

Structure Management System



SMS

Structure Inventory Coding Guide

(DRAFT)

ORC 723.54, 5501.47, 5543.20

ACKNOWLEDGMENTS

This Structure Inventory Coding Guide supersedes and replaces the Bridge Inventory Coding Guide.

Excerpts and/or items from the following publications were used as guidelines in preparing this manual:

- “Bridge Inventory Coding Guide”, October 1988, 1989, 1992, 2010 Ohio Department of Transportation.
- “Bridge Inspection Manual”, 1987, 1989, 1992, 1998, 2006, 2010, 2014 Ohio Department of Transportation.
- “Recording and Coding Guide for the Structure Inventory and Appraisal of the Nations Bridge”, 1995 U.S. Department of Transportation, Federal Highway Administration.
- “Census of Population and Housing 2010”, U.S. Department of Commerce, Bureau of Census.

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STRUCTURE MANAGEMENT SYSTEM (SMS)

INTRODUCTION TO THE OHIO STRUCTURE INFORMATION MANAGEMENT SYSTEM (SMS)

The Structure Information Management System (SMS) has been developed by Bentley/Inspect Tech in cooperation with the Ohio Department of Transportation, Office of Structural Engineering (OSE) and the Division of Information Technology (DoIT). The system facilitates a collection of bridge data to be used for producing various analytical and statistical reports, which aid in the design, planning, programming and financing of structure maintenance and construction in Ohio, as well as funding selection base by FHWA.

Federal legislation and publication by the U.S. Department of Transportation, Federal Highway Administration (FHWA) of the "Recording and Coding Guide for The Structure Inventory and Appraisal of the Nation's Bridges", July 1972, (rev. JAN. 1979, DEC. 1988, DEC. 1995, DEC. 2000) and the Surface Transportation Assistance Act of 1978 render it mandatory that particular data herein specified, be collected and maintained for all bridges on the Public Highway and Street System in Ohio. It will be possible to accomplish this task only through the complete cooperation of all government and local agencies involved. Most of the identification and structural data required will be available from existing bridge inventories of the various agencies, as established under Section(s) 723. 54, 5501.47, 5543.20 of the Ohio Revised Code (ORC). Some items required may compel an agency to make field measurements to obtain accurate and up-to-date data.

Provisions have been made to collect and maintain information on all bridges on the State & Non-State Highway Systems. All inventory and inspection data of bridges is stored in ODOT SMS.

Each agency (ODOT District, County, Municipality, Turnpike Commission, etc.) shall be responsible for the validity and accuracy of data for its own bridges.

All bridges and culverts carrying or going over public streets and highways must be inventoried. It is necessary that all bridges be inventoried and coded with respect to a particular route known as the "Inventory Route" which is defined in more detail in the SMS Bridge Inventory Coding Guide.

In all cases structure description items shall be coded from the viewpoint of the structure as a bridging unit, regardless of its orientation over, under or on the inventory route.

INVENTORY RESPONSIBILITY

*In order to eliminate duplication of records the following rule shall apply. For the purposes of this inventory each agency, State, County and Municipality shall inventory **only the structures for which it has inspection responsibility under Ohio law, or by any special written agreement legally transferring inspection responsibility.** Agencies charged by law with only maintenance of a structure must **not** place that bridge record on file.*

Exceptions to this rule are private and industrial structures over or under an agency route and for which the inspection responsibility has been assigned by law or mutual agreement to the private agency. In this

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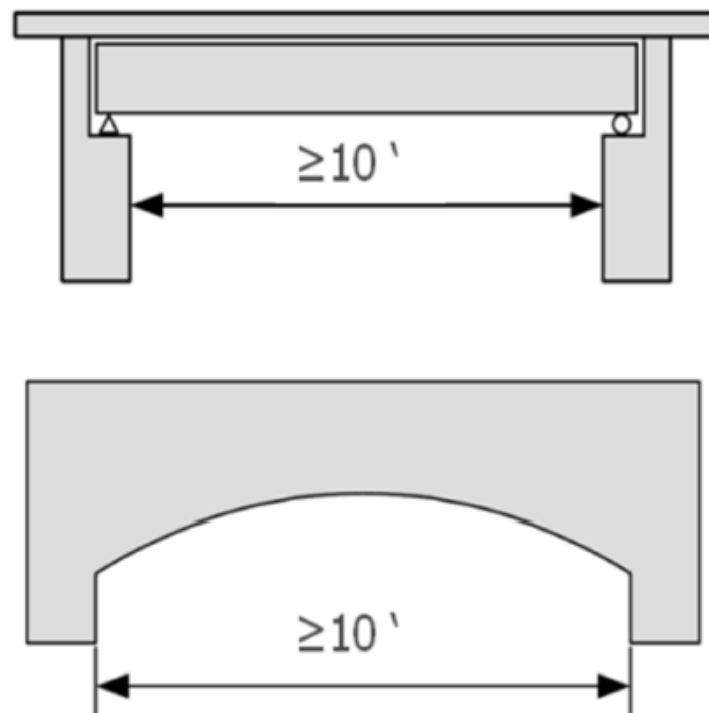
case, the agency whose route goes over or under shall inventory the structure. Structures separating grades of two (2) or more intersected routes shall be inventoried on the route carried by the bridge, i.e., code using the route on the structure as the "Inventory Route."

For bridges with joint Inspection Responsibility, a public agency would be responsible to do the bridge inventory as per hierarchy (State, Turnpike, County, and Municipality) unless a special agreement is in place.

In special cases a public agency may be required to inventory a bridge inspected or maintained by a border state (Indiana, Kentucky, Michigan, Pennsylvania, or West Virginia) for cross reference or holding bridge clearance information.

DEFINITIONS

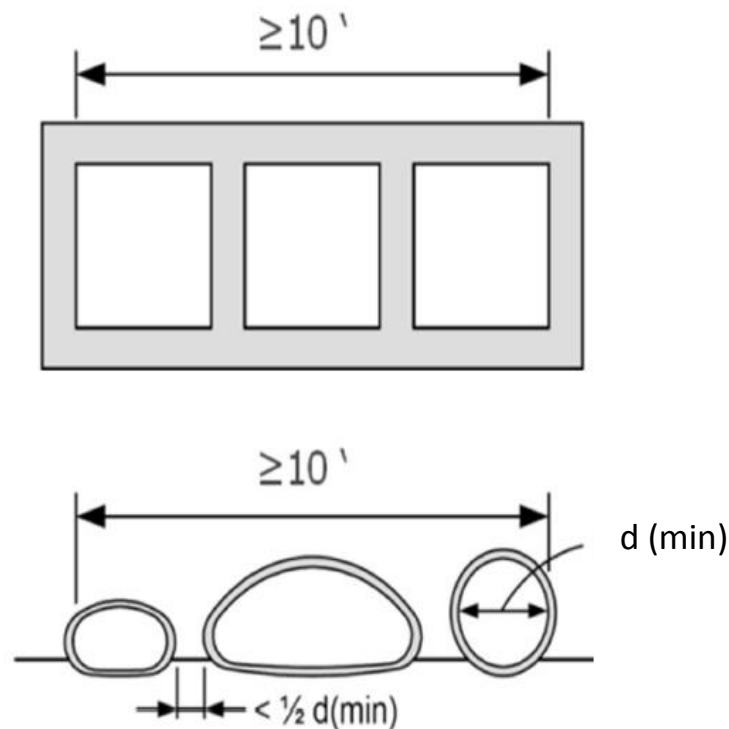
Bridge - A structure including intermediate supports erected over a depression or an obstruction such as water, highway or railway and having a truck or passageway for carrying traffic or other moving loads and having an opening of 10 feet or greater (clear span, distance between interior faces of extreme ends), or 10 feet or greater diameter, on, above, or below a highway measured along the centerline of the roadway. Multiple openings shall be grouped as one bridge when the distance between extreme ends of the adjacent openings is 10 feet or more with the clear distance between openings less than half of the clear span or diameter of the smallest opening in the group.



Bridge Clear Span

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Culvert Bridge- A type of bridge with opening of 10 feet or more measured along the centerline of the roadway, which conveys water or forms a passageway through an embankment and is designed to support superimposed loads of earth or other fill material plus a live load. Multiple cell culverts under a fill with a distance of 10 feet or more between extreme ends of openings, measured along the center line of the roadway, including multiple pipes where the clear distance between openings is less than half of the diameter of the smallest opening, will be regarded as a culvert-bridge. For guidance on structures less than 10 feet clear span measured along the centerline (regardless of fill depth), entities should refer to the Ohio Department of Transportation, Office of Hydraulic Engineering, Culvert Management Manual.



Bridge – Culvert Clear Span

Non-Vehicular, Non-Railroad Bridges – Pedestrian, closed bridges, etc. over public vehicular roadways shall be inventoried and inspected to ensure such structures do not pose an unacceptable safety risk to the public and vehicles under the bridge as per ODOT Bridge Inspection Manual. Any problems requiring immediate attention should be relayed to the Control Authority of the bridge by the responsible person of the inspecting entity.

Railroad Bridges – Open or closed RR bridges over public vehicular roadways shall be inspected to ensure such structures do not pose an unacceptable safety risk to the public and vehicles under the bridge. Federal Regulation, 49 CFR part 237 (FRA), requires track owners to inspect each bridge each calendar year, therefore, entities responsible for the safe passage of public traffic underneath the railroad structure only need to focus on portions of the structure which would directly affect the right-of-way. Any problems requiring immediate attention should be relayed to the Control Authority of the bridge from the Control

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Authority of the overlapping right-of-way. Additionally, ORC 40907.44 requires track owners to send PUCO (Public Utilities Commission of Ohio) the annual inspection reports. If at any time a bridge is found to be dangerous or unfit for transportation of passengers, freight, or railroad crews, the railroad shall immediately report the condition of the bridge to the PUCO. When the bridge passes over a public highway, such report shall also be given to the public authority having jurisdiction over such highway.

Major Bridge – A Major Bridge, per funding source policy no. 16-003(P) is on the State Highway System and meets one or more of the following criteria (note that a consulting firm requesting prequalification in “major bridge” inspection shall refer to the latest version of the ODOT Consultant Prequalification Requirements and Procedures Manual as the definitions will defer based upon maximum span length for specific structure types):

- More than 1,000 feet in length
- Single bridge with a deck area of 81,000 square feet (9,000 square yards) or greater
- Twin bridges with a deck area of 135,000 square feet (15,000 square yards) or greater
- Spans the Ohio River
- Moveable bridge
- Continuous/cantilever truss bridge
- Suspension bridge

Bridges that do not meet any of the above definitions are considered non-major bridge.

STRUCTURE MANAGEMENT SYSTEM CODING GUIDE

The Structure Management System (SMS) Coding Guide (also referred to as “the SMS Guide” has been prepared through the joint efforts of the Office of Structural Engineering and Division of Information Technology to establish policies and procedures for the creation and maintenance of the Structure Management System (SMS).

The SMS Guide is intended for use by State, County and Municipal highway officials and private consultants who will be authorized to perform the bridge inventory in the SMS.

The SMS Guide is maintained by the Bridge Inventory Section of the Office of Structural Engineering. Updates to it shall be published on the Office of Structural Engineering website in pdf format for download.

Inquiries concerning the material contained in this guide should be directed by phone and in writing to:

Ohio Department of Transportation
Office of Structure Engineering
1980 West Broad Street
Mail Stop 5180
Columbus, OH 43223
Attn: Bridge Inventory Section
Amjad Waheed, P.E. – 614-752-9972 – Amjad.waheed@dot.ohio.gov

STRUCTURE MANAGEMENT SYSTEM (SMS)

UPDATING THE ODOT STRUCTURE MANAGEMENT SYSTEM (SMS) Records

Updating the ODOT SMS consists of adding a bridge, retiring a bridge from the database, or updating data of an existing bridge record. This includes inventory as well as inspection data of a bridge.

The agency (ODOT District, County, Municipality, Turnpike Commission, etc.) responsible for the inventory of a bridge shall also be responsible for maintaining the integrity of inventory data of the bridge. Each agency shall maintain its portion of the database on a day-to-day basis.

A complete review and update of the bridge records shall be accomplished at least once a year.

F.H.W.A. requires prompt updating of data due to replacement, rehabilitation, load posting, inspection, etc. The maximum limit is 90 days for ODOT, and 180 days for Non-ODOT agencies.

STRUCTURE INVENTORY CODING INSTRUCTIONS

Following is a complete listing of all items occurring in the Structure Management System (SMS). Items are described in sufficient detail to allow easy coding of structures by all the agencies involved. Since all items do not apply to all agencies, it is necessary that each description be read carefully. Each item should be coded in its entirety exactly as described.

For instructions on coding Bridge Inspection forms (BR86/BR86S), refer to ODOT Bridge Inspection Manual.

ADDITION (Creating an Asset)

The addition of a bridge record to the Structure Management System (SMS) establishes the existence of the bridge for the system. An addition of a bridge (i.e. Structure File Number) is a one-time entry and must be done before any updating (changes, inspection entries, etc.) can be performed.

The bridge must have **all 116 FHWA Items coded** to be considered in **Active status**. An extensive edit is performed on each bridge record added to the file. All edit criteria is based on the SMS Coding Guide instructions and errors found will be displayed on the Error Check Form in SMS. If Items are left uncorrected it could affect the sufficiency rating of the bridge.

To add or create an asset (bridge):

- 1)** Chose **Manager** on the Task Bar and select **Create new asset**
- 2)** **Add New Asset** will appear, then select **Bridge** as your Asset Type
- 3)** Click on **Parent Asset** and the Asset tree will appear. Click on “+” sign before **All Assets**, then your branch of the tree. For Example: County Agency, City of Other Local Agency or Ohio State Department of Transportation
- 4)** Chose the County where the bridge is located **County (Parish) Code**

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- 5) In the **Route Number** code the route carried by the bridge using five digits with leading zeros.
- 6) Code a valid **County Log Point** using two digits, a decimal point then three digits (xx.xxx).
- 7) **SFN Control Authority** – Chose the appropriate code.
- 8) **Default Report Type** – The type of bridge inspection.
- 9) **Asset Status** – Chose Proposed, Inactive, Active, Retired
- 10) Hit the **Generate Asset Name and Code** and the system will generate a SFN
- 11) Click **Create Asset** button.

Duplicate bridge records, i.e., Structure File Numbers, will not be allowed.

UPDATE DATA (Edit Asset Values)

You can update data or edit asset values by choosing the **Edit Asset Values** button on the Main Menu or updating the Inventory Shortcuts while creating an inspection report. Locate the item you wish to update and chose an entry from the appropriate drop down menu or type in the entry. Once you have clicked out of the item your change has been saved.

RETIRE

A bridge record, i.e. Structure File Number, may be retired from the file by changing the status of the bridge to Retired. Choose **Manager** from the Top Menu, **Manage Inventory**, and then find your bridge using the **asset tree**. Once you have located the bridge change the **Asset Status** to **Retired** and select a Retire Reason in **Item 257 - Record Retire Reason**

<u>Code</u>	<u>Description</u>
1	Replaced >= 50% Sufficiency Rating
2	Replaced < 50% Sufficiency Rating
3	Transferred to another agency (County, municipality, etc.)
4	Collapsed, not to be replaced
5	Closed with no intent to replace
7	Collapsed and replaced
0	Other

Table 1 - Retire Option

When a SFN is retired from the SMS, its records do not get deleted but get frozen. Retired bridges are stored as archived assets in the SMS. No further additions/deletions/changes can be made to retired bridge records. The retired SFN cannot be reassigned to any other bridge.

If the bridge gets accidentally retired, please contact the Office of Structural Engineering to make it active again.

STRUCTURE FILE NUMBER (SFN)

This is the identification number for the data file on a particular structure. It is a seven (7) digit numeric which is automatically assigned by the SFN generator in SMS. **The Structure File Number is a permanent**

STRUCTURE MANAGEMENT SYSTEM (SMS)

number assigned to the structure when the bridge is first conceived and remains so until the entire structure is demolished or removed from the system. The first two (2) digits are the numeric code for the Ohio County (See Appendix “A”) in which the structure is located. The last five (5) digits make up the specific number for that structure.

The specific structure number (digits three thru seven) will be assigned automatically by SMS. If a structure is transferred from one (1) jurisdiction to another, such as County to State or vice versa, **it will no longer be given a new Structure File Number.** Instead you will change the responsibility code to match the new owner.

When inventorying a bridge **any structure(s) with a closed median is to be recorded as one bridge.** A closed median is where:

- 1) The area between the two roadways on the structure is bridged over and is capable of supporting traffic, or
- 2) The longitudinal deck opening at back-to-back median barriers is a maximum of 3 inches (75 mm) wide.

Separate superstructures with an open median (not meeting the closed median criteria above) sharing a common substructure unit or units are to be recorded as separate bridges. A structure carrying a ramp that merges into another structure has at least one (1) distinct abutment. And is equal to or greater than 10 feet (3.1 m) in length, is to be recorded as a separate bridge. The separating point between bridges should be the closest deck joint or other logical and reasonable location as determined by the bridge owner.

A structure that divides into two (2) (or more) separate structures is to be recorded as two (2) (or more) bridges. The separating point between bridges should be the closest deck joint or other logical and reasonable location as determined by the bridge owner.

The SFN of a bridge should usually not change when work is performed, or the portions of a structure are reconstructed except in unusual circumstances. A SFN is retained to maintain the history of the structure. Existing SFN of a bridge should be retired and a new SFN shall be assigned when a completely new Structure is built to replace the old Structure.

In case it is deemed necessary to retire the existing SFN and assign a new SFN to the bridge, the SFN retired shall be coded in the new SFN record in the SMS.

Some typical situations are listed below:

<u>Example</u>	<u>Scope</u>	<u>Need New SFN?</u>
1	Deck replacement	No
2	Superstructure replaced with same type	No
3	Widening	No

STRUCTURE MANAGEMENT SYSTEM (SMS)

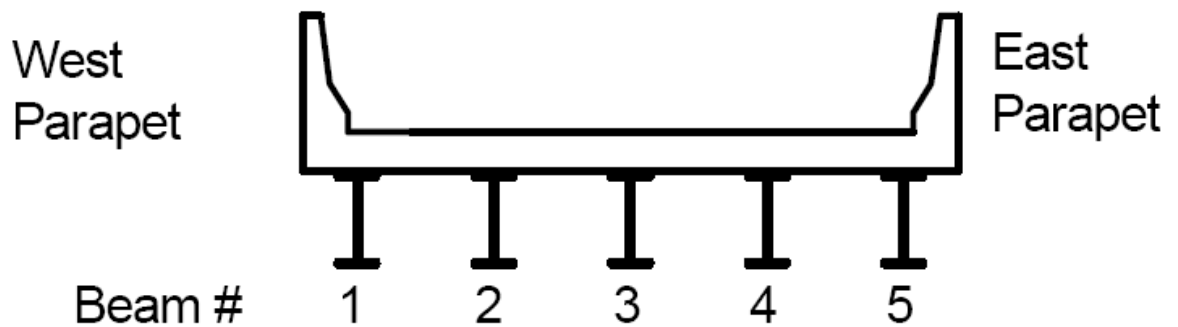
4	Replacing superstructure and modifying piers and abutments	No
5	Replacing complete bridge including foundations	Yes
6	New Superstructure of different type	Yes
7	Replacing Wearing Surface	No
8	Replacing Super and Substructure except piles	Yes
9	Repairing, Replacing or removing joints, bearings, railings, parapets, sidewalks, etc.	No

For other complex or unique situations not covered here, the bridge owner should contact the Office of Structural Engineering, Inventory Section.

NOMENCLATURE

Bridges shall be labeled looking up station towards the increasing county log point or typically up station direction is from the smallest to largest straight line mileage (SLM).

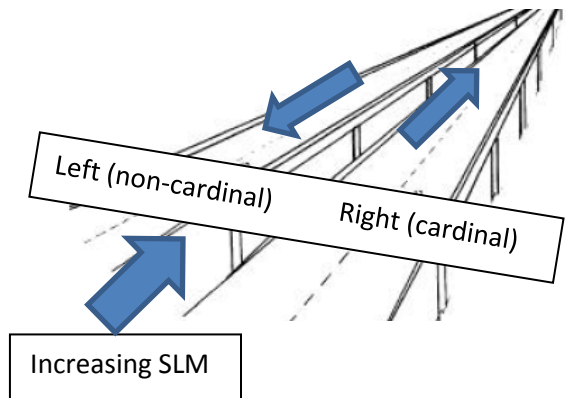
1. Looking North on a North-South route
 - a. Rear abutment, or Abutment 1, is the South abutment, or smaller SLM
 - b. Beams/Girders/Fascias/Truss lines are counted from the left to the right looking up station. In other words the left fascia beam will be beam number 1.



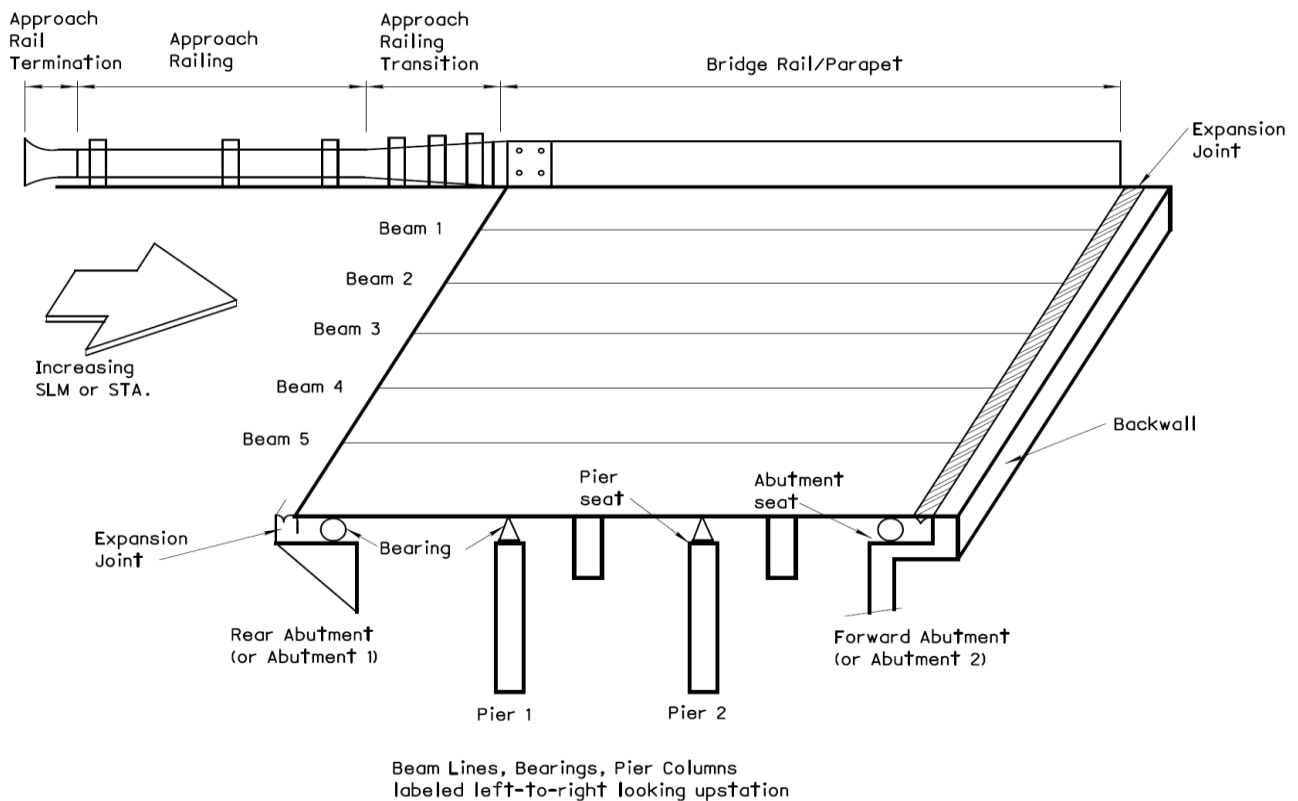
2. Looking East on an East-West route
 - a. Rear abutment, or Abutment 1, is the West abutment, or smaller SLM
 - b. Beams/Girders/Fascias/Truss lines are increasing from the left to the right looking up station. In other words the left fascia beam will be beam number 1.
3. Pier number 1 will be the first pier looking up station from the rear abutment.

STRUCTURE MANAGEMENT SYSTEM (SMS)

4. Left and Right (parallel) structures will follow the naming convention dictated by the increasing straight line mileage. This includes the non-cardinal structure that has traffic flowing against the straight line mileage.

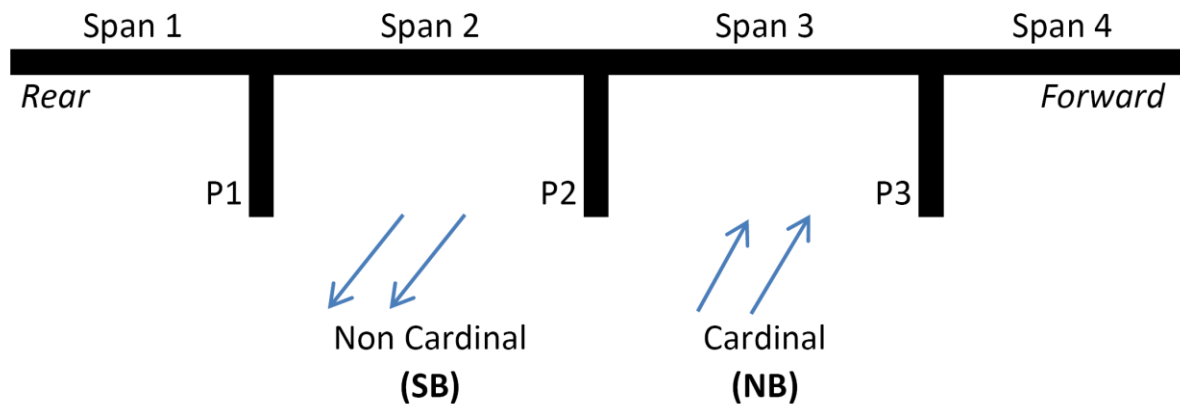


5. Lanes should be labeled driving slow, middle lane(s), and passing or fast lane(s).
6. Span numbering increases with the SLM. In other words, Span 1 will always be supported by the rear abutment.



7. For non-highway structures (pedestrian, railroads, conveyor belts, etc.) over highways, the south or the west abutment shall be the rear abutment. For example, an overhead over a Northbound Cardinal route would have the following designation:

STRUCTURE MANAGEMENT SYSTEM (SMS)



8. The differences among the three: Substructure Slope Protection, Approach Embankment and Channel Protection
 - a. Slope protection is underneath the “shadow” of the structure protecting the substructure slope.
 - b. Channel protection is the protected embankment of the stream both upstream and downstream.
 - c. Approach Embankment is the sloped earth up to the roadway generally behind the wing wall. For culverts it includes the portion of the earth above the structure or “fill”.

FHWA Item 1 – State Code

This item must be coded.

The first two (2) digits are the Federal Information Processing Standards (FIPS) code for States, and the third (3) digits is the FHWA region code. All bridges in Ohio will have State Code “395” by default.

<u>Code</u>	<u>State</u>
185	Indiana
214	Kentucky
265	Michigan
395	Ohio
543	West Virginia

FHWA Item 2 – Highway Agency District

The highway agency district in which the bridge is located shall be represented by a two (2) digit code.

<u>Code</u>	<u>District Headquarters Location</u>
District 1	Lima
District 2	Bowling Green
District 3	Ashland
District 4	Akron

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District 5	Jacksontown
District 6	Delaware
District 7	Sidney
District 8	Lebanon
District 9	Chillicothe
District 10	Marietta
District 11	New Philadelphia
District 12	Garfield Heights

FHWA Item 3 – County (Parish) Code

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***.

Refer to **Appendix A** for 2 (two) digit county codes.

FHWA Item 4 – Place Code (FIPS)

This item must be coded.

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***.

Refer to **Appendix C** for 5 (five) digit FIPS codes.

<https://www.census.gov/geo/reference/codes/place.html>

FHWA Item 5 – Inventory Route

This item must be coded.

The Inventory route is any route along which structures are being inventoried. Where possible, structures should be **inventoried on the highway route carried on the structure**. A structure is to be inventoried only once and by only one (1) agency. When a non-highway route (Railway, Bikeway, Pedestrian, conveyor belt, etc.) is carried on the structure, then it should be inventoried on the highway route under the structure.

When two (2) or more routes are concurrent (overlapped), the highest of the hierarchy of systems as shown under Item 5B shall be used (Interstate highway has the highest hierarchy of all). Route selected under these rules are commonly known as the “Preferred route”. Structures occurring in overlap areas shall be inventoried only on the preferred route.

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

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 5A – Record Type (On/Under)

This item must be coded.

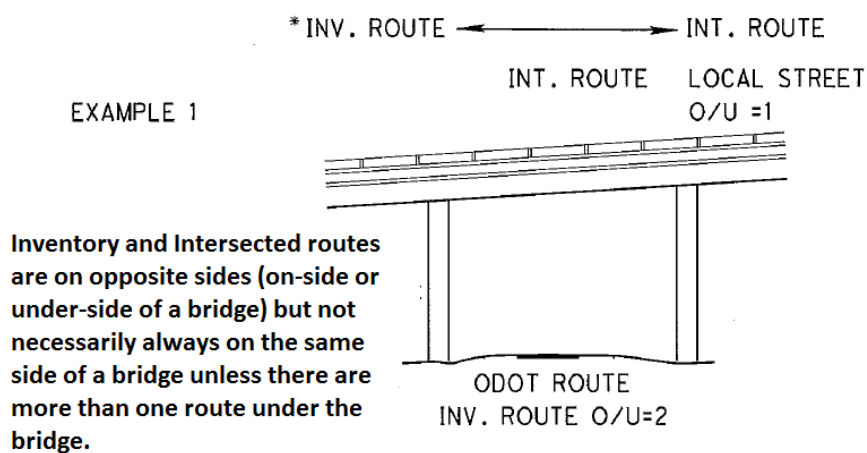
Enter the proper code to indicate if the route is carried by the structure or goes under it.

If there are two (2) or more physically separate routes under a structure you must inventory each route, using the same “Structure File Number” and coding appropriate A thru C “under” code for each route under the bridge. The Inventory route can never be coded “B” or “C”. It may be coded as “A” only under special circumstances when one (1) of the multiple routes under the bridge is the inventory route.

<u>Code</u>	<u>Description</u>
1	Route carried “on” the structure
2	Single route goes “under” the structure
A-Z	Multiple routes go “under” the structure
A	Signifies the first of multiple routes under the structure
B	Signifies the second of multiple routes under the structure
Z	Signifies 26 routes under the structure

“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).

“Under” signifies that the inventory route goes “under” the structure. If an inventory route beneath the structure is on the National Highway System, is a defense route or is otherwise important, a record must be coded to identify it. The type code must be 2 or alphabetic letter A through C. When there is a single route under the bridge, code 2. If 2 or more routes go under a structure on separate roadways, the code of 2 shall not be used. Code **A, B, or C** consecutively for multiple routes on separate roadways under the same structure. For a non-highway system, structure (pedestrian, railroad, etc.), the most significant roadway should be coded “A” in the Inventory route and “B” and/or “C” as the Intersecting route.

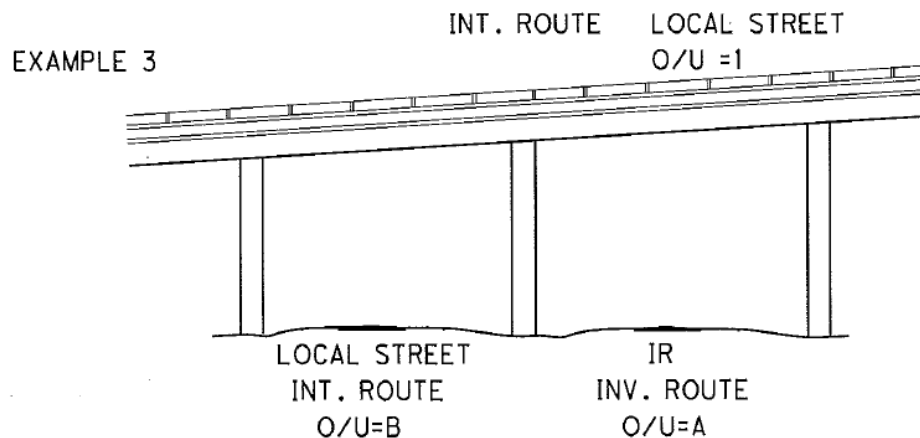
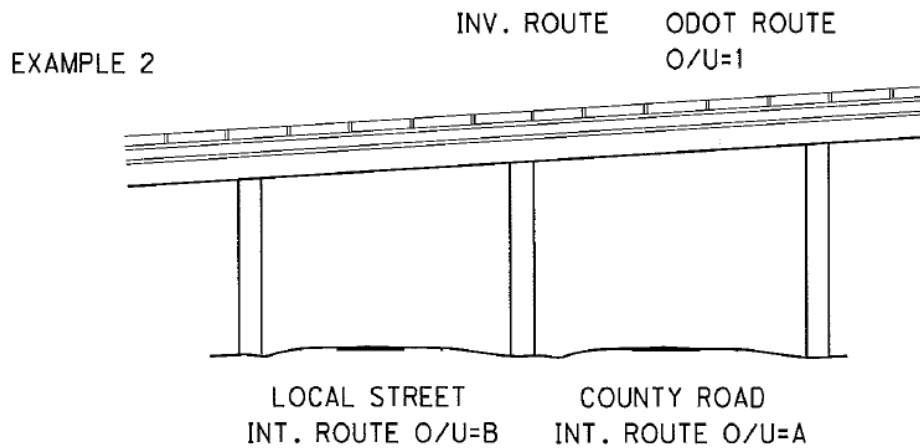


STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 5B – Route Signing Prefix (Highway System)

This item must be coded.

Identify the route signing prefix (highway system) for the inventory route. Where possible, structures should be inventoried **on the route** carried on the structure. When the Inventory Route is under the bridge (e.g., in case of a railway overhead bridge) the inventory will progress from the most important routes to the least important, by established hierarchy in the table below. A structure is to be inventoried only once and only by one (1) agency.



Code	Description
1	Interstate highway
2	U.S. numbered highway
3	State highway
4	County highway*
5	City street
6	Federal lands road

STRUCTURE MANAGEMENT SYSTEM (SMS)

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

*Township roads are coded same as County highways

If 2 or more routes are concurrent, the highest class of route will be used. The hierarchy is in the order listed above. When two or more routes with the same hierarchy overlap, the route with the lower number will be used to inventory a bridge.

When no highway system road from the table above is “on” or “under” a bridge then the Highway System must be coded as “0”. When Item 5B is coded as “0” the Item 26 must be coded as “00”. A bridge with Item 5B coded as “0” will not be a NBI bridge and its data will not be included in the NBI tape.

FHWA Item 5C – Designated Level of Service (Highway Designation)

This item must be coded.

Identify the designated level of service (Highway designation) for the inventory route using one (1) of the following codes:

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

Generally county and township roads and municipal streets are coded as mainline.

FHWA Item 5D – Route Number

This item must be coded.

The official Route Number as shown on the State’s Straight Line Mileage diagrams or in the roadway inventory or posted in the records of the Agency involved, shall be coded and right justified in the five (5) available positions using leading zeros where necessary the route number will normally have one (1) or more digit numeric. A single letter code must be added to the route numeric in the last digit position only for routes, designated as Alternate, Directional Alternate, By Pass, etc. (See Appendix H for official letter codes to be used for such routes), these codes have no directional connotation and must be coded in the fifth position of the five (5) character field. Meaningful abbreviations for street and road names should be used by local agencies, for those streets or local roads without an established system route number.

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For special off-highway system bridges, the fourth (4) and fifth (5) digit locations of the route number must be coded with a standardized alphabetic two (2) character suffix which identifies the public complex in which the bridge is located.

Example: State Park – SP

FHWA Item 5E – Directional Suffix

Code the directional suffix to the route number when one (1) is part of the route number. Leave blank if not applicable.

<u>Code</u>	<u>Description</u>
0	Not applicable
1	North
2	East
3	South
4	West

FHWA Item 6 – Feature Intersected

This item must be coded.

The information for this item shall be the name or names of features intersected by the Inventory route **at the structure**. When a highway is one (1) of the features intersected the number of such highway (e.g., I.R. 71, C.R. 16, and S.R. 5) should be coded if known, then the local name or names of the route (Mill Rd., Stone Street, etc.). If other features such as streams, canals and railroads are crossed, they should be coded next. If a bridge is closed to all traffic, code the word “closed” in parenthesis after the features description.

FHWA Item 7 – Facility Carried by Structure

This item must be coded.

The facility being carried by the structure shall be recorded and coded. This item describes the use “on” the structure. Left justify without trailing zeros and use meaningful abbreviations when necessary.

FHWA Item 8 – Structure File Number (SFN)

It is required that the official structure number be recorded. The structure must be unique for each bridge within the State, and once established should preferably never change for the life of the bridge. For any structure number changes, a complete cross reference of corresponding “old” and “new” numbers must be provided to the FHWA Bridge Division.

When recording and coding for this item, any structure or structures with a closed median should be considered as **one** structure, not **two**. Closed medians may have either mountable or non-mountable curbs or barriers.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 9 – Location

This item must be coded.

This item gives a description of the bridge location. The location should be keyed to some recognizable feature on the official highway map, (county map for county, township or municipal structures), such as road junctions and topographical features (using meaningful abbreviations when necessary).

FHWA Item 10 – Inventory Route, Minimum Vertical Clearance

This item must be coded.

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 the traveled part of the roadway where the clearance is greatest shall be recorded in feet truncated to the thousandth of a foot. For structures having multiple passageways or openings, the greatest of the “minimum clearances” of two or more openings for the same route shall be coded regardless of the direction of travel. This would be the practical maximum clearance. When no restriction exists code 99.999.

FHWA Item 11 – Kilometer-point

A 5-digit number will be calculated to represent the Linear Referencing System (LRS) kilometer-point distance in kilometers using county log point coded in Item # (200). This item is for all structures located on or overpassing the Base Highway Network.

FHWA Item 12 – Base Highway Network

The Base Highway Network includes the through lane (mainline) portions of the NHS, rural/urban principal arterial system and rural minor arterial system. Ramps, frontage roads and other roadways are not included in the Base Network. For the inventory route identified in Item 5, indicate whether the inventory route is on the Base Highway Network or not on that network. Use one of the following codes:

<u>Code</u>	<u>Description</u>
0	Inventory Route is not on the Base Network
1	Inventory Route is on the Base Network

FHWA Item 13 – A - LRS Inventory Route, B - Subroute Number

If Item 12 – Base Highway Network has been coded 1, the information to be recorded for this item is inventory route for the State’s linear referencing system (LRS). If Item 12 has been coded 0, this entire item should be left blank. This item is a 12-digit code composed of 2 segments.

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

The LRS inventory route and subroute numbers to be reported in this item must correspond to the LRS inventory route and subroute numbers reported by the State for the HPMS LRS records. The LRS inventory

STRUCTURE MANAGEMENT SYSTEM (SMS)

route number is coded in the ten positions of segment 13A, right justified and zero filled. The subroute number, if it exists, is coded in the two (2) positions of segment 13B, right justified and zero filled.

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

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

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

FHWA Item 16 – Latitude at Rear Abutment

This item must be coded.

Code the Latitude of the rear or beginning point of each structure in the direction of the inventory in degrees.

Example: 35 degrees 27' 32.50" Code 35.459028

Ohio's Limits: (38.386333) degree – (41.978667 degree)

FHWA Item 17 – Longitude at Rear Abutment

This item must be coded.

Code the Longitude as for Latitude in degrees.

Example: W 81 degrees 5' 45.18" Code - 81.095883

Ohio's Limits: (-80.501333 degree) – (84.837667 degree)

FHWA Item 19 – Bypass, Detour Length

This item must be coded.

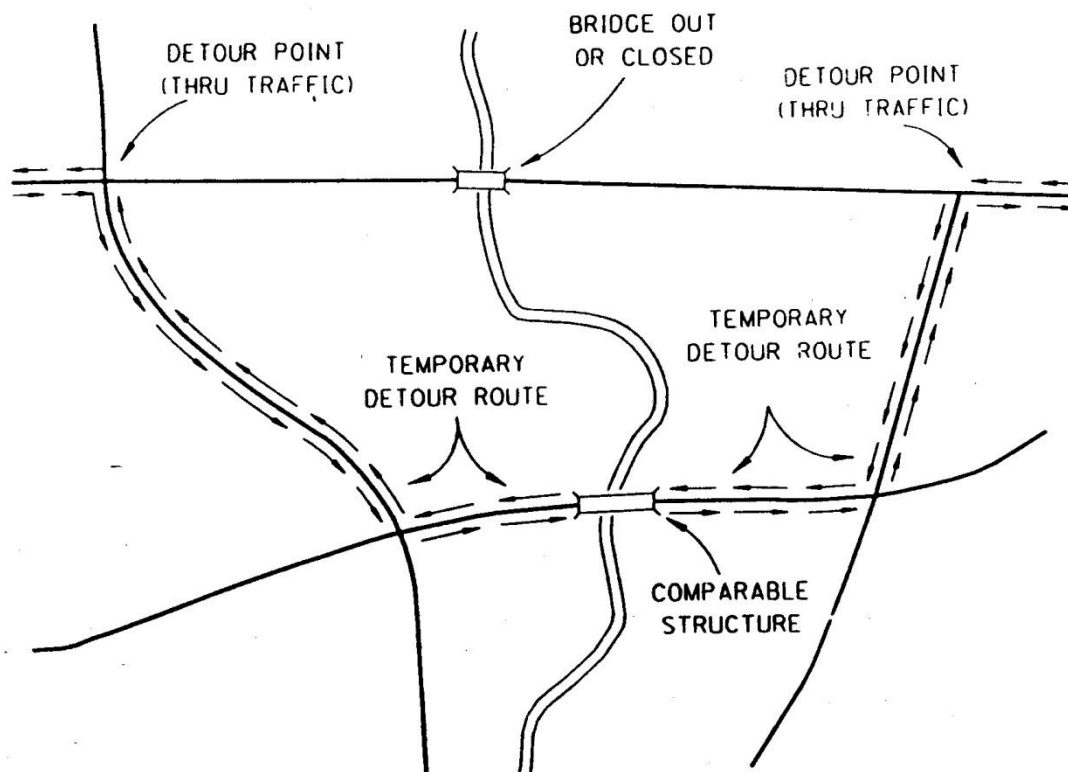
The bypass or detour length in miles should be determined with respect to the **route carried** on the bridge, regardless of how the structure appears on the Inventory Route. If a ground level bypass is available at the structure site for the route on the structure, code the detour length as zero. If the bridge is one (1) of twin bridges and is not at an interchange **code 01** to indicate that the other twin bridge can be used as a temporary bypass. In other cases, indicate the detour distance or extra length of travel to the nearest mile using the shortest temporary "Alternate" routes having comparable structures. The detour length should be coded to represent **only** the **total additional travel** (see also Appendix "I") 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

STRUCTURE MANAGEMENT SYSTEM (SMS)

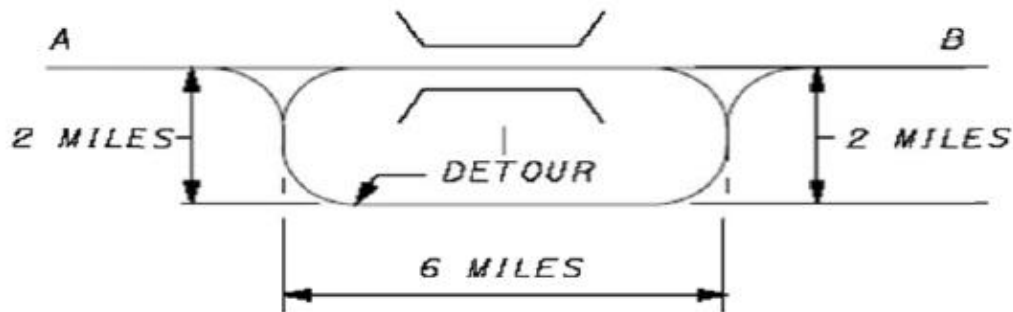
particularly true when the structure is in an interchange. For instance, a bypass likely would be available in the case of diamond interchanges where there are ramps available or other interchanges where the positioning and layout of the ramps and service roads are such that they could be used without difficulty to get around the structure. Use zero for railroad, pedestrian walk, pipeline, etc., since they carry non highway traffic. It will appear on the inventory route as an underpass only, considered readily by passable at all times. Use "99" for structure located on dead end road or which has no detour possible.

<u>Code</u>	<u>Examples</u>
00	Diamond interchange, structure by-passable
08	Cloverleaf, not by-passable, 8 mile detour
99	Structure over river, 121 mile detour
00	Railroad structure over highway (Inventory route), by-passable
99	On dead end road, no detour possible

BYPASS (DETOUR) LENGTH



STRUCTURE MANAGEMENT SYSTEM (SMS)



BYPASS, DETOUR LENGTH A TO B - 4 MI.

FHWA Item 20 – Toll

This item must be coded.

Code this item with respect to the route on the bridge. Use the proper one (1) digit numeric code from the list below:

<u>Code</u>	<u>Description</u>
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 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.

FHWA Item 21 – Major Maintenance Program Responsibility

The agency or agencies legally responsible should be coded. The name should already be available from existing records in accordance with the Ohio Revised Code or by legal agreement. Code a three (3) digit numerical or alphabetic code to specify agency or agencies responsible for the Major Maintenance Program from the table below, where the agency with the left-most code is one with primary responsibility. When more than one agency has equal responsibility, code them in the hierarchy of State, Ohio Turnpike, Federal, County, and City, Railroad and other or private.

<u>Code</u>	<u>Description</u>
01	State Highway Agency (Ohio State Transportation Department)
02	County Highway Agency
03	Town or Township Highway Agency

STRUCTURE MANAGEMENT SYSTEM (SMS)

04	City or Municipal Highway Agency
11	State Park, Forest, or Reservation Agency
12	Local Park, Forest, or Reservation Agency
21	Other State Agencies (Ohio Turnpike Commission)
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)
61	Indian Tribal Government
62	Bureau of Indian Affairs
63	Bureau of Fish and Wildlife
64	U.S. Forest Service
66	National Park Service
67	Tennessee Valley Authority
68	Bureau of Land Management
69	Bureau of Reclamation
70	Corps of Engineers (Civil)
71	Corps of Engineers (Military)
72	Air Force
73	Navy/Marines
74	Army
75	NASA
76	Metropolitan Washington Airports Service
80	Unknown

FHWA Item 22 – Owner

The agency which has the first major maintenance responsibility will be shown here.

FHWA Item 26 – Functional Classification of Inventory Route

This item must be coded.

Use the appropriate functional classification code of the inventory route from the drop-down list. This item **cannot be coded without first referencing the applicable Functional Classification Map**. These maps are available through the Department of Transportation Planning Offices or on the Planning website.

<http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/MajorPrograms/Pages/RoadwayFunctionalClass.aspx>

Code Item 26 – Functional Classification = 00 only when Item 5B Highway System Code = 0. If 5B – Highways code is coded other than zero, Item 26 must be coded per one of codes below:

A bridge shall be coded Rural if not inside a designated Urban area.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Rural

<u>Code</u>	<u>Description</u>
01	Principal Arterial – Interstate
02	Principal Arterial – Other
06	Minor Arterial
07	Major Collector
08	Minor Collector
09	Local

Urban

<u>Code</u>	<u>Description</u>
11	Principal Arterial – Interstate
12	Principal Arterial – Other Freeways or Expressways
14	Other Principal Arterial
16	Minor Arterial
17	Collector
19	Local

FHWA Item 27 – Year Built

This item must be coded.

The year when bridge was first built will be shown here.

FHWA Item 28 – Lanes On and Lanes Under

The number of lanes should be coded right justified in each field with leading zero(s) coded as required. If there is no highway over or under a structure, code all zeros in the appropriate field. Where there are no lane markings on a roadway, code number of lanes as intended to carry through the traffic.

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

When an inventory route is over or under a non-highway obstruction (railroad, pedestrian, pipeline, etc.), code 00 in the appropriate segment for the non-highway obstruction. For example, when the inventory route is “under” the structure carrying railway tracks, code 00 for the railway bridge over the highway.

If a double deck bridge is coded as one (1) structure, code total number of lanes on both decks as noted in the examples below:

FHWA Item 28A – Lanes On

This item must be coded.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Code the number of lanes of traffic being carried by the structure.

<u>Code</u>	<u>Examples</u>
16	16 lanes on the structure
04	4 lanes on the structure
00	Railroad or pedestrian on the structure
10	5 lanes on the structure double deck each direction

FHWA Item 28B – Lanes Under

This item must be coded.

Code the number of lanes of traffic being crossed over by the structure.

<u>Code</u>	<u>Examples</u>
00	0 lanes under the structure
02	2 lanes under the structure
04	4 lanes under the structure
10	10 lanes under the structure

FHWA Item 29 – Average Daily Traffic (ADT)

Code an eight (8) digit numeric that shows the average daily traffic volume for the Inventory route identified in Item 5. The ADT codes shall be the most recent ADT counts available. Use your best estimate of the traffic volume where an actual count is not available. In coding traffic counts for parallel Left and Right bridges on Multi-lane divided highways, (physically separate structures filed under different Structure File Numbers) code half the official route traffic count for each bridge. Right justify filling with leading zeros where necessary. **If the bridge is closed, code the actual ADT before the closure occurred.** If Item 5B Highway System = 0 for non-highway related traffic, code ADT all zero's. The ADT must be compatible with the other items coded for the bridge. For example, parallel bridges with median are coded as follows: If lanes On and Under the Structure and Bridge Roadway width is coded for each bridge separately, then the ADT must be coded for each bridge separately (not the total ADT for route).

Examples:

<u>Traffic Volume</u>	<u>Code</u>
540	00000540
1560	00001560
24000	00024000
893	00000893

FHWA Item 30 – Year of Average Daily Traffic

Code the four (4) digits of the year of the Traffic Count used. (Or Year Estimated) **ADT needs to be within last 4 years.** If Item 5B Highway System Code = 0, leave this item blank.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 31 – Design Load

This item must be coded.

Code for all structures the live load for which the structure was designed. For most of the structures the Design Load can be taken directly from the plans. Classify any nonstandard loading, when feasible, using the nearest equivalent of the (AASHTO) H-loadings give below:

<u>Code</u>	<u>Description</u>
0	Unknown
1	H 10
2	H 15
3	HS 15
4	H 20
5	HS 20
6	HS 20-44 + Mod
7	Pedestrian
8	Railroad
9	HS 25 or greater
A	HL 93
B	Greater than HL 93
C	Other (includes railroad bridges w/track removed)

FHWA Item 32 – Approach Roadway Width

This item must be coded.

This item should be coded for all structures with reference only to the roadway carried by the structure. Code a three (3) digit number to the nearest foot which represents the normal width of the roadway approaching the structure. This dimension will include the widths of the usable shoulders. For paved approach medians, the median width at the normal point should be included in this dimension. For multiple lane divided highways, where separate parallel bridges carry each direction of traffic, code only that portion, of the approach roadway width which applies to each bridge. Code the shoulders and directional pavement, ignoring unpaved median widths. When there is a variation between the approaches at either end of the structure, record and code the most restrictive of the approach conditions. If item does not apply, code all zeros. If a ramp is adjacent to the through lanes approaching the structure, it shall be included in the approach roadway with.

<u>Left Shoulder/Roadway</u>	<u>Median</u>	<u>Right Roadway/Shoulder</u>	<u>Code</u>
4.0/00.0	00.0	16.0/06.0	026
6.0/00.0	00.0	36.0/12.0	054
12.0/48.0	00.0	48.0/12.0	120
10.0/24.0	16.0	36.0/10.0	096

FHWA Item 33 – Bridge Median

This item must be coded.

STRUCTURE MANAGEMENT SYSTEM (SMS)

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

This item must be filled with the appropriate code from the list below:

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

FHWA Item 34 – Skew

This item must be coded.

The skew angle is the angle between the centerline of a pier or abutment or a pipe 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.

The skew should be coded to the nearest degree. When the structure is on a curve or if the skew varies for some other reason, the average skew should be coded, if reasonable. Otherwise, code “99” to indicate a major variation in skews of sub-structure units. If the structure is not skewed code zeros. Always code a two (2) digit numeric using leading zeros where necessary.

<u>Code</u>	<u>Skew</u>
10	10 degrees
08	8 degrees
29	29 degrees

FHWA Item 35 – Structure Flared

This item is coded to indicate whether or not the width of the structures varies. Generally, such variance will result from ramps converging with or diverging from the through lanes on the structure, but there may be other causes. Minor flares at ends of structures should be ignored.

<u>Code</u>	<u>Description</u>
0	No flare
1	Yes, flared

FHWA Items 36A, B, C, & D – Traffic Safety Features

See Manual of Bridge Inspection

FHWA Item 37 – Historical Significance Code

This item must be coded.

STRUCTURE MANAGEMENT SYSTEM (SMS)

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 is associated with significant events or circumstances. Use one (1) of the following codes:

<u>Code</u>	<u>Description</u>
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.

FHWA Item 38 – Navigation Control

Indicate for this item whether or not navigation control exists. The determination of whether or not a water course is navigable is made by the U.S. Coast Guard or U.S. Army Corps of Engineers, whoever has the authority or control.

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

FHWA Item 39 – Navigation Vertical Clearance

If Item 38 – Navigation Control has been coded “1”. This item must be coded. Record to the nearest foot the minimum vertical clearance imposed at the site as measured above a datum that is specified on navigation permits issued by a control agency. The measurement will show the clearance that is allowable for navigation 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). If Item 38 – Navigation Control is coded “0”, or if a permit has not been issued to establish the clearances, code all zeros to indicate not applicable.

Examples:

<u>Actual</u>	<u>Record</u>	<u>Code</u>
150.0	150	150
20.6	21	021

FHWA Item 40 – Navigation Horizontal Clearance

If Item 38 - Navigation Control is coded “1”; this item must be coded for the minimum horizontal clearance to the nearest foot. This measurement should be that shown on a navigation permit and may be less than the structure allows. If Item 38 – Navigation Control is coded “0”, or if a permit has not been issued to establish the clearances, code all zeros to indicate not applicable.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Examples:

<u>Actual</u>	<u>Code</u>
95 ft.	0095
538 ft.	0538
1200 ft.	1200

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

This Item can only be coded during an inspection. Please refer to the Manual of Bridge Inspection

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 governing agency's posting procedures that may specify posting at some stress level less than the operating rating. One (1) of the following codes shall be used:

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

Bridges under construction with portions of the bridge open to traffic (example: part-width construction) shall be coded "A". Any bridges that are below 100% Legal must be posted (Operating Status = P) or be recommended for posting (Operating Status = B). Note that in the case of at code "**B**" **status, you have 90 days from the date of the inspection to put the posting sign up.** The Operating Status can stay a "B" until the next regular inspection, where it must be changed from code "B".

FHWA Item 42A – Type of Service On

This item must be coded.

This item is intended to show the type of service on the bridge. Use appropriate code from the table below.

<u>Code</u>	<u>Description</u>
-------------	--------------------

STRUCTURE MANAGEMENT SYSTEM (SMS)

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

FHWA Item 42B – Type of Service Under

This item must be coded.

This item is intended to show the type of service under the bridge. Use appropriate code from the table below.

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

FHWA Item 43 –Structure Type - Main

This item must be coded.

Indicate by a three (3) digit code, the type of main spans. This classification denotes the material, the overall type of construction, and the special design configuration of the main supporting members of the superstructure. Use the tabulation and list of permissible combinations shown below and also specified in ***Appendix “B”***.

<u>1st Digit</u>	<u>Material</u>	<u>2nd Digit</u>	<u>Type</u>	<u>3rd Digit</u>	<u>Description</u>
1	Concrete	1	Slab	1	Simple
2	Prestressed Concrete	2	Beam	2	Continuous
3	Steel	3	Box Beam	3	Deck
4	Timber	4	Truss	4	Thru
5	Stone	5	Arch	5	Filled
6	Aluminum	6	Girder (Floor System)	6	Orthotropic

STRUCTURE MANAGEMENT SYSTEM (SMS)

7	Cast Iron	7	Frame	7	Movable – Lift
8	Wrought Iron	8	Suspension	8	Movable – Bascule
9	Composite	9	Culvert	9	Movable – Swing
0	Other	0	Other	0	Other
		A	Cable-Stayed	A	Pony (Truss)
		B	Tunnel		
N	None	N	None	N	None

All structures with more than two (2) lines of beams or girders (rolled or built-up) without a floor system (i.e. floor beams, stringers, etc.) shall be coded as beam – type bridges. Structures with a floor system are to be coded as girder type bridges.

All girder type and truss type bridges shall be described as either thru or deck. No simple or continuous descriptions are permissible for these types of structure. A thru truss has overhead steel members for bracing. Trusses that are only on the sides with no overhead steel are classified as pony trusses. Note that a thru girder is not like a thru truss. A thru girder does not have overhead steel members, whereas a thru truss does. A pony truss is a through truss which has no top chord lateral bracings due to its short height, generally less tall than a through truss.

If a three (3) or four (4) sided precast concrete box has **twenty-four (24) inches or less of fill** *code it as a **171** (Concrete Rigid Frame Simple Span Structures); If it carries more than **twenty-four (24) inches** of fill, code it as a **195** (Concrete Culvert Filled Structure).

All structures designed as culverts and having earth fill, regardless of overall span length shall be coded as culvert or frame.

Culvert type bridges are structures which convey water or form a passageway through an embankment and are designed to support super-imposed loads of earth or other fill material plus a live load. Generally, prefabricated or corrugated metal structures 10' span or greater are considered culvert type bridges. Masonry arches with integral spandrel walls, sidewalks, and railings, greater than 10' span shall not be construed as culvert type structures.

A concrete arch culvert that has spandrel walls (walls that contain the fill over the arch up to the (roadway) is to be coded as a (155) concrete arch filled.

*Note – Fill is measured from top of culvert to C/L of grade.

FHWA Item 44 – Structure Type - Approach

Indicate by a three (3) digit code the type of the spans under the classification of “Approach Spans”. This classification denotes the material, the overall type of construction, and the special design configuration of the approach of the superstructure.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Use the tabulation and list of permissible combinations shown in **Appendix “B”**. If there are differences of material and construction among these spans, judgment will have to be exercised in choosing the one (1) most representative type for coding.

If there are no Approach Spans code “**NNN**” for **None** in Type and **zeros** in the **Number** portion of this item.

FHWA Item 45 – Number of Main Spans

This item must be coded.

Record the number and indicate with a three (3) digit number the number of spans in the main or major unit. This item will include all spans of most bridges, the major unit only of a sizable structure, or a unit of material or design different from that of the approach spans.

FHWA Item 46 – Number of Approach Spans

This item must be coded.

Record the number and indicate with a three (3) digit number the number of spans in the approach spans to the major bridge, or the number of spans of material different from that of the major bridge.

FHWA Item 47 – Inventory Route, Total Horizontal Clearance

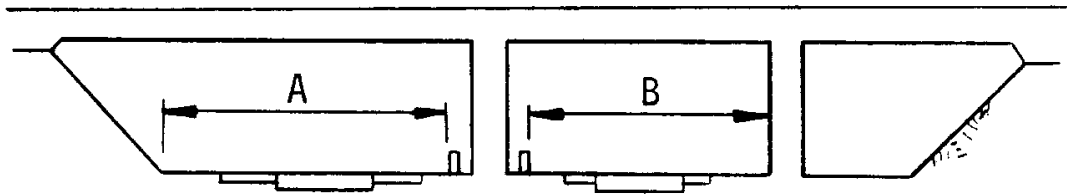
This item must be coded.

Code the available clearance between restrictive features such as curbs, railings, sidewalks, wheel guards, raised medians and to the structural features limiting the roadway surface width in the cardinal direction measured perpendicular to the center line of roadway for the route identified in Item 5. Raised Button-Type medians and small raised lane channeling curbs, etc. are not considered restrictions.

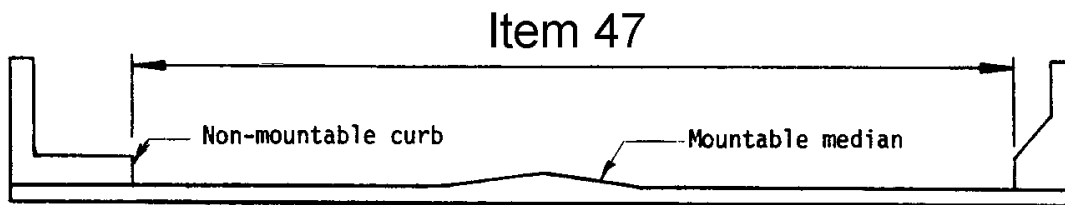
If more than one (1) roadway exists, a measurement should be made for each, but only the horizontal clearance of the mainline in each direction of travel shall be coded.

The term “Cardinal” in the item heading refers to the “Primary” direction of the route on the bridge (direction in which the route is officially measured for a particular agency’s records).

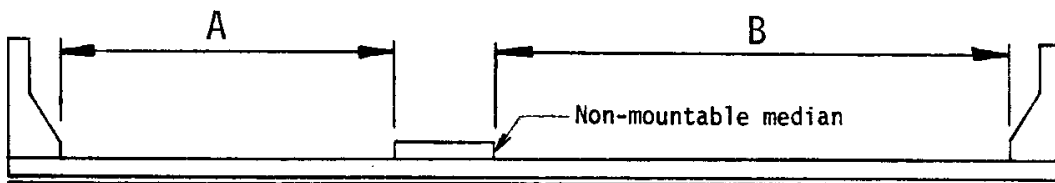
The purpose of this item is to give the ***largest available horizontal clearance for the movement of wide loads***. For culvert type structures, which appear on the route as a bridge but actually have no deck, the coded clearance should show the full width of the pavement plus shoulders except where this dimension is limited by guardrail, culvert end-walls, etc. All clearances are to be coded in feet.



Clearance $A > B$ Item 47 = A



No Median or Flush or Mountable Median



Raised Median or Non-mountable Median

$B > A$ Item 47 = B

STRUCTURE MANAGEMENT SYSTEM (SMS)

[FHWA Item 48 – Length of Maximum Span](#)

This item must be coded.

The length of the maximum (longest) span only should be coded for this item. (This item is not for coding total length of all spans).

Code a seven (7) digit number to represent the measured length (center to center of bearings) in decimal feet.

<u>Length of Maximum Span</u>	<u>Code</u>
50 Feet	50.000
117 Feet	117.000

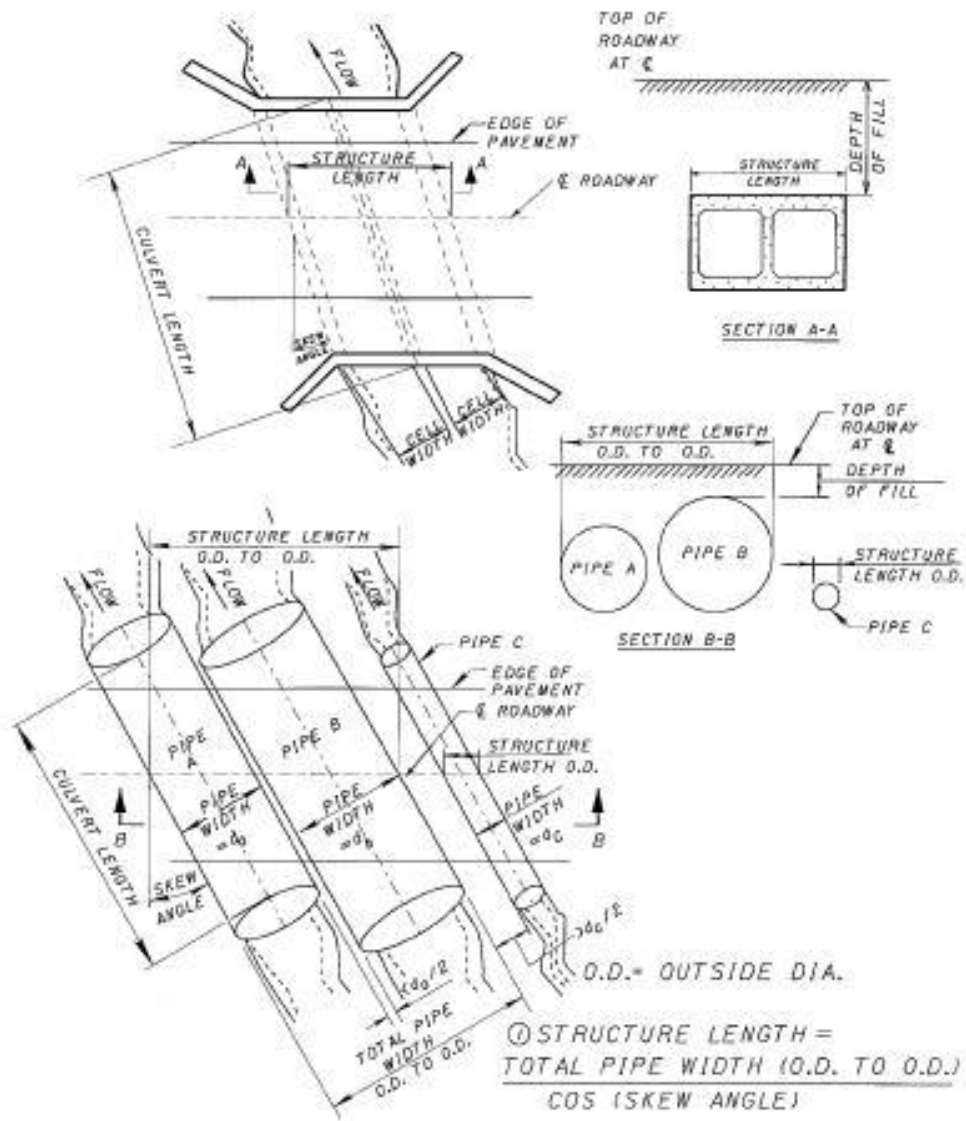
[FHWA Item 49 – Structure Length](#)

This item must be coded.

Record and code the total length of the structure in decimal feet measured along the center line of the roadway. This length should be measured back to back of walls of the abutments, between expansion joints at abutments or between paving notches. When taking the measurements from the plans, use the Bridge Limits.

<u>Overall Length</u>	<u>Code</u>
50 Feet	0050.000
5,421 Feet	5421.000
333 Feet	0333.000

STRUCTURE MANAGEMENT SYSTEM (SMS)



STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 50A – Curb or Sidewalk Left Side - Width

Code the width of the left curb or sidewalk in feet. “Left” to be determined on the basis of the established cardinal direction of the route. ***(Sidewalks are greater than two (2) feet (2') in width).***

FHWA Item 50B – Curb or Sidewalk Right Side - Width

Code the width of the right curb or sidewalk in feet. “Right” should be determined on the basis of the established or cardinal direction of the route. Right justify and fill with leading zeros where necessary in each subsection. ***(Sidewalks are greater than two feet (2') in width).***

FHWA Item 51 – Bridge Roadway Width, Curb-to-Curb

This item must be coded.

The information to be coded in this item is the distance between curbs or sidewalks on the structure roadway. A four (4) digit code should be used to represent the distance to the nearest tenth of a foot (decimal point is implied).

If a median (level or raised) exists on the structure, the distance will be between the outside curbs of the structure; i.e., the distance will include both roadways and the median width.

The measurement should be exclusive of flared areas for ramps: i.e., it should be the minimum or nominal width. When a curb (9 inches or less in width) is used, code the measurement to face of parapet, guardrail, or railing.

For structures carrying non-highway traffic (railroads, pedestrians, buildings, conveyers, etc.) and structures with no deck such as most culverts, code all zeros, right justify all entries and fill with leading zeros where necessary.

Where deflector type parapets are the restraining elements, the bridge roadway width is measured toe/toe of parapets.

This item must be equal to or less than Item 52 Deck Width (Out/Out).

Examples

<u>Bridge Roadway Width</u>	<u>Code</u>
36.0'	0360
110.13'	1101
66.37'	0664

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 52 – Deck Width (Out/Out)

Code out-to-out width of the deck in feet. 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 i.e., it should be the minimum width.

For structures with no deck such as most culverts, code all zeros.

This item must be equal to or greater than Item 51 Bridge Roadway Width (Curb-to-Curb).

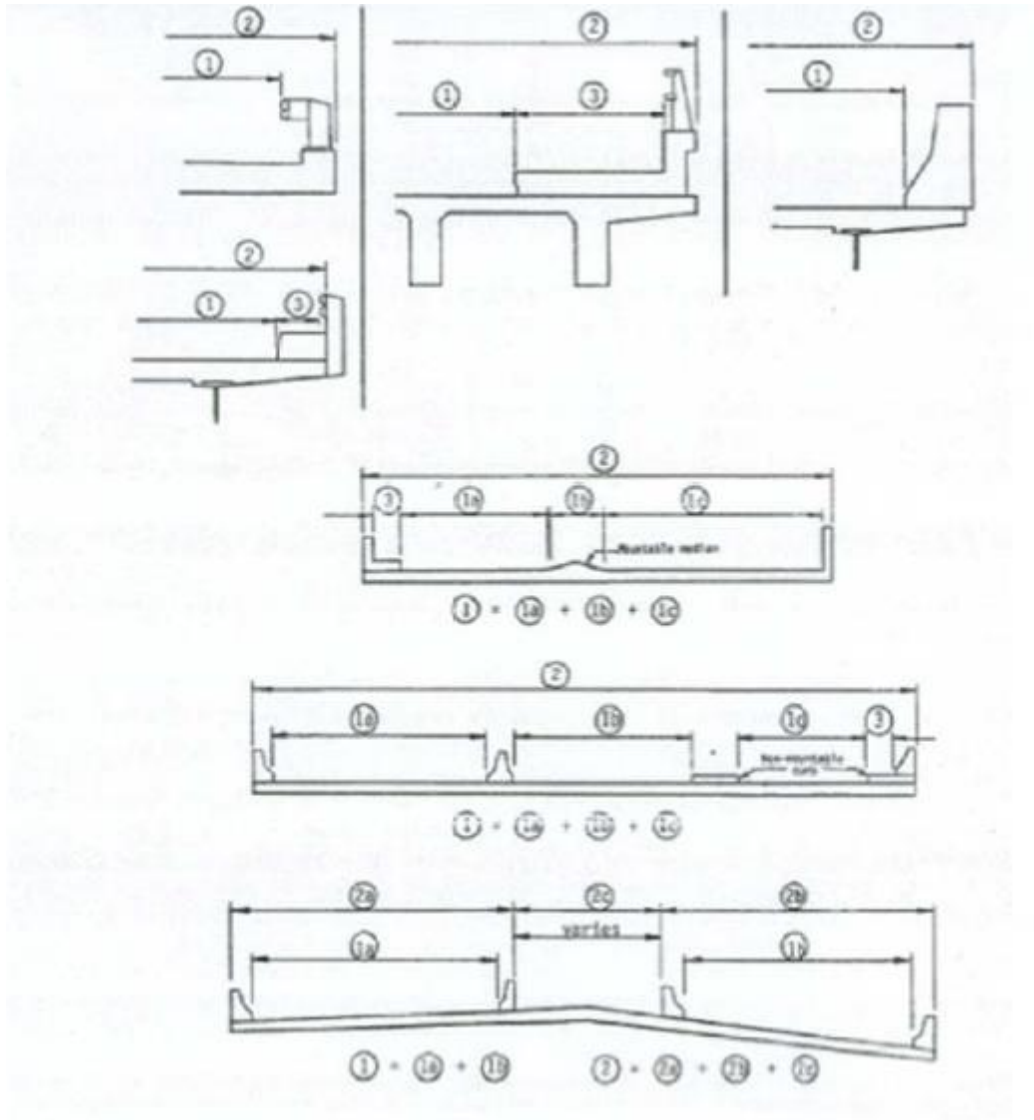
Examples

<u>Deck Width (out-to-out)</u>	<u>Code</u>
36.0'	0360
121.5'	1215
29.69'	0297

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

In case of a sidehill viaduct structure, code the actual out-to-out structure width.

STRUCTURE MANAGEMENT SYSTEM (SMS)



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

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 53 – Minimum Vertical Clearance over Bridge

This item must be coded.

Code Minimum Vertical Clearance over the bridge roadway to any superstructure restriction in feet. For highways on the structure, code the minimum clearance for the main lane openings in each direction of travel (Cardinal or Non-Cardinal). For undivided highways with bi-directional traffic on a structure, code the minimum vertical clearance under the subtitle “Cardinal Opening”. For highways with one (1) way traffic on the structure, code the minimum clearance under the appropriate subtitle. Code the entire item with zeros for structures which do not carry a highway. When no superstructure restriction exists above bridge roadway code 99.999.

FHWA Item 54A – Minimum Vertical Underclearance Reference Feature

Code the reference feature under the bridge from which minimum vertical underclearance has been measured (such as highway or railway). When both highway and railway are under the structure, code the reference feature to the most critical dimension.

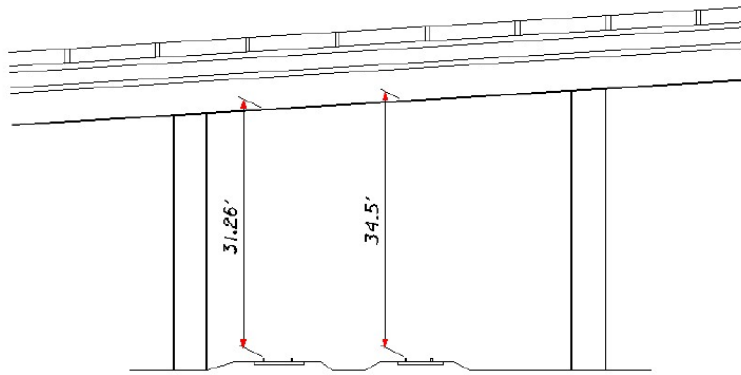
Using one of the codes below, code the reference feature from which the clearance measurement is taken:

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

FHWA Item 54B– Minimum Vertical Clearance Under

Code Minimum Vertical Clearance from the roadway or railroad track ***beneath*** the structure to the underside of the superstructure in feet. For divided highways under a structure, code the minimum clearance for the main lane openings in each direction of travel (Cardinal and Non-Cardinal). For undivided highways with bi-directional traffic under a structure, code the minimum clearance under the subtitle “Cardinal Opening”. For highways with non-directional traffic under a structure, code the minimum clearance under the appropriate subtitle. If the structure is over a railroad or railroads, record the minimum clearance over any track under the sub-title “Cardinal Opening”. Code the entire item with zeros for structures which are not over a highway or railroad (such as a waterway). When both highway and railway are beneath the structure, code the most critical dimension.

STRUCTURE MANAGEMENT SYSTEM (SMS)



Railroad 31.26' beneath structure

FHWA Item 55A – Minimum Lateral Under clearance Right Reference Feature

Code the reference feature under the bridge from which the clearance measurement is taken.

Using one of the codes below, code 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

FHWA Item 55B – Minimum Lateral Underclearance Right (Cardinal)

Record and code the minimum lateral under clearance on the right. When both a railroad and highway are under the structure, code the most critical dimension.

The lateral clearance should be measured from the right edge of the roadway (excluding shoulders) or from the centerline (between rails) of the right-hand track of a railroad to the nearest substructure unit (pier, abutment, etc.), to a rigid barrier (concrete bridge rail), or to the toe of the slope etc. steeper than 1 to 3. 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 (2) related features are below the bridge, measure both and record the lesser of the 2. Code 99.999 when the clearance is more than 99 feet.

If the feature beneath the structure is not a railroad or highway, code all zeroes.

STRUCTURE MANAGEMENT SYSTEM (SMS)

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

FHWA Item 56 – Minimum Lateral Underslearance Left, (Cardinal)

Record and code the minimum lateral underclearance on the left (median side for divided highways). The lateral clearance should be measured from the left edge of the roadway (excluding shoulders) to the nearest substructure unit, to a right barrier or to the toe of slope steeper than 1 to 3.

In the case of 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 feet, code 999; code 000 if not applicable.

FHWA Item 58 through Item 62 – Indicate the Condition Ratings

Refer to the Manual of Bridge Inspection.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 63 – Operating Rating Method

This item must be coded.

This item will indicate the method of analysis for the load rating of the structure at operating level.

Code the appropriate description from the list below:

<u>Code</u>	<u>Description</u>
0	Field evaluation and documented engineering judgment (Code Item 64 in tons)
1	Load Factor (LF) reported in tons using HS20 loading
2	Allowable Stress (AS) reported in tons using HS20 loading
3	Load Resistance Factor Rating (LRFR) reported in tons using HS20 loading
4	Load Testing (Code Item 64 in tons)
5	No rating analysis or evaluation performed (Code Item 64 in tons)
6	Load Factor (LF) rating reported by rating factor (RF) using HS20 loading
7	Allowable Stress (AS) rating reported by rating factor (RF) using HS20 loading
8	Load and Resistance Factor Rating (LRFR) rating reported by rating factor (RF) using HL93 loading
A	Assigned rating based on Load Factor Design (LFD) reported in tons using HS20 loading
B	Assigned ratings based on Allowable Stress (AS) reported in ton using HS20 loadings
C	Assigned ratings based on Load and Resistance Factor Rating (LRFR) reported in tons using HL93 loadings
D	Assigned rating based on Load Factor Rating (LF) reported by rating factor (RF) using HS20 loading
E	Assigned ratings based on Allowable Stress (AS) reported by rating factor (RF) using HS20 loading
F	Assigned ratings based on Load and Resistance Factor Rating (LRFR) reported by rating factor (RF) using HL93 loading

Code 0 is to be used when the load rating is determined by field evaluation and documented engineering judgment, typically done when plans are not available or in cases of severe deterioration. Field evaluation and engineering judgment ratings must be documented and kept in bridge file.

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

If a load rating is assigned based on the field conditions (which shall be documented) or when bridge plans or design information are not available, use Code “0” and code ratings in tonnage in item #64.

If design plans are available but for some reasons, a bridge cannot be correctly analyzed to obtain rating factors (e.g., if a structure cannot be modeled using the rating tools available even though it is known that it has been designed, & built according to the prevailing Specifications and is as good as new), then Codes “D” or “E” or “F” can be used, accordingly.

STRUCTURE MANAGEMENT SYSTEM (SMS)

ODOT's default method of reporting Items 64 & 66 is RF. Do not use codes 1, 2, 3, A, B, or C from above table.

FHWA Item 64 – Operating Rating Factor

This item must be coded.

Code the Operating Rating Factor rounded to the nearest third decimal point as a five (5) digit number with a decimal point. Maximum value of Rating Factor that can be coded is 9.999.

Examples

<u>Operating Load Rating Factor</u>	<u>Code</u>
1.50	1.500
0.85	0.850
0.25	0.250
9.99	9.999
0	0.000
0.083	0.083

If a bridge is closed and/or will not carry any live load, the Rating Factor shall be coded as 0.000.

On new and other highway structures, if a load rating analysis has not been performed, the Operating Load Rating Factor may be coded as 1.250.

The use or presence of temporary bridge requires special consideration in coding. In such cases, since there is no permanent bridge, Operating Rating Factor should be coded as 0.000.

A bridge shored up or repaired on a temporary basis is considered a temporary arrangement bridge and the Rating Factor should be coded as if the temporary shoring were not in place.

Operating RF cannot be less than Inventory RF.

Examples

<u>Type of Bridge</u>	<u>Code</u>
Temporary bridge	0.000
Shored-up bridge **	0.100
Structures under sufficient fill that live load on structure is insignificant	9.999

****Rating Factor without shoring**

When Item 63 is coded as "0", "4" or "5", Item 64 must be coded in tons.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 65 – Inventory Rating Method

This item must be coded.

This item will indicate the method of analysis for the load rating of the structure.

Code the appropriate description from the list below:

<u>Code</u>	<u>Description</u>
0	Field evaluation and documented engineering judgment (Code Item 66 in tons)
1	Load Factor (LF) reported in tons using HS20 loading
2	Allowable Stress (AS) reported in tons using HS20 loading
3	Load Resistance Factor Rating (LRFR) reported in tons using HS20 loading
4	Load Testing (Code Item 66 in tons)
5	No rating analysis or evaluation performed (Code Item 66 in tons)
6	Load Factor (LF) rating reported by rating factor (RF) using HS20 loading
7	Allowable Stress (AS) rating reported by rating factor (RF) using HS20 loading
8	Load and Resistance Factor Rating (LRFR) rating reported by rating factor (RF) using HL93 loading
A	Assigned rating based on Load Factor Design (LFD) reported in tons using HS20 loading
B	Assigned ratings based on Allowable Stress (AS) reported in ton using HS20 loadings
C	Assigned ratings based on Load and Resistance Factor Rating (LRFR) reported in tons using HL93 loadings
D	Assigned rating based on Load Factor Rating (LF) reported by rating factor (RF) using HS20 loading
E	Assigned ratings based on Allowable Stress (AS) reported by rating factor (RF) using HS20 loading
F	Assigned ratings based on Load and Resistance Factor Rating (LRFR) reported by rating factor (RF) using HL93 loading

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

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

If a load rating is assigned based on the field conditions (which shall be documented) or when bridge plans or design information are not available, use Code “0” and code ratings in tonnage in item #64.

If design plans are available but for some reasons, a bridge cannot be correctly analyzed to obtain rating factors (e.g., if a structure cannot be modeled using the rating tools available even though it is known that it has been designed, & built according to the prevailing Specifications and is as good as new), then Codes “D” or “E” or “F” can be used, accordingly.

STRUCTURE MANAGEMENT SYSTEM (SMS)

ODOT's default method of reporting Items 64 & 66 is RF. Do not use codes 1, 2, 3, A, B, or C from above table.

FHWA Item 66 – Inventory Rating Factor

This item must be coded.

The Inventory Rating Factor represents the load level which can safely utilize an existing structure for an indefinite period of time for unlimited cycles of traffic. Inventory rating level is the same as design level.

Code the Inventory Rating Factor as a five (5) digit number rounded to the nearest third decimal point as a five (5) digit number with a decimal point. Maximum value of Rating Factor that can be coded is 9.999.

Examples

<u>Inventory Load Rating Factor</u>	<u>Code</u>
1.50	1.500
0.85	0.850
0.254	0.254
9.999	9.999
0	0.000

If the bridge is closed and/or will not carry any live load, the Rating Factor shall be coded as 0.000.

On new and other highway structures, if a load rating analysis has not been performed, the Inventory Load Rating Factor may be coded as 1.000.

The use or presence of a temporary bridge requires special consideration in coding. In such cases, since there is no permanent bridge, Inventory Rating Factor should be coded as 0.000.

A bridge shored up or repaired on a temporary basis is considered a temporary arrangement bridge and the Rating Factor should be coded as if the temporary shoring were not in place.

Inventory RF cannot be greater than Operating RF.

Examples

<u>Type of Bridge</u>	<u>Code</u>
Temporary bridge	0.000
Shored-up bridge **	0.100
Structures under sufficient fill that live load on structure is insignificant	9.999

****Rating Factor without shoring**

When Item 65 is coded as "0", "4" or "5", Item 66 must be coded in tons.

FHWA Items 67, 68, 69, 71, and 72 – Indicate the Appraisal Ratings

STRUCTURE MANAGEMENT SYSTEM (SMS)

The items in 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.

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

<u>Code</u>	<u>Description</u>
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 according to the tables provided in this manual. These tables and the table for Item 71 shall be used by all evaluators to rate these items. They have been developed to closely match the descriptions for the appraisal evaluation codes of 0 to 9. The tables shall be used in all instances to evaluate the item based on the designated data in the inventory, even if a table value does not appear to match the descriptive codes. For unusual cases where the site data does not exactly agree with the table criteria, use the most appropriate table to evaluate the item. The code of N is not valid for use with Items 67 and 72.

Complete 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.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 67 – Structural Evaluation

This item is calculated by the System based on Table 1 below, and need not be coded by the bridge inspector. The following specifications are used by the Edit/Update Program:

- For structures other than culverts, the lowest of the codes obtained from Item 59 – Superstructure, Item 60 – Substructure, or Table 1 is used.
- For culverts, the lowest of the codes obtained from Item 62 – Culverts, or Table 1 is used.
- If Item 59, Item 60 or Item 62 is coded 1, then Item 67 is equal to zero (0), regardless of whether the structure is actually closed. However, if the structure is closed, it does not mean that this value is zero (0) unless the overall condition and appraisal ratings indicate that a code of 0 is appropriate.

Table 1 Note:

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

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

Structural Evaluation Rating Code	Inventory Rating		
	Average Daily Traffic (ADT)		
	<u>0-500</u>	<u>501-5000</u>	<u>>5000</u>
9	>32.4	>32.4	>32.4
8	32.4	32.4	32.4
7	27.9	27.9	27.9
6	20.7	22.5	24.3
5	16.2	18.0	19.8
4	10.8	12.6	16.2
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 due to structural condition.		

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 68 – Deck Geometry

This item is calculated by the Edit/Update Program and need not be coded by the bridge inspector.

The overall rating for deck geometry includes two (2) evaluations: (a) the curb-to-curb or face-to-face of rail bridge width using Table 2A, B, C or D and (b) the minimum vertical clearance over the bridge roadway using Table 2E. The lower of the codes obtained from these tables is used by the Edit/Update Program. When an individual table lists several deck geometry rating codes for the same roadway width under a specific ADT, the lower code is used. (For example, Table 2A lists deck geometry rating codes of 6, 7 and 8 for a 13.4 meter roadway width and ADT of >5000. Use the code of 6.) For values between those listed in the tables, the lower code is used.

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

For culverts which have Item 51 – Bridge Roadway Width coded 0000; the Deck Geometry code will be equal to N.

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

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

Deck Geometry Rating Code	TABLE 2A						TABLE 2B	
	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	>9.8	>11.0	>12.2	>13.4	>13.4	>13.4		
8	9.8	11.0	12.2	13.4	13.4	13.4	<4.9	
7	8.5	9.8	11.0	12.2	13.4	13.4	4.6	
6	7.3	8.5	9.1	10.4	12.2	13.4	4.3	
5	6.1	7.3	7.9	8.5	10.4	11.6	4.0	
4	5.5	6.1	6.7	7.3	8.5	9.8 (8.5)*	3.7	
3	4.9	5.5	6.1	6.7	7.9	9.1 (7.9)*	3.4	<4.9
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 60 meters.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Notes:

1. Use the lower rating code for values between those listed in the table.
2. Dimensions are in meters.
3. For one (1) lane one (1)-way traffic Table 2A is used.
4. For three (3) or more undivided lanes of two (2) way traffic, use Table 2C. Other Multilane Divided Facilities.
5. Do not use Table 2B for code 9 and for codes 8 through 4 inclusive when the ADT >100. Single lane bridges less than 4.9 meters wide carrying 2-way traffic are always appraised at three (3) or below if they carry more than an ADT of 100.
6. One (1)-lane bridges 4.90 meters and greater in roadway width, which are not ramps, are evaluated as a two (2)-lane bridge using Table 2A.

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

Deck Geometry Rating Guide	Table 2C				Table 2D	
	Bridge Roadway Width two (2) or More Lanes				Bridge Roadway Width One (1) Way Traffic	
	Interstate and Other Divided Freeways		Other Multilane Divided Facilities		Ramps Only (Item 5C = 7)	
	2-Lanes 1-way	3 or more Lanes	2 Lanes 1-way	3 or more Lanes	1 Lane	2 or more Lanes
9	>12.8	>3.7N + 7.3	>12.8	>3.7N+5.5	>7.9	>3.7N+3.7
8	12.8	3.7N+7.3	12.8	3.7N+5.5	7.9	3.7N+3.7
7	12.2	3.7N+6.1	11.6	3.7N+4.6	7.3	3.7N+3.0
6	11.6	3.7N+4.9	11.0	3.7N+3.7	6.7	3.7N+2.4
5	11.0	3.7N+4.3	10.1	3.4N+3.0	6.1	3.7N+1.8
4	10.4	3.4N+3.7	9.1	3.4N+1.8	5.5	3.7N+1.2
4	(8.8)*	(3.4N+2.1)*	9.1	3.4N+1.8	5.5	3.5N+1.2
3	10.1	3.4N+3.4	8.2	3.4N+1.5	4.9	3.7N+0.6
3	(8.5)*	(3.4N+1.8)*	8.2	3.4N+1.5	4.9	3.7N+0.6
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 60 meters.

N=Total number of lanes of traffic on the structure.

Notes

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

Table 2E Rating by Comparison of Minimum Vertical Clearance over Bridge Roadway – Item 54 and Functional Classification – Item 26

STRUCTURE MANAGEMENT SYSTEM (SMS)

Deck Geometry Rating Code	Minimum Vertical Clearance		
	Functional Class		
	Interstate and Other Freeway	Other Principal and Minor Arterial	Major and Minor Collectors and Locals
9	>5.18	>5.02	>5.02
8	5.18	5.02	5.02
7	5.10	4.72	4.72
6	5.02	4.41	4.41
5	4.80	4.34	4.34
4	4.57	4.26	4.26
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.		

Notes

1. Use the lower rating code for values between those listed in the table.
2. Dimensions are in meters.

FHWA Item 69 – Underclearances, Vertical and Horizontal

This item is calculated by the Edit/Update Program and need not be coded by the bridge inspector.

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

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

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

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

The functional classification used in the table is for the under passing route. Therefore, the functional classification is obtained from the record for the route under the bridge (see Item 5 – Inventory Route).

If the under passing route is not on a Federal-aid system, is not a defense route, or is not otherwise important, an “under” record may not be available. If no “under” record exists, it is assumed that the route under the bridge is a major or minor collector or a local road for the purpose of using Tables 3A and 3B.

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Table 3A Rating by Comparison of Minimum Vertical Underclearance – Item 54 and Functional Classification of Under passing Route – Item 26

Underclearance Rating Code	Minimum Vertical Underclearance			
	Functional Class			Railroad
	Interstate and Other Freeway	Other Principal and Minor Arterial	Major and Minor Collectors and Locals	
9	>5.18	>5.02	>5.02	>7.01
8	5.18	5.02	5.02	7.01
7	5.10	4.72	4.72	6.85
6	5.02	4.41	4.41	6.70
5	4.80	4.34	4.34	6.40
4	4.57	4.26	4.26	6.09
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 meters.
3. The functional classification of the under passing route shall be used in the evaluation. If an “under” record is not coded, the under passing route shall be considered a major or minor collector or a local road.

Table 3B Rating by Comparison of Minimum Lateral Underclearances Right & Left – Items 55 & 56 and Functional Classification of Under passing Route – Item 26

Underclearance Rating Code	Minimum Lateral Underclearance						
	Functional Class						Railroad
	1-Way Traffic				2-Way Traffic		
	Principal Arterial Interstate, Freeways or Expressways				Other Principal and Minor Arterial	Major and Minor Collectors and Locals	
	Main Line		Ramp				
Left	Right	Left	Right				
9	>9.1	>9.1	>1.2	>3.0	>9.1	>3.7	>6.1
8	9.1	9.1	1.2	3.0	9.1	3.7	6.1
7	5.5	6.4	0.9	2.7	6.4	3.4	5.2
6	1.8	3.7	0.6	2.4	3.7	3.0	4.3
5	1.5	3.4	0.6	1.8	3.0	2.4	3.4
4	1.2	3.0	0.6	1.2	1.8	1.2	2.4

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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 meters.
3. When acceleration or deceleration lanes or ramps are provided under two (2) way traffic, use the value from the right ramp column to determine.

The functional classification of the under passing route shall be used in the evaluation. If an “under” record is not coded, the under passing route shall be considered a major or minor collector or a local road.

FHWA Item 70 – Bridge Posting

This item must be coded.

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

This item evaluates the load capacity of a bridge in comparison to the State legal load. It differs from Item 67 - Structural Evaluation in that Item 67 uses Item 66 – Inventory Rating, while the bridge posting requirement is based on Item 64 – Operating Rating.

Although posting a bridge for load-carrying capacity is required only when the maximum legal load exceeds the operating rating, highway agencies may choose to post at a lower level. 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. 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 actual operating rating of the temporary bridge should be used to determine this item. However, the highway agency may choose to post at a lower level. This also applies to bridges shored up or repaired on a temporary basis.

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

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

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

State Bridges: Procedures for Posting Restrictions – Bridges shall be posted for weight restriction when, after rounding, the rating factor for any one (1) of the four Ohio Legal Trucks drops below 100% (or when the actual Rating Factor (RF) is less than 95.7%). Bridges that are not capable of carrying 3-Tons GVW, for any truck, shall be closed to all traffic.

<u>Truck</u>	<u>Gross Vehicle Weight (GVW)</u>	<u>Post When Operating Rating Factor <100% (close Bridge when <3T)</u>	<u>(close the bridge when <3T)</u>
2 F1	15T	<15T	<4.5T
3 F1	23T	<23T	<6.9T
4 F1	27T	<27T	<8.1T
5C1	40T	<40T	<12.0T
NRL	AOT		

	<u>Special Hauling Vehicles</u>
Truck	Gross Vehicle Weight (GVW)
NRL	40 T
SU4	27 T
SU5	31 T
SU6	34.75 T
SU7	38.75 T

FHWA Item 71 – Waterway Adequacy

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. 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).

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

<u>Remote</u>	Greater than 100 years
<u>Slight</u>	11 to 100 years
<u>Occasional</u>	3 to 10 years
<u>Frequent</u>	Less than 3 years

Adjectives describing traffic delays mean the following:

<u>Insignificant</u>	Minor inconvenience. Highway passable in a matter of hours.
<u>Significant</u>	Traffic delays of up to several days.
<u>Severe</u>	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
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.

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FHWA Item 72 – Approach Roadway Alignment

Record the appropriate code from the table below about the condition of the approach alignment.

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

<u>Code</u>	<u>Description</u>
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
0	Bridge Closed

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FHWA Item 75A – Type of Work

The information to be coded 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.

It shall be coded for all structures that are eligible for Federal Highway Bridge Replacement and Rehab (HBRRP) program. It also may be coded for other structures. To be eligible for HBRRP, a bridge must carry highway traffic, be deficient and have a sufficiency rating of 80 or less. Use one of the following codes to represent the proposed work type. Otherwise, leave blank.

<u>Code</u>	<u>Description</u>
31	Replacement of bridge or other structure because of substandard 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.

FHWA Item 75B – Work Done By

The method of improvement shall be coded using one (1) of the following codes to indicate whether the proposed work is to be done by contract or by force account.

<u>Code</u>	<u>Description</u>
1	Work to be done by contract
2	Work to be done by owner's forces

Examples:

	<u>Proposed Work Code</u>	<u>Work Done By</u>
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.	31	1
A bridge is to be replaced because the roadway must be	32	1

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straightened to eliminate a dangerous curve. The work will be done by contract.		
A bridge deck is to be rehabilitated by contract and a safety curb to be removed which results in incidental widening of 2 feet.		
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.		
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.)		

FHWA Item 76 – Length of Structure Improvement

Code the length of the bridge portion only of the proposed improvement. This length may be less than the full length of the structure if part of the bridge is to be improved.

For replacement or rehabilitation of the entire bridge, the length should be the structural length (back to back of backwalls of abutments).

For improvements on buried structures, 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.

This item must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program.

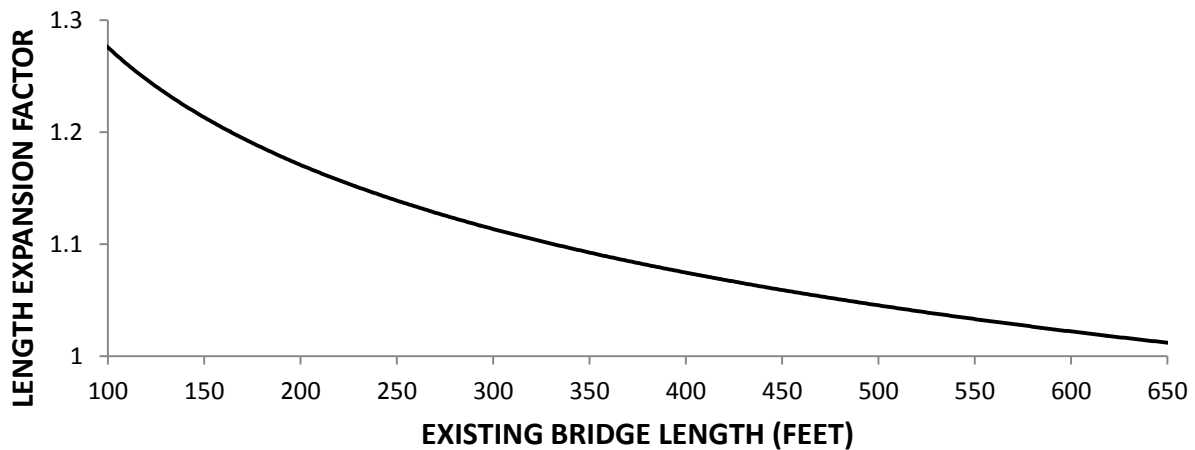
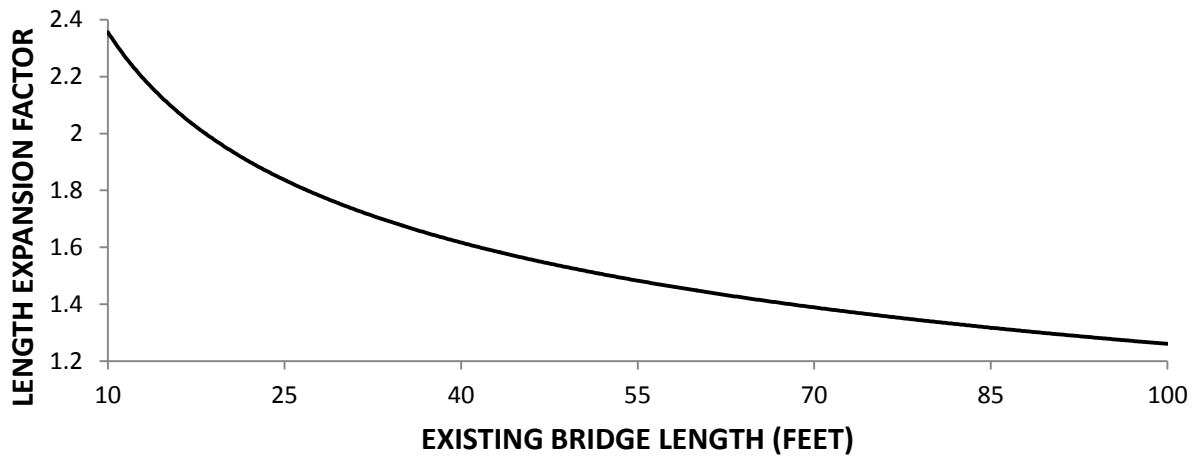
For substructure or channel work only, code the length of superstructure over, or supported by, the substructure or channel.

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 figure on the following page. Where site-specific data is lacking, these factors are suggested for estimating the length

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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



REPLACEMENT BRIDGE LENGTH = EXISTING BRIDGE LENGTH X LENGTH EXPANSION FACTOR

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FHWA Item 90 – Routine Inspection Date

This item is found on the Review Form when performing an inspection.

Code if this is a routine inspection, the frequency of inspection and date.

<u>Description</u>	<u>Code</u>
Yes, this is a routine inspection	Y
No, this is not a routine inspection	N

Code two (2) digits to represent the number of months between designated inspections of the structure. Leading zeros shall be coded. This interval is usually determined by the individual in charge of the inspection program. For posted, under strength bridges, this interval could be substantially less than the 12 month standard. The designated inspection interval may vary from inspection to inspection depending on the condition of the bridge at the time of inspection. The default value is 12 months.

<u>Description</u>	<u>Code</u>
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	12

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: where 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.

FHWA Items 93A, 93B, & 93C – Inspection Types

This item is found on the Inspection Review Form when performing an inspection

Code items 93A, 93B & 93C to 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 shall also be coded. The designated inspection interval could vary from inspection to inspection depending on the condition of the bridge at the time of inspection.

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<u>Segment</u>	<u>Description</u>	<u>Length</u>
93A	Fracture Critical Details	4 digits
93B	Underwater Inspection	4 digits
93C	Other Special Inspection	4 digits

For each segment of Items 93A, B, and C, code the first digit Y for special inspection or emphasis needed and code N for not needed. The first digit of Items 92A, B, and C must be coded for all structures to designate either a yes or no answer. Those bridges coded with a Y in Items 92A or B should be the same bridges contained in the Master Lists of fracture critical and special underwater inspection bridges. In the second and third digits of each segment, code a two (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

<u>Item</u>	<u>Description</u>	<u>Code</u>
93A 93B 93C	A 2-girder system structure which is being inspected yearly and no other special inspections are required.	Y12 N00 N00
93A 93B 93C	Structures where both fracture critical and underwater inspection are being performed on a 1-year interval. Other special inspections are not required.	Y12 Y12 N00
93A 93B 93C	A structure has been temporarily shored and is being inspected on a 6-month interval. Other special inspections are not required.	N00 N00 Y06

FHWA Item 94 – Bridge Improvement Cost

Code a six (6) digit number to represent the estimated cost of the proposed bridge or major structure improvements in thousands of dollars. This cost shall include only bridge construction costs, **excluding** roadway, right of way, detour demolition, preliminary engineering, etc. Do not use this item for estimating maintenance costs.

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

Examples

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

STRUCTURE MANAGEMENT SYSTEM (SMS)

Nationally, the deck area of replaced bridges is averaging 2.2 times the deck area before replacement. The deck area of rehabilitated bridges is averaging 1.5 times the deck area before rehabilitation. Widening square meter costs are typically 1.8 times the square meter cost of new bridges with similar spans. For example, if the average cost of a new bridge is \$500 per square meter, the average cost of the widened area would be \$900 per square meter.

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

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

FHWA Item 95 – Roadway Improvement Cost

Code a six (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. Do not use this item for estimating maintenance costs.

This item must be coded for bridges eligible for the Highway Bridge Replacement and Rehabilitation Program. It may be coded for other bridges at the option of the bridge owner.

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

FHWA Item 96 – Total Project Cost

Code a six (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. Do not use this item for coding maintenance costs.

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

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

FHWA Item 97 – Year of Improvement Cost Estimate

Record and code the year that the costs of work estimated in Item 94 – Bridge Improvements 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.

Examples

STRUCTURE MANAGEMENT SYSTEM (SMS)

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

FHWA Item 98A - Border Bridge

Use this item to indicate structures crossing borders of States. From the drop down menu select a 3-digit number specifying the neighboring State using State Codes listed in Item 1 – State Code.

If structure is not on the border with adjacent state, leave blank.

<u>State</u>	<u>Code</u>
Indiana	185
Kentucky	214
Michigan	265
Pennsylvania	423
West Virginia	543

FHWA Item 98B - Border Bridge State % Responsible

Use this item to indicate the percentage of total deck area of the existing bridge that the neighboring State is responsible for funding. From the drop down menu select a 2-digit number specifying the percent responsibility for improvements to the existing structure when it is on a border with a neighboring State.

If a neighboring State codes the structure and accepts 100% of the responsibility, FHWA still requires Ohio agencies to code a record for the structure. Code the digits as “99” to represent that the neighboring state has full responsibility for the structure.

If structure is not on a border, leave blank. See examples below.

<u>2 Explanations</u>	<u>Code</u>
A structure connects Ohio with a border state responsible for funding 45 percent of future improvement costs.	45
A structure connects Ohio with a border state responsible for funding 100 percent of future improvement costs.	99

FHWA Item 99 – Border Bridge Structure Number

Code the neighboring State’s National Bridge Inventory structure number for any structure noted in Item 98 – Border Bridges. This number must match exactly the neighboring State’s submitted NBI structure number. The entire fifteen (15) digit field must be accounted for including zeros and blank spaces whether they are leading, trailing, or embedded in the fifteen (15) digit field. If Item 98A and Items 98B are blank, this item must be blank.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 100 – STRAHNET Highway Designation

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 STRAHNET highway conditions using one (1) of the following codes:

<u>Code</u>	<u>Description</u>
0	The inventory route is not a STRAHNET route.
1	The inventory route is on an Interstate STRAHNET route.
2	The inventory route is on a Non-Interstate STRAHNET route.
3	The inventory route is on a STRAHNET connector route.

All counties and municipalities shall code this item 0, unless their route is a STRAHNET route.

Map of Ohio can be found at the link below:

http://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/ohio/index.cfm

FHWA Item 101 – Parallel Highway Designation

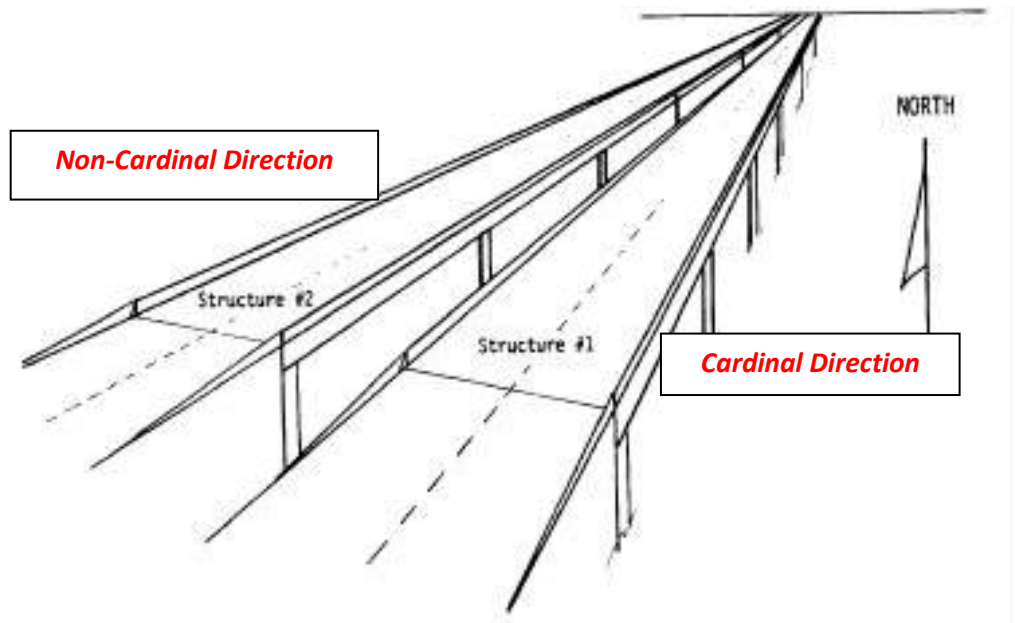
This item indicates situations where separate structures carry the traffic on the route in opposite directions over the same feature. Use the appropriate code when the route is a county road or city street. If the route is under a railroad, pipeline, etc. or there is no parallel structure, code N.

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

Structure #1 **Right (CARDINAL)**

Structure #2 **Left (NON-CARDINAL)**

STRUCTURE MANAGEMENT SYSTEM (SMS)



FHWA Item 102 – Direction of Traffic

This item must be coded.

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

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

FHWA Item 103 – Temporary Structure Designation

This item must be coded.

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

<u>Code</u>	<u>Description</u>
T	Temporary structure or conditions exist
Leave Blank	Not Applicable

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

STRUCTURE MANAGEMENT SYSTEM (SMS)

1. Bridge shored up, including additional temporary supports.
2. Temporary repairs made to keep a bridge open.
3. Temporary structures, temporary runarounds or bypasses.
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 the minimum adequate to remain in place and be evaluated accordingly.

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

<u>Item</u>	<u>Description</u>
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

FHWA Item 104 – Highway System of the Inventory Route

This item must be coded.

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 National Highway System (NHS) or not.

MAP-21 has broadened the definition of the National Highway System. It is referred to as the “Enhanced” NHS and it included intermodal connectors and principal arterials. All bridges on the Enhanced NHS will need to be inspected using Element Level inspection beginning in 2014. The deadline to make the conversion to Element Level inspection for these bridges is October 1, 2015.

Use one (1) of the following codes after consulting the website below:

http://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/ohio/index.cfm

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

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 105 – Federal Lands Highways

Structures owned by State and local jurisdictions on roads which lead to and traverse through federal lands sometimes require special coded unique identification because they are eligible to receive funding from the Federal Lands Highway Program. One (1) of the following codes shall be used:

<u>Code</u>	<u>Description</u>
0	Not Applicable
1	Indian Reservation Road (IRR)
2	Forest Highway (FH)
3	Land Management Highway System (LMHS)
4	Both IRR and FH
5	Both IRR and LMHS
6	Both FH and LMHS
9	Combined IRR, FH and LMHS

FHWA Item 106 – Year Reconstructed

Year of major reconstruction (rehabilitation) of the structure will be populated by the System once Item 264 – Major Reconstruction Date is entered.

FHWA Item 107 – Deck Structure Type

This item must be coded.

Code a one (1) digit numeric to describe the deck type as follows:

<u>Code</u>	<u>Description</u>
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	Wood or Timber
9	Other
N	Not applicable

A Jack Arch is defined as a deck support system comprised of a brick or concrete arch springing from the bottom flanges of adjacent rolled steel beams. There is not a Structure Type for Jack arches because the jack arch is actually a description of the deck, and this bridge is a special kind of steel beam bridge. Therefore you should code the structure type as a steel beam.

Where no deck or floor slab exists, such as for culverts, code item as N. When more than one (1) type of floor slab exists over the full length of the bridge, code the item for the predominate type. If a predominate type cannot be determined, code zero "0".

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Items 108A, B & C – Wearing Surface/Protection System

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

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

FHWA Item 108A – Type of Wearing Surface

The type of wearing surface material on the structure shall be coded using one (1) of the choices given below to represent the wearing surface material. Where there are multiple layers of wearing material of various types on the structure, code the top or the exposed layer. All of the following codes are considered to be overlays except codes 2 (Integral Concrete), 7 (Timber) and 8 (Gravel).

For open Steel Grid Decks code 0 for wearing surface.

<u>Code</u>	<u>Description</u>
1	Monolithic Concrete (concurrently placed with structural deck)
2	Integral Concrete (separate non-modified layer of concrete added to structural deck)
3	Latex Concrete or similar additive
4	Low Slump Concrete
5	Epoxy Overlay
6	Bituminous
7	Wood or Timber
8	Gravel
9	Other
0	None (no additional concrete thickness or wearing surface is included in the bridge deck)
N	Not Applicable (applies only to structures with no deck)

FHWA Item 108B - Type of Membrane

Code for External Deck Protections (Type of Membrane Waterproofing)

<u>Code</u>	<u>Description</u>
1	Built-up
2	Preformed Fabric
3	Epoxy
8	Unknown
9	Other
0	None

STRUCTURE MANAGEMENT SYSTEM (SMS)

N	Not Applicable (applies only to structures with no deck)
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FHWA Item 108C – Deck Protection

Code for Internal Deck Protections

<u>Code</u>	<u>Description</u>
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)

**Internally sealed: Wax beads mixed with concrete when deck is poured. After concrete cures, deck is heated by covering with electric blankets and wax beads melt and fill the capillary openings.

FHWA Item 109 – Average Daily Truck Traffic Percentage

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 of the category of road carried by the bridge may be used. Leave blank if Item 29 – Average Daily Traffic is not greater than 100.

Examples

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

FHWA Item 110 – Designated National Network

This item must be coded.

The national network for trucks includes most of the Interstate System and those portions of the Federal Aid Primary System Identified in the Code of Federal Regulations (23 CFR 658). The national network for trucks is available for use by commercial motor vehicles of the dimensions and configurations described in these regulations. For the inventory route identified in Item 5, indicate conditions using one (1) of the following codes:

<u>Code</u>	<u>Description</u>
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.

STRUCTURE MANAGEMENT SYSTEM (SMS)

FHWA Item 111 – Pier Protection (for Navigation)

If Item 38 – Navigation Control has been coded 1, use the codes below to indicate the presence and adequacy of pier 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.

<u>Code</u>	<u>Description</u>
1	Navigation protection not required
2	In place and functioning
3	In place but in a deteriorated condition
4	In place but reevaluation of design suggested
5	None present but reevaluation suggested

FHWA Item 112 – NBIS Bridge

This item must be coded.

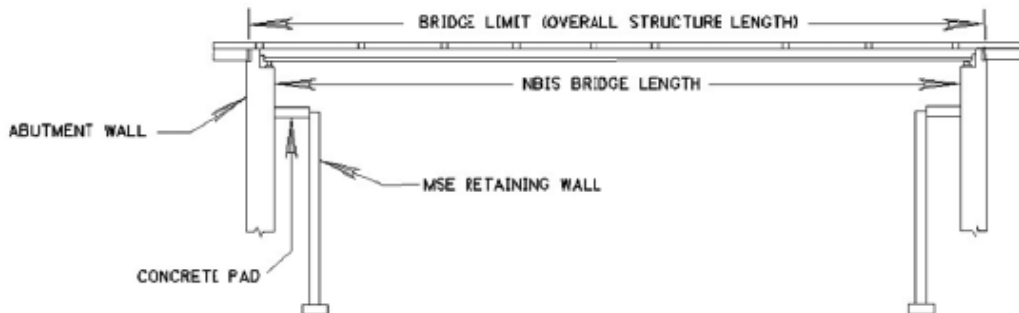
Does this structure meet or exceed the minimum length specified to be designed as a bridge for National Bridge Inspection Standards purposes? The following definition of a bridge is used by AASTHTO and is given in the NBIS, 23CFR650.3:

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

NOTE: NBIS Bridge Length is different from overall structure length. For single span structures with no bearings use clear span. An NBIS bridge by definition has to carry public road or public vehicular traffic. In determining the NBIS status of a bridge, if the bridge carries no public or no-vehicular traffic (RR, pedestrian, bikeway, conveyor, etc.) then the NBIS=N, regardless of the length.

<u>Code</u>	<u>Description</u>
Y	Yes
N	No

STRUCTURE MANAGEMENT SYSTEM (SMS)



FHWA Item 113 – Scour Critical Bridge

This item must be coded.

Using a single digit code as indicated below to identify the current status of the bridge regarding its vulnerability to scour. Evaluations shall be made by hydraulic/geotechnical/structural engineers. Guidance on conducting a scour evaluation is included in the FHWA Technical Advisory T5140.23 titled, “valuating Scour at Bridges”. Detailed engineering guidance is provided in the Hydraulic Engineering Circular 18 titled, “Valuating Scour at bridges”. Whenever a rating factor of 2 or below is determined for this item, the rating factor for Item 42 – Substructure and other affected items (i.e., load ratings, superstructure rating) should be revised to be consistent with the severity of observed scour and resultant damage to the bridge. A plan of action should be developed for each scour critical bridge (see FHWA Technical Advisor T5140.23, HEC 18 and HEC 23). A scour critical bridge is one with abutment or pier foundation rated as unstable due to (1) observed scour at the bridge site (rating factor of 2, 1, or 0) or (2) a scour potential as determined from a scour evaluation study (rating factor of 3). It is assumed that the coding of this item has been based on an engineering evaluation, which included consultation of the NBIS filed inspection findings.

<u>Code</u>	<u>Description</u>
N	Bridge not over waterway.
U	Bridge with <u>unknown</u> foundation that has not been evaluated for scour. Since risk cannot be determined, flag for monitoring during flood events and, if appropriate, closure.
T	Bridge over <u>tidal</u> waters that has not been evaluated for scour, but considered low risk. Bridge will be monitored with regular inspection cycle and with appropriate underwater inspections. (<u>Unknown</u> foundations in <u>tidal</u> waters should be coded U).
9	Bridge foundations (including piles) on dry land well above flood water elevations.
8	Bridge foundations determined to be stable for the assessed or calculated scour conditions; 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.

STRUCTURE MANAGEMENT SYSTEM (SMS)

6	Scour calculation/evaluation has not been made. <i><u>(Use only to describe case where bridge has not yet been evaluated for scour potential.)</u></i>
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: <ul style="list-style-type: none">- 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.

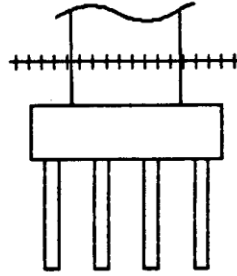
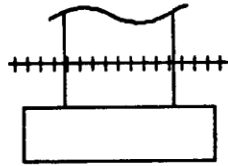
STRUCTURE MANAGEMENT SYSTEM (SMS)

EXAMPLES:

CALCULATED SCOUR DEPTH

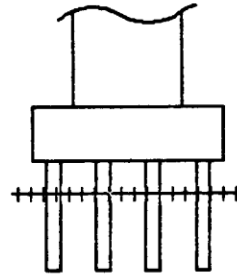
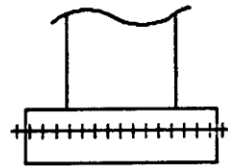
ACTION NEEDED

A. Above top
of footing



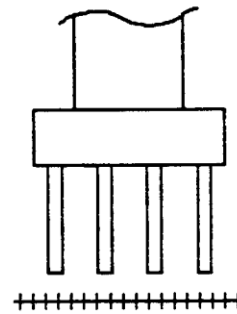
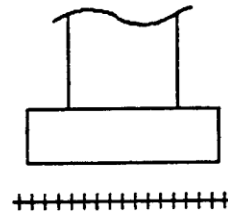
None - indicate
rating of 8 for
this item

B. Within limits
of footing
or piles



Conduct
foundation
structural
analysis

C. Below pile tips
or spread-
footing base



Provide for
monitoring
and scour
countermeasures
as necessary

SPREAD FOOTING
(NOT FOUNDED
IN ROCK)

PILE FOOTING

+++++ = Calculated scour depth

STRUCTURE MANAGEMENT SYSTEM (SMS)

[FHWA Item 114 – Future Average Daily Traffic](#)

This field represents 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 the latest inspection. The intent is to provide a basis for a 20-year forecast.

[FHWA Item 115 – Year of Future Average Daily Traffic](#)

This item will also be **automatically populated** using Item 30 - Year of Average Daily Traffic (ADT).

[FHWA Item 116 – Minimum Navigation Vertical Clearance, Vertical Lift Bridge](#)

Record to the nearest foot (rounding down) the minimum vertical clearance imposed at the site as measured above a datum that is specified on a navigation permit issued by a control agency. Code this item only for vertical lift bridges in the dropped or closed position, otherwise leave blank and item will default to zeros. See examples below.

<u>Vertical Clearance</u>	<u>Code</u>
20.7	020.700
24.2	024.200

[Ohio Item 200 – County Log Point \(CL\)](#)

This item must be coded.

Code the appropriate county log point (CL) in miles using five (5) digits.

[Ohio Item 201 – Special Designation](#)

The first position shall be used for coding “L” or “R” for Left and Right parallel structures. On divided highways with clearly separate and parallel structures for each direction of travel, each structure will carry the same straight line mileage designation, with the addition of the letter (L) for the left (non-cardinal direction) structure and (R) for the right (cardinal direction) structure.

On divided highways where the deck is continuous across both directions of travel and there is a longitudinal joint near the center of the bridge (closed median by F.H.W.A. definition), code as one (1) structure. (3” or less open joint at the centerline does not constitute parallel bridges.) Both the positions may be coded to define ramp structures by using a one (1) or two (2) character alphabetic code. Note: For ramp definitions, the letters “L” and “R” may not be used in the first position. Details on basic ramp designation schemes can be obtained from the Structure Inventory Section. Final decision on ramp designations will be made by the Structure Inventory Section.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 202 – Bridge Inventory Status

This item will automatically be populated by SMS. The following are the allowable codes:

<u>Code</u>	<u>Description</u>
1	<u>Proposed</u> – Incomplete Inventory, not open to traffic
2	<u>Inactive</u> – Not open to traffic
3	<u>Active</u> – Complete Inventory, open to traffic
4	<u>Retired</u> – Complete Inventory, but no longer open to traffic

Ohio Item 203 – Bridge Name (Dedicated Name)

Code the official name (if applicable) of the bridge.

Example – Anthony Wayne Bridge

Ohio Item 204 – Ohio Designated MPO

Enter a two (2 digit) numeric code for the MPO in which the bridge is located. If this item does not apply, code NN for None. If the MPO is not known, code UU for Unknown.

See Appendix **K** or the link below for a list of MPOs by County.

http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Pages/MPO_Map.aspx

<u>Code</u>	<u>Description</u>
01	AMATS (Akron)
02	BHJTS (Steubenville-Weirton)
03	BOMTS (Wheeling-Bridgeport)
04	EDATA (Youngstown)
05	HAIATS (Huntington)
06	LCATS (Newark – Heath)
07	MORPC (Columbus)
08	NOACA (Cleveland)
09	OKI (Cincinnati)
10	SCATS (Canton)
11	MVRPC (Dayton)
12	TCC (Lima)
13	TCC (Mansfield)
14	TCC (Springfield)
15	TMACOG (Toledo)
16	WWW (Parkersburg-Belpre)
17	ERPC (Erie County-City of Vermilion)
NN	None
UU	Unknown

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 206 – Inventory Preferred Route

Code letter “P” if the inventory route is the preferred route in an overlap area. Code NP if non-preferred route. Leave blank if not in overlap area.

Ohio Item 207 – Route under the Bridge

Code the Agency of the route which goes under the bridge using the codes listed below:

<u>Code</u>	<u>Description</u>
00	Other
10	State (ODOT) (Toll Free)
11	ODNR
12	State (Other) (Toll Free)
20	Federal Domain
30	Toll Bridge (State)
31	Toll Bridge (Private)
40	County
41	Municipal
42	Township
43	Park District
44	Conservancy District
99	Non highway traffic on bridge (i.e. pedestrian, railroad, pipeline, etc.)

For non-highway service under the bridge code “99”.

Ohio Item 208 – Route on the Bridge

Code a two (2) digit numeric for the agency whose route is carried by the bridge.

<u>Code</u>	<u>Description</u>
00	Other
10	State (ODOT) (Toll Free)
11	ODNR
12	State (Other) (Toll Free)
20	Federal Domain
30	Toll Bridge (State)
31	Toll Bridge (Private)
40	County
41	Municipal
42	Township
43	Park District
44	Conservancy District
99	Non highway traffic on bridge (i.e. pedestrian, railroad, pipeline, etc.)

Do not code Turnpike as a toll road on the bridge.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 209 – Interstate Mile Marker

Code a six digit number for the Interstate Mile Marker. The Interstate Mile Marker is measured from the 0 mile marker of the border state to the bridge. The item is coded in the direction of the route.

Ohio Item 210 – Macro Level Corridor

This item indicates whether or not the Inventory route (Item 5D) is on a Macro Level Corridor route. These routes have been determined by Access Ohio.

<http://www.dot.state.oh.us/maps/Pages/MacroCorridorMap.aspx>

<u>Code</u>	<u>Description</u>
N	Structure is not a Macro Level Corridor
Y	Structure is a Macro Level Corridor

Ohio Item 213 – NLF ID Inventory Route

This item is internally calculated.

Ohio Item 214 – Railroad Identification

Code the appropriate railroad identification number for the railroad going over or under the bridge. If not applicable leave blank and item will default to NN.

See **Appendix J** for railroad identification list.

Ohio Item 218 – Major Bridge

This item must be coded.

This Item shall be coded Y if it meets one (1) or more from the following criteria:

- A. More than 1,000 feet in length
- B. Single bridge with a deck area of 81,000 square feet (9,000 square yards) or greater
- C. Twin bridges with a deck area of 135,000 square feet (15,000 square yards) or greater
- D. Spans the Ohio River
- E. Moveable bridge
- F. Continuous/cantilever truss bridge
- G. Suspension bridge

Ohio Item 219 – Temporary Barrier

Code **Y** for Yes if feature **does** exist and **N** for No if feature **does not** exist.

Ohio Item 223 – Temporary Shoring

Code **Y** for Yes if feature **does** exist and **N** for No if feature **does not** exist.

Ohio Item 224 – Temporary Sub decking

Code **Y** for Yes if feature **does** exist and **N** for No if feature **does not** exist.

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 225 – Routine Maintenance Responsibility A, B & C

This item must be coded.

The agency or agencies legally responsible should be coded. The name should already be available from existing records in accordance with the Ohio Revised Code or by legal agreement. Code a two digit numeric or alphanumeric code to specify agency or agencies responsible for the routine maintenance from the table below, where the agency with the left-most code is the one with primary responsibility.

When more than one agency has equal responsibility, code them in the hierarchy of State, Ohio Turnpike, Federal, County, and City, railroad and other or private.

<u>Code</u>	<u>Description</u>
1	Ohio State Transportation Department
2	Ohio Turnpike Commission
3	County Agency
4	City or other Local Agency
5	Federal Agency (other than listed)
6	Railroad
7	Private (<u>other than railroad</u>)
<u>8</u>	<u>Not Used</u>
<u>9</u>	<u>Not Used</u>
A	Ohio Department of Natural Resources (ODNR)
B	Ohio Conservancy District
C	Ohio Park District
D	Ohio Institution
E	Local Transit Authority
F	Township
G	Local Toll Authority
H	Bureau of Indian Affairs
I	U.S. Forest Service
J	National Park Service
K	Bureau of Land Management
L	Bureau of Reclamation
M	Military Reservation/Corps of Engineers
N	Indian Tribal Government
O	Air Force
P	Navy/Marines
Q	Army
R	NASA
<u>S</u>	<u>Not Used</u>
<u>T</u>	<u>Not Used</u>
U	Unknown
<u>V</u>	<u>Not Used</u>
<u>W</u>	<u>Not Used</u>
X	None
<u>Y</u>	<u>Not Used</u>
Z	Border State

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Examples

<u>Code</u>	<u>Responsible Agency or Agencies</u>
1X	ODOT Responsibility
4X	Municipality Responsibility
1X	ODOT and County Responsibility
ZX	Border State Responsibility
1Z	ODOT and Border State Responsibility
34	County, Municipality & Railway Responsibility
64	Railway and City Responsibility
21	Ohio Turnpike & ODOT Responsibility

Ohio Item 226 – Seismic Susceptible

Code this item according to the following table:

<u>Code</u>	<u>Description</u>
1	Unreinforced masonry (laid-up stone abutments and piers)
2	Simple span approaches to large truss bridges
3	Prestressed I or box beams <i>if not</i> tied together over the piers <i>or</i> pinned into the piers and abutments
4	Non-redundant steel pier caps which are not tied to either the pier columns or other bridge superstructure
5	Multiple column type piers with no pier cap
6	Bridges with centerline of bearing 4" or less to face of abutment or pier
7	Bridge with seated hinges (not pins and hangers)
N	Not applicable

Ohio Item 227 – GASB (Governmental Accounting Standards Boards)

Code a Y or N to indicate if the bridge meets the GASB definition.

GASB Bridge - All State System Bridges excluding Major Bridge, ODNR, Turnpike, and Non-Highway bridges not maintained by ODOT.

Ohio Item 235 – Average Daily Truck Traffic (ADTT)

Code an eight (8) digit figure to indicate the amount of truck traffic for the inventory route. Right justify filling with leading zeros where necessary. For physically separate parallel structures, code one (1)-half the traffic for each bridge. If Item 29 Average Daily Traffic is blank leave this item blank.

Truck traffic where this item is concerned does not include vans, pick-up trucks, other light delivery trucks, school buses or recreational vehicles.

Show the actual number of trucks, if not available, estimate as closely as possible.

If a bridge is closed code the actual ADTT before the closure occurred.

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Ohio Item 236 – Future Traffic Factor

This is a four digit factor used to estimate the Future Traffic.

Ohio Item 245 – Aperture Cards Fabrication

Code a Y or N to indicate if the Fabrication Aperture Cards are available for the bridge.

Ohio Item 246 – Aperture Cards Original

Code a Y or N to indicate if the Original Aperture Cards are available for the bridge.

Ohio Item 247 – Aperture Cards Repair

Code a Y or N to indicate if the Repair Aperture Cards are available for the bridge.

Ohio Item 248 – Original Construction Project Number

Code the number of the Ohio Project which the structure was originally constructed. Right justify the project number if the first four (4) digits using leading zeros where necessary. Code the next two (2) digits of the project year. Agencies other than the State may code this item using any numeric system which fits within the nine (9) digits field provided. If non-state agencies choose not to code or the State project number is unknown, leave this item blank.

Note: See also **Appendix E**

Ohio Item 249 – Name of Contractor

This item will show the prime contractor for the original construction of the bridge. Leave blank if not applicable.

Left justify and use meaningful abbreviations, if necessary.

Ohio Item 250 – Name of Fabricator

List the name of the fabricator for the structural steel (i.e. beams, girders, etc.) for the original bridge. Leave blank if not applicable.

Left justify and use meaningful abbreviations if necessary.

Ohio Item 251 – Standard Drawing Number

Code the Standard Drawing Number for the bridge superstructure. Left justify and do not fill with trailing zeros.

Ohio Item 252 – Microfilm Reel Number

Code any Microfilm Reel Numbers that contain information about the bridge.

Ohio Item 253 – SFN Replacing This Retired Bridge 1

Code the seven (7) digits SFN of the bridge that this Retired Bridge replaced.

Ohio Item 255 – SFN That Was Replaced by This Bridge 1

Code the seven (7) digits SFN of the bridge that was replaced by this Bridge.

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Ohio Item 257 – Record Retiring Reason

This item must be coded for the bridge at the time of retiring it. Currently, only SMS Administrators can code it.

Code the reason for retiring the structure using one (1) of the following codes below:

<u>Code</u>	<u>Description</u>
1	Replaced (> 50% Sufficiency Rating)
2	Replaced (< 50% Sufficiency Rating)
3	Transferred to another agency (County, municipality, etc.)
4	Collapsed, not to be replaced
5	Closed with no intent to replace
7	Collapsed and replaced
0	Other

Ohio Item 259 – Record Add Date

The system will automatically code the eight (8) digits date the inventory was completed for the bridge.

Ohio Item 260 – Retire Date

This item must be coded for the bridge at the time of retiring it. Currently, only SMS Administrators can code it.

Code the eight (8) digits of the last Inventory Update to the bridge.

Ohio Item 261 – Bridge Remarks

Enter any remarks about the inventory of the bridge.

Ohio Item 263 – Date Built

This item must be coded on all bridges.

Code the actual day, month and year the bridge was completed, if unknown code 07/01/1900.

<u>Examples</u>	<u>Code</u>
Built June 30, 1928	06/30/1928
If you cannot determine the date when a bridge was built.	07/01/1900
A bridge was built in 1935; date and month are unknown	07/01/1935

For bridges constructed in part-width, code the date when the first portion of bridge deck under the travel lanes was completed.

Ohio Item 264 – Major Reconstruction Date

This item must be coded for bridges on which major reconstruction has been done.

Code the date in month, day and year of the most recent major reconstruction (rehabilitation) of the structure.

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Replacement of an entire deck or work of a greater magnitude should be termed "Major Reconstruction". Beyond these guidelines "Major Reconstruction" will be a judgmental determination, by a qualified person in the agency.

Some types of work not to be considered as major reconstruction are listed below:

- Safety feature replacement or upgrading (for example, bridge rail, approach or impact attenuators).
- Painting of structural steel.
- Overlaying of bridge deck as part of a larger highway re-surfacing project (for example overlay carried across bridge deck for surface uniformity without additional bridge work).
- Utility work.
- Emergency repair to restore structure 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).

<u>Examples</u>	<u>Code</u>
Built on May 1, 1898; Major Reconstructions in October 10, 1949 & July 1, 1964	07/01/1964
If there has never been Major Reconstruction on the bridge	

Replacement of an entire deck or work of a greater magnitude should be termed "Major Reconstruction". Beyond these guidelines "Major Reconstruction" will be a judgmental determination, by a qualified person in the agency submitting the change sheet.

Some types of work not to be considered as major reconstruction are listed below:

- Safety feature replacement or upgrading (for example, bridge rail, approach or impact attenuators).
- Painting of structural steel.
- Overlaying of bridge deck as part of a larger highway re-surfacing project (for example overlay carried across bridge deck for surface uniformity without additional bridge work).
- Utility work.

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- Emergency repair to restore structure 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).

<u>Examples</u>	<u>Code</u>
Built May 1, 1898 Major Reconstruction October 10, 1949, July 1, 1964	07011964
If there has never been Major Reconstruction on the bridge.	00000000

Ohio Item 265 – Electric Line Present

<u>Code</u>	<u>Description</u>
Y	Bridge carries this utility
N	Bridge does not carry a utility

Ohio Item 266 – Gas Line Present

<u>Code</u>	<u>Description</u>
Y	Bridge carries this utility
N	Bridge does not carry a utility

Ohio Item 269 – Sanitary Sewer Present

<u>Ohio</u>	<u>Ohio</u>
Y	Bridge carries this utility
N	Bridge does not carry a utility

Ohio Item 271 – Other Utilities

<u>Code</u>	<u>Description</u>
Y	Bridge carries this utility
N	Bridge does not carry a utility

Ohio Item 283 – Lighting

Code Y for Yes if feature **does** exist and N for No if feature **does not** exist.

Ohio Item 300 – Skew Direction

This item must be coded.

The skew angle is the angle between the centerline of a pier or abutment or a pipe 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.

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The skew should be coded to the nearest degree. When the structure is on a curve or if the skew varies for some other reason, the average skew should be coded, if reasonable. Otherwise, code "99" to indicate a major variation in skews of sub-structure units. If the structure is not skewed code zeros. Always code a two (2) digit numeric using leading zeros where necessary.

<u>Skew</u>	<u>Code</u>
10 degrees	10
8 degrees	08
29 degrees	29

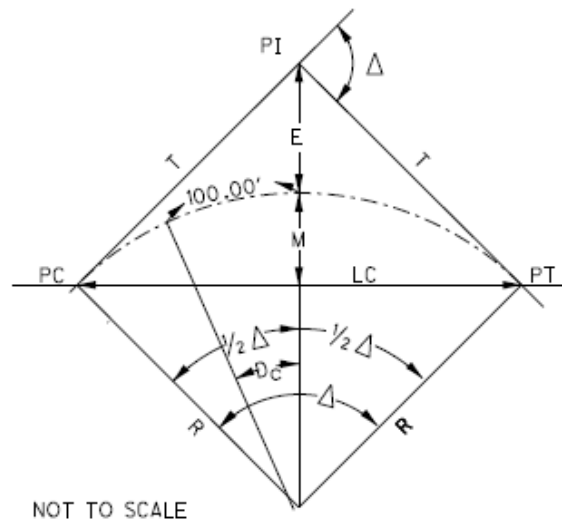
Ohio Item 301 – Horizontal Curve

This item must be coded for all structures, where the route carried by the structure is located within a horizontal curve. Code this item to the nearest degree and minute.

If the structure is entirely or primarily on a tangent, leave this item blank. For structures on a curve code the curve. For structures on a spiral code the spiral as 9999. And for non-tangent structures of unknown curvature code them 0000.

<u>Curve</u>	<u>Code</u>
18 degrees – 30'	1830
25 degrees – 06'35"	2507
Spiral	9999
Curve Unknown	0000

D_c = DEGREE OF HORIZONTAL CURVE
 E = EXTERNAL DISTANCE
 Δ = INTERSECTION ANGLE
 LC = LENGTH OF CHORD
 M = MIDDLE ORDINATE
 PC = POINT OF CURVATURE
 PI = POINT OF INTERSECTION
 PT = POINT OF TANGENT
 R = RADIUS
 T = TANGENT DISTANCE



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Ohio Item 305 – Total Span Length

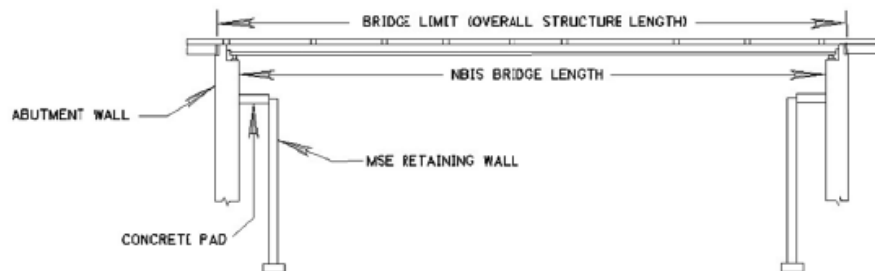
Code the sum of lengths of all the main and approach spans in feet.

Ohio Item 306 – NBIS Bridge Length

Code this item for the NBIS Bridge Length using the following method of measurement:

Measure along the center of the roadway between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous openings.

NBIS Bridge Length is different from overall structure length. For single span structure with no bearings use clear span.



Ohio Item 307 – Total Number of Spans

Code the appropriate number of spans of the bridge. If there is a single number of spans, include a preceding zero (0) to the number of spans.

Ohio Item 325 – Minimum Horizontal Clearance Under, Cardinal

This item refers to the bridge roadway horizontal clearance under the bridge. Code the available clearance measured normal to the centerline of roadway between restrictive features such as curbs, railings, sidewalks, wheel guards, raised medians and other structural features limiting the roadway surface width in the cardinal direction. Raised Button –Type medians and small raised lane channeling curbs, etc. are not considered restrictions.

If more than one roadway exists, a measurement should be made for each, but only the horizontal clearance of the mainline in each direction of travel shall be coded.

The term “Cardinal” in the item heading refers to the “Primary” direction of the route under the bridge (direction in which the route is officially measured for a particular agency’s records).

The purpose of this item is to give the largest available horizontal clearance for the movement of wide loads under the bridge. If a single or non-divided roadway is present, the clearance figure shall be coded in the space of the “Cardinal” opening and all zeros shall be coded under Non-Cardinal opening. For **culvert type structures** which have no deck, the coded clearance should show the **full width of the**

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pavement; plus shoulder except where this dimension is limited by guardrail, culvert end-walls, etc. All clearances are to be coded in feet to the nearest tenth of a foot (with decimal point implied).

Ohio Item 326 – Minimum Horizontal Clearance Under, Non-Cardinal

This item refers to the bridge roadway horizontal clearance under the bridge. Code the available clearance measured normal to the centerline of roadway between restrictive features such as curbs, railings, sidewalks, wheel guards, raised medians and other structural features limiting the roadway surface width in the non-cardinal direction. Raised Button –Type medians and small raised lane channeling curbs, etc. are not considered restrictions.

If more than one roadway exists, a measurement should be made for each, but only the horizontal clearance of the mainline in each direction of travel shall be coded.

The purpose of this item is to give the largest available horizontal clearance for the movement of wide loads under the bridge. If a single or non-divided roadway is present, the clearance figure shall be coded in the space of the “Cardinal” opening and all zeros shall be coded under Non-Cardinal opening. All clearances are to be coded in feet to the nearest tenth of a foot (with decimal point implied).

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Ohio Item 327 – Minimum Vertical Clearance Under, Non-Cardinal

This item includes a four (4) digit coding representative the Minimum Vertical Clearance from the roadway or railroad track *beneath* the structure to the underside to the superstructure. For divided highways under a structure, code the minimum clearance for the main lane openings in each direction of travel (Cardinal and Non-Cardinal). For undivided highways with bi-directional traffic under a structure, code the minimum clearance under the subtitle “Cardinal Opening”. For highway with one-directional traffic under a structure, code the minimum clearance over any track under the sub-title “Cardinal Opening”. The item should be recorded in feet and inches, rounded down to the inch. In each subsection (Feet, inches) right justify the coded values and fill with leading zeros where necessary. All zeros (0) should be coded for any portion of the item not applicable. Code the entire item with zeros for structures which are not over a highway or railroad.

Ohio Item 328 – Practical Maximum Vertical Clearance Under Bridge

The information to be coded for this item is the maximum vertical clearance under the bridge. It is to be coded in feet and inches. The minimum clearance for a ten (10) foot width of pavement traveled part of the roadway (shoulders paved or unpaved and median areas not included) where the clearance is greatest should be coded.

For structures having multiple openings under the bridge, vertical clearance for each mainline opening should be measured and recorded, but only the greatest of the minimum vertical clearance for two (2) or more openings should be coded on the inventory form regardless of the direction of travel. Where no restrictions exist, code “0000”.

Ohio Item 329 – Minimum Lateral Clearance Under, Right, Non-Cardinal

If the feature beneath the structure is either a railroad or highway, code a three (3) digit number to represent the minimum lateral clearance on the right. If the feature is not a railroad or highway leave blank and item will default to zeros. In the case of dual or divided highways requiring two (2) or more openings under the structure, record the clearances on the left and the right for the cardinal opening and the same for the Non-Cardinal opening (Main lanes only for each direction of travel.) For structures with railroads underneath, regardless of number of tracks or number of openings, record and code the absolute minimum lateral clearances (Right and Left) without regard to the opening or openings in which they occur. Lateral clearances should be measured from the right or left edge of the lane or from the centerline (between the rails) of the track (if single) and the centerline of the outside track (if multiple) to the nearest substructure unit (or toe of slope steeper than 3 to 1) on the right and the nearest substructure unit or median barrier on the left. All measurements should be made normal to the centerline of the main or thru lanes or normal to the centerline of the main line track or tracks. For the purposes of this item, the term “Right “ refers to the right hand edge or outside edge of the lanes while facing in the direction of traffic. For a non-divided single highway the items refer to the left and right hand side respectively, while facing in the cardinal direction of the route. For railroads “right” will be assumed to be the side to the tracks nearest the forward end of the bridge and the left side are assumed to be the side to the tracks nearest the forward end of the bridge and the left side is assumed to be nearest the rear end of the bridge. Code these dimensions to the nearest tenth of a foot. If there is only a single roadway (non-divided) or

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track thru a single opening under the structure, code the lateral clearances under the heading “Cardinal Opening”, and code all zeros under Non Cardinal direction. In each subsection right justify all entries and fill with leading zeros where necessary.

Ohio Item 330 – Minimum Lateral Clearance Under, Left, Non-Cardinal

If the feature beneath the structure is either a railroad or highway, code a three (3) digit number to represent the minimum lateral clearance on the left. If the feature is not a railroad or highway leave blank and item will default to zeros. In the case of dual or divided highways requiring two (2) or more openings under the structure, record the clearances on the left and the right for the cardinal opening and the same for the Non-Cardinal opening (Main lanes only for each direction of travel.) For structures with railroads underneath, regardless of number of tracks or number of openings, record and code the absolute minimum lateral clearances (Right and Left) without regard to the opening or openings in which they occur. Lateral clearances should be measured from the right or left edge of the lane or from the centerline (between the rails) of the track (if single) and the centerline of the outside track (if multiple) to the nearest substructure unit (or toe of slope steeper than 3 to 1) on the right and the nearest substructure unit or median barrier on the left. All measurements should be made normal to the centerline of the main or thru lanes or normal to the centerline of the main line track or tracks. For the purposes of this item, the term “Left “ refers to the left hand edge or median side of the lanes on a divided highway while facing in the direction of traffic flow. For a non-divided single highway the items refer to the left and right hand side respectively, while facing in the cardinal direction of the route. For railroads “right” will be assumed to be the side to the tracks nearest the forward end of the bridge and the left sides are assumed to be the side to the tracks nearest the forward end of the bridge and the left side is assumed to be nearest the rear end of the bridge. Code these dimensions to the nearest tenth of a foot. If there is only a single roadway (non-divided) or track thru a single opening under the structure, code the lateral clearances under the heading “Cardinal Opening”, and code all zeros under Non Cardinal direction. In each subsection right justify all entries and fill with leading zeros where necessary.

Ohio Item 335 – Minimum Horizontal Clearance On, Non-Cardinal

This item refers to the bridge roadway horizontal clearance on the bridge. Code the available clearance measured normal to the centerline of roadway between restrictive features such as curbs, railings, sidewalks, wheel guards, raised medians and other structural features limiting the roadway surface width in the cardinal direction. Raised Button –Type medians and small raised lane channeling curbs, etc. are not considered restrictions.

If more than one (1) roadway exists, a measurement should be made for each, but only the horizontal clearance of the mainline in each direction of travel shall be coded.

The purpose of this item is to give the largest available horizontal clearance for the movement of wide loads on the bridge. If a single or non-divided roadway is present, the clearance figure shall be coded in the space of the “Cardinal” opening and all zeros shall be coded under Non-Cardinal opening. For **culvert type structures** which have no deck, the coded clearance should show the **full width of the pavement; plus shoulder except where this dimension is limited by guardrail, culvert end-walls, etc.** All clearances are to be coded in feet to the nearest tenth of a foot (with decimal point implied).

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Ohio Item 336 – Minimum Vertical Clearance On, Non-Cardinal

This item includes a four (4) digit coding representative the Minimum Vertical Clearance from the roadway or railroad track ***beneath*** the structure to the underside to the superstructure. For divided highways under a structure, code the minimum clearance for the main lane openings in each direction of travel (Cardinal and Non-Cardinal). For undivided highways with bi-directional traffic under a structure, code the minimum clearance under the subtitle “Cardinal Opening”. For highway with one-directional traffic under a structure, code the minimum clearance over any track under the sub-title “Cardinal Opening”. The item should be recorded in feet and inches, rounded down to the inch. In each subsection (Feet, inches) right justify the coded values and fill with leading zeros where necessary. All zeros (0) should be coded for a portion of the item to applicable. Code the entire item with zeros for structure which are not over a highway or railroad.

Ohio Item 337 – Minimum Lateral Clearance On, Right, Cardinal

The lateral clearance on the bridge should be the minimum distance measured to nearest tenth of one foot from the outside of the painted edge line, on either edge of the pavement, to the nearest restriction (i.e., curb, railing, median, parapet, etc.) on the corresponding side of bridge.

If the surface of the traveled roadway on a structure has no painted edge line, then measure from the edge of the approach traveled roadway surface extended.

Use edge of shoulder as nearest restriction if no other restriction exists. For structure buried under fill or guardrail measure to the edge of shoulder as well as the nearest restriction. Use edge of lane to curb (gutter) 6” or higher as lateral clearance.

In the case of a divided highway crossing the structure, code the clearance on the right and the clearance on the left for both the cardinal and Non-Cardinal Openings. When two (2) or more non-divided lanes cross a structure, code only the right and left clearances in the cardinal opening. Code all zeros in the Non-Cardinal opening.

For the purpose of this item the term “Left” refers to the left edge or median side of the pavement on a divided highway when facing the direction of traffic, and the term “Right” refers to the right edge of the outside edge of the pavement when facing in the direction of traffic. For a non-divided highway the terms refer to the left and right edges of the pavement while facing in the cardinal direction of the route.

If a structure carries non-highway traffic such as railroads, pedestrian, bicycle, etc. code all zeros.

All entries in each subsection should be right justified and filled with leading zeros where necessary. If the approach roadway width is more than the pavement width of the roadway and there is no painted edge lines leave item blank and item will default to zeros. ***This item must be coded for all bridges.***

Ohio Item 338 – Minimum Lateral Clearance On, Right, Non Cardinal

The lateral clearance on the bridge should be the minimum distance measured to nearest tenth of one foot from the outside of the painted edge line, on either edge of the pavement, to the nearest restriction (i.e., curb, railing, median, parapet, etc.) on the corresponding side of bridge.

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If the surface of the traveled roadway on a structure has no painted edge line, then measure from the edge of the approach traveled roadway surface extended.

Use edge of shoulder as nearest restriction if no other restriction exists. For structure buried under fill or guardrail measure to the edge of shoulder as well as the nearest restriction. Use edge of lane to curb (gutter) 6" or higher as lateral clearance.

In the case of a divided highway crossing the structure, code the clearance on the right and the clearance on the left for both the cardinal and Non-Cardinal Openings. When two (2) or more non-divided lanes cross a structure, code only the right and left clearances in the cardinal opening. Code all zeros in the Non-Cardinal opening.

For the purpose of this item the term "Right" refers to the right edge of the outside edge of the pavement when facing in the direction of traffic. For a non-divided highway the terms refer to the left and right edges of the pavement while facing in the cardinal direction of the route.

If a structure carries non-highway traffic such as railroads, pedestrian, bicycle, etc. code all zeros.

All entries in each subsection should be right justified and filled with leading zeros where necessary. If the approach roadway width is more than the pavement width of the roadway and there is no painted edge lines leave item blank and item will default to zeros. **This item must be coded for all bridges.**

Ohio Item 339 – Minimum Lateral Clearance On, Left, Cardinal

The lateral clearance on the bridge should be the minimum distance measured to nearest tenth of one (1) foot from the outside of the painted edge line, on either edge of the pavement, to the nearest restriction (i.e., curb, railing, median, parapet, etc.) on the corresponding side of bridge.

If the surface of the traveled roadway on a structure has no painted edge line, then measure from the edge of the approach traveled roadway surface extended.

Use edge of shoulder as nearest restriction if no other restriction exists. For structure buried under fill or guardrail measure to the edge of shoulder as well as the nearest restriction. Use edge of lane to curb (gutter) 6" or higher as lateral clearance.

In the case of a divided highway crossing the structure, code the clearance on the right and the clearance on the left for both the cardinal and Non-Cardinal Openings. When two (2) or more non-divided lanes cross a structure, code only the right and left clearances in the cardinal opening. Code all zeros in the Non-Cardinal opening.

For the purpose of this item the term "Left" refers to the left edge or median side of the pavement on a divided highway when facing the direction of traffic. For a non-divided highway the terms refer to the left and right edges of the pavement while facing in the cardinal direction of the route.

If a structure carries non-highway traffic such as railroads, pedestrian, bicycle, etc. code all zeros.

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All entries in each subsection should be right justified and filled with leading zeros where necessary. If the approach roadway width is more than the pavement width of the roadway and there is no painted edge lines leave item blank and item will default to zeros. **This item must be coded for all bridges.**

Ohio Item 340 – Minimum Lateral Clearance On, Left, Non-Cardinal

The lateral clearance on the bridge should be the minimum distance measured to nearest tenth of one (1) foot from the outside of the painted edge line, on either edge of the pavement, to the nearest restriction (i.e., curb, railing, median, parapet, etc.) on the corresponding side of bridge.

If the surface of the traveled roadway on a structure has no painted edge line, then measure from the edge of the approach traveled roadway surface extended.

Use edge of shoulder as nearest restriction if no other restriction exists. For structure buried under fill or guardrail measure to the edge of shoulder as well as the nearest restriction. Use edge of lane to curb (gutter) 6" or higher as lateral clearance.

In the case of a divided highway crossing the structure, code the clearance on the right and the clearance on the left for both the cardinal and Non-Cardinal Openings. When two (2) or more non-divided lanes cross a structure, code only the right and left clearances in the cardinal opening. Code all zeros in the Non-Cardinal opening.

For the purpose of this item the term "Left" refers to the left edge or median side of the pavement on a divided highway when facing the direction of traffic. For a non-divided highway the terms refer to the left and right edges of the pavement while facing in the cardinal direction of the route.

If a structure carries non-highway traffic such as railroads, pedestrian, bicycle, etc. code all zeros.

All entries in each subsection should be right justified and filled with leading zeros where necessary. If the approach roadway width is more than the pavement width of the roadway and there is no painted edge lines leave item blank and item will default to zeros. **This item must be coded for all bridges.**

Ohio Item 345 – Ramp Lateral Clearance Under, Left, Cardinal

If the feature beneath the structure is a ramp, code a three (3) digit number to represent the Minimum Lateral Clearance on the left. Code the item under the appropriate heading on the code sheet. Lateral clearances should be measured from the right or left edge of the lane to the nearest substructure unit (on toe of slope steeper than 3 to 1) on the right and to the nearest substructure unit or median barrier. All measurements should be made normal to the centerline of the ramp. The term "Left" refers to the left hand edge of the lane on a ramp while facing in the direction of traffic flow. Code the dimension to the nearest tenth of a foot. Right justify all entries and fill with leading zeros where necessary.

Ohio Item 346 – Ramp Lateral Clearance Under, Left, Non-Cardinal

If the feature beneath the structure is a ramp, code a three (3) digit number to represent the Minimum Lateral Clearance on the left. Code the item under the appropriate heading on the code sheet. Lateral clearances should be measured from the right or left edge of the lane to the nearest substructure unit (on

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toe of slope steeper than 3 to 1) on the right and to the nearest substructure unit or median barrier. All measurements should be made normal to the centerline of the ramp. The term “Left” refers to the left hand edge of the lane on a ramp while facing in the direction of traffic flow. Code the dimension to the nearest tenth of a foot. Right justify all entries and fill with leading zeros where necessary.

Ohio Item 347 – Ramp Lateral Clearance Under, Right, Cardinal

If the feature beneath the structure is a ramp, code a three (3) digit number to represent the Minimum Lateral Clearance on the right. Code the item under the appropriate heading on the code sheet. Lateral clearances should be measured from the right or left edge of the lane to the nearest substructure unit (on toe of slope steeper than 3 to 1) on the right and to the nearest substructure unit or median barrier. All measurements should be made normal to the centerline of the ramp. The term “Right” refers to the right hand edge of the lane on a ramp while facing in the direction of traffic. Code the dimension to the nearest tenth of a foot. Right justify all entries and fill with leading zeros where necessary.

Ohio Item 348 – Ramp Lateral Clearance Under, Right, Non-Cardinal

If the feature beneath the structure is a ramp, code a three (3) digit number to represent the Minimum Lateral Clearance on the right. Code the item under the appropriate heading on the code sheet. Lateral clearances should be measured from the right or left edge of the lane to the nearest substructure unit (on toe of slope steeper than 3 to 1) on the right and to the nearest substructure unit or median barrier. All measurements should be made normal to the centerline of the ramp. The term “Right” refers to the right hand edge of the lane on a ramp while facing in the direction of traffic. Code the dimension to the nearest tenth of a foot. Right justify all entries and fill with leading zeros where necessary.

Ohio Item 349 – Ramp Roadway Width, Cardinal

Measure and record the roadway width of the ramp between edges of pavement to the nearest tenth of a foot. Use leading zeros where necessary.

<u>Roadway width of Ramp</u>	<u>Code</u>
24 ft.	240
18 ft. 5 inches	185

Ohio Item 350 – Ramp Roadway Width, Non-Cardinal

Measure and record the roadway width of the ramp between edges of pavement to the nearest tenth of a foot. Use leading zeros where necessary.

<u>Roadway width of Ramp</u>	<u>Code</u>
24 ft.	240
18 ft. 5 inches	185

Ohio Item 351 – Ramp Vertical Clearance Under, Cardinal

This item includes a four (4) digit coding representing the Minimum Vertical Clearance from the roadway of the ramp ***beneath*** the structure to the underside of the superstructure. The item should be recorded in feet and inches, rounded down to the inch. In each subsection (feet, inches) right justify the coded values and fill with leading zeros where necessary.

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Ohio Item 352 – Ramp Vertical Clearance Under, Non-Cardinal

This item includes a four (4) digit coding representing the Minimum Vertical Clearance from the roadway of the ramp **beneath** the structure to the underside of the superstructure. The item should be recorded in feet and inches, rounded down to the inch. In each subsection (feet, inches) right justify the coded values and fill with leading zeros where necessary.

Ohio Item 370A – Intersected Route - Record Type

Enter the proper code to indicate if the route is carried by the structure or goes under it.

If there are two (2) or more physically separate routes under a structure you must inventory each route, using the same “Structure File Number” and coding appropriate A thru C “under” code for each route under the bridge. The Inventory route can never be coded “B” or “C”. It may be coded as “A only under special circumstances when one of the multiple routes under the bridge is the inventory route.

<u>Code</u>	<u>Description</u>
1	Route carried “on” the structure
2	Single route goes “under” the structure
A-C	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
“C”	Signifies the third of multiple routes under the structure

“**On**” signifies that the intersected route is carried “**on**” the structure. Each bridge structure carrying highway traffic must have a record identified with a type code = 1 (numeric).

“**Under**” signifies that the intersected route goes “**under**” the structure. If the intersected route under the structure is on the National Highway System, a defense route or otherwise important, an intersected route record must be coded to identify it. The type code must be 2 or alphabetic letter A through Z. When there is a single route under the bridge, code 2. If 2 or more routes go under a structure on separate roadways, the code of 2 shall not be used. **Code A, B, or C** consecutively for **multiple routes on separate roadways under the same structure**. For a non-highway system, structure (pedestrian, railroad, etc.), the most significant roadway should be coded “A” in the Inventory route and “B” and/or “C” as the Intersecting route.

Ohio Item 370B – Intersected Route - Route Signing Prefix (Highway System)

In the second position, identify the route signing prefix (highway system) for the intersected route.

<u>Code</u>	<u>Description</u>
1	Interstate highway
2	U.S. numbered highway
3	State highway
4	County highway (Township highway)
5	Municipal street (i.e. village, town, city)
6	Federal lands road

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7	State lands road (ODNR)
8	Other (include toll roads not otherwise indicated or identified above)
0	Non-Highway Related (Example – A park pedestrian bridge or a bike path over a waterway)

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

Ohio Item 370C – Intersected Route - Route Designation (Highway Designation)

In the third position, identify the designated level of service (highway designation) for the intersected route using one (1) of the following codes:

<u>Code</u>	<u>Description</u>
1	Mainline
2	Alternate
3	By-Pass
4	Spur
5	Toll Road
6	Business
7	Ramp or Wye
8	Service and/or unclassified frontage road
9	Truck Route
0	Other

Generally county and township roads and municipal streets are coded as mainline.

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Ohio Item 370D – Intersected Route - Route Number

The official Route Number as shown on the State's Straight Line Mileage diagrams or posted in the records of the Agency involved, shall be coded and right justified in the five (5) available positions using leading zeros where necessary the route number will normally be a one (1) or more digit numeric. A single letter code must be added to the route numeric in the last digit position only for routes, designated as Alternate, Directional Alternate, By Pass, etc. (See **Appendix H** for official letter codes to be used for such routes), these codes have no directional connotation and must be coded in the fifth (5) position only of the five (5) character field. Meaningful abbreviations for street and road names should be used by local agencies, for those streets or local roads without an established system route number.

For special off-highway system bridges, the fourth (4) and fifth (5) digit locations of the route number must be coded with a standardized alphabetic two (2) character suffix which identifies the public complex in which the bridge is located.

Example: State Park – SP

Ohio Item 370E – Intersected Route - Directional Suffix

Code the directional suffix to the route number when one is part of the route number. Leave blank if not applicable.

<u>Code</u>	<u>Description</u>
1	North
2	East
3	South
4	West

Note: Parts "C" and "D" must be coded carefully since they will be used as part of the bridge number (Item #5D) and will be the key for properly differentiating one (1) route from another for listing purposes.

Ohio Item 371 – Intersected Route - Interstate Mile Marker

Code a six (6) digit number for the Interstate Mile Marker. The Interstate Mile Marker is measured from the zero (0) mile marker of the border state to the bridge. The item is coded in the direction of the route.

Ohio Item 372 – Intersected Route - NLF ID Intersected Route

Code the appropriate three (3) character county abbreviation. Reference Appendix A.

Ohio Item 373 – Intersected Route - Feature Intersected

The information for this item shall be the name(s) of features intersected by the Intersected route **at the structure**. When a highway is one of the features intersected the number of such highway (e.g., I.R. 71, C.R. 16, and S.R. 5) should be coded if known, then the local name or names of the route (Mill Rd., Stone Street, etc.). If other features such as streams, canals and railroads are crossed, they should be coded next. If a bridge is closed to all traffic, code the word "closed" in parenthesis after the features description.

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Ohio Item 375 – Intersected Route - Functional Classification

Code the appropriate two (2) digit functional classification for the intersected route.

Ohio Item 376 – Intersected Route - Designated National Network

Code Y for Yes if feature **does** exist and N for No if feature **does not** exist.

Ohio Item 377 – Intersected Route - Direction of Traffic

Code a zero (0) if highway traffic is not carried, a one (1) if one lane traffic is carried, a two (2) if two lane traffic is carried, or a three (3) if one lane bridge for two lane traffic is carried.

Ohio Item 378 – Intersected Route - Highway System

Code the appropriate intersected route highway system using one (1) character from the drop down menu.

Ohio Item 379 – Intersected Route - Average Daily Traffic

Code the appropriate average daily traffic using six (6) digits. Use preceding zeros when necessary.

Ohio Item 380 – Intersected Route - Year of Average Daily Traffic

Code the appropriate year of average daily traffic using six (6) digits. Use preceding zeros when necessary.

Ohio Item 381 – Intersected Route - Average Daily Truck Traffic

Code the appropriate average daily truck traffic using six (6) digits. Use preceding zeros when necessary.

Ohio Item 382 – Intersected Route - County Log Point (CL)

Code the appropriate county log point for the intersected route.

Ohio Item 383 – Intersected Route - Kilometer Point

This item is internally calculated.

Ohio Item 384 – Intersected Route - Macro Level Corridor

Code Y for Yes if feature **does** exist and N for No if feature **does not** exist.

Ohio Item 385 – Intersected Route - Parallel Highway Designation

Code an R if the structure is carrying east bound or north bound lanes (Cardinal Direction) and there is a corresponding structure carrying traffic in the opposite direction. Code an L if the structure is carrying west bound or south bound lanes (Non-Cardinal Direction) and there is a corresponding structure carrying traffic in the opposite direction. Code an N if there is no parallel structure.

Ohio Item 386 – Intersected Route - STRAHNET Highway Designation

Code the appropriate STRAHNET highway designation for the intersected route from the drop down menu.

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Ohio Item 387 – Intersected Route - Special Designation

Code an L for left or an R for right.

Ohio Item 388 – Intersected Route - Minimum Horizontal Clearance, Under, Cardinal

Code the appropriate minimum horizontal under-clearance for the cardinal direction for the intersected route in feet and inches.

Ohio Item 389 – Intersected Route - Minimum Vertical Clearance, Under, Cardinal

Code the appropriate minimum vertical under-clearance for the cardinal direction for the intersected route in feet and inches.

Ohio Item 390 – Intersected Route - Practical Maximum Vertical Clearance, Under

Code the appropriate practical maximum vertical underclearance for the intersected route in feet and inches.

Ohio Item 391 – Intersected Route - Minimum Horizontal Clearance, Under, Non-Cardinal

Code the appropriate minimum horizontal underclearance for the non-cardinal direction for the intersected route in feet and inches.

Ohio Item 392 – Intersected Route - Minimum Vertical Clearance, Under, Non-Cardinal

Code the appropriate minimum vertical underclearance for the non-cardinal direction for the intersected route in feet and inches.

Ohio Item 393 – Intersected Route - Intersected County

Code the appropriate three (3) character county abbreviation. Reference Appendix A.

Ohio Item 394 – Intersected Route - Preferred Route

Code a P for preferred route. Otherwise, leave blank.

Ohio Item 395 – Intersected Route FIPS Code

Ohio Item 396 – Intersected Route Facility

Ohio Item 397 – Intersected Route Base Highway Network

NLFID of the intersected route.

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Ohio Item 398 – Intersected Route Toll

This item must be coded.

Code this item with respect to the intersected route. Use the proper one (1) digit numeric code from the list below:

<u>Code</u>	<u>Description</u>
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 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.

Ohio Item 399 – Intersected Route Detour Length

This item must be coded.

The bypass or detour length in miles should be determined with respect to the intersected route of the bridge, regardless of how the structure appears on the Inventory Route. If a ground level bypass is available at the structure site for the route on the structure, code the detour length as zero. If the bridge is one (1) of twin bridges and is not at an interchange code 01 to indicate that the other twin bridge can be used as a temporary bypass. In other cases, indicate the detour distance or extra length of travel to the nearest mile using the shortest temporary “Alternate” routes having comparable structures. The detour length should be coded to represent **only** the **total additional travel** (see also Appendix “I”) 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 where there are ramps available or other interchanges where the positioning and layout of the ramps and service roads are such that they could be used without difficulty to get around the structure. Use zero for railroad, pedestrian walk, pipeline, etc., since they carry non highway traffic. It will appear on the inventory route as an underpass only, considered readily by passable at all times. Use “99” for structure located on dead end road or which has no detour possible.

<u>Code</u>	<u>Examples</u>
00	Diamond interchange, structure by-passable
08	Cloverleaf, not by-passable, 8 mile detour
99	Structure over river, 121 mile detour
00	Railroad structure over highway (Inventory route), by-passable
99	On dead end road, no detour possible

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Ohio Item 401 – Approach Guardrail Type

Using one (1) of the codes below indicate the type guardrail on approach to the bridge. Code X when bridge carries non-highway traffic (i.e. railroads, pedestrians, conveyor belts, etc.). Use this item to code railing on a culvert (X9X).

<u>Code</u>	<u>Type</u>
1	Steel Beam
2	Flexible Steel Plate
3	Steel Cable
4	Steel Tape
5	Timber Rail
6	Timber & Steel Cable
7	Concrete Deflector Parapet
N	None
0	Other
X	Not applicable

Ohio Item 402 – Approach Pavement Grade

Note and rate the effect the grade of the approach pavement has on the impact to the bridge and safety to the vehicle.

<u>Code</u>	<u>Description</u>
1	Good
2	Fair
3	Poor
4	Critical
N	None or Not Applicable

When the bridge carries non-highway traffic (i.e. Railroad, Pedestrian, Conveyor Belts, etc.) code N.

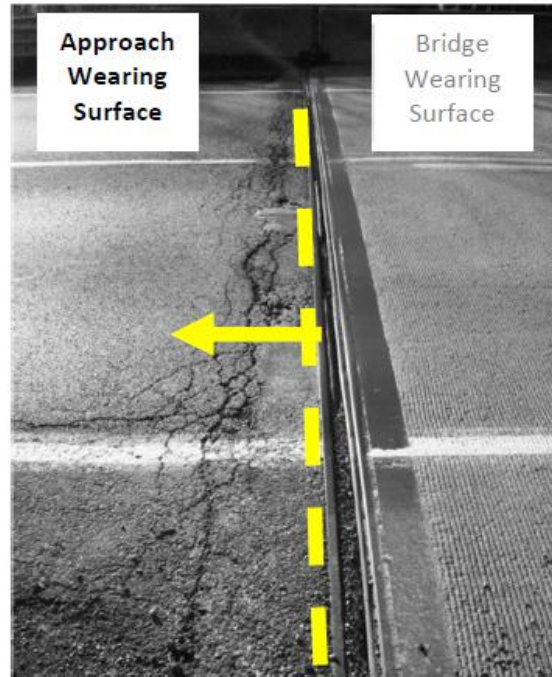
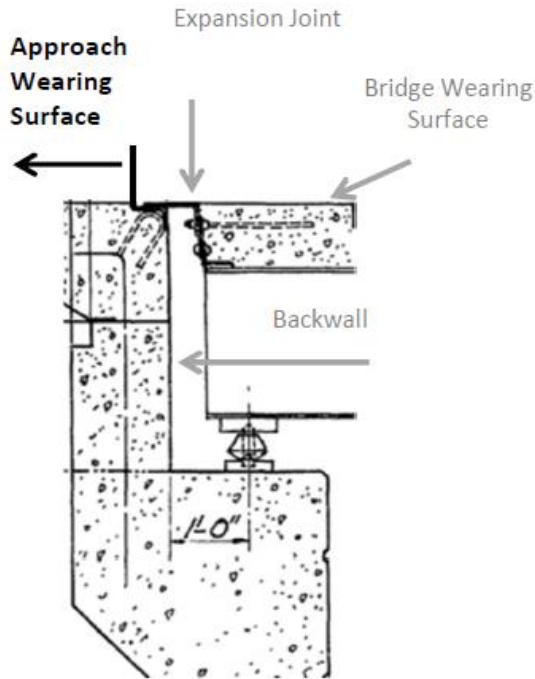
Ohio Item 403 – Approach Pavement Wearing Surface Type

Code the appropriate wearing surface for the approach pavement from the following table:

<u>Code</u>	<u>Description</u>
1	Concrete
2	Bituminous
3	Brick
4	Gravel
0	Other
N	None or Not Applicable

When the bridge carries non-highway traffic (i.e. railroads, pedestrians, conveyor belts, etc.) code N.

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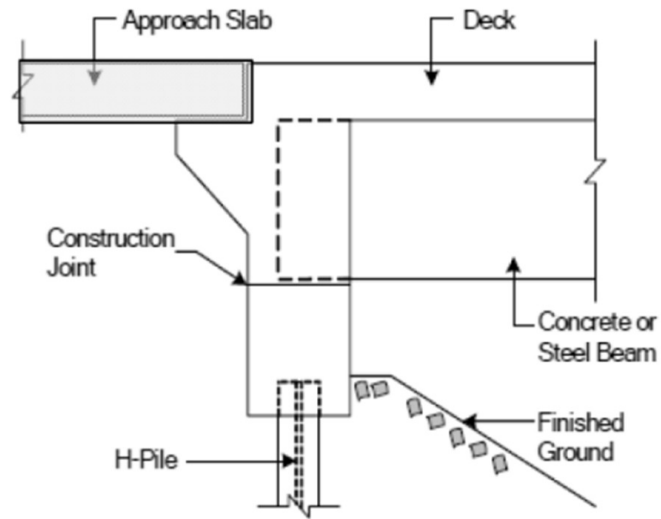


Ohio Item 404 – Approach Slab Type

This item indicates the type of approach slab for the structure. The primary function of the approach slab is to carry traffic from compacted in-situ soil over disturbed soil to more rigid bridge structure.

<u>Code</u>	<u>Description</u>
1	Reinforced Concrete
2	Prestressed Concrete
3	None
4	Unknown

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Ohio Item 405 – Approach Slab Length

If Item 404 is coded Y for yes then code the length of the approach slab to the nearest foot. If Item 404 is coded none leave blank and item will default to zeros.

Ohio Item 406 – Bridge Median Type

This item must be coded for each structure with respect to the route **on** the structure.

<u>Code</u>	<u>Description</u>
1	Level Median
2	Raised Median
N	None

If no median exists code N for None.

All culverts with fill and grass median code N for None.

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Ohio Item 407 – Bridge Railing Type

This item must be coded.

Code a one (1) digit numeric for the type of bridge railing.

<u>Code</u>	<u>Description</u>
1	Reinforced Concrete Parapet
2	Reinforced Concrete and Steel
3	Reinforced Concrete Safety Curb and Parapet with Aluminum Railing
4	Reinforced Concrete Post and Steel Panel
5	Reinforced Concrete Post and Concrete Panel
6	Steel Post and Steel Panel
7	Steel Guardrail on Steel, Concrete or Timber Posts
8	Timber
9	Twin Steel Tube (TST) Bridge Railing
A	Deep Beam Railing (DBR) with Tubular Backup
B	Tri-Beam
C	32" Deflector Type Parapet (New Jersey Shape)
D	42" Deflector Type Parapet (New Jersey Shape)
E	50" Deflector Type Parapet (New Jersey Shape)
F	32" Deflector Type Parapet (General Motors Shape)
G	36" Deflector Type Parapet (New Jersey Shape)
H	57" Deflector Type Parapet (Single Slope)
I	42" Deflector Type Parapet (Single Slope)
J	DBR with Retrofit
K	Not Used
L	Not Used
M	Masonry
N	None
O	Other

When more than one (1) type of railing exists on the bridge, code the item for the predominate type. If railing type cannot be determined code "0". If no railing exists on the structure; such as for all culverts; code N.

Ohio Item 408 – Composite Deck Code

This item must be coded.

This item will reflect whether a structure is built composite (i.e. beams w/shear connectors) by using the following codes. Also considered to be composite are structures with steel beams encased in concrete and jack arch bridges.

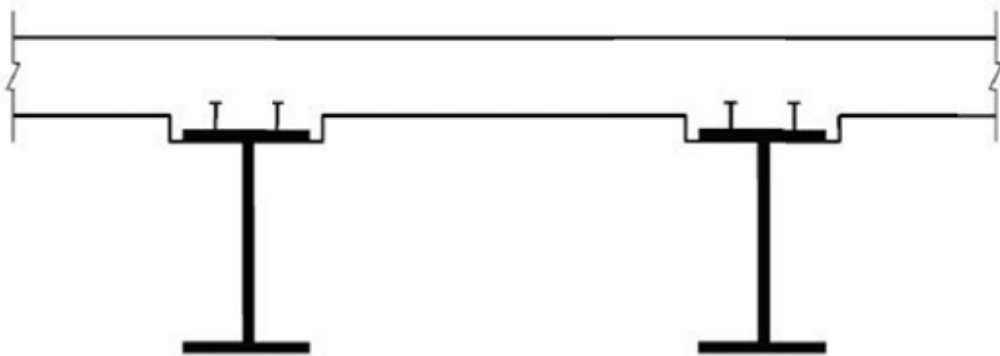
Do not code bridges with composite material here.

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<u>Code</u>	<u>Description</u>
N	Non-composite Construction
Y	Composite Construction
X	Not Applicable
U	Unknown

If the bridge carries non-highway traffic (i.e. railroad, pipeline, pedestrian, etc.) or if the structure is a culvert; code X for not applicable.

This item **must** be coded for all structures.



Ohio Item 409 – Deck Drainage Type

Code a one (1) digit numeric for the drainage system listed below which most nearly describes that on the structure.

<u>Code</u>	<u>Description</u>
1	Over the side (without drip strip)
2	Opening thru curbs or wheel guards
3	Scuppers and downspouts
4	Inlets with drain pipes
5	Drainage trough under open joints
6	Over the side (with drip strip)
N	None
0	Other (Natural off the bridge ends)

If no deck exists, such as for most culverts, code N for None.

This item must be coded.

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Ohio Item 411 – Deck Concrete Type

Code the appropriate type concrete for the deck from the table below:

<u>Code</u>	<u>Description</u>
1	Class C
2	Class S Superstructure
3	Class S Superstructure using shrinkage compensating cement
4	Class S Superstructure with Type 2 cement
5	High Performance Concrete Superstructure, Type 3
6	High Performance Concrete Superstructure, Type 4
7	Super-plasticized Concrete
8	Pre-cast Concrete (5,000 psi minimum)
0	Other
A	QSC1 – Substructure concrete
B	QSC2 – Superstructure concrete
C	QSC3 – Project specific
N	None or Not Applicable
U	Unknown

For Concrete Rigid Frames (171) code 8 for Pre-cast Concrete (5,000 psi minimum). For culverts (X9X), railroad structures, pipelines, etc., code N for None.

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Ohio Item 414A – Expansion Joint Type 1

You may code up to three (3) different types of expansion joints for a bridge. Code the first type in this item using one (1) of the codes in the table below.

<u>Code</u>	<u>Description</u>
1	Metal Finger
2	Sliding Metal Plate Angle
3	Compression Seal
4	Poured
5	Open (Armored)
6	Open (Unarmored)
7	Steel Reinforced Elastomeric
8	Elastomeric Strip Seal
N	None
0	Other
A	Modular
B	Polymer modified expansion device

Ohio Item 414B – Expansion Joint Type 2

You may code up to three (3) different types of expansion joints for a bridge. Code the second type in this item using one (1) of the codes in the table below.

<u>Code</u>	<u>Description</u>
1	Metal Finger
2	Sliding Metal Plate Angler
3	Compression Seal
4	Poured
5	Open (Armored)
6	Open (Unarmored)
7	Steel Reinforced Elastomeric
8	Elastomeric Strip Seal
N	None
0	Other
A	Modular
B	Polymer modified expansion device

Ohio Item 417 – Expansion Joint W/Trough Retrofit 1

Code Y for yes or N for no to define the presence of an elastomeric trough installed as part of the expansion joint system retrofit or code item N if not applicable.

Ohio Item 422 – Wearing Surface Date

This item must be coded.

Code eight (8) digits for the month, day and year of the most recent wearing surface application (i.e. concrete overlays, bituminous, etc.) If not applicable leave item blank.

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Ohio Item 423 – Wearing Surface Thickness

This item must be coded.

Whether the wearing surface is a separate wearing surface material or monolithic concrete, code a two (2) digit numeric to indicate the total thickness rounded to the nearest inch. For decks with monolithic concrete wearing surface, code a nominal 1" thickness (as 01). Leave this portion of item blank if not applicable and item will default to zeros. Where there are multiple layers of wearing materials of different types on the structure code the total thickness of all materials including any monolithic concrete. Right justify and use leading zeros where necessary.

Ohio Item 424 – Deck Area

This is a calculated field derived from the Bridge Deck Width (#52) and structure length (#49). In case of culverts, when deck width is not coded the width of approach road (#33) shall be used as the deck width for deck area calculations.

Ohio Item 426 – Bridge Railing Steel

Code the appropriate material for the bridge railing (Guardrail not counted as bridge railing). Any structure type "inventoried" as a culvert (X9X) shall not show bridge railing.

<u>Code</u>	<u>Type</u>
1	A588 (Weathering Steel)
2	A572
3	A441
4	A440
5	A373
6	A242
7	A36
8	A7
9	A6
0	Other
A	Wrought Iron
B	Hybrid (A572 or A588 flanges with A36 webs)
C	Hybrid (A709 grade 70W flanges with 50W webs)
D	A709 Grade 50
E	A709 Grade 50W
N	None
U	Unknown

Ohio Item 427 – Curb/Sidewalk Left Side - Material

Code the item to represent the material of the curb or sidewalk. If no curb or sidewalks are present code this item **"NN"**.

<u>Code</u>	<u>Description</u>
1	Concrete
2	Steel

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3	Timber
N	None
0	Other

Ohio Item 428 – Curb/Sidewalk Left Side - Type

Code the most appropriate type curb(s) or sidewalk(s) on the bridge.

<u>Code</u>	<u>Description</u>
1	Safety Curb (2' or less width)
2	Sidewalk (greater than 2' in width)
3	Felloe Guards
4	Open Grid
5	Filled Grid
6	Check Plate
N	None or N/A (RR, Pedestrian, etc.)
0	Other

Ohio Item 429 – Curb/Sidewalk Right Side - Material

<u>Code</u>	<u>Description</u>
1	Concrete
2	Steel
3	Timber
N	None
0	Other

Ohio Item 430 – Curb/Sidewalk Right Side - Type

<u>Code</u>	<u>Description</u>
1	Safety Curb (2' or less width)
2	Sidewalk (greater than 2' in width)
3	Felloe Guards
4	Open Grid
5	Filled Grid
6	Check Plate
N	None or N/A (RR, Pedestrian, etc.)
0	Other

Ohio Item 431 – Vandal Fence

Code this item Y or N to indicate if a vandal fence is carried by the bridge.

Code	Description
N	Vandal Fence is not on the bridge
Y	Vandal Fence is on the bridge

Ohio Item 434 – Noise Barrier Walls

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Code	Description
N	Noise barrier is not on the bridge
Y	Noise barrier is present on the bridge

Ohio Item 453 – Bearing Device 1, Type

Code a one (1) digit numeric which most closely describes the superstructure bearing device system.

<u>Code</u>	<u>Description</u>
1	Rollers
2	Rockers & Bolsters
3	Sliding (Bronze)
4	Elastomeric (Plain)
5	Pot
6	Spherical
7	Disc
8	Fixed Arch-Rib
N	None
0	Other
A	Sliding (Other)
B	Fixed
C	Elastomeric (laminated)
D	Integral & semi-integral abutment bearings

For integral & semi-integral type abutments code D. For structures which have no superstructure, such as culverts, code N.

Ohio Item 454 – Bearing Device 1, Total Count

Code the total number of bearing devices for the bridge and using leading zeros if necessary.

Ohio Item 455 – Bearing Device 2, Type

Code a one (1) digit numeric which most closely describes the superstructure bearing device system. Use the codes given for Item 453.

For integral & semi-integral type abutments code D. For structures which have no superstructure, such as culverts, code N.

Ohio Item 456 – Bearing Device 2, Total Count

Code the total number of bearing devices for the bridge and using leading zeros if necessary.

Ohio Item 465 – Framing Type

Code the appropriate framing type for pre-stressed concrete I-beam, steel beam or steel girder bridges.

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<u>Code</u>	<u>Description</u>
1	Curved Beams/Girders Framing
2	Dog-legged or Kinked Framing
3	Flared Beams/Girders Framing
4	Straight Beams/Girders Framing
0	Other Framing
N	None or Not Applicable

Code "N" if it not applicable (concrete slabs, timber, culverts, trusses, etc.)

Ohio Item 466 – Haunched Girder

This item indicates if the bridge has a haunched girder.

<u>Code</u>	<u>Description</u>
Y	Bridge contains a haunched girder
N	Bridge does not contain a haunched girder

Ohio Item 467 – Haunched Girder Depth

Measure and record to the nearest inch the depth of the haunch (depth over pier or abutment) of the girder if Item #466 is coded Y. If Item 466 is coded N leave this item blank and item will default to zeros.

<u>Haunched Girder Depth</u>	<u>Code</u>
6 ft. 10 inches	0610
5 ft. 2 inches	0502

Ohio Item 468 – Hinges/Pins/Hangers Type

Code the type of hinges on the bridge. Code N for none if not applicable.

<u>Code</u>	<u>Description</u>
1	Pins & Hangers
2	Pins, Pin Plates
3	Seated Hinges (Rollers, Plates, Pot Bearings)
4	Other (includes Strut)
N	Not Applicable (structures with no hinges)

Ohio Item 474 – Main Structure System

Code the type of main bridge member of which the bridge is constructed, from the list below:

<u>Code</u>	<u>Type</u>
1	Two (2) Girder Bridge
2	Three (3) Girder Bridge
3	Four (4) or More Girder bridge
4	Two (2) Trusses (Welded)
5	Two (2) Trusses (Riveted)
6	Three (3) or More Trusses (Welded)
7	Three (3) or More Trusses (Riveted)
0	Other

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A	Two (2) or more Steel Arches (Welded)
B	Two (2) or more Steel Arches (Riveted)
C	Two (2) Concrete Arches
D	Three (3) Concrete Arches
E	Four (4) or more Concrete Arches
F	Jack Arch
G	One (1) Concrete Arch
N	Not Applicable (i.e. Culvert, Beam, Slab, etc.)

Ohio Item 475 – Main Member Type

This item must be coded for any structure whose main span is of the girder, beam or slab type regardless of material.

Select the appropriate code from the following list. If item is not applicable code it N.

<u>Code</u>	<u>Type</u>
1	Rolled Steel
2	Riveted Built-Up Steel
3	Welded Built-Up Steel
4	Concrete Tee Beam
5	Concrete Girder
6	Prestressed Concrete Box Beam
7	Prestressed Concrete I Beam
8	Timber
9	Segmental Box Girder
0	Other (Concrete Rigid Frame)
A	Channel Beam
B	Cast-In-Place Concrete Box Beam
C	Slab
N	Not Applicable (Culverts, Trusses, Arches, etc.)

Ohio Item 478 – Post Tensioned Main Member Code

Code the item to indicate if the bridge is post tensioned.

<u>Code</u>	<u>Description</u>
Y	Bridge is Post Tensioned
N	Bridge is not Post Tensioned

Ohio Item 482 – Protective Coating System (PCS) Type

Use the appropriate code from the list below to indicate the protective coating system.

STRUCTURE MANAGEMENT SYSTEM (SMS)

<u>Code</u>	<u>Protective Coating Type</u>
1	Red lead
2	Unpainted Weathered Steel
3	Paint System A
4	Paint System B
5	Paint System OZEU
6	Galvanized
7	Metalized (Alum/Zinc)
8	Paint System A with intermediate tie coat
9	Paint System IZEU
0	Other Paint
A	EEU
B	Epoxy – Urethane sealers
C	Non-Epoxy sealers
N	None or Not Applicable
U	Unknown Sealant

This item (when applicable) should be coded for all new structures being “Added” to the file.

Ohio Item 483 – Protective Coating System (PCS) Date

This item should reflect the most recent date the Protective Coating System was applied to the bridge.
Code date as MM/DD/YYYY

Ohio Item 487 – Structural Member Steel Type

Record the appropriate code for the predominant type of structure steel (beams, girders, cross frames, etc.) used for a bridge.

<u>Code</u>	<u>Type</u>
1	A588 (Weathering Steel)
2	A572
3	A441
4	A440
5	A373
6	A242
7	A36
8	A7
9	A6
0	Other
A	Wrought Iron
B	Hybrid (A572 or A588 flanges with A36 webs)
C	Hybrid (A709 grade 70W flanges with 50W webs)
D	A709 Grade 50
E	A709 Grade 50W
N	None
U	Unknown

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 499 – Structural Steel Paint

Indicate where the prime coat of paint was applied to structural steel from the list of codes below:

<u>Code</u>	<u>Location</u>
1	Shop
2	Field
3	Combination (Shop & Field)
U	Unknown
N	None (i.e. steel = A588, unpainted)

Ohio Item 526 – Abutment Forward Type

Code the type of each abutment. If the structure has no abutments code **N**.

<u>Code</u>	<u>Description</u>
1	Gravity
2	Cantilever
3	Solid Wall
4	Cellular or “U”
5	Stub Gravity
6	Stub-Capped Pile (Single Row Piles)
7	Integral
8	Pedestal
9	Stub-Capped Pile (Multiple Row Piles)
0	Other
N	None
A	Proprietary Wall w/Stub Type Abutments
B	Capped Pile Bent
C	Cap & Column
D	Semi-Integral

Ohio Item 527 – Abutment Forward - Material Type

Code the material of each abutment. If the structure has no abutments code **N**.

<u>Code</u>	<u>Description</u>
1	Stone
2	Concrete
3	Concrete and Stone
4	Timber
5	Steel
6	Steel and Timber
7	Steel and Concrete
N	None
0	Other

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 528 – Abutment Forward - Foundation Type

Code the type of foundation for the abutments. If there are no abutments code “N” for none. For three-sided precast concrete structures, code as spread footings (Code 4) or pile type foundation accordingly. For four-sided boxes code foundations as “**N**” for **none**.

<u>Code</u>	<u>Type</u>
1	Steel H Piles (Other size)
2	Cast-in-Place Reinforced Concrete Piles (Other diameter)
3	Drilled Shafts
4	Spread Footing
5	Timber Piles
6	Rock
7	Steel H Piles (HP 10 x 42)
8	Steel H Piles (HP 12 x 53)
9	Steel H Piles (HP 14 x 73)
0	Other
U	Unknown (Older Bridge being added to the file and foundations are unknown)
N	None (such as most Culverts) (Code all N's)
A	Cast-in-Place Reinforced Concrete Piles (12" diameter)
B	Cast-in-Place Reinforced Concrete Pile (14" diameter)
C	Cast-in-Place Reinforced Concrete Pile (16" diameter)

This item **must** be coded for any applicable portion for all new structures being “Added” to the file.

If on a rare occasion an old bridge is being “added” to the file and the foundations are unknown, code U’s for the appropriate portion of the foundations.

Ohio Item 531 – Abutment Rear Type

Code the type of each abutment. If the structure has no abutments code **N**.

<u>Code</u>	<u>Description</u>
1	Gravity
2	Cantilever
3	Solid Wall
4	Cellular or “U”
5	Stub Gravity
6	Stub-Capped Pile (Single Row Piles)
7	Integral
8	Pedestal
9	Stub-Capped Pile (Multiple Row Piles)
0	Other
N	None
A	Proprietary Wall w/Stub Type Abutments
B	Capped Pile Bent
C	Cap & Column

STRUCTURE MANAGEMENT SYSTEM (SMS)

D	Semi-Integral
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Ohio Item 532 – Abutment Rear - Material Type

Code the material of each abutment. If the structure has no abutments code **N**.

<u>Code</u>	<u>Description</u>
1	Stone
2	Concrete
3	Concrete and Stone
4	Timber
5	Steel
6	Steel and Timber
7	Steel and Concrete
N	None
0	Other

Ohio Item 533 – Abutment Rear - Foundation Type

Code the type of foundation for the abutments. If there are no abutments code “**N**” for none. For three (3) -sided precast concrete structures, code as spread footings (Code 4) or pile type foundation accordingly. For four-sided boxes code foundations as “**N**” for none.

<u>Code</u>	<u>Type</u>
1	Steel H Piles (Other size)
2	Cast-in-Place Reinforced Concrete Piles (Other diameter)
3	Drilled Shafts
4	Spread Footing
5	Timber Piles
6	Rock
7	Steel H Piles (HP 10 x 42)
8	Steel H Piles (HP 12 x 53)
9	Steel H Piles (HP 14 x 73)
0	Other
U	Unknown (Older Bridge being added to the file and foundations are unknown)
N	None (such as most Culverts) (Code all N's)
A	Cast-in-Place Reinforced Concrete Piles (12" diameter)
B	Cast-in-Place Reinforced Concrete Pile (14" diameter)
C	Cast-in-Place Reinforced Concrete Pile (16" diameter)

This item **must** be coded for any applicable portion for all new structures being “Added” to the file.

If on a rare occasion an old bridge is being “added” to the file and the foundations are unknown, code U’s for the appropriate portion of the foundations

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 534 – Pier 1 (Predominate) Type

Code the predominate type of pier using the table below.

<u>Code</u>	<u>Type</u>
1	Gravity
2	Cantilever (Tee) Open Panel
3	Cantilever (Tee) Solid Panel
4	Open Column
5	Capped Column
6	Straddle Bent Column
8	Capped Pile
0	Other
A	Solid Wall
B	Tower
N	None

Ohio Item 535 – Pier 1 (Predominate) Material

Code the predominate material of pier using the table below.

<u>Code</u>	<u>Material</u>
1	Stone
2	Concrete
3	Concrete and Stone
4	Timber
5	Steel
6	Steel and Timber
7	Steel and Concrete
N	None
0	Other

Ohio Item 536 – Pier 1 Type - Foundation Type

Code the type of foundation for the piers. If there are no piers code “N” for none. For three sided precast concrete structures, code as spread footings (Code 4) or pile type foundation accordingly. For four-sided boxes code foundations as “N” for none.

<u>Code</u>	<u>Type</u>
1	Steel H Piles (Other size)
2	Cast-in-Place Reinforced Concrete Piles (Other diameter)
3	Drilled Shafts
4	Spread Footing
5	Timber Piles
6	Rock
7	Steel H Piles (HP 10 x 42)
8	Steel H Piles (HP 12 x 53)
9	Steel H Piles (HP 14 x 73)

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0	Other
U	Unknown (Older Bridge being added to the file and foundations are unknown)
N	None (such as most Culverts) (Code all N's)
A	Cast-in-Place Reinforced Concrete Piles (12" diameter)
B	Cast-in-Place Reinforced Concrete Piles (14" diameter)
C	Cast-in-Place Reinforced Concrete Piles (16" diameter)

This item **must** be coded for any applicable portion for all new structures being "Added" to the file.

If on a rare occasion an old bridge is being "added" to the file and the foundations are unknown, code U's for the appropriate portion of the foundations.

Ohio Item 537 – Pier 2 Type

Code the predominate type of pier using the table below.

<u>Code</u>	<u>Type</u>
1	Gravity
2	Cantilever (Tee) Open Panel
3	Cantilever (Tee) Solid Panel
4	Open Column
5	Capped Column
8	Capped Pile
0	Other
A	Solid Wall
B	Tower
N	None

Ohio Item 538 – Pier 2 Material

Code the predominate material of pier using the table below.

<u>Code</u>	<u>Material</u>
1	Stone
2	Concrete
3	Concrete and Stone
4	Timber
5	Steel
6	Steel and Timber
7	Steel and Concrete
N	None
0	Other

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 539 – Pier 2 Type - Foundation Type

Code the type of foundation for the piers. If there are no piers code “N” for none. For three (3) -sided precast concrete structures, code as spread footings (Code 4) or pile type foundation accordingly. ***Four (4) -sided boxes should have the foundations coded “N” for none.***

<u>Code</u>	<u>Type</u>
1	Steel H Piles (Other size)
2	Cast-in-Place Reinforced Concrete Piles (Other diameter)
3	Drilled Shafts
4	Spread Footing
5	Timber Piles
6	Rock
7	Steel H Piles (HP 10 x 42)
8	Steel H Piles (HP 12 x 53)
9	Steel H Piles (HP 14 x 73)
0	Other
U	Unknown (Older Bridge being added to the file and foundations are unknown)
N	None (such as most Culverts) (Code all N's)
A	Cast-in-Place Reinforced Concrete Piles (12" diameter)
B	Cast-in-Place Reinforced Concrete Piles (14" diameter)
C	Cast-in-Place Reinforced Concrete Piles (16" diameter)

This item ***must*** be coded for any applicable portion for all new structures being “Added” to the file.

If on a rare occasion an old bridge is being “added” to the file and the foundations are unknown, code U’s for the appropriate portion of the foundations.

Ohio Item 547 – Slope Protection Type

Indicate the method, if any, used to protect the areas ***under the bridge*** from erosion and other degradation. Natural protection (grass, bushes, trees) are to be coded N. If channel extends all the way to the abutments, there is no slope protection. The dominant slope protection must be coded for all structures.

<u>Code</u>	<u>Description</u>
1	Concrete (cast-in-place)
2	Stone (No. 1 Aggregate)
3	Rip Rap (dumped rock or rock channel protection)
4	Gabions (wire mesh baskets filled with stone)
5	Fabric bags filled with concrete
0	Other
A	Reinforced Cast-In-Place Concrete Wall
B	Soldier Pier and Lagging Wall
C	Mechanically Stabilized Earth (MSE) Wall
D	Soil Nail Wall
E	Tie Back Wall

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F	Sheet Pile Wall
G	Cribbed Wall
H	Concrete Block Wall
I	Stone Wall
S	Soil
N	None

Ohio Item 575 – Bridge/Culvert Type

If the structure is coded as a **culvert X9X or rigid frame X7X**, then this item must reflect the appropriate code from the following list. For a combination of more than one (1) type, code the most appropriate type under the pavement.

If structure is not a Culvert or Frame type code N.

<u>Code</u>	<u>Description</u>
1	Slab Top
2	4-Sided Box (Concrete Cast-In-Place), structure material type must be coded as "1"
3	3-Sided Frame (Concrete Cast-In-Place), structure material type must be coded as "1"
4	Pipe-Circular
5	Pipe-Arch (also includes stone)
6	Pipe-Elliptical
7	Arch (Multi-Plate)
8	4-Sided Box (Concrete Precast), structure material type must be coded as "1"
9	3-Sided Frame (Concrete Precast), structure material type must be coded as "1"
0	Other
A	4-Sided Box (Aluminum)
B	4-Sided Box (Other)
C	3-Sided Frame (Aluminum)
D	Conspan (Concrete pre-cast)
E	Bebo-type (Concrete pre-cast)
F	Metal Arch on concrete pedestal wall & footing
N	Not a Culvert or Rigid Frame

Ohio Item 578 – Culvert Length Inlet to Outlet

This item must be coded.

This item shall be used to record the out/out length of circular or elliptical, barrels, closed boxes and culvert type bridges, etc. to the nearest foot. The length shall be measured along the axis from inlet to outlet at invert. If there is a bend or curve along the length, measure the length along the bend or the curve.

This item **must** be recorded for all structure types coded as X9X. Code the length right-justified with leading zeros. For all other structure types, leave this item blank.

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<u>Length</u>	<u>Code</u>
127'	0127

Length Out/Out of Culvert is measured differently than Item 49 Structure Length.

Ohio Item 580 – Fill Depth over Culvert

- Code to the nearest foot the depth of fill over a structure type that is coded as a culvert (X95).
- If depth of fill exceeds 99' code 99.
- If bridge type is other than XX5 leave this item blank and item will default to zeros.

The depth of fill should be measured from the top of the structure to the top of the pavement. **DO NOT** subtract for the depth of the pavement. If the depth of fill over the structure varies, measure the depth of fill at the center of the structure at centerline of the paved surface on the structure.

This item **must** be coded for all filled culverts . See the examples below:

<u>Depth of Fill</u>	<u>Code</u>
4.83 ft.	0005
10.16 ft.	0010
105 ft.	0105

Ohio Item 582 – Headwalls or Endwalls Type

Code the material type of headwall or endwall for culvert type structures from the list below.

<u>Code</u>	<u>Type</u>
1	Concrete
2	Stone
3	Metal
4	Wood
5	Gabion
N	None or Not Applicable (Not a Culvert)
0	Other

Leave this item blank if the structure type is other than X95 and it will default to N.

Ohio Item 584 – Culvert Main Material

<u>Code</u>	<u>Description</u>
01	Plain or Reinforced Concrete
02	Corrugated Metal, Pipe

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03	Corrugated Metal, Non-Sectional Plate
04	Corrugated Metal, Sectional Plate
05	Vitrified Clay
06	Cast or Ductile Iron
07	Corrugated Stainless Steel, Non-sectional Plate
08	Corrugated Stainless Steel, Sectional Plate
09	Corrugated Aluminum Alloy
10	Brick
11	Field Tile (Clay)
12	Corrugated Plastic
13	Corrugated Plastic, Smooth Interior
14	Steel Casing
15	Stone
16	Timber
17	Polyvinyl Chloride
18	High Density Polyethylene Liner
19	Corrugated Steel Spiral Rib
20	Corrugated Aluminum Spiral Rib
99	Special item not listed

Ohio Item 585 – Number of Cells

This item must be coded.

Code the total number of cells of the culvert.

Ohio Item 587 – Rise

Code the rise of culvert in inches.

Ohio Item 588 – Shape

Code the general shape of culvert.

<u>Code</u>	<u>Description</u>
01	Circular
02	Elliptical - Horizontal
03	Elliptical - Vertical
04	Pipe Arch
05	Pipe Arch, Sect. Plate
06	Arch
07	Box Culvert
08	Slab Top Culvert
99	Other

Ohio Item 600 – Inlet Extension Length

Code the appropriate feature length.

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Ohio Item 601 – Inlet Extension Material Type

Enter the appropriate code from the following table indicating the material type used for inlet extension.

<u>Code</u>	<u>Description</u>
01	Plain or Reinforced Concrete
02	Corrugated Metal, Pipe
03	Corrugated Metal, Non-Sectional Plate
04	Corrugated Metal, Section Plate
05	Vitrified Clay
06	Cast or Ductile Iron
07	Corrugated Stainless Steel, Non-Sectional Plate
08	Corrugated Stainless Steel, Sectional Plate
09	Corrugated Aluminum Alloy
10	Brick
11	Field Tile (Clay)
12	Corrugated Plastic
13	Corrugated Plastic Smooth Interior
14	Steel Casing
15	Stone
16	Timber
17	Polyvinyl Chloride
18	High Density Polyethylene Liner
19	Corrugated Steel Spiral Rib
20	Corrugated Aluminum Spiral Rib
99	Special item not listed

Ohio Item 611 – Outlet Extension Material Type

Enter the appropriate code from the following table indicating the material type used for outlet extension.

<u>Code</u>	<u>Description</u>
01	Plain or Reinforced Concrete
02	Corrugated Metal, Pipe
03	Corrugated Metal, Non-Sectional Plate
04	Corrugated Metal, Sectional Plate
05	Vitrified Clay
06	Cast or Ductile Iron
07	Corrugated Stainless Steel, Non-Sectional Plate
08	Corrugated Stainless Steel, Sectional Plate
09	Corrugated Aluminum Alloy
10	Brick
11	Field Tile (Clay)
12	Corrugated Plastic

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13	Corrugated Plastic, Smooth Interior
14	Steel Casing
15	Stone
16	Timber
17	Polyvinyl Chloride
18	High Density Polyethylene Liner
19	Corrugated Steel Spiral Rib
20	Corrugated Aluminum Spiral Rib
99	Special Item not listed

Ohio Item 655 – Channel Protection Type

Enter the appropriate code from the following table indicating the channel protection type used.

<u>Code</u>	<u>Description</u>
1	Concrete (cast-in-place)
2	Stone
3	Sheet Piling
4	Piling
5	Rip Rap (dumped rock or rock channel protection)
6	Gabions (wire mesh baskets filled with stone)
7	Fabric bags filled with concrete or sand
N	None
0	Other
X	Not Applicable
A	Precast concrete (panels)
B	Earthen Dikes
U	Unknown

Ohio Item 657 – Drainage Area

Code the drainage area to the nearest square mile for all the bridges over waterways. If the drainage area on plans is given in acres, use the equation shown below to find square miles.

$$\text{No. of Acres}/640 = \text{sq. mile}$$

Code the drainage area right justified with leading zeros. If area is less than 1 square mile code the item 001. If the drainage area is unknown code all U's. However every effort should be made to determine the drainage area.

If not applicable code N's. (I.e. structures over roadways, railroads, etc.). If number of square miles exceeds 999 code all 9's.

<u>Drainage area</u>	<u>Code</u>
29.8 sq. miles	029.80
12.1 sq. miles	012.10

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Ohio Item 663 – Stream Velocity

Record the one (1)-hundred year velocity of the stream under the bridge to the nearest one-tenth of a foot per second.

This figure is generally found on the “Site Plan” of the “Design Plans”.

This item must be coded for all applicable structures being “Added” to the file.

If not applicable code N’s. If stream velocity is unknown code U’s. If left blank item will default to zeros.

Ohio Item 664 – Water Flow Direction

The default value of this item is “N”. Code this item to indicate the direction of water flow under the bridges over waterways. The direction of water flow shall be determined while standing on the bridge facing the forward direction of the route (cardinal direction); if water flows from your left to your right, Code “R” if water flows from your right to your left, code “L”. Code “N” if there is negligible water flow as in a lake or pond, etc.

Ohio Item 670 – Abrasive Conditions

<u>Code</u>	<u>Description</u>
Y	Abrasive
N	Nonabrasive

Ohio Item 671 – Culvert Channel Protection (Inlet)

<u>Code</u>	<u>Description</u>
1	Concrete Rip Rap Slab
2	Dumped Rock or Rock Channel Protection
3	Sheet Piling
4	Piling
5	Grouted Rip Rap
6	Gabions (wire Mesh baskets filled with stone)
7	Fabric Bags filled with concrete or sand
8	Tied Concrete Block Mat
9	Interlock Precast Concrete Blocks
0	Other
X	Not Applicable
A	Precast Concrete Panels
B	Earthen Dikes
G	Grass or Brush (Naturally occurring)
V	Vegetation (Designed Soil Bio-engineering)
N	None

Ohio Item 673 – Culvert Channel Protection (Outlet)

<u>Code</u>	<u>Description</u>
1	Concrete Rip Rap Slab

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2	Dumped Rock or Rock Channel Protection
3	Sheet Piling
4	Piling
5	Grouted Rip Rap
6	Gabions (wire Mesh baskets filled with stone)
7	Fabric Bags filled with concrete or sand
8	Tied Concrete Block Mat
9	Interlock Precast Concrete Blocks
0	Other
X	Not Applicable
A	Precast Concrete Panels
B	Earthen Dikes
G	Grass or Brush (Naturally occurring)
V	Vegetation (Designed Soil Bioengineering)
N	None

Ohio Item 700 – Operating Rating Load

This item must be coded.

Code the type of load used in the operating rating calculations from the following table.

<u>Code</u>	<u>Type of Load</u>
1	Not Used
2	HS20 Loading
3	HL93 Loading
4	Not Used
5	Special Maintenance Loading
6	Not Used
9	Special Loading

Ohio Item 701 – Operating Load GVW

Code the appropriate gross vehicle weight (GVW) in tons for the operating load.

Ohio Item 702 – Inventory Rating Load

This item must be coded.

Code the type of load used in the inventory rating calculations from the following table.

<u>Code</u>	<u>Type of Load</u>
1	Not Used
2	HS20 Loading
3	HL93 Loading
4	Not Used

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5	Special Maintenance Loading
6	Not Used
9	Special Loading

Ohio Item 703 – Inventory Rating Load GVW

Code the appropriate gross vehicle weight (GVW) for the inventory rating load from the drop down menu.

Ohio Item 704 – Load Rating Date

This item must be coded.

Code the date when the structure was last load rated. If the bridge is closed, code year closed.

Ohio Item 705 – Load Rater First Name

This item must be coded.

Code the first name of the load rater for the bridge.

Ohio Item 706 – Load Rater Last Name

This item must be coded.

Code the last name of the load rater of the bridge.

Ohio Item 707 – Load Rater Ohio PE Number

This item must be coded.

Code the Rating Engineer's Ohio PE Number using a leading zero.

Ohio Item 708 – Load Rating Software

This item must be coded.

Code the appropriate description from the table.

<u>Code</u>	<u>Description</u>
1	BARS
2	BRASS
3	AASHTO BrR (VIRTIS)
4	Testing
5	Finite Element (FE) Program
6	In-House Program/Spreadsheet
7	Combination
8	Other program
9	Manual Calculations
0	Assigned rating (no calculations were done)

STRUCTURE MANAGEMENT SYSTEM (SMS)

Ohio Item 709 – Rating Source

This item must be coded.

This item refers to plans that are sufficient to do a load rating. If the plan is only a site plan or construction layout sketch, etc., then you should code the plan info available as “0 No plans available” since there is not enough information on the plans to do a load rating.

<u>Code</u>	<u>Description</u>
0	No Plans or information available for load rating analysis
1	Plan information available for load rating analysis (Default)
2	Field measured information for load rating analysis
3	Field testing information
N	Not Applicable

Ohio Item 715 – Ohio Legal Load 1

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: 2F1, 3F1)

Ohio Item 716 – Ohio Legal Load 1 GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

Ohio Item 717 – Ohio Legal Load 1, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 718 – Ohio Legal Load 2

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: 2F1, 3F1)

Ohio Item 719 – Ohio Legal Load 2 GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

Ohio Item 720 – Ohio Legal Load 2, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 721 – Ohio Legal Load 3

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: 2F1, 3F1)

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Ohio Item 722 – Ohio Legal Load 3 GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

Ohio Item 723 – Ohio Legal Load 3, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 724 – Ohio Legal Load 4

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: 2F1, 3F1)

Ohio Item 725 – Ohio Legal Load 4, GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

Ohio Item 726 – Ohio Legal Load 4, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 727 – Ohio Legal Load 5

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: 2F1, 3F1)

Ohio Item 728 – Ohio Legal Load 5 GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

Ohio Item 729 – Ohio Legal Load 5, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 730 – Ohio Legal Load 6

This item must be coded.

Code the appropriate Ohio Legal Load. (Example: SU6 or SU7)

Ohio Item 731 – Ohio Legal Load 6, GVW

This item must be coded.

Code the appropriate gross vehicle weight (GVW) of the Ohio Legal Load in tons.

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Ohio Item 732 – Ohio Legal Load 6, Rating Factor

This item must be coded.

Code the appropriate rating factor of the load carrying capacity for the Ohio Legal Load.

Ohio Item 733 – Posting Required by Rating

This item must be coded.

Code “Y – Yes” load posting is recommended based on the load rating analysis. Code “N – No” on all other bridges.

Ohio Item 734 – Ohio % Legal

This item must be coded.

Enter the calculated or estimated percent of Ohio Legal Load on record. Code the figures to the nearest 5 percent. If the structure carries other than public motor vehicular traffic (e.g., railroad, pedestrian walk, pipe line, taxiway, etc.) or if structure is closed or if item does not apply, code all zeros.

<u>Example</u>	<u>Code</u>
125%	125
65% (Post 35%)	065
For structures rated at greater than 150% of Legal Load	150

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX A – Ohio Counties

Numeric Codes, Alphabetic Codes, & ODOT District

COUNTY	NUMERIC CODE	ALPHABETIC CODE	DISTRICT
Adams	01	ADA	09
Allen	02	ALL	01
Ashland	03	ASD	03
Ashtabula	04	ASH	04
Athens	05	ATH	10
Auglaize	06	AUG	07
Belmont	07	BEL	11
Brown	08	BRO	09
Butler	09	BUT	08
Carroll	10	CAR	11
Champaign	11	CHP	07
Clark	12	CLA	07
Clermont	13	CLE	08
Clinton	14	CLI	08
Columbiana	15	COL	11
Coshocton	16	COS	05
Crawford	17	CRA	03
Cuyahoga	18	CUY	12
Darke	19	DAR	07
Defiance	20	DEF	01
Delaware	21	DEL	06
Erie	22	ERI	03
Fairfield	23	FAI	05
Fayette	24	FAY	06
Franklin	25	FRA	06
Fulton	26	FUL	02
Gallia	27	GAL	10
Geauga	28	GEA	12
Greene	29	GRE	08
Guernsey	30	GUE	05
Hamilton	31	HAM	08
Hancock	32	HAN	01
Hardin	33	HAR	01
Harrison	34	HAS	11
Henry	35	HEN	02
Highland	36	HIG	09
Hocking	37	HOC	10
Holmes	38	HOL	11
Huron	39	HUR	03
Jackson	40	JAC	09
Jefferson	41	JEF	11
Knox	42	KNO	05
Lake	43	LAK	12
Lawrence	44	LAW	09

COUNTY	NUMERIC CODE	ALPHABETIC CODE	DISTRICT
Licking	45	LIC	05
Logan	46	LOG	07
Lorain	47	LOR	03
Lucas	48	LUC	02
Madison	49	MAD	06
Mahoning	50	MAH	04
Marion	51	MAR	06
Medina	52	MED	03
Meigs	53	MEG	10
Mercer	54	MER	07
Miami	55	MIA	07
Monroe	56	MOE	10
Montgomery	57	MOT	07
Morgan	58	MOR	10
Morrow	59	MRW	06
Muskingum	60	MUS	05
Noble	61	NOB	10
Ottawa	62	OTT	02
Paulding	63	PAU	01
Perry	64	PER	05
Pickaway	65	PIC	06
Pike	66	PIK	09
Portage	67	POR	04
Preble	68	PRE	08
Putnam	69	PUT	01
Richland	70	RIC	03
Ross	71	ROS	09
Sandusky	72	SAN	02
Scioto	73	SCI	09
Seneca	74	SEN	02
Shelby	75	SHE	07
Stark	76	STA	04
Summit	77	SUM	04
Trumbull	78	TRU	11
Tuscarawas	79	TUS	11
Union	80	UNI	06
Van Wert	81	VAN	01
Vinton	82	VIN	10
Warren	83	WAR	08
Washington	84	WAS	10
Wayne	85	WAY	03
Williams	86	WIL	02
Wood	87	WOO	02
Wyandot	88	WYA	01

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

The following list of structure type code combinations established in accordance with the three (3) digit coding scheme shown in Items 43A, 43B, and 43C includes a word description for the bridge type opposite each code shown. All bridges inventoried must be type coded using the applicable code combination from this list. Code combinations not shown may not be used as they will be rejected as an error by the computer.

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
000	Other	Other	Other
055	Other	Arch	Filled
095	Other	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
100	Concrete	Other	Other
105	Concrete	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
110	Concrete	Slab	Other
111	Concrete	Slab	Simple
112	Concrete	Slab	Continuous
115	Concrete	Slab	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
120	Concrete	Beam	Other
121	Concrete	Beam	Simple
122	Concrete	Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
130	Concrete	Box Beam	Other
131	Concrete	Box Beam	Simple
132	Concrete	Box Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
150	Concrete	Arch	Other
153	Concrete	Arch	Deck
154	Concrete	Arch	Thru
155	Concrete	Arch	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
160	Concrete	Girder	Other
163	Concrete	Girder	Deck
164	Concrete	Girder	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
170	Concrete	Frame	Other
171	Concrete	Frame	Simple

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
190	Concrete	Culvert	Other
195	Concrete	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
1A0	Concrete	Cable Stayed	Other
1A4	Concrete	Cable Stayed	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
1B0	Concrete	Tunnel	Other
1B4	Concrete	Tunnel	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
200	Prestressed Concrete	Other	Other
205	Prestressed Concrete	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
210	Prestressed Concrete	Slab	Other
211	Prestressed Concrete	Slab	Simple
212	Prestressed Concrete	Slab	Continuous
215	Prestressed Concrete	Slab	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
220	Prestressed Concrete	Beam	Other
221	Prestressed Concrete	Beam	Simple
222	Prestressed Concrete	Beam	Continuous
225	Prestressed Concrete	Beam	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
230	Prestressed Concrete	Box Beam	Other
231	Prestressed Concrete	Box Beam	Simple
232	Prestressed Concrete	Box Beam	Continuous
235	Prestressed Concrete	Box Beam	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
250	Prestressed Concrete	Arch	Other
253	Prestressed Concrete	Arch	Deck
254	Prestressed Concrete	Arch	Thru
255	Prestressed Concrete	Arch	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
260	Prestressed Concrete	Girder	Other
261	Prestressed Concrete	Girder	Simple
262	Prestressed Concrete	Girder	Continuous
263	Prestressed Concrete	Girder	Deck
264	Prestressed Concrete	Girder	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
295	Prestressed Concrete	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
300	Steel	Other	Other
305	Steel	Other	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
320	Steel	Beam	Other
321	Steel	Beam	Simple
322	Steel	Beam	Continuous
326	Steel	Beam	Orthotropic
327	Steel	Beam	Movable – Lift
328	Steel	Beam	Movable – Bascule
329	Steel	Beam	Movable - Swing

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
330	Steel	Box Beam	Other
331	Steel	Box Beam	Simple
332	Steel	Box Beam	Continuous
336	Steel	Box Beam	Orthotropic

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
340	Steel	Truss	Other
343	Steel	Truss	Deck
344	Steel	Truss	Thru
347	Steel	Truss	Movable – Lift
348	Steel	Truss	Movable – Bascule
349	Steel	Truss	Movable – Swing
34A	Steel	Truss	Pony

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
350	Steel	Arch	Other
353	Steel	Arch	Deck
354	Steel	Arch	Thru
355	Steel	Arch	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
360	Steel	Girder	Other
363	Steel	Girder	Deck
364	Steel	Girder	Thru
366	Steel	Girder	Orthotropic
367	Steel	Girder	Movable – Lift
368	Steel	Girder	Movable – Bascule
369	Steel	Girder	Movable - Swing

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
370	Steel	Frame	Other
371	Steel	Frame	Simple
372	Steel	Frame	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
380	Steel	Suspension	Other
383	Steel	Suspension	Deck (Truss)
384	Steel	Suspension	Thru (Truss)
386	Steel	Suspension	Orthotropic

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
390	Steel	Culvert	Other
395	Steel	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
3A0	Steel	Cable Stayed	Other
3A4	Steel	Cable Stayed	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
3B0	Steel	Tunnel	Other
3B4	Steel	Tunnel	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
400	Timber	Other	Other
405	Timber	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
410	Timber	Slab	Other
411	Timber	Slab	Simple
412	Timber	Slab	Continuous
415	Timber	Slab	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
420	Timber	Beam	Other
421	Timber	Beam	Simple
422	Timber	Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
440	Timber	Truss	Other
443	Timber	Truss	Deck
444	Timber	Truss	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
450	Timber	Arch	Other
453	Timber	Arch	Deck
454	Timber	Arch	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
460	Timber	Girder	Other
463	Timber	Girder	Deck
464	Timber	Girder	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
470	Timber	Frame	Other
471	Timber	Frame	Simple
472	Timber	Frame	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
480	Timber	Suspension	Other

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
490	Timber	Culvert	Other
495	Timber	Culvert	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
500	Stone	Other	Other
505	Stone	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
511	Stone	Slab	Simple

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
550	Stone	Arch	Other
555	Stone	Arch	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
590	Stone	Culvert	Other
595	Stone	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
5B0	Stone	Tunnel	Other
5B4	Stone	Tunnel	Thru

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
600	Aluminum	Other	Other
605	Aluminum	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
620	Aluminum	Beam	Other
621	Aluminum	Beam	Simple
622	Aluminum	Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
630	Aluminum	Box Beam	Other
631	Aluminum	Box Beam	Simple
632	Aluminum	Box Beam	Continuous

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
640	Aluminum	Truss	Other
643	Aluminum	Truss	Deck
644	Aluminum	Truss	Thru
647	Aluminum	Truss	Movable – Lift
648	Aluminum	Truss	Movable – Bascule
649	Aluminum	Truss	Movable - Swing

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
650	Aluminum	Arch	Other
653	Aluminum	Arch	Deck
654	Aluminum	Arch	Thru
655	Aluminum	Arch	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
660	Aluminum	Girder	Other
663	Aluminum	Girder	Deck
664	Aluminum	Girder	Thru
666	Aluminum	Girder	Orthotropic
667	Aluminum	Girder	Movable – Lift
668	Aluminum	Girder	Movable – Bascule
669	Aluminum	Girder	Movable - Swing

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
660	Aluminum	Girder	Other
663	Aluminum	Girder	Deck
664	Aluminum	Girder	Thru
666	Aluminum	Girder	Orthotropic
667	Aluminum	Girder	Movable – Lift
668	Aluminum	Girder	Movable – Bascule
669	Aluminum	Girder	Movable - Swing

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
670	Aluminum	Frame	Other
671	Aluminum	Frame	Simple
672	Aluminum	Frame	Continuous

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
680	Aluminum	Suspension	Other

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
690	Aluminum	Culvert	Other

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
700	Cast Iron	Other	Other
705	Cast Iron	Other	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
720	Cast Iron	Beam	Other
721	Cast Iron	Beam	Simple
722	Cast Iron	Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
740	Cast Iron	Truss	Other
743	Cast Iron	Truss	Deck
744	Cast Iron	Truss	Thru
747	Cast Iron	Truss	Movable – Lift
748	Cast Iron	Truss	Movable Bascule
749	Cast Iron	Truss	Movable – Swing
74A	Cast Iron	Truss	Pony

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
750	Cast Iron	Arch	Other
755	Cast Iron	Arch	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX B – Structure Type Coding

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
860	Wrought Iron	Girder	Other
863	Wrought Iron	Girder	Deck
864	Wrought Iron	Girder	Thru
867	Wrought Iron	Girder	Movable – Lift
868	Wrought Iron	Girder	Movable – Bascule
869	Wrought Iron	Girder	Movable - Swing

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
880	Wrought Iron	Suspension	Other

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
890	Wrought Iron	Culvert	Other
895	Wrought Iron	Culvert	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
910	Composite	Slab	Other
911	Composite	Slab	Simple
912	Composite	Slab	Continuous
913	Composite	Slab	Deck

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
920	Composite	Beam	Other
921	Composite	Beam	Simple
922	Composite	Beam	Continuous

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
970	Composite	Frame	Other
971	Composite	Frame	Simple
975	Composite	Frame	Filled

<u>Code</u>	<u>Material</u>	<u>Type</u>	<u>Description</u>
995	Composite	Culvert	Filled

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

ADAMS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Cherry Fork	13834	Manchester	47012	Peebles	61420
Rome	68196	Seaman	71206	West Union	84294
Winchester	85876	Bratton Twp.	08350	Brush Creek Twp.	09722
Franklin Twp.	28196	Green Twp.	31668	Jefferson Twp.	38486
Liberty Twp.	43036	Manchester Twp.	47026	Meigs Twp.	48888
Monroe Twp.	51268	Oliver Twp.	58366	Scott Twp.	71052
Sprigg Twp.	74069	Tiffin Twp.	76768	Wayne Twp.	82012
Winchester Twp.	85890				

ALLEN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Beaverdam	04752	Bluffton	07426	Cairo	10884
Delphos	21602	Elida	24808	Fort Shawnee	27944
Harrod	34118	Lafayette	41118	Lima	43554
Spencerville	74034	Amanda Twp.	01602	American Twp.	01756
Auglaize Twp.	02988	Bath Twp.	04206	Jackson Twp.	37646
Marion Twp.	47656	Monroe Twp.	51282	Perry Twp.	61742
Richland Twp.	66614	Shawnee Twp.	71955	Spencer Twp.	73982
Sugar Creek Twp.	75199				

ASHLAND COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Ashland	02568	Bailey Lakes	03562	Hayesville	34636
Jeromesville	39060	Loudonville	45066	Mifflin	50036
Perrysville	62190	Polk	63996	Savannah	70576
Clear Creek Twp.	15672	Green Twp.	31682	Hanover Twp.	33236
Jackson Twp.	37660	Lake Twp.	41272	Mifflin Twp.	50050
Milton Twp.	50610	Mohican Twp.	51086	Montgomery Twp.	51688
Orange Twp.	58562	Perry Twp.	61756	Ruggles Twp.	68966
Sullivan Twp.	75357	Troy Twp.	77532	Vermillion Twp.	795758

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

ASHTABULA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Andover	02050	Ashtabula	02638	Conneaut	18350
Geneva	29610	Geneva On Lake	29652	Jefferson	38500
North Kingsville	56700	Orwell	58856	Roaming Shores	67600
Rock Creek	67846	Andover Twp.	02064	Ashtabula Twp.	02652
Austinburg Twp.	03156	Cherry Valley Twp.	13890	Colebrook Twp.	16560
Denmark Twp.	21672	Dorset Twp.	22344	Geneva Twp.	29624
Harpersfield Twp.	33642	Hartsgrove Twp.	34300	Jefferson Twp.	38514
Kingsville Twp.	40404	Lenox Twp.	42742	Monroe Twp.	40404
Morgan Twp.	52066	New Lyme Twp.	54964	Orwell Twp.	58870
Pierpont Twp.	62568	Plymouth Twp.	63772	Richmond Twp.	66796
Rome Twp.	68224	Saybrook Twp.	70646	Sheffield Twp.	7253
Trumbull Twp.	77686	Wayne Twp.	82040	Williamsfield Twp.	85372
Windsor Twp.	85988				

ATHENS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Albany	01042	Amesville	01784	Athens	02736
Buchtel	09834	Chauncey	13778	Coolville	18588
Glouster	30674	Jacksonville	38304	Nelsonville	53886
Trimble	77406	Alexander Twp.	01112	Ames Twp.	01770
Athens Twp.	02750	Bern Twp.	05942	Canaan Twp.	11220
Carthage Twp.	12336	Dover Twp.	22414	Lee Twp.	42420
Lodi Twp.	44590	Rome Twp.	68238	Trimble Twp.	77420
Troy Twp.	77546	Waterloo Twp.	81777	York Twp.	86982

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

AUGLAIZE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Buckland	09974	Cridersville	19400	Minster	50918
New Bremen	54194	New Knoxville	54838	St Marys	696804
Uniopolis	78848	Wapakoneta	80766	Waynesfield	82390
Clay Twp.	15448	Duchouquet Twp.	22722	German Twp.	29848
Goshen Twp.	30954	Jackson Twp.	37674	Logan Twp.	44618
Moulton Twp.	52472	Noble Twp.	55986	Pusheta Twp.	65018
St Marys Twp.	69694	Salem Twp.	69806	Union Twp.	78204
Washington Twp.	81074	Wayne Twp.	82054		

BELMONT COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Barnesville	03926	Bellaire	05074	Belmont	05312
Bethesda	06138	Bridgeport	08560	Brookside	09316
Fairview	26348	Flushing	27552	Holloway	35924
Martins Ferry	48104	Morristown	52346	Powhatan Point	64542
St Clairsville	69526	Shadyside	71640	Wilson	85834
Yorkville	87178	Colerain Twp.	16602	Flushing Twp.	27566
Goshen Twp.	30968	Kirkwood Twp.	40600	Mead Twp.	48580
Pease Twp.	61378	Pultney Twp.	64962	Richland Twp.	66628
Smith Twp.	72736	Somerset Twp.	72970	Union Twp.	78218
Warren Twp.	80864	Wahington Twp.	81088	Wayne Twp.	82068
Wheeling Twp.	84602	York Twp.	86996		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

BROWN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Aberdeen	00142	Fayetteville	26796	Georgetown	29778
Hamersville	32984	Higginsport	35168	Mt Orab	52906
Ripley	67272	Russellville	69316	St Martin	69666
Sardinia	70534	Byrd Twp.	10758	Clark Twp	15224
Eagle Twp.	23072	Franklin Twp.	28210	Green Twp.	31696
Huntington Twp.	36834	Jackson Twp.	37688	Jefferson Twp.	38528
Lewis Twp.	42910	Perry Twp.	61770	Pike Twp.	62596
Pleasant Twp.	63212	Scott Twp.	71066	Sterling Twp.	74559
Union Twp.	78232	Washington Twp.	81102		

BUTLER COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
College Corner	16700	Fairfield	25970	Hamilton	33012
Jacksonburg	38192	Middletown	49840	Millville	50540
Monroe	51310	New Miami	55104	Oxford	59234
Seven Mile	71444	Sharonville	71892	Somerville	72998
Trenton	77322	Fairfield Twp.	25984	Hanover Twp.	33250
Lemon Twp.	42672	Liberty Twp.	43050	Madison Twp.	46340
Milford Twp.	50162	Morgan Twp.	52080	Oxford Twp.	59241
Reily Twp.	66096	Ross Twp.	68616	Saint Clair Twp.	69498
Wayne Twp.	82082	West Chester Twp.	83150		

CARROLL COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Carrollton	12280	Dellroy	21560	Leesville	43518
Magnolia	46844	Malvern	46998	46998	50834
Sherrodsville	72242	Augusta Twp.	03030	Brown Twp.	09400
Center Twp.	12896	East Twp.	23226	Fox Twp.	28126
Harrison Twp.	33782	Lee Twp.	42434	Loudon Twp.	45038
Monroe Twp.	51324	Orange Twp.	58576	Perry Twp.	61784
Rose Twp.	68420	Union Twp.	78260	Washington Twp.	81116

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

CHAMPAIGN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Christiansburg	14296	Mechanicsburg	48706	Mutual	53480
North Lewisburg	56770	St Paris	69708	Urbana	79072
Woodstock	86478	Adams Twp.	00212	Concord Twp.	18126
Goshen Twp.	30982	Harrison Twp.	33796	Jackson Twp.	37702
Johnson Twp.	39228	Mad River Twp.	46760	Rush Twp.	69078
Salem Twp.	69820	Union Twp.	78274	Urbana Twp.	79086
Wayne Twp.	78274				

CLARK COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Catawba	12560	Clifton	16056	Donnelsville	22288
Enon	25452	Lawrenceville	42210	N Hampton	56588
New Carlisle	54334	S Charleston	73124	S Vienna	73796
Springfield	74118	Tremont City	77308	Bethel Twp.	06054
German Twp.	29862	Green Twp.	31703	Harmony Twp.	33586
Madison Twp.	46354	Mad River Twp.	46788	Moorefield Twp.	51912
Pike Twp.	62610	Pleasant Twp.	633226	Springfield Twp.	74119
Crystal Lakes (CDP)	19596				

CLERMONT COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Amelia	01742	Batavia	04150	Bethel	06068
Chilo	14226	Felicity	26880	Loveland	45108
Milford	50176	Moscow	52416	Neville	53956
New Richmond	55384	Newtonsville	55664	Owensville	59220
Williamsburg	85288	Batavia Twp.	04157	Franklin Twp.	28224
Goshen Twp.	31010	Jackson Twp.	37716	Miami Twp.	49322
Monroe Twp.	51338	Ohio Twp.	57960	Pierce Twp.	62540
Stonelick Twp.	74825	Tate Twp.	76155	Union Twp.	78288
Washington Twp.	81130	Wayne Twp.	82110	Williamsburg Twp.	85302

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

CLINTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Blanchester	06908	Clarksville	15406	Lynchburg	45542
Martinsville	48118	Midland	49896	New Vienna	55748
Port William	64360	Sabina	69400	Wilmington	85792
Adams Twp.	00226	Chester Twp.	13974	Clark Twp.	15238
Green Twp.	31710	Jefferson Twp.	38542	Liberty Twp.	43064
Marion Twp.	47670	Richland Twp.	66642	Union Twp.	78302
Vernon Twp.	79772	Washington Twp.	81144	Wayne Twp.	82124
Wilson Twp.	85820				

COLUMBIANA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Columbiana	17036	East Liverpool	23730	East Palestine	23940
Hanoverton	33306	Leetonia	42560	Lisbon	44030
Minerva	50834	New Waterford	55790	Rogers	68084
Salem	69834	Salineville	70100	Summitville	75574
Washingtonville	81732	Wellsville	82740	Butler Twp.	10562
Center Twp.	12910	Elkrun Twp.	24906	Fairfield Twp.	25998
Franklin Twp.	28238	Hanover Twp.	33264	Knox Twp.	40824
Liverpool Twp.	44226	Madison Twp.	46368	Middleton Twp.	49784
Perry Twp.	61798	Saint Clair Twp.	69512	Salem Twp.	69848
Unity Twp.	78890	Washington Twp.	81158	Wayne Twp.	82138
West Twp.	82852	Yellow Creek Twp.	86912		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

COSHOCTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Baltic	03744	Conesville	18266	Coshocton	18868
Nellie	53816	Plainfield	63044	Warsaw	81032
West Lafayette	83608	Adams Twp.	00240	Bedford Twp.	04864
Bethlehem Twp.	06152	Clark Twp.	15266	Crawford Twp.	19218
Franklin Twp.	28252	Jackson Twp.	37730	Jefferson Twp.	38556
Keene Twp.	39634	Lafayette Twp.	41132	Linton Twp.	43960
Mill Creek Twp.	50274	Monroe Twp.	51352	Newcastle Twp.	54376
Oxford Twp.	59248	Perry Twp.	61812	Pike Twp.	62624
Tiverton Twp.	76953	Tuscarawas Twp.	77896	Virginia Twp.	80220
Washington Twp.	81172	White Eyes Twp.	84714		

CRAWFORD COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bucyrus	10030	Chatfield	13694	Crestline	19330
Galion	29162	New Washington	55776	N Robinson	56994
Tiro	76932	Auburn Twp.	02890	Bucyrus Twp.	10044
Chatfield Twp.	13708	Cranberry Twp.	19134	Dallas Twp.	19932
Holmes Twp.	35980	Jackson Twp.	37744	Jefferson Twp.	38570
Liberty Twp.	43078	Lykens Twp.	45500	Polk Twp.	64010
Sandusky Twp.	70366	Texas Twp.	76463	Tod Twp.	76967
Vernon Twp.	79786	Whetstone Twp.	84644		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

CUYAHOGA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bay Village	04416	Beachwood	04500	Bedford	04878
Bedford Heights	04920	Bentleyville	05550	Berea	05690
Bratenahl	08336	Brecksville	08364	Broadview Heights	09064
Brooklyn	09246	Brooklyn Heights	09274	Brook Park	09288
Chagrin Falls	13358	Cleveland	16000	Cleveland Heights	16014
Cuyahoga Heights	19806	East Cleveland	23380	Euclid	25704
Fairview Park	26446	Garfield Heights	29428	Gates Mills	29498
Glenwillow	30632	Highland Heights	35252	Highland Hills	35255
Hunting Valley	36918	Independence	37240	Lakewood	41664
Linndale	43918	Lyndhurst	45556	Maple Heights	47306
Mayfield	48468	Mayfield Heights	48482	Middleburgh Heights	49644
Moreland Hills	52052	Newburgh Heights	54250	North Olmsted	56882
North Randall	56924	North Royalton	57008	Oakwood	57750
Olmsted Falls	58422	Orange	58604	Parma	61000
Parma Heights	61028	Pepper Pike	61686	Richmond Heights	66894
Rocky River	68056	Seven Hills	71416	Shaker Heights	71682
Solon	72928	South Euclid	73264	Strongsville	75098
University Heights	78932	Valley View	79268	Walton Hills	80738
Warrensville Heights	80990	Westlake	83622	Woodmere	86394
Chagrin Falls Twp.	13372	Olmsted Twp.	58408		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

DARKE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Ansonia	02120	Arcanum	02330	Bradford	08084
Burkettsville	10296	Castine	12504	Gettysburg	29974
Gordon	30912	Greenville	32340	Hollansburg	35896
Ithaca	37604	New Madison	54978	New Weston	55818
North Star	57064	Osgood	58912	Palestine	59598
Pitsburg	62890	Rosburg	68672	Union City	78624
Versailles	79912	Wayne Lakes	82348	Allen Twp.	01294
Brown Twp.	09414	Butler Twp.	10576	Franklin Twp.	28266
Greenville Twp.	32354	Harrison Twp.	33810	Jackson Twp.	37758
Liberty Twp.	43092	Mississinawa Twp.	50960	Monroe Twp.	51366
Neave Twp.	53732	Patterson Twp.	61168	Richland Twp.	66656
Twin Twp.	77980	Van Buren Twp.	79380	Wabash Twp.	80248
Washington Twp.	81186	Wayne Twp.	82152	York Twp.	87010

DEFIANCE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Defiance	21308	Hicksville	35098	Ney	55874
Sherwood	72256	Adams Twp.	00268	Defiance Twp.	21322
Delaware Twp.	21420	Farmer Twp.	26614	Hicksville Twp.	35112
Highland Twp.	35196	Mark Twp.	47852	Milford Twp.	50190
Noble Twp.	56014	Richland Twp.	66670	Tiffin Twp.	76772
Washington Twp.	81200				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

DELAWARE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Ashley	02582	Columbus	18000	Delaware	21434
Dublin	22694	Galena	29148	Ostrander	58940
Powell	64486	Shawnee Hills	71976	Sunbury	75602
Westerville	83342	Berkshire Twp.	05774	Berlin Twp.	05788
Brown Twp.	09428	Concord Twp.	18140	Delaware Twp.	21448
Genoa Twp.	29694	Harlem Twp.	33516	Kingston Twp.	40362
Liberty Twp.	43106	Marlboro Twp.	47908	Orange Twp.	58618
Oxford Twp.	59262	Porter Twp.	64178	Radnor Twp.	65312
Scioto Twp.	70842	Thompson Twp.	76617	Trenton Twp.	77336
Troy Twp.	77560				

ERIE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bay View	04402	Bellevue	05228	Berlin Heights	05900
Castalia	12476	Huron	37016	Kelleys Island	39662
Milan	50134	Sandusky	70380	Vermilion	79716
Berlin Twp.	05802	Florence Twp.	27482	Groton Twp.	32578
Huron Twp.	37030	Margaretta Twp.	47572	Milan Twp.	50148
Oxford Twp.	59276	Perkins Twp.	61714	Vermilion Twp.	79730

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

FAIRFIELD COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Amanda	01630	Baltimore	03758	Bremen	08392
Buckeye Lake	09890	Canal Winchester	11332	Carroll	12252
Columbus	18000	Lancaster	41720	Lithopolis	44086
Millersport	50400	Pickerington	62498	Pleasantville	63716
Reynoldsburg	66390	Rushville	69204	Stoutsville	74916
Sugar Grove	75252	Thurston	76764	West Rushville	84182
Amanda Twp.	01637	Berne Twp.	05956	Bloom Twp.	06950
Clear Creek Twp.	15686	Greenfield Twp.	32060	Hocking Twp.	35812
Liberty Twp.	43120	Madison Twp.	46382	Pleasant Twp.	63240
Richland Twp.	66684	Rush Creek Twp.	69120	Violet Twp.	80206
Walnut Twp.	80570				

FAYETTE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bloomington	07188	Jeffersonville	38920	Milledgeville	50316
New Holland	54726	Octa	57918	Washington CH	81214
Concord Twp.	18154	Green Twp.	31724	Jasper Twp.	383888
Jefferson Twp.	38598	Madison Twp.	46396	Marion Twp.	47684
Paint Twp.	59486	Perry Twp.	61826	Union Twp.	78316
Wayne Twp.	82166				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

FRANKLIN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bexley	06278	Brice	08532	Canal Winchester	11332
Columbus	18000	Dublin	22694	Gahanna	29106
Grandview Hts	31304	Grove city	32592	Groveport	32606
Harrisburg	3340	Hilliard	35476	Lithopolis	44086
Lockbourne	44310	Marble Cliff	47474	Minerva Park	50862
New Albany	53970	Obetz	57862	Pickerington	62498
Reynoldsburg	66390	Riverlea	67440	Upper Arlington	79002
Urbancrest	79100	Valleyview	79282	Westerville	83342
Whitehall	84742	Worthington	86604	Blendon Twp	06922
Brown Twp	09442	Clinton Twp	16112	Franklin Twp	28280
Hamilton Twp	33026	Jackson Twp	37772	Jefferson Twp	38612
Madison Twp	37772	Mifflin Twp	50064	Norwich Twp	57344
Perry Twp	61840	Plain Twp	62974	Pleasant Twp	63254
Prairie Twp	64570	Sharon Twp	71787	Truro Twp	77714
Washington Twp	81242				

FULTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Archbold	02344	Delta	21616	Fayette	26768
Lyons	45626	Metamora	49238	Swanton	75896
Wauseon	81928	Amboy Twp	01728	Chesterfield Twp	14072
Clinton Twp	16126	Dover Twp	22442	Franklin Twp	28294
Fulton Twp.	29036	German Twp.	29876	Gorham Twp.	30940
Pike Twp.	62638	Royalton Twp.	68896	Swan Creek Twp.	75861
York Twp.	87024				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

GALLIA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Centerville	13169	Cheshire	13932	Crown City	19554
Gallipolis	29204	Rio Grande	67258	Vinton	80178
Addison Twp	00422	Cheshire Twp.	13946	Clay Twp.	15462
Gallipolis Twp.	29218	Green Twp	31738	Greenfield Twp	32074
Guyan Twp	32760	Harrison Twp	33824	Huntington Twp	36848
Morgan Twp	52094	Ohio Twp	57974	Perry Twp	61854
Raccoon Twp	65228	Springfield Twp	74120	Walnut Twp	80584

GEAUGA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Aquilla	02274	Burton	10436	Chardon	13554
Hunting Valley	36918	Middlefield	49700	S Russell	73684
Auburn Twp	02904	Bainbridge Twp	03590	Burton Twp	10464
Chardon Twp	13561	Chester Twp	13988	Clairdon Twp	15168
Hambden Twp	32914	Huntsburg Twp	36946	Middlefield Twp	49714
Montville Twp	51842	Munson Twp	53340	Newburry Twp	54292
Parkman Twp	59948	Russell Twp	69232	Thompson Twp	76628
Troy Twp	77574				

GREENE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Beavercreek	04720	Bellbrook	05102	Bowersville	07930
Cedarville	12784	Centerville	13190	Clifton	16056
Fairborn	25914	Huber Heights	36610	Jamestown	38374
Kettering	40040	Spring Valley	74216	Xenia	86772
Yellow Springs	86940	Bath Twp	04220	Beavercreek Twp	04724
Caesarcreek Twp	10856	Cedarville Twp	12798	Jefferson Twp	38626
Miami Twp	49336	New Jasper Twp	54810	Ross Twp	68630
Silvercreek Twp	72473	Spring Valley Twp	74223	Sugarcreek Twp	75201
Xenia Twp	86786				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

GUERNSEY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Byesville	10716	Cambridge	10996	Cumberland	19694
Fairview	26348	Kimbolton	40264	Lore City	44954
Old Washington	58226	Pleasant City	63436	Quaker City	65116
Salesville	70072	Senecaville	71360	Adams Twp	00282
Cambridge Twp	11003	Center Twp	12938	Jackson Twp	37786
Jefferson Twp	38640	Knox Twp	40838	Liberty Twp	43134
Londonderry Twp	44716	Madison Twp	46424	Millwood Twp	50568
Monroe Twp	51380	Oxford Twp	59290	Richland Twp	66698
Spencer Twp	73986	Valley Twp	79156	Washington Twp	81256
Westland Twp	83664	Wheeling Twp	84616	Wills Twp	85708

HAMILTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Addyston	00436	Amberley	01672	Arlington Hts	02428
Blue Ash	07330	Cheviot	14128	Cincinnati	15000
Cleves	16028	Deer Park	21266	Elmwood Place	25186
Evendale	25802	Fairfax	25942	Fairfield	25970
Forest Park	27706	Glendale	30380	Golf Manor	30786
Greenhills	32158	Harrison	33838	Indian Hill	76582
Lincoln Heights	43722	Lockland	44366	Loveland	45108
Maderia	46312	Mariemont	47600	Milford	50176
Montgomery	51716	Mt Healthy	52752	N College Hill	56322
Newtown	55678	North Bend	56182	Norwood	57386
Reading	65732	Sharonville	71892	Silverton	72522
Springdale	74104	St Bernard	69470	Terrace Park	76428
Woodlawn	86366	Wyoming	86730	Anderson Twp	01980
Colerain Twp	16616	Columbia Twp	16882	Crosby Twp	19470
Delhi Twp	21504	Green Twp	31752	Harrison Twp	33852
Miami Twp	31752	Springfield Twp	74121	Sycamore Twp	75973
Symmes Twp	76028	Whitewater Twp	84938		

APPENDIX C – Item #4 Place Codes (FIPS)

STRUCTURE MANAGEMENT SYSTEM (SMS)

HANCOCK COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Arcadia	02316	Arlington	02400	Benton Ridge	05662
Bluffton	07426	Findlay	27048	Fostoria	28014
Jenera	38948	McComb	45808	Mt Blanchard	52598
Mt Cory	52668	Rawson	65634	Van Buren	79394
Vanlue	79534	Allen Twp	01308	Amanda Twp	01644
Biglick Twp	06362	Blanchard Twp	06838	Cass Twp	12392
Delaware Twp	21462	Eagle Twp	23086	Jackson Twp	37800
Liberty Twp	43148	Madison Twp	46438	Marion Twp	47698
Orange Twp	58632	Pleasant Twp	63268	Portage Twp	64066
Union Twp	78330	Van Buren Twp	79408	Washington Twp	81284

HARDIN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Ada	00198	Alger	01210	Dunkirk	22946
Forest	27636	Hale	32837	Kenton	39886
McGuffey	46046	Mt Victory	53144	Patterson	61182
Ridgeway	67118	Blanchard Twp	06866	Buck Twp	09848
Cessna Twp	13316	Dudley Twp	22736	Goshen Twp	31024
Hale Twp	22736	Jackson Twp	37814	Liberty Twp	43162
Lynn Twp	45598	Marion Twp	47712	McDonald Twp	45920
Pleasant Twp	63282	Roundhead Twp	68784	Taylor Creek Twp	76198
Washington Twp	81298				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

HARRISON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Adena	00464	Bowerston	07916	Cadiz	10800
Deersville	21294	Freeport	28798	Harrisville	34090
Hopedale	36260	Jewett	39172	New Athens	54068
Scio	70814	Archer Twp	02358	Athens Twp	02764
Cadiz Twp	10814	Franklin Twp	28308	Freeport Twp	28812
German Twp	29890	Green Twp	31766	Monore Twp	51394
Moorefield Twp	51940	North Twp	56084	Nottingham Twp	57456
Rumley Twp	69884	Short Creek Twp	72361	Stock Twp	74724
Washington Twp	81312				

HENRY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Deshler	21812	Florida	27538	Hamler	33096
Holgate	35854	Liberty Center	43414	Malinta	46942
McClure	45794	Napoleon	53550	New Bavaria	54110
Bartlow Twp	04052	Damascus Twp	20016	Flatrock Twp	27342
Freedom Twp	28700	Harrison Twp	33866	Liberty Twp	43176
Marion Twp	47726	Monroe Twp	51408	Napoleon Twp	53564
Pleasant Twp	63296	Richfield Twp	66502	Ridgeville Twp	67062
Washington Twp	81326				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

HIGHLAND COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Greenfield	32088	Highland	35210	Hillsboro	35560
Leesburg	42476	Lynchburg	45542	Mowrystown	53186
Sardinia	70534	Sinking Spring	72578	Brush Creek Twp	09736
Clay Twp	15476	Concord Twp	18168	Dodson Twp	22204
Fairfield Twp	26026	Hamer Twp	32970	Jackson Twp	37828
Liberty Twp	43190	Madison Twp	46452	Marshall Twp	48034
New Market Twp	55048	Paint Twp	59500	Penn Twp	61588
Salem Twp	69862	Union Twp	78344	Washington Twp	81340
White Oak Twp	84826				

HOCKING COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Buchtel	09834	Laurelville	42084	Logan	44632
Murray City	53410	Benton Twp	05578	Falls Twp	26488
Good Hope Twp	05578	Green Twp	31780	Laurel Twp	42056
Marion Twp	47740	Perry Twp	61868	Salt Creek Twp	70142
Starr Twp	74405	Ward Twp	80780	Washington Twp	81354

HOLMES COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Baltic	03744	Glenmont	3506	Holmesville	35994
Killbuck	40180	Loudonville	45066	Millersburg	50372
Nashville	53634	Berlin Twp	05830	Clark Twp	15280
Hardy Twp	33460	Killbuck Twp	40194	Knox Twp	40852
Mechanic Twp	48692	Monroe Twp	51422	Paint Twp	59514
Prairie Twp	64584	Richland Twp	66712	Ripley Twp	67286
Salt Creek Twp	70156	Walnut Creek Twp	80626	Washington Twp	81368

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

HURON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bellevue	05228	Greenwich	32368	Milan	50134
Monroeville	51618	N Fairfield	56420	New London	54908
Norwalk	57302	Plymouth	63800	Wakeman	80458
Willard	85232	Bronson Twp	09148	Clarksfield Twp	15364
Fairfield Twp	26040	Fitchville Twp	27216	Greenfield Twp	32102
Greenwich Twp	32382	Hartland Twp	34258	Lyme Twp	45514
New Haven Twp	54712	New London Twp	54922	Norwalk Twp	57316
Norwich Twp	57358	Peru Twp	62246	Richmond Twp	66810
Ridgefield Twp	67006	Ripley Twp	67300	Sherman Twp	72193
Townsend Twp	77158	Wakeman Twp	80472		

JACKSON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Coalton	16434	Jackson	37842	Oak Hill	57596
Wellston	82712	Bloomfield Twp	07090	Coal Twp	16336
Franklin Twp	28322	Hamilton Twp	33040	Jackson Twp	37856
Jefferson Twp	38654	Liberty Twp	43204	Lick Twp	43442
Madison Twp	46466	Milton Twp	50624	Scioto Twp	70856
Washington Twp	81382				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

JEFFERSON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Adena	00464	Amsterdam	01938	Bergholz	05718
Bloomington	07202	Dillonvale	22022	Empire	25368
Irondale	37422	Mingo Junction	50904	Mt Pleasant	52976
New Alexandria	54012	Rayland	65662	Richmond	66824
Salineville	70100	Smithfield	72760	Steubenville	70100
Stratton	75000	Titltonsville	76806	Toronto	77112
Wintersville	86184	Yorkville	87178	Brush Creek Twp	09750
Cross Creek Twp	19484	Island Creek Twp	37534	Knox Twp	40866
Mount Pleasant Twp	52990	Ross Twp	68644	Salem Twp	69876
Saline Twp	70086	Smithfield Twp	72767	Springfield Twp	74122
Steubenville Twp	74615	Warren Twp	80878	Wayne Twp	82180
Wells Twp	82698				

KNOX COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Centerburg	13036	Danville	20114	Fredericktown	28658
Gambier	29246	Gann	29288	Martinsburg	48090
Mt Vernon	53102	Utica	79114	Berlin Twp	05844
Brown Twp	09470	Butler Twp	10590	Clay Twp	15504
Clinton Twp	16140	College Twp	16686	Harrison Twp	33880
Hilliar Twp	35462	Howard Twp	33880	Jackson Twp	37870
Jefferson Twp	38668	Liberty Twp	43218	Middlebury Twp	49658
Milford Twp	50204	Miller Twp	50330	Monroe Twp	51436
Morgan Twp	52108	Morris Twp	52290	Pike Twp	62652
Pleasant Twp	63310	Union Twp	78358	Wayne Twp	82194

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

LAKE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Eastlake	23618	Fairport Harbor	26306	Grand River	31234
Kirtland	40642	Kirtland Hills	40670	Lakeline	41398
Madison	46480	Mentor	49056	Mentor On Lake	49098
North Perry	56910	Painesville	59416	Perry	61882
Timberlake	76834	Waite Hill	80402	Wickliffe	85036
Willoughby	85484	Willoughby Hills	85512	Willowick	85638
Concord Twp	18196	Leroy Twp	42812	Madison Twp	49494
Painesville Twp	59430	Perry Twp	61896	North Madison (CDP)	56812

LAWRENCE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Athalia	02722	Chesapeake	13904	Coal Grove	16378
Hanging Rock	33194	Ironton	37464	Proctorville	64766
South Point	73670	Aid Twp	00562	Decatur Twp	21084
Elizabeth Twp	24822	Fayette Twp	26782	Hamilton Twp	33054
Lawrence Twp	42154	Mason Twp	48174	Perry Twp	61910
Rome Twp	68280	Symmes Twp	76031	Union Twp	78372
Upper Twp	78974	Washington Twp	81396	Windsor Twp	86002

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

LICKING COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Alexandria	01154	Buckeye Lake	09890	Granville	31402
Gratiot	31458	Hanover	33292	Hartford	34202
Heath	34748	Hebron	34790	Johnstown	39340
Kirkersville	40572	New Albany	53970	Newark	54040
Pataskala	61112	Reynoldsburg	66390	St Louisville	69652
Utica	79114	Bennington Twp	05494	Bowling Green Twp	07944
Burlington Twp	10366	Eden Twp	24332	Etna Twp	25690
Fallsbury Twp	26530	Franklin Twp	28336	Granville Twp	31416
Hanover Twp	33299	Harrison Twp	33894	Hartford Twp	34188
Hopewell Twp	36316	Jersey Twp	39102	Liberty Twp	43232
Licking Twp	43456	Madison Twp	46508	Mary Ann Twp	48132
McKean Twp	46116	Monroe Twp	51405	Newark Twp	54054
Newton Twp	55580	Perry Twp	61924	Saint Albans Twp	69456
Union Twp	78400	Washington Twp	81410		

LOGAN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Belle Center	05116	Bellefontaine	05130	Degraff	21378
Huntsville	36988	Lakeview	41608	Quincy	65200
Ridgeway	67118	Rushsylvania	69176	Russells Point	69302
Valley Hi	79226	W Liberty	83734	W Mansfield	83818
Zanesfield	88070	Bloomfield Twp	07118	Bokes Creek Twp	07552
Harrison Twp	33908	Jefferson Twp	38682	Lake Twp	41286
Liberty Twp	43246	Mcarthur Twp	45682	Miami Twp	49378
Monroe Twp	51464	Perry Twp	61938	Pleasant Twp	63324
Richland Twp	66740	Rushcreek Twp	69134	Stokes Twp	74780
Union Twp	78414	Washington Twp	81424	Zane Twp	88042

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

LORAIN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Amherst	01798	Avon	03352	Avon Lake	03464
Elyria	25256	Grafton	31150	Kipton	40544
Lagrange	41230	Lorain	44856	N Ridgeville	56966
Oberlin	57834	Rochester	67762	S Amherst	73040
Sheffield	72060	Sheffield Lake	72088	Vermilion	79716
Wellington	82642	Amherst Twp	01812	Brighton Twp	08770
Brownhelm Twp	09568	Camden Twp	11010	Carlisle Twp	12140
Columbia Twp	16910	Eaton Twp	24220	Elyria Twp	25270
Grafton Twp	31164	Henrietta Twp	34972	Huntington Twp	36876
Lagrange Twp	41244	New Russia Twp	55446	Penfield Twp	61532
Pittsfield Twp	62960	Rochester Twp	67776	Sheffield Twp	72067
Wellington Twp	67776				

LUCAS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Berkey	05732	Harbor View	33376	Holland	35882
Maumee	48342	Oregon	58730	Ottawa Hills	59010
Swanton	75896	Sylvania	76022	Toledo	77000
Waterville	81858	Whitehouse	84770	Harding Twp	33418
Jerusalem Twp	39116	Monclova Twp	51156	Providence Twp	64836
Richfield Twp	66516	Spencer Twp	73990	Springfield Twp	74123
Swanton Twp	75903	Sylvania Twp	76025	Washington Twp	81438
Waterville Twp	81872				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

MADISON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
London	44674	Midway	50008	Mt Sterling	53046
Plain City	63030	South Solon	73768	West Jefferson	83580
Canaan Twp	11234	Darby Twp	20142	Deer Creek Twp	21154
Fairfield Twp	26068	Jefferson Twp	38696	Monroe Twp	51478
Oak Run Twp	57708	Paint Twp	59528	Pike Twp	62666
Pleasant Twp	63338	Range Twp	65480	Somerford Twp	72960
Stokes Twp	74784	Union Twp	78428		

MAHONING COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Alliance	01420	Beloit	05410	Campbell	11066
Canfield	11360	Columbiana	17036	Craig Beach	19106
Lowellville	45178	New Middletown	55118	Poland	63954
Salem	69834	Sebring	71220	Struthers	75126
Washingtonville	81732	Youngstown	88000	Austintown Twp	03198
Beaver Twp	04668	Berlin Twp	05858	Boardman Twp	07468
Canfield Twp	11374	Coitsville Twp	16476	Ellsworth Twp	25088
Goshen Twp	31038	Green Twp	31794	Jackson Twp	37884
Milton Twp	50638	Poland Twp	63968	Smith Twp	72740
Springfield Twp	74124	Austintown (CDP)	03184	Boardman (CDP)	07454

MARION COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Caledonia	10954	Green Camp	31948	Larue	41902
Marion	47754	Morral	52276	New Bloomington	54152
Prospect	64780	Waldo	80500	Big Island Twp	06348
Bowling Green Twp	07958	Claridon Twp	15196	Grand Prairie Twp	31192
Grand Twp	31178	Green Camp Twp	31962	Marion Twp	47768
Montgomery Twp	51730	Pleasant Twp	63352	Prospect Twp	64794
Richland Twp	66754	Salt Rock Twp	70240	Scott Twp	71073
Tully Twp	77742	Waldo Twp	80514		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

MEDINA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Brunswick	09680	Chippewa Lake	14282	Creston	19344
Gloria Glens Park	30660	Lodi	44604	Medina	48790
Rittman	67356	Seville	71486	Spencer	73992
Wadsworth	80304	Westfield Center	83468	Brunswick Hills Twp	09708
Chatham Twp	13750	Granger Twp	31374	Guildford Twp	32676
Harrisville Twp	341048	Hinckley	35644	Homer Twp	36078
Lafayette Twp	41174	Litchfield Twp	44072	Liverpool Twp	44240
Median Twp	48804	Montville Twp	51856	Sharon Twp	71801
Spencer Twp	73999	Wadsworth Twp	80318	Westfield Twp	83426
York Twp	87052				

MEIGS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Middleport	49756	Pomeroy	64024	Racine	65256
Rutland	69358	Syracuse	76050	Bedford Twp.	04906
Chester Twp	14016	Columbia Twp	16924	Lebanon Twp.	42336
Letart Twp	42868	Olive Twp	58282	Orange Twp	58646
Rutland Twp	69372	Salem Twp	69904	Salisbury Twp	70114
Scio Twp.	70996	Sutton Twp.	75847		

MERCER COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Burkettsville	10296	Celina	12868	Chickasaw	14156
Coldwater	16532	Ft Recovery	270902	Mendon	49042
Montezuma	51674	Rockford	678878	St Henry	69540
Black Creek Twp	06586	Butler	10604	Center Twp	12952
Dublin Twp	22708	Franklin Twp	28350	Gibson Twp.	30058
GranvilleTwp	31430	Hopewell Twp	36344	Jefferson Twp	387249
Liberty Twp	43260	Marion Twp	47782	Recovery Twp	65718
Union Twp	78442	Washington Twp	81452		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

MIAMI COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bradford	08084	Casstown	12462	Covington	19050
Fletcher	27412	Hubert Height	36610	Laura	42028
Ludlow Falls	45374	Piqua	62848	Pleasant Hill	63534
Potsdam	64430	Tipp City	76876	Troy	77588
West Milton	83902	Union	78470	Bethel Twp	06110
Brown Twp	09498	Concord Twp	18224	Elizabeth Twp	24836
Lost Creek Twp	44968	Monroe Twp	51492	Newberry Twp	54138
Newton Twp	55594	Spring Creek Twp	74097	Staunton Twp	74475
Union Twp	78456	Washington Twp	81466		
Burkettsville	10296	Celina	12868	Chickasaw	14156
Coldwater	16532	Ft Recovery	270902	Mendon	49042
Montezuma	51674	Rockford	678878	St Henry	69540
Black Creek Twp	06586	Butler	10604	Center Twp	12952
Dublin Twp	22708	Franklin Twp	28350	Gibson Twp.	30058
GranvilleTwp	31430	Hopewell Twp	36344	Jefferson Twp	387249
Liberty Twp	43260	Marion Twp	47782	Recovery Twp	65718
Union Twp	78442	Washington Twp	81452		

MONROE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Antioch	02148	Beallsville	04542	Clarington	15210
Graysville	31542	Jerusalem	39130	Lewisville	42980
Miltonsburg	50722	Stafford	74300	Wilson	85834
Woodsfield	86436	Adams .Twp	00296	Benton Twp	05606
Bethel Twp	06124	Center Twp	12966	Franklin Twp	28357
Green Twp	31808	Jackson Twp	37898	Lee Twp	42448
Malaga Twp	46928	Ohio Twp	57988	Perry Twp	61952
Salem Twp	69918	Seneca Twp	71349	Summit Twp	75497
Sunsbury Twp	75686	Switzerland Twp	75945	Washington Twp	81480
Wayne Twp	82208				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

MONTGOMERY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Brookville	09358	Carlisle	12168	Centerville	13190
Clayton	15644	Dayton	21000	Englewood	25396
Farmersville	26656	Germantown	29932	Huber Heights	36610
Kettering	40040	Miamisburg	49434	Moraine	52010
New Lebanon	54852	Oakwood	57764	Phillipsburg	62414
Riverside	67468	Springboro	74076	Trotwood	77504
Union	78470	Vandalia	79492	Verona	79898
W Carrollton	83111	Butler Twp	10618	Clay Twp	15518
German Twp	29904	Harrison Twp	33922	Jackson Twp	37912
Jefferson Twp	38738	Miami Twp	49392	Perry Twp	61966
Washington Twp	81494				

MORGAN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Chesterhill	14086	Malta	46970	McConnelsville	45822
Stockport	74748	Bloom Twp	06964	Bristol Twp	08910
Center Twp	12980	Deerfield Twp	21182	Homer Twp	36092
Malta Twp	46984	Manchester Twp	47040	Marion Twp	47796
Manchester Twp	47040	Marion Twp	47796	Meigsville Twp	48930
Morgan Twp	52122	Penn Twp	61602	Union Twp	78484
Windsor Twp	86016	York Twp	87066		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

MORROW COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Cardington	12084	Chesterville	14114	Edison	24598
Fulton	29050	Marengo	47558	Mt Gilead	52738
Sparta	73950	Bennington Twp	05508	Canaan Twp	11248
Cardington Twp	12098	Chester Twp	14030	Congress Twp	18294
Franklin Twp	28378	Gilead Twp	30128	Harmony Twp	33600
Lincoln Twp	43680	North Bloomfield Twp.	56224	Perry Twp	61980
Peru Twp	62260	South Bloomfield Twp.	61980	Troy Twp	77602
Washington Twp	81508	Westfield Twp	83454		

MUSKINGUM COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Adamsville	00380	Dresden	22610	Fazeysburg	28574
Fultonham	29064	Gratiot	31458	New Concord	54446
Norwich	57372	Philo	62442	Roseville	68560
S Zanesville	73894	Zanesville	88084	Adams Twp	00310
Blue Rock Twp	07398	Brush Creek Twp	09757	Cass Twp	12406
Clay Twp	15532	Falls Twp	26502	Harrison Twp	33936
Highland Twp	35238	Hopewell Twp	36372	Jackson Twp	37926
Jefferson Twp	38752	Licking Twp	43470	Madison Twp	46536
Meigs Twp	48916	Monroe Twp	51506	Muskingum Twp	53438
Newton Twp	55608	Perry Twp	61994	Rich Hill Twp	66600
Salem Twp	69932	Salt Creek Twp	70170	Springfield Twp	74125
Union Twp	78498	Washington Twp	81522	Wayne Twp	82236

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

NOBLE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Batesville	04192	Belle Valley	05158	Caldwell	10940
Dexter City	21910	Sarahsville	70520	Summerfield	75460
Beaver Twp	04682	Brookfield Twp	09162	Buffalo Twp	10142
Center Twp	12994	Elk Twp	24878	Enoch Twp	25438
Jackson Twp	37940	Jefferson Twp	38766	Marion Twp	47810
Noble Twp	56028	Olive Twp	58310	Seneca Twp	71352
Sharon Twp	71826	Stock Twp	74728	Wayne Twp	82250

OTTAWA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Clay Center	15588	Elmore	25144	Genoa	29722
Marblehead	47502	Oak Harbor	57582	Port Clinton	64150
Put-In-Bay	65032	Rocky Ridge	68042	Allen Twp	01322
Bay Twp	04304	Benton Twp	05620	Carroll Twp	12266
Catawba Island Twp	12588	Clay Twp	15546	Danbury Twp	20058
Erie Twp	25578	Harris Twp	33726	Portage Twp	64080
Put-In-Bay Twp.	65046	Salem Twp	69946		

PAULDING COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Antwerp	02204	Broughton	09386	Cecil	12700
Grover Hill	32620	Haviland	34552	Latty	41986
Melrose	49000	Oakwood	57792	Paulding	61252
Payne	61322	Scott	71080	Auglaize Twp.	03002
Benton Twp	05634	Blue Creek Twp	03002	Brown Twp	09512
Carryall Twp	12308	Crane Twp	19176	Emerald Twp	25298
Harrison Twp	33950	Jackson Twp	37954	Latty Twp	42000
Paulding Twp	61266	Washington Twp	81536		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

PERRY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Corning	18770	Crooksville	19456	Glenford	30436
Hemlock	34888	Junction City	39508	New Lexington	54866
New Straitsville	55552	Rendville	66222	Roseville	68560
Shawnee	71962	Someset	72977	Thornville	76680
Bearfield Twp	04584	Clayton Twp	15658	Coal Twp	16350
Harrison Twp	33964	Hopewell Twp	36386	Jackson Twp	37968
Madison Twp	46550	Monday Creek Twp	51198	Monroe Twp	51520
Pike Twp	62680	Pleasant Twp	63366	Reading Twp	65760
Salt Lick Twp	70226	Thorn Twp	76659		

PICKAWAY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Ashville	02680	Circleville	15070	Commercial Point	18070
Darbyville	20212	Harrisburg	33740	New Holland	54726
Orient	58800	South Bloomfield	73068	Tarlton	76148
Williamsport	85414	Circleville Twp	15077	Darby Twp	20156
Deer Creek Twp	21168	Harrison Twp	33978	Jackson Twp	37982
Madison Twp	46564	Monroe Twp	51534	Muhlenberg Twp	53256
Perry Twp	62008	Pickaway Twp	62484	Salt Creek Twp	70184
Scioto Twp	70870	Walnut Twp	80598	Washington Twp	81550
Wayne Twp	82264				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

PIKE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Beaver	04696	Piketon	62708	Waverly	81942
Beaver Twp	04710	Benton Twp	05648	Camp Creek Twp	11122
Jackson Twp	37996	Marion Twp	47824	Mifflin Twp	50078
Newton Twp	55622	Pebble Twp	61392	Pee Pee Twp	61434
Perry Twp	62022	Scioto Twp	70884	Seal Twp	71171
Sunfish Twp	75637	Union Twp	78512		

PORTAGE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Aurora	03086	Brady Lake	08168	Garrettsville	29442
Hiram	35658	Kent	39872	Mantua	47180
Mogadore	51058	Ravenna	65592	Streetsboro	75014
Sugar Brush Knoll	75196	Tallmadge	76106	Windham	85946
Atwater Twp	02862	Brimfield Twp	08840	Charlestown Twp	13610
Deerfield Twp	21210	Edinburg Twp	24584	Franklin Twp	28392
Freedom Twp	28742	Hiram Twp	35672	Mantua Twp	47194
Nelson Twp	53858	Palmyra Twp	59668	Paris Twp	59822
Randolph Twp	65462	Ravenna Twp	65606	Rootstown Twp	68392
Shalersville Twp	71731	Suffield Twp	75189	Windham Twp	85960

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

PREBLE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Camden	11024	College Corner	16700	Eaton	24234
Eldorado	24766	Gratis	31472	Lewisburg	42938
New Paris	55188	Verona	79898	W Alexander	82880
W Elkton	83216	W Manchester	82880	Dixon Twp	22106
Gasper Twp	29484	Gratis Twp	31486	Harrison Twp	33992
Israel Twp	37590	Jackson Twp	38010	Jefferson Twp	38780
Lanier Twp	41846	Monroe Twp	51548	Somers Twp	72964
Twin Twp	77994	Washington Twp	81564		

PUTNAM COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Belmore	05396	Cloverdale	16266	Columbus Grove	18014
Continental	18504	Dupont	22974	Ft Jennings	27818
Gilboa	30114	Glandorf	30282	Kalida	39536
Leipsic	42602	Miller City	50358	Ottawa	58982
Ottoville	59052	Pandora	59738	West Leipsic	83706
Blanchard Twp	06880	Greensburg Twp	32228	Jackson Twp	38024
Jennings Twp	38976	Liberty Twp	43288	Monroe Twp	51562
Monterey Twp	51660	Ottawa Twp	58996	Palmer Twp	59612
Perry Twp	62036	Pleasant Twp	63380	Riley Twp	67174
Sugar Creek Twp	75206	Union Twp	78526	Van Buren Twp	79450

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

RICHLAND COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bellville	05284	Butler	10632	Crestline	19330
Galion	29162	Lexington	42994	Lucas	45276
Mansfield	47138	Ontario	58520	Plymouth	63800
Shelby	72102	Shiloh	72298	Bloomington Twp	07230
Butler Twp	10646	Cass Twp	12420	Franklin Twp	28406
Jackson Twp	38038	Jefferson Twp	38794	Madison Twp	46578
Mifflin Twp	50092	Monroe Twp	51576	Perry Twp	62050
Plymouth Twp	63814	Sandusky Twp	70394	Sharon Twp	71830
Springfield Twp	74128	Troy Twp	77616	Washington Twp	81578
Weller Twp	82628	Worthington Twp	86618		

ROSS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Adelphi	00450	Bainbridge	03604	Chillicothe	14184
Clarksburg	15336	Frankfort	28182	Kingston	40376
South Salem	73698	Buckskin Twp	10016	Colerain Twp	16630
Concord Twp	18238	Deerfield Twp	21224	Franklin Twp	28420
Green Twp	31822	Harrison Twp	34006	Huntington Twp	36890
Jefferson Twp	38808	Liberty Twp	43302	Paint Twp	59542
Paxton Tw[43302	Paint Twp	59542	Paxton Twp	61308
Scioto Twp	70898	Springfield Twp	74129	Twin Twp	78008
Union Twp	78540				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

SANDUSKY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bellevue	05228	Burgoon	10282	Clyde	16308
Elmore	25144	Fremont	28826	Gibsonburg	30072
Green Springs	32256	Helena	34860	Lindsey	43904
Woodville	86492	Ballville Twp	03730	Green Creek Twp	31990
Jackson Twp	38052	Madison Twp	46592	Rice Twp	66460
Riley Twp	67188	Sandusky Twp	70408	Scott Twp	71087
Townsend Twp	77162	Washington Twp	81592	Woodville Twp	86506
York Twp	87080				

SCIOTO COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
New Boston	54166	Otway	59066	Portsmouth	64304
Rarden	65508	S Webster	73824	Bloom Twp	06992
Brush Creek Twp	09764	Clay Twp	15560	Green Twp	31836
Harrison Twp	34020	Jefferson Twp	38815	Madison Twp	46606
Morgan Twp	52150	Nile Twp	55902	Porter Twp	642006
Rarden Twp	65522	Rush Twp	69092	Union Twp	78554
Valley Twp	79170	Vernon Twp	79828	Washington Twp	81606

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

SENECA COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Attica	02820	Bettsville	06194	Bloomville	07286
Fostoria	28014	Green Springs	32256	New Riegel	55398
Republic	66320	Tiffin	76778	Adams Twp	00324
Big Spring Twp	06432	Bloom Twp	07006	Clinton Twp	16154
Eden Twp	24346	Hopewell Twp	36400	Jackson Twp	38066
Liberty Twp	43316	Loudon Twp	45052	Pleasant Twp	63394
Reed Twp	65942	Scipio Twp	71024	Seneca Twp	71355
Thompson Twp	76632	Venice Twp	79674		

SHELBY COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Anna	02092	Botkins	07832	Ft Loramie	27832
Jackson Center	38220	Kettlersville	40054	Lockington	44352
Port Jefferson	64262	Russia	69344	Sidney	72424
Clinton Twp	16168	Cynthian Twp	19834	Dinsmore Twp	22050
Franklin Twp	28434	Green Twp	31850	Jackson Twp	38080
Loramie Twp	44884	McClean Twp	46172	Orange Twp	58660
Perry Twp	62064	Salem Twp	69960	Turtle Creek Twp	77854
Van Buren Twp	79464	Washington Twp	81620		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

SUMMIT COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Akron	01000	Barberton	03828	Boston Heights	07790
Clinton	16182	Cuyahoga Falls	19778	Fairlawn	26166
Green	31860	Hudson	36651	Lakemore	41454
Macedonia	45976	Mogadore	51058	Munroe Falls	53312
New Franklin	54562	Northfield	56448	Norton	57260
Peninsula	61574	Reminderville	66152	Richfield	66530
Silver Lake	72494	Stow	74944	Tallmadge	76106
Twinsburg	78050	Bath Twp	04248	Boston Twp	07776
Copley Twp	18658	Coventry Twp	19036	Northfield Center Twp	56490
Richfield Twp	66544	Sagamore Hills Twp	06428	Springfield Twp	74130
Twinsburg Twp	78064				

TRUMBULL COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Cortland	18812	Girard	30198	Hubbard	36582
Lordstown	44912	McDonald	45934	Newton Falls	55650
Niles	55916	Orangeville	58674	W Farmington	83384
Warren	80892	Yankee Lake	86856	Youngstown	88000
Bazetta Twp	04444	Bloomfield Twp	07160	Braceville Twp	08056
Bristol Twp	08938	Brookfield Twp	09190	Champion Twp	13470
Farmington Twp	26684	Fowler Twp	28098	Green Twp	32046
Gustavus Twp	32732	Hartford Twp	34230	Howland Twp	36554
Hubbard Twp	36596	Johnston Twp	39298	Kinsman Twp	40502
Liberty Twp	43344	Mecca Twp	48678	Mespotamia Twp	49210
Newton Twp	55636	Southington Twp	73397	Vernon Twp	79856
Vienna Twp	80052	Warren Twp	80906	Weathersfield Twp	82446

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

TUSCARAWAS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Baltic	03744	Barnhill	03940	Bolivar	07594
Dennison	21714	Dover	22456	Gnadenhutten	30702
Midvale	49966	Mineral City	50764	Newcomerstown	54432
New Philadelphia	55216	Parral	61056	Port Washington	64346
Roswell	68742	Stone Creek	74804	Strasburg	74958
Sugar Creek	75210	Tuscarawas	77924	Uhrichsville	78176
Zoar	88168	Auburn Twp	02918	Bucks Twp	09988
Clay Twp	15574	Dover Twp	22470	Fairfield Twp	26082
Franklin Twp	28462	Goshen Twp	31066	Jefferson Twp	38836
Lawrence Twp	42182	Mill Twp	50232	Oxford Twp	59304
Perry Twp	62092	Rush Twp	69106	Salem Twp	69974
Sandy Twp	70443	Sugar Creek Twp	75217	Union Twp	78568
Warren Twp	80920	Warwick Twp	81060	Washington Twp	81648
Wayne Twp	82292	York Twp	87094		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

UNION COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Dublin	22694	Magnetic Springs	46830	Marysville	48160
Milford Center	50218	Plain City	63030	Richwood	66936
Unionville Center	78834	Allen Twp	01336	Claibourne Twp	15112
Darby Twp	20170	Dover Twp	22484	Jackson Twp	38108
Jerome Twp	39046	Leesburg Twp	42490	Liberty Twp	43358
Mill Creek Twp	42490	Liberty Twp	43358	Mill Creek Twp	50288
Paris Twp	59864	Taylor Twp	76194	Union Twp	78582
Washington Twp	81662	York Twp	87122		

VAN WERT COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Convoy	18546	Delphos	21602	Elgin	24794
Middlepoint	49728	Ohio City	58002	Scott	71808
Van Wert	79562	Vendocia	79632	Willshire	85736
Wren	86632	Harrison Twp	34034	Hoaglin Twp	35756
Jackson Twp	38122	Jennings Twp	38990	Liberty Twp	43372
Pleasant Twp	63408	Ridge Twp	66978	Tully Twp	77756
Union Twp	78596	Washington Twp	81676	Willshire Twp	85750
York Twp	87136				

VINTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Hamden	32956	Mcarthur	45696	Wilkesville	85190
Zaleski	88028	Brown Twp	09526	Clinton Twp	16210
Eagle Twp	23100	Elk Twp	24892	Harrison Twp	34048
Jackson Twp	38136	Knox Twp	40880	Madison Twp	46620
Richland Twp	66768	Swan Twp	75854	Vinton Twp	80192
Wilkesville Twp	85204				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

WARREN COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Carlisle	12168	Corwin	18840	Franklin	28476
Harveysburg	34384	Lebanon	42364	Loveland	45108
Maineville	46872	Mason	48188	Middletown	49840
Monroe	51310	Morrow	52374	Pleasant Plain	63576
South Lebanon	73446	Springboro	74076	Waynesville	82418
Clear Creek Twp	15700	Deerfield Twp	21238	Franklin Twp	28490
Hamilton Twp	33068	Harlan Twp	33474	Massie Twp	48216
Salem Twp	69988	Turtle Creek Twp	77868	Union Twp	78610
Washington Twp	81690	Wayne Twp	82306		

WASHINGTON COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Belpre	05424	Beverly	06222	Lowell	45164
Lower Salem	45220	Macksburg	46158	Marietta	47628
Matamoras	48286	Adams Twp	00338	Aurelius Twp	03072
Barlow Twp	03898	Belpre Twp	05438	Decatur Twp	21098
Dunham Twp	22918	Fairfield Twp	26096	Fearing Twp	26810
Grandview Twp	31276	Independence Twp	37268	Lawrence Twp	42196
Liberty Twp	43386	Ludlow Twp	45360	Marietta Twp	47642
Muskingum Twp	53452	Newport Twp	55356	Palmer Twp	59626
Salem Twp	70002	Warren Twp	80934	Waterford Twp	81774
Watertown Twp	81844	Wesley Twp	82838		

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

WAYNE COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Apple Creek	02232	Burbank	10254	Congress	18308
Creston	19344	Dalton	19974	Doylestown	22568
Fredericksburg	28616	Marshallville	48048	Mt Eaton	52682
Norton	57260	Orrville	58828	Rittman	67356
Shreve	72396	Smithville	72788	West Salem	84196
Wooster	86548	Baughman Twp	04276	Canaan Twp	11276
Chester Twp	14044	Chippewa Twp	14240	Clinton Twp	16224
Congress Twp	18322	East Union Twp	24136	Franklin Twp	28504
Green Twp	31878	Milton Twp	50666	Paint Twp	59556
Plain Twp	62995	Salt Creek Twp	70198	Sugar Creek Twp	75231
Wayne Twp	82320	Wooster Twp	86562		

WILLIAMS COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Alvordton	01588	Blakeslee	06810	Bryan	09792
Edgerton	24486	Edon	24640	Holiday City	35864
Montpelier	51772	Pioneer	62834	Stryker	75140
W Unity	84308	Brady Twp	08140	Bridgewater Twp	08630
Center Twp	13008	Florence Twp	27530	Jefferson Twp	38864
Madison Twp	46634	Mill Creek Twp	50302	Northwest Twp	57162
Pulaski Twp	64920	Saint Joseph Twp	69638	Springfield Twp	74131
Superior Twp	75819				

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX C – Item #4 Place Codes (FIPS)

WOOD COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Bairdstown	03646	Bloomdale	07062	Bowling Green	07972
Bradner	08112	Custar	19750	Cygnetsburg	19820
Fostoria	28014	Grand Rapids	31206	Haskins	34412
Hoytville	36568	Jerry City	39074	Luckey	45332
Millbury	50260	Milton Center	50708	N Baltimore	56154
Northwood	57190	Pemberville	61504	Perrysburg	62148
Portage	64108	Rising Sun	67314	Rossford	68686
Tontogany	77070	W Millgrove	83888	Walbridge	80486
Wayne	82334	Weston	83972	Bloom Twp	07020
Center Twp	13015	Freedom Twp	28756	Grand Rapids Twp	31220
Henry Twp	34986	Jackson Twp	38164	Lake Twp	41328
Liberty Twp	43400	Middleton Twp	49812	Milton Twp	50680
Montgomery Twp	51744	Perry Twp	62106	Perrysburg Twp	62162
Plain Twp	63002	Portage Twp	64122	Troy Twp	77630
Washington Twp	81704	Webster Twp	82544	Weston Twp	83986

WYANDOT COUNTY

<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>	<u>City/Twp.</u>	<u>FIPS</u>
Carey	12112	Harpster	33656	Kirby	40558
Marseilles	47992	Nevada	53942	Sycamore	75980
Nevada	53942	Sycamore	75980	Upper Sandusky	79044
Wharton	84574	Antrim Twp	02190	Crane Twp	19190
Crawford Twp	19246	Eden Twp	24360	Jackson Twp	38178
Marseilles Twp	48006	Mifflin Twp	50106	Pitt Twp	62904
Richland Twp	66782	Ridge Twp	66992	Salem Twp	70016
Sycamore Twp	75987	Tymochtee Twp	78141		

APPENDIX D – Substructure - Abutments & Piers

Semi-Integral Abutments – Consider the portion above the horizontal form line as a diaphragm or crossframe. The abutment wall is below the bottom flange of the beam. The abutment is located below the form line or polystyrene. Bearings should be rated for semi-integral. Inspect what you see AND allow indications of deficiencies to influence a lower condition rating when the unseen item is directly affected.



Figure 88 - Semi-Integral Abutment

Integral Abutments – Do not have bearings or abutment caps. Consider the portion above the horizontal form line as a diaphragm or crossframe. The abutment wall is below the bottom flange of the beam.

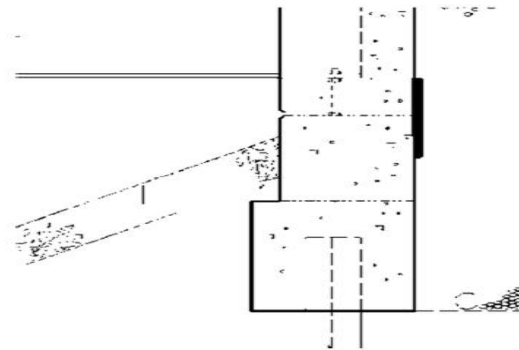


Figure 89 - Integral Abutment

APPENDIX D – Substructure - Abutments & Piers



Figure 91 - Steel Capped Bent Abutment with Timber Lagging



Figure 92 - Pier Wall

APPENDIX D – Substructure - Abutments & Piers



Figure 93 - Capped Bile Bent

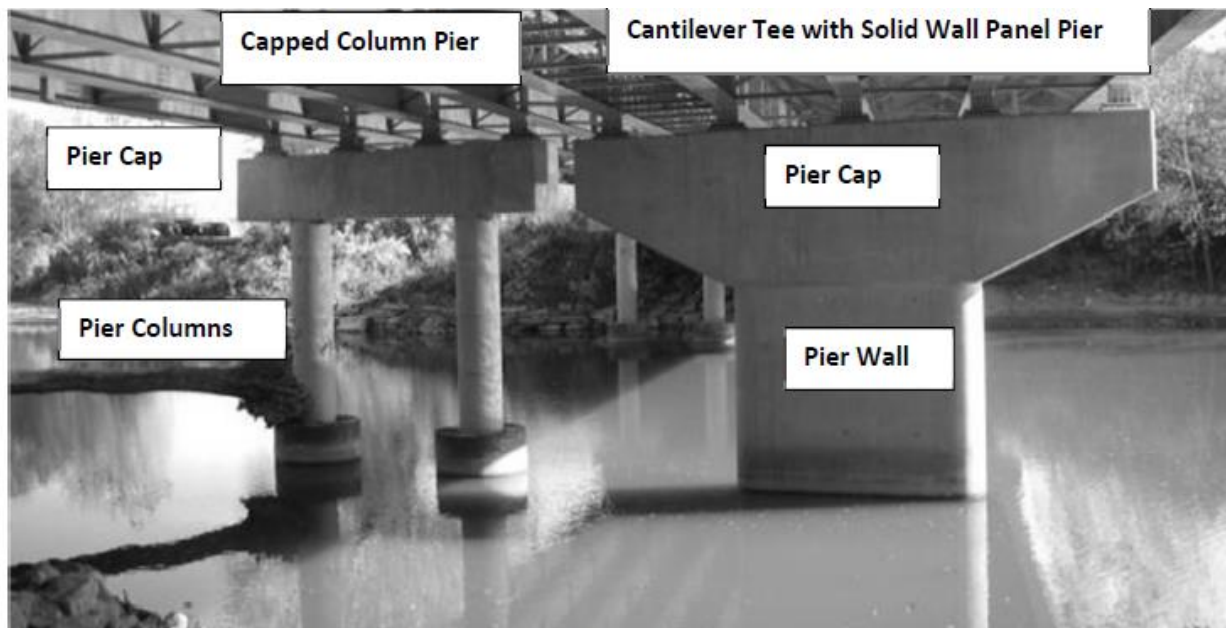


Figure 94 - Concrete Capped Column and Hammerhead Cantilever Pier

APPENDIX D – Substructure - Abutments & Piers

Full Height Wall vs. Stub Wall– Full height, stub (breast wall is generally less than or equal to 4')



Figure 86 - Full Height Abutment



Figure 87 - Stub Abutment

APPENDIX E – Item 248 Original Construction **Project Number**

- A. Structures sold an originally built under a Project Number. Code the project number in the first four (4) positions of the item, right justified and using leading zeros where necessary. Code the last two (2) digits of the year in which the project was sold in the last two (2) positions of the item.
- B. Structures built by Force Account (by Agency Forces). Code the capital letters “FA” in the third and fourth character position of the item and code the last two (2) digits of the year in which the structure was built in the last (2) positions of the item.
- C. Structures built by non-state agencies, including those built by States other than Ohio and those constructed under private contracts. Code an alphabetic abbreviation to represent the agency that constructed that bridge using all capital letters. A combination of alphabetic and numeric characters may be used in this item to identify specific contracts by an agency. Numerals, if used, may only be coded in the first four (4) character positions. Coded abbreviations using less than six (6) characters must be right justified and filled with leading zeros. See Appendix G for suggested abbreviation standards.
- D. Structures built by State agencies other than the Department of transportation, such as the Ohio Turnpike Commission, the Conservancy Districts, the Department of Natural Resources, etc., should code a contract or project number using that agency’s scheme of alphabetic and/or numeric characters. If such a number is not available or impractical, code an abbreviation following the scheme described in Part “C” above. See Appendix G for suggested standards.
- E. Structures for which either incomplete or no information is available. Code the key word “UNKNWN” in the item. Although it is recommended that all records submitted include the information required in this item non-state agencies (Counties, municipalities, etc.) are not required to code the item. If these agencies decide to code the information, a uniform individualized system should be adopted by an agency. If an agency has a bridge that was sold through ODOT “Contract Sales”, they should code the item for the bridge as described

APPENDIX F – Pier Types

***** Blank *****

APPENDIX G – Suggested Standard Codings for Ohio Original Construction Project Numbers

The following list of abbreviations includes those for non-state and other (non-DOT) State agencies most commonly involved. For agencies not listed, it will be necessary for the coder to create his own abbreviation using the same logic and being careful not to cause confusion by duplicating those shown in this list.

NONE-STATE AGENCY CONSTRUCTION	
<u>Structure built by</u>	<u>Code</u>
Federal Public Work Programs such as “WPA” and “CCC”	“000FPW”
County Construction not sold under State contract system	“COUNTY”
Army Corps of Engineers	“OOOOCE”
Private Contract	“OOOOPC”
City Construction not sold under State contract system	“OOOCITY”
Other State DOT (Example: Florida DOT)	“FLADOT”

OTHER-STATE AGENCY CONSTRUCTION	
<u>Structure built by</u>	<u>Code</u>
Ohio Turnpike Commission (Using Contract Number)	“OOOOTP” “OO25TP”
State Public Works Program	“OOOSPW”
Ohio Building Authority	“OOOOBA”
Ohio Department of Natural Resources	“OOODNR”
Ohio Bridge Commission	“OOOBC”
Ohio National Guard	“OOOONG”
Muskingum Conservancy District	“OOOMCD”

APPENDIX H – ODOT Standardized Coding for Route Number Suffix's

To be coded in last digit positions only of “**ROUTE**” portion of Items 5D and 370D when a single digit suffix is required to describe an official special category route.

<u>Suffix Code</u>	<u>Special Route Designation</u>
A	Alternate
B	Bypass
C	Spur or Connector
D	Directional Alternate (1 st within County)
F	Directional Alternate (2 nd within County)
G	Directional Alternate (3 rd within County)
J	Future
T	Temporary
K	Turnpike (special code to allow differentiation between I-80 & i-76 Ohio Turnpike and ODOT controlled I-80 & I-76)
X	Duplicate Route (usually old route still on System after new route of same number is open to traffic)

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX I – Item 19 Bypass (Detour) Length

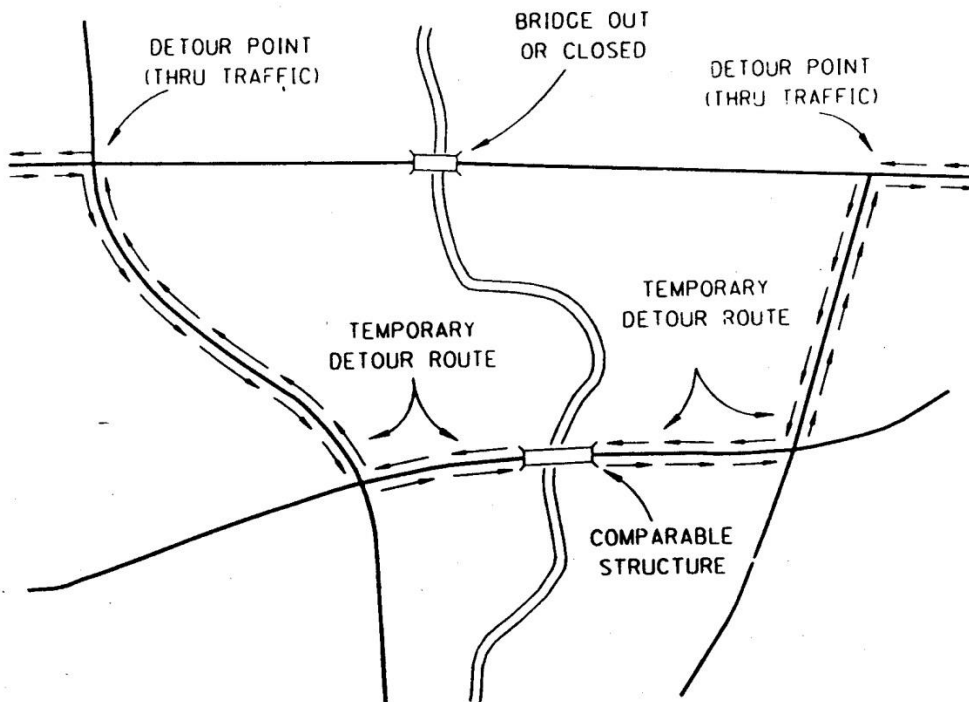
The Bypass (Detour) Length (additional travel distance) for the example show below is calculated as follows:

Length of Route being bypassed measured between detour points = 10.3 miles.

Length of Detour Route used to temporarily bypass the problem site, measured between detour points = 19.6 miles.

Bypass (Detour) length – 19.6 miles – 10.3 miles = 9.3 miles (Code 09 Miles)

BYPASS (DETOUR) LENGTH



STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX J – Item 214 Railroad Identification

<u>Code</u>	<u>Railroad Company</u>
02	Akron Barberton Cluster Railroad
01	Ann Arbor Railroad
04	Ashland Railway
03	Ashtabula, Carson & Jefferson Railroad
05	Bessemer & Lake Erie Railroad Company
10	Central Railroad Company of Indiana
11	Columbus & Ohio River Railroad Company
12	Consolidated Railroad Corporation
13	CSX Transportation Inc.
14	Cincinnati Terminal Railway Company
15	Cuyahoga Valley Railway Company
20	Great Miami & Scioto Railway Company
21	Germantown Rail Siding Company
22	Grand Trunk & Western Railroad
23	Indiana & Ohio Central Railroad
24	Indiana Northeastern Railway Company
25	Indiana & Ohio Rail Corporation
30	Indiana & Ohio Railway
31	Lake Terminal Railroad
32	Norfolk Southern Corporation
33	Nimishillon & Tuscarawas Railway Company
34	Newburgh & South Shore Railway Company
35	Ohio-Rail Corporation
40	Ohio Central Railroad
41	Ohio Southern Railroad
42	Pittsburgh & Lake Erie Railroad Company
43	PL & W Railroad
44	R.J. Corman Railroad
45	River Terminal Railway Company
50	Spencerville & Elgin Railroad
51	Temperance Yard Corporation
52	Wheeling & Lake Erie Railway Company
53	The Warren & Trumbull Railroad Company
54	Wabash & Erie Railroad Company
55	Youngstown & Austintown Railroad Company
90	Greater Cleveland Regional Transit Authority (Transit)
91	Central Ohio Transit Authority (Transit)
92	Southwestern Ohio Regional Transit Authority
93	Akron Metro Regional Transit Authority
NN	None or Not Applicable

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX K – Item 204 Ohio Designated MPO

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
ADA	NN	NONE
ALL	12	TCC: Lima & Allen County
ASD	NN	NONE
ATB	NN	NONE
ATH	NN	NONE
AUG	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
BEL	03	BOMTS: Wheeling – Bridgeport
BRO	NN	NONE
BUT	09	OKI: Ohio Kentucky Indiana – Cincinnati

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
CAR	NN	NONE
CHP	NN	NONE
CLA	14	TCC: Springfield
CLE	09	OKI: Ohio Kentucky Indiana – Cincinnati
CLI	NN	NONE
COL	NN	NONE
COS	NN	NONE
CRA	NN	NONE
CUY	08	NOACA: Cleveland

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
DAR	NN	NONE
DEF	NN	NONE
DEL	07	MORPC: Mid-Ohio - Columbus

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
ERI	17	ERPC: Erie County - Vermilion

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
FAI	07	MORPC: Mid-Ohio – Columbus
FAI	NN	NONE
FAI	UU	UNKNOWN: Fairfield

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX K – Item 204 Ohio Designated MPO

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
FAY	NN	NONE
FRA	07	MORPC: Mid-Ohio – Columbus
FUL	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
GAL	NN	NONE
GEA	08	NOACA: Cleveland
GRE	11	MVRPC: Miami Valley – Dayton
GUE	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
HAM	09	OKI: Ohio Kentucky Indiana - Cincinnati
HAN	NN	NONE
HAR	NN	NONE
HAS	NN	NONE
HEN	NN	NONE
HIG	NN	NONE
HOC	NN	NONE
HOL	NN	NONE
HUR	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
JAC	NN	NONE
JEF	02	BHJTS: Steubenville - Weirton

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
KNO	NN	NONE

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX K – Item 204 Ohio Designated MPO

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
LAK	08	NOACA: Cleveland
LAW	05	HAIATS: Huntington
LAW	NN	NONE
LAW	UU	UNKNOWN
LIC	06	LCATS: Newark – Heath
LIC	07	MORPC: Newark – Heath
LIC	UU	UNKNOWN
LOG	NN	NONE
LOR	08	NOACA: Cleveland
LOR	17	ERPC – Vermilion
LUC	15	TMACOG - Toledo

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
MAD	NN	NONE
MAH	04	EDATA: Youngstown
MAR	NN	NONE
MED	08	NOACA: Cleveland
MEG	NN	NONE
MER	NN	NONE
MIA	11	MVRPC: Miami Valley – Dayton
MOE	NN	NONE
MOT	11	MVRPC: Miami Valley – Dayton
MRG	NN	NONE
MRW	NN	NONE
MUS	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
NOB	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
NOB	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
OTT	NN	NONE

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX K – Item 204 Ohio Designated MPO

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
PAU	NN	NONE
PER	NN	NONE
PIC	NN	NONE
PIK	NN	NONE
POR	01	AMATS: Akron
PRE	NN	NONE
PUT	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
RIC	13	TCC: Mansfield
ROS	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
SAN	NN	NONE
SCI	NN	NONE
SEN	NN	NONE
SHE	NN	NONE
STA	10	SCATS: Canton
SUM	01	AMATS: Akron

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
TRU	04	EDATA: Youngstown
TUS	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
UNI	NN	NONE

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
VAN	NN	NONE
VIN	NN	NONE

APPENDIX K – Item 204 Ohio Designated MPO

<u>COUNTY</u>	<u>MPO</u>	<u>DESCRIPTION</u>
WAR	09	OKI: Ohio Kentucky Indiana – Cincinnati
WAS	NN	NONE
WAS	UU	UNKNOWN
WAS	16	WWW: Parkersburg – Belpre
WAY	01	AMATS: Akron
WAY	NN	NONE
WAY	UU	UNKNOWN
WIL	NN	NONE
WOO	15	TMACOG: Toledo
WAY	NN	NONE

STRUCTURE MANAGEMENT SYSTEM (SMS)

APPENDIX L – Coding of Load Rating

How to Code Load Rating of a New Bridge with No Load Rating Analysis

Item#	Description	Code	Notes
63	Operating Method of Rating	5	No rating analysis performed
64	Operating Rating	45.000	tons
65	Inventory Method of Rating	5	No rating analysis performed
66	Inventory Rating	36.000	tons
700	Operating Rating Load	3	HL93 Loading
702	Inventory Rating Load	3	HL93 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	0	No calculations were done for load rating (Default)
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

How to Code Load Rating of a Bridge (by LFR Method) Exempt from Load Rating per ODOT BDM Section 900

Item#	Description	Code	Notes
63	Operating Method of Rating	D	Assigned ratings based on LFR
64	Operating Rating	1.250	RF=1.250 (based on a ratio of HS25/HS20)
65	Inventory Method of Rating	D	Assigned ratings based on LFR
66	Inventory Rating	1.000	RF=1.000
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

How to Code Load Rating of a Bridge (by LRFR Method) Exempt from Load Rating per ODOT BDM Section 900

Item#	Description	Code	Notes
63	Operating Method of Rating	F	Assigned ratings based on LRFR
64	Operating Rating	1.250	RF=1.250 (based on a ratio of HS25/HS20)
65	Inventory Method of Rating	F	Assigned ratings based on LRFR
66	Inventory Rating	1.000	RF=1.000
700	Operating Rating Load	2	HL93 Loading

STRUCTURE MANAGEMENT SYSTEM (SMS)

702	Inventory Rating Load	2	HL93 Loading
704	Load Rating Date	2016	Year when load rating was determined
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

How to Code Load Rating of a Bridge under More Than 6.5 Feet (~2 meters) Of Fill

Item#	Description	Code	Notes
63	Operating Method of Rating	D	Assigned rating based on LFR
64	Operating Rating	3.000	Maximum value of RF=3.000
65	Inventory Method of Rating	D	Assigned rating based on LFR
66	Inventory Rating	3.000	Maximum value of RF=3.000
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

How to Code Load Rating of a Bridge with Assigned Load Rating {For Culverts Designed Using ASTM C1577 (LRFD), C1433 (LFD), C789 (LFD) & C850 (LFD)}

Rating Load: HS20

Item#	Description	Code	Notes
63	Operating Method of Rating	D	Assigned ratings based on LFR
64	Operating Rating	1.250	RF=1.250 (based on HS25/HS20)
65	Inventory Method of Rating	D	Assigned ratings based on LFR
66	Inventory Rating	1.000	RF=1.000
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

STRUCTURE MANAGEMENT SYSTEM (SMS)

How to Code Load Rating of a Bridge with Assigned Load Rating {For Culverts Designed Using ASTM C1577 (LRFD), C1433 (LFD), C789 (LFD) & C850 (LFD)}

Rating Load: HL93

Item#	Description	Code	Notes
63	Operating Method of Rating	F	Assigned ratings based on LRFR
64	Operating Rating	1.300	RF=1.300
65	Inventory Method of Rating	F	Assigned ratings based on LRFR
66	Inventory Rating	1.000	RF=1.000
700	Operating Rating Load	3	HL93 Loading
702	Inventory Rating Load	3	HL93 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	7	Combination
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	150	Assuming 150% for a new structure

How to Code Load Rating of a Bridge When No Plans or Information Available for Load Rating (Also known as Good-5 Bridge)

Item#	Description	Code	Notes
63	Operating Method of Rating	0	Field evaluation documented
64	Operating Rating	45.000	tons
65	Inventory Method of Rating	0	Field evaluation documented
66	Inventory Rating	36.000	tons
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading
704	Load Rating Date	2013	Year when load rating was determined
708	Software of Rating Analysis	0	No calculations were done for load rating (Default)
709	Rating Source	0	No Plan & Information available for load rating
732	Ohio Percent of Legal Loads	100	Range based on the Engineering Judgment

How to Code Load Rating of a Bridge That Is Rated 100% Legal or Above but the Engineer Wants to Post It

Item#	Description	Code	Notes
63	Operating Method of Rating	0	Field evaluation documented
64	Operating Rating	25.000	tons
65	Inventory Method of Rating	0	Field evaluation and documented
66	Inventory Rating	18.000	Example, tons
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading

STRUCTURE MANAGEMENT SYSTEM (SMS)

704	Load Rating Date	2013	Year when load rating was determined
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	90	Example: the Engineer wants to post it at, say 90%

How to Code Load Rating of a Bridge That Is Rated Below 100% Legal But the Engineer Does not Want to Post It

<u>Item#</u>	Description	Code	Notes
63	Operating Method of Rating	0	Field evaluation documented
64	Operating Rating	36.000	Example, tons
65	Inventory Method of Rating	0	Field evaluation and documented
66	Inventory Rating	27.000	Example, tons
700	Operating Rating Load	2	HS20 Loading
702	Inventory Rating Load	2	HS20 Loading
704	Load Rating Date	2013	Year when load rating was determined
709	Rating Source	1	Plans & Information available for load rating
732	Ohio Percent of Legal Loads	100	100% or more Ohio Legal

STRUCTURE MANAGEMENT SYSTEM (SMS)

STATE OF OHIO BRIDGE INSPECTION FIELD REPORT									
SFN	Bridge Number	Year Built						Municipality	
DIST	Feature Intersected								
APPROACH ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c1. Wearing Surface (SF)									
c2. Slab (SF)									
c3. Relief Joint (LF)									
c4. Embankment (LF) ^{ded}									
c5. Guardrail (LF)									
N36. Safety Features: Tr, Gr, Tm	36)B	36)C	36)D						
c6. Approach Summary									(9-0)
DECK ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c7. Floor/Slab (SF)									
c8. Wearing Surface (SF)									
c9. Curbs/Sidewalk (LF)									
c10. Median (LF)									
c11. Railing (LF)									
N36. Safety Features: Rail	36)A								
c12. Drainage (EA) ^{ded}									
c13. Expansion Joint (LF) ^{ded}									
N58. Deck Summary									(9-0)
SUPERSTRUCTURE ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c14. Alignment (EA) ^{ded}									
c15. Beams/Girders (LF)									
c16. Diaphragm/X-Frames (EA)									
c17. Stringers (LF)									
c18. Floorbeams (LF)									
c19. Truss Verticals (EA)									
c20. Truss Diagonals (EA)									
c21. Truss Upper Chord (EA)									
c22. Truss Lower Chord (EA)									
c23. Truss Gusset Plate (EA) ^{ded}									
c24. Lateral Bracing (EA)									
c25. Sway Bracing (EA)									
c26. Bearing Devices (EA) ^{ded}									
c27. Arch (LF)									
c28. Arch Column/Hanger (EA)									
c29. Arch Spandrel Walls (LF)									
c30. Prot. Coating System (LF) ^{ded}									
c31. Pins/Hangers/Hinges (EA) ^{ded}									
c32. Fatigue (LF) ^{ded}									
N59. Superstructure Summary									(9-0)
SUBSTRUCTURE ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c33. Abutment Walls (LF)									
c34. Abutment Caps (LF)									
c35. Abut. Columns/Bents (EA)									
c36. Pier Walls (LF)									
c37. Pier Caps (LF)									
c38. Pier Columns/Bents (EA)									
c39. Backwalls (LF)									
c40. Wingwalls (LF)									
c42. Scour (LF) ^{ded}									
c43. Slope Protection (LF) ^{ded}									
N60. Substructure Summary									(9-0)
CULVERT ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c44. General (LF)									
c45. Alignment (LF) ^{ded}									
c46. Shape (LF) ^{ded}									
c47. Seams (LF) ^{ded}									
c48. Headwall/Endwall (LF)									
c49. Scour (LF) ^{ded}									
c50. Abutments (LF)									
N62. Culvert Summary									(9-0)
CHANNEL ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c51. Alignment (LF) ^{ded}									
c52. Protection (LF) ^{ded}									
c53. Hydraulic Opening (EA) ^{ded}									
c54. Navigation Lights (EA) ^{ded}									
N61. Channel Summary									(9-0)
SIGN/UTILITY ITEMS									
	Qty.	condition state				cr			
		1	2	3	4	TR			
c55. Signs (EA) ^{ded}									
c56. Sign Supports (EA) ^{ded}									
c57. Utilities (LF) ^{ded}									
N59, 60 or 62 General Appraisal									(9-0)
N41. Operating Status									(Open, Restricted, or Closed)
Inspector Name _____ Inspection Date/Type _____ RT FC UW SP Reviewer Name _____ Review Date _____ PE Number (Insp or Rev) _____									

Key: "Qty" = Quantity for Element Level Inspection; "(LF)" = Linear Feet; "(SF)" = Square Feet; "(EA)" = Each or count; "CR" = 1-4 Condition Rating or average of worst span unless Summary item 9-0, then the average of entire bridge influenced by the **bold** boxes; "TR" = Transition Rating or weighted average of condition states; "ded" = dedicated or specific chart and guidance, all others use Material specific chart/guidance; "c" = condition prefix; "N" = NBIS rating