FLORIDA RAIL HIGHWAY CROSSING INVENTORY (RHCI) DATA ENTRY TOOL

Prepared for:

The Florida Department of Transportation's (FDOT)

Freight and Rail Office (FRO)

Prepared by:

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INTRODUCTION

The Rail Highway Crossing Inventory (RHCI) database is the central repository for all Florida highway-rail crossings system data. It is maintained by the Florida Department of Transportation's (FDOT) Freight and Rail Office (FRO) in cooperation with the Federal Railroad Administration (FRA) and Florida's Railroads. The RHCI database stores data collected in accordance with guidance from FRA and FDOT. More specifically, rail-highway crossing data is to be collected consistently with the *FRA U.S. DOT Crossing Inventory Form 6180.71*, the *FRA Guide for Preparing U.S. DOT Crossing Inventory Forms*, and the *FRA Instructions for Electronic Submission of U.S. DOT Crossing Inventory Data Grade Crossing Inventory System (GCIS)*, in addition to FDOT's requirements.

The FDOT's *RHCI Data Collection Tool* is a web-based application to be used for field data collection, desktop review, data analysis, quality assurance (QA), quality control (QC), and transferring data into the RHCI database. This document describes definitions and methods to be applied in data collection and review processes, with the purpose of ensuring the accuracy and consistency of data entries. If an item in the *RHCI Data Collection Tool* corresponds to an item in the *FRA U.S. DOT Crossing Inventory Form 6180.71*, the FRA's item number is provided in brackets. For example, "**A-2 County (I.3)**" corresponds to **Part I, Item 3** in the *FRA U.S. DOT Crossing Inventory Form 6180.71*. Another important reference used in this document is the Federal Highway Administration (FHWA)'s *Manual on Uniform Traffic Control Devices (MUTCD)*, which provides descriptions and example photos for traffic control devices.

The rest of this document presents data items in eight sections:

A. GENERAL
B. RAILROAD
C. ROAD
D. SIGNS
E. SIGNALS
F. GATES
G. VICINITY
H. PHOTOS

Data items are presented in the same order as they appear in the *RHCI Data Collection Tool*.

A. GENERAL

Roadway Location

A-1. DISTRICT

District

Check the appropriate box to indicate which FDOT district the crossing is located in. This information is entered by office staff.

A-2. COUNTY (I.3)

County (I.3)

Select the name of the county where the crossing is located. The county must be in the FDOT district identified (see **A-1**). This information is entered by office staff. If the crossing is on a county line (i.e., parts of the crossing lie in two or more counties), a decision must be made to place it in only one county. It is suggested that the crossing be shown as in the county that is geographically south or east of the crossing.

A-3. CITY (I.4)

City (I.4)

Select the name of the city where the crossing is located. If the crossing is located within the boundaries of a city, town, or village, select "**In City**" and select (from the list) the name of the city, town, or village in which the crossing is located. The city must be in the county identified above (see **A-2** [**I.3**]). This information is entered by office staff.

If the crossing is not within the boundaries of a city, town, or village, select "**Near City**" and select the name of the city or municipality along the rail line that is closest to the crossing. The city does not have to be in the county identified above.

If parts of the crossing lie in two or more cities, towns, or villages, identify only one city or municipality. This should be noted in the Comment section in RHCI (I.31.A).

A-4. STATE ROUTE NUMBER (I.6)

State Route Number (I.6)

SR-

Enter the roadway's State Route Number (if applicable). This is a numeric data field with a maximum length of 5 characters. If there is more than one number, enter the most important route, or all the numbers separated by a comma. This information is entered by office staff.

A-5. COUNTY ROUTE NUMBER (I.6)

County Route Number (I.6)

CR-

Enter the roadway's County Route Number (if applicable). This is a numeric data field with a maximum length of 5 characters. If there is more than one number, enter the most important route, or all the numbers separated by a comma. This information is entered by office staff.

A-6. U.S. ROUTE NUMBER (I.6)

U.S. Route Number (I.6)

US-

Enter the roadway's U.S. Route Number (if applicable). This is a numeric data field with a maximum length of 5 characters. If there is more than one number, enter the most important route, or all the numbers separated by a comma. This information is entered by office staff.

A-7. LOCAL STREET NAME (I.5)

Local Street Name (I.5)

Enter the full street name without abbreviations (e.g., N. Canal St. should be North Canal Street, 4th Oak Ave should be Fourth Oak Avenue). Street name aliases should not be used. If the roadway is private and it has a name, enter the name of the road or the owner's name. Otherwise, if such information is unknown, enter "private". When the railroad tracks run diagonally through a highway-highway intersection, thus bisecting the two roadways, only one Inventory Number is to be assigned and the names of both roadways are to be identified in the

Street/Road Name data field. Therefore, when entering both roadways in this block, separate with " / ," for example "Elm Street/Main Avenue". This information is entered by office staff and verified by field staff.

A-8. RAILROAD LOCAL STREET NAME

Railroad Local Street Name

A local street name may change at an intersection. In this case, the local street name on the cabinet may be different from the actual street name where the rail crossing is located at. This information, if applicable, can be found on the cabinet. For example, Crossing 273047Y is located just west of the US-1 and Aviation Blvd./32nd St. intersection (**Figure 1**). Its "**Local Street Name**" (**A-7**) is "Aviation Boulevard", while its street name on cabinet is "32nd street" (**Figure 2**). "32nd Street" is Crossing 273047Y's "**Railroad Local Street Name**".

Figure 1. Crossing 273047Y

Figure 2. Cabinet at Crossing 273047Y

A-9. BLOCK NUMBER (I.5)

Block Number (Optional) (I.5)

The block number field is optional. Enter the block number (up to 6 characters) of the street or road where the crossing is located. For example, if the closest building has an address of “4285”, then the block number is “4200”. This information is entered by office staff.

A-10. LATITUDE (I.27)

Latitude (I.27)

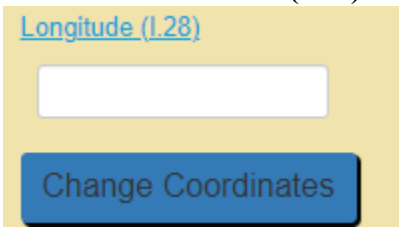
Change Coordinates

Enter the latitudinal coordinate as measured at the center of the crossing. This field must be entered in decimal form as (nn.nnnnnnn), with at least five and up to seven digits to the right of the decimal point. This information is entered by office staff and verified by field staff. Actual longitude measurements can be obtained either with a GPS device at the crossing location, or by using an Internet mapping program, such as Google Maps or Bing Maps. The data entry tool offers a "**Change Coordinates**" button, which directs users to Google Maps. Click on the railway crossing of interest, and its coordinates will appear in the upper-left corner, with the latitude listed first.

To convert latitude values from degrees, minutes, and seconds to decimal form:

$$Latitude\ in\ decimal\ format = Degrees + \frac{minutes}{60} + \frac{seconds}{3{,}600}$$

A-11. LONGITUDE (I.28)

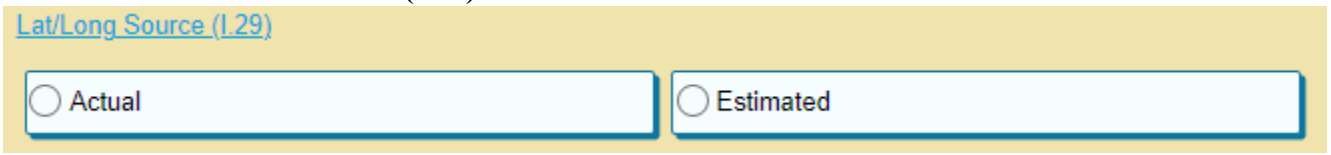


Enter the longitudinal coordinate as measured at the center of the crossing. This field must be entered in decimal form as (-nnn.nnnnnnn), with at least five and up to seven digits to the right of the decimal point. This information is entered by office staff and verified by field staff. Actual longitude measurements can be obtained either with a GPS device at the crossing location, or by using an Internet mapping program, such as Google Maps or Bing Maps. The data entry tool offers a "**Change Coordinates**" button, which directs users to Google Maps. Click on the railway crossing of interest, and its coordinates will appear in the upper-left corner, with the longitude listed second.

To convert longitude values from degrees, minutes, and seconds to decimal form:

$$Longitude\ in\ decimal\ format = Degrees + \frac{minutes}{60} + \frac{seconds}{3{,}600}$$

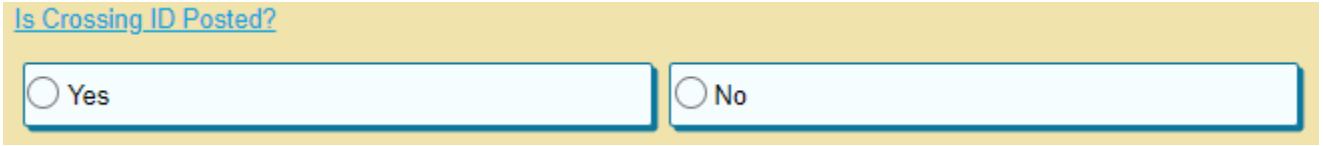
A-12. LAT/LONG SOURCE (I.29)



Latitude and longitude coordinate values provided after March 7, 2015, must be actual values. This information is entered by office staff.

Actual values are those where GPS measurements are taken at the crossing or determined by a positive identification method. Latitude and longitude values, in general, should be taken in the field at the intersection of the centerline of the roadway or pathway with the centerline of the railroad tracks with a horizontal accuracy of 1 meter or better. Values obtained using mapping software, such as Google or Bing maps, are considered "**Actual**" values.

A-13. IS CROSSING ID POSTED



Check the appropriate box to indicate if the Crossing ID is posted. This information is entered by field staff.

A-14. ROADWAY ID NUMBER

The roadway's ID number is obtained from the Roadway Characteristics Inventory (RCI). The roadway ID number consists of three parts (separated by a slash). The first part of the roadway ID number is the county code (2 digits), which is automatically generated based on the County identified in **A-2**. The second part is the Section number (3 digits), and the third part is the Subsection number (3 digits). This information is entered by office staff.

A-15. HIGHWAY MILEPOINT

The "Highway Milepoint" must be entered in decimal form as (nn.nnn), with 3 digits to the right of the decimal point and up to 2 digits to the left of the decimal point. This information is entered by office staff and verified by field staff.

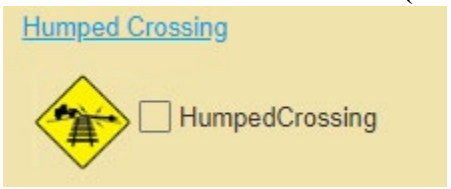
A-16. RAILWAY ID NUMBER

The railway ID number is obtained from RCI, Feature 801. It is entered in the following format: nn-nnn-nnn. The first part of the railroad ID is the county code (2 digits), which is automatically generated based on the County identified in **A-2**. The second part is the rail company (2 characters) and line type (1 digit), and the third part is a random number (3 digits) (County/rail company/line type/random numbers). Here is an example of roadway ID number: 36CS5233. This information is entered by office staff.

A-17. FDOT GIS RR MILEPOINT

This data is automated from FDOT RR GIS Map. This data is verified by office staff.

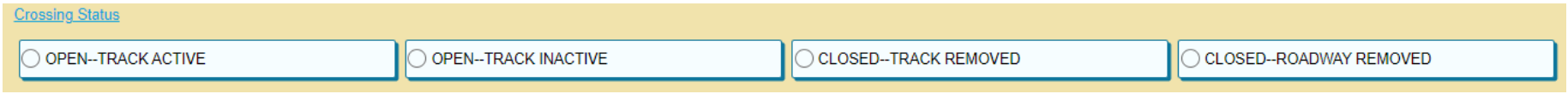
A-18. HUMPED CROSSING (III.2.E)



Check the box if Humped Crossing (Low Ground) signs are present at the crossing. This information is entered by field staff.

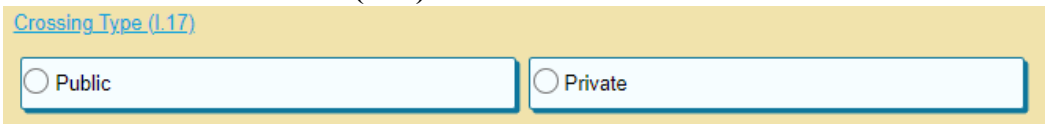
Roadway Ownership

A-19. CROSSING STATUS



Check the appropriate box to indicate the status of the crossing. This information is entered by office staff and verified by field staff.

A-20. CROSSING TYPE (I.17)



Public:

- The crossing is located where a public highway, road, or street crosses one or more railroad tracks either at grade or grade-separated.
- The crossing is a public pathway explicitly authorized by a public authority that is dedicated for the use of non-vehicular traffic, including pedestrians, bicyclists, and others, which is not associated with a public highway, road, or street.
- The crossing is a pathway explicitly authorized by a public authority or a railroad carrier that is dedicated for the use of non-vehicular traffic and is located within a railway station.

Private:

- The crossing is a location where a private roadway crosses one or more railroad tracks either at grade or grade-separated.
- The crossing is a private pathway, either at grade or grade-separated, explicitly authorized by a railroad carrier that is dedicated for the use of non-vehicular traffic, including pedestrians, bicyclists, and others, which is not associated with a private roadway.

If crossing type is changed from "**Private**" to "**Public**" for a highway-rail grade crossing, FDOT will notify the rail company so that they can make the required updates to the entire FRA Inventory Form (or its electronic equivalent). If field personnel see a sign or they determine that this status has changed (i.e., private to public or vice versa), select the appropriate value and notify the Freight and Rail Office Rail Operations Administrator in Central Office. This information is entered by office staff and verified by field staff.

A-21. PUBLIC ACCESS ALLOWED (I.20) (IF PRIVATE)

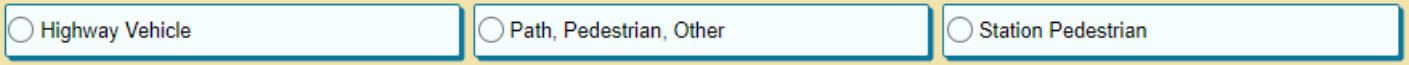
Public Access Allowed? (I.20) (If private)

Public access – the railroad tracks at the crossing intersect with a private toll road or privately owned road or pathway where the public is allowed to travel without access restrictions. Examples include but are not limited to: shopping centers, fairgrounds, parks, schools, residential housing developments (of at least five dwellings), libraries, hospitals, clinics, airports, bus terminals, beaches, piers, boat launching ramps, and recreational areas.

There should be no entry made if the crossing is public. This information is entered by office staff and verified by field staff.

A-22. CROSSING PURPOSE (I.18)

Crossing Purpose (I.18)



Highway Vehicle – The crossing is primarily intended for highway users, including crossings equipped with vehicular and pedestrian warning devices.

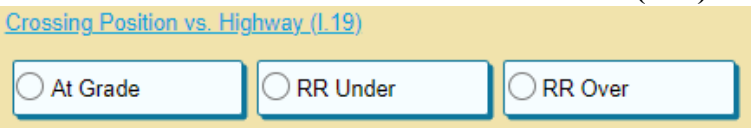
Pathway, Pedestrian, Other – The crossing is a pathway crossing not within a passenger station. A pathway crossing is 1) explicitly authorized by a public authority or a railroad, 2) dedicated for the use of non-vehicular traffic, including pedestrians, bicyclists, and others, and 3) not associated with a public or private highway, road, or street.

Station Pedestrian – The crossing is a pathway crossing located within a passenger station.

This information is entered by office staff and verified by field staff.

A-23. CROSSING POSITION VS. HIGHWAY (I.19)

Crossing Position vs. Highway (I.19)



At Grade – The crossing is at the same level as the road or pathway.

RR Under – The railroad passes under the roadway or pathway.

RR Over – The railroad passes over the roadway or pathway.

This information is entered by office staff and verified by field staff.

A-24. HIGHWAY SYSTEM (V.1)

Highway System (V.1)

- ◯ Interstate Highway System
- ◯ Fed Aid Highway, Not NHS
- ◯ National Highway System (NHS)
- ◯ Non Federal Aid

FRA's definitions of each highway system are summarized below:

- **Interstate Highway System** – includes interstate, rural, and urban. Note that the Interstate is part of the National Highway System
- **Other National Highway System (NHS)** – includes other urban and rural principal arterial, Non-Interstate
- **Federal Aid Highway, Not NHS** – includes rural major collector and higher category, or urban collector and higher category, not part of NHS
- **Non-Federal Aid** – includes local rural roads, rural minor collectors, and local urban city streets or any other non-Federal-Aid roadway

This information can be obtained from RCI and the Straight Line Diagrams (SLD) and it is entered by office staff.

A-25. FUNCTIONAL CLASSIFICATION OF ROAD AT CROSSING (V.2)

Functional Classification of Road at Crossing (V.2)

- ◯ Rural
- ◯ Urban
- ◯ Interstate
- ◯ PA-Other Freeways and Expressways
- ◯ Principal Arterial - Other
- ◯ Minor Arterial
- ◯ Major Collector
- ◯ Minor Collector
- ◯ Local

Check the box for the appropriate highway functional classification code for "**Rural**" or "**Urban**" and then check the box for the roadway type in accordance with Federal-aid highway program definitions. This information can be obtained from RCI and the Straight Line Diagrams (SLD) and it is entered by office staff.

A-26. IS THE CROSSING ON THE STATE HIGHWAY SYSTEM (V.3)

Is the Crossing on the State Highway System? (V.3)

Check the appropriate box to indicate if the crossing is on the State Highway System. This information is entered by office staff.

A-27. REGULARLY USED BY HAZMAT VEHICLES

Regularly used by Hazmat Vehicles?

Check the appropriate box to indicate if the crossing is regularly used by Hazmat Vehicles. This information is entered by office staff.

A-28. REGULAR EMERGENCY SERVICES ROUTE (V.10)

Regualr Emergency Services Route? (V.10)

Check the "**Yes**" box if the crossing is routinely used by highway vehicles to obtain access to facilities that provide emergency services, such as hospitals, police and fire stations. Otherwise, check the "**No**" box. This information is entered by office staff.

A-29. IS THE CROSSING ON THE STRATEGIC INTERMODAL SYSTEM

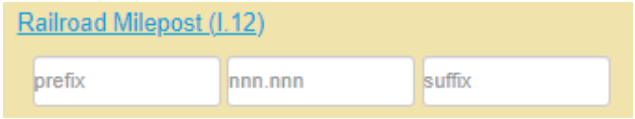
Is the Crossing on the Strategic Intermodal System (SIS)?

Check the appropriate box based on the latest RCI data and SLD. This information is entered by office staff.

B. RAILROAD

Railroad Location

B-1. RAILROAD MILEPOST (I.12)

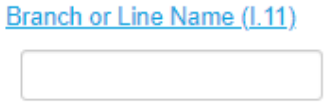


The railway milepoint can be found on the Emergency Notification Sign (ENS) and on the cabinet at the rail-highway crossing. Enter the prefix or suffix identified with the milepost if it has one or both, in the following format: Prefix-####.###-Suffix. This information is entered by office staff and verified by field staff.

B-2. LINE SEGMENT (I.13)

Enter the railroad identification number for the line segments if the railroad has such a system. If the crossing has an identification number other than the DOT number, such as a State agency number (e.g., a Public Utility Commission (PUC) assigned number), that number may be entered here or in the Comment section in RHCI. This field is optional. This information is entered by office staff.

B-3. BRANCH OR LINE NAME (I.11)



Enter the name of the branch or line used by the railroad to describe this segment of track. For example, if the track is an industry lead, industry spur, yard lead, or wye, enter the name of the track or the name of the industry. If the branch or line does not have a specific name, then enter "**None**". This information is entered by office staff.

B-4. RAILROAD DIVISION (I.9)

Railroad Division (I.9)

Enter the name of the division, region, or major district, if the railroad system is divided into such groups. Otherwise, enter "**None**". This information is entered by office staff.

B-5. RAILROAD SUBDIVISION OR DISTRICT (I.10)

Railroad Subdivision or District (I.10)

Enter the name of the subdivision or other classification, if the railroad system is divided into such groups. Otherwise, enter "**None**". This information is entered by office staff.

B-6. NEAREST RR TIMETABLE STATION (I.14)

Nearest RR Timetable Station (I.14)

N/A

Select the name of the nearest timetable station for the primary operating railroad company. This field is optional. This information is provided by the railroad company and entered by office staff.

B-7. HIGH SPEED RAIL CORRIDOR NUMBER (I.26)

High Speed Rail Corridor Number (I.26)

This field is used to identify the "Section 1010" or "Section 1103" HSR corridor on which the crossing is located. If this is a high-speed rail (HSR) crossing, enter the four-character code "**FLX#**". This HSR code correspond to the Florida Corridor (Miami-Orlando-Tampa). FRA will assign an HSR Corridor ID for any corridor, or portion thereof that is not currently defined. If "HSR Corridor ID" is not applicable, then enter "**N/A**".

B-8. DO OTHER RAILROADS OPERATE A SEPARATE TRACK AT CROSSING? (I.7)

Do Other Railroads Operate a Separate Track at Crossing? (I.7)

◯ Yes ◯ No

Indicate if another operating railroad operates over a separate track at the crossing. If the "**Yes**" box is checked, each individual operating railroad identified is required to submit its own inventory record and future updates. For a detailed explanation, please refer to the *Federal Railroad Administration Guide for Preparing U.S. DOT Crossing Inventory Forms, Appendix C.* This information is provided by the railroad company and entered by office staff.

B-9. MULTIPLE FORMS FILES

Multiple Forms Filed? (I.7)

◯ Yes ◯ No

If Yes, specify RR (I.7)

Indicate if multiple FRA forms have been filed for this crossing. FRA requires each individual operating railroad to submit its own inventory record (**B-8**). If "**Yes**", enter the FRA railroad code for all operating railroads that operate over a separate track within the same pair of warning devices at the crossing. A total of four railroad codes may be entered with up to four characters each in this field. This information is provided by the railroad company and entered by office staff.

B-10. DO OTHER RAILROADS OPERATE OVER THIS CROSSING TRACK? (I.8)

Do Other Railroads Operate over this Crossings Track? (I.8)

◯ Yes ◯ No

If Yes, specify RR (I.8)

Indicate if another operating railroad operates over the reporting railroad's track at the crossing. If "**Yes**", enter the FRA railroad code for all operating railroads that operate trains over the track at the crossing. A total of four railroad codes may be entered with up to four characters each in this field. This information is provided by the railroad company and entered by office staff.

B-11. LINEAR REFERENCING SYSTEM (LRS ROUTE ID) (V.5)

Linear Referencing System(LRS Route ID)(V.5)

This is an optional field. Enter the Linear Referencing System (LRS Route ID) code. The LRS is a set of procedures for determining and retaining a record of specific points along a highway. Typical methods used are milepoint, milepost, reference point, and link-node. This data corresponds to the Roadway ID and is found in RCI. It is recommended that the information entered match the Highway Performance Monitoring System (HPMS) data reported to FHWA. The details for the HPMS can be found on FHWA's Website at: http://www.fhwa.dot.gov under "Highway Performance Monitoring System". This information is entered by office staff.

B-12. LRS MILEPOST (V.6)

LRS Milepost (V.6)

This is an optional field. Enter the LRS milepost designation. Most at-grade highway-rail grade crossings are on highways without posted mileposts. Leave blank if none are posted. This information is entered by office staff.

Railroad Ownership

B-13. RAILROAD OPERATING COMPANY (I.1)

Railroad Operating Company (I.1)

Enter the valid, railroad code (up to four letters) for the primary operating railroad company. The primary operating railroad may or may not own and maintain the roadbed, tracks, and signal system controlling the crossing. If the primary operating railroad company is not the owner of the track, enter the owner's name (**B-14**). This information is provided by the railroad company and entered by office staff.

Entities who are not subject to the reporting and updating requirements contained in *Title 49 Code of Federal Regulations (CFR) Part 234*, *Subpart F*, such as plant railroads and urban rapid transit operators who do not operate through highway-rail or pathway crossings located on track shared with general system railroads or crossings located within a common right-of-way or corridor with a general system railroad, are invited to submit crossing data to the Crossing Inventory on a voluntary basis. For this limited purpose, any railroad-related entity that submits crossing data to the Crossing Inventory should identify itself as the primary operating railroad when submitting crossing data to the Crossing Inventory.

Note: FRA assigns valid railroad codes. If the valid railroad or company code is not known, the initiator should contact FRA to obtain the correct code, or to have a new code assigned for a new railroad or company. In the latter case, the complete railroad company name, address, telephone number, and a contact person are required. To contact FRA about railroad or company codes, send an email to: FRARailCodes@dot.gov.

B-14. CROSSING OWNER (I.16)

Crossing Owner (I.16)

If applicable, enter the code for the crossing owner (maximum of four characters) of the entity that actually owns the property. The entry must be a valid railroad, company, or agency code. If unknown, it can be obtained from FRA. Otherwise, enter "**N/A**". This information is provided by the railroad company and entered by office staff.

B-15. PARENT COMPANY (I.15)

Parent Company (I.15)

If applicable, enter the code for the parent railroad or the company that is parent to the operating railroad entered in **B-13**. The entry must be a valid railroad or company code, which can be obtained from FRA. Otherwise, enter "**N/A**". This information is provided by the railroad company and entered by office staff.

B-16. RAILROAD CONTACT PHONE NUMBER (I.34)

Railroad Contact Phone Number (I.34)

Enter the telephone number (area code and phone number using only numeric values) of the primary operating railroad's point of contact for data associated with the crossing. This information is provided by the railroad company and entered by office staff.

B-17. RAILROAD EMERGENCY CONTACT NUMBER (I.33)

Railroad Emergency Contact Number (I.33)

Enter the telephone number (area code and phone number using only numeric values) for the Emergency Notification System (ENS) contact (e.g., usually railroad police, dispatch center, or other railroad emergency contact) associated with the crossing. This will be the ENS telephone number used by the railroad, posted at the crossing, and publicized for the reporting of emergencies, malfunctions, and problems at crossings, in accordance with *Subpart E to 49 CFR Part 234*. Please note that "911" cannot be used as the railroad emergency contact number. This information is provided by the railroad company and entered by office staff. If the emergency contact number is not listed on the ENS sign, notify the FDOT Rail Operations Administrator in the Freight and Rail Office.

Rail Traffic

B-18. LESS THAN ONE TRAIN PER DAY (II.1.E)

Less Than One Train Per Day? (II.1.E)

○ Yes ○ No

Check the "**Yes**" box if this crossing averages less than one train movement per day. This information is provided by the railroad company and entered by office staff.

B-19. HOW MANY TRAINS PER WEEK (II.1.E)

How many trains per week? (II.1.E)

The number of trains (count or estimate) using this crossing per week. If the operation is seasonal in nature (e.g., fall foliage excursion train), then use an estimated count of the number of trains using this crossing per week during the normal operating season. This information is provided by the railroad company and entered by office staff.

B-20. NUMBER OF DAYTIME THRU TRAINS (II.1.A)

Number of Daytime Thru Trains (II.1.A)

The total number of through (thru) trains that operate through the crossing from 6 a.m. to 6 p.m. per day during normal railroad operating periods. “Thru trains” are trains whose primary responsibility is to operate over a route with defined beginning and end points. Local freight thru train movements and passenger and commuter rail train movements are considered to be thru train movements for purposes of the Crossing Inventory. This information is provided by the railroad company and entered by office staff.

B-21. NUMBER OF NIGHTTIME THRU TRAINS (II.1.B)

Number of Night time Thru Trains (II.1.B)

The total number of thru trains that operate through the crossing from 6 a.m. to 6 p.m. per day during normal railroad operating periods. This information is provided by the railroad company and entered by office staff.

B-22. NUMBER OF DAY TIME SWITCHING TRAINS

Number of Day Time Switching Trains (II.1.C)

The total number switching train movements through the crossing from 6 a.m. to 6 p.m. per day. “Switching Trains” are those trains whose movements primarily involve the pickup and set-out of cars for various industries and/or rail yards. This information is provided by the railroad company and entered by office staff.

B-23. NUMBER OF NIGHTTIME SWITCHING TRAINS

Number of Night Time Switching Trains (II.1.D)

The total number switching train movements through the crossing from 6 a.m. to 6 p.m. per day. This information is provided by the railroad company and entered by office staff.

B-24. TRAIN COUNT YEAR (II.2)

Train Count Year (II.2)

Year that the train count data was collected or last verified. If any train count data changes, the railroad company will update the count year at time of submission. In the event that there is a significant change in data, FRA recommends that this field be updated at that time rather than waiting for the next required 3-year periodic update. This information is provided by the railroad company and entered by office staff.

B-25. TYPE OF TRAIN SERVICE (I.21)

Type of Train Service (I.21) *(Check all that apply)*

☐ Freight	☐ Commuter	☐ Shared Use Transit
☐ Intercity Passenger	☐ Transit	☐ Tourist/Other

Select the type of rail service that uses the crossing. Check all that apply. This information is provided by the railroad company and entered by office staff.

- **Freight**
- **Intercity Passenger**
- **Commuter** – a local or regional rail system providing passenger service mostly during the morning and evening peak periods on the general rail system.
- **Transit** – a local rail system providing passenger service within an urban area that is not connected to the general railroad system of transportation.
- **Shared Use Transit** – a local rail system providing passenger service and having some connection to the general railroad system of transportation, including:
    - Urban rapid transit operations through highway-rail or pathway crossings located on the same track used by railroads that operate on the general railroad system of transportation (e.g., temporal separation or simultaneous joint use).

- Urban rapid transit operations through highway-rail or pathway crossings that are located within a shared right-of way or corridor, and share the same crossing warning devices, with a railroad which operates on the general railroad system of transportation.

- **Tourist/Other** – tourist, scenic, historic, or excursion operations carrying passengers. Transporting passengers to a particular destination is not the principal purpose.

B-26. AVERAGE PASSENGER TRAIN COUNT PER DAY (I.22)

Average Passenger Train Count Per Day (I.22)

The average number of total passenger trains using this crossing, per day, on a typical operating day. The average number includes intercity passenger, commuter, and urban rapid transit operations. The value may not exceed the total number of through trains and switching trains per day (**B-20 – B-23**). This information is provided by the railroad company and entered by office staff. Select "Less Than One Per Day" if the average passenger train count is less than one per day (e.g., three per week). If the only type of train service is "Freight" (indicated in **B-25)**, then the average passenger train count per day must be 0.

Tracks

B-27. TYPICAL SPEED RANGE AT CROSSING (II.3.B)

Typical Speed Range at Crossing (II.3.B)

Enter the typical minimum speed ("From") through the crossing in miles per hour (mph). This should be the typical minimum speed for normal operations through the crossing, not the minimum speed possible. Enter the typical maximum speed ("To") through the crossing. Neither value can be greater than the max timetable speed (**B-28).** This information is provided by the railroad company and entered by office staff.

B-28. MAX TIMETABLE SPEED (II.3.A)

Max Time Table Speed (II.3.A)

From

The highest maximum timetable speed in miles per hour for any type of train movement over the crossing. If there are both freight and passenger train movements over the crossing, enter the highest maximum authorized speed (which will generally be the maximum authorized speed for passenger train movements). Permanent timetable speed restrictions should be entered, if applicable. This field must be greater than or equal to the maximum value in **B-27.** This information is provided by the railroad company and entered by office staff.

B-29. TYPE AND COUNT OF TRACKS (II.4)

Type and Count of Tracks (II.4)

Main Siding Yard

Transit Industry

This information is provided by the railroad company and entered by office staff. Enter the count of tracks by type. Enter "**0**" for each track type specified that is not present at the crossing.

There are five types of tracks:

- **Main**– a track extending through yards or between stations, upon which trains are operated by timetable or train order or both, or the use of which is governed by a signal system.
- **Siding** – a track auxiliary to the main track used for meeting or passing trains.
- **Yard** – a system of tracks within defined limits used for the making up or breaking up of trains, for the storage of cars, and for other purposes over which movements not authorized by timetable or by train order may be made, subject to prescribed signals, rules or other special instructions. Spur track and lead track are included in this definition. Sidings, industry tracks, and mainline tracks within yard limits are not included.
- **Transit** – a track, on which a light-rail train, trolley, or streetcar moves passengers from station to station typically within an urban area (and its suburbs), that is not connected with the general railroad system of transportation.

- **Industry** – a switching track, or series of tracks, serving the needs of a commercial industry other than a railroad.

B-30. DOES THE TRACK HAVE TRAIN SIGNALS? (II.6)

Does the track have train signals? (II.6)

◯ Yes ◯ No

Indicate whether or not the track is equipped with a block signal, cab signal, or train control system to govern train operations. This information is provided by the railroad company and entered by office staff.

B-31. TRAIN SIGNAL PROXIMITY

Train Signal Proximity?

◯ Yes ◯ No

Indicate whether or not the track is equipped with train signal proximity sensors. This information is provided by the railroad company and entered by office staff.

B-32. EVENT RECORDER MONITORING DEVICE AND REMOTE HEALTH MONITORING (II.7)

Event Recorder Monitoring Device (II.7.A)

◯ Yes ◯ No

Remote Health Monitoring (II.7.B)

◯ Yes ◯ No

Indicate whether an event recorder and/or a remote health monitoring system is installed at the crossing. This field is required when the warning devices at the crossing include any of the following: four-quadrant gates, three-quadrant gates, or two-quadrant gates; or flashing lights. This information is provided by the railroad company and entered by office staff.

Event Recorder – a device designed to resist tampering that monitors and records data on information at the grade crossing location such as (but not limited to) train speed, direction of motion, time, and distance over the most recent timeframe (e.g., last 24 or 48 hours) of the grade crossing warning system operation.

Remote Health Monitoring – an electronic system designed to remotely notify the railroad (typically the railroad signal maintainer or a trouble desk) that components of the automatic warning system are not functioning as intended.

B-33. TRAIN DETECTION (II.5)

Train Detection (II.5) *(Main Track only)*

Indicate the type of train detection equipment used to activate the warning system at the crossing for movements on the main track(s). More than one checkbox can be selected. If the crossing warning devices are not activated upon the arrival of a train, "**None**" should be checked. This information is provided by the railroad company and entered by office staff.

The types of train detection equipment are:

- **Constant Warning Time**
- **Motion Detection**
- **DC** – Direct Current
- **AFO** – Audio Frequency Overlay
- **PTC** – Positive Train Control (please refer to 49 CFR § 236.1005 for a description of Positive Train Control systems)
- **Other** – for example, when signals are activated manually by a watchman, or by means of other technologies
- **None**

C. ROAD

Railroad Geometrics

C-1. STREET TYPE (IV.1)

Street Type (IV.1)

○ One-way Street ○ Two-way Street ○ Divided Highway

Check the box that describes the type of roadway, based on the characteristics of the entire roadway, not simply at the crossing. If channelization devices are present at the crossing, then it can only be classified as "**Two-way Street**". This information is entered by office staff and verified by field staff.

One-way Street – Motor vehicles travel in the same direction over the same roadway.

Two-way Street – Motor vehicles travel in two opposite directions over the same roadway.

Divided Highway – Roadway traffic moving in opposite directions is separated by a median.

C-2. NUMBER OF THRU LANES (IV.1)

Number of Thru Lanes (IV.1)

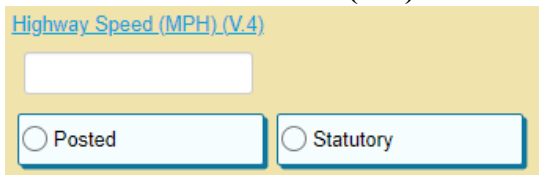
Enter the number of through traffic lanes crossing the track. Do not include shoulders or lanes that are used for parking. This information is entered by office staff and verified by field staff.

C-3. NUMBER OF AUXILIARY/TURN LANES

Number of Auxiliary/Turn Lanes (IV.1)

Enter the number of auxiliary/turn lanes crossing the track. This information is entered by office staff and verified by field staff.

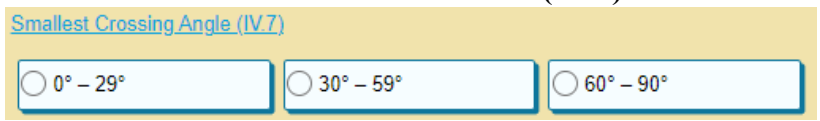
C-4. HIGHWAY SPEED (V.4)



Enter the highway speed limit at the crossing in miles per hour (the speed limit value must be greater than zero). Check the appropriate box to indicate whether the speed limit is posted or statutory. This information is entered by office staff and verified by field staff.

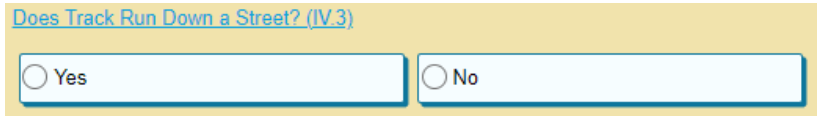
Roadway Layout

C-5. SMALLEST CROSSING ANGLE (IV.7)



Check the box that most closely describes the smallest angle between the roadway and the track. This information is entered by office staff and verified by field staff.

C-6. DOES TRACK RUN DOWN A STREET? (IV.3)

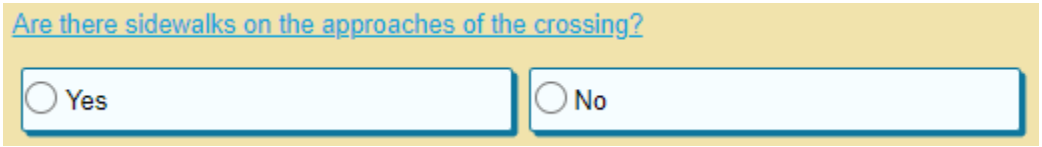


Yes – The crossing involves a railroad track that is embedded within the pavement of a roadway that crosses another roadway at grade, such that trains operating on those tracks will cross the intersecting roadway. In addition, the "**Yes**" box may be checked if the tracks run alongside the roadway in the same direction as roadway traffic, and if the tracks are located within or adjacent to the roadway right-of-way. In both cases, the crossing to be inventoried will be the crossing of the tracks with the intersecting roadway, not the roadway within or adjacent to the street where the tracks are running.

No – The tracks and crossties are in a semi-exclusive right-of-way with exposed ballast and are separated from the roadway pavement by a curb or other such border or divider.

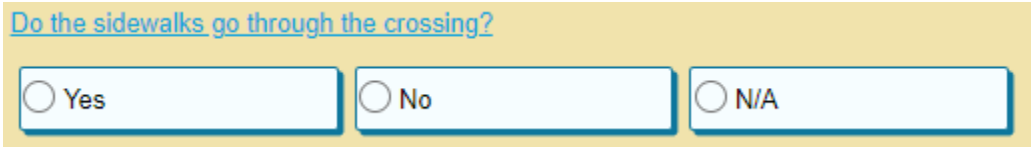
This information is entered by office staff and verified by field staff.

C-7. ARE THERE SIDEWALKS ON THE APPROACHES OF THE CROSSING?



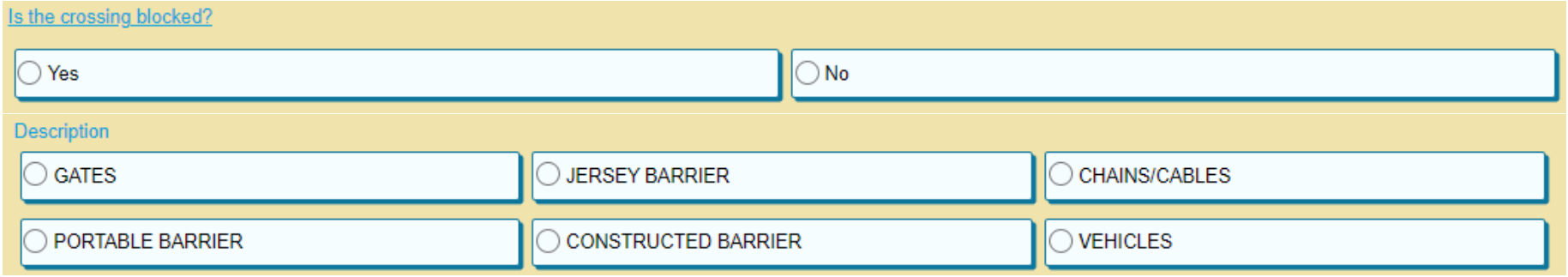
Indicate whether sidewalks exist on the approaches of the crossing. This information is entered by field staff.

C-8. DO THE SIDEWALKS GO THROUGH THE CROSSING?



Check the appropriate box to indicate if sidewalks go through the crossing based on field review. If the answer to **C-7** is "**No**", then check "**N/A**". This information is entered by field staff.

C-9. IS THE CROSSING BLOCKED?

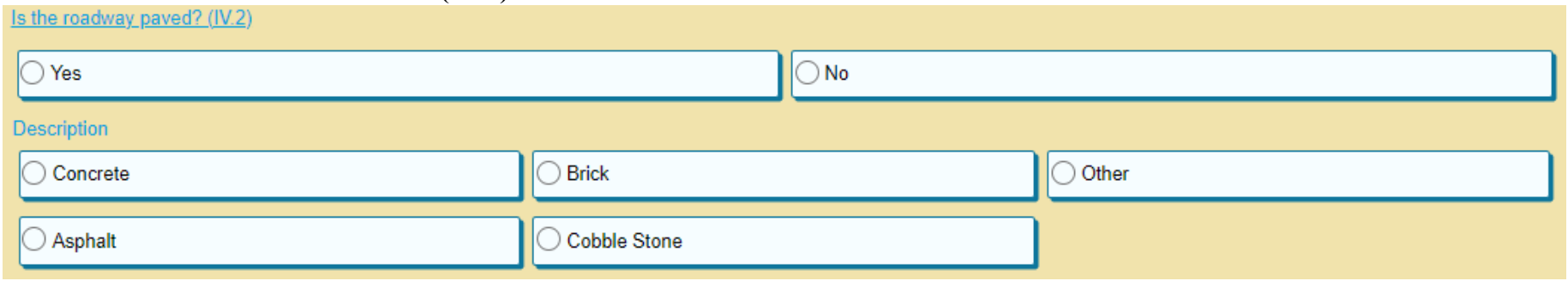


Yes – the crossing is blocked. If "**Yes**", then select the type(s) of barrier(s) observed during field review.

No – there is no barrier on the crossing.

This information is entered by field staff.

C-10. IS THE ROADWAY PAVED? (IV.2)

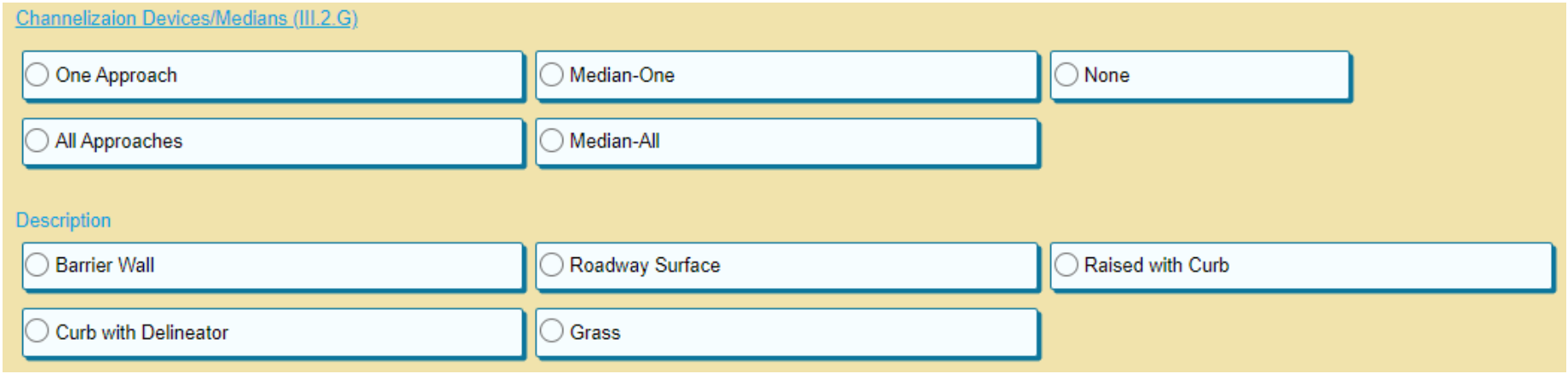


Yes – the highway or pathway is paved (at least 100 feet beyond the railroad tracks) with material on which pavement markings can be effectively maintained. If pavement markings are indicated in **C-13**, then this item must be checked "**Yes**".

No – the highway or pathway surface is gravel, dirt, or has a surface treatment on which pavement markings cannot be maintained.

This information is entered by field staff.

C-11. CHANNELIZATION DEVICES/MEDIANS (III.2.G)



Select "**None**" if no channelization or median structures are present. Otherwise, select the location(s) of a channelization or median structure present at the crossing. Then select the appropriate description of the channelization or median structures. This information is entered by field staff.

If channelization devices are present at the crossing:

- Select either "**One Approach**" or "**All Approaches**".
- Select the description of the channelization devices present: "**Barrier Wall**" (concrete barrier wall or guardrail) or "**Curb with Delineator"**.

If a median is present:

- Select either "**Median-One**" for median present at one approach, or "**Median-All**" for median present on all approaches.
- Select the description of the median: "**Roadway Surface**" (striped), "**Grass**" or "**Raised with Curb**".

Channelization Devices – a traffic separation system made up of a raised longitudinal channelizer, with vertical panels or tubular delineators, that is placed between opposing highway lanes designed to alert or guide traffic around an obstacle or to direct traffic in a particular direction. See **Figure 3** for examples of channelization devices at rail-highway at-grade crossings.

Figure 3. Examples of Channelization Tubular Delineators at Rail-Highway Crossings

Median – a non-traversable portion of a divided highway separating the travel ways for traffic in opposite directions. See **Figures 4** and **Figures 5** for examples of medians at rail-highway crossings.

Figure 4. Example of Roadway Surface (striped) Median at a Rail-Highway Crossing

Figure 5. Example of Raised Median with Curb at a Rail-Highway Crossing

Crossing Surface

C-12. CROSSING SURFACE TYPE (IV.5)

Crossing Surface Type (IV.5) *(on Main Track, multiple types allowed)*

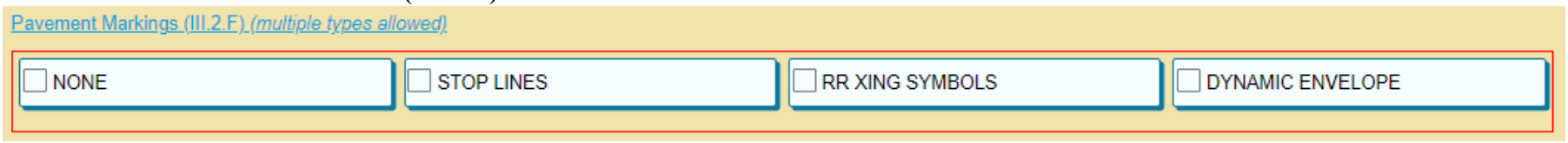
☐ Timber	☐ Asphalt	☐ Asphalt & Timber	☐ Concrete	☐ Concrete and Rubber
☐ Rubber	☐ Metal	☐ Unconsolidated	☐ Composite	☐ Other *(specify)*

Select the crossing surface type on the main track based on the descriptions below. Whenever multiple line tracks have different types of surfaces, then select all that apply. This information is entered by field staff.

- **Timber** – Includes sectional treated timber and full wood plank.
  - Sectional treated timber: prefabricated units approximately eight (8) feet in length of treated timber individually installed and removable for maintenance and replacement purposes.
  - Full wood plank: a timber surface that covers the entire crossing area above the crossties, made of ties, boards, bridge ties, etc.
- **Asphalt** – Asphalt surface over the entire crossing area.
- **Asphalt and Timber** – Asphalt surface in the area between flange timber planks or other material forming flangeway openings that may include the use of rubber.
- **Concrete** – Includes concrete slab and concrete pavement.
  - Concrete slab: pre-cast concrete sections that are usually individually installed and removable for maintenance and replacement purposes.
  - Concrete pavement: a concrete surface that is continuous over the track area and is not removable except by destruction of the surface.
- **Concrete and Rubber** – An installed crossing surface that consists of both concrete and rubber materials.
- **Rubber** – Preformed rubber sections that are usually individually installed and removable for maintenance and replacement purposes.
- **Metal** – Sections of steel or other metal that are usually individually installed and removable for maintenance purposes and provide complete coverage of the crossing area within the track.

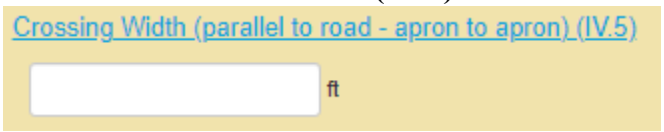
- **Unconsolidated** – Ballast or other unconsolidated material placed over crossties, with or without planks, on one or both sides of the running rails.
- **Composite** – An engineered material formed from two (2) or more distinct materials generally incorporating a polymer binder with reinforcing fibers and/or fillers to contribute enhanced properties and/or other property modifiers in a polymer matrix, typically post-consumer recycled high-density polyethylene, or HDPE, that are usually individually installed and removable for maintenance and replacement purposes.
- **Other (Specify)** – Surfaces other than the previously described surfaces, including structural foam, plastic, "high-tech," etc. Enter the type of surface in the "textbox".

C-13. PAVEMENT MARKINGS (III.2.F)



Type of pavement marking(s) present that conforms to the MUTCD. If there are no stop lines, railroad crossing symbols, or dynamic envelope marking present, check "**None**". This information is entered by field staff.

C-14. CROSSING WIDTH (IV.5)



The width of the crossing surface is measured in feet perpendicular to the railroad tracks and is the distance between the outermost edges of the crossing surface (including multiple tracks if present). In the event that the crossing surface is indistinguishable from the roadway approach, the width is the distance between the outermost rails of the crossing plus four (4) feet (**Figure 6**). This information is entered by field staff.

C-15. CROSSING LENGTH (IV.5)

Crossing Length (parallel to rail - ballast to ballast) (IV.5)

ft

The length of the crossing surface is measured in feet parallel to the tracks, along the improved surface of the crossing, which may extend beyond the edges of highway pavement and any sidewalks that may be present. In general, the crossing surface material will extend approximately three (3) feet on each side beyond the roadway/pathway (**Figure 6**). This information is entered by field staff.

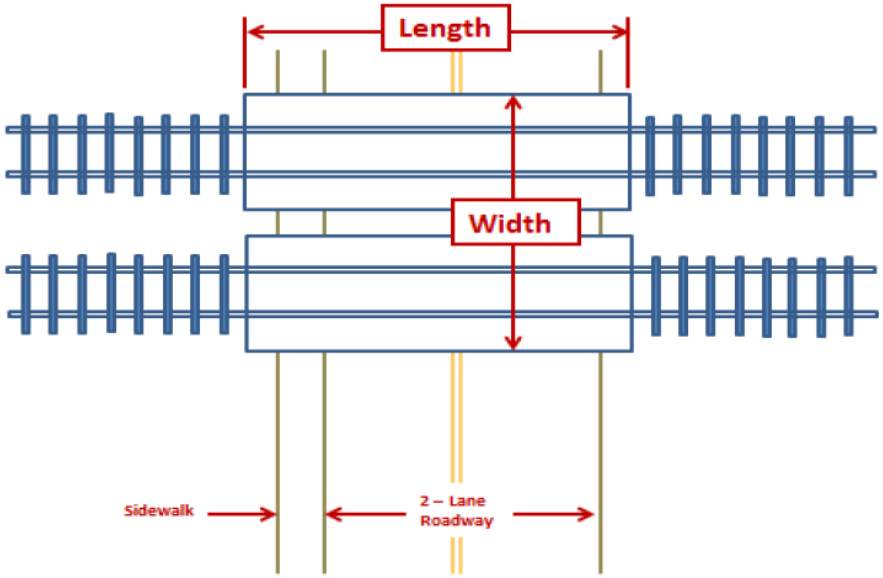


Figure 6. Width and Length Measurement Diagram

Crossing Surface Condition

C-16. APPROACH AND LEAVE CONDITION (CRACKING AND PATCHING)

(A) Approach and Leave Condition (cracking and patching)

- ○ Smooth
- ○ Uneven
- ○ Minor Erosion
- ○ Severe Erosion
- ○ None

Indicate the severity of cracking and patching on the crossing surface. This information is entered by field staff.

C-17. VEHICLE REACTION (DIPPING AND BOUNCING)

(B) Vehicle Reaction (dipping and bouncing)

○ No Reaction	○ Vibrating	○ Shaking	○ Bouncing	○ None

Indicate the degree of vehicle reaction on observed at the crossing. This information is entered by field staff.

C-18. DRIVER REACTION (SLOWING AND SWERVING)

(C) Driver Reaction (slowing and swerving)

○ No Reaction	○ Some Drivers Slow down	○ Most Drivers Slow Down	○ Drivers Slow Down and Weave

Indicate driver's reaction level of slowing and swerving observed at the crossing. This information is entered by field staff.

C-19. RAIL AND/OR PAD MOVEMENT CONDITION (MOVEMENT/CONDITION)

(D) Rail and/or Pad Movement Condition (movement/condition)

○ Smooth	○ Uneven	○ Minor Erosion/Some movement	○ Severe Erosion/Severe Movement	○ None

Indicate the rail and/or pad movement condition at the crossing. This information is entered by field staff.

Surface Improvements (IV.5)

C-20. SERVICE INSTALLMENT DATE

Surface Installment Date (mm/yyyy) (IV.5)

[ ] ft

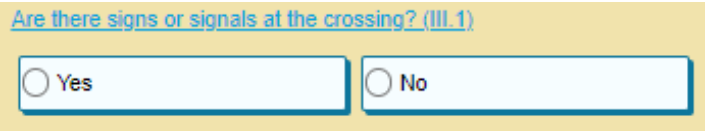
Enter the month and year that the crossing surface was originally installed and opened to vehicular traffic in "mm/yyyy" format. For new and updated crossing surfaces, this field is required. This information is provided by the rail company and entered by office staff.

D. SIGNS

For a list of MUTCD signs, please refer to the **Appendix**.

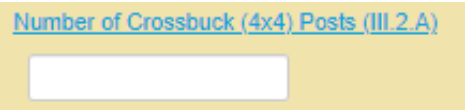
Common Signs

D-1. ARE THERE SIGNS OR SIGNALS AT THE CROSSING? (III.1)



Indicate whether signs or signals are installed at the crossing. This information is entered by field staff.

D-2. NUMBER OF CROSSBUCK (4X4) POSTS (III.2.A)

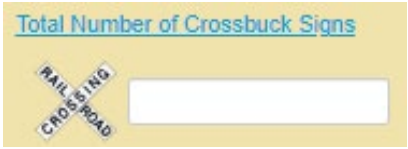


Enter the number of masts or posts with mounted crossbucks, not the number of crossbuck signs, including all masts with crossbucks regardless of the reflectivity type. Two or more crossbucks mounted on a single post are counted as one unit. A crossbuck assembly consists of a crossbuck sign and a "**YIELD**" sign or a "**STOP**" sign, as applicable (**Figure 7**). For crossings with a train-activated warning device (flashing lights [cantilevered or mast mounted] and/or gates), do not count the individual crossbucks mounted on these devices.

FHWA (via the MUTCD) requires that crossbuck assemblies be installed by December 31, 2019, or when adjustments are made to the individual highway-rail grade crossing and/or corridor, whichever comes first.

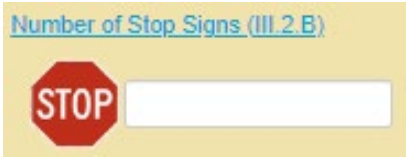
Figure 7. Examples of Crossbuck Assemblies

D-3. TOTAL NUMBER OF CROSSBUCK SIGNS



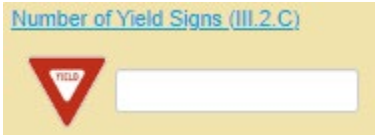
Enter a count of the number of crossbuck signs (MUTCD R15-1). Crossbuck signs are installed on the right-hand side of each approach. This information is entered by field staff.

D-4. NUMBER OF STOP SIGNS (III.2.B)



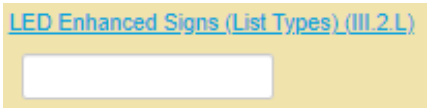
Enter the count of posts or masts with "**STOP**" signs (MUTCD R1-1), regardless of any other type of warning devices. If there are two posts securing one sign, count them as one post. Do not include "**STOP**" signs from adjacent streets or roadways. This information is entered by field staff.

D-5. NUMBER OF YIELD SIGNS (III.2.C)



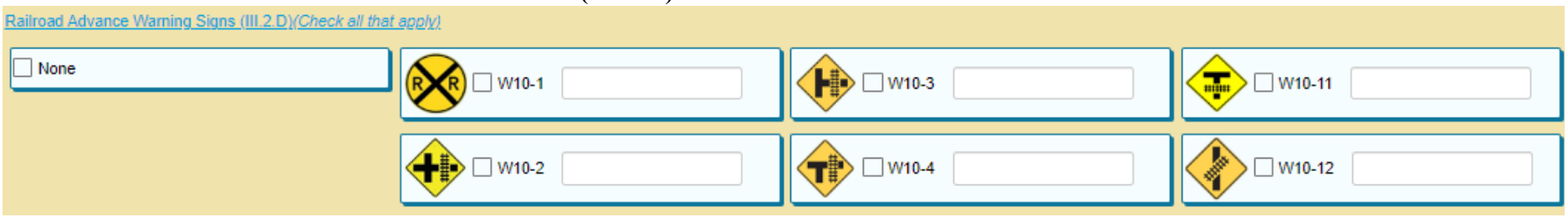
Enter the count of posts or masts with "**YIELD**" signs (MUTCD R1-2) regardless of any other type of warning devices. If there are two posts securing one sign, count them as one post. Do not include "**YIELD**" signs from adjacent streets or roadways. This information is entered by field staff.

D-6. LED ENHANCED SIGNS (LIST TYPES) (III.2.L)



List the types of light-emitting diode (LED) enhanced signs in use, referencing to the MUTCD coded signs. For example: Crossbuck R15-1. This information is entered by field staff.

D-7. RAILROAD ADVANCE WARNING SIGNS (III.2.D)



Select each type of advance warning sign at the crossing and enter a count for each type of sign. If there are no advance warning signs, check "**None**". This information is entered by field staff.

D-8. BEACONS MOUNTED WITH ADVANCED WARNING SIGN

Beacons mounted with Advanced Warning Sign (W10-1, etc.) (count posts, not individual lights or signs)

Enter the number of beacons mounted with advance warning sign(s). Count the number of posts, not the number of induvial lights or signs. Two or more lights or signs mounted on a single post are counted as one unit (**Figure 8**). This information is entered by field staff.

Figure 8. Example of Beacon Mounted with Advance Warning Sign

D-9. LOW GROUND CLEARANCE SIGNS (W10-5) (III.2.E)

Low Ground Clearance Signs (W10-5)(III.2.E)

No Yes

A "**Low Ground Clearance Grade Crossing**" sign (MUTCD W10-5) indicates a humped or high profile condition at the crossing. Per MUTCD Section 8B.23, a MUTCD W10-5 shall be accompanied by an educational plaque, "**Low Ground Clearance**" (W10-5P), to remain

in place for at least three (3) years after the initial installation of the W10-5 sign. If "**Low Ground Clearance Grade Crossing**" signs are present, check the "**Yes**" box and enter the number of signs (W10-5 and W10-5P) present. Check "**No**" box if there are none. **Figure 9** shows an example of a low ground clearance warning sign. This information is entered by field staff.

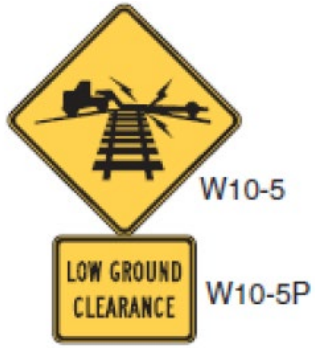
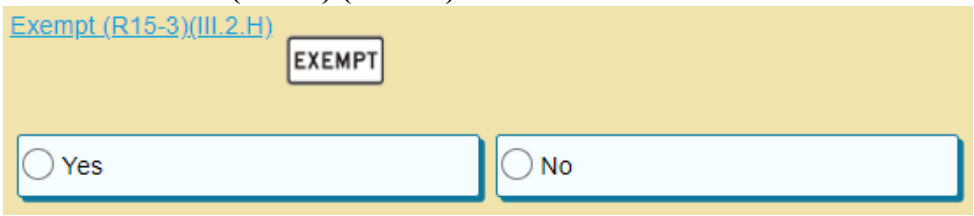


Figure 9. Example of Low Ground Clearance Warning Sign

D-10. EXEMPT (R15-3) (III.2.H)



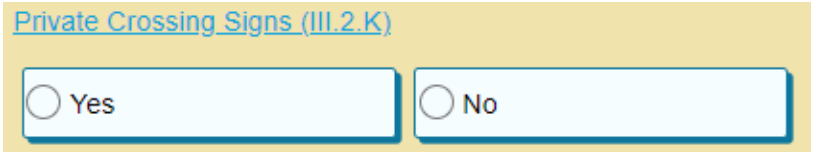
Indicate whether there is at least one "**Exempt**" sign displayed at the crossing. Select "**No**" if none are displayed. This information is entered by field staff.

Exempt Crossing – a crossing where drivers of highway vehicles carrying passengers for hire, school buses carrying students, or highway vehicles carrying hazardous materials are not required to stop at the crossing, except when rail traffic is approaching or occupying the grade crossing or the driver's view is blocked.

D-11. IS THERE AN EMERGENCY NOTIFICATION SIGN (ENS) POSTED? (III.2.I)

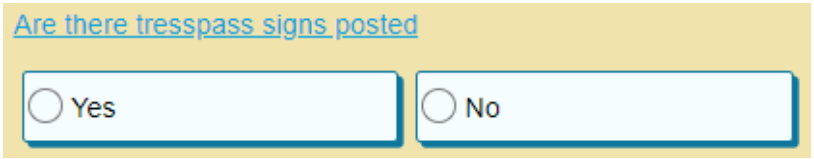
Check the "**Yes**" box if there is at least one ENS sign (MUTCD I-13) displayed at the crossing, and "**No**" if none are displayed. This information is entered by field staff.

D-12. PRIVATE CROSSING SIGNS (III.2.K)



If the crossing is a private crossing, select "**Yes**" if there is a private crossing sign installed. Select "**No**" if there are none. This item should be left blank for public crossings. This information is entered by field staff.

D-13. ARE THERE TRESPASS SIGNS POSTED?



Check the appropriate box to indicate whether there are trespass signs posted at the crossing. This information is entered by field staff.

Other MUTCD Signs (III.2.J)

D-14. REGULATORY SIGNS

Regulatory Signs

	☐ No Right Turn Across Tracks (R3-1a)		☐ No Left Turn Across Tracks (R3-2a)
	☐ Do Not Stop on Tracks (R8-8)		☐ Beacons mounted with R8-8
	☐ Tracks Out of Service (R8-9)		☐ Stop Here when Flashing (R8-10)
	☐ Stop Here when Flashing (R8-10a)		☐ Stop Here on Red (R10-6)
	☐ Stop Here on Red (R10-6a)		☐ Road Close (R11-2)
	☐ Number of Tracks (plaque)(R15-2P)		☐ No Motor Vehicles on Tracks Symbol (R15-6)
	☐ Do Not Drive on Tracks (R15-6a)		☐ Light Rail Divided Highway Symbol (R15-7)
	☐ Light Rail Divided Highway Symbol (T-Intersection) (R15-7a)		☐ Look (R15-8)
	☐ Private Crossing		☐ Look Out For Cars

Select each type of MUTCD regulatory signs present at the crossing and enter the corresponding count of signs. This information is entered by field staff.

D-15. WARNING SIGNS

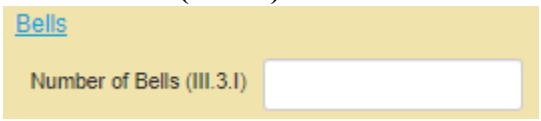
Warning Signs

- [ ] Bump (W8-1)
- [ ] Trains May Exceed 80 MPH (W10-8)
- [ ] No Train Horn (W10-9)
- [ ] No Train Horn (plaque) (W10-9P)
- [ ] Storage Space XX Feet Between Tracks and Highway (W10-11a)
- [ ] Storage Space XX Feet Between Highway and Tracks behind you (W10-11b)
- [ ] No Gates or Lights (plague) (W10-13P)
- [ ] Next Crossing (plague) (W10-14P)
- [ ] Use Next Crossing (plague) (W10-14aP)
- [ ] Rough Crossing (plague) (W10-15P)
- [ ] Slow

Select each type of MUTCD warning signs present at the crossing and enter the corresponding count of signs. This information is entered by field staff.

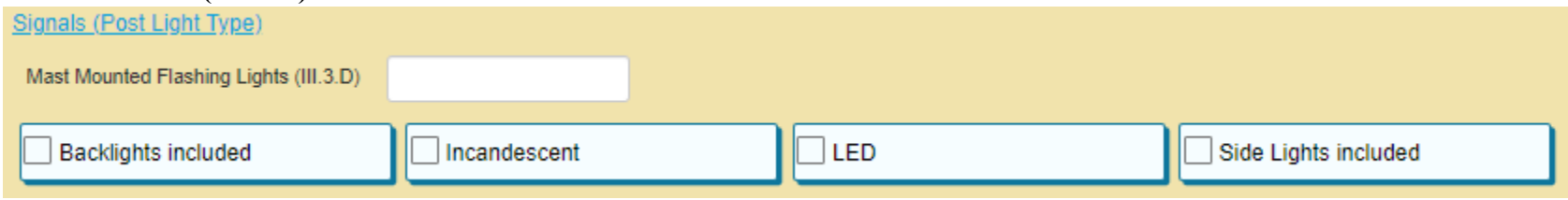
E. Signals

E-1. BELLS (III.3.I)



Enter the count of bells (either mechanical or electrical) present at the crossing as part of the warning system. Enter "**0**" If there are none. This information is entered by field staff.

E-2. SIGNALS (III.3.D)



Enter the count of masts that have flashing lights. Count the number of masts, not the number of flashing light pairs. Do not enter the number of crossbuck assemblies (**D-2**) at the crossing. The number of cantilevered structures is not included in the count. Enter "**0**" if mast-mounted flashing lights are not present. This information is entered by field staff.

Check the appropriate boxes to indicate whether the flashing lights are Incandescent or LED, and whether back lights and side lights are included. **Figure 10** shows examples of back lights and side lights.

Figure 10. Examples of Back Lights and Side Lights

E-3. CANTILEVERED FLASHING LIGHTS (III.3.C)

Cantilevered Flashing Lights (III.3.C)

Over Traffic Lane

Not Over Traffic Lane

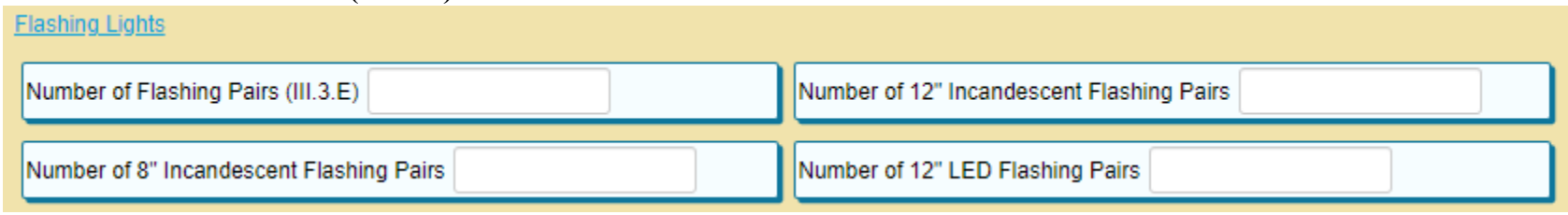
☐ Incandescent ☐ LED

Enter the count of cantilevered (or bridged) flashing light structures that are:

1. Over The Traffic Lanes, and
2. Not Over the Traffic Lanes.

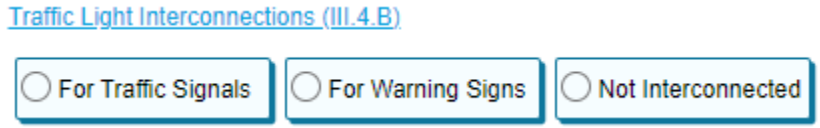
Count the number of structures, not the number of flashing light pairs. If cantilevered flashing light structures are not present, enter "**0**". This information is entered by field staff. Check the appropriate box to indicate whether the flashing lights are Incandescent or LED.

E-4. FLASHING LIGHTS (III.3.E)



In the "**Number of Flashing Pairs**" box (**III.3.E**), enter the total number of flashing light pairs installed at the crossing, including back lights, side lights, and where cantilever structures are present. Then, enter the number of flashing pairs for the following three types: **8" incandescent**, **12" incandescent**, and **12" LED**. Note that the sum of three types of flashing pairs must match that indicated in the "**Number of Flashing Pairs**" box. This information is entered by field staff.

E-5. TRAFFIC LIGHT INTERCONNECTIONS (III.4.B)



Check all that apply. If "**Not Interconnected**" is checked, do not check the other two choices.

Not Interconnected – crossings equipped with active warning systems that do not have an electrical connection between the railroad active warning system and the traffic signal controller assembly for the purpose of preemption.

For Traffic Signals – crossings having an electrical connection between the railroad active warning system and the traffic signal controller assembly for the purpose of preemption.

For Warning Signs – signs that are electrically connected to a railroad crossing control circuit that is designed to illuminate the signs upon the approach or presence of a train.

Figure 11. Examples of Traffic Light Interconnections

E-6. TRAFFIC SIGNAL PREEMPTION CODE (III.4.C)

Traffic Signal Preemption Code (III.4.C)

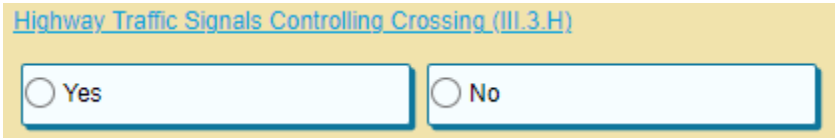
○ Simultaneous	○ Advanced

This field is not applicable if "**Not Interconnected**" is chosen in **E-5 (III.4.B)** and should be left blank. The MUTCD defines preemption as the transfer of the normal operation of highway traffic signals to a special control mode. Check the appropriate box to indicate the type of preemption at the crossing based on the following definitions in the MUTCD:

Simultaneous preemption – notification of approaching rail traffic that is forwarded to the highway traffic signal controller unit or assembly and railroad active warning devices at the same time. Simultaneous preemption results in the initiation of the highway traffic signal cycle at the same time the highway-rail grade crossing warning system is activated.

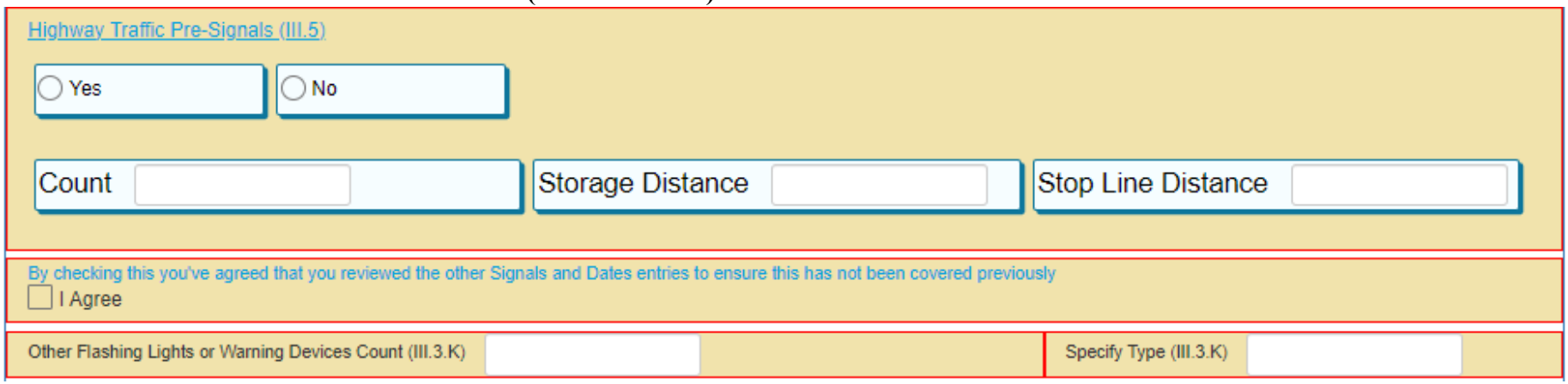
Advance preemption – notification of approaching rail traffic that is forwarded to the highway traffic signal controller unit or assembly by the railroad equipment in advance of the activation of the railroad warning devices. Advance preemption results in the initiation of the highway traffic signal cycle before the highway-rail grade crossing active warning system is activated.

E-7. HIGHWAY TRAFFIC SIGNALS CONTROLLING CROSSING (III.3.H)



Select "**Yes**" if there are highway traffic signals that control highway traffic over the crossing, exclusive of other types of warning devices. Count only train-activated red-amber-green signals that control street traffic over the crossing. Do not count highway signals controlling a nearby intersection even if they are interconnected with the crossing warning devices. Select "**No**" if there are none.

E-8. HIGHWAY TRAFFIC PRE-SIGNALS (III.5 & III.3.K)



Select "**Yes**" to indicate whether highway traffic pre-signals are installed. Select "**No**" if there are none. Pre-signals are used to control traffic approaching a grade crossing in conjunction with the highway traffic control signal faces that control traffic approaching a highway-highway intersection beyond the tracks. Pre-signals may be located on either the near or far side of the railroad tracks, and may be mounted on the same cantilever structures as the railroad's flashing light warning devices.

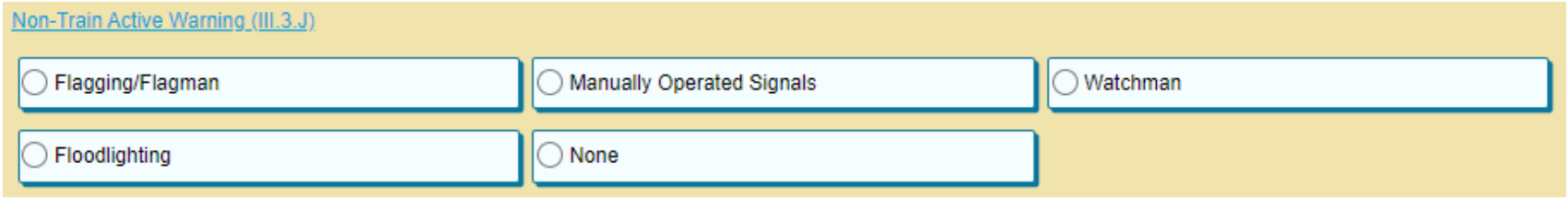
The "**Storage Distance**" and "**Stop Line Distance**" fields are optional. Use feet as the measuring unit for these two fields.

- **Storage Distance** (for pre-signals only) is the distance available for vehicle storage as measured 6 feet from the rail nearest the intersection to the intersection stop line or the normal stopping point on the roadway.

- **Stop Line Distance** (for pre-signals only) is the distance between the stop line and the crossing gates. This field should be left blank if the crossing is not equipped with gates.

Check the "**I Agree**" box to confirm that you have review the other Signals and Gates entries to ensure information entered in this item has not been covered previously. Enter the count and type of any other special warning devices at the crossing in the "**Other Flashing Lights or Warning Devices Count**" box and the "**Specify Type**" box, respectively. For example, this would include wigwags if present. If none are present, enter a count of "**0**".

E-9. NON-TRAIN ACTIVE WARNING (III.3.J)



Select all types of non-train active warning at the crossing. Select "**None**" if applicable. Each type of warning is described below:

- **Flagging/Flagman** – a member of the train crew or other person who actively controls the flow of vehicular traffic using hand-signaling devices or an Automated Flagger Assistance Device)
- **Manually Operated Signals** – dual toned multi-frequency (DTMF)-controlled, push-button activated
- **Watchman** – a person (not a member of the train crew) assigned to provide warning
- **Floodlighting** – Only report floodlighting which is distinctive from ordinary street lighting in intensity, light distribution, focus, or color.

E-10. SIGNAL INSTALLMENT DATE (III.3.F)

This data field must be updated if train-activated warning devices are installed or upgraded at a public highway-rail grade crossing after March 7, 2015. Using the list below, enter the installation date for the first device encountered (moving from top to bottom).

- Four quad (or full barrier) gates

- Three quad gates
- Gates (normally two quadrant)
- Flashing lights (standard and cantilever type units)
- Highway traffic signals, wigwags, bells, or other activated devices
- Special active warning devices (usually flagman)

Check the "**Not Required**" checkbox if the active warning devices were installed before March 7, 2015 and the installation date is not provided. Completion of this data field is not required for active warning devices installed prior March 7, 2015; however, if date is known, it is recommended to enter it.

E-11. SIGNAL UPGRADE DATE (MINOR UPGRADE – LED REPLACEMENT)

Enter the date when the latest signal upgrade was completed at the crossing.

F. Crossing Gates

Railroad Geometrics

F-1. GATE COUNTS (III.3.A)

Roadway Gate Count (III.3.A)	Pedestrian Gate Count (III.3.A)

Enter the number of Roadway and Pedestrian gates at the crossing. If gates are not present, enter "**0**". Pedestrian gate arms are only those that are part of the crossing signaling system that are activated upon train detection. Do not count:

- Pedestrian swing gates
- Post-mounted flashing light assemblies (**E-2** [**III.3.D**])
- Crossbuck assemblies (**D-2** [**III.2.A**])

F-2. GATE CONFIGURATION (III.3.B)

Gate Configuration (III.3.B)

- ☐ 2 Quad
- ☐ 3 Quad
- ☐ 4 Quad
- ☐ Full (Barrier) Resistance
- ☐ Full Entrance Closure
- ☐ Median Gates

This field is required if the number of gate arms (**F-1**) is greater than 0. Select each type of gate configuration found at the crossing. A gate (for purposes of the Crossing Inventory) is an automatically operated traffic control device which, when activated into a horizontal position, is intended to physically impede users such that they are discouraged from entering a particular grade crossing.

Check only one of the following boxes:

- **2 Quad (two-quadrant gates)** – This gate configuration features gates only on entrance lanes leading onto the crossing. If a crossing does not have any gates on any exit lanes leading off the crossing, then it is to be considered a "Two quadrant gate" crossing. Note: A gated crossing on a one-way street is to be considered a "2 Quad" gate configuration.
- **3 Quad (three-quadrant gates)** – This gate configuration features gates on all entrance lanes leading on to the crossing, but with only one exit leading off the crossing that is equipped with a gate.
- **4 Quad (four-quadrant gates)** – This gate configuration features gates on all entrance and all exit lanes at the crossing. When four quadrant gates are activated and fully lowered, all entrance lanes and all exit lanes are blocked by gates.

For the following three choices, check any that apply:

- **Full (Barrier) Resistance** – A gate-like device that is specifically designed to physically prevent a highway vehicle from entering the crossing area when the resistance gate system is fully deployed.
- **Median Gates** – Also referred to as dual entrance gates. This is a supplemental gate installation located on a roadway's median (to the left of the travel lanes) that works in combination with a gate installed on the outside edge of the roadway (to the right of the travel lanes) to jointly provide blockage of multiple lanes on a single roadway approach to the crossing, with both gate arm tips meeting (2-foot maximum gap) in the middle. If "**Median Gates**" is checked, then at least one quad gate type must be selected.
- **Full Entrance Closure** – Gate systems that fully block or close the crossing to approaching traffic and which have a at least one (1) gate arm that fully extends across the roadway to block all approaching highway traffic from traversing the crossing, but is not impregnable to penetration by a vehicle. This usually is the normal situation for 4-Quad Gate system that that use standard gate arms.

Crossing Environment

F-3. QUIET ZONE (I.25)

Quiet Zone (I.25)

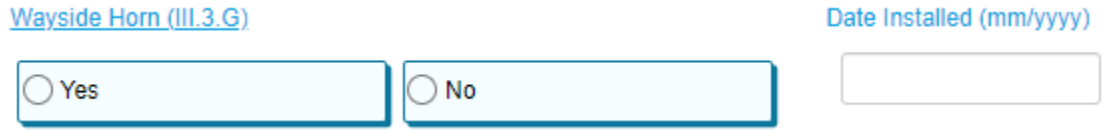
○ No ○ Partial ○ 24 HR ○ Unknown

Date Established (mm/yyyy)

Quiet Zones are assigned by FRA and this data is populated in the FRA Form by FRA. If a quiet zone is in effect, this item will indicate if it is for 24 hours per day or only a partial day (usually 10 p.m. to 7 a.m.).

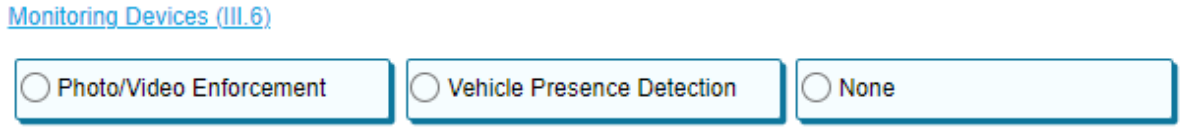
Select "**No**" if the crossing is not located in a Quiet Zone. Indicate if the crossing is located in a 24-hour quiet zone or if it is located in a partial quiet zone. The effective date that was provided in the Notice of Establishment will be the "**Date Established**".

F-4. WAYSIDE HORN (III.3.G)



Check the "**Yes**" box if the crossing is equipped with a wayside horn and enter the month and year that the horn or system was installed. Check "**No**" if the crossing is not equipped with a wayside horn.

F-5. MONITORING DEVICES (III.6)



This field applies for crossings with train-activated warning devices. Check all boxes that apply. The temporary installation of highway monitoring devices (e.g., for research purposes) should not be reported to the Crossing Inventory.

Select "**Photo/Video Enforcement**" if photo/video recording is present at the crossing. Photo/video recording is the use of high-resolution cameras to photograph or record motorists driving under or around railroad crossing gates. The camera equipment is typically mounted in a 12-foot-high bullet-resistant cabinet. There may be signs, installed on all street approaches to the crossing, that inform motorists that photo citations are being issued to violators at the crossing. The temporary installation of photo/video recording devices (e.g., for research purposes) are not to be reported.

Select "**Vehicle Presence Detection**" if vehicle presence detection is present at the crossing. Vehicle presence detection is a system capable of detecting and reporting in real time the presence of a vehicle on the crossing. An example includes a series of looped wire, coils, or magnetometers that are placed below ground level within the field side and gauge side of the railroad tracks, at a distance between the approach gate and the exit gate. The loop detectors or magnetometers use a magnetic effect caused by the presence of a roadway vehicle, which then sends a signal to the exit gate to remain in the up position, or can send a signal to the train operator that a vehicle is still occupying the restricted area of the grade crossing.

Select “**None**” if neither photo/video recording nor vehicle presence detection are at the crossing or if the crossing is passive.

F-6. NUMBER OF WIGWAGS (III.3.I)

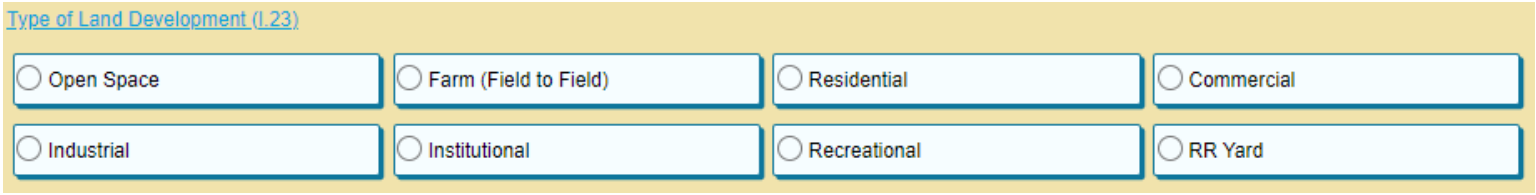
Number of Wigwags (III.3.I)

Please enter the number of wigwags at the crossing.

G. Crossing Vicinity

Vicinity Characteristics

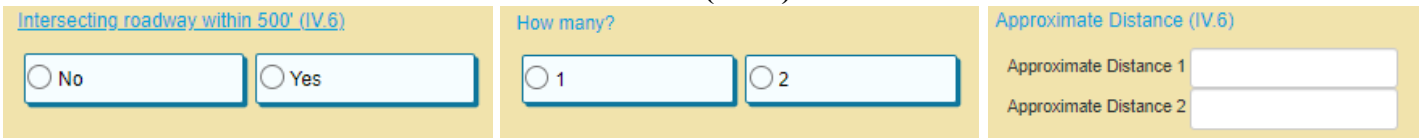
G-1. TYPE OF LAND DEVELOPMENT (I.23)



Check the box that best describes the predominant type of land development in the vicinity (a distance of up to 1,000 feet) of the crossing based on the following categories:

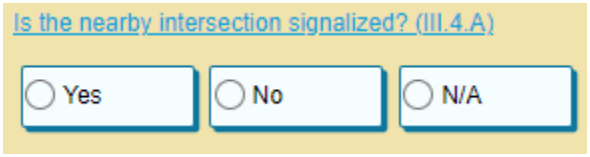
- **Open Space** – area that is sparsely or undeveloped, lightly populated.
- **Farm** – agricultural area, including wineries and other types of nontraditional agricultural enterprises.
- **Residential** – built-up residential area.
- **Commercial** – area with retail stores and businesses, offices, and personal service buildings.
- **Industrial** – area for manufacturing, construction, heavy products, factories, and warehouses.
- **Institutional** – e.g., schools, churches, hospitals, military, educational, religious, health.
- **Recreational** – e.g., Playgrounds, parks, or swim or golf clubs.
- **RR Yard** – area used exclusively for railroad activity such as switching railcars.

G-2. INTERSECTING ROADWAY WITHIN 500' (IV. 6)



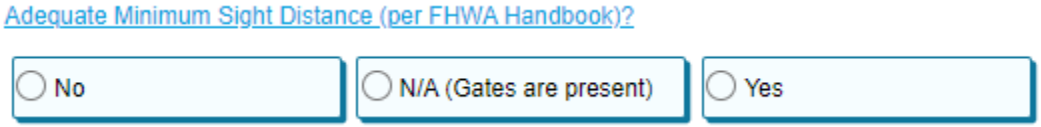
Check the "**Yes**" box if the street or highway for this crossing is intersected by another street or highway within 500 feet, and indicate the estimated distance from the crossing. Check "**No**" when no intersection exists within 500 feet. If the street or highway is intersected by another street or highway on both sides of the crossing, indicate the estimated distance from the closest intersection.

G-3. IS THE NEARBY INTERSECTION SIGNALIZED? (III.4.A)



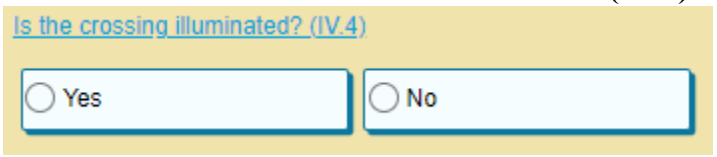
Check either the "**Yes**" or "**No**" box to indicate whether or not a highway-highway intersection within 500 feet has highway traffic signals. The distance (500 feet or less) is measured from the nearest rail, not from the centerline of track.

G-4. ADEQUATE MINIMUM SIGHT DISTANCE



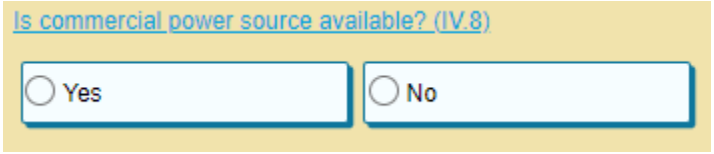
Check the appropriate box to indicate whether or not the crossing has met the sight distance standards (per FHWA Handbook). If gates are present at the crossing, Check "**N/A**".

G-5. IS THE CROSSING ILLUMINATED? (IV.4)



Indicate whether the crossing is illuminated. An illuminated crossing is one with overhead street lighting that provides reasonable illumination of trains present at the crossing and is located within approximately 50 feet of the crossing. Since streetlamp light intensity can vary, sufficient lighting may be provided by streetlights located up to 100 feet from the crossing, in which case, the "**Yes**" box may be checked.

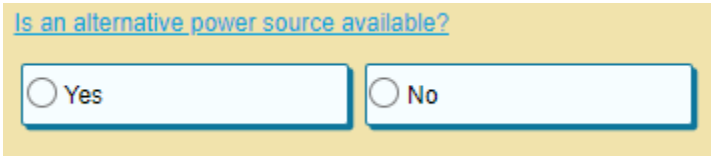
G-6. IS COMMERCIAL POWER SOURCE AVAILABLE? (IV.8)



Indicate whether there is commercial electric power available within 500 feet of the crossing. This field is optional.

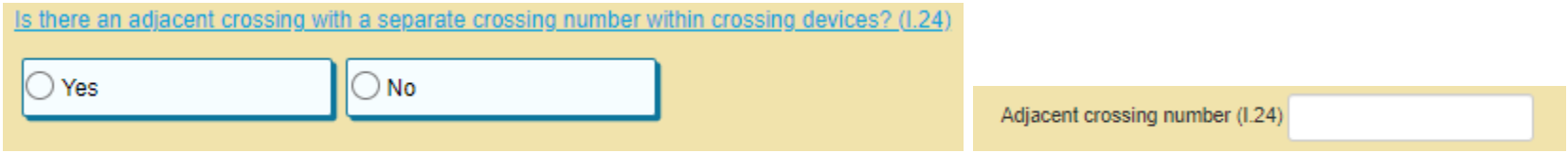
Note: If signals are present at a passive crossing, then there is commercial power. If no signals are present, there may be commercial power available within 500 ft. if within an area with businesses.

G-7. IS AN ALTERNATIVE POWER SOURCE AVAILABLE?



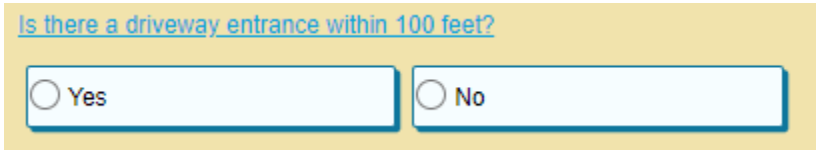
Indicate whether an alternative power source is available. Alternative power would only be available if signals are present.

G-8. IS THERE AN ADJACENT CROSSING WITH A SEPARATE CROSSING NUMBER WITHIN CROSSING DEVICES (I.24)



Check the "**Yes**" box to indicate that there is an adjacent crossing with a separate number, and enter the valid crossing number. If there is not an adjacent crossing, then check the "**No**" box. Adjacent Crossings are grade crossings with separate Crossing Inventory Numbers, with their own separate warning devices, on the same vehicular highway or pathway, where the distance between the inside rail of each crossing, as measured along the highway, does not exceed 100 feet.

G-9. IS THERE A DRIVEWAY ENTRANCE WITHIN 100 FEET?



Indicate if there is a driveway entrance within 100 feet.

G-10. DOES TRAFFIC QUEUE CROSS THE TRACKS?

Does traffic queue across the tracks?

Yes	No	Unknown

Check the appropriate box to indicate if traffic queue crosses the tracks at the crossing.

H. Rail-Highway Crossing Photos

Photos of all rail-highway crossing inventoried will be taken in a similar sequence to ensure uniformity and that all the rail features present (signals, signs, etc.) are captured. Staff taking the photos must ensure that photos are clear and that the rail features are visible enough so that office staff can review. For each crossing, the first photo will be of the ENS sign, and the second photo will be the cabinet showing the rail-highway crossing information. These will be followed by photos of one of the approaches, followed by photos of the rail features on that approach. This sequence will be repeated for the next approach. All photos will be named following the naming convention below and loaded into the *RHCI Data Collection Tool* using the **Image Upload** feature:

- Rail Crossing ID (123456X)
- 2 digit sequence (01, 02, etc.)
    - Approach to Rail, based on the direction of roadway traffic: NB – northbound, SB – southbound, EB – eastbound, and WB – westbound
- Rail Feature (i.e., ENS, cabinet, signals, signs, bells, etc.)
- 2 digit sequence (for multiple photos of the same feature)

Below are some examples:

625584Y-01-ENS

625584Y-02-Cabinet-01

625584Y-03-EB

625584Y-04-EB-SIGNALS-01

625584Y-05-EB SIGNALS-02

625584Y-06-EB DOWN TRACK

Figure 12. Examples Photos of Crossing 625584Y