for guidance on coding ITEM60 and ITEM61. Use the Channel and Culvert Scour Chart for guidance on coding ITEM61 and ITEM62. **Each situation is unique, the severity depends on the scour location and extent.**

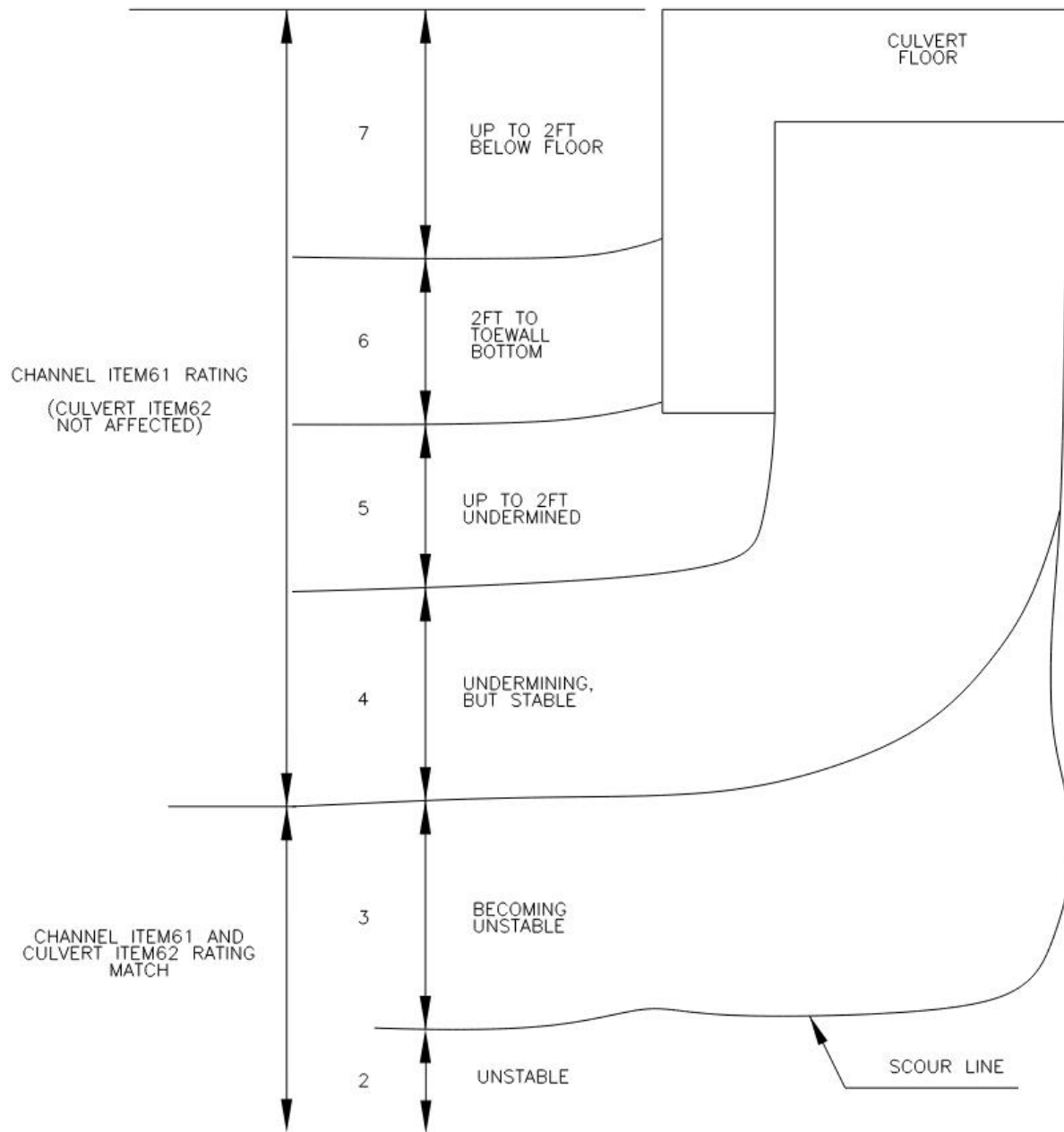
When ITEM61 = “6” or lower based on scour conditions, this identifies active scour.

CODING EXAMPLE

Example	ITEM60	ITEM61	ITEM62
Bridge A example: RC abutments, RC pier cap on RC pier walls and columns Pier caps have isolated minor (3%) and moderate (2%) defects Pier walls and columns have insignificant defects No scour documented	7	8	N
Bridge B example: RC abutments, RC pier cap on RC pier walls Pier cap has very isolated major defect (<1%) Pier walls have isolated minor defects (<5%) No waterway under structure	7	N	N
Steel piles have widespread minor section loss No scour documented	5	7	N
Abutments and piers have isolated minor defects, scour is exposing the bottom of all pier spread footings	4	3	N
Scour has undermined the footing, close or monitor monthly, re-inspect right after heavy rain fall, provide countermeasures	2	2	N
Slope paving has some minor defects	7	7	N
Aluminum arch on spread footings with some minor defects Footings are exposed full height	4	4	N
Box culvert with widespread insignificant defects Outlet toewall exposed 3 feet with no undermining	N	6	8
Box culvert with widespread moderate defects Outlet toewall exposed 1.5 feet with no undermining	N	7	4



Channel and Culvert Scour Chart



When ITEM60 = 4 due to scour, include recommendation to STABILIZE and protect from further erosion
 When ITEM60 = 3 due to scour, include recommendation to CRIB and shore or rehabilitate substructure for structural stability



Item 62 – Culverts	I	FHWA	B.C.04
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DESCRIPTION

A one-character code identifying the overall culvert condition.

PROCEDURE

Culvert condition coding definitions with examples are listed below. **Examples of defects included in each condition code are to be used as a reference and are not all-encompassing. Each situation is unique, the severity of a defect depends on the defect location, frequency, and condition.**

ITEM62 Code	Description / Examples
N	Not applicable – All non-culverts, tunnels
Good	9 Isolated inherent defects (CS1) Concrete: Shrinkage cracks, isolated poor consolidation Metal: Surface rolling flaws, surface patina Masonry: Discoloration, isolated small natural voids
	8 Some inherent defects (CS1) or isolated minor defects (CS2) Concrete: Sealed medium width cracks, rough finish (CS1), isolated small shallow spalls Metal: Minor bends from construction Masonry: Some small natural voids
	7 Some minor defects (CS2), sound repairs Concrete: Insignificant horizontal cracks, minor spalls, surface efflorescence Metal: Surface R1 corrosion Masonry: Mortar cracking or missing in isolated areas, split stone with no shifting
Fair	6 Widespread minor (CS2) or isolated moderate defects (CS3) Concrete: Medium horizontal cracks, moderate spalls, efflorescence build-up Metal: R1 to R2 corrosion, minor distortion, isolated loose fasteners Masonry: Minor distortion or block shifting
	5 Some moderate defects (CS3) Concrete: Isolated wide cracks, rust staining, moderate CS3 abrasion Steel: R2 to R3 corrosion, widespread loose fasteners Masonry: Moderate spalls, widespread areas of missing mortar
Poor	4 Widespread moderate (CS3) or isolated major defects (CS4) – strength affected Concrete: Spalls over half member thickness/depth, structural reinforcement exposed Metal: R3 to R4 corrosion, moderate distortion Masonry: Moderate distortion or block shifting, voids behind stones
	3 Major defects (CS4) – strength seriously affected; inspection interval ≤ 12 months Concrete: Structural reinforcement exposed with R3 to R4 corrosion Metal: R4 corrosion, major distortion Masonry: Major distortion or block shifting
	2 Major defects (CS4) – strength severely compromised Concrete: Exposed structural reinforcement failed Metal: Invert rusted out Masonry: Missing stones
	1 Bridge closed – repair or rehabilitation possible
	0 Bridge closed – replacement required

Code “N” for all non-culvert structures.

Select the appropriate Condition code from the [Culvert \(062\)](#) dropdown menu.



Item 62 – Culverts (cont.)

PROCEDURE (cont.)

This item evaluates the alignment, settlement, joints, structural condition, scour, and other items associated with culverts. Integral wingwalls to the first construction or expansion joint shall be included in the evaluation.

When ITEM43B = 19 (culvert), then ITEM58 (Deck), ITEM59 (Superstructure), and ITEM60 (Substructure) shall be coded “N”.

COMMENTARY

Use the Channel and Culvert Scour Chart for guidance on coding ITEM61 and ITEM62. **Each situation is unique, the severity depends on the scour location and extent.**

When ITEM61 = “6” or lower based on scour conditions, this identifies active scour.

Buried structures with no structural floor will be appraised as a bridge and condition codes should be completed for ITEM58, ITEM59 and ITEM60.

CODING EXAMPLE

Example	ITEM61	ITEM62
Bridge A example: Not applicable	8	N
Bridge B example: Not applicable	N	N
Box culvert with widespread insignificant defects Outlet toewall exposed 3 feet with no undermining	6	8
Box culvert with widespread moderate defects Outlet toewall exposed 1.5 feet with no undermining	7	4
Pipe invert with R4 corrosion holes throughout Channel is flowing under pipe	4	3



Item 63 – Method Used to Determine Operating Rating	LR	FHWA	B.LR.04
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DESCRIPTION

A one-character code identifying the method used to determine the operating rating.

PROCEDURE

The rating method options used to determine the Operating Rating coded in ITEM64 are listed below.

ITEM63 Code	Description
0	Field evaluation and documented Engineering Judgment ¹
1	Load Factor Rating (LFR), reported in tons
2	Allowable Stress Rating (ASR), reported in tons
3	Load and Resistance Factor Rating (LRFR), reported in tons ²
4	Load Testing, reported in tons
5	No Rating analysis or evaluation performed ³
8	Load and Resistance Factor Rating (LRFR) using HL-93 loading, reported by rating factor (RF) ⁴
N	Not Applicable
A	Load Factor Design (LFD) assigned rating, reported in metric tons*
B	Allowable Stress Design (ASD) assigned ratings, reported in metric tons*
C	Load and Resistance Factor Design (LRFD) assigned ratings, reported in metric tons*
D	Load Factor Design (LFD) assigned rating using MS18 loading, reported by rating factor (RF)*
E	Allowable Stress Design (ASD) assigned ratings using MS18 loading, reported by rating factor (RF)*
F	Load and Resistance Factor Design (LRFD) assigned ratings using HL93 loading, reported by rating factor (RF)*

¹ Code 0 is typically assigned when plans or field measurements are not available to complete a load rating, or in cases of severe deterioration. Field evaluation and engineering judgement ratings must be documented. Refer to the latest edition of the CDOT Bridge Rating Manual (CDOT BRM) for documentation requirements.

² Use Code 3 for culverts built before 2011 and buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

³ Use Code 5 when the bridge has not been load rated or load rating documentation does not exist in the bridge record.

⁴ Use Code 8 for culverts designed by LRFD, built in 2011 or later, and buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

* Code not currently used

Select the appropriate Rating code from the [Operating Type \(063\)](#) dropdown menu.



Item 63 – Method Used to Determine Operating Rating (cont.)

COMMENTARY

Structures where field measurements can be acquired to perform a load rating (such as steel girders or corrugated pipes) shall not be coded 0.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”
- FHWA Recording and Coding Guide for the structure Inventory and Appraisal of the Nation’s Bridges, December 1995 and amendments thereto.
- Errata Sheet to the Recording and Coding guide for the Nation’s Bridges, Report NO. FHWA-PD-96-001, December 1995.

CODING EXAMPLE

	Example	ITEM63
	Bridge A example: Rated with LFR	1
	Bridge B example: Rated with LFR	1
	CBC E-16-BR Not Rated or evaluated	5
	Brand new structure, rated with LRFR	8
	PCBC A-06-K built in 1998 and visually rated (must be documented)	0



Item 64 – Operating Rating	LR	MOD FHWA	B.LR.06
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DESCRIPTION

A four-digit code identifying the absolute maximum permissible (operating) load to which the structure may be subjected for the vehicle type used in the load rating.

PROCEDURE

The Operating Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member. The member ratings should be recorded on the Rating Summary Sheet, and the controlling operating rating from the rated members recorded in ITEM64. ITEM64 Operating Rating must exceed ITEM66 Inventory Rating.

Only code a controlling exterior girder if the girder directly carries wheel loads.

When ITEM63 = 0, 1, 2, 3, 4, A, B, or C, record ITEM64 Operating Rating to nearest tenth of a ton.

When bridge is not rated ITEM63 = 5, code ITEM64 = “0” until a rating is completed. The structure shall be rated when plans or measurable section properties are available, otherwise a visual rating shall be completed in accordance with CDOT Bridge Rating Manual. For On-System structures contact the CDOT Bridge Rating Unit. For Off-System structures, rating should be included in Scope of Work. For structures determined to be capable of carrying unrestricted traffic after visual assessment, code ITEM64 = 40.0 tons.

When ITEM63 = 6, 7, or 8, (D, E, or F), record ITEM64 Operating Rating Factor (RF) to the nearest one hundredth.

Code ITEM64 = “99.9” when the structure is buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

Code ITEM64 = “0.0” when the structure is not capable of carrying a 3-ton live load at the inventory level for the Type 3, Type 3-2, or Type 3S2 truck applicable for the route carried on the structure, and the structure must be closed.

When the structure carries 3 tons at the inventory level, the structure may be posted NO TRUCKS but remain open for cars.

The associated 3 Ton Load Rating Factor thresholds are:

Vehicle	Interstate	Colorado
Type 3	3 / 24 = 0.12	3 / 27 = 0.11
Type 3-2	3 / 38 = 0.08	3 / 42.5 = 0.07
Type 3S2	3 / 39 = 0.08	3 / 42.5 = 0.07

For railroad loadings code ITEM64 with the Cooper Class or its equivalent when known.

Item 64 – Operating Rating (cont.)

PROCEDURE (cont.)

Code ITEM64 = “0” for pedestrian loadings.

Enter the Rating Value into the [Operating Rating \(064\)](#) field.

The use or presence of a temporary structure will require ITEM64 to be coded “0” even though the temporary structure is rated for as much as full legal load.

A structure shored up or repaired on a temporary basis is considered a temporary structure and the operating rating should be coded as if the temporary shoring were NOT in place. See ITEM103 “Temporary Structure Designation” for definition of a temporary structure.

COMMENTARY

Code exact ton rating value, even when over 90.0 tons. When ton rating values exceeds 90.0 tons, exact value must also be coded in ITEM64ALT.

Code exact rating factor value, even when over 2.99.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

	Example	ITEM63	ITEM64
Bridge A example: Rated with LFR, controlling operating rating (girder) is 37.0 tons		1	37.0
Bridge B example: Rated with LFR, controlling operating rating (deck) is 63.8 tons		1	63.8
CBC E-16-BR Not Rated or evaluated Visual rating completed, no structural deficiencies		5	0.0
Brand new structure, rated with LRFR		8	3.21
Brand new 20-foot culvert under 25 feet of fill		8	99.9
PCBC A-06-K built in 1998 and visually rated (must be documented)		0	40.0



Item 64 Alt – Alternate Operating Rating (not used)	LR	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part, character and four-digit code identifying the operating rating when the load rating in English units exceeds 99.9 tons.

PROCEDURE

Leave blank when ITEM64 rating ton value is less than 100 tons.

Select the appropriate Alt Rating code from the [Alternate Operating Rating Type](#) dropdown menu.

Enter the ITEM64 Operating Rating Value to the nearest tenth of a ton into the [Alternate Operating Rating](#) field.

COMMENTARY

Limitations of the NBI metric fields reported to FHWA require that Item64ALT is used to record the actual load rating values and load rating factors. Adjustments are made to this data at the time of FHWA annual reporting to conform to metric value required for ITEM64.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 64PMT – Permit Truck Operating Rating	LR	CDOT	N/A
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DESCRIPTION

A four-digit code identifying the maximum allowable load for the Colorado Permit Vehicle configuration.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Leave blank when Permit Truck is not included in the rating summary sheet.

The Operating Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member and recorded on the Rating Summary Sheet. Record the controlling girder operating to nearest tenth of a ton.

Only code a controlling exterior girder if the girder directly carries wheel loads.

Enter the Rating Value into the [Permit Truck Operating Rating \(064PMT\)](#) field.

A structure shored up or repaired on a temporary basis is considered a temporary structure but coded with the girder operating rating for the **repaired condition**.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Section 1.16
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

	Example	ITEM64PMT
Bridge A example: Permit Truck controlling girder rating is 68.5 tons		68.500
Bridge B example: Not rated for Permit Truck		



Item 64MTAN – Modified Tandem Operating Rating	LR	CDOT	N/A
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DESCRIPTION

A four-digit code identifying the maximum allowable load for the Colorado Modified Tandem configuration.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Leave blank when Modified Tandem is not included in the rating summary sheet.

The Operating Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member and recorded on the Rating Summary Sheet. Record the controlling girder operating to nearest tenth of a ton.

Only code a controlling exterior girder if the girder directly carries wheel loads.

Enter the Rating Value into the [Modified Tandem Operating Rating \(064MTAN\)](#) field.

A structure shored up or repaired on a temporary basis is considered a temporary structure but coded with the girder operating rating for the **repaired condition**.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Section 1.16
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

	Example	ITEM64MTAN
Bridge A example: Modified Tandem controlling girder rating is 55.9 tons		55.900
Bridge B example: Not rated for Modified Tandem		



Item 64LT08 (not used)	LR	CDOT	N/A
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Item is not currently used.

Item 64LT09 (not used)	LR	CDOT	N/A
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Item is not currently used.



Item 65 – Method Used to Determine Inventory Rating	LR	FHWA	B.LR.04
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DESCRIPTION

A one-character code identifying the method used to determine the inventory rating.

PROCEDURE

The rating method options used to determine the Inventory Rating coded in ITEM66 are listed below.

ITEM63 Code	Description
0	Field evaluation and documented Engineering Judgment ¹
1	Load Factor Rating (LFR), reported in tons
2	Allowable Stress Rating (ASR), reported in tons
3	Load and Resistance Factor Rating (LRFR), reported in tons ²
4	Load Testing, reported in tons
5	No Rating analysis or evaluation performed ³
8	Load and Resistance Factor Rating (LRFR) using HL-93 loading, reported by rating factor (RF) ⁴
N	Not Applicable
A	Load Factor Design (LFD) assigned rating, reported in metric tons*
B	Allowable Stress Design (ASD) assigned ratings, reported in metric tons*
C	Load and Resistance Factor Design (LRFD) assigned ratings, reported in metric tons*
D	Load Factor Design (LFD) assigned rating using MS18 loading, reported by rating factor (RF)*
E	Allowable Stress Design (ASD) assigned ratings using MS18 loading, reported by rating factor (RF)*
F	Load and Resistance Factor Design (LRFD) assigned ratings using HL93 loading, reported by rating factor (RF)*

¹ Code 0 is typically assigned when plans are not available or in cases of severe deterioration. Field evaluation and engineering judgement ratings must be documented. Refer to the latest edition of the CDOT Bridge Rating Manual (CDOT BRM) for documentation requirements.

² Use Code 3 for culverts built before 2011 and buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

³ Use Code 5 when the bridge has not been load rated or load rating documentation does not exist in the bridge record.

⁴ Use Code 8 for culverts designed by LRFD, built in 2011 or later, and buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

* Code not currently used

Select the appropriate Rating code from the [Inventory Type \(065\)](#) dropdown menu.



Item 65 – Method Used to Determine Inventory Rating (cont.)

COMMENTARY

Structures where field measurements can be acquired to perform a load rating (such as steel girders or corrugated pipes) shall not be coded 0.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”
- FHWA Recording and Coding Guide for the structure Inventory and Appraisal of the Nation’s Bridges, December 1995 and amendments thereto.
- Errata Sheet to the Recording and Coding guide for the Nation’s Bridges, Report NO. FHWA-PD-96-001, December 1995.

CODING EXAMPLE

Example	ITEM65
Bridge A example: Rated with LFR	1
Bridge B example: Rated with LFR	1
CBC E-16-BR Not Rated or evaluated	5
Brand new structure, rated with LRFR	8
PCBC A-06-K built in 1998 and visually rated (must be documented)	0



Item 66 – Inventory Rating	LR	MOD FHWA	B.LR.05
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DESCRIPTION

A four-digit code identifying the (inventory) load which can safely utilize the structure for an indefinite period.

PROCEDURE

The Inventory Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member. The member ratings should be recorded on the Rating Summary Sheet, and the controlling inventory rating from the rated members recorded in ITEM66. ITEM64 Operating Rating must exceed ITEM66 Inventory Rating.

Only code a controlling exterior girder if the girder directly carries wheel loads.

When ITEM65 = 0, 1, 2, 3, 4, A, B, or C, record ITEM66 Inventory Rating to nearest tenth of a ton.

When bridge is not rated ITEM65 = 5, code ITEM66 = “0” until a rating is completed. The structure shall be rated when plans or measurable section properties are available, otherwise a visual rating shall be completed in accordance with CDOT Bridge Rating Manual. For On-System structures contact the CDOT Bridge Rating Unit. For Off-System structures, rating should be included in Scope of Work. For structures determined to be capable of carrying unrestricted traffic after visual assessment, code ITEM66 = 36.0 tons.

When ITEM65 = 6, 7, or 8, (D, E, or F), record ITEM66 Inventory Rating Factor (RF) to the nearest one hundredth.

Code ITEM66 = “99.9” when the structure buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

Code ITEM66 = “0.0” when the structure is not capable of carrying a 3-ton live load at the inventory level for the Type 3, Type 3-2, or Type 3S2 truck applicable for the route carried on the structure, and the structure must be closed.

When the structure will carry 3 tons at the inventory level, the structure may be posted NO TRUCKS but remain open for cars.

The associated 3 Ton Load Rating Factor thresholds are:

Vehicle	Interstate	Colorado
Type 3	3 / 24 = 0.12	3 / 27 = 0.11
Type 3-2	3 / 38 = 0.08	3 / 42.5 = 0.07
Type 3S2	3 / 39 = 0.08	3 / 42.5 = 0.07

For railroad loadings code ITEM66 with the Cooper Class or its equivalent when known.

Item 66 – Inventory Rating (cont.)

PROCEDURE (cont.)

Code ITEM66 = “0” for pedestrian loadings.

Enter the Rating Value into the [Inventory Rating \(066\)](#) field.

The use or presence of a temporary structure will require ITEM66 to be coded “0” even though the temporary structure is rated for as much as full legal load.

A structure shored up or repaired on a temporary basis is considered a temporary structure and the operating rating should be coded as if the temporary shoring were NOT in place. See ITEM103 “Temporary Structure Designation” for definition of a temporary structure.

COMMENTARY

Code exact ton rating value, even when over 80.0 tons. When ton rating values exceeds 80.0 tons, exact value must also be coded in ITEM66ALT.

Code exact rating factor value, even when over 1.99.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

	Example	ITEM65	ITEM66
Bridge A example: Rated with LFR, controlling inventory rating (girder) is 14.6 tons		1	14.6
Bridge B example: Rated with LFR, controlling inventory rating (deck) is 38.3 tons		1	38.3
CBC E-16-BR Not Rated or evaluated Visual rating completed, no structural deficiencies		5	0.0
Brand new structure, rated with LRFR		8	2.83
Brand new 20-foot culvert under 25 feet of fill		8	99.9
PCBC A-06-K built in 1998 and visually rated (must be documented)		0	36.0



Item 66 Alt – Alternate Inventory Rating (not used)	LR	CDOT	N/A
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Item no longer used.

DESCRIPTION

A two-part, character and four-digit code identifying the inventory rating when the load rating in English units exceeds 99.9 tons.

PROCEDURE

Leave blank when ITEM66 rating ton value is less than 100 tons.

Select the appropriate Alt Rating code from the [Alternate Inventory Rating Type](#) dropdown menu.

Enter the ITEM66 Inventory Rating Value to the nearest tenth of a ton into the [Alternate Inventory Rating](#) field.

COMMENTARY

Limitations of the NBI metric fields reported to FHWA require that Item66ALT is used to record the actual load rating values and load rating factors. Adjustments are made to this data at the time of FHWA annual reporting to conform to metric value required for ITEM66.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66S – Controlling Operating Rating Indicator	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the load carrying member controlling the operating rating recorded in ITEM64.

PROCEDURE

The controlling member options used to determine the Operating Rating coded in ITEM64 are listed below.

ITEM66S Code	Description
A	Not Checked
E	Exterior girder
I	Interior girder
G	Gusset Plate
N	Not applicable (railroad, pedestrian loads or tunnel)
S	Slab
U	Substructure
X	Culvert or non-slab member

Select the appropriate Rating code from the [Controlling Operating Rating Indicator \(066S\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66S
Bridge A example: Rating controlled by interior girder	I
Bridge B example: Rating controlled by deck	S



Item 66SI – Controlling Inventory Rating Indicator	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the load carrying member controlling the inventory rating recorded in ITEM66.

PROCEDURE

The controlling member options used to determine the Inventory Rating coded in ITEM66 are listed below.

ITEM66SI Code	Description
A	Not Checked
E	Exterior girder
I	Interior girder
G	Gusset Plate
N	Not applicable (railroad, pedestrian loads or tunnel)
S	Slab
U	Substructure
X	Culvert or non-slab member

Select the appropriate Rating code from the [Controlling Inventory Rating Indicator \(066SI\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66SI
Bridge A example: Rating controlled by interior girder	I
Bridge B example: Rating controlled by deck	S

Item 66A – Girder Operating Rating	LR	CDOT	N/A
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DESCRIPTION

A three-digit code identifying the most restrictive girder operating rating of the structure.

PROCEDURE

Item is to be completed by CDOT Rating Group.

Leave blank for railroad loading, pedestrian loading, and tunnels.

The Operating Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member and recorded on the Rating Summary Sheet. Record the controlling girder operating to nearest tenth of a ton.

Only code a controlling exterior girder if the girder directly carries wheel loads.

Code “40.0” for structures that have been visually rated and load reductions are not required.

Leave blank for structures that have not been rated.

Enter the Rating Value into the [Girder Operating Rating \(066A\)](#) field.

Code “0” for a closed or temporary structure and/or a structure that cannot carry any live load. A structure shored up or repaired on a temporary basis is considered a temporary structure but coded with the girder operating rating for the repaired condition.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66L – Girder Operating Rating Type (not used)	LR	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying the type of rating that is completed on the structure.

PROCEDURE

The Girder Operating Rating Type options are listed below.

ITEM66L Code	Description
1	Load factor rating
5	Visual rating only

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66T – Asphalt Thickness/Culvert Fill Height	I	CDOT	N/A
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DESCRIPTION

A six-digit code identifying the asphalt/overlay thickness on the structure deck OR the fill height over the culvert at the time of inspection.

PROCEDURE

Measure and record the asphalt/overlay thickness to the nearest quarter inch.

Measure and record the fill height over a culvert to the nearest inch.

Enter the Height into the [Asphaltthickness \(066T\)](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66T
Bridge A example: 2-inch asphalt wearing surface	2.00
Bridge B example: 2-inch asphalt wearing surface	2.00
Deck has 5 ½ inches of asphalt wearing surface	5.50
CBC fill is measured to be 6 feet 3.4 inches	75.00



Item 66TR – Rating Asphalt Thickness	LR	CDOT	N/A
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DESCRIPTION

A five-digit code which identifies the asphalt/overlay thickness on the structure deck OR the fill height over the culvert used for rating calculations.

PROCEDURE

Measure and record the asphalt/overlay thickness to the nearest half inch.

Measure and record the fill height over a culvert to the nearest half inch.

Enter the Thickness into the [Rating Asphalt Thickness \(066TR\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

Description	ITEM66TR
Bridge A example: Deck covered with 2 inches of asphalt, rating assumed 3 inch overlay	3.0
Bridge B example: Deck covered with 2 inches of asphalt, rating used 2 inch overlay	2.0



Item 66RA – Rating Assigned To	LR	CDOT	N/A
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DESCRIPTION

A seven-character code identifying the rater’s initials followed by the fiscal year when the rating was assigned.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Input the 3-character initials of the individual who the load rating is assigned to followed by the 4-digit fiscal year the rating was assigned to the rater.

Code “ZZZ” when the rater’s signature is not legible.

When the rater has no middle name, code “Z” between the first and last name initials.

Enter the Assignment into the [Rating Assigned To \(066RA\)](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66C – Rating Company

LR

CDOT

N/A

DESCRIPTION

A thirty-character code identifying the company who completed the rating.

PROCEDURE

Enter the Company Name into the [Rating Company \(066C\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 66N – Rater’s Name	LR	CDOT	N/A
-------------------------	----	------	-----

DESCRIPTION

A thirty-character code identifying the person who completed the rating.

PROCEDURE

Enter the Rater’s first and last name into the [Raters Name \(066N\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 66I – Rater’s Initials	LR	CDOT	N/A
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DESCRIPTION

A three-character code identifying the rater who signed the Rating Summary Sheet.

PROCEDURE

The Rater makes the necessary sketches and calculations to show how the structure was modeled, how dead loads were derived, and how other computer input was defined.

Input the 3-character initials of the individual who signed the Rating Summary Sheet.

Code “ZZZ” when the rater’s signature is not legible.

When the rater has no middle name, code “Z” between the first and last name initials.

Leave blank when there is no signature.

Enter the Initials into the [Initials](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Section 1.11 part III
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66I
Bridge A example: Rated By Andrew B. Smith	ABS
Bridge B example: Rated By Andrew Smith	AZB



Item 66CN – Checker’s Name	LR	CDOT	N/A
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DESCRIPTION

A thirty-character code identifying the person who checked the rating.

PROCEDURE

Enter the Checker’s first and last name into the [Checkers Name \(066I\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 66CI– Checker’s Initials	LR	CDOT	N/A
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DESCRIPTION

A three-character code identifying the checker who signed the Rating Summary Sheet.

PROCEDURE

The Checker shall verify all calculations and ratings, e.g., proper modeling of the structure, accurate calculations, and proper computer input.

Input the 3-character initials of the individual who signed the Rating Summary Sheet.

Code “ZZZ” when the checker’s signature is not legible.

Code “OOO” when the Checked By section is blank.

When the checker has no middle name, code “Z” between the first and last name initials.

Leave blank when there is no signature.

Enter the Initials into the [Checkers Initials \(066J\)](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Section 1.11 part III
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66J
Bridge A example: Checked By Beth Jones	BZJ
Bridge B example: Checked By is blank	OOO



Item 66R – Rating Package Review Date	LR	CDOT	N/A
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DESCRIPTION

A ten-character code identifying the date the rating package review was completed by the CDOT Bridge Rating Group following the requirements outlined in the CDOT Bridge Rating Manual.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Record the Checked date in mm/dd/yyyy format.

Enter the Date into the [Rating Package Review Date \(066R\)](#) field.

IN-HOUSE (CDOT): Forward the completed rating package to the Bridge Management System Unit.

CONSULTANTS: The checker shall review sign and date all rating materials. The completed rating package shall be submitted by the Consultant to the appropriate CDOT Staff Bridge contact and a duplicate copy of the rating package shall be delivered to the applicable agency when requested, or required.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.11 (In-House), 1.12 (Consultants), 1.13 Rating Package Requirements
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66RN – Rating Package Reviewer	LR	CDOT	N/A
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DESCRIPTION

A thirty-character code identifying the person who provides quality control for the final rating.

PROCEDURE

Item is to be completed by CDOT Rating Group.

Enter the Reviewer first initial and last name into the [Rating Pack Reviewer \(066RN\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 66ESR – Entire Structure Rated	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether a structure load rating represents the rating of the entire structure.

PROCEDURE

The load rating structure representation options are listed below.

ITEM66ESR Code	Description
0	Rating does not represent entire structure
1	Rating represents entire structure, includes Engineering Judgement (visual)
N	Not checked

Select the appropriate Representation code from the [Entire Structure Rated \(066ESR\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.13 Rating Package Requirements, 1.14 Reporting the results of Rating Calculations
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66ESR
Bridge A example: Rating does represent entire structure	1
Bridge B example: Rating does represent entire structure	1



Item 66CC – Rating Calculations Complete	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the structure load rating calculations are complete and per the CDOT Bridge Rating Manual.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The load rating calculation completeness options are listed below.

ITEM66CC Code	Description
0	Incomplete or not completed per the CDOT Bridge Rating Manual
1	Completed per the CDOT Bridge Rating Manual
N	Not Checked
V	Engineering Judgement (visual rating), calculations are not applicable

Select the appropriate Completeness code from the [Rating Calculations Complete \(066CC\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.13 Rating Package Requirements, 1.14 Reporting the results of Rating Calculations
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66RPC – Rating Package Complete	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the structure rating package is complete per the CDOT Bridge Rating Manual.

PROCEDURE

The structure rating package status options are listed below.

ITEM66RPC Code	Description
0	Not Complete
1	Complete
N	Not Checked

Code “0” when ITEM66CC = “0”.

Select the appropriate Status code from the [Rating Package Complete \(066RPC\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.13 Rating Package Requirements, 1.14 Reporting the results of Rating Calculations
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66RPC
Bridge A example: Rating package follows CDOT BRM and has signatures	1
Bridge B example: Only has a Rating Summary Sheet, no calculations or software results	0
Rating calculations are missing signatures	0



Item 66RS – Rating Software Used	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the software used to generate the load rating.

PROCEDURE

The rating software options are listed below.

ITEM66RS Code	Description
1	BrR (non-NSG)
2	Hand Calculations
3	Other
4	BrR (NSG)
5	CANDE
6	CMP Spreadsheet
7	Engineering Judgement (visual)
8	Load Test
N	Not Assigned / Unknown

Code “N” when rating software is not noted on the Rating Summary Sheet or cannot otherwise be identified.

Code the software used for rating the controlling member identified in ITEM66S.

Select the appropriate Rating Software from the [Rating Software Used \(066RS\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Section 1.6
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66RS
Bridge A example: LRSS states BrR was used, NSG used for permit trucks	4
Bridge B example: No rating package or files available. LRSS does not note what software was used.	N



Item 66IFA – Rating Input Files Archived	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the rating input files have been archived.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The rating input file archive status options are listed below.

ITEM66IFA Code	Description
0	Not Archived
1	Archived
N	Not Checked
V	Engineering Judgement (visual rating), input file is not applicable

Select the appropriate Status code from the [Rating Input Files Archived \(066IFA\)](#) dropdown menu.

COMMENTARY

An input file is considered archived when the CDOT Bridge Ratings server and CDOT eFolders have the Rating Package, Rating Summary Sheet, and input files.

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.13 Rating Package Requirements, 1.14 Reporting the results of Rating Calculations
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66OFA – Rating Output Files Archived	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the rating output files have been archived.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The rating output file archive status options are listed below.

ITEM66IFA Code	Description
0	Not Archived
1	Archived
N	Not Checked
V	Engineering Judgement (visual rating), output file is not applicable

Select the appropriate Status code from the [Rating Output Files Archived \(066OFA\)](#) dropdown menu.

COMMENTARY

An output file is considered archived when it is within the Rating Results Summary Report is in the Rating Package.

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM) Sections 1.13 Rating Package Requirements, 1.14 Reporting the results of Rating Calculations
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item66VB – BrR Bridge Identification Number	LR	CDOT	N/A
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DESCRIPTION

A five-character code identifying the Bridge Identification Number (BIN) listed in AASHTO Bridge Rating Software (BrR).

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Leave blank if BrR rating has not been created.

Enter the BrR BIN into the [Virtis Bid Number \(066VB\)](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66VSTR – BrR Structure Number	LR	CDOT	N/A
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DESCRIPTION

A twenty-five-character field identifying Structure Number listed in the AASHTO Bridge Rating Software (BrR).

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

Enter the Structure Number into the [Virtis Structure Number \(066VSTR\)](#) field exactly as it appears in BrR.

COMMENTARY

ITEM8 outlines how structure numbers are assigned.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66VR – BrR Rating Runs	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the run level of the AASHTO Bridge Rating Software (BrR) rating.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The BrR rating run status options are listed below.

ITEM66VR Code	Description
0	No, BrR file does not run at the top level
1	Yes, BrR file runs at the top level
N	Not Checked

Code “N” when no BrR rating exists for structure.

Select the appropriate Run code from the [Virtis Rating Runs \(066VR\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66VA – BrR Rating Analysis	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the AASHTO Bridge Rating Software (BrR) analysis matches the signed Rating Summary Sheet.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The BrR analysis values compared to the Rating Summary Sheet options are listed below.

ITEM66VA Code	Description
0	Does Not Match
1	Does Match
N	Not Checked

Code “N” when no BrR rating exists for structure.

Select the appropriate Match code from the [Virtis Rating Analysis \(066VA\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66VSB – BrR Rating System Based	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the AASHTO Bridge Rating Software (BrR) rating superstructure definition is system based.

PROCEDURE

The BrR system base options are listed below.

ITEM66VSB Code	Description
0	Not System Based
1	System Based
N	Not Checked

Code “N” when no BrR rating exists for structure.

Code “0” for line based or multi-cell box superstructures.

Select the appropriate System code from the [Virtis Rating System Based \(066VSB\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM66VSB
Bridge A example: Not Checked	N
Bridge B example: No BrR file exists	N



Item 66VL – BrR Rating Linked to Pontis	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether the AASHTO Bridge Rating Software (BrR) rating is linked to Pontis or the AASHTO Bridge Management Software (BrM).

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The BrR rating link status options are listed below.

ITEM66VL Code	Description
0	Not Linked
1	Linked
N	Not Checked

Code “N” when no BrR rating exists for structure.

Select the appropriate Link Status code from the [Virtis Rating Linked to Pontis \(066VL\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Item 66VCO – BrR Rating Checkout Privileges	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the AASHTO Bridge Rating Software (BrR) checkout privileges.

PROCEDURE

Item is to be completed by CDOT Bridge Rating Group.

The BrR checkout status options are listed below.

ITEM66VCO Code	Description
0	Privileges Not Removed
1	Privileges Removed (locked)
N	Not Checked

Code “N” when no BrR rating exists for structure.

Select the appropriate Link Status code from the [Virtis Rating Checkout Privileges \(066VCO\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



SECTION 3 Appraisal (Items 67 through 72)

The items in Section 3 evaluate the structure in relation to the level of service which it provides on the highway system of which it is a part.

The following items are **not** completed by the inspector but are determined, and updated, by the BrM program following FHWA tables. The description and controlling items/tables for these items are included as a reference:

- Item 67 – Structural Condition
- Item 68 – Deck Geometry
- Item 69 – Underclearance, Vertical and Horizontal

Item 70 – Safe Load Capacity is coded by the inspector or rater based off the Load Rating Summary Sheet.

The following items are evaluated and coded by the inspector in accordance with associated guidelines.

- Item 71 – Waterway Adequacy
- Item 72 – Approach Roadway Alignment

	Appraisal Code	Description
	N	Not applicable (not valid for ITEM67 or ITEM72)
Good	9	Superior to present desirable criteria
	8	Equal to present desirable criteria
	7	Better than present minimum criteria
Fair	6	Equal to present minimum criteria
	5	Somewhat better than minimum adequacy to tolerate being left in place as-is
Poor	4	Meets minimum tolerable limits to be left in place as-is
	3	Basically intolerable requiring high priority corrective action
	2	Basically intolerable requiring high priority of replacement
	1	Not Used
	0	Bridge closed

Completed structures not yet opened to traffic, when rated, shall be appraised as though open to traffic. Design values, for example ADT, shall be used for the evaluation. Code Item 41 - Structure Open, Posted, or Closed to Traffic = "G".

ITEM73, and ITEM74 are no longer used.



Item 67 – Structural Condition	AM	FHWA	N/A
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DESCRIPTION

A one-character code identifying the overall structure condition.

PROCEDURE

The code is determined by AASHTO Bridge Management Software (BrM) and automatically updated in the [Structural Evaluation \(067\)](#) field.

This item identifies the overall condition of the structure considering all major structural deficiencies and reports the lowest of:

- ITEM59 (Superstructure) condition rating, when applicable
- ITEM60 (Substructure) condition rating, when applicable
- ITEM62 (Culvert) condition rating, when applicable
- Table 1 which shows the HS equivalent inventory rating by comparison of ITEM29 (ADT) and ITEM66 (Inventory Rating) for various traffic volumes

When any applicable condition rating equals 1 then ITEM67 =0, regardless of whether the structure is closed.

When the structure is closed, it does not mean that this value is zero (0) unless the overall condition and appraisal ratings indicate that a code of 0 is appropriate.

A code of “N” is not valid.

ITEM67 Code	ITEM66 Inventory Rating (tons)		
	ITEM29 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		
1	Bridge closed due to structural condition		

*Coded HS rating load (typical)

**HS Designation (typical)



Item 67 – Structural Condition (cont.)

PROCEDURE (cont.)

Table 1 Notes

- Use the lower rating code for values between those listed in the table.
- Only the HS20 live load rating shall be used in establishing the Inventory Rating.
- All bridges on the Interstate system shall be evaluated using the ADT column of >5000 regardless of the actual ADT on the structure.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM59	ITEM60	ITEM66	ITEM29	ITEM67
Bridge A example	8	7	14.6	49,000	3
	Based on condition ITEM67 = 7		Based on Table 1 ITEM67 = 3		
Bridge B example	8	7	38.3	12,760	7
	Based on condition ITEM67 = 7		Based on Table 1 ITEM67 = 9		



Item 68 – Deck Geometry	AM	FHWA	N/A
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DESCRIPTION

A one-character code identifying the overall rating for the structure deck geometry.

PROCEDURE

The code is determined by AASHTO Bridge Management Software (BrM) and automatically updated in the [Deck Geometry \(068\)](#) field.

The overall rating for deck geometry reports the lowest of:

- Table 2A, 2B, 2C or 2D which compares ITEM51 Bridge Roadway Width Curb-to-Curb, or bridge rail face-to-face, and ITEM29 Average Daily Traffic
- Table 2E which compares ITEM53 Minimum Vertical Clearance over Bridge Roadway, and ITEM26 Functional Classification

Table values provided are only for determining Deck Geometry Ratings. Current design standards must be used for structure design or rehabilitation.

ITEM68 Code	Table 2A: 2 Lanes; 1-Way Traffic						Table 2B: 1 Lane; 2-Way Traffic		
	ITEM51 Bridge Roadway Width Curb-to-Curb (feet)								
	ITEM29 Average Daily Traffic (ADT)								
	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 rating code of 3 and structure is open								
0	Bridge Closed								

*Use value in parentheses for structures longer than 200 feet.



Item 68 – Deck Geometry (cont.)

PROCEDURE (cont.)

ITEM68 Code	TABLE 2C: 2+ Lanes Each Direction				Table 2D: 1-Way Traffic	
	ITEM51 Bridge Roadway Width Curb-to-Curb (feet)					
	ITEM28 Number of Lanes					
	Interstate and Other Divided Freeways		Other Multilane Divided Facilities		Ramps Only	
	2 Lanes	3+ Lanes	2 Lanes	3+ Lanes	1 Lane	2+ Lanes
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 rating code of 3 and structure is open					
0	Bridge Closed					

*Use value in parentheses for structures longer than 200 feet.

N = number of lanes of traffic

ITEM68 Code	TABLE 2E: All Structures		
	ITEM53 Minimum Vertical Clearance (feet and inches)		
	ITEM26 Functional Classification		
	Interstate and Other Freeways	Other Principal and Minor Arterials	Major and Minor Collectors and Locals
9	>17'-0"	>16'-6"	>16'-6"
8	17'-0"	16'-6"	16'-6"
7	16'-9"	15'-6"	15'-6"
6	16'-6"	14'-6"	14'-6"
5	15'-9"	14'-3"	14'-3"
4	15'-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 rating code of 4 and requiring replacement.		
0	Bridge Closed		



Item 68 – Deck Geometry (cont.)

PROCEDURE (cont.)

Table Notes

- Use the lower rating code for values between those listed in the table.
 - For example, Table 2A lists deck geometry rating codes of 6, 7 and 8 for a 44-foot roadway width and an ADT of >5000. Use the code of 6.
- Dimensions are in feet or feet and inches.
- For a non-ramp bridge with 1 lane of 1-way traffic, use Table 2A.
- For 3 or more undivided lanes of 2-way traffic use Table 2C, Other Multilane Divided Facilities.
- Do not use Table 2B for code 9 and for codes 8 through 4 inclusive when the ADT>100. Single lane structures less than 16 feet wide carrying 2-way traffic are always appraised at 3 or below when they carry more than an ADT of 100.
- One lane structures with a roadway width 16 feet or greater, which are not ramps, are evaluated as a 2-lane bridge using Table 2A.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM102	“Route On” ITEM28A	ITEM51	ITEM26	ITEM53	ITEM68
Bridge A example	1	1	21	11	99.9	5
	Using Table 2D ITEM68 = 5			Using Table 2E ITEM68 = 9		

Example	“Route On” ITEM29	ITEM51	ITEM26	ITEM53	ITEM68
Bridge B example	12,760	40	14	99.9	5
	Using Table 2A ITEM68 = 5		Using Table 2E ITEM68 = 9		



Item 69 – Underclearances, Vertical and Horizontal	AM	FHWA	N/A
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DESCRIPTION

A one-character code identifying the appraisal of horizontal and vertical clearances under the structure.

PROCEDURE

The code is determined by AASHTO Bridge Management Software (BrM) and automatically updated in the [Underclearances \(069\)](#) field.

Vertical and horizontal underclearances are measured from the through roadway surface to the superstructure or substructure units, respectively. Structures are seldom closed due to deficient underclearances, however, these structures may be good candidates for rehabilitation or replacement.

Code “N” unless the structure is over a highway or railroad.

The overall rating for underclearances reports the lowest of:

- Table 3A which compares ITEM54 Minimum Vertical Clearance, and ITEM26 Functional Classification
- Table 3B which compares ITEM55/ITEM56 Minimum Lateral Clearance Right/Left, and ITEM26 Functional Classification

The functional classification used in the tables is for the route passing **under** the structure. Therefore, the functional classification is obtained from the record for the route “under” the bridge (see ITEM5 Inventory Route). When the route passing under is not on a Federal-aid system, is not a defense route, or is not otherwise important, an “under” record may not be available. When no “under” record exists, it is assumed that the route under the structure is a major or minor collector or a local road for the purpose of using Tables 3A and 3B.

TABLE 3A: Vertical Clearances					
ITEM69 Code	ITEM54 Minimum Vertical Clearance (feet and inches)				
	ITEM26 Functional Classification				
	Interstate	Other Freeways	Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroad
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"
6	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	Underclearance less than value in rating code of 4 and requiring corrective action.				
2	Underclearance less than value in rating code of 4 and requiring replacement.				
0	Bridge Closed				
N	Tunnels				



Item 69 – Underclearances, Vertical and Horizontal (cont.)

PROCEDURE (cont.)

TABLE 3B: Lateral Clearances							
ITEM69 Code	ITEM55/ITEM56 Minimum Lateral Underclearance (feet)						
	ITEM26 Functional Classification						
	1-Way Traffic				2-Way Traffic		
	Principal Arterials – Interstate, Freeways, or Expressways				Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroad
	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'	2'	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 rating code of 4 and requiring corrective action.						
2	Underclearance less than value in rating code of 4 and requiring replacement.						
0	Bridge Closed						

Table Notes

- Use the lower rating code of values between those listed in the tables.
- Dimensions are in feet and inches or feet.
- 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 under passing route shall be used in the evaluation. When an “UNDER” record is not coded, the under passing route shall be considered a major or minor collector or a local road.

COMMENTARY

CDOT splits the interstate and other freeways column into two columns. One for interstate and one for other freeways.

CODING EXAMPLE

Example	ITEM 5A	Route Under ITEM26	ITEM54B	ITEM 5A	Route Under ITEM26	ITEM55B	ITEM56	ITEM67
Bridge A example	D	11	16.417	B	11	0.000	8.000	3
	Using Table 3A ITEM69 = 5			Using Table 3B ITEM69 = 3				
Bridge B example	2	14	17.417	N/A	14	10.000	0.000	3
	Using Table 3A ITEM69 = 9			Using Table 3B ITEM69 = 3				



Item 70 – Bridge Posting	LR	FHWA	N/A
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DESCRIPTION

A one-character code identifying the structure’s load level capacity category at the state’s operating level.

PROCEDURE

The Bridge Posting options with corresponding legal load ranges are listed below.

	ITEM70 Code	Description
No Posting	5	≥ Legal Loads
Posting Required	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
	N	Not Applicable
	U	Unknown

Code this item according to the controlling legal load. This item evaluates the load capacity of a structure in comparison to the state legal loads.

Code “N” for railroad or pedestrian structures.

The safe load capacity is based on the results of the load rating in accordance with the most current edition of CDOT’s Bridge Rating Manual.

Select the appropriate Posting code from the [Posting \(070\)](#) dropdown menu.

Temporary Structure: The actual operating rating of the temporary structure should be used to determine this item. However, the highway agency may choose to post at a lower level. This also applies to structures shored up or repaired on a temporary basis.

COMMENTARY

Structure may have posting signs in place and have ITEM70 = “5”.

REFERENCE(S):

- CDOT Bridge Rating Manual (BRM)
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

	Example	ITEM70
Bridge A example: Interstate Type 3 Truck rating is 55.4 tons		5
Bridge B example: No T3 Truck ratings, no posting necessary on LRSS		5
Structure with posting signs in place, no posting necessary on LRSS		5



Item 71 – Waterway Adequacy	I	FHWA	B.AP.02
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DESCRIPTION

A one-character code identifying the appraisal of the waterway opening with respect to passage of flow through the structure.

PROCEDURE

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. For example, flooding of an urban area due to a restricted structure opening.

ITEM71 Code			Description
ITEM26 Functional Classification			
Principal Arterials: Interstates, Freeways or Expressways	Other Principal and Minor Arterials, Major Collectors	Minor Collector, Locals	
N	N	N	Bridge is not over a waterway
9	9	9	Bridge deck and roadway approaches are above flood high water elevations. Chance of overtopping is remote, greater than 100 year frequency.
8	8	8	Bridge deck is above roadway approaches. Slight chance of overtopping roadway approaches; 11 to 100 year frequency.
6	6	7	Slight chance of overtopping bridge deck and roadway approaches; 11 to 100 year frequency.
4	5	6	Bridge deck is above roadway approaches. Occasional overtopping of roadway approaches resulting in insignificant traffic delays; 3 to 10 year frequency, minor inconvenience with highways passable in a matter of hours.
3	4	5	Bridge deck is above roadway approaches. Occasional overtopping of roadway approaches resulting in significant traffic delays; 3 to 10 year frequency, traffic delays up to several days.
2	3	4	Occasional overtopping of bridge deck and roadway approaches resulting in significant traffic delays; 3 to 10 year frequency, traffic delays up to several days.
2	2	3	Frequent overtopping of bridge deck and roadway approaches resulting in significant traffic delays; 0 to 3 year frequency, traffic delays up to several days.
2	2	2	Occasional or frequent overtopping of bridge deck and roadway approaches resulting in severe traffic delays; 0 to 10 year frequency, long term delays resulting in hardship.
0	0	0	Bridge is closed.

Select the appropriate Waterway code from the [Waterway \(071\)](#) dropdown menu.

Item 71 – Waterway Adequacy (cont.)

PROCEDURE (cont.)

Where overtopping frequency information is available, the description given in the table means:

- Frequency adjectives
 - Remote: greater than 100 years
 - Slight: 11 to 100 years
 - Occasional: 3 to 10 years
 - Frequent: less than 3 years
- Traffic delay adjectives
 - Insignificant: minor inconvenience. Highway passable in a matter of hours
 - Significant: traffic delays of up to several days
 - Severe: long term delays to traffic with resulting hardship

COMMENTARY

Bridge overtopping likelihood is typically determined from historical bridge inspection or maintenance records, hydraulic studies, local residents/landowners, and/or site indicators including highwater marks on the bridge or its surroundings, debris remains on bridge upper members, etc.

For newer bridges with limited historical inspection or maintenance information, hydraulic design information can be used to establish an overtopping likelihood.

CODING EXAMPLE

Example	ITEM71
Bridge A example: Structure well above flood plain, remote change of overtopping	9
Bridge B example: Structure not over waterway	N



Item 72 – Approach Roadway Alignment	I	FHWA	B.AP.01
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DESCRIPTION

A one-character code identifying the adequacy of the approach roadway alignment to the bridge compared to existing highway alignment.

PROCEDURE

This item identifies those structures that do not function properly, or adequately, due to the alignment of the approaches. Code the rating based on the adequacy of the approach roadway alignment. The basic criteria is how the alignment of the roadway approaches at the bridge relate to the general highway alignment for the section of highway the bridge is on.

A code of “N” is not valid.

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 approach roadway alignment will be rated intolerable (a code of 3 or less) only when the horizontal and/or vertical curvature requires a substantial reduction in the vehicle operating speed at the bridge from that on the typical highway section. A very minor speed reduction because of the structure alignment will be rated a 6, and when a speed reduction is not required, the appraisal code will be an 8. This concept shall be used at each bridge site. Additional codes may be selected between these general values from the list below.

Only speed reductions due to alignment shall be considered, do not consider speed reductions due to structure width or intersecting highways. Approach Roadway Alignment coding definitions with examples are listed below.

	ITEM72 Code	Description
Good	9	Superior to present desirable criteria
	8	Equal to present desirable criteria: No speed reduction required
	7	Better than present minimum criteria
Fair	6	Equal to present minimum criteria: Very minor speed reduction
	5	Somewhat better than minimum adequacy to tolerate being left in place as-is
Poor	4	Meets minimum tolerable limits to be left in place as-is
	3	Basically intolerable requiring high priority corrective action: Substantial speed reduction
	2	Basically intolerable requiring high priority of replacement
	1	Not Used
	0	Bridge closed

Select the appropriate Approach Roadway code from the [Approach Alignment \(072\)](#) dropdown menu.



Item 72 – Approach Roadway Alignment (cont.)

COMMENTARY

CDOT recommends the use of codes 3 for poor, 6 for fair, or 8 for good in all cases.

This item identifies bridges that do not function adequately due to the horizontal or vertical alignment of the bridge and approach roadway. It is not intended that the alignment be compared to current standards, but rather to the existing roadway alignment. The basic criterion is how the alignment of the bridge and approach roadway relates to the general highway alignment for the section of highway the bridge carries.

CODING EXAMPLE

	Example	ITEM72
Bridge A example: Approach structure wider than Bridge A, very minor speed reduction due to 'Y' split at east approach		6
Bridge B example: Straight approach		8



SECTION 4 Inspections, Projects, Permits (Items 75 through 116)

The items in Section 4 identify information for inspections, rehabilitation work, and permit planning. Items shall be completed for all structures.

When the structure meets the requirements of Structurally Deficient (SD) or Functionally Obsolete (FO) as defined in Appendix K then improvement costs and related data must be calculated.

When the structure is not structurally deficient or functionally obsolete, then ITEM76 and ITEM94 through ITEM97 are blank or coded with “N”.

ITEM75, and ITEM77 through 89 are no longer used.

To be eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), structures must meet all the following criteria:

- carry highway traffic
- be structurally deficient or functionally obsolete
- have a sufficiency rating of 80.0 or less



Item 75A/B – Type of Work (not used)	AM	FHWA	N/A
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Item no longer used.

DESCRIPTION

A two-part, three-character code identifying **ITEM75A** the type of work proposed to be accomplished on the structure to improve it to the point that it will provide the type of service needed and **ITEM75B** whether the proposed work is to be done by contract or by State forces.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility.

This item may be coded for other structures at the option of the highway agency.

Leave blank or code “N” when the structure is not structurally deficient (SD) or functionally obsolete (FO).

ITEM75A: Proposed Work Type coding definitions are listed below.

ITEM75A Code	Description
31	Replacement of bridge or other structure because of substandard load carrying capacity or substandard bridge roadway geometry
32	Replacement of bridge or other structure because of relocation of the 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
N	Not Applicable

Select the appropriate Work Type code from the [Proposed Work \(075A\)](#) dropdown menu.

ITEM75B: Proposed Work Force coding definitions are listed below.

ITEM75B Code	Description
1	Contract
2	State Forces
N	Not Applicable

Select the appropriate Work Force code from the [Work To Be Done By \(075B\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 76 – Length of Structure Improvement	AM	FHWA	N/A
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DESCRIPTION

A six-digit code identifying the length of the proposed improvement identified in ITEM75A.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility. Record length to the nearest foot.

This item may be coded for other structures at the option of the highway agency.

Leave blank when ITEM75 = “N” or is blank.

For replacement or rehabilitation of the entire structure, the length should be back-to-back of back walls of abutments or from pavement notch to pavement notch. For replacement or rehabilitation of only part of the structure, use the length of the portion to be improved.

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

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

Enter the Length into the [Improvement Length \(076\)](#) field.

COMMENTARY

Consult with the CDOT Bridge and Structures Asset Management Group to determine appropriate expansion factors.

CODING EXAMPLE

	Example	ITEM76
Bridge A example: Full length improvement due to appraisal condition		1515.0
Bridge B example: Span 7 over Walnut St improvement due to underclearance		110.0

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 76 – Length of Structure Improvement (cont.)

FHWA Guidance:

Typically, a replacement structure is longer than the existing structure.

Where site-specific data is lacking, the following equations and charts are a suggested method for estimating the length of replacement structures. Nationwide averages for the increase in structure length for a replacement structure as a function of the existing structure length are given in the following figures. The equations and charts below use length-expansion factors for the years 1981 to 1985 and are shown as examples only. Consult the CDOT Asset Management Engineer for up-to-date information.

Use the following formulas to determine the expansion factor (Y) where L = existing structure length in feet:

- For structure length (L) ≤ 100' use $Y = 2.894 - 0.0585 (L) + 0.00076 (L)^2 - 0.0000033 (L)^3$
- For structure length (L) > 100' use $Y = 1.436 - 0.0019 (L) + 0.0000033 (L)^2 - 0.000000002 (L)^3$

Once the expansion factor is determined, multiply it by the existing structure length to calculate ITEM76 Length of Structure Improvement: $ITEM76 = (L) (Y)$

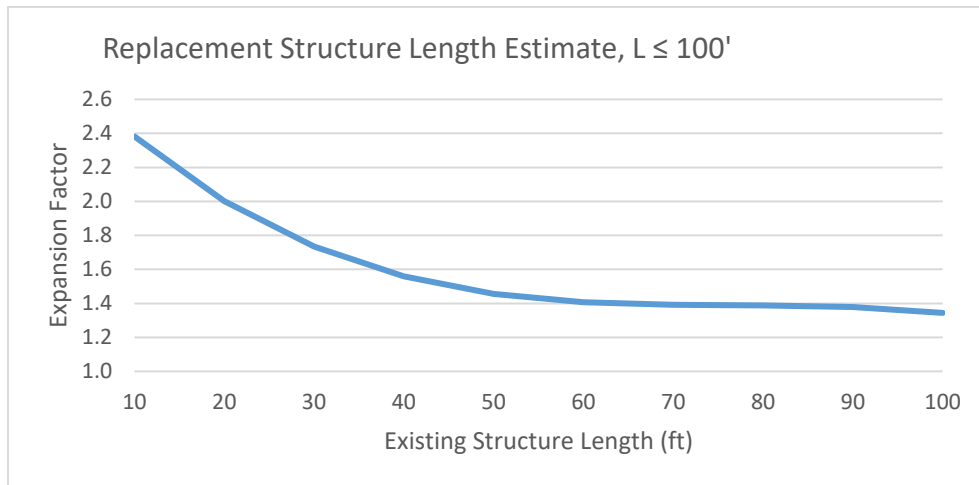


FIGURE 1: Graphical representation of expansion factor formula for structures with lengths ≤ 100 feet.

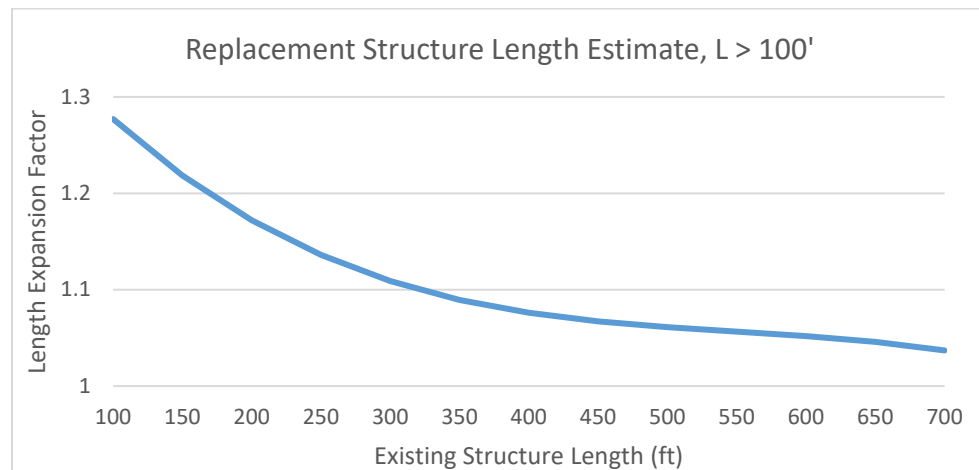


FIGURE 2: Graphical representation of expansion factor formula for structures with lengths > 100 feet.



Item 90 – Inspection Date	I	FHWA	B.IE.03
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DESCRIPTION

A ten-character code identifying the date that the last routine inspection was completed.

PROCEDURE

Record the month, day, and year that the last routine inspection was completed for the structure (mm/dd/yyyy). This is the inspection end date. When more than a week passes after the routine inspection has started, the routine inspection shall be listed as completed on the last day on-site and a Special Inspection shall be created for the follow-up inspection/revisit.

Enter the Date into the [Inspection Date](#) field. The Current Date (090) field will automatically populate. The Element fields should match the routine fields.

The next inspection due date, Next Date, will automatically populate based off the inspection date and inspection interval.

COMMENTARY

Former ITEM90A is now ITEM90.

The coding submitted to FHWA will be extracted from this data.

CODING EXAMPLE

Example	ITEM90
Bridge A example: May 18, 2022	05/18/2022
Bridge B example: October 30, 2022	10/30/2022



Item 90VC – Vertical Clearance Date	I	CDOT	N/A
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DESCRIPTION

A ten-character code identifying the date that the last vertical clearance measurements were taken for each route identified in ITEM5A.

PROCEDURE

Record the month, day, and year that the last vertical clearance measurements were taken for the structure (mm/dd/yyyy).

Code 1/1/1901 when no vertical restriction exists.

Enter the Date into the [Vertical Clearance Date \(090VC\)](#) field for each inventoried route.

COMMENTARY

ITEM90VC is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	Example	ITEM90VC
Bridge A example: Vertical clearances last measured July 8, 2018		07/08/2018
Bridge B example: Vertical clearances last measured October 30, 2022		10/30/2022



Item 90B – Inspection Group	I	CDOT	N/A
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DESCRIPTION

A twenty-character code identifying the inspection team that performed the last inspection recorded in ITEM90.

PROCEDURE

CDOT inspection teams are identified by team colors.

Consultant inspection teams are identified by consultant name.

Select the appropriate Team code from the [Inspection Group](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM90B
Bridge A example: Inspected by CDOT White Team	WHITE TEAM
Bridge B example: Inspected by Company A	COMPANYA



Item 90C – Team Leader	I	CDOT	B.IE.04
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DESCRIPTION

A twenty-character code identifying the CDOT qualified Team Leader that performed the last inspection recorded in ITEM90.

PROCEDURE

Select the appropriate CDOT approved Team Leader from the [Inspector](#) dropdown menu.

COMMENTARY

When a team leader is missing from the dropdown menu, reach out to CDOT Bridge Inspection Unit to verify person is a CDOT qualified Team Leader and CDOT Asset Management Unit to add the inspector to the CDOT database list.

CODING EXAMPLE

Example	ITEM90C
Bridge A example: Inspected by Beth Jones	JONESB
Bridge B example: Inspected by Andrew Smith	SMITHA



Item 91 – Designated Inspection Interval	AM	FHWA	B.IE.05
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DESCRIPTION

A two-digit code identifying the number of months between routine inspections of the structure.

PROCEDURE

The interval between inspections shall not exceed 24 months unless agreed to by the Bridge Asset Management Engineer and approved in writing by the FHWA prior to enacting the change. The interval may be increased to 48 months only for bridges identified as low risk bridges based on FHWA criteria and:

- Meet the criteria specified by FHWA Metrics and the BRIAR Manual,
- Are reviewed and agreed to by the CDOT Bridge Asset Management Engineer and,
- Are approved in writing by the FHWA.

Record a two-digit value to represent the number of months between designated inspections of the structure. A leading zero shall be coded as required.

Enter the Interval into the Frequency (months) (091) field. The Element fields should match the routine fields.

The next inspection due date, Next Date, will automatically populate based off the inspection date and inspection interval.

COMMENTARY

REFERENCE(S):

- CDOT’s *Bridge Ratings, Inspections, and Records (BRIAR) Manual - 2012* and updates/revisions thereto.
- CDOT Memorandum titled “*48 Month Inspection Frequency Management*”, dated December 22, 2011.
- FHWA Technical Advisory 5140.21, “*Revisions to the National Bridge Inspection Standards (NBIS)*”, dated September 16, 1988.
- *Metrics for the Oversight of the National Bridge Inspection Program*, Federal Highway Administration, April 1, 2013 and updates/revisions thereto.

CODING EXAMPLE

	Example	ITEM91
Bridge A example: Structure in fair condition with no significant deficiencies		24
Bridge B example: Structure in good condition		24
Structure in poor condition with major section loss in main structural members		12



Item 92A, 92B, 92C – Critical Feature Inspection	I	FHWA	B.IR.01 B.IR.03 B.IE.05
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DESCRIPTION

A three-part code identifying **(XA)** critical features that need special inspections or special emphasis during inspections, and **(XB)** the designated inspection interval as determined by the Bridge Inspection Engineer.

PROCEDURE

Each of the three critical feature inspections consist of two sub-parts. The sub-parts are concatenated to generate a single code for each Critical Feature Inspection.

- Sub-part A: A check box indicating that the special inspection is required (Y/N)
 - When the box is left unchecked, the default for the corresponding item is “NO”
- Sub-part B: Record a two-digit number indicating the critical feature inspection interval in months
 - Must be completed when sub-part A box is checked indicating “Yes”
 - Current guidelines for the maximum allowable interval between inspections are below

Item Number	Inspection Type	Sub-part A Item	Sub-part B Item	Sub-part B Maximum Interval
92A	Fracture Critical	92AA	92AB	24 months
92B	Underwater	92BA	92BB	60 months
92C	Other Special (Pin)	92CA	92CB	24 months

ITEM92C is used to document Pin Inspection data following the guidelines above.

Check or uncheck as appropriate the [Fracture Critical \(0092AA\)](#), [Underwater \(092BA\)](#), or [Other Special \(092CA\)](#) boxes.

Enter the Interval into the Frequency (months) [\(092AB\)](#), [\(092BB\)](#), or [\(092CB\)](#) field.

The next inspection due date, [Next Date](#), will automatically populate based off the inspection date and inspection interval.

COMMENTARY

BrM SIA will still show FC instead of NSTM. SIA will leave these items blank when checked “NO”. Structures where sub-part A is indicated “YES” should be the on the State’s Master List of bridges requiring fracture critical, underwater, and/or pin inspections.

REFERENCE(S):

- CDOT Memorandum “Inspection Frequency Criteria” dated June 11, 2013
- *Metrics for the Oversight of the National Bridge Inspection Program*, Federal Highway Administration, April 1, 2013 and updates/revisions thereto.



Item 92A, 92B, 92C – Critical Feature Inspection (cont.)

CODING EXAMPLE

Example	ITEM92A	ITEM92B	ITEM92C
Bridge A example: No Critical Features	N	N	N
Bridge B example: No Critical Features	N	N	N
2 girder system structure being inspected yearly and with no other special inspections required	Y12	N	N
Fracture Critical and Underwater inspection required on annual basis	Y12	Y12	N
Temporary shoring with inspection every 6 months	Y06	N	N
A structure where all the above items are required	Y12	Y12	Y06



Item 93A, 93B, 93C – Critical Feature Inspection Date	I	FHWA	B.IE.03
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DESCRIPTION

A three-part, 10-digit code identifying inspection date of the critical feature from ITEM92A, ITEM92B, or ITEM92C.

PROCEDURE

Record the month, day, and year that the last critical feature inspection was completed (mm/dd/yyyy)

- Code only when ITEM92 sub-part A is checked to indicate “YES”
- Leave blank when ITEM92 sub-part A is unchecked to indicate “NO”

Enter the Date into the Current Date (093A), (093B), or (093C) field. The next inspection due date, Next Date, will automatically populate based off the inspection date and inspection interval.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM93A	ITEM93B	ITEM93C
Bridge A example: No Critical Features			
Bridge B example: No Critical Features			
2 girder system structure last Fracture Critical inspection on May 6, 2021	05/06/2021		
Last Fracture Critical inspection on January 3, 2023 Last Underwater inspection on June 17, 2019	01/03/2023	06/17/2019	
Temporary shoring with last inspection on July 29, 2022	07/29/2022		
A structure with Fracture Critical, Underwater, and Pin inspections completed on August 18, 2021	08/18/2021	08/18/2021	08/18/2021



Item 94 – Bridge Improvement Cost (not used)	AM	FHWA	N/A
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Item no longer used.

DESCRIPTION

A nine-digit code identifying the cost of proposed structure improvements outlined in ITEM76.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility.

This item may be coded for other structures at the option of the highway agency.

Leave blank when the structure is not structurally deficient (SD) or functionally obsolete (FO).

Leave blank when ITEM75 = “N” or is blank.

Do not use this item for estimating maintenance costs.

Code the estimated cost of the proposed structure or major improvements in thousands of dollars. This cost shall include only structure construction costs, **excluding** roadway, right of way, detour, demolition, preliminary engineering, and all other related costs. Code the base year for the cost in ITEM97 – Year of Improvement Cost Estimate.

As a guide, nationally, the deck area of replaced structures is averaging 2.2 times the deck area before replacement. The deck area of rehabilitated structures 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 structures with similar spans. For example, when the average cost of a new structure is \$500 per square foot, the average cost of the widened area would be \$900 per square foot (\$500 x 1.8).

Each highway agency is encouraged to use its best available information and established procedures to determine structure 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 structure area developed by using (1) current State deck geometry design standards and (2) proposed structure length from Item 76– Length of Structure Improvement.

Enter the Cost into the [Improvement Cost \(094\)](#) field.

COMMENTARY

REFERENCE(S): CDOT’s *Bridge Ratings, Inspections, and Records Manual - 2012*, (BRIAR Manual) and updates/revisions thereto.

CODING EXAMPLE

None.



Item 95 – Roadway Improvement Cost (not used)	AM	FHWA	N/A
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Item no longer used.

DESCRIPTION

A nine-digit code identifying the cost of proposed roadway improvements outlined in ITEM76.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility.

This item may be coded for other structures at the option of the highway agency.

Leave blank or code “N” when the structure is not structurally deficient (SD) or functionally obsolete (FO).

Do not use this item for estimating maintenance costs.

Code the cost of the proposed roadway improvement in thousands of dollars. This shall include only roadway construction costs, excluding structure, right-of-way, detour, extensive roadway realignment costs, preliminary engineering, and all other related costs. Code the base year for the cost in Item 97 –

As a guide, in the absence of a procedure for estimating roadway improvement cost, a guide of 10 percent of the structure costs is suggested.

Enter the Cost into the [Roadway Improvement Cost \(095\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 96 – Total Project Cost (not used)	AM	FHWA	N/A
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Item no longer used.

DESCRIPTION

A nine-digit code identifying the total estimated project costs outlined in ITEM76.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility.

This item may be coded for other structures at the option of the highway agency.

Leave blank or code “N” when the structure is not structurally deficient (SD) or functionally obsolete (FO).

Code the total project cost in thousands of dollars. This item should include all costs normally associated with the proposed structure improvement project. The Total Project Cost will therefore usually be greater than the sum of ITEM94 and ITEM95. Code the year for this cost was derived in ITEM97 – Year of Improvement Cost Estimate.

Include incidental costs not included in ITEM94 and ITEM95 here. Do not use this item for coding maintenance costs.

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

Enter the Cost into the [Total Cost \(096\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 97 – Year of Improvement Cost Estimate (not used)	AM	FHWA	N/A
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Item no longer used.

DESCRIPTION

A four-digit code identifying the year the cost reported in ITEM96 was estimated.

PROCEDURE

This item **must** be coded for structures eligible for the Highway Bridge Replacement and Rehabilitation Program (HBRRP), see Section 4 Introduction to determine eligibility.

This item may be coded for other structures at the option of the highway agency.

Leave blank or code “N” when the structure is not structurally deficient (SD) or functionally obsolete (FO).

Record the year that the costs estimated in ITEM94, ITEM95, and ITEM96 were estimated (yyyy). This date and the costs reported in ITEM94, ITEM95 and ITEM96 must be within 8 years of the current year.

Enter the Year into the [Year of Estimate \(097\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 98AA, 98AB, 98B – Border Bridge	AM	FHWA	B.L.08 B.L.09
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DESCRIPTION

A three-part, six-digit code identifying ITEM98AA neighboring state FIPS code, ITEM98AB neighboring state FHWA Region number, and ITEM98B deck area percentage that is the responsibility of the neighboring state for structures that cross state borders.

PROCEDURE

These items specify the responsibility for improvements to the structure when shared with a neighboring **STATE**. Colorado shares no structures with a neighboring state, these items are **pre-filled**.

ITEM98AA is the neighboring state’s FIPS code (2 characters).

Select the appropriate Border State code from the [Border State \(098AA\)](#) dropdown menu. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

ITEM98AB is the neighboring state’s FHWA Region number (1 digit).

Select the appropriate Border FHWA code from the [Border FHWA Region \(098A\)](#) dropdown menu. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

ITEM98B is the percent of deck area that the neighboring state is responsible for (2 digits).

Enter the Percentage into the [Share \(%\) \(098B\)](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM98AA	ITEM98AB	ITEM98B
Bridge A example	Not Applicable	Not Applicable	0
Bridge B example	Not Applicable	Not Applicable	0



Item 99 – Border Bridge Structure Number	AM	FHWA	B.L.07
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DESCRIPTION

A fifteen-character code identifying the National Bridge Inventory (NBI) structure number for a border structure.

PROCEDURE

Colorado shares no structures with neighboring states. This item is **pre-filled** blank.

Enter the Structure Number into the [Border Struct No \(099\)](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM99
Bridge A example	
Bridge B example	



Item 100 – STRAHNET Highway Designation	AM	FHWA	B.H.05
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DESCRIPTION

A one-digit code identifying the Strategic Highway Network (STRAHNET) designation for each route identified in ITEM5A.

PROCEDURE

The STRAHNET Designation options are listed below.

ITEM100 Code	Description
0	Inventory route is not a STRAHNET route
1	Inventory route is on an Interstate STRAHNET route
2	Inventory route is on a non-Interstate STRAHNET route
3	Inventory route is on a STRAHNET connector route

The STRAHNET is a system of roads deemed critical to the Department of Defense's (DoD's) domestic operations. **This information is provided by the Division of Transportation Development (DTD). Any changes to this classification must be provided by DTD.**

For the purposes of this item, the STRAHNET Connectors are considered included in the term STRAHNET.

Select the appropriate STRAHNET code from the [Defense Highway \(100\)](#) dropdown menu for each inventoried route.

COMMENTARY

ITEM100 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 100
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	2
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	0
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	2
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	0



Item 101 – Parallel Structure Designation	I	FHWA	N/A
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DESCRIPTION

A one-character code identifying separate parallel structures carrying the inventory route in opposite directions over the same feature.

PROCEDURE

The Parallel Structure Designation options are listed below.

ITEM101 Code	Description
R	Right structure of parallel structures carrying roadway in inventory direction
L	Left structure of parallel structures carrying roadway opposite of inventory direction
N	No parallel structure exists

* Inventory direction is typically west to east or south to north

The lateral distance between structures has no bearing on the coding of this item.

Select the appropriate Designation code from the [Parallel Structure \(101\)](#) dropdown menu for each inventoried route.

COMMENTARY

ITEM101 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure.

Only a single input option is currently available.

CODING EXAMPLE

Example	ITEM101
Bridge A example: No parallel structure exists	N
Bridge B example: Carries WB Auraria Pkwy, parallel Bridge I carries EB Auraria Pkwy	L



Item 102 – Direction of Traffic	AM	FHWA	B.RT.03
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DESCRIPTION

A one-character code identifying direction of traffic for each route identified in ITEM5A.

PROCEDURE

Code the direction of traffic of the inventory route identified in ITEM5D. This item must be compatible with other traffic-related items as noted above. Select one of the codes from the list below:

ITEM102 Code	Description
0	Highway traffic not carried
1	One-way traffic
2	Two-way traffic
3	One lane bridge for two-way traffic

Select the appropriate Direction code from the [Traffic Direction \(102\)](#) dropdown menu for each inventoried route.

COMMENTARY

ITEM102 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

	ITEM 5A	ITEM 102
Example		
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	1
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	2
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	1
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	1
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	2
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	2
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	1
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	2



Item 103 – Temporary Structure Designation	I	FHWA	N/A
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DESCRIPTION

A one-character code identifying whether temporary structures or conditions exist.

PROCEDURE

The Temporary Structure Designation options are listed below.

ITEM103 Code	Description
T	Temporary structure or repairs
N	Not Applicable (!)
U	Unknown (_)

Any repaired structure or replacement structure that is expected to remain in place without further project activity, other than maintenance, for over a year shall not be considered a temporary structure.

Under such conditions, that structure shall be considered the minimum adequate to remain in place and evaluated accordingly regardless of structure type.

Temporary structures or conditions are those which are required to facilitate traffic flow. This may occur either before or during the rehabilitation/replacement of a structure. Such conditions include:

- Shored structures, including additional temporary supports
- Temporary repairs to keep a structure open
- Temporary structures, temporary run-around, bypasses, or shoo flies
- Other temporary measures, such as barricaded traffic lanes to keep the structure open

Pulpits and saddles installed to support girders at abutments and/or pier caps are considered a permanent repair and should not be coded as temporary.

When coded “**T**”, the following items shall be **for the temporary structure**:

- **ITEM10**, Inventory Route Maximum Usable Vertical Clearance
- **ITEM41**, Structure Open, Posted, or Closed to Traffic
- **ITEM47**, Inventory Route, Total Horizontal Clearance
- **ITEM53**, Minimum Vertical Clearance over Bridge Roadway
- **ITEM54**, Minimum Vertical Under-Clearance
- **ITEM55**, Minimum Lateral Under-Clearance on Right
- **ITEM56**, Minimum Lateral Under-Clearance on Left
- **ITEM70**, Bridge Posting

Select the appropriate Temporary code from the [Temporary Structure \(103\)](#) dropdown menu.



Item 103 – Temporary Structure Designation (cont.)

COMMENTARY

When 25%, or more of the timber girders have been repaired, the bridge is considered temporary. ITEM103 is structure specific and coded for each inventoried route (ITEM5A) on and under a structure. Only a single input option is currently available.

CODING EXAMPLE

Example	ITEM103
Bridge A example: No temporary conditions exist	N
Bridge B example: No temporary conditions exist	N



Item 104 - Highway System of the Inventory Route	AM	FHWA	B.H.03
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DESCRIPTION

A one-character code identifying National Highway System (NHS) designation for each route identified in ITEM5A.

PROCEDURE

The National Highway System are roads approved by Congress as important to the nation’s economy, defense, and mobility. **This information is provided by the Division of Transportation Development (DTD). Any changes to this classification must be provided by DTD.**

The NHS Designation options are listed below.

ITEM104 Code	Description
0	Inventoried route is not on NHS
1	Inventoried route is on NHS

Select the appropriate NHS code from the [Nat. Hwy System \(104\)](#) dropdown menu for each inventoried route.

COMMENTARY

The NHS includes the Interstate System as well as other routes most critical to national defense, mobility, and commerce. The NHS has five components:

- The Interstate System is the core of the NHS and includes the most-traveled routes
- Rural and urban principal arterials
- Strategic Highway Network (STRAHNET) routes
- STRAHNET connectors providing access between major military installations and STRAHNET routes
- Intermodal connectors which are highways that provide access between major intermodal passenger and freight facilities and the other four subsystems making up the NHS.

	ITEM26 Code	ITEM104 Code	Description
Rural	01	1	Principal Arterial-Interstate
	02	1	Principal Arterial-Other
	06	0	Minor Arterial
	07	0	Major Collector
	08	0	Minor Collector
	09	0	Local
Urban	11	1	Principal Arterial-Interstate
	12	1	Principal Arterial-Other Freeways or Expressways
	14	1	Other Principal Arterial
	16	0	Minor Arterial
	17	0	Collector
	19	0	Local

ITEM104 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 104 - Highway System of the Inventory Route (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 26	ITEM 104
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	11	1
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	11	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	11	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	11	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	11	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	19	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	19	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	19	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	19	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	19	0
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1	14	1
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	19	0



Item 105 - Federal Lands Highways	AM	FHWA	B.CL.03
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DESCRIPTION

A one-character code identifying whether a route traverses Federally owned land for each route identified in ITEM5A.

PROCEDURE

Structures owned by state and local jurisdictions on roads which lead to and traverse through federal lands sometimes require unique identification coding because they are eligible to receive funding from the Federal Lands Highway Program. **This information is provided by the Division of Transportation Development (DTD). Any changes to this classification must be provided by DTD.**

The Federal Lands Designation options are listed below.

ITEM105 Code	Description
0	Not on a route traversing Federal land
1	On an Indian Reservation Road (IRR)
2	On a Forest Highway (FH)
3	On a route over Land Management Highway System (LMHS)
4	The route is over both IRR and FH land
5	The route is over both IRR and LMHS land
6	The route is over both FH and LMHS land
9	The route is over a combination of IRR, FH and LMHS land

Select the appropriate Federal Lands code from the [Fed. Lands Hwy \(105\)](#) dropdown menu for each inventoried route.

COMMENTARY

Federal lands are composed of the U.S. Forest Service, the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service.

ITEM105 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 105 - Federal Lands Highways (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 105
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	0
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	0
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	0
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	0
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	0
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	0
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	0



Item 106 - Year Reconstructed	AM	FHWA	B.W.02
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DESCRIPTION

A four-digit code identifying the year of reconstruction.

PROCEDURE

Code all four digits of the latest year in which reconstruction of the structure was completed.

For a structure to be defined as reconstructed, the type of work performed 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 are used and whether the work meets current minimum standards.

Code "0" when there has been no reconstruction.

Some types of eligible work **not to be considered as reconstruction** are listed below:

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

Enter the Year into the [Year Reconstruct \(106\)](#) field.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM106
Bridge A example: No reconstruction	0
Bridge B example: No reconstruction	0



Item 107 - Deck Structure Type	I	FHWA	B.SP.09
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DESCRIPTION

A one-character code identifying the type of deck system on the bridge.

PROCEDURE

The Deck Structure Type options are listed below.

ITEM107 Code	Description
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	Timber
9	Other
N	Not applicable

When the deck is a combination of more than one type, code the most predominant type.

Code “N” for a buried structure.

Select the appropriate Deck code from the [Deck Structure Type \(107\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM107
Bridge A example: Cast-in-place concrete deck on stay-in-place forms with epoxy coated bars, asphalt overlay on waterproof membrane	1
Bridge B example: Cast-in-place concrete deck with epoxy coated bars, asphalt overlay on waterproof membrane	1



Item 107OTH – Other Deck Structure Type (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying additional deck structure types not listed in ITEM107.

PROCEDURE

The Deck Type options are listed below.

ITEM107OTH Codes	Description
0	Not applicable

Code “0” when ITEM107 does not equal “9”.

Select the appropriate Deck Type from the [Disc Of Other Dkstructtyp \(107OTH\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 108A, 108B, 108C - Wearing Surface/Protective System	I	FHWA	B.SP.10 B.SP.11 B.SP.12
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DESCRIPTION

A three-part, three-character code identifying the wearing surface and type of protective system on the structure deck.

PROCEDURE

The type of wearing surface and protective system of the structure deck shall be coded using the codes listed below:

ITEM108A: The Wearing Surface Type options are listed below.

ITEM108A Code	Description
1	Concrete
2	Integral Concrete (Separate layer added but not latex modified, low-slump, etc.)
3	Latex Modified Concrete
4	Low Slump Concrete
5	Epoxy Overlay
6	Bituminous Overlay
7	Timber
8	Gravel
9	Other
0	None
N	Not Applicable (buried structures)

Select the appropriate Surface code from the [Deck Surface Type \(108A\)](#) dropdown menu.

ITEM108B: The Membrane Type options are listed below.

ITEM108B Code	Description
1	Built-up
2	Preformed Fabric
3	Epoxy
8	Unknown
9	Other
0	None
N	Not applicable (buried structures)

Select the appropriate Surface code from the [Deck Membrane Type \(108B\)](#) dropdown menu.



Item 108A, 108B, 108C - Wearing Surface/Protective System (cont.)

PROCEDURE (cont.)

ITEM108C: The Deck Protection options are listed below.

ITEM108C Code	Description
1	Epoxy Coated Reinforcing
2	Galvanized Reinforcing
3	Other Coated Reinforcing
4	Cathodic Protection
6	Polymer Impregnated
7	Internally Sealed
8	Unknown
9	Other
0	None
N	Not applicable

Select the appropriate Protection code from the [Deck Protection \(108C\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM108A	ITEM108B	ITEM108C
Bridge A example: Cast-in-place concrete deck on stay-in-place forms with epoxy coated bars, asphalt overlay on waterproof membrane	6	2	1
Bridge B example: Cast-in-place concrete deck with epoxy coated bars, asphalt overlay on waterproof membrane	6	2	1



Item 108AOTH – Other Wearing Surface Type (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying additional wearing surface types not listed in ITEM108A.

PROCEDURE

The Wearing Surface Type options are listed below.

ITEM108AOTH Codes	Description
0	Not applicable

Code “0” when ITEM108A does not equal “9”.

Select the appropriate Wearing Surface from the [Disc Of Other Dksurftyp \(108AOTH\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 108BOTH – Other Deck Membrane Type (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying additional deck membrane types not listed in ITEM108B.

PROCEDURE

The Membrane Type options are listed below.

ITEM108BOTH Codes	Description
0	Not applicable

Code “0” when ITEM108B does not equal “9”.

Select the appropriate Membrane from the [Disc Of Other Dkmembtyp \(108BOTH\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 108COTH – Other Deck Protection Type (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying additional deck protection types not listed in ITEM108C.

PROCEDURE

The Protection Type options are listed below.

ITEM108COTH Codes	Description
0	Not applicable

Code “0” when ITEM108C does not equal “9”.

Select the appropriate Protection from the [Disc Of Other Dkprotect \(108COTH\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 109 - Average Daily Truck Traffic	AM	FHWA	B.H.10
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DESCRIPTION

A two-digit code identifying the percentage of ITEM29 attributed to truck traffic for each route identified in ITEM5A.

PROCEDURE

Code the percentage of ITEM29 Average Daily Traffic that is truck traffic to nearest percent. Do not include vans, pickup trucks, and other light delivery trucks.

When truck traffic information is not available, an estimate which represents the average percentage for the route Functional Classification (ITEM26) may be used from the following table:

	ITEM26 Code	ITEM109 Code	Description
Rural	01	10	Principal Arterial-Interstate
	02	10	Principal Arterial-Other
	06	08	Minor Arterial
	07	05	Major Collector
	08	01	Minor Collector
	09	00	Local
Urban	11	10	Principal Arterial-Interstate
	12	10	Principal Arterial-Other Freeways or Expressways
	14	10	Other Principal Arterial
	16	08	Minor Arterial
	17	03	Collector
	19	00	Local

This item may be left blank when ITEM29 is not greater than 100.

Enter the percentage into the [Truck % \(109\)](#) field for each inventoried route.

COMMENTARY

Refer to the CDOT [Online Traffic Information System \(OTIS\) Traffic Data](#) website for the most up-to-date current and future ADT information to complete this item.

ITEM109 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.



Item 109 - Average Daily Truck Traffic (cont.)

CODING EXAMPLE

Example	ITEM 5A	ITEM 109
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	03
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML, 6.8% trucks	A	07
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	07
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	0
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	0
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	0
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	06
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	0



Item 110 - Designated National Network	AM	FHWA	B.H.04
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DESCRIPTION

A one-character code identifying National Truck Network designation for each route identified in ITEM5A.

PROCEDURE

The National Truck Network includes most of the Interstate System and those portions of the Federal-Aid highways identified in the Code of Federal Regulations (23 CFR 658). The national network for trucks is available for use by commercial motor vehicles of the dimensions and configurations described in these regulations. **This information is provided by the Division of Transportation Development (DTD). Any changes to this classification must be provided by DTD.**

The Truck Network Designation options are listed below.

ITEM110 Code	Description
0	Inventoried route is not on National Truck Network
1	Inventoried route is on National Truck Network

Select the appropriate Truck Network code from the [Nat. Hwy System \(110\)](#) dropdown menu for each inventoried route.

COMMENTARY

The National Truck Network was created to allow conventional combinations on the Interstate System and portions of the Federal-Aid Primary System.

ITEM110 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 110
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	1
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	1
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	1
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	1
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	1
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	0
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	0



Item 111 - Pier or Abutment Protection (For Navigation)	AM	FHWA	B.N.06
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DESCRIPTION

A one-character code identifying the presence, and adequacy, of pier or abutment protection features.

PROCEDURE

The Support Protection options are listed below.

ITEM111 Code	Description
1	Navigation protection not required
2	In place and functioning
3	In place but in a deteriorated condition
4	In place but reevaluation suggested
5	None present but re-evaluation suggested
N	Not Applicable (!)

Code “N” because there are no navigable rivers or water courses in Colorado.

Select the appropriate Protection code from the [Pier Protection \(111\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

Example	ITEM111
Bridge A example	N
Bridge B example	N



Item 112 - NBIS Bridge Length	AM	FHWA	B.G.01
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DESCRIPTION

A one-character code identifying whether the structure length qualifies as a bridge for National Bridge Inspection Standards (NBIS) purposes.

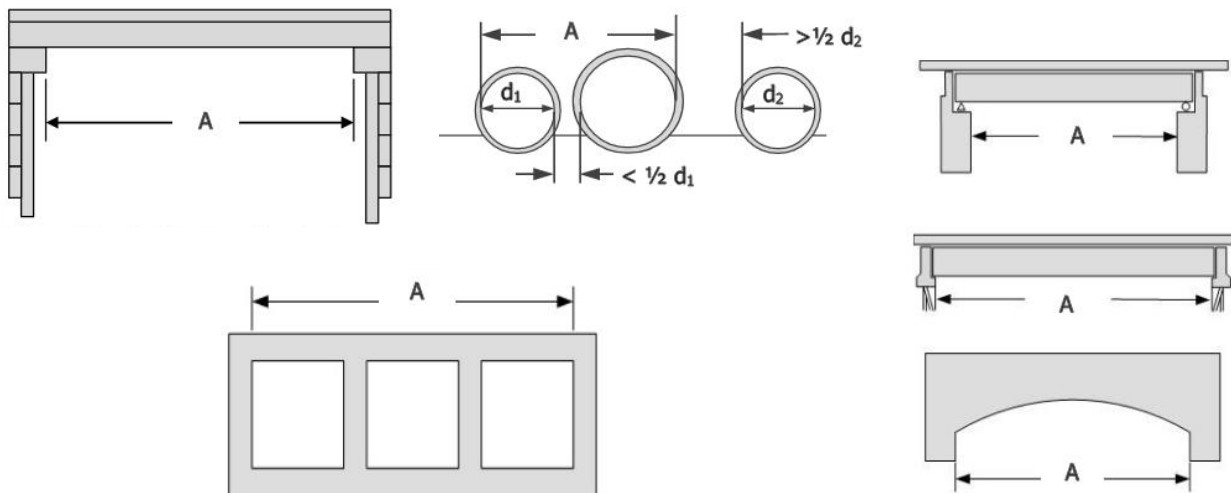
PROCEDURE

The NBIS Bridge Length options are listed below.

ITEM112 Code	Description
Y	Yes, NBIS Bridge Length
N	No, is not NBIS Bridge Length

Select the appropriate NBIS code from the [NBIS Bridge Length \(112\)](#) dropdown menu.

NBIS Structure Length Measurements (A): Measurement examples



COMMENTARY

ITEM112 differs from ITEM49 Structure Length which is measured from back-face to back-face of abutments.

The NBIS defines a bridge as: 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 under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it includes multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

CODING EXAMPLE

Example	ITEM112
Bridge A example: NBIS Length = 1509.0 ft	Y
Bridge B example: NBIS Length = 940.0 ft	Y



Item 113 - Scour Critical Bridges	AM	MOD FHWA	B.C.11 B.AP.03
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DESCRIPTION

A single-character code identifying structures current scour vulnerability due to calculated maximum scour or field conditions.

PROCEDURE

Scour evaluations shall be made by hydraulic/geotechnical/structural engineers. Whenever a rating factor of 2 or below is determined for this item, the rating factor for ITEM60 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 18² and HEC 23³).

A **scour critical bridge** is one with abutment or pier foundation rated as unstable due to either:

- Observed scour at the bridge site (rating factor of 2, 1, or 0)
- Scour potential as determined from a scour evaluation study (rating factor of 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.

NOTE: Language in tables prefaced by the words *CDOT:* – and in *italics* - was added by CDOT Staff Bridge to further clarify the coding definitions and uses.

Select the appropriate Scour code from the **Scour Critical (113)** dropdown menu. This field is populated by CDOT Bridge and Structures Asset Management Group based off scour memos and is not editable.

The Scour Vulnerability options are listed below and on following pages.

ITEM113 Code	Description
N	Bridge not over waterway
U	Bridge with "unknown" foundation that has not been evaluated for scour. Until risk can be determined, a plan of action should be developed and implemented to reduce the risk to users from a bridge failure during and immediately after a flood event (see HEC-23) <i>CDOT: Only to be used when foundation is unknown and scour calculations are not in bridge record. Any structure coded "U" will immediately be scheduled to have the foundation determined and scour calculations completed and placed in the bridge record.</i>
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. <i>CDOT: Not used because Colorado has no tidal waters.</i>



Item 113 - Scour Critical Bridges (cont.)

PROCEDURE (cont.)

ITEM113 Code	Description
9	Bridge foundations, including piles, on dry land well above flood water elevations
8	<p>Bridge foundations determined to be stable for the assessed or calculated scour condition. Scour is determined to be above top of footing (Figure 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, by calculation or by installation of properly designed countermeasures, see HEC-23.</p> <p><i>CDOT: Use only for bridges determined to be stable for the 500-year or controlling storm event based on the scour calculations within the bridge record.</i></p> <p><i>Code all culverts "8", unless other findings indicate repairs are needed then use code "4". When toewalls, aprons, or wingwall footings are exposed but not undermined, code "8" and add maintenance recommendation to address finding. This includes open bottom culverts, but only when they are on competent rock or piles.</i></p>
7	<p>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 (POA) have been implemented to reduce the risk to users from a bridge failure during or immediately after a flood event.</p> <p><i>CDOT: Not used in Colorado. When properly designed countermeasures have been installed, use the code of "8" or "5" as applicable.</i></p>
6	<p>Scour calculation/evaluation has not been made. Use only to describe case where a bridge has not yet been evaluated for scour potential.</p> <p><i>CDOT: Not to be used in Colorado. New structures should be evaluated for scour using the screening flow chart in the Bridge Inspection Manual as soon as the first inspection occurs. The first inspection should take place within 90 days of the new structure entering the data base.</i></p>
5	<p>Bridge foundations determined to be stable for assessed or calculated scour condition. Scour is determined to be within the limits of footing or piles (Figure 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).</p> <p><i>CDOT: Use for bridges determined to be stable for the 500-year or controlling storm event based on the scour calculations within the bridge record.</i></p> <p><i>Use for structures that cross canals or other controlled waterways in all cases unless other findings indicate that a lower code should be used. Culverts shall be coded "8" or "4".</i></p>
4	<p>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).</p> <p><i>CDOT: Use only for bridges that:</i></p> <ul style="list-style-type: none"> • <i>Have observed and documented scour that has exposed the piling or footings; and</i> • <i>Have been determined to be stable for the 500-year or controlling storm event (Item 113 = "5" or "8") based on the scour calculations within the bridge record.</i> • <i>Or culverts needing repair due to scour or erosion defects</i> <p><i>Essential Repair Finding notice required to address the observed scour and ITEM60 Substructure must be coded no greater than "5" Fair Condition.</i></p>



Item 113 - Scour Critical Bridges (cont.)

PROCEDURE (cont.)

ITEM113 Code	Description
3	<p>Bridge is scour critical; bridge foundations determined to be unstable for assessed or calculated scour conditions:</p> <ul style="list-style-type: none"> • Scour is within limits of footing or piles. (Figure B) • Scour below spread-footing base or pile tips. (Figure C) <p><i>CDOT: Use only for bridges determined to be unstable for the 500-year or controlling storm event based on the scour calculations within the bridge record.</i></p> <p><i>Plan of Action (POA) required to monitor until replacement has been implemented. Consult with CDOT to determine if a full HEC-18 scour analysis should be performed.</i></p>
2	<p>Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations, which are determined to be unstable by a comparison of calculated scour and observed scour during the bridge inspection, or by an engineering evaluation of the observed scour condition reported by the bridge inspector in Item 60.</p> <p><i>CDOT: Use only for bridges that meet both of the following:</i></p> <ul style="list-style-type: none"> • Have observed and documented scour that has exposed the piling or footings but not enough observed scour to indicate that the bridge failure is imminent • Have been determined to be unstable for the 500-year or controlling storm event (Item 113 = "3") based on the scour calculations within the bridge record <p><i>Essential Repair Finding notice required to address the observed and documented scour. Although bridges in this category may not be in danger of imminent failure, consideration should be given to closing the bridge until repairs are in place to address the observed scour.</i></p> <p><i>ITEM 60 Substructure must be coded no greater than "3" Serious Condition.</i></p>
1	<p>Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic. Failure is imminent based on:</p> <ul style="list-style-type: none"> • a comparison of calculated and observed scour during the bridge inspection, or • engineering evaluation of observed scour condition reported by bridge inspector in ITEM60. <p><i>CDOT: Use only for bridges that meet both of the following:</i></p> <ul style="list-style-type: none"> • Have observed and documented scour that has exposed the piling or footings enough to indicate that the bridge failure is imminent • Have been determined to be unstable for the 500-year or controlling storm event (Item 113 = "3") based on the scour calculations within the bridge record <p><i>Essential Repair Finding notice required to address the observed and documented scour. Bridges in this category are in danger of imminent failure and must be closed immediately until repairs are in place to address the observed scour.</i></p> <p><i>ITEM60 Substructure is to be coded "1" Imminent Failure Condition.</i></p>
0	<p>Bridge is scour critical. Bridge has failed and is closed to traffic.</p> <p><i>CDOT: Use only for bridges that have observed scour causing the bridge to fail.</i></p> <p><i>Critical Inspection Finding notice required to address the observed scour. Bridges in this category have failed and must be closed immediately until repairs are in place to address the observed scour.</i></p> <p><i>ITEM60 Substructure is to be coded "0" Failed Condition.</i></p>



Item 113 - Scour Critical Bridges (cont.)

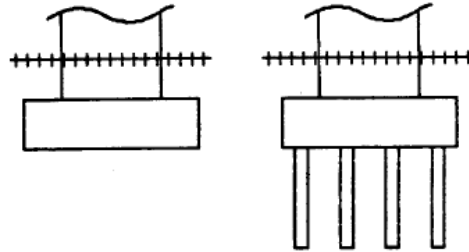
PROCEDURE (cont.)

EXAMPLES

CALCULATED SCOUR DEPTH

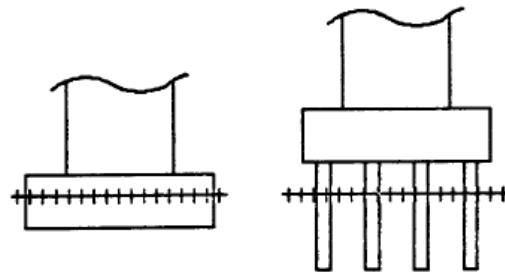
ACTION NEEDED

A. Above top of footing



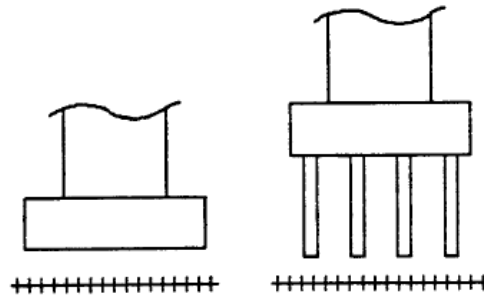
None - indicate rating of 8 for this item

B. Within limits of footing or piles



Conduct foundation structural analysis

C. Below pile tips or spread-footing base



Provide for monitoring and scour countermeasures as necessary

SPREAD FOOTING
(NOT FOUNDED
IN ROCK)

PILE FOOTING

+++++ = Calculated scour depth



Item 113 - Scour Critical Bridges (cont.)

COMMENTARY

There are to be no changes to the coding of Item 113, Scour Critical Bridges, unless it is fully documented and agreed to by the CDOT Bridge Inspection Engineer and the CDOT Bridge Asset Management Engineer. The documentation shall include a memo, see Appendix L, placed in the structure folder that, with attachments where necessary, identifies the current and new coding for item 113 and provides the basis for the change. The memo will be signed by the CDOT Bridge Inspection Engineer and the CDOT Bridge Asset Management Engineer. This documentation will also be provided whenever the current coding is confirmed by an updated hydraulic analysis for the bridge. In this case the memorandum will document the updated analysis and the decision not to change the coding.

The clarification on Item 113, Scour Critical Bridges, was compiled from the following:

The Errata Sheet for the FHWA Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation’s Bridges Report No. FHWA-PD-96-001 December 1995

The Errata Sheet was produced after the FHWA Memorandum dated April 27, 2001 on the subject: ACTION: Revision of Coding Guide, Item 113 - Scour Critical Bridges.

REFERENCE(S): CDOT Memorandum “BR 02 Coding of Item 113, Scour Critical Bridges 2020 11 24”

CODING EXAMPLE

Example	ITEM113
Bridge A example: Calculated scour above foundation limits	8
Bridge B example: Not over waterway	N



Item 113C to 113L – Scour Study Information (Off-System) (not used)	AM	CDOT	N/A
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Items no longer used.

DESCRIPTION

These eleven items record the data used to calculate scour vulnerability of Off-System bridges. Scour evaluation of On-System bridges is managed by CDOT's Hydraulics Unit.

PROCEDURE

These items document the information necessary for, or used in, a scour evaluation for Off-System structures over uncontrolled waterways or potential waterways. Leave blank when not applicable.

ITEM113C, AREA OF OPENING: A four-digit code identifying the waterway opening area under a structure. Code to the nearest square foot (ft²).

ITEM113D, SLOPE OF STREAM: A five-digit code identifying the slope, feet horizontal per foot vertical, of the stream bed passing under a structure. Code to the nearest hundredth of a foot.

ITEM113E, MAXIMUM DEPTH OF FLOW: A two-digit code identifying the maximum depth of flow, in feet, just upstream of the structure. Code to the nearest foot. The maximum depth of flow can be estimated by high water marks on piers or abutments, or use one foot below the bottom of girders, or the top of banks approaching the structure.

ITEM113F, WIDTH OF PIER: A four-digit code identifying the width of the pier at the point of attack of the flow. When more than 1 pier is in the streambed use the worst case. Code the width to the nearest tenth of a foot.

ITEM113G, ANGLE OF ATTACK: A two-digit code identifying the angle of attack to the pier(s) in degrees of the direction of flow at the structure. Code to the nearest degree.

ITEM113H, WETTED PERIMETER: A three-digit code identifying the wetted perimeter, as defined by the Manning's Formula. Code to the nearest foot.

ITEM113I, SCOUR DEPTH: A two-digit code identifying calculated scour depth. Code to the nearest foot.

ITEM113J, MANNING'S COEFFICIENT (n): A five-digit code to record the Mannings Coefficient as defined by the Manning Formula. Code to the nearest hundredth.

ITEM113K, DISCHARGE "Q": A five-digit code to record the flow, in feet³/sec, through the structure opening. Code to the nearest cubic foot/sec.

ITEM113L, LENGTH OF PIER: A five-digit code to record the length of the pier that affects the flow through the structure. Code to at least the nearest tenth of a foot.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 113M – Scour Watch	AM	CDOT	N/A
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DESCRIPTION

A one-character code identifying structures that are not scour critical but require monitoring during or after a high-water event.

PROCEDURE

The Scour Watch options are listed below.

ITEM113M Code	Description
Y	Yes, included on Scour Watch List
N	No, not included on Scour Watch List

Enter the appropriate Scour Watch code into the [Scour_Watch \(113M\)](#) field.

COMMENTARY

When ITEM113 ≤ 3 structures are considered Scour Critical and are automatically added to the Scour Watch List.

When ITEM113 = 4 structures are added to the Scour Watch List when the scour could exceed the safe limit of the structure or when the foundation was undetermined, and the conditions warrant a watch.

CODING EXAMPLE

Example	ITEM113M
Bridge A example: No scour threat	N
Bridge B example: Not over a waterway	N



Item 114 – Future Average Daily Traffic	AM	FHWA	N/A
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DESCRIPTION

An eight-digit code identifying Average Daily Traffic (ADT) projected for the year listed in ITEM115 for each route identified in ITEM5A.

PROCEDURE

For all structures, code the forecasted average daily traffic (ADT) for the inventory route identified in ITEM5D including truck traffic from ITEM109. This shall be projected at least 17 years but no more than 22 years from the year of inspection. 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.

When planning data is not available, use the best estimate based on site familiarity.

The future ADT must be compatible with the other items coded for the structure. For example, parallel structures with an open median where ITEM28 – Lanes On and Under the Structure and ITEM51 – Bridge Roadway Width Curb-to-Curb are coded for each bridge separately, then the future ADT must be coded for each structure separately and not the total for the route.

Enter the ADT into the [Future ADT \(114\)](#) field for each inventoried route.

COMMENTARY

Refer to the CDOT [Online Traffic Information System \(OTIS\) Traffic Data](#) website for the most up-to-date current and future ADT information to complete this item.

ITEM114 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM114
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	54390
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	127389
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	127389
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	20935
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	24889
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	106
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	11
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	11
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	668
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	25
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	14164
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	55



Item 115 – Year of Future Average Daily Traffic	AM	FHWA	N/A
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DESCRIPTION

A four-digit code identifying future ADT value in ITEM114 was projected for each route identified in ITEM5A.

PROCEDURE

Code the year identified by the future ADT in ITEM114. The projected year shall be at least 17 years, but no more than 22 years from the year of inspection.

Enter the ADT Year into the [Fut. Year \(115\)](#) field for each inventoried route.

COMMENTARY

ITEM115 is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 115
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	2040
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	2040
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	2040
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	2040
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	2040
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	2040
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	2040
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	2040
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	2040
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	2040
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	2041
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	2041



Item 116 – Minimum Navigation Vertical Clearance, Vertical Lift Bridge	AM	FHWA	B.N.02
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DESCRIPTION

A five-digit code identifying the minimum vertical clearance imposed.

PROCEDURE

Enter “0” into the [Minimum Vertical Lift Clearances \(116\)](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

COMMENTARY

Code “0” because there are no lift bridges in Colorado.

CODING EXAMPLE

Example	ITEM116
Bridge A example	0
Bridge B example	0



SECTION 5 CDOT Additional Items (Items 120A to 142)

The items in Section 5 identify additional metrics CDOT records for each structure, as applicable, beyond what is required by FHWA.



Item 120A, 120B – Structure and/or Construction Type, Main	I	CDOT	N/A
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DESCRIPTION

A two-part code identifying the five-character original main span CDOT design and material type (ITEM120A) and thirty-character construction type (ITEM120B).

PROCEDURE

ITEM120A: The CDOT Main Span Design and Material Type options are listed below correlating to ITEM43A and ITEM43B.

Select the appropriate Design and Material code from the **Structtype (120A)** dropdown menu.

ITEM120A: CDOT Design and Material type			
ITEM43A Code	ITEM43B Code	ITEM120A Code	Description
1	01	CS	Concrete Slab, Simple
1	04	CSG	Concrete Slab and Girder (Tee Beam), Simple
1	05/06	CBG	Concrete Box Girder, Simple
1	06	CTG	Concrete Tub Girder, Simple
1	07	CRF	Concrete Rigid Frame, Simple
1	11	CA	Concrete Arch
1	19	CAC	Concrete Arch Culvert
1	19	CBC	Concrete Box Culvert
1	19	PCBC	Precast Concrete Box Culvert
1	19	RCPC	Reinforced Concrete Pipe Culvert
1	21	CBGS	Concrete Box Girder Segmented, Simple
2	01	CSC	Concrete Slab, Continuous
2	04	CSGC	Concrete Slab and Girder (Tee Beam), Continuous
2	05/06	CBGC	Concrete Box Girder, Continuous
2	06	CTGC	Concrete Tub Girder, Continuous
3	02	CI	Concrete deck on steel I-beam, Simple
3	02	CIK	Concrete Composite deck on steel I-beam, Simple
3	02	CIKP	Concrete Composite deck on prestressed steel I-beam, Simple
3	02	RG	Riveted Girder, Simple
3	02	SSE	Steel Stringer with Earth Fill (using 1/2 CMP), Simple
3	02	SSM	Steel Stringer with Metal Plank deck, Simple
3	02	SSS	Steel Stringer with Timber deck, Simple
3	02	WG	Welded Girder, Simple
3	02	WGK	Composite Welded Girder, Simple
3	03	SDG	Steel Deck Girder, Simple
3	03	STG	Steel Thru Girder, Simple
3	05/06	SBG	Steel Box Girder, Simple
3	05/06	SBGP	Steel Prestressed Box Girder, Simple
3	09	SDT	Steel Deck Truss, Simple
3	10	SLT	Steel Low Truss, Simple



Item 120A, 120B – Structure and/or Construction Type, Main (cont.)

PROCEDURE (cont.)

ITEM120A: CDOT Design and Material type			
ITEM43A Code	ITEM43B Code	ITEM120A Code	Description
3	10	STT	Steel Thru Truss, Simple
3	11	SA	Steel Arch
3	12	STA	Steel Thru Arch, Simple
3	13	SUSP	Suspension Bridge, Simple
3	19	CMP	Corrugated Metal Pipe, Culvert
3	19	SAC	Steel Arch Culvert/Multiplate Arch Culvert
4	02	CIC	Concrete deck on steel I-beam, Continuous
4	02	CICK	Concrete Composite deck on steel I-beam, Continuous
4	02	CICKP	Concrete Composite deck on prestressed steel I-beam, Continuous
4	02	RGC	Riveted Girder, Continuous
4	02	SSEC	Steel Stringer with Earth Fill (using 1/2 CMP), Continuous
4	02	SSMC	Steel Stringer with Metal Plank deck, Continuous
4	02	SSSC	Steel Stringer with Timber deck, Continuous
4	02	WGC	Welded Girder, Continuous
4	02	WGCK	Composite Welded Girder, Continuous
4	03	SDGC	Steel Deck Girder, Continuous
4	05/06	SBGC	Steel Box Girder, Continuous
4	05/06	SBGCP	Steel Prestressed Box Girder, Continuous
5	01	CSP	Concrete Prestressed Slab, Simple
5	02	CPG	Concrete Prestressed Girder, Simple
5	04	CDTPG	Concrete Double T Prestressed Girder, Simple
5	04	CSGP	Concrete Prestressed Slab and Girder, Simple
5	05/06	CBGP	Concrete Prestressed Box Girder, Simple
5	06	CTGCP	Concrete Prestressed Tub Girder, Simple
6	01	CSPC	Concrete Prestressed Slab, Continuous
6	02	CPGC	Concrete Prestressed Girder, Continuous
6	04	CSGCP	Concrete Prestressed Slab and Girder, Continuous
6	05/06	CBGCP	Concrete Prestressed Box Girder, Continuous
6	06	CTGP	Concrete Prestressed Tub Girder, Continuous
7	01	TSLAB	Timber Slab, Simple
7	02	TD	Timber Stringer with Concrete deck, Simple
7	02	TLS	Timber Laminated (Gluelam) Stringer, Simple
7	02	TM	Timber Stringer with Metal deck, Simple
7	02	TS	Timber Stringer with Timber deck, Simple
7	02	TTD	Treated Timber Stringer with Concrete deck, Simple
7	02	TTM	Treated Timber Stringer with Metal deck, Simple
7	02	TTS	Treated Timber Stringer with Timber deck, Simple
7	10	TLT	Timber Low Truss, Simple
7	10	TTT	Timber Thru Truss, Simple



Item 120A, 120B – Structure and/or Construction Type, Main (cont.)

PROCEDURE (cont.)

ITEM120A: CDOT Design and Material type			
ITEM43A Code	ITEM43B Code	ITEM120A Code	Description
7	11/12	TLA	Timber Laminated (Gluelam) Arch, Simple
8	11	RA	Rubble Arch
8	19	RAC	Rubble Arch Culvert
9	19	AAC	Aluminum Arch Culvert
0	19	CPP	Corrugated Plastic Pipe Culvert
		HML	High Mast Light (see associated manual)
		OP	Overhead Pipe (see associated manual)
		RE	Reinforced Earth (see associated manual)
		SGNAL	Mast Arm Signal (see associated manual)
		SIGN	Overhead Sign (see associated manual)
		SIGNB	Overhead Sign, Butterfly (see associated manual)
		SIGNC	Overhead Sign, Cantilever (see associated manual)
		SIGND	Overhead Sign Bridge with Cantilever (see associated manual)
		TUNC	Tunnel, Concrete Lined (see associated manual)
		TUNR	Tunnel, Thru Rock No Lining (see associated manual)
		WALLR	Retaining Wall (see associated manual)
		WALLS	Sound Barrier Wall (see associated manual)

ITEM120B: The CDOT Main Span Construction Type options are listed below.

Underwater inspection types must be recorded in ITEM120B.

Select the appropriate Construction code from the [Constype \(120B\)](#) dropdown menu.

ITEM120B: CDOT Construction Type	
ITEM120B Code	Description
00	Not Applicable or Unknown
01	Precast
02	Poured in Place
03	Pre-tensioned/Prestressed
04	Post-tensioned
05	Parabolic
06	Cantilevered
10	Curved
20	Concrete 'T' Girder, Prestressed
21	Concrete Double 'T' Girder, Prestressed
25	AASHTO Type I, Prestressed
26	AASHTO Type II, Prestressed
27	AASHTO Type III, Prestressed
28	AASHTO Type IV, Prestressed



Item 120A, 120B – Structure and/or Construction Type, Main (cont.)

PROCEDURE (cont.)

ITEM120B: CDOT Construction Type	
ITEM120B Code	Description
30	Colorado Type G 54, Prestressed, Simple Span
31	Colorado Type G 54, Prestressed, Continuous Spans
32	Colorado Type G 68, Prestressed, Simple Span
33	Colorado Type G 68, Prestressed, Continuous Spans
34	Colorado Type G 70, Prestressed, Simple Span
35	Colorado Type G 70, Prestressed, Continuous Spans
36	Colorado Type G 78, Prestressed, Simple Span
37	Colorado Type G 78, Prestressed, Continuous Spans
38	Colorado Type G 72, Prestressed, Simple Span
39	Colorado Type G 72, Prestressed, Continuous Spans
40	BULBT, Simple Span
41	BULBT, Continuous Span
50	Riveted Plate Girder
51	Slant Leg
60	Super Span
80	SI/Pin & Link, w/Category III UWI (Water depth: 4ft to 6ft)
81	SI/Pin & Link w/Category II UWI (Water depth: 7ft to 10ft)
82	SI/Pin & Link w/Category I UWI (Water depth: > 10ft)
83	SI/Pin & Link connections
85	SI/Category I UWI (Water depth: > 10ft)
86	SI/Category II UWI (Water depth: 7ft to 10ft)
88	SI/Category III UWI (Water depth: 4ft to 6ft)
90	Research Required
91	Experimental Bridge
99	Multi type Girder System
PP	Pre-tensioned and Post-tensioned (spliced midspan)

COMMENTARY

REFERENCE(S): CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM120A	ITEM120B
Bridge A example: Curved continuous (5) prestressed G 68 girders	CPGC	33
Bridge B example: Curved continuous (5) cell prestressed box girder	CBGCP	10
Continuous prestressed G 68 girders which is also an SI/Category I UWI	CPGC	88
Continuous concrete parabolic T beam	CSGC	05
A pin connected steel thru truss over an 8 foot deep river (SI Pin and Link w/Category II UWI)	STT	81



Item 120C – Structure Category (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying the superstructure category.

PROCEDURE

The Superstructure Category options are listed below.

ITEM120C Code	Description
Timber stringer or pipes	Timber bridges
Conc.Brdgs	Concrete bridges
Steel Brdgs.	Steel bridges
PreStressed/PostTen Conc	Prestressed or Post-tension concrete bridges
FloorSys,StlSlantLeg,Tim	Floor system or Slant Leg bridges
Truss Bridges	Truss bridges
Unknown	Bridges that do not fall into the other categories

Select the appropriate Category from the [Strtypecat \(120C\)](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 121 – Sybase System Indicator (not used)	AM	CDOT	N/A
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Item is not currently used.



Item 122A through 122EE – Inspection Year Indicator (not used)	AM	CDOT	N/A
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Items are no longer used.

DESCRIPTION

A one character or two-digit code identifying the structure inspection schedule related to inspection interval.

Item Number	Item Name	Length
122A	Assigned Quarter for 12 Month Inspection	1 character
122AA	Assigned Trip for 12 Month Inspection (On-System)	2 digits
122B	Special Inspection Requirements	1 character
122C	Assigned Quarter for 24 Month Inspection	1 character
122CC	Assigned Trip for 24 Month Inspection (On-System)	2 digits
122D	Assigned Quarter for 48 Month Inspection	1 character
122DD	Assigned Trip for 48 Month Inspection (On-System)	2 digits
122E	Assigned Quarter for 48 Month Inspection	1 character
122EE	Assigned Trip for 48 Month Inspection (On-System)	2 digits

PROCEDURE

Changes to any of these codes and/or schedules, whether for On-System or Off-System structures, must be approved by the Bridge Inspection Engineer or the Statewide Bridge Inspection Coordinator.

The On-System Quarter Schedule options are listed below.

Inspection Schedule Indicator: On-System Structures		
	Description	Code
Even numbered years	First Quarter (Jan Feb Mar)	A
	Second Quarter (Apr May Jun)	B
	Third Quarter (Jul-Aug-Sep)	C
	Fourth Quarter (Oct Nov Dec)	D
Odd numbered years	First Quarter (Jan Feb Mar)	E
	Second Quarter (Apr May Jun)	F
	Third Quarter (Jul-Aug-Sep)	G
	Fourth Quarter (Oct Nov Dec)	H
Tunnels monitored 24/7 such as Eisenhower Tunnels		X



Item 122A through 122EE – Inspection Year Indicator (cont.)

PROCEDURE (cont.)

The Off-System Year and Area Schedule options are listed below.

Inspection Schedule Indicator: Off-System Structures			
	Code	Area	County
Odd numbered years	A	Northern (9)	Broomfield, Garfield, Grand, Logan, Moffat, Phillips, Sedgwick, Washington, Weld
	B	Central (5)	Adams, Arapahoe, Eagle, El Paso, Teller
	C	Southern (16)	Baca, Bent, Chafee, Cheyenne, Delta, Dolores, Gunnison, Kit Carson, Lake, Mesa, Montrose, Otero, Ouray, Pitkin, San Juan, San Miguel
Even numbered years	D	Northern (7)	Boulder, Jackson, Larimer, Morgan, Rio Blanco, Routt, Yuma
	E	Central (9)	Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, Lincoln, Park, Summit
	F	Southern (18)	Alamosa, Archuleta, Conejos, Costilla, Crowley, Custer, Fremont, Hinsdale, Huerfano, Kiowa, La Plata, Las Animas, Mineral, Montezuma, Prowers, Pueblo, Rio Grande, Saguache

COMMENTARY

REFERENCE(S):

- FHWA Metrics for the Oversight of the National Bridge Inspection Program, April 1, 2013, Metrics 6 through 11 and updates/revisions thereto.
- CDOT memorandum “Inspection Scheduling – Major Vehicular bridges”, May 24, 2012 and updates/revisions thereto.

CODING EXAMPLE

None.



ITEM122A – Reduced Inspection Interval Assigned Quarter (not used)	AM	CDOT	N/A
ITEM122AA – Reduced Inspection Interval Assigned Trip (not used)			

Items are no longer used.

DESCRIPTION

ITEM122A: A one character code identifying the assigned quarter or year for structures with a reduced inspection interval of less than 24-months.

ITEM122AA: A two-digit code identifying the assigned trip number for On-System structures with a reduced inspection interval of less than 24-months.

PROCEDURE

On-System

- **ITEM122A:** The Quarter options are listed in the **Inspection Schedule Indicator: On-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122AA:** Enter the two-digit code corresponding to the trip number.

Off-System

- **ITEM122A:** The Year and Area options are listed in the **Inspection Schedule Indicator: Off-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122AA:** Leave blank. This item is for On-System scheduling only.

COMMENTARY

None.

CODING EXAMPLE

When a structure has a regular inspection quarter or ITEM122C of "A" then the corresponding ITEM122A code would be "E", the quarter 12 months from "A". For all other structures, leave ITEM122A blank.



Item 122B – Special Inspection Requirements (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying those structures that are of special interest, as listed below, when scheduling inspections.

PROCEDURE

Code the structure according to the specific category affecting it and/or the scheduling problems encountered. The following codes are used for On-System and Off-System inspected bridges. The code “M” below is reserved for CDOT use to indicate new structures that have not been inspected. It is removed once the structure has been inspected.

ITEM122B Code	Description
0	Not Applicable
2	Timber Structures over Canal
3	Other Structures over Canal
M	New Structure not inspected (for CDOT use only)
R	Revisit, (still under construction, cannot inspect due to high water, etc.)
U	Under construction (to be replaced)
X	Inspect on a less than 12-month interval

COMMENTARY

None.

CODING EXAMPLE

None.



Item 122C – 24-month Inspection Interval Assigned Quarter (not used)	AM	CDOT	N/A
Item 122CC – 24-month Inspection Interval Assigned Trip (not used)			

Items are no longer used.

DESCRIPTION

ITEM122C: A one character code identifying the assigned quarter or year for structures with an inspection interval of 24-months.

ITEM122CC: A two-digit code identifying the assigned trip number for On-System structures with an inspection interval of 24-months.

PROCEDURE

On-System

- **ITEM122C:** The Quarter options are listed in the **Inspection Schedule Indicator: On-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122CC:** Enter the two-digit code corresponding to the trip number.

Off-System

- **ITEM122C:** The Year and Area options are listed in the **Inspection Schedule Indicator: Off-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122CC:** Leave blank. This item is for On-System scheduling only.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 122D – 48-month Inspection Interval Assigned Quarter (not used)	AM	CDOT	N/A
Item 122DD – 48-month Inspection Interval Assigned Trip (not used)			

Items are no longer used.

DESCRIPTION

ITEM122D: A one character code identifying the assigned quarter or year for structures with an inspection interval of 48-months with an inspection occurring in Leap Year or Leap Year plus one year.

ITEM122DD: A two-digit code identifying the assigned trip number for On-System structures with an inspection interval of 48-months for the first 48-month inspection cycle.

PROCEDURE

On-System

- **ITEM122D:** The Quarter options are listed in the **Inspection Schedule Indicator: On-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122DD:** Enter the two-digit code corresponding to the trip number.

Off-System

- **ITEM122D:** The Year and Area options are listed in the **Inspection Schedule Indicator: Off-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122DD:** Leave blank. This item is for On-System scheduling only.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 122E – 48-month Inspection Interval Assigned Quarter (not used)	AM	CDOT	N/A
Item 122EE – 48-month Inspection Interval Assigned Trip (not used)			

Items are no longer used.

DESCRIPTION

ITEM122E: A one character code identifying the assigned quarter or year for structures with an inspection interval of 48-months with an inspection occurring in Leap Year plus 2 years or Leap Year plus three years.

ITEM122EE: A two-digit code identifying the assigned trip number for On-System structures with an inspection interval of 48-months.

PROCEDURE

On-System

- **ITEM122E:** The Quarter options are listed in the **Inspection Schedule Indicator: On-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122EE:** Enter the two-digit code corresponding to the trip number.

Off-System

- **ITEM122E:** The Year and Area options are listed in the **Inspection Schedule Indicator: Off-System Structures** table under the Inspection Year Indicator overview section.
- **ITEM122EE:** Leave blank. This item is for On-System scheduling only.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 122F – Re-visit Comments (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-character code related to **ITEM122B** describing the reason for a revisit.

PROCEDURE

When ITEM122B = "R" describe why the bridge could not be inspected and when the inspection might be possible. The description will be put in the database by the BMS unit.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 123 – Maintenance Patrol (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-digit code identifying the CDOT Maintenance Patrol responsible for maintenance on the road section containing the bridge.

PROCEDURE

On-System:

Each Maintenance Section is divided into Patrols identified by a Patrol Number. The Patrol Number can be obtained from the Maintenance Patrol Map published by Staff Maintenance. The most up to date map can be accessed on the CDOT [Online Transportation Information System \(OTIS\)](#) website. Only those structures on the State Highway System need to be coded with the patrol number.

Code “99” when the Maintenance Patrol is unknown until the patrol is identified.

Off-System:

Code “00”, this item is for On-System only.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 124 – Expansion Devices	I	CDOT	N/A
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DESCRIPTION

A one-character code identifying the expansion device type(s) within the bridge limits.

PROCEDURE

The Expansion Device Type options are listed below.

ITEM124 Code	Description	Corresponding Inspection Element #
1	Sliding steel plates	305
2	Sliding steel plates with fingers	305
A	Pre molded rubber device	303
B	Compression joint seal (elastomeric)	302
C	Compression joint seal (foamed)	302
D	Parabolic Gland (strip or modular)	300, 303
O	No expansion device	304, 305
P	Plug (Rubberized asphalt/pourable)	301
X	More than one type of device	
N	Unknown	306

Select the appropriate Expansion Device from the [Expdevtype \(124\)](#) dropdown menu.

COMMENTARY

The list above groups the devices in general categories describing either the type of device, the function of the device, or the material used. There are many types of expansion devices from sliding steel plates to compression joint seals. Some pre-molded rubber devices of the same type may be different from one manufacturer to another.

CODING EXAMPLE

Example	ITEM124
Bridge A example: Strip seal at Piers 5 and 8 (Element 300) Compression joint seal at Piers 11 and 12 (Element 302)	X
Bridge B example: Pier 1 and Abutment 9 have modular devices (Element 303)	D
Sliding steel plate device	1
Pre molded rubber device Type 3	A



Item 125A, 125B – Bridge Railing Type	I	CDOT	N/A
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DESCRIPTION

A two-part, three-character code identifying the bridge railing type (ITEM125A) and if the rail has been modified (ITEM125B).

PROCEDURE

ITEM125A: A two-character code identifying the predominant type of railing on the structure. The Railing Type options are listed below.

ITEM125A Code	Description
A - AZ	Known type of rail from Appendix F
FB	Flex beam across CBC's or CMP's
X	No bridge rail
XX	Non-typical rail, bring to the attention of BMU
NA	Not applicable (RR or pedestrian structure)

Select the appropriate Rail Type from the [Strrailtype \(125A\)](#) dropdown menu.

ITEM125B: A one-character code identifying whether the railing identified in Part A is a standard or modified version. The Modification options are listed below.

ITEM125B Code	Description
0	Not modified
1	Modified up to standards
2	Modified not up to standards
3	When median rail and outside rail differ
4	More than one type of rail

Select the appropriate Modification from the [Strrailmod \(125B\)](#) dropdown menu.

COMMENTARY

Only structural traffic railing should be included in the bridge railing type.

In Appendix F are sketches of standard bridge railings identified by a letter code for use in this item along with corresponding ITEM36A code. When railings are encountered during inspection that are not shown, code as XX and bring to the attention of the Bridge Management Unit (BMU).

CODING EXAMPLE

	Example	ITEM125A	ITEM125B
Bridge A example: Concrete jersey barrier, modifications up to standard		R	1
Bridge B example: Concrete jersey barrier		R	0
Type F timber rail		F	0
Type 3 rail, modifications not up to standard		G	2



Item 126 – Total Cost of Structure (not used)	AM	CDOT	N/A
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Item is not currently used.

Item 127 – Cost of Structure Widening (not used)	AM	CDOT	N/A
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Item is not currently used.

Item 128A, 128B, 128C – Cost of Structure Improvements (not used)	AM	CDOT	N/A
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Item is not currently used.



Item 129A to 129J– Legal Truck Operating Ratings	LR	CDOT	N/A
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DESCRIPTION

A four-digit code identifying the absolute maximum permissible (operating) load to which the structure may be subjected for the Colorado legal trucks.

The Colorado posting Truck Types with corresponding Base Operating Rating are listed below.

Item Number	Truck Type	Description	Base Operating Ratings	BrM Entry Fields
129A	Type 1	Interstate/Colorado T3	24.0 / 27.0 tons	Type 1:
129B	Type 2	Interstate/Colorado T3S2	38.0 / 42.5 tons	Type 2:
129C	Type 3	Interstate/Colorado T3-2	39.0 / 42.5 tons	Type 3:
129D	SU4	Single Unit Bridge Posting Load 4	27.0 tons	SHV – SU4 (129D)
129E	SU5	Single Unit Bridge Posting Load 5	31.0 tons	SHV – SU5 (129E)
129F	SU6	Single Unit Bridge Posting Load 6	34.75 tons	SHV – SU6 (129F)
129G	SU7	Single Unit Bridge Posting Load 7	38.75 tons	SHV – SU7 (129G)
129H	NRL	Notional Rating Load	40.0 tons	SHV – NRL (129H)
129I	EV2	Emergency Vehicle Two Axles	28.75 tons	EV2 (129I)
129J	EV3	Emergency Vehicle Three Axles	43.0 tons	EV3 (129J)

PROCEDURE

Leave blank when a truck is not included in the Rating Summary Sheet.

The Operating Rating should be determined by using the most current edition of the AASHTO Manual for Bridge Evaluation including interim revisions thereto, and CDOT Bridge Rating Manual.

Ratings shall be determined for each major member. The member ratings should be recorded on the Rating Summary Sheet, and the controlling operating rating from the rated members recorded for each vehicle.

Only code a controlling exterior girder if the girder directly carries wheel loads.

When ITEM63 = 0, 1, 2, 3, 4, A, B, or C, record ITEM129A/B/C Operating Ratings to nearest tenth of a ton.

When bridge is not rated ITEM63 = 5, code Operating Ratings “0” until a rating is completed. The structure shall be rated when plans or measurable section properties are available, otherwise a visual rating shall be completed in accordance with CDOT Bridge Rating Manual. For On-System structures contact the CDOT Bridge Rating Unit. For Off-System structures, rating should be included in Scope of Work. For structures determined to be capable of carrying unrestricted traffic after visual assessment, code the Base Operating Rating.

Code Operating Ratings “999.9” when the structure is buried under sufficient fill such that the live load is negligible according to AASHTO design and CDOT BRM Sections 14 and 14A.

Enter the Operating Ratings into the BrM Entry Fields listed under Description.



Item 129A to 129J– Legal Truck Operating Ratings (cont.)

COMMENTARY

A structure shored up or repaired on a temporary basis is considered a temporary structure but coded with the girder operating rating for the **repaired condition**.

REFERENCE(S):

- CDOT Bridge Rating Manual Section 1.16
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM 129A	ITEM 129B	ITEM 129C	ITEM 129D	ITEM 129E	ITEM 129F	ITEM 129G	ITEM 129H	ITEM 129I	ITEM 129J
Bridge A example: Operating ratings from LRSS	55.4	59.4	59.1	55.4	55.6	55.7	56.0	55.8	55.5	68.5
Bridge B example: Not rated for Colorado or Legal Trucks										
Structure with no load rating	000.0	000.0	000.0							



Item 129K – Within 1 Mile	LR	CDOT	N/A
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DESCRIPTION

A one-digit code identifying whether the structure is within 1 roadway mile from access to an interstate.

PROCEDURE

The Within 1 Mile options are listed below.

ITEM129K Code	Description
0	No, structure is not within 1 roadway mile of an interstate
1	Yes, structure is within 1 roadway mile of an interstate
2	Unknown, needs to be verified

Enter the Within 1 Mile code into the [Within 1 mile \(129K\)](#) field.

COMMENTARY

Structures within 1 roadway mile from access to an interstate are required to be posted for EV when the EV operating rating factor is below 1.0.

CODING EXAMPLE

Example	ITEM129K
Bridge A example: Structure goes over I-25 with on-ramps in vicinity	1
Bridge B example: Structure near I-25 with on-ramps in vicinity	1



Item 130 – Structure Rating Date	LR	CDOT	N/A
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DESCRIPTION

A ten-digit code identifying the date the rater stamped the Rating Summary Sheet.

PROCEDURE

Record the signed stamp date in month, day, year numeric format (mm/dd/yyyy) from the Rating Summary Sheet.

Leave blank for structures that have not been rated.

Enter the Rating Date into the [Rating Date](#) field.

COMMENTARY

When there is no stamp on the Rating Summary Sheet, the Rated By date should be used. When there is no Rated By date, the Checked By date should be used.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Description	ITEM130
Bridge A example: Rated April 12, 2022	04/12/2022
Bridge B example: Rated October 27, 1998	10/27/1998
Structure not yet rated	



Item 130C – Structure Rating Check Date	LR	CDOT	N/A
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DESCRIPTION

A ten-digit code identifying the date the checker signed the Rating Summary Sheet.

PROCEDURE

Record the Checked By date in month, day, year numeric format (mm/dd/yyyy) from the Rating Summary Sheet.

Leave blank for structures that have not been checked.

Enter the Rating Date into the [Checked Date \(130C\)](#) field.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Description	ITEM130C
Bridge A example: Checked April 12, 2022	04/12/2022
Bridge B example: Not checked	
Structure not yet rated	



Item 131 – Scour Foundation Research	I	CDOT	N/A
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DESCRIPTION

A one-character code identifying the structure foundation type for structures over waterways.

PROCEDURE

The Foundation Type options are listed below.

ITEM131 Code	Description
0	Abutments on spread footing and no piers
1	Steel, Timber, or Concrete Piles
2	Spread Footing
3	Caissons
4	Timber Bents
5	Abutments on piles or caissons and no piers
6	Abutments on spread footings and pier(s) on piles
7	Abutments on piles and pier(s) on spread footings
8	Mixed foundation system
9	Other
N	Not applicable (culverts, concrete lined ditches)
X	Unknown

Select the appropriate Foundation Type code from the [Foundationtype \(131\)](#) dropdown menu.

COMMENTARY

In determining the structure foundation, all sources of information must be used including plans, microfilm records, photographs, and field inspection reports.

CODING EXAMPLE

Example	ITEM131
Bridge A example: Abutment and piers have spread footings on piles	1
Bridge B example: Abutment and piers have spread footings on piles	1



Item 132 – Ordinal Number (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A seven-digit code to aid in computer operation and sorting of structure numbers within the data system.

PROCEDURE

The Ordinal Number is intended to be used in numeric sequence. It generally has two decimal places to maintain alpha-numeric order and to allow for the addition of new structures. For this item the decimal point must be coded as part of the seven positions, making this item four whole numbers, the decimal and two decimal places. There is no code for UNKNOWN. Each system has a different numbering sequence. This number is assigned by the BRIAR unit.

ON SYSTEM: The ordinal number is assigned to each structure to produce an alpha-numeric listing in structure number order. The first number will start with 1000.00, and increase by 2 until all structures have been numbered.

OFF SYSTEM: The ordinal number is assigned by county and then in logical alpha-numeric order (i.e., the first 3 digits will be the county number followed by a number starting at 100 and increasing by 5's). This will allow for the addition of new structures. When more than one entity is included, a break should be made in the sequential number.

FOREST SERVICE: The ordinal number for a structure will start with 900000 and incremented by 20's. The number will be sequenced in numeric order within the following limits:

Description	From	To
Forest Number (ie:02130600004.5)	900000	902000
Old Forest Number (ie:116-1.3)	902020	902400
Old County Number (ie:GUN634-01.50)	902400	904000
USFS Number (ie:USFS205-2.1)	904000	907000

COMMENTARY

None.

CODING EXAMPLE

None.



Item 133 – Special Inspection Access	I	CDOT	N/A
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DESCRIPTION

A four-character code identifying special equipment or access needed for inspection.

PROCEDURE

The Special Inspection Access options are listed below.

ITEM133 Code	Description
00.00	Not Applicable
88.00	Special Equipment/Access needed
99.00	Unknown

Enter the Special Equipment code into the [Spec_Equip \(133\)](#) field.

COMMENTARY

To avoid an extensive list, ITEM133 is used to let inspectors know if special access is required and access details shall be in the bridge report under Special Access Requirements.

Code of “88.00” should be used when a bridge requires special actions or equipment for inspections, such as traffic control, snooper, bucket trucks, rope access climbing, etc. Special actions or equipment are outside of routine ground level techniques such as shorter ladders, waders, binoculars,

CODING EXAMPLE

	Example	ITEM133
Bridge A example: Needs CDOT A40 snooper for pier cap inspection		88.00
Bridge B example: Spans 1-6 require 40-foot bucket truck to reach girder access hatches, Span 1 access requires railroad permit and flagger, Span 5 access require RTD permit and flagger		88.00



Item 133G – Girder Entry	I	CDOT	N/A
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DESCRIPTION

A twenty-five-character code identifying if girders allow for interior inspection access.

PROCEDURE

The Girder Entry options are listed below.

ITEM133G Codes	Description
YES	Girders have access hatches
NO	Girders do not have access
N/A	Not applicable

Code “N/A” for structures where girder interior access is not needed (i.e. I-beams).

Enter the appropriate Girder Entry code into the [Girder Entry \(133G\)](#) field.

COMMENTARY

ITEM133G is coded based on the presence of access hatches, regardless if interior inspection was completed.

CODING EXAMPLE

Description	ITEM133G
Bridge A example: Concrete I-beam	N/A
Bridge B example: Concrete box girders with access hatches	YES



Item 134A, 134B, 134C – Vertical Clearances NBND & EBND	I	CDOT	N/A
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DESCRIPTION

A three-part code identifying the northbound or eastbound travel direction (ITEM134A), the maximum usable vertical clearance (ITEM134B) and the minimum vertical clearance (ITEM134C) in travel lanes for each route identified in ITEM5A.

PROCEDURE

ITEM134A: A one-character code identifying the inventoried route direction over which the clearances are measured. The Route Direction options are listed below.

ITEM134A Code	Description
N	Northbound
E	Eastbound
U	Undivided
X	Not Applicable

Code “X” when there are no traffic lanes going northbound or eastbound.

Code “U” when there are no striped lanes or physical barriers identifying traffic lanes.

Enter the Route Direction into the [Direction North/East \(134A\)](#) field for each inventoried route.

ITEM134B: Record the maximum usable vertical clearance over the lanes traveling in the direction described by ITEM134A.

Leave blank when no traffic lanes go northbound or eastbound.

Code “99.999” when no vertical restriction exists.

Code “55.555” when an obstruction exists but the clearance is unknown.

Enter the Maximum Usable Clearance into the [Max Clearance \(134B\)](#) field for each inventoried route.

ITEM134C: Record the minimum vertical clearance over the lanes traveling in the direction described by ITEM134A.

Leave blank when no traffic lanes go northbound or eastbound.

Code “0.000” when no vertical restriction exists.

Code “55.555” when an obstruction exists but the clearance is unknown.

Enter the Minimum Clearance into the [Min Clearance \(134C\)](#) field for each inventoried route.



Item 134A, 134B, 134C – Vertical Clearances NBND & EBND (cont.)

COMMENTARY

ITEM134B can be confusing in that this is the least restrictive minimum clearance for a travel lane under an obstruction and represents the maximum height of a vehicle, or load, which can pass under the obstruction. This is the practical maximum clearance.

An obstruction may be a bridge, railroad, pedestrian overpass, tunnel, overhead members of thru trusses, powerlines, or a building to name a few. Clearances for county roads and city streets under state facilities must also be reported.

Clearance items are no longer recorded in feet and inches. ITEM134BI and ITEM134CI that identified the inches part of the clearance are no longer used.

See Appendix E for information on taking clearances.

ITEM134A/B/C is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 134A	ITEM 134B	ITEM 134C
Bridge A example (On-System)				
Roadway (005A) dropdown select "Route On Structure" (WB)	1	X		
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	X		
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	N	18.833	17.750
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	X		
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	N	16.417	16.417
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	N	25.167	25.167
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	X		
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	N	45.333	45.333
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	N	41.833	41.833
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	N	32.917	32.917
Bridge B example (Off-System)				
Roadway (005A) dropdown select "Route On Structure" (WB)	1	X		
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	N	17.417	17.417

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 134BP, 134CP – Vertical Clearance Posting NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the maximum (ITEM134BP) or minimum (ITEM134CP) vertical clearance values posted over a travel lane in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM134BP: Record the maximum posted vertical clearance over a travel lane in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Max Posting Sign \(134BP\)](#) field for each inventoried route.

ITEM134CP: Record the minimum posted vertical clearance over a travel lane in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Min Posting Sign \(134CP\)](#) field for each inventoried route.

COMMENTARY

When clearance posting is required but not implemented, notify the CDOT Bridge Inspection Engineer of the situation and, when possible, measure the clearances and provide the values to the Bridge Inspection Engineer.

See Appendix E for information on taking clearances.

ITEM134BP and ITEM134CP are route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 134EOA – Edge of Asphalt Vertical Clearance NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the vertical clearance values over the left (ITEM134EOA1) or right (ITEM134EOA2) edge of asphalt in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM134EOA1: Record the vertical clearance over the left edge of asphalt in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

For a two-way road 134EOA1 would be measured at the roadway centerline and equal 135EOA1.

For a divided highway with a median barrier, 134EOA1 is measured along the barrier.

For a divided highway with an open median, 134EOA1 is measured along the edge of asphalt.

Enter the Clearance into the [VCLR EOA Left \(134EOA1\)](#) field for each inventoried route.

ITEM134EOA2: Record the vertical clearance over the right edge of asphalt in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR EOA Left \(134EOA2\)](#) field for each inventoried route.

COMMENTARY

Asphalt references include anytime of paving or driving surface, including dirt and gravel. Left and right are determined by looking in the direction of travel for the lane.

ITEM134EOA is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 134SHLD – Shoulder Vertical Clearance NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the vertical clearance values over the left (ITEM134SHLD1) or right (ITEM134SHLD2) shoulder in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM134SHLD1: Record the vertical clearance over the mid-point of the left shoulder in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Shld #1 \(134SHLD1\)](#) field for each inventoried route.

ITEM134SHLD2: Record the vertical clearance over the mid-point of the right shoulder in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Shld #2 \(134SHLD2\)](#) field for each inventoried route.

COMMENTARY

ITEM134SHLD is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 134S – Striping Vertical Clearance NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values over each lane stripe in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

Record the vertical clearance over each lane stripe in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Stripe # \(134S#\)](#) fields for each stripe on each inventoried route.

COMMENTARY

Stripes shall be numbered from left to right while looking in the northbound or eastbound traffic direction. Stripe 1 is located between the left shoulder and left lane.

ITEM134S is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 134L – Lane Vertical Clearance NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values over each lane in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

Record the vertical clearance over the mid-point of each lane in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the **VCLR Lane # (134L#)** fields for each lane on each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the northbound or eastbound traffic direction. Lane 1 is located along the left shoulder.

ITEM134L is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 134LP – Vertical Clearance Posting over Lane NBND & EBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values posted over each travel lane in the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

Record the posted vertical clearance over each lane in the northbound or eastbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Posting Lane # \(134L#P\)](#) fields for each lane on each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the northbound or eastbound traffic direction. Lane 1 is located along the left shoulder.

When clearance posting is required but not implemented, notify the CDOT Bridge Inspection Engineer of the situation and, when possible, measure the clearances and provide the values to the Bridge Inspection Engineer.

See Appendix E for information on taking clearances.

ITEM134LP is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135A, 135B, 135C – Vertical Clearances SBND & WBND	I	CDOT	N/A
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DESCRIPTION

A three-part code identifying the southbound or westbound travel direction (ITEM135A), the maximum usable vertical clearance (ITEM135B) and the minimum vertical clearance (ITEM135C) in travel lanes for each route identified in ITEM5A.

PROCEDURE

ITEM135A: A one-character code identifying the inventoried route direction over which the clearances are measured. The Route Direction options are listed below.

ITEM135A Code	Description
S	Southbound
W	Westbound
U	Undivided
X	Not Applicable

Code “X” when there are no traffic lanes going southbound or westbound.

Code “U” when there are no striped lanes or physical barriers identifying traffic lanes.

Enter the Route Direction into the [Direction S/W \(1345A\)](#) field for each inventoried route.

ITEM135B: Record the maximum usable vertical clearance over the lanes traveling in the direction described by ITEM135A.

Leave blank when no traffic lanes go southbound or westbound.

Code “99.999” when no vertical restriction exists.

Code “55.555” when an obstruction exists but the clearance is unknown.

Enter the Maximum Usable Clearance into the [Max Clearance S/W \(135B\)](#) field for each inventoried route.

ITEM135C: Record the minimum vertical clearance over the lanes traveling in the direction described by ITEM135A.

Leave blank when no traffic lanes go southbound or westbound.

Code “0.000” when no vertical restriction exists.

Code “55.555” when an obstruction exists but the clearance is unknown.

Enter the Minimum Clearance into the [Min Clearance S/W \(135C\)](#) field for each inventoried route.



Item 135A, 135B, 135C – Vertical Clearances SBND & WBND (cont.)

COMMENTARY

ITEM135B can be confusing in that this is the least restrictive minimum clearance for a travel lane under an obstruction and represents the maximum height of a vehicle, or load, which can pass under the obstruction. This is the practical maximum clearance.

An obstruction may be a bridge, railroad, pedestrian overpass, tunnel, overhead members of thru trusses, powerlines, or a building to name a few. Clearances for county roads and city streets under state facilities must also be reported.

Clearance items are no longer recorded in feet and inches. ITEM135BI and ITEM135CI that identified the inches part of the clearance are no longer used.

See Appendix E for information on taking clearances.

ITEM135A/B/C is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	ITEM 135A	ITEM 135B	ITEM 135C
Bridge A example (On-System)				
Roadway (005A) dropdown select "Route On Structure" (WB)	1	W	99.999	0.000
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	S	18.917	17.667
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	X		
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	S	19.750	17.917
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	X		
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	S	25.083	25.083
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	S	46.167	46.167
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	X		
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	S	41.833	41.833
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	S	32.917	32.917
Bridge B example (Off-System)				
Roadway (005A) dropdown select "Route On Structure" (WB)	1	W	99.999	0.000
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	N	17.417	17.417

Refer to Item 10 or Appendix L for Bridge example elevation views.



Item 135BP, 135CP – Vertical Clearance Posting SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the maximum (ITEM135BP) or minimum (ITEM135CP) vertical clearance values posted over a travel lane in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM135BP: Record the maximum posted vertical clearance over a travel lane in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Max Posting Sign \(135BP\)](#) field for each inventoried route.

ITEM135CP: Record the minimum posted vertical clearance over a travel lane in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Min Posting Sign \(135CP\)](#) field for each inventoried route.

COMMENTARY

When clearance posting is required but not implemented, notify the CDOT Bridge Inspection Engineer of the situation and, when possible, measure the clearances and provide the values to the Bridge Inspection Engineer.

See Appendix E for information on taking clearances.

ITEM135BP and ITEM135CP are route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135EOA – Edge of Asphalt Vertical Clearance SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the vertical clearance values over the left (ITEM135EOA1) or right (ITEM135EOA2) edge of asphalt in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM135EOA1: Record the vertical clearance over the left edge of asphalt in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

For a two-way road 135EOA1 would be measured at the roadway centerline and equal 134EOA1.

For a divided highway with a median barrier, 135EOA1 is measured along the barrier.

Enter the Clearance into the [VCLR EOA Left \(135EOA1\)](#) field for each inventoried route.

ITEM135EOA2: Record the vertical clearance over the right edge of asphalt in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR EOA Left \(135EOA2\)](#) field for each inventoried route.

COMMENTARY

ITEM135EOA is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135SHLD – Shoulder Vertical Clearance SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part code identifying the vertical clearance values over the left (ITEM135SHLD1) or right (ITEM135SHLD2) shoulder in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

ITEM135SHLD1: Record the vertical clearance over the mid-point of the left shoulder in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Shld #1 \(135SHLD1\)](#) field for each inventoried route.

ITEM135SHLD2: Record the vertical clearance over the mid-point of the right shoulder in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Shld #2 \(135SHLD2\)](#) field for each inventoried route.

COMMENTARY

ITEM135SHLD is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135S – Striping Vertical Clearance SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values over each lane stripe in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

Record the vertical clearance over each lane stripe in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Stripe # \(135S#\)](#) fields for each stripe on each inventoried route.

COMMENTARY

Stripes shall be numbered from left to right while looking in the southbound or westbound traffic direction. Stripe 1 is located between the left shoulder and left lane.

ITEM135S is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135L – Lane Vertical Clearance SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values over each lane in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

Record the vertical clearance over the mid-point of each lane in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Enter the Clearance into the [VCLR Lane # \(135L#\)](#) fields for each lane on each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the southbound or westbound traffic direction. Lane 1 is located along the left shoulder.

ITEM135L is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 135LP – Vertical Clearance Posting over Lane SBND & WBND (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A multi-part code identifying the vertical clearance values posted over each travel lane in the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

Record the posted vertical clearance over each lane in the southbound or westbound direction in decimal feet to the nearest thousandth of a foot.

Leave blank when no posting has been established.

Enter the Posting into the [Posting Lane # \(135L#P\)](#) fields for each lane on each inventoried route.

COMMENTARY

Lanes shall be numbered from left to right while looking in the southbound or westbound traffic direction. Lane 1 is located along the left shoulder.

When clearance posting is required but not implemented, notify the CDOT Bridge Inspection Engineer of the situation and, when possible, measure the clearances and provide the values to the Bridge Inspection Engineer.

See Appendix E for information on taking clearances.

ITEM135LP is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Item 136 – Mileage Log Section Letter (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying the section letter assigned to a highway.

PROCEDURE

The section letter is assigned by the Division of Transportation Development.

Each highway starts with Section Letter ‘A’ and continues unless overlapped by another route. When that overlap ends and the highway continues in its own right-of-way, then the next sequence letter of the alphabet would be used, i.e. ‘B’. This process continues until the highway leaves the State. Each section of highway, and the structures within each section, must have a Mileage Log Section Letter.

The Mileage Log Section Letter options for city streets, county roads, and other conditions are listed below.

ITEM136 Code	Description
U	City structure
V	County structure
W	Unidentified routes
X*	Structures on frontage road northbound side
Y*	Structure on frontage road southbound side
Z**	Structures on one-way reciprocal

* Do not use until DTD approves. Frontage road will continue to be coded to the mainline.

** One-way reciprocal is a one-way street in the opposite direction of travel of the route.

COMMENTARY

All structures must be coded. There is no unknown condition.

CODING EXAMPLE

None.



Item 137, 137A, 137B, 137C – Sufficiency Rating	AM	MOD FHWA	N/A
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DESCRIPTION

A four-part 25-character code identifying the Sufficiency Rating (SR) of the structure.

Item Number	Description	Length
137	Sufficiency Rating (SR)	4 digits
137A	Lowest Sufficiency Rating recorded in structure’s history	16 digits
137B	Year lowest Sufficiency Rating was recorded in ITEM137A	4 digits
137C	Identifies whether structure is eligible for Federal Funding under FHWA’s ten-year rule (Y/N)	1 character
Total		25 characters

PROCEDURE

The sufficiency rating is determined by AASHTO Bridge Management Software (BrM) and is recorded to the nearest tenth of a percent in the [Sufficiency Rating \(SRB\)](#) area.

This item is blank for railroad bridges, pedestrian bridges, and tunnels.

COMMENTARY

ITEM137A, 137B, and 137C are no longer used.

A Sufficiency Rating of 100.0 indicated that all geometric, design, rating, and condition metrics meet the minimum standards and is considered a ‘perfect score’. Sufficiency Rating calculations use many items from the Structure Inspection and Inventory Report and is not a direct indication of the structure’s condition. See Appendix J for the AASHTO formulas.

CODING EXAMPLE

Example	ITEM137
Bridge A example: Sufficiency Rating is calculated to be 49.0	49.0
Bridge B example: Sufficiency Rating is calculated to be 78.3	78.3



Item 138 – Select List Indicator	AM	CDOT	N/A
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DESCRIPTION

A two-character code identifying whether a structure is structurally deficient, functionally obsolete or neither.

PROCEDURE

The Select List Indicator options are listed below.

ITEM138 Code	Description
SD	Structurally Deficient
FO	Functionally Obsolete
ND	Not Deficient, neither SD or FO

Leave blank for railroad bridges, pedestrian bridges, and tunnels.

Item is automatically calculated in the [SD Status](#) area.

COMMENTARY

A structure that is Structurally Deficient cannot be Functionally Obsolete.

Structurally Deficient structures have poor condition ratings or low appraisal ratings for Structural Condition and/or Waterway Adequacy.

Functionally Obsolete structures have low appraisal ratings for Deck Geometry, Underclearances, Approach Roadway Alignment, Structural Condition, and/or Waterway Adequacy. See Appendix K for the AASHTO formulas.

Select list indicator also appears in the [NBI Status \(ND, SD, FO\)](#) area.

CODING EXAMPLE

Example	ITEM138
Bridge A example: Structural Condition = 3	FO
Bridge B example: Underclearance = 3	FO



Item 139 – Bridge Weight Limit Map Color	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying the overload color assigned to a structure indicating the load carrying capacity at operating stress level. This item will be coded by the Bridge Rating Unit.

PROCEDURE

The Weight Limit Color options are listed below.

ITEM139 Code	Description	Modified Tandem Truck Operating Rating	Permit Truck Operating Rating
0	White	50 tons or more	96 tons or more
1	Black (Posted structures)	Less than 42 tons	Less than 80.5 tons
2	Orange	42 tons to 45.99 tons	80.5 tons to 88.49 tons
3	Yellow	46 tons to 49.99 tons	88.5 tons to 95.99 tons
N	Not Applicable		

On-System:

ITEM139 is to be completed by CDOT Bridge Rating Group for Major Vehicular Bridges.

Off-System:

Code “N”, this item is for On-System only.

Select the appropriate Color code from the [Overload Color Code \(139\)](#) dropdown menu.

COMMENTARY

The CDOT Weight Limit Color should be noted on the Rating Summary Sheet and is only applicable to Major Vehicular Bridges. Load restricted structures are identified on a highway system map by color coding their Load Carrying Capacity.

Only base ITEM139 code on a controlling exterior girder when the girder directly carries wheel loads.

Decks shall not be used to determine ITEM139.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Rating Manual Subsection 1-16
- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM139
Bridge A example: On-System structure not requiring posting	0
Bridge B example: Off-System structure not requiring posting	N



Item 139OVLDDL – Overload Color Code Live Load	LR	CDOT	N/A
--	----	------	-----

DESCRIPTION

A one-character code identifying the type of overload truck used to determine the color code in ITEM139.

PROCEDURE

The Overload Truck options are listed below.

ITEM139OVLDDL Code	Description
0	None – Determined by Engineering Judgment
1	Modified Tandem
2	Permit Vehicle
3	Permit Vehicle and Modified Tandem
N	Not applicable

On-System:

ITEM139OVLDDL is to be completed by CDOT Bridge Rating Group for Major Vehicular Bridges.

Off-System:

Code “N”, this item is for On-System only.

Select the appropriate Truck code from the [Overload Color Code Live Load \(139OVLDDL\)](#) dropdown menu.

COMMENTARY

The Rating Summary Sheet will show if the modified tandem and/or permit trucks were analyzed and is only applicable to Major Vehicular Bridges.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM139OVLDDL
Bridge A example: On-System structure rated for permit and modified tandem trucks	3
Bridge B example: Off-System structure only rated for HS20 truck	N



Item 139OVLD – Overload Critical Structure	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying whether a structure is overload critical.

PROCEDURE

The Overload Critical options are listed below.

ITEM139OVLD Code	Description
0	Structure is not overload critical
1	Structure is overload critical
N	Not applicable

On-System:

ITEM139OVLD is to be completed by CDOT Bridge Rating Group for Major Vehicular Bridges.

Off-System:

Code “N”, this item is for On-System only.

Select the appropriate Truck code from the [Overload Critical Structure \(139OVLD\)](#) dropdown menu.

COMMENTARY

Overload Critical structures include structures where ITEM139 Bridge Weight Limit Map Color is yellow, orange, or black.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Example	ITEM139OVLD
Bridge A example: On-System structure that is not overload critical	0
Bridge B example: Off-System structure that is overload critical	N



Item 140 – BrR/Batch ID Number (not used)	LR	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A six-character code identifying the rating Batch ID Number.

PROCEDURE

On- System:

The Batch ID Number is assigned to each structure at the time it is rated. The first character of the number consists of a letter to indicate the month and the next two digits indicate the year of initial rating. The last three digits indicate the numerical order the structure was rated in. This number is unique to each structure or each pair of similar parallel structures. For structures that have not been rated, code N00000.

County/Municipal Highway Systems:

Batch ID Numbers have been assigned to all current county/municipal bridges by the Bridge Inventory Unit. Batch ID numbers will be assigned to bridges as they are added to the inventory. The number will consist of the three-digit county code and the next available sequential number. Batch ID numbers will not be reassigned.

COMMENTARY

The Batch ID is assigned by the CDOT Bridge Rating Group.

CODING EXAMPLE

None.



Item 141 – Construction Funding Source (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-character code identifying the type of funds used for the structure replacement or rehabilitation.

PROCEDURE

The Construction Funding Source options are listed below.

ITEM141 Code	Description
A	National Highway System (NHS)
B	Other Federal Funds (Not HBRRP)
C	Federal Bridge Replacement/Rehabilitation (HBRRP)
D	Indian Lands
E	State Funded (Not HUTF)
F	Colorado Highway Users Tax Fund (HUTF)
G	City/County Ventures
H	Private Venture
I	Railroad Ventures
X	Not Applicable

Code “X” when ITEM142 = 0.

COMMENTARY

None.

CODING EXAMPLE

None.



Item 142 – Structure Project Status (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-digit code identifying the status of the planning and/or construction phase of the structure's replacement or rehabilitation project.

PROCEDURE

The Structure Project Status options are listed below.

ITEM142 Code	Description
0	Not currently programmed
1	Programmed in the Statewide Transportation Improvement Program (STIP)
2	Funded for design
3	Has partial funding for construction
4	Currently being bid or under construction

COMMENTARY

None.

CODING EXAMPLE

None.



Item 500 – Plans Availability	LR	CDOT	N/A
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DESCRIPTION

A one-character code identifying if enough plan information is available to perform a structural analysis.

PROCEDURE

The Plan Availability options are listed below.

ITEM500 Code	Description
0	Plans and/or shop drawings are not available
1	Plans and/or shop drawings available are sufficient to perform a structural analysis
N	Plan search not completed
P	Partial plans available, not sufficient to perform a structural analysis

Select the appropriate Availability from the [Plans Available \(500\)](#) dropdown menu.

COMMENTARY

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

Description	ITEM500
Bridge A example: Plans available for rating	1
Bridge B example: Plans available for rating	1



SECTION 6 Miscellaneous

The items in Section 6 do not have assigned numbers and identify additional metrics CDOT records for each structure, as applicable, beyond what is required by FHWA.



Unrepaired Spalls (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A ten-digit code identifying the distressed deck area.

PROCEDURE

Record the area of deck with defects in Condition States 2, 3, or 4 to the nearest tenth of a square foot.

Enter the Spall Area into the [Unrepaired Spalls](#) field.

COMMENTARY

None.

CODING EXAMPLE

None.



NBI Converter Profile (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying whether the element Condition State ratings shall be converted to NBI component ratings.

PROCEDURE

The Converter Profile options are listed below.

NBI Converter Profile Codes
BrM Default
FHWA Profile

Select the appropriate Profile from the [NBI Converter Profile](#) dropdown menu.

COMMENTARY

Code “BrM Default” for all structures since item is no longer used.

CODING EXAMPLE

None.



Condition Inspection Notes	I	CDOT	N/A
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DESCRIPTION

Notes specific to each individual inspection.

PROCEDURE

Each inspection report Inspection Notes should minimally include:

- Date
- Temperature
- Time
- Weather
- Follow-up inspection date and reason
- Field QA date and team, when applicable

Enter comments into the [Inspection Notes](#) field.

COMMENTARY

Inspection Notes are kept with each inspection record and are not carried over.

CODING EXAMPLE

Example	Inspection Notes
Bridge A example	5/01/2018 TIME: 10:50 AM TEMPERATURE: 65 degrees WEATHER: Clear TEAM: A.Smith/B.Jones A40 Inspection TIME: 7:00 AM TEMPERATURE: 56 degrees WEATHER: Clear TEAM: A.Smith/B.Jones
Bridge B example	Date: 10-30-2022 Time: 11:30 Temp: 36 Degrees Weather: Clear, calm ABS/BCJ Date: 11-28-2022 ABC revisited to inspect girder interiors



Fracture Critical Details (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying the predominant fracture critical or fatigue prone detail on structure.

PROCEDURE

The Fracture Critical Detail options are listed below.

Fracture Critical Detail Codes	Description
Missing	Missing
1 or 2 Stl-girder systms	1- or 2- steel girder systems
Hinges w/pin&hngr assmbl	Hinges with pin & hanger assemblies
Stl bent caps-tensil str	Steel bent caps with tension
Steel trusses	Steel trusses
Stl tns elm w<3 mlt i-br	Steel tension element on structure with less than 3 steel I-beams
Susp or cable structures	Suspension or cable-stay structures
Sgl&mult cell stl bx grd	Segmental and multi-cell steel box girders
Hi-fatigue prn weld det	High 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	Electroslag welds
Partial ln weld cov plat	Partially welded longitudinal cover plate
Exposed prestrss tendons	Exposed prestress tendons
No FC Details	No Fracture Critical details
Sup/sub integral fram det	Superstructure and substructure integral frame
Tied arches	Tied arches

Select the appropriate Status from the [Fracture Critical Details](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Health Index (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A four-digit code identifying the structural health of the bridge.

PROCEDURE

The Health Index is recorded to the nearest hundredth of a percent.

Item is auto calculated into the [Health Index](#) field.

COMMENTARY

This value may vary from 0%, which corresponds to the worst possible condition, to 100% in the best condition. Health index is calculated as a function of the fractional distribution of the bridge elements' quantities across the range of their applicable condition states.

CODING EXAMPLE

None.



Bridge Condition Classification	AM	CDOT	B.C.12
---------------------------------	----	------	--------

DESCRIPTION

A two-character code identifying the controlling condition classification.

PROCEDURE

The Bridge Condition Classification options are listed below with corresponding Condition Ratings.

Condition Code	Description	Corresponding Condition Ratings
G	Good	7, 8, 9
F	Fair	5, 6
P	Poor	0, 1, 2, 3, 4

Bridge Condition is determined by the lowest of ITEM58 – Deck, ITEM59 – Superstructure, ITEM60 – Substructure, and/or ITEM62 – Culvert condition ratings, excluding items that are not applicable.

Item is auto calculated into the [Bridge Condition](#) field.

COMMENTARY

None.

CODING EXAMPLE

Example	Bridge Condition Classification
Bridge A example: ITEM58 = 7, ITEM59 = 8, ITEM60 = 7	G
Bridge B example: ITEM58 = 7, ITEM59 = 8, ITEM60 = 7	G



Agency System (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying the primary system or contract assigned to the structure.

PROCEDURE

The Agency System options are listed below.

Agency System Codes	Description
0	Off-System
1	On-System
2	E470
3	National Wildlife and Parks (NWP)
4	Regional Transportation District (RTD)
5	High Mast Lights (HML)
6	Signs
8	Mast Arm Signal
8	Minor Structure
9	Miscellaneous
A	Bureau of Reclamation
B	Central I-70

Select the appropriate Status from the [On/Off Agency System](#) dropdown menu.

COMMENTARY

Agency System is typically based on ITEM21 – Maintenance Responsibility and ITEM22 – Owner and it used for determining applicable policies, costs, and reporting results.

CODING EXAMPLE

None.



Programming Section (not used)	AM	CDOT	N/A
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Items are no longer used.

DESCRIPTION

A four-part section identifying BrM programming data:

- **Apply Improvement Policy:** Indicates whether the functional improvement policy will be applied to the bridge during program simulation.
- **Simulation Trace:** Indicates whether the structure is traced in the log file during program simulation.
- **Formulas Trigger:** Indicated whether all applicable fields for structures are updated during formula recalculation.
- **Sufficiency Rating Calculation Status:** Indicates whether the Sufficiency Rating needs to be recalculated.

PROCEDURE

Check or uncheck as appropriate the [Apply Improvement Policy](#), [Simulation Trace](#), and [Formulas Trigger](#) boxes. Checked box indicates “yes” the section will be applied, traced, or recalculated.

The Sufficiency Rating Calculation Status options are listed below.

SR Status Codes	Description
N	Not Applicable
1	Sufficiency Rating recalculation required
0	Sufficiency Rating Calculated

Select the appropriate Status from the [SR Calculate Status](#) dropdown menu. This field may automatically update based on changes to BrM data.

COMMENTARY

Formulas Trigger: When left unchecked, formulas are only recalculated if the result field contains a missing value code other than ‘Not Applicable’.

Sufficiency Rating Calculation Status: Field is automatically set to 1 when a new roadway, new inspection is created, or other data changes that trigger a need to recalculate the Sufficiency Rating. Item is also auto calculated into the [Sufficiency Rating Calculate Status](#) field.

CODING EXAMPLE

None.



Admin Structure Notes	I	CDOT	N/A
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DESCRIPTION

Notes specific to each structure identifying basic numbering/naming information and recording structure’s condition and project history.

PROCEDURE

Each inspection report Structure Notes should minimally include:

- Inventory route direction
- Upstream side
- Superstructure element naming
- Substructure or culvert cell numbering

Structure notes should also include:

- Changes in the structure’s Good/Fair/Poor status
- Condition rating changes due to deterioration or rehabilitation
- Rehabilitation date and brief project description
- Damage or flooding event date and brief description.

Enter comments into the [Structure Notes](#) field.

COMMENTARY

Structure Notes are specific to each bridge record and not individual inspection reports. Removing notes will delete them from the entire database.

Notes appear under “Bridge Notes” on the Structure Inspection and Inventory Report (SIA).

CODING EXAMPLE

Example	Structure Notes
Bridge A example	Inventory route is west to east. South side is upstream. Superstructure is named Girder A through E from north to south. Substructure is numbered 1 to 14 from west to east. Joins ML structure in Span 4; Bridge A ends at P14 joint just east of 1 st St where Bridge B begins.
Bridge B example	Inventory route is west to east. Structure is not over a waterway. Superstructure is named Girder A through E from north to south. Substructure is numbered 1 to 9 from west to east. Bridge B begins at P1 joint just east of 1 st St where Bridge A has ‘Y’ split for on ramps. 2004: Spans 7 and 8 girder interiors accessed 2006: Spans 1 and 2 girder interiors accessed 2012: Spans 2, 6, 7, and 8 girder interiors accessed 2018: Girder interiors not accessed 2020: Spans 3, 7, and 8 girder interiors accessed 2022: Spans 2, 3, 7, and 8 girder interiors accessed

Refer to ITEM5, ITEM10, ITEM51, or Appendix L for Bridge example plan, elevation, or section views.



Deck Area	AM	CDOT	B.G.16
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DESCRIPTION

A twelve-digit code identifying the structure deck area.

PROCEDURE

Record the deck area to the nearest tenth of a square foot (SF).

Deck area shall be calculated and recorded for all structures, including buried structures.

Enter the Deck Area into the [Deck Area](#) field. This field is populated by CDOT Bridge and Structures Asset Management Group.

COMMENTARY

The deck area should be ITEM49 – Structure Length multiplied by ITEM52 – Deck Width Out-Out.

Deck area is used for area-based replacement, improvement cost estimates, and determining inspection costs based on structure size.

CODING EXAMPLE

Example	Deck Area
Bridge A example	49995.0
Bridge B example	48534.9



Bridge Status	AM	CDOT	N/A
---------------	----	------	-----

DESCRIPTION

A single-digit code identifying the structure operational status.

PROCEDURE

The Bridge Status options are listed below.

Bridge Status Codes	Description
0	Unknown
1	Inactive, structure has been removed and no longer exists or changed to private ownership
2	Closed, structure is in-place but not in-service; permanently closed to traffic
3	Active, structure is in-place and open to traffic
4	Proposed, structure is being added to the inventory or replacing an existing structure
5	Obsolete, structure still in place but structure number changed
6	Open, ready for initial inspection; structure has been opened to traffic

When Bridge Status = “6” the initial inspection must be performed within 3 months of the structure opening to traffic.

Select the appropriate Status from the [Bridge Status](#) dropdown menu.

COMMENTARY

REFERENCE(S): CDOT Memorandum “BRIAR process Document 039, Inactivating Structures in BrM”

CODING EXAMPLE

Example	Bridge Status
Bridge A example	3
Bridge B example	3



Bridge Lifecycle Phase (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A single-digit code identifying the structure lifecycle phase.

PROCEDURE

The Lifecycle Phase options are listed below.

Lifecycle Phase Codes	Description
0	Unknown
1	Service, structure is in-service and open to traffic
2	Design, plans are still in progress and construction has not begun
3	Preconstruction, plans are complete and project is ready for construction
N/A	Not applicable

Select the appropriate Phase from the [Bridge Lifecycle Phase](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

None.



Total Structure Roadway Length	I	CDOT	N/A
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DESCRIPTION

A nine-digit code identifying the total length of roadway and approaches supported by the structure.

PROCEDURE

Record the length of roadway and approaches supported by the structure including approach slabs supported by abutment paving notches. Measurements shall be taken along the roadway centerline and recorded to the nearest thousandth of a foot.

For buried structures, code the length between the outside faces of exterior walls along the roadway centerline. Multiple pipes are considered contiguous when the clear distance between openings is less than half the smaller contiguous opening.

Enter the Length into the [Total Length](#) field.

COMMENTARY

This item shall always be greater than or equal to ITEM49 – Total Structure Length.

CODING EXAMPLE

	Example	Total Structure Roadway Length
	Bridge A example: No approach slabs	1515.0
	Bridge B example: East end has 50 foot wide x 16 foot long concrete approach slab; ITEM49 – Total Structure Length = 946.1 feet	962.1

Refer to ITEM5 or Appendix L for Bridge example plan views.



Roads Route Name	AM	CDOT	B.F.03
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DESCRIPTION

A thirty-character code identifying the commonly known name for each route identified in ITEM5A.

PROCEDURE

Record the name full description, abbreviations can be used for route type and direction.

Enter the Name into the [Road/Route name](#) field for each inventoried route.

COMMENTARY

The Bridge Management Unit has designated some common abbreviations or spellings to be used for this item, shown in Appendix C. It is suggested that these common abbreviations be used as often as possible to facilitate database searches.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	Route Name
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	US 40 On-Ramp
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	I-25 SB Mainline
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	I-25 NB Mainline
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	I-25 SB Off-Ramp
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	I-25 NB On-Ramp
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	Mile High Stadium Cir
Roadway (005A) dropdown select "6 th Route Under" for 1 st St SB	F	1 st St NB
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	1 st St SB
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	Walnut St
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	1 st St
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	WB Auraria Pkwy
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	5 th St



Roadway Medians (not used)	I	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A one-digit code identifying the number of medians on each route identified in ITEM5A.

PROCEDURE

Record the number of medians present on the inventory route where route intersects the structure as an integer.

Enter the Number of Medians into the [Medians](#) field in the Traffic section for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Route Speed (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A four-digit code identifying the actual or posted speed limit for each route identified in ITEM5A.

PROCEDURE

Record the actual or posted speed limit where the route intersects the structure in miles per hour (mph).

Enter the Speed Limit into the [Speed](#) field in the Traffic section for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Future ADT (not used)	AM	CDOT	N/A
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Item is not currently used.

DESCRIPTION

A two-character code identifying the traffic volume classification for each route identified in ITEM5A.

PROCEDURE

Select the appropriate Classification from the [Future ADT](#) dropdown menu for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Roads Alternate Classifications	AM	CDOT	N/A
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DESCRIPTION

A four-part section identifying alternate classification types for each route identified in ITEM5A:

- **School Bus Route:** Indicates whether the route is a designated School Bus Route.
- **Transit Route:** Indicates whether the route is a designated Transit Bus Route.
- **Emergency Route:** Indicates whether the route is a designated Critical Travel Route.
- **NBI Route:** Indicates whether the route should be included in NBI file exports.

PROCEDURE

Check or uncheck as appropriate the [School Bus Rte](#), [Transit Rte](#), [Emergency Rte](#), and [NBI Rte](#) boxes for each inventoried route. Checked box indicates “yes” the road is on a designated route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	School Bus Rte	Transit Rte	Emerg. Rte	NBI Rte
Bridge A example (On-System)					
Roadway (005A) dropdown select “Route On Structure”	1	Y	Y	Y	N
Roadway (005A) dropdown select “1 st Route Under” for I-25 SB ML	A	Y	Y	Y	Y
Roadway (005A) dropdown select “2 nd Route Under” for I-25 NB ML	B	Y	Y	Y	Y
Roadway (005A) dropdown select “3 rd Route Under” for I-25 SB Off-Ramp	C	Y	Y	Y	Y
Roadway (005A) dropdown select “4 th Route Under” for I-25 NB On-Ramp	D	Y	Y	Y	Y
Roadway (005A) dropdown select “5 th Route Under” for Mile High Stadium Cir	E	N	Y	N	N
Roadway (005A) dropdown select “6 th Route Under” for 1 St SB	F	N	N	N	N
Roadway (005A) dropdown select “7 th Route Under” for 1 st St NB	G	N	N	N	N
Roadway (005A) dropdown select “8 th Route Under” for Walnut St	H	N	Y	N	N
Roadway (005A) dropdown select “9 th Route Under” for 1 st St	I	N	N	N	N
Bridge B example (Off-System)					
Roadway (005A) dropdown select “Route On Structure”	1	Y	Y	Y	Y
Roadway (005A) dropdown select “1 st Route Under” for 5 th St	2	N	N	N	N



Detour Length Speed (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A four-digit code identifying the speed limit posted on detour for each route identified in ITEM5A.

PROCEDURE

The detour speed limit should identify the maximum speed limit posted along the detour route. Record the speed in miles per hour (mph).

Enter the Speed into the [Speed](#) field in the Detours section for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Accidents Section (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

A two-part section identifying traffic accident data for each route identified in ITEM5A:

- **Count:** Identifies Average Annual Accident Count
- **Rate:** Identifies actual accident rates in number of accidents per 100 million vehicle miles traveled.

PROCEDURE

Enter the Accident Count into the [Count](#) field for each inventoried route.

Enter the Accident Rate into the [Rate](#) field for each inventoried route.

COMMENTARY

Future safety management system interfaces could provide this information and lead to improved user cost models.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Roads Roadway Notes (not used)	AM	CDOT	N/A
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Item is no longer used.

DESCRIPTION

Notes specific to each inventoried route identified in ITEM5A.

PROCEDURE

Enter comments into the [Roadway Notes](#) field for each inventoried route.

COMMENTARY

Roadway Notes are carried over from each inspection.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



Roadway Userkey 1 – Mile Posting	AM	CDOT	N/A
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DESCRIPTION

A seven-digit code identifying the Highway Mile Posting where each inventoried route intersects the structure.

PROCEDURE

Record the milepost in English units to the nearest thousandth of a mile.

When parallel structures at the same location appear in the highway system, the structure carrying traffic in the direction of inventory is identified as the first reference point. The parallel structure in the opposite direction of inventory will be identified with a reference point one thousandth of a mile larger. For intermittent routes, see the dissertation below.

On-System:

- The Reference Point System has been established for state highways to identify the location of a structure on a route based on the mileage measured from the beginning of the route. The beginning of a route is usually the western or southern state line, or it may be the junction with another highway. Reference points for odd numbered highways increase from south to north, reference points for even numbered highways increase from west to east.
- Stub routes are measured from their southern or western beginning intersection with another highway.
- Intermittent routes merge, and diverge, with higher numbered highways through portions of their length. Sections are identified with a letter added to the end of the route number.

Off-System: Code “0” for county roads, city streets or other roads that do not record a mile point, or establish a local system to input to this field.

Enter the Mile Post into the 1: field for each inventoried route.

COMMENTARY

This item is displayed on the SIA in the “Mile Post (ON) 11:” field and is referred to for all reporting purposes except for the Annual Federal submission.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

REFERENCE(S): CDOT “Field Log of Structures”, 2014 and [CDOT’s Division of Transportation Development \(DTD\)](#) web site for more details and to determine the inventory direction of a stub route.



Roadway Userkey 1 – Mile Posting (cont.)

CODING EXAMPLE

Example	ITEM 5A	Highway	Userkey 1
Bridge A example (On-System)			
Roadway (005A) dropdown select "Route On Structure"	1	40C EB	296.310
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	25A SB	210.080
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	25A NB	210.080
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	25A SB	210.170
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	25A NB	210.183
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E		0
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F		0
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G		0
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H		0
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I		0
Bridge B example (Off-System)			
Roadway (005A) dropdown select "Route On Structure"	1		0
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2		0
F-16-EO (parallels F-16-EW)	1	25A NB	211.464
F-16-EW (parallels F-16-EO)	1	25A SB	211.465



Roadway Userkey 2 (not used)	AM	CDOT	N/A
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Item is not currently used.

DESCRIPTION

A thirty-two-digit code identifying the date the last ADT count was taken.

Roadway Userkey 3 (not used)	AM	CDOT	N/A
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Item is not currently used.



Roadway Userkey 4 – Inventoried Route on SIA	AM	CDOT	N/A
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DESCRIPTION

A one-digit code identifying which inventoried route information is displayed on the SIA.

PROCEDURE

Enter “1” into the 4: field for the route that should be displayed on the SIA, all other routes must be left blank.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	Userkey 4
Bridge A example (On-System)		
Roadway (005A) dropdown select “Route On Structure”	1	1
Roadway (005A) dropdown select “1 st Route Under” for I-25 SB ML	A	
Roadway (005A) dropdown select “2 nd Route Under” for I-25 NB ML	B	
Roadway (005A) dropdown select “3 rd Route Under” for I-25 SB Off-Ramp	C	
Roadway (005A) dropdown select “4 th Route Under” for I-25 NB On-Ramp	D	
Roadway (005A) dropdown select “5 th Route Under” for Mile High Stadium Cir	E	
Roadway (005A) dropdown select “6 th Route Under” for 1 St SB	F	
Roadway (005A) dropdown select “7 th Route Under” for 1 st St NB	G	
Roadway (005A) dropdown select “8 th Route Under” for Walnut St	H	
Roadway (005A) dropdown select “9 th Route Under” for 1 st St	I	
Bridge B example (Off-System)		
Roadway (005A) dropdown select “Route On Structure”	1	1
Roadway (005A) dropdown select “1 st Route Under” for 5 th St	2	



Roadway Userkey 5 (not used)	AM	CDOT	N/A
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Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the Maintenance Functional Locations.



Agency Userkey 1 – Structure Inspection Category	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying the structure inspection category.

PROCEDURE

The Inspection Category options are listed below.

Userkey 1 Codes	Description
ONSYS	On-System structure
OFFSYS	Off-System structure
MINORSTR	Minor structure (4 feet to 19.99 feet long)
SIGN	Sign/Miscellaneous structure
MASTARM	Mast arm structure
HIGHMAST	High mast light structure
MISCSTR	Miscellaneous structure
TUNNEL	Tunnel structure
WALL	Wall structure
E470	Structure on E470
NWP	National Wildlife and Parks structure
CENTRAL70	Structure on Central I-70
RTD	Regional Transportation District structure
RAILROAD	Railroad structure
MINI-MINORSTR	Structure under 4 feet long
OTHER	Structures the do not fit any other category
BUREAU OF RECLAMATION	Bureau of Reclamation structure
SPAN WIRE	Span wire structure

Enter the appropriate Category into the 1: field.

COMMENTARY

Codes shall be entered in all caps.

CODING EXAMPLE

Example	Userkey 1
Bridge A example: On-System structure	ONSYS
Bridge B example: Off-System structure	OFFSYS



Agency Userkey 2 – Vehicular Structure	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying if a structure carries vehicular traffic.

PROCEDURE

The Vehicular Structure options are listed below.

Userkey 2 Codes	Description
MAJOR VEHICULAR	Major structure carries vehicular traffic and submitted to FHWA
NON MAJOR VEHICULAR	Minor structure or structure does not carry vehicular traffic (i.e. railroad or pedestrian)
MAJOR VEHICULAR-NO TAPE	Major structure carries vehicular traffic but not submitted to FHWA

Enter the appropriate Category into the 2: field.

COMMENTARY

Codes shall be entered in all caps.

CODING EXAMPLE

Example	Userkey 2
Bridge A example: Vehicular structure	MAJOR VEHICULAR
Bridge B example: Vehicular structure	MAJOR VEHICULAR



Agency Userkey 3 – Structure Type Category	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying the structure type category.

PROCEDURE

The Structure Type Category options are listed below.

Userkey 3 Codes	Description
BRIDGE	Bridge type structure
CULVERT	Culvert (buried) structure
SIGN	Sign structure
MASTARM SIGNAL	Mast arm signal structure
HIGHMAST LIGHT	High mast light structure
MISCELLANEOUS	Miscellaneous structure
TUNNEL	Tunnel structure
WALL-RETAINING	Wall structure retaining fill
WALL-NOISE	Wall structure, free standing for noise dampening
SPAN WIRE SIGNAL	Span wire holding traffic signal

Enter the appropriate Category into the 3: field.

COMMENTARY

Codes shall be entered in all caps.

CODING EXAMPLE

Example	Userkey 3
Bridge A example: Bridge structure	BRIDGE
Bridge B example: Bridge structure	BRIDGE



Agency Userkey 4 – Routine Inspection Schedule	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying the routine and Nonredundant Steel Tension Member (NSTM) inspection month and trip.

PROCEDURE

The Inspection Schedule options for 48-, 24-, and 12-month intervals are listed below.

Userkey 5 Sections	48-month Inspection Interval	24-month Inspection Interval	12-month Inspection Interval
Inspection Fiscal Year (Characters 1-3)	LP0 = Leap Year LP1 = Leap Year + 1 LP2 = Leap Year + 2 LP3 = Leap Year + 3	ODD = Odd fiscal year EVN = Even fiscal year	12M
(Character 4)	Blank		
Inspection Month (Characters 5-7)	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December
(Character 8)	Blank		
Inspection Trip (Characters 9-11)	On-System: Q## Q = Quarter A to H ## = Trip number_1 to 99 Off-System: Z_0 Z = N for northern area = C for central area = S for southern area	On-System: Q## Q = Quarter A to H ## = Trip number_1 to 99 Off-System: Z_0 Z = N for northern area = C for central area = S for southern area	On-System: Q## Q = Quarter A to H ## = Trip number_1 to 99 Off-System: Z_0 Z = N for northern area = C for central area = S for southern area
(Characters 12-20)	Blank		



Agency Userkey 4 – Routine Inspection Schedule (cont.)

PROCEDURE (cont.)

The Inspection Schedule options for 6-month intervals are listed below.

Userkey 4 Sections	6-month Inspection Interval	
Inspection Year (Characters 1-3)	06M	
(Character 4)	Blank	
Inspection Month (Characters 5-7)	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June	JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December Blank = Non-qualifying
(Character 8)	Blank	
Inspection Month (Characters 9-11)	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June	JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December Blank = Non-qualifying
(Character 12)	Blank	
Even Fiscal Year Inspection Trip (Characters 13-15)	On-System: Q## Q = Quarter A to H ## = Trip number_1 to 99	Off-System: Z_0 Z = N for northern area = C for central area = S for southern area
(Character 16)	Blank	
Odd Fiscal Year Inspection Trip (Characters 17-19)	On-System: Q## Q = Quarter A to H ## = Trip number_1 to 99	Off-System: Z_0 Z = N for northern area = C for central area = S for southern area
(Character 20)	Blank	

Enter the appropriate Schedule into the 4: field.

COMMENTARY

Codes shall be entered in all caps.

Fiscal years begin July 1 and are based on the calendar year when the fiscal year ends.

Any changes to routine or NSTM inspection month or interval should be noted in Schedule Notes.

CODING EXAMPLE

	Example	Userkey 4
Bridge A example: On-System structure inspected in May of even fiscal years		EVN MAY B19
Bridge B example: Off-System central area structure inspected in October of odd fiscal years		ODD OCT C_0



Agency Userkey 5 – Underwater Inspection Schedule	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying the underwater inspection month.

PROCEDURE

The Inspection Schedule options are listed below.

Userkey 5 Sections	48-month Inspection Interval	24-month Inspection Interval	12-month Inspection Interval
Inspection Fiscal Year (Characters 1-3)	LP0 = Leap Year LP1 = Leap Year + 1 LP2 = Leap Year + 2 LP3 = Leap Year + 3	ODD = Odd fiscal year EVN = Even fiscal year	12M
(Character 4)	Blank		
Inspection Month (Characters 5-7)	Blank	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December
(Character 8-20)	Blank		

Enter the appropriate Schedule into the 5: field.

COMMENTARY

Codes shall be entered in all caps.

Any changes to underwater inspection month or interval should be noted in Schedule Notes.

CODING EXAMPLE

Example	Userkey 5
Bridge A example: No underwater inspection	
Bridge B example: No underwater inspection	



Agency Userkey 6 – Pin Schedule	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying the pin inspection month.

PROCEDURE

The Inspection Schedule options are listed below.

Userkey 6 Sections	48-month Inspection Interval	24-month Inspection Interval	12-month Inspection Interval
Inspection Fiscal Year (Characters 1-3)	LP0 = Leap Year LP1 = Leap Year + 1 LP2 = Leap Year + 2 LP3 = Leap Year + 3	ODD = Odd fiscal year EVN = Even fiscal year	12M
(Character 4)	Blank		
Inspection Month (Characters 5-7)	Blank	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December	JAN = January FEB = February MAR = March APR = April MAY = May JUN = June JUL = July AUG = August SEP = September OCT = October NOV = November DEC = December
(Character 8-20)	Blank		

Enter the appropriate Schedule into the 6: field.

COMMENTARY

Codes shall be entered in all caps.

Any changes to pin inspection month or interval should be noted in Schedule Notes.

CODING EXAMPLE

Example	Userkey 6
Bridge A example: No pin inspection	
Bridge B example: No pin inspection	



Agency Userkey 7 (not used)	AM	CDOT	N/A
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Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the Special inspection month.

Agency Userkey 8 (not used)	AM	CDOT	N/A
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Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the bridge IGA TC resolution number.



Agency Userkey 9 – Bats	AM	CDOT	N/A
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DESCRIPTION

A thirty-two-character code identifying if bats are present at the structure.

PROCEDURE

The Bat Presence options are listed below.

Userkey 9 Codes	Description
YES	Bats are present at the structure
NO	Bats are not present at the structure
-1	Unknown

Code “YES” if bats or signs of bat presence are found during the inspection. Include a brief description of field findings (i.e. bat box, bat guano, bats on-site).

Enter the appropriate Presence into the 5: field.

COMMENTARY

Codes shall be entered in all caps.

CODING EXAMPLE

Example	Userkey 9
Bridge A example: Not identified	-1
Bridge B example: No signs of bat presence was noted	NO



Agency Userkey 10 (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.

Agency Userkey 11 (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the date Pontis records were transferred to BrM.

PROCEDURE

This field is populated by CDOT Bridge and Structures Asset Management Group and is not editable.

Agency Userkey 12 (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.

Agency Userkey 13 (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the latitude in decimal degrees.

COMMENTARY

Data has been moved to ITEM16DD.

Agency Userkey 14 (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the longitude in decimal degrees.

COMMENTARY

Data has been moved to ITEM17DD.

Agency Userkey 15 (not used)	I	CDOT	N/A
------------------------------	---	------	-----

Item is not currently used.

DESCRIPTION

A thirty-two-character code identifying the lowest shoulder measurement.



Record Date	I	CDOT	N/A
-------------	---	------	-----

DESCRIPTION

A ten-character code identifying the date the inspection record was created.

PROCEDURE

Record the month, day, and year the inspection record was created (mm/dd/yyyy).

Item is automatically populated into the [Date Entered](#) field.

COMMENTARY

None.

CODING EXAMPLE

	Example	Record Date
Bridge A example: Inspection was performed in May 18, 2022 and the record was created in BrM on August 23, 2022		08/23/2022
Bridge B example: Inspection was performed in October 30, 2022 and the record was created in BrM on November 11, 2022		11/11/2022



Record Entered By	I	CDOT	N/A
-------------------	---	------	-----

DESCRIPTION

A thirty-two-character code identifying the person who created and updated the inspection record.

PROCEDURE

Item is automatically populated from the [Entered By](#) dropdown menu.

COMMENTARY

None.

CODING EXAMPLE

	Example	Record Entered By
	Bridge A example: Inspection was performed by Beth Jones and inspection record was created by Andrew Smith	SMITHA
	Bridge B example: Inspection was performed by Andrew Smith and inspection record was created by Beth Jones	JONESB



Engineer of Record (not used)	AM	CDOT	N/A
-------------------------------	----	------	-----

Item is no longer used.

DESCRIPTION

A twenty-five-character code identifying CDOT or the Consulting firm responsible for the evaluation of any Condition State 4 quantities requiring review.

PROCEDURE

Enter the Engineer into the [Engineer of Record](#) field.

COMMENTARY

REFERENCE(S):

- CDOT “BRIAR Process Document 008, Creating New Inspections in BrM Revised 2021-10-14”

CODING EXAMPLE

None.



Inspection Type	I	CDOT	B.IE.01
-----------------	---	------	---------

DESCRIPTION

A six-part section identifying inspection types performed:

- **Routine:** Indicates whether a Routine inspection was performed.
- **Element:** Indicates whether an Element Level inspection was performed.
- **Fracture Critical:** Indicates whether a Fracture Critical inspection was performed.
- **Underwater:** Indicates whether an Underwater inspection was performed.
- **Other Special:** Indicates whether an Other Special inspection was performed.
- **Primary Type:** Indicates whether the route should be included in NBI file exports.

PROCEDURE

The Primary Inspection Type options are listed below.

Inspection Type Codes	Description
Regular NBI	Routine and Fracture Critical inspections
Special	Special Element inspections (i.e. element with reduced interval less than 12 months, special request inspections, revisions due to NBI Condition reviews)
Special-Other	Pin inspections only
UW-Contract SCUBA	Underwater inspections only
Special-Accident Damage	Accident Damage inspections (i.e. overload, impact)
Special-Nat Disaster Dmg	Natural Disaster Damage inspections (i.e. flooding, wildfire, rock fall)
Other	Inspections for reasons not covered by other categories
Missing	Not applicable

Select the appropriate Inspection code from the **Primary Type** dropdown menu.

Check or uncheck as appropriate the **Routine**, **Element**, **Fracture Critical**, **Underwater**, and **Other Special** boxes. Checked box indicates “yes” that type of inspection was performed.

COMMENTARY

REFERENCE(S):

- CDOT “BRIAR Process Document 008, Creating New Inspections in BrM Revised 2021-10-14”

CODING EXAMPLE

Example	Routine	Element	FC	Underwater	Other Special	Primary Type
Bridge A example: Routine inspection	Y	Y	N	N	N	Regular NBI
Bridge B example: Routine inspection	Y	Y	N	N	N	Regular NBI



Schedule Notes	I	CDOT	N/A
----------------	---	------	-----

DESCRIPTION

Notes specific to each structure identifying changes in inspection scheduling.

PROCEDURE

Schedule Notes should keep track of scheduling changes. Describe when and why the change in inspection month or inspection interval took place.

Enter comments into the [Schedule Notes](#) field.

COMMENTARY

Schedule Notes are carried over from each inspection and record the structure’s schedule history.

Any changes to inspection month or interval will affect Agency Userkey 4, Agency Userkey 5, and/or Agency Userkey 6 and could affect ITEM91 – Inspection Interval and/or ITEM92A/B/C – Critical Feature Inspection.

Notes appear under “Scheduling Notes” on the Structure Inspection and Inventory Report (SIA).

CODING EXAMPLE

Example	Schedule Notes
Bridge A example	01/05/2009 - Routine Inspection Interval reduced from 48 months to 24 months due to no longer meeting the 48-month interval criteria.
Bridge B example	10/30/2022 - Routine Inspection moved from December to October to increase field efficiency.



CDOT Roadway On/Under Feature (not used)	I	CDOT	N/A
--	---	------	-----

Item is no longer used.

DESCRIPTION

A thirty-character code identifying the commonly known name for each route identified in ITEM5A.

PROCEDURE

Record the name full description, abbreviations can be used for route type and direction.

Enter the Feature into the [On_Un_Feature \(006C\)](#) field for each inventoried route.

COMMENTARY

The Bridge Management Unit has designated some common abbreviations or spellings to be used for this item, shown in Appendix C. It is suggested that these common abbreviations be used as often as possible to facilitate searches database searches.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



CDOT Roadway Route Name	AM	CDOT	B.F.03
-------------------------	----	------	--------

DESCRIPTION

A thirty-character code identifying the commonly known name for each route identified in ITEM5A.

PROCEDURE

Record the name full description, abbreviations can be used for route type and direction. This should match the Roads Route Name description.

Enter the Name into the [Road/Route name](#) field for each inventoried route.

COMMENTARY

The Bridge Management Unit has designated some common abbreviations or spellings to be used for this item, shown in Appendix C. It is suggested that these common abbreviations be used as often as possible to facilitate searches database searches.

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

Example	ITEM 5A	CDOT Roadway Route Name
Bridge A example (On-System)		
Roadway (005A) dropdown select "Route On Structure"	1	US 40 On-Ramp
Roadway (005A) dropdown select "1 st Route Under" for I-25 SB ML	A	I-25 SB Mainline
Roadway (005A) dropdown select "2 nd Route Under" for I-25 NB ML	B	I-25 NB Mainline
Roadway (005A) dropdown select "3 rd Route Under" for I-25 SB Off-Ramp	C	I-25 SB Off-Ramp
Roadway (005A) dropdown select "4 th Route Under" for I-25 NB On-Ramp	D	I-25 NB On-Ramp
Roadway (005A) dropdown select "5 th Route Under" for Mile High Stadium Cir	E	Mile High Stadium Cir
Roadway (005A) dropdown select "6 th Route Under" for 1 St SB	F	1 st St NB
Roadway (005A) dropdown select "7 th Route Under" for 1 st St NB	G	1 st St SB
Roadway (005A) dropdown select "8 th Route Under" for Walnut St	H	Walnut St
Roadway (005A) dropdown select "9 th Route Under" for 1 st St	I	1 st St
Bridge B example (Off-System)		
Roadway (005A) dropdown select "Route On Structure"	1	WB Auraria Pkwy
Roadway (005A) dropdown select "1 st Route Under" for 5 th St	2	5 th St



CDOT Roadway Primary Direction Notes NBND & EBND (not used)	AM	CDOT	N/A
--	----	------	-----

Item is no longer used.

DESCRIPTION

Notes specific to the northbound or eastbound direction for each route identified in ITEM5A.

PROCEDURE

Enter comments into the [Primary Direction Notes](#) field for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



CDOT Roadway Secondary Direction Notes SBND & WBND (not used)	AM	CDOT	N/A
--	----	------	-----

Item is no longer used.

DESCRIPTION

Notes specific to the southbound or westbound direction for each route identified in ITEM5A.

PROCEDURE

Enter comments into the [Secondary Direction Notes](#) field for each inventoried route.

COMMENTARY

This item is route specific and coded for each inventoried route (ITEM5A) on and under a structure.

CODING EXAMPLE

None.



CDOT Roadway Userkey 1 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 2 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 3 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 4 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 5 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 6 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 7 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey 8 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Userkey Notes (not used)	AM	CDOT	N/A
---------------------------------------	----	------	-----

Item is not currently used.

CDOT Roadway Notes (not used)	AM	CDOT	N/A
-------------------------------	----	------	-----

Item is not currently used.



Team Member	I	CDOT	N/A
-------------	---	------	-----

DESCRIPTION

A twenty-character code identifying the additional inspector or assistant that aided the Team Leader during the last inspection recorded in ITEM90.

PROCEDURE

Enter the Team Members first and last name into the [Team Member](#) field.

COMMENTARY

Appears as “Inspector:” on the last page of the inspection report.

CODING EXAMPLE

Example	Team Member
Bridge A example: Inspected by Beth Jones with the help of Andrew Smith	Andrew Smith
Bridge B example: Inspected by Andrew Smith with the help of Beth Jones	Beth Jones



CDOT Inspections Userkey 4 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 5 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 6 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 7 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 8 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 9 (not used)	I	CDOT	N/A
---------------------------------------	---	------	-----

Item is not currently used.

CDOT Inspections Userkey 10 (not used)	I	CDOT	N/A
--	---	------	-----

Item is not currently used.

CDOT Inspections Userkey Notes (not used)	I	CDOT	N/A
---	---	------	-----

Item is not currently used.

CDOT Inspections Notes (not used)	I	CDOT	N/A
-----------------------------------	---	------	-----

Item is not currently used.



CDOT Bridge Userkey 1 – Scour Monitoring Comments	I	CDOT	N/A
---	---	------	-----

DESCRIPTION

Notes specific to each structure identifying the scour summary for the On-System Scour Critical Watchlist.

PROCEDURE

Leave blank for structures not on the On-System Scour Critical Watchlist (ITEM113M = “N”).

For On-System structures when ITEM113M = “Y”, Monitoring Comments should minimally include:

- Date of last inspection with a summary of scour conditions

Enter comments into the [Monitoring Comments \(On-System\)](#) field.

COMMENTARY

Scour Monitoring Comments are carried over from each inspection.

CODING EXAMPLE

	Example	Userkey 1
Bridge A example: On-System structure not on scour watchlist		
Bridge B example: Off-System structure not on scour watchlist		



CDOT Bridge Userkey 2 – Scour Monitoring Triggers	AM	CDOT	N/A
---	----	------	-----

DESCRIPTION

Notes specific to each structure identifying monitoring triggers for the On-System Scour Critical Watchlist and the Off-System Scour Vulnerable Watchlist.

PROCEDURE

Leave blank for structures not on a Scour Watchlist (ITEM113M = “N”).

When ITEM113M = “Y”, Monitoring Triggers should minimally include:

- List of events or circumstances triggering a special inspection for scour assessment

Enter comments into the [Monitoring Triggers \(On and Off-System\)](#) field.

COMMENTARY

Scour Monitoring Triggers are carried over from each inspection.

CODING EXAMPLE

	Example	Userkey 2
Bridge A example: On-System structure not on watchlist		
Bridge B example: Off-System structure not on watchlist		



CDOT Bridge Userkey 3 – Scour Closure Triggers	AM	CDOT	N/A
--	----	------	-----

DESCRIPTION

Notes specific to each structure identifying structure closure triggers for the On-System Scour Critical Watchlist and the Off-System Scour Vulnerable Watchlist.

PROCEDURE

Leave blank for structures not on a Scour Watchlist (ITEM113M = “N”).

When ITEM113M = “Y”, Closure Triggers should minimally include:

- List of events or circumstances triggering the structure to be closed temporarily or permanently

Enter comments into the [Closure Triggers \(On and Off-System\)](#) field.

COMMENTARY

Scour Closure Triggers are carried over from each inspection.

CODING EXAMPLE

	Example	Userkey 3
Bridge A example: On-System structure not on watchlist		
Bridge B example: Off-System structure not on watchlist		



CDOT Bridge Userkey 4 – Scour Mobilization Triggers	AM	CDOT	N/A
---	----	------	-----

DESCRIPTION

Notes specific to each structure identifying mobilization triggers for the Off-System Scour Vulnerable Watchlist.

PROCEDURE

Leave blank for structures not on a Scour Watchlist (ITEM113M = “N”).

For Off-System structures when ITEM113M = “Y”, Mobilization Triggers should minimally include:

- List of events or circumstances triggering local live monitoring until the event or circumstance has ended

Enter comments into the [Mobilize Triggers \(Off-System\)](#) field.

COMMENTARY

Scour Mobilization Triggers are carried over from each inspection.

CODING EXAMPLE

	Example	Userkey 4
Bridge A example: On-System structure not on watchlist		
Bridge B example: Off-System structure not on watchlist		



CDOT Bridge Userkey 5 (not used)	AM	CDOT	N/A
----------------------------------	----	------	-----

Item is no longer used.

DESCRIPTION

Notes specific to each structure identifying the Metropolitan Planning Organization.

PROCEDURE

Enter the Metropolitan Planning Organization into the [Metropolitan Planning Org.](#) field.

COMMENTARY

Data has been moved to ITEM2MPO.

CODING EXAMPLE

None.



CDOT Bridge Userkey 6 – Item 113 Documentation	AM	CDOT	N/A
--	----	------	-----

DESCRIPTION

Notes specific to each structure identifying the file names for documents related to the coding of ITEM113.

PROCEDURE

Enter the File Names into the [Item 113 Documentation](#) field.

COMMENTARY

Every structure should have a Scour Screening Memo as part of the bridge record.

As Item 113 documents are created over time, add the new file names above the previous file names. Do not remove any Item 113 documentation file names.

Item 113 Documentation is carried over from each inspection.

CODING EXAMPLE

Example	Userkey 6
Bridge A example: ITEM113 = 8	BridgeA SCOUR HISTORIC113 1993.pdf
Bridge B example: ITEM113 = N	BridgeB SCOUR Item 113 Screening Memo 2016 04 20.pdf



CDOT Bridge Userkey 7 – Added, Removed, Transfer Information	AM	CDOT	N/A
--	----	------	-----

DESCRIPTION

Notes specific to each structure identifying information regarding a structure being added, removed, or transferred from an inventory.

PROCEDURE

Notes should be included whenever a structure changes ownership identifying the previous owner, new owner, owner/maintenance agreement, and effective date.

Leave blank when not applicable.

Enter comments into the [Added_Deleted_Transferred Info](#) field.

COMMENTARY

Added, Removed, Transfer Information is carried over from each inspection.

CODING EXAMPLE

Example	Userkey 7
Bridge A example: Not applicable	
Bridge B example: Formerly CDOT On-System Bridge AB	5/3/1998: Bridge AB transferred ownership and maintenance responsibilities from CDOT to City and County of Denver. Bridge ID was changed from BridgeAB to BridgeB.



CDOT Bridge Userkey 8 – Inspection Access Requirements	I	CDOT	N/A
--	---	------	-----

DESCRIPTION

Notes specific to each structure identifying special inspection access requirements.

PROCEDURE

Leave blank for structures without access requirements (ITEM133 = “00.00” or “99.00”).

When ITEM133 = “88.00”, Special Access Requirement should minimally include:

- Special equipment needed (i.e. PPE, bucket truck, rope access, tools)
- Special access requirements (i.e. traffic control, permit, flagger)
- Owner coordination within right-of-way including contact information (i.e. railroad, RTD)

Enter comments into the [Inspection Access Requirements](#) field.

COMMENTARY

Inspection Access Requirements are carried over from each inspection.

Notes appear under “Inspection Access Requirements” on the inspection report.

CODING EXAMPLE

Example	Userkey 8
Bridge A example: Pier cap in poor condition needing hands on inspection	Unable to inspect Pier Cap 11 in Span 11, Lane 1 southbound I-25 and right shoulder closure is needed in order to inspect with the Below Bridge Access Vehicle. Should be inspected with the A40 in 2024. RTD shall be notified when there is a lane closure on this bridge.
Bridge B example: Box girders over railroad, light rail, private parking, and local road	Spans 1-6 require 40-foot bucket truck; 7/8 inch or ¾ inch wrench required to open covers, use caution since covers open down towards inspectors. Span 1 access requires railroad permit and flagger. Span 5 access requires RTD permit and flagger.



CDOT Bridge Userkey 9 (not used)		CDOT	N/A
----------------------------------	--	------	-----

Item is not currently used.

DESCRIPTION

Notes specific to each structure identifying the functional location for maintenance and SAP.

CDOT Bridge Userkey 10 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Bridge Userkey 11 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Bridge Userkey 12 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

CDOT Bridge Userkey 13 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

DESCRIPTION

Notes specific to each structure identifying if a structure is BTE owned or eligible.

CDOT Bridge Userkey 14 (not used)	AM	CDOT	N/A
-----------------------------------	----	------	-----

Item is not currently used.

DESCRIPTION

Notes specific to each structure identifying the BTE, TC resolution number.



CDOT Bridge Userkey 15 – Minor Structure Culvert Slope	I	CDOT	N/A
--	---	------	-----

DESCRIPTION

Notes specific to minor structures identifying the average hydraulic slope percentage.

PROCEDURE

Record the average hydraulic slope at the apex or top of the culvert to the nearest tenth of a percent.

Leave blank for non-minor structures.

Enter the Slope Percentage into the [Minor Structures Culvert Slope](#) field.

COMMENTARY

Measure the hydraulic slope at the apex or top of the culvert at the inlet and outlet to determine the average slope.

CODING EXAMPLE

Example	Userkey 15
Bridge A example: On-System major structure	
Bridge B example: Off-System major structure	



CDOT Bridge Userkey Notes (not used)	AM	CDOT	N/A
--------------------------------------	----	------	-----

Item is not currently used.

CDOT Bridge Notes (not used)	AM	CDOT	N/A
------------------------------	----	------	-----

Item is not currently used.



CDOT Rating Structure Notes	LR	CDOT	N/A
-----------------------------	----	------	-----

DESCRIPTION

Notes specific to each structure identifying load rating information and assumptions.

PROCEDURE

Item is to only be updated by the load rater or load rating company unless otherwise directed by CDOT.

Notes should include Rating Summary Sheet comments section information.

Enter comments into the [Structure Comments \(008COM\)](#) field.

COMMENTARY

CDOT Rating Structure Notes are carried over from each inspection.

REFERENCE(S):

- CDOT Bridge Asset Management Technical Memo “BR 02 Coding of Load Ratings 2014 03 10”

CODING EXAMPLE

None.



Inspection Key	AM	CDOT	N/A
----------------	----	------	-----

DESCRIPTION

A four-character code identifying the unique key for each inspection record in BrM.

PROCEDURE

Item is automatically calculated in the [Inspection](#) area.

COMMENTARY

Key appears under “Inspection Key” on the Structure Inspection and Inventory Report (SIA).

CODING EXAMPLE

None.

Appendix A – Organizational Boundary Maps

Appendix A contains the boundary and informational maps for:

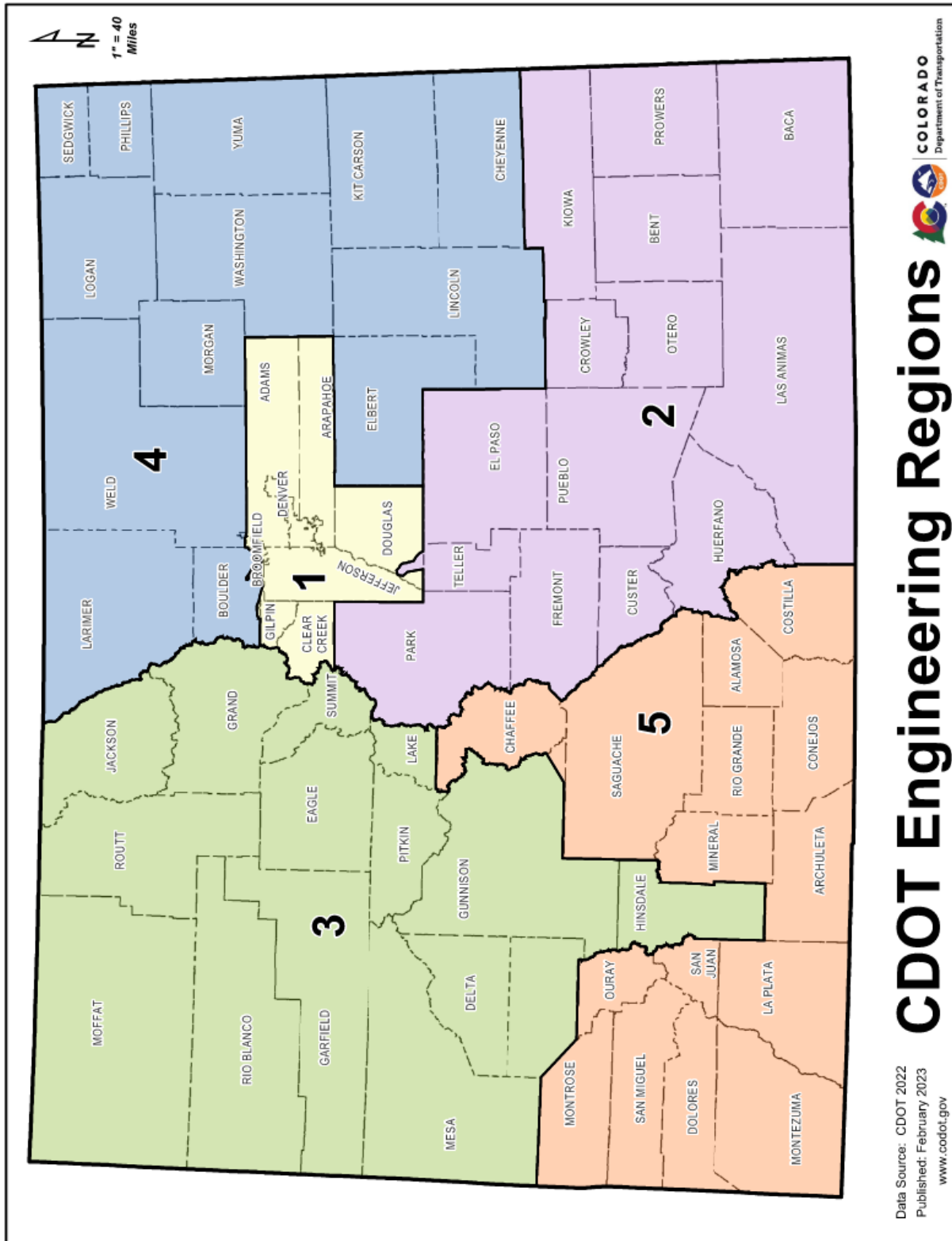
1. CDOT Engineering Regions
2. CDOT Maintenance Sections
3. CDOT Transportation Commission Districts
4. Colorado Metropolitan Planning Organizations
5. Highway Functional Classifications

These maps are reprinted from CDOT's Online Transportation Information System (OTIS).

<https://dtdapps.coloradodot.info/otis>

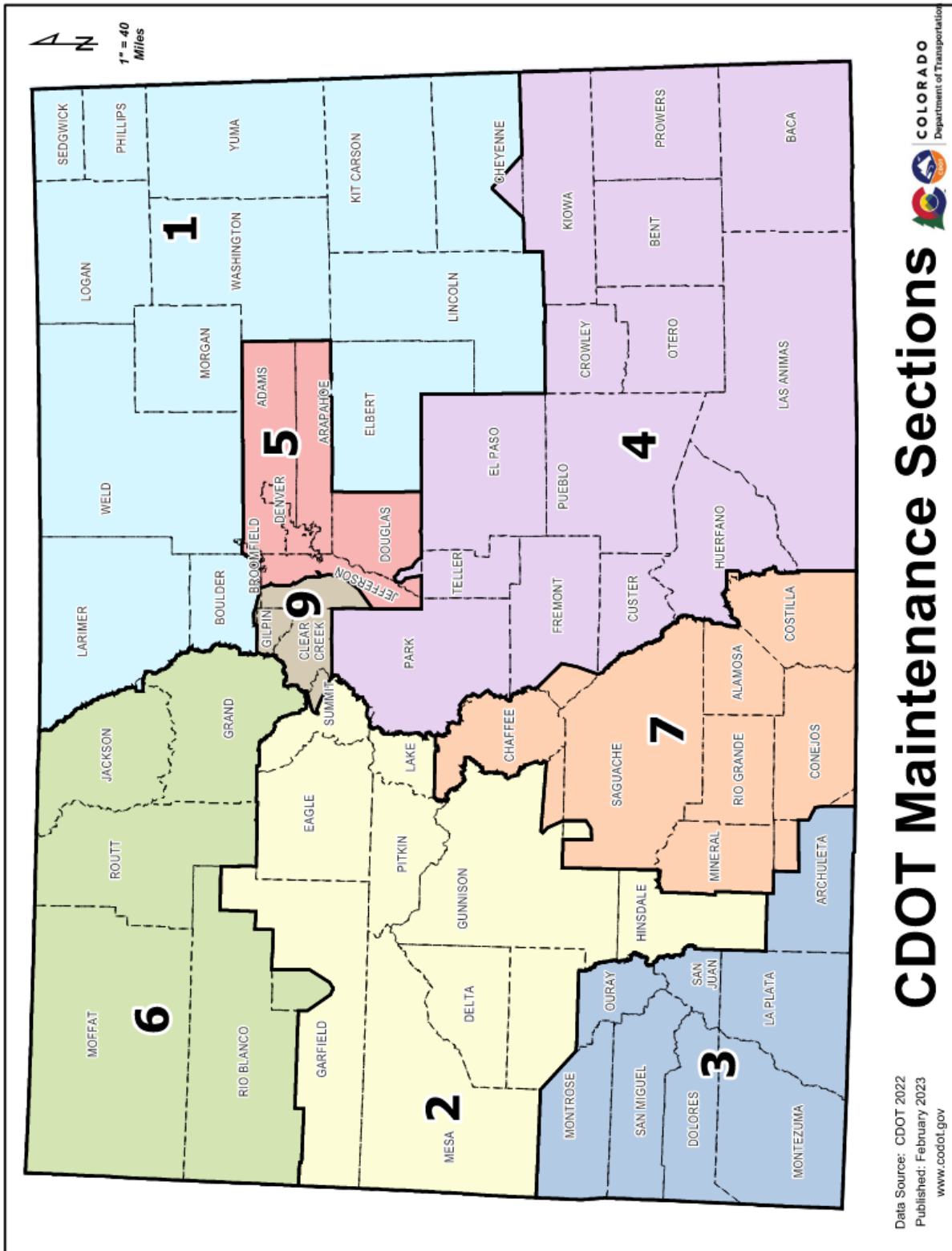


CDOT ENGINEERING REGION BOUNDARIES



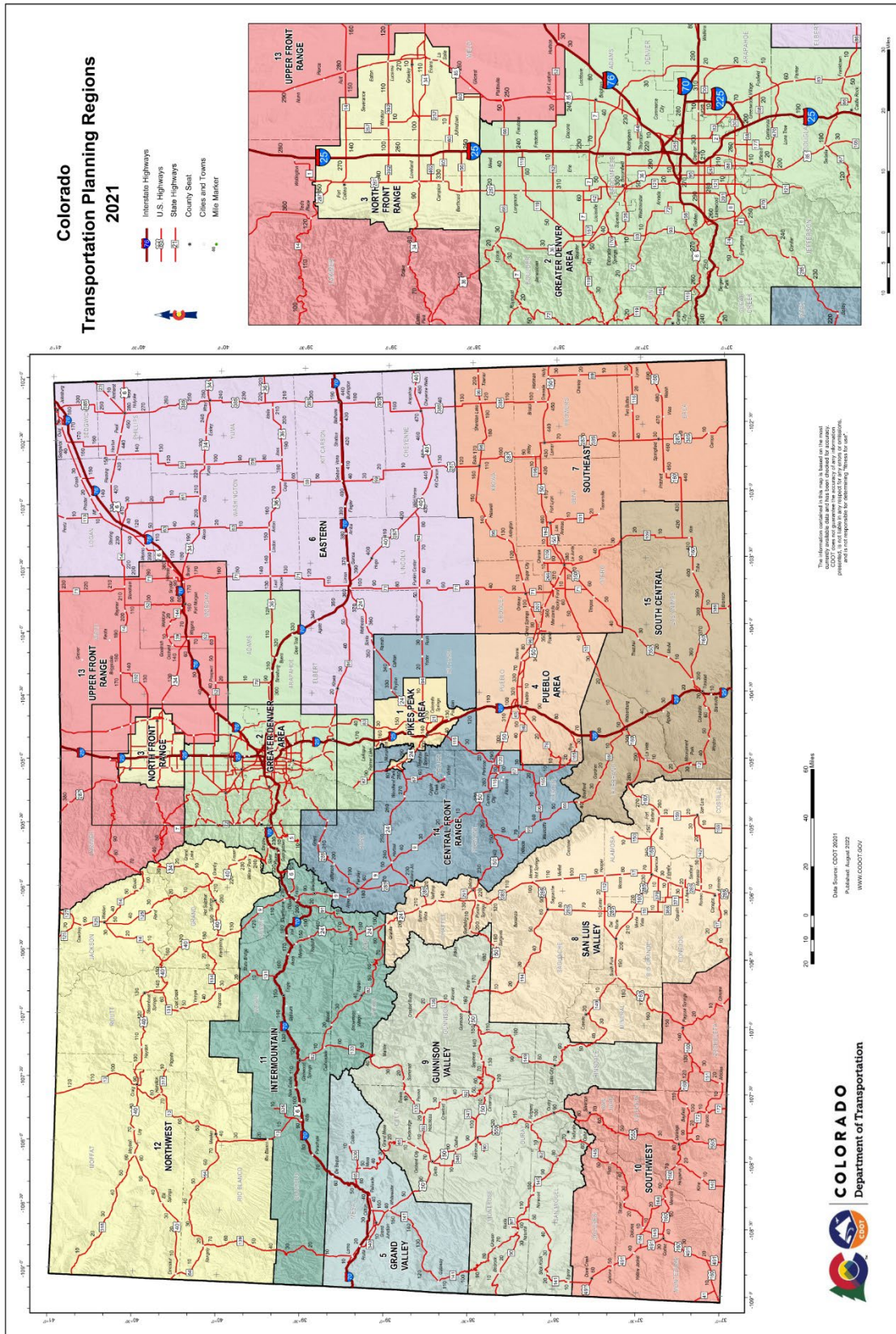


CDOT MAINTENANCE REGION BOUNDARIES



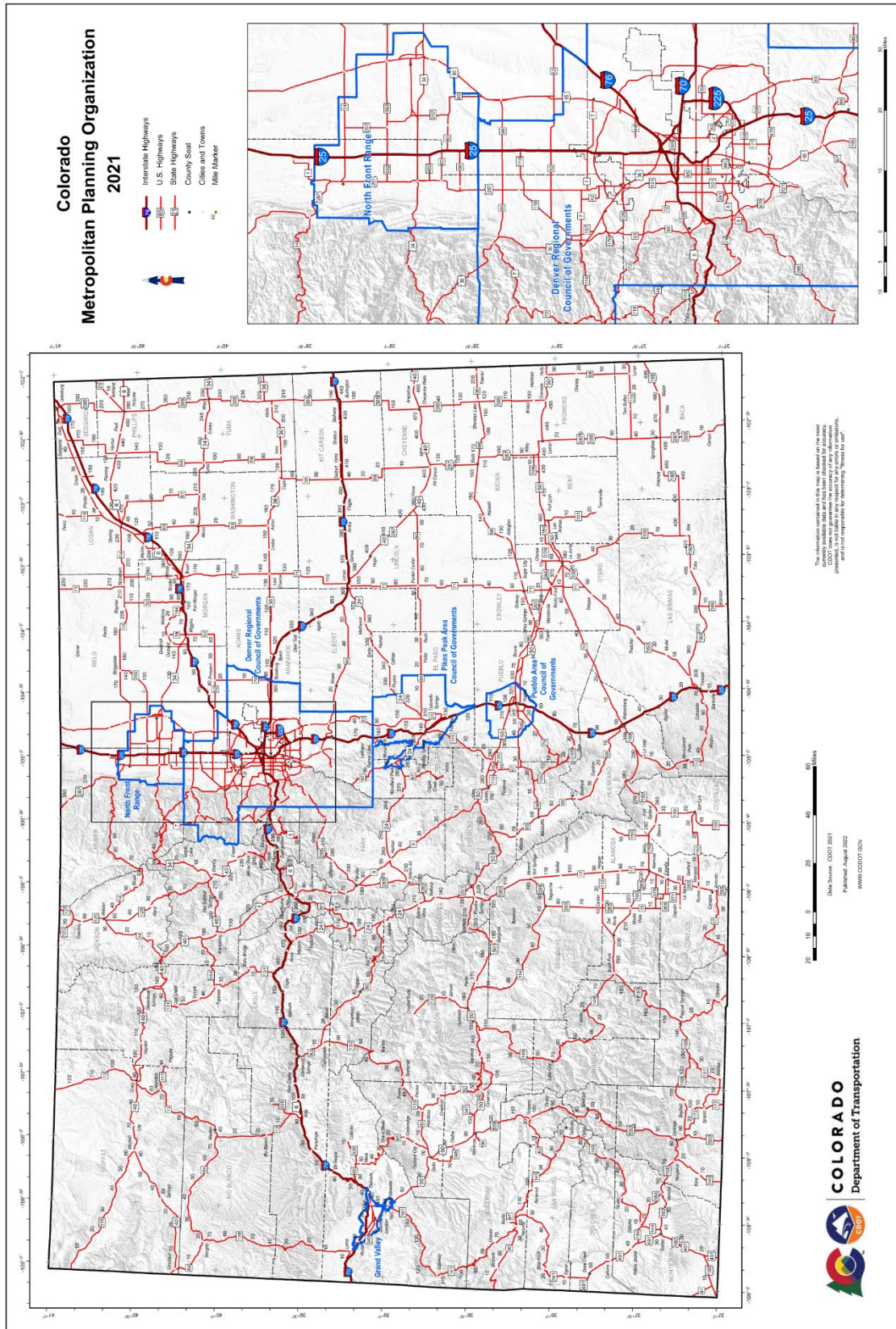


CDOT TRANSPORTING PLANNING REGIONS



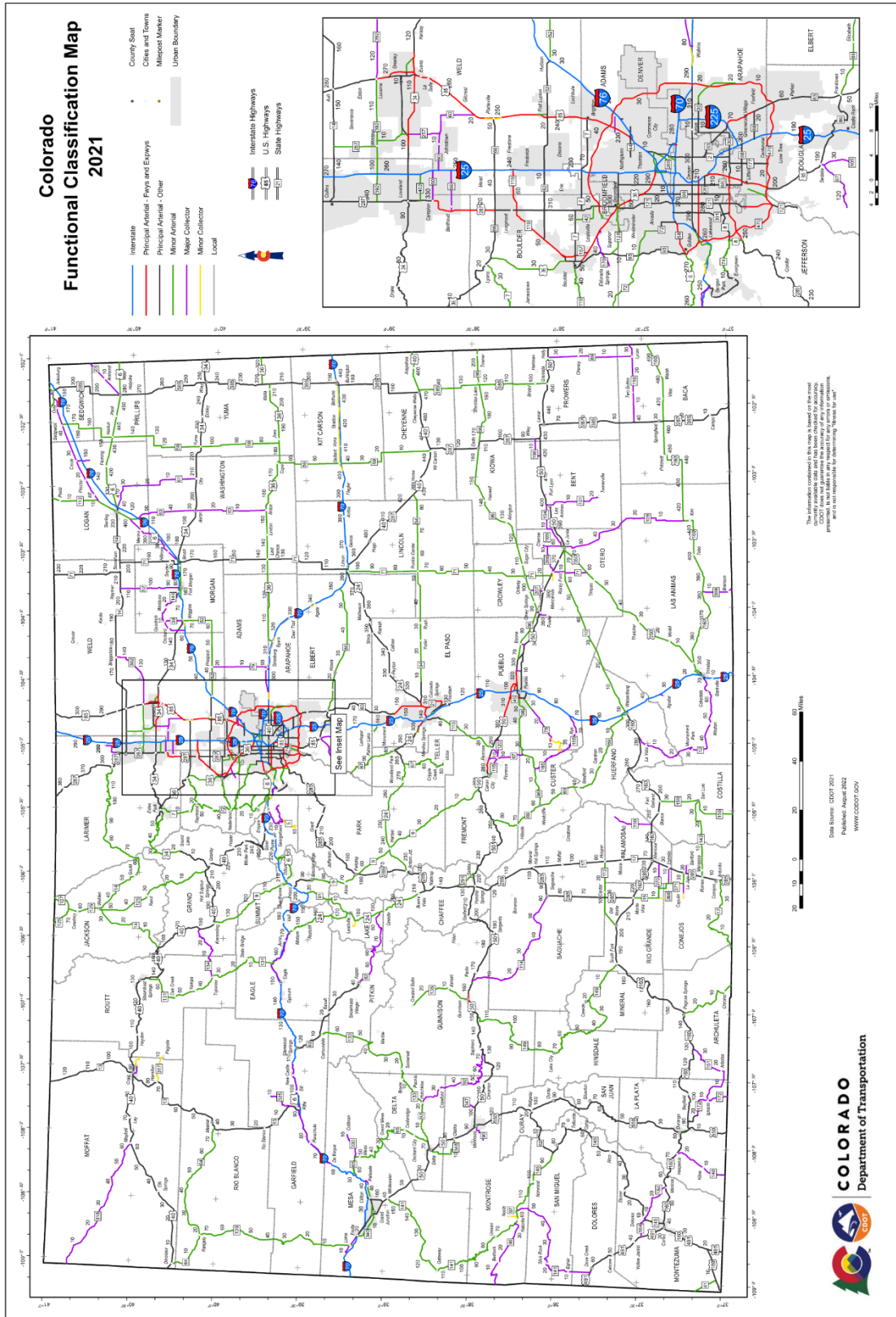


CDOT METRO PLANNING ORGANIZATIONS





CDOT FUNCTIONAL CLASSIFICATION MAP





Appendix B – FIPS Codes

Appendix B contains the Federal Information Processing System (FIPS) codes for counties and municipalities in the state of Colorado.

COUNTY FIPS CODES

FIPS Code	County
001	Adams
003	Alamosa
005	Arapahoe
007	Archuleta
009	Baca
011	Bent
013	Boulder
014	Broomfield
015	Chaffee
017	Cheyenne
019	Clear Creek
021	Conejos
023	Costilla
025	Crowley
027	Custer
029	Delta
031	Denver
033	Dolores
035	Douglas
037	Eagle
039	Elbert
041	El Paso

FIPS Code	County
043	Fremont
045	Garfield
047	Gilpin
049	Grand
051	Gunnison
053	Hinsdale
055	Huerfano
057	Jackson
059	Jefferson
061	Kiowa
063	Kit Carson
065	Lake
067	La Plata
069	Larimer
071	Las Animas
073	Lincoln
075	Logan
077	Mesa
079	Mineral
081	Moffat
083	Montezuma
085	Montrose

FIPS Code	County
087	Morgan
089	Otero
091	Ouray
093	Park
095	Phillips
097	Pitkin
099	Prowers
101	Pueblo
103	Rio Blanco
105	Rio Grande
107	Routt
109	Saguache
111	San Juan
113	San Miguel
115	Sedgwick
117	Summit
119	Teller
121	Washington
123	Weld
125	Yuma



CITY/TOWN/MUNICIPALITY FIPS CODES

Local FIPS	Local Municipality Name	Designation	County	County FIPS
06172	Berkley	cdp	Adams	001
00320	Acres Green	cdp	Douglas	035
00620	Aetna Estates	cdp	Arapahoe	005
00760	Aguilar	town	Las Animas	071
00870	Air Force Academy	cdp	El Paso	041
01090	Alamosa	city	Alamosa	003
01145	Alamosa East	cdp	Alamosa	003
01420	Allenspark	cdp	Boulder	013
01530	Alma	town	Park	093
01640	Alpine	cdp	Rio Grande	105
01740	Altona	cdp	Boulder	013
01915	Amherst	cdp	Phillips	095
02355	Antonito	town	Conejos	021
02575	Applewood	cdp	Jefferson	059
02905	Arboles	cdp	Archuleta	007
03015	Aristocrat Ranchettes	cdp	Weld	123
03235	Arriba	town	Lincoln	073
03455	Arvada	city	Adams, Jefferson	001, 059
03620	Aspen	city	Pitkin	097
03730	Aspen Park	cdp	Jefferson	059
03840	Atwood	cdp	Logan	075
03950	Ault	town	Weld	123
04000	Aurora	city	Adams, Arapahoe, Douglas	001, 005, 035
04110	Avon	town	Eagle	037
04165	Avondale	cdp	Pueblo	101
04620	Bark Ranch	cdp	Boulder	013
04935	Basalt	town	Eagle , Pitkin	037, 097
05120	Battlement Mesa	cdp	Garfield	045
05265	Bayfield	town	La Plata	067
06090	Bennett	town	Adams, Arapahoe	001, 005
06255	Berthoud	town	Larimer, Weld	069, 123
06530	Bethune	town	Kit Carson	063
06602	Beulah Valley	cdp	Pueblo	101
06970	Black Forest	cdp	El Paso	041
07025	Black Hawk	city	Gilpin	047
07190	Blanca	town	Costilla	023
07245	Blende	cdp	Pueblo	101
07410	Blue River	town	Summit	117



Local FIPS	Local Municipality Name	Designation	County	County FIPS
07420	Blue Sky	cdp	Morgan	087
07580	Bonanza Mountain Estates	cdp	Boulder	013
07571	Bonanza	town	Saguache	109
07795	Boone	town	Pueblo	101
07850	Boulder	city	Boulder	013
08070	Bow Mar	town	Arapahoe, Jefferson	005, 059
08290	Brandon	cdp	Kiowa	061
08345	Branson	town	Las Animas	071
08400	Breckenridge	town	Summit	117
08530	Brick Center	cdp	Arapahoe	005
08675	Brighton	city	Adams, Weld	001, 123
09115	Brookside	town	Fremont	043
09280	Broomfield	city	Broomfield	014
09555	Brush	city	Morgan	087
10105	Buena Vista	town	Chaffee	015
10600	Burlington	city	Kit Carson	063
10985	Byers	cdp	Arapahoe	005
11260	Calhan	town	El Paso	041
11645	Campo	town	Baca	009
11810	Cañon City	city	Fremont	043
11975	Capulin	cdp	Conejos	021
12045	Carbondale	town	Garfield	045
12325	Cascade-Chipita Park	cdp	El Paso	041
12387	Castle Pines	cdp	Douglas	035
12390	Castle Pines North	city	Douglas	035
12415	Castle Rock	town	Douglas	035
12450	Cathedral	cdp	Hinsdale	053
12460	Catherine	cdp	Garfield	045
12470	Cattle Creek	cdp	Garfield	045
12635	Cedaredge	town	Delta	029
12815	Centennial	city	Arapahoe	005
12855	Center	town	Rio Grande, Saguache	105, 109
12910	Central City	city	Clear Creek, Gilpin	019, 047
12945	Chacra	cdp	Garfield	045
13460	Cheraw	town	Otero	089
13590	Cherry Creek	cdp	Arapahoe	005
13845	Cherry Hills Village	city	Arapahoe	005
14175	Cheyenne Wells	town	Cheyenne	017
14587	Cimarron Hills	cdp	El Paso	041



Local FIPS	Local Municipality Name	Designation	County	County FIPS
14765	City of Creede	town	Mineral	079
15165	Clifton	cdp	Mesa	077
15302	Coal Creek	cdp	Boulder, Gilpin, Jefferson	013, 047, 059
15330	Coal Creek	town	Fremont	043
15440	Coaldale	cdp	Fremont	043
15550	Cokedale	town	Las Animas	071
15605	Collbran	town	Mesa	077
15825	Colona	cdp	Ouray	091
15935	Colorado City	cdp	Pueblo	101
16000	Colorado Springs	city	El Paso	041
16110	Columbine	cdp	Arapahoe, Jefferson	005, 059
16385	Columbine Valley	town	Arapahoe	005
16465	Comanche Creek	cdp	Arapahoe	005
16495	Commerce City	city	Adams	001
16715	Conejos	cdp	Conejos	021
17150	Copper Mountain	cdp	Summit	117
17375	Cortez	city	Montezuma	083
17485	Cotopaxi	cdp	Fremont	043
17760	Craig	city	Moffat	081
17925	Crawford	town	Delta	029
18310	Crested Butte	town	Gunnison	051
18420	Crestone	town	Saguache	109
18530	Cripple Creek	city	Teller	119
18585	Crisman	cdp	Boulder	013
18640	Crook	town	Logan	075
18750	Crowley	town	Crowley	025
19080	Dacono	city	Weld	123
19150	Dakota Ridge	cdp	Jefferson	059
19355	De Beque	town	Mesa	077
19630	Deer Trail	town	Arapahoe	005
19795	Del Norte	town	Rio Grande	105
19850	Delta	city	Delta	029
20000	Denver	city	Denver	031
20275	Derby	cdp	Adams	001
20440	Dillon	town	Summit	117
20495	Dinosaur	town	Moffat	081
20605	Divide	cdp	Teller	119
20770	Dolores	town	Montezuma	083
21155	Dotsero	cdp	Eagle	037



Local FIPS	Local Municipality Name	Designation	County	County FIPS
21265	Dove Creek	town	Dolores	033
21330	Dove Valley	cdp	Arapahoe	005
21390	Downieville-Lawson-Dumont	cdp	Clear Creek	019
22035	Durango	city	La Plata	067
22145	Eads	town	Kiowa	061
22200	Eagle	town	Eagle	037
22575	East Pleasant View	cdp	Jefferson	059
22860	Eaton	town	Weld	123
23025	Eckley	town	Yuma	125
23135	Edgewater	city	Jefferson	059
23300	Edwards	cdp	Eagle	037
23795	El Jebel	cdp	Eagle	037
24290	El Moro	cdp	Las Animas	071
23520	Elbert	cdp	Elbert	039
23575	Eldora	cdp	Boulder	013
23630	Eldorado Springs	cdp	Boulder	013
23740	Elizabeth	town	Elbert	039
24235	Ellicott	cdp	El Paso	041
24620	Empire	town	Clear Creek	019
24785	Englewood	city	Arapahoe	005
24950	Erie	town	Boulder, Weld	013, 123
25115	Estes Park	town	Larimer	069
25280	Evans	city	Weld	123
25390	Evergreen	cdp	Jefferson	059
25550	Fairmount	cdp	Jefferson	059
25610	Fairplay	town	Park	093
26270	Federal Heights	city	Adams	001
26600	Firestone	town	Weld	123
26765	Flagler	town	Kit Carson	063
26875	Fleming	town	Logan	075
27040	Florence	city	Fremont	043
27095	Florissant	cdp	Teller	119
27175	Floyd Hill	cdp	Clear Creek	019
27370	Fort Carson	cdp	El Paso	041
27425	Fort Collins	city	Larimer	069
27535	Fort Garland	cdp	Costilla	023
27700	Fort Lupton	city	Weld	123
27810	Fort Morgan	city	Morgan	087
27865	Fountain	city	El Paso	041



Local FIPS	Local Municipality Name	Designation	County	County FIPS
27975	Fowler	town	Otero	089
28105	Foxfield	town	Arapahoe	005
28250	Franktown	cdp	Douglas	035
28305	Fraser	town	Grand	049
28360	Frederick	town	Weld	123
28690	Frisco	town	Summit	117
28745	Fruita	city	Mesa	077
28800	Fruitvale	cdp	Mesa	077
28830	Fulford	cdp	Eagle	037
29185	Garden	town	Weld	123
29295	Garfield	cdp	Chaffee	015
29625	Genesee	cdp	Jefferson	059
29680	Genoa	town	Lincoln	073
29735	Georgetown	town	Clear Creek	019
29845	Gerrard	cdp	Rio Grande	105
29955	Gilcrest	town	Weld	123
30350	Glendale	cdp	Boulder	013
30340	Glendale	city	Arapahoe	005
30420	Gleneagle	cdp	El Paso	041
30780	Glenwood Springs	city	Garfield	045
30945	Gold Hill	cdp	Boulder	013
30835	Golden	city	Jefferson	059
30890	Goldfield	cdp	Teller	119
31550	Granada	town	Prowers	099
31605	Granby	town	Grand	049
31660	Grand Junction	city	Mesa	077
31715	Grand Lake	town	Grand	049
31935	Grand View Estates	cdp	Douglas	035
32155	Greeley	city	Weld	123
32650	Green Mountain Falls	town	El Paso, Teller	041, 119
33035	Greenwood Village	city	Arapahoe	005
33310	Grover	town	Weld	123
33420	Guffey	cdp	Park	093
33502	Gunbarrel	cdp	Boulder	013
33640	Gunnison	city	Gunnison	051
33695	Gypsum	town	Eagle	037
34520	Hartman	town	Prowers	099
34685	Hasty	cdp	Bent	011
34740	Haswell	town	Kiowa	061



Local FIPS	Local Municipality Name	Designation	County	County FIPS
34960	Haxtun	town	Phillips	095
35070	Hayden	town	Routt	107
35400	Heeney	cdp	Summit	117
35860	Hidden Lake	cdp	Boulder	013
36410	Highlands Ranch	cdp	Douglas	035
36610	Hillrose	town	Morgan	087
36940	Hoehne	cdp	Las Animas	071
37220	Holly Hills	cdp	Arapahoe	005
37215	Holly	town	Prowers	099
37270	Holyoke	city	Phillips	095
37380	Hooper	town	Alamosa	003
37600	Hot Sulphur Springs	town	Grand	049
37545	Hotchkiss	town	Delta	029
37655	Howard	cdp	Fremont	043
37820	Hudson	town	Weld	123
37875	Hugo	town	Lincoln	073
38370	Idaho Springs	city	Clear Creek	019
38425	Idalia	cdp	Yuma	125
38480	Idledale	cdp	Jefferson	059
38535	Ignacio	town	La Plata	067
38590	Iliiff	town	Logan	075
38810	Indian Hills	cdp	Jefferson	059
38910	Inverness	cdp	Arapahoe	005
39160	Jackson Lake	cdp	Morgan	087
39195	Jamestown	town	Boulder	013
39250	Jansen	cdp	Las Animas	071
39745	Joes	cdp	Yuma	125
39800	Johnson Village	cdp	Chaffee	015
39855	Johnstown	town	Larimer, Weld	069, 123
39965	Julesburg	town	Sedgwick	115
40185	Keenesburg	town	Weld	123
40377	Ken Caryl	cdp	Jefferson	059
40515	Kersey	town	Weld	123
40550	Keystone	cdp	Summit	117
40570	Kim	town	Las Animas	071
40790	Kiowa	town	Elbert	039
40900	Kirk	cdp	Yuma	125
41010	Kit Carson	town	Cheyenne	017
41065	Kittredge	cdp	Jefferson	059



Local FIPS	Local Municipality Name	Designation	County	County FIPS
41560	Kremmling	town	Grand	049
42055	La Jara	town	Conejos	021
42110	La Junta	city	Otero	089
42165	La Junta Gardens	cdp	Otero	089
43605	La Salle	town	Weld	123
44100	La Veta	town	Huerfano	055
41835	Lafayette	city	Boulder	013
42000	Laird	cdp	Yuma	125
42330	Lake City	town	Hinsdale	053
42495	Lakeside	town	Jefferson	059
43000	Lakewood	city	Jefferson	059
43110	Lamar	city	Prowers	099
43220	Laporte	cdp	Larimer	069
43550	Larkspur	town	Douglas	035
43660	Las Animas	city	Bent	011
44270	Lazy Acres	cdp	Boulder	013
44320	Leadville	city	Lake	065
44375	Leadville North	cdp	Lake	065
44595	Lewis	cdp	Montezuma	083
44695	Leyner	cdp	Boulder	013
44980	Limon	town	Lincoln	073
45145	Lincoln Park	cdp	Fremont	043
45255	Littleton	city	Arapahoe, Douglas, Jefferson	005, 035, 059
45530	Lochbuie	town	Adams, Weld	001, 123
45695	Log Lane Village	town	Morgan	087
45680	Loghill Village	cdp	Ouray	091
45750	Loma	cdp	Mesa	077
45955	Lone Tree	city	Douglas	035
45970	Longmont	city	Boulder, Weld	013, 123
46355	Louisville	city	Boulder	013
46410	Louviers	cdp	Douglas	035
46465	Loveland	city	Larimer	069
47015	Lynn	cdp	Las Animas	071
47070	Lyons	town	Boulder	013
48060	Manassa	town	Conejos	021
48115	Mancos	town	Montezuma	083
48445	Manitou Springs	city	El Paso	041
48500	Manzanola	town	Otero	089
48555	Marble	town	Gunnison	051



Local FIPS	Local Municipality Name	Designation	County	County FIPS
49325	Maybell	cdp	Moffat	081
49490	Maysville	cdp	Chaffee	015
47345	McCoy	cdp	Eagle	037
49600	Mead	town	Weld	123
49875	Meeker	town	Rio Blanco	103
50012	Meridian	cdp	Douglas	035
50040	Merino	town	Logan	075
50380	Midland	cdp	Teller	119
50480	Milliken	town	Weld	123
50920	Minturn	town	Eagle	037
51250	Moffat	town	Saguache	109
51635	Monte Vista	city	Rio Grande	105
51690	Montezuma	town	Summit	117
51745	Montrose	city	Montrose	085
51800	Monument	town	El Paso	041
51975	Morgan Heights	cdp	Morgan	087
52075	Morrison	town	Jefferson	059
52570	Mount Crested Butte	town	Gunnison	051
52210	Mountain Meadows	cdp	Boulder	013
52350	Mountain View	town	Jefferson	059
52550	Mountain Village	town	San Miguel	113
52820	Mulford	cdp	Garfield	045
53120	Naturita	town	Montrose	085
53175	Nederland	town	Boulder	013
53395	New Castle	town	Garfield	045
53780	Niwot	cdp	Boulder	013
53875	No Name	cdp	Garfield	045
53945	Norrie	cdp	Pitkin	097
54495	North La Junta	cdp	Otero	089
54750	North Washington	cdp	Adams	001
54330	Northglenn	city	Adams, Weld	001, 123
54880	Norwood	town	San Miguel	113
54935	Nucla	town	Montrose	085
55045	Nunn	town	Weld	123
55155	Oak Creek	town	Routt	107
55540	Olathe	town	Montrose	085
55705	Olney Springs	town	Crowley	025
55870	Ophir	town	San Miguel	113
55925	Orchard	cdp	Morgan	087



Local FIPS	Local Municipality Name	Designation	County	County FIPS
55980	Orchard	town	Delta	029
56035	Orchard Mesa	cdp	Mesa	077
56145	Ordway	town	Crowley	025
56365	Otis	town	Washington	121
56420	Ouray	city	Ouray	091
56475	Ovid	town	Sedgwick	115
56695	Padroni	cdp	Logan	075
56860	Pagosa Springs	town	Archuleta	007
56970	Palisade	town	Mesa	077
57025	Palmer Lake	town	El Paso	041
57245	Paoli	town	Phillips	095
57300	Paonia	town	Delta	029
57400	Parachute	town	Garfield	045
57445	Paragon Estates	cdp	Boulder	013
57630	Parker	town	Douglas	035
57850	Parshall	cdp	Grand	049
58235	Peetz	town	Logan	075
58400	Penrose	cdp	Fremont	043
58510	Peoria	cdp	Arapahoe	005
58592	Perry Park	cdp	Douglas	035
58675	Peyton	cdp	El Paso	041
58758	Phippsburg	cdp	Routt	107
58960	Piedra	cdp	Hinsdale	053
59005	Pierce	town	Weld	123
59240	Pine Brook Hill	cdp	Boulder	013
59830	Pitkin	town	Gunnison	051
60160	Platteville	town	Weld	123
60600	Poncha Springs	town	Chaffee	015
60655	Ponderosa Park	cdp	Elbert	039
60765	Portland	cdp	Ouray	091
61315	Pritchett	town	Baca	009
62000	Pueblo	city	Pueblo	101
62220	Pueblo West	cdp	Pueblo	101
62660	Ramah	town	El Paso	041
62880	Rangely	town	Rio Blanco	103
63045	Raymer (New Raymer)	town	Weld	123
63265	Red Cliff	town	Eagle	037
63320	Red Feather Lakes	cdp	Larimer	069
63375	Redlands	cdp	Mesa	077



Local FIPS	Local Municipality Name	Designation	County	County FIPS
63650	Redstone	cdp	Pitkin	097
63705	Redvale	cdp	Montrose	085
64090	Rico	town	Dolores	033
64200	Ridgway	town	Ouray	091
64255	Rifle	city	Garfield	045
64870	Rock Creek Park	cdp	El Paso	041
64970	Rockvale	town	Fremont	043
65190	Rocky Ford	city	Otero	089
65685	Rollinsville	cdp	Gilpin	047
65740	Romeo	town	Conejos	021
66197	Roxborough Park	cdp	Douglas	035
66895	Rye	town	Pueblo	101
66995	Saddle Ridge	cdp	Morgan	087
67005	Saguache	town	Saguache	109
67280	Salida	city	Chaffee	015
67445	Salt Creek	cdp	Pueblo	101
67500	San Acacio	cdp	Costilla	023
68105	San Luis	town	Costilla	023
67830	Sanford	town	Conejos	021
68655	Sawpit	town	San Miguel	113
68847	Security-Widefield	cdp	El Paso	041
68875	Sedalia	cdp	Douglas	035
68930	Sedgwick	town	Sedgwick	115
68985	Segundo	cdp	Las Animas	071
69040	Seibert	town	Kit Carson	063
69110	Seven Hills	cdp	Boulder	013
69150	Severance	town	Weld	123
69480	Shaw Heights	cdp	Adams	001
69645	Sheridan	city	Arapahoe	005
69700	Sheridan Lake	town	Kiowa	061
69810	Sherrelwood	cdp	Adams	001
70195	Silt	town	Garfield	045
70250	Silver Cliff	town	Custer	027
70360	Silver Plume	town	Clear Creek	019
70525	Silverthorne	town	Summit	117
70580	Silverton	town	San Juan	111
70635	Simla	town	Elbert	039
71625	Smelertown	cdp	Chaffee	015
71755	Snowmass Village	town	Pitkin	097



Local FIPS	Local Municipality Name	Designation	County	County FIPS
71790	Snyder	cdp	Morgan	087
72395	South Fork	town	Rio Grande	105
72320	Southern Ute	cdp	La Plata	067
73330	Springfield	town	Baca	009
67040	St. Ann Highlands	cdp	Boulder	013
67142	St. Mary's	cdp	Clear Creek	019
73715	Starkville	town	Las Animas	071
73825	Steamboat Springs	city	Routt	107
73935	Sterling	city	Logan	075
74080	Stonegate	cdp	Douglas	035
74275	Stonewall Gap	cdp	Las Animas	071
74375	Strasburg	cdp	Adams, Arapahoe	001, 005
74430	Stratmoor	cdp	El Paso	041
74485	Stratton	town	Kit Carson	063
74815	Sugar City	town	Crowley	025
74980	Sugarloaf	cdp	Boulder	013
75585	Sunshine	cdp	Boulder	013
75640	Superior	town	Boulder, Jefferson	013, 059
75970	Swink	town	Otero	089
76190	Tabernash	cdp	Grand	049
76325	Tall Timber	cdp	Boulder	013
76795	Telluride	town	San Miguel	113
77235	The Pinery	cdp	Douglas	035
77290	Thornton	city	Adams, Weld	001, 123
77510	Timnath	town	Larimer	069
77757	Todd Creek	cdp	Adams	001
78280	Towaoc	cdp	Montezuma	083
78335	Towner	cdp	Kiowa	061
78345	Trail Side	cdp	Morgan	087
78610	Trinidad	city	Las Animas	071
79100	Twin Lakes	cdp	Adams	001
79105	Twin Lakes	cdp	Lake	065
79270	Two Buttes	town	Baca	009
79785	Upper Bear Creek	cdp	Clear Creek	019
80040	Vail	town	Eagle	037
80095	Valdez	cdp	Las Animas	071
80370	Valmont	cdp	Boulder	013
80755	Vernon	cdp	Yuma	125
80865	Victor	city	Teller	119



Local FIPS	Local Municipality Name	Designation	County	County FIPS
81030	Vilas	town	Baca	009
81305	Vineland	cdp	Pueblo	101
81690	Vona	town	Kit Carson	063
82130	Walden	town	Jackson	057
82350	Walsenburg	city	Huerfano	055
82460	Walsh	town	Baca	009
82735	Ward	town	Boulder	013
82905	Watkins	cdp	Adams, Arapahoe	001, 005
83120	Welby	cdp	Adams	001
83175	Weldona	cdp	Morgan	087
83230	Wellington	town	Larimer	069
84042	West Pleasant View	cdp	Jefferson	059
83450	Westcliffe	town	Custer	027
83500	Westcreek	cdp	Douglas	035
83835	Westminster	city	Adams, Jefferson	001, 059
84000	Weston	cdp	Las Animas	071
84440	Wheat Ridge	city	Jefferson	059
84770	Wiggins	town	Morgan	087
85045	Wiley	town	Prowers	099
85155	Williamsburg	town	Fremont	043
85485	Windsor	town	Larimer, Weld	069, 123
85705	Winter Park	town	Grand	049
85760	Wolcott	cdp	Eagle	037
86090	Woodland Park	city	Teller	119
86117	Woodmoor	cdp	El Paso	041
86200	Woody Creek	cdp	Pitkin	097
86310	Wray	city	Yuma	125
86475	Yampa	town	Routt	107
86750	Yuma	city	Yuma	125

*cdp = Census Designated Place

Municipality Total = 457

Census Designated Places (cdp) Total = 186

City and Town Total = 271



Appendix C – Common Abbreviations

Term	Abbreviation
Access Road	AR
Avenue	AVE
Boulevard	BLVD
Business	BUS
County	CO
Creek	CRK
Ditch	DTCH
Diversion	DIV
East	E
Eastbound	EBND
Fork	FK
Frontage	FR
Gulch	GUL
Interstate	I
Lower	LWR
Mainline	ML
Maintenance	MAINT
Mile	MI
Mount	MT
North	N
Northbound	NBND

Term	Abbreviation
Overflow	OVFLW
Pedestrian	PED
Railroad	RR
Ramp	R
Reservoir	RES
River	RVR
Road	RD
Roadway	RDWY
Route	RT
Saint	ST
Service Road	SR
South	S
Southbound	SBND
Street	ST
United States	US
Route	RTE
West	W
Westbound	WBND
First	1 st
Second	2 nd

Railroad	Abbreviation
Atchison, Topeka and Santa Fe	AT&SF
Burlington Northern and Santa Fe	BNSF
Colorado and Southern	C&S
Chicago, Rock Island and Pacific	CR&P
Denver and Rio Grande Western	D&RGW
Great Western	GW
Missouri Pacific	MP
Regional Transportation District	RTD
Union Pacific	UP



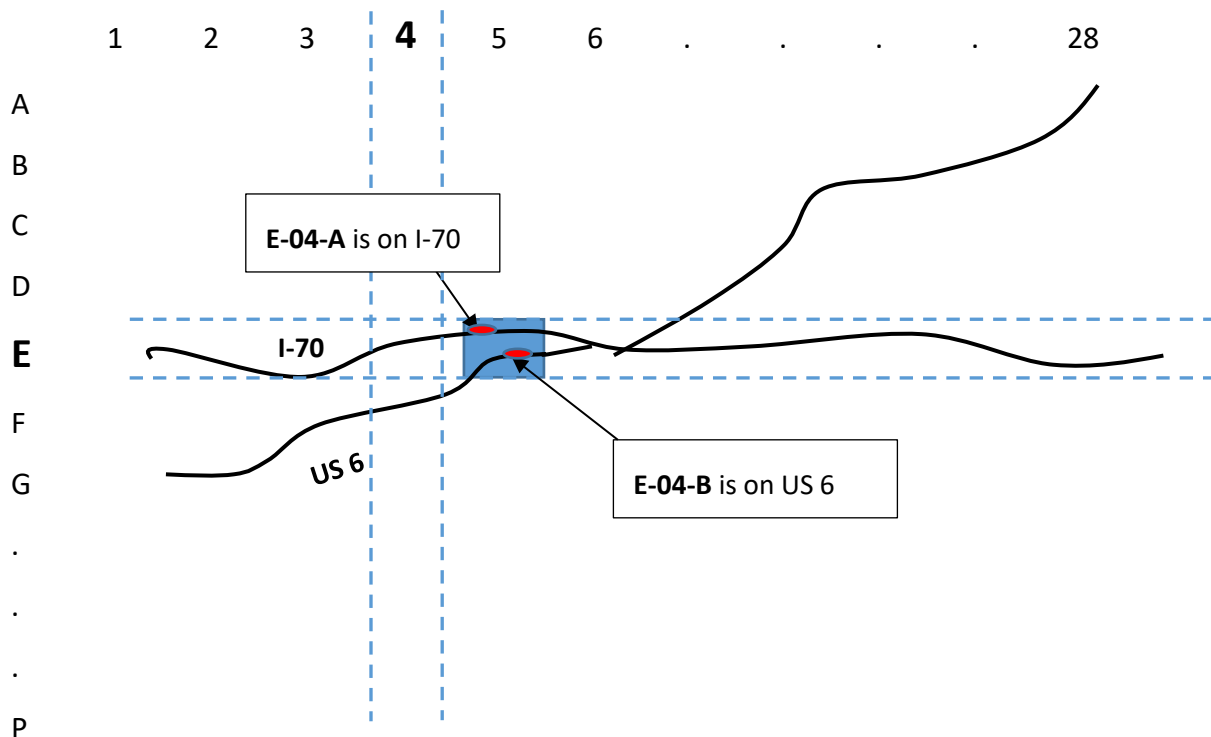
Appendix D – Major and Minor Structure Number Process

Appendix D contains the structure naming process for major and minor structures on the On- and Off-System. All Major Structures are assigned a maximum fifteen (15) character structure number to be recorded in ITEM8. **This number is unique and must never be revised, reused, nor the records deleted, even if the bridge is replaced, removed or the ownership is transferred.** CDOT’s BRIAR unit will maintain records on all major structures within the State. Twin bridges with closed medians generally will be assigned one number.

ON-SYSTEM MAJOR STRUCTURE NUMBER ASSIGNMENT

Colorado bases the **On-System** structure numbers on quadrangle grid locations within the State. The quadrangle grids are basically squares of 15 minutes of Latitude by 15 minutes of Longitude and are designated with letters A through P vertically and numbers 1 through 28 horizontally on the **Colorado Travel Map**. The structure numbers can range from A-01-A near the NW corner of Colorado through P-28-ZZZ at the SE corner.

As an example only, the figure below shows the location of a two fictitious structures. One numbered E-04-A on I-70 and the other, E-04-B, on US 6 that are both within the E-04 quadrangle. The first letter and the following two numbers identify the quadrangle grid, E-04, of the structures. The last letter(s), the letters A and B in this example, are unique to the structure within the grid boundaries and usually assigned in order of construction within the grid. This results in instances where Structure E-04-A, shown below is on I-70 while a structure numbered E-04-B in the same quadrangle is on US 6.





ON-SYSTEM MINOR STRUCTURE NUMBER ASSIGNMENT

REFERENCE: Structure Number Assignment for Minor Structures (Culverts), **CDOT Draft Memorandum** dated July 7, 2014.

POLICY:

Minor structures are assigned structure numbers based on highway number, mile point, and information specific to the function of the structure. The structure number is composed of four parts:

1. Digits 1-4 are the route number and the section letter
2. Digits 5-11 are the mile point location on the route with an assumed decimal point midway
3. Digit 12 is direction of travel lanes over the structure

Direction Code	Description
B	Travel lanes in both directions over structure
S	Only southbound travel lanes over structure
N	Only northbound travel lanes over structure
E	Only eastbound travel lanes over structure
W	Only westbound travel lanes over structure

4. The location of the inlet

Inlet Code	Description
R	Inlet is on the right
L	Inlet is on the left
M	Inlet is in the median between travel lanes

Example: Minor structure 287C344926BL

- Structure is on Highway 287, Section C at mile point 344.926 under both directional traffic lanes
- Looking in the direction of inventory for the route, the inlet is on the left

OFF-SYSTEM STRUCTURE NUMBER ASSIGNMENT

The structure numbers are assigned by the owner. There is no specific naming convention for Off-System structures. The only requirement is that the number cannot exceed the fifteen-character limit for ITEM8 and it is unique and never duplicated or changed.

Only major structures are required to be inspected and reported annually to CDOT for inclusion to the NBI. However, many local governments inspect their minor structures for their own use in managing their inventory.

Appendix E – Vertical and Lateral Clearance Measurements

Appendix E contains information and examples to clarify the requirements of:

- NBI vertical clearance items ITEM10, ITEM53, ITEM54,
- CDOT items ITEM90VC, ITEM134A/B/C, and ITEM135A/B/C
- NBI Lateral clearance items ITEM55A, ITEM55B, and ITEM56,

VERTICAL CLEARANCES

Vertical clearances are recorded for each inventoried route on and under a structure. All measurements are recorded in decimal feet.

CDOT requires that the minimum measured vertical clearance is documented for each lane line and each lane under a bridge. The conventions are:

- Lanes and lane stripes are numbered from left to right when looking in the direction of travel, not inventory, for each side (i.e. N or E, S or W). See Figure 1.

From this data, the minimum vertical clearances over each lane are determined and input to the various items.

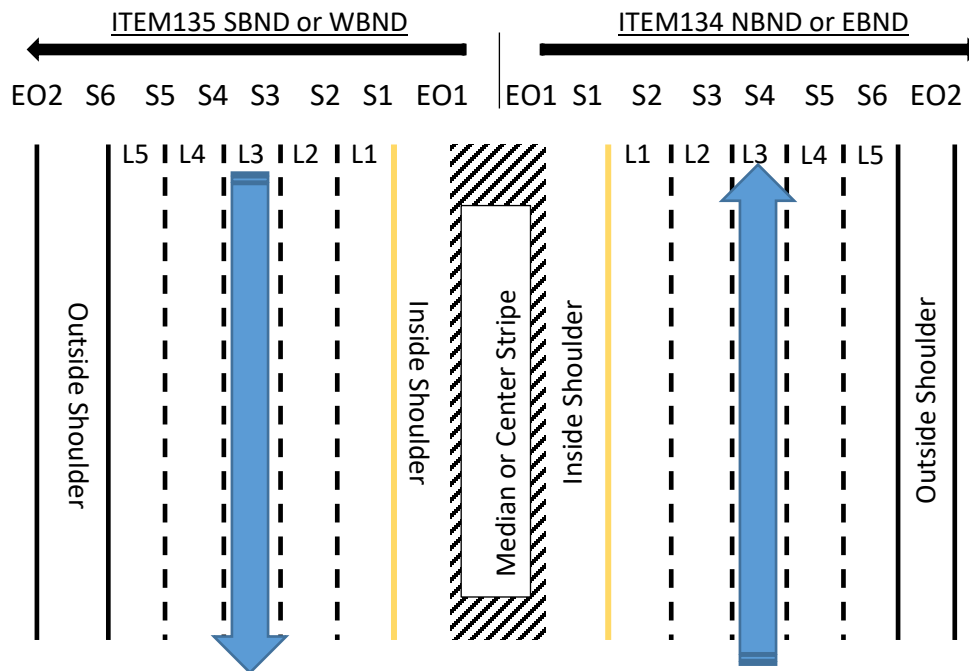
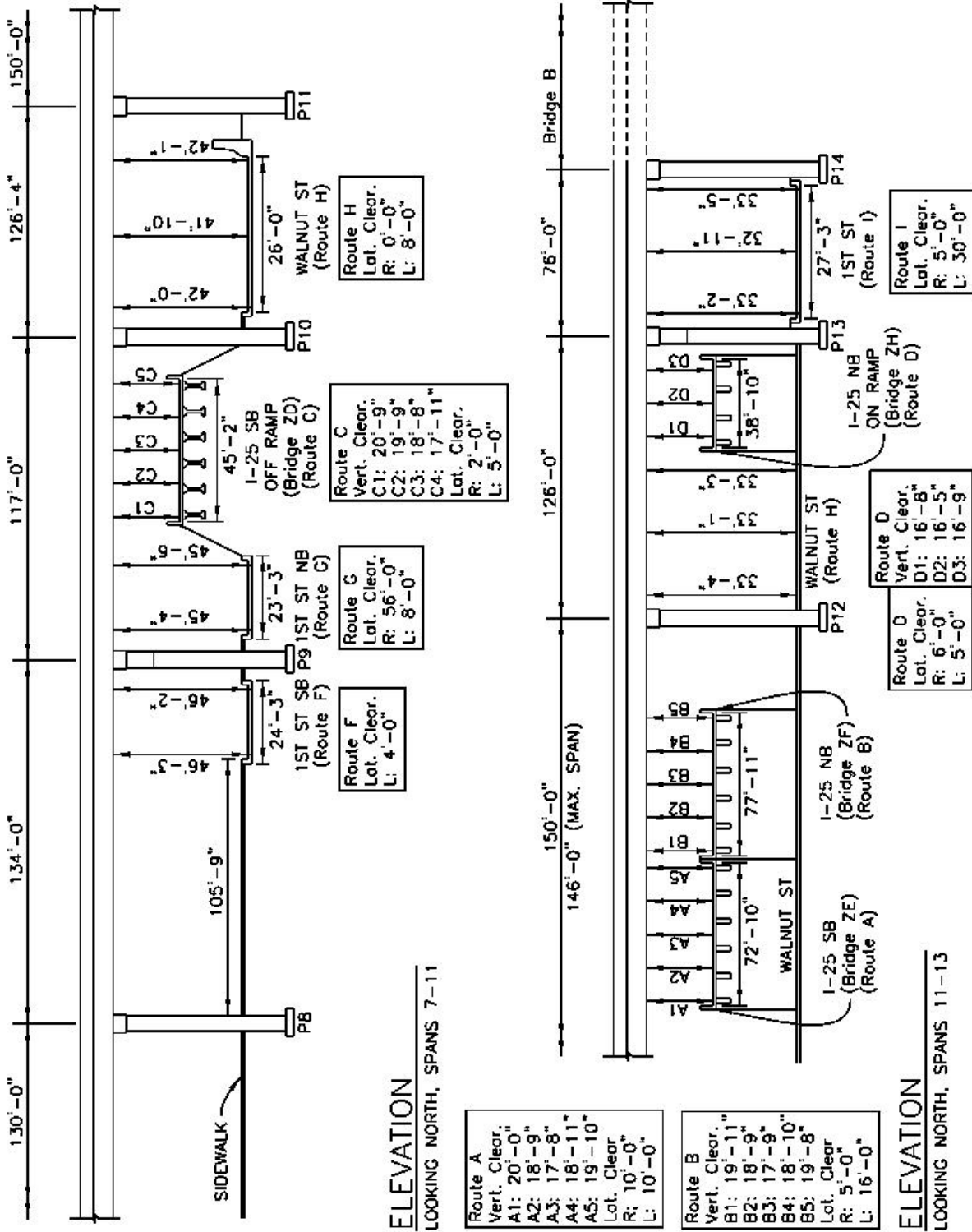


Figure 1: Lane and lane stripe designations

Bridge A example



Westbound Route on Bridge A

ITEM5A = 1, route is on the bridge

ITEM10 = 99.999 feet, no restriction over the bridge

ITEM53 = 99.999 feet, no restriction over the bridge roadway

ITEM54A = H, the controlling minimum clearance route for ITEM54B under the bridge is a highway

ITEM54B = 16.417 feet, minimum clearance from all inventoried routes under the bridge (Route D controlled)

ITEM90VC = 05/18/2022, clearances for route on the bridge were determined during the last inspection

ITEM134A = X, no traffic lanes on the bridge going northbound or eastbound

ITEM134B = blank, no traffic lanes on the bridge going northbound or eastbound

ITEM134C = blank, no traffic lanes on the bridge going northbound or eastbound

ITEM135A = W, bridge carries westbound lanes

ITEM135B = 99.999 feet, no restriction over the westbound lanes

ITEM135C = 0.000 feet, no restriction over the westbound lanes

Critical Route under Bridge A (I-25 NB ON-RAMP)

ITEM5A = D, one of many routes under the bridge

ITEM10 = 16.417 feet, maximum usable vertical clearance for the route under the bridge

ITEM53 is not coded for routes under a structure

ITEM54A is not coded for route under a structure

ITEM54B is not coded for routes under a structure

ITEM90VC = 6/12/2022, clearances for Route D were taken with LiDAR

ITEM134A = N, Route D has northbound lanes

ITEM134B = 16.417 feet, maximum usable vertical clearance over the northbound lanes

ITEM134C = 16.417 feet, minimum vertical clearance over northbound lanes

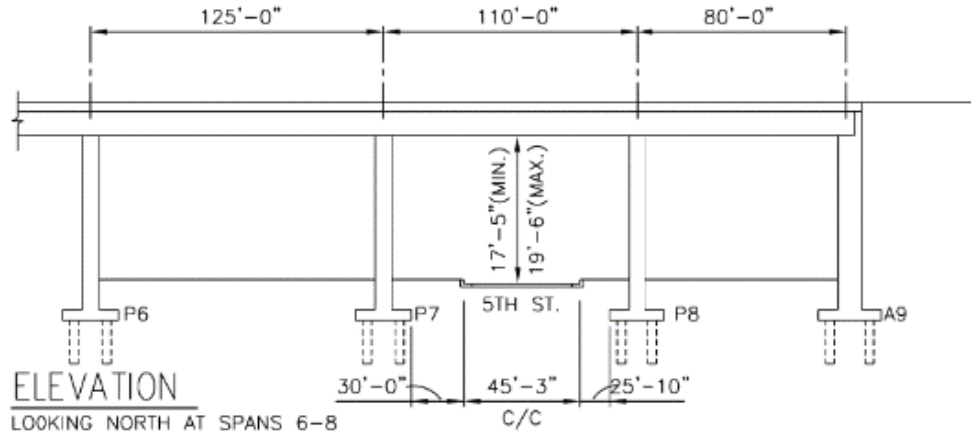
ITEM135A = X, Route D has no traffic lanes going southbound or westbound

ITEM135B = blank, Route D has no traffic lanes going southbound or westbound

ITEM135C = blank, Route D has no traffic lanes going southbound or westbound



Bridge B example



Westbound Route on Bridge B

ITEM5A = 1, route is on the bridge

ITEM10 = 99.999 feet, no restriction over the bridge

ITEM53 = 99.999 feet, no restriction over the bridge roadway

ITEM54A = H, the controlling minimum clearance route for ITEM54B under the bridge is a highway

ITEM54B = 17.417 feet, minimum clearance from all inventoried routes under the bridge

ITEM90VC = 10/30/2022, clearances for route on the bridge were determined during the last inspection

ITEM134A = X, no traffic lanes on the bridge going northbound or eastbound

ITEM134B = blank, no traffic lanes on the bridge going northbound or eastbound

ITEM134C = blank, no traffic lanes on the bridge going northbound or eastbound

ITEM135A = W, bridge carries westbound lanes

ITEM135B = 99.999 feet, no restriction over the westbound lanes

ITEM135C = 0.000 feet, no restriction over the westbound lanes

Critical Route under Bridge B (5th St)

ITEM5A = 2, only route under the bridge

ITEM10 = 17.417 feet, maximum usable vertical clearance for the route under the bridge

ITEM53 is not coded for routes under a structure

ITEM54A is not coded for route under a structure

ITEM54B is not coded for routes under a structure

ITEM90VC = 10/30/2022, clearances for route under the bridge were determined during the last inspection

ITEM134A = N, route under the bridge has a northbound lane

ITEM134B = 17.417 feet, maximum usable vertical clearance over the northbound lane

ITEM134C = 17.417 feet, minimum vertical clearance over northbound lanes

ITEM135A = S, route under the bridge has southbound lanes

ITEM135B = 17.417 feet, maximum usable vertical clearance over the southbound lane

ITEM135C = 17.417 feet, minimum vertical clearance over the southbound lane

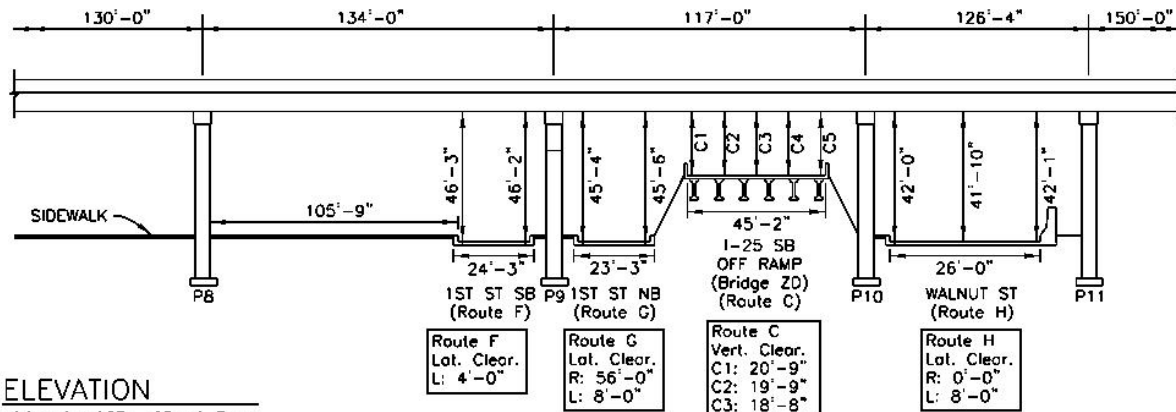


LATERAL UNDER CLEARANCE

Lateral clearances are only coded for the controlling feature under the bridge and are not currently coded for each inventoried route.

Lateral under clearances on the right edge of the roadway or railroad are recorded in ITEM55A and ITEM55B while the lateral clearance on the left is recorded in ITEM56. ITEM56 does not apply to railroads.

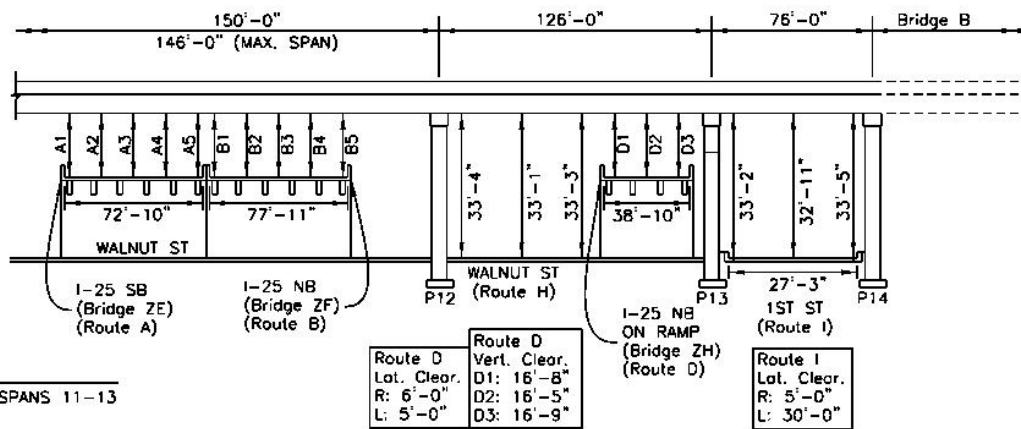
Bridge A example



ELEVATION
LOOKING NORTH, SPANS 7-11

Route A
Vert. Clear.
A1: 20'-0"
A2: 18'-9"
A3: 17'-8"
A4: 18'-11"
A5: 19'-10"
Lat. Clear
R: 10'-0"
L: 10'-0"

Route B
Vert. Clear.
B1: 19'-11"
B2: 18'-9"
B3: 17'-9"
B4: 18'-10"
B5: 19'-8"
Lat. Clear
R: 5'-0"
L: 16'-0"



ELEVATION
LOOKING NORTH, SPANS 11-13

Route D
Vert. Clear.
D1: 16'-8"
D2: 16'-5"
D3: 16'-9"
Lat. Clear.
R: 6'-0"
L: 5'-0"

Route I
Lat. Clear.
R: 5'-0"
L: 30'-0"

Route H (Walnut St)

ITEM5A code is not applicable because lateral clearances have a single input for the controlling feature

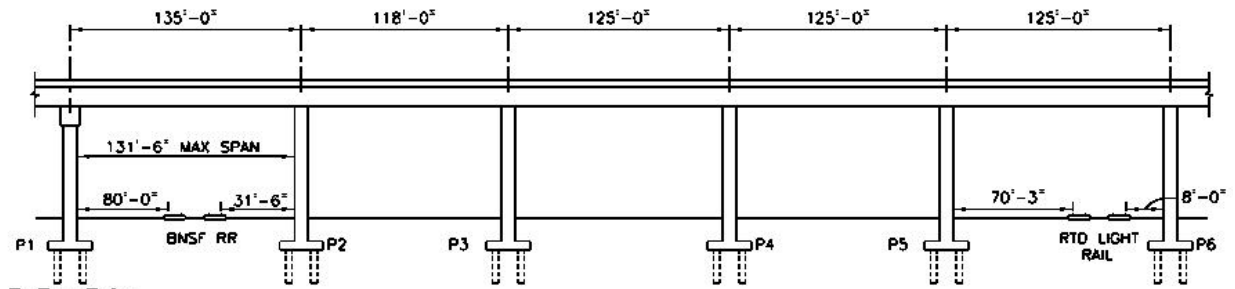
ITEM55A = H, corresponds to Route H roadway having the most restrictive left lateral clearance

ITEM55B = 0.000 feet, right lateral clearance for Route H

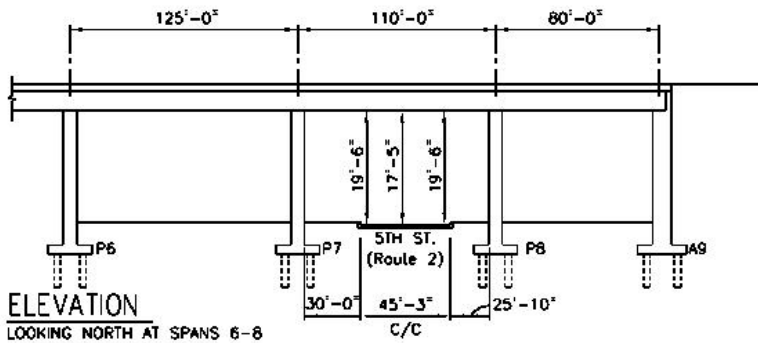
ITEM56 = 8.000 feet, left lateral clearance for Route H



Bridge B example



ELEVATION
LOOKING NORTH AT SPANS 1-5



ELEVATION
LOOKING NORTH AT SPANS 6-8

RTD Light Rail (not an inventoried route)

ITEM5A code is not applicable because lateral clearances have a single input for the controlling feature

ITEM55A = R, corresponds to railroad having the most restrictive left lateral clearance

ITEM55B = 8.000 feet, right lateral clearance for railroad

ITEM56 = 0.000 feet, left lateral clearance is not applicable to railroad features



Appendix F – Traffic Safety Features and Bridge Rail Types

Appendix F contains information and examples to clarify the requirements of ITEM36A, ITEM125A, and ITEM125B. Bridge rails and approach guardrails continue to experience, dramatic advances in design, construction practices, materials, and functionality. Although the designs and configurations are many, FHWA requires all bridge railings used on the National Highway System (NHS) to meet full-scale crash criteria and testing. The FHWA reviews test results and issues eligibility letters for each bridge rail that is tested according to the evaluation criteria documented in AASHTO's Manual for Assessing Safety Hardware. The manual is a 2009 update of, and replaces, NCHRP Report 350, Recommended Procedures for the Safety Performance Evaluation of Highway Features.

The inspector should try to maintain current status by checking with CDOT's Asset Management Engineer to determine the adequacy of existing bridge rails, approach rails and guardrails found in the field. It is advisable for the user to obtain a current copy of the Division of Highway "M & S Standards". These will show the current Colorado Standard approach guardrails and rail ends, their placement at the bridge, the length, height, and general construction by types of material.

For information regarding bridge rail testing and test results for various types of bridge rails, visit AASHTO's Task Force 13 web site www.aashtotf13.org. The site provides on-line information for tested bridge rails including the test level (TL) designation for various submitted bridge rail designs. This is a dynamic web site that is updated to list the latest test results. The information for tested rails includes photos of the rail, test results, and, importantly, the resulting findings documented in the FHWA Eligibility letter on the web site. NOTE! Not all rails get tested and not all rails pass the test.

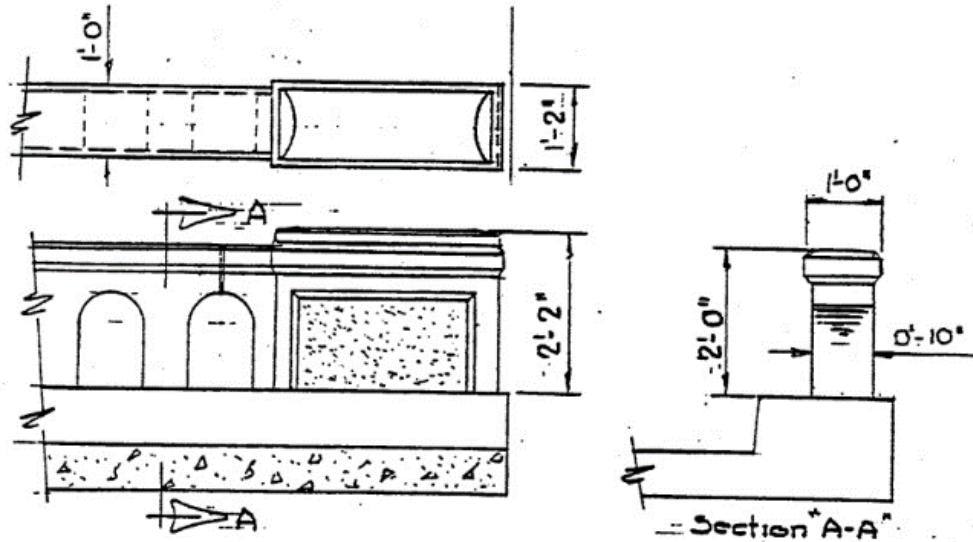
ITEM 125A – TYPE OF BRIDGE RAIL AND ITEM 125B – STANDARD OR MODIFIED RAIL

This CDOT defined item is specific to the bridge rail. There are many types of bridge rails installed over the years and many of the types that may still be in service are shown on the following pages.

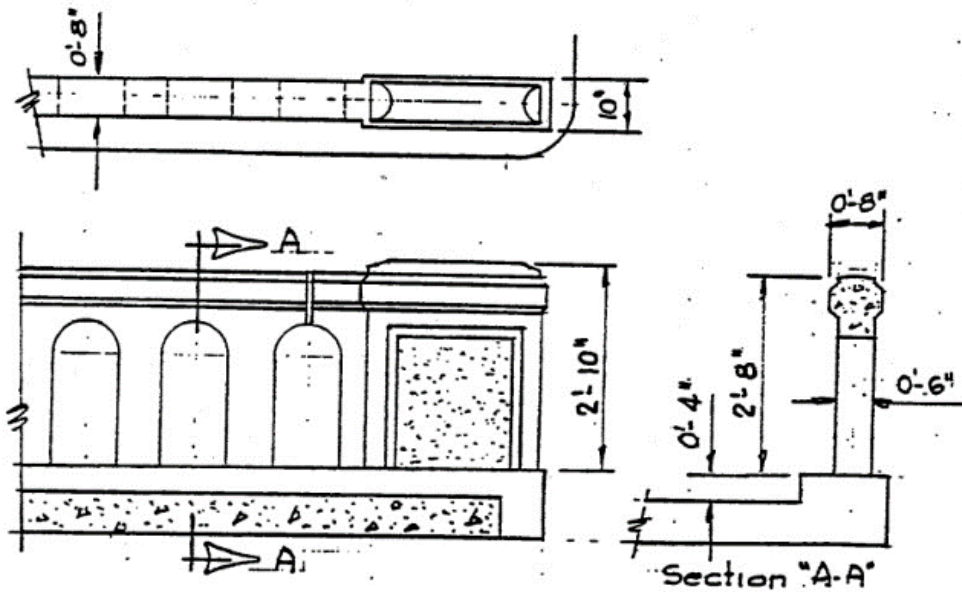
Included with the rail sketch is the appropriate code for ITEM125A – Type, and for ITEM125B – Adequacy. Responses for a few situations not shown in a sketch on the following pages are those listed below:

- Flex-beam across a box culvert or pipe: **code ITEM125 = 'FB' for type, and ITEM36A = 1 for adequacy.**
- Not applicable; e.g., pedestrian and railroad overpasses: **code ITEM125A = 'NA' for type, and ITEM36A = 0 for adequacy.**
- If there is no bridge rail, e.g., trusses: **code ITEM125A = 'X' for type, and ITEM36A = 0 for adequacy.**
- Unknown or non-typical, non-qualifying inadequate rail: **code 'XX' for type, and 'O' for adequacy.**

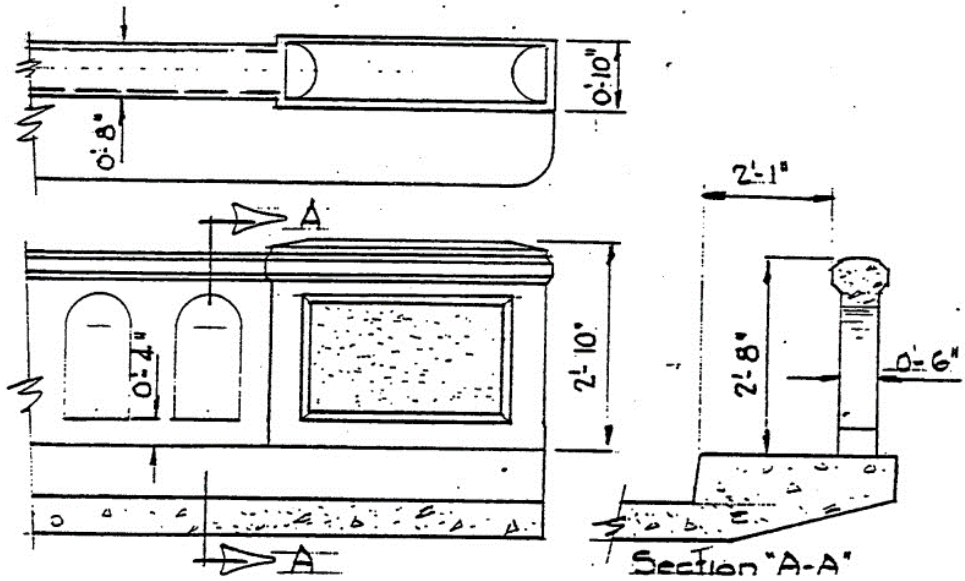
The following pages contain sketches of various types of bridge rail designs encountered in the field during On-System as well as Off-System bridge inspections. Added to the sketches are the codes for ITEM36A and ITEM125A for each of the rail types.



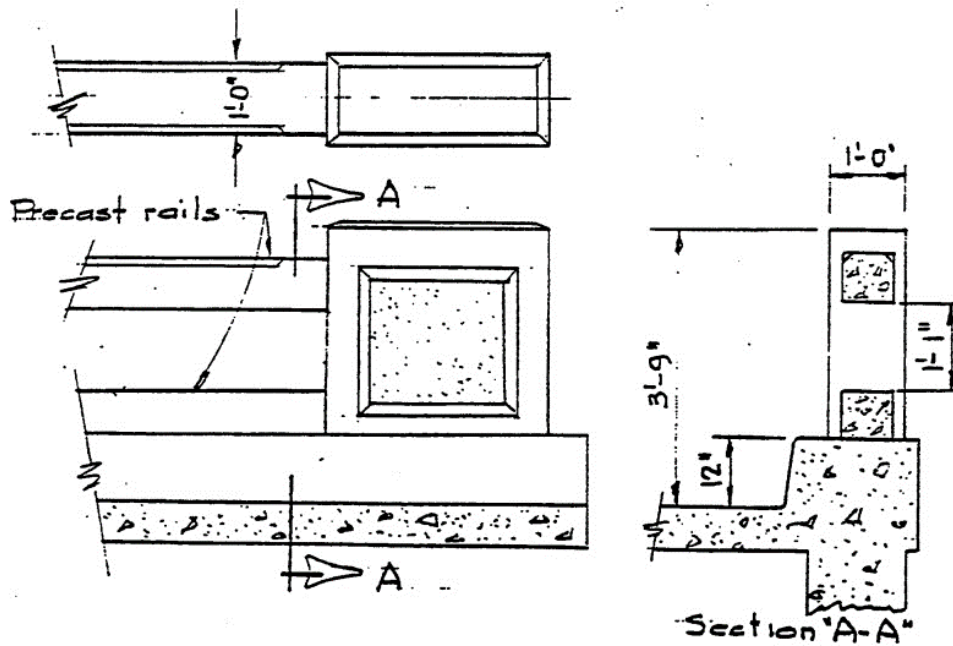
ITEM125A = A **ITEM36A = 0**



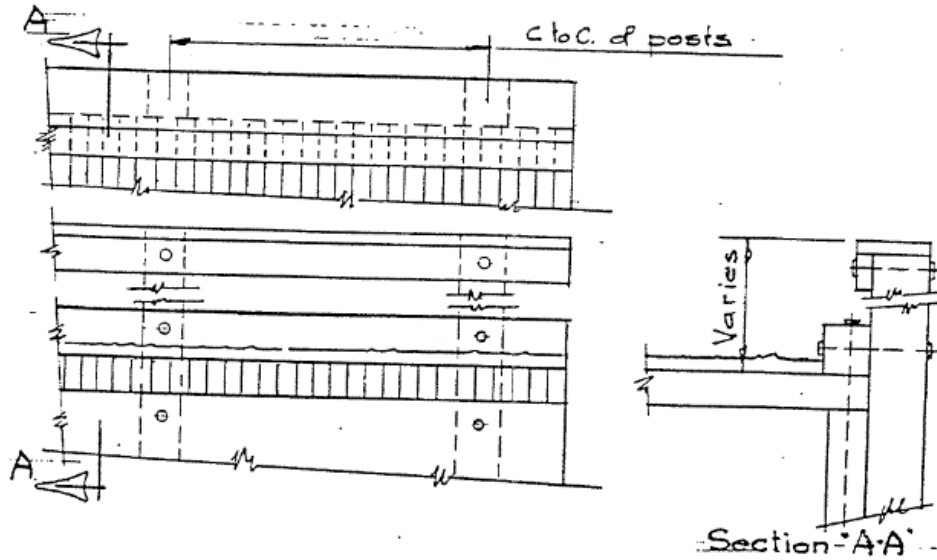
ITEM125A = B **ITEM36A = 0**



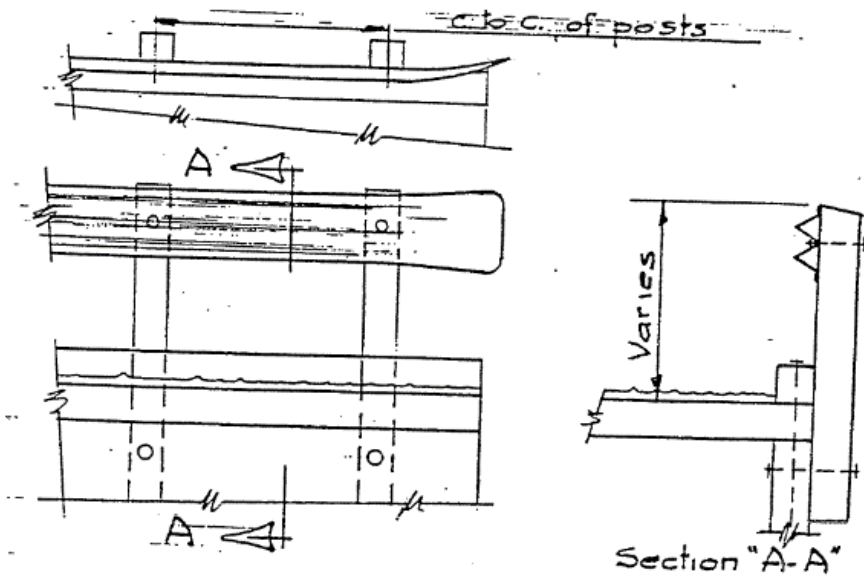
ITEM125A = C ITEM36A = 0



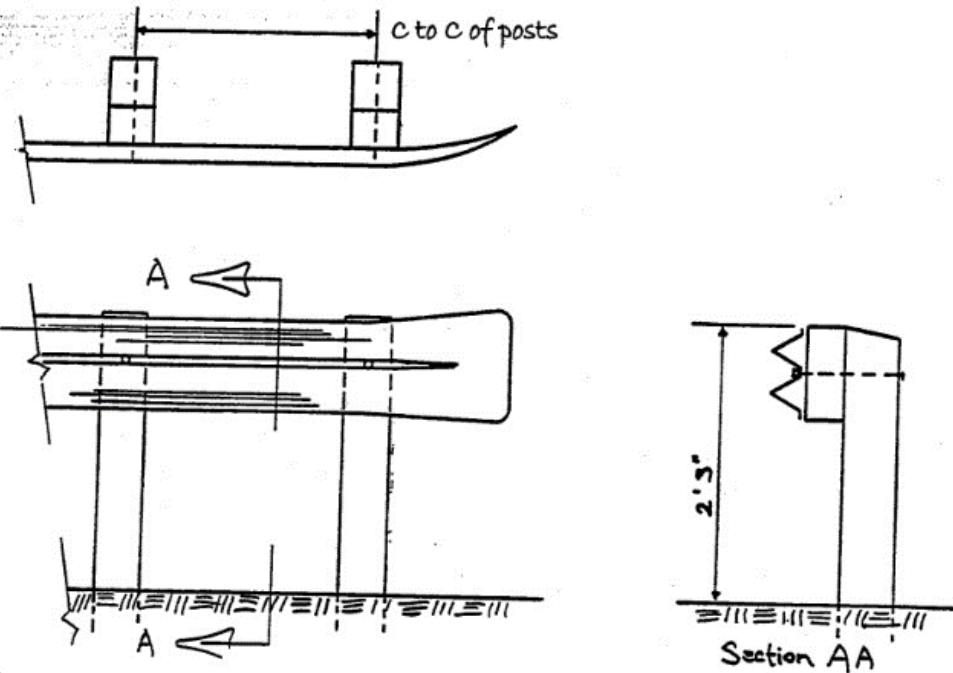
ITEM125A = D ITEM36A = 0



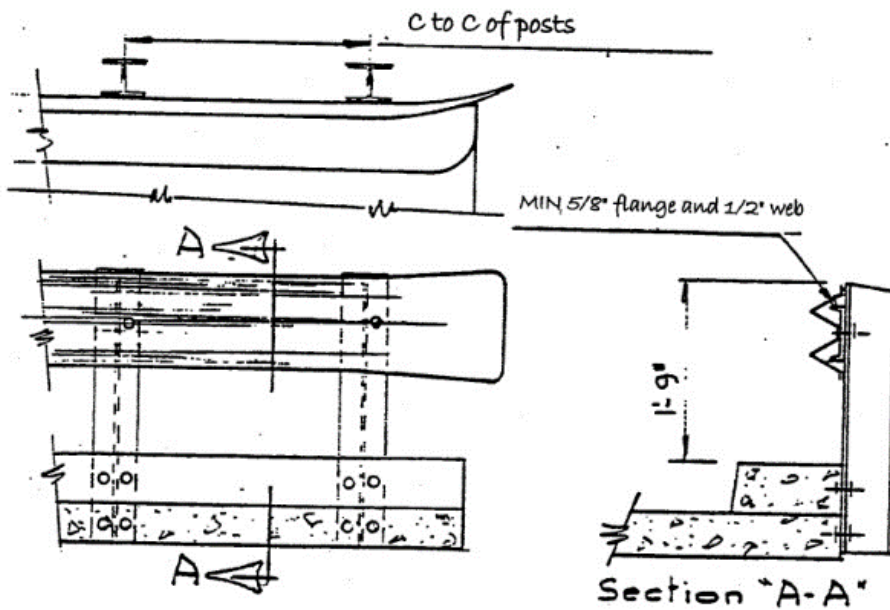
ITEM125A = E ITEM36A = 0



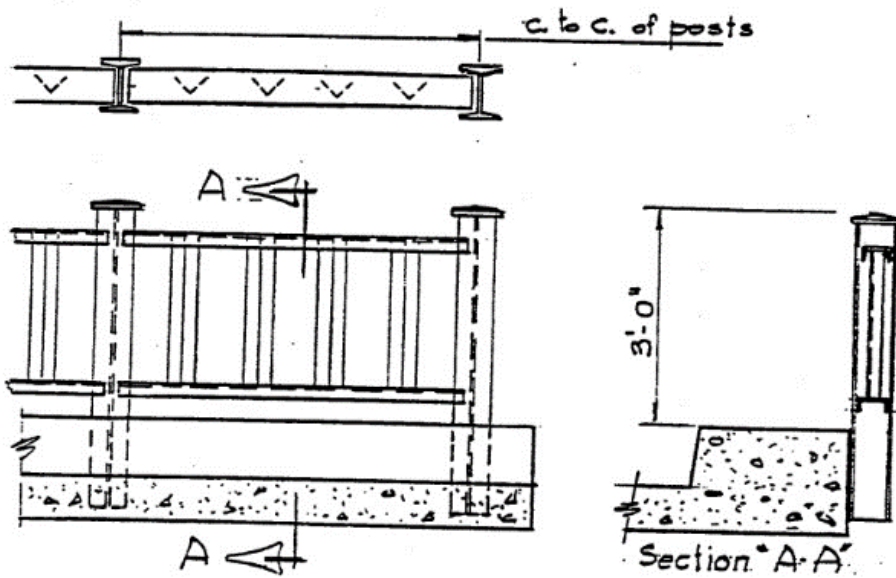
ITEM125A = F ITEM36A = 0



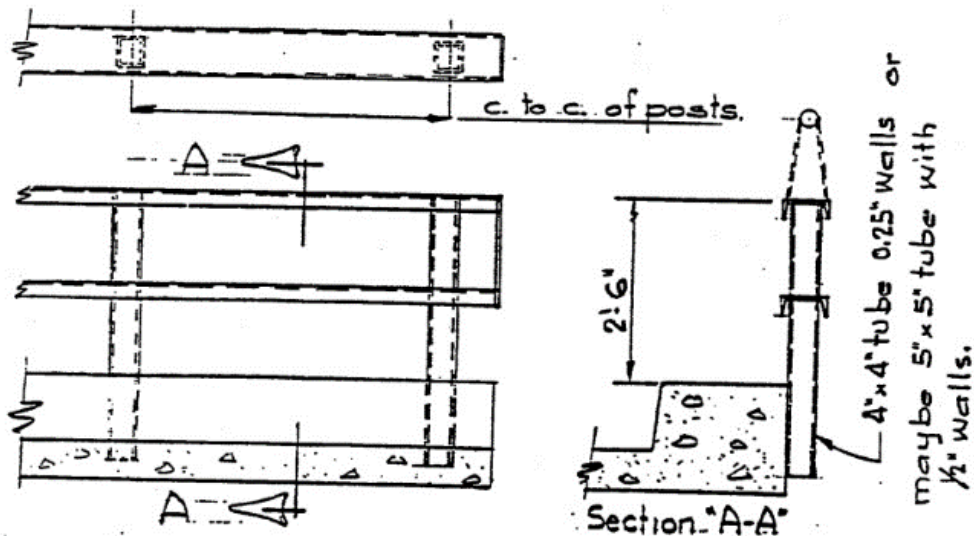
For CBC's and Pipe Culverts with Fill
ITEM125A = FB ITEM36A = 1



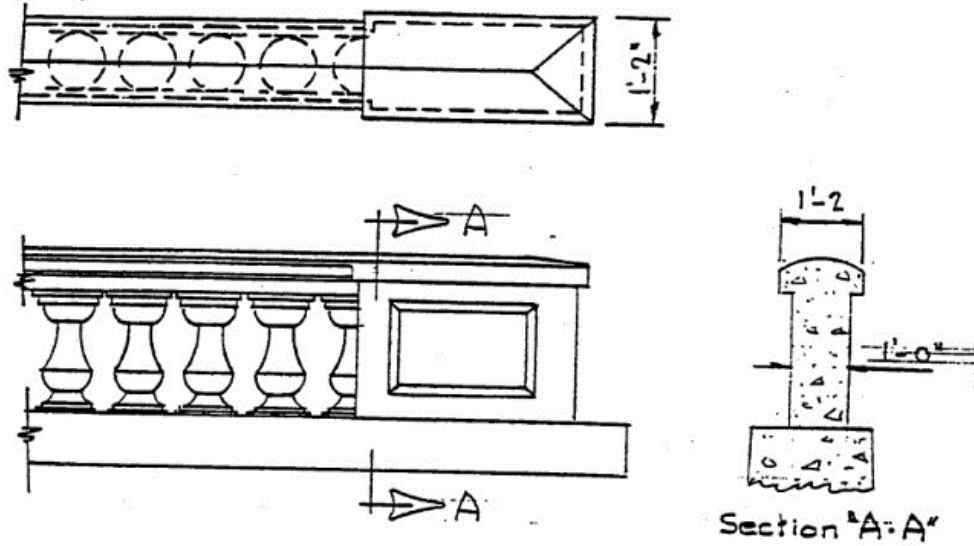
ITEM125A = G ITEM36A = 0



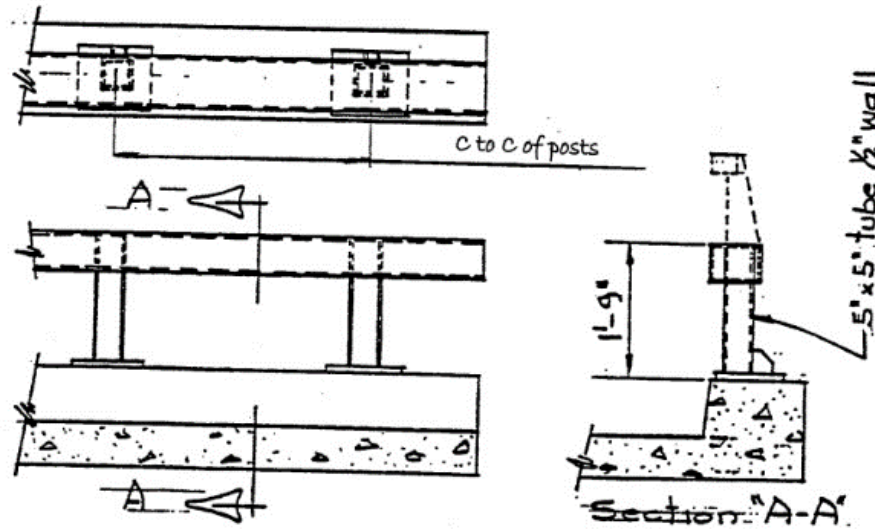
ITEM125A = J ITEM36A = 0



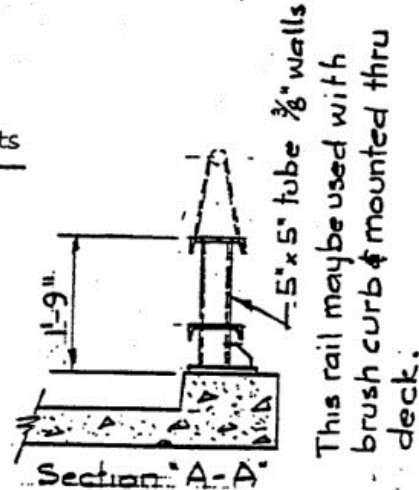
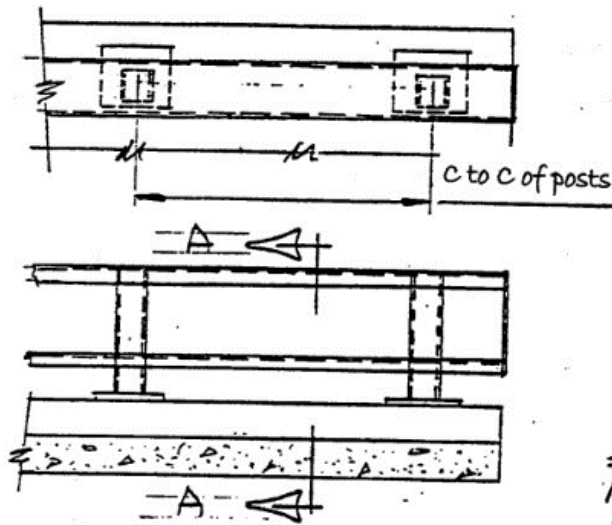
ITEM125A = K ITEM36A = 0



ITEM125A = L ITEM36A = 0

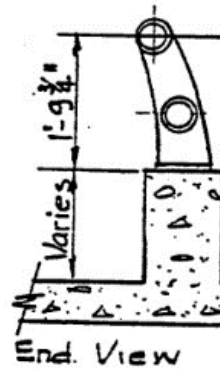
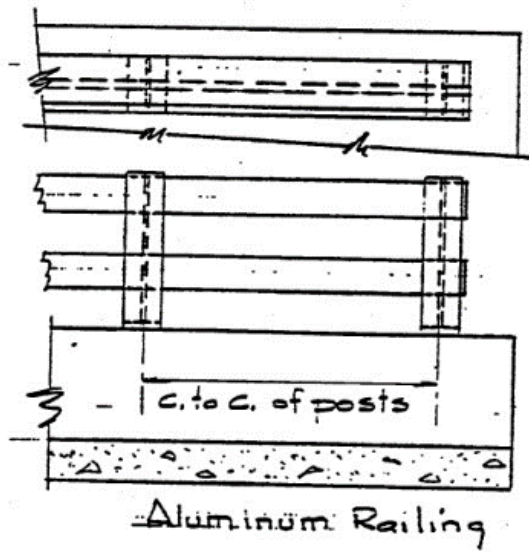


ITEM125A = M ITEM36A = 0



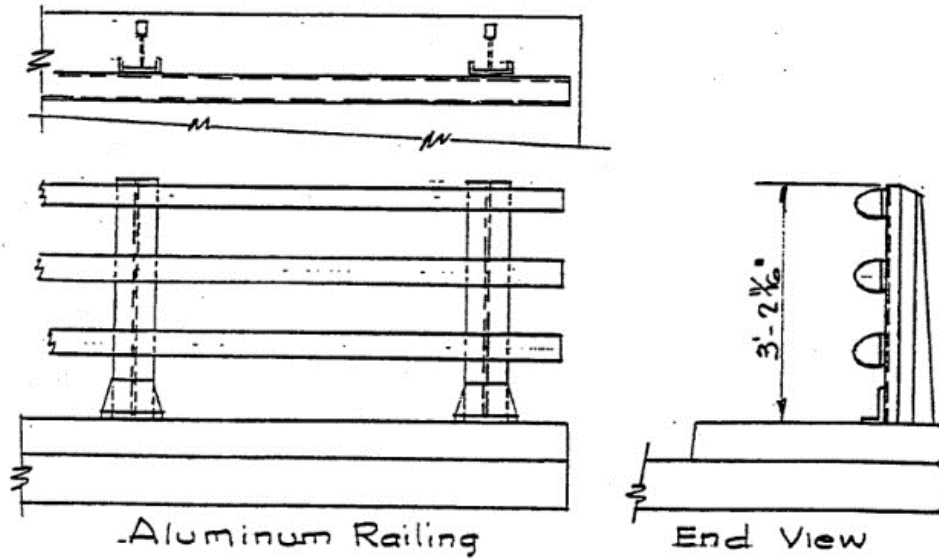
ITEM125A = N

ITEM36A = 0



ITEM125A = 0

ITEM36A = 0

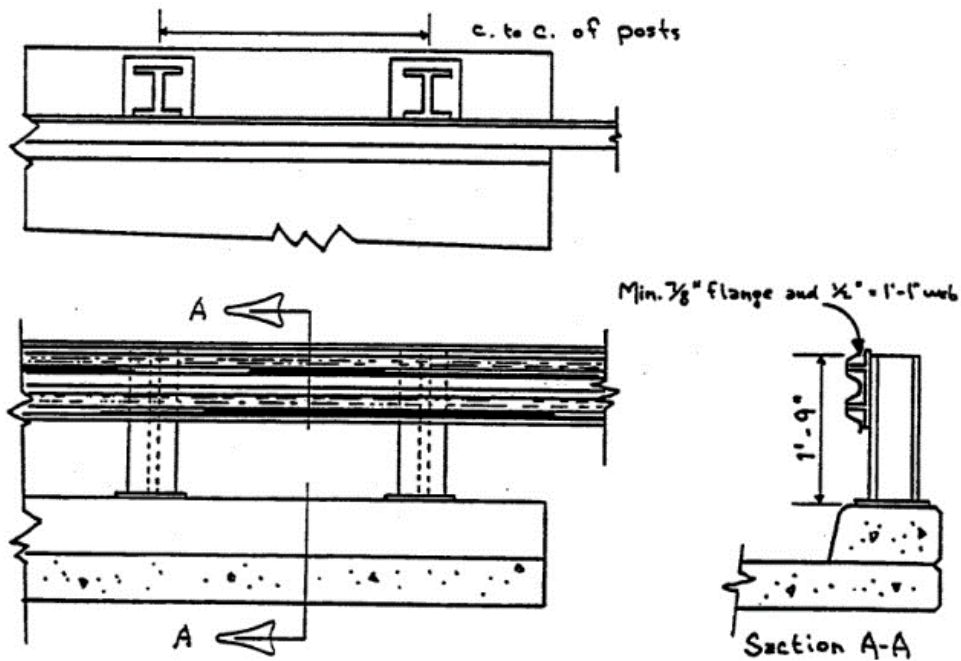


Aluminum Railing

End View

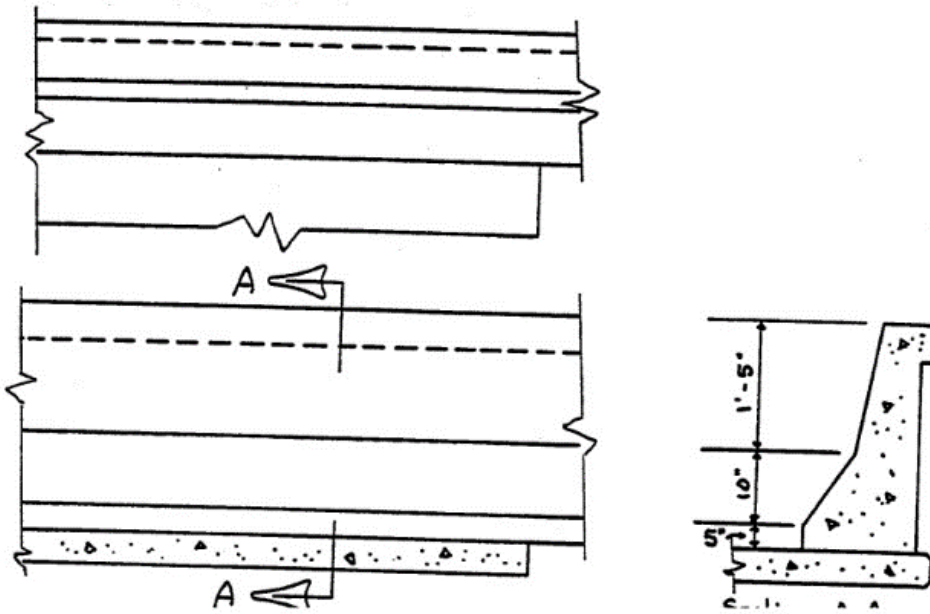
ITEM125A = P

ITEM36A = 0

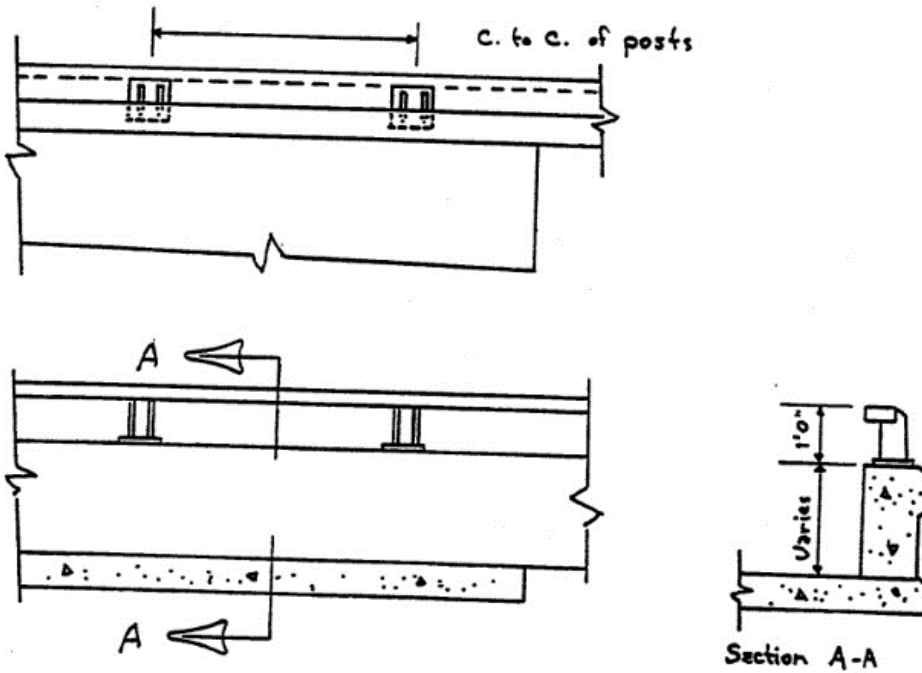


ITEM125A = Q

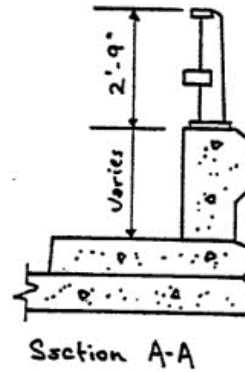
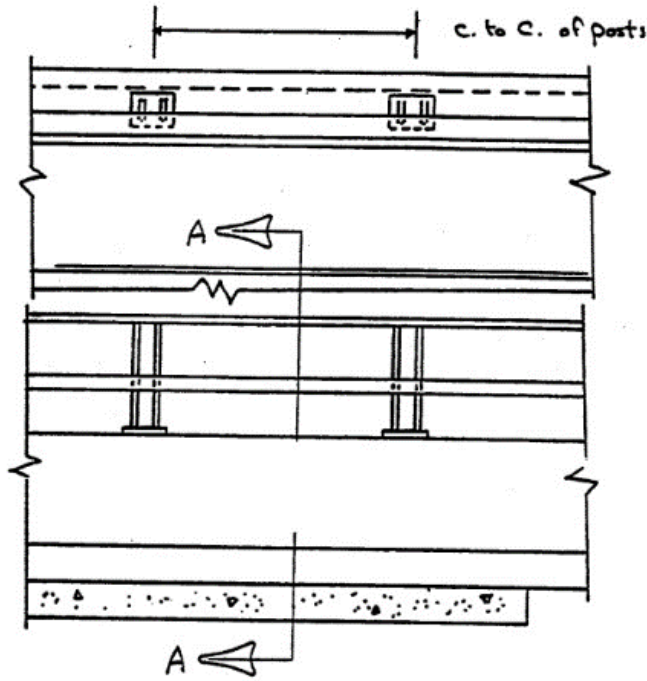
ITEM36A = 1



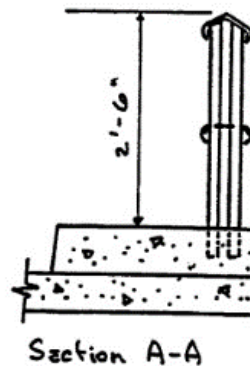
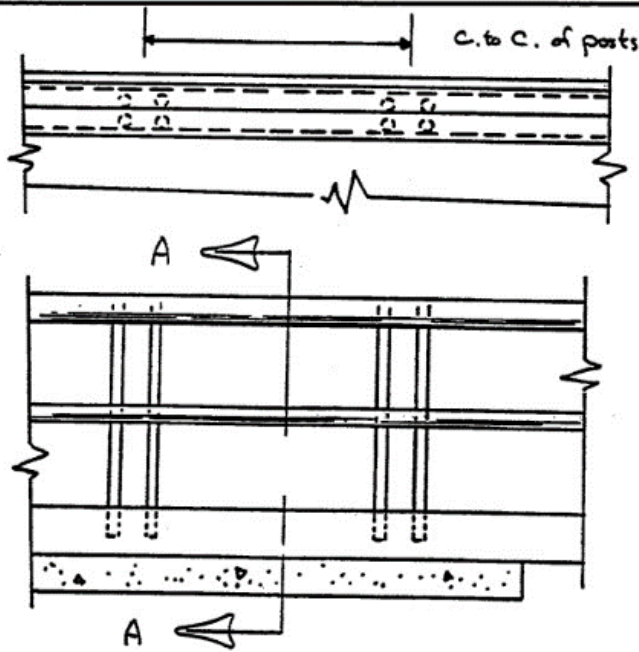
ITEM125A = R ITEM36A = 1



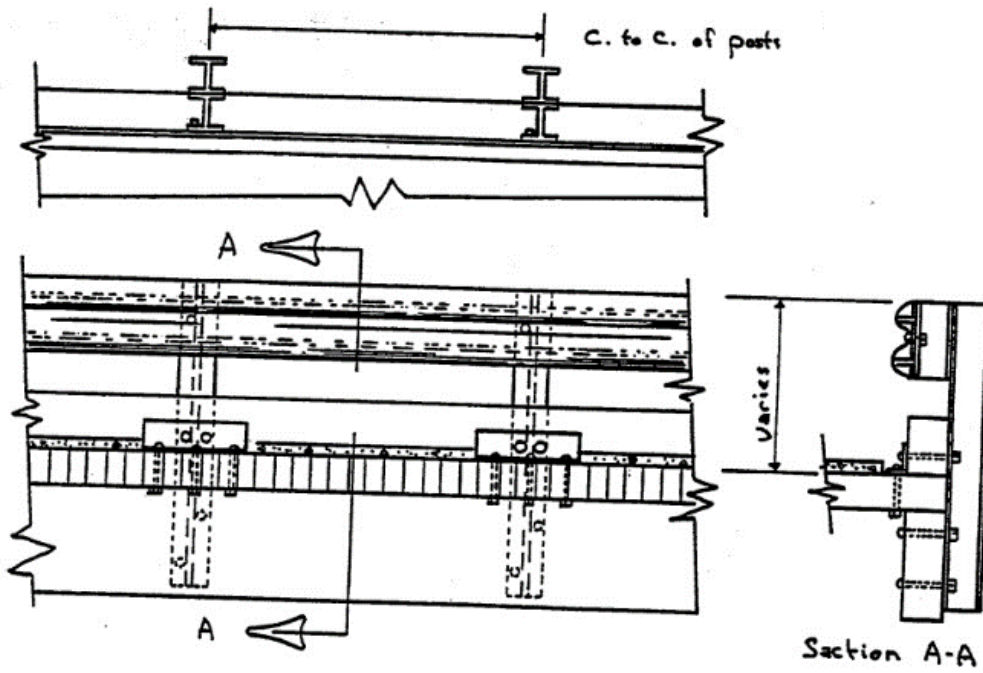
ITEM125A = S ITEM36A = 1



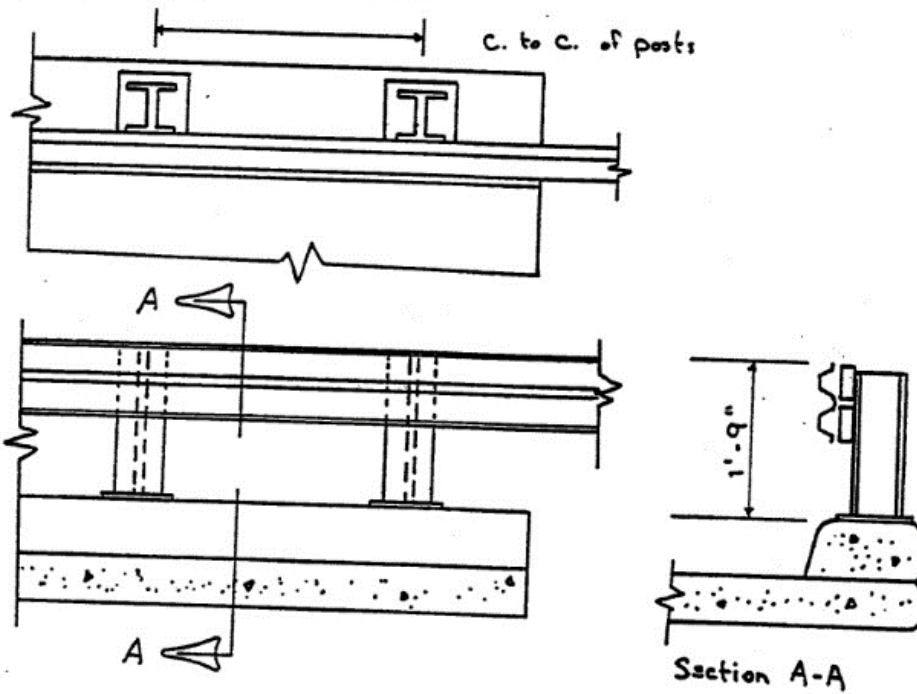
ITEM125A = T ITEM36A = 1



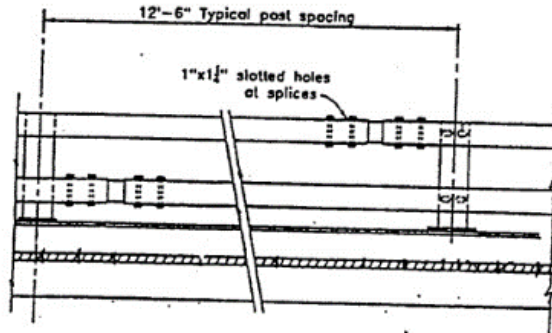
ITEM125A = U ITEM36A = 0



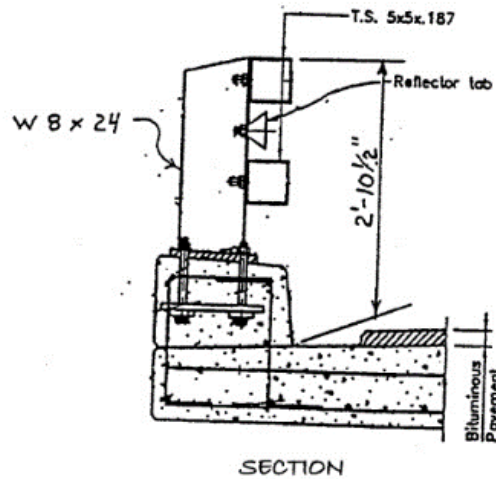
ITEM125A = V ITEM36A = 1



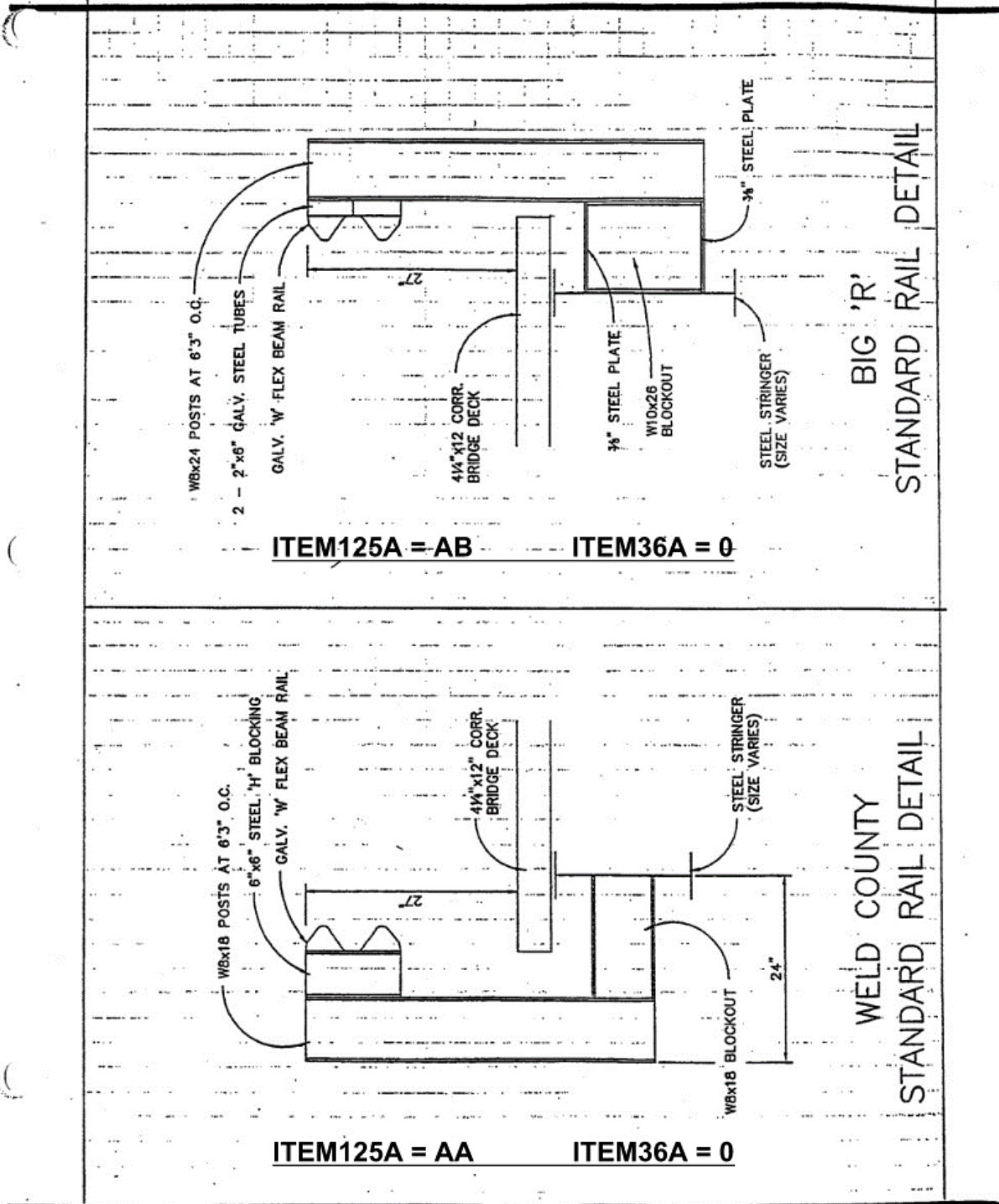
ITEM125A = W ITEM36A = 1



ELEVATION — BRIDGE RAIL



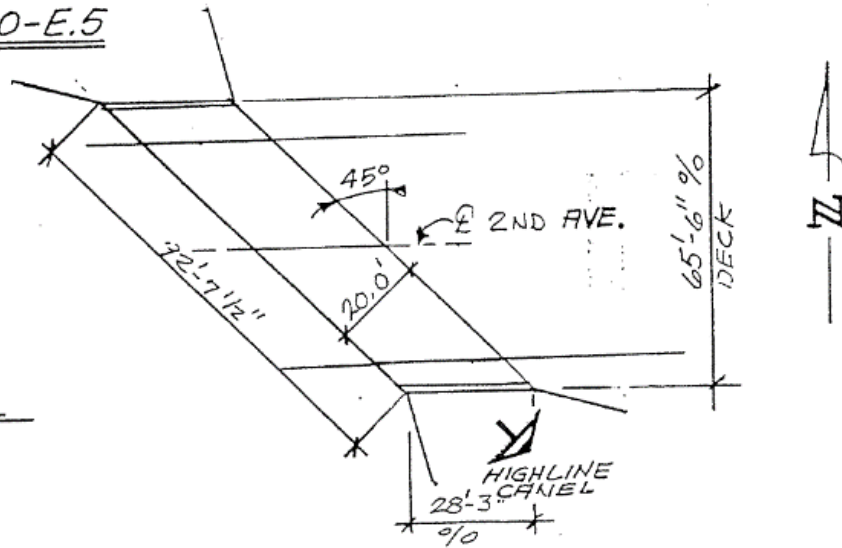
ITEM125A = Y ITEM36A = 1



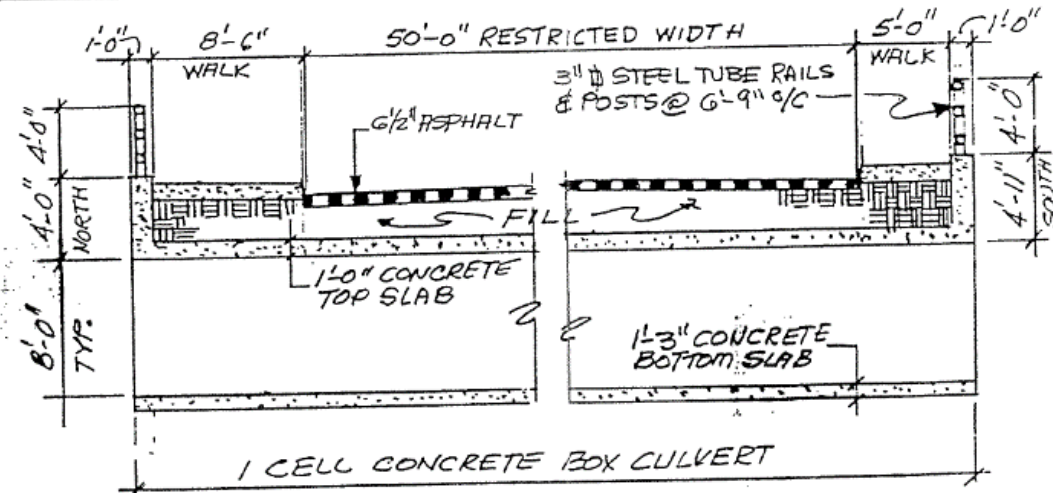
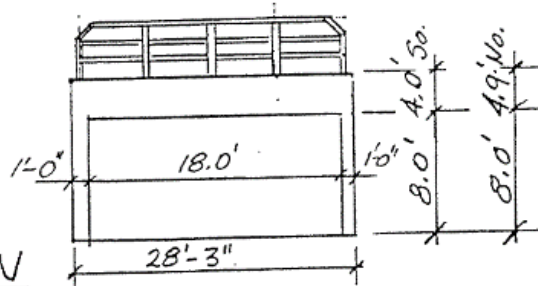


AURO8.0-E.5

PLAN



ELEVATION



SECTION

8-4-88 FL

ITEM125A = AA

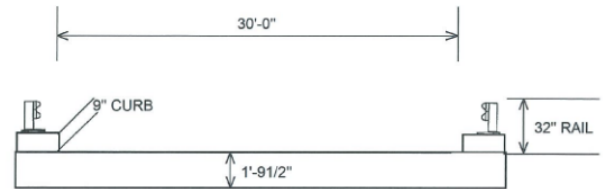
ITEM36A = 0



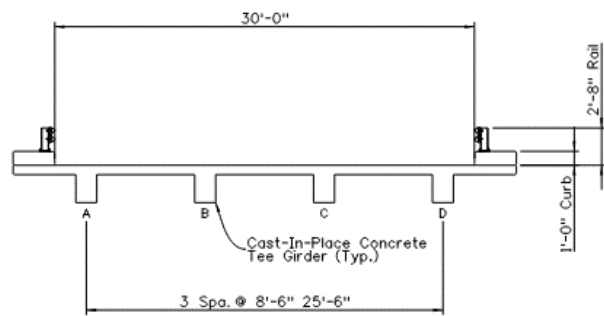
Appendix G – Structure and/or Construction Type

Appendix G contains examples of superstructure general views and structure section views to clarify the requirements of ITEM120A.

ITEM120A = CS: Concrete Slab, Simple

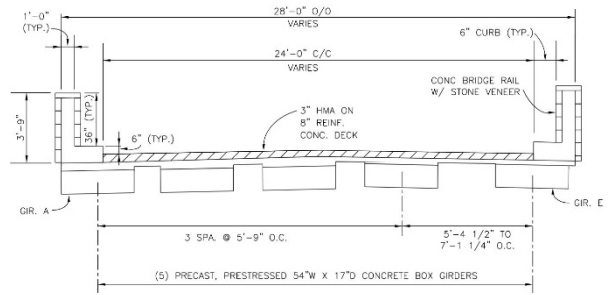


ITEM120A = CSG: Concrete Slab and Girder (Tee Beam), Simple

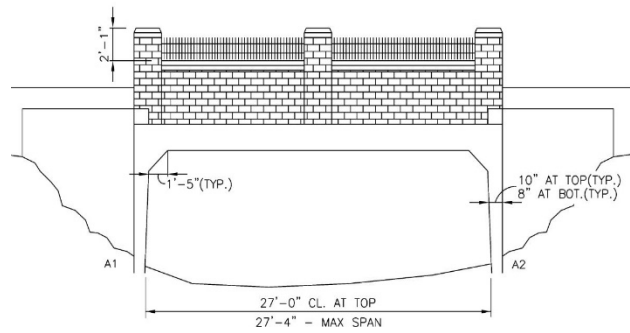




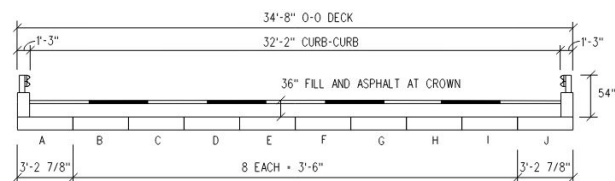
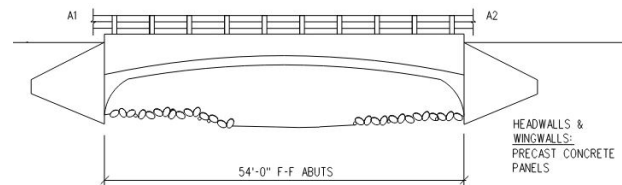
ITEM120A = CBG: Concrete Box Girder, Simple



ITEM120A = CRF: Concrete Rigid Frame, Simple

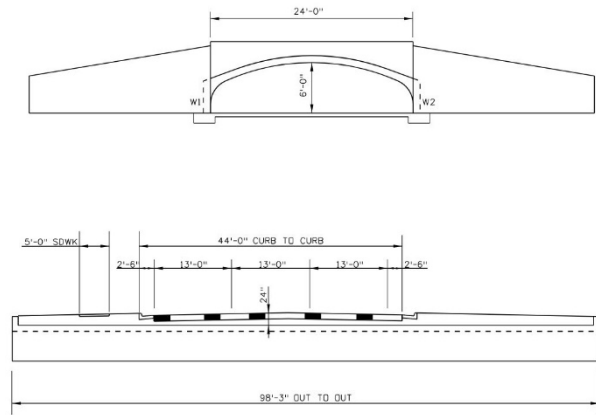


ITEM120A = CA: Concrete Arch, Simple

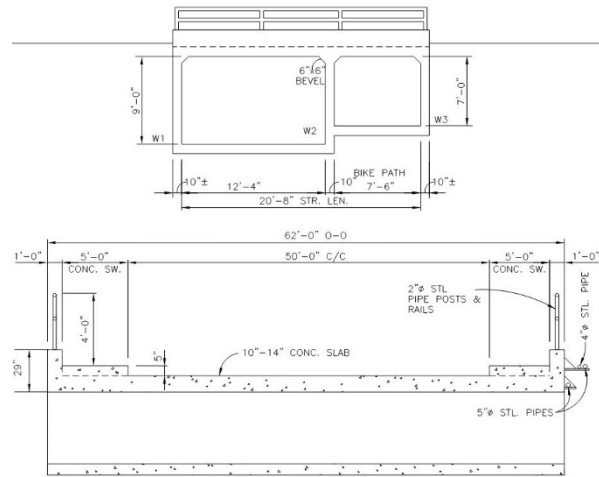




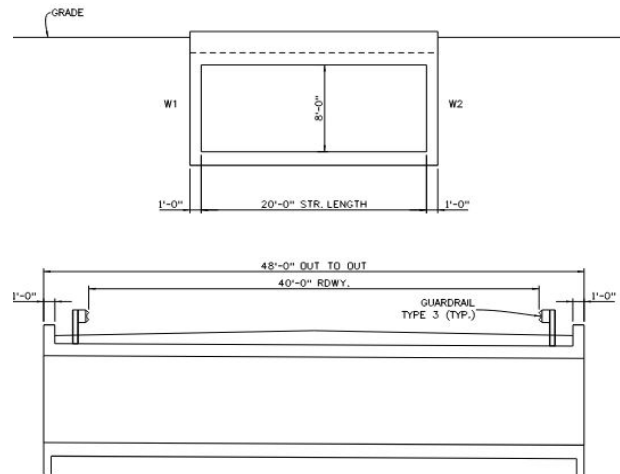
ITEM120A = CAC: Concrete Arch Culvert



ITEM120A = CBC: Concrete Box Culvert

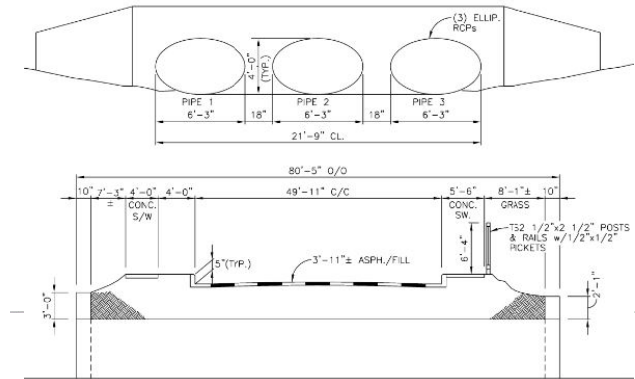


ITEM120A = PCBC: Precast Concrete Box Culvert

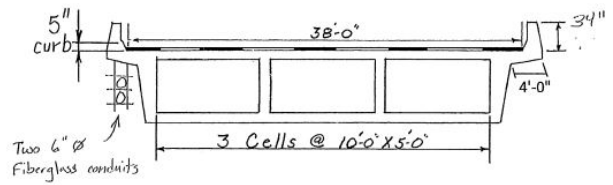




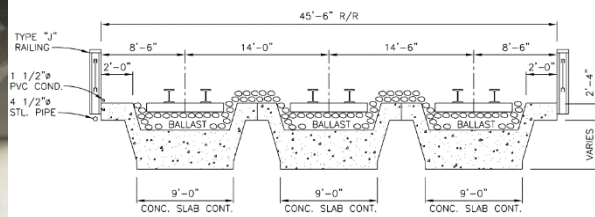
ITEM120A = RCPC: Reinforced Concrete Pipe Culvert



ITEM120A = CBGS: Concrete Box Girder Segmented, Simple

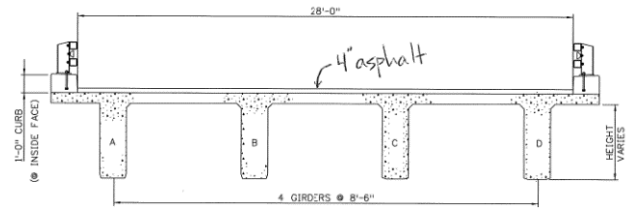


ITEM120A = CSC: Concrete Slab, Continuous

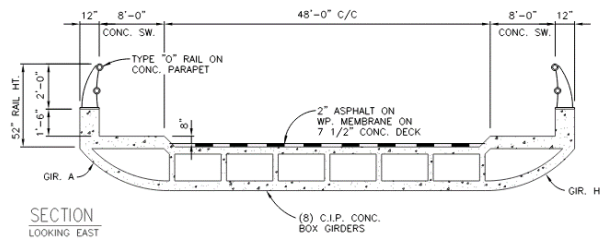




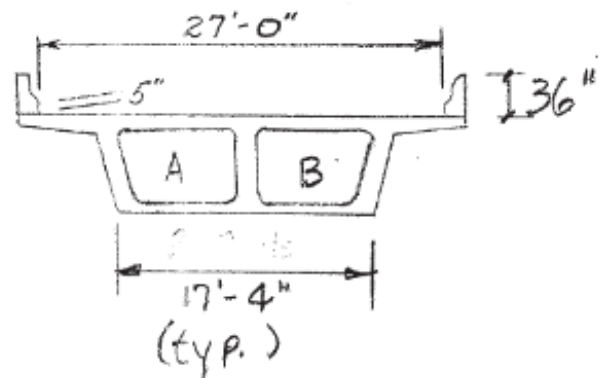
ITEM120A = CSGC: Concrete Slab and Girder (Tee Beam), Continuous



ITEM120A = CBGC: Concrete Box Girder, Continuous

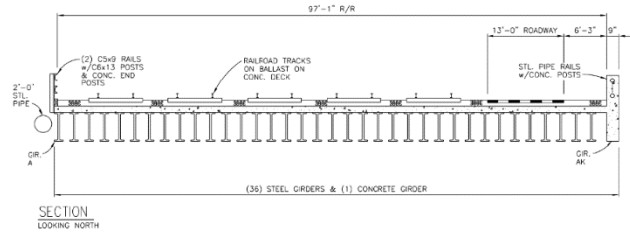


ITEM120A = CTGC: Concrete Tub Girder, Continuous

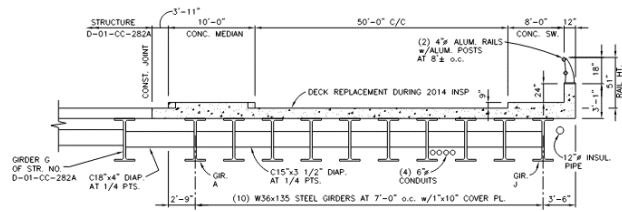




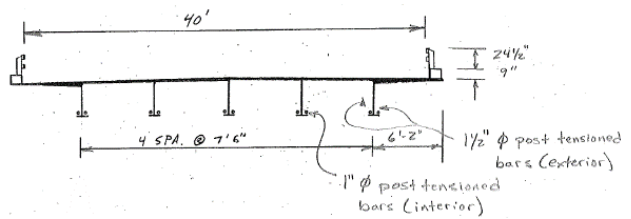
ITEM120A = CI: Concrete deck on Steel I-beam, Simple



ITEM120A = CIK: Concrete composite deck on Steel I-beam, Simple

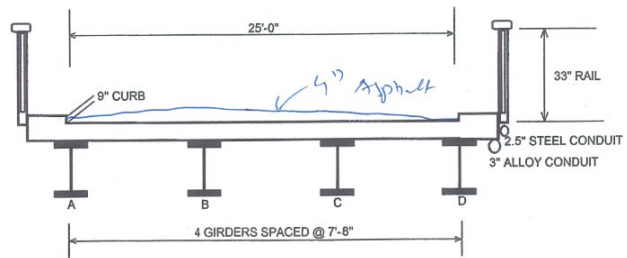


ITEM120A = CIKP: Concrete deck on Prestressed Steel I-beam, Simple

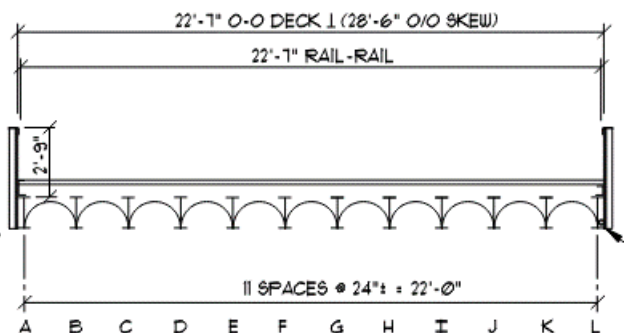




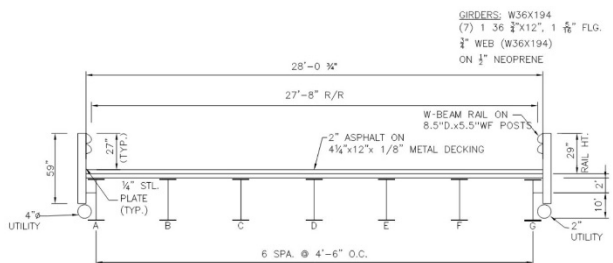
ITEM120A = RG: Riveted Girder, Simple



ITEM120A = SSE: Steel Stringer with Earth Fill (using 1/2 CMP), Simple

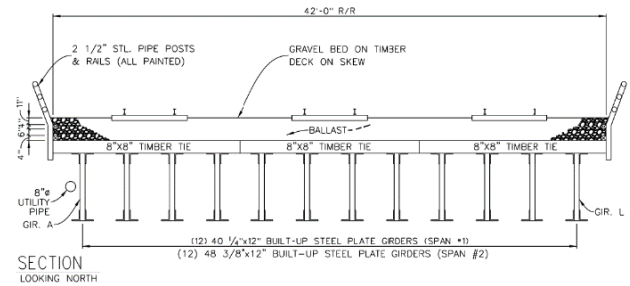


ITEM120A = SSM: Steel Stringer with Metal Plank Deck, Simple

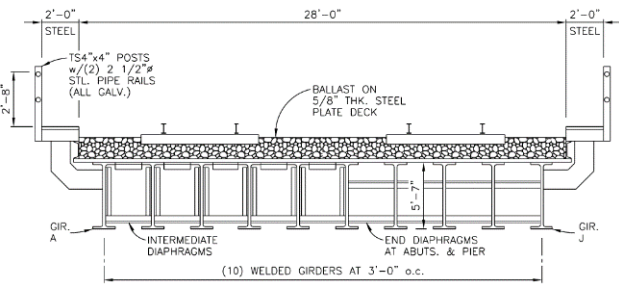




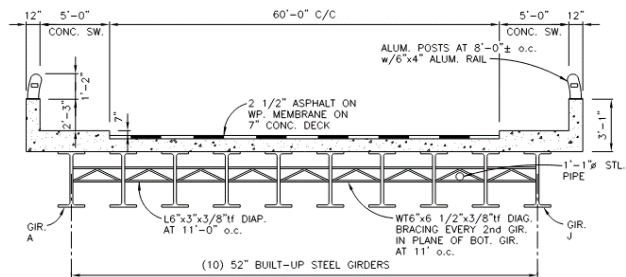
ITEM120A = SSS: Steel Stringer with Timber Deck, Simple



ITEM120A = WG: Welded Girder, Simple

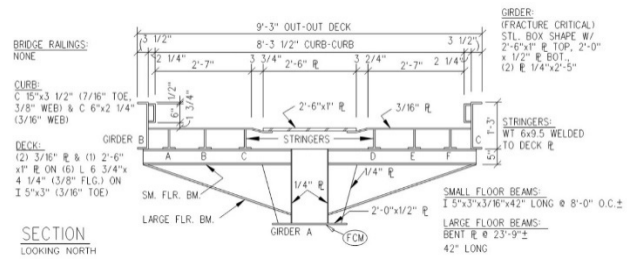


ITEM120A = WGK: Composite Welded Girder, Simple

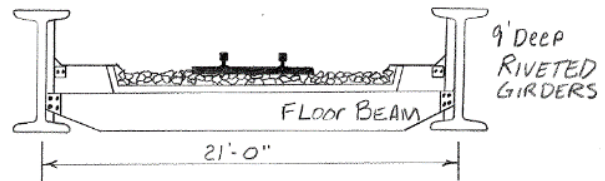




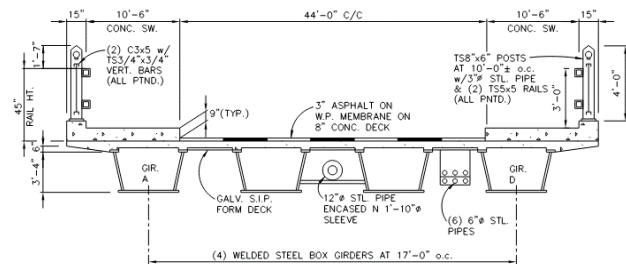
ITEM120A = SDG: Steel Deck Girder, Simple



ITEM120A = STG: Steel Thru Girder, Simple

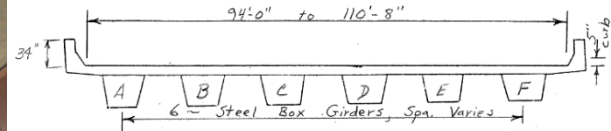


ITEM120A = SBG: Steel Box Girder, Simple

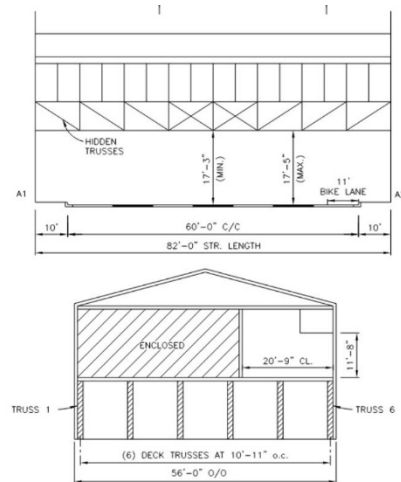




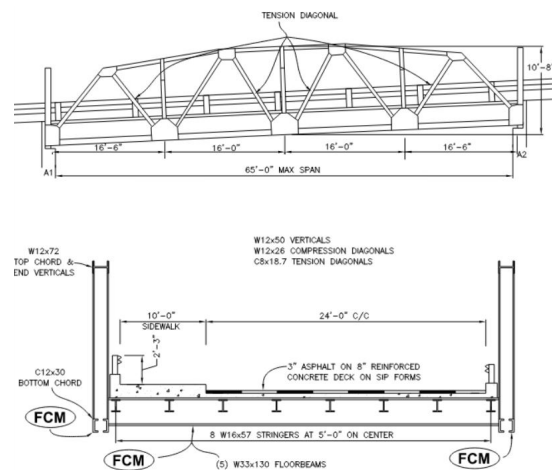
ITEM120A = SBGP: Steel Prestressed Box Girder, Simple



ITEM120A = SDT: Steel Deck Truss, Simple

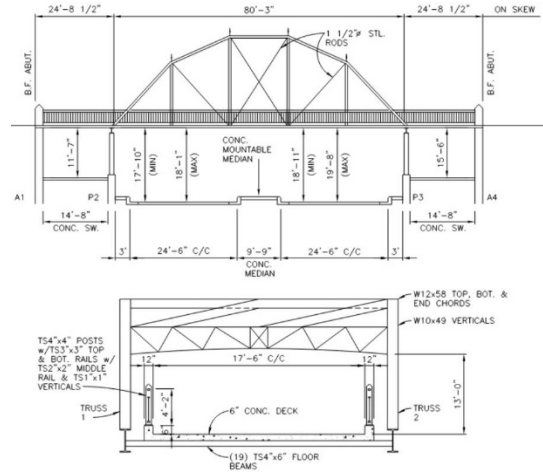


ITEM120A = SLT: Steel Low Truss, Simple

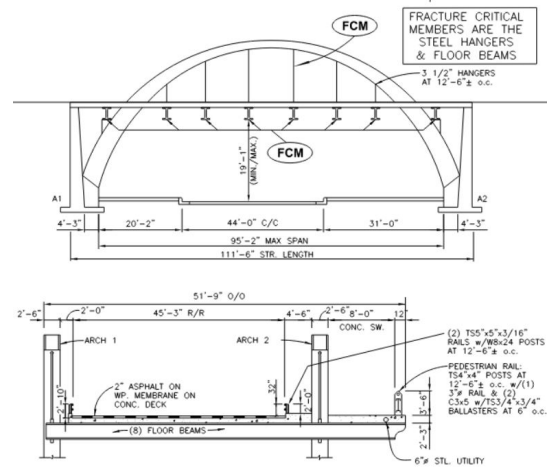




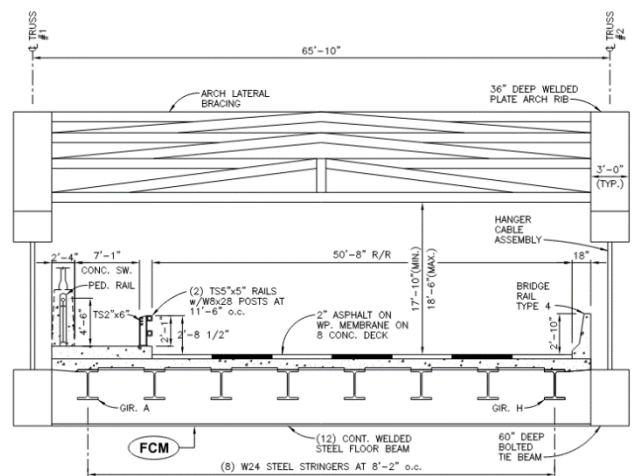
ITEM120A = STT: Steel Thru Truss, Simple



ITEM120A = SA: Steel Arch

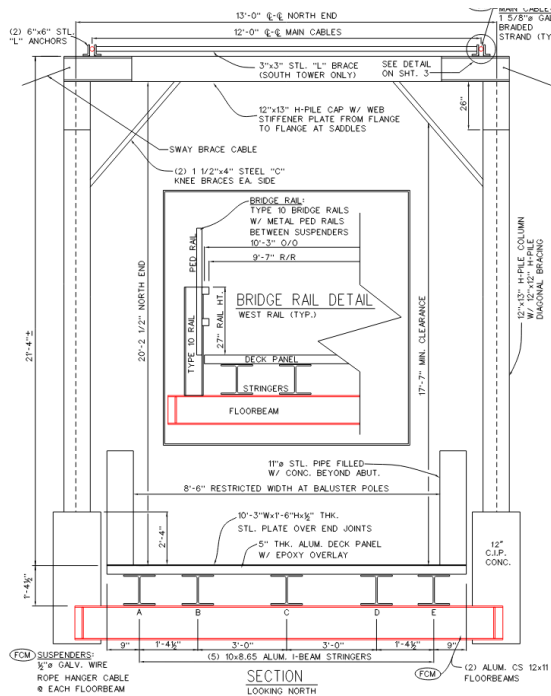
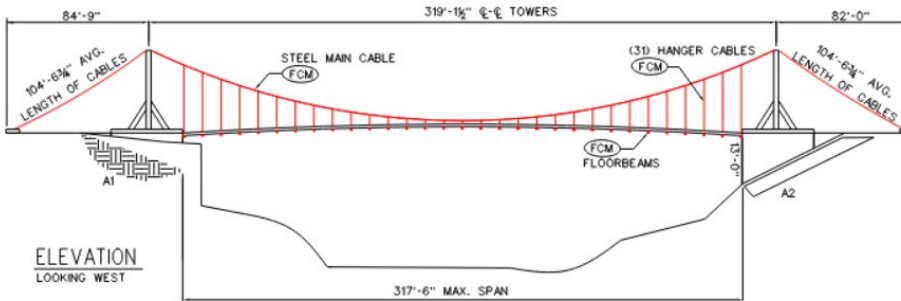


ITEM120A = STA: Steel Thru Arch, Simple



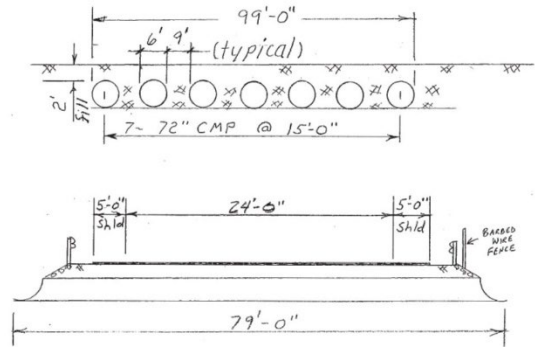


ITEM120A = SUSP: Suspension Bridge, Simple

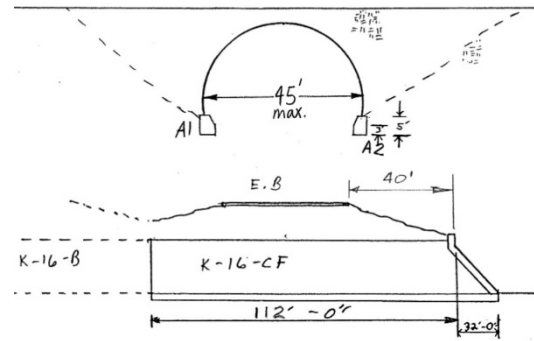




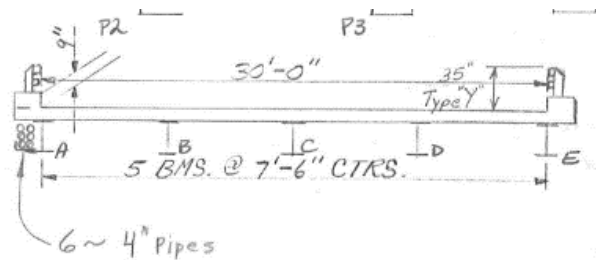
ITEM120A = CMP: Corrugated Metal Pipe Culvert



ITEM120A = SAC: Steel Arch Culvert/Multiplate Arch Culvert

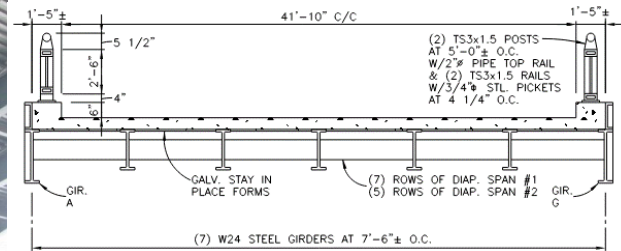


ITEM120A = CIC: Concrete deck on Steel I-Beam, Continuous

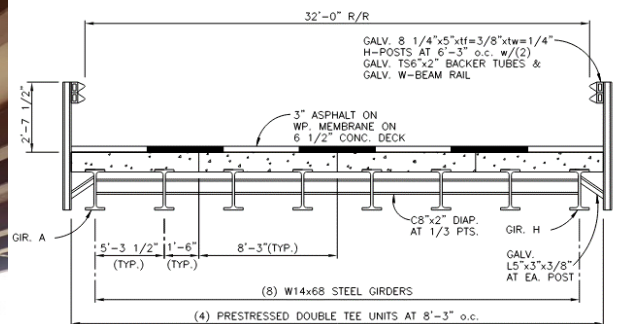




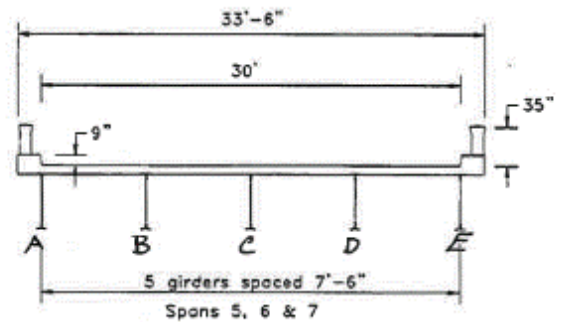
ITEM120A = CICK: Concrete composite deck on Steel I-Beam, Continuous



ITEM120A = CICKP: Concrete deck on Prestressed Steel I-Beam, Continuous

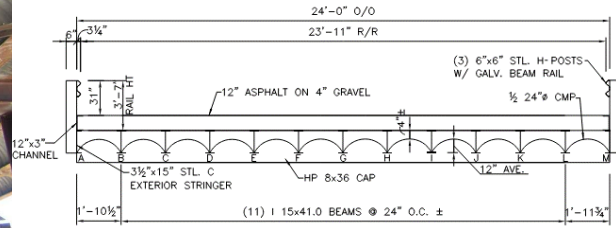


ITEM120A = RGC: Riveted Girder, Continuous

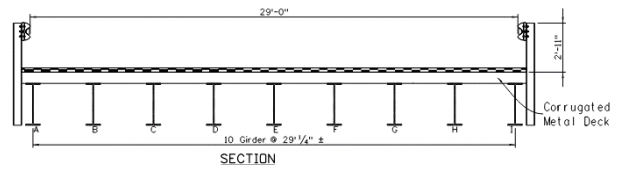




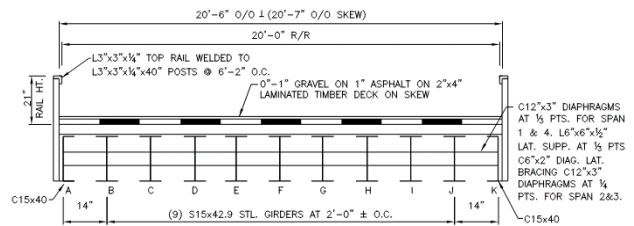
ITEM120A = SSEC: Steel Stringer with Earth Fill (using 1/2 CMP), Continuous



ITEM120A = SSMC: Steel Stringer with Metal Plank deck, Continuous

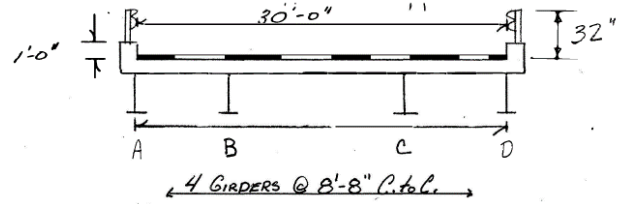


ITEM120A = SSSC: Steel Stringer with Timber deck, Continuous

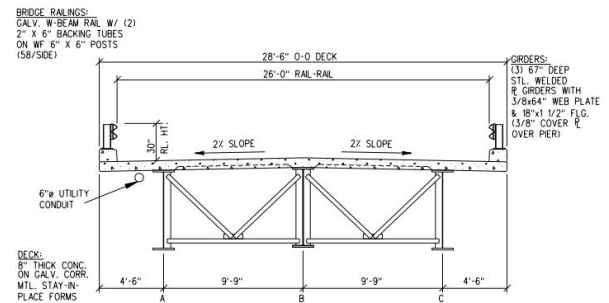




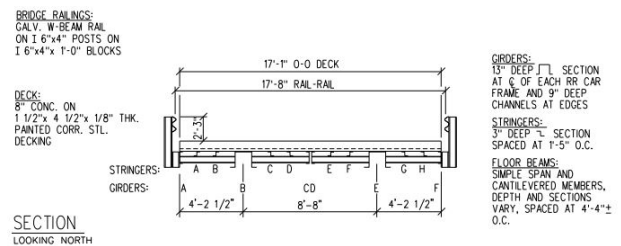
ITEM120A = WGC: Welded Girder, Continuous



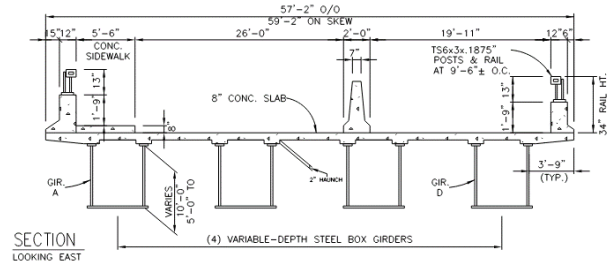
ITEM120A = WGCK: Composite Welded Girder, Continuous



ITEM120A = SDGC: Steel Deck Girder, Continuous



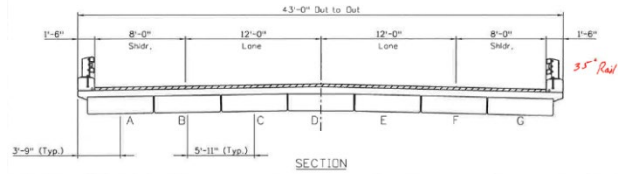
ITEM120A = SBGC: Steel Box Girder, Continuous



ITEM120A = SBGCP: Steel Prestressed Box Girder, Continuous

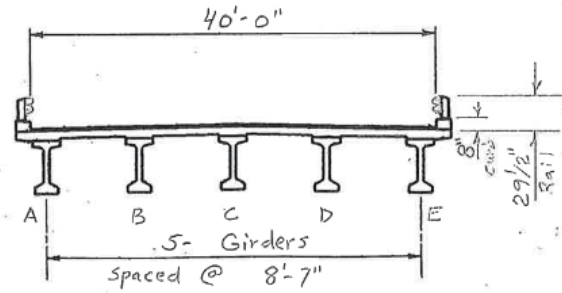
No current examples found in the On-System and Off-System database.

ITEM120A = CSP: Concrete Prestressed Slab, Simple

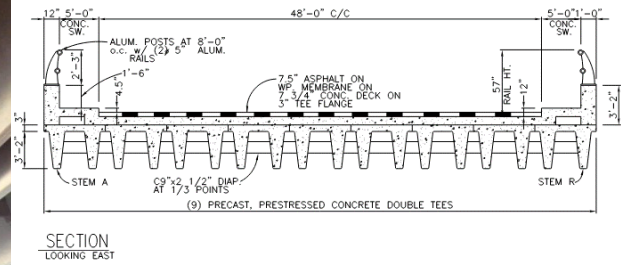




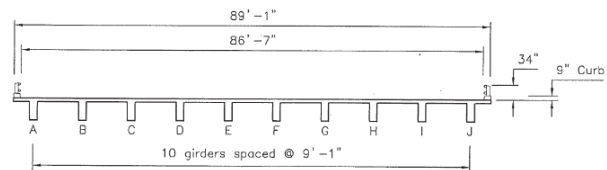
ITEM120A = CPG: Prestressed Girder, Simple



ITEM120A = CDTPG: Concrete Double T Prestressed Girder, Simple

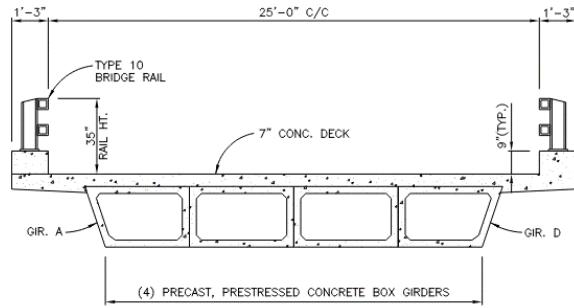


ITEM120A = CSGP: Concrete Prestressed Slab and Girder (Tee Beam), Simple

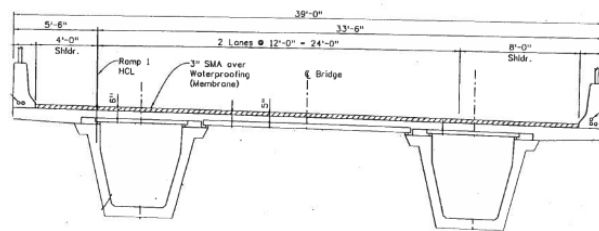




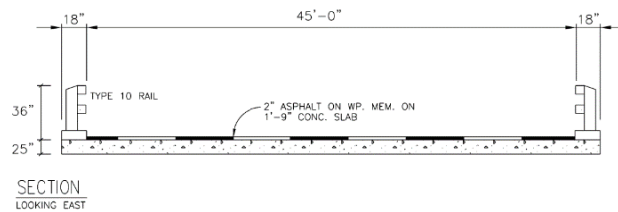
ITEM120A = CBGP: Concrete Prestressed Box Girder, Simple



ITEM120A = CTGCP: Concrete Prestressed Tub Girder, Simple

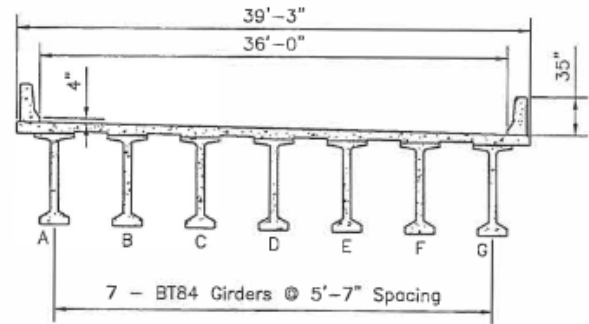


ITEM120A = CSPC: Concrete Prestressed Slab, Continuous

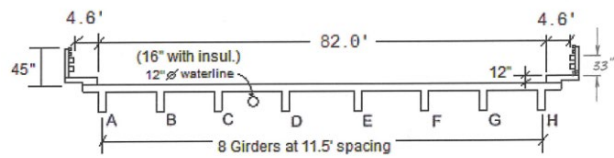




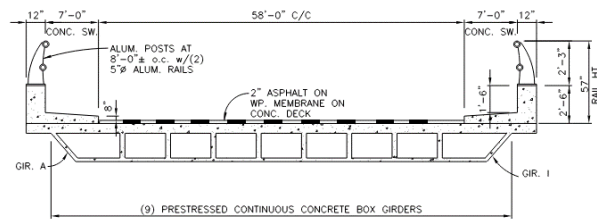
ITEM120A = CPGC: Concrete Prestressed Girder, Continuous



ITEM120A = CSGCP: Concrete Prestressed Slab and Girder (Tee Beam), Continuous

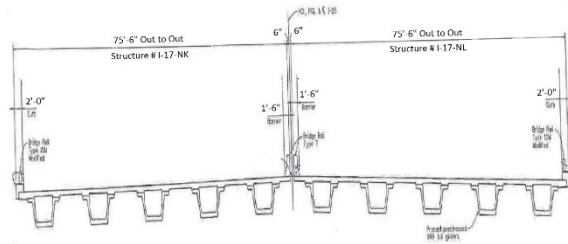


ITEM120A = CBGCP: Concrete Prestressed Box Girder, Continuous

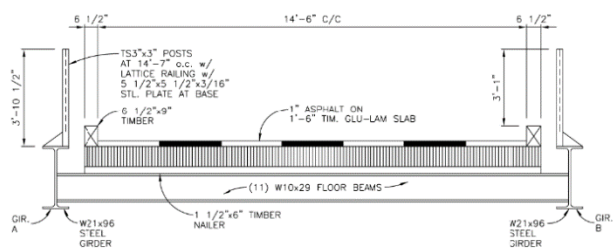




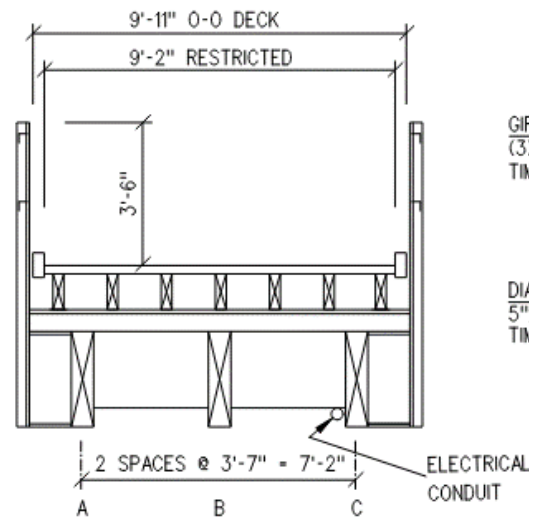
ITEM120A = CTGP: Concrete Prestressed Tub Girder, Continuous



ITEM120A = TSLAB: Timber Slab

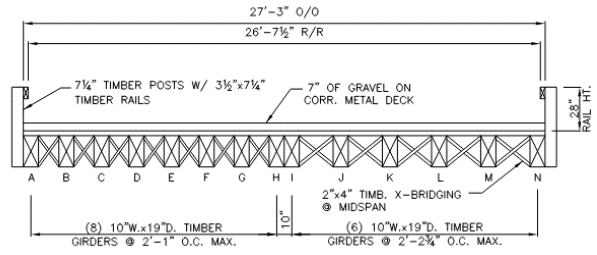


ITEM120A = TLS: Timber Laminated (Glulam) Stringer

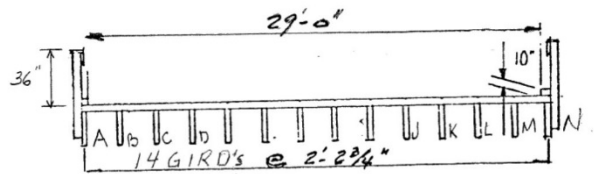
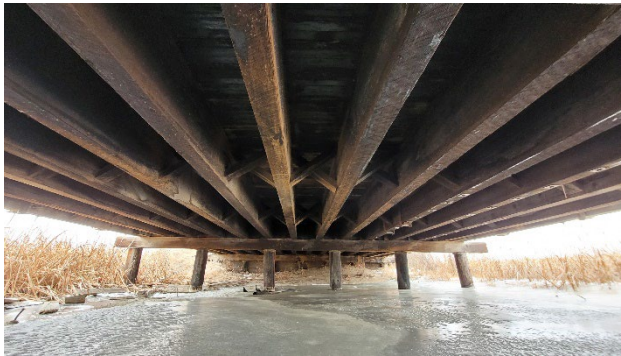




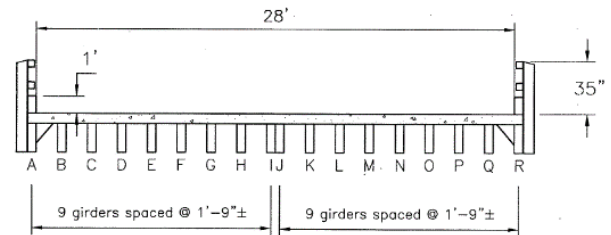
ITEM120A = TM: Timber Stringer with Metal Deck



ITEM120A = TS: Timber Laminated (Glulam) Stringer

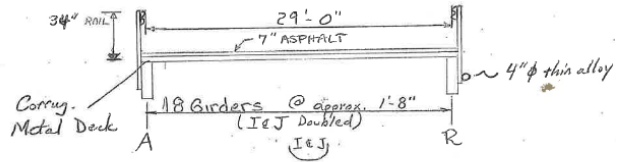


ITEM120A = TTD: Treated Timber Stringer with Concrete Deck

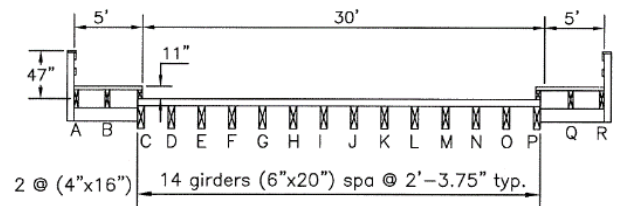




ITEM120A = TTM: Treated Timber Stringer with Metal Deck



ITEM120A = TTS: Treated Timber Stringer with Timber Deck

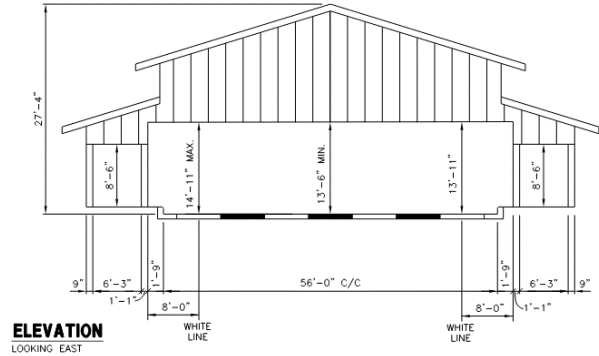


ITEM120A = TLT: Timber Low Truss, Simple

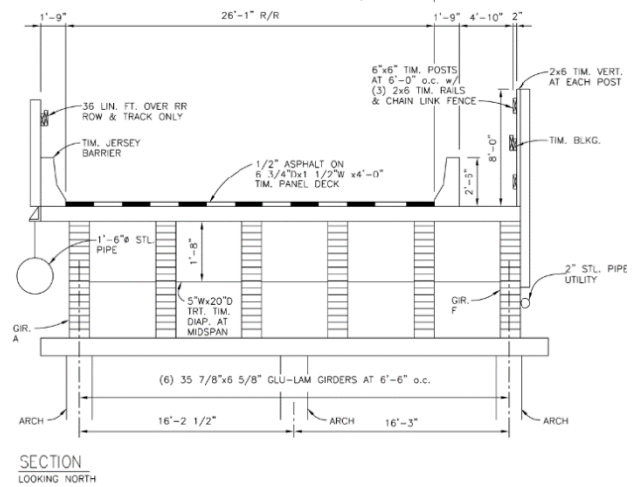
No examples are currently in the On-system and Off-system database.



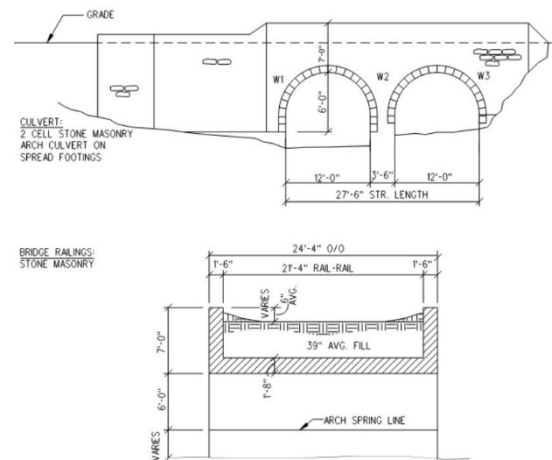
ITEM120A = TTT: Timber Thru Truss, Simple



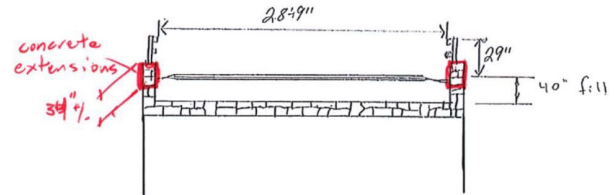
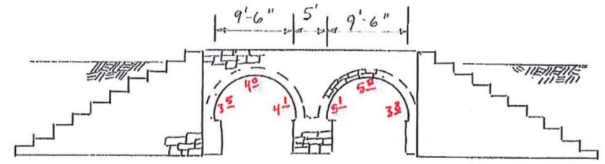
ITEM120A = TLA: Timber Laminated (Glulam) Arch



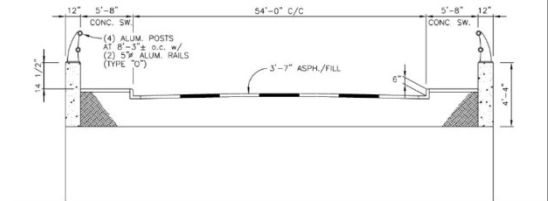
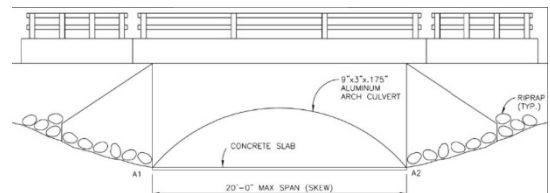
ITEM120A = RA: Rubble Arch



ITEM120A = RAC: Rubble Arch Culvert



ITEM120A = AAC: Aluminum Arch Culvert



ITEM120A = CPP: Corrugated Plastic Pipe Culvert

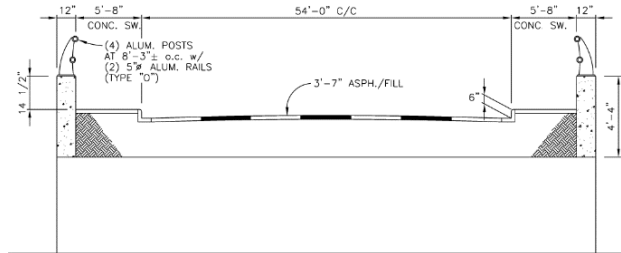




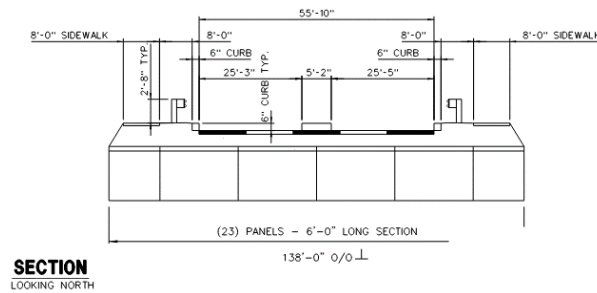
Appendix H – Construction Type

Appendix H contains examples of superstructure general views and structure section views to clarify the requirements of ITEM120B.

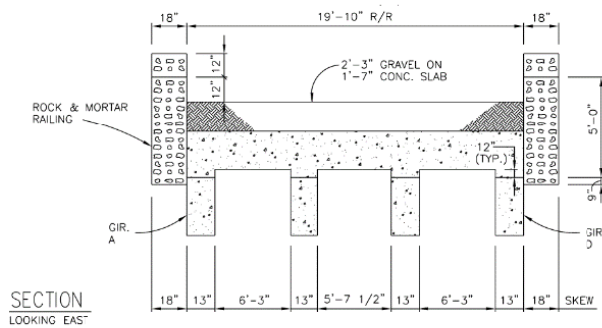
ITEM120B = 0: Not applicable or unknown



ITEM120B = 1: Precast

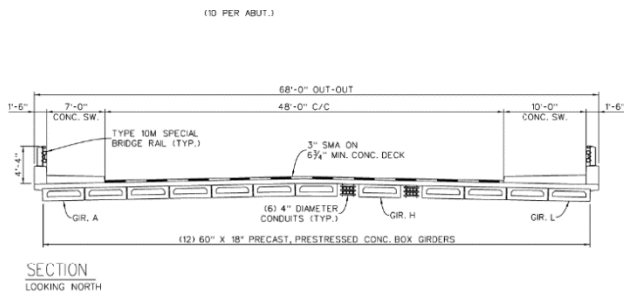


ITEM120B = 2: Poured in Place

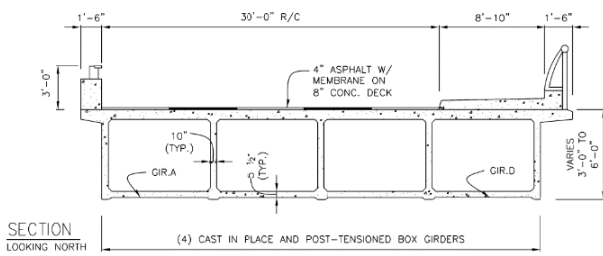




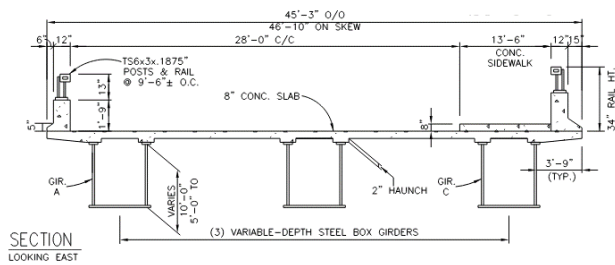
ITEM120B = 3: Pre-Tensioned/Prestressed



ITEM120B = 4: Post-Tensioned

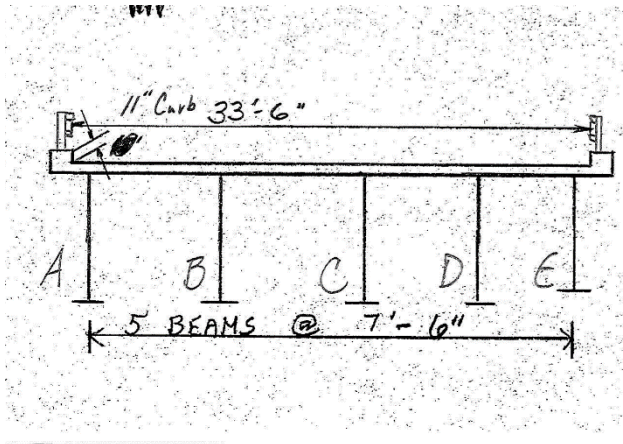


ITEM120B = 5: Parabolic

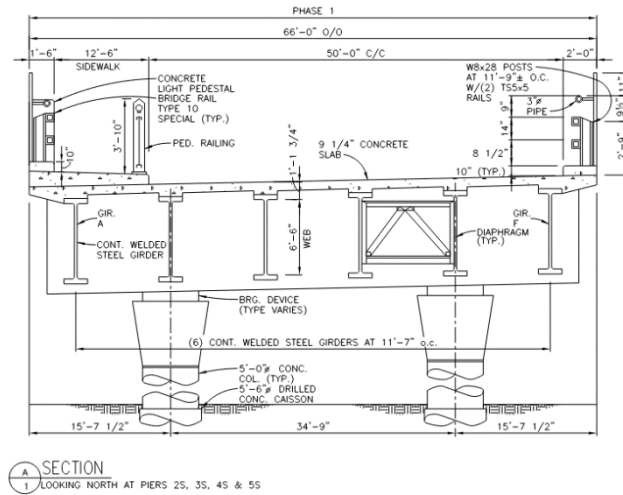




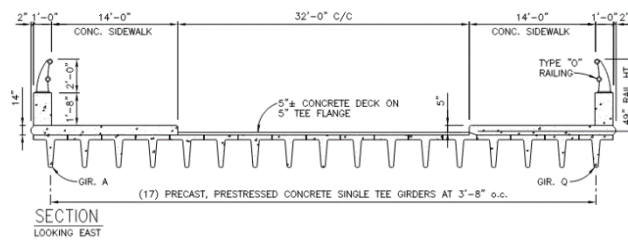
ITEM120B = 6: Cantilevered



ITEM120B = 10: Curved

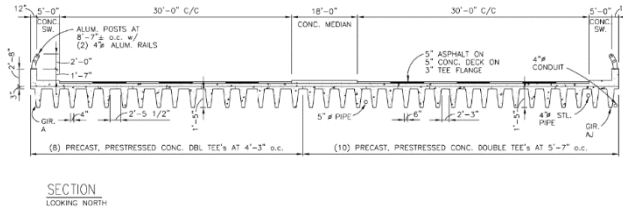


ITEM120B = 20: Concrete Prestressed 'T' Girder

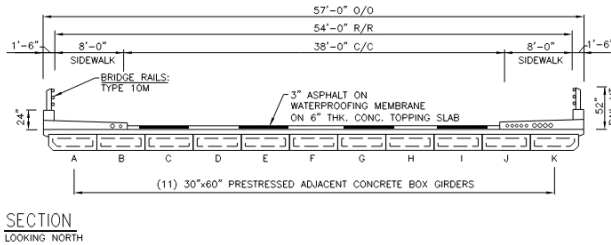




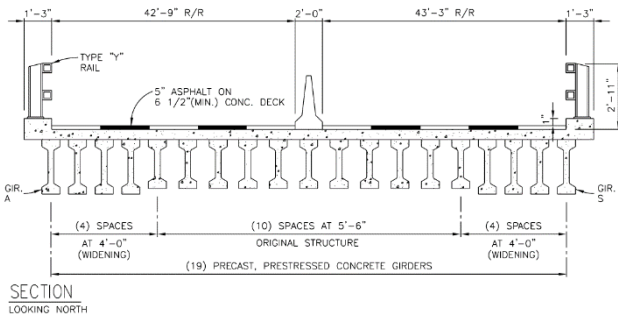
ITEM120B = 21: Concrete Prestressed Double 'T' Girder



ITEM120B = 25: AASHTO Type I, Prestressed

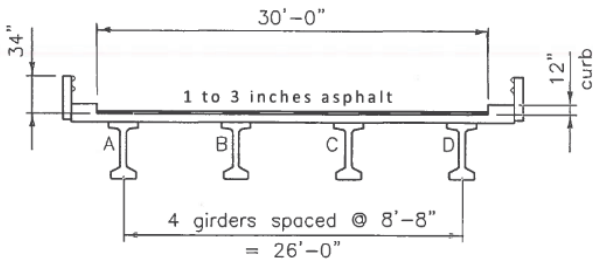


ITEM120B = 26: AASHTO Type II, Prestressed

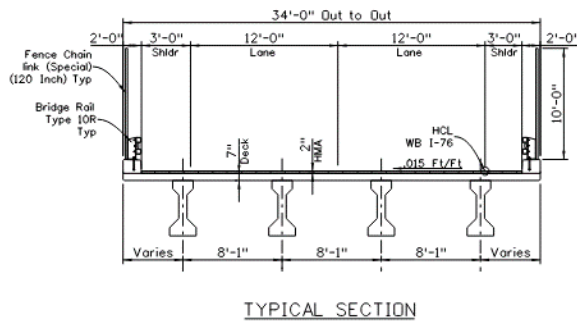




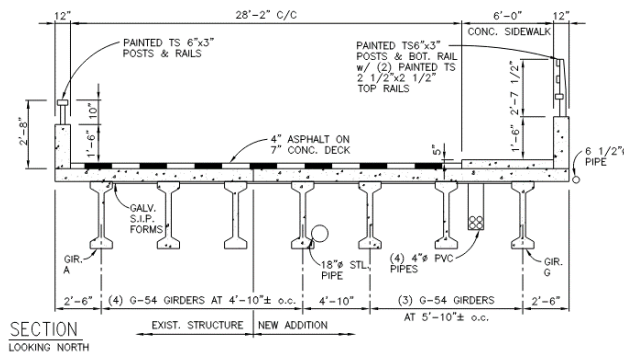
ITEM120B = 27: AASHTO Type III, Prestressed



ITEM120B = 28: AASHTO Type IV, Prestressed

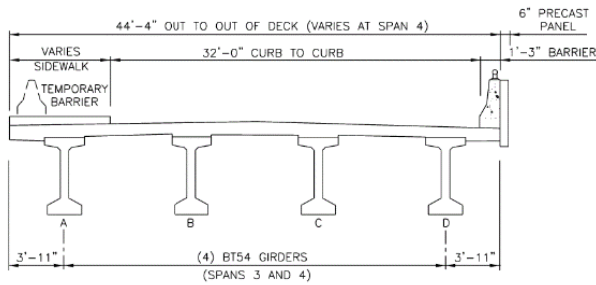


ITEM120B = 30: Colorado Type G 54, Prestressed, Simple

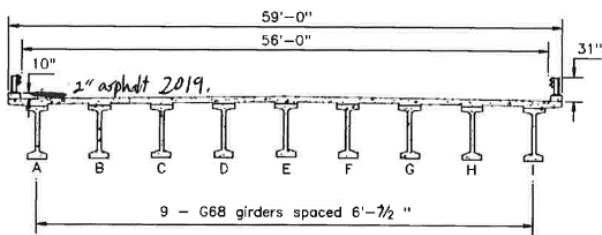




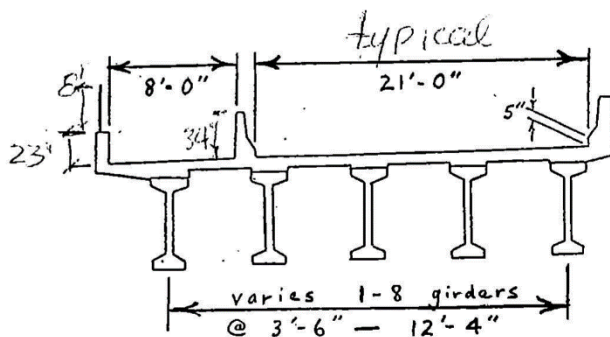
ITEM120B = 31: Colorado Type G 54, Prestressed, Continuous



ITEM120B = 32: Colorado Type G 68, Prestressed, Simple

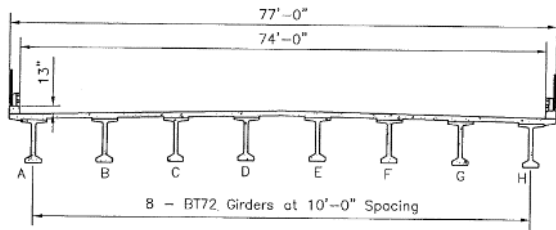


ITEM120B = 33: Colorado Type G 68, Prestressed, Continuous





ITEM120B = 34: Colorado Type G 70, Prestressed, Simple



ITEM120B = 35: Colorado Type G 70, Prestressed, Continuous

No examples found in On-System or Off-System database.

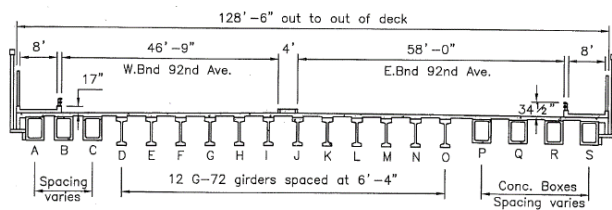
ITEM120B = 36: Colorado Type G 78, Prestressed, Simple

No examples found in On-System or Off-System database.

ITEM120B = 37: Colorado Type G 78, Prestressed, Continuous

No examples found in On-System or Off-System database.

ITEM120B = 38: Colorado Type G 72, Prestressed, Simple

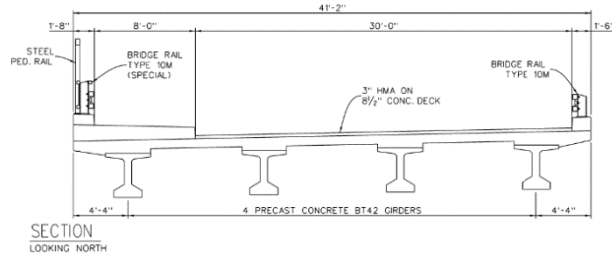


ITEM120B = 39: Colorado Type G 72, Prestressed, Continuous

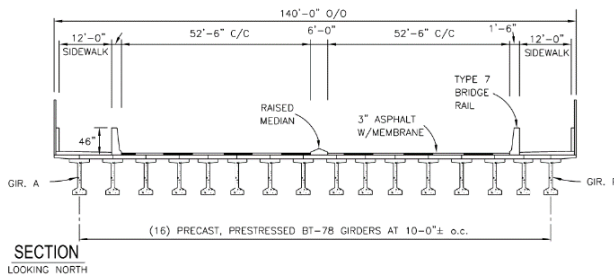
No examples found in On-System or Off-System database.



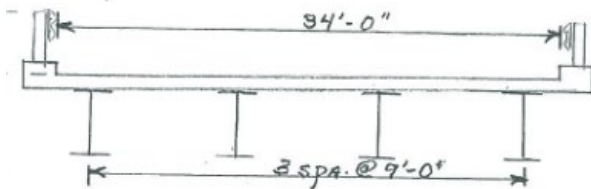
ITEM120B = 40: BULBT, Simple



ITEM120B = 41: BULBT, Continuous

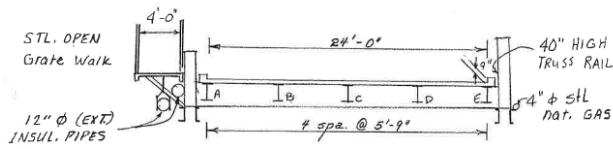


ITEM120B = 50: Riveted Plate Girder

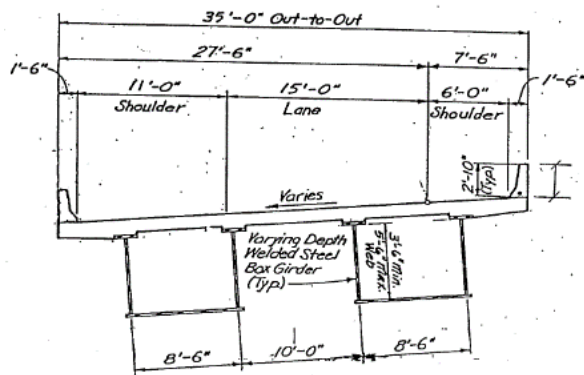




ITEM120B = 51: Slant Leg



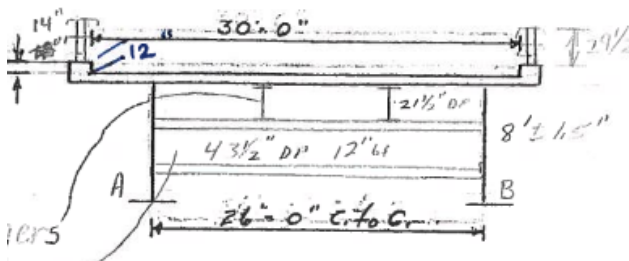
ITEM120B = 60: Super Span



ITEM120B = 80: SI/Pin & Link w/ Category III UWI (Water depth: 4ft to 6ft)

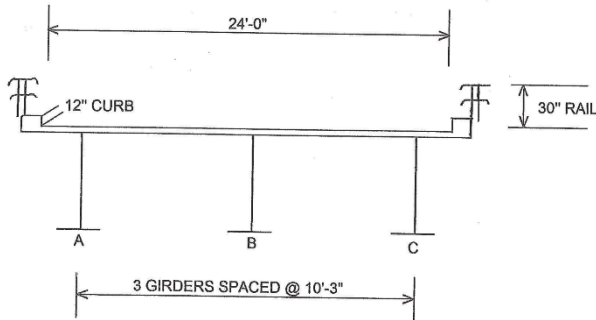
No examples found in On-System or Off-System database.

ITEM120B = 81: SI/Pin & Link w/ Category II UWI (Water depth: 7ft to 10ft)

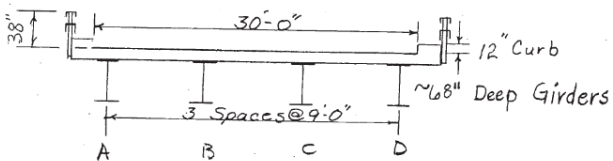




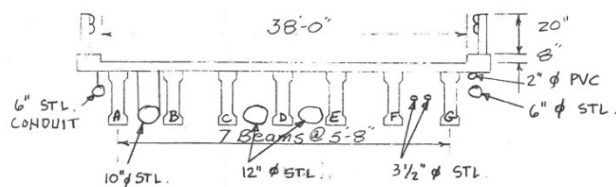
ITEM120B = 82: SI/Pin & Link w/ Category I UWI (Water depth: >10ft)



ITEM120B = 83: SI/Pin & Link connections

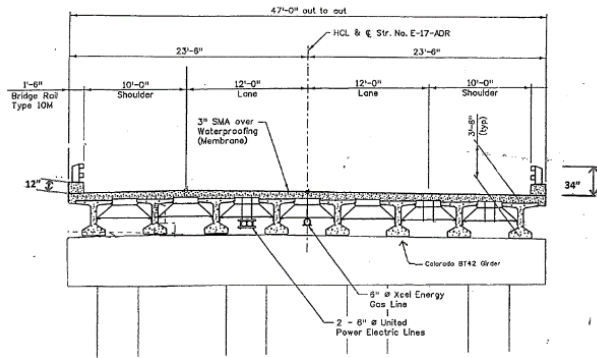


ITEM120B = 85: SI/Category I UWI (Water depth: >10ft)

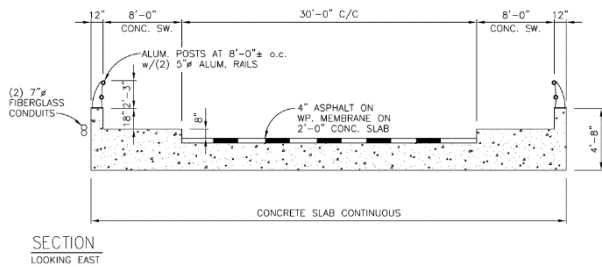




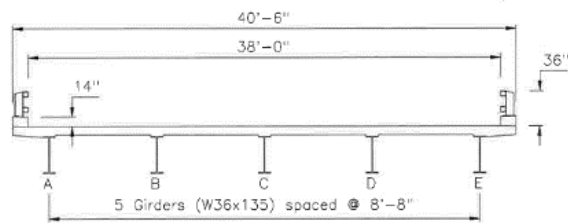
ITEM120B = 86: SI/Category II UWI (Water depth: 7ft to 10ft)



ITEM120B = 88: SI/Category III UWI (Water depth: 4ft to 6ft)

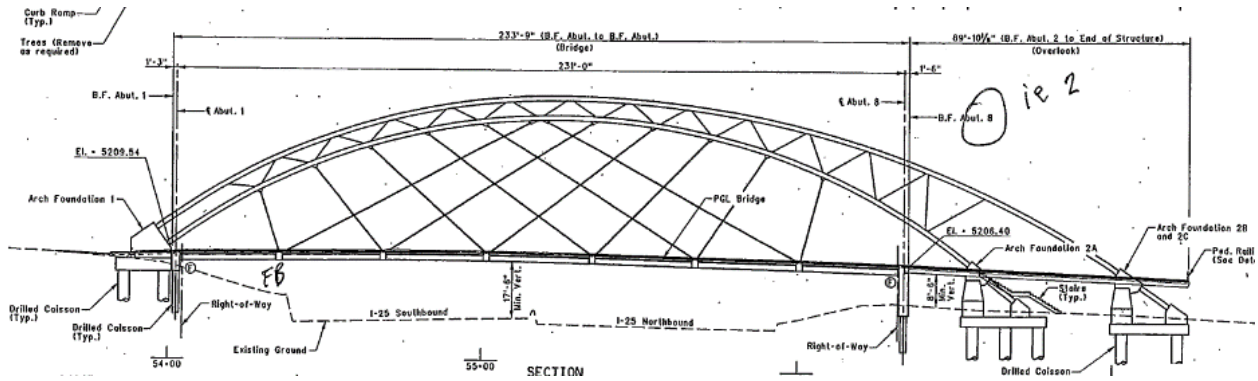


ITEM120B = 90: Research Required



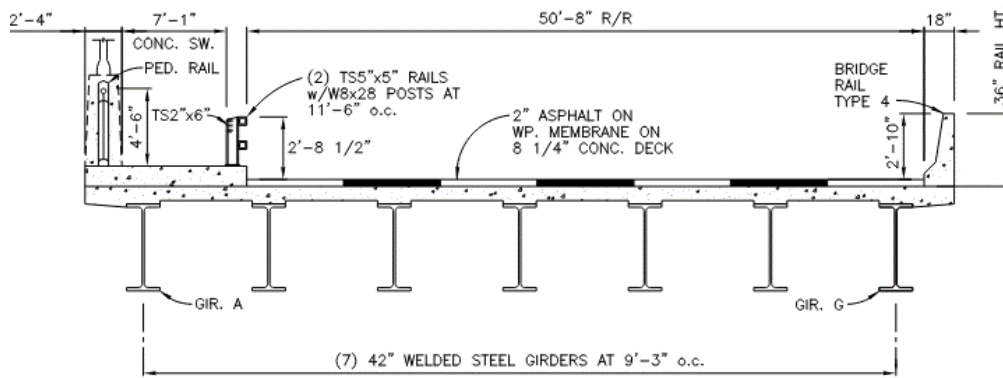


ITEM120B = 91: Experimental Bridge

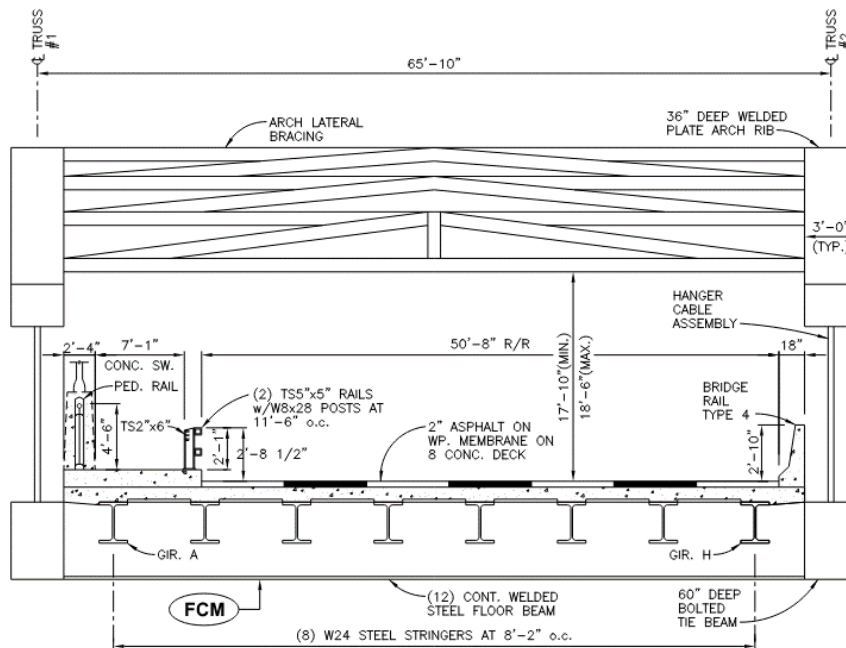




ITEM120B = 99: Multi type Girder System



SECTION
LOOKING EAST AT SPANS 1 & 3

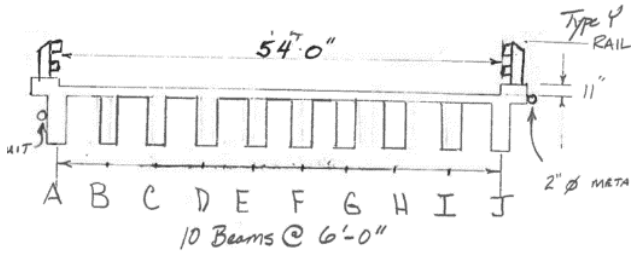


SECTION
LOOKING EAST AT SPAN 2





ITEM120B = PP: Pre-tensioned and Post-tensioned (spliced midspan)





Appendix I – Expansion Device Type

Appendix I contains examples of expansion devices to clarify the requirements of ITEM124.

ITEM124 = 1: Sliding Steel Plates



ITEM124 = 2: Sliding Steel Plates with Fingers





ITEM124 = A: Pre molded Rubber Device



ITEM124 = B: Compression Joint Seal (elastomeric)



ITEM124 = C: Compression Joint Seal (foamed)

No examples found in On-System or Off-System database.

ITEM124 = D: Parabolic Gland (modular or strip)



ITEM124 = O: No Expansion Device



ITEM124 = P: Plug (Pourable)





ITEM124 = X: More than one type of device



ITEM124 = N: Unknown





Appendix J – Sufficiency Rating Calculations

Appendix J contains formulas and steps to calculate the Sufficiency Rating for a structure. The sufficiency rating formula is a method of evaluating highway bridge data by calculating four separate factors to obtain a numeric value which is indicative of a bridge's sufficiency to remain in service and is a method to determine a structures qualification to receive Federal funding for replacement or rehabilitation.

Bridges qualifying for federal funding are those that are deemed deficient, i.e either structurally deficient (SD) or functionally obsolete (FO) and have a sufficiency rating of 80% or less. This rating is prescribed by AASHTO Specifications and formulas were adopted in 1977 by FHWA, and are utilized in the Highway Bridge Replacement Program (HBRRP), to qualify bridges for the Federal Select List. The AASHTO Formulas to calculate the sufficiency rating follow. The flow charts to determine HBRRP qualification are included in Appendix K.

The sufficiency rating is derived from four factors defining the structure and must be between 0% and 100%, inclusive. The Sufficiency Rating Formula is:

$$\text{SUFFICIENCY RATING (SR)} = S_1 + S_2 + S_3 - S_4$$

S_1 defines Structural Adequacy and Safety with a maximum of 55%

S_2 defines Serviceability and Functional Obsolescence with a maximum of 30%

S_3 defines Essentiality for Public Use with a maximum of 15%

S_4 defines Special Reductions used only when $S_1+S_2+S_3$ is greater than 50%



S1 - STRUCTURAL ADEQUACY AND SAFETY (MAXIMUM 55%)

Factor $S_1 = 55 - (A + B)$ and shall not be less than 0% nor greater than 55%.

- a. The controlling condition code is lowest applicable code of ITEM59, ITEM60, or ITEM62.

Controlling condition code	≤ 2	then	A =55%
	= 3		A =40%
	= 4		A =25%
	= 5		A =10%

- b. Reduction for Load Capacity:

- (1) Calculate AIT (Adjusted Inventory Tonnage) as follows:

If the 1 st digit of ITEM66	= 1	then	AIT = the 2 nd and 3 rd digits X 1.56;
	= 2		AIT = the 2 nd and 3 rd digits X 1.00;
	= 3		AIT = the 2 nd and 3 rd digits X 1.56;
	= 4		AIT = the 2 nd and 3 rd digits X 1.01;
	= 5		AIT = the 2 nd and 3 rd digits X 0.77;
	= 6		AIT = the 2 nd and 3 rd digits X 0.67;
	= 9		AIT = the 2 nd and 3 rd digits X 1.00;

- (2) Calculate the reduction factor (**B**) using one of the following formulas:

$$B = (36 - AIT)^{1.5} \times 0.2778$$

or

$$\text{If } (36 - AIT) \leq 0 \text{ then } B = 0.$$

B shall not be less than 0% nor greater than 55%.



S2 - SERVICEABILITY AND FUNCTION OBSOLESCENCE (MAXIMUM 30%)

Factor $S_2 = 30 - (J + (G + H) + I)$ and shall not be less than 0% nor greater than 30%

$G + H$ shall not be less than 0% nor greater than 15%

a. Rating Reductions (Maximum 13%)

$J = (A + B + C + D + E + F)$ and shall not be less than 0% nor greater than 13%.

If ITEM58 – Deck	≤ 3	then	A = 5%
	= 4		A = 3%
	= 5		A = 1%
If ITEM67 – Structural Evaluation	≤ 3	then	B = 4%
	= 4		B = 2%
	= 5		B = 1%
If ITEM68 – Deck Geometry	≤ 3	then	C = 4%
	= 4		C = 2%
	= 5		C = 1%
If ITEM69 – Underclearance	≤ 3	then	D = 4%
	= 4		D = 2%
	= 5		D = 1%
If ITEM71 – Waterway Adequacy	≤ 3	then	E = 4%
	= 4		E = 2%
	= 5		E = 1%
If ITEM72 – Approach Road Alignment	≤ 3	then	F = 4%
	= 4		F = 2%
	= 5		F = 1%

b. Width of Roadway Insufficiency (maximum 15%). Use the sections that apply:

(1) **For culverts** (ITEM51 = 0, ITEM43B = 19)

For 1 or 2 Lanes on a Culvert (ITEM28A = 1 or 2) then Y = 18

For 3 Lanes on a Culvert (ITEM28A = 3) then Y = 12

For 4 or More Lanes on a Culvert (ITEM28A \geq 4) then Y = 9

(2) **For all bridges** (ITEM43B \neq 19)

Determine X (ADT/lane) and Y (width/lane):

$$X = (\text{ITEM29} - \text{ADT}) / (\text{ITEM28A} - \text{Lanes On Structure})$$

$$Y = (\text{ITEM51} - \text{Bridge Rdwy. Width}) / (\text{ITEM28A} - \text{Lanes On Structure})$$

If (ITEM51 + 2 ft.) < ITEM32 then **G** = 5%

(3) **For 1-lane bridges only** (ITEM28A = 01)

If $Y < 14$ then H=15%

$$14 \leq Y < 18 \quad H = 15 \left(\frac{18-Y}{4} \right) \%$$

$Y > 18$ H = 0%



(4) For 2 or more lane bridges.

If these limits apply, do not continue to (5) as no lane width reductions are allowed.

If ITEM28A = 02 and $Y \geq 16$	then	$H = 0\%$
If ITEM28A = 03 and $Y \geq 15$		$H = 0\%$
If ITEM28A = 04 and $Y \geq 14$		$H = 0\%$
If ITEM28A ≥ 05 and $Y \geq 12$,		$H = 0\%$

(5) For all except 1-lane bridges, use the following:

If $Y < 9$ and $X > 50$	then	$H = 15\%$
$Y < 9$ and $X > 50$		$H = 7.5\%$
$Y > 9$ and $X > 50$		$H = 0\%$

If $50 < X \leq 125$ and $Y < 10$	then	$H = 15\%$
$10 \leq Y < 13$		$H = 15 \left(\frac{13-Y}{3} \right) \%$
$Y \geq 13$		$H = 0\%$

If $125 < X \leq 375$ and $Y < 11$	then	$H = 15\%$
$11 \leq Y < 14$		$H = 15 \left(\frac{14-Y}{3} \right) \%$
$Y \geq 14$		$H = 0\%$

If $375 < X \leq 1350$ and $Y < 12$	then	$H = 15\%$
$12 \leq Y < 16$		$H = 15 \left(\frac{16-Y}{4} \right) \%$
$Y \geq 16$		$H = 0\%$

If $1350 < X$ and $Y < 15$	then	$H = 15\%$
$15 \leq Y < 16$		$H = 15 \left(\frac{16-Y}{4} \right) \%$
$Y \geq 16$		$H = 0\%$

c. Vertical Clearance Insufficiency (maximum 2%)

If ITEM100 > 0 and ITEM53 ≥ 16	then	$I = 0\%$
ITEM53 < 16		$I = 2\%$
If ITEM100 = 0 and ITEM53 ≥ 14	then	$I = 0\%$
ITEM53 < 14		$I = 2\%$



S3 - ESSENTIALITY FOR PUBLIC USE (MAXIMUM 15%)

Factor $S_3 = 15 - (A + B)$, and shall not be less than 0% nor greater than 15%.

- a. Determine K where:

$$K = \frac{S_1 + S_2}{85}$$

- b. Calculate A where:

$$A = \frac{(ITEM29) * (ITEM19) * 15}{200,000 * K}$$

A shall not be less than 0% nor greater than 15%.

- c. Defense Highway Designation:

If $ITEM100 > 0$ then $B = 2\%$

$ITEM100 = 0$ then $B = 0\%$

S4 - SPECIAL REDUCTIONS (USE ONLY WHEN $S_1 + S_2 + S_3 > 50$)

Factor $S_4 = A + B + C$, and shall not be less than 0% nor greater than 13%.

- a. Detour Length Reduction, use the following:

$$A = (ITEM19) * (5.205 * 10^{-8})$$

A shall not be less than 0% or greater than 5%.

- b. If $ITEM43B = 10, 12, 13, 14, 15, 16$ or 17 then $B = 5\%$

- c. If 2 digits of $ITEM36 = 0$ then $C = 1\%$

If 3 digits of $ITEM36 = 0$ $C = 2\%$

If 4 digits of $ITEM36 = 0$ $C = 3\%$



Appendix K – Structurally Deficient / Functionally Obsolete Determination

Appendix K contains steps to determine if a structure is Structurally Deficient or Functionally Obsolete. To be considered for either the structurally deficient or functionally obsolete classification, the first digit of ITEM5 must be coded “1”, and ITEM49 must be coded numeric and > 20 feet. In addition, the following conditions must exist:

To be designated as **Structurally Deficient** either of the (2) conditions must be met:

1. A condition rating of 4 or less for either:

- ITEM58 – Deck
- ITEM59 – Superstructures
- ITEM60 – Substructures
- ITEM62 – Culverts

2. An appraisal rating of 2 or less for either:

- ITEM67 – Structural Condition
- ITEM71 – Waterway Adequacy¹

A bridge classified as structurally deficient is excluded from the functionally obsolete category.

To be designated as **Functionally Obsolete** either of the (2) conditions must be met:

1. An appraisal rating of 3 or less for either:

- ITEM68 – Deck Geometry
- ITEM69 – Underclearances²
- ITEM72 – Approach Roadway Alignment.

2. An appraisal rating of 3 for:

- ITEM67 – Structural Condition
- ITEM71 – Waterway Adequacy²

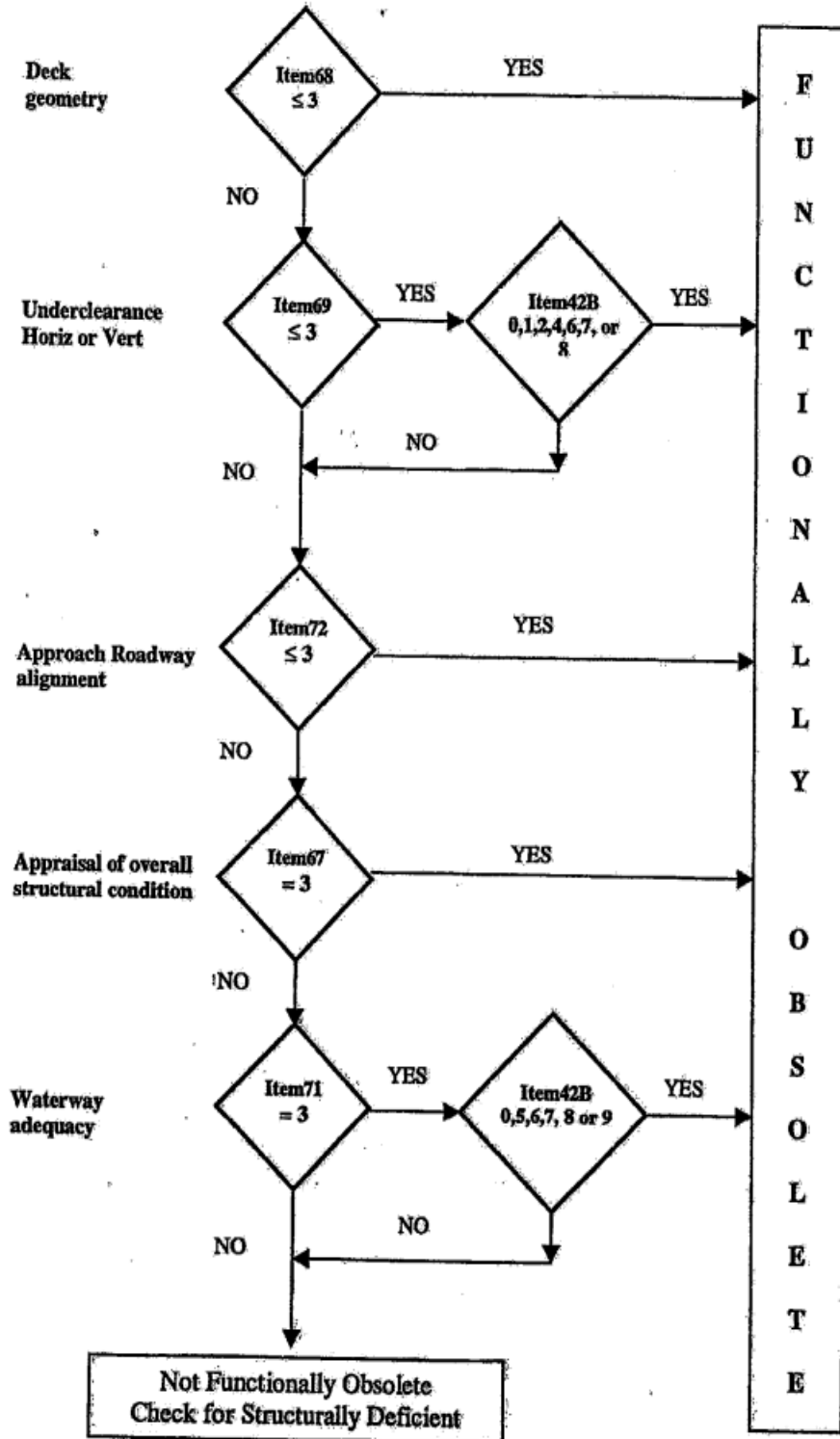
¹ ITEM71 applies only if ITEM42B = 0, 5, 6, 7, 8 or 9.

² ITEM69 applies only if ITEM42B = 0, 1, 2, 4, 6, 7 or 8.



BMU 02/03/99

National Bridge Inventory System
Condition Items that determine Functional Obsolescence



Note: A structure designated as Structurally Deficient cannot also be designated as Functionally Obsolete.



Appendix L – Bridge Examples

Appendix L contains reports, Rating Summary Sheets, and sketches for Bridge A and Bridge B examples used throughout the coding guide.



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

Bridge Key: BridgeA Inspection Date: 05/18/2022 Suff Rating: 49.0 FO G/F/P Condition: Good

NBI Reporting ID:	BridgeA	Main Mat/Desgn 43A/B:	6	2	Bridge Cost 94:	
District (Region/Sect):	Reg 1 MSec 5	Appr Mat/Desgn 44A/B:	0	0	Roadway Cost 95:	
Tran Region 2T:	02	Main Spans Unit 45:	13		Total Cost 96:	
County Code 3:	031	Approach Spans 46:	0		Year of Cost Estimate 97:	
031 DENVER		Horiz Clr 47:	21.00 ft		Brdr Brdg Code/% 98A/B:	-2
Place Code 4:	20000	Max Span 48:	146.0 ft		Border Bridge Number 99:	
DENVER		Str Length 49:	1515 ft		Defense Highway 100:	2
Rte.(On/Under) 5A:	1	Curb Width L/R 50A/B:	8.0 ft	0.0 ft	Parallel Structure 101:	N
Signing Prefix 5B:	2	Width Curb to Curb 51:	21.00 ft		Direction of Traffic 102:	1
Level of Service 5C:	7	Width Out to Out 52:	33.0 ft		Temporary Structure 103:	!
Direction Suffix 5E:	0	Deck Area:	49995		Highway Systems 104:	1
Feature Intersected 6:		Min Clr Ovr Brdg 53:	99.99		Fed Lands Hlwy 105:	0
I25 ML US40 ML PLTE RVR		Min Undrcir Ref 54A:	H		Year Reconstructed 106:	
Facility Carried 7:		Min Underclr 54B:	16.417		Deck Type 107:	1
US 40 ON RAMP		Min Lat Clmce Ref R 55A:	H		Wearing Surface 108A:	6
Alias Str No.8A:		Min Lat Undrcir R 55B:	0.0 ft		Membrane 108B:	2
D-03-V-230		Min Lat Undrcir L 56:	0.0 ft		Deck Protection 108C:	1
Prll Str No. 8P:		Deck 58:	7		Truck ADT 109:	3.00 %
		Super 59:	8		Trk Net 110:	1
Location 9:		Sub 60:	7		Pier Protection 111:	!
WB COLFAX RAMP OVER I25		Channel/Protection 61:	8		NBIS Length 112:	Y
Max Clr 10:	99.99	Culvert 62:	N		Scour Critical 113:	8
BaseHlwy Net12:	1	Oprtg Rtg Method 63:	1 LF Load Fact:		Scour Watch 113M:	N
IrsinvRout 13A:	000000000040C	Operating Rating 64:	37.00		Future ADT 114:	54,390
IrrsubRout No13B:	00	Operating Factor 64:	-		Year of Future ADT 115:	2040
Latitude 16:	39d 44' 26.36"	Inv Rtg Method 65:	1 LF Load Fact:		CDOT Str Type 120A:	CPGC
Longitude 17:	105d 01' 0.81"	Inventory Rating 66:	14.60		CDOT Constr Type 120B:	33
Detour Length 19:	0.63 mi	Inventory Factor 66:	-		Expansion Dev/Type 124:	X
Toll Facility 20:	3	Asph/Fill Thick 66T:	2.0 in		Brdg Rail Type/Mod 125A/B:	R 1
Custodian 21:	01	Str. Evaluation 67:	3		Posting Trucks 129A/B/C:	55.4 59.4 59.1
Owner 22:	01	Deck Geometry 68:	5		Str Rating Date 130:	04/12/2022
Functional Class 26:	14	Undrcir Vert/Hor 69:	3		Within 1 Mile:	YES
Year Built 27:	1987	Posting 70:	5 At/Above Lega		Special Equip 133:	88.00
Lanes On 28A:	1	Waterway Adequacy 71:	9		Vert Clr N/E 134A/B/C:	X
Lanes Under 28B:	22	Approach Alignment 72:	6		Vert Clr S/W 135A/B/C:	W 99.99 0.00
ADT 29:	49,000	Type Of Work 75A:	35		Vertical Clr Date:	07/08/2018
Year of ADT 30:	2020	Work Done By 75B:	1		Weight Limit Color 139:	0, White
Design Load 31:	6 MS18(HS20)+mod	Length of Improvement 76:	1515 ft		Userkey 1, Insp System:	ONSYS
Apr Rdwy Width 32:	21.00 ft	Insp Team Indicator 90B:	WHITE TEAM		Userkey 4, Insp Sched:	EVN MAY B19
Median 33:	0	Inspector Name 90C:	JONESB		Userkey 5, UW Sched:	
Skew 34:	99 °	Frequency 91:	24 months		Userkey 6, Pin Sched:	
Structure Flared 35:	0	FC Frequency 92A:			FHWA Bridge Risk:	LOW
Sfty Rail 36a/b/c/d:	1 1 1 1	UW Frequency 92B:			FHWA UW Risk:	NA
Rail ht36h:	34.0 in	SI Frequency (Pin) 92C:			FHWA Load Rating Risk:	HIGH
Hist Signif 37:	5	FC Inspection Date 93A:			CBTE:	NA
Posting status 41:	A	UW Inspection Date 93B:			Inspection Key:	XYGR
Service on/un 42A/B:	5 8	SI Date (Pin) 93C:			Date Entered:	8/23/2022 12:00
					Entered By:	SMITHA

Inspection Type: Regular NBI
EOR: Unknown

Data Responsibility: Asset Management Inspection Rating



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C _
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

Element Inspection Report

Elm/Env	Description	Unit	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
12/4	Re Concrete Deck	sq.ft	49563	100%	49355	0%	206	0%	2	0%	0

Covered with asphalt.
Drain grates are clogged.

Underside:
Metal stay in place deck forms.
R1 corrosion on the bottom panels with connection to Girders.

510/4	Wearing Surfaces	sq.ft	32025	20%	6405	80%	25620	0%	0	0%	0
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2 inches of asphalt. New asphalt prior to 2016 inspection on Spans 1 - 4.
Longitudinal, transverse, and random cracks (open to 0.5 inch) throughout, see 2016 photo.
80 percent of the deck is cracked.
Span 3 has a few spots of heavier raveling/future potholes.
16 inch Long x 4 foot wide pothole on the left side forward of Pier 5.

520/4	Conc Re Prot Sys	sq.ft	49563	100%	49563	0%	0	0%	0	0%	0
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Coated rebar.

1120/4	Efflorescence/Rust Sta	sq.ft	208	0%	0	99%	206	1%	2	0%	0
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Light transverse cracking with some efflorescence in the deck overhangs, especially at piers.
Roughly 10 cracks at each pier and 6 per span.
Efflorescence and rust staining at Pier 5 in the left overhang.

109/4	Pre Opn Conc Girder/Bear	ft	5700	100%	5684	0%	16	0%	0	0%	0
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Water staining in places along the exteriors.
Minor spall in Girder 4A.
Scrape mark on Girder 6A.
Small spall in bottom flange of Girder 10C exposing rebar, near Pier 11.
Spalling of the edges of most girders in Span 10 near Pier 11.
0.005 inch wide cracking in bottom flanges of most girder ends, near Piers 11 and 12.

521/4	Conc Prot Coating	sq.ft	1	100%	1	0%	0	0%	0	0%	0
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Peeling at various locations of concrete bridge rails, and on girders.
Coating on girders in Span 1 - 4 is lighter in color.
Darker color for girders from Spans 5 -13.

205/4	Re Conc Column	each	6	100%	6	0%	0	0%	0	0%	0
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(2) columns at Pier 5, and (1) each at Piers 1, 2, 3, and 4.
Shrinkage cracks throughout.
Left side of Column 1A is chipped at 64 inches high.
There is a 5 inch x 2 inch x 2 inch void in the bottom of Pier 3 on the left.
The concrete coating is beginning to peel.

521/4	Conc Prot Coating	sq.ft	1	100%	1	0%	0	0%	0	0%	0
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Peeling at Pier 2.
Heavy water staining on left end of Pier 5 Cap.
Peeling off of Pier 6 Cap.
Many areas where concrete coating is peeling away along hairline cracks in Pier Walls 10 - 12.

210/4	Re Conc Pier Wall	ft	78	100%	78	0%	0	0%	0	0%	0
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Walls at Piers 6 - 14.
Hairline shrinkage cracks in most pier walls.

234/4	Re Conc Pier Cap	ft	330	96%	315	4%	12	1%	3	0%	0
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Delamination and spalling on bottom of Pier 1 Cap, with some exposed rebar. The left end of the bottom face has been patched.
Cap at Pier 2 is heavily waterstained and has some efflorescence.
There are some rust spots on Pier 5 Cap and is heavily waterstained.
Pier 8 Cap has efflorescence under Bay A on both sides of the cap.

Pier table caps 11 and 12 were evaluated on 11/10/2002, 10/7/2006 and 07/01/2018 with use of CDOT snooper/A-40.
Recommend using CDOT Below Bridge Access Vehicle every six years for inspecting table caps at Piers 11 and 12.



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

Efflorescence along the perimeter of both caps.
Map cracks throughout Pier Cap 11 and 12.
Shear cracks in all corners of both Pier Cap 11 and 12.
Appearance of coating cracks are worse than actual concrete cracks.
Longitudinal crack with efflorescence and rust in Pier Cap 12 in Bay 12C from the pier to the end of the Pier Cap, similar in Pier Cap 11 in Bay 10C.
Longitudinal cracks with efflorescence in Pier Cap 12 Bay 11 up to 2 feet long in every bay.

300/4	Strip Seal Exp Joint	ft	63	0%	0	100%	63	0%	0	0%	0
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Joints are above Piers 5 and 8 and above both ends of table cap at Piers 11 and 12 ((2) per pier).
Strip seal joint at Pier 2 quantity accounted for in structure F-16-JX.
Joints were replaced prior to 2018 inspection, see 2018 photo.
Joint above Pier 5 is opened up to 2 inch wide.
Joint above Pier 8 is opened up to 1.75 inches wide.
Longitudinal cracking in headers in all joints.
Glands are filled with dirt.

302/4	Compression Joint Seal	ft	24	100%	24	0%	0	0%	0	0%	0
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Foam type compression joint seals on sidewalks above east end of Pier 11 and both ends of table cap at Pier 12.
All are open about 2 inches.

303/4	Assem Jnt With Seal	ft	84	100%	84	0%	0	0%	0	0%	0
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Modular joint above Pier 14.

310/4	Elastomeric Bearing	each	96	100%	96	0%	0	0%	0	0%	0
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No significant defects noted. The following notes were migrated from the 9309 element in 2023. Inspector must review and reconcile the notes and quantities during the next inspection. No significant defects noted.

322/4	Approach Roadway	(EA)	1	100%	1	0%	0	0%	0	0%	0
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Limited sight distance due to horizontal and vertical curves.

329/4	Sidewalk/Median/Curb	(LF)	1525	98%	1490	2%	35	0%	0	0%	0
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Light - moderate scale at various locations, deeper at Pier 5 on left edge for 6 feet, and in Span 5.
Map cracking at Pier 12.
Joint cover plates missing in a few locations.

331/4	Re Conc Bridge Railing	ft	2208	67%	1472	33%	736	0%	0	0%	0
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Vertical cracking throughout spaced about 3 feet apart.

333/4	Other Bridge Railing	ft	1899	96%	1825	1%	16	3%	58	0%	0
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2 Feet high concrete parapet, with 8 feet high chain link pedestrian fence, on left.
Chain link fence (3 feet high) on concrete jersey barrier at right, above Span 11.
Light vertical cracking throughout in concrete portions.
R1 corrosion on all post at base.
Rail posts in Spans 3 and 4 have R2 - R3 corrosion at the base, see 2016 photo.
About 50 feet is leaning in Span 4, see 2016 photo.
4 Feet high metal screen on right jersey barrier, above Spans 6 and 7 and 7 and 8. Missing panels were replaced but are not matching and some are lose.

343/4	Pole Attachment	(EA)	3	100%	3	0%	0	0%	0	0%	0
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Luminaires on left side near Piers 1, 3, and 5.

501/4	Channel/Bank	(EA)	3	100%	3	0%	0	0%	0	0%	0
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South Platte River.
Mud, silt and rock channel. The following notes were migrated from the 9502 element in 2023. Inspector must review and reconcile the notes and quantities during the next inspection. Riprap on banks under structure. The following notes were migrated from the 9504 element in 2023. Inspector must review and reconcile the notes and quantities during the next inspection. Well defined banks with trees and some vegetation.

Inspection References and Definitions:

CDOT_SIA v12 - 03/05/2023	Structure ID: BridgeA	Wed 07/12/2023 13:21:43 Page 4 of 6
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Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C _
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

Crack Width Descriptions for Reinforced Concrete:

Insignificant cracking (in.) = Less than 0.012" wide
Medium cracking (in.) = 0.012" to 0.05" wide
Wide cracking (in.) = Greater than 0.05" wide

Rust Codes (R Codes):

R1 = Peeling of the paint, pitting, surface rust, etc., no measurable section loss.
R2 = Flaking, minor section loss (< 10% thickness loss).
R3 = Flaking, swelling, mod section loss (10% < thickness loss <30%).
R4 = Heavy section loss (> 30% thickness loss), may have holes through base metal.

Crack Width Descriptions for Prestressed Concrete:

Insignificant cracking (in.) = Less than 0.004" wide
Medium cracking (in.) = 0.004" to 0.009" wide
Wide cracking (in.) = Greater than 0.009" wide

Concrete Scaling Codes (S Codes):

S1 = Scale up to 0.25" deep.
S2 = Scale up to 0.5" deep or has exposed aggregate.
S3 = Scale up to 1" deep or has loose or missing aggregate.
S4 = Scale > 1" deep or has exposed reinforcing bars with section loss or general disintegration of the concrete.

Pattern Crack Spacing:

Medium pattern cracks = 1-3 feet
Heavy pattern cracks = < 1 foot

Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Priority
352.01	Drain-Cln/Clr Dck Drain/Dwnspout	5/12/2016	_	2024	High

Clean out deck drains that are clogged, to prevent water from ponding on deck, and leaking above traffic, especially at Pier 9.

353.08	Deck-Seal	5/12/2016	_	2024	High
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Seal cracks in asphalt surface.

356.01	Fencing	5/1/2018	_	2024	High
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Repair chain link fence in Span 4.

Bridge Notes (Inspection > Inventory > Admin)

Inventory route is west to east.
South side is upstream.
Superstructure is named Girder A through E from north to south.
Substructure is numbered 1 to 14 from west to east.

Joins ML structure in Span 4. BridgeA ends at P14 joint just east of 1st St where BridgeB begins.

Inspection Notes (Inspection > Condition)



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C _
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

5/01/2018
TIME: 10:50 AM TEMPERATURE: 65 degrees WEATHER: Clear
TEAM: A.Smith/B.Jones

A40 Inspection
TIME: 7:00 AM TEMPERATURE: 56 degrees WEATHER: Clear
TEAM: A.Smith/B.Jones

Scour Item 113 Documentation (Inspection > CDOT Bridge)
BridgeA SCOUR HISTORIC113 1993.pdf

Bat Present At Bridge (Inspection > Inventory > Agency Items > userkey9)
-1

Inspection Access Requirements (Inspection > CDOT Bridge)
Unable to inspect Pier Cap 11 in Span 11, Lane 1 southbound I-25 and right shoulder closure is needed in order to inspect with the Below Bridge Access Vehicle. Should be inspected with the A40 in 2024.

RTD shall be notified when there is a lane closure on this bridge.
Lindsey Smith
Lindsey.Smith@RTD-Denver.com
303-299-6561

Greg Wing
Greg.Wing@RTD-Denver.com
303-299-6578

Marisela Quiroz
Marisela.Quiroz@RTD-Denver.com
303-299-6570

Derek Rice
Derek.Rice@RTD-Denver.com
303-299-6259

Needs A40 for Pier Cap inspection

Scheduling Notes (Inspection > Schedule)
01/05/2009: Routine Inspection Interval reduced from 48 months to 24 months due to no longer meeting 48-month interval criteria



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 040C _
Mile Post (ON) 11: 296.310 mi
Linear Ref. Sys. MP: 0.938 mi

Scope:

NBI Element Underwater Fracture Critical Other Type: Regular NBI

Team Leader Inspection Check-off:

FCM's Vertical Clearance
 Posting Signs Stream Bed Profile
 Essential Repair Verification

Inspection Team: WHITE TEAM

Inspection Date: 05/18/2022

Inspector: ANDREW SMITH

Inspector (Team Leader): BETH JONES

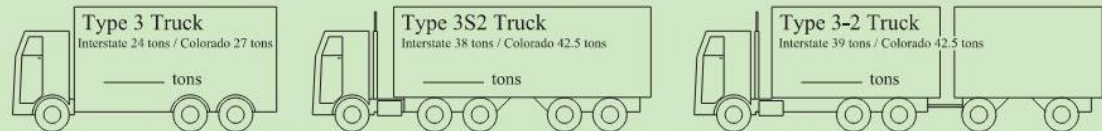


COLORADO DEPARTMENT OF TRANSPORTATION LOAD FACTOR RATING SUMMARY		Structure #	BRIDGE A
Rated using: Asphalt thickness: <u>3</u> in. <input checked="" type="checkbox"/> Colorado legal loads <input type="checkbox"/> Interstate legal loads		State Highway #	US 40 ON RAMP
<input checked="" type="checkbox"/> Multi-lane for Legal & Permit Vehicles <input type="checkbox"/> Single lane for Legal & Permit Vehicles		Batch I.D.	4977
		Structure Type	CPGC
		Parallel Structure #	None

Structural Member	Unit2 G-B(I)	Unit2 G-C(E)	Sp. 8J G-B(I)	Sp. 8J G-C(E)	R/C Deck & NSG
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	Tons				
Inventory	15.1	14.6	17.1	19.4	30.2
Operating	56.0	62.6	37.0	46.2	50.4

Type 3 truck	72.6	84.3	55.4	69.9	
Type 3S2 truck	92.8	107.8	59.4	74.8	
Type 3-2 truck	90.5	105.1	59.1	74.5	
Type SU4 truck (27T)	72.5	84.2	55.4	69.8	
Type SU5 truck (31T)	74.6	86.6	55.6	70.1	
Type SU6 truck (35T)	75.2	87.3	55.7	70.2	
Type SU7 truck (39T)	76.9	89.3	56.0	70.5	
NRL (40T)	76.2	88.5	55.8	70.3	
EV2 (28.75T)	74.3	86.3	55.5	69.9	
EV3 (43T)	73.7	85.6	55.7	70.1	
Permit Truck (96T)	114.1	127.5	68.5	86.3	109.1
Modified Tandem (50T)	78.5	91.1	55.9	70.4	



Comments:
 13 Span bridge. 5 total superstructure units. Spans 1-4 in sketch are widening of F-16-JX, not F-16-NW. # of girders, girder type, girder spacing, span lengths, materials, jacking force vary per span. Controlling girders reported.
 All Girders have Inventory Rating less than 1.0. NSG analysis found all permit truck rating factors > 1.0. Span 8J Exterior Girder G-C controls in Concrete Compressive Strength.
 No Posting Required. Color Code = White.
 Rated by: Company A
 Girders rated using AASHTOWare BrR version 6.8.4.3002.

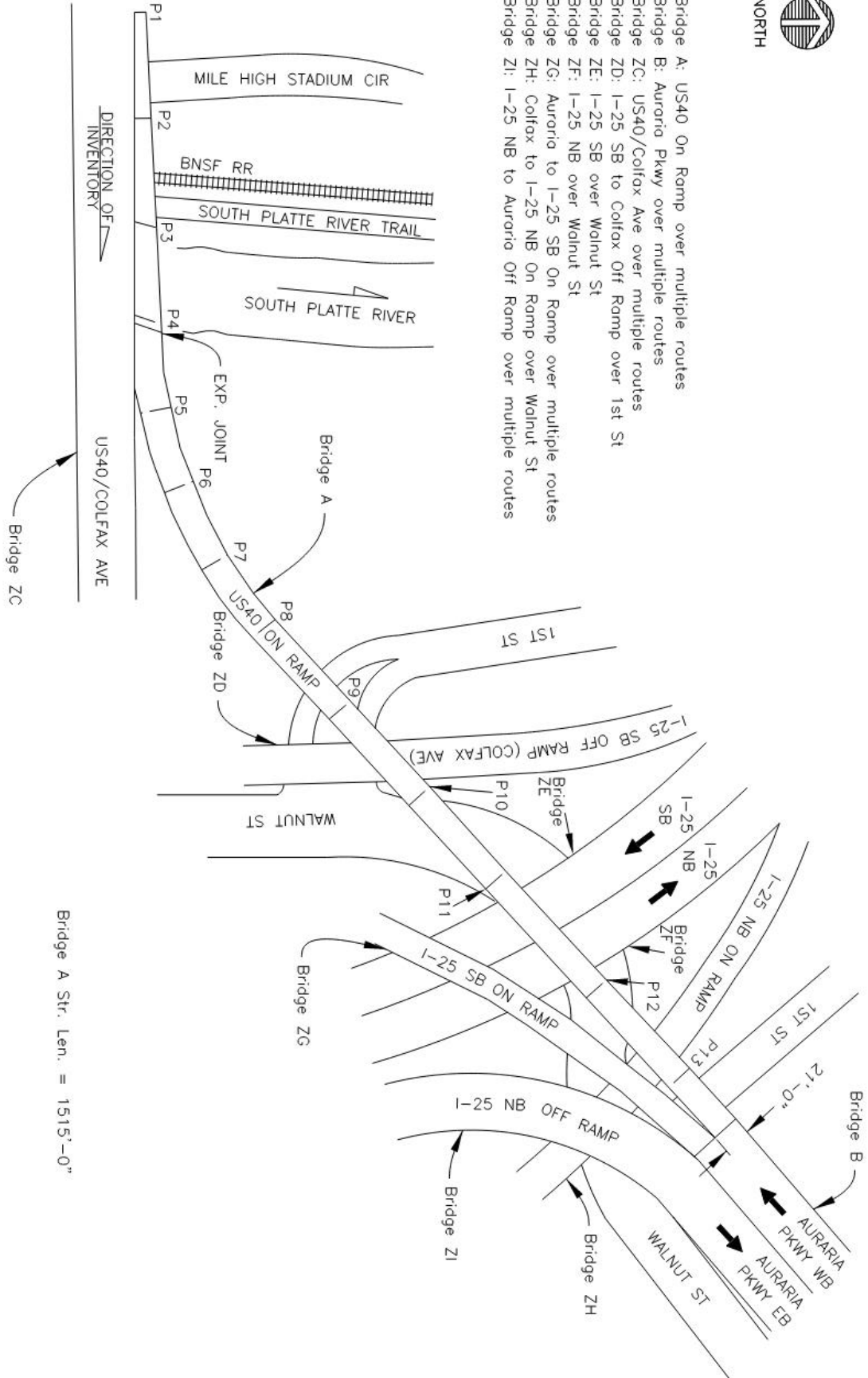
Stamp Date 4/12/22

Rated by: Andrew B. Smith	Date: 4/12/22	Checked by: Beth Jones	Date: 4/28/22
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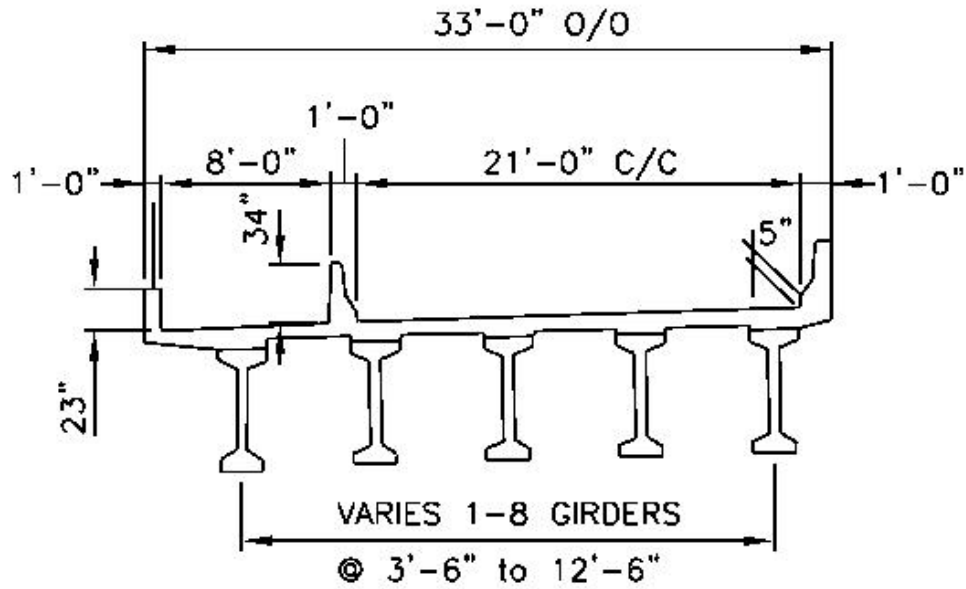
- Bridge A: US40 On Ramp over multiple routes
- Bridge B: Aurora Pkwy over multiple routes
- Bridge ZC: US40/Colfax Ave over multiple routes
- Bridge ZD: I-25 SB to Colfax Off Ramp over 1st St
- Bridge ZE: I-25 SB over Walnut St
- Bridge ZF: I-25 NB over Walnut St
- Bridge ZG: Aurora to I-25 SB On Ramp over multiple routes
- Bridge ZH: Colfax to I-25 NB On Ramp over Walnut St
- Bridge ZI: I-25 NB to Aurora Off Ramp over multiple routes

PLAN





Bridge A: Section

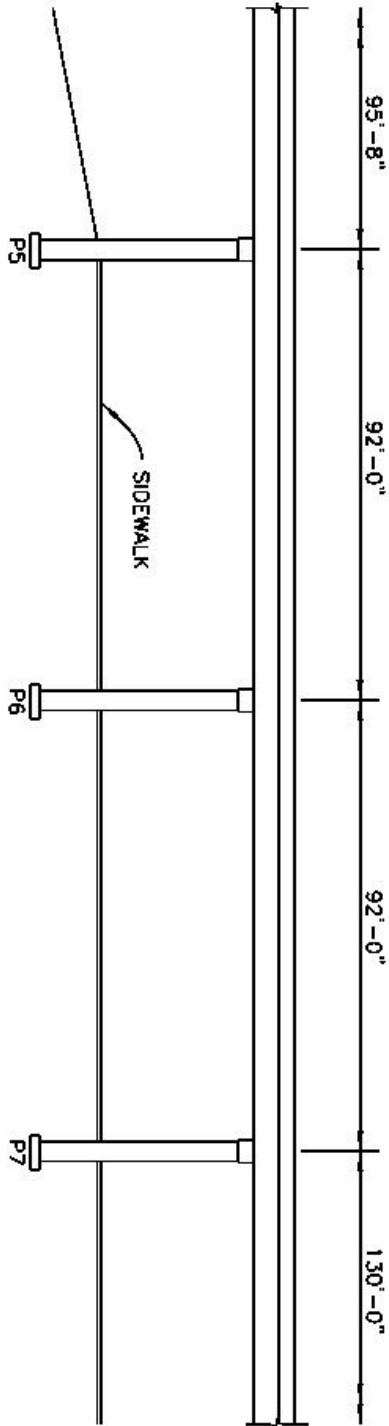


SECTION
LOOKING EAST

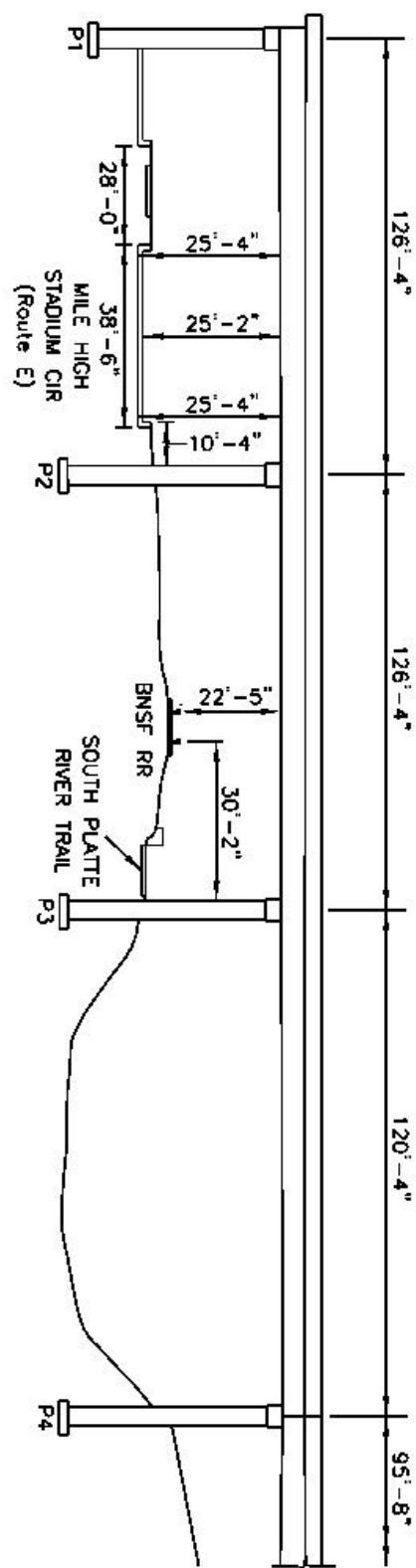


Bridge A: Elevation

ELEVATION
LOOKING NORTH, SPANS 4-7



ELEVATION
LOOKING NORTH, SPANS 1-4





Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
Linear Ref. Sys. MP: 0.704 mi

Bridge Key: BridgeB Inspection Date: 10/30/2022 Suff Rating: 78.3 FO G/F/P Condition: Good

NBI Reporting ID:	BridgeB	Main Mat/Desgn 43A/B:	6	05	Bridge Cost 94:	
District (Region/Sect):	Reg 1 MSec 5	Aprr Mat/Desgn 44A/B:	0	0	Roadway Cost 95:	
Tran Region 2T:	02	Main Spans Unit 45:	8		Total Cost 96:	
County Code 3:	031	Approach Spans 46:	0		Year of Cost Estimate 97:	
031 DENVER		Horiz Clr 47:	40.00	ft	Brdr Brdg Code/% 98A/B:	-2 0.00
Place Code 4:	20000	Max Span 48:	131.5	ft	Border Bridge Number 99:	
DENVER		Str Length 49:	946.1	ft	Defense Highway 100:	2
Rte.(On/Under) 5A:	1	Curb Width L/R 50A/B:	8.0	ft 0.0	Parallel Structure 101:	L
Signing Prefix 5B:	5	Width Curb to Curb 51:	40.00	ft	Direction of Traffic 102:	1
Level of Service 5C:	7	Width Out to Out 52:	51.3	ft	Temporary Structure 103:	!
Direction Suffix 5E:	0	Deck Area:	48535		Highway Systems 104:	1
Feature Intersected 6:		Min Clr Ovr Brdg 53:	99.99		Fed Lands Hiway 105:	0
5TH STREET BNSF RR RTD		Min Undrcrlr Ref 54A:	H		Year Reconstructed 106:	
Facility Carried 7:		Min Underclr 54B:	17.4	ft	Deck Type 107:	1
WB AURARIA PKWY		Min Lat Clrnce Ref R 55A:	R		Wearing Surface 108A:	6
Alias Str No.8A:		Min Lat Undrcrlr R 55B:	10.0	ft	Membrane 108B:	2
FORMERLY CDOT #F-16-MW		Min Lat Undrcrlr L 56:	0.0	ft	Deck Protection 108C:	1
Prll Str No. 8P:		Deck 58:	7		Truck ADT 109:	6.00 %
BRIDGE I		Super 59:	8		Trk Net 110:	0
Location 9:		Sub 60:	7		Pier Protection 111:	!
WB AURARIA PKWY AT I25		Channel/Protection 61:	N		NBIS Length 112:	Y
Max Clr 10:	99.99	Culvert 62:	N		Scour Critical 113:	N
BaseHlway Net12:	0	Oprtg Rtg Method 63:	1	LF Load Fact	Scour Watch 113M:	!
IrsinvRout 13A:	031-0-2013	Operating Rating 64:	63.80		Future ADT 114:	14,164
IrsSubRout No13B:	00	Operating Factor 64:	-		Year of Future ADT 115:	2041
Latitude 16:	39d 44' 33.67"	Inv Rtg Method 65:	1	LF Load Fact	CDOT Str Type 120A:	CBGCP
Longitude 17:	105d 00' 49.14"	Inventory Rating 66:	38.30		CDOT Constr Type 120B:	10
Detour Length 19:	0.68 mi	Inventory Factor 66:	-		Expansion Dev/Type 124:	D
Toll Facility 20:	3	Asph/Fill Thick 66T:	2.0	in	Brdg Rail Type/Mod 125A/B:	R 0
Custodian 21:	04	Str. Evaluation 67:	7		Posting Trucks 129A/B/C:	- - -
Owner 22:	04	Deck Geometry 68:	5		Str Rating Date 130:	10/27/1998
Functional Class 26:	14	Undrcrlr Vert/Hor 69:	3		Within 1 Mile:	YES
Year Built 27:	1987	Posting 70:	5	At/Above Lega	Special Equip 133:	88.00
Lanes On 28A:	3	Waterway Adequacy 71:	N		Vert Clr N/E 134A/B/C:	X
Lanes Under 28B:	2	Approach Alignment 72:	8		Vert Clr S/W 135A/B/C:	W 99.99 0.00
ADT 29:	12,760	Type Of Work 75A:	38		Vertical Clr Date:	10/30/2022
Year of ADT 30:	2021	Work Done By 75B:	1		Weight Limit Color 139:	Not Applicable
Design Load 31:	6 MS18(HS20)+mod	Length of Improvement 76:	110		Userkey 1, Insp System:	OFFSYS
Apr Rdwy Width 32:	40.00 ft	Insp Team Indicator 90B:	COMPANYA		Userkey 4, Insp Sched:	ODD OCT C_0
Median 33:	0	Inspector Name 90C:	SMITHA		Userkey 5, UW Sched:	
Skew 34:	0 °	Frequency 91:	24	months	Userkey 6, Pin Sched:	
Structure Flared 35:	0	FC Frequency 92A:			FHWA Bridge Risk:	LOW
Sfty Rail 36a/b/c/d:	1 1 1 1	UW Frequency 92B:			FHWA UW Risk:	NA
Rail ht36h:	36.0 in	SI Frequency (Pin) 92C:			FHWA Load Rating Risk:	LOW
Hist Signif 37:	5	FC Inspection Date 93A:			CBTE:	NA
Posting status 41:	A	UW Inspection Date 93B:			Inspection Key:	XNGG
Service on/un 42A/B:	5 4	SI Date (Pin) 93C:			Date Entered:	11/11/2022 12:0
Inspection Type:	Regular NBI				Entered By:	JONESB
EOR:	Unknown					

Data Responsibility: Asset Management Inspection Rating



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
Linear Ref. Sys. MP: 0.704 mi

Load Rating:

Str Rating Date 130:	10/26/1998		
Posting status 41:	A Open, no restriction		
Posting 70:	5 At/Above Legal Loads		
Design Load 31:	6 MS18(HS20)+mod		
Posting Truck (Type 3):	Oprng Rtg Method (63):	1 LF Load Factor	
Posting Truck (Type 3S2):	Operating Rating (64):	63.80	
Posting Truck (Type 3-2):	Operating Factor (64):	-	
	Inv Rtg Method (65):	1 LF Load Factor	
	Inventory Rating (66):	38.30	
	Inventory Factor (66):	-	
Rating Package Review Date (066R):	12/31/1900	Asphalt Thickness (066T):	2.00
Rating Pack Reviewer (066RN):		Rating Asphalt Thickness (066TR):	
Rating Date:	10/26/1998	Design Method (031D):	U, Unknown
Rating Company (066C):		Plans Available (500):	N, Search not complete
Rater Ini:		Girder Operating Rating (066A):	
Raters Name (066N):		Controlling Inv. Rating Indicator (066SI):	A, Not checked
Checked Date (130C):	12/31/1900	Controlling Opr. Rating Indicator (066S):	A, Not checked
Checkers Initials (066J):		Overload Color Code (139):	Not Applicable
Checkers Name (066I):		Overload Color Code (139OVLDDL):	N, Not checked
Entire Structure Rated (066ESR):	N, Not checked	Permit Truck Opr. Rating (064PMT):	
Rating Calculations Complete (066CC):	N, Not checked	Modified Tandem Opr. Rating (064MTAN):	
Rating Input Files Archived (066IFA):	N, Not checked	Overload Critical Structure (139OVL):	A, Not checked
Rating Output Files Archived (066OFA):	N, Not checked	SHV-SU4 (064LT01):	-
Rating Package Complete (066RPC):	N, Not checked	SHV-SU5 (064LT02):	-
Rating Assigned To (066RA):		SHV-SU6 (064LT03):	-
Rating Software Used (066RS):	N, Not Assigned	SHV-SU7 (064LT04):	-
Virtis Bid Number (066VB):		SHV-NRL (064LT05):	-
Virtis Structure Number (066VSTR):		SHV-EV2 (064LT06):	-
Virtis Rating Runs (066VR):	N, Not checked	SHV-EV3 (064LT07):	-
Virtis Rating Analysis (066VA):	N, Not checked	Not Used (064LT08):	-
Virtis Rating System Based (066VSB):	N, Not checked	Not Used (064LT09):	-
Virtis Rating Linked To Pontis (066VL):	N, Not checked	Within 1 Mile (064LT10):	YES
Virtis Rating Checkout Privl. (066VCO):	N, Not checked		

Structure Comments (008COM):



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
Linear Ref. Sys. MP: 0.704 mi

Element Inspection Report

Elm/Env	Description	Unit	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
106/1	Re Concrete Top Flange	sq.ft	48535	99%	48291	1%	243	0%	1	0%	0

Top: Covered with overlay. Most drains are plugged.
Bottom: Only visible at overhangs; forms still in place inside girders.
Overhangs have insignificant transverse efflorescent cracks, mainly near piers (242SF CS2 - 1120).
Slab east end under north end of modular joint has 10 inch x 4 inch x 2 inch spall exposing vertical bars with R2 corrosion (1SF CS3 - 1090).
South overhang at Pier 5 has a 2 foot x 6 inch delamination (1SF CS2 - 1080).

510/1	Wearing Surfaces	sq.ft	37844	100%	37844	0%	0	0%	0	0%	0
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2 inch asphalt overlay prior to 2022 inspection. Pavement markings in good condition.

520/1	Conc Re Prot Sys	sq.ft	48535	100%	48535	0%	0	0%	0	0%	0
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Not visible.

1080/1	Delamination/Spall/Pat	sq.ft	1	0%	0	100%	1	0%	0	0%	0
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See Element 12 comments.

1090/1	Exposed Rebar	sq.ft	1	0%	0	0%	0	100%	1	0%	0
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See Element 12 comments.

1120/1	Efflorescence/Rust Sta	sq.ft	242	0%	0	100%	242	0%	0	0%	0
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See Element 12 comments.

104/1	Pre Clsd Box Girder	ft	4731	100%	4725	0%	6	0%	0	0%	0
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Exterior: Bottom faces at drains have water stains and efflorescence.
Span 8 bottom face has scrapes marks (CS1); north edge has minor chips (CS1); south face near mid-span has vertical efflorescent crack (1 FT CS2 - 1120).
Interior: Birds accessing boxes through drain locations; Girder E bottom covered with bird debris.
Interior webs have vertical efflorescence lines, appears to be from deck.
Interior diaphragms and girder web portals have insignificant cracks.
Span 3 post tensioning rod anchors have insignificant to medium cracks and exposed strands.
Girder 7B over Pier 8 has moisture stains near drain indicative of leaking.
Span 8 impact occurred prior to 2002 inspection (5FT CS2 - 7000).

521/1	Conc Prot Coating	sq.ft	4731	100%	4731	0%	0	0%	0	0%	0
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Dark gray coating on girders.

1120/1	Efflorescence/Rust Sta	ft	1	0%	0	100%	1	0%	0	0%	0
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See Element 104 comments.

7000/1	Damage	ft	5	0%	0	100%	5	0%	0	0%	0
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See Element 104 comments.

210/1	Re Conc Pier Wall	ft	132	100%	132	0%	0	0%	0	0%	0
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Pier 1 has (2) 10 foot long columns; Piers 2-8 each have (2) 8 foot long columns; Pier 2 has crash wall between columns.
Columns have insignificant vertical and horizontal cracks.

521/1	Conc Prot Coating	sq.ft	132	96%	127	4%	5	0%	0	0%	0
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Tan coating. Pier 8 coating peeling near ground line and drain pipe (5 SF CS2).

215/1	Re Conc Abutment	ft	51	96%	49	4%	2	0%	0	0%	0
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Only located at east end, Abutment 9.
Abutment has insignificant to medium vertical cracks (2FT CS2 - 1130).
Vertical construction joints between structures open up to 1/4 inch wide.

521/1	Conc Prot Coating	sq.ft	51	100%	51	0%	0	0%	0	0%	0
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Tan coating, light water stains. Graffiti paint over.

1130/1	Cracking (RC and Other)	ft	2	0%	0	100%	2	0%	0	0%	0
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See Element 215 comments.



Routine Inspection
Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
Linear Ref. Sys. MP: 0.704 mi

234/1	Re Conc Pier Cap	ft	82	96%	79	1%	1	0%	0	2%	2
<p>Hammerhead cap located at Pier 1 (72 feet total) and rectangular cap at Pier 3 overhangs (10 feet total). Pier 1 cap top has insignificant cracks; south face near top has 1 foot x 2 inch x 1 inch spall (1 FT CS2 - 1080). Pier 3 cap south bottom face is 1/3 spalled exposing (4) stirrups and several bars with R3 corrosion (2 FT CS4 - 1080).</p> <p>2022: CS4 defect has been reviewed by Benesch Program Engineer and does not affect the element or structure strength and/or serviceability. Quantity left in CS4 as a flag for next inspector to determine if defect has deteriorated more and will require another review.</p>											
521/1	Conc Prot Coating	sq.ft	82	100%	82	0%	0	0%	0	0%	0
Light water stains at P1 cap.											
1080/1	Delamination/Spall/Pat	ft	3	0%	0	33%	1	0%	0	67%	2
See Element 234 comments.											
303/1	Assem Jnt With Seal	ft	102	0%	0	24%	24	27%	28	49%	50
<p>Pier 1 has (4) seals; minor debris for full length (22LF CS2 - 2350). Pier 1 seal has separated from armor for half of south joint (25LF CS4 - 2320). Pier 1 joint armor has isolated R2 corrosion in roadway and sidewalk; north 2 feet has R3 corrosion (2LF CS3 - 2370). Pier 1 header south half has minor isolated delamination and spalls (2LF CS2 - 2360). Abutment 9 has (3) seals; moderate debris for full length (26LF CS3 - 2350). Abutment 9 seal has separated from armor for 50% of length (25LF CS4 - 2320); north end has active leakage onto wing. Abutment 9 joint header has minor delamination's and spalls and insignificant longitudinal cracks, covered by asphalt; east header has 20 inch x 16 inch x 1 inch spall, patched prior to 2022 inspection (overlapping quantity).</p>											
2320/1	Seal Adhesion	ft	50	0%	0	0%	0	0%	0	100%	50
See Element 303 comments.											
2350/1	Debris Impaction	ft	48	0%	0	46%	22	54%	26	0%	0
See Element 303 comments.											
2360/1	Adjacent Deck or Head	ft	2	0%	0	100%	2	0%	0	0%	0
See Element 303 comments.											
2370/1	Metal Deterioration or	ft	2	0%	0	0%	0	100%	2	0%	0
See Element 303 comments.											
310/1	Elastomeric Bearing	each	14	100%	14	0%	0	0%	0	0%	0
(8) at Pier 2 and (6) at A9. Minor extruding of neoprene. Minor debris around bearings at A9.											
314/1	Pot Bearing	each	10	100%	10	0%	0	0%	0	0%	0
(2) each at Piers 2, 3, 6, 7, and 8.											
321/1	Re Conc Approach Slab	sq.ft	800	100%	799	0%	0	0%	1	0%	0
<p>Located at east approach; covered with asphalt overlay. Slab west end under north end of modular joint has 10 inch x 4 inch x 2 inch spall exposing vertical bars with R2 corrosion (1SF CS3 - 1090).</p>											
510/1	Wearing Surfaces	sq.ft	800	100%	800	0%	0	0%	0	0%	0
New overlay prior to 2022 inspection.											
1090/1	Exposed Rebar	sq.ft	1	0%	0	0%	0	100%	1	0%	0
See Element 321 comments.											
322/1	Approach Roadway	(EA)	1	100%	1	0%	0	0%	0	0%	0
Straight alignment, 'Y' at east end of bridge where Auraria splits and continues over CDOT structures.											
323/1	Approach Railing	(EA)	7	100%	7	0%	0	0%	0	0%	0
West approach has (4) concrete jersey barriers and (1) attenuator at 'Y'; attenuator retracted due to impact.											



Routine Inspection
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Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
Linear Ref. Sys. MP: 0.704 mi

East approach has (2) concrete jersey barriers; southeast barrier settled 4 inches at joint.										
326/1	Bridge Wingwalls	(EA)	1	100%	1	0%	0	0%	0	0
Located at northeast corner.										
Wings has insignificant cracks; horizontal construction joint has minor delamination and spalls.										
329/1	Sidewalk/Median/Curb	(LF)	946	75%	710	25%	236	0%	0	0
Sidewalks over piers have insignificant to medium transverse and diagonal cracks (216SF CS2).										
Sidewalk over Pier 2 has 6 inch diameter patched spalls, cracked but sound (5SF CS2).										
Sidewalk over Pier 3 has 6 inch diameter patched spalls, cracked but sound (5SF CS2).										
Span 5 sidewalk has patched spalls (10SF CS2).										
330/1	Metal Bridge Railing	ft	1162	90%	1046	10%	116	0%	0	0
North edge 8 foot tall chain link fence (946 feet total) and south edge west end 8 foot tall chain link fence (216 feet total).										
Post lower 1 foot has R2 corrosion typical (116 FT CS2 - 1000).										
515/1	Steel Protective Coatin	sq.ft	1162	50%	581	40%	465	0%	0	10%
Black coating; minor peeling throughout (465FT - CS2).										
1000/1	Corrosion	ft	116	0%	0	100%	116	0%	0	0
See Element 330 comments.										
331/1	Re Conc Bridge Railing	ft	2838	50%	1410	50%	1428	0%	0	0
Concrete jersey barrier along roadway (1892 feet total); concrete parapet along sidewalk (946 feet total).										
Barriers and parapet have insignificant to medium vertical cracks at 1 to 2 foot spacing (1419FT CS2 - 1130).										
South barrier north face has vertical and horizontal chairs exposed due to poor cover (9FT CS2 - 1080); west end at several rail posts has insignificant 2 foot long horizontal cracks.										
521/1	Conc Prot Coating	sq.ft	1676	0%	0	0%	0	100%	1676	0%
Tan coating, stained under several rail posts.										
1080/1	Delamination/Spall/Pat	ft	9	0%	0	100%	9	0%	0	0
See Element 331 comments.										
1130/1	Cracking (RC and Othe	ft	1419	0%	0	100%	1419	0%	0	0
See Element 331 comments.										
342/1	Sign Attachment	(EA)	1	100%	1	0%	0	0%	0	0
CCTV camera mounted on pole on left side over P3.										
600/1	General Notes	(EA)	1	100%	1	0%	0	0%	0	0
West end (Pier 1) is also Pier 5 for CDOT structure F-16-NX and F-16-NW.										
Pipe from drain inlet is rusted out in Span 7.										

Inspection References and Definitions:

Crack Width Descriptions for Reinforced Concrete:

Insignificant cracking (in.) = Less than 0.012" wide
Medium cracking (in.) = 0.012" to 0.05" wide
Wide cracking (in.) = Greater than 0.05" wide

Crack Width Descriptions for Prestressed Concrete:

Insignificant cracking (in.) = Less than 0.004" wide
Medium cracking (in.) = 0.004" to 0.009" wide
Wide cracking (in.) = Greater than 0.009" wide

Pattern Crack Spacing:

Medium pattern cracks = 1-3 feet
Heavy pattern cracks = < 1 foot

Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Priority
--------------	-------------	-------------	--------	-------------	----------

Rust Codes (R Codes):

R1 = Peeling of the paint, pitting, surface rust, etc., no measurable section loss.
R2 = Flaking, minor section loss (< 10% thickness loss).
R3 = Flaking, swelling, mod section loss (10% < thickness loss < 30%).
R4 = Heavy section loss (> 30% thickness loss), may have holes through base metal.

Concrete Scaling Codes (S Codes):

S1 = Scale up to 0.25" deep.
S2 = Scale up to 0.5" deep or has exposed aggregate.
S3 = Scale up to 1" deep or has loose or missing aggregate.
S4 = Scale > 1" deep or has exposed reinforcing bars with section loss or general disintegration of the concrete.



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156.01	Deck-Seal	10/8/2018	1	2025	Medium
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Seal asphalt cracks in wearing surface.

306.10	Approach Railing	10/8/2020	1	2021	High
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Install rubber inserts in frame of crash cushion in roadway where it splits at P2. Reset or replace attenuator.

353.06	Drain-Cln/Clr Dck Drain/Dwnspout	10/8/2018	1	2024	High
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Clean plugged deck drains. Repair leaking drain on inside of Girder 7B over P8.

354.04	Superstructure-Rehab	10/8/2018	1	2025	Medium
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Remove formwork and debris inside box girders.

356.02	Deck-Repair Sidewalk	10/8/2018	1	2025	Medium
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Grind sidewalk to eliminate tripping concern at northeast.

357.02	Bearings-Clean Assemblies/Paint	10/8/2018	1	2025	Medium
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Remove debris adjacent to bearings.

364.01	Joints-Clean	10/8/2018	1	2024	High
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Repair expansion joint strip seals where they have worked out of joint. Clean dirt out of remainder of joint on an annual basis.

CDOT_SIA v12 - 03/05/2023	Structure ID: BridgeB	Wed 03/08/2023 18:37:52	Page 6 of 8
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Highway Number (ON) 5D: 00000 U
Mile Post (ON) 11: 0.704 mi
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364.01	Joints-Replace	10/8/2018	1	2024	High
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Consider replacing modular expansion joint at A9.

Bridge Notes (Inspection > Inventory > Admin)

Inventory route is west to east
Structure is not over waterway
Superstructure is named Girder A through E from north to south
Substructure (which starts with Pier 1, no Abutment 1) is numbered 1 to 9 from west to east
Bridge B begins at P1 joint just east of 1st street where Bridge A has 'Y' split for on ramps

2004: Spans 7 and 8 girder interiors accessed
2006: Spans 1 and 2 girder interiors accessed
2012: Spans 2, 6, 7, and 8 girder interiors accessed
2018: Girder interiors not accessed
2020: Spans 3, 7 and 8 girder interiors accessed
2022: Spans 2, 3, 7, and 8 girder interiors accessed

Inspection Notes (Inspection > Condition)

Date: 10-30-2022 Time: 11:30 Temp: 36 Degrees Weather: Clear, calm ABS/BCJ
Date: 11-28-2022 ABC revisited to inspect girder interiors.

Scour Item 113 Documentation (Inspection > CDOT Bridge)

BridgeB SCOUR Item 113 Screening Memo 2016 04 20.pdf

Bat Present At Bridge (Inspection > Inventory > Agency Items > userkey9)

NO

Inspection Access Requirements (Inspection > CDOT Bridge)

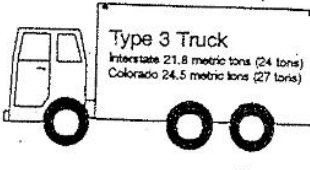
Spans 1-6 requires 40 foot bucket truck; 7/8 inch or 3/4 inch wrench required to open covers, use caution since covers open down toward inspectors.
Span 1 access requires railroad permit and flagger.
Span 5 access requires RTD permit and flagger.

Scheduling Notes (Inspection > Schedule)

10/30/2022: Routine Inspection moved from December to October to increase field efficiency.




COLORADO DEPARTMENT OF TRANSPORTATION LOAD FACTOR RATING SUMMARY				
Rated using <input type="checkbox"/> Asphalt thickness: 51 mm (2 in.) <input checked="" type="checkbox"/> Colorado legal loads <input type="checkbox"/> Interstate legal loads			Structure # <i>F1571V BRIDGE B</i>	
			State highway # <i>WB AURARIA PARKWAY</i>	
			Batch I.D. <i>I98014</i>	
			Structure type <i>CBGCP</i>	
			Parallel structure # <i>N/A</i>	
Structural member	<i>SLAB</i>	<i>GIR. (Pos'n) SPAN 1</i>	<i>GIR. (NEG) PIER 2</i>	
Metric tons (Tons)				
Inventory	34.7 (38.3)	47.3 (52.1)	64.8 (71.4)	()
Operating	57.9 (63.8)	78.7 (86.8)	107.9 (119)	()
Type 3 truck	()	()	()	()
Type 3S2 truck	()	()	()	()
Type 3-2 truck	()	()	()	()
Permit truck	()	()	()	()



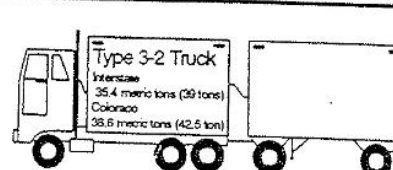
Type 3 Truck
Interstate 21.8 metric tons (24 tons)
Colorado 24.5 metric tons (27 tons)

Metric tons Tons



Type 3S2 Truck
Interstate 34.5 metric tons (38 tons)
Colorado 38.6 metric tons (42.5 tons)

Metric tons Tons



Type 3-2 Truck
Interstate 35.4 metric tons (39 tons)
Colorado 38.6 metric tons (42.5 tons)

Metric tons Tons

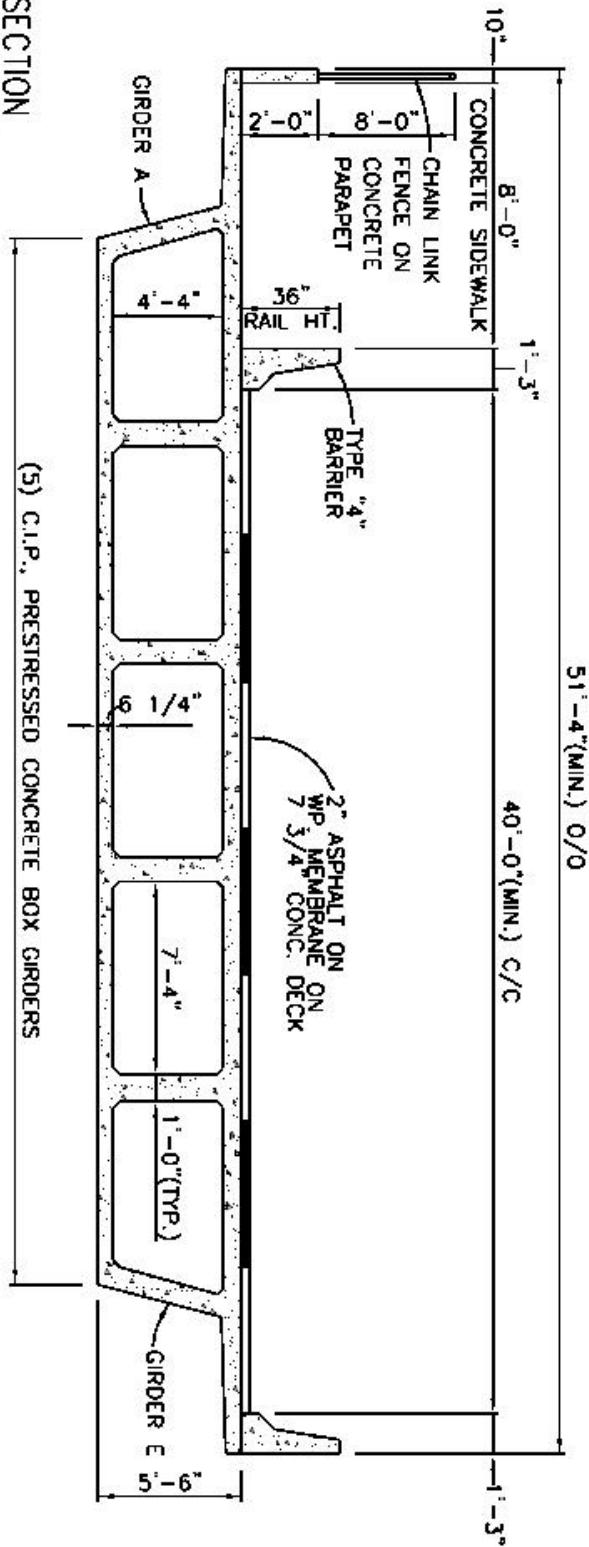
Comments	
<i>1" to 1 1/2" HBP OK DSC 08/01/2000</i>	
INSPECTED BUT NOT RATED	
STANTEC CONSULTING 2012	
INSPECTED BUT NOT RATED	
SEH, INC.	
DATE	BY:
BRIDGE REINSPECTED BUT NOT RATED BY LONCO, INC.	
Rated by	Date
<i>Andrew Smith</i>	<i>10/27/98</i>
Checked by	Date

Previous editions are obsolete and may not be used CDOT Form #1167 1/95

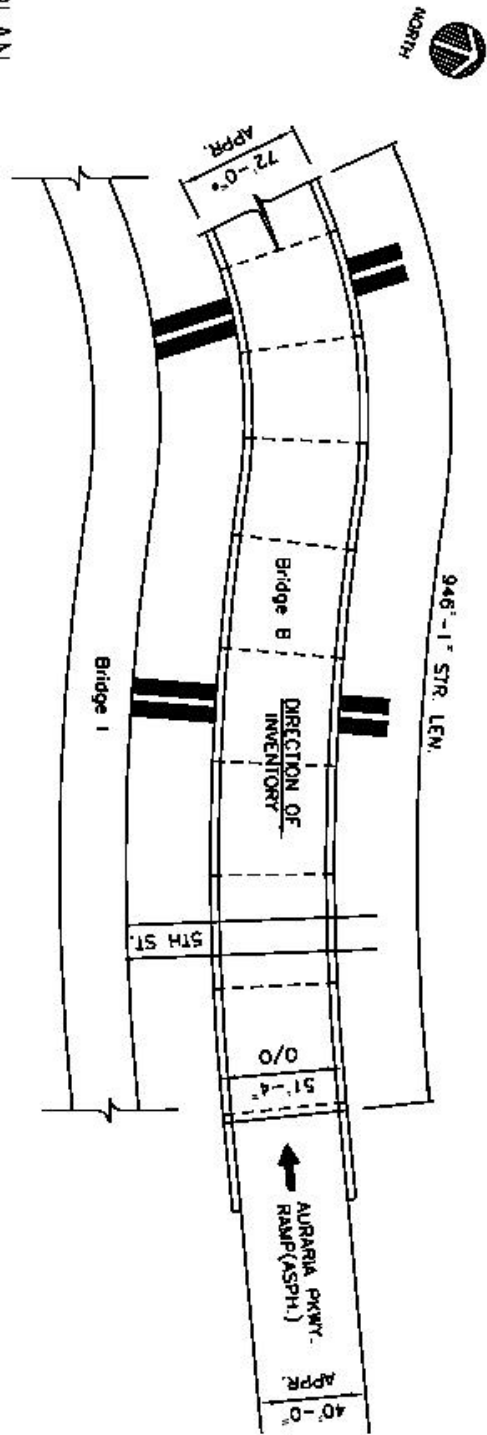


Bridge B: Plan and Section Bridge A: Elevation

SECTION
LOOKING EAST

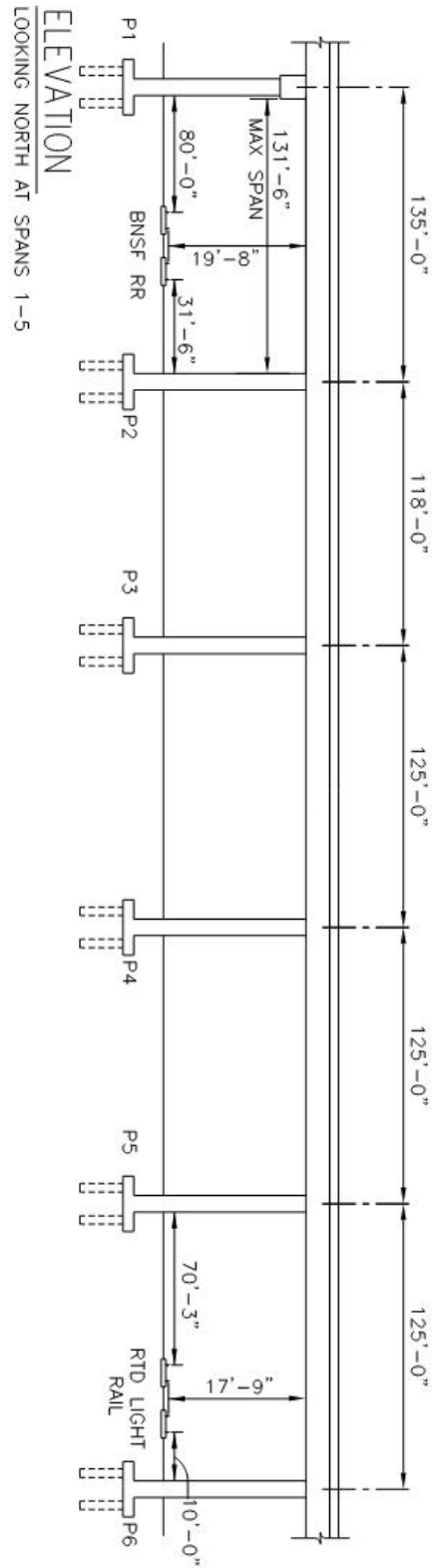
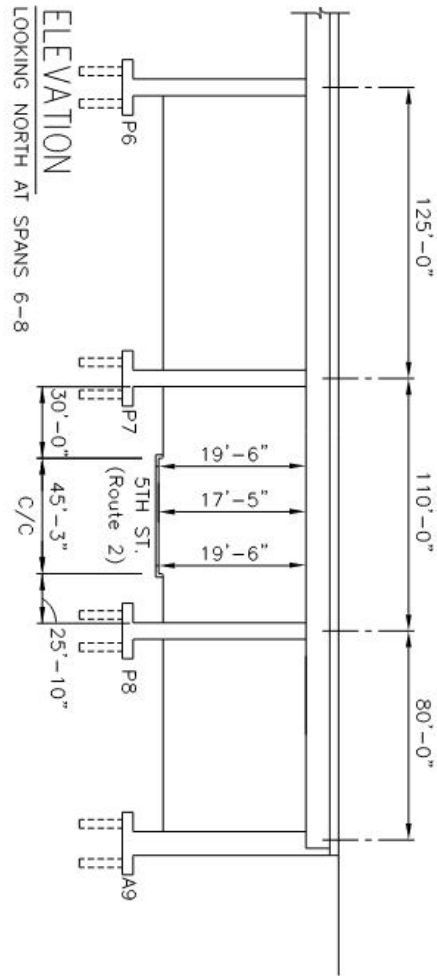


PLAN





Bridge B: Elevation



Appendix M – BrM Screen Location / BrM Table Name, Field Name, and Format

The data descriptions at the end of each Item are based on the BrM nomenclature for screen tabs, i.e. **TABS** are horizontal across the top, **TASKS** are vertical along the left side, **SUB-TASKS** are selections within a TASK, **GROUPS** are titles within the active window, **SUB-GROUPS** are titles within the GROUPS and **CONTROL** is the name of the data field. The BrM Table information follows the BrM screen information.

ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
1A	Inspection	Inventory	Admin	Location	-	FIPS State	Bridge	fips_state	2	vchar, right justify, left zero fill = 08
1B	Inspection	Inventory	Admin	Location	-	FHWA Region	Bridge	fhwa_regn	1	char = 8
2, 2E, 2M	Inspection	Inventory	Admin	Location	-	District, Dropdown menu	bridge	district	2	vchar, right justify, left zero fill
2T	Inspection	Inventory	Admin	Operation	-	Agency Admin Area	bridge	adminarea	2	vchar
2MPO	?	?	?	?	-	?	?	?	?	?
2, 2E, 2M	Inspection	Inventory	Admin	Location	-	District, Dropdown menu	Bridge	fips_state	2	vchar, right justify, left zero fill = 08
3, 3A	Inspection	Inventory	Admin	Location	-	County, Dropdown menu	bridge	County	3	vchar, left justify zero fill
4, 4A	Inspection	Inventory	Admin	Location	-	City/Town/Placecode, Dropdown menu	bridge	placecode	5	Vchar, left zero fill
5A	Inspection	Inventory	Roads	Control area	-	Roadway	roadway	on_under	2	Vchar (1, 2, A-Z)
5B	Inspection	Inventory	Roads	Identification	-	Kind Hwy (Rt prefix)	roadway	kind_hwy	1	Char (1-8)
5C	Inspection	Inventory	Roads	Identification	-	Desig. level service	roadway	Levl-srvc	1	Char (0-8)
5D	Inspection	Inventory	Roads	Identification	-	Rt	roadway	routenum	5	Vchar, right justify, left zero fill
5E	Inspection	Inventory	Roads	Identification	-	Suffix	roadway	dirsuffix	1	char



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
6A	Inspection	Inventory	Admin	Location	-	Feature Intersected	bridge	featint	24	varchar, left justified
6B	Inspection	Inventory	Roads	LEAVE BLANK, 25TH CHARACTER						
7	Inspection	Inventory	Admin	Location	-	Facility Carried	Bridge	facility	18	varchar, left justify
8	Inspection	Inventory	Admin	Structural Identification	-	NBI Structure No	bridge	struct_num	15	varchar, left justify
8A	Inspection	Inventory	Admin	Structural Identification	-	- Name	bridge	strucname	15	varchar, left justify
8COM	Inspection	CDOT Rating		Rating	-	Structure Comments	Userbrdg	structurecomments	1000	varchar, left justify
8P	Inspection	CDOT Bridge	-	Bridge	-	Parallel Struc	userbrdg	Parallel_struc	15	varchar, left justify
8R	Inspection	CDOT Bridge	-	Bridge	-	Replaced Str ID	userbrdg	replaced_structu re_id	15 characters	varchar, left justified
9	Inspection	Inventory	Admin	Location	-	Location	bridge	location	25	varchar, left justified
10	Inspection	Inventory	Roads	Clearances	-	Vertical	Roadway	vclrnv	5	Float, 3 decimal places
11	Inspection	Inventory	Roads	Hwy Net & Serv Class	-	Kilometer/Mile Point	roadway	kmpost	10	float, 6 decimal places
12	Inspection	Inventory	Roads	Hwy Net & Serv Class	-	National Base Net	roadway	onbasenet	1	Char
13A	Inspection	Inventory	Roads	Hwy Netwrk & Srv Class	-	LRS Inventory Rte	roadway	lrsinvt	10	varchar, right justify, left zero fill
13B	Inspection	Inventory	Roads	Hwy Netwrk & Srv Class	-	Sub#	roadway	subrtnum	2	varchar
16	Inspection	Inventory	Admin	Location	-	Latitude	bridge	latitude	8	Numeric, 8 digits, 2 decimals implied
17	Inspection	Inventory	Admin	Location	-	Longitude	bridge	longitude	9	Numeric, 9 digits, 2 decimals implied



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
18A	Inspection	CDOT Bridge	-	Bridge	-	Srvyrange,	<i>userbrdg</i>	<i>srvyrange</i>	4	<i>varchar</i>
18B	Inspection	CDOT Bridge	-	Bridge	-	Srvytownship,	<i>userbrdg</i>	<i>srvytownship</i>	3	<i>varchar</i>
18C	Inspection	CDOT Bridge	-	Bridge	-	Srvysectio	<i>userbrdg</i>	<i>srvysection</i>	2	<i>varchar</i>
19	Inspection	Inventory	Roads	Detours	-	Length	<i>roadway</i>	<i>bypasslen</i>	9	<i>Float, 9 digits, 6 decimals</i>
20	Inspection	Inventory	Roads	Hwy Netwrk & Service Class.	-	Toll Facility	<i>roadway</i>	<i>tollfac</i>	1	<i>char</i>
21	Inspection	Inventory	Admin	Operation	-	Maint. Resp.	<i>bridge</i>	<i>custodian</i>	2	<i>varchar</i>
22	Inspection	Inventory	Admin	Operation	-	Owner	<i>bridge</i>	<i>owner</i>	2	<i>varchar</i>
23	?	?	?	?	-	?	?	?	?	?
26	Inspection	Inventory	Roads	Hwy Net & Serv Class	-	Functional Class	<i>roadway</i>	<i>funcclass</i>	2	<i>varchar</i>
27	Inspection	Inventory	Admin	Age and Service	-	Year Built	<i>bridge</i>	<i>yearbuilt</i>	4	<i>numeric</i>
28A	Inspection	Inventory	Roads	Traffic	-	Lanes	<i>roadway</i>	<i>lanes</i>	2	<i>numeric</i>
28B	Inspection	Inventory	Admin	Age & Service	-	Lanes Under	<i>bridge</i>	<i>sumlanes</i>	2	<i>numeric</i>
29	Inspection	Inventory	Roads	Traffic	-	Recent ADT	<i>roadway</i>	<i>adttotal</i>	8	<i>numeric, no decimals, right justify</i>
30	Inspection	Inventory	Roads	Traffic	-	Year	<i>roadway</i>	<i>adtyear</i>	4	<i>numeric, no decimals</i>
31	Inspection	Appraisal	-	NBI Load Ratings	-	Design Load	<i>bridge</i>	<i>designload</i>	1	<i>char</i>
32	Inspection	Inventory	Roads	Widths	-	Approach Road	<i>roadway</i>	<i>aroadwidth</i>	6	<i>float, 3 decimals</i>
33	Inspection	Inventory	Design	Deck	-	Bridge Median	<i>bridge</i>	<i>bridgedmed</i>	1	<i>char</i>
34	Inspection	Inventory	Design	Spans	-	Skew	<i>bridge</i>	<i>skew</i>	2	<i>numeric</i>
35	Inspection	Inventory	Design	Spans	-	Structure Flared	<i>bridge</i>	<i>strflared</i>	1	<i>char</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
36A	Inspection	Appraisal	-	Structural Appraisal	-	Bridge Railings	<i>inspevnt</i>	<i>railrating</i>	1	<i>char</i>
36B	Inspection	Appraisal	-	Structural Appraisal	-	Transitions	<i>inspevnt</i>	<i>transratin</i>	1	<i>char</i>
36C	Inspection	Appraisal	-	Structural Appraisal	-	Approach Guardrail	<i>inspevnt</i>	<i>arailratin</i>	1	<i>char</i>
36D	Inspection	Appraisal	-	Structural Appraisal	-	Approach Guardrail Ends	<i>inspevnt</i>	<i>aendrating</i>	1	<i>char</i>
36H	Inspection	CDOT Bridge	-	Bridge	-	Railheight	<i>userbrdg</i>	<i>railheight</i>	16	<i>float, right justify, 5 decimals</i>
37	Inspection	Inventory	Admin	Classification Information	-	Historic Significance	<i>bridge</i>	<i>histsign</i>	1	<i>char</i>
38	Inspection	Appraisal	-	Clearances	Navigation Data	Navigation Control Exists	<i>Bridge</i>	<i>navcontrol</i>	1	<i>char</i>
39	Inspection	Appraisal	-	Clearances	Navigation Data	Navigation Vertical Clearances	<i>bridge</i>	<i>navvc</i>	5	<i>Float, 3 decimals</i>
40	Inspection	Appraisal	-	Clearances	Navigation Data	Navigation Horizontal Clearances	<i>bridge</i>	<i>navhc</i>	6	<i>Float, 3 decimal places</i>
41	Inspection	Appraisal	-	Structural Appraisal	-	Open/Posted/Closed	<i>inspevnt</i>	<i>oppostcl</i>	1	<i>char</i>
42A	Inspection	Inventory	Admin	Age and Service	-	Type of Service on	<i>bridge</i>	<i>servtypon</i>	1	<i>char</i>
42B	Inspection	Inventory	Admin	Age & Service	-	Under	<i>bridge</i>	<i>servtypund</i>	1	<i>char</i>
43A	Inspection	Design	-	Spans	-	Main Spans Material	<i>Bridge</i>	<i>materailmain</i>	1	<i>char</i>
43B	Inspection	Design	-	Spans	-	Main Spans Design	<i>Bridge</i>	<i>designmain</i>	2	<i>varchar</i>
44A	Inspection	Design	-	Spans	-	Approach Span Material	<i>Bridge</i>	<i>materailappr</i>	1	<i>char</i>
44B	Inspection	Design	-	Spans	-	Approach Span Design	<i>Bridge</i>	<i>designappr</i>	2	<i>varchar</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
45	Inspection	Inventory	Design	Spans	-	Number of Main Spans	Bridge	mainspans	3	numeric
46	Inspection	Inventory	Design	Spans	-	Number of Approach Spans	Bridge	appspans	4	numeric
47	Inspection	Inventory	Roads	Clearances	-	Horizontal	Roadway	hclrinv	5	Float, 3 decimals
48	Inspection	Inventory	Design	Length	-	Maximum Span Length	Bridge	maxspan	7	Float, 3 decimals
49	Inspection	Inventory	Design	Length	-	Structure Length	Bridge	length	8	Float, 3 decimals
50A	Inspection	Inventory	Design	Deck	-	Curb Sidewalk width/left	Bridge	lftcurbsw	5	Float, 3 decimals
50B	Inspection	Inventory	Design	Deck	-	Curb Sidewalk width/right	Bridge	rtcurbsw	5	Float, 3 decimals
51	Inspection	Inventory	Roads	Widths	-	Roadway	Roadway	roadwidth	6	Float, 3 implied decimals
52	Inspection	Inventory	Design	Deck	-	Deck Width	Bridge	deckwidth	6	Float, 3 implied decimals
53	Inspection	Appraisal	-	Clearances	Minimum Vertical Clearances	Over Structure	Bridge	vclrover	5	Float, 3 decimals
54A	Inspection	Appraisal	-	Clearances	Minimum Vertical Clearances	Under (Reference)	Bridge	refvuc	1	Char
54B	Inspection	Appraisal	-	Clearances	Minimum Vertical Clearances	Under Clearance	Bridge	vclrunder	5	Float, 3 decimals
55A	Inspection	Appraisal	-	Clearances	Minimum Lateral Clearances	Reference Feature	Bridge	refhuc	1	Char
55B	Inspection	Appraisal	-	Clearances	Minimum Lateral Clearances	Right Side	Bridge	hclrurt	5	Float, 3 decimals



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
56	Inspection	Appraisal	-	Clearances	Minimum Lateral Clearances	Left Side	Bridge	hclrult	5	Float, 3 decimals
58	Inspection	Condition	-	Condition Ratings	-	Deck	inspevnt	dkrating	1	char
59	Inspection	Condition	-	Condition Ratings	-	Superstructure	inspenvt	suprating	1	char
60	Inspection	Condition	-	Condition Ratings	-	Substructure	inspevnt	subrating	1	char
61	Inspection	Condition	-	Condition Ratings	-	Channel	inspevnt	chanrating	1	char
62	Inspection	Condition	-	Condition Ratings	Culvert		inspevnt	culvrating	1	char
63	Inspection	Appraisal	-	NBI Load Ratings	-	Operating Type	bridge	ortype	1	char
64	Inspection	Appraisal	-	NBI Load Ratings	-	Operating Rating	bridge	orload	4	float, 1 decimal for tons or, 2 decimals for rating factor
65	Inspection	Appraisal	-	NBI Load Ratings	-	Inventory type	bridge	irtype	1	char
64ALT	Inspection	Appraisal	-	NBI Load Ratings	-	Alternate Operating Rating	bridge	altorload	4	Float, 1 decimal for tons OR, 2 decimals for rating factor
66	Inspection	Appraisal	-	NBI Load Ratings	-	Inventory Rating	bridge	irload	4	Float, 1 decimal for tons or, 2 decimals for rating factor
66ALT	Inspection	Appraisal	-	NBI Load Ratings	-	Alternate Inventory Rating	bridge	altirload	4	Float, 1 decimal for tons or, 2 decimals for rating factor
66A	Inspection	CDOT Bridge	-	Bridge		Girder Control	useirbrdg	girder_control	3	vchar



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
66SI	Inspection	CDOT Rating	-	Bridge	-	Inventory Rate Control	<i>userbrdg</i>	<i>irate_control</i>	16	<i>numeric, 3 decimals</i>
66SO	Inspection	CDOT Rating	-	Bridge		Operating Rate Control	<i>userbrdg</i>	<i>rate_control</i>	16	<i>numeric, 3 decimals</i>
64pmt	Inspection	CDOT Rating					<i>userbrdg</i>	<i>permit</i>	16	<i>numeric, 3 decimal</i>
64mtan	Inspection	CDOT Rating					<i>userbrdg</i>	<i>mtan</i>	16	<i>numeric, 3 decimal</i>
66R	Inspection	CDOT Rating					<i>userbrdg</i>	<i>ratereview_date</i>	10	<i>date, mm/dd/yyyy</i>
66RS	Inspection	CDOT Rating					<i>userbrdg?</i>	<i>ratsoft?</i>		
66T	Inspection	CDOT Bridge	-	Bridge	-	Asphaltthickness	<i>userbrdg</i>	<i>asphaltthickness</i>	16	<i>float, 5 decimal places</i>
66I	Inspection	Appraisal	-	NBI Load Ratings	-	Initials	<i>bridge</i>	<i>rater_ini</i>	3	<i>varchar</i>
66J	Inspection	CDOT Rating					<i>userbrdg</i>	<i>ratechecker_ini</i>	3	<i>varchar</i>
66ESR	Inspection	CDOT Ratings					<i>userbrdg</i>	<i>entstrurat</i>	1	
66CC	Inspection	CDOT Rating					<i>userbrdg</i>	<i>calcomp</i>	1	<i>varchar</i>
66RPC	Inspection	CDOT Rating					<i>userbrdg</i>	<i>rpackcomp</i>	1	<i>varchar</i>
66IFA	Inspection	CDOT Rating					<i>userbrdg</i>	<i>ratingifa</i>	1	<i>varchar</i>
66OFA	Inspection	CDOT Rating					<i>userbrdg</i>	<i>ratingofa</i>	1	<i>varchar</i>
66RPC	Inspection	CDOT Rating					<i>userbrdg</i>	<i>rpackcomp</i>	1	<i>varchar</i>
66RAT	Inspection	CDOT Rating					<i>userbrdg</i>	<i>rating_assigned</i>	7	<i>varchar</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
66VB	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisbid</i>	5	<i>varchar</i>
66VSTR	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisstr</i>	25	<i>varchar</i>
66VR	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisr</i>	1	<i>varchar</i>
66VA	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisra</i>	1	<i>varchar</i>
66VSB	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisb</i>	1	<i>varchar</i>
66VL	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisl</i>	1	<i>varchar</i>
66VCO	Inspection	CDOT Rating					<i>userbrdg</i>	<i>virtisco</i>	1	<i>char</i>
67	Inspection	Appraisal		Calculated Appraisal Ratings		Structural Evaluations	<i>inspevnt</i>	<i>strrating</i>	1	<i>char</i>
68	Inspection	Appraisal	-	Calculated Appraisal Ratings	-	Deck Geometry	<i>inspevnt</i>	<i>deckgeom</i>	1	<i>char</i>
69	Inspection	Appraisal	-	Calculated Appraisal Ratings	-	Underclearances	<i>inspevnt</i>	<i>underclr</i>	1	<i>char</i>
70	Inspection	Appraisal	-	NBI Load Ratings	-	Posting	<i>bridge</i>	<i>posting</i>	1	<i>char</i>
71	Inspection	Condition	-	Condition Ratings	-	Waterway	<i>inspevnt</i>	<i>wateradeq</i>	1	<i>char</i>
72	Inspection	Appraisal	-	Structural Appraisal	-	Approach Alignment	<i>inspevnt</i>	<i>appralign</i>	1	<i>char</i>
75A	Inspection	Work	-Project Information	NBI Project Data	-	Proposed Work	<i>bridge</i>	<i>propwork</i>	2	<i>varchar</i>
75B	Inspection	Work	-Project Information	NBI Project Data		Work To Be Done By	<i>bridge</i>	<i>workby</i>	1	<i>char</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
76	Inspection	Work	Project Information	NBI Project Data	-	Improvement Length	bridge	implen	8	Float, 3 decimals
90	Inspection	Schedule	-	Summary	-	Inspection Date	inspevnt	inspdate	10	date
90B	Inspection	Schedule	-	Summary	-	Inspection Group	inspevnt	inspcontrolid	20	varchar
91	Inspection	Schedule	-	Schedule	-	NBI Frequency (months)	inspevnt	brinspfreq	2	numeric
92AA	Inspection	Schedule	-	Schedule	-	Fracture Critical/ Required (Y/N)	inspevnt	fcinspreq	1	char
92AB	Inspection	Schedule	-	Schedule	-	Frequency (months)	inspevnt	fcinspfreq	2	numeric
92BA	Inspection	Schedule	-	Schedule	-	Underwater/ Required (Y/N)	inspevnt	uwinspreq	1	char
92BB	Inspection	Schedule	-	Schedule	-	Frequency (months)	inspevnt	uwinspfreq	2	numeric
92CA	Inspection	Schedule	-	Schedule	-	Other Special/ Required (Y/N)	inspevnt	osinspreq	1	char
92CB	Inspection	Schedule	-	Schedule	-	Frequency (months)	inspevnt	osinspfreq	2	numeric
93A	Inspection	Schedule	-	Schedule	-	Fracture Critical	inspevnt	fclastinsp	10	date (mm/dd/yyyy)
93B	Inspection	Schedule	-	Schedule	-	Underwater	inspevnt	uclastwinsp	10	date (mm/dd/yyyy)
93C	Inspection	Schedule	-	Schedule	-	Other Special	inspevnt	oslastinsp	10	date(mm/dd/yyyy)
94	Inspection	Work	Project Information	NBI Project Data	-	Improvement Cost	bridge	nbiimpcost	9	Numeric
95	Inspection	Work	Project Information	NBI Project Data	-	Roadway Improvement Cost	bridge	nbirwcost	9	Numeric
96	Inspection	Work	Project Information	NBI Project Data	-	Total Cost	bridge	nbitotcost	9	Numeric
97	Inspection	Work	Project Information	NBI Project Data	-	Year of Estimate	bridge	nbiyrcost	4	Numeric, no decimals
98AA	Inspection	Inventory	Admin	Location	-	Border State	bridge	nstatecode	3	varchar



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
98AB	Inspection	Inventory	Admin	Location	-	Border FHWA Region	bridge	n_fhwa_reg	1	char
98B	Inspection	Inventory	Admin	Location	-	Share(%)	bridge	bb_pct	2	numeric
99	Inspection	Inventory	Admin	Location	-	Border Struct No	bridge	bb_brdgeid	15	varchar
100	Inspection	Inventory	Roads	Alternate Classifications	-	Defense Highway	roadway	defhwy	1	char
101	Inspection	Inventory	Admin	Classification Information	-	Parallel Structure	bridge	paralstruc	1	char
102	Inspection	Inventory	Roads	Highway Networks & Service Classifications	-	Traffic Direction	roadway	trafficdir	1	char
103	Inspection	Inventory	Admin	Classification Information	-	Temporary Structure	bridge	tempstruc	1	char
104	Inspection	Inventory	Roads	Alternate Classifications	-	Nat. Hwy System	roadway	nhs_ind	1	char
105	Inspection	Inventory	Roads	Alternate Classifications	-	Fed. Lands Hwy	roadway	fedlandhwy	1	char
106	Inspection	Inventory	Admin	Age and Service	-	Year Reconstruct	bridge	yearrecon	4	numeric
107	Inspection	Inventory	Design	Deck	-	Deck Structure Type	bridge	dkstructyp	1	char
108A	Inspection	Inventory	Design	Deck	-	Deck Structure Type	bridge	dksturftype	1	Char
108B	Inspection	Inventory	Design	Deck	-	Deck Membrane Type	bridge	dkmembtype	1	Char
108C	Inspection	Inventory	Design	Deck	-	Deck Protection	bridge	dkprotect	1	Char
109	Inspection	Inventory	Roads	Traffic	-	Truck%	roadway	truckpct	2	numeric
110	Inspection	Inventory	Roads	Alternate Classifications	-	Nat. Truck Network	roadway	trucknet	1	char
111	Inspection	Appraisal	-	Structural Appraisal	-	Pier Protection	inspevnt	pierprot	1	Char



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
112	Inspection	Inventory	Admin	Classification Information	-	NBIS Bridge Length	<i>bridge</i>	<i>nbislen</i>	1	<i>char</i>
113	Inspection	Appraisal	-	Structural Appraisal	-	Scour Critical	<i>inspevnt</i>	<i>scourcrit</i>	1	<i>Char</i>
113C	Inspection	CDOT Bridge	-	Bridge	-	Area of Opening	<i>userbrdg</i>	<i>area_of_opening</i>	16	<i>Numeric, 3 decimals</i>
113D	Inspection	CDOT Bridge	-	Bridge	-	Slope of Stream	<i>userbrdg</i>	<i>slope_of_stream</i>	16	<i>Numeric</i>
113E	Inspection	CDOT Bridge	-	Bridge	-	Depth of Flow	<i>userbrdg</i>	<i>depth_of_flow</i>	16	<i>Numeric</i>
113F	Inspection	CDOT Bridge	-	Bridge	-	Width of Pier	<i>userbrdg</i>	<i>Width_of_pier</i>	16	<i>Numeric</i>
113G	Inspection	CDOT Bridge	-	Bridge	-	Angle of Attack	<i>userbrdg</i>	<i>angle_of_attack</i>	16	<i>Numeric</i>
113H	Inspection	CDOT Bridge	-	Bridge	-	Wetted Perimeter	<i>userbrdg</i>	<i>wetted_perimeter</i>	16	<i>Numeric</i>
113I	Inspection	CDOT Bridge	-	Bridge	-	Scour Depth	<i>userbrdg</i>	<i>scour_depth</i>	16	<i>Numeric</i>
113J	Inspection	CDOT Bridge	-	Bridge	-	Mannings Coefficient	<i>userbrdg</i>	<i>mannings_coefficient</i>	16	<i>Numeric</i>
113K	Inspection	CDOT Bridge	-	Bridge	-	Q Discharge	<i>userbrdg</i>	<i>q_discharge</i>	16	<i>Numeric</i>
113L	Inspection	CDOT Bridge	-	Bridge	-	Length of Pier	<i>userbrdg</i>	<i>length_of_pier</i>	16	<i>Numeric</i>
113M	Inspection	CDOT Bridge	-	Bridge	-	Scour Watch	<i>Userbrdg</i>	<i>scour_watch</i>	3	<i>varchar</i>
114	Inspection	Inventory	Roads	Traffic	-	Future ADT	<i>roadway</i>	<i>adtfuture</i>	8	<i>numeric</i>
115	Inspection	Inventory	Roads	Traffic	-	Fut. Year	<i>roadway</i>	<i>adtfuture</i>	4	<i>numeric</i>
116	Inspection	Appraisal	-	Clearances	Navigation Data	Minimum Vertical Lift Clearances	<i>bridge</i>	<i>lftbrnavcl</i>	5	<i>Numeric</i>
120A	Inspection	CDOT Bridge	-	Bridge	-	Structtype	<i>userbrdg</i>	<i>structtype</i>	5	<i>varchar</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
120B	Inspection	CDOT Bridge		Bridge		Constype	<i>userbrdg</i>	<i>constype</i>	30	<i>varchar</i>
122B	Inspection	CDOT Bridge	-	Bridge	-	Spec Insp	<i>userbrdg</i>	<i>spec_insp</i>	3	<i>varchar</i>
122C	Inspection	CDOT Bridge	-	Bridge	-	Month 24	<i>userbrdg</i>	<i>month_24</i>	3	<i>varchar</i>
122CC	Inspection	CDOT Bridge	-	Bridge		Trip_24	<i>userbrdg</i>	<i>trip_24</i>	3	<i>varchar</i>
122D	Inspection	CDOT Bridge	-	Bridge	-	Month 48d	<i>userbrdg</i>	<i>month_48D</i>	3	<i>varchar</i>
122DD	Inspection	CDOT Bridge	-	Bridge		Trip_48d	<i>userbrdg</i>	<i>trip_48D</i>	3	<i>varchar</i>
122E	Inspection	CDOT Bridge	-	Bridge	-	Month 48d	<i>userbrdg</i>	<i>month_48D</i>	3	<i>varchar</i>
122EE	Inspection	CDOT Bridge	-	Bridge		Trip_48d	<i>userbrdg</i>	<i>trip_48D</i>	3	<i>varchar</i>
122F	Inspection	CDOT Bridge	-	Bridge	-	Sched Note	<i>userbrdg</i>	<i>Sched_note</i>	30	<i>varchar</i>
123	Inspection	CDOT Roadway	-	Userway	-	MainPatrol Item	<i>userway</i>	<i>mainpatrol</i>	2	<i>numeric</i>
124	Inspection	CDOT Bridge	-	Bridge	-	Expdevtype	<i>userbrdg</i>	<i>expdevtype</i>	1	<i>varchar</i>
125A	Inspection	CDOT Bridge	-	Bridge	-	Strailtype	<i>userbrdg</i>	<i>strrailtype</i>	2	<i>varchar</i>
125B	Inspection	CDOT Bridge		Bridge		Strailmod	<i>userbrdg</i>	<i>strrailmod</i>	1	<i>varchar</i>
129A	Inspection	Appraisal	-	NBI Load Ratings	Operating	Type 1	<i>bridge</i>	<i>truck1or</i>	4	<i>Float, 1 decimal</i>
129B	Inspection	Appraisal	-	NBI Load Ratings	Operating	Type 2	<i>bridge</i>	<i>truck2or</i>	4	<i>Float, 1 decimal</i>
129C	Inspection	Appraisal	-	NBI Load Ratings	Operating	Type 3	<i>bridge</i>	<i>truck3or</i>	4	<i>Float, 1 decimal</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
130	Inspection	Appraisal	-	NBI Load Ratings	-	Rating Date	<i>bridge</i>	<i>ratingdate</i>	10	<i>date</i>
130C	Inspection	CDOT Ratings	-		-		<i>userbrdg</i>	<i>ratecheck_date</i>	10	<i>date</i>
131	Inspection	CDOT Bridge	-	Bridge	-	Foundationtype	<i>userbrdg</i>	<i>foundationtype</i>	1	<i>varchar</i>
133	Inspection	CDOT Bridge	-	Bridge	-	Spec Equip	<i>userbrdg</i>	<i>spec_equip</i>	3	<i>varchar</i>
134A	Inspection	CDOT Roadway	-	Userway	-	Clrdirne	<i>usserway</i>	<i>clrdirne</i>	1	<i>varchar</i>
134B	Inspection	CDOT Roadway	-	Userway	-	Clrmaxne	<i>userway</i>	<i>clrmaxne</i>	16	<i>Float, 5 decimals</i>
134C	Inspection	CDOT Roadway	-	Userway	-	Clrminne	<i>userway</i>	<i>clrminne</i>	16	<i>Float, 5 decimals</i>
135A	Inspection	CDOT Roadway	-	Userway	-	Clrdirsw	<i>usserway</i>	<i>clrdirsw</i>	1	<i>varchar</i>
135B	Inspection	CDOT Roadway	-	Userway	-	Clrmaxsw	<i>userway</i>	<i>clrmaxsw</i>	16	<i>Float, 6 decimals</i>
135C	Inspection	CDOT Roadway	-	Userway	-	Clrminsw	<i>userway</i>	<i>clrminsw</i>	16	<i>Float, 6 decimals</i>
136	Inspection	CDOT Roadway	-	Userway	-	VCLR Posting MAX N/E	<i>usserway</i>	<i>post_max_ne</i>	16	<i>Float, 6 decimals</i>
136A	Inspection	CDOT Roadway	-	Userway	-	VCLR Posting Min N/E	<i>userway</i>	<i>post_min_ne</i>	16	<i>Float, 6 decimals</i>
136B	Inspection	CDOT Roadway	-	Userway	-	VCLR Posting MAX S/W	<i>userway</i>	<i>post_max_sw</i>	16	<i>Float, 6 decimals</i>
136C	Inspection	CDOT Roadway	-	Userway	-	VCLR Posting Min S/W	<i>userway</i>	<i>post_min_ne</i>	16	<i>Float, 6 decimals</i>
137	Inspection	Appraisal	-	Calculated Appraisal Ratings	-	Sufficiency Rating	<i>inspevnt</i>	<i>suff_rate</i>	4	<i>numeric, 1 decimal</i>
137A	Inspection	CDOT Bridge	-	Bridge	-	Histsuff Rate	<i>userbrdg</i>	<i>histsuff_rate</i>	16	<i>float, 6 decimals</i>



ITEM#	BrM SCREEN						BrM TABLE			
	TAB	TASK	SUB-TASK	GROUP	SUBGROUP	CONTROL	TABLE	FIELD	FIELD LENGTH	FORMAT
137B	Inspection	CDOT Bridge	-	Bridge	-	Histselyr	<i>userbrdg</i>	<i>histselyr</i>	4	<i>Numeric</i>
137C	Inspection	CDOT Bridge		Bridge		Hist10yr	<i>userbrdg</i>	<i>Hist10yr</i>	1	<i>varchar</i>
138	Inspection	Appraisal	-	Calculated Appraisal Ratings	-	SD/FO Status	<i>inspevnt</i>	<i>nbi_rating</i>	1	<i>char</i>
139	Inspection	CDOT Bridge	-	Bridge	-	Wgtcolor	<i>userbrdg</i>	<i>wgtcolor</i>	1	<i>varchar</i>
139OVLDLL	-	-	-	-	-	-	<i>userbrdg</i>	<i>ovldliveload</i>	1	<i>varchar</i>
139OVLDCRIT	-	-	-	-	-	-	<i>userbrdg</i>	<i>ovldcrit</i>	1	<i>varchar</i>
141	Inspection	CDOT Bridge		Bridge		Fund Type	<i>userbrdg</i>	<i>fund_type</i>	3	<i>varchar</i>
142	Inspection	CDOT Bridge		Bridge		Proj Status	<i>userbrdg</i>	<i>proj_status</i>	3	<i>varchar</i>