OREGON NBI CODING GUIDE

FOR THE INVENTORY AND APPRAISAL

of

OREGON BRIDGES

OREGON DEPARTMENT OF TRANSPORTATION

BRIDGE SECTION
BRIDGE OPERATIONS

July, 1999

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Introduction

There is one absolute fact of life: "All things deteriorate". Bridges represent the highest unit investment of all elements of the highway system and deficiencies in that structure represents a reduction in the original investment. Additionally, and even more importantly, deficiencies in a structure can present the greatest danger of all potential highway failures for disruption of community welfare and loss of life. Therefore, the specific objective of our bridge inspection program is to:

1.) Ensure that a safe facility is available to the public,
2.) Protect our original capital investment, and
3.) Maintain a desired level of service.

The intent of this 1999 Edition of the Oregon Bridge Inspection Coding Guide, is to provide a more definitive and explicit explanation for coding bridge inventory and inspection data, in the State of Oregon. As a result, some of the original FHWA coding requirements have been expanded and clarified for our use. It incorporates all changes that FHWA has made to their "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges". Our goal is to provide complete, thorough and accurate bridge inventory and condition assessment information, ensure that bridge managers have the latest information regarding the condition of the bridges under their jurisdiction, and assure that the State of Oregon is in compliance with federal reporting requirements.

The Guide closely follows the definitions and instructions outlined in Federal Highway Administration's Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, December 1988. In addition, Item 117 through 122 has been added for Oregon use. The descriptions and examples contained herein are for clarification purposes.

The values provided in the tables or otherwise listed in this Guide are for rating purposes only. Current design standards must be used for structure design or rehabilitation. All possible combinations of actual site characteristics are not provided in this Guide. If a special situation not listed in the Guide is encountered, the evaluation criteria closest to the actual site situation should be used.

The State of Oregon collects bridge condition ratings using two quite different systems: FHWA Rating Codes and the AASHTO Element Rating Codes. Items included in this Guide (Items 58-Deck, 59-Superstructure, 60-Substructure, and 62-Culverts) are the FHWA Rating Codes. The American Association of Highway and Transportation Officials' (AASHTO) Guide for Commonly Recognized (CoRe) Structural Elements, are located in the State of Oregon Element Coding Guide. CoRe element inspection ratings provide a detailed condition assessments that was designed to serve as input into a comprehensive bridge management system (BMS). Since the BMS and NBI data collection and reporting formats are quite different, the State of Oregon is collecting and recording both. To-date, an automated, condition assessment, data conversion program, is not being used.

The AASHTO Manual for Condition Evaluation of Bridges (called AASHTO Bridge Manual in this Guide) discusses the various items of information that are to be recorded as part of original bridge reports. That manual and the most current version of the Bridge Inspector's Training Manual, discuss inspection procedures and the preparation of detailed reports about the structure components. These reports will be the basis for recording values for many of the

data elements shown in the Guide, particularly those having to do with the condition or the appraisal ratings.

Further information regarding a specific bridge inspection procedure can be obtained by referring to the following publications:

Title	Report No.
ODOT Bridge Inspection Application Users' Manual	- - -
ODOT Element Coding Guide	- - -
Culvert Inspection Manual	FHWA-IP-86-2
Inspection of Fracture Critical Members	FHWA-IP-82-26
Bridge Inspector's Manual for Movable Bridges	FHWA-IP-77-10

These reports are available from FHWA or ODOT Bridge Section, Operations Unit.

Assistance may also be obtained from any of the region bridge inspectors. Their phone numbers are listed as follows:

Region I	Milwaukee	(503) 652-5691
Region 2	Salem	(503) 986-2659
Region 3	Roseburg	(541) 957-3587
Region 4	Bend	(541) 388-6188
Region 5	La Grande	(541) 889-9115

Questions regarding this coding guide, please contact ODOT Bridge Section, Bridge Operations Unit at (503) 986-3402 or 986-3395.

Definition of Terms

For clarity, the definitions of some terms used in the Guide are provided below.

(a) Bridge. The National Bridge Inspection Standards published in the Code of Federal Regulations (23 CFR 650.3) give the following definition:

A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

(b) Culvert. A structure designed hydraulically to take advantage of submergence to increase hydraulic capacity. Culverts, as distinguished from bridges, are usually covered with embankment and are composed of structural material around the entire perimeter, although some are supported on spread footings with the streambed serving as the bottom of the culvert. Culverts may qualify to be considered "bridge" length.

(c) Inventory Route. The route for which the applicable inventory data is to be recorded. The inventory route may be on the structure or under the structure. Generally inventories are made from west to east and south to north.

(d) National Bridge Inventory (NBI). The aggregation of structure inventory and appraisal data collected to fulfill the requirements of the National Bridge Inspection Standards that each State shall prepare and maintain an inventory of all bridges subject to the NBIS.

(e) National Bridge Inventory (NBI) Record. Data which has been coded according to the Guide for each structure carrying highway traffic or each inventory route which goes under a structure. These data are furnished and stored in a compact alphanumeric format on magnetic tapes or disks suitable for electronic data processing.

(f) National Bridge Inspection Standards (NBIS). Federal regulations establishing requirements for inspection procedures, frequency of inspections, qualifications of personnel, inspection reports, and preparation and maintenance of a State bridge inventory. The NBIS apply to all structures defined as bridges located on all public roads.

(g) Public Road. Any road under the jurisdiction of and maintained by a public authority and open to public travel.

(h) Structure Inventory and Appraisal (Sl&A) Sheet. The graphic representation of the data recorded and stored for each NBI record in accordance with this Guide.

(i) Strategic Highway Corridor Network (STRAHNET). A system of highways which are strategically important of the defense of the United States. It includes the Interstate Highways and 25,215 kilometers of other non-interstate highways, nationwide. The Military Traffic Management Command Report SE 89-4b-27, Strategic Highway Corridor Network, January 1991, contains additional information on STRAHNET.

(j) STRAHNET Connectors are roads that connect military installations and ports of embarkation to the STRAHNET. The connector routes represent about 3,042 kilometers of roads, nationwide, that complement STRAHNET.

(k) Indian Reservation Road (IRR). A public road that is located within or provides access to an Indian reservation as described in Title 23, U.S.C., Sect.101. The terminus of a road providing access to an Indian reservation or other Indian land is defined as the point at which the road intersects with a road functionally classified as a collector or higher classification (outside the reservation boundary) in both urban and rural areas. In the case of access from an Interstate Highway, the terminus is the first interchange outside the reservation.

(l) Land Management Highway System (LMHS). Consists of adjoining state and local public roads that provide major public access to Bureau of Land Management administered public lands, resources, and facilities.

(m) Forest Highway (FH). A road, under the jurisdiction of, and maintained by, a public authority and open to public travel; wholly or partly within, or adjacent to, and serving the National Forest System (NFS) and which is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources. (23 CFR 660).

(n) Commonly recognized (CoRe) Structural Elements. A group of structural elements endorsed by AASHTO as a means of providing a uniform basis for data collection for any bridge management system, to enable the sharing of data and to allow for a uniform translation of data to NBI Items 58, 59, 60, and 62.

(o) Conversion of Numerical Data. Throughout this Guide the following conversion factors are used:

- foot to meter multiply by 0.3048
- mile to kilometer multiply by 1.609
- english ton to meteric ton multiply by 0.9

(p) Rounding and Truncating of Numerical Data. All numeral values in this Guide, except as specifically noted, will follow standard rounding criteria, that is, 5 and above will be rounded up to the next higher unit and 4 and below will be rounded down to the next lower unit. This is applicable to all decimal roundings. In certain items where rounding may cause a safety hazard for clearance, the numeric measurements will be truncated at the appropriate decimal place. This means that a fractional portion less than a whold unit will be dropped to the lower whole number, for example 2.88 would be truncated to 2.8 when using tenth of a meter accuracy. All decimal points are assumed in the locations as specified in the Guide.

Data Items

Item 8 - Structure No. 15 digits (A/N)

As a business rule, all structures inventoried, in the State of Oregon, will have an assigned FHWA Id number. Ideally, the 15-digit alpha-numeric number should not change for the life of the structure. Generally, a given structure was either constructed by a contract that was administered by the State or constructed by others.

When a new structure is included in a construction project administered by the State, ODOT Bridge Operations staff will obtain all structure data from the bridge design engineer and create the new record. The assigned bridge inspector is then responsible for performing an initial bridge inspection, verify and collect all structure data, determine when the next routine inspection will be due, and recording the initial inspection, within 90 days of opening the structure to public travel.

If a bridge inspector becomes aware of a new structure that open to the public and carries vehicular traffic, they should notify ODOT Bridge Operations. Bridge Operations personnel will obtain a new bridge number from Bridge Section front office. Upon receiving the new bridge number, the bridge inspector will create the new record. It is the responsibility of the assigned bridge inspector to obtain enough bridge information in order for a complete bridge record to be established.

Only the bridge inventory system administrator has permission to actually delete a structure number from the database. Please direct your questions to the ODOT Bridge Inventory System Administrator, Phone No.: (503) 986-3395.

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Item 1 - State Code 3 digits (N)

The first 2 digits are the Federal Information Processing Standards (FIPS) code for States, and the third digit is the FHWA region code. This code is 410 for each bridge reported on the State of Oregon inventory.

Item 2 - State Highway Department District 2 digits (A/N)

The highway district in which the bridge is located shall be represented by a 2-digit code. Highway district boundaries are as shown on the ODOT Maintenance Region and District Map. In Metro region, code the district as 2A, 2B, or 2C. Where districts are identified by number, existing district numbers shall be used. Code a leading zero if the district number is less than 10. (01, 03, etc.)

Item 3 - County (Parish) Code 3 digits (N)

Counties shall be identified using the Federal Information Processing Standards (FIPS) codes given in the current version of the Census of Population and Housing -Geographic Identification Code Scheme. Valid county codes in the State of Oregon are listed below:

Code	Co. Name	Code	Co. Name	Code	Co. Name
001	Baker	025	Harney	049	Morrow
003	Benton	027	Hood River	051	Multnomah
005	Clackamas	029	Jackson	053	Polk
007	Clatsop	031	Jefferson	055	Sherman
009	Columbia	033	Josephine	057	Tillamook
011	Coos	035	Klamath	059	Umatilla
013	Crook	037	Lake	061	Union
015	Curry	039	Lane	063	Wallowa
017	Deschutes	041	Lincoln	065	Wasco
019	Douglas	043	Linn	067	Washington
021	Gilliam	045	Malheur	069	Wheeler
023	Grant	047	Marion	071	Yamhill

This item must be coded for all records. Do not leave blanks.

Item 4 - Place Code 5 digits (N)

Cities, towns, townships, villages, and other census-designated places shall be identified using the Federal Information Processing Standards (FIPS) codes given in the current version of the Census of Population and Housing - Geographic Identification Code Scheme. This code is used to represent the location of the bridge as being within the incorporated place limits, not ownership of the bridge.

00275 ADAIR VILLAGE	21050 DUNDEE	39150 KING CITY
00350 ADAMS	21150 DUNES CITY	39700 KLAMATH FALLS
00500 ADRIAN	21250 DURHAM	40300 LAFAYETTE
01000 ALBANY	21550 EAGLE POINT	40350 LA GRANDE

02000 AMITY
02250 ANTELOPE
02800 ARLINGTON
03050 ASHLAND
03150 ASTORIA
03200 ATHENA
03250 AUMSVILLE
03300 AURORA
03650 BAKER CITY
03800 BANDON
03850 BANKS
04000 BARLOW
04800 BAY CITY
05350 BEAVERTON
05800 BEND
07200 BOARDMAN
07300 BONANZA
08650 BROOKINGS
09050 BROWNSVILLE
09800 BURNS
10050 BUTTE FALLS
10750 CANBY
10850 CANNON BEACH
10950 CANYON CITY
11000 CANYONVILLE
11150 CARLTON
11600 CASCADE LOCKS
11850 CAVE JUNCTION
12400 CENTRAL POINT
13050 CHILOQUIN
13425 CITY OF THE DALLES
13750 CLATSKANIE
14400 COBURG
14750 COLUMBIA CITY
15000 CONDON
15250 COOS BAY
15350 COQUILLE
15550 CORNELIUS
15800 CORVALLIS
15950 COTTAGE GROVE
16250 COVE
16950 CRESWELL
17300 CULVER
17700 DALLAS
18250 DAYTON
18300 DAYVILLE
18850 DEPOE BAY
19100 DETROIT
20100 DONALD
20500 DRAIN
20900 DUFUR
59000 PORTLAND
59250 PORT ORFORD
59600 POWERS
59650 PRAIRIE CITY
59750 PRESCOTT
59850 PRINEVILLE
60850 RAINIER
22200 ECHO
22550 ELGIN
22800 ELKTON
23500 ENTERPRISE
23800 ESTACADA
23850 EUGENE
24250 FAIRVIEW
24550 FALLS CITY
26050 FLORENCE
26200 FOREST GROVE
26650 FOSSIL
28000 GARIBALDI
28100 GASTON
28200 GATES
28450 GEARHART
28650 GERVAIS
29000 GLADSTONE
29350 GLENDALE
29900 GOLD BEACH
29950 GOLD HILL
30500 GRANITE
30550 GRANTS PASS
30650 GRASS VALLEY
31250 GRESHAM
31600 HAINES
31650 HALFWAY
31750 HALSEY
32050 HAPPY VALLEY
32550 HARRISBURG
33250 HELIX
33550 HEPPNER
33700 HERMISTON
34100 HILLSBORO
34250 HINES
34900 HOOD RIVER
35450 HUBBARD
35700 HUNTINGTON
35800 IDANHA
36050 IMBLER
36150 INDEPENDENCE
36400 lONE
36500 IRRIGON
36750 ISLAND CITY
37000 JACKSONVILLE
37250 JEFFERSON
37550 JOHN DAY
37650 JOHNSON CITY
37850 JORDAN VALLEY
37900 JOSEPH
38000 JUNCTION CITY
38500 KEIZER
66700 SHANIKO
67050 SHERIDAN
67100 SHERWOOD
67500 SILETZ
67650 SILVERTON
67950 SISTERS
68550 SODAVILLE
40550 LAKE OSWEGO
40650 LAKESIDE
40700 LAKEVIEW
41650 LEBANON
42200 LEXINGTON
42600 LINCOLN CITY
43400 LONEROCK
43550 LONG CREEK
43900 LOSTINE
44050 LOWELL
44300 LYONS
45000 MCMINNVILLE
45250 MADRAS
45400 MALIN
45700 MANZANITA
46500 MAUPIN
46700 MAYWOOD PARK
47000 MEDFORD
47700 MERRILL
47750 METOLIUS
48150 MILL CITY
48300 MILLERSBURG
48600 MILTON-FREEWATER
48650 MILWAUKIE
49150 MITCHELL
49450 MOLALLA
49550 MONMOUTH
49600 MONROE
49750 MONUMENT
50000 MORO
50050 MOSIER
50150 MOUNT ANGEL
50250 MOUNT VERNON
50950 MYRTLE CREEK
51050 MYRTLE POINT
51700 NEHALEM
52100 NEWBERG
52450 NEWPORT
53000 NORTH BEND
53150 NORTH PLAINS
53300 NORTH POWDER
53750 NYSSA
54000 OAKLAND
54100 OAKRIDGE
54900 ONTARIO
55200 OREGON CITY
56250 PAISLEY
57150 PENDLETON
57450 PHILOMATH
57500 PHOENIX
57650 PILOT ROCK
75650 UMATILLA
75850 UNION
76250 UNITY
76600 VALE
77050 VENETA
77250 VERNONIA
78000 WALDPORT

61200	REDMOND	69450	SPRAY	78150	WALLOWA
61300	REEDSPORT	69600	SPRINGFIELD	78900	WARRENTON
61700	RICHLAND	69900	STANFIELD	78950	WASCO
61850	RIDDLE	70200	STAYTON	79050	WATERLOO
62250	RIVERGROVE	70700	SUBLIMITY	79950	WESTFIR
62900	ROCKAWAY BEACH	70850	SUMMERVILLE	80150	WEST LINN
63450	ROGUE RIVER	71000	SUMPTER	80350	WESTON
63650	ROSEBURG	71650	SUTHERLIN	81300	WHEELER
64200	RUFUS	71950	SWEET HOME	31050	GREENHORN
64600	ST. HELENS	72500	TALENT	82350	WILLAMINA
64850	ST. PAUL	72600	TANGENT	82800	WILSONVILLE
64900	SALEM	73650	TIGARD	83400	WINSTON
65250	SANDY	73700	TILLAMOOK	83750	WOODBURN
65500	SCAPPOOSE	74000	TOLEDO	83950	WOOD VILLAGE
65650	SCIO	74850	TROUTDALE	84200	YACHATS
65800	SCOTTS MILLS	74950	TUALATIN	84250	YAMHILL
66200	SENECA	75150	TURNER	84600	YONCALLA
66550	SHADY COVE	75550	UKIAH	65950	SEASIDE

This item is required for all records. If there is no FIPS place code, then code all zeros. If a bridge is not located in census-designated place, code all zeros.

Item 5 - Inventory Route 9 digits

The inventory route is a 9-digit code composed of 5 segments.

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

Item 5A - Record Type 1 digit (A/N)

There are two (2) types of National Bridge Inventory records: “on” and “under.” Code using one of the following codes:

Code	Description
1	Route carried “on” the structure
2	Single route goes “under” the structure
A through Z	Multiple routes go “under” the structure

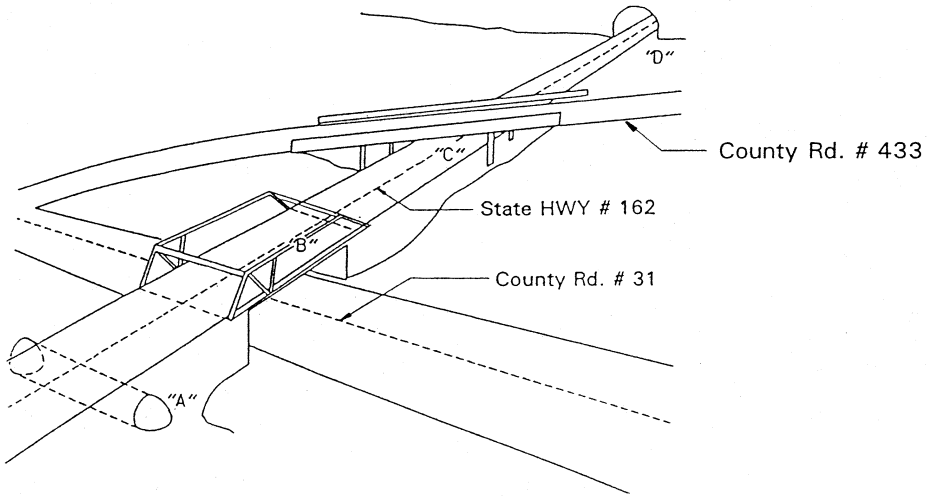
A signifies the first of multiple routes under the structure.
B signifies the second of multiple routes under the structure.
Z signifies 24 routes under the structure.
To avoid confusion with numerics, do not use letter “I” or “0”.

“On” signifies that the inventory route is carried “on” the structure. Each bridge structure carrying highway traffic must have a record identified with a type code = 1 (numeric). All of the NBI data items must be coded, unless specifically excepted, with respect to the structure

and the inventory route “on” it.

“Under” signifies that the inventory route goes “under” the structure. If an inventory route beneath the structure is on a Federal-aid system, is a defense route or is otherwise important, a record must be coded to identify it. The type code must be 2 or an alphabetic letter A through Z. Code 2 for a single route under the structure. If 2 or more routes go under a structure on separate roadways, the code of 2 shall not be used. Code A, B, C, D, etc. consecutively for multiple routes under the same structure. Defense routes shall be listed first. When this item is coded 2 or A through Z, the following items must be coded: Items 1, 3-11, 16, 17, 19, 20, 26-30, 42, 43, 47-49, 54-56, 100-104, 110, and 120. All other items are optional.

Example:



State HWY # 162 is carried on Structure B, and goes under Structure C. County road # 31 goes under Structure B. County road # 433 is carried on Structure C.

Each structure will have two (2) record types.

	Structure No.	Item 5A	Signifies
Structure B	04657 000000009	1	HWY # 162, on
	04657 0000000092		County road # 31, under
Structure C	00754 0000000001		County road # 433, on
	00754 0000000002		HWY # 162, under

It cannot be overemphasized that all route-oriented data must agree with the coding as to whether the inventory route is “on” or “under” the structure, including structure number. Note in the preceding example above, for each structure, the STRUCTURE NO. IS THE SAME FOR BOTH “ON” and “UNDER” RECORDS.

Tunnels shall be coded only as an “under” record; that is, they shall not be coded as a structure carrying highway traffic. As in the preceding example, tunnel “D” on HWY No.162 is a “under” record.

There are situations of a route “under” a structure, where the structure does not carry a highway, but may carry a railroad, pedestrian traffic, or even a building. These are coded the

same as any other "under" record and no "on" record shall be coded.

Item 5B - Route Signing Prefix 1 digit (N)

The second segment identifies the route signing prefix for the inventory route using one of the following codes:

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 lands road
8	Other (include toll roads not otherwise indicated or identified above)

When 2 or more routes are concurrent, the highest class of route will be used. The hierarchy is in the order listed above. For example: a inventory route, whether it is "on" or "under" the structure has signed route number of U.S. 20 and OR 126. Item 5B would be coded 2 since U.S. 20 is at a higher class level than OR 126.

Item 5C - Designated Level of Service 1 digit (N)

The third segment identifies the designated level of service for the inventory route using one of the following codes:

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

Item 5D - Route Number 5 digits (A/N)

Code the signed route number of the inventory route in the next 5 positions. Note that not all State Highways and City/County Highways have signed route numbers, and not all signed routes are on State Highways. This field shall be right justified with leading zeros filled in.

Example:	OR route # 22 will be coded instead of State HWY # 30	Item 5D 00022

If concurrent routes are of the same hierarchy level, denoted by the route signing prefix, the lowest numbered route shall be coded.

Example:	Item 5D
OR route # 99 is commonly aligned with OR route # 126,	00099

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

Example:

	Item 5B	Item 5D
U.S. 101 is commonly aligned with State HWY 9	2	US101

If there is no posted route number, code all zeros. Do not leave blanks. See Item 122 for State HWY and County Road numbers.

Item 5E - Directional Suffix 1 digit (N)

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

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

Examples:	Item 5 A B C D E	Code
Interstate 95, on	1 1 1 00095 0	111000950
Interstate 70S, under	2 1 1 00070 3	211000703
State Route 104, Spur, under	2 3 4 00104 0	234001040
U.S. 30E Bypass, on	1 2 3 00030 2	123000302
City street,on	1 5 0 00000 0	150000000
Ramp from 1-81, under	2 1 7 00081 0	217000810
County Highway 173 on	1 4 1 00173 0	141001730
Interstate 84 under	2 1 1 00084 0	211000840
Interstate 495 on	1 1 1 00495 0	111004950
US Route 120 (Defense Rte) under	A 2 1 00120 0	A21001200
Alternate State Route 99W under	B 3 2 00099 4	B32000994
Tunnel on Interstate 70	2 1 1 00070 0	211000700

Item 5A through 5E must be coded for all routes being inventoried.

Item 6 - Features Intersected 25 digits (A/N)

This item contains a description of the features intersected by the structure and a critical facility indicator. There are 25 digits divided into 2 segments.

Segment	Description	Length
6A	Features Intersected	24 digits
6B	Critical Facility Indicator	1 digit

The information to be recorded for this item in the first 24 digits shall be the name or names of the features intersected by the structure. When one of the features intersected is another highway, the signed number or name of the highway shall appear first (left most) in the field. Code the signed route in the same order as listed in Item-5B. The names of any other features shall follow, separated by a semicolon or a comma. Parentheses shall be used to provide a second identification of the same feature (see third example). Abbreviations may be used where necessary, but an effort shall be made to keep them meaningful and consistent, so that this item can be sorted. The data in this segment shall be left justified in the first 24 positions without trailing zeros.

Examples:

I 81, US 51, MILLROAD *
SR 772, MISSISSIPPI R
SR 42 (POND ROAD)

Route “under” Records

When item 5A indicates an “under” record, this item describes the route & features under the structure. When both “on” and “under” records describe the same structure, code Item 6 exactly the same as for the route “on” records associated with the structure.

A structure on a designated defense highway considered to be a critical facility, which is defined in Federal-Aid Policy Guide, Subchapter G, Part 666, shall be identified by an asterisk in the 25th position. The Bridge Operations office will furnish this information.

Item 7 - Facility Carried by Structure 18 digits (A/N)

The facility being carried by the structure shall be recorded and coded. When Item 5A indicates an “under” record, this Item describes the use “on” the structure. This item shall be left justified without trailing zeros. Bridges on Indian reservation roads require a unique identification. To identify these bridges, code “IRR” in the first three digits of this item followed by a blank space then the other appropriate entry information.

Examples:

COUNTY ROAD 450
US66
MAIN STREET
IRR CO HWY RT 13
C & 0 RAILROAD (appropriate for “under” record only)
PEDESTRIAN BRIDGE (appropriate for “under” record only)

Route “under” Records

When both “on” and “under” records describe the same structure, code Item 7 exactly the same as for the route “on” records associated with the structure. Note that some structures will have no route “on” records, such as tunnels, pedestrian bridges, railroad bridges, sign bridges, etc. For these structures, code the appropriate description.

Item 9 - Location 25 digits (A/N)

This item contains a narrative description of the bridge location. It is recommended that the location be keyed to a distinguishable feature on an official highway department map such as road junctions and topographical features. This item shall be left justified without trailing zeros. It is required for all records. Leave a blank space between words.

Examples:

6 Ml. SW. OF RICHMOND
3.5 Ml. S. OF JCT. SR 69

As in all narrative items, certain letters need special attention to avoid confusion with numerics.

Item 10 - Inventory Route. Minimum Vertical Clearance 4 digits (N) (XX feet XX inches)

Code the minimum vertical clearance over the inventory route identified in Item 5, whether the route is "on" the structure or "under" the structure. The minimum clearance for a 10-foot width of the pavement or traveled part of the roadway where the clearance is the greatest shall be coded in feet and inches. For structures having multiple openings, code only the greatest of the minimum clearances for the two or more openings regardless of the direction of travel. This would be the practical maximum clearance. When no restriction exists, code 9999.

Example:	Code
17'-9" mm. verti. clearance	1709

Item 11 - Milepost (XXX.XX miles, X code) 6 digits

This item composed of two segments:

Segment	Description	Length
11A	Milepost	5 digits (N)
11B	Negative Milepost Flag	1 digit (A/N)

If a milepost location reference system is being used, code a 5-digit number with leading zeros to represent the milepoint to hundredths of a mile.

Example:	Code
0.16 miles	00016

The milepoint shall reference the beginning (or other point Oregon uses) of the structure in the direction of increasing mileage of the inventory route identified in Item122. This item is required for all records.

Code all zeros if a milepost location cannot be determined or is not appropriate.

Item-11B is to record negative mileage, code a 'X' when applicable.

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Item 16 - Latitude (XX degrees XX.X minutes) 5 digits (N)

For bridges on defense highways and on the NHS, record and code the latitude of each in degrees, minutes and tenths of minutes (with an assumed decimal point). The point of the coordinate shall be the beginning of the bridge in the direction of the inventory. If the bridge is not on a defense highway or the NHS, a code of all zeros is acceptable, but it is preferable to code the latitude if available. Do not leave blank spaces.

Example:	Code
Latitude is 35°27.3'	35273

Item 17 - Longitude (XXX degrees XX.X minutes) 6 digits (N)

For bridges on defense highways and on the NHS, record and code the longitude of each in degrees, minutes and tenths of minutes (with an assumed decimal point). A leading zero shall be coded where needed. The point of the coordinate shall be the beginning of the bridge in the direction of the inventory. If the bridge is not on a defense highway or the NHS, a code of all zeros is acceptable, but it is preferable to code the longitude if available. Do not leave blank spaces.

Example:	Code
Longitude is 81°5.8'	081058

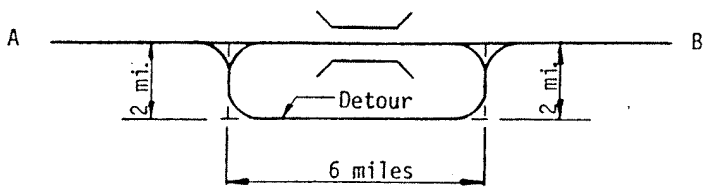
Item 19 - Bypass. Detour Length (XX miles) 2 digits (N)

If a ground level bypass is available at the structure site for the inventory route, record and code the detour length as 00.

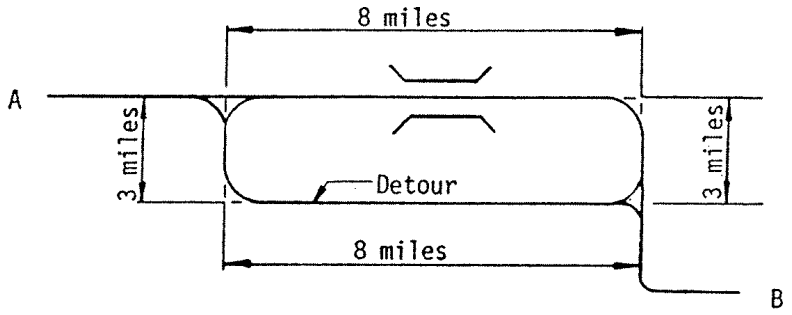
If the bridge is one of twin bridges and is not at an interchange, code 01 where the other twin bridge can be used as a temporary bypass with a reasonable amount of crossover grading. In other cases, indicate the actual length to the nearest mile of the detour length. The detour length should represent the total additional travel for a vehicle which would result from closing of the bridge. The factor to consider when determining if a bypass is available at the site is the potential for moving vehicles, including military vehicles, around the structure. This is particularly true when the structure is in an interchange. For instance, a bypass likely would be available in the case of diamond interchanges, interchanges where there are service roads available, or other interchanges where the positioning and layout of the ramps is such that they could be used without difficulty to get around the structure. Code 99 for 99 miles or more.

The detour route will be established following allowable criteria determined by the governing authority. (Some authorities will not allow a designated detour over a road or bridge of lesser "quality.")

Examples:	Code
Diamond interchange, structure bypassable	00
Cloverleaf, not bypassable; 8-mile detour	08
Structure over river; 121-mile detour	99
Structure over highway, no interchange, bypassable at ground level	00
Structure on dead end road	99



Bypass, Detour Length A - B = 4 miles



Bypass, Detour Length A – B = 0 miles.

Item 20 - Toll 1 digit (N)

The toll status of the structure is indicated by this item. Interstate toll segments under Secretarial Agreement (Section l05 of 1978 Federal-Aid Highway Act) shall be identified separately. Use one of the following codes:

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

Item 21 - Maintenance Responsibility 2 digits (N)

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

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
60	Other Federal Agencies (not listed below)
62	Bureau of Indian Affairs
64	U.S. Forest Service
66	National Park Service
68	Bureau of Land Management
69	Bureau of Reclamation
70	Military Reservation/Corps of Engineers
80	Unknown

Item 22 - Owner 2 digits (N)

Use the codes in Item 21 to represent the type of agency that is the primary owner of the structure. If more than one agency has equal ownership, code one agency in the hierarchy of State, Federal, county, city, railroad, and other private.

Item 26 - Functional Classification of Inventory Route 2 digits (N)

For each inventory route, whether it is a "on" or "under" record, code the functional classification using one of the following codes:

	Code	Description
NHS	01	Rural Principal Arterial - Interstate
	02	Rural Principal Arterial - Other
	11	Urban Principal Arterial - Interstate
	12	Urban Principle Arterial - Other Freeways or Expressways
	14	Urban Other Principal Arterial
Other Federal-aid Highways	06	Rural Minor Arterial
	07	Rural Major Collector
	16	Urban Minor Arterial
	17	Urban Collector
Off-system	08	Rural Minor Collector
	09	Rural Local
	19	Urban Local

The codes shall be compatible with codes for Item 104 - Highway System of the Inventory Route. The bridge shall be coded rural if not inside a designated urban area. The urban or rural designation shall be determined by the bridge location and not the character of the roadway.

Item 27 - Year Built 4 digits (N)

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

Examples:	Code
Construction completed 1990	1990

This item is required for all records.

Item 28 - Lanes On and Under the Structure 4 digits (N)

Code the number of lanes being carried by the structure and being crossed over by the structure as a 4-digit number composed of 2 segments. The number of lanes should be right justified in each segment with leading zero(s) coded as required.

Segment	Description	Length
28A	Lanes on the structure	2 digits
28B	Lanes under the structure	2 digits

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

When the inventory route is “on” the bridge (the first digit of Item 5 - Inventory Route is coded 1), the sum of the total number of lanes on all inventoried routes under the bridge shall be coded. When the inventory route is “under” the bridge (the first digit of Item 5 -Inventory Route is coded 2 or A through Z), the number of lanes shall be coded for the inventory route only.

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

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

Examples*:	Code
1 lane on, 0 lanes under	0100
3 lanes on, 1 lane under	0301
8 lanes on 2-way, 12 lanes under **	0812

5 lanes on double deck each direction, 2 lanes under	1002***
5 lanes on double deck each direction, 2 lanes under	0502****
Railroad and pedestrian on, 4 lanes under	0004

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

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

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

16

**** Acceptable if coded as 2 separate bridges. However, other data such as ADT, curb-to-curb width, etc., must be for a single deck.

Item 29 - Average Daily Traffic 6 digits (N)

Code a 6-digit number that shows the average daily traffic volume for the inventory route identified in Item 5 (route "on" or "under"). Make certain the unit's position is coded even if estimates of ADT are determined to tens or hundreds of vehicles; that is, appropriate trailing zeros shall be coded. The ADT coded should be the most recent ADT counts available. Local agencies may use their own ADT if available.

Do not leave blank spaces. Included in this item are the trucks referred to in Item 109 - Average Daily Truck Traffic. If the bridge is closed, code the actual ADT from before the closure occurred.

The ADT must be compatible with the other items coded for the bridge. For example, parallel bridges with an open median are coded as follows: if Item 28 - Lanes On and Under the Structure and Item 51 - Bridge Roadway Width, Curb-to-Curb are coded for each bridge separately, then the ADT must be coded for each bridge separately (not the total ADT for the route).

Examples:		Code
Average Daily Traffic	540	000540
	15,600	015600
	24,000	024000

Item 30 - Year of Average Daily Traffic 2 digits (N)

Record the year represented by the ADT in Item 29. Code the last 2 digits of the year so recorded. Update this item whenever the ADT in Item 29 is updated.

Example:	Code
Year of ADT is 1992	92

Item 31 - Design Load 1 digit (N)

Use the codes below to indicate the live load for which the structure was designed. Classify any other loading, when feasible, using the nearest equivalent of the loadings given below.

Code	Description
1	H10
2	H15
3	HS 15
4	H 20
5	HS 20
6	HS 20+Mod
7	Pedestrian
8	Railroad
9	HS 25
0	Other or Unknown (describe on recording form)

Item 32 - Approach Roadway Width (XXX feet) 3 digits (N)

Code to the nearest foot, a 3-digit number that represents the normal width of usable roadway approaching the structure. Usable roadway width will include the width of traffic lanes and the widths of shoulders where shoulders are defined as follows:

> Shoulders must be constructed and normally maintained flush with the adjacent traffic lane, and must be structurally adequate for all weather and traffic conditions consistent with the facility carried.

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

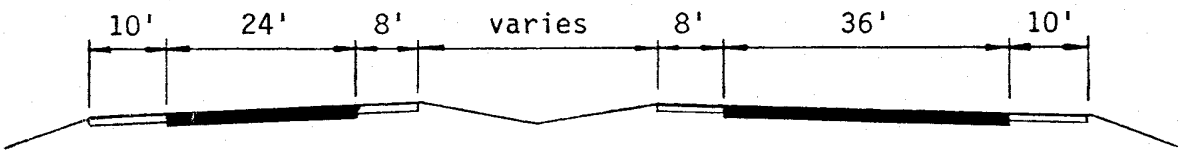
For structures with medians of any type and double-decked structures, this item should be coded as the sum of the usable roadway widths for the approach roadways (i.e., all median widths which do not qualify as shoulders should not be included in this dimension). When there is a variation between the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

For twin bridges, code this item for one bridge if Items 28 and 51 are coded for one bridge.

Examples:

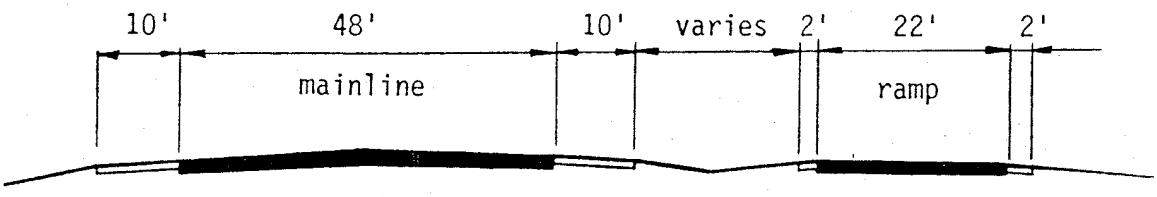
Left Shoulder	Left Roadway	Median Shoulders	Right Roadway	Right Shoulder	Code
4.0	-	-	16	6.0	026
6.0	-	-	36	12.0	054
12.0	48	30	48	12.0	150
10.0	24	16	36	10.0	096

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



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

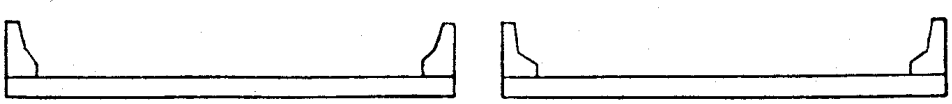
If a ramp is adjacent to the through lanes approaching the structure, it shall be included in the approach roadway width. The total approach roadway width for the example below is 94 feet (a code of 094)



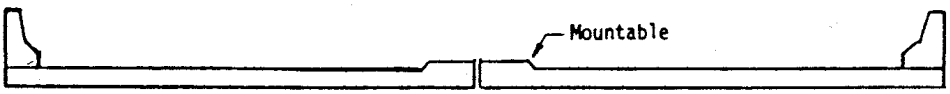
Item 33 - Bridge Median 1 digit (N)

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

Code	Description
0	No median
1	Open median
2	Closed median (no barrier)
3	Closed median with non-mountable barriers



Open Median



Closed Median

Closed Median with Non-mountable Barrier

Item 34 - Skew (XX degree) 2 digits (N)

The skew angle is the angle between the centerline of a pier and a line normal to the roadway centerline. When plans are available, the skew angle can be taken directly from the plans. If no plans are available, the angle is to be field measured if possible. Record the skew angle to the nearest degree. If the skew angle is 0°**,** it should be so coded. When the structure is on a curve or if the skew varies for some other reason, the average skew should be recorded, if reasonable. Otherwise, record 99 to indicate a major variation in skews of substructure units. A 2-digit number should be coded.

Examples:	Skew Angle	Code
	0°	00
	10°	10
	29°	29

Item 35 - Structure Flared 1 digit (N)

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

Code	Description
1	Yes, flared
0	No flare

Item 36 - Traffic Safety Features 4 digits (A/N)

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

Traffic safety features is a 4-digit code composed of 4 segments.

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

The data collected shall apply only to the route carried "on" the structure. Collision damage or deterioration of the elements are not considered when coding this item.

(A) Bridge railings: Bridge railings shall meet the geometric and strength requirements of Section 2.7 of the current AASHTO Standard Specifications for Highway Bridges and meet the appropriate performance level proven by crash testing. Railings with the following features are acceptable:

* Railings that passed crash testing, or
* Railings that are structurally adequate, and
* Railings that are capable of smoothly redirecting an impacting vehicle.

A list of acceptable rails and their corresponding upgrade category is provided herein. In general, the acceptable rails are:
* Standard 2 tube steel rail, curb mounted.
* Standard three - beam rail, side mounted.
* Thrie beam curb mounted retrofit.
* Standard concrete safety shape rail, Type F or GM.

U	DRWG#	DRWG NAME	YEAR
1	27155	Standard Parapet Rail Type G	1971
1	34610	Standard 5 in. Structural Tubing Rail w/Curb	1980
1	38640	Standard Concrete Bridge Rail	1983
1	38640	STD Conc Bridge Rail to Conc Barrier Transition	1983
1	42561	Concrete Parapet with Metal Railing	1986
1	42562	Concrete Parapet with Chain Link Fencing	1986
1	42563	Standard Concrete Bridge Rail Type F	1986
1	42724	Standard Concrete Bridge Rail Type F	1986
1	43495	Standard Concrete Bridge Rail Type F	1987
1	43496	STD Trans Conc BR Rail to Guardrail Approx 18.75'	1987
1	43497	Standard 2 Tube Curb Mount Rail	1987
1	43498	Standard Curb Mount Rail	1988
1	43499	2 & 3 Tube STD Curb Mount Rail Approx 18.75' Trans	1987
1	43542	Standard Thrie Beam Rail	1987
1	45706	Rail Retrofit Concrete Rail Type F	1990

1 46610	Pedestrian Rail on Vertical Parapet	1992
1 47646	Thrie Beam Rail Upgrade and Connection	1992
1 47655	Thrie Beam Rail and Transition Retrofit	1992
2 22150	Standard 3 Tube Rectangular Tubing Rail	1966
2 22431	Standard 1 Pipe Parapet Rail Type G	1966
2 22702	Standard 3 tube Rectangular Tubing Rail	1966
2 23279	Standard 1 Pipe Parapet Rail Type G	1967
2 23670	Standard 3 Tube Rectangular Tubing Rail	1968
2 23937	Standard 1 Pipe Parapet Rail	1968
2 23938	Standard 1 Pipe Parapet Rail Type G	1968
2 24293	Standard 1 Pipe Parapet Rail Type G	1968
2 30069	STD 3 Tube SQ. Tubing Rail Top Mounting (PL 1)	1974
2 30276	STD 3 Tube SQ. Tubing Rail Side Mounting (PL 1)	1975
2 31755	Standard Curbed 3 Tube Rectangular Tubing Rail	1977
2 31896	4 Tube Square Tubing Rail--Metric	1977
2 33053	Standard 4 Tube SQ. Tubing rail For Side Mounting	1977
2 34610	Standard 5 in. Structural Tubing Rail No Curb	1980
2 43444	Standard Metal Rail with Tubing (PL 1)	1987
2 43496	STD Trans Conc BR Rail to Guardrail Approx. 12.5’	1987
2 43499	2 & 3 Tube Std Curb Mount Rail Approx. 12.5’ Trans	1987

Acceptable guidelines for bridge railing design and testing are also found in the AASHTO 1989.

(B) Transitions: The primary function of the transition is to provide protection from the end of the bridge rail. This is usually accomplished by gradually stiffening the guardrail as it comes closer to the bridge. Transition is acceptable if:

For concrete median barrier --

* It is firmly connected to the bridge rail.

For guardrail --

* The approach guardrail is firmly attached to the bridge railing, and
* The approach guardrail consists of a minimum of 4 spaces of 3’-1 *1/2”* with either thrie beam or double thickness W beam and a rub rail below, and
* The ends of curbs and safety walks need to be gradually tapered out or shielded.

On one-way facilities or where the rail end is not exposed to approaching traffic, a transition is not required. (If guardrail is required for site protection, only a firm connection to the bridge rail is needed).

(C) Approach guardrail: An approach guardrail with adequate length and structural qualities to shield motorists from the hazards at the bridge site needs to be installed. In addition to being capable of safely redirecting an impacting vehicle, the approach guardrail must also facilitate a transition to the bridge railing that will not cause snagging or pocketing of an impacting vehicle. To accomplish the above, the approach guardrail needs to meet one of the following:

* Metal guardrail consists of a 12'-6" Type 3 and a 37'-6" Type 2A rail.
* concrete shoulder barrier.

On one-way facilities or where the rail end is not exposed to approaching traffic, approach guardrail may not be required if hazard of site do not exist (i.e. slope).

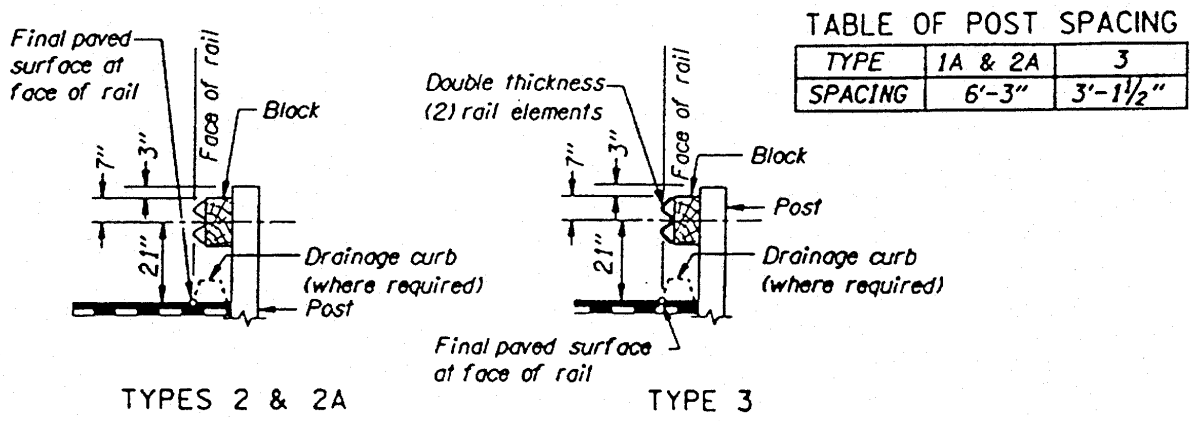


TABLE OF POST SPACING

TYPE	1A & 2A	3
SPACING	6'-3"	3'-1½"

Acceptable guardrail design suggestions are contained in the current AASHTO Roadside Design Guide and subsequent FHWA or AASHTO guidelines.

(D) Approach guardrail ends: As with guardrail ends in general, the approach guardrail should be flared, and the ends shall be buried, breakaway, or shielded, or terminated beyond the recovery area.

Design treatment of guardrail ends is given in the current AASHTO Roadside Design Guide.

The reporting of these features shall be as follows:

Code	Description
0	Inspected feature does not meet the current acceptable standards or a safety feature is required and none is provided.
1	Inspected feature meets currently acceptable standards.
N	Not applicable or a safety feature is not required.

Example:	Code
All features meet currently acceptable standards except transition	1011

Note: Unless the rail posts are physically attached to the RCBC top slab or culvert headwall, Item 36 should be coded "NNNN".

Item 37 - Historical Significance 1 digit (N)

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

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

Item 38 - Navigation Control 1 digit (A/N)

Indicate for this item whether or not navigation control (a bridge permit) is required. Determination of whether or not a water course is navigable is made by the U.S. Coast Guard or the U.S. Army Corps of Engineers, whichever has the jurisdiction. Use one of the following codes:

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

Item 39 - Navigation Vertical Clearance 3 digits (N)
(XXX feet)

If Item 38 - Navigation Control has been coded 1, record in feet the minimum vertical clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. The measurement shall be coded as a 3-digit number rounded down to the nearest foot. This measurement will show the clearance that is allowable for navigational purposes. In the case of a swing or bascule bridge, the vertical

clearance shall be measured with the bridge in the closed position (i.e., open to vehicular traffic). The vertical clearance of a vertical lift bridge shall be measured with the bridge in the raised or open position. Also, Item 116 - Minimum Navigation Vertical Clearance Vertical Lift Bridge shall be coded to provide clearance in a closed position. If Item 38 - Navigation Control has been coded 0 or N, code 000 to indicate not applicable.

Examples:

Measured Vertical Clearance	Code
150.0’	150
20.6’	020

Item 40 - Navigation Horizontal Clearance 4 digits (N)
(XXXX feet)

If Item 38 - Navigation Control has been coded 1, record for this item the minimum horizontal clearance in feet. This measurement should be that shown on the navigation permit and may be less than the structure allows. If a navigation permit is required but not available, use the minimum horizontal clearance between fenders, if any, or the clear distance between piers or bents. Code the clearance as a 4-digit number. Code 0000 if Item 38 - Navigation Control is coded 0 or N.

Examples:

Horizontal Clearance	Code
95 feet	0095
538 feet	0538
1,200 feet	1200

Item 41 - Structure Open. Posted, or Closed to Traffic 1 digit(A)

This item provides information about the actual operational status of a structure. The field review could show that a structure is posted, but Item 70 - Bridge Posting may indicate that posting is not required. This is possible and acceptable coding since Item 70 is based on the operating stress level and the governing agency’s posting procedures may specify posting at some stress level less than the operating rating. One of the following codes shall be used:

Code	Description
A	Open, no restriction
B	Open, posting recommended but not legally implemented (all signs not in place or not correctly implemented.)
D	Open, would be posted or closed except for temporary shoring, etc. to allow for unrestricted traffic

E	Open, temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation
G	New structure not yet open to traffic
K	Bridge closed to all traffic
P	Posted for load (may include other restrictions)
R	Posted for other load-capacity restriction (speed, number of vehicles on bridge, etc.)

Item 42 - Type of Service 2 digits (N)

The type of service on the bridge and under the bridge is indicated by a 2-digit code composed of 2 segments.

Segment	Description	Length
42A	Type of service on bridge	1 digit
42B	Type of service under bridge	1 digit

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

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

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

Code	Description
1	Highway, with or without pedestrian
2	Railroad
3	Pedestrian exclusively
4	Highway-railroad
5	Waterway
6	Highway-waterway

7	Railroad-waterway
8	Highway-waterway-railroad
9	Relief for waterway
0	Other

Item 43 - Structure Type, Main 3 digits (N)

Record the description on the inspection form and indicate the type of structure for the main span(s) with a 3-digit code composed of 2 segments.

Segment	Description	Length
43A	Kind of material and/or design	1 digit
43B	Type of design and/or construction	2 digits

The first digit indicates the kind of material and/or design and shall be coded using one of the following codes:

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

* Post-tensioned concrete should be coded as prestressed concrete.

The second and third digits indicate the predominant type of design and/or type of construction and shall be coded using one of the following codes:

Code	Description
01	Slab
02	Stringer/Multi-beam or Girder
03	Girder and Floorbeam System
04	Tee Beam
05	Box Beam or Girders - Multiple
06	Box Beam or Girders - Single or Spread
07	Frame *
08	Orthotropic
09	Truss - Deck
10	Truss-Thru
11	Arch - Deck
12	Arch - Thru
13	Suspension

14	Stayed Girder
15	Movable - Lift
16	Movable - Bascule
17	Movable - Swing
18	Tunnel
19	Culvert
20 **	Mixed types
21	Segmental Box Girder
22	Channel Beam
00	Other

* Frame culverts should be coded = 19
** Applicable only to approach spans - Item 44

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

This item is required for all records.

Item 44 - Structure Type. Approach Spans — 3 digits (N)

Indicate with a 3-digit code composed of 2 segments, the type of structure for the approach spans to a major bridge or for the spans where the structural material is different.

Segment	Description	Length
44A	Kind of material and/or design	1 digit
44B	Type of design and/or construction	2 digits

The codes are the same as for Item 43 preceding, except as follows:

1. Code the first digit "0" (Item 44A) if the material varies considerably.

2. Use code 20 (Item 44B) when no one type of design and/or construction is predominate for the approach units.

3. If the kind of material (Item 44A) is varied, code the most predominant.

4. Code all zeros if this item is not applicable.

Examples:	Code
Simple prestressed concrete I-beam	502
Continuous concrete T-beam	204

Continuous steel deck truss 409

Item 45 - Number of Spans in Main Unit 3 digits (N)

Record the number and indicate with a 3-digit code the number of spans in the main or major unit. This item will include all spans of most bridges, the major unit only of a sizable structure, or a unit of material or design different from that of the approach spans. Right justify the number and code preceding digits with zeros.

Item 46 - Number of Approach Spans 4 digits (N)

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

Item 47 - Inventory Route, Total Horizontal Clearance (XX.X feet) 3 digits (N)

The total horizontal clearance for the inventory route identified in Item 5 should be measured and recorded to supply information that meets reporting requirements of Federal-aid Policy Guide, Subchapter G, Part 666. The clearance should be the available clearance measured between the restrictive features -- curbs, rails, walls, or other structural features limiting the roadway (surface and shoulders). Code the clearance to the nearest tenth of a foot, (with an assumed decimal point).

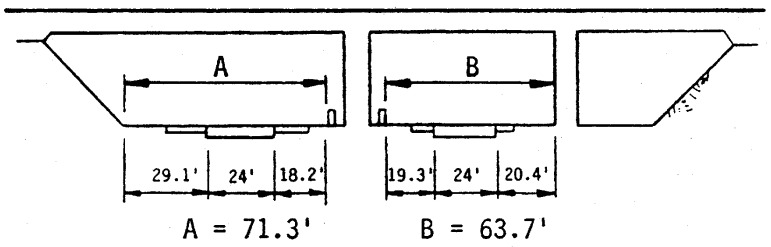
The purpose of this item is to give the largest available clearance for the movement of wide loads. This clearance has been identified in 3 ways; use the most applicable:

1. Roadway surface and shoulders - when there are no restrictions.

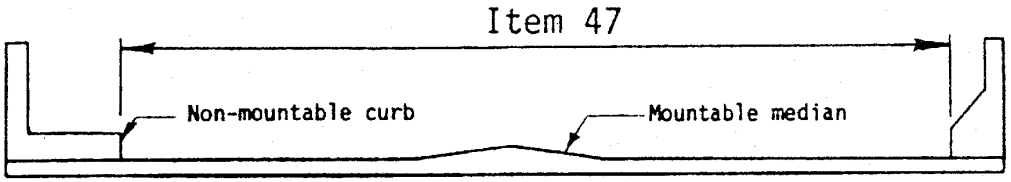
2. Distance from face of pier (or rail around pier) to face of rail or toe of slope.

3. Include flush or mountable medians (Item 33 - Bridge Median coded 2) but not raised medians (Item 33 coded 3). For a raised or non-mountable median record the greater of the restricted widths in either direction, not both directions.

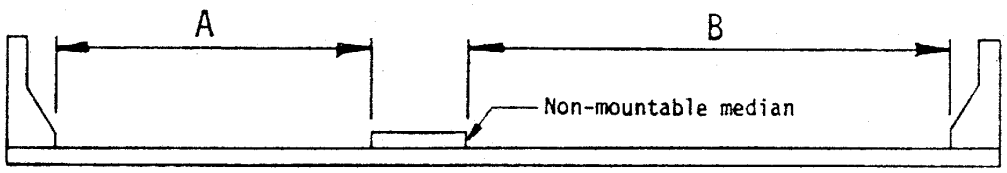
Examples:



Clearance A > B Item 47 = A



No Median or Flush or Mountable Median



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

Item 48 - Length of Maximum Span 4 digits (N)
(XXXX feet)

The length of the maximum span shall be recorded. The measurement is the distance between piers, bents, or abutments. The measurement shall be along the centerline of the bridge. For this item, code a 4-digit number to represent the measurement to the nearest foot. Right justify the number with leading zeros.

Examples:	Length of Maximum Span	Code
	50 feet	0050
	117feet	0117
	1,050 feet	1050

Item 49 - Structure Length 6 digits (N)
(XXXXXX feet)

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

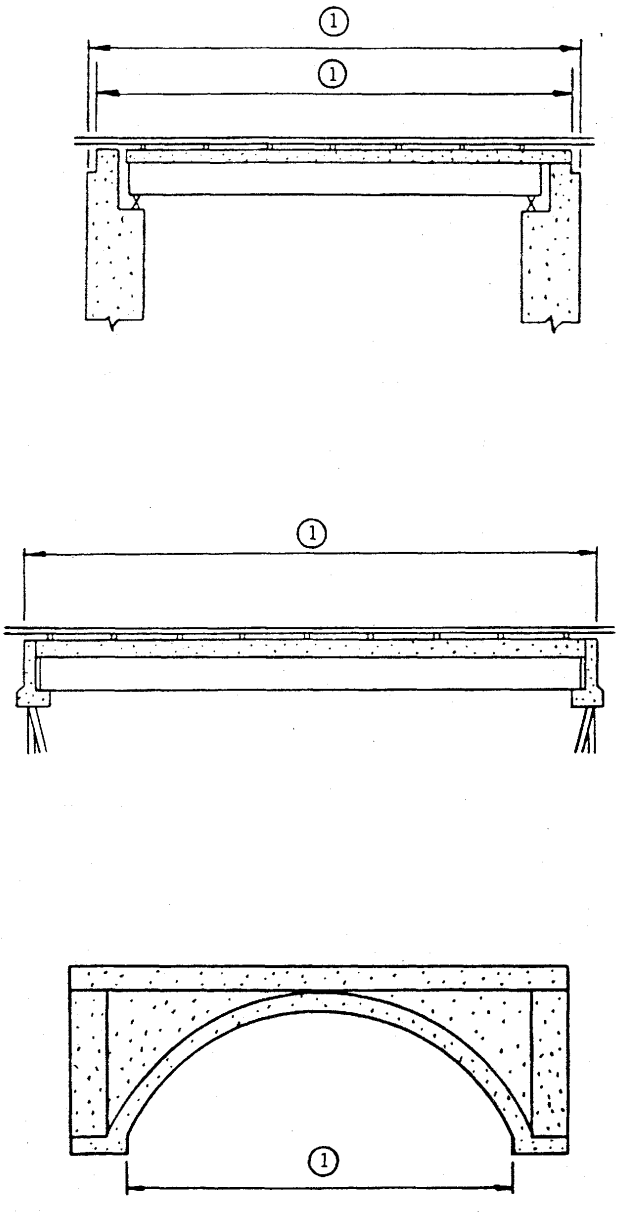
Culvert lengths should be measured along the center line of roadway regardless of their depth below grade. Measurement should be made between inside faces of exterior walls.

Tunnel length should be measured along the centerline of the roadway. Be sure to code Item 5A = 2 for all tunnels.

Item 49 – Structure Length (cont'd)

Examples:

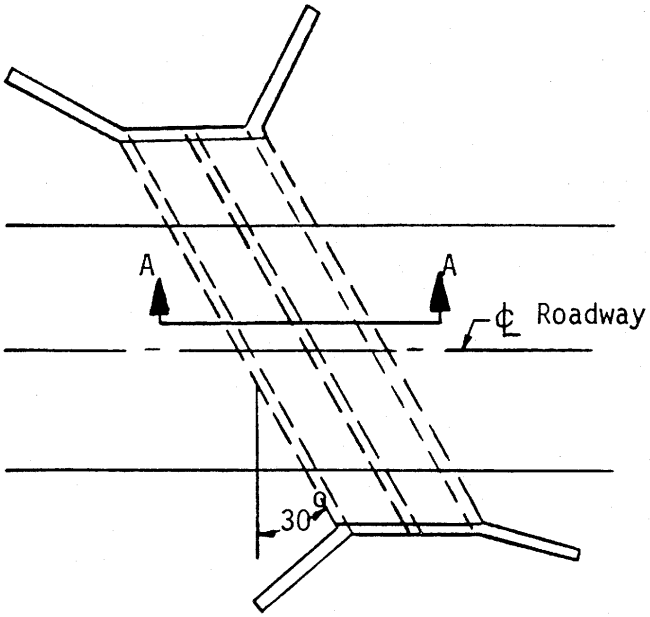
		Code
Structure Length	50 feet	000050
	5,421 feet	005421
	333 feet	000333
	101,235 feet	101235

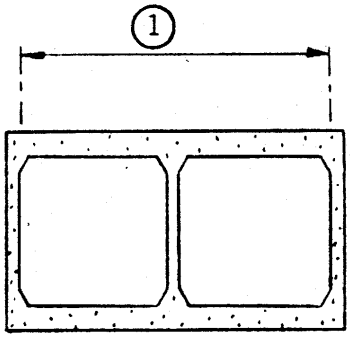


① Item 49 -Structure Length

Item 49 — Structure Length (cont'd)

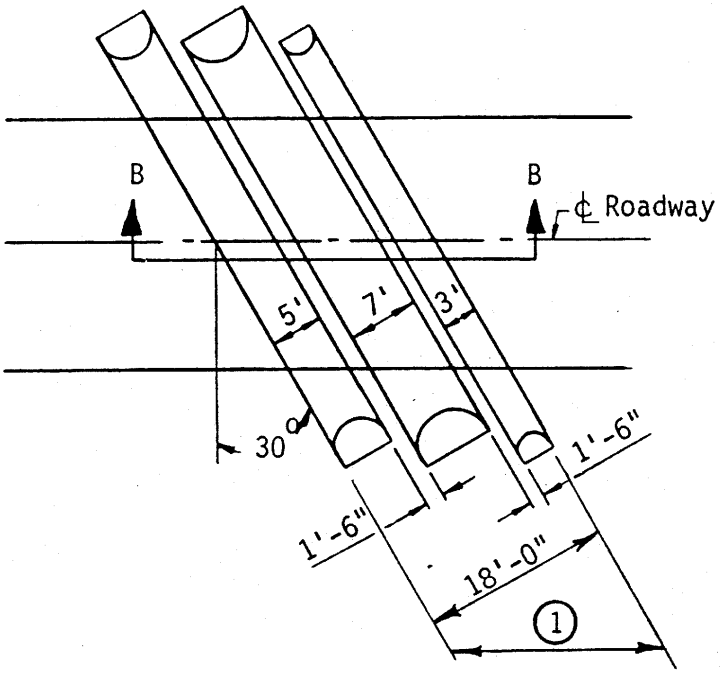
EXAMPLES:

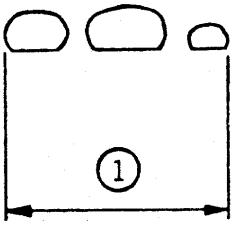




SECTION A-A

(1) Item 49 - Structure Length





SECTION B-B

(1) Item 49 - Structure Length = $\frac{18'}{\cos 30°}$ = 20.78' Code 000021

Item 50 - Curb or Sidewalk Widths 6 digits (N)
(XX.X feet, XX.X feet)

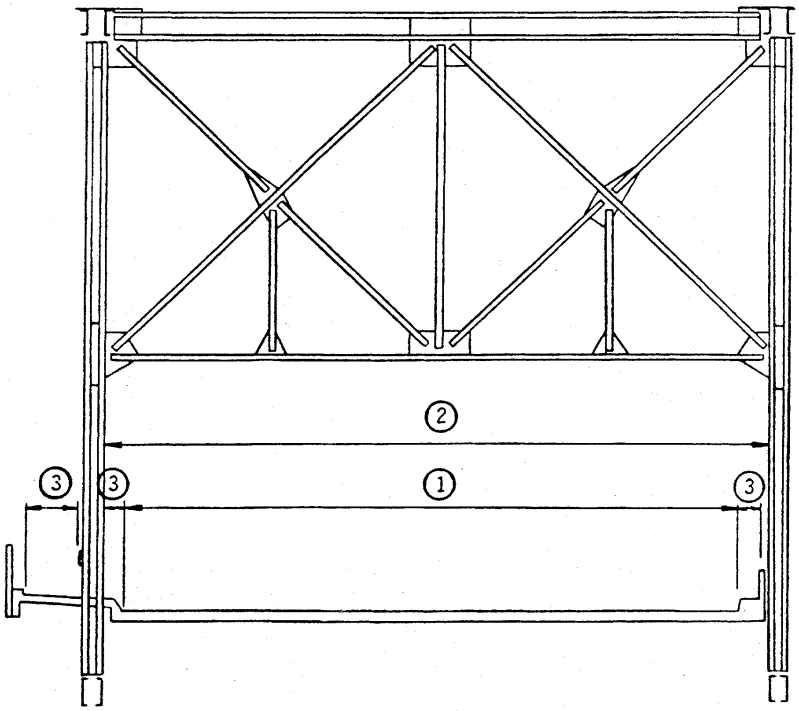
This is a 6-digit number composed of 2 segments, with the left most 3 digits representing the left curb or sidewalk and the right most 3 digits representing the right curb or sidewalk. Code the two segments to represent the widths of the left and right curbs or sidewalks to nearest tenth of a foot (with assumed decimal points). "Left" and "Right" should be determined on the basis of direction of the inventory.

Blank spaces are to be filled with zeros.

Segment	Description	Length
50A	Left curb or sidewalk width	3 digits
50B	Right curb or sidewalk width	3 digits

Examples:

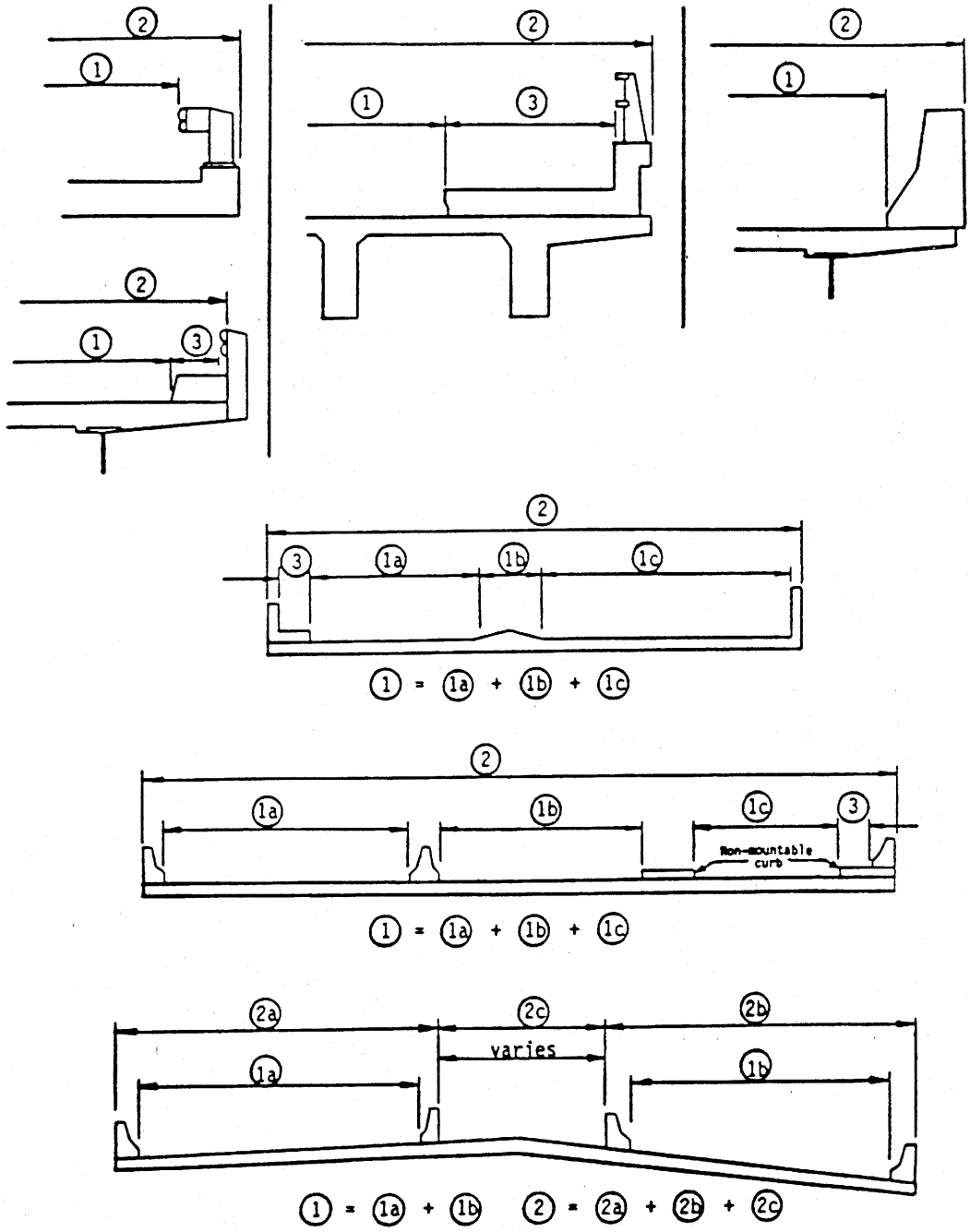
	Left Side	Right Side	Code
Curb or sidewalk	None	8.3'	000083
	10.0'	4.1'	100041
	8.3'	None	083000
	12.1'	11.5'	121115
	None	None	000000
	0.6'	1.5'	006015



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

Item 50 - Curb or Sidewalk Widths (cont'd)

Examples:



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

Item 51 - Bridge Roadway Width, Curb-to-Curb 4 digits (N)
(XXX.X feet)

The information to be recorded is the most restrictive minimum distance between curbs or rails on the structure roadway. For structures with closed medians and usually for double decked structures, coded data will be the sum of the most restrictive minimum distances for all roadways carried by the structure*. The data recorded for this item must be compatible with other related route and bridge data (i.e., Items 28, 29, 32, etc.). The measurement should be exclusive of flared areas for ramps. A 4-digit number should be used to represent the distance to the nearest tenth of a foot. See preceding examples on pages.

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

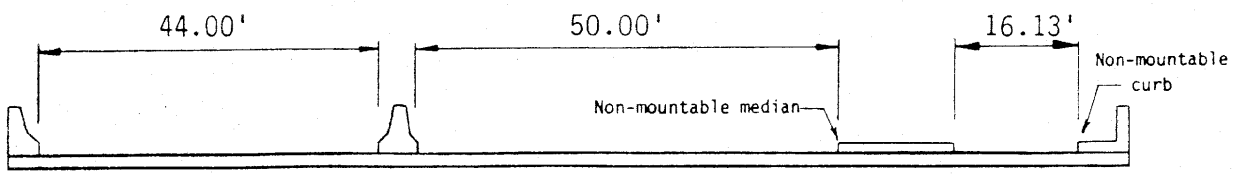
Where the roadway is on fill carried across a structure and the headwalls or parapets do not affect the flow of traffic, code 0000. This is considered proper inasmuch as a filled section simply maintains the roadway cross-section.

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

Examples:

Bridge Roadway Width	Code
36.00’ wide	0360
66.37’ wide	0664
110.13’ wide	1101

The last example above would be the coded value for the deck section shown below.



Item 52 - Deck Width. Out-to-Out 4 digits (N)
(XXX.X feet)

Code a 4-digit number to show the out-to-out width to the nearest tenth of a foot. If the structure is a through structure, the number to be coded will represent the lateral clearance between superstructure members. The measurement should be exclusive of flared areas for ramps. See examples on pages 34 and 35.

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

Where the roadway is on a fill carried across a pipe or box culvert and the culvert headwalls do not affect the flow of traffic, code 0000. This is considered proper inasmuch as a filled section over a culvert simply maintains the roadway cross-section.

Item 53 - Minimum Vertical Clearance Over Bridge Roadway 4 digits (N)
(XX feet, XX inches)

The information to be recorded for this item is the actual minimum vertical clearance over the bridge roadway, including shoulders, to any superstructure restriction, rounded down to the nearest inch. For double decked structures code the minimum, regardless whether it is pertaining to the top or bottom deck. When no superstructure restriction exists above the bridge roadway. When a restriction is 100 feet or greater, code 9912. A 4-digit number should be coded to represent feet and inches.

Examples:		Code
Minimum Vertical Clearance	17’3”	1703
	75’-11”	7511
	No restriction	9999
	115’-6”	9912

Item 54 - Minimum Vertical Underclearance 5 digits
(X code, XX feet, XX inches)

Using a 1-digit code and a 4-digit number, to code the minimum vertical clearance from the roadway (travel lanes only) or railroad track beneath the structure to the underside of the superstructure. (When both a railroad and highway are under the structure, code the most critical dimension.)

Segment	Description	Length
54A	Reference feature	1 digit (A)
54B	Minimum Vertical Underclearance	4 digits (N)

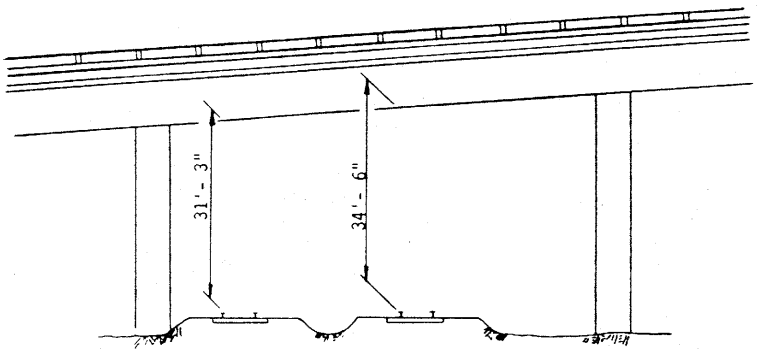
Using one of the codes below, code in the first position, the reference feature from which the clearance measurement is taken:

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

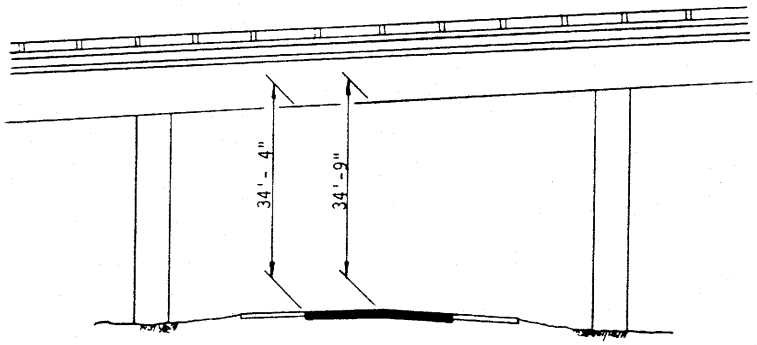
In the next 4 positions, code a 4-digit number to represent the minimum vertical clearance from that feature to the structure. If the feature is not a highway or railroad, code the minimum vertical clearance 0000.

Examples: Code

River beneath structure N0000



Railroad 31'-3" beneath structure R3103



Highway 34'-4" beneath structure H3404

Item 55 - Minimum Lateral Underclearance on Right 4 digits
(X code, XX.X feet)

Using a 1-digit code and a 3-digit number, code the minimum lateral underclearance on the right to the nearest tenth of a foot (with an assumed decimal point). When both a railroad and highway are under the structure, code the most critical dimension.

Segment	Description	Length
55A	Reference feature	1 digit (A)
55B	Minimum Lateral Underclearance	3 digits (N)

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

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

In the next 3 positions, code a 3-digit number to represent the minimum lateral underclearance on the right. The lateral clearance should be measured from the right edge of the roadway (excluding shoulders) or from the centerline (between rails) of the right-hand track of a railroad to the nearest substructure unit (pier, abutment, etc.), to a rigid barrier, or to the toe of slope steeper than 3:1. The clearance measurements to be recorded will be the minimum after measuring the clearance in both directions of travel. In the case of a dual highway this would mean the outside clearances of both roadways should be measured and the smaller distance recorded and coded.

If two related features are below the bridge, measure both and record the lesser of the
2. An explanation should be written as to what was recorded.

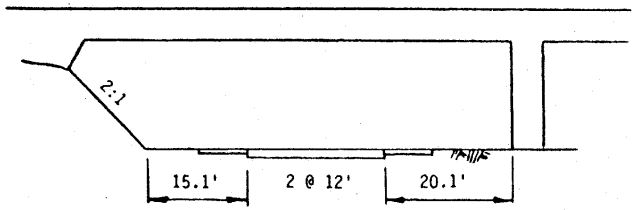
If the feature beneath the structure is not a railroad or highway, code 000 to indicate not applicable. Note that coding zeroes for not applicable is a change from the previous 1988 Coding Guide.

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

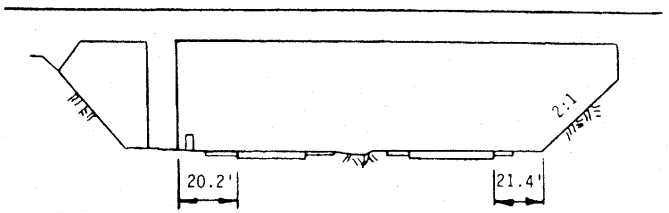
Examples:	Code
Railroad 20.4’ centerline to pier	R204
Highway 20.2’ edge of pavement to pier	H202
Creek beneath structure	N000

Item 55 - Minimum Lateral Underclearance on Right (cont'd)

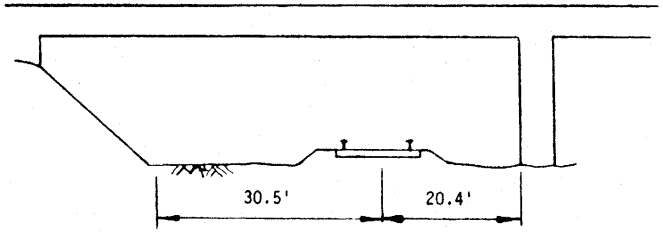
EXAMPLES:



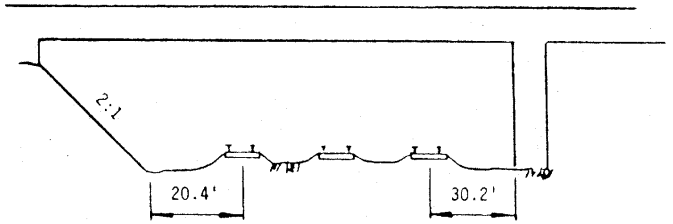
-- Lt. 15.1'Rt. for 2-way Traffic
15.1'Lt. 20.1'Rt. for 1-way Traffic



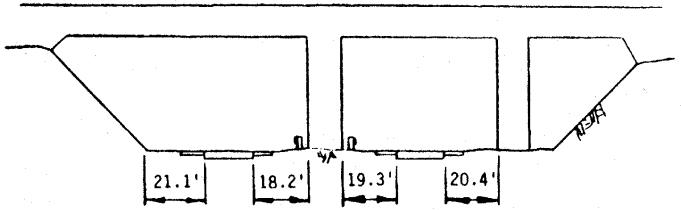
OPEN Lt. 20.2'Rt.



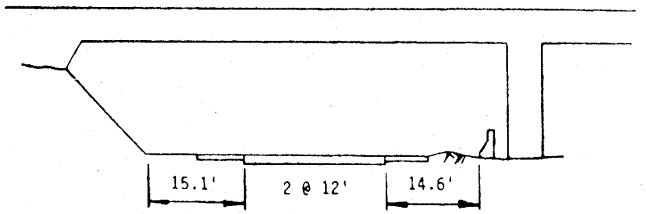
-- Lt. 20.4'Rt.



-- Lt. 20.4'Rt.



18.2'Lt. 20.4'Rt.



-- Lt. 14.6'Rt. for 2-way Traffic
15.1'Lt. 14.6'Rt. for 1-way Traffic

Item 56 - Minimum Lateral Underclearance on Left 3 digits (N)
(XX.X feet) (code only for divided highways, 1-way streets, and ramps; not applicable to railroads)

Using a 3-digit number, code the minimum lateral underclearance on the left (median side for divided highways) to the nearest tenth of a foot. The lateral clearance should be measured from the left edge of the roadway (excluding shoulders) to the nearest substructure unit, to a rigid barrier, or to the toe of slope steeper than 3:1. Refer to examples on page 39 under Item 55 - Minimum Lateral Underclearance on Right.

In the case of a dual highway, the median side clearances of both roadways should be measured and the smaller distance recorded and coded. If there is no obstruction in the median area, a notation of "open" should be recorded and 999 should be coded. For clearances greater than 99.8 feet, code 998. Code 000 to indicate not applicable.

Items 58 through 62 - Indicate the Condition Ratings

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

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

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

Portions of bridges that are being supported or strengthened by temporary members will be rated based on their actual condition; that is, the temporary members are not considered in the rating of the item. (See Item 103 - Temporary Structure Designation for the definition of a temporary bridge.)

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

The following general condition ratings shall be used as a guide in evaluating Items 58, 59, 60, 61, and 62:

Code	Description
N	NOT APPLICABLE
9	EXCELLENT CONDITION
8	VERY GOOD CONDITION - no problems noted.
7	GOOD CONDITION - some minor problems.
6	SATISFACTORY CONDITION - structural elements show some minor deterioration.
5	FAIR CONDITION - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
4	POOR CONDITION - advanced section loss, deterioration, spalling or scour.
3	SERIOUS CONDITION - loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	CRITICAL CONDITION - advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	"IMMINENT" FAILURE CONDITION - major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
0	FAILED CONDITION - out of service - beyond corrective action.

Item 58 - Deck 1 digit (A/N)

This item describes the overall condition rating of the deck. Rate and code the condition in accordance with the above general condition ratings. Code this item "N" for all culverts.

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

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

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

Item 59-Superstructure 1 digit (A/N)

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

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

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

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

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

Item 60-Substructure 1 digit (A/N)

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

All substructure elements should be inspected for visible signs of distress including evidence of cracking, section loss, settlement, misalignment, scour, collision damage, and corrosion. The rating given by Item 113 - Scour Critical Bridges, may have a significant effect on Item 60 if scour has substantially affected the overall condition of the substructure.

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

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

Item 61-Channel and Channel Protection 1 digit (A/N)

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

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

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

Item 62 - Culverts 1 digit (A/N)

This item evaluates the alignment, settlement, joints, structural condition, scour, and other items associated with culverts. The rating code is intended to be an overall condition evaluation of the culvert. Integral wingwalls to the first construction or expansion joint shall be included in the evaluation. For a detailed discussion regarding the inspection and rating of culverts, consult Report No. FHWA-IP-86-2, Culvert Inspection Manual, July 1986.

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

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

Code	Description
N	Not applicable. Use if structure is not a culvert.
9	No deficiencies.
8	No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7	Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls, or pipes. Metal culverts have a smooth symmetrical curvature with superficial corrosion and no pitting.
6	Deterioration or initial disintegration, minor chloride contamination, cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have a smooth curvature, non-symmetrical shape, significant corrosion or moderate pitting.
5	Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection in one section, significant corrosion or deep pitting.
4	Large spalls, heavy scaling, wide cracks, considerable efflorescence, or opened construction joint permitting loss of backfill. Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls or pipes. Metal culverts have significant distortion and deflection throughout, extensive corrosion or deep pitting.
3	Any condition described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Holes

may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls or pipes. Metal culverts have extreme distortion and deflection in one section, extensive corrosion, or deep pitting with scattered perforations.

2 Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.

1 Bridge closed. Corrective action may put back in light service.

0 Bridge closed. Replacement necessary.

Item 63 – Method Used to Determine Operating Rating 1 digit

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

Code	Description
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)
4	Load Testing
5	No rating analysis performed

Item 64 - Operating Rating 3 digits

This capacity rating, referred to as the operating rating, will result in the absolute maximum permissible load level to which the structure may be subjected for the vehicle type used in the rating. Code the operating rating as a 3-digit code composed of 2 segments.

Segment	Description	Length
64A	Type of loading	1 digit (N)
64B	Gross load in tons	2 digits (N)

It should be emphasized that for HS loading, the total weight in tons of the entire vehicle should be coded; that is, HS20 shall be coded 236 even though the HS20 lane loading controls and is used to determine the rating. Likewise HS10 shall be coded 218.

Even though any of the AASHTO loads or other Oregon loads may be used to calculate the operating rating, it shall be submitted to the National Bridge Inventory in an equivalent HS loading. Item 64A shall be coded “2” in all cases.

If the bridge is closed and/or will not carry any live load, the second and third digits shall be coded 00.

The use or presence of a temporary bridge requires special consideration in coding. In such cases, since there is no permanent bridge, Items 64 and 66 should be coded as 200 even though the temporary structure is rated for as much as full legal load. A bridge shored up or repaired on a temporary basis is considered a temporary bridge and the inventory and operating rating should be coded as if the temporary shoring were not in place. See Item 103 - Temporary Structure Designation for definition of a temporary bridge.

Examples:	Code
HS30	254
Temporary bridge	200
Shored-up bridge	203*
Structure under sufficient fill that live load is insignificant (according to AASHTO design)	299

* load capacity without shoring.

Item 65 – Method Used to Determine Inventory Rating — 1 digit

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

Code	Description
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)
4	Load Testing
5	No rating anlysis performed

Item 66 - Inventory Rating — 3 digits

This capacity rating, for the vehicle type used in the rating, will result in a load level which can safely utilize an existing structure for an indefinite period of time. Code the Inventory Rating as a 3-digit code composed of 2 segments. The statements and codes in Item 64 - Operating Rating apply to this item also.

Segment	Description	Length
66A	Type of loading	1 digit (N)
66B	Gross load in tons	2 digits (N)

Code 299 for a structure under sufficient fill such that, according to AASHTO design, the live load is insignificant in the structure load capacity.

Items 67, 68. 69. 71, and 72 - Indicate the Appraisal Ratings

The items in the Appraisal section are used to evaluate a bridge in relation to the level of service, which it provides on the highway system of which it is a part. The structure will be compared to a new one, which is built to current standards for that particular type of road as further defined in this section except for Item 72 - Approach Roadway Alignment. See Item 72 for special criteria for rating that item.

The appraisal rating and codes used in Items 67, 68, 69, 71 and 72 are as follows:

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

The FHWA Edit/Update computer program calculates values for Items 67, 68 and 69, in accordance with the tables provided in this manual. These tables and the table for Item 71, shall be used by all evaluators to rate these items. (See Appendix D for items 67, 68 and 69).

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

Items 67 - Structure Evaluation, Item 68 - Deck Geometry and Item 69 -Underclearances, Vertical and Horizontal are calculated and inserted by the Edit/Update Program. The calculated values depend upon accuracy and completeness of other items.

Item 70-Bridge Posting 1 digit (N)

The National Bridge Inspection Standards require the posting of load limits only if any of the legal loads in the State produces stresses in excess of the operating stress level. If the load capacity at the operating level is such that posting is required, this item shall be coded 4 or less. If no posting is required at the operating level, this item shall be coded 5.

Although posting a bridge for load-carrying capacity is required only when a legal load exceeds the operating rating capacity, highway agencies may choose to post at lower rating capacities.

This posting practice may appear to produce conflicting coding when Item 41 - Structure Open, Posted or Closed to Traffic is coded to show the bridge as actually posted at the site and Item 70 - Bridge Posting is coded as bridge posting is not required. Since different criteria are used for coding these 2 items, this coding is acceptable and correct when the highway agency elects to post at less than the operating rating stress level. Item 70 shall be coded 4 or less only if the legal load of the State exceeds that permitted under the operating rating.

The use or presence of a temporary bridge affects the coding. The load capacity shall reflect the actual capacity of the temporary bridge at the operating rating. This also applies to bridges shored up or repaired on a temporary basis.

Code	Description
4 or less	Posting required
5	No posting required

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

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

Item 71 - Waterway Adequacy 1 digit (A/N)

This item appraises the waterway opening with respect to passage of flow through the bridge. The following codes shall be used in evaluating waterway adequacy (interpolate where appropriate). Site conditions may warrant somewhat higher or lower ratings than indicated by the table (e.g., flooding of an urban area due to a restricted bridge opening).

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

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

Adjectives describing traffic delays mean the following:

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

Functional Classification			
Principal Arterials - Interstates, Freeways, or Expressways	Other Principal and Minor Arterials and Major Collectors	Minor Collectors, Locals	Description
Code			
N	N	N	Bridge not over a waterway.
9	9	9	Bridge deck and roadway approaches above flood water elevations (high water). Chance of overtopping is remote.
8	8	8	Bridge deck above roadway approaches. Slight chance of overtopping roadway approaches.
6	6	7	Slight chance of overtopping bridge deck and roadway approaches.
4	5	6	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with insignificant traffic delays.
3	4	5	Bridge deck above roadway approaches. Occasional overtopping of roadway approaches with significant traffic delays.
2	3	4	Occasional overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	3	Frequent overtopping of bridge deck and roadway approaches with significant traffic delays.
2	2	2	Occasional or frequent overtopping of bridge deck and roadway approaches with severe traffic delays.
0	0	0	Bridge closed.

Treat as an external factor and rate as degree of hazard to the bridge. Evaluate site conditions, flood history, and debris potential.

If conditions are of no immediate concern to bridge code as “5” or above. If conditions are potentially hazardous to the bridge code as “4” or below.

Item 72 - Approach Roadway Alignment 1 digit (A/N)

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

The individual structure shall be rated in accordance with the general appraisal rating guide in lieu of specific design values. The approach roadway alignment will be rated

intolerable (a code of 3 or less) only if the horizontal or vertical curvature requires a substantial reduction in the vehicle operating speed from that on the highway section. A very minor speed reduction will be rated a 6, and when a speed reduction is not required, the appraisal code will be an 8. Additional codes may be selected between these general values.

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

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

Items 75 and 76 must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. These items may be coded for other bridges at the option of the agency. Code all zeros if not used.

Item 75-Type of Work 3 digits (A/N)

The information to be recorded for this item will be 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 whether the proposed work is to be done by contract or force account. Code a 3-digit number composed of 2 segments.

Segment	Description	Length
75A	Type of Work Proposed	2 digits
75B	Work Done by	1 digit

Use one of the following codes to represent the proposed work type:

Code	Description
31	Replacement of bridge or other structure because of substandard load carrying capacity or substandard bridge roadway geometry.

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

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

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

Examples:	Code
A bridge is to be replaced by contract because it has deteriorated to the point that it can no longer carry legal loads. The same code should be used if the bridge is replaced because it is now too narrow or the original design was too light to accommodate today's legal loads.	311
A bridge is to be replaced because the roadway must be straightened to eliminate a dangerous curve. The work will be done by contract.	321
A bridge is to be widened to increase shoulder width or the number of traffic lanes. The existing deck is in good condition and will be incorporated as is into the new structure. The work is to be done by contract.	331
A culvert is to be extended by contract to accommodate additional roadway width as part of a reconstruction contract to improve the safety of the adjacent slopes.	331
A deck is to be rehabilitated and the bridge widened to provide a full 12-foot shoulder. The existing shoulder is only 4 feet wide and an extra line of girders with appropriate substructure widening must be added. The work will be done by contract.	341

A bridge superstructure and substructure are to be rehabilitated by State forces to increase the bridge's load capacity.	352

Examples:

Description	Code
A bridge deck is to be rehabilitated by contract and a safety curb to be removed which results in incidental widening of 2 feet.	361
A bridge deck is to be replaced by contract and the deck cantilever overhang extended 2 feet which is the maximum that can be done without adding another line of stringers or girders to the superstructure.	371
A bridge which is no longer needed is to be demolished and an at-grade crossing built by State forces. (This code could also be used to designate incidental safety work on a bridge such as bridge-rail upgrading or replacement.)	382

Item 76 - Length of Structure Improvement — 6 digits (A/N)
(XXXXXX feet)

Code a 6-digit number that represents the length of the proposed bridge improvement to the nearest foot. For replacement or rehabilitation of the entire bridge, the length should be back to back of backwalls of abutments or from pavement notch to pavement notch. For replacement or rehabilitation of only part of the structure, use the length of the portion to be improved.

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

Examples:

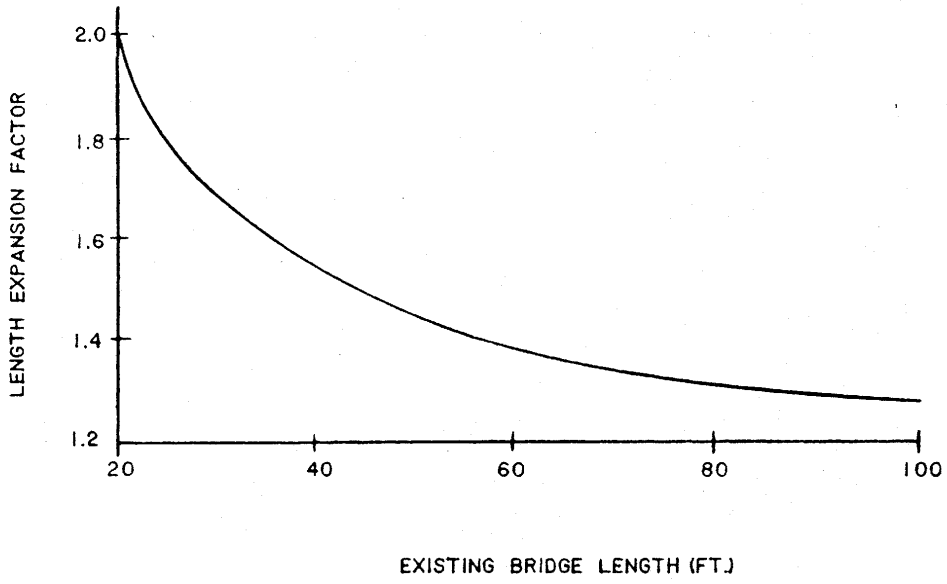
		Code
Length of Structure Improvement	250 feet	000250
	1,200 feet	001200
	12,345 feet	012345

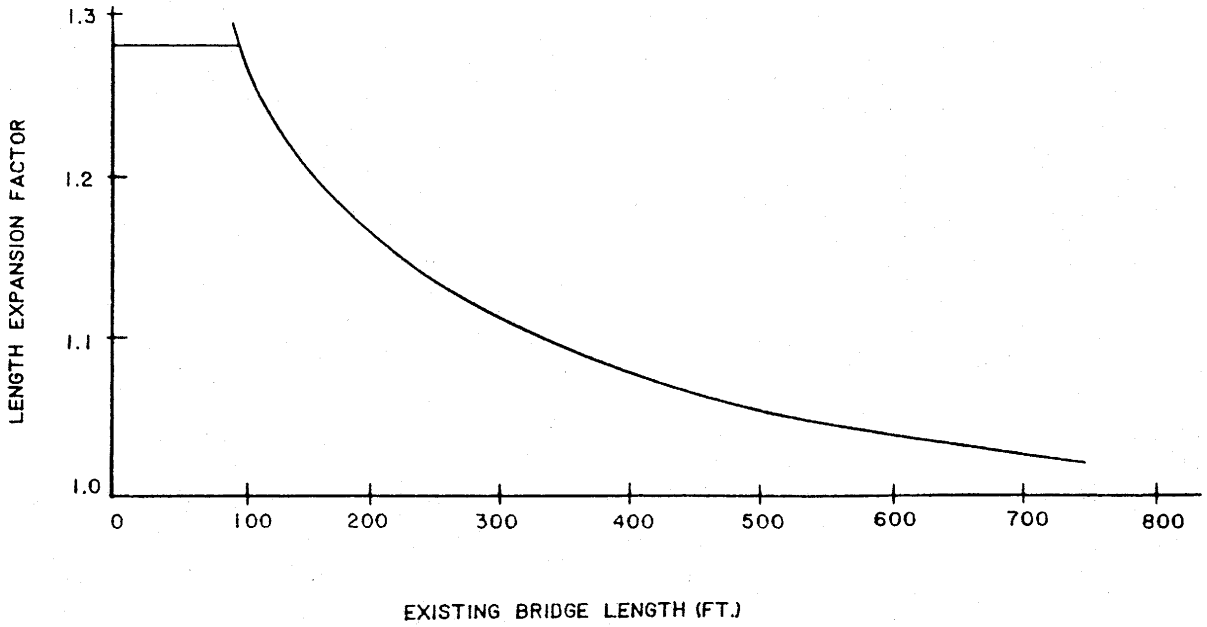
For substructure or channel work only, code the length of superstructure over, or supported by, the substructure or channel.

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

INCREASED LENGTH OF REPLACED BRIDGES

REPLACED BRIDGE LENGTH = EXISTING BRIDGE LENGTH x LENGTH EXPANSION FACTOR





Item 90 - Inspection Date 4 digits (N)

Record the month and year that the last routine inspection of the structure was performed. This inspection date may be different from those recorded in Item 93 -Critical Feature Inspection Date. Code a 4-digit number to represent the month and year. The number of the month should be coded in the first 2 digits with leading zeros as required and the last 2 digits of the year coded as the third and fourth digits.
Examples:

	Code
Inspection date March 1992	0392

Item 91 - Designated Inspection Frequency 2 digits (N)

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

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

It should be noted that bridges will also require special non-scheduled inspections after unusual physical traumas such as floods, earthquakes, fires or collisions. These special inspections may range from a very brief visual examination to a detailed in-depth evaluation depending upon the nature of the trauma. For example, when a substructure pier or abutment is struck by an errant vehicle, in most cases only a visual examination of the bridge is necessary. After major collisions or earthquakes, in-depth inspections may be warranted as directed by the engineer in overall charge of the program. After and during severe floods, the stability of the substructure of bridges may have to be determined by probing, underwater sensors or other appropriate measures. Underwater inspection by divers may be required for some scour critical bridges immediately after floods. See Item 113 - Scour Critical Bridges.

Item 92 - Critical Feature Inspection 9 digits (A/N)

Using a series of 3-digit code segments, denote critical features that need special inspections or special emphasis during inspections and the designated inspection interval in months as determined by the individual in charge of the inspection program.

The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

Segment	Description	Length
92A	Fracture Critical Details	3 digits (A/N)
92B	Underwater Inspection	3 digits (A/N)
92C	Other Special Inspection	3 digits (A/N)

The first digit of 92A, B, and C must be coded for all structures to designate either a yes or no answer. Code the first digit "Y" for special inspection or emphasis needed and code "N" for not needed. In the second and third digits of each segment, code a 2-digit number to indicate the number of months between inspections only if the first digit is coded Y. If the first digit is coded N, the second and third digits are left blank.

Examples:	Item	Code
A 2-girder system structure which is being inspected yearly and no other special inspections are required.	92A 92B 92C	Y12 N (blank) (blank) N (blank) (blank)
A structure where both fracture critical and underwater inspection are being performed on a 1-year interval. Other special inspections are not required.	92A 92B 92C	Y12 Y12 N (blank)(blank)
A structure has been temporarily shored and is being inspected on a 6-month interval. Other special inspections are not required.	92A 92B 92C	N (blank) (blank) N (blank) (blank) Y06

Item 92C - Other Special Inspection

Other special inspections include the following:

1. Redundant Pin and Hanger Assembly
2. In-depth inspection of Special Features
3. Movable bridges
4. Coastal bridges

Make note in the "remarks" field when special attention is required.

The federal Edit/Update Program has a set of values for each inspection interval. Since Oregon has allowed different designated inspection frequency, the Edit/Update Program has been modified as follows:

Level 1 Fracture	less than or equal to 24 months
Underwater	less than or equal to 60 months
Special	less than or equal to 99 months

Item 93 - Critical Feature Inspection Date 12 digits (A/N)

Code only if the first digit of Item 92A, B, or C is coded Y for yes. Record as a series of 4-digit code segments, the month and year that the last inspection of the denoted critical feature was performed.

Segment	Description	Length
93A	Level 1 Fracture Critical Detail Inspection	4 digits
93B	Underwater Inspection	4 digits
93C	Other Special Inspection	4 digits

For each segment of this item, when applicable, code a 4-digit number to represent the month and year. The number of the month should be coded in the first 2 digits with leading zeros as required and the last 2 digits of the year coded as the third and fourth digits of the field. If the first digit of any part of Item 92 is coded N, then the corresponding part of this item shall be blank.

Examples:	Item	Code
A structure has fracture critical members which were last inspected in March 1986. It does not require underwater or other special feature inspections.	93A	0386
	93B	(blank)
	93C	(blank)
A structure has no fracture critical details, but requires underwater inspection and has other special features (for example, a temporary support) for which the State requires special inspection. The last underwater inspection was done in April 1986 and the last special feature inspection was done in November 1985.	93A	(blank)
	93B	0486
	93C	1185

Items 94, 95, 96, and 97 must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. If the bridge is structurally deficient and/or functionally obsolete, Sufficiency Rating is equal to 80.0 or less, and this is an “on” record (Item 5 = 1): Items 75, 76, 94, 95, 96 and 97 must be numeric and greater than zeros. These items may be coded for other bridges at the option of the agency. If items not used, code all zeroes.

Item 94 - Bridge Improvement Cost 6 digits (A/N)

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

Examples:

		Code
Bridge Improvement Cost $	55,850	000056
	250,000	000250
	7,451,233	007451

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

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

Code all digits with zeros if item is not used.

Item 95 - Roadway Improvement Cost 6 digits (A/N)

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

In the absence of a procedure for estimating roadway improvement costs, a guide of 10 percent of the bridge costs is suggested.

Code all digits with zeros if item is not used.

Item 96 - Total Project Cost 6 digits (A/N)

Code a 6-digit number to represent the total project cost in thousands of dollars, including incidental costs not included in Items 94 and 95. This item should include all costs normally associated with the proposed bridge improvement project. The Total Project Cost will therefore usually be greater than the sum of Items 94 and 95. Code the base year for the cost in Item 97 - Year of Improvement Cost Estimate. 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 bridge cost is suggested.

Code all digits with zeros if item is not used.

Item 97 - Year of Improvement Cost Estimate 2 digits (A/N)

Record the year that the costs of work estimated in Item 94 - Bridge Improvement Cost, Item 95 - Roadway Improvement Cost, and Item 96 - Total Project Cost were based upon. This date and the data provided for Item 94 through Item 96 must be current; that is, Item 97 shall be no more than 8 years old. Code the last 2 digits of the year so recorded.

Examples:		Code
Year of Cost Estimate	1993 costs	93
	2010 costs	10

Item 98 - Border Bridge 5 digits

Use this item to indicate structures crossing borders of States. Code a 5-digit number composed of 2 segments specifying the responsibility for improvements to the existing structure when it is shared with a neighboring State. Code the first 3 digits with the neighboring State code using State codes listed in Item 1 - State Code. Code the fourth and fifth digits with the percentage of total deck area of the existing bridge that the neighboring State is responsible for funding.

Segment	Description	Length
98A	Neighboring State Code	3 digits (N)
98B	Percent Responsibility	2 digits (N)

If structure is not on a border, leave blank.

Examples:	Code
A structure connects Oregon State with Washington State and Washington is responsible for funding 45 percent of future improvement costs.	53045
If Washington is not responsible for funding any future improvement costs in the example above	53000

Neighboring Oregon State codes are:

California	069	Idaho	160
Nevada	329	Washington	530

Item 99 - Border Bridge Structure Number 15 digits (A/N)

Code the neighboring State's 15-digit National Bridge Inventory structure number for any structure noted in Item 98 - Border Bridge. This number must match exactly the neighboring State's submitted NBI structure number. The entire 15-digit field must be accounted for including zeros and blank spaces whether they are leading, trailing, or embedded in the 15-digit

field. If Item 98 is blank, this item is blank. In the above example where California (or a neighboring State) has 00% responsibility, and, if there is no NBI Structure Number in that State's inventory file, then the entire 15-digit field shall be coded zeroes.

Item 100 - STRAHNET Highway Designation 1 digit (N)

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

Code	Description
0	The inventory route is not a defense highway.
1	The inventory route is a defense highway.
2	The inventory route is a defense highway that goes over or under a defense highway.

Only those routes included on the Defence Highway Network are to be coded a "1" or "2". For information on whether a inventory route is on the Defence Highway Network, contact the Bridge Operations Engineer.

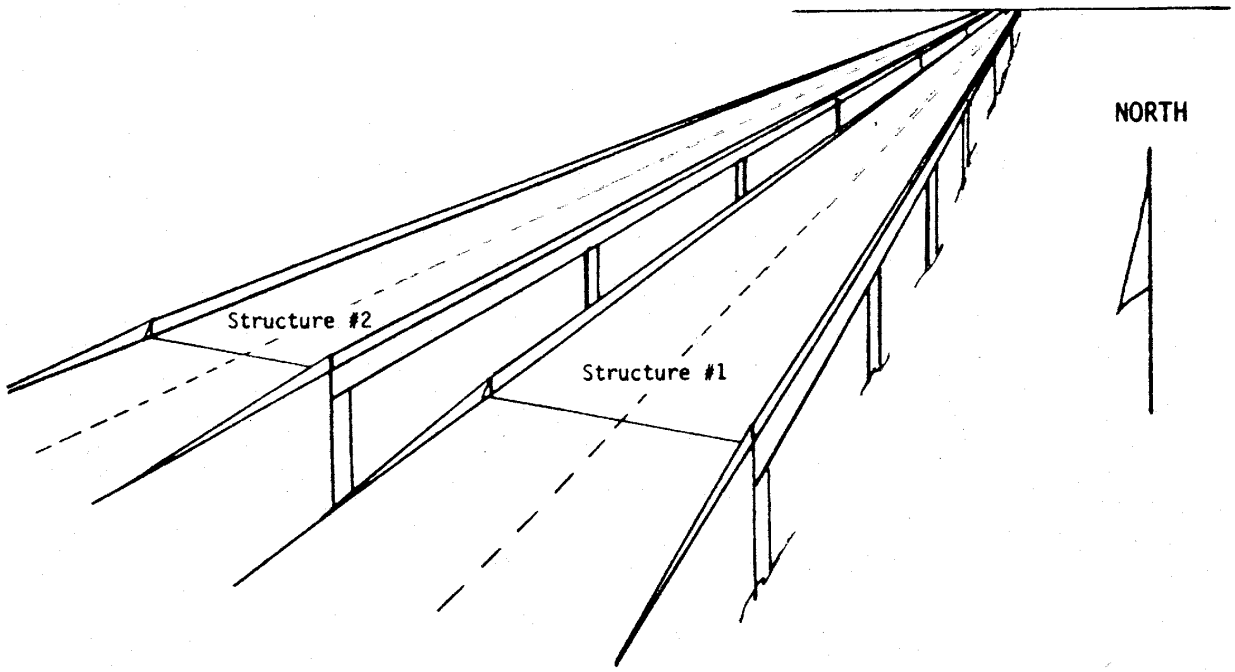
Item 101 - Parallel Structure Designation 1 digit (A/N)

Code this item to indicate situations where separate structures carry the inventory route in opposite directions of travel over the same feature.

One of the following codes shall be used:

Code	Description
R	The right structure of parallel bridges carrying the roadway in the direction of the inventory. (For a defense highway, this is west to east and south to north.)
L	The left structure of parallel bridges. This structure carries traffic in the opposite direction.
N	No parallel structure exists.

Example:	Code
Structure # 1	R
Structure # 2	L



Item 102 - Direction of Traffic 1 digit (N)

Code the direction of traffic of the inventory route identified in Item 5 as a 1-digit number using one of the codes below. This item must be compatible with other traffic-related items such as Item 28A Lanes on the Structure, Item 29 - Average Daily Traffic, Item 47 - Total Horizontal Clearance and Item 51 - Bridge Roadway Width, Curb-to-Curb.

Code	Description
0	Highway traffic not carried
1	1-way traffic
2	2-way traffic
3	One lane bridge for 2-way traffic

Item 103 - Temporary Structure Designation 1 digit (A/N)

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

Code	Description
T	Temporary structure(s) or conditions exist.

Temporary structure(s) or conditions are those that are required to facilitate traffic flow. Further, temporary repairs or shoring are conditions which appear, at the time of inspection, sufficient to restore the full load carrying capacity of the deficient elements(s) and are not considered permanent. This may occur either before or during the modification or replacement of a structure found to be deficient. Such conditions include the following:

1. Bridges shored up, including additional temporary supports.

2. Temporary repairs made to keep a bridge open.

3. Temporary structures.

4. Other temporary measures, such as barricaded traffic lanes to keep the bridge open.

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

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

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

Item 104 - Highway System of the Inventory Route 1 digit (N)

This item is to be coded for all records in the inventory. For the inventory route identified in Item 5, indicate whether the inventory route is on the NHS or not on that system. Initially, this code shall reflect an inventory route on the designated NHS as reported to the FHWA to meet the NHS "Interim System" description in Section 1006 (a) of the 1991 ISTEA. Upon approval of the NHS by Congress, the code is to reflect the approved NHS. Use one of the following codes:

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

In order to be consistent with what was proposed to FHWA in Oregon, this item is to be coded by Bridge Section, Bridge Operations Unit.

Item 106-Year Reconstructed 4 digits (N)

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

For new or major reconstructed bridges built to less than AASHTO Standards, a "10-year rule has been established to determine a bridge's eligibility for HBRRP funding after improvement. The rule makes those bridges that were built within the last 10 years, and those that have undergone major reconstruction (meaning rehabilitation or replacement) within this period, ineligible for HBRRP funding. A bridge improvement would be subject to the 10-year rule if it is classed as rehabilitation or replacement under the 23 CFR 650.405(b) irrespective of the funding used. Conversely, a bridge improvement would not be subject to the 10-year rule if it can not be classed as rehabilitation or replacement under the 23 CFR 650.405(b) definitions. Such an improvement would not be eligible for HBRRP funding, although it may be eligible for other Federal -aid funding.

Some types of work not to be considered as reconstruction:

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

Example:	Code
Reconstruction completed 1989	1989

Item 107 - Deck Structure Type 1 digit (A/N)

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

Code	Description
1	Concrete Cast-in-Place
2	Concrete Precast Panels
3	Open Grating
4	Closed Grating
5	Steel plate (includes orthotropic)
6	Corrugated Steel
7	Aluminum
8	Timber
9	Other - Prestress Slabs, Prestress Boxes, Prestress Bulb-T
N	Not applicable

Item 108 - Wearing Surface/Protective System 3 digits (A/N)

Information on the wearing surface and protective system of the bridge deck shall be coded using a 3-digit code composed of 3 segments.

Segment	Description	Length
108A	Type of Wearing Surface	1 digit
108B	Type of Membrane	1 digit
108C	Deck Protection	1 digit

1st Digit - Type of Wearing Surface (Item 108A):

Code	Description
1	Concrete
2	Integral Concrete (MC) *
3	Latex Concrete
4	Low Slump Concrete
5	Epoxy Overlay (Polymer Concrete, Methacrylate, Flexolith)
6	Bituminous
7	Timber
8	Gravel
9	Other
0	None **
N	Not Applicable (applies only to structures with no deck)

* Separate layer of concrete added but not latex modified, low slump, etc.
** No additional concrete thickness or thickness of a wearing surface is included in the bridge deck.

2nd Digit - Type of Membrane (Item 108B):

Code	Description
1	Built-up
2	Preformed Fabric
3	Epoxy, Polymer, Methacrylate
8	Unknown
9	Other
0	None
N	Not Applicable (applies only to structures with no deck)

3rd Digit - Deck Protection (Item 108C):

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 (applies only to structures with no deck)

Item 109 - Average Daily Truck Traffic 2 digits (A/N)
(XX percent)

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

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

Examples:		Code
Average Daily Traffic	7% is trucks	07
	12% is trucks	12

Item 110- Designated National Network 1 digit (N)

The national network for trucks includes most of the Interstate System and those portions of Federal-Aid highways identified in the Code of Federal Regulations (23 CFR 658). The national network for trucks is available for use by commercial motor vehicles of the dimensions and

configurations described in these regulations. For the inventory route identified in Item 5, indicate conditions using one of the following codes:

Code	Description
0	The inventory route is not part of the national network for trucks.
1	The inventory route is part of the national network for trucks.

The federally - designated National Network For Trucks is listed herein. Only these routes should be coded "1".

Item 111 - Pier or Abutment Protection (for Navigation) 1 digit (A/N)

If Item 38 - Navigation Control has been coded "1", use the codes below to indicate the presence and adequacy of pier or abutment protection features such as fenders, dolphins, etc. The condition of the protection devices may be a factor in the overall evaluation of Item 60 - Substructure. If Item 38 - Navigation Control has been coded "0" or "N", leave blank to indicate not applicable.

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 of design suggested
5	None present but reevaluation suggested

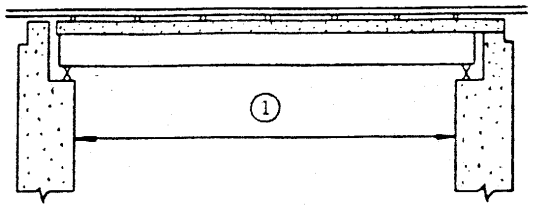
Item 112 - NBIS Bridge Length 1 digit (A/N)

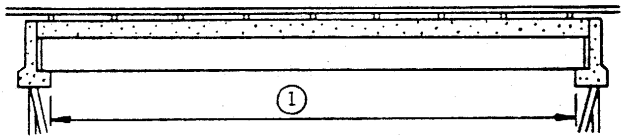
This item is used to indicate whether the structure meets or exceeds the minimum length specified to be designated as a bridge for National Bridge Inspection Standards purposes. The definition of a bridge is used by AASHTO and is given as the following:

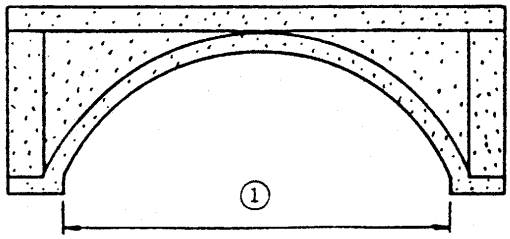
> A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Code 'Y" for yes, and "N" for no.

Examples:



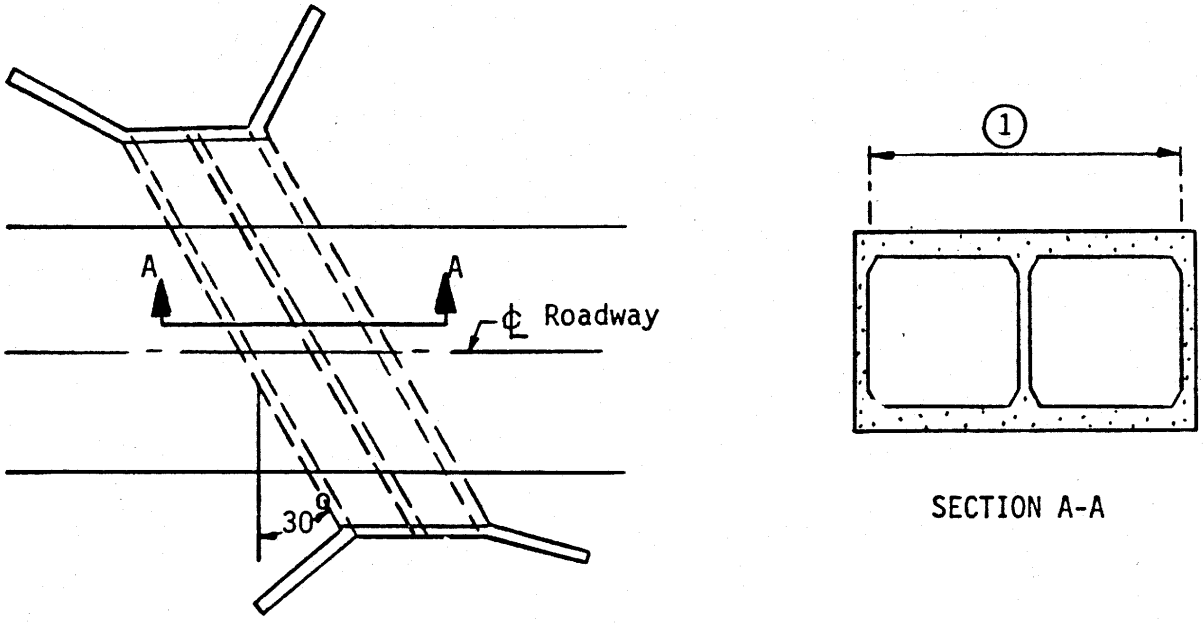




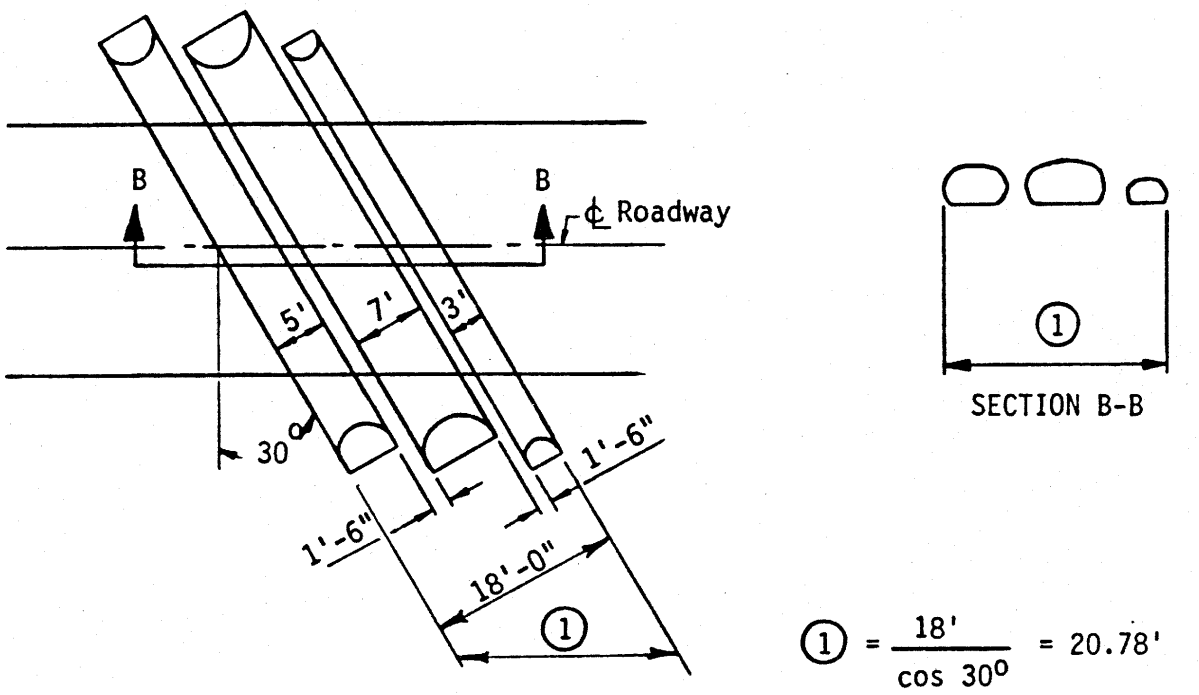
① Item 112 - NBIS Bridge Length

Item 112 - NBIS Bridge Length (cont'd)

Examples:



① Item 112 - NBIS Bridge Length



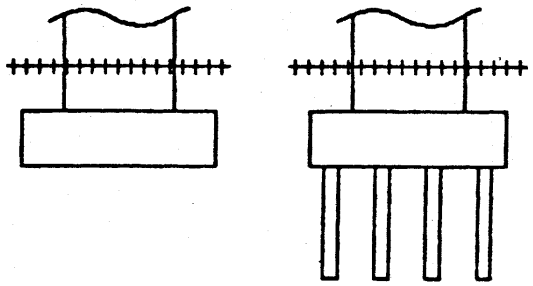
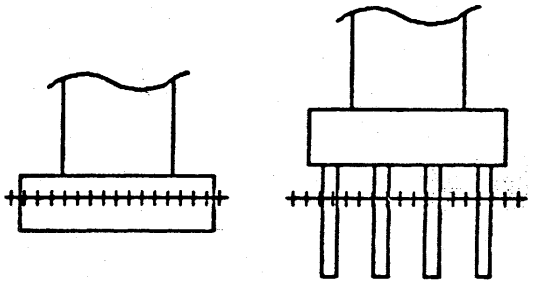
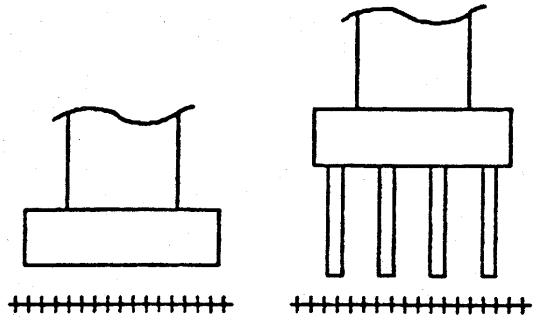
① Item 112 - NBIS Bridge Length

Item 113 - Scour Critical Bridges 1 digit (A/N)

Use a single-digit code as indicated below to identify the current status of the bridge regarding its vulnerability to scour. The scour analyses shall be made by hydraulic//geotechnical/structural engineers. Details on conducting a scour analysis are included in the FHWA Technical Advisory 5140.23 entitled, "Evaluating Scour at Bridges." Whenever a rating factor of 4 or below is determined for this item, the rating factor for Item 60 - Substructure may need to be revised to reflect the severity of actual scour and resultant damage to the bridge. A scour critical bridge is one with abutment or pier foundations which are rated as unstable due to (1) observed scour at the bridge site or (2) a scour potential as determined from a scour evaluation study.

Code	Description
N	Bridge not over waterway.
9	Bridge foundations (including piles) well above flood water elevations.
8	Bridge foundations determined to be stable for assessed or calculated scour conditions; calculated scour is above top of footing. (Example A)
7	Countermeasures have been installed to correct a previously existing problem with scour. Bridge is no longer scour critical.
6	Scour calculation/evaluation has not been made. (Use only to describe case where bridge has not yet been evaluated for scour potential.)
5	Bridge foundations determined to be stable for calculated scour conditions; scour within limits of footing or piles. (Example B)
4	Bridge foundations determined to be stable for calculated scour conditions; field review indicates action is required to protect exposed foundations from effects of additional erosion and corrosion.
3	Bridge is scour critical; bridge foundations determined to be unstable for calculated scour conditions: - Scour within limits of footing or piles. (Example B) - Scour below spread-footing base or pile tips. (Example C)
2	Bridge is scour critical; field review indicates that extensive scour has occurred at bridge foundations. Immediate action is required to provide scour countermeasures.
1	Bridge is scour critical; field review indicates that failure of piers/abutments is imminent. Bridge is closed to traffic.
0	Bridge is scour critical. Bridge has failed and is closed to traffic.

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 footing base		Provide for monitoring and scour counter-measures as necessary

SPREAD FOOTING (NOT FOUNDED IN ROCK)

PILE FOOTING

++++++++++++++++ = Calculated scour depth

Item 114 - Future Average Daily Traffic 6 digits (N)

Code for all bridges the forecasted average daily traffic (ADT) for the inventory route identified in Item 5. 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. If planning data is not available, use the best estimate based on site familiarity.

The future ADT must be compatible with the other items coded for the bridge. For example, parallel bridges with an open median are coded as follows: if Item 28 - Lanes On and Under the Structure and Item 51 - Bridge Roadway Width, Curb-to-Curb are coded for each bridge separately, then the future ADT must be coded for each bridge separately (not the total for the route).

Examples:		Code
Future ADT	540	000540
	15,600	015600
	240,000	240000

Item 115- Year of Future Average Daily Traffic — 2 digits (N)

Code the last 2 digits of the year represented by the future ADT in Item 114. The projected year of future ADT shall be at least 17 years but no more than 22 years from the year of inspection.

Example:	Code
Year of Future ADT is 2008	08

Item 116 - Minimum Navigation Vertical Clearance, Vertical Lift Bridge — 3 digits (A/N)
(XXX feet)

Record to the nearest foot (rounding down), (rounding down with an assumed decimal point) the minimum vertical clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. Code this item only for vertical lift bridges in the dropped or closed position, otherwise leave blank.

Examples:		Code
Vertical Clearance	20.6	020
	24.2	024

Item 117- Estimated Maintenance Costs — 4 digits (N)

This item represents the cost of repairs and maintenance that are needed on the bridge, and can be obtained directly from the bridge inspection report.

Code in thousands of dollars, right justified.

Example:	Cost of Maintenance	Code
	$ 3,500	0004

Item 118- Culvert Length 3 digits (N)

Code the barrel length of a pipe or box culvert to the nearest foot. This length is measured along the flow line of the culvert as opposed to Item 49 which is measured along the direction of the inventory route.

Item 120 - Inspector Number 6 digits (A/N)

Each Certified Bridge Inspector in Oregon is assigned a 6-digit identification number by the Bridge Operations Office at the time of the effective date of the certification. This space may be used to record the ID number of the inspector who performed the inspection on the structure. This item may be used to document inspection performed by bridge inspector trainee towards certifying for certification as team leader. Right justify the number with leading zeroes as appropriate.

Since this item is not mandated, leave it blank if not applicable.

Item 122- State Highway/County Road Number 8 digits

This item shall be used to code State Highway or County Road No. It is a 8-digit code composed of 2 segments.

Segment	Description	Length
122A	HWY / County Rd. No.	6 (N)
122B	Alpha Suffix	2 (A)

This item is to record the State Highway or County Road No. inventoried, consistent with Item 5B. Use the first 6 digits for numeric highway/road number. Right justify with leading zeroes as appropriate.

Use the last 2 digits to code alpha suffix of the State Highway or County Road No. if applicable. Left justify the alpha suffix.

Example:	Item 122A	Item 122B
State Highway No. 1W	000001	W
County Road No. P05800	005800	P

General

Inspection reports should generally include the following:

1. A statement of action taken, if any, pursuant to findings of inspection.

2. Any special findings stemming from the inspection and evaluation of fracture critical members, underwater inspections, and special feature inspection.

3. Any features which should be monitored closely during subsequent inspections as should any specific descriptions, instructions, or concerns.

Measurements, sketches, diagrams, test results, or calculations should generally be included on separate sheets.

Appendix A

Classification of deficient Bridges

APPENDIX A

Classification of Deficient Bridges

General Qualifications

In order to be considered for either the structurally deficient or functionally obsolete classification, Inventory Route status (5A) must be coded "1" and Item 49 must be coded numeric and equal to or greater than 000020.

Structurally Deficient

1. A condition rating of 4 or less for
   Item 58 — Deck; or
   Item 59 — Superstructure or
   Item 60 — Substructure; or
   Item 62 — Culvert and Retaining walls. *1

or

2. An appraisal rating of 2 or less for
   Item 67 — Structural Condition; or
   Item 71 — Waterway Adequacy. *2

Functionally Obsolete

1. An appraisal rating of 3 or less for
   Item 68 — Deck Geometry; or
   Item 69 — Underclearances; *3 or
   Item 72 — Approach Roadway A1ignment.

or

2. An appraisal rating of 3 for
   Item 67 — Structural Condition; or
   Item 71 — Waterway adequacy. *2

Any bridge classified as structurally deficient is excluded from the functionally obsolete category.

- -

*1 Item 62 applies only if the last two digits of Item 43 are coded 07 or 19.

*2 Item 71 applies only if the last digit of Item 42 is coded 0,5,6,7, 8 or 9.

*3 Item 69 applies only if the last digit of Item 42 is coded 0, l, 2, 4, 6, 7 or 8.

Appendix B

Sufficiency Rating Formula and Example

Appendix B

Sufficiency Rating Formula and Example

The sufficiency rating formula described herein is a method of evaluating data by calculating four separate factors to obtain a numeric value which is indicative of bridge sufficiency to remain in service. The result of this method is a percentage in which 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient or deficient bridge.

Item STAT – Status 1 digit

The Item Status of a bridge is an indication of whether it is Structurally Deficient or Functionally Obsolete. This code is generated by the Edit/Update Program when the records are entered or updated in the database. The following codes are used:

Code	Description
1	Structurally Deficient
2	Functionally Obsolete
3	Not Deficient
N	Not Applicable

Item SR – Sufficiency Rating (XXX.X) 4 digits

The Sufficiency Rating (SR) of each bridge is calculated by the Edit/Update Program when the Records are entered or updated in the database. The range of 0 to 100.0 (to the nearest tenth is stored as a 4-digit number with an assumed decimal point. The Sufficiency Rating is calculated only for valid highway bridges (5A = 1 and 42A = 1, 4-8). Also the Sufficiency Rating will not be calculated if the Inventory Rating (Item 66) is coded 800.

An asterisk is inserted in the field preceding the SR value if any item used to calculate the Sufficiency Rating does not pass a validity check. At this time all culverts which have the Curb-to-Curb Roadway Width (Item 51) coded 0000 will have an asterisk.

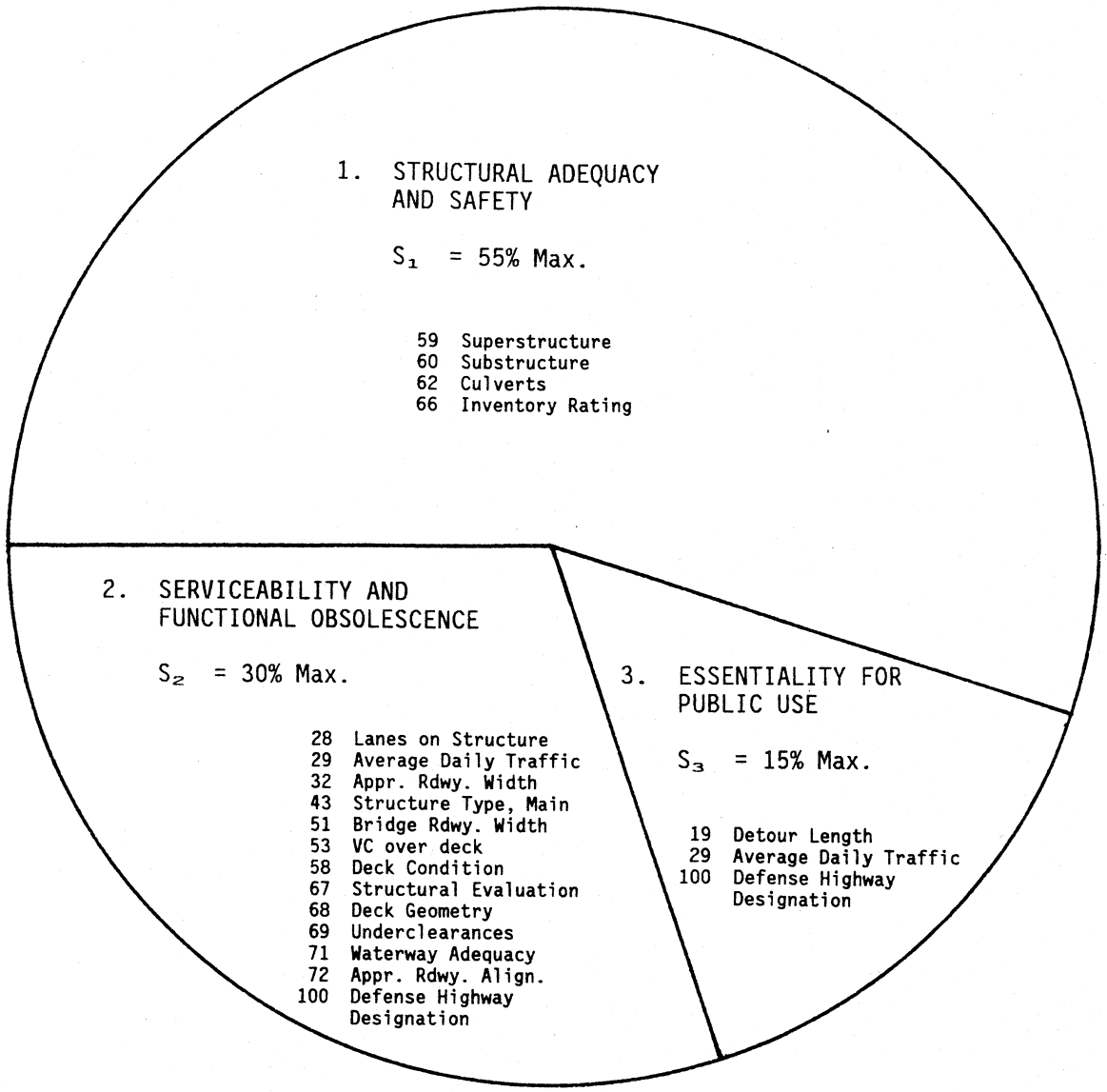


Figure 1. Summary of sufficiency rating factors

Sufficiency Rating Formula

1. Structural Adequacy and Safety (55% maximum)

(a) Only the lowest code of Item 59, 60, or 62 applies.

If Item 59 (Superstructure Rating) or Item 60 (Substructure Rating) is:	≤ 2	then	A = 55%
	= 3		A = 40%
	= 4		A = 25%
	= 5		A = 10%
If Item 59 and 60 = N and Item 62 (Culvert Rating) is:	≤ 2	then	A = 55%
	= 3		A = 40%
	= 4		A = 25%
	= 5		A = 10%

(b) Reduction for Load Capacity

Calculate using the following formulas where IR is the Inventory Rating (MS Loading) in tons or use Figure 2:

$$B = (32.4 - IR)^{1.5} \times 0.3254$$

or

If $(32.4 - IR) \leq 0$, then B = 0

"B" shall not be less than 0% nor greater than 55%.

S1 = 55 – (A + B)

S1 shall not be less than 0% nor greater than 55%.

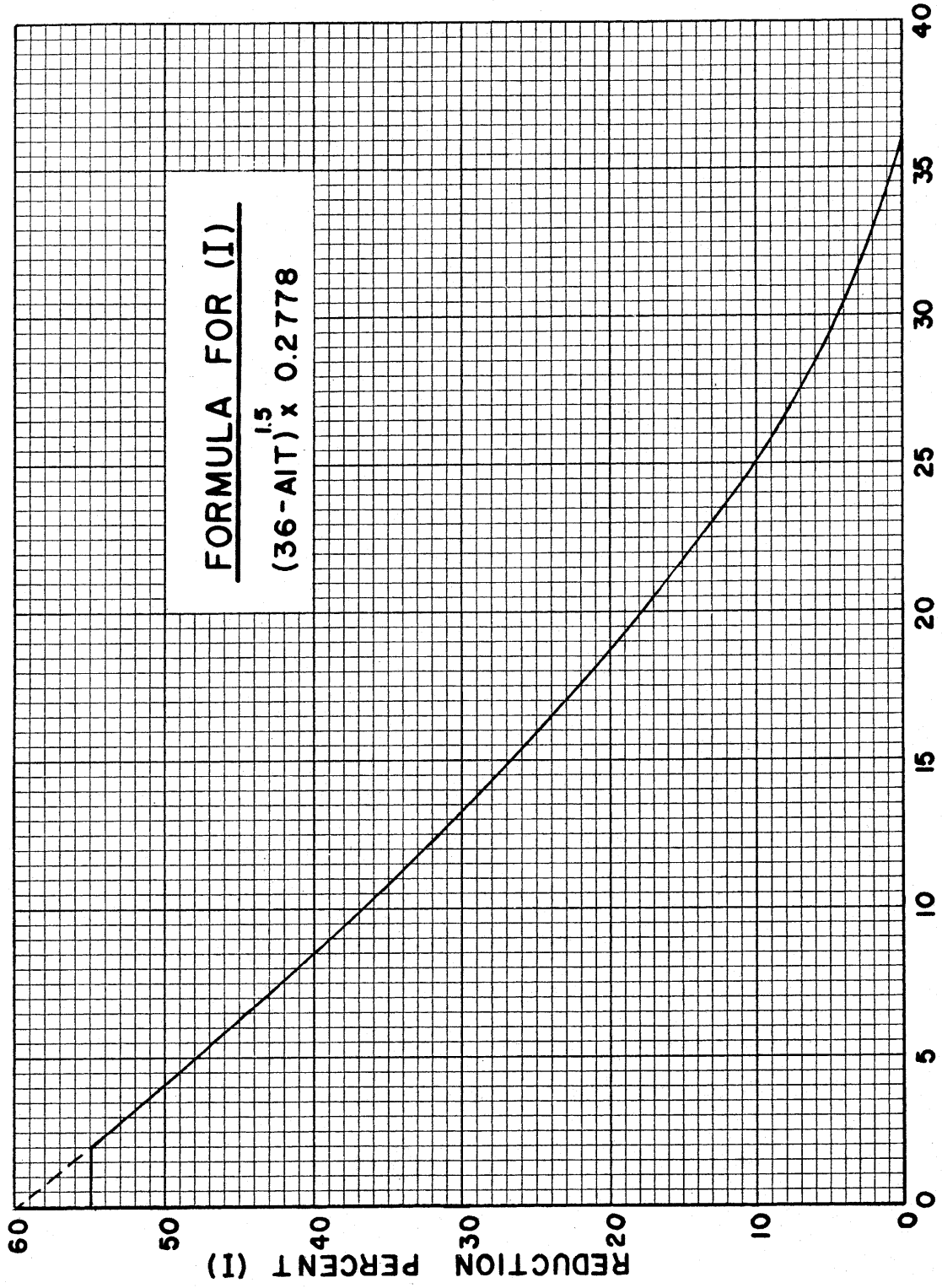


Figure 2. Reduction for adjusted inventory tons

2. Serviceability and Functional Obsolescence (30% maximum)

(a) Rating Reductions (13% maximum)

If Item 58 (Deck Condition) is:	≤ 3	then	A = 5%
	= 4		A = 3%
	= 5		A = 1%
If Item 67 (Structural Evaluation)	≤ 3	then	B = 4%
	= 4		B = 2%
	= 5		B = 1%
If Item 68 (Deck Geometry) is	≤ 3	then	C = 4%
	= 4		C = 2%
	= 5		C = 1%
If Item 69 (Under-clearance) is	≤ 3	then	D = 4%
	= 4		D = 2%
	= 5		D = 1%
If Item 71 (Waterway Adequacy) is ≤ 3	then		E = 4%
	= 4		E = 2%
	= 5		E = 1%
If Item 72 (Approach Road Alignment) is	≤ 3	then	F = 4%
	= 4		F = 2%
	= 5		F = 1%

J = (A + B + C + D + E + F)

J shall not be less than 0% nor greater than 13%.

(b) Width of Roadway Insufficiency (15% maximum)

Use the section that apply:

1.) Applies to all bridges;
2.) Applies to 1 – lane bridges only;
3.) Applies to 2 or more lane bridges;
4.) Applies to all <u>except</u> 1 – lane bridges.

Also determine X and Y:

X (ADT / Lane) = Item 29 (ADT) / first 2 digits of Item 28 (Lanes)

Y (Width / Lane) = <u>Item 51 (Bridge Rdwy Width)</u> *
first 2 digits of Item 28

- A value of 10.9 meter will be substituted when Item 51 is coded "0000" or not numeric.

1.) Use when the last 2 digits of Item 43 (Structure Type) are not equal to 19 (Culvert):

If (Item 51 + 2 Ft.) < Item 32 (Approach Roadway Width) G = 5%

2.) For 1 – Lane bridges only, use Figure 3 or the following:

If the first 2 digits of Item 28 (lanes) are equal to 01 and

$Y < 14$	then	$H = 15\%$
$Y \geq 14 < 18$		$H = 15 \frac{(18 - Y)\%}{4}$
$Y \geq 18$		$H = 0\%$

3.) For 2 or more lane bridges. If these limits apply, do not continue on to (4) as no lane width reductions are allowed.

If the first 2 digits of Item 28 = 02 and $Y \geq 16$, $H = 0\%$

If the first 2 digits of Item 28 = 03 and $Y \geq 15$, $H = 0\%$

If the first 2 digits of Item 28 = 04 and $Y \geq 14$, $H = 0\%$

If the first 2 digits of Item 28 ≥ 05 and $Y \geq 12$, $H = 0\%$

4.) For all <u>except</u> 1 – lane bridges, use Figure 3 or the following:

If	$Y < 9$ and $X > 50$	then	$H = 15\%$
	$Y < 9$ and $X \leq 50$		$H = 7.5\%$
	$Y \geq 9$ and $X \leq 50$		$H = 0\%$

If $X > 50$ but ≤ 125 and

$Y < 10$	then	$H = 15\%$
$Y \geq 10 < 13$		$H = 15 \frac{(13-Y)}{3}\%$
$Y \geq 13$		$H = 0\%$

If $X > 125$ but ≤ 375 and

$Y < 11$	then	$H = 15\%$
$Y \geq 11 < 14$		$H = 15 \frac{(14 - Y)}{3}\%$
$Y \geq 14$		$H = 0\%$

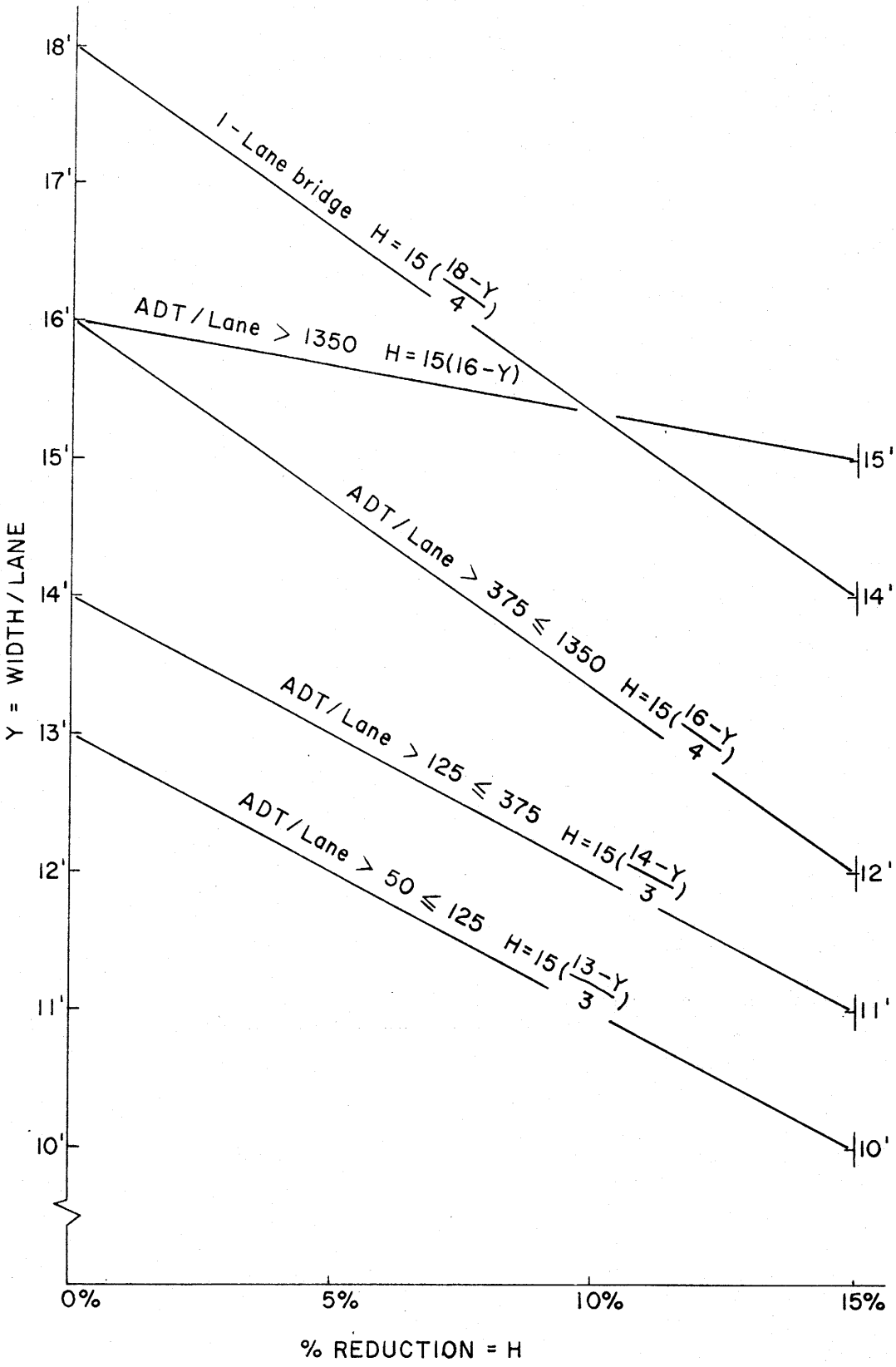


Figure 3. Width of roadway sufficiency

If X > 375 but $\leq$ 1350 and

Y < 12	then	H = 15%
Y $\geq$ 12 < 16		H = 15 $\frac{(16 - Y)}{4}$ %
Y $\geq$		H = 0%

If X > 1350 and

Y < 15	then	H = 15%
Y $\geq$ 15 < 16		H = 15 (16 – Y) %
Y $\geq$ 16		H = 0%

G + H shall not be less than 0% nor greater than 15%.

(c) Vertical Clearance Insufficiency – (2% maximum)

If Item 100 (Defense Highway Designation) > 0 and

Item 53 (VC over Deck) $\geq$ 1600	then	I = 0%
Item 53 < 1600		I = 2%

If Item 100 (Defense Highway Designation) = 0 and

Item 53 $\geq$ 1400	then	I = 0%
Item 53 < 1400		I = 2%

S2 = 30 – [J + (G + H) + I]

S2 shall not be less than 0 % nor greater than 30 %.

3. Essentiality for Public Use (15% maximum)

(a) Determine:

$$K = \frac{S1 + S2}{85}$$

(b) Calculate:

$$A = \frac{\text{Item 29 (ADT) x Item 19 (Detour Length)}}{200{,}000 \times K} \times 15$$

"A" shall not be less than 0% nor greater than 15%.

(c) Defense Highway Designation:

If Item 100 is > 0 then B = 2%

If Item 100 = 0 B = 0%

S3 = 15 – (A + B)
S3 shall not be less than 0 % nor greater than 15%.

4. Special Reductions (Use only when S1 + S2 + S3 $\geq$ 50)

(a) Detour Length Reduction, use Figure 4 or the following:

$$A = (\text{item } 19)^{4} \times (5.205 \times 10^{-8})$$

"A" shall not be less than 0% nor greater than 5%.

(b) If the 2nd and the 3rd digits of Item 43 (Structure Type, Main) are equal to 10, 12, 13, 14, 15, 16, or 17; then

B = 5 %

(c) If 2 digits of Item 36 (Traffic Safety Features) = 0 C = 1%
If 3 digits of Item 36 = 0 C = 2%
If 4 digits of Item 36 = 0 C = 3%

S4 = A + B + C
S4 shall not be less than 0% nor greater than 13%.

- -

Sufficiency Rating = S1 + S2 + S3 – S4

The Rating shall not be less than 0% nor greater than 100%.

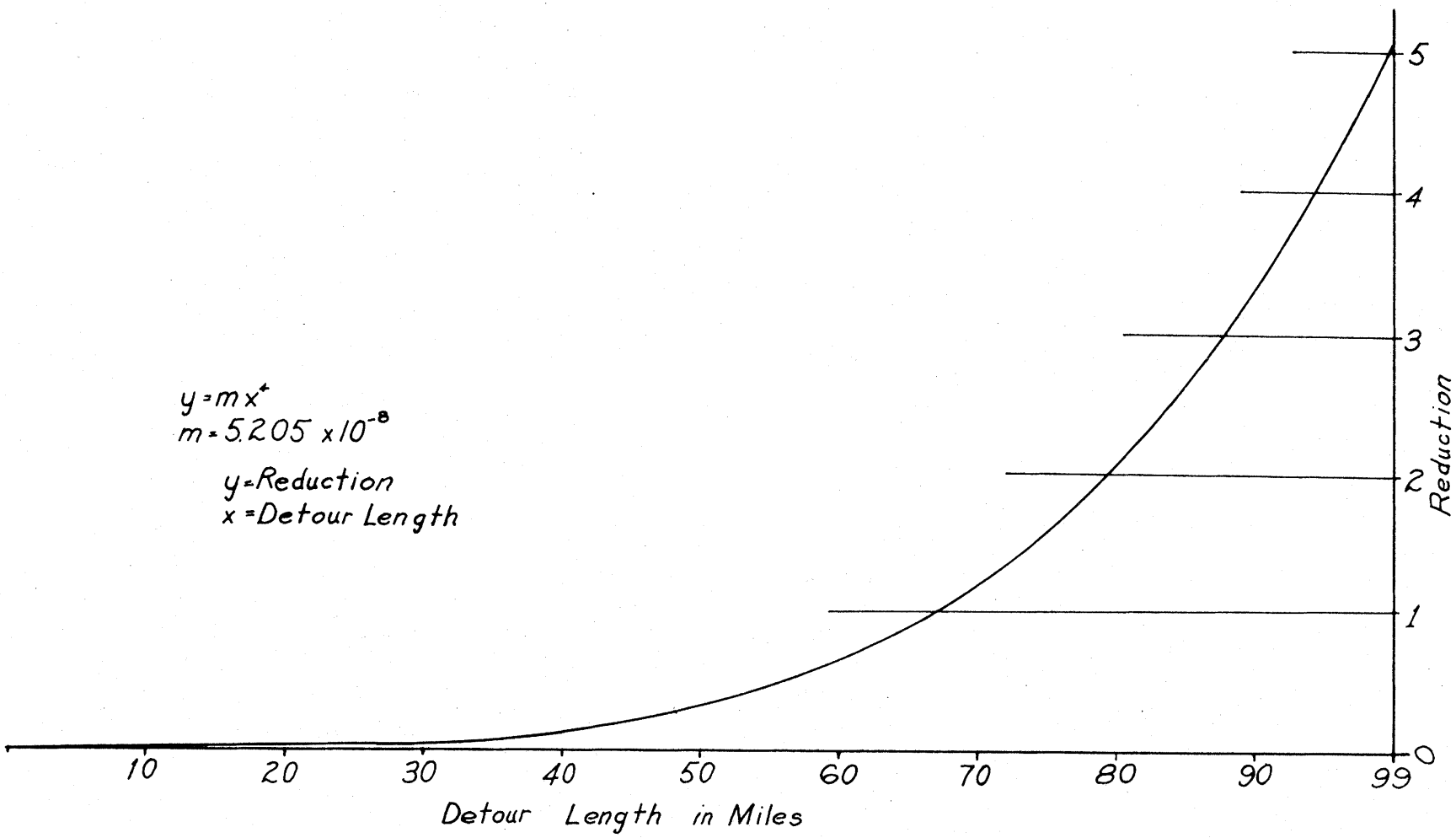


Figure 4. Special reduction for detour length

Example

Calculation of Sufficiency Rating

1. Structural Adequacy and Safety

   A, B, C, E, F, G, H = Not Applicable

   D = 10%

   $I = \left[36 - (1.00 \times 22)\right]^{1.5} \times 0.2778 = 14.6$

   $S_1 = 55 - (10 + 14.6) = 30.4$

2. Serviceability and Functional Obsolescence

   A = 3%, B = 1%, C = 4%, D = NA, E = NA, F = NA

   J = (3 + 1 + 4) = 8%

   $X = \frac{18500}{2} = 9250 \quad Y = \frac{26.0}{2} = 13.0$

   (1) If (26.0 + 2) < 40 then G = 5

   (2) Not Applicable

   (3) Not Applicable

   (4) If X = 9250 and Y = 13.0 then H = 15

   G + H = 5 + 15 = 20 (however, maximum allowable = 15)

   I = 0

   $S_2 = 30 - \left[8 + (15) + 0\right] = 7.0$

3. Essentiality For Public Use

   $K = \frac{30.4 + 7.0}{85} = 0.44$

   $A = \frac{18500 \times 8}{200{,}000 \times 0.44} \times 15 = 25.2$ (however, maximum allowable = 15)

   B = 0

   $S_3 = 15 - (15 + 0) = 0$

4. Special Reductions

$S_1 + S_2 + S_3 = (30.4 + 7.0 + 0.0) = 37.4 < 50$

S_4 = **NA**

SUFFICIENCY RATING = 30.4 + 7.0 + 0.0 = 37.4

Appendix C

National Bridge Inspection Standards

Appendix C

National Bridge Inspection Standards

CODE OF FEDERAL REGULATIONS

23 HIGHWAYS - PART 650

Subpart C - National Bridge Inspection Standards

§650.301 Application of standards.

The National Bridge Inspection Standards in this part apply to all structures defined as bridges located on all public roads. In accordance with the AASHTO (American Association of State Highway and Transportation Officials) Transportation Glossary, a "bridge" is defined 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 undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

§650.303 Inspection procedures.

(a) Each highway department shall include a bridge inspection organization capable of performing inspections, preparing reports, and determining ratings in accordance with the provisions of the AASHTO Manual[1] and the Standards contained herein.

(b) Bridge inspectors shall meet the minimum qualifications stated in §650.307.

(c) Each structure required to be inspected under the Standards shall be rated as to its safe load carrying capacity in accordance with Section 4 of the AASHTO Manual. If it is determined under this rating procedure that the maximum legal load under State law exceeds the load permitted under the Operating Rating, the bridge must be posted in conformity with the AASHTO Manual or in accordance with State law.

(d) Inspection records and bridge inventories shall be prepared and maintained in accordance with the Standards.

(e) The individual in charge of the organizational unit that has been delegated the responsibilities for bridge inspection, reporting and inventory shall determine and designate on the individual inspection and inventory records and maintain a master list of the following:

(1) Those bridges which contain fracture critical members, the location and description of such members on the bridge and the inspection frequency and procedures for inspection of such members. (Fracture critical members are tension members of a bridge whose failure will probably cause a portion of or the entire bridge to collapse.)

(2) Those bridges with underwater members which cannot be visually evaluated during periods of low flow or examined by feel for condition, integrity and safe load capacity due to excessive water depth or turbidity. These members shall be described, the inspection frequency stated, not to exceed five years, and the inspection procedure specified.

(3) Those bridges which contain unique or special features requiring additional attention during inspection to ensure the safety of such bridges and the inspection frequency and procedure for inspection of each such feature.

(4) The date of last inspection of the features designated in paragraphs (e)(1) through (e)(3) of this section and a description of the findings and follow-up actions, if necessary, resulting from the most recent inspection of fracture critical details, underwater members or special features of each so designated bridge.

§650.305 Frequency of inspections.

(a) Each bridge is to be inspected at regular intervals not to exceed 2 years in accordance with Section 2.3 of the AASHTO Manual.

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[1]The "AASHTO Manual" referred to in this part is the "Manual for Maintenance Inspection of Bridges 1983" together with subsequent interim changes or the most recent version of the AASHTO manual published by the American Association of State Highway and Transportation Officials. A copy of the Manual may be examined during normal business hours at the office of each Division Administrator of the Federal Highway Administration, at the office of each Regional Federal Highway Administrator, and at the Washington Headquarters of the Federal Highway Administration. The addresses of those document inspection facilities are set forth in Appendix D to Part 7 of the regulations of the Office of the Secretary (40 CFR Part 7). In addition, a copy of the Manual may be secured upon payment in advance by writing to the American Association of State Highway and Transportation Officials, 444 N. Capitol Street, N.W., Suite 225, Washington, D.C. 20001.

(b) Certain types or groups of bridges will require inspection at less than 2-year intervals. The depth and frequency to which bridges are to be inspected will depend on such factors as age, traffic characteristics, state of maintenance, and known deficiencies. The evaluation of these factors will be the responsibility of the individual in charge of the inspection program.

(c) The maximum inspection interval may be increased for certain types or groups of bridges where past inspection reports and favorable experience and analysis justifies the increased interval of inspection. If a State proposes to inspect some bridges at greater than the specified 2-year interval, the State shall submit a detailed proposal and supporting data to the Federal Highway Administrator for approval.

§650.307 Qualifications of personnel.

(a) The individual in charge of the organizational unit that has been delegated the responsibilities for bridge inspection, reporting, and inventory shall possess the following minimum qualifications:

(1) Be a registered professional engineer; or

(2) Be qualified for registration as a professional engineer under the laws of the State; or

(3) Have a minimum of 10 years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course based on the, "Bridge Inspector's Training Manual"[2], which has been developed by a joint Federal-State task force, and subsequent additions to the manual.[3]

(b) An individual in charge of a bridge inspection team shall possess the following minimum qualifications:

(1) Have the qualifications specified in paragraph (a) of this section; or

(2) Have a minimum of 5 years experience in bridge inspection assignments in a responsible capacity and have completed a comprehensive training course based on the "Bridge Inspector's Training Manual", which has been developed by a joint Federal-State task force.

(3) Current certification as a Level III or IV Bridge Safety Inspector under the National Society of Professional Engineer's program for National Certification in Engineering Technologies (NICET)[4] is an alternative acceptable means for establishing that a bridge inspection team leader is qualified.

§650.309 Inspection report.

The findings and results of bridge inspections shall be recorded on standard forms. The data required to complete the forms and the functions which must be performed to compile the data are contained in Section 3 of the AASHTO Manual.

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[2]The "Bridge Inspector's Training Manual" may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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[3]The following publications are supplements to the "Bridge Inspector's Training Manual": "Bridge Inspector's Manual for Movable Bridges," 1977, GPO Stock No. 050-002-00103-5; "Culvert Inspector's Training Manual," July 1986, GPO Stock No. 050-001-0030-7; and "Inspection of Fracture Critical Bridge Members," 1986, GPO Stock No. 050-001-00302-3.

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§650.311 Inventory.

(a) Each State shall prepare and maintain an inventory of all bridge structures subject to the Standards. Under these Standards, certain structure inventory and appraisal data must be collected and retained within the various departments of the State organization for collection by the Federal Highway Administration as needed. A tabulation of this data is contained in the structure inventory and appraisal sheet distributed by the Federal Highway Administration as part of the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (Coding Guide) in January of 1979. Reporting procedures have been developed by the Federal Highway Administration.

(b) Newly completed structures, modification of existing structures which would alter previously recorded data on the inventory forms or placement of load restriction signs on the approaches to or at the structure itself shall be entered in the State's inspection reports and the computer inventory file as promptly as practical, but no later than 90 days after the change in the status of the structure for bridges directly under the State's jurisdiction and no later than 180 days after the change in status of the structure for all other bridges on public roads within the State.

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[4]For information on NICET program certification contact: National Institute for Certification in Engineering Technologies, 1420 King Street, Alexandria, Virginia 22314. Attention: John D. Antrim, P.E., Phone (703) 684-2835.

Effective date October 25, 1988.

Appendix D

Appraisal Rating

Item 67 - Structural Evaluation

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

Structural Evaluation Rating Code	Inventory Rating		
	Average Daily Traffic (ADT)		
	0-500	501-5000	>5000
9	>236* (HS20)**	>236 (HS20)	>236 (HS20)
8	236 (HS20)	236 (HS20)	236 (HS20)
7	231 (HS17)	231 (HS17)	231 (HS17)
6	223 (HS13)	225 (HS14)	227 (HS15)
5	218 (HS10)	220 (HS11)	222 (HS12)
4	212 (HS7)	214 (HS8)	218 (HS10)
3	Inventory rating less than value in rating code of 4 and requiring corrective action.		
2	Inventory rating less than value in rating code of 4 and requiring replacement.		
0	Bridge closed.		

* Coded HS rating load (typical)
** HS Designation (typical)

Item 68 - Deck Geometry

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

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

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

Notes:

1. Use the lower rating code for values between those listed in the table.
2. Dimensions are in feet.
3. For 3 or more undivided lanes of 2-way traffic, use Table 2C, Other Multilane Divided Facilities.
4. Do not use Table 2B for code 9 and for codes 8 through 4 inclusive when the ADT >100. Single lane bridges less than 16 feet wide carrying 2-way traffic are always appraised at 3 or below if they carry more than an ADT of 100.

Item 68 - Deck Geometry

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

TABLE 2C					TABLE 2D	
Deck Geometry Rating Code	Bridge Roadway Width 2 or More Lanes Each Direction				Bridge Roadway Width 1-Way Traffic	
	Interstate and Other Divided Freeways		Other Multilane Divided Facilities		Ramps Only	
	2 Lanes	3 or more Lanes	2 Lanes	3 or more Lanes	1 Lane	2 or more 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 bridges longer than 200 feet.
N = number of lanes of traffic.

Notes

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

Item 68 - Deck Geometry

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

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

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

Notes

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

Item 69 - Underclearances, Vertical and Horizontal

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

Underclearance Rating Code	Minimum Vertical Underclearance				
	Functional Class				
	Interstate and Other Freeway		Other Principal and Minor Arterials	Major and Minor Collectors and Locals	Railroad
	All Routes - Except as noted for Urban Areas	Undesignated Routes, Urban Areas*			
9	>17'-0"	>16'-6"	>16'-6"	>16'-6"	>23'-0"
8	17'-0"	16'-6"	16'-6"	16'-6"	23'-0"
7	16'-9"	15'-6"	15'-6"	15'-6"	22'-6"
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.				

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

Notes

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

Item 69 - Underclearances, Vertical and Horizontal

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

Under-clearance Rating Code	Minimum Lateral Underclearance						
	Functional Class						
	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	3	9	21	11	17
6	6	12	2	8	12	10	14
5	5	11	2	6	10	8	11
4	4	10	2	4	8	6	8
3	Underclearance less than value in rating code of 4 and requiring corrective action.						
2	Underclearance less than value in rating code of 4 and requiring replacement.						
0	Bridge closed.						

Notes:

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

Appendix E

Designated National Network for Trucks

APPENDIX A TO PART 658—NATIONAL NETWORK—FEDERALLY-DESIGNATED ROUTES

[The federally-designated routes on the National Network consist of the Interstate System, except as noted, and the following additional Federal-aid Primary highways]

Route	From	To
	Oregon	
US 20	OR 34 W. Int. Philomath.	ECL Sweet Home.
US 20	OR 126 Sisters	ID State Line Nyssa.
US 26	US 101 Cannon Beach Junction.	OR 126 Prineville.
US 30	US 101 Astoria	I-405 Portland.
US 30 BR	OR 201 Ontario	ID State Line.
US 95	NV State Line	ID State Line.
US 95 Spur	OR 201	ID State Line Weiser, ID.
US 97	CA State Line	WA State Line.
US 101	SCL Port Orford	OR 126 Florence.
US 101	US 20 Newport	OR 18 Otis.
US 101	OR 6 Tillamook	WA State Line.
US 197	I-84 The Dalles	WA State Line.
US 199	CA State Line	OR 99 Grants Pass.
US 395	CA State Line	US 26 John Day.
US 395	I-84 Stanfield	US 730 near Umatilla.
US 730	I-84 Boardman	WA State Line.
OR 6	US 101 Tillamook	US 26 Near Banks.
OR 8	OR 47 Forest Grove	OR 217 Beaverton.
OR 11	I-84 Pendelton	WA State Line.
OR 18	US 101 Otis	OR 99W Dayton.
OR 19	OR 206 Condon	I-84 Arlington.
OR 22	OR 18 near Willamina.	US 20 Santiam Junction.
OR 31	US 97 La Pine	US 395 Valley Falls.
OR 34	OR 99W Corvallis	US 20 Lebanon.
OR 35	US 26 Government Camp.	I-84 Hood River.
OR 38	US 101 Reedsport	I-5 Anlauf.
OR 39	CA State Line	OR 140 E. of Klamath Falls.
OR 42	US 101 Coos Bay	OR 42S Coquille.
OR 47	OR 8 Forest Grove	US 26 N. of Banks.
OR 58	I-5 Eugene	US 97 near Chemult.
OR 62	Medford	OR 140 White City.
OR 78	Burns	US 95 Burns Junction.
OR 99	I-5 E. of Rogue River	I-5 Grants Pass.
OR 99	I-5 Eugene	OR 99W/E Junction City.
OR 99E	OR 99/99W Junction City.	I-5 Albany.
OR 99E	I-5 Salem	I-5 Portland.
OR 99W	OR 99/99E Junction City.	I-5 Portland.
OR 126	US 101 Florence	US 26 Prineville.
OR 138	OR 38 Elkton	I-5 near Sutherlin.
OR 140	OR 62 White City	OR 39 E. of Klamath Falls.
OR 201	US 26 Cairo	US 95 Spur near Weiser, ID.
OR 207	US 730 Cold Springs Jct.	OR 74 S. Int. Heppner.
OR 212	OR 224 E. Int. near Rock Ck. Corner.	US 26 near Boring.
OR 214	I-5 Woodburn	OR 213 Silverton.
OR 217	US 26 Beaverton	I-5 Tigard.
OR 223	Kings Valley Hwy. in Dallas.	OR 99W Rickreall.
OR 224	OR 99E Milwaukie	OR 212 E. Int. near Rock Ck. Corner

Appendix F

Oregon Bridge Inventory Sheet and Data Element Listing

Appendix F

National Bridge Inventory Record Format

With the conversion to metric and the addition of new items, it is required to expand the size of the NBI record to 432 characters. The following format will be used to submit data to FHWA.

ITEM NO.	ITEM NAME	ITEM POSITION	ITEM LENGTH / TYPE
1	State Code	1 – 3	3 / N
8	Structure Number	4 – 18	15 / AN
5	Inventory Route	19 – 27	9 / AN
5A	Record Type	19	1 / AN
5B	Route Signing Prefix	20	1 / N
5C	Designated Level of Service	21	1 / N
5D	Route Number	22 – 26	5 / AN
5E	Directional Suffix	27	1 / N
2	State Highway Dept. District	28 – 29	2 / AN
3	County Code	30 – 32	3 / N
4	Place Code	33 – 37	5 / N
6	Features Intersected	38 – 62	25 / AN
6A	Features Intersected	38 – 61	24 / AN
6B	Critical Facility Indicator	62	1 / AN
7	Facility Carried by Structure	63 – 80	18 / AN
9	Location	81 – 105	25 / AN
10	Inventory Rte, Min Vert Clearance	106 – 109	4 / N
11	Milepoint / Kilometerpoint	110 – 116	7 / N
12	Base Highway Network	117	1 / N
13	Inventory Route, Subroute Number	118 – 129	12 / AN
13A	LRS Inventory Route	118 – 127	10 / AN
13B	Subroute Number	128 – 129	2 / N
16	Latitude	130 – 137	8 / N
17	Longitude	138 – 146	9 / N
19	Bypass / Detour Length	147 – 149	3 / N
20	Toll	150	1 / N
21	Maintenance Responsibility	151 – 152	2 / N
22	Owner	153 – 154	2 / N
26	Functional Class Of Inventory Route	155 – 156	2 / N
27	Year Built	157 – 160	4 / N
28	Lanes On / Under Structure	161 – 164	4 / N
28A	Lanes On Structure	161 – 162	2 / N
28B	Lanes Under Structure	163 – 164	2 / N
29	Average Daily Traffic	165 – 170	6 / N
30	Year of Average Daily Traffic	171 – 174	4 / N
31	Design Load	175	1 / N
32	Approach Roadway Width	176 – 179	4 / N

33	Bridge Median	180	1 / N
34	Skew	181 – 182	2 / N
35	Structure Flared	183	1 / N
36	Traffic Safety Features	184 – 187	4 / AN
36A	Bridge Railing	184	1 / AN
36B	Transitions	185	1 / AN
36C	Approach Guardrail	186	1 / AN
36D	Approach Guardrail Ends	187	1 / AN
37	Historical Significance	188	1 / N
38	Navigation Control	189	1 / AN
39	Navigation Vertical Clearance	190 – 193	4 / N
40	Navigation Horizontal Clearance	194 – 198	5 / N
41	Structure Open / Posted / Closed	199	1 / AN
42	Type of Service	200 – 201	2 / N
42A	Type of Service On Bridge	200	1 / N
42B	Type of Service Under Bridge	201	1 / N
43	Structure Type, Main	202 – 204	3 / N
43A	Kind of Material / Design	202	1 / N
43B	Type of Design / Construction	203 – 204	2 / N
44	Structure Type, Approach Spans	205 – 207	3 / N
44A	Kind of Material / Design	205	1 / N
44B	Type of Design / Construction	206 – 207	2 / N
45	Number of Spans in Main Unit	208 – 210	3 / N
46	Number of Approach Spans	211 – 214	4 / N
47	Inventory Rte Total Horiz. Clearance	215 – 217	3 / N
48	Length of Maximum Span	218 – 222	5 / N
49	Structure Length	223 – 228	6 / N
50	Curb / Sidewalk Widths	229 – 234	6 / N
50A	Left Curb / Sidewalk Width	229 – 231	3 / N
50B	Right Curb / Sidewalk Width	232 – 234	3 / N
51	Bridge Roadway Width, Curb-to-Curb	235 – 238	4 / N
52	Deck Width, Out-to-Out	239 – 242	4 / N
53	Min Vert Clear Over Bridge Roadway	243 – 246	4 / N
54	Minimum Vertical Underclearance	247 – 251	5 / AN
54A	Reference Feature	247	1 / AN
54B	Minimum Vertical Underclearance	248 – 251	4 / N
55	Min Lateral Underclear On Right	252 – 255	4 / AN
55A	Reference Feature	252	1 / AN
55B	Minimum Lateral Underclearance	253 – 255	3 / N
56	Min Lateral Underclear on Left	256 – 258	3 / N
58	Deck	259	1 / AN
59	Superstructure	260	1 / AN
60	Substructure	261	1 / AN
61	Channel / Channel Protection	262	1 / AN
62	Culverts	263	1 / AN
63	Method used to determine Operating Rating	264	1 / N
64	Operating Rating	265 – 267	3 / N
65	Method used to determine	268	1 / N

	Inventory Rating		
66	Inventory Rating	269 – 271	3 / N
67	Structural Evaluation	272	1 / AN
68	Deck Geometry	273	1 / AN
69	Underclear, Vertical & Horizontal	274	1 / AN
70	Bridge Posting	275	1 / N
71	Waterway Adequacy	276	1 / AN
72	Approach Roadway Alignment	277	1 / AN
75	Type of Work	278 – 280	3 / N
75A	Type of Work Proposed	278 – 279	2 / N
75B	Work Done By	280	1 / N
76	Length of Structure Improvement	281 – 286	6 / N
90	Inspection Date	287 – 290	4 / N
91	Designated Inspection Frequency	291 – 292	2 / N
92	Critical Feature Inspection	293 – 301	9 / AN
92A	Fracture Critical Details	293 – 295	3 / AN
92B	Underwater Inspection	296 – 298	3 / AN
92C	Other Special Inspection	299 – 301	3 / AN
93	Critical Feature Inspection Dates	302 – 313	12 / AN
93A	Fracture Critical Details Date	302 – 305	4 / AN
93B	Underwater Inspection Date	306 – 309	4 / AN
93C	Other Special Inspection Date	310 – 313	4 / AN
94	Bridge Improvement Cost	314 – 319	6 / N
95	Roadway Improvement Cost	320 – 325	6 / N
96	Total Project Cost	326 – 331	6 / N
97	Year of Improvement Cost Estimate	332 – 335	4 / N
98	Border Bridge	336 – 340	5 / AN
98A	Neighboring State Code	336 – 338	3 / AN
98B	Percent Responsibility	339 – 340	2 / N
99	Border Bridge Structure Number	341 – 355	15 / AN
100	STRAHNET Highway Designation	356	1 / N
101	Parallel Structure Designation	357	1 / AN
102	Direction of Traffic	358	1 / N
103	Temporary Structure Designation	359	1 / AN
104	Highway System of Inventory Route	360	1 / N
105	Federal Lands Highways	361	1 / N
106	Year Reconstructed	362 – 365	4 / N
107	Deck Structure Type	366	1 / AN
108	Wearing Surface / Protective System	367 – 369	3 / AN
108A	Type of Wearing Surface	367	1 / AN
108B	Type of Membrane	368	1 / AN
108C	Deck Protection	369	1 / AN
109	Average Daily Truck Traffic	370 – 371	2 / N
110	Designated National Network	372	1 / N
111	Pier / Abutment Protection	373	1 / N
112	NBIS Bridge Length	374	1 / AN
113	Scour Critical Bridges	375	1 / AN
114	Future Average Daily Traffic	376 – 381	6 / N
115	Year of Future Average Daily Traffic	382 – 385	4 / N
116	Minimum Navigation Vertical	386 – 388	3 / N

	Clearance Vertical Lift Bridge		
---	Washington Headquarters use	389 – 427	
n/a	Asterisk Field in SR	428	1 / AN
SR	Sufficiency Rating (select from last 4 positions only)	429 – 432	4 / N

OREGON BRIDGE INVENTORY

OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE SECTION
BRIDGE OPERATIONS

734-3947(2-94)

1	8	
	FEDERAL STRUCTURE I.D.	
STATE	8A OR.BRIDGE NO.	8B SEGMENT 2
410		
1	4	10 18

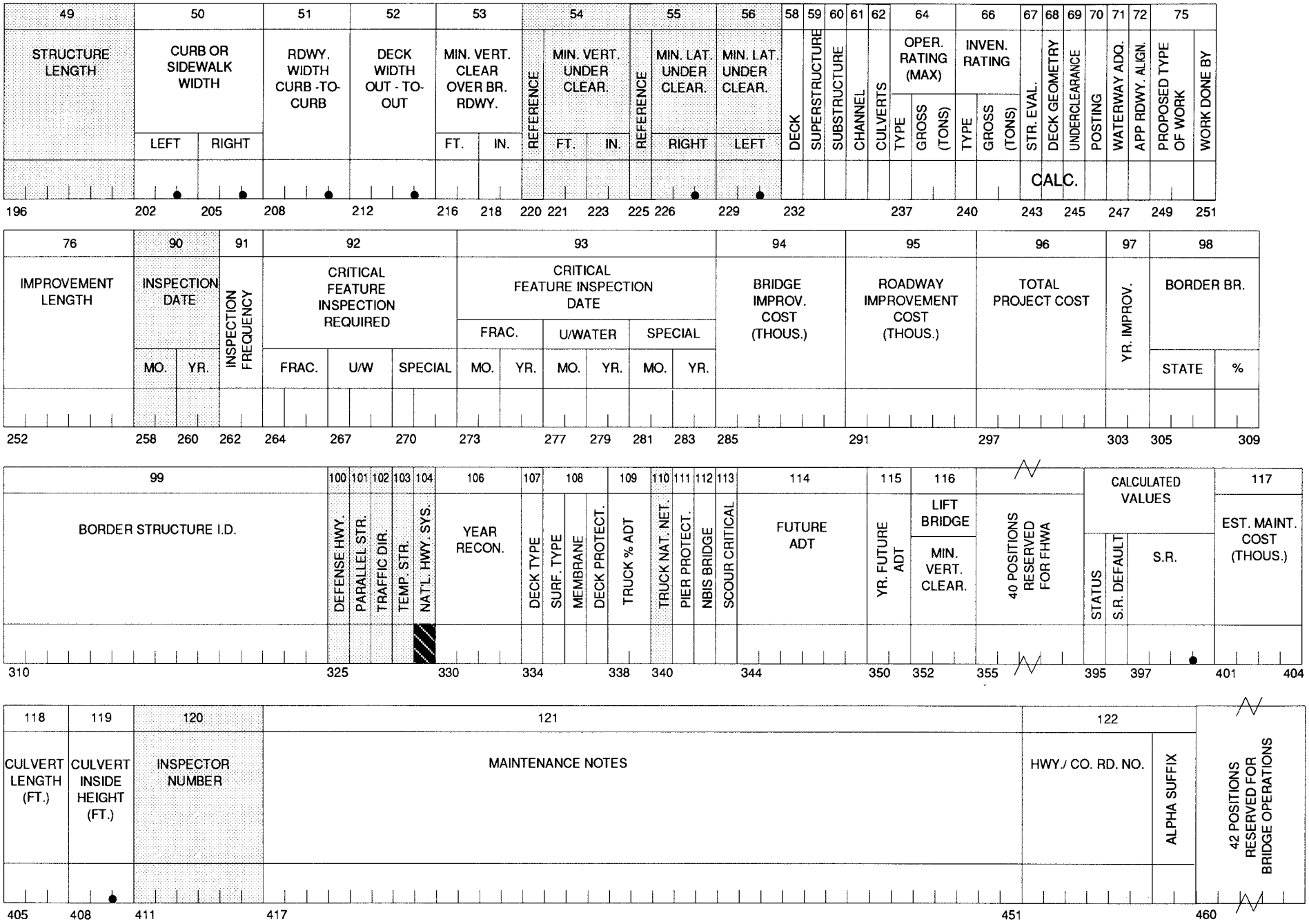
DATE
SUBMITTED BY

NOTE:
1. When route carried "on" the structure, all items except calculated values and as noted in "3" below are required
2. For each route "under" the structure, shaded items are the minimum requirements.
3. Item 67 through 69 indicate appraisal rating. These values are calculated and inserted by the Edit/Update Program.

A	B	C	5 D	E	2	3	4	6	7
RECORD TYPE	SIGNED RTE. SYS.	LEVEL OF SERVICE	SIGNED ROUTE NO.	DIREC. SUFFIX	HWY. DIST.	COUNTY	CITY/ PLACE CODE	FEATURES INTERSECTED / CRITICAL FACILITY	FACILITY CARRIED
19					28	30	33	38	63 80

9	10	11A	B	16		17		19	20	21	22	26	27
LOCATION	VERT. CLEAR. (FOR MIN. OF 10FT WIDTH)	MILEPOST	NEG. MP FLAG	LATITUDE		LONGITUDE		DETOUR (MI.)	TOLL	MAINT. RESP.	OWNER	FUNC. CLASS	YEAR BUILT
				DEG.	MIN.	DEG.	MIN.						
81	106	110		116	118	121	124	127	129		132	134	136 139

28		29	30	31	32	33	34	35	36				37	38	39	40	41	42		43		44		45	46	47	48
LANES ON	LANES UNDER	ADT	YR. ADT	DESIGN LOAD	APPROACH RDWY. WIDTH (FT.)	BR. MEDIAN	SKEW	STR. FLARED	RAIL				HIST. SIGNIF.	NAV. CONTROL	NAV. VERT. CLEAR. (FT.)	NAV. HORIZ. CLEAR. (FT.)	OPER. STATUS	TYPE SERV		MAIN		APPR.		NO. MAIN SPANS	NO. APPR. SPANS	HORIZ. CLEAR.	LENGTH MAX. SPAN
									BR. RAIL	TRANSITIONS	APPR.	APPR. ENDS						ON	UNDER	MATERIAL	DESIGN TYPE	MATERIAL	DESIGN TYPE				
140	142	144	150	152	153	156	157	159	160				164	166		169	173			176		179		182	185	189	192 195


49
STRUCTURE LENGTH
50
CURB OR SIDEWALK WIDTH
LEFT
RIGHT
51
RDWY. WIDTH CURB -TO- CURB
52
DECK WIDTH OUT - TO- OUT
53
MIN. VERT. CLEAR OVER BR. RDWY.
FT.
IN.
54
REFERENCE
MIN. VERT. UNDER CLEAR.
FT.
IN.
55
REFERENCE
MIN. LAT. UNDER CLEAR.
RIGHT
56
MIN. LAT. UNDER CLEAR.
LEFT
58
DECK
59
SUPERSTRUCTURE
60
SUBSTRUCTURE
61
CHANNEL
62
CULVERTS
64
OPER. RATING (MAX)
TYPE
GROSS (TONS)
66
INVEN. RATING
TYPE
GROSS (TONS)
67
STR. EVAL.
CALC.
68
DECK GEOMETRY
69
UNDERCLEARANCE
70
POSTING
71
WATERWAY ADQ.
72
APP RDWY. ALIGN.
75
PROPOSED TYPE OF WORK
WORK DONE BY
196
202
205
208
212
216
218
220
221
223
225
226
229
232
237
240
243
245
247
249
251
76
IMPROVEMENT LENGTH
90
INSPECTION DATE
MO.
YR.
91
INSPECTION FREQUENCY
92
CRITICAL FEATURE INSPECTION REQUIRED
FRAC.
U/W
SPECIAL
93
CRITICAL FEATURE INSPECTION DATE
FRAC.
MO.
YR.
U/WATER
MO.
YR.
SPECIAL
MO.
YR.
94
BRIDGE IMPROV. COST (THOUS.)
95
ROADWAY IMPROVEMENT COST (THOUS.)
96
TOTAL PROJECT COST
97
YR. IMPROV.
98
BORDER BR.
STATE
%
252
258
260
262
264
267
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