

24 CFR Part 58.5 (i)
HUD Environmental Standards
Noise Abatement and Control –
24 CFR Part 51 Subpart B



Outline

- Regulatory Background
- HUD Noise Standards
- Noise Source Screening
- Noise Assessment
- Requirements for Noise in the Normally Unacceptable and Unacceptable Range
- Noise Mitigation



REGULATORY BACKGROUND



Regulatory Background

- Congress passed Noise Control Act of 1972, as amended by Quiet Communities Act of 1978
- 24 CFR Part 58.5 (i) requires compliance with HUD's noise regulation of 24 CFR Part 51 Subpart B



Noise Policy Goals

Noise affects the quality of housing and its economic value...

- **Comply with the *Housing Act of 1949* by creating and enforcing a standard for “a decent home in a suitable living environment”**
- **Comply with the *HUD Act of 1965* mandate “to determine feasible methods of reducing the economic loss and hardships suffered by homeowners...following the construction of airports...”**
- **Comply with *Compatible Land Uses at Federal Airfields* to not promote incompatible land uses within the influence of military and other federal air installations**

Excessive Noise Impacts

- Noise affects people's ability to:
 - Talk to one another
 - Hear threats around them
 - Enjoy recreational pursuits
 - Learn and concentrate
 - Sleep
- Noise causes harm – hearing loss, stress, and threats to mental and social wellbeing.
- Noise reduces property values and resale potential



Excessive Noise Impacts

- Outdoor recreation is degraded or negated
- Community cohesion is affected
- Health adversely impacted – sleeping difficulties & stress
- Direct causal relationship to interior noise levels – if outdoor noise level is 65 dB or less, then indoor noise level will be 45 dB or less with typical construction



Common Audible Sounds

- Rustle of leaves in wind: 10 dB
- Average whisper: 20 dB
- Soft radio music in house: 40 dB
- Range of speech: 48 – 72 dB
- Noisy urban street: 90 dB
- Loud horn at 10 feet: 100 dB



HUD'S NOISE STANDARDS



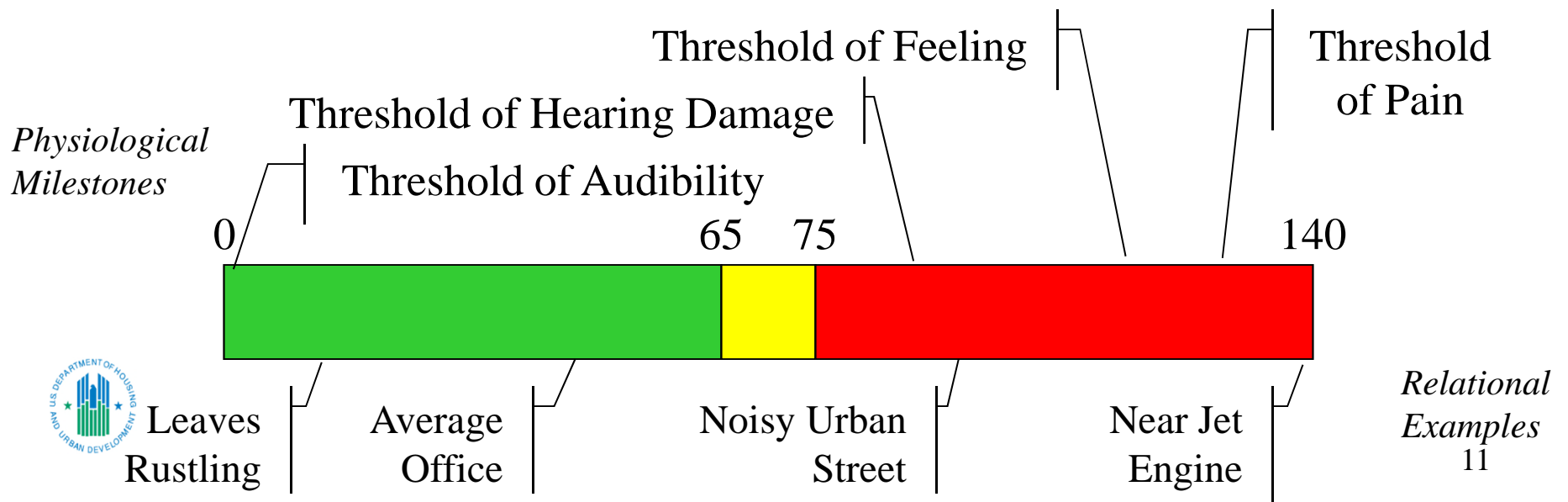
How is noise quantified?

HUD uses Day-Night Level (DNL) noise descriptor

- Accumulates noise data from major noise generators of concern:
 - airports
 - roadways
 - railroads
 - military and industrial facilities
- Averaged over a 24 hour period
- Nighttime noises are Weighted 10 dB
- Estimates noise level at least 10-years in future

HUD Noise Standards

- Outdoor Standards (24 CFR 51.103):
 - Acceptable Range: ≤ 65 dB
 - Normally Unacceptable Range: > 65 dB ≤ 75 dB
 - Unacceptable Range: > 75 dB
- Indoor Standard (24 CFR 51.101(a)(9)): 45 dB Max.



HUD Policy

HUD policy for projects with noise sensitive uses...

- **New Construction – Prohibit** (generally) HUD support for new construction of noise sensitive uses on sites having unacceptable noise exposure [24 CFR 51.101(a)(3)]
- **Rehabilitation – Encourage**, or strongly encourage, noise attenuation features or **convert** to a land use compatible with high noise levels [24 CFR 51.101(a)(5)]
- **Land Use – Encourage** land use patterns for housing and other noise sensitive urban needs that provide a suitable separation between them and major noise sources [24 CFR 51.100(a)(3)]



NOISE-SENSITIVE USES

Which of the following are Noise-Sensitive Uses?

1. Residential units of any kind
2. Hotel
3. Office building
4. City park
5. Swimming pool
6. Public right-of-way (road)
7. Drainage canal



Balcony Notice [CPD-16-19]

- Balconies defined as:
 - Private spaces (i.e., residents can determine if balcony is usable or not)
 - Accessible from individual dwelling units
 - Not indicative of outdoor, noise-sensitive uses (e.g., for purpose of EIS waiver under 24 CFR 51.104(b)(2)),
 - Allowable in any noise zone as of Notice CPD-16-19
 - <https://portal.hud.gov/hudportal/documents/huddoc?id=16-19cpdn.pdf> or
 - Search for “HUD Balcony Notice.”



Balcony Notice: Warnings

- Key = balconies are *private* spaces
- **Public spaces** like rooftop decks and communal patios are **not covered by the Notice**
- **Balconies off bedrooms** and studio apartments **require** Operations & Maintenance plans that mandate **periodic inspection and maintenance** *This is new (2016).*
- **Mechanical ventilation is required** at noise-exposed sites. If windows mitigate noise, must remain closed
- HUD Approving Official **may still deny** balconies for noise or other concerns. For EA/EIS project, **must consider air quality (air toxics)**



COMPLIANCE OVERVIEW

1. Does project involve a noise sensitive use? If yes:
2. Screen for Noise Sources. If noise sources found:
3. Gather data needed for Noise Assessment
4. Calculate current and projected (10-year) noise levels
5. If applicable: Consider existing or proposed (with assurances) barriers
6. Make a Finding based on calculated DNL, less barrier attenuation
7. Mitigate as necessary



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2005 – Related Federal Laws and Authorities Summary (50/58)

Directions: Click on the Compliance Factor links in the first column in the chart below. The links will take you to a separate screen to answer questions and provide documentation on the specific Compliance Factor.

Compliance Factors	Are formal compliance steps or mitigation required?	Compliance Determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & 58.6		
Airport Hazards [Clear Zones and Accident Potential Zones; 24 CFR Part 51 Subpart D]	<input type="radio"/> Yes <input type="radio"/> No	
Coastal Barrier Resources [Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]]	<input type="radio"/> Yes <input type="radio"/> No	
Flood Insurance [Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]]	<input type="radio"/> Yes <input type="radio"/> No	
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR §50.4 & 58.5		
Air Quality [Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93]	<input type="radio"/> Yes <input type="radio"/> No	
Coastal Zone Management [Coastal Zone Management Act, sections 307(c) & (d)]	<input type="radio"/> Yes <input type="radio"/> No	
Contamination and Toxic Substances - Multifamily and Nonresidential Properties [24 CFR 50.3(i) & 58.5(i)(2)] (HUD Standard)	<input type="radio"/> Yes <input type="radio"/> No	
Endangered Species [Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402]	<input type="radio"/> Yes <input type="radio"/> No	
Explosive and Flammable Hazards (Above-Ground Tanks)[24 CFR Part 51 Subpart C]	<input type="radio"/> Yes <input type="radio"/> No	
Farmlands Protection [Farmland Protection Policy Act of 1981, particularly sections 1504(b) & 1541; 7 CFR Part 658]	<input type="radio"/> Yes <input type="radio"/> No	
Floodplain Management [Executive Order 11988, particularly section 2(a); 24 CFR Part 55]	<input type="radio"/> Yes <input type="radio"/> No	
Historic Preservation [National Historic Preservation Act of 1966, particularly sections 106 & 110; 36 CFR Part 600]	<input type="radio"/> Yes <input type="radio"/> No	
Noise Abatement and Control [Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B]	<input type="radio"/> Yes <input type="radio"/> No	
Sole Source Aquifers [Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149]	<input type="radio"/> Yes <input type="radio"/> No	
Wetlands Protection [Executive Order 11990, particularly sections 2 & 5]	<input type="radio"/> Yes <input type="radio"/> No	
Wild and Scenic Rivers [Wild and Scenic Rivers Act of 1968, particularly section 7(b) & (c)]	<input type="radio"/> Yes <input type="radio"/> No	
ENVIRONMENTAL JUSTICE		
Environmental Justice [Executive Order 12898]	<input type="radio"/> Yes <input type="radio"/> No	

[Cancel Review](#) | [Save and Continue](#)



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2085 - Noise Abatement and Control (50/58) **Project Name: Noise-Training**

General Requirements	Legislation	Regulation
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Noise Control Act of 1972 General Services Administration Federal Management Circular 75-2: "Compatible Land Uses at Federal Airfields"	Title 24 CFR 51 Subpart B

Reference

<https://www.onecpd.info/environmental-review/noise-abatement-and-control>

Note that if you change answers on this screen, make sure to press "Next" button in order for the information to save and proceed to the appropriate next question.

1. What activities does your project involve? Check all that apply:

- New construction for residential use
- Rehabilitation of an existing residential property
- A research demonstration project which does not result in new construction or reconstruction
- An interstate land sales registration
- Any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster
- None of the above

Next

Save and Return to Summary **Cancel Review**



COMPLIANCE OVERVIEW

1. Does project involve a noise sensitive use? If yes:
2. Screen for Noise Sources. If noise sources found:
3. Gather data needed for Noise Assessment
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5. If applicable: Consider existing or proposed (with assurances) barriers
6. Make a Finding based on calculated DNL, less barrier attenuation
7. Mitigate as necessary



HEROS: LEARN BY REVIEWING

1. What activities does your project involve? Check all that apply:

- New construction for residential use
NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.
- Rehabilitation of an existing residential property
- A research demonstration project which does not result in new construction or reconstruction
- An interstate land sales registration
- Any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster
- None of the above

Next



COMPLIANCE OVERVIEW

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Noises Sources and Distances of Concern

Is project within...

- 15 miles of a civil or military airport?
- 3,000 feet of a railroad?
- 1,000 feet of a major roadway?



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Initial Screen

Project Summary

Level of Review Determination

Project Justification

Related Laws and Authorities

Environmental Assessment Factors

Environmental Assessment Analysis

Mitigation Measures and Conditions

Environmental Finding

Package

Certifications

Complete and Archive

2085 - Noise Abatement and Control

General Requirements	Noise
HUD's noise regulations protect residential properties from excessive noise exposure. HUD encourages mitigation as appropriate.	Gen Fec Co Air

Reference

<https://www.onecpd.info/environmental->

Note that if you change answers on this screen, make sure to press "Next" button in order for the information to save and proceed to the appropriate next question.

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- New construction for residential use
NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.
- Rehabilitation of an existing residential property
- A research demonstration project which does not result in new construction or reconstruction
- An Interstate land sales registration
- Any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster
- None of the above

4. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport). Indicate the findings of the Preliminary Screening below:

- There are no noise generators found within the threshold distances above.
- Noise generators were found within the threshold distances.

Next

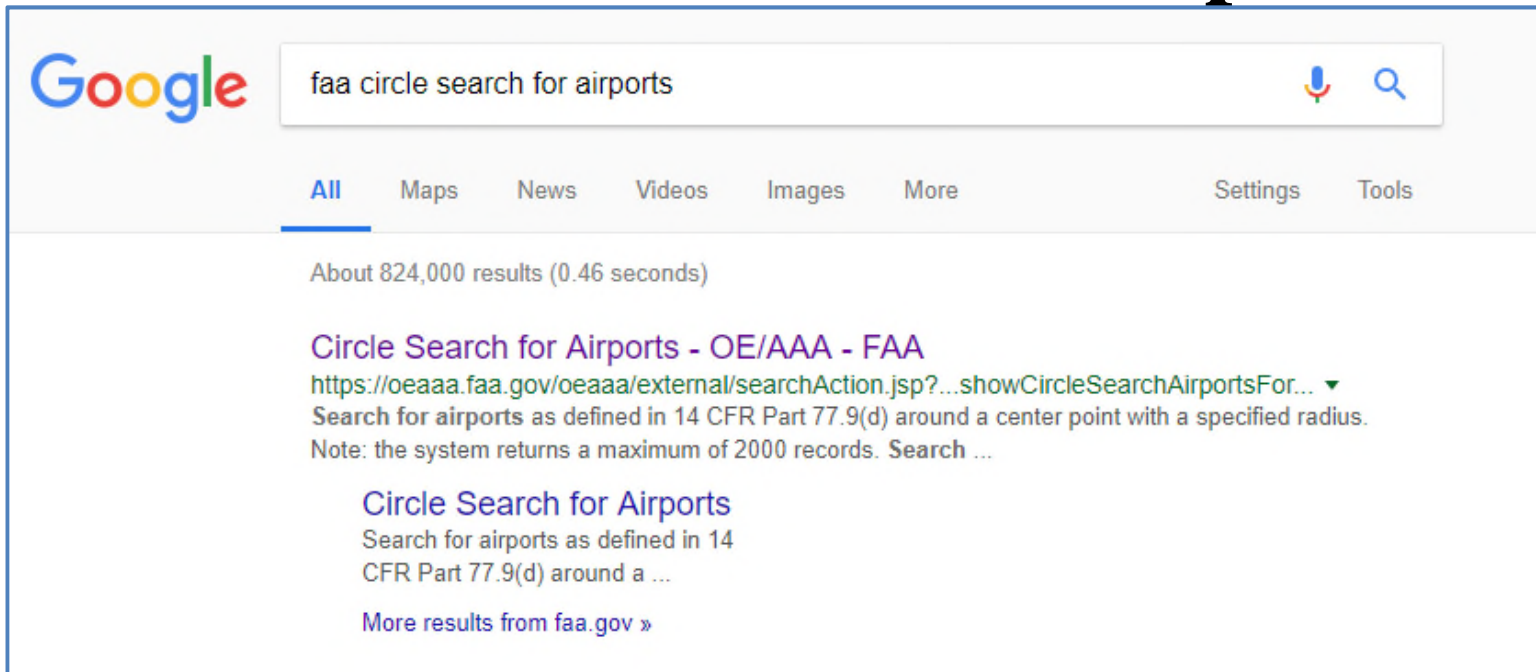
Save and Return to Summary

Cancel Review



Finding Airport Sources

FAA Circle Search for Airports




The screenshot shows a Google search interface. The search bar contains the text "faa circle search for airports". Below the search bar, the "All" tab is selected. The search results show "About 824,000 results (0.46 seconds)". The top result is titled "Circle Search for Airports - OE/AAA - FAA" with a URL: <https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?...showCircleSearchAirportsFor...>. The description reads: "Search for airports as defined in 14 CFR Part 77.9(d) around a center point with a specified radius. Note: the system returns a maximum of 2000 records. Search ...". Below this, there is a link to "Circle Search for Airports" with a sub-description: "Search for airports as defined in 14 CFR Part 77.9(d) around a ...". At the bottom of the result, there is a link: "More results from faa.gov »".



Finding Airport Sources


FAA Circle Search for Airports



Federal Aviation Administration

« OE/AAA

Obstruction Evaluation
Version 2018.1.1

Circle Search for Airports faa.gov Tools:  Print this page

Home

FAA OE/AAA Offices

View Determined Cases

View Interim Cases

View Proposed Cases

View Supplemental Notices (Form 7460-2)

View Circularized Cases

Search Archives

Download Archives

Download Correspondence

Circle Search for Cases

Circle Search for Airports

General FAQs

Marking/Lighting FAQs

Wind Turbine FAQs

Discretionary Review FAQs

Notice Criteria Tool

DoD Preliminary Screening Tool

Searches - Desk Reference Guide V_2016.2.0

- Search for airports as defined in 14 CFR Part 77.9(d) around a center point with a specified radius.
- Note: the system returns a maximum of 2000 records. Search results will only display public use facilities.
- [digital-Terminal Procedures Publication \(d -TPP\)/Airport Diagrams](#)
- [List of Active Special Instrument Flight Procedures](#)

Circle Center Point:

An airport: (e.g., IAD, SFO, LAX)

An Off Airport Case: - - - OE

An On Airport Case: - - - NRA

A specific location: Latitude: Deg M S N W

Longitude: Deg M S W W

Datum: NAD83

Circle Radius:

Nautical miles (50 miles max)

Note: this search may take up to 30 seconds to return results.



Finding Airport Sources

FAA Circle Search for Airports

Set center point of search to
“A specific location”

Set search radius to something
larger than 15 miles

Circle Center Point:

An airport: (e.g, IAD, SFO, LAX)

An Off Airport Case: - - - OE

An On Airport Case: - - - NRA

A specific location: Latitude: 27 Deg 56 M 54.67 S N

Longitude: 82 Deg 27 M 20.75 S W

Datum: NAD83

Circle Radius:

20
Nautical miles
(50 miles max)

may take up to 30 seconds to return results.

Coordinates for your
project: obtain from
Google Earth



Finding Airport Sources

FINDING AIRPORT SOURCES

FAA Circle Search for Airports

Circle Search For Airports Results faa.gov Tools: [Print this page](#)

Records 1 to 10 of 10 Page 1 of 1

Locator Id	Name	Site Type	City	State	Latitude	Longitude	Distance(NM)	Azimuth
TPF	PETER O KNIGHT	Airport	TAMPA	FL	27° 54' 55.60" N	82° 26' 57.80" W	2.0	9.66°
TPA	TAMPA INTL	Airport	TAMPA	FL	27° 58' 31.70" N	82° 31' 59.70" W	4.42	111.47°
MCF	MACDILL AFB	Airport	TAMPA	FL	27° 50' 57.63" N	82° 31' 16.38" W	6.87	30.23°
VDF	TAMPA EXECUTIVE	Airport	TAMPA	FL	28° 0' 50.30" N	82° 20' 43.00" W	7.05	123.82°
PIE	ST PETE-CLEARWATER INTL	Airport	ST PETERSBURG-CLEARWATER	FL	27° 54' 31.28" N	82° 41' 11.38" W	12.49	78.89°
SPG	ALBERT WHITTED	Airport	ST PETERSBURG	FL	27° 45' 54.40" N	82° 37' 37.10" W	14.25	39.49°
PCM	PLANT CITY	Airport	PLANT CITY	FL	28° 0' 0.60" N	82° 9' 47.90" W	15.84	101.23°
CLW	CLEARWATER AIR PARK	Airport	CLEARWATER	FL	27° 58' 37.97" N	82° 45' 32.61" W	16.2	96.04°
X39	TAMPA NORTH AERO PARK	Airport	TAMPA	FL	28° 13' 16.60" N	82° 22' 28.40" W	16.88	165.26°
48X	AIRPORT MANATEE	Airport	PALMETTO	FL	27° 38' 33.35" N	82° 31' 11.70" W	18.62	10.49°

Records 1 to 10 of 10 Page 1 of 1

Rows per Page: Page: 1



Finding Airport Sources

AirNav.com

<https://www.airnav.com/airports/search.html>



Airport Search

1. Tell us about a nearby place

Indicating one of the choices below is enough

A city, town, or zip code:
Example: Boston or Green Bay, WI or 90210

An airport identifier:

Geographic coordinates: Latitude:

Longitude:
Example: 43 or 43-12-19 or 43.20528

2. Tell us about the airfields you are looking for

Suitable types of fields:
(Check at least one)

- Airports
- Balloonports
- Gliderports
- Heliports
- Seaplane bases
- Ultralight Flightparks

Airfield use
(Check at least one)

- Public
- Private
- Military

Instrument approaches

Do you need instrument approaches?

Runway characteristics:

Enter, or leave blank if you don't care

Length: at least ft.

Paved? (check if runway must be paved)

Fuel types:

100LL AvGas
80/87 AvGas
Automotive (Mogas)
Jet A
Jet B

Shift, control or command to select multiple

Only where fuel prices known

3. Where do you want to search?

Between and nautical miles



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AIRNAV.COM **SIGN UP HERE** **CONTRACT FUEL**

Airports **Nav aids** **Airspace Fixes** **Aviation Fuel** **Hotels** **AIRBOSS** **iPhone App** **My AirNav**

1635 users online **LOGIN**

Airport Search

1. Tell us about a nearby place

Indicating one of the choices below is enough

A city, town, or zip code:
Example: Boston or Green Bay, WI or 90210

An airport identifier:

Geographic coordinates: Latitude: North
Longitude: West
Example: 43 or 43-12-19 or 43.20528

Military Only where fuel prices known

3. Where do you want to search?







Between and nautical miles



Finding Airport Sources

2. Tell us about the airfields you are looking for

Suitable types of fields:
(Check at least one)

-  Airports
-  Balloonports
-  Gliderports
-  Heliports
-  Seaplane bases
-  Ultralight Flightparks

Airfield use
(Check at least one)

- Public
- Private
- Military

Instrument approaches

Do you need instrument approaches?

None needed ▼

Runway characteristics:

Enter, or leave blank if you don't care

Length: at least ft.

Paved? (check if runway must be paved)

Fuel types:

Not needed
100LL AvGas
80/87 AvGas
Automotive (Mogas)
Jet A
Jet B

Shift, control or command to select multiple

Only where fuel prices known

3. Where do you want to search?

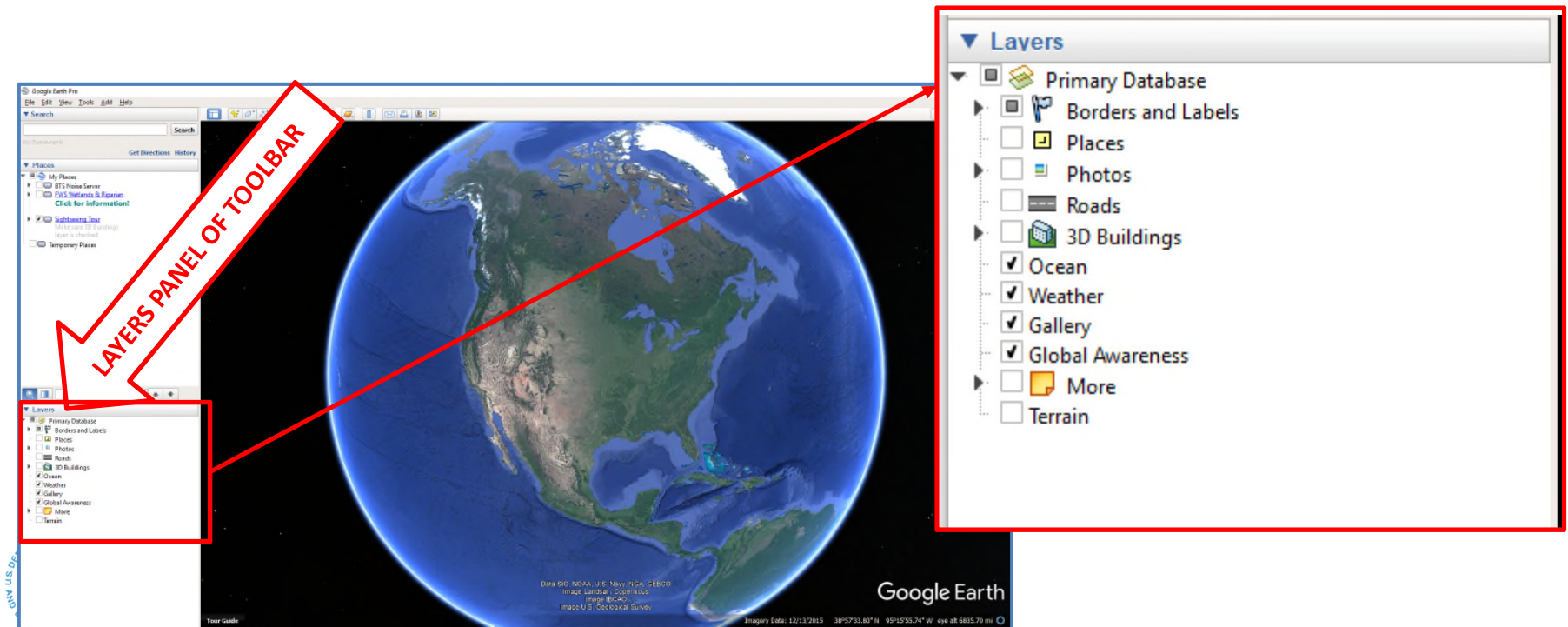
Between and nautical miles ▼

Search for airfields in this vicinity



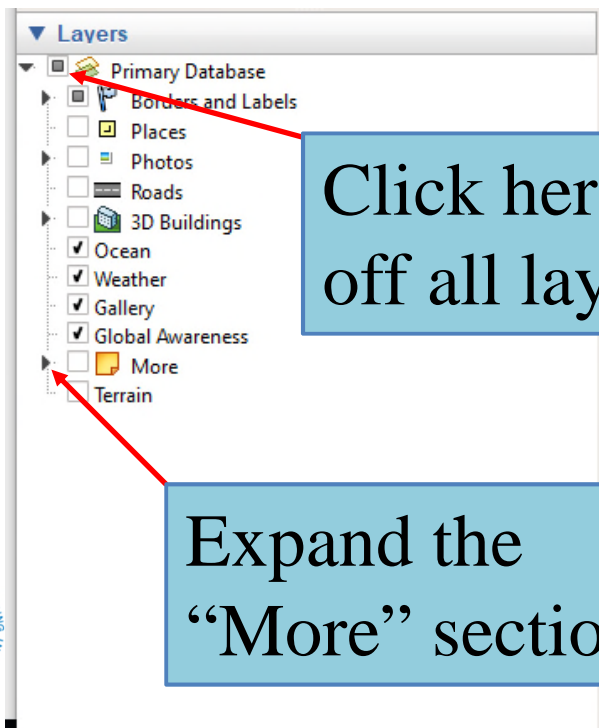
Finding Railroad Sources

Using Google Earth Pro



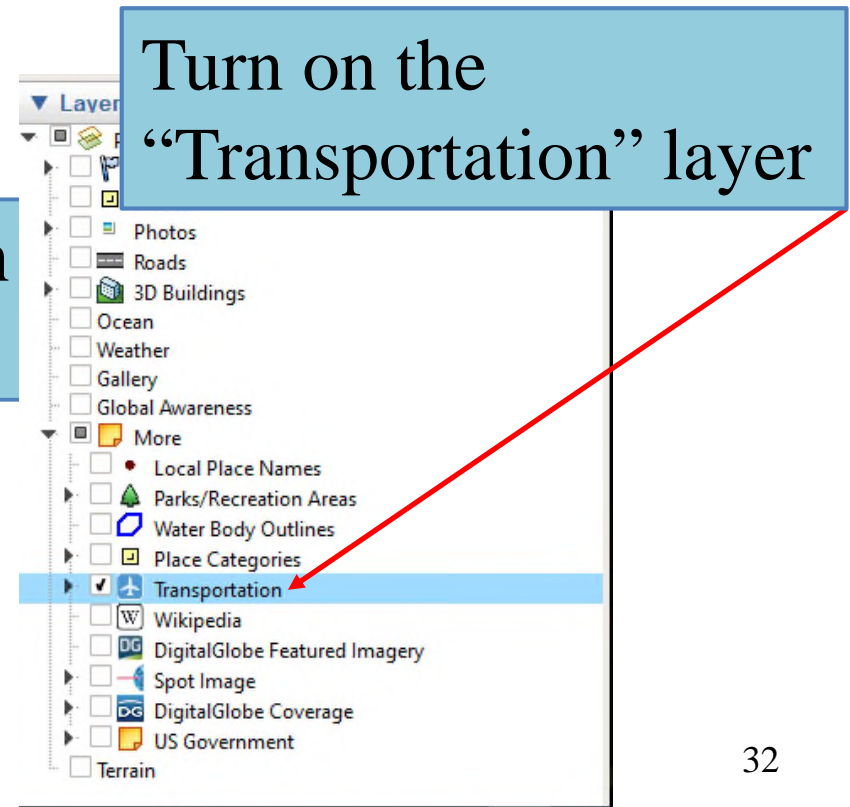
Finding Railroad Sources

Using Google Earth Pro



Click here to turn off all layers

Expand the "More" section

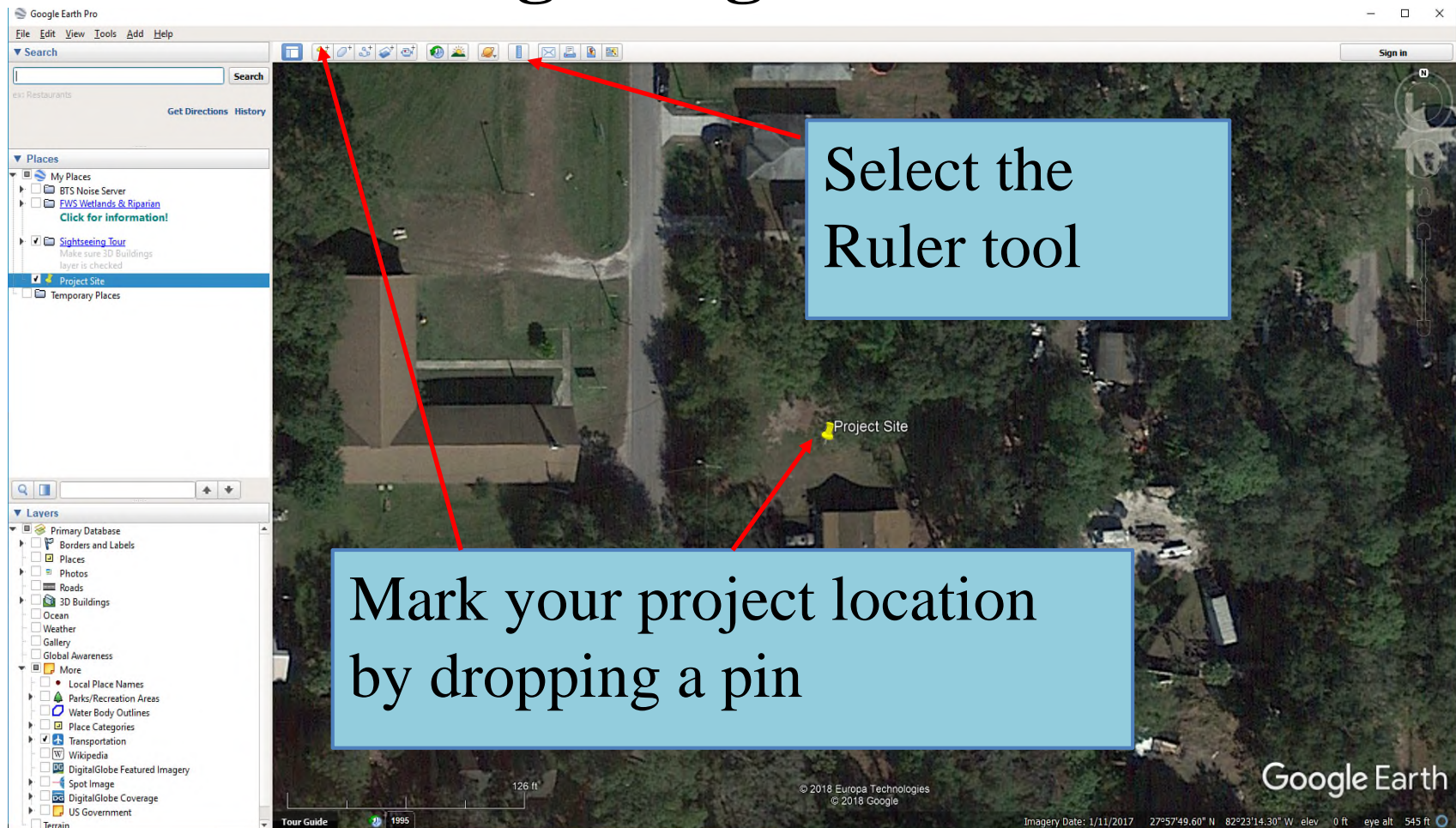


Turn on the "Transportation" layer



Finding Railroad Sources

Using Google Earth Pro



Finding Railroad Sources

Using Google Earth Pro

The image shows a screenshot of the Google Earth Pro interface. The main window displays a satellite view of a residential area with a yellow pin labeled 'Project Site'. Two red boxes highlight the 'Ruler' tool interface. The larger box on the right shows the 'Ruler' window with the 'Circle' tab selected. The 'Radius' is set to 0.00 Feet, the 'Area' is 0.00 Square Meters, and the 'Circumference' is 0.00 Feet. The 'Mouse Navigation' checkbox is checked. A blue callout box at the bottom of the screenshot contains the text: 'Select the Circle tab, and set your radius units to feet.'

Google Earth Pro

File Edit View Tools Add Help

Search

Get Directions History

Places

My Places

BTS Noise Server

ES&S Wetlands & Riparian

Click for informational

Sightseeing Tour

Make sure 3D Buildings

Insert checked

Project Site

Temporary Places

Layers

Primary Database

Borders and Labels

Places

Photos

Roads

3D Buildings

Ocean

Weather

Gallery

Global Awareness

More

Local Place Names

Parks/Recreation Areas

Water Body Outlines

Place Categories

Transportation

Wikipedia

DigitalGlobe Featured Imagery

Spot Image

DigitalGlobe Coverage

US Government

Terrain

Ruler

Line Path Polygon Circle 3D path 3D polygon

Measure the circumference or area of a circle on the ground

Radius: 0.00 Feet

Area: 0.00 Square Meters

Circumference: 0.00 Feet

Mouse Navigation

Save Clear

Project Site

126 ft

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Google Earth

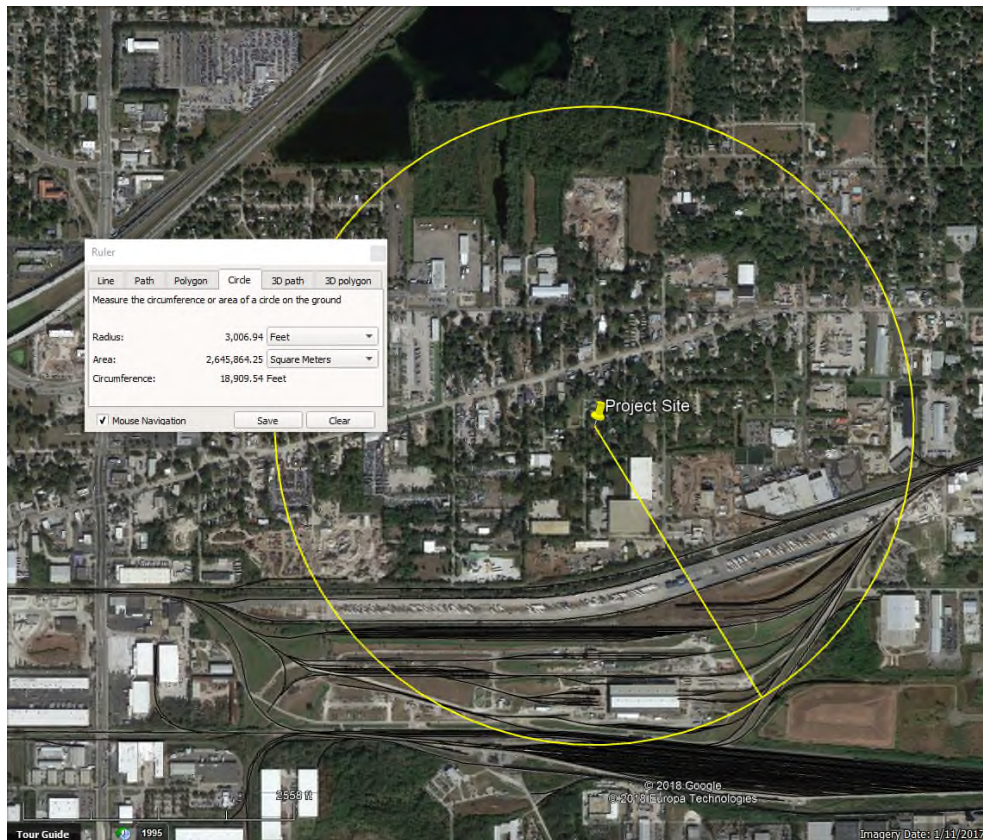
Imagery Date: 1/11/2017 27°57'49.60" N 82°23'14.30" W elev. 0 ft eye alt. 545 ft

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

34

Finding Railroad Sources

Using Google Earth Pro

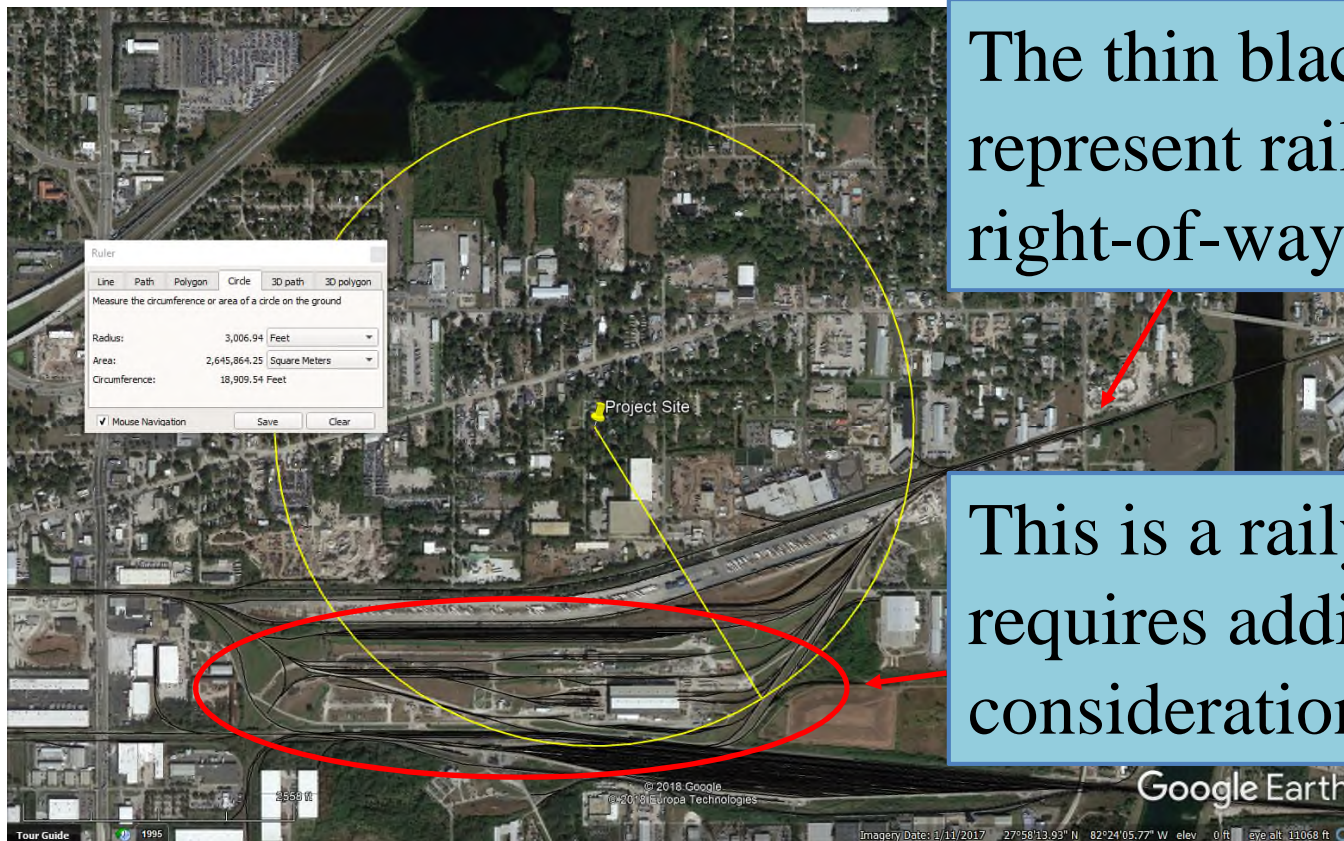


Click once to set your center point, then pull the mouse away (you may have to use the mouse wheel to zoom out) until the radius is 3,000 feet. Click again to lock the radius.



Finding Railroad Sources

Using Google Earth Pro



The thin black lines represent railroad right-of-ways.

This is a railyard and requires additional consideration



Finding Major Roadways

WHAT IS THE DEFINITION!?

In the past, “Major Roadway” may or may not have been defined as Average Daily Traffic (ADT) of 10,000 vehicles per day or more.

- This is no longer the case, and for good reason: a small roadway with ADT of 4,000 (or less in some circumstances) can generate Normally Unacceptable noise levels as far away as 37 feet.
- Best practice is to evaluate noise from any roadway within 1,000 feet of the project site for which traffic data is available.



Finding Major Roadways

DATA SOURCES

State DOT Websites for Traffic Data

Google search results for "florida dot traffic counts". The search bar shows the query and a microphone icon. Below the search bar are tabs for "All", "Maps", "Shopping", "Videos", "News", "More", "Settings", and "Tools". The results show "About 1,240,000 results (0.40 seconds)". The top result is "FDOT Florida Traffic Online - Florida Department of Transportation" with the URL fto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html. Below the URL are links for "Transportation Statistics Office - Help | Bookmark. Navigate to MyFlorida.com | Opens new browser window. FDOT Florida Traffic Online (2017). Zoom to. Click to ...".

Google search results for "TN DOT Traffic Counts". The search bar shows the query and a microphone icon. Below the search bar are tabs for "All", "Shopping", "News", "Images", "Videos", "More", "Settings", and "Tools". The results show "About 2,540,000 results (0.29 seconds)". The top result is "TDOT Traffic History - TN.gov" with the URL <https://www.tdot.tn.gov/APPLICATIONS/traffichistory>. Below the URL are links for "Traffic History reflects the Annual Average Daily Traffic (AADT) count along specific locations on Tennessee's road network ...".

Screenshot of the FDOT Florida Traffic Online (2017) website. The page has a red header with the "my" logo and "FDOT Florida Traffic Online (2017)". Below the header is a "Zoom to" section with "State Extent" and "Florida Counties" dropdowns. A "LEGEND" section on the left lists "Florida Turnpike", "Interstates", "Lakes and Rivers", and "Counties". A central map shows Florida with various roadways and traffic data points. On the right, a "Tools" sidebar includes buttons for "Start Here", "Locator Map", "Zoom In", "Zoom Out", "Pan", "Identify", "Find", "Print", "Traffic Reports", "Daily Traffic", "Truck Traffic", "Labels & Layers", and "Clear".

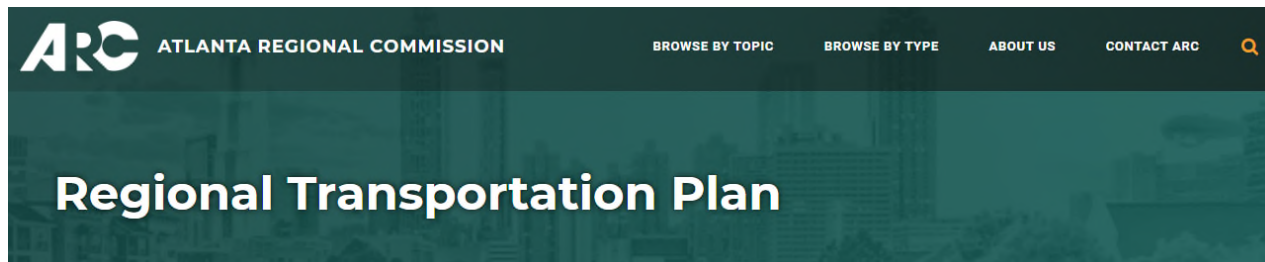
Screenshot of the TDOT Traffic History website. The page has a red header with the "TDOT" logo and "Traffic History". Below the header is a search bar with "View stations on map:" and a dropdown menu. The main content is a map of Tennessee with numerous red markers indicating traffic stations. To the right of the map is a "Station Information" section with instructions on how to view traffic history using the map. At the bottom, there are options to "Download File:" and "Open With:" for various formats like KML, ESRI GeoJSON, ESRI Shapefile, and Database Tables.



Finding Major Roadways

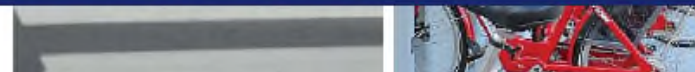
DATA SOURCES

Regional Transportation Planning Agencies



A General Plan for Nashville & Davidson County

Adopted June 22, 2015



HEROS: LEARN BY REVIEWING

1. What activities does your project involve? Check all that apply:

- New construction for residential use
NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.
- Rehabilitation of an existing residential property
- A research demonstration project which does not result in new construction or reconstruction
- An interstate land sales registration
- Any timely emergency assistance under disaster assistance provisions or appropriations which are provided to save lives, protect property, protect public health and safety, remove debris and wreckage, or assistance that has the effect of restoring facilities substantially as they existed prior to the disaster
- None of the above

4. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport). Indicate the findings of the Preliminary Screening below:

- There are no noise generators found within the threshold distances above.
Upload a map showing the location of the project relative to any noise generators in the Screen Summary at the conclusion of this screen.
- Noise generators were found within the threshold distances.

Next



HEROS: LEARN BY REVIEWING

Screen Summary

Compliance Determination

Describe the basis that led to your determination here, identifying all key elements from your support documentation that substantiate your determination. The following minimum language is based on your responses in this section. You are strongly encouraged to edit this language to provide a clear description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your region

The Preliminary Screening identified no noise generators in the vicinity of the project. The project is in compliance with HUD's Noise regulation.

Supporting documentation

Upload all supporting documents required in this section here:

Are formal compliance steps or mitigation required?

Only Responsible Entity (for Part 58) or HUD (for Part 50) Users may respond to this question. Ensure that this question is complete before finalizing the review.

- Yes
 No



COMPLIANCE OVERVIEW

1. Does project involve a noise sensitive use? If yes:
2. Screen for Noise Sources. If noise sources found:
3. Gather data needed for Noise Assessment
4. Calculate current and projected (10-year) noise levels
5. If applicable: Consider existing or proposed (with assurances) barriers
6. Make a Finding based on calculated DNL, less barrier attenuation
7. Mitigate as necessary



3. Gather data needed for analysis

General information about project and area

- **Maps of the site and surroundings**
 - Site plan and vicinity map
 - Aerial photographs – e.g. Google Earth
 - Planimetric map – shows roads, building footprint, railroads, etc.
 - Topographic map – shows elevation contours
- **Is outdoor use a component of the project?**
- **Local land use (current, and future) and zoning**
- **Recently announced development plans in the area**
- **Visit site if possible**



Airport Noise Source Information

Contact airport manager or Federal Aviation Administration (FAA) to obtain:

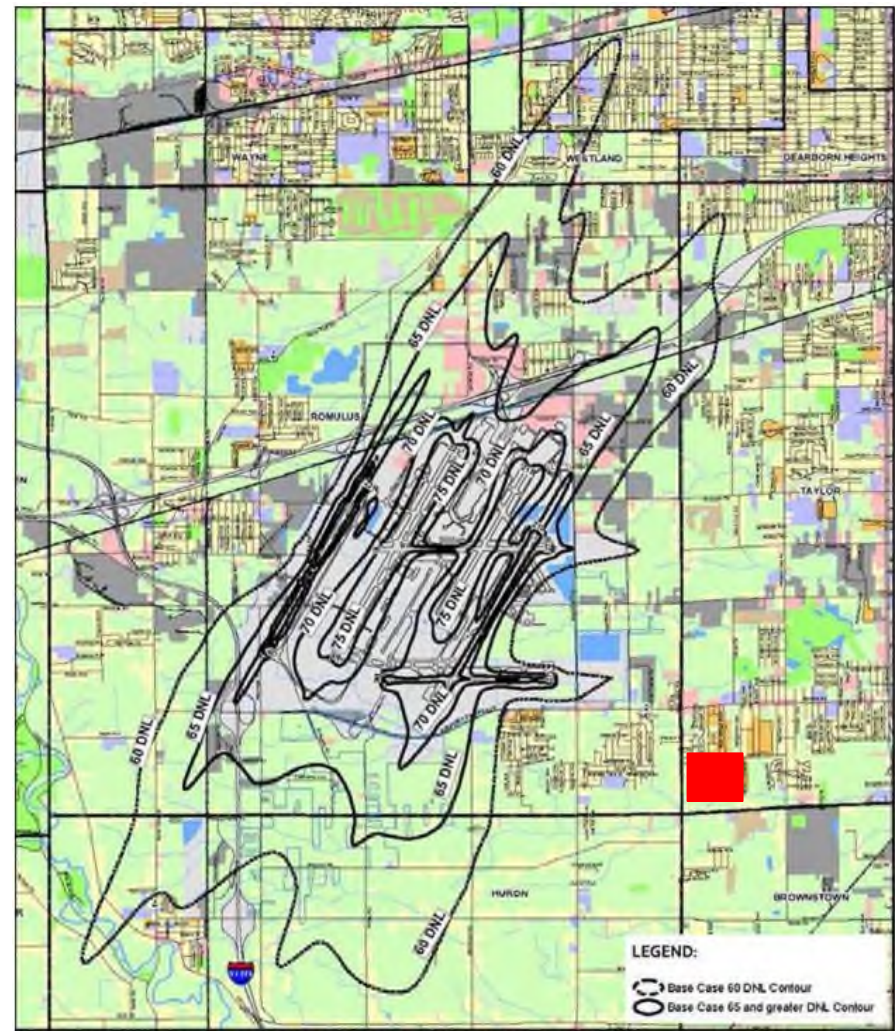
- Noise contour map **or** data on # flights per day, both daytime and at night
- Airport noise control plan that includes
- At Military Installations, ask for their “Air Installation Compatible Use Zone” Plan – It is intended to be shared with local planners and developers



Determine Airport Noise DNL

Airports

- Noise contours can extend far from airport
- If project location is outside of noise contours, then provide map showing location.
 - No further calculation needed



Source: Barnard Dunkelberg Company, Michigan Department of Natural Resources, SEMCOG



Example Airport Contour Map



Small Airports

If Contour Map is Not Available:

Get data on # flights per day, both daytime and at night

<http://www.gcr1.com/5010web/>

If airport annual operations less than:

- 9,000 air carrier operations
- 18,000 air taxi operations
- 18,000 military operations
- 72,000 general aviation operations

In all categories, then significant noise is assumed to not extend beyond airport boundaries



Small Airports

If air operations exceed any of those de minimis values, **draw contours using guidance in Noise Guidebook!**

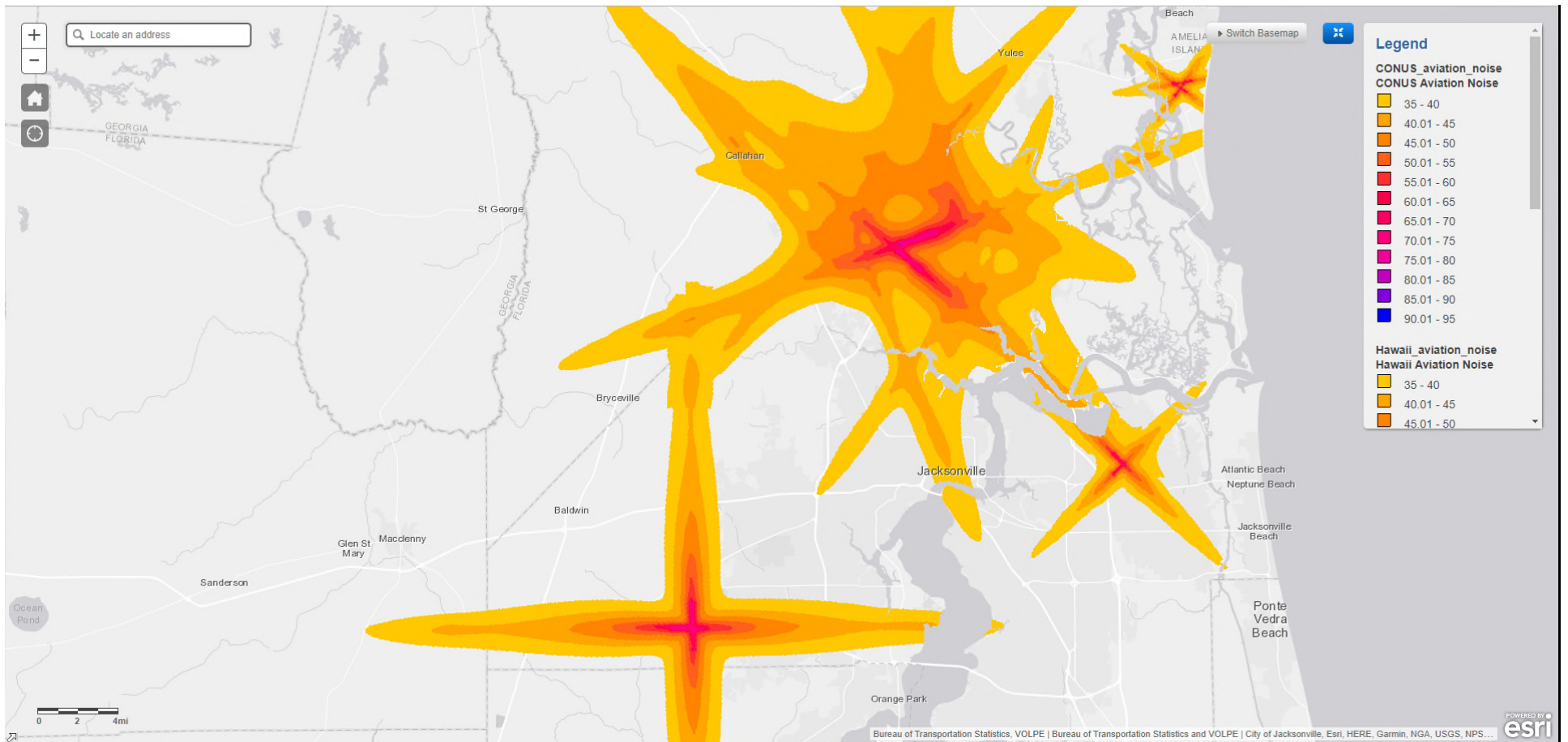
OR

try this website:

<https://maps.bts.dot.gov/MapGallery/map.html?webmap=0b24ac4f19644a338a1a853fa59>



Small Airports



Roadway Noise Source Data

Best Information Sources:

- State and local D.O.T. agencies
- Local and regional planning agencies



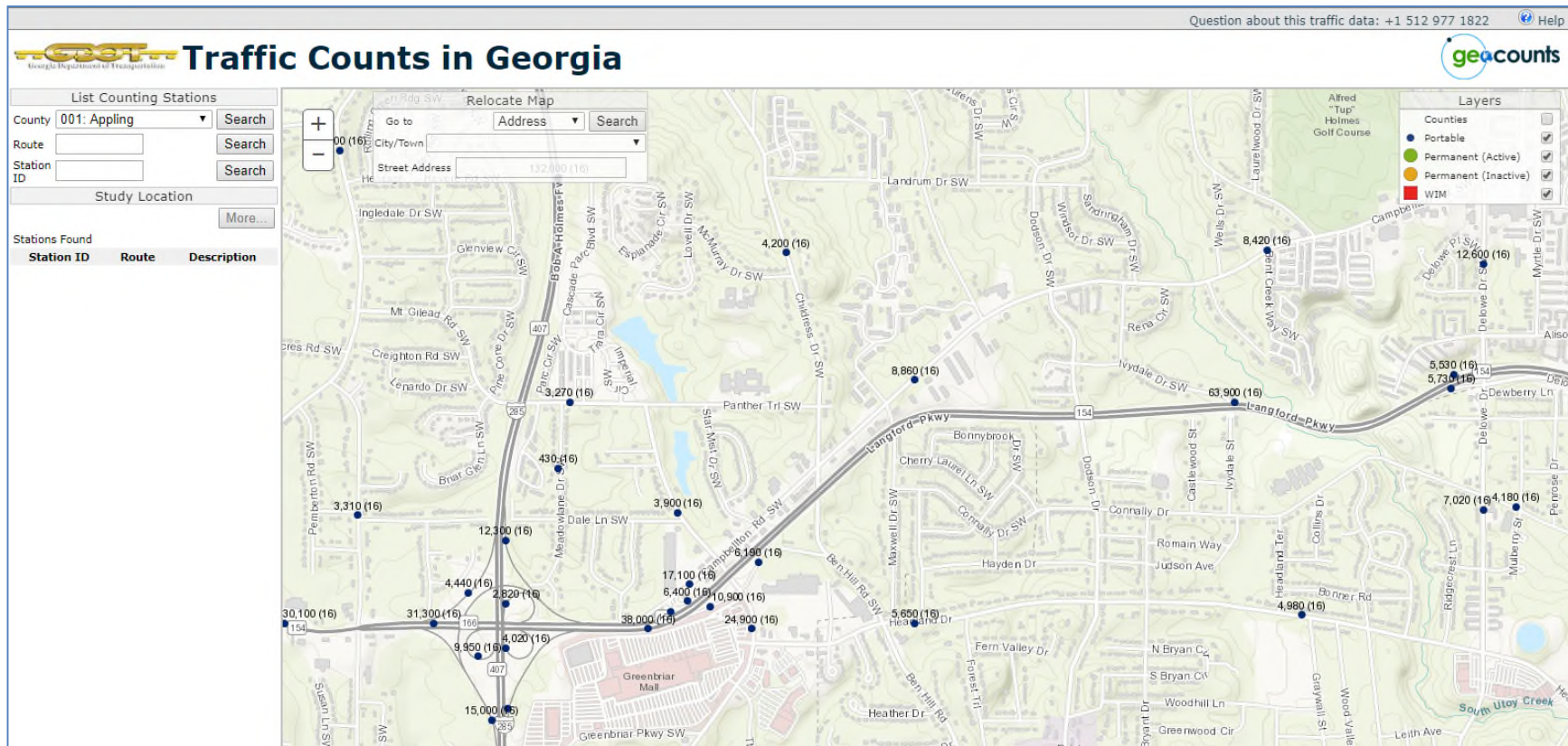
Roadway Noise Source Information

Obtain or calculate the following information:

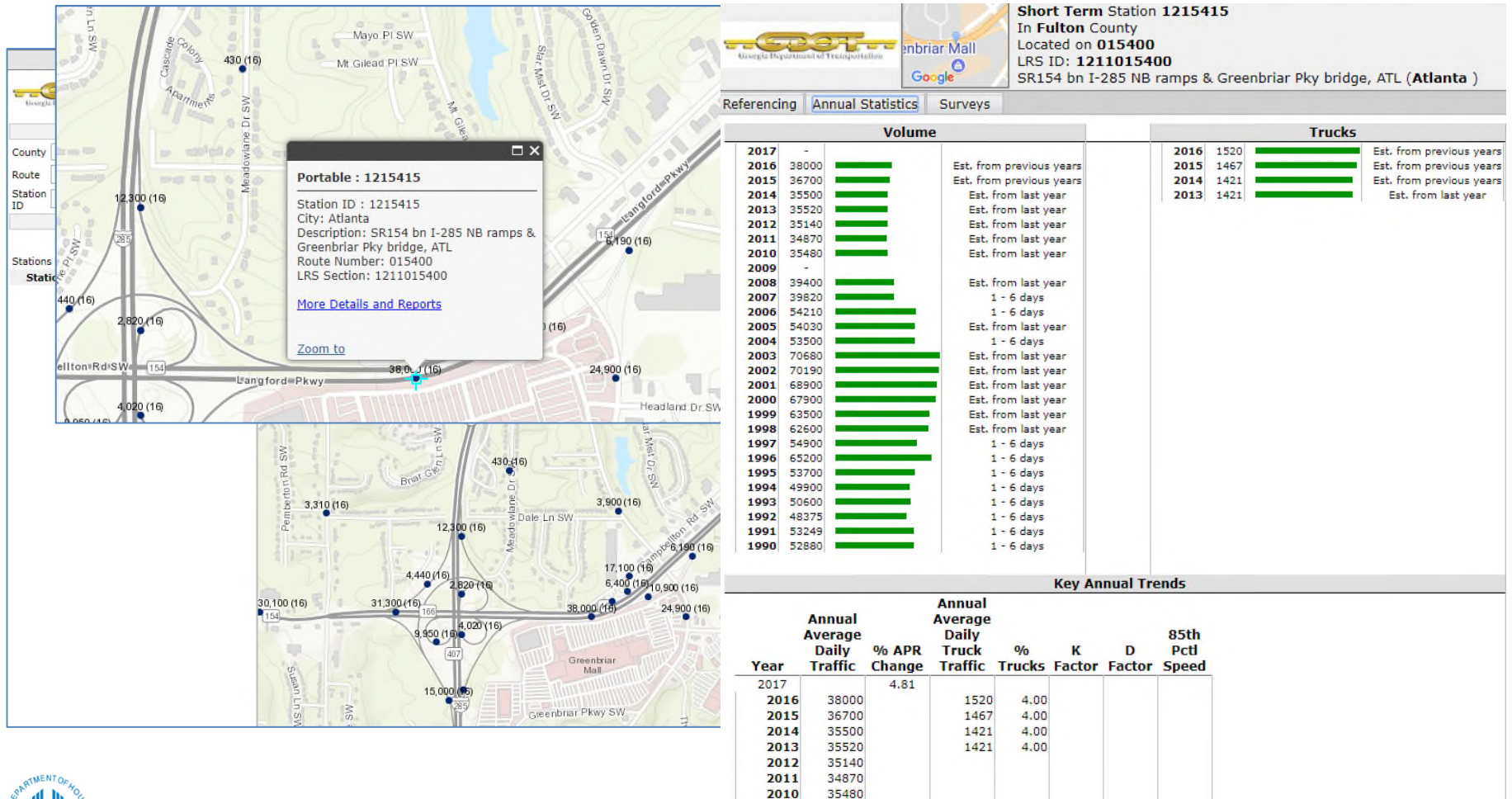
- Average Daily Traffic (ADT): current and 10-year history
- Proportion of ADT by Vehicle Class (Autos, Medium Trucks and Heavy Trucks)
- ADT Traffic projections (from planning agencies or calculated)
- Nighttime Fraction (can be calculated from hourly traffic data)
- Roadway grade (can be calculated from topographic data)



Example Traffic Information



Example Traffic Information



Treat all trucks as “heavy” if they cannot be split

MEDIUM TRUCKS

- 10,000-26,000 gross vehicle weight
- Includes 2-axle, 6-wheel vehicles (w/ dual tires in rear, aka, “dualies”)




















HEAVY TRUCKS

- Above 26,000 gross vehicle weight and 3 or more axles
- Buses with more than 15 seated passengers
- If not possible to separate trucks that are heavy from those that are not, treat all trucks as “heavy”

Source: HUD *Noise Guidebook*, pg 56



FHWA Vehicle Classifications

FHWA Vehicle Classifications			
<p>1. Motorcycles 2 axes, 2 or 3 tires</p> 	<p>2. Passenger Cars 2 axes, can have 1- or 2-axle trailers</p> 	<p>3. Pickups, Panels, Vans 2 axes, 4-tire single units Can have 1 or 2 axle trailers</p> 	<p>4. Buses 2 or 3 axes, full length</p> 
<p>5. Single Unit 2-Axle Trucks 2 axes, 6 tires (dual rear tires), single-unit</p> 	<p>6. Single Unit 3-Axle Trucks 3 axes, single unit</p> 	<p>7. Single Unit 4 or More-Axle Trucks 4 or more axes, single unit</p> 	<p>8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axes, single trailer</p> 
<p>9. Single Trailer 5-Axle Trucks 5 axes, single trailer</p>  	<p>10. Single Trailer 6 or More-Axle Trucks 6 or more axes, single trailer</p>  		<p>8. Single Trailer 3- or 4-Axle Trucks 3 or 4 axes, single trailer</p>   
<p>11. Multi-Trailer 5 or Less-Axle Trucks 5 or less axes, multiple trailers</p> 		<p>12. Multi-Trailer 6-Axle Trucks 6 axes, multiple trailers</p>  	
<p>13. Multi-Trailer 7 or More-Axle Trucks 7 or more axes, multiple trailers</p> 			

Correlating HUD Vehicle Definitions *with* FHWA Vehicle Classifications

HUD Noise Guidebook

- **Autos**
[FHWA #1,2,3]
- **Medium Trucks**
[FHWA #5]
- **Heavy Trucks**
[FHWA #4, 6-13]]



FHWA Vehicle Classes

1. **Motorcycles**
2. **Passenger Cars**
3. **Pickups (Two-Axle, Four-Tire Single Unit Vehicles)**
4. **Buses (full-length)**
5. **Two-Axle, Six-Tire, Single-Unit Trucks**
6. **Three-Axle, Single-Unit Trucks**
7. **Four or More Axle, Single-Unit Trucks**
8. **Four or Fewer Axle Single-Trailer Trucks**
9. **Five-Axle Single-Trailer Trucks**
10. **Six or More Axle Single-Trailer Trucks**
11. **Five or fewer Axle Multi-Trailer Trucks**
12. **Six-Axle Multi-Trailer Trucks**
13. **Seven or More Axle Multi-Trailer Trucks**

10-Year ADT/ATO Projections

- Must extend data out 10 years (min.)
- Best Source is state, regional, and local planning agencies, however;
- It can be calculated from historical data



10-Year ADT Calculation Example

10-YEAR TRAFFIC PROJECTION EXAMPLE

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2016 HISTORICAL AADT REPORT

COUNTY: 46 - BAY

SITE: 0276 - US 98 (BACK BEACH) - 0.114 M W OF SR 79

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2016	37000	E 19000	W 18000	9.00	57.50	5.70
2015	37500	E 18500	W 19000	9.00	61.20	5.70
2014	34000	E 17000	W 17000	9.00	57.30	5.70
2013	31500	E 16000	W 15500	9.00	57.90	5.40
2012	30000	E 15500	W 14500	9.00	53.20	5.60
2011	29500	E 15000	W 14500	9.00	53.50	5.70
2010	31000	E 16000	W 15000	9.71	57.99	6.30
2009	27500	E 13500	W 14000	9.74	57.76	6.40
2008	30500	E 15000	W 15500	9.65	59.89	8.80
2007	30000	E 15000	W 15000	9.47	59.25	5.80
2006	30000	E 15000	W 15000	9.29	57.33	9.50
2005	29000	E 14500	W 14500	9.20	55.10	4.50
2004	25000	E 12500	W 12500	9.30	57.20	7.70
2003	21500	E 11000	W 10500	9.40	56.60	7.90
2002	23000	E 11500	W 11500	9.70	59.10	6.90
2001	17400	E 8900	W 8500	9.20	56.50	7.90

Traffic increased by 7,000 VPD over 10 years, or at an average rate of 700 VPD per year

Projected AADT for 2026
 $37,000 + (10 \text{ years} * 700) = 44,000 \text{ VPD}$



Nighttime Fraction Example

COUNTY: 46
 STATION: 0276
 DESCRIPTION: US 98 (BACK BEACH) - 0.114 M W OF SR 79
 START DATE: 07/19/2016
 START TIME: 1000

NIGHTTIME TRAFFIC PERCENTAGE EXAMPLE

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	
0000	64	32	40	19	155	45	47	26	32	150	305
0100	32	17	22	11	82	33	25	16	13	87	169
0200	22	20	10	13	65	13	17	13	15	58	123
0300	10	9	13	13	45	10	16	12	16	54	99
0400	14	24	33	43	114	18	13	27	36	94	208
0500	41	68	76	107	292	47	78	107	144	376	668
0600	150	173	194	220	737	150	222	292	332	996	1733
0700	261	288	334	318	1201	289	273	310	338	1210	2411
0800	368	336	306	345	1355	281	325	333	314	1253	2608
0900	313	335	388	411	1447	313	335	293	325	1266	2713
1000	381	362	347	337	1427	319	305	312	355	1291	2718
1100	361	361	343	322	1387	227	204	245	213	889	2276
1200	354	342	353	331	1380	199	267	311	369	1146	2526
1300	299	333	357	297	1286	374	334	441	388	1537	2823
1400	334	344	353	287	1318	329	349	384	293	1355	2673
1500	365	387	363	399	1514	364	359	299	397	1419	2933
1600	433	407	439	447	1726	330	321	394	336	1381	3107
1700	453	451	410	360	1674	297	329	305	338	1269	2943
1800	316	338	307	312	1273	378	313	265	283	1239	2512
1900	263	231	237	213	944	236	207	254	249	946	1890
2000	189	211	201	161	762	205	230	220	204	859	1621
2100	177	108	153	137	575	235	235	218	212	900	1475
2200	104	116	107	117	444	159	141	146	97	543	987
2300	102	88	68	69	327	100	104	74	57	335	662

NIGHTTIME TRAFFIC %
 $4,954 / 42,183 = 11.7\%$

24-HOUR TOTALS: 21530 20653 42183

	DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
	HR	VOLUME	HR	VOLUME	HR	VOLUME
A.M.	845	1381	830	1295	845	2636
P.M.	1630	1790	1300	1537	1630	3146
DAILY	1630	1790	1300	1537	1630	3146



Determine Road Gradient

Must calculate road grade: “rise over run”



Example: Over 2,000’ “run,” the road “rises” 80’ in elevation = $80/2000 = .04 = 4\%$ grade



US Topo Map – source for vertical and horizontal distances

Railroad Noise Source Information

- Federal Railroad Administration (FRA):
- Railroad Owner/Operator
- Site Visit



Railroad Noise Source Information

YOU WILL NEED TO GATHER OR CALCULATE THE FOLLOWING INFORMATION

- Distance to center of railway
- Average Train Operations (ATO) per day
- Fraction of ATO using the crossing at night
- Locomotive engine type (e.g. diesel or electric)
- # of engines per train



Railroad Noise Source Information

YOU WILL NEED TO GATHER OR CALCULATE THE FOLLOWING INFORMATION

- # of cars per train
- Average speed at crossing
- Type of rails (e.g. bolted or welded)
- Horns used at the crossing?
 - If yes, does that affect the project site?



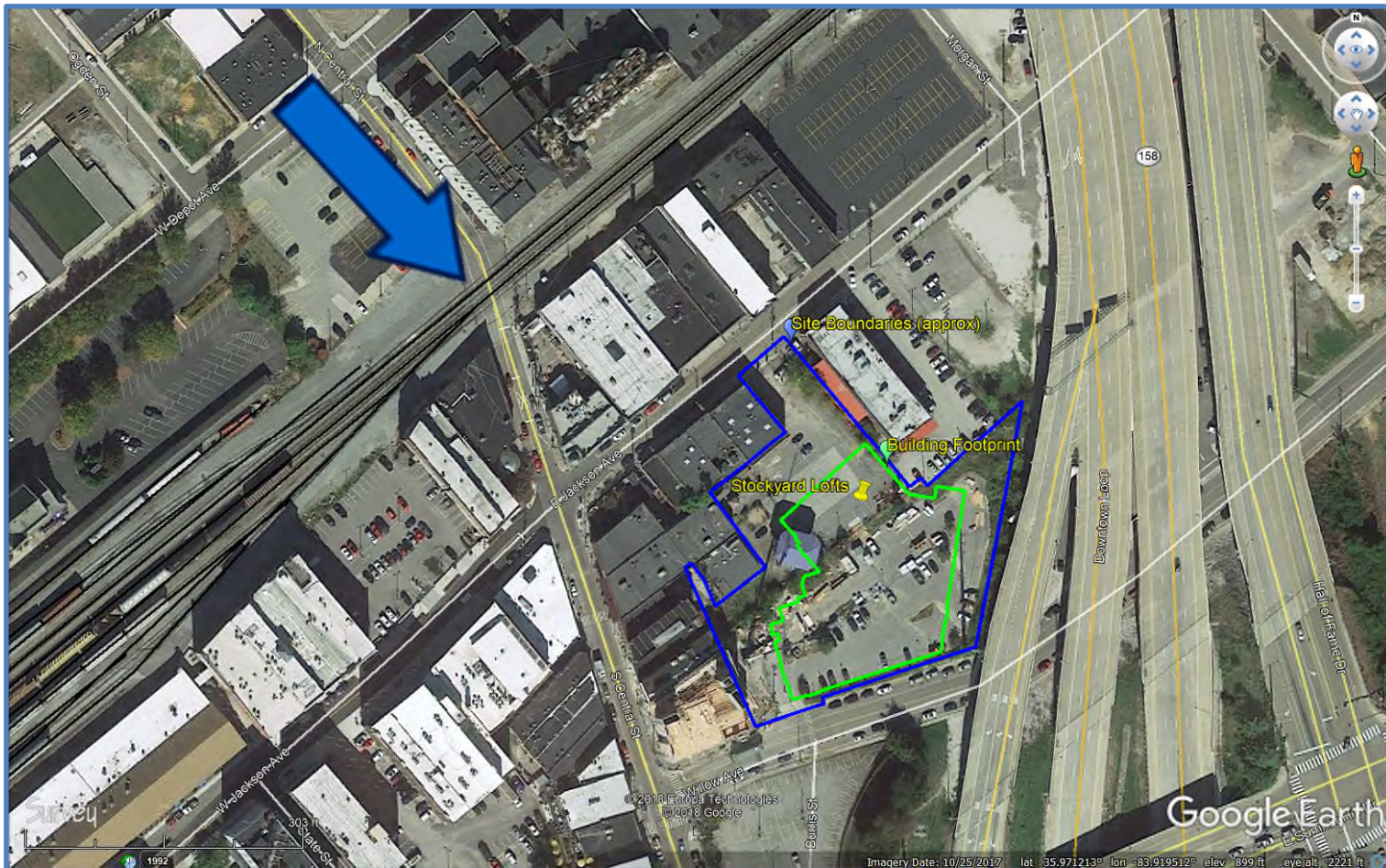
Railroad Noise Source Information

FRA: Crossing Inventory:

- safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx
- Take crossing # from bungalow or signal mast, or
- Obtain name of street at crossing
- Perform search to get Crossing Inventory report



Example Railroad Noise Source



Railroad Data

FRA Crossing Inventory:

safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

- Input crossing information

- Run Query

Federal Railroad Administration
Office of Safety Analysis

Home What's New Crossing Forms/Publications Downloads Data Documents Poli

8.01 - Query by Location

Location: Tennessee

County/City: Jefferson, Johnson, Knox, Lake, Lauderdale

Crossing Type: Public Only, All (Includes Private and Pedestrian)

Crossing Position: At-Grade Only, All (Includes Grade Separated)

Crossing Status: Open, All (Includes Closed)

Street: Central

Reporting Level: All

Railroad: All

Sort: Sort by Railroad Name, Sort by Railroad Code

Note! You need to specify state and either county or city, street or railroad search pattern.

Run Query Reset



Railroad Data

FRA Crossing Database:

safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

1. Select the “History” option
2. Select the crossing of interest and
3. Generate Report

Federal Railroad Administration
Office of Safety Analysis

Home **What's New** Crossing Forms/Publications Downloads Data Documents Policies Support

8.01 - Query by Location

Total Records: 2

Report Type: Inventory Accident

Inventory: Current History

Generate Report Show All Reset

Note: Selecting multiple crossings will increase the time required to generate a report. It is recommended that one record be generate

Number of Results per Page: 20 1 Results: 1 - 2 of 2

	Crossing#	State	Rr	Type	Position	Status	Milepost	County	City	Division	SubDivision	Branch	SI
<input checked="" type="checkbox"/>	730597L	TN	NS	Public	At Grade	Open	0130.580 A	KNOX	KNOXVILLE	GEORGIA	KNOXVILLE WEST	KNOXVILLE TERM	CENTRAL AVE
<input type="checkbox"/>	730638N	TN	NS	Public	At Grade	Open	0002.070 C	KNOX	KNOXVILLE	GEORGIA	KNOXVILLE WEST	COSTER LINE	CENTRAL STR

Generate Report Show All Reset



Railroad Data

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For private pathway grade crossings, complete the Header, Part I, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part II Item 2.K, are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY) 05/16/2019		B. Reporting Agency <input checked="" type="checkbox"/> Railroad <input type="checkbox"/> Transit <input type="checkbox"/> State <input type="checkbox"/> Other		C. Reason for Update (Select only one) <input checked="" type="checkbox"/> Change in Data <input type="checkbox"/> Re-Open <input type="checkbox"/> New Crossing <input type="checkbox"/> Date Change Only <input type="checkbox"/> Closed <input type="checkbox"/> Change in Primary Operating RR <input type="checkbox"/> No Train Traffic <input type="checkbox"/> Quiet Zone Update <input type="checkbox"/> Admin. Correction		D. DOT Crossing Inventory Number 730597L	
Part I: Location and Classification Information							
1. Primary Operating Railroad Norfolk Southern Railway Company (NS)		2. State TENNESSEE		3. County KNOX			
4. City / Municipality <input checked="" type="checkbox"/> In <input type="checkbox"/> Near KNOXVILLE		5. Street/Road Name & Block Number CENTRAL AVE (Street/Road Name) _____ # _____ (Block Number)		6. Highway Type & No. _____ is _____			
7. Do Other Railroads Operate a Separate Track at Crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR _____							
8. Do Other Railroads Operate Over Your Track at Crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Specify RR _____							
9. Railroad Division or Region <input type="checkbox"/> None <input type="checkbox"/> GEORGIA		10. Railroad Subdivision or District <input type="checkbox"/> None <input checked="" type="checkbox"/> KNOXVILLE WEST		11. Branch or Line Name <input type="checkbox"/> None <input checked="" type="checkbox"/> KNOXVILLE TERM		12. RR Milepost _____ 0130.580 _____ A (prefix) (main.mile) (suffix)	
13. Line Segment _____		14. Nearest RR Timetable Station KNOXVILLE		15. Parent RR (if applicable) <input checked="" type="checkbox"/> N/A		16. Crossing Owner (if applicable) <input checked="" type="checkbox"/> N/A	
17. Crossing Type <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		18. Crossing Purpose <input checked="" type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input type="checkbox"/> Station, Ped.		19. Crossing Position <input checked="" type="checkbox"/> At Grade <input type="checkbox"/> RR Under <input type="checkbox"/> RR Over		20. Public Access (if Private Crossing) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
21. Type of Train <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input type="checkbox"/> Commuter <input type="checkbox"/> Transit <input type="checkbox"/> Shared Use Transit <input type="checkbox"/> Tourist/Other		22. Average Passenger Train Count Per Day <input type="checkbox"/> Less Than One Per Day <input type="checkbox"/> Number Per Day: _____					
23. Type of Land Use <input type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional <input type="checkbox"/> Recreational <input type="checkbox"/> RR Yard							
24. Is there an Adjacent Crossing with a Separate Number? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide Crossing Number _____							
25. Quiet Zone (FRA provided) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excluded Date Established _____							
26. HSR Corridor ID <input checked="" type="checkbox"/> N/A		27. Latitude in decimal degrees (WGS84 std: .nn.nnnnnn) 35.9710827		28. Longitude in decimal degrees (WGS84 std: -.nnn.nnnnnn) -83.916711		29. Lat/Long Source <input checked="" type="checkbox"/> Actual <input type="checkbox"/> Estimated	
30.A. Railroad Use *		31.A. State Use *		32.A. Narrative (Railroad Use) *			
30.B. Railroad Use *		31.B. State Use *		32.B. Narrative (State Use) *			
30.C. Railroad Use *		31.C. State Use *		32.C. Narrative (State Use) *			
30.D. Railroad Use *		31.D. State Use *		32.D. Narrative (State Use) *			
33. Emergency Notification Telephone No. (posted) 600-946-4744		34. Railroad Contact (Telephone No.) 800-946-4744		35. State Contact (Telephone No.) 615-741-9558			
Part II: Railroad Information							
1. Estimated Number of Daily Train Movements		1.A. Total Day Thru Trains (6 AM to 6 PM) 7		1.B. Total Night Thru Trains (6 PM to 6 AM) 3		1.C. Total Switching Trains 8	
2. Year of Train Count Data (YYYY) 2017		3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) 60 3.B. Typical Speed Range Over Crossing (mph) From 25 to 35		1.E. Check if Less Than One Movement Per Day How many trains per week? 0 <input type="checkbox"/>			
4. Type and Count of Tracks Main 2 Siding 1 Yard 0 Transit 0 Industry 0							
5. Train Detection (Main Track only) <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None							
6. Is Track Signaled? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7.A. Event Recorder <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7.B. Remote Health Monitoring <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date (MM/DD/YYYY) 05/16/2019		PAGE 2		D. Crossing Inventory Number (7 char.) 730597L	
Part III: Highway or Pathway Traffic Control Device Information					
1. Are there Signs or Signals? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
2. Types of Passive Traffic Control Devices associated with the Crossing		2.A. Crossbuck Assemblies (count) 2		2.B. STOP Signs (R1-1) (count) 0	
2.C. YIELD Signs (R1-2) (count)		2.D. Advance Warning Signs (Check all that apply, include count)		<input type="checkbox"/> W10-1 <input type="checkbox"/> W10-3 <input type="checkbox"/> W10-11 <input type="checkbox"/> W10-2 <input type="checkbox"/> W10-4 <input type="checkbox"/> W10-12	
2.E. Low Ground Clearance Sign (W10-5) (Yes/No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		2.F. Pavement Markings <input type="checkbox"/> Stop Lines <input type="checkbox"/> Dynamic Envelope <input checked="" type="checkbox"/> RR King Symbols <input checked="" type="checkbox"/> None		2.G. Channelization Devices/Medians <input type="checkbox"/> All Approaches <input type="checkbox"/> Median <input type="checkbox"/> One Approach <input checked="" type="checkbox"/> None	
2.J. Other MUTCD Signs Specify Type _____ Count _____ Specify Type _____ Count _____ Specify Type _____ Count _____		2.K. Private Crossing Signs (if private) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2.L. LED Enhanced Signs (List types)	
3. Types of Train Activated Warning Devices at the Grade Crossing (specify count of each device for all that apply)					
3.A. Gate Arms (count) Roadway 2 Pedestrian 0		3.B. Gate Configuration <input checked="" type="checkbox"/> 2 Quad <input type="checkbox"/> Full (Barrier) <input type="checkbox"/> 3 Quad <input type="checkbox"/> 4 Quad <input type="checkbox"/> Median Gates		3.C. Cantilevered (or Bridged) Flashing Light Structures (count) Over Traffic Lane 0 <input checked="" type="checkbox"/> Incandescent <input type="checkbox"/> LED Not Over Traffic Lane 0 <input type="checkbox"/> LED	
3.D. Mast Mounted Flashing Lights (count of masts) 2 <input checked="" type="checkbox"/> Incandescent <input type="checkbox"/> LED <input checked="" type="checkbox"/> Back Lights Included <input type="checkbox"/> Side Lights Included		3.E. Total Count of Flashing Light Pairs 4			
3.F. Installation Date of Current Active Warning Devices: (MM/YYYY) 07/1987 <input type="checkbox"/> Not Required		3.G. Wayside Horn <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Installed on (MM/YYYY) _____ <input checked="" type="checkbox"/> No		3.H. Highway Traffic Signals Controlling Crossing <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3.I. Non-Train Active Warning <input checked="" type="checkbox"/> Flagger/Flagman <input type="checkbox"/> Manually Operated Signs <input type="checkbox"/> Watchman <input type="checkbox"/> Floodlighting <input checked="" type="checkbox"/> None		3.J. Highway Traffic Signal Pre-Signals <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		3.K. Other Flashing Lights or Warning Devices Count 0 Specify type 0	
4.A. Does nearby Hwy Intersection have Traffic Signals? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		4.B. Hwy Traffic Signal Preemption <input type="checkbox"/> Simultaneous <input type="checkbox"/> Advance		4.C. Hwy Traffic Signal Pre-Signals Storage Distance * 0 Stop Line Distance * 0	
Part IV: Physical Characteristics					
1. Traffic Lanes Crossing Railroad <input type="checkbox"/> One-way Traffic <input type="checkbox"/> Two-way Traffic <input type="checkbox"/> Divided Traffic		2. Is Roadway/Pathway Paved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		3. Does Track Run Down a Street? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
5. Crossing Surface (on Main Track, multiple types allowed) <input type="checkbox"/> 1 Timber <input type="checkbox"/> 2 Asphalt <input checked="" type="checkbox"/> 3 Asphalt and Timber <input type="checkbox"/> 4 Concrete <input type="checkbox"/> 5 Concrete and Rubber <input type="checkbox"/> 6 Rubber <input type="checkbox"/> 7 Metal <input type="checkbox"/> 8 Unconsolidated <input type="checkbox"/> 9 Composite <input type="checkbox"/> 10 Other (specify) _____					
6. Intersecting Roadway within 500 feet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Approximate Distance (feet) 500		7. Smallest Crossing Angle <input type="checkbox"/> 0° - 29° <input type="checkbox"/> 30° - 59° <input checked="" type="checkbox"/> 60° - 90°		8. Is Commercial Power Available? * <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Part V: Public Highway Information					
1. Highway System <input type="checkbox"/> (01) Interstate Highway System <input type="checkbox"/> (02) Other Nat Hwy System (NHS) <input type="checkbox"/> (03) Federal Aid, Not NHS <input checked="" type="checkbox"/> (08) Non-Federal Aid		2. Functional Classification of Road at Crossing <input type="checkbox"/> (0) Rural <input checked="" type="checkbox"/> (1) Urban <input type="checkbox"/> (5) Major Collector <input type="checkbox"/> (2) Other Freeways and Expressways <input type="checkbox"/> (3) Other Principal Arterial <input type="checkbox"/> (6) Minor Collector <input checked="" type="checkbox"/> (4) Minor Arterial <input type="checkbox"/> (7) Local		3. Is Crossing on State Highway System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
4. Highway Speed Limit 30 _____ MPH <input checked="" type="checkbox"/> Posted <input type="checkbox"/> Statutory		5. Linear Referencing System (LRS Route ID) * 6. LRS Milepost *			
7. Annual Average Daily Traffic (AADT) Year 2006 AADT 006798		8. Estimated Percent Trucks 08 _____ %		9. Regularly Used by School Buses? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Average Number per Day 2	
10. Emergency Services Route <input type="checkbox"/> Yes <input type="checkbox"/> No					
Submission Information - This information is used for administrative purposes and is not available on the public website.					
Submitted by _____		Organization _____		Phone _____ Date _____	
Public reporting burden for this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. According to the Paperwork Reduction Act of 1995, a federal agency may not conduct or sponsor, and a person is not required to, nor shall a person be subject to a penalty for failure to comply with, a collection of information unless it displays a currently valid OMB control number. The valid OMB control number for information collection is 2130-0017. Send comments regarding this burden estimate or any other aspect of this collection, including for reducing this burden to: Information Collection Officer, Federal Railroad Administration, 1200 New Jersey Ave. SE, MS-25 Washington, DC 20590.					

Railroad Data

FRA Crossing Inventory:

safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

- Crossing Inventory Report will contain two sheets for each year of reporting.
- Most of the info useful for HUD noise assessments is on first page
- There are often gaps of years between reports
- If you are unsure of the correct crossing, search Google Earth for Latitude / Longitude shown in Fields 27 and 28 of Part I to verify (shown in next slide)



27. Latitude in decimal degrees

(WGS84 std: n.nnnnnnn) 35.9710827

28. Longitude in decimal degrees

(WGS84 std: -nnn.nnnnnnn) -83.918711

Google Earth Pro

File Edit View Tools Add Help

Search

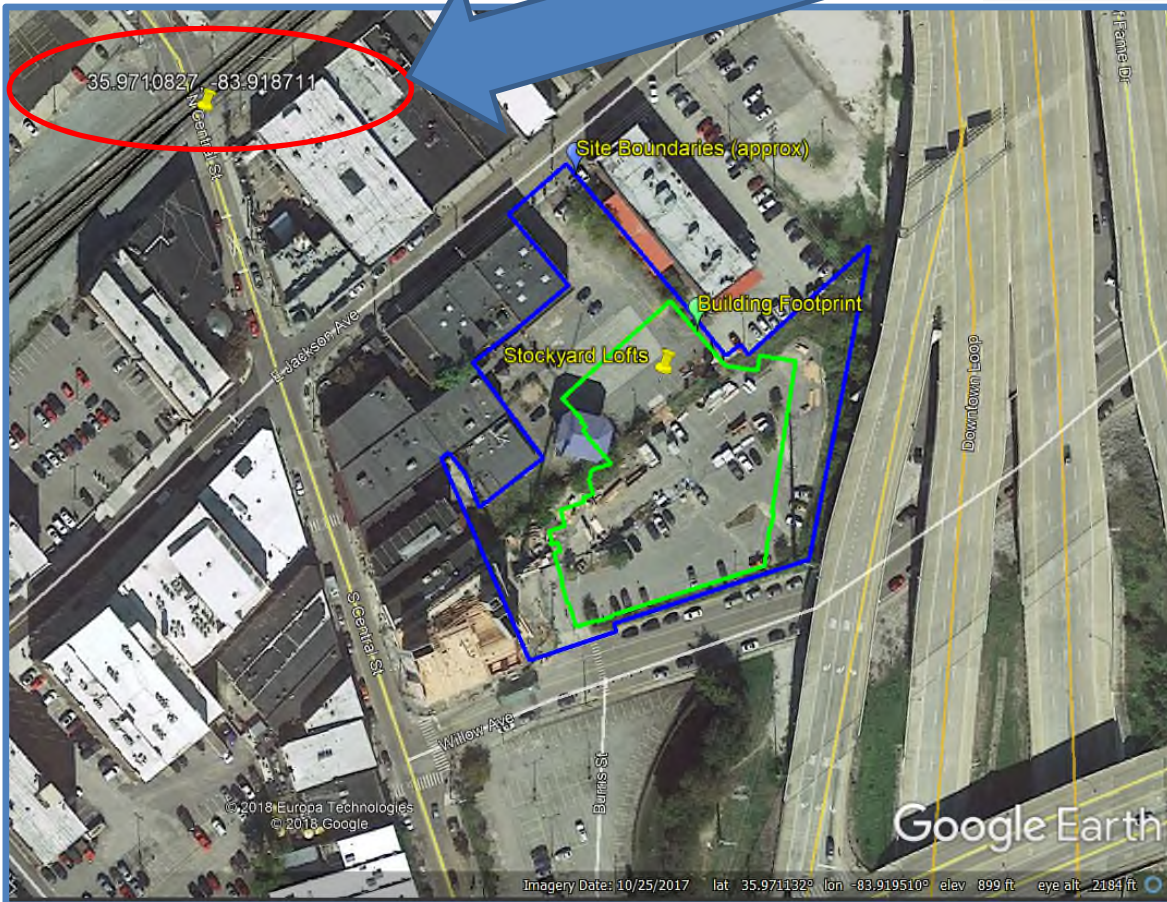
35.9710827, -83.918711

Search

ex: pizza near NYC

Get Directions History

Google Earth drops a pin on the specified coordinates



Railroad Data

FRA Crossing Inventory:

safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

CALCULATING TRAIN MOVEMENTS

Part II: Railroad Information				
1. Estimated Number of Daily Train Movements				
1.A. Total Day Thru Trains (6 AM to 6 PM) 7	1.B. Total Night Thru Trains (6 PM to 6 AM) 3	1.C. Total Switching Trains 8	1.D. Total Transit Trains 0	1.E. Check if Less Than One Movement Per Day <input type="checkbox"/> How many trains per week? 0
2. Year of Train Count Data (YYYY) 2017		3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) 60 3.B. Typical Speed Range Over Crossing (mph) From 25 to 35		
4. Type and Count of Tracks Main 2 Siding 1 Yard 0 Transit 0 Industry 0				
5. Train Detection (Main Track only) <input checked="" type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input type="checkbox"/> Other <input type="checkbox"/> None				
6. Is Track Signaled? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7.A. Event Recorder <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		7.B. Remote Health Monitoring <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

FORM FRA F 6180.71 (Rev. 3/15)

OMB approval expires 8/31/2019

Page 1 OF 2



Railroad Data

FRA Crossing Inventory:

safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

CALCULATING TRAIN MOVEMENTS

- Average Train Operations (ATO) =
Sum of Fields 1.A, 1.B and 1.C
- Night Fraction of ATO =
([Field 1.B X 0.75] + [Field 1.C X 0.375]) ÷ ATO

* Fields referenced are within Part II of Form FRA 6180.71 (Rev. 3/15)



Railroad Horns

At Which Crossings Does A Train Sound Its Horns?

RR OVER: NO



AT GRADE: YES



RR UNDER: NO



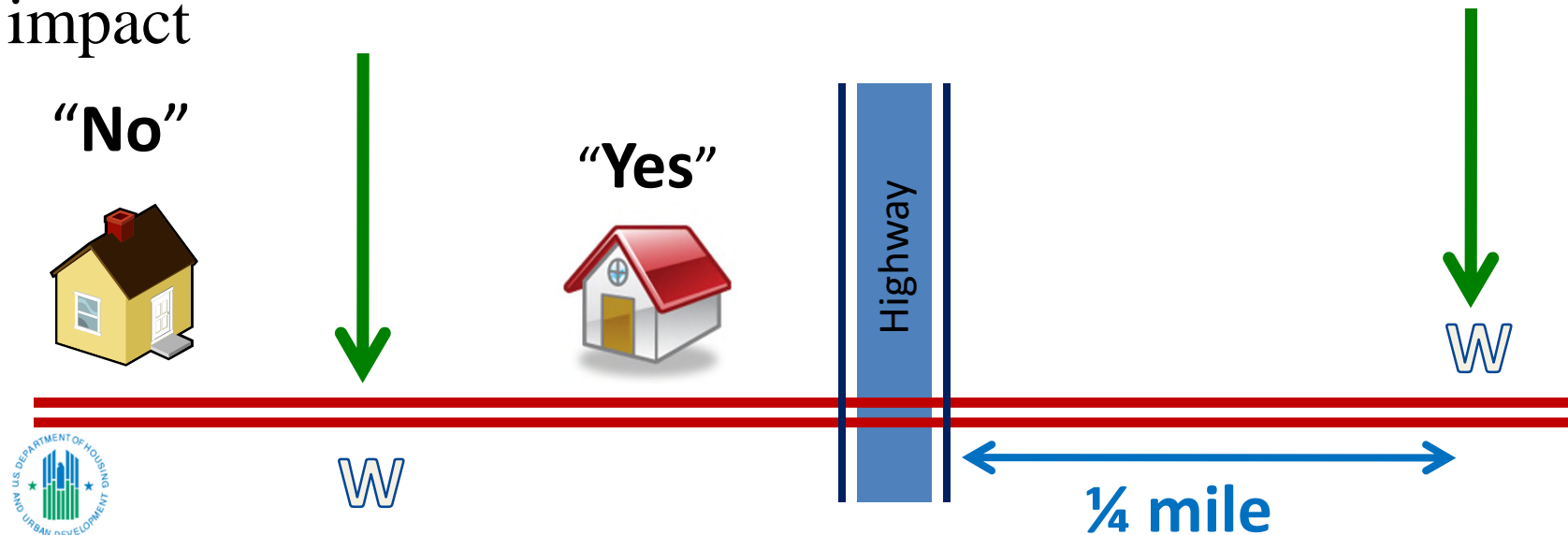
Railroad Horns



If near an at-grade crossing, is project between Whistle Posts?

Trains blow horn at the “**Whistle Post**”

Draw a line, *perpendicular* to railway, from the whistle posts. If project is “between” the whistle posts, then “horns” are an impact



Loud and Impulsive Sounds

Identify nearby potential generators of loud and impulsive sounds, such as

- Artillery ranges
- Quarries
- factories,
- warehouses,
- railyards, and
- other heavy industrial uses



Assumptions can be used **ONLY** when better data is not obtainable

Roadways

- Average speed = actual observed speed for cars and trucks, or maximum allowable speed for cars and trucks
- Night Fraction ADT = 15% of ADT

Railroads

- 50 cars per diesel train
- 8 cars per electric train
- Night Fraction ATO = 15% of ADT



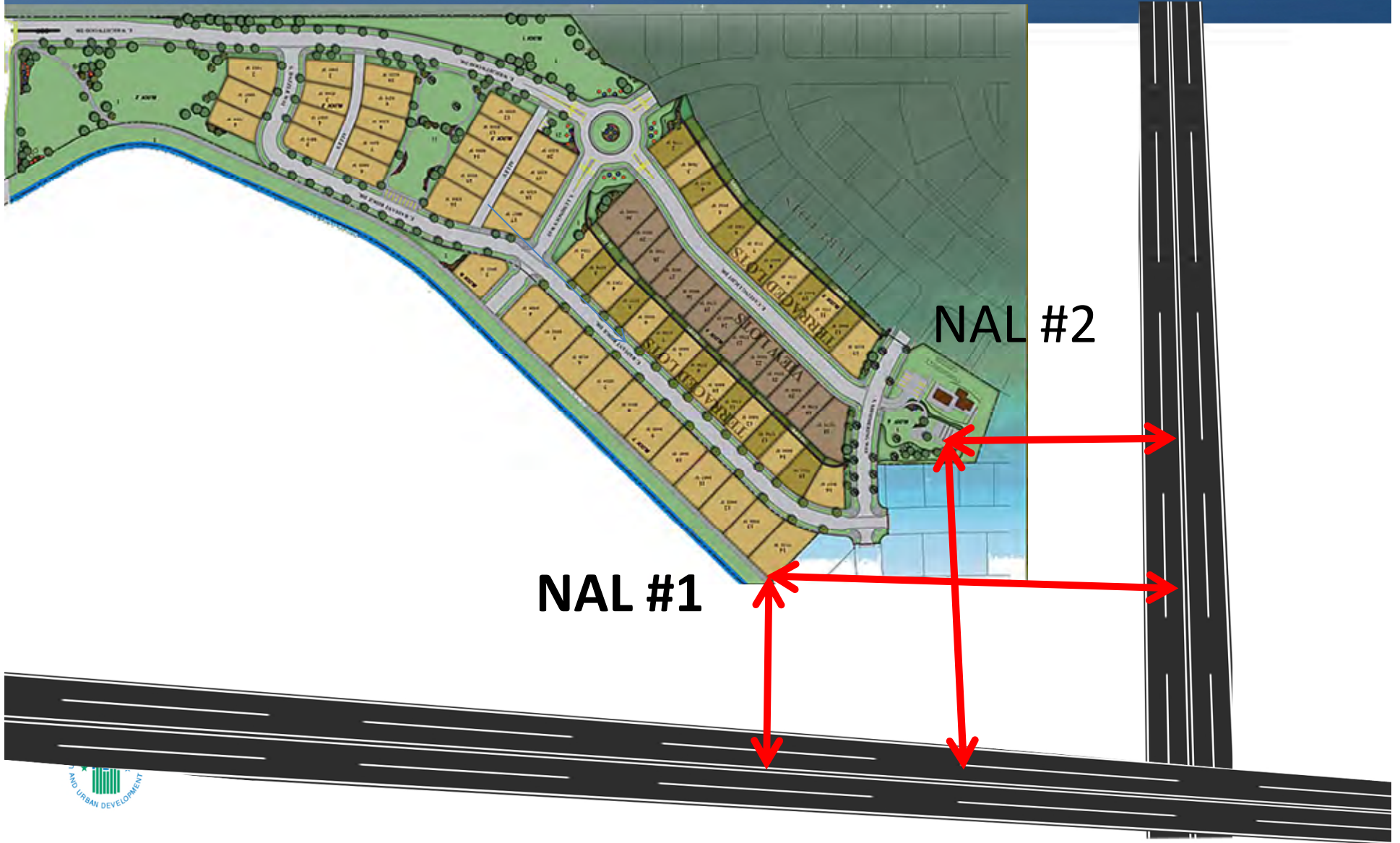
WHERE TO ASSESS NOISE

Noise Assessment Locations (NALs)

- NAL is located 6.5 feet (2 meters) in front of the façade of the proposed building at the point that is closest to the noise source
- If more than one building, use building nearest to noise source
- May need to determine more than one NAL for a large site or site with more than one major noise source



Noise Assessment Location (NAL)



Additional NALs may be called for

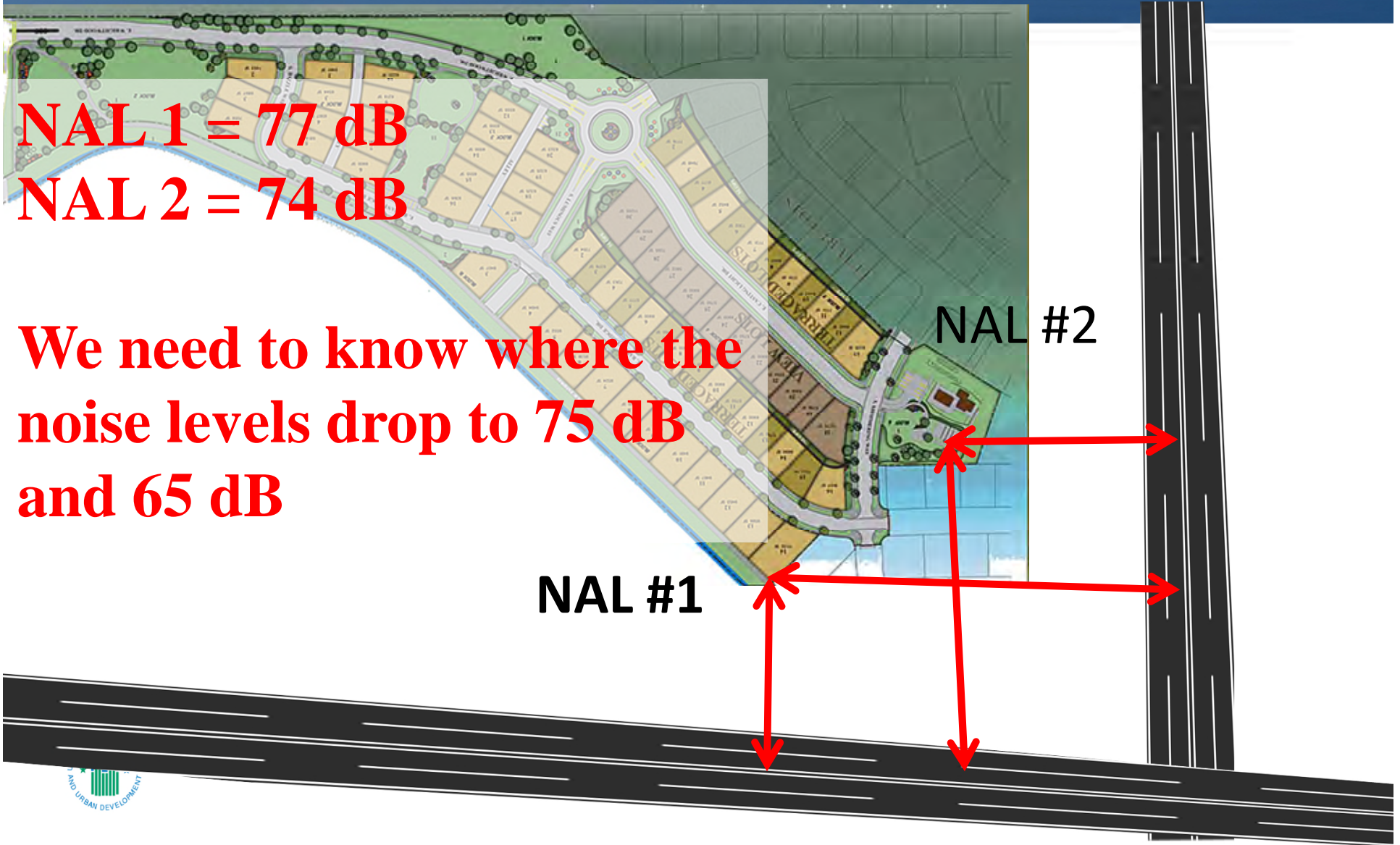
NAL 1 = 77 dB

NAL 2 = 74 dB

**We need to know where the
noise levels drop to 75 dB
and 65 dB**

NAL #1

NAL #2



Measure Distance From NAL To Centerline Of Noise Source

Divided Roadways

- If roadway is symmetric: measure to centerline
- If asymmetric: measure to near edge of nearest lane, far edge of farthest lane, add and divide by 2

Railroads

- Measure to center of single track
- Multiple tracks: measure to middle of set
- Non-adjacent tracks: calculate each track as separate source



HUD's DNL Calculator

Online tool that, with a few exceptions, frees us of the need to use the noise assessment worksheets and graphs from HUD's Noise Guidebook

- Input noise source data (variables) into on-line calculator
- Calculate combined DNL

www.hudexchange.info/programs/environmental-review/dnl-calculator

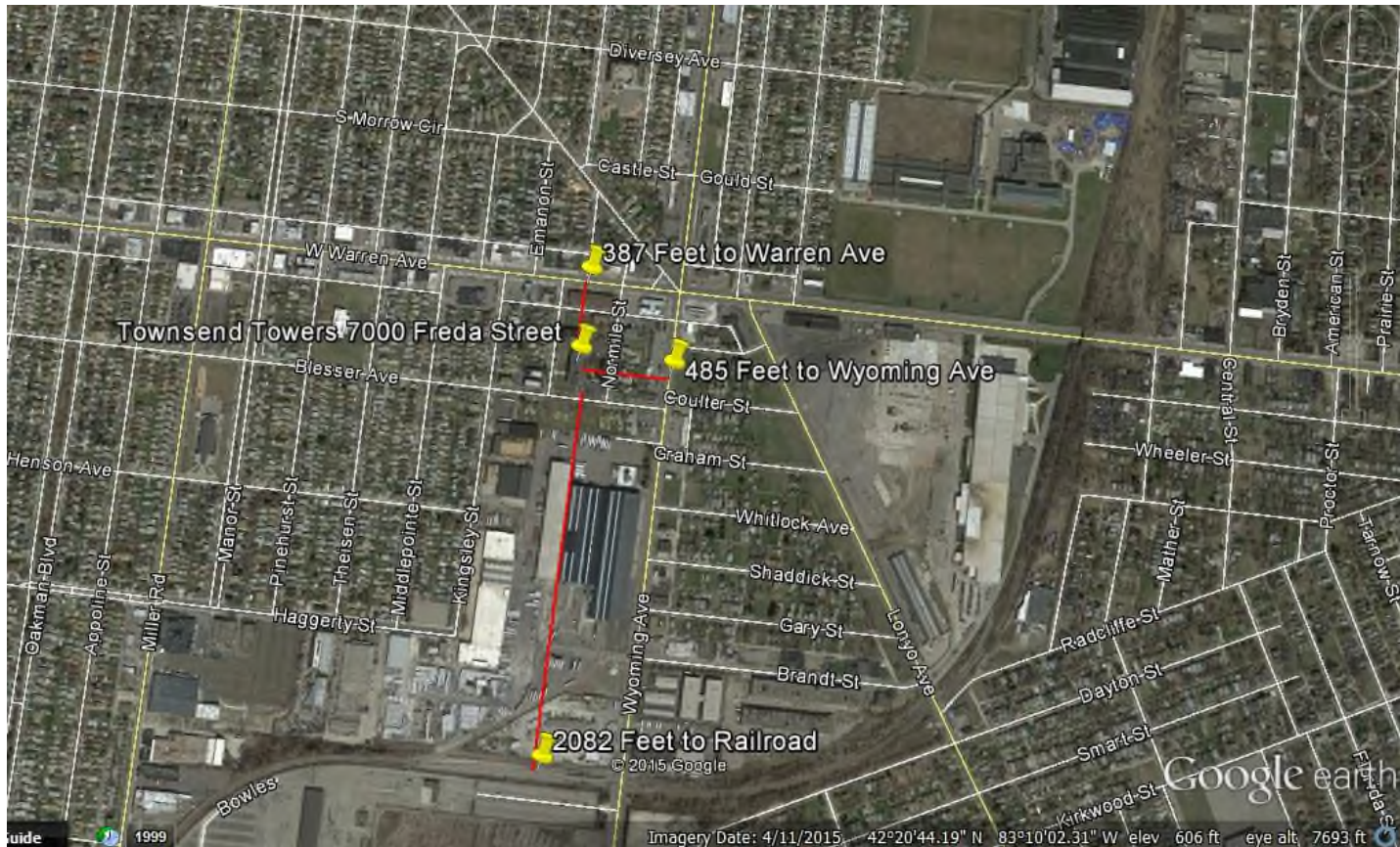
Loud Impulsive Sounds

- Impulsive Noises have Enormous Effect
- Definition: (24CFR51 Appendix I(3)(i))
 - Definable as a Discreet Event
 - Approximately 1 Second Duration or Less
 - Slow-Averaging Meter Reading At Least 6 Decibels Greater than Ambient Level
 - Fast-Averaging Meter Reading At Least 4 Decibels Greater than Slow-Averaging Meter Reading
- Add 8 decibels to the Total if Found (24CFR51.103(b))



Example Noise Assessment

Multifamily Housing Development 7000 Freda Street Dearborn, MI



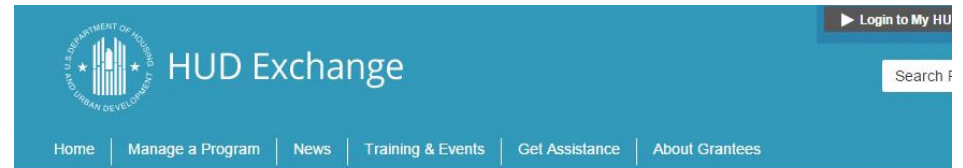
Summary Data : xxxx Freda Street, Dearborn, MI

- **Roadway** – Warren Avenue distance to NAL = 387 feet; 42,506 ADT total = 90% autos (38,255), 7% medium trucks (2,975), 3% heavy trucks (1,275) - all vehicles at 35 mph; 15% of ADT is at night.
- **Roadway** – Wyoming Avenue distance to NAL = 165 feet; 11,626 ADT total = 86% autos (9,998), 10% medium trucks (1,167) , 4% heavy trucks (465) – all vehicles at 40 mph; 15% of ADT is at night.
- **Railroad** – distance to NAL = 2,082 feet; 13 trains per day, 6 trains at night (46%); 25 mph; used default engine (2) and car numbers (50).
- **Airport** noise contour shows DNL for site is < 65 dB
- No loud impulsive sounds



Go to DNL Calculator Website

www.hudexchange.info/programs/environmental-review/dnl-calculator



Environmental Review Main

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the Day/Night Noise Level Calculator Electronic Assessment Tool Overview.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID

Record Date

User's Name

Airport Noise Level

Loud Impulse Sounds? Yes No

Add Road Source

- Add site information
- Click on “Add Road Source”

DNL Calculator

Site ID

Record Date

User's Name



Calculate DNL for Road Source #1

- Add road data
- Click on “Calculate Road #1 DNL”
- Click on “Add Road Source”

Road # 1 Name:	Warren Ave		
Road #1			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	387	387	387
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	38255	2975	1275
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	56.8	45.7	61.1
Calculate Road #1 DNL	62.6		set

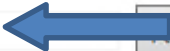



Add Road Source Add Rail Source



Calculate DNL for Road Source #2

- Repeat Steps for Road #2
- Calculate DNL for Road #2
- Click on “Add Rail Source”

Road # 2 Name:	Wyoming Ave		
Road #2			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	165	165	165
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	9998	1167	465
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	57.7	48.4	62.2
Calculate Road #2 DNL	63.7		Reset
Add Road Source	Add Rail Source		



Calculate DNL for Railroad Noise Source

- Add railroad data
- Click on “Calculate Rail #1 DNL”

Railroad #1 Track Identifier:		Santa Fe RR at Ford Street crossing
Rail # 1		
Train Type	Electric <input type="checkbox"/>	Diesel <input checked="" type="checkbox"/>
Effective Distance	<input type="text"/>	2082
Average Train Speed	<input type="text"/>	25
Engines per Train	<input type="text"/>	2
Railway cars per Train	<input type="text"/>	50
Average Train Operations (ATO)	<input type="text"/>	13
Night Fraction of ATO	<input type="text"/>	46
Railway whistles or horns?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
Bolted Tracks?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
Train DNL	<input type="text"/>	59.8
Calculate Rail #1 DNL	59.8	Reset



Calculate DNL for All Noise Sources

- No airport noise
- No loud impulse sounds
- Calculate DNL for all sources
- **DNL= 67.1 dB**
- Do we have an issue?

Airport Noise Level

Loud Impulse Sounds?

Yes No

Combined DNL for all
Road and Rail sources

67.1

Combined DNL including Airport

N/A

Site DNL with Loud Impulse Sound

Calculate



Barrier Evaluation: What do you do?

Your Responsibility as HUD Staff or Responsible Entity

- Make Sponsor or Developer Aware of the Attenuation Requirements
- Make Decision-makers Aware of the Options Available
- Review Attenuation Proposals to Assure They are Adequate



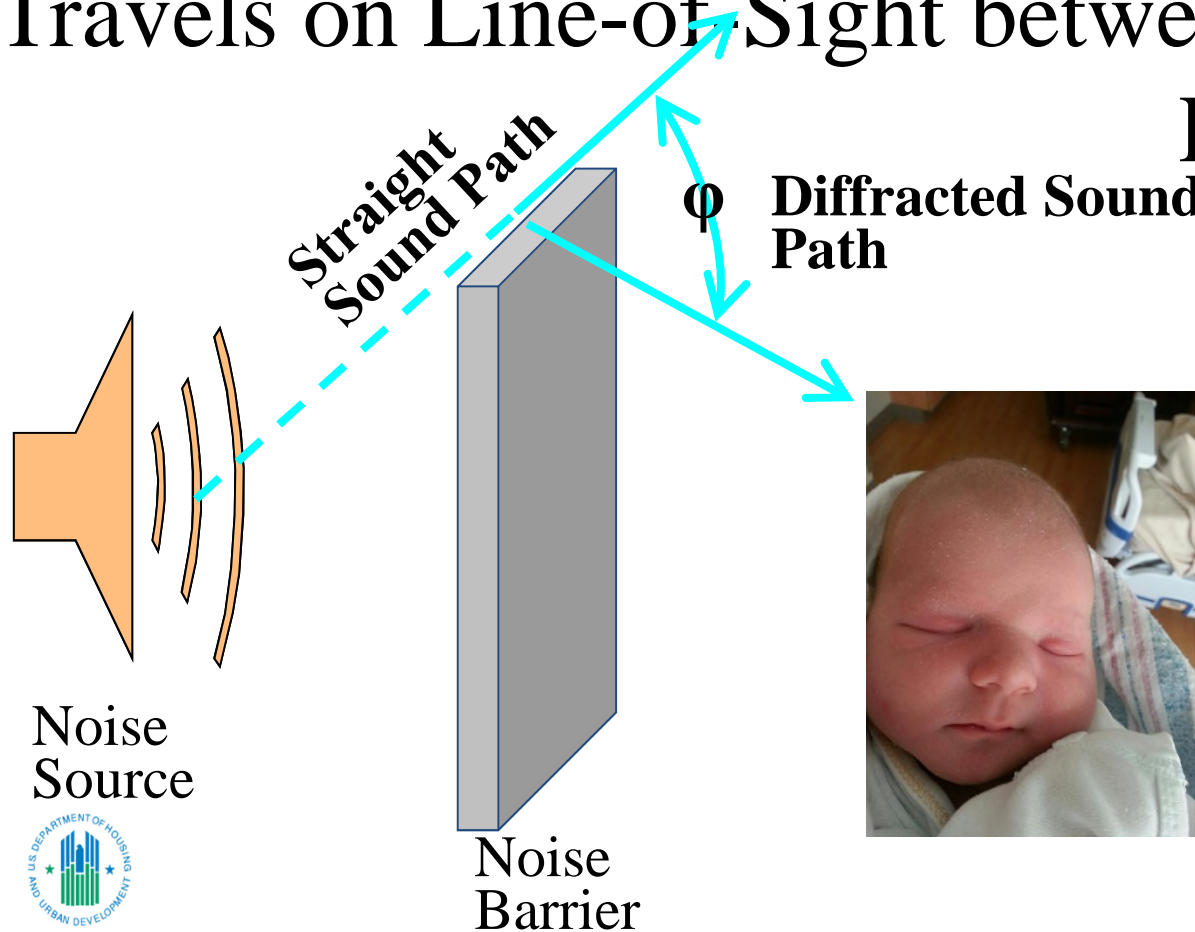
What Don't You Do?

It Is *Not* Your
Responsibility to
Design Barriers



How Do Barriers Work?

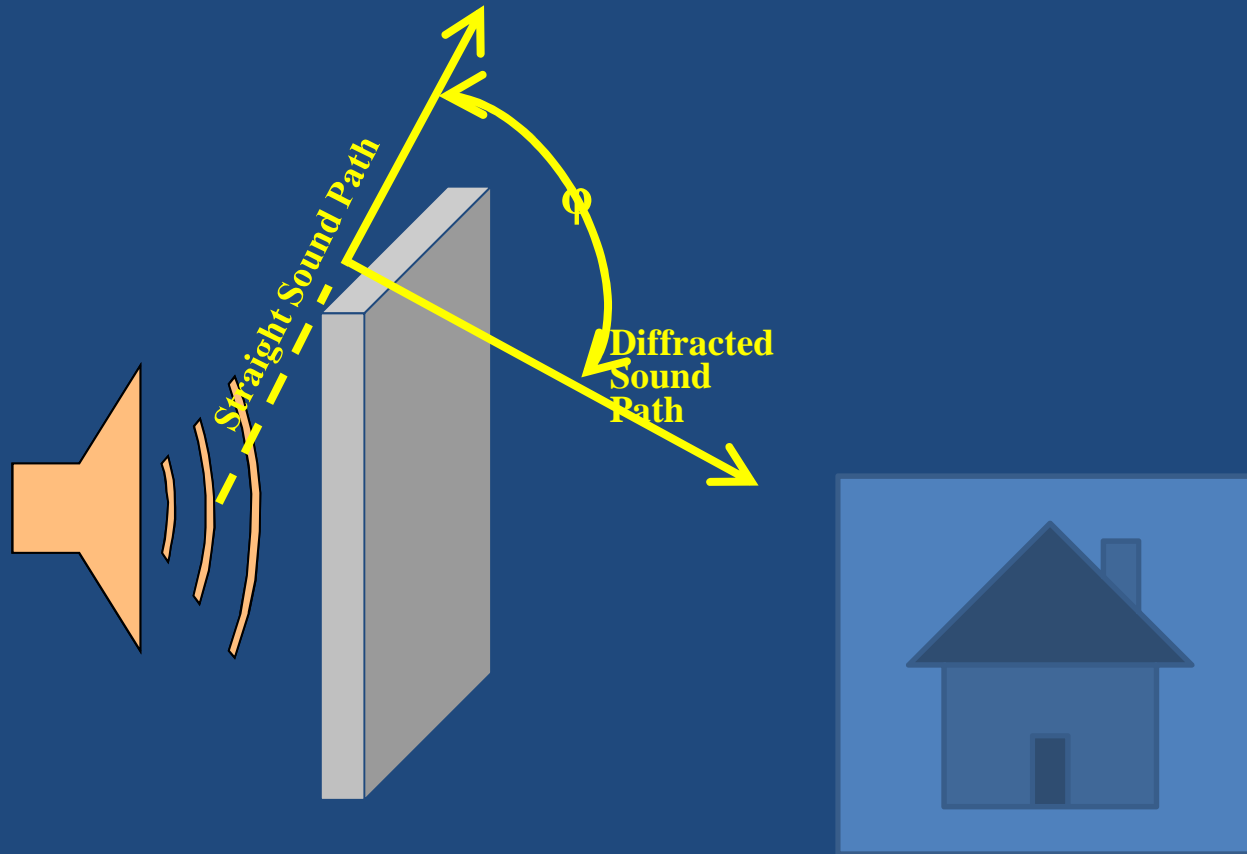
Barriers Increase the Distance the Noise Travels on Line-of-Sight between Source and Receiver



How Do You Make Barriers More Effective?



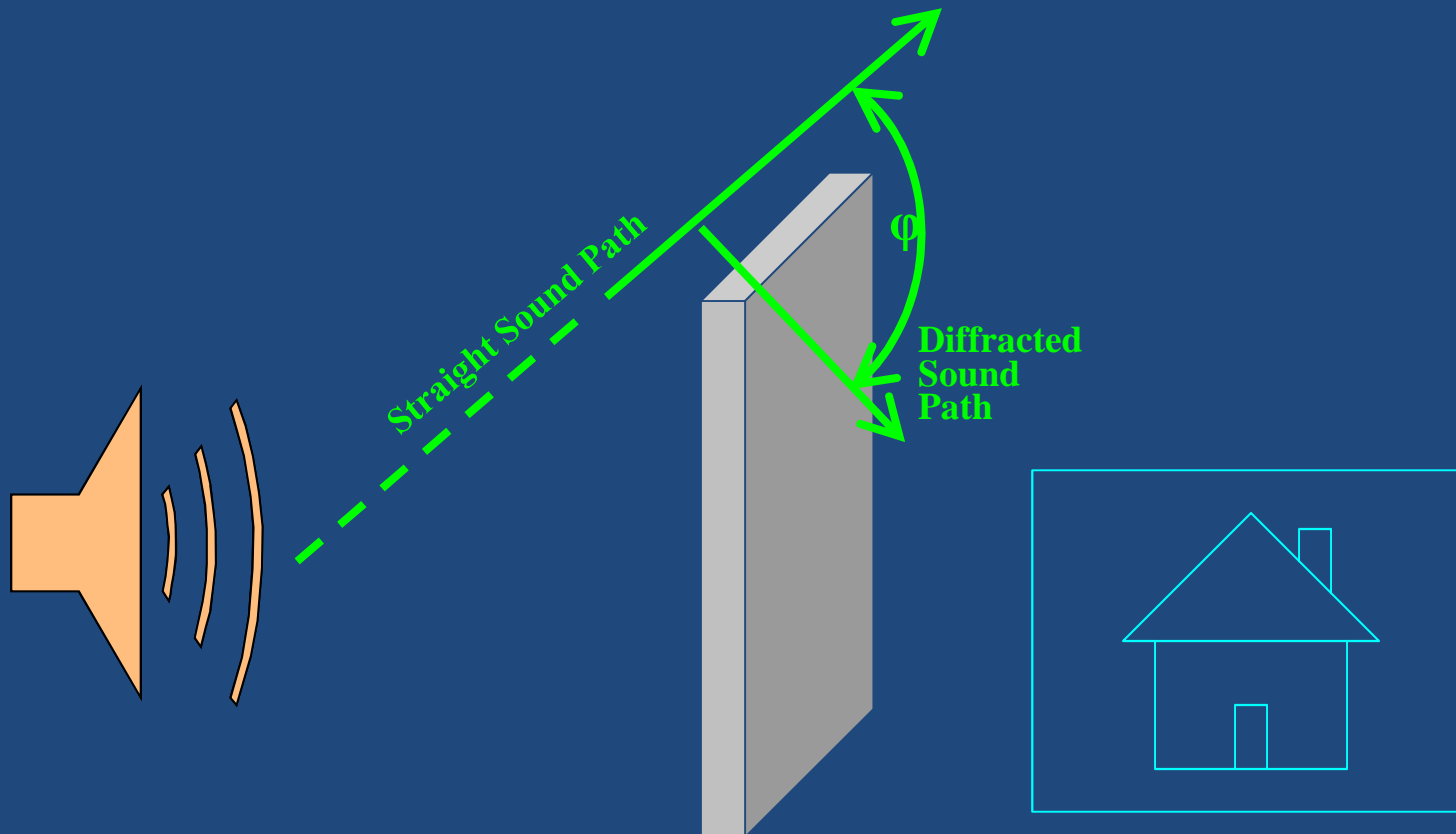
Move the Barrier Closer to the Source:



Larger Diffraction Angle (ϕ) means Better Attenuation



Make the Barrier Higher near the Receiver :



Important Points

- At minimum, Barriers Must Break the Line-of-Sight between Noise Source and Receiver
- Noise Traveling Around or Through a Barrier Reduces its Effectiveness
- Detailed Information (plans, maps & elevations) is essential (sketches helpful)
- Understanding the Design Issues will Save Time and Money



Barrier Performance Module

Resources and assistance to support HUD's community partners



HUD EXCHANGE
Secretary Ben Carson

Programs ▾

Resources ▾

[Home](#) > [Programs](#) > [Environmental Review](#) > [BPM Calculator](#)

Barrier
Performance
Module
available on
HUD
Exchange

Barrier Performance Module

This module provides to the user a measure on the barrier's effectiveness on noise reduction. A list of the input/output variables and their definitions, as well as illustrations of different scenarios are provided.

Calculator

[View Day/Night Noise Level Calculator](#)

[View Descriptions of the Input/Output variables.](#)

Note: Tool tips, containing field specific information, have been added in this tool and may be accessed by hovering over the Input and Output variables with the mouse.

WARNING: If there is direct line-of-sight between the Source and the Observer, the module will report erroneous attenuation. "Direct line-of-sight" means if the 5' tall Observer can see the noise Source (cars, trucks, trains, etc.) over the Barrier (wall, hill/excavation, building, etc.), the current version of Barrier Performance Module will not accurately calculate the attenuation provided. In this instance, there is unlikely to be any appreciable attenuation.

Road/Rail Site DNL:

Note: Barrier height must block the line of sight

Input Data

H	<input type="text"/>	R'	<input type="text"/>
S	<input type="text"/>	D'	<input type="text"/>
O	<input type="text"/>	α	<input type="text"/>

[Calculate Output](#)

Output Data

h	<input type="text"/>	R	<input type="text"/>
D	<input type="text"/>	FS	<input type="text"/>

New Site DNL:



5. HUD Makes a Finding Based on DNL

Noise Standards:

- **Acceptable** Range: ≤ 65 dB = **Approve** projects as proposed
- **Normally Unacceptable**
Range: $65 \text{ dB} \leq 75 \text{ dB}$ = **Require noise attenuation or mitigation**
- **Unacceptable** Range: > 75 dB = **Reject** project/seek alternative site(s)



NOISE MITIGATION



Mitigation Requirements for Projects in the Normally Unacceptable Noise Zone

- Noise attenuation measures are those required in addition to attenuation provided by buildings as commonly constructed in the area
 - A minimum of 5 dB **additional** sound attenuation DNL is greater than 65 dB but does not exceed 70 dB
 - A minimum of 10 dB of **additional** sound attenuation if the DNL is greater than 70 dB but does not exceed 75 dB.
 - Attenuation requirements apply to both indoor and outdoor noise sensitive uses.
- Attenuation measures must be described in detail in mitigation section of EA or EIS and certified by a professional engineer or architect that the attenuation measures will reduce the noise level to acceptable.



Three Options Available for Attenuating Noise...

- **Site Design** (Move noise-sensitive use away from noise source)
- **Barriers or Berms** (Construct physical barrier to block noise)
- **Special Acoustical Construction in the Building** (Only effective where there are no outdoor noise sensitive uses)



Alter Site Design

- **Distance**
 - Rule-of-thumb: Doubling the Distance from a Sound Source can Reduce its Intensity as much as 6 dB
 - Important consideration for Upper Levels of Multi-story Building (not easily protected otherwise)
- **Noise-compatible Land Uses as Buffers**
 - Parking, Maintenance & Utility Facilities/Structures
- **Buildings as Shields**
 - Structures w/ noise-tolerant Uses (Offices, Retail, etc.) can block Sound Energy from Sensitive Uses Behind Them
- **Building Orientation**
 - Remove or Reinforce Windows along Impacted Wall
 - Site Buildings to Use Topography as Barriers



Require Barriers and Berms

- Barriers block the sound energy that travels on a line-of-sight between the source and the receiver
- Generally Not Effective for Units Above the Second Floor
 - Can Still Improve Outdoor Recreation Areas
 - Upper Floors Benefit from Increased Distance from the Source
- Must prove the barrier design will work: Figure 19 (Noise Guidebook) or Sound Transmission Classification Assessment Tool (STraCAT)

http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/stracat

- Reports the noise mitigation performance of wall systems.
- Calculates combined Sound Transmission Classification (STC) for wall and other wall components (windows and doors) at the NAL.
- The final result is the effective STC of the composite barrier.



Require Acoustical Construction

- Building Materials Absorb Sound at Different Rates
- Wall Systems can be Specially Constructed to Insulate Against Noise
 - Allowed by 24 CFR 51.104(a)(1)
 - Windows and Doors usually Weakest Components of the Wall
 - STC Ratings can Guide Choice of Wall Materials and Construction
- Cost Effective Strategies for Improving Sound Insulation
 - Cavities Improve Wall Performance without Huge Cost Increases - 6” Airspace Provides 5dB Additional Attenuation
 - Increase Spacing Between Studs - An Increase from 16” to 24” Yields 2-5dB Additional Attenuation
 - Stagger the Studs - Attaching Each Stud to Only One Wall Panel Provides Approximately 4dB Additional Attenuation
 - Resilient Materials and Fasteners & Fiberboard Sheathing can Provide 2-5dB Additional Attenuation



REQUIREMENTS FOR PROJECTS WITH NOISE LEVELS IN THE NORMALLY UNACCEPTABLE AND UNACCEPTABLE RANGE



What if Noise Levels are Above 65 dB?

- Pick Another Site
- Include Exterior Mitigation
 - Revise Site Design
 - Construct Sound Barrier, as appropriate
- Include Interior Mitigation
 - Use Wall Sections with Appropriate Sound Transmission Classifications
 - Move Interior, Noise-sensitive spaces to Protected Portions of the Building



For HUD Projects in the Normally Unacceptable or Unacceptable Noise Zones

- HUD support for **new construction** of new noise sensitive uses is **prohibited** generally for projects with unacceptable noise exposures and **discouraged** for projects with normally unacceptable noise exposure [51.101(3)]
- HUD encourages noise mitigation for modernization projects in the normally unacceptable noise zone [51.101(5)]

For HUD Projects in the Normally Unacceptable or Unacceptable Noise Zones

- For substantial rehabilitation located in the normally unacceptable and unacceptable zones [51.101(5)]
 - HUD will actively seek to have project sponsors to incorporate noise attenuation features
- HUD strongly encourages **conversion** of noise exposed sites to land uses compatible with the high noise levels [51.101(5)]

EIS Required for Noise Exposure in Unacceptable Range [24 CFR 51.104(b)(2)]

- *An EIS is required* prior to the approval of projects with unacceptable noise exposure (> 75 dB)
- EIS's must be conducted in accordance with CEQ's NEPA regulations - 40 CFR Part 1500-1508
- Completion of EIS must come before the RE approves project



EIS Waiver Provision [51.104(b)(2)]

- An Environmental Assessment must be completed to obtain EIS Waiver
- Must mitigate noise exposure to:
 - 65 dB for new construction or conversion involving outdoor noise sensitive use
 - 45 dB on interior for new construction
- EA prepared in lieu of waived EIS must include:
 - Attenuation must be described in detail in mitigation section of EA and certified by a professional engineer or architect that attenuation will reduce the noise level to HUD standard (65 DNL exterior & 45 interior).
- ~~• CPD Assistant Secretary approval required~~
- Certifying Officer approval required

Questions: Go to HUD EXCHANGE

<https://www.hudexchange.info/environmental-review/noise-abatement-and-control>

Resources and assistance to support HUD's community partners

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HUD EXCHANGE
Secretary Beth Carsons

Programs Resources Trainings Program Support Grantees News

Home > Programs > Environmental Review > Noise Abatement and Control

Noise Abatement and Control

Introduction

HUD's noise standards may be found in 24 CFR Part 51, Subpart B. For proposed new construction in high noise areas, the project must incorporate noise mitigation features. Consideration of noise applies to the acquisition of undeveloped land and existing development as well.

All sites whose environmental or community noise exposure exceeds the day-night average sound level (DNL) of 65 decibels (dB) are considered noise-impacted areas. For new construction that is proposed in high noise areas, grantees shall incorporate noise attenuation features to the extent required by HUD environmental criteria and standards contained in Subpart B (Noise Abatement and Control) of 24 CFR Part 51. The interior standard is 45dB.

The "Normally Unacceptable" noise zone includes community noise levels from above 65 decibels to 75 decibels. Approvals in this noise zone require a minimum of 5 dB additional sound attenuation for buildings having noise-sensitive uses if the day-night average sound level is greater than 65 dB but does not exceed 70 dB, or a minimum of 10 decibels of additional sound attenuation if the day-night average sound level is greater than 70 dB but does not exceed 75 dB.

Locations with day-night average noise levels above 75 dB have "Unacceptable" noise exposure. For new construction, noise attenuation measures in these locations require the approval of the Assistant Secretary for Community Planning and Development (for projects reviewed under Part 50) or the Responsible Entity's Certifying Officer (for projects reviewed under Part 58). The acceptance of such locations normally requires an environmental impact statement.

In "Unacceptable" noise zones, HUD strongly encourages conversion of noise-exposed sites to land uses compatible with the high noise levels.

HUD Guidance

Are there potential noise generators in the vicinity of the project? Review general location maps and/or conduct a field review to screen for major roadways (within 1,000 feet), railroads (within 3,000 feet), and military or FAA-regulated airfields (with 15 miles) in the vicinity of the project.

If a noise assessment was performed, was the noise found to be Acceptable, Normally Unacceptable, or Unacceptable?

Site Acceptability Standards		
Noise Zone	Day-night average sound level (in decibels)	Special approvals and requirements
Acceptable	Not exceeding 65 dB	None
Normally Unacceptable	Above 65 dB but not exceeding 75 dB	• Environmental assessment and attenuation required for new

Regulations
24 CFR Part 51, Subpart B

Resources
WISER: Noise Abatement and Control Online Module

FAA Noise Map Database: Airport noise exposure maps

FHWA Barrier Design: Noise Barriers Design Information

FRA Crossing Database: Railroad Operational Data

View Additional Resources

Federal Related Laws and Authorities

Air Quality

Airport Hazards

Coastal Barrier Resources

Coastal Zone Management

Environmental Justice

Endangered Species

Explosive and Flammable Facilities

Farmlands Protection

Flood Insurance

Floodplain Management

Historic Preservation

Noise Abatement and Control

Site Contamination

