



INSTRUCTIONS

FHWAs Triennial Noise Abatement Inventory



Why do States submit Noise Barrier Inventories to FHWA?

23 CFR 772.13(f) Abatement Measure Reporting: Each highway agency shall maintain an inventory of all constructed noise abatement measures. The inventory shall include the following parameters:

- type of abatement;
- cost (overall cost, unit cost per/sq. ft.);
- average height;
- length;
- area;
- location (State, county, city, route);
- year of construction;
- average insertion loss/noise reduction as reported by the model in the noise analysis;
- NAC category(s) protected;
- material(s) used (precast concrete, berm, block, cast - in-place concrete, brick, metal, wood, fiberglass, combination, plastic (transparent, opaque, other);
- features (absorptive, reflective, surface texture);
- foundation (ground mounted, on structure);
- project type (Type I, Type II, and optional project types such as state funded, county funded, tollway/turnpike funded, other, unknown).

The FHWA will collect this information, in accordance with OMB's Information Collection requirements." Therefore, the fields that correspond to the regulation are required to be filled out and submitted by the highway agency to FHWA. This requirement is met when states update and submit their Noise Barrier Inventory spreadsheet to the FHWA.

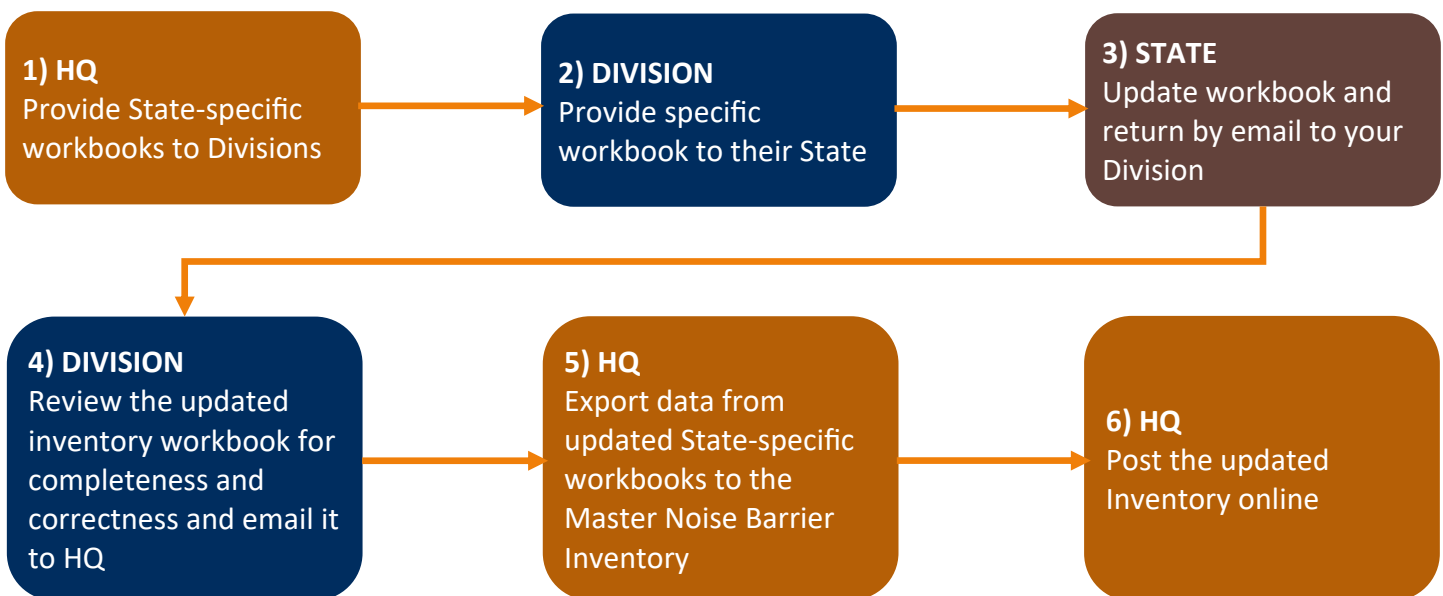
What Data Are Needed to Complete the Inventory?

The fields in **light orange boxes** on the following pages correspond to the parameters listed in the 23 CFR 772.13(f). Fields with no background shading are optional.

States should focus their efforts on barriers constructed during 2020, 2021, and 2022. However, they are encouraged to fill in as many missing fields as possible for barriers constructed before 2020.

After you submit your inventory you can still make changes at any point. Save changes to your most recently submitted workbook and email it to your Division. FHWA Headquarters will update your inventory.

Workbook Update and Review Process:



General Instructions:

You will see that the workbook is populated with data you have previously reported to FHWA. Every three years, FHWA asks states to update their inventories.

An “update” includes making any of the following changes to a current inventory:

- 1) Add new rows to the spreadsheet to report **new** Noise Barriers constructed in 2020, 2021, or 2022 since your last report to FHWA. Use one row for each new Noise Barrier.
- 2) Adding unreported barriers. An unreported barrier is an existing barrier, one that was constructed before 2020, that should be counted in your state’s inventory, but is not in your current inventory.
- 3) Correcting data about barriers already in your inventory. Some examples of corrections include correcting the length, the material type, or the original construction cost of a barrier.
- 3) Add new rows to the **REPAIRS** or **DEMOLITIONS** tabs in the spreadsheet to describe any repairs or replacements/removals made in the last 3 years to existing, previously reported Noise Barriers.

Note: On the spreadsheet, values in cells in shaded columns are calculated at HQ.

Instructions for All Columns:

- 1) Do not enter information in all CAPS.
- 2) Make sure you do not combine data from different columns.
- 3) Please fill in any blanks in your State’s previously reported information.
- 4) If a field does not apply, input N/A.
- 5) If information is not available, leave the cell blank.
- 6) On the use of commas (,) and slashes (/):

State	County	City
Arizona		AVONDALE
Arizona		CHANDLER

- a. Commas should be used to separate items that are not the same
 - * For Example: a barrier crosses two cities → City A, City B; or protects various Activity Categories → B, C, E; or denotes a barrier on an interchange of two roadways by using a comma between the roadway names
- b. Slashes should be used for items that are the same but have multiple identifiers
 - * For Example: A route with multiple names along the same stretch of road.

Example of correctly completed Inventory (not all columns could be included due to space limitations):

State	County	City	Route	Current Year (2013) Cost	Current (2013) Unit Cost	Average Ht Feet	Length Feet	Area Sq Ft	Year of Original Construction	Avg Noise Reduction	NAC Category	Primary Construction Material	Other Construction Material	Foundation	Project Type	Surface Texture
Wisconsin	Milwaukee	Milwaukee	I-43, I-94, I-894	1,116,781	26	20	2,192	43,182	2010	8	B	Precast Concrete		Ground Mounted	I	Absorptive
Wisconsin	Milwaukee	Milwaukee	I-43, I-94	1,092,815	25	22	2,062	44,333	2010	8	B	Precast Concrete		Ground Mounted	I	Absorptive
Wisconsin	Milwaukee	Milwaukee	I-43, I-94	1,354,874	25	18	2,192	54,915	2010	8	B	Precast Concrete		Ground Mounted	I	Absorptive
Wisconsin	Milwaukee	Milwaukee	I-43, I-94	2,253,545	25	20	2,192	91,566	2010	8	B	Precast Concrete		Ground Mounted	I	Absorptive
Wisconsin	Milwaukee	Milwaukee	I-894	2,283,305	25	21	2,192	92,312	2010	8	B	Precast Concrete		Ground Mounted	I	Absorptive

Instructions for Each Column of the Inventory Worksheet:

Noise Barrier ID (System Generated)

Unique identifier assigned to each Noise Barrier by the software

DO NOT FILL. The Noise Barrier ID field will be automatically populated with a unique ID at FHWA Headquarters.

State (Enter Text)

The state in which the Noise Barrier is located

County (Enter Text)

The county (counties) in which the Noise Barrier is located

Do not shorthand names, fill in the full name of the County, Parish, or Borough.

If the barrier crosses county lines, include both the county in which the Noise Barrier starts, and the county in which it ends. Separate the counties with a comma. i.e. County A, County B.

If the barrier is in an independent City, fill in the County column with 'N/A'.

City (Enter Text)

The city (or cities) in which the Noise Barrier is located

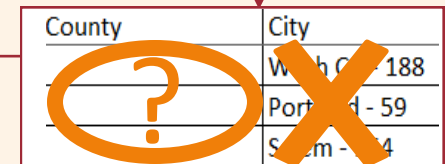
Record the name of the city in which the Noise Barrier is located; if the construction crosses city lines, report both the city in which the Noise Barrier starts, and the city in which it ends.

Separate the city names with a comma. i.e. City A, City B.

Input only Cities under **City**; not neighborhoods, private development names, Counties, or numbers.

- These types of identifiers, except Counties, can go under the **State Reference Name** column.

Do not shorthand names, fill in the full name of the City, i.e. Township, rather than Twp, so that they are locatable with an online search.



County	City
	Wash Co - 188
	Portland - 59
	Sum - 4

State Reference Name (Enter Text)

The name your Agency/State uses to identify the noise barrier/noise barrier system

You can input any text or numbers into this field.

For example, you may choose to use this field to link associated or continuous noise barriers that work in conjunction to protect one or more neighborhoods or in association with a particular project. Sometimes a single community noise abatement is actually comprised of more than one noise barrier. Multiple noise barriers are reported separately (one row each in the inventory), but may be linked by assigning the same **State Reference Name** to each distinct noise barrier. For example: 'Parkway Neighborhood System' may be assigned to several noise barriers.

Route (Enter Text)

The Route/Highway/Roadway along which the Noise Barrier is located

Record the route number or name of the highway on which the Noise Barrier is located.

Do not include spaces before your route in the cell

Please do not use indicators like Eastbound, Mile Posts/Markers, 'to-from' locations, or project specific labeling.

- These items should go in the **State Reference Name** column.

Describe what sort of route it is – Interstate, State Road, US Route, or other unique identifier such as a Farm Road or County Road - rather than just inputting a number.

Use consistent labeling on local roadways: St. Ave. Rd. Ct. Terr.etc.

If the barrier is on two routes, such as at an interchange, input both routes and separate with a comma, i.e. I-95, I-10.

Interstates → include 'I' and '-'

- ✓ For example, I-95.
- ✗ Not I95, or I 95, IH 95, or 95.

State Roads/State Highways/State Routes → Use 'SR' with a space before the number.

For County Roads → Use 'CR' with a space before the number.

- ✓ For example, SR 772 or CR 21.
- ✗ Not SR772, or SR-772, S.R. 772, or 772.

US Routes → use 'US' with a space before the number.

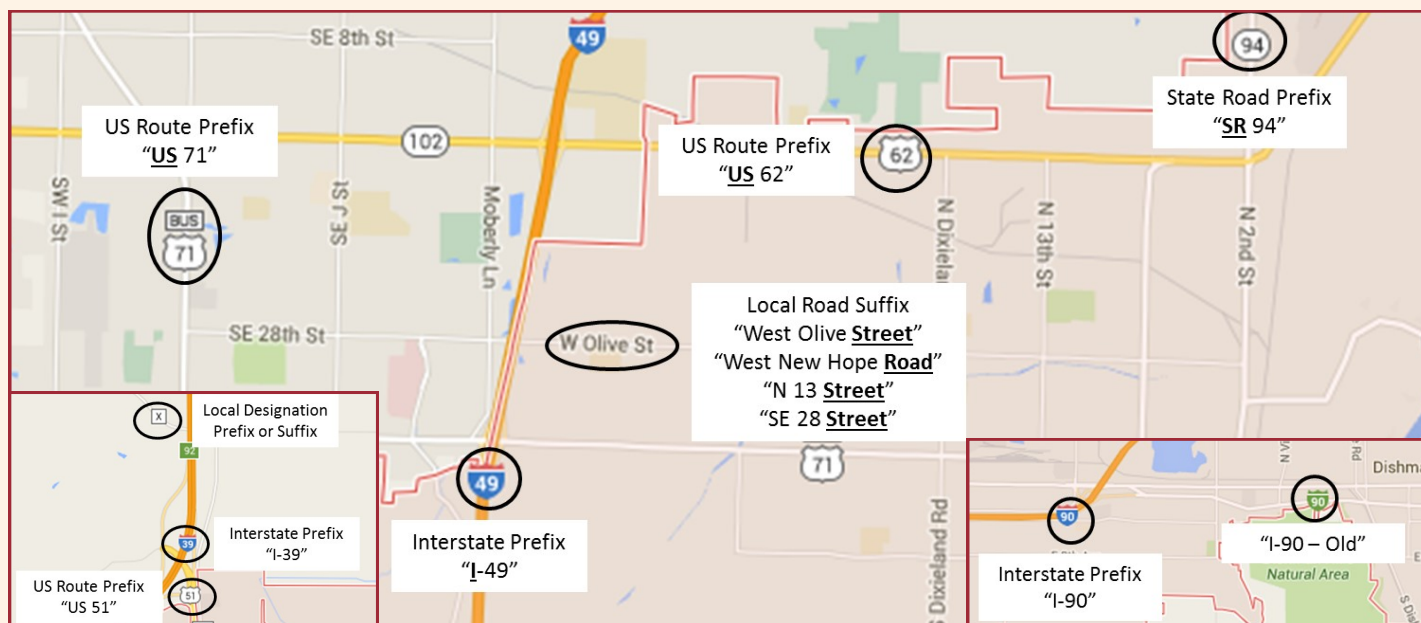
- ✓ For example, US 41.
- ✗ Not US41, US Rt 41, US HWY 41, or 41.

Do not add number text after a number

- ✓ For example, 47 Avenue.
- ✗ Not 47th Avenue.

Route	
	57
	57
91,57	
91,57	

Examples:



Original Construction Cost (Enter Number)

The total cost of constructing the barrier

Record the actual or estimated **total cost** in US dollars of constructing the Noise Barrier.

Please verify these costs where possible. Some barriers are reporting extremely low total costs - \$1 to \$3.

Original Unit Cost (Enter Number)

The cost per square foot of the barrier

Record the actual or estimated **unit cost** in US dollars of the Noise Barrier.

If left blank, this will be calculated by dividing the **Original Construction Cost** by the **Area Square Feet**.

Average Height – Feet (Enter Number)

The height of Noise Barrier in feet

Record the average height in feet of the Noise Barrier. Use the following hierarchy to determine the average height:

1. As-built drawings, or
2. Shop drawings, or
3. Design/bid plans, or
4. Noise Analysis Report

Please verify these heights where possible. There are some heights currently reported from 1 foot to 58 feet.

- There should not be heights reported below 5 feet as those barriers wouldn't break the average line of sight.
- Parapet, jersey, or visual barriers by themselves are not noise barriers. These are typically 3' - 5' tall.

If your noise barrier sits on top of a parapet wall, count the height of the parapet wall as part of the overall barrier height. Report the height from the ground or structure base to the top of the noise barrier.

* For Example: The Noise Study recommended a 20' barrier. The barrier is designed to sit on a 3' parapet barrier with 17' tall panels above that 3' barrier for the total 20' height. Report only the 20' height.

Do not report the height of MSE Walls, Fill, or Cuts as part of the barrier height.

Length – Feet (Enter Number)

The length of Noise Barrier in feet

Record the length in feet of the Noise Barrier.

Please verify the length where possible. There are barrier lengths as low as 3 feet reported.

Area – Square Feet (Enter Number)

The total area of the Noise Barrier in square feet

Record the area of the Noise Barrier in square feet.

If left blank, this will be calculated by multiplying the reported **Average Height** by the reported **Length**. However, this method is less preferable than the actual area of the barrier due to rounding errors from the use of an average height.

Year of Original Construction (Enter Number)

The year the barrier began to be constructed

Record the year (YYYY format) in which construction of the Noise Barrier was started. Enter a year between 1960 and 2016.

Average Noise Reduction (Enter a Number no Greater than 30)

The average predicted or measured noise reduction benefit

The recommended method to report the average sound level noise reduction is from the FHWA Traffic Noise Model Results Table using the barrier design proposed for the project.

Count only the receptors for whom the barrier was constructed → obtain the average using only the noise reductions above the 5 dB(A) feasibility threshold. This should result in no **Average Noise Reductions** below 5 dB(A).

If available, include the dB(A) to the tenth, rather than rounding.

- For Example: 8.7 is preferable to 8 or 9.

Primary NAC (Enter Text)

The primary Noise Abatement Criteria category the barrier was constructed to protect. Select 1 NAC.

See [Table 1 of 23 CFR 772](#) and the [FHWA FAQs](#) for more details on Noise Abatement Criteria and Activity Categories. Select the category that best describes the land use the barrier is intended to protect and input it into **Primary NAC**. If it is an older barrier, and information is available, please select the Activity Category from the regulation as it was at the time the barrier was constructed.

Other NAC (Enter Text)

The secondary Noise Abatement Criteria category(ies) the barrier was constructed to protect. Select 1 or more NACs.

This is a new column for this inventory. All previously reported NACs have been updated to reflect this change. In cases where a barrier protects more than one Activity Category, include these in the **Other NAC** column in alphabetical order. Separate these by commas if necessary.

Primary Construction Material (Enter Text)

The dominant Noise Barrier construction material – Select 1 Material

Enter the primary construction material used for the Noise Barrier.

Secondary Construction Material (Enter Text)

Any other Noise Barrier construction material(s) – Select 1 to 4 Other Materials

The name of this column has changed. It used to be the **Other Construction Material** column in previous inventories. Select up to 4 additional construction materials used in the Noise Barrier.

Do not list the same material twice under **Primary** and **Secondary**.

For both columns:

Capitalize the names of materials.

Include spaces between words and commas between materials.

Please do not use 'Combination' as a construction material. Instead fill the **Primary** and **Secondary** material columns.

Typical materials include: Berm, Block, Brick, Cast-in-Place concrete, Fiberglass, Metal, Plastic Opaque, Plastic Other, Plastic Transparent (use this material if it is polycarbonate or acrylic), Precast Concrete, and Wood.

(Note: Use 'Cast-in-Place' Concrete rather than 'Cast in Place' Concrete. Otherwise it can cause the online webpage to show it incorrectly.)

Use of 'Other' as a material:

Please do not put 'Other' in the **Primary Construction Material** column, with a material reported under the **Secondary Construction Material** column, unless the Primary Construction Material is not one of the types listed above.

Typical 'Other' materials can include, but are not limited to, Rubber and Composites.

Category	Primary Construction Material	Other Construction Material	F
	Wood, Combination	?	
	Wood		
	Other	Plastic Transparent	
	Other	Plastic Transparent	
	Other	Plastic Transparent	
	Other	Plastic Transparent	
	Other	Plastic Transparent	
	Wood		
	Wood		
	Wood		
	Wood		
	Wood		
	Wood		
	Wood		
	Wood		
	Wood		
	Berm		
	Berm, Wood, Combination	Wood	

Features (Enter Text)

Special safety features of the Noise Barrier

Input any or all of the features that apply to the Noise Barrier (the list below is not exhaustive), if more than one applies, separate by a comma:

- Fire Access
- Emergency Exit
- Maintenance Access

Surface Texture (Enter Text)

The Noise reflecting ability of the Noise Barrier

Select the feature that most accurately applies to the Noise Barrier's ability to reflect noise.

- Absorptive
- Reflective
- Both - if one side is absorptive but the other is not, or vice versa.

Foundation (Enter Text)

Noise Barrier foundation material

Select the type of foundation that most accurately describes the Noise Barrier's foundation.

- Ground Mounted
- On Structure
- Both

Designate a barrier as 'On Structure' consistent with how the FHWA Noise Model works.

Use 'On Structure' for bridges.

Use 'Both' for combination barriers where a barrier transitions from Ground to Structure or vice versa.

Project Type (Enter Text)

Whether placement of the noise barrier is associated with a roadway project or not

Select the type of project most appropriate to the Noise Barrier:

- Please include a 'I' or 'II' for Federally funded noise barriers where 'I' is for Type I and 'II' is for Type II barriers. See also 23 CFR 772.5 and 23 CFR 772.15.
- For State-funded barriers – denote with an 'S'. You may enter 'S, II' if it is a State program similar to a Federal Type II 'retrofit' program, but which did not use any Federal Aid funds.
- For Toll-funded barriers – denote with a 'T'
- For County-funded barriers – denote with a 'C'
- For other sources of funding – denote with an 'O'
- For Unknown sources of funding – denote with a 'U'
- *For other abbreviations please include an explanation of what the letter stands for in your submittal email.*
 - * For example: There are currently barriers listed with an 'L'.

Note: this field for your state may be prefilled with old values of 'S' and 'I'. You may choose to update or leave as is.

Mandate for Construction (Enter Text)

The reason why the Noise Barrier was constructed

Select the primary reason or impetus for construction of the Noise Barrier:

- Federal Regulation
 - State Regulation
 - Local Ordinance
 - Turnpike Authority
 - Private Initiative
-

GIS Location of Barrier (Enter Text)

The starting and ending points of the Noise Barrier

Record, at a minimum, the starting and ending points of the Noise Barrier using Latitude and Longitude. Optionally, you may also include bends in the barrier or locations where materials change, such as from an on-ground roadway to a bridge.

Use a decimal degree format (XX.XXXX) for the latitude/longitude of each point you choose to record. You may record as many decimal points as you wish, but no less than 4 places.

Separate the latitude and longitude of a single point with a comma (,). Separate the latitude and longitude of the beginning and end points with a 'to'. If adding multiple lengths of barrier, separate the beginning and ending latitude and longitude information for each segment of barrier with semicolons (;).

Example: 25.6108, -80.3788 to 25.6124, -80.3789; 26.6873, -81.79928 to 26.6897, -81.7990; 26.6877, -81.7982 to 26.6909, -81.7984

The example entry would mean that the barrier from 25.6108, -80.3788 to 25.6124, -80.3789 is one material or segment, and that from 26.6873, -81.79928 to 26.6897, -81.7990 the barrier has a new material, or that this segment is after a bend. The final distance may come after another bend, or many denote a shift back to another material for the length of barrier from 26.6877, -81.7982 to 26.6909, -81.7984.

Example: 25.6108, -80.3788 to 25.6124, -80.3789

In this example the barrier goes from one point (25.6108, -80.3788) to another (25.6124, -80.3789). The barrier may contain bends or material changes, but this is not denoted here. This example simply contains a start point and an end point.



Instructions for Each Column of the Repairs Worksheet:

Noise Barrier ID (Enter Text)

Unique identifier assigned to each Noise Barrier by the software in the Inventory Worksheet tab

If you entered a barrier's Repair Date on the Inventory worksheet, enter that barrier's system-generated Noise Barrier ID number into this cell.

State, County, and Route

The barrier's location

Copy in this information from the Main tab to describe where the barrier is located.

Repair Reason (Enter Text)

1 or more reasons the Noise Barrier needed repair

Select one or more repair reason(s) that most accurately reflect the reason for repairs to the Noise Barrier:

- | | |
|--|--|
| <ul style="list-style-type: none">• Relocated• Replaced-in-kind• Removed due to project• Joined to existing• Joined to new• Snow Damage• Wind Damage• Water Damage• Malicious Damage | <ul style="list-style-type: none">• Vehicular Damage• Aged Material• Faulty Material |
|--|--|
-

Original Repair Cost (Enter Number)

The cost of the repair

Enter the actual or estimated cost of the barrier's repair, removal, relocation, or extension. Where it is a relocation or extension, this value should match the Original Construction Cost as listed in the Main Tab for that barrier.

Current Year Cost

System generated

DO NOT FILL. It will be calculated based on the 'Original Repair Cost' column and the 'Repair Date'.

Primary Repair Material (Enter Text)

The dominant Noise Barrier construction material – Select 1 Material

Enter the primary construction material used for the Noise Barrier.

Secondary Repair Material (Enter Text)

Any other Noise Barrier construction material(s) – Select 1 to 4 Other Materials

The name of this column has changed. It used to be the *Other Construction Material* column in previous inventories.

Select up to 4 additional construction materials used in the Noise Barrier.

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For both columns:

Capitalize the names of materials.

Include spaces between words and commas between materials.

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(Note: Use 'Cast-in-Place' Concrete rather than 'Cast in Place' Concrete. Otherwise it can cause the online webpage to show it incorrectly.)

Use of 'Other' as a material:

Please do not put 'Other' in the **Primary Construction Material** column, with a material reported under the **Secondary Construction Material** column, unless the Primary Construction Material is not one of the types listed above.

Typical 'Other' materials can include, but are not limited to, Rubber and Composites.

GIS Location (Enter Number)

The Latitude and Longitude points of the Noise Barrier repair area

Record the Latitude and Longitude of the mid-point of the repair location.

Use a decimal degree format (XX.XXXX) to record the latitude/longitude of each point you choose to record.

Repair Date (Enter Text)

The month and year of any repair

Record Month and Year of each repair to the Noise Barrier (mm/yyyy) to match the information in the Main Tab

Instructions for the Demolitions Worksheet:

When a barrier is demolished, relocated, or otherwise replaced in its entirety:

- Copy/paste the row containing the original barrier's information from the Main Tab into this Demolitions Tab
 - ~~Cross out~~ the original barrier in the Main Tab worksheet
 - In the Main Tab worksheet, add a 'Repair Date' of when the barrier was demolished, relocated, or otherwise replaced entirely
 - If the barrier was replaced with another, please note which new barrier replaced it, and fill in a new row for that replacement barrier as you would for any other new barrier
-



Thank you for helping FHWA maintain current and accurate information
about the Nation's noise barriers.