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

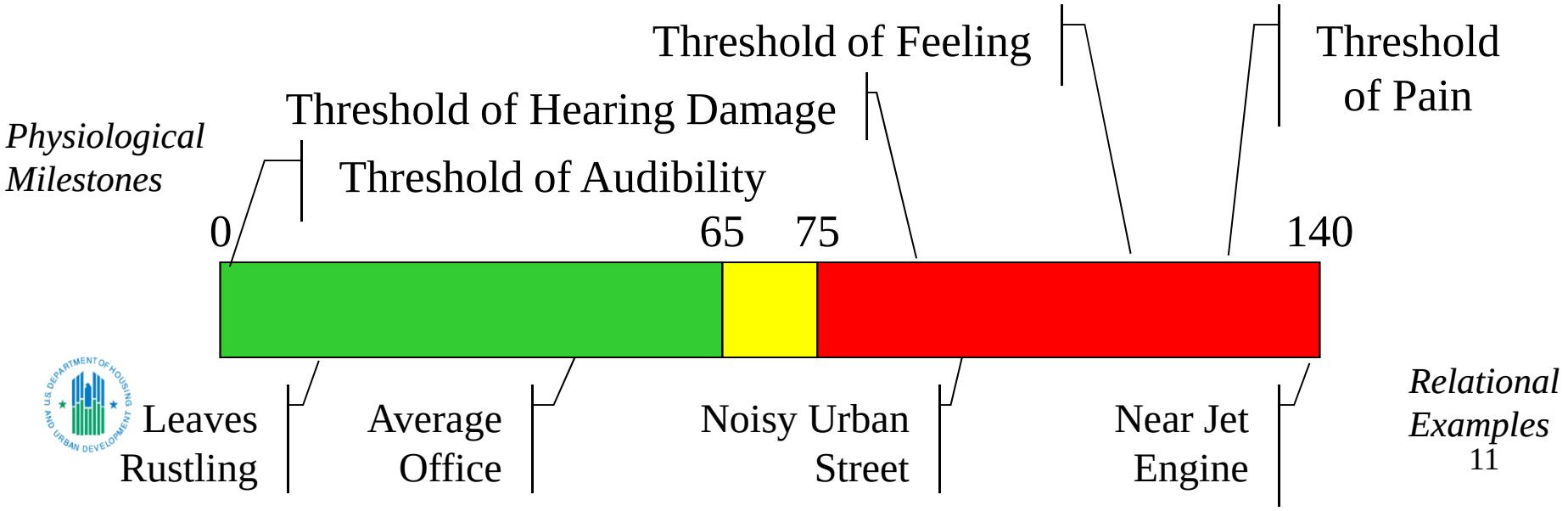
How is noise quantified?

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."

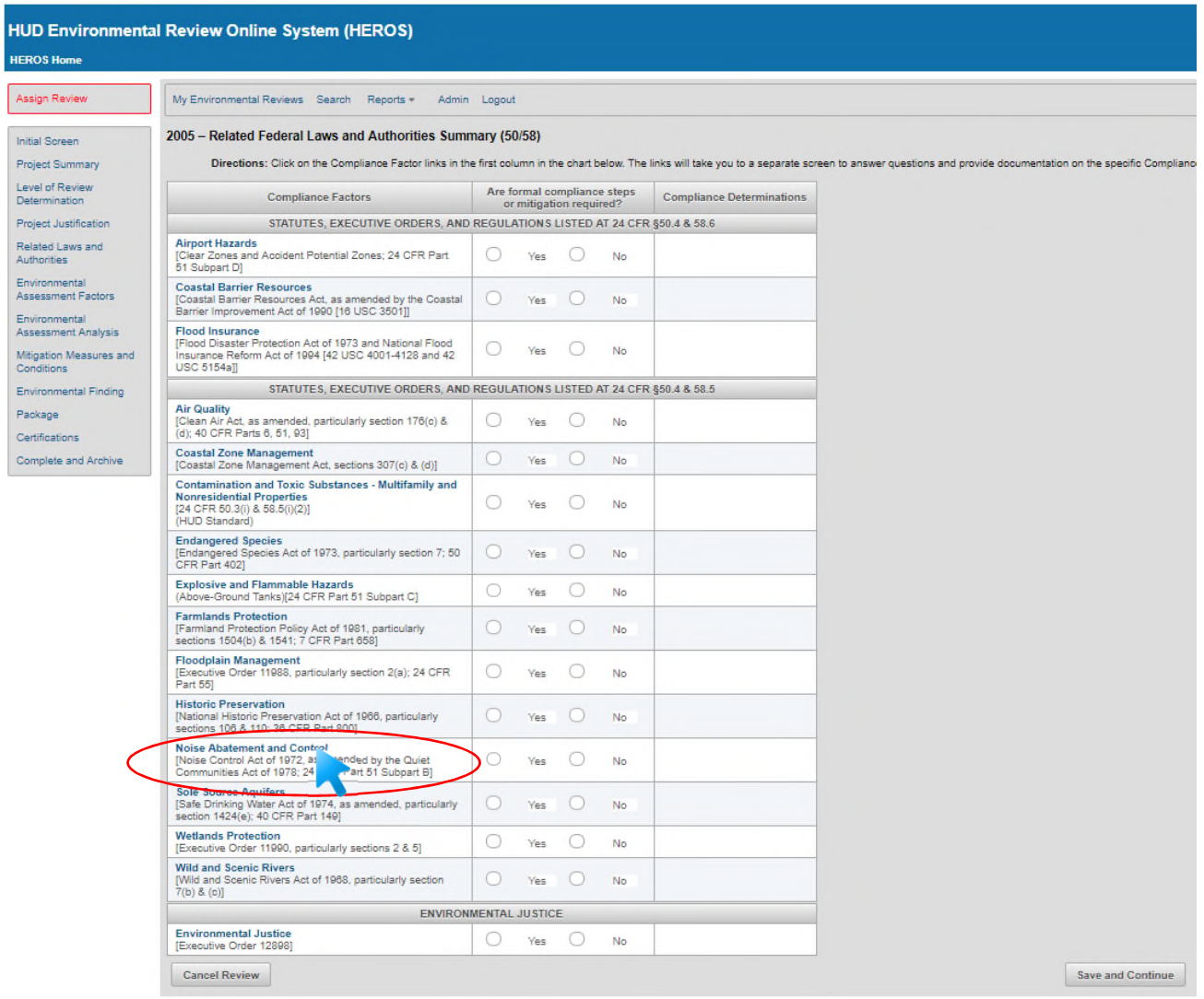
Balcony Notice: Warnings

- 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

HEROS: LEARN BY REVIEWING



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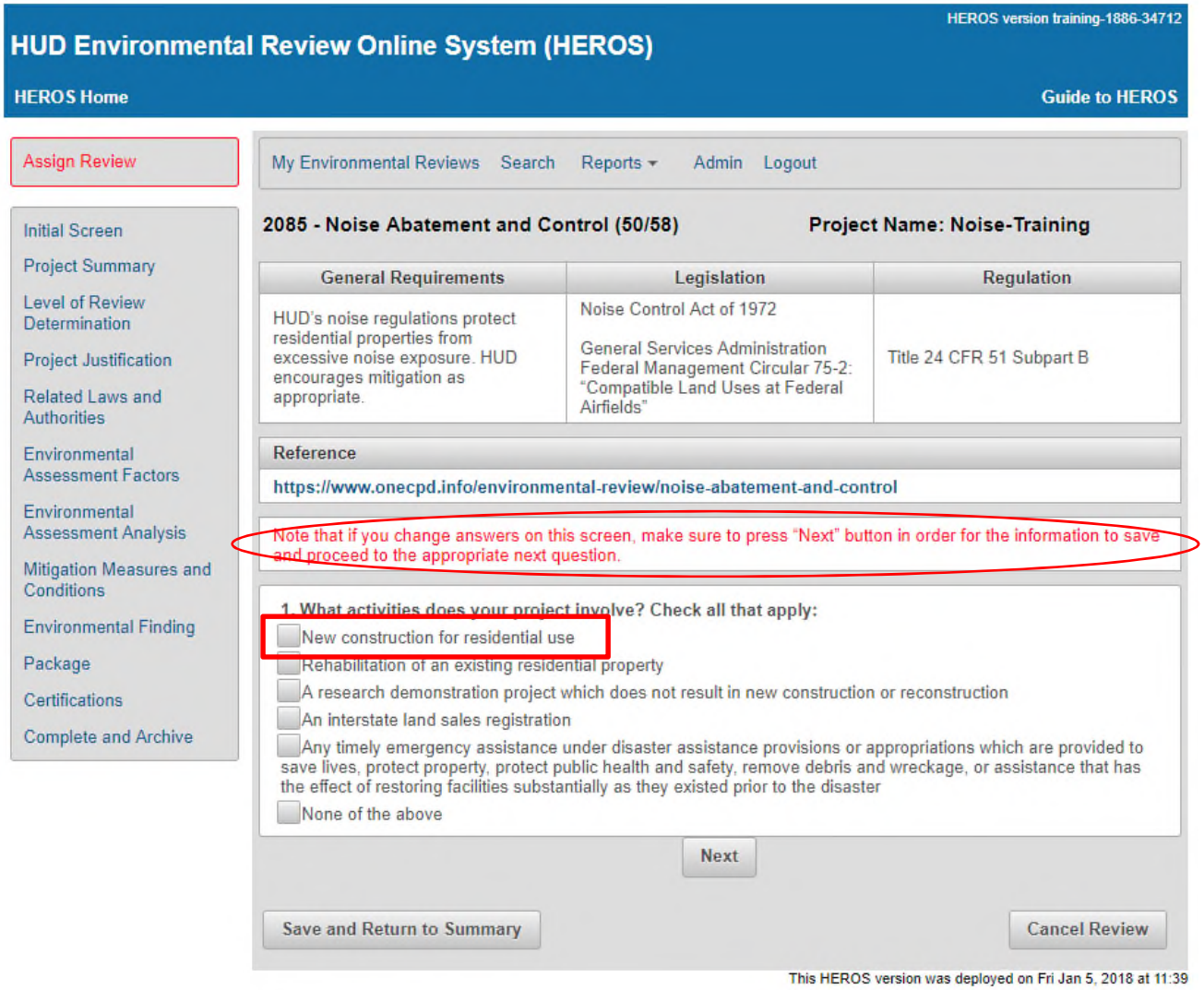

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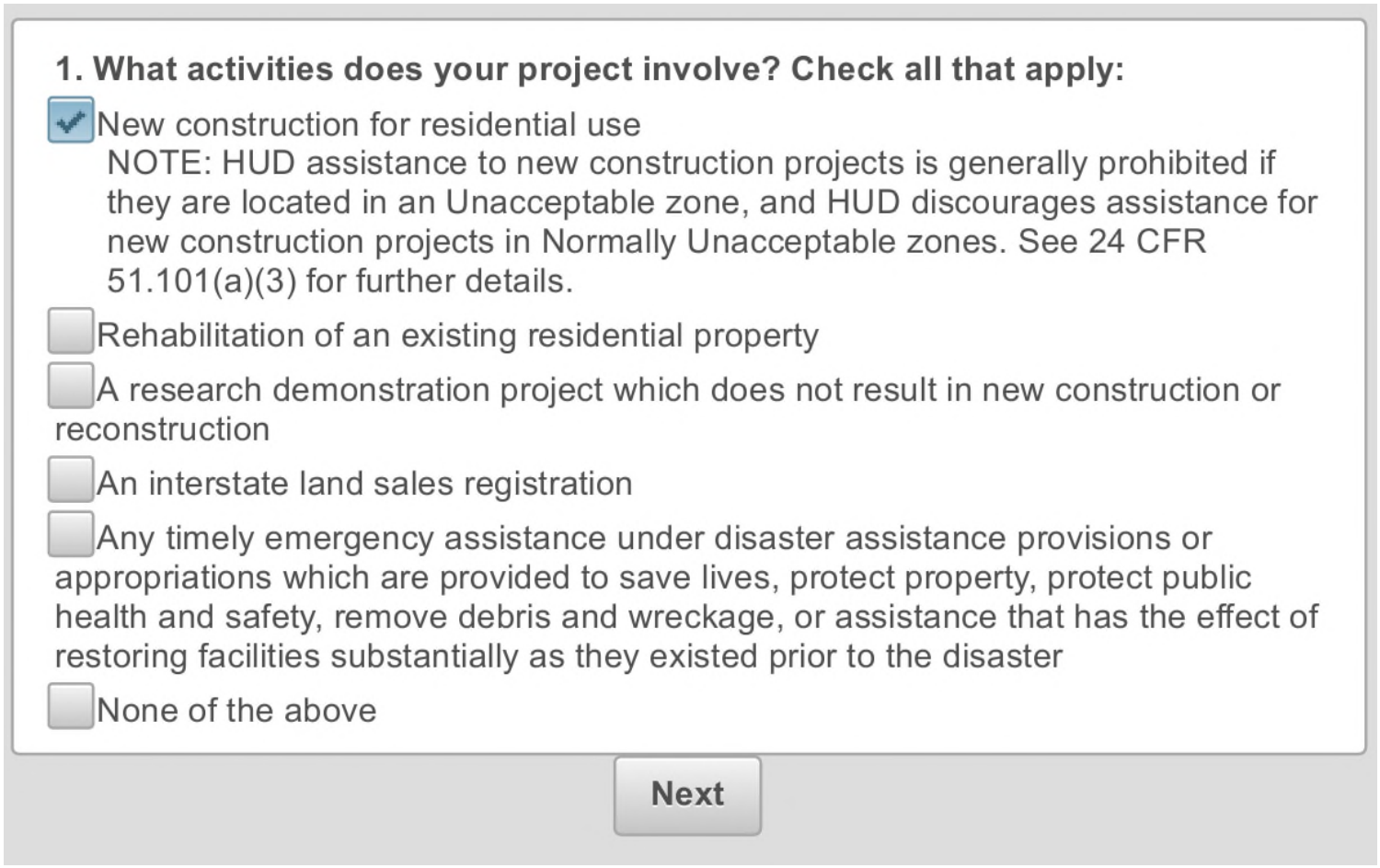

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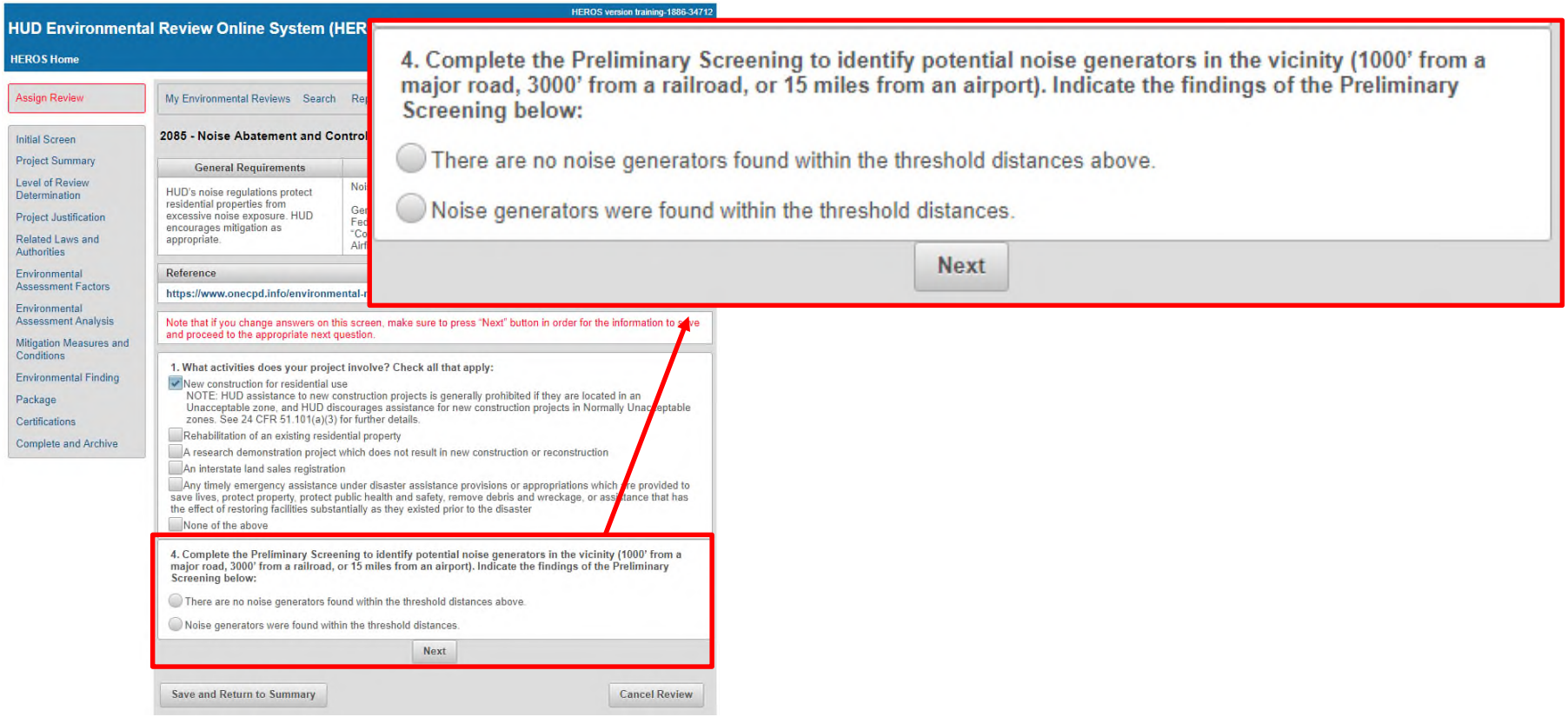
Noises Sources and Distances of Concern

Is project within…

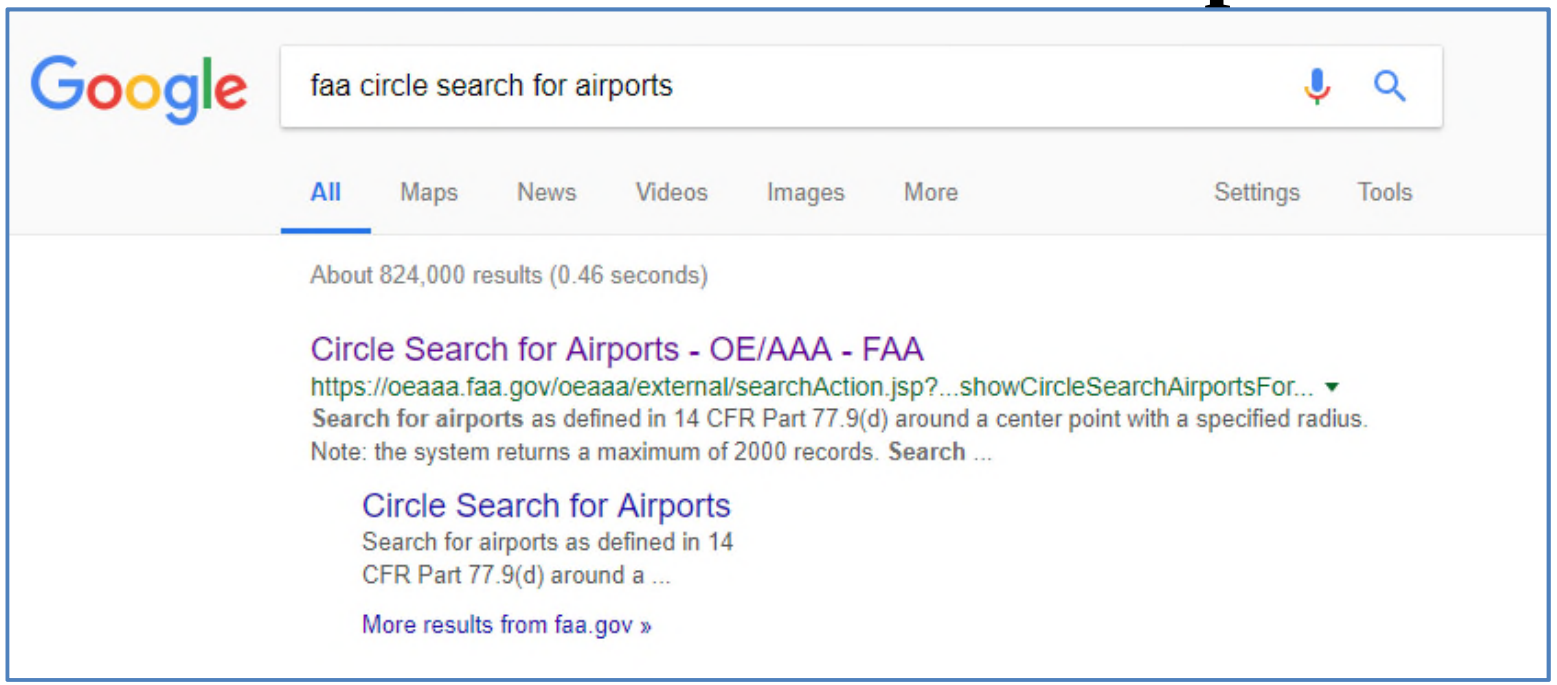
- 15 miles of a civil or military airport?
- 3,000 feet of a railroad?
- 1,000 feet of a major roadway?

HEROS: LEARN BY REVIEWING



Finding Airport Sources

FAA Circle Search for Airports



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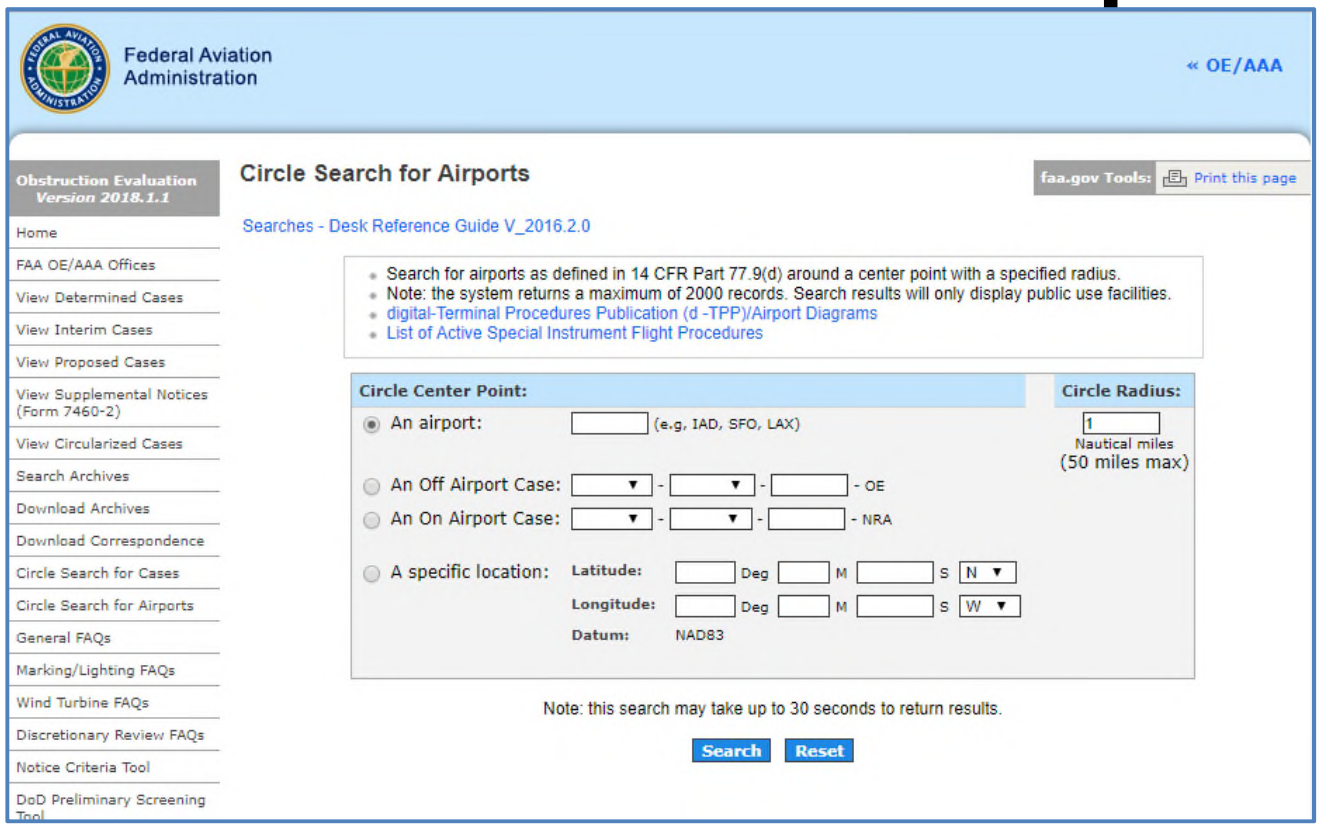
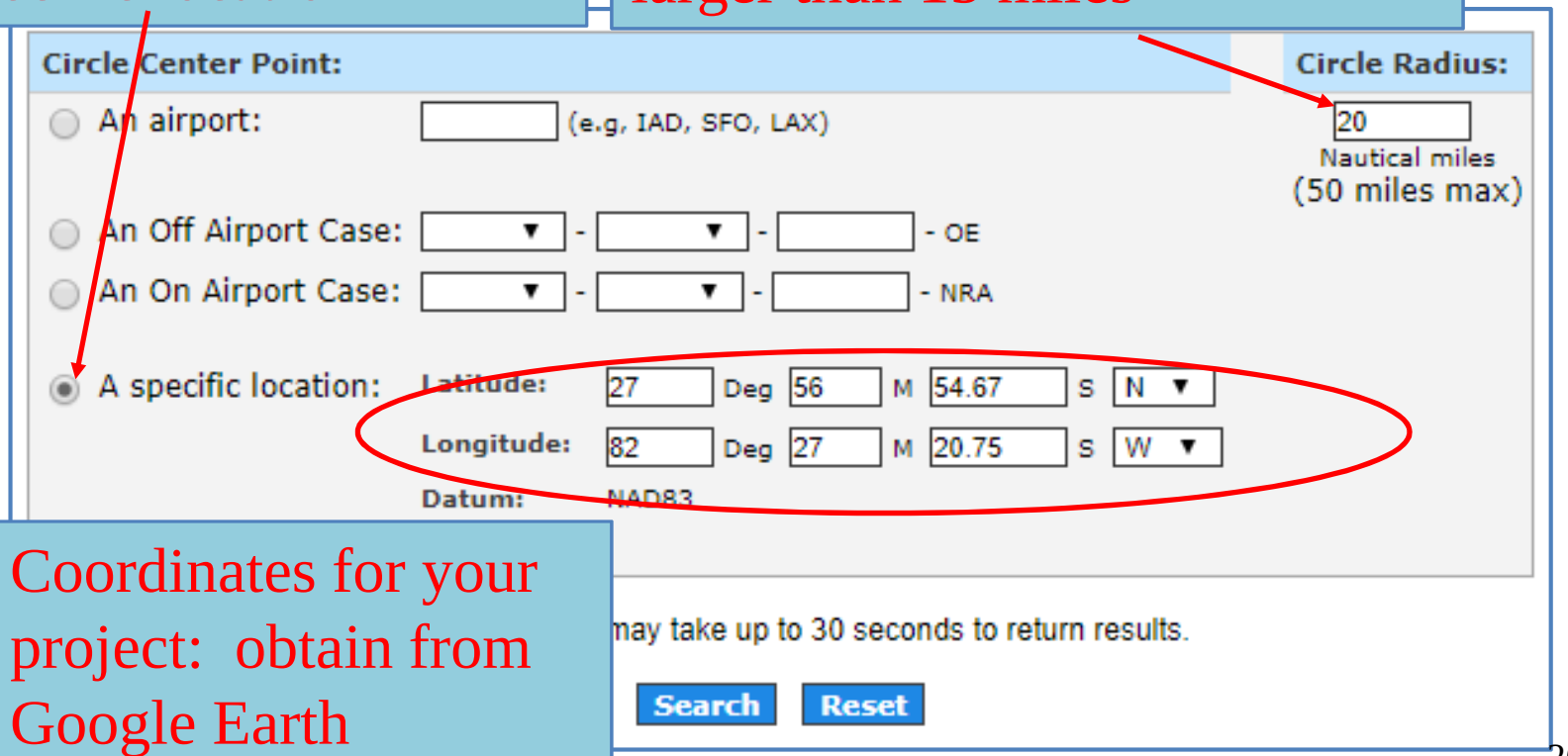


Finding Airport Sources

FAA Circle Search for Airports

Set center point of search to "A specific location"

Set search radius to something larger than 15 miles

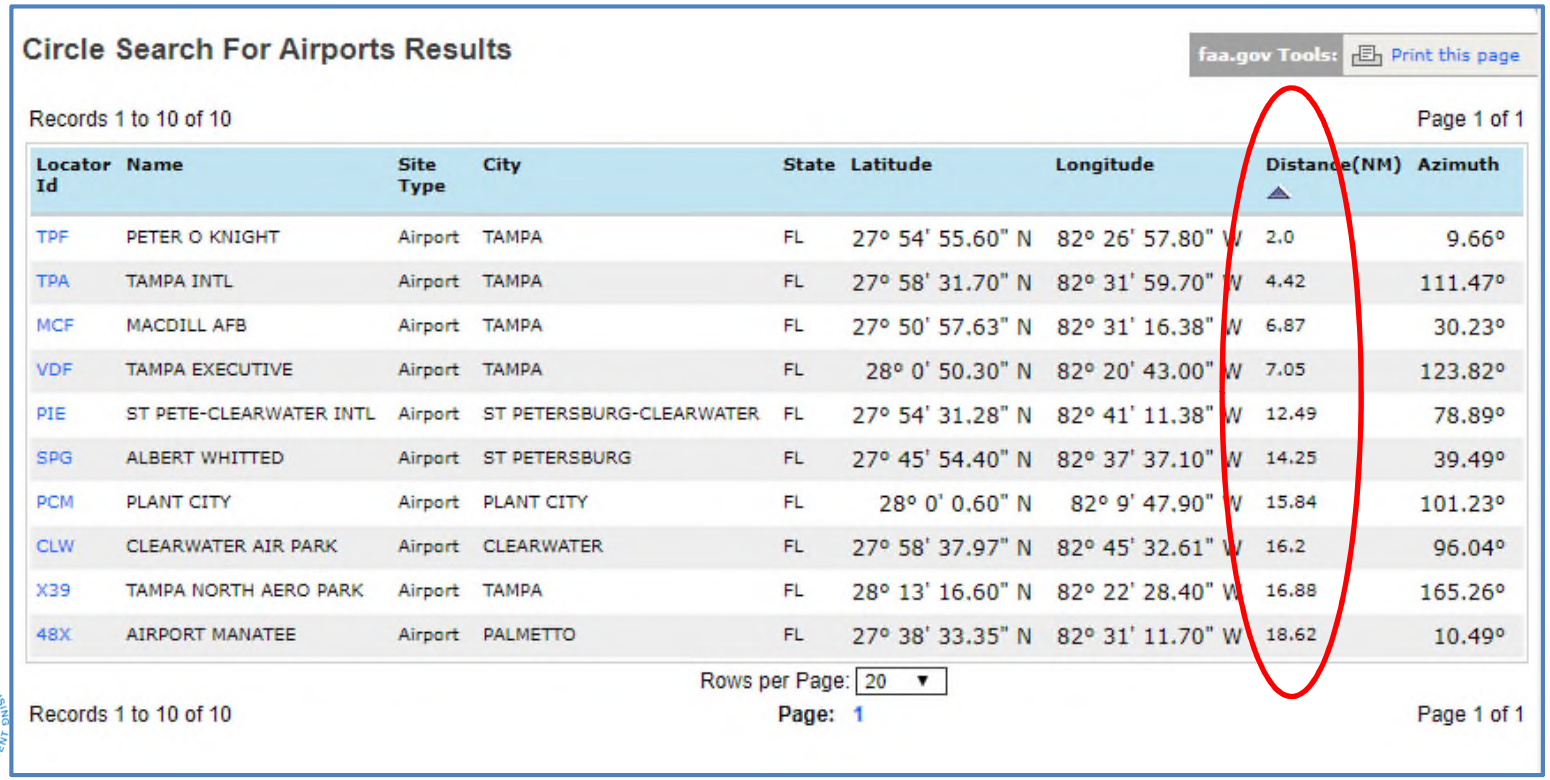


Coordinates for your project: obtain from Google Earth

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°

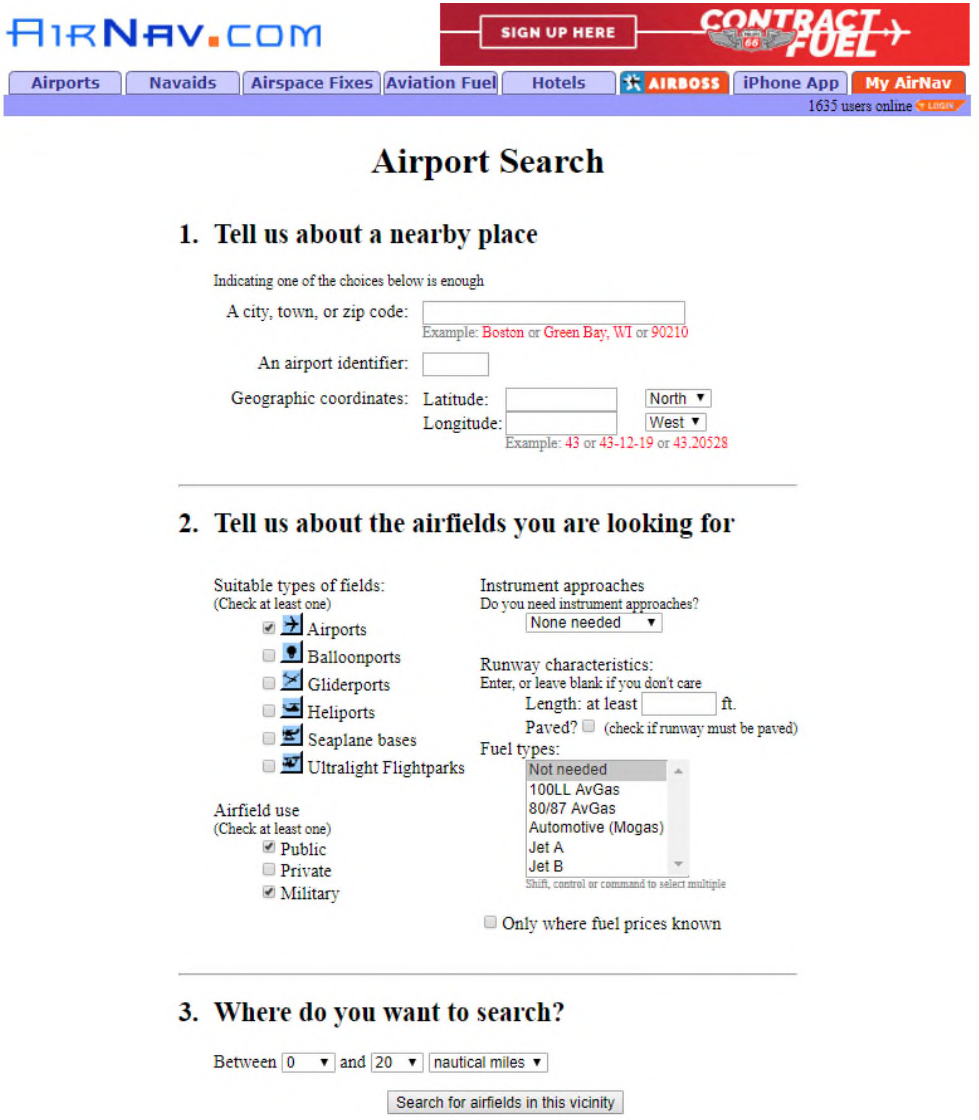
Rows per Page: 20

Records 1 to 10 of 10 — Page: 1 — Page 1 of 1

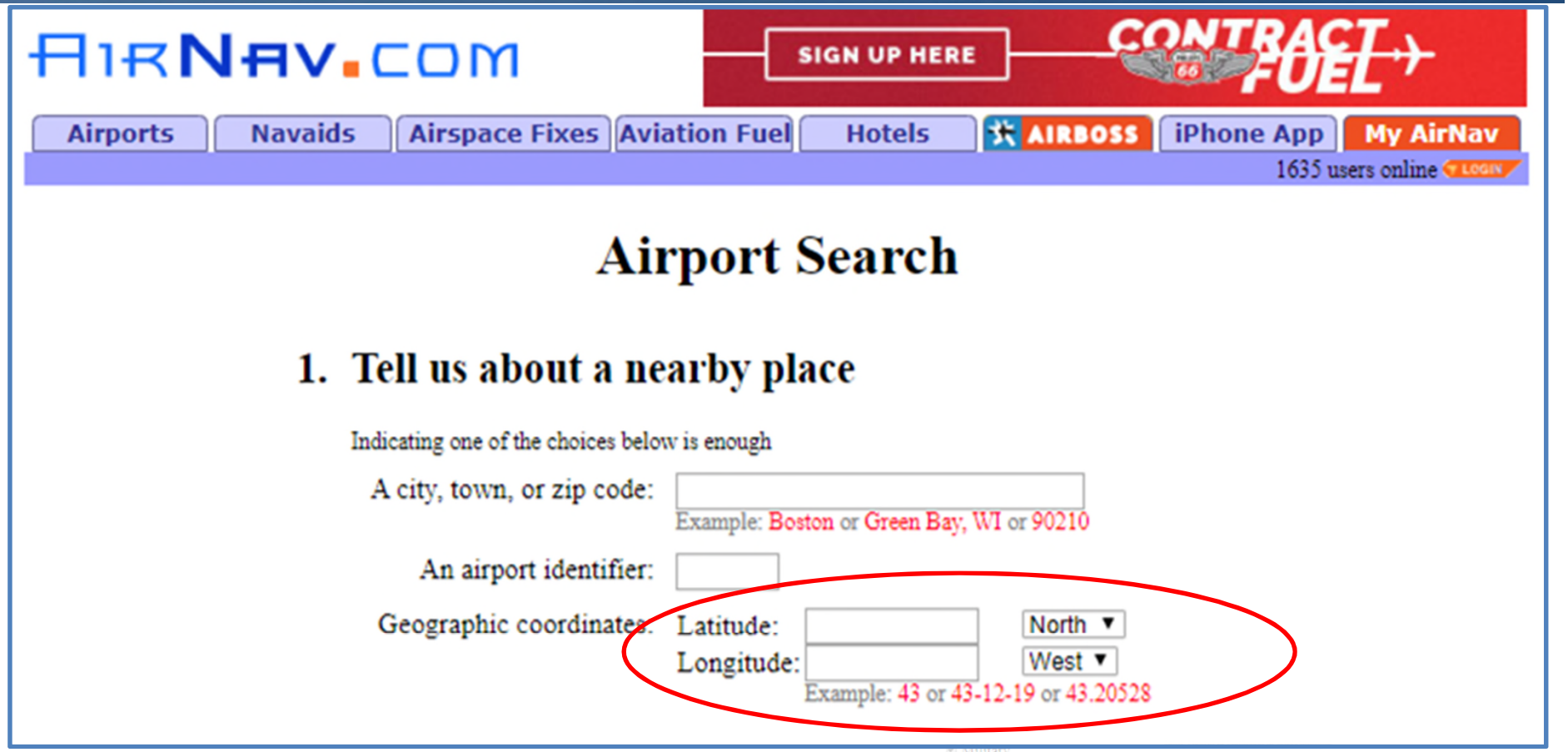
Finding Airport Sources

AirNav.com

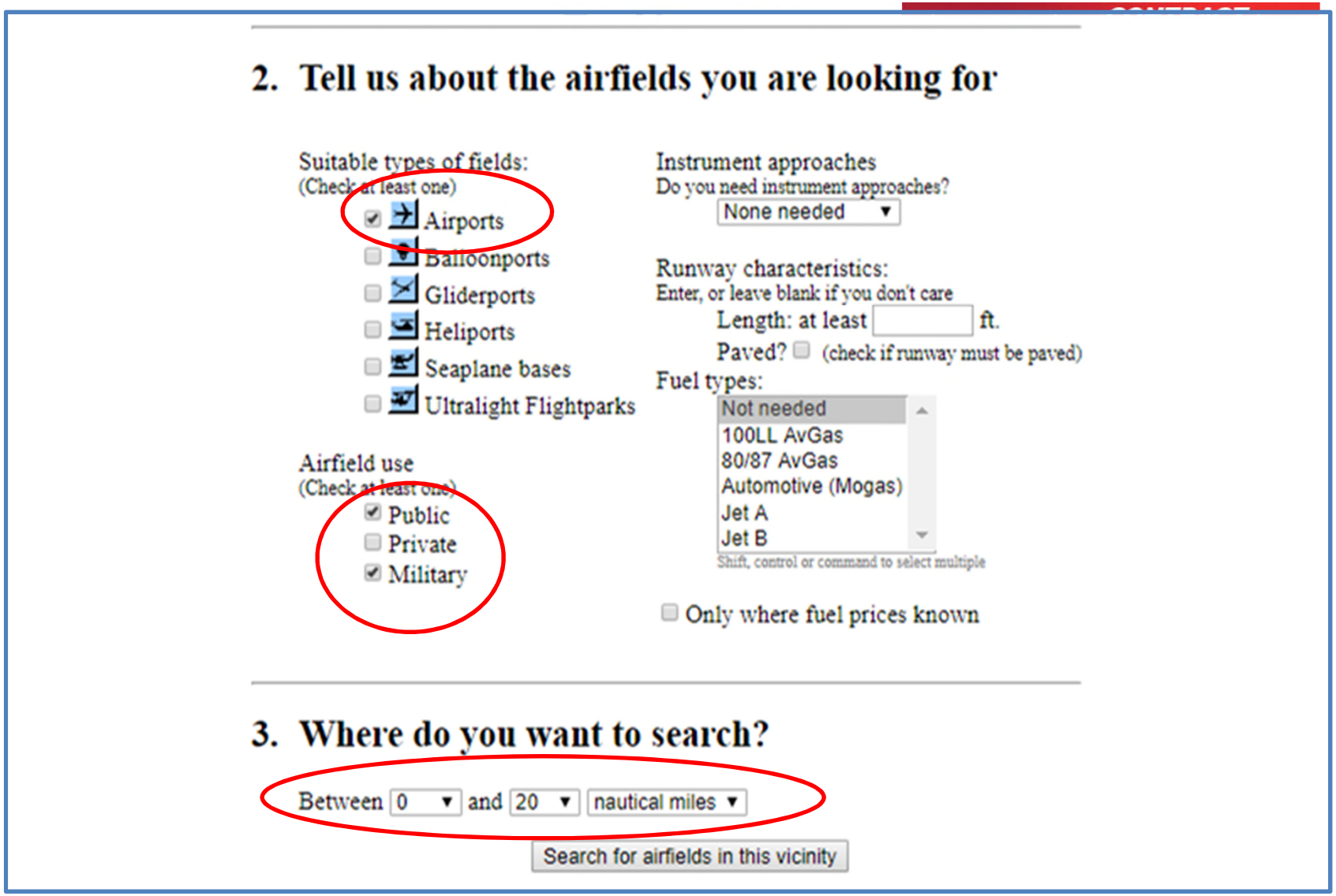
https://www.airnav.com/airports/search.html



HEROS: LEARN BY REVIEWING

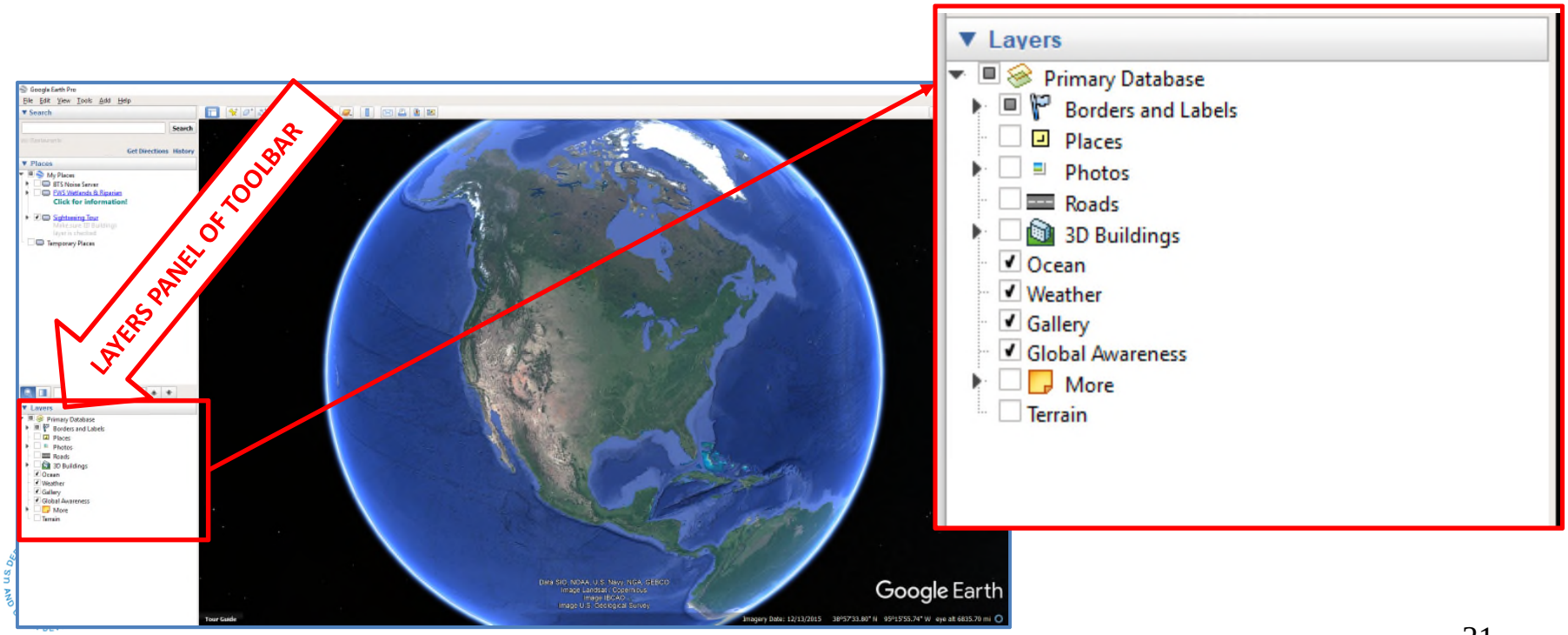


Finding Airport Sources



Finding Railroad Sources

Using Google Earth Pro



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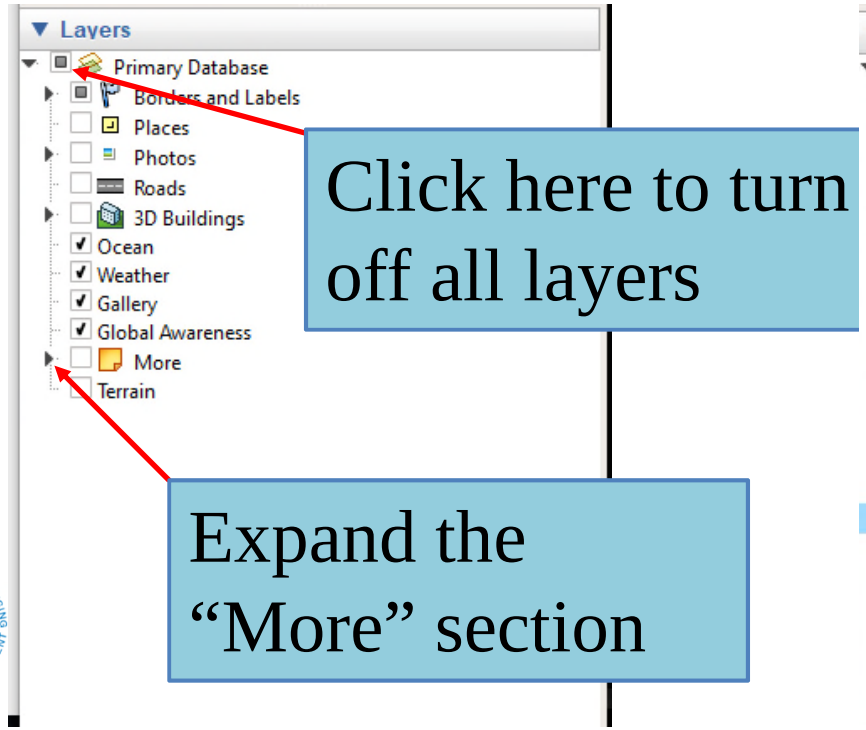
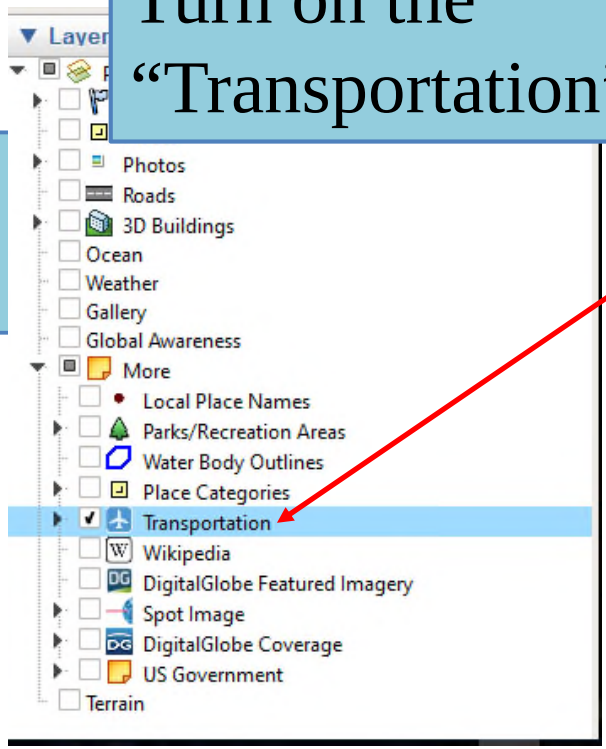


Click here to turn off all layers

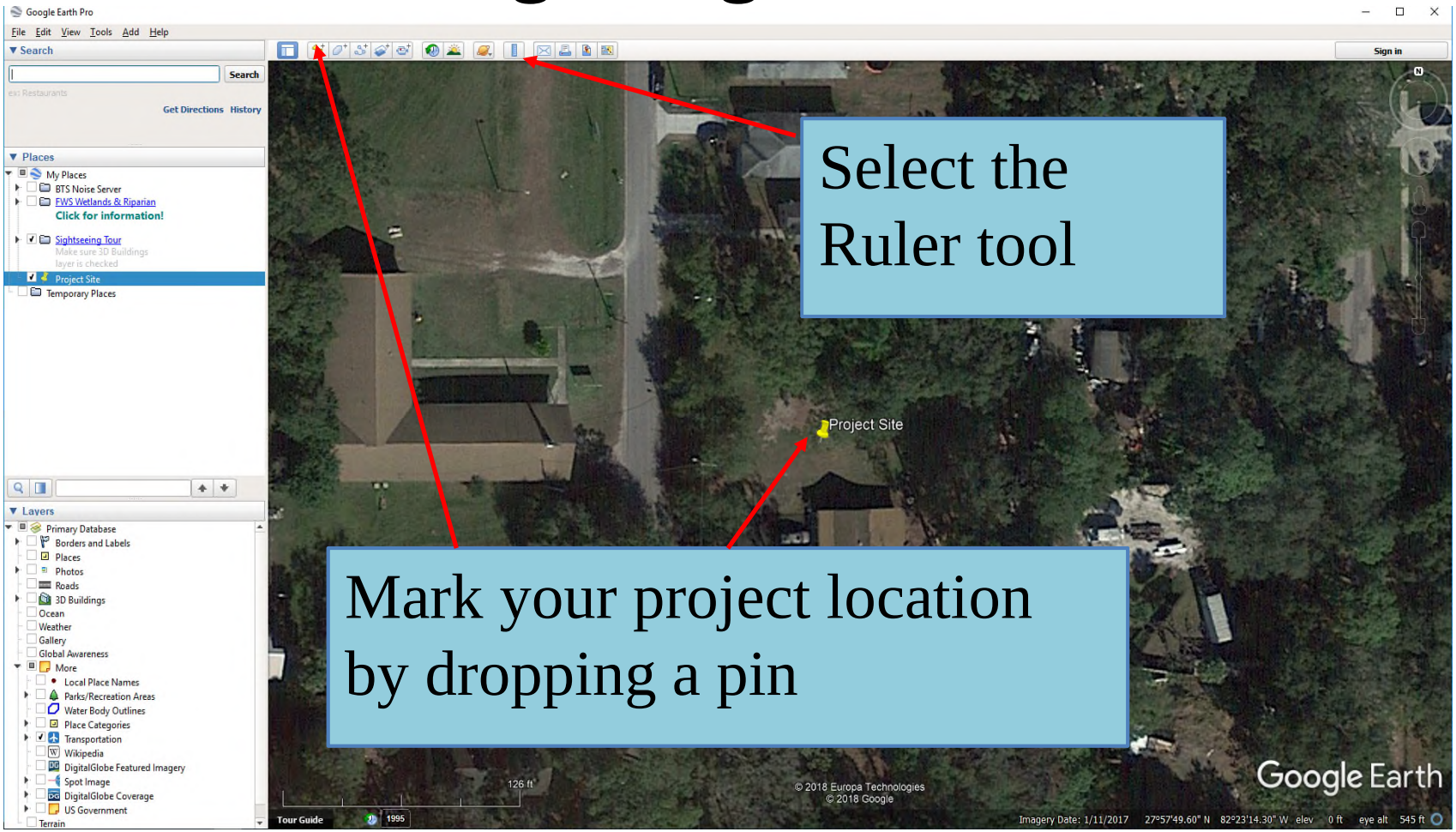
Expand the "More" section



Turn on the "Transportation" layer

Finding Railroad Sources

Using Google Earth Pro



Finding Railroad Sources

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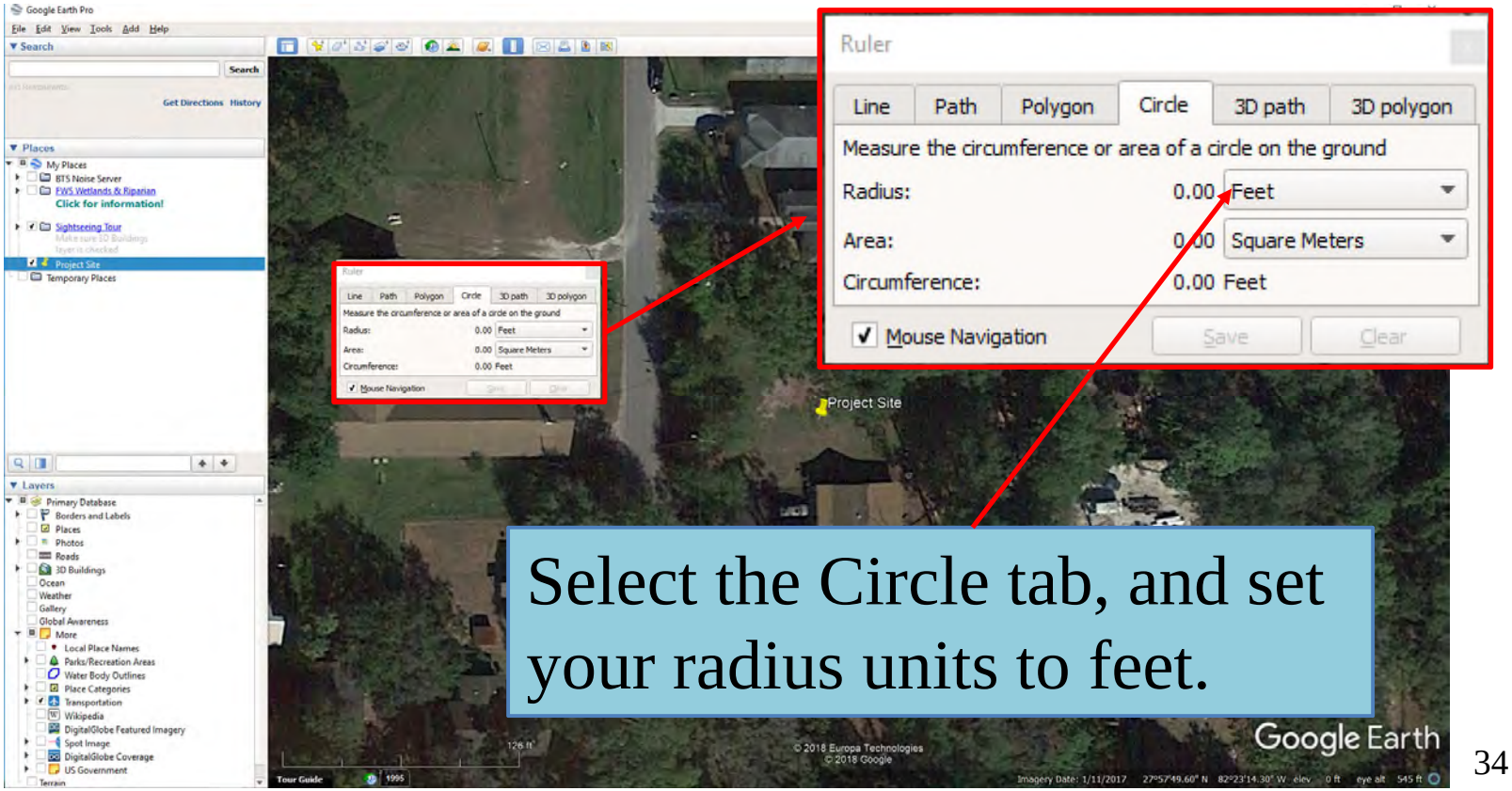

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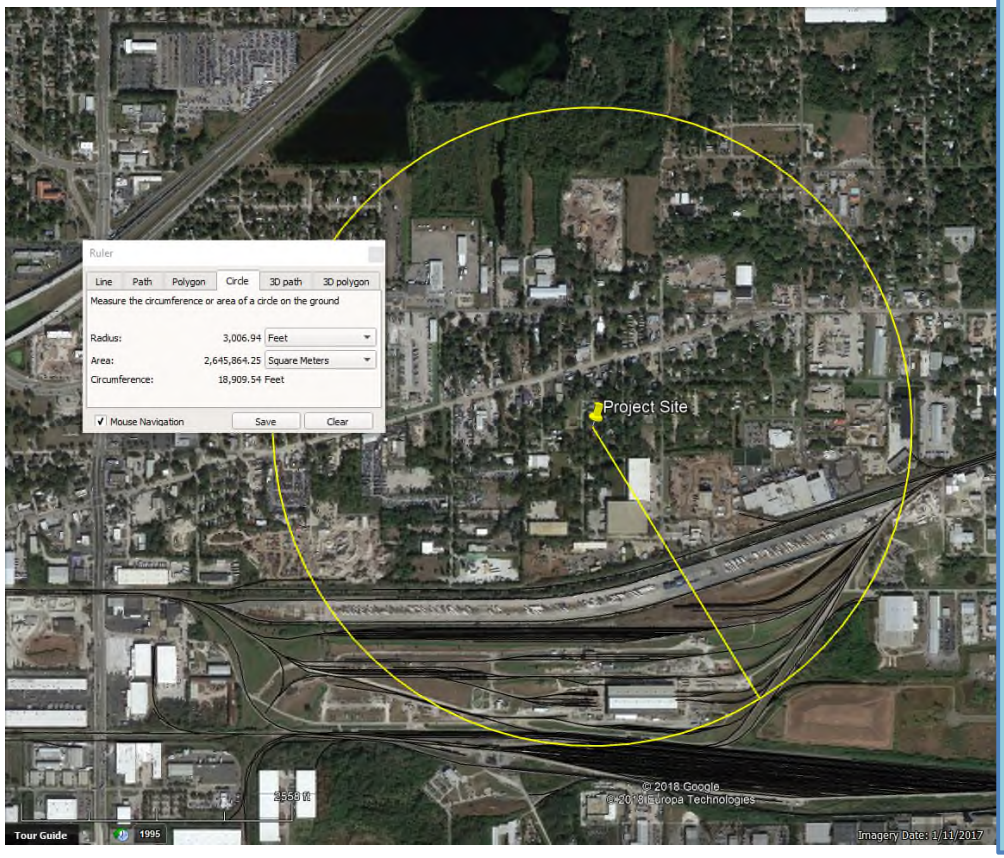
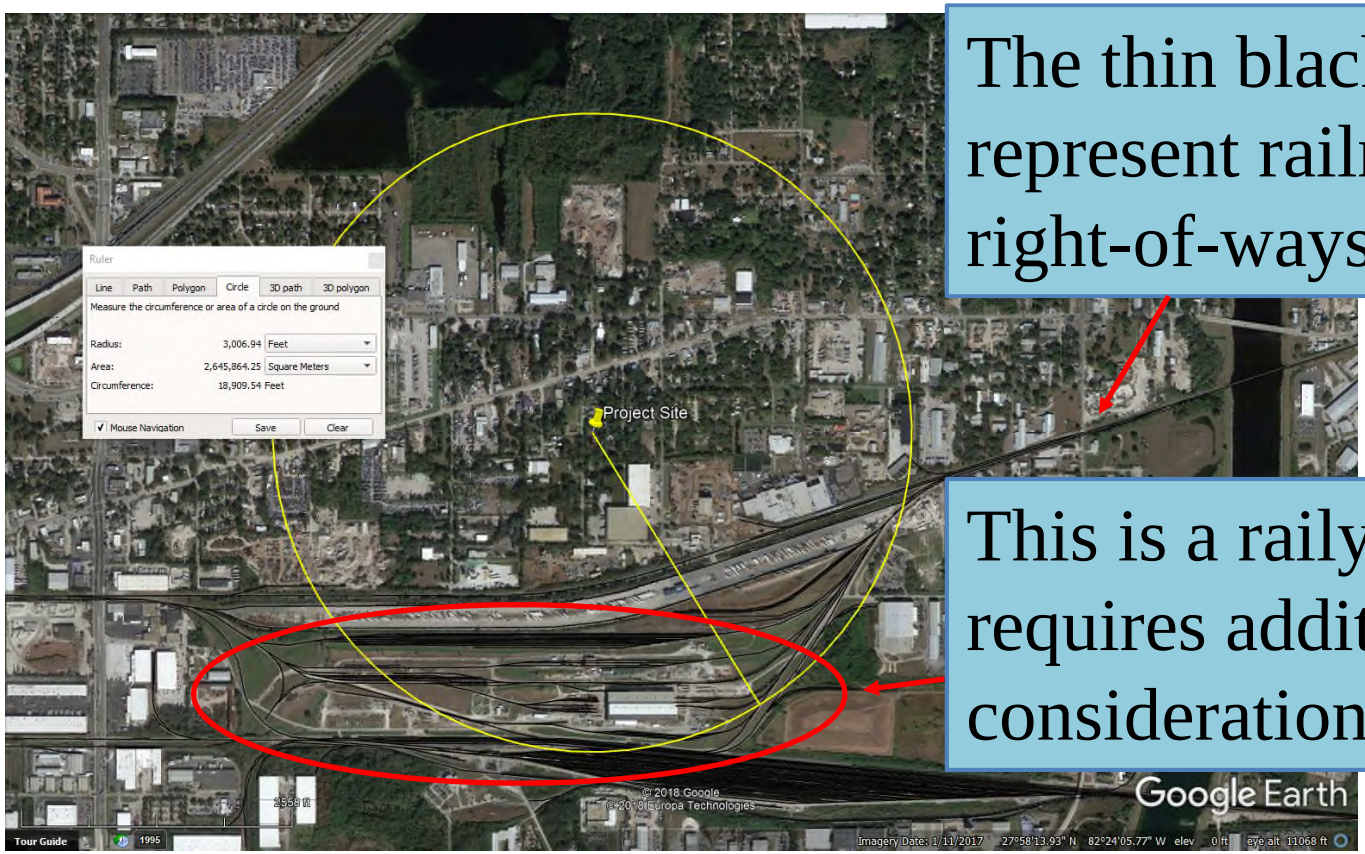


Click once to set your center point, then pull the mouse away (you may have to use the mouse wheel to zoom out) until the radius is 3,000 feet. Click again to lock the radius.

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!?

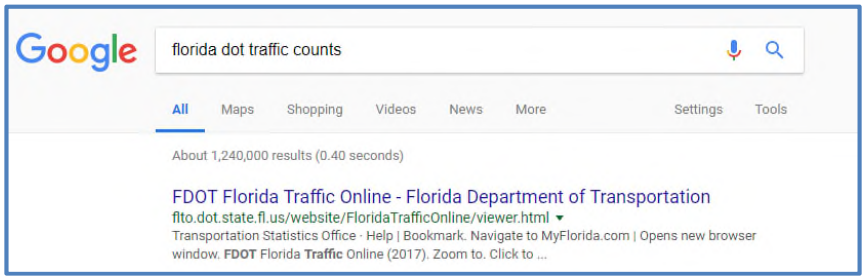
In the past, “Major Roadway” may or may not have been defined as Average Daily Traffic (ADT) of 10,000 vehicles per day or more.

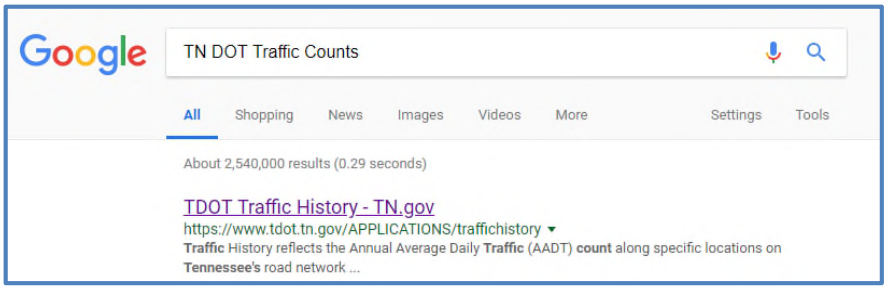
- This is no longer the case, and for good reason: a small roadway with ADT of 4,000 (or less in some circumstances) can generate Normally Unacceptable noise levels as far away as 37 feet.
- Best practice is to evaluate noise from any roadway within 1,000 feet of the project site for which traffic data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

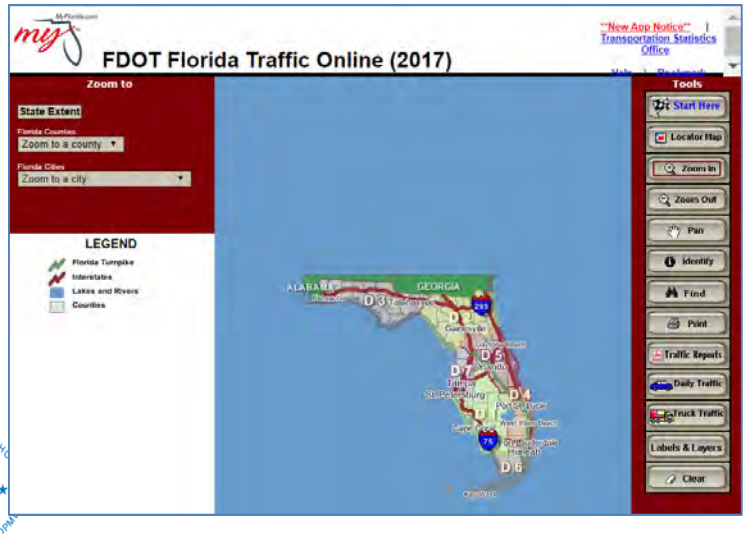
Finding Major Roadways

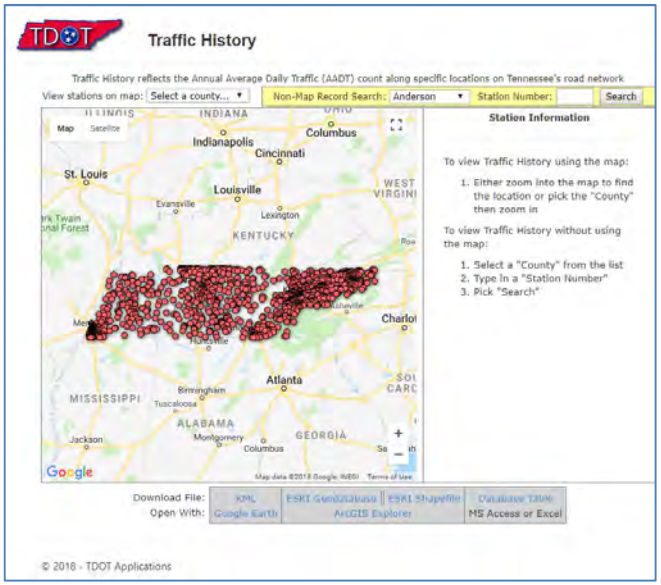
DATA SOURCES

State DOT Websites for Traffic Data





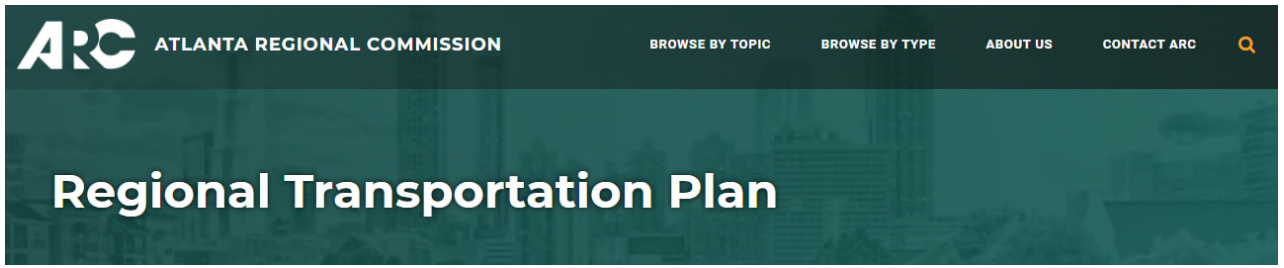




Finding Major Roadways

DATA SOURCES

Regional Transportation Planning Agencies



HEROS: LEARN BY REVIEWING

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

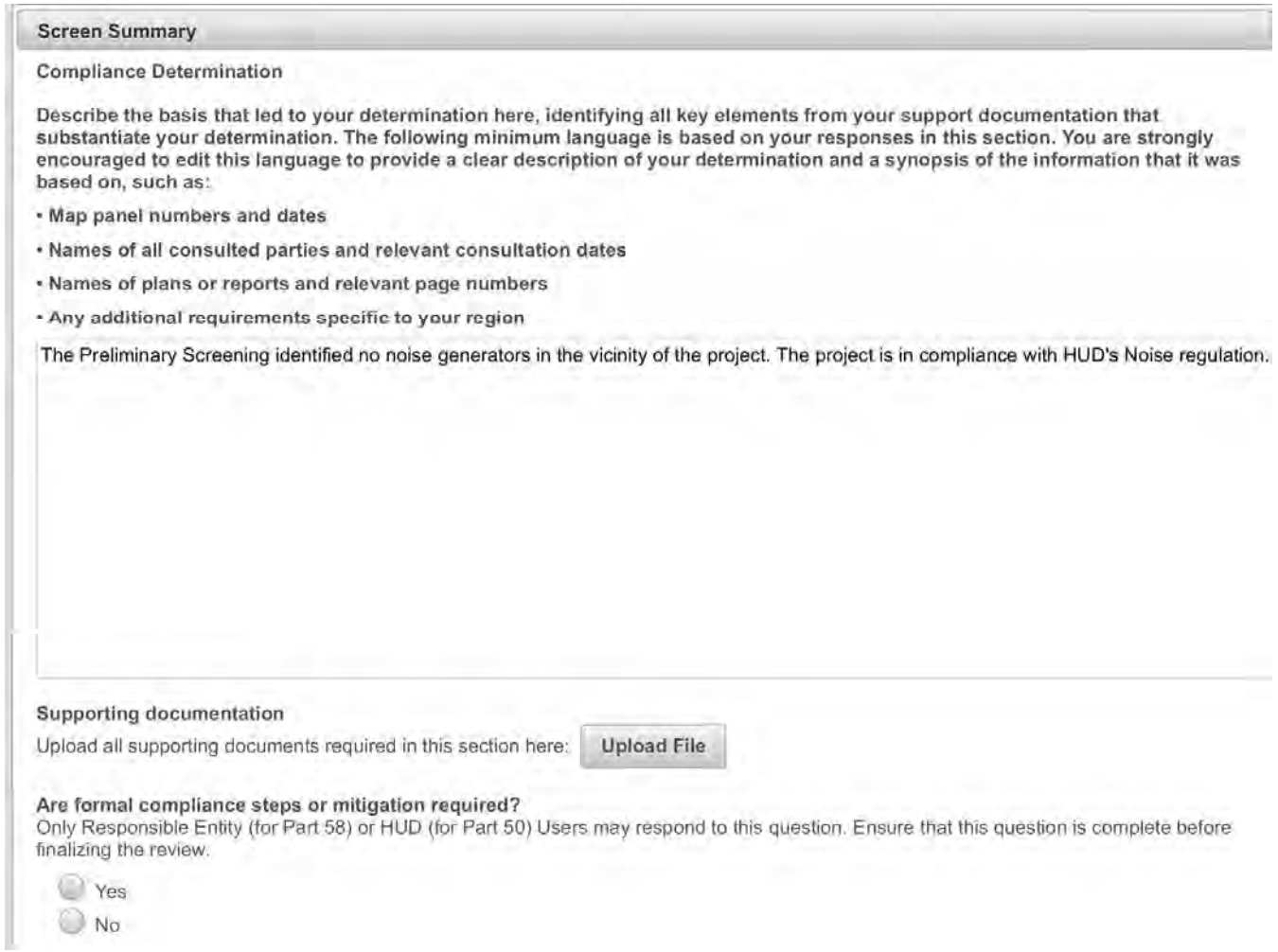
- [x] New construction for residential use
  NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.
- [ ] 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: **Upload File**

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:

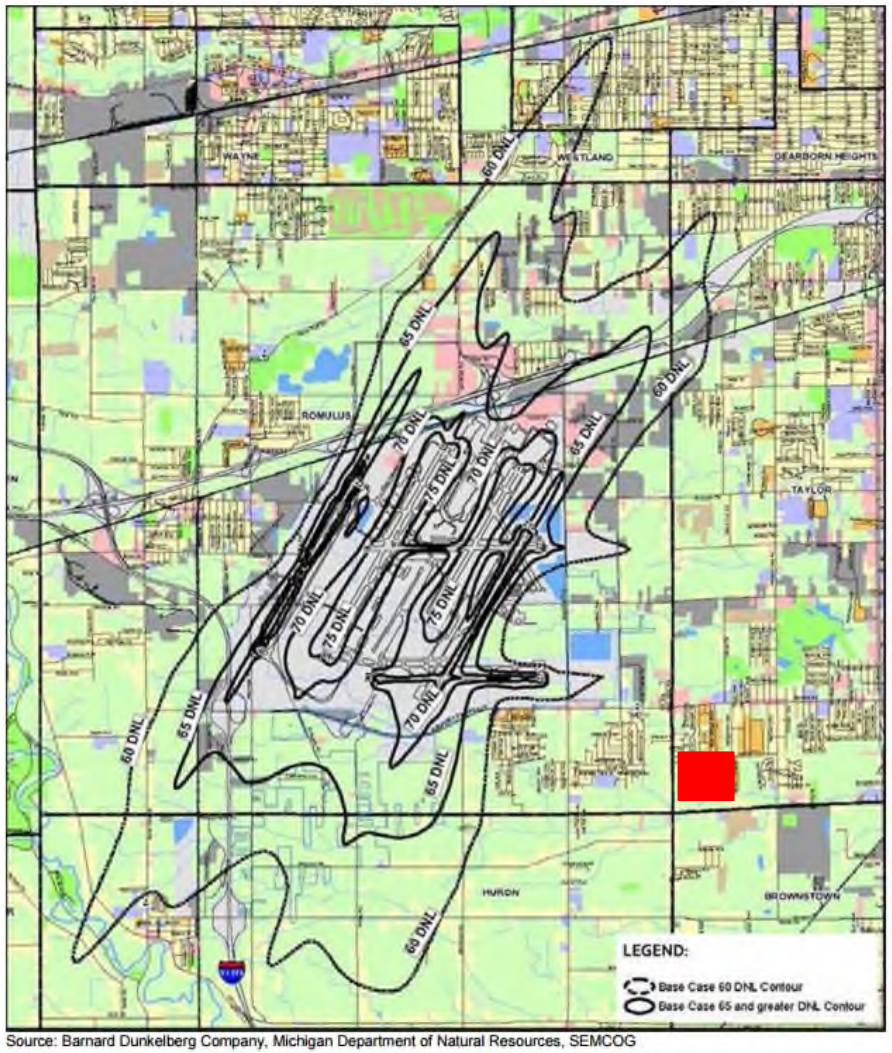
- Noise contour map **or** data on # flights per day, both daytime and at night
- Airport noise control plan that includes
- At Military Installations, ask for their "Air Installation Compatible Use Zone" Plan – It is intended to be shared with local planners and developers

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

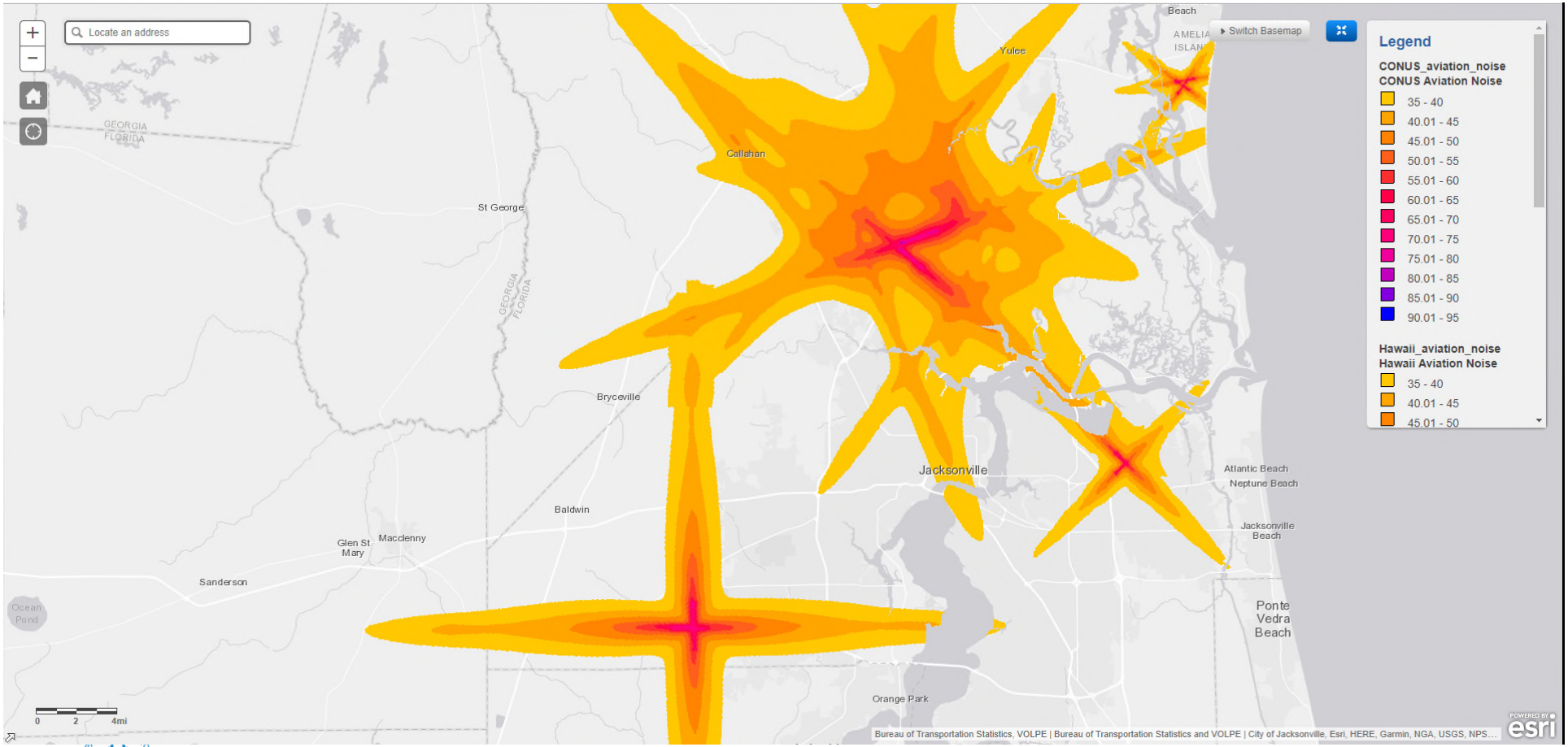
Small Airports

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=0b24ac4f19644a338a1a853fa5996185

Small Airports



Roadway Noise Source Data

Best Information Sources:

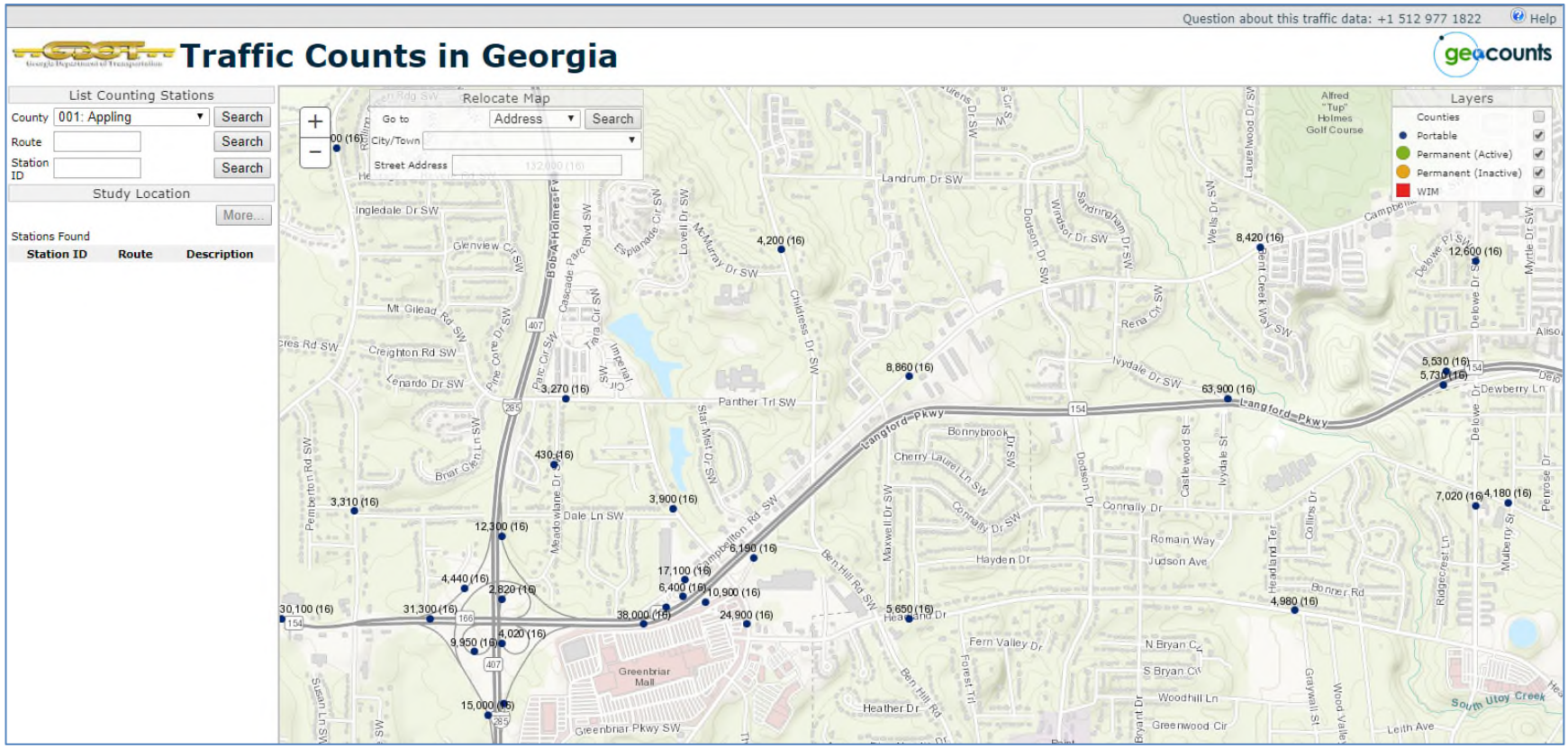
- State and local D.O.T. agencies
- Local and regional planning agencies

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



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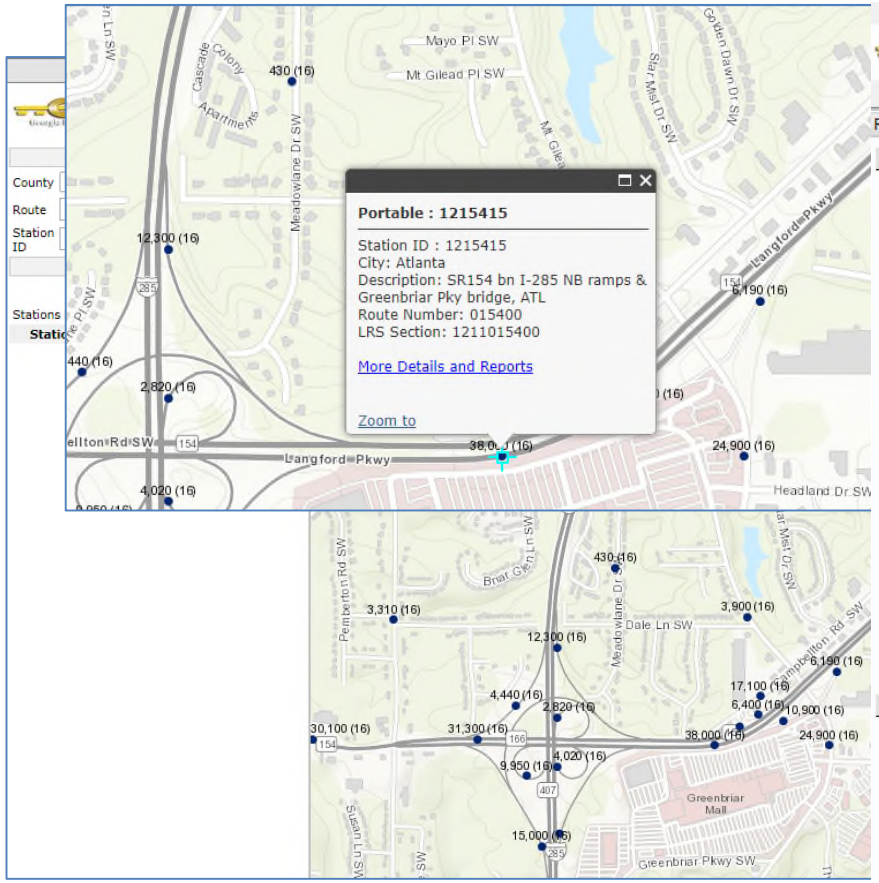
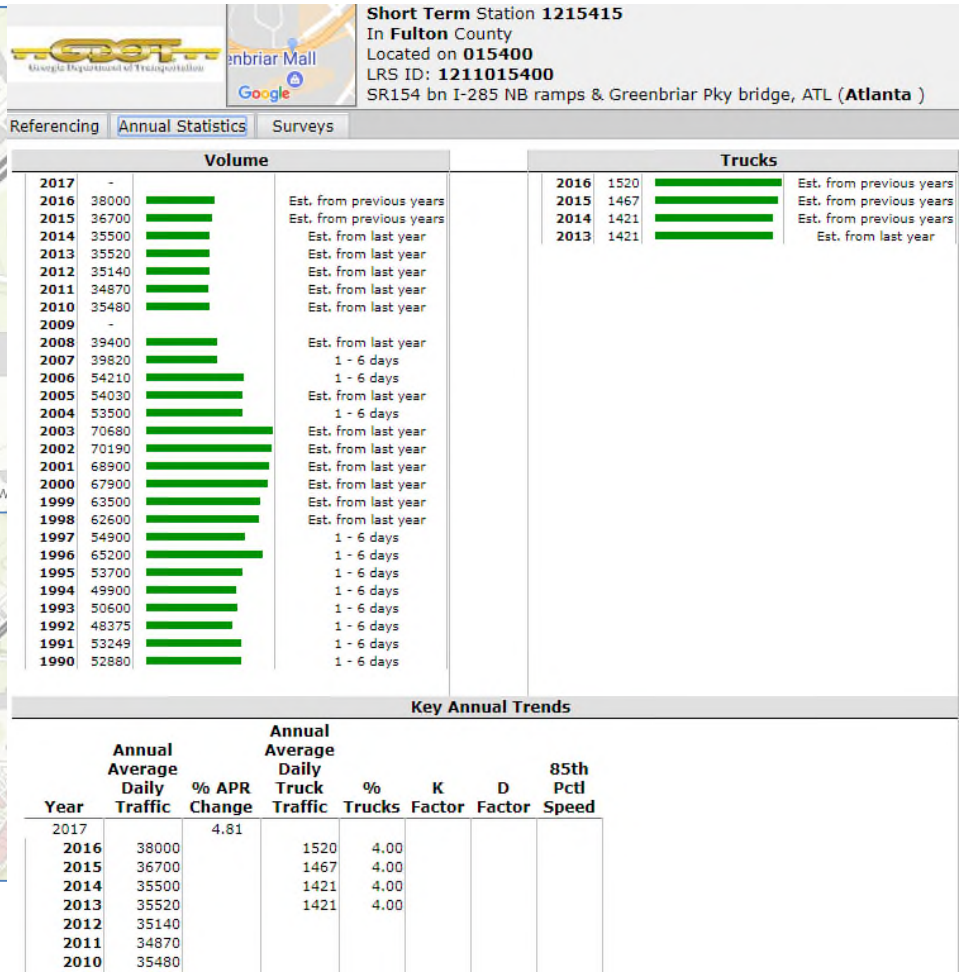




Treat all trucks as “heavy” if they cannot be split

MEDIUM TRUCKS

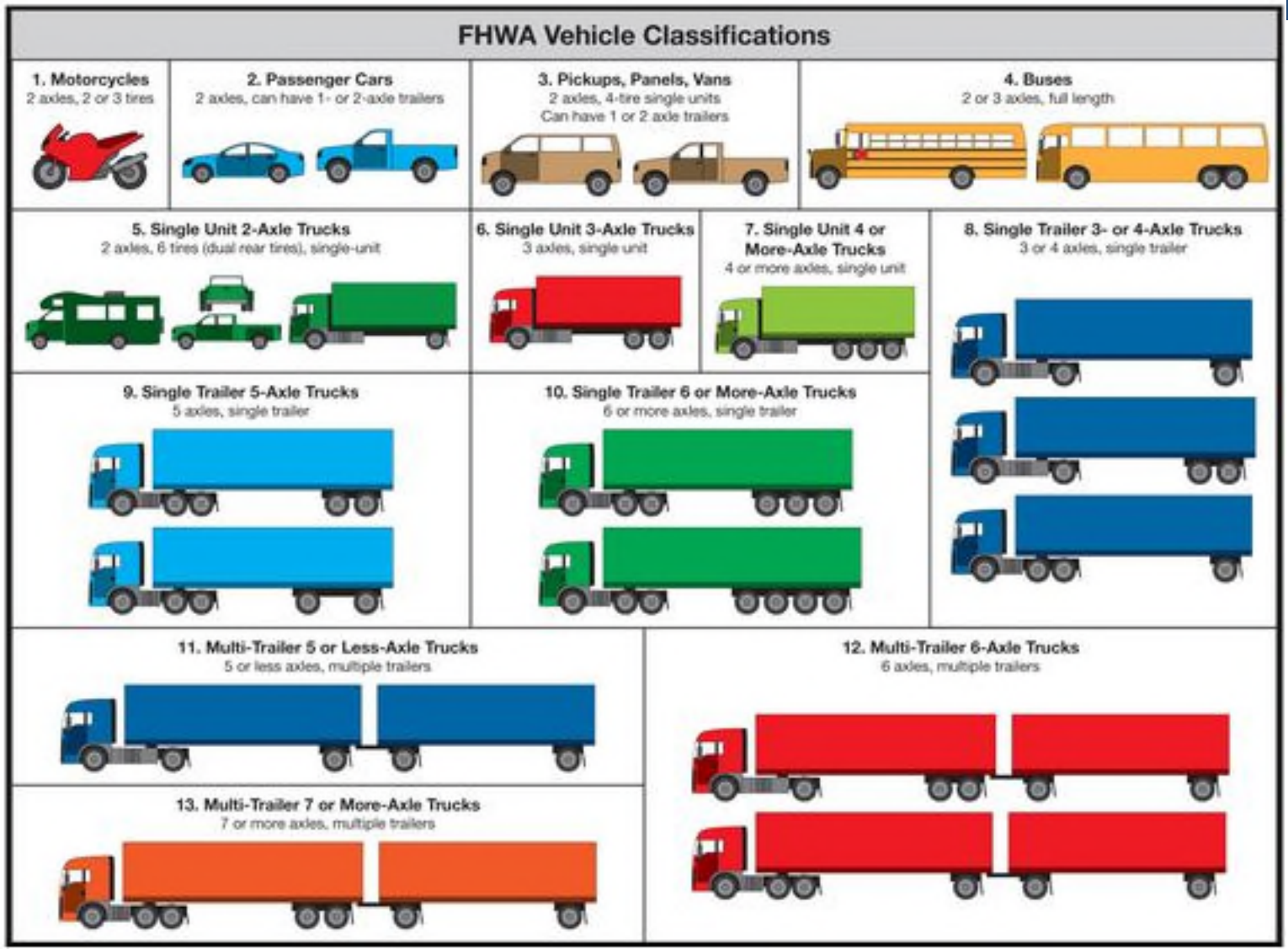
- 10,000-26,000 gross vehicle weight
- Includes 2-axle, 6-wheel vehicles (w/ dual tires in rear, aka, “dualies”)

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



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 rage of 700 VPD per year

Projected AADT for 2026
37,000 + (10 years * 700) = 44,000 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 1ST	2ND	3RD	4TH	TOTAL	DIRECTION: W 1ST	2ND	3RD	4TH	TOTAL	COMBINED 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
24-HOUR TOTALS:					21530					20653	42183

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

PEAK VOLUME INFORMATION

	DIRECTION: E HOUR	VOLUME	DIRECTION: W HOUR	VOLUME	COMBINED DIRECTIONS HOUR	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

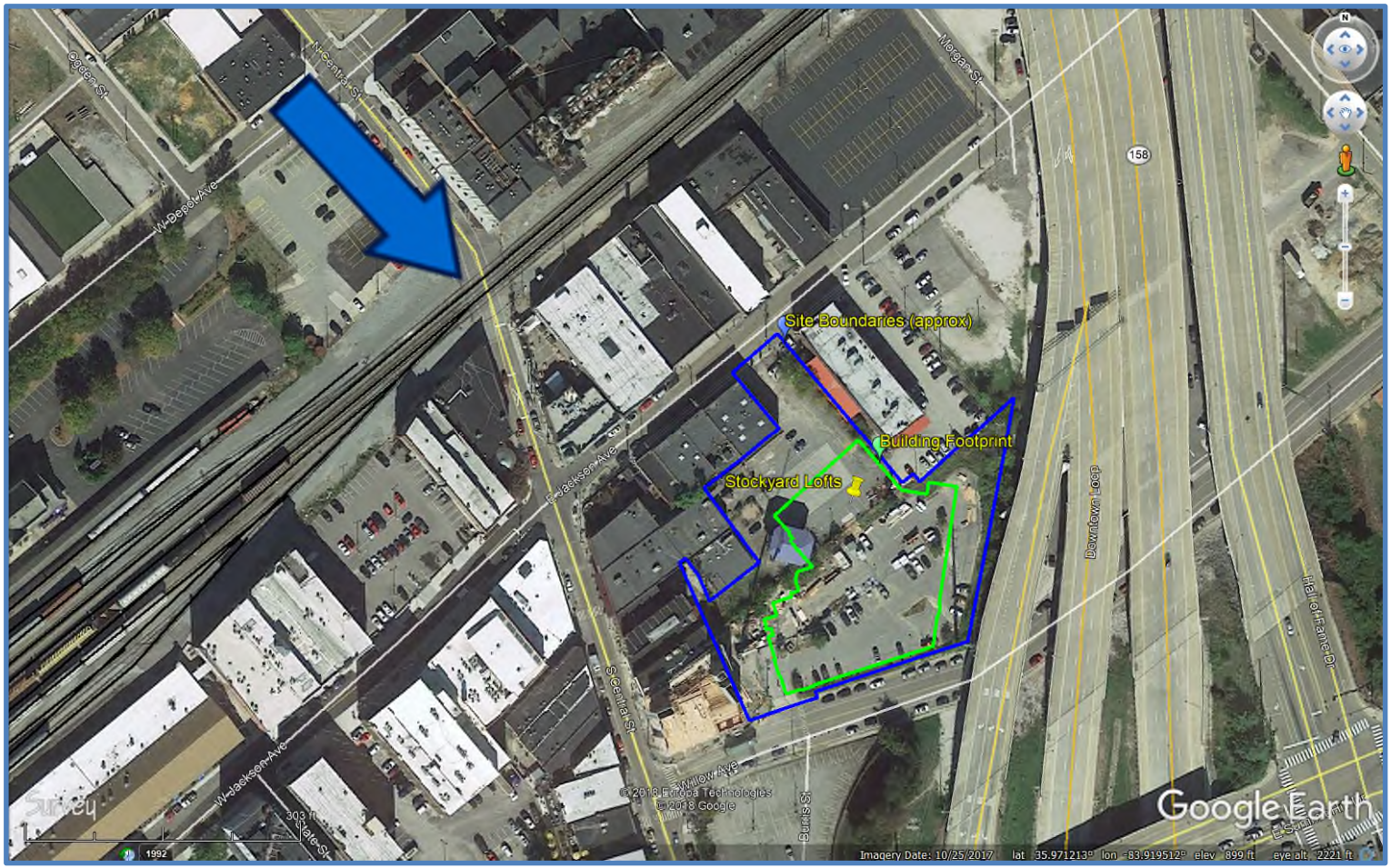
- # of cars per train
- Average speed at crossing
- Type of rails (e.g. bolted or welded)
- Horns used at the crossing?
    - If yes, does that affect the project site?

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

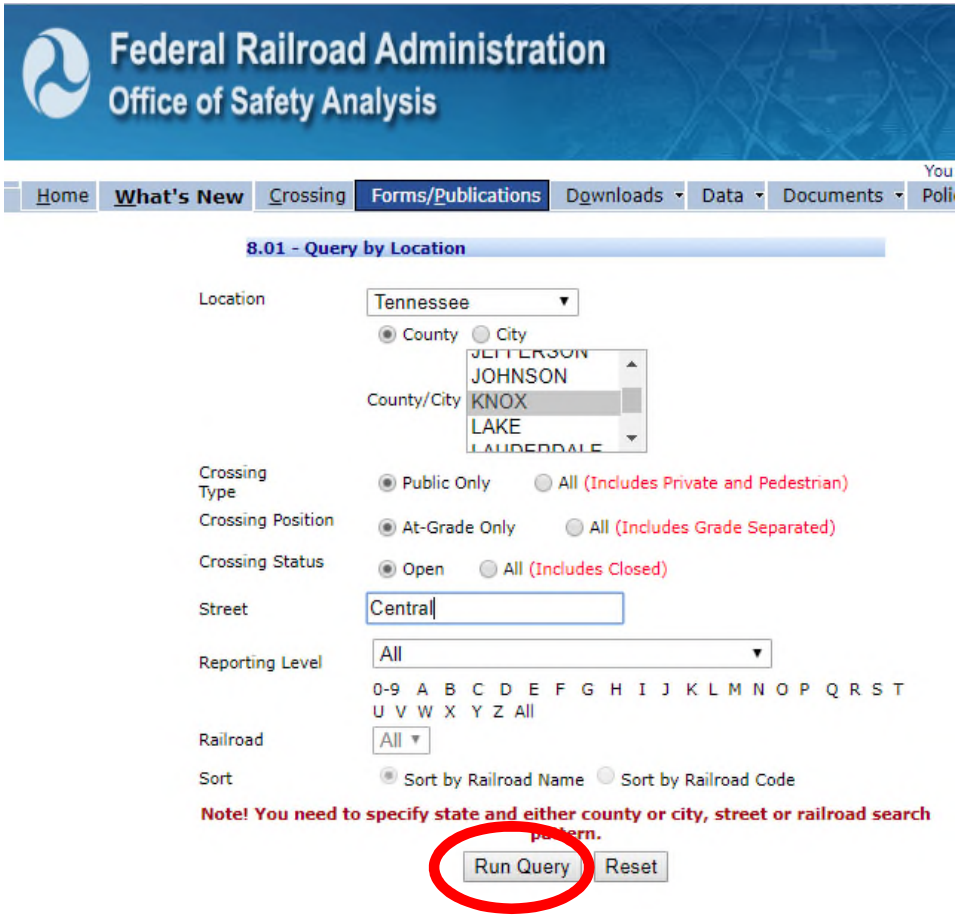


Railroad Data

FRA Crossing Inventory:

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

- Input crossing information
- Run Query

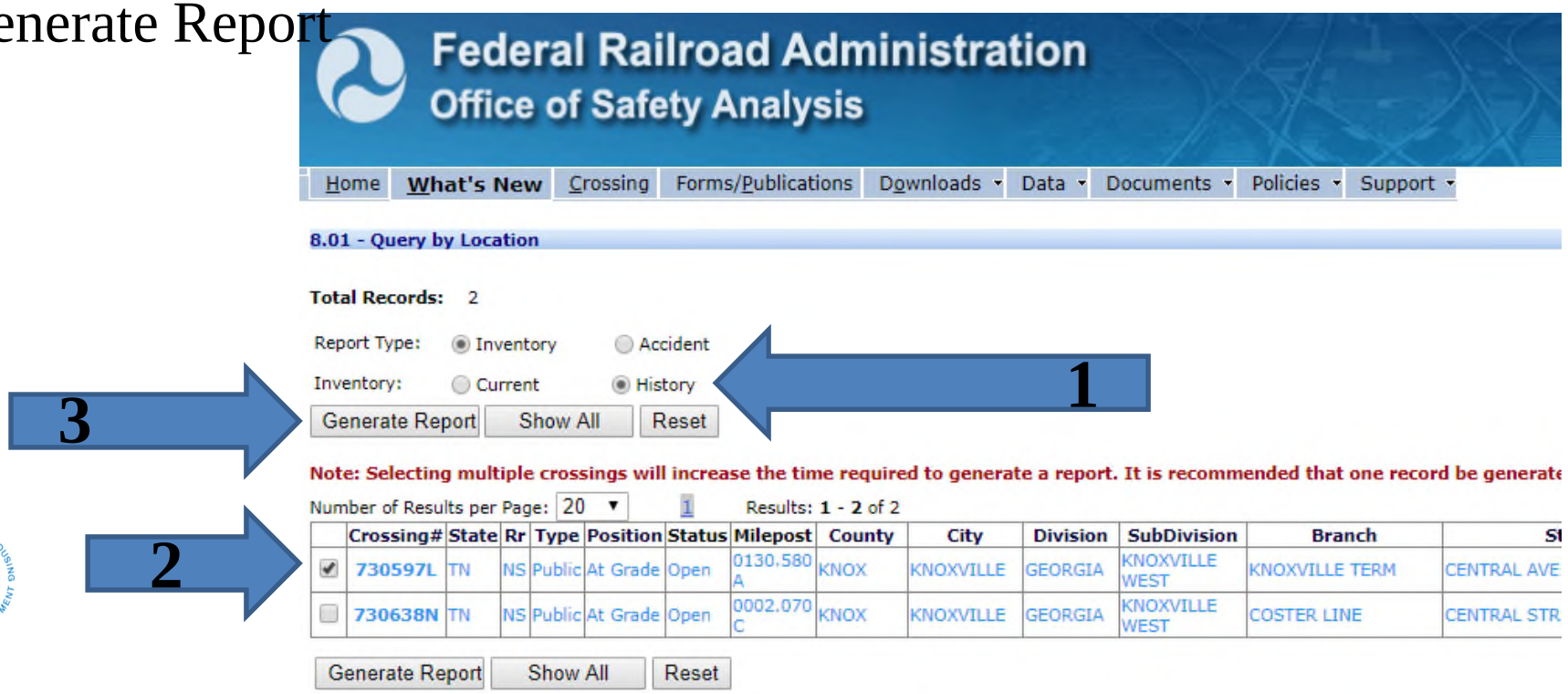


Railroad Data

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



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, Parts I and II, 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 III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date (MM/DD/YYYY)	B. Reporting Agency	C. Reason for Update (Select only one)	D. DOT Crossing Inventory Number
05 / 16 / 2019	☒ Railroad ☐ Transit ☐ State ☐ Other	☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction	730597L

Part I: Location and Classification Information

1. Primary Operating Railroad	2. State	3. County
Norfolk Southern Railway Company [NS]	TENNESSEE	KNOX

4. City / Municipality	5. Street/Road Name & Block Number	6. Highway Type & No.
☒ In ☐ Near KNOXVILLE	CENTRAL AVE (Street/Road Name) | * (Block Number)	Is

7. Do Other Railroads Operate a Separate Track at Crossing?	8. Do Other Railroads Operate Over Your Track at Crossing?
☐ Yes ☒ No If Yes, Specify RR	☐ Yes ☒ No If Yes, Specify RR

9. Railroad Division or Region	10. Railroad Subdivision or District	11. Branch or Line Name	12. RR Milepost
☐ None GEORGIA	☐ None KNOXVILLE WEST	☐ None KNOXVILLE TERM	(prefix) | 0130.580 (nnnn.nnn) | A (suffix)

13. Line Segment *	14. Nearest RR Timetable Station *	15. Parent RR (if applicable)	16. Crossing Owner (if applicable)
	KNOXVILLE	☒ N/A	☒ N/A

17. Crossing Type	18. Crossing Purpose	19. Crossing Position	20. Public Access (if Private Crossing)	21. Type of Train	22. Average Passenger Train Count Per Day
☒ Public ☐ Private	☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.	☒ At Grade ☐ RR Under ☐ RR Over	☐ Yes ☐ No	☒ Freight ☐ Transit ☐ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other	☐ Less Than One Per Day ☐ Number Per Day 0

23. Type of Land Use
☐ Open Space ☐ Farm ☐ Residential ☒ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number?	25. Quiet Zone (FRA provided)
☐ Yes ☒ No If Yes, Provide Crossing Number	☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID	27. Latitude in decimal degrees	28. Longitude in decimal degrees	29. Lat/Long Source
☒ N/A	(WGS84 std: nn.nnnnnnn) 35.9710827	(WGS84 std: -nnn.nnnnnnn) -83.916711	☒ Actual ☐ Estimated

30.A. Railroad Use *	31.A. State Use *
30.B. Railroad Use *	31.B. State Use *
30.C. Railroad Use *	31.C. State Use *
30.D. Railroad Use *	31.D. State Use *
32.A. Narrative (Railroad Use) *	32.B. Narrative (State Use) *

33. Emergency Notification Telephone No. (posted)	34. Railroad Contact (Telephone No.)	35. State Contact (Telephone No.)
800-946-4744	800-946-4744	615-741-9556

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains (6 AM to 6 PM)	1.B. Total Night Thru Trains (6 PM to 6 AM)	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week? 0
7	3	8	0	

2. Year of Train Count Data (YYYY)	3. Speed of Train at Crossing
2017	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)
☒ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies (count)	2.B. STOP Signs (R1-1) (count)	2.C. YIELD Signs (R1-2) (count)	2.D. Advance Warning Signs (Check all that apply; include count) ☒ None
2	0		☐ W10-1 ☐ W10-3 ☐ W10-11 ☐ W10-2 ☐ W10-4 ☐ W10-12

2.E. Low Ground Clearance Sign (W10-5)	2.F. Pavement Markings	2.G. Channelization Devices/Medians	2.H. EXEMPT Sign (R15-3)	2.I. ENS Sign (I-13) Displayed
☐ Yes (count) ☒ No	☐ Stop Lines ☐ Dynamic Envelope ☐ RR Xing Symbols ☒ None	☐ All Approaches ☐ Median ☐ One Approach ☒ None	☐ Yes ☐ No	☒ Yes ☐ No

2.J. Other MUTCD Signs	2.K. Private Crossing Signs (if private)	2.L. LED Enhanced Signs (List types)
☒ Yes ☐ No Specify Type Count Specify Type Count Specify Type Count	☐ Yes ☐ No	

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)	3.B. Gate Configuration	3.C. Cantilevered (or Bridged) Flashing Light Structures (count)	3.D. Mast Mounted Flashing Lights (count of masts) 2	3.E. Total Count of Flashing Light Pairs
Roadway 2 Pedestrian 0	☒ 2 Quad ☐ 3 Quad ☐ 4 Quad ☐ Full (Barrier) Resistance ☐ Median Gates	Over Traffic Lane 0 ☒ Incandescent Not Over Traffic Lane 0 ☐ LED	☒ Incandescent ☐ LED ☒ Back Lights Included ☐ Side Lights Included	4

3.F. Installation Date of Current Active Warning Devices: (MM/YYYY)	3.G. Wayside Horn	3.H. Highway Traffic Signals Controlling Crossing	3.I. Bells (count)
07 / 1987 ☐ Not Required	☐ Yes Installed on (MM/YYYY) / ☒ No	☐ Yes ☒ No	1

3.J. Non-Train Active Warning	3.K. Other Flashing Lights or Warning Devices
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☒ None	Count 0 Specify type 0

4.A. Does nearby Hwy Intersection have Traffic Signals?	4.B. Hwy Traffic Signal Interconnection	4.C. Hwy Traffic Signal Preemption	5. Highway Traffic Pre-Signals	6. Highway Monitoring Devices (Check all that apply)
☐ Yes ☒ No	☒ Not Interconnected ☐ For Traffic Signals ☐ For Warning Signs	☐ Simultaneous ☐ Advance	☐ Yes ☒ No Storage Distance * 0 Stop Line Distance * 0	☐ Yes - Photo/Video Recording ☐ Yes – Vehicle Presence Detection ☒ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad	2. Is Roadway/Pathway Paved?	3. Does Track Run Down a Street?	4. Is Crossing Illuminated? (Street lights within approx. 50 feet from nearest rail)
☐ One-way Traffic ☐ Two-way Traffic ☐ Divided Traffic Number of Lanes 2	☒ Yes ☐ No	☐ Yes ☒ No	☒ Yes ☐ No

5. Crossing Surface (on Main Track, multiple types allowed) Installation Date * (MM/YYYY) / Width * Length *
☐ 1 Timber ☐ 2 Asphalt ☒ 3 Asphalt and Timber ☐ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal ☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other (specify)

6. Intersecting Roadway within 500 feet?	7. Smallest Crossing Angle	8. Is Commercial Power Available? *
☒ Yes ☐ No If Yes, Approximate Distance (feet) 500	☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°	☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System	2. Functional Classification of Road at Crossing	3. Is Crossing on State Highway System?	4. Highway Speed Limit
☐ (01) Interstate Highway System ☐ (02) Other Nat Hwy System (NHS) ☐ (03) Federal AID, Not NHS ☒ (08) Non-Federal Aid	☐ (0) Rural ☒ (1) Urban ☐ (1) Interstate ☐ (5) Major Collector ☐ (2) Other Freeways and Expressways ☐ (3) Other Principal Arterial ☐ (6) Minor Collector ☐ (4) Minor Arterial ☒ (7) Local	☐ Yes ☒ No	30 MPH ☒ Posted ☐ Statutory

5. Linear Referencing System (LRS Route ID) *
6. LRS Milepost *

7. Annual Average Daily Traffic (AADT)	8. Estimated Percent Trucks	9. Regularly Used by School Buses?	10. Emergency Services Route
Year 2006 AADT 006798	08 %	☒ Yes ☐ No Average Number per Day 2	☐ Yes ☐ 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

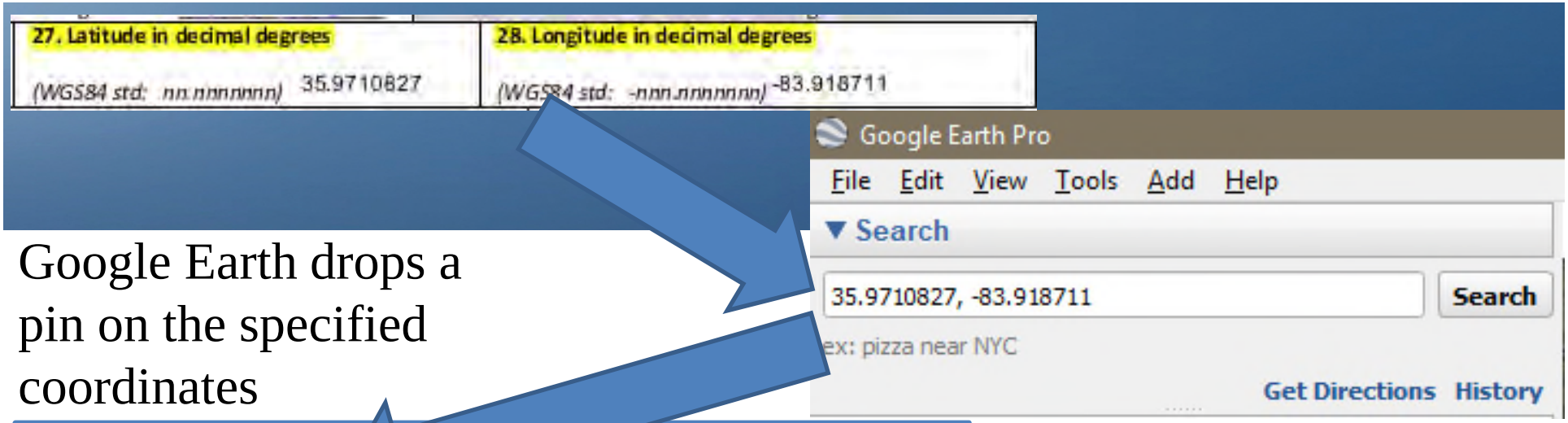
FRA Crossing Inventory:

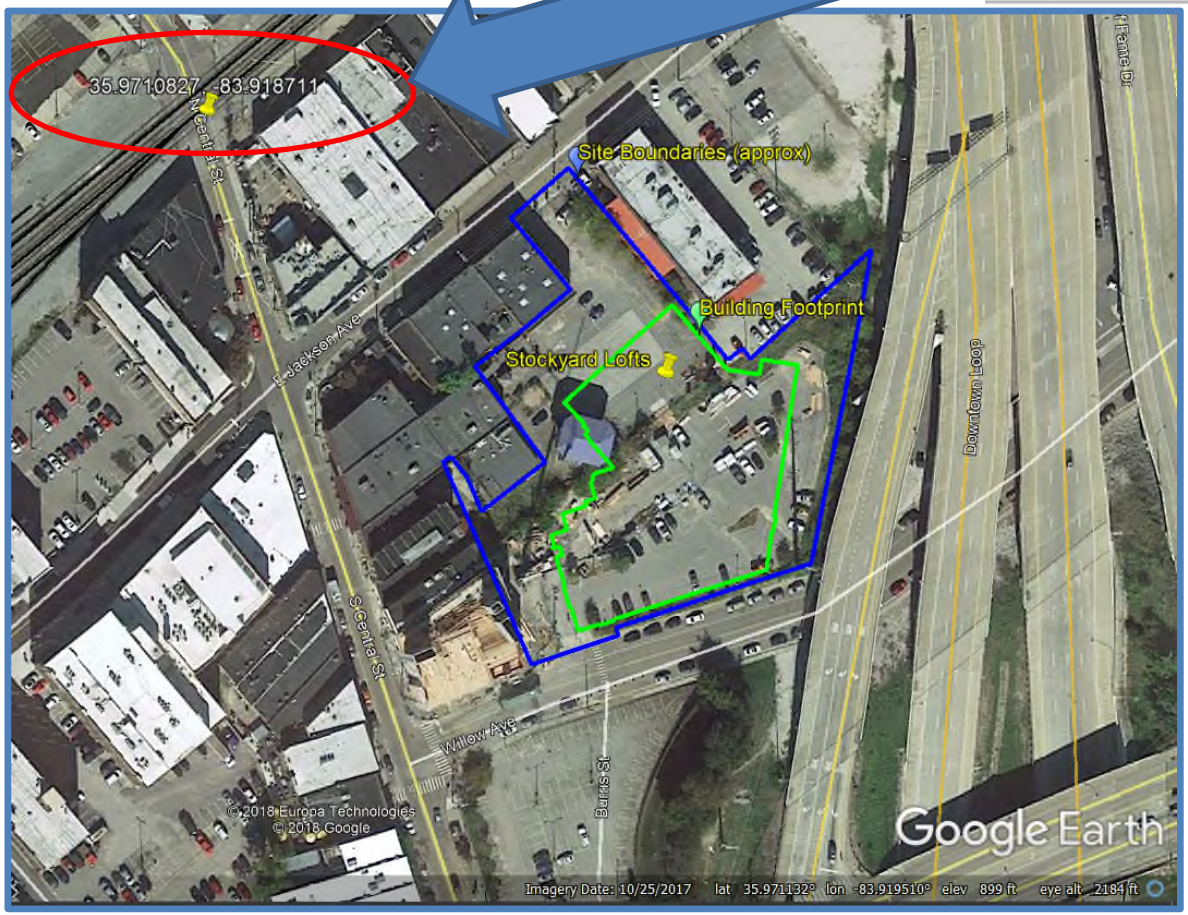
safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx

- 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	28. Longitude in decimal degrees
(WGS84 std: nn.nnnnnnn) 35.9710827	(WGS84 std: -nnn.nnnnnnn) -83.918711

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)*	1.B. Total Night Thru Trains *(6 PM to 6 AM)*	1.C. Total Switching Trains	1.D. Total Transit Trains	1.E. Check if Less Than One Movement Per Day ☐ How many trains per week?
7	3	8	0	0

2. Year of Train Count Data *(YYYY)*	3. Speed of Train at Crossing
2017	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)*

☒ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled?	7.A. Event Recorder	7.B. Remote Health Monitoring
☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☒ 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

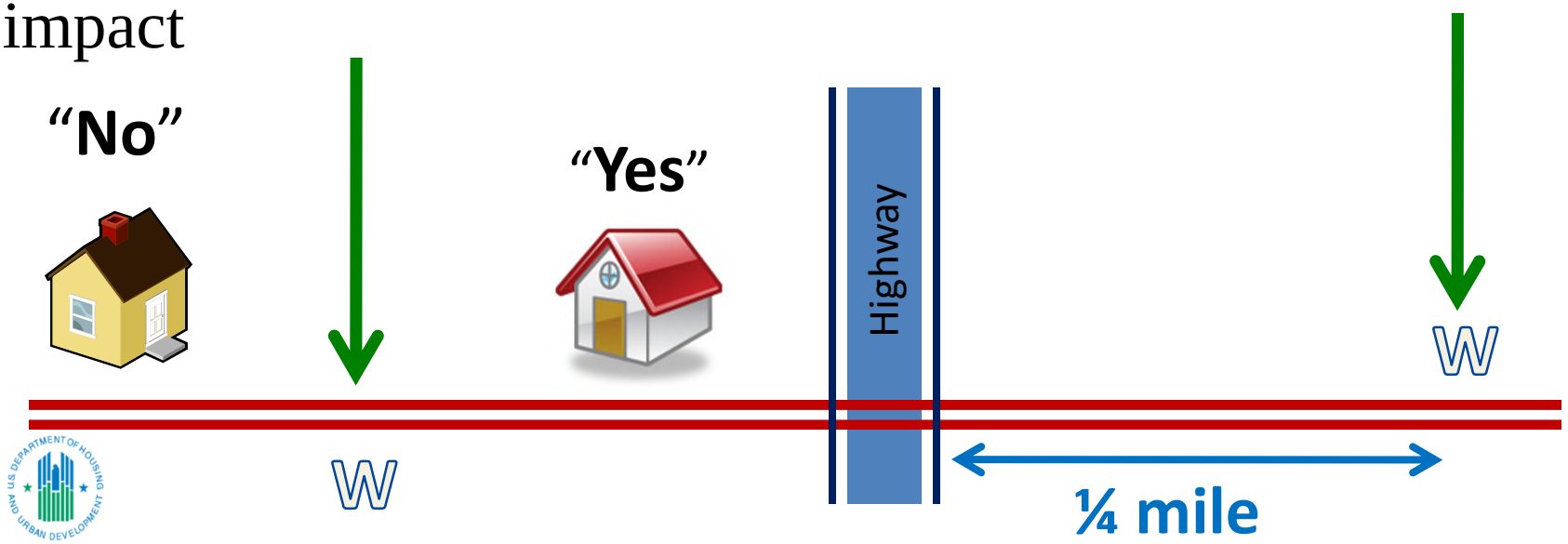
RR UNDER: NO

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
- Quaries
- 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

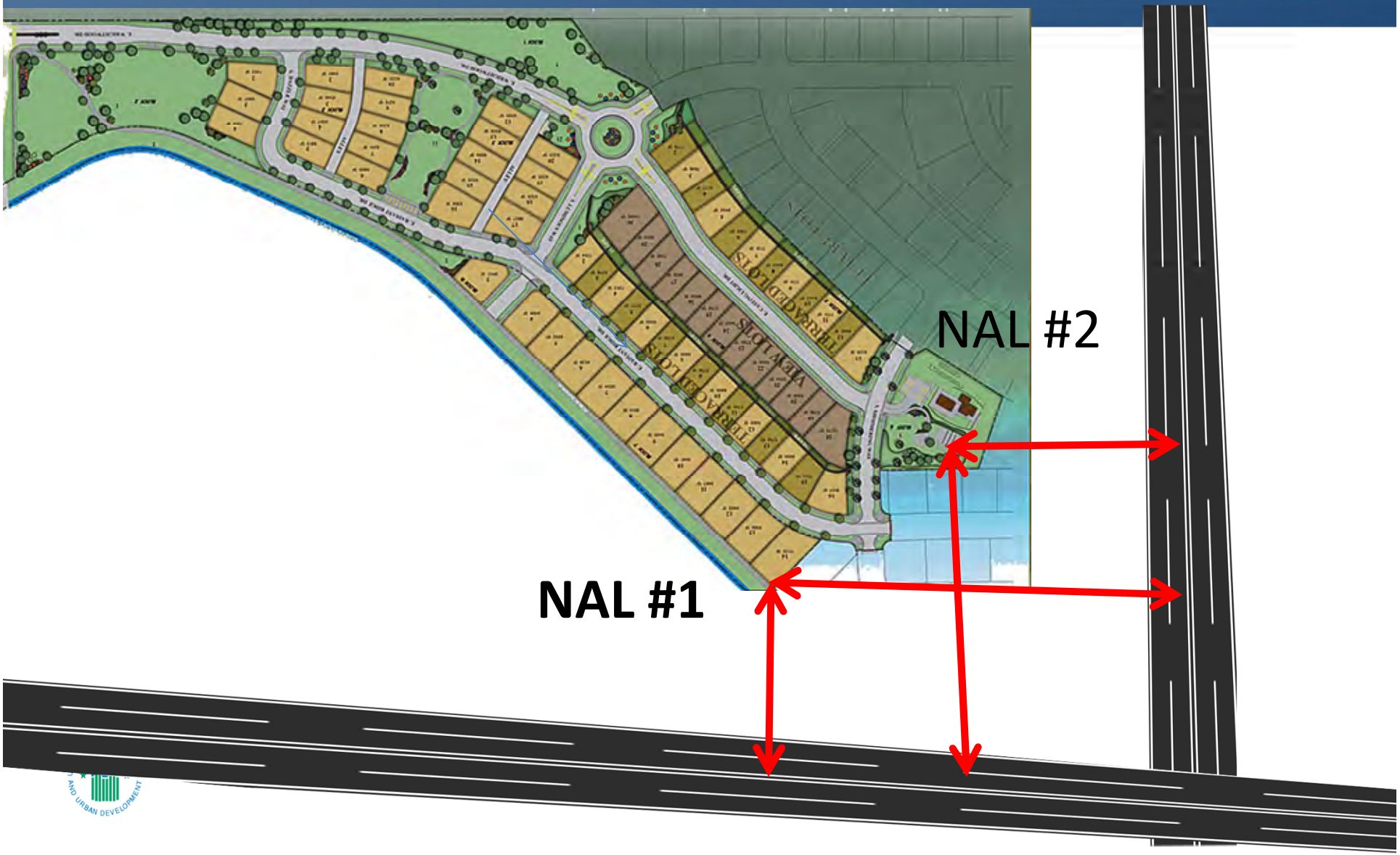
Railroads

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

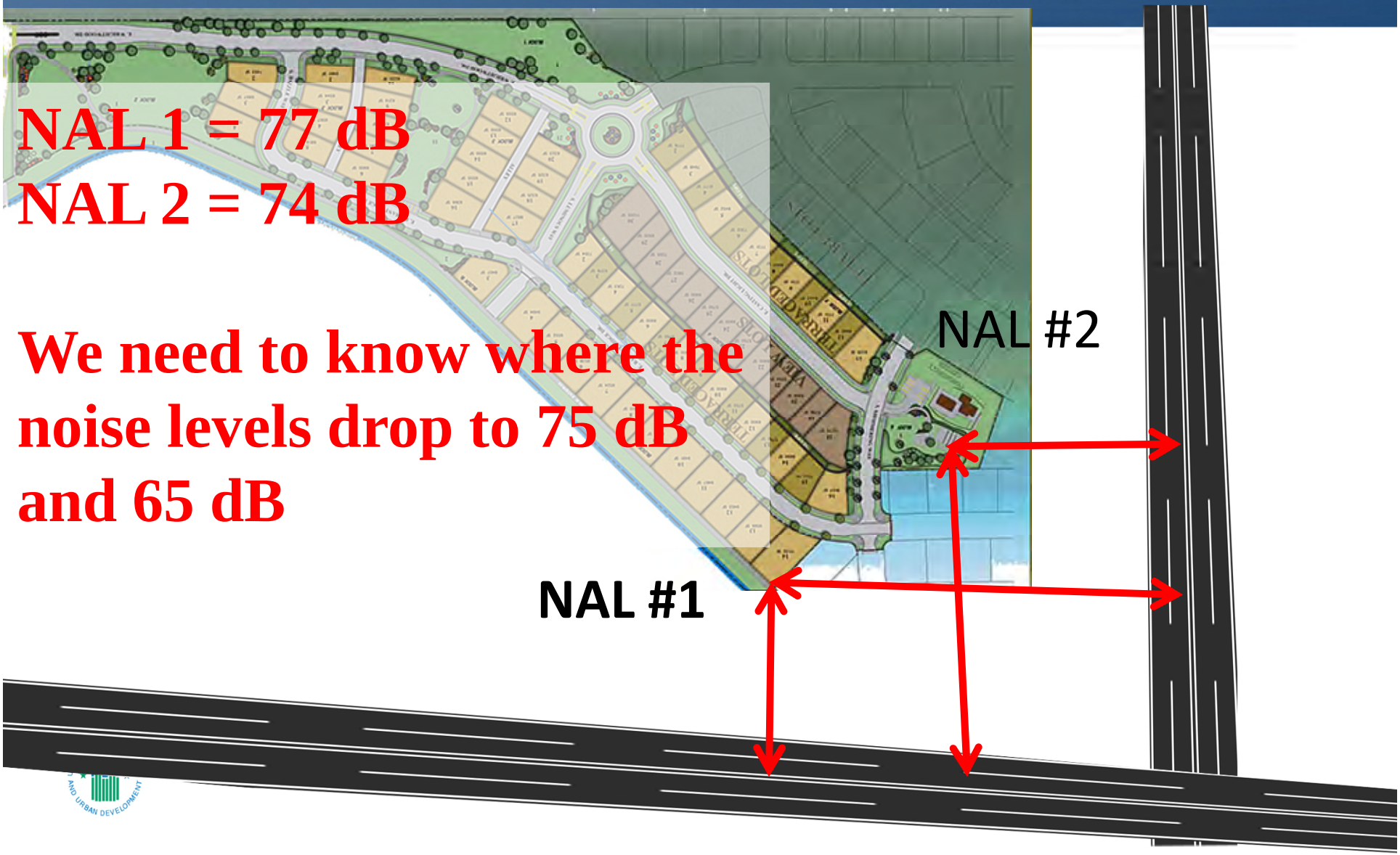
WHERE TO ASSESS NOISE
Noise Assessment Locations (NALs)

- 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



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

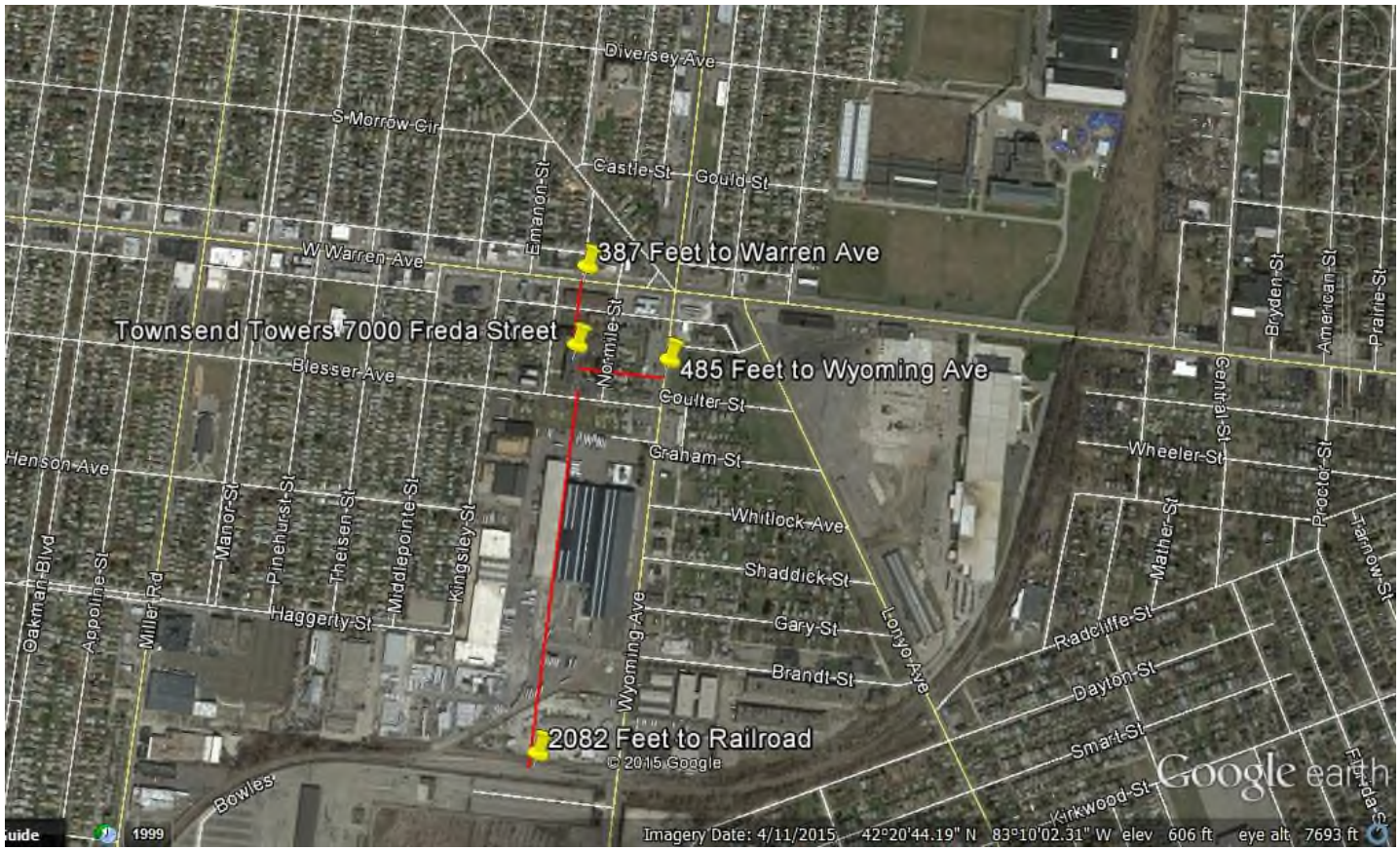
www.hudexchange.info/programs/environmental-review/dnl-calculator

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

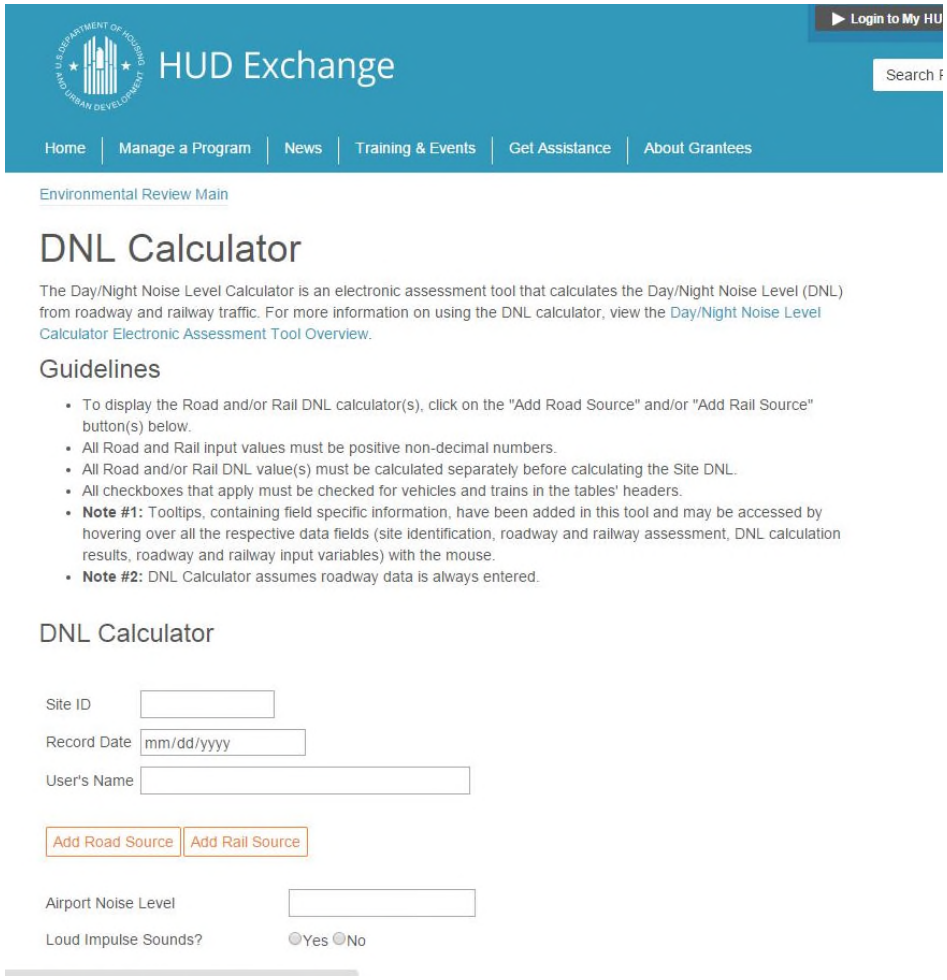


Summary Data : xxxx Freda Street, Dearborn, MI

- **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

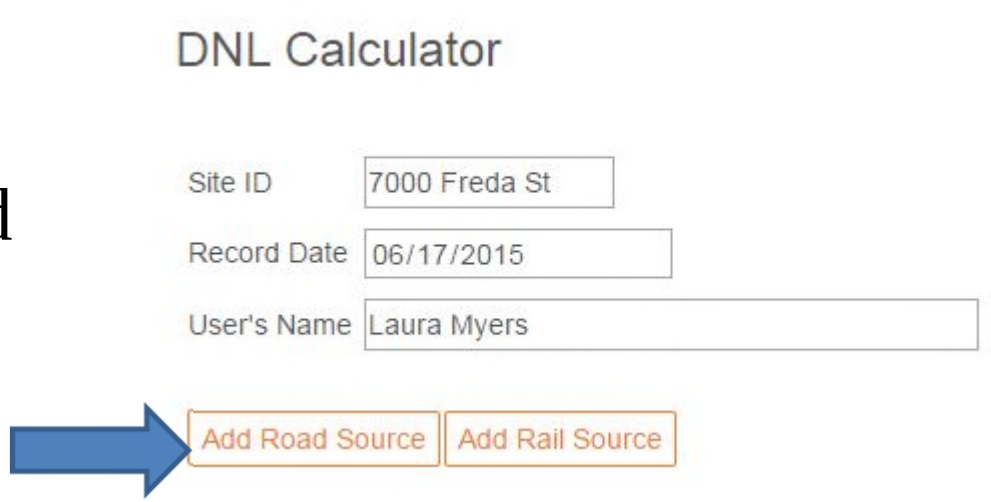
Go to DNL Calculator Website

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



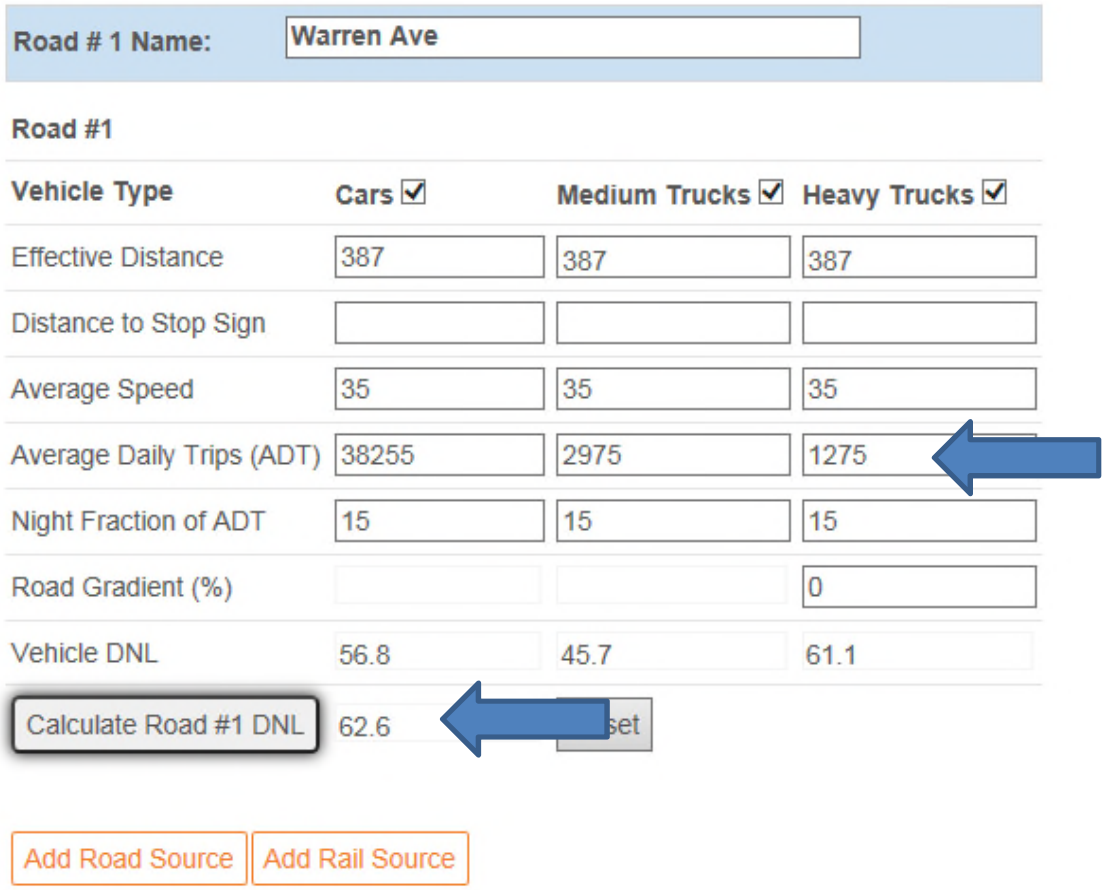
Add Road Source

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



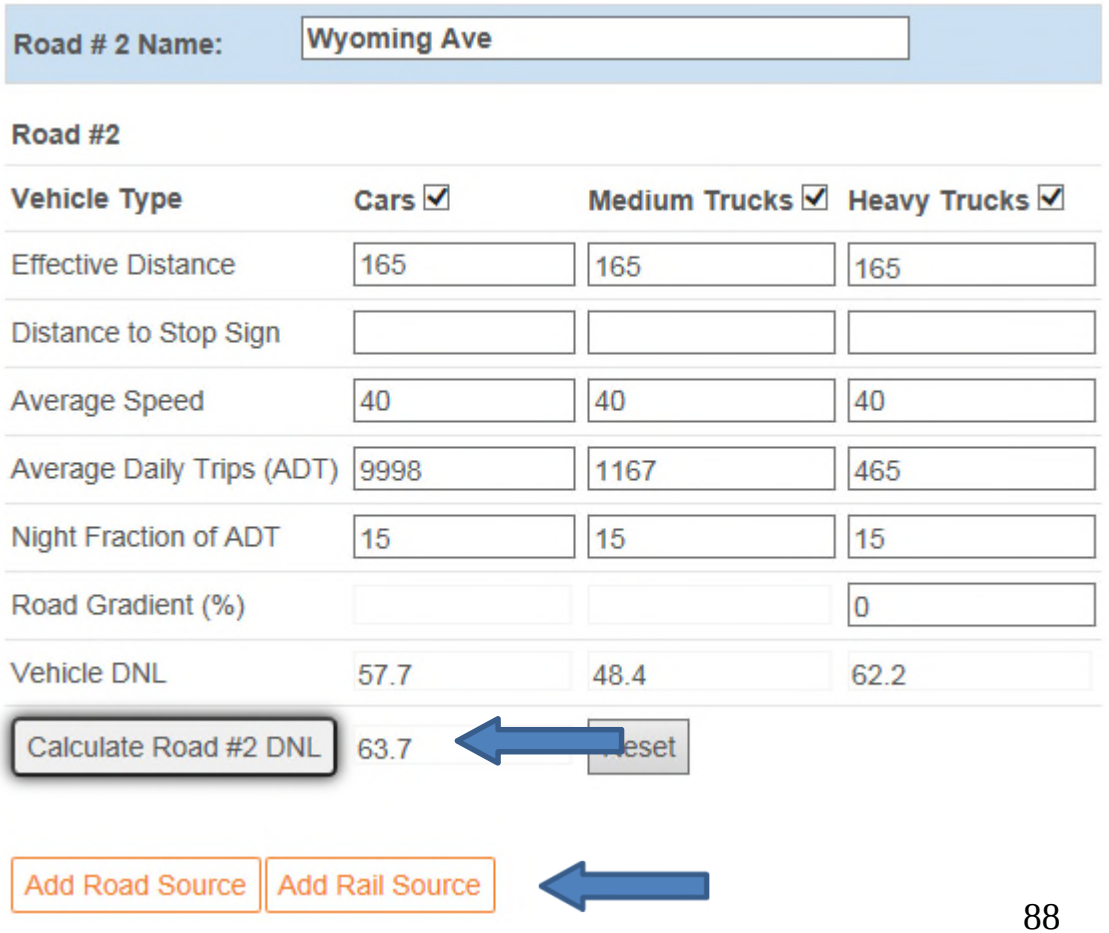
Calculate DNL for Road Source #1

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



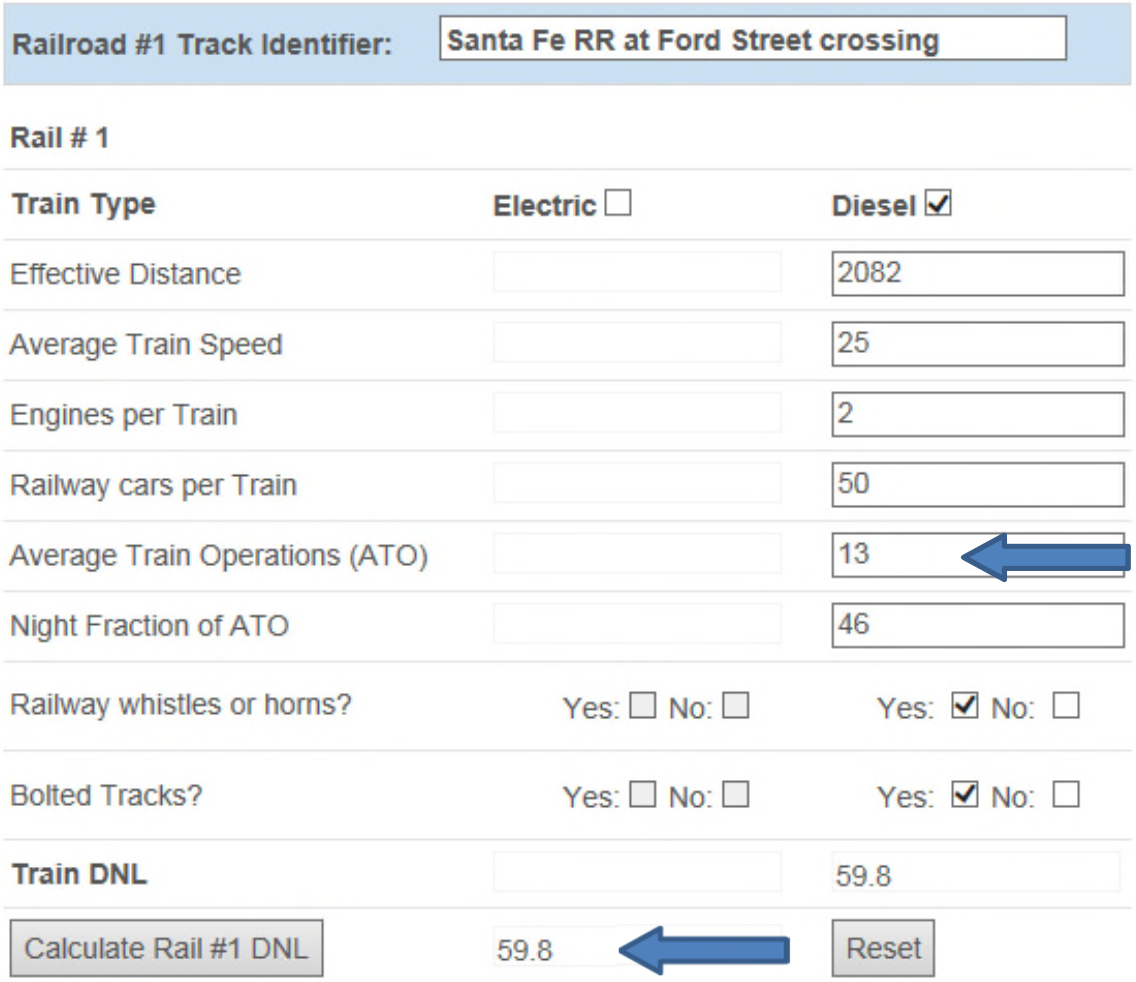
Calculate DNL for Road Source #2

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



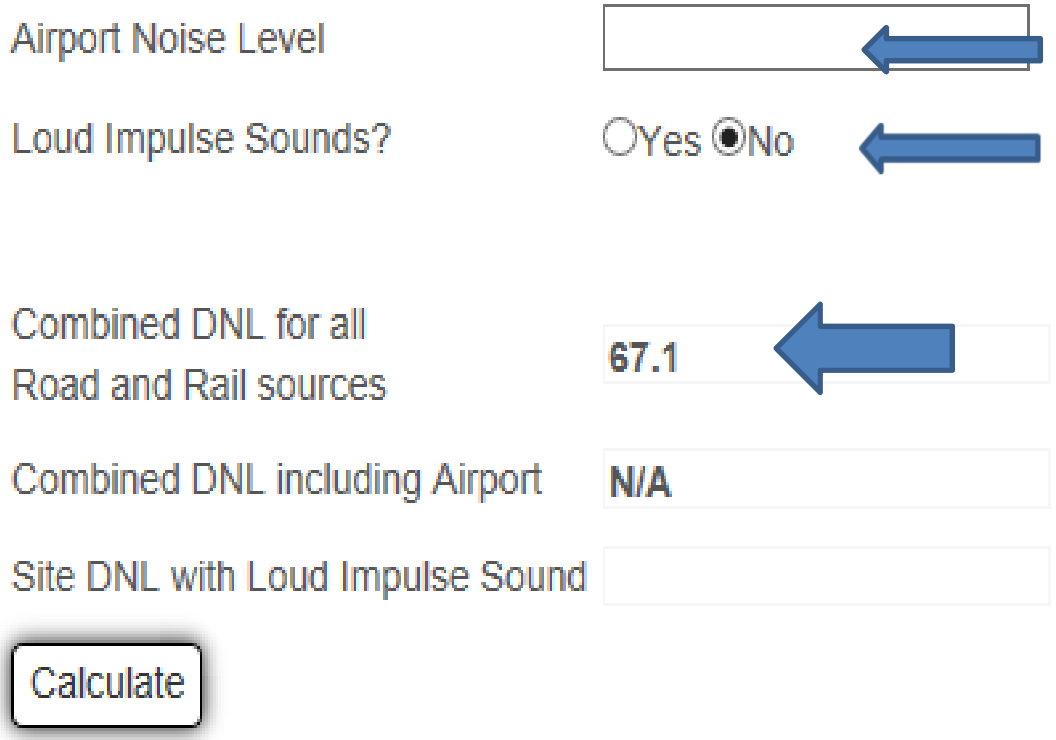
Calculate DNL for Railroad Noise Source

- Add railroad data
- Click on "Calculate Rail #1 DNL"



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?



Barrier Evaluation: What do you do?

Your Responsibility as HUD Staff or Responsible Entity

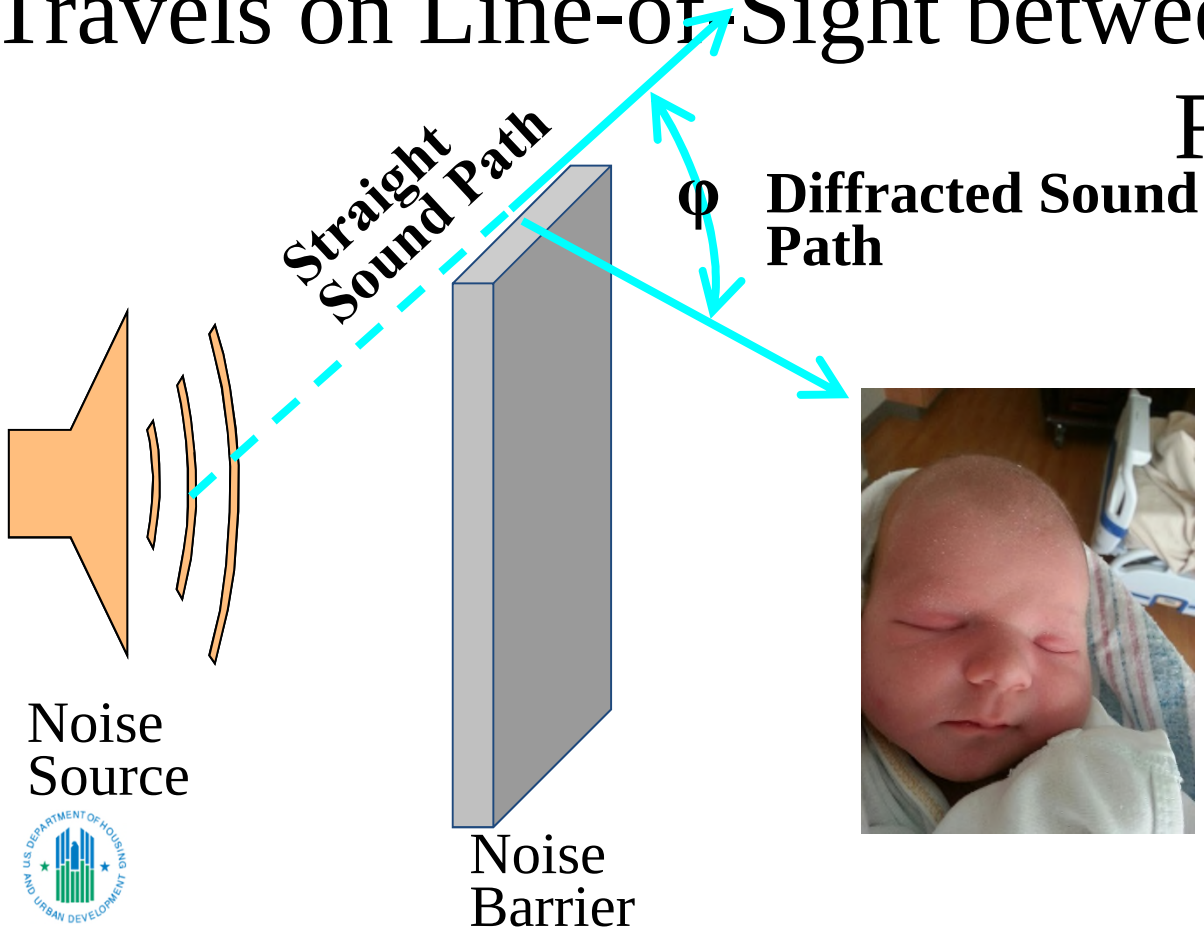
- Make Sponsor or Developer Aware of the Attenuation Requirements
- Make Decision-makers Aware of the Options Available
- Review Attenuation Proposals to Assure They are Adequate

What Don't You Do?

It Is ***Not*** Your Responsibility to Design Barriers

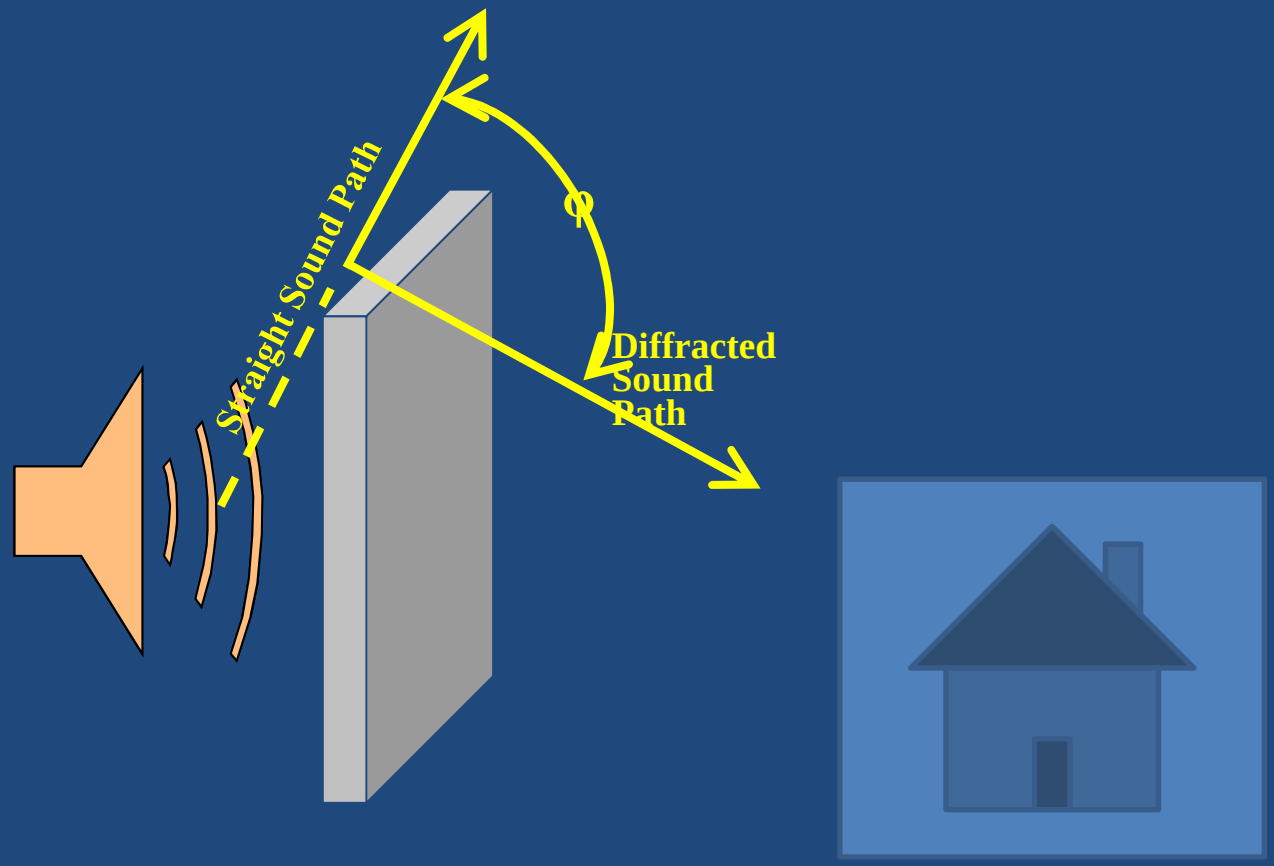
How Do Barriers Work?

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



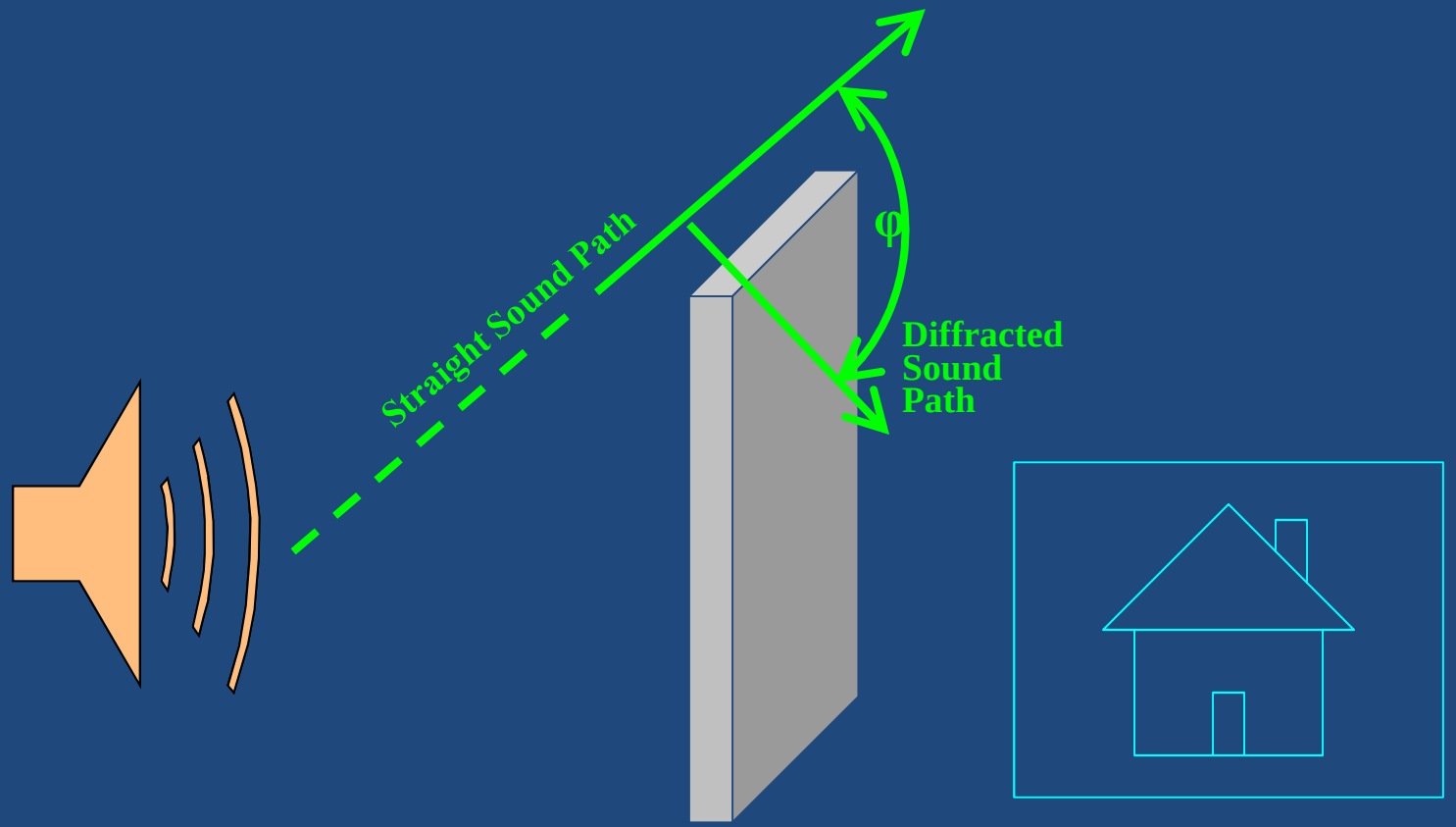
How Do You Make Barriers More Effective?

Move the Barrier Closer to the Source:



Larger Diffraction Angle (φ) means Better Attenuation

Make the Barrier Higher near the Receiver :

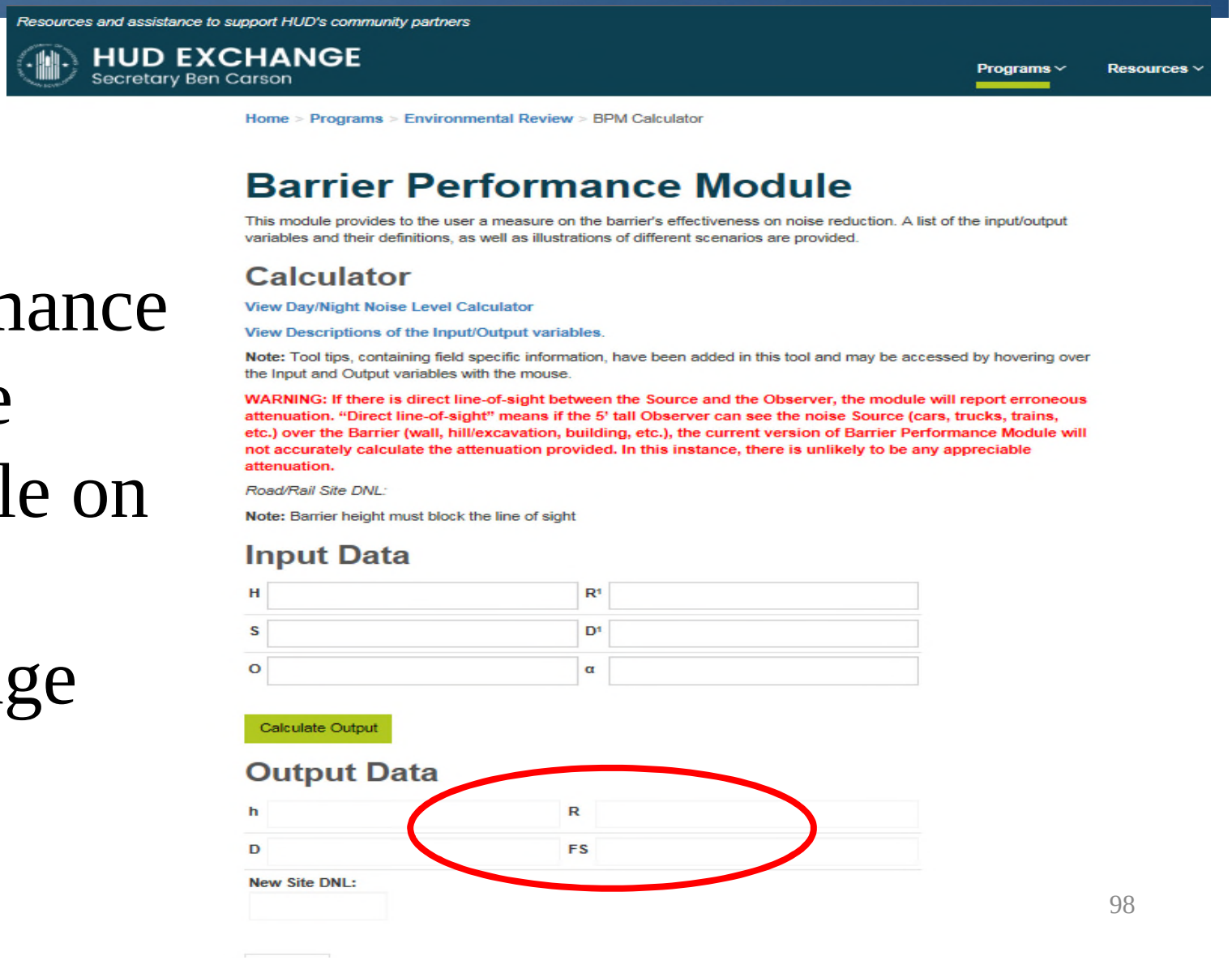


Important Points

- 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

Barrier Performance Module available on HUD Exchange



5. HUD Makes a Finding Based on DNL

Noise Standards:

- **Acceptable** Range: ≤65 dB= **Approve projects as proposed**
- **Normally Unacceptable** Range: 65 dB ≤75 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 Accoustical 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)]

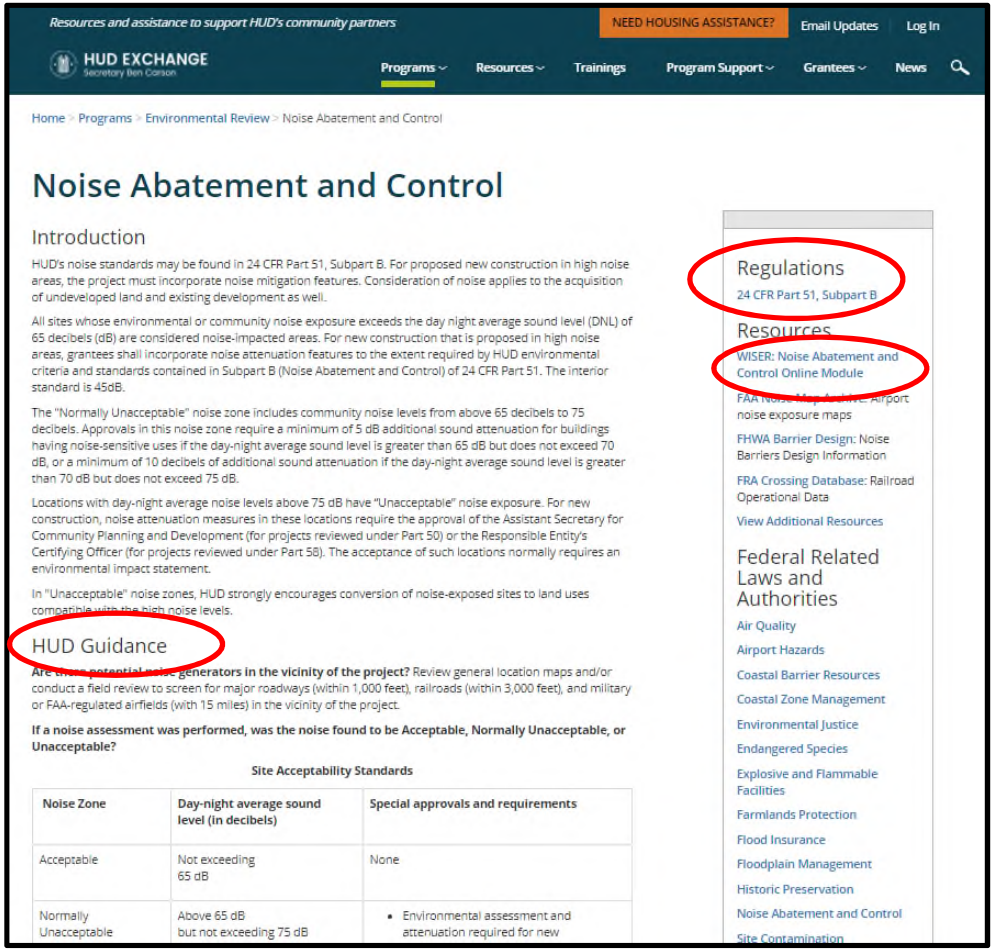
- *An EIS is required* prior to the approval of projects with unacceptable noise exposure (> 75 dB)
- EIS's must be conducted in accordance with CEQ's NEPA regulations - 40 CFR Part 1500-1508
- Completion of EIS must come before the RE approves project

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 Ben Carson

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 Archive: 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