



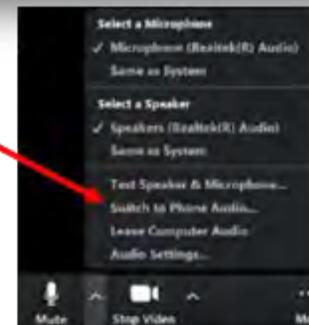
24 CFR 51B – Noise Assessment for Multifamily and Healthcare FHA Applications

August 20, 2020 1 – 3 PM EST

- Dial in number: 1-929-205-6099 | Webinar ID: 252-932-064
- Presenters:
 - Zach Carter, Environmental Protection Specialist, Office of Environment & Energy
 - Sara Jensen, Program Environmental Clearance Officer, Office of Housing
- TA Provider: Enterprise Advisors, Enterprise Community Partners, Inc.

Welcome

- The webinar will begin promptly at 1pm EST and will be recorded.
- All attendees will be muted.
- Please use the Q&A panel on the bottom of your screen to ask questions. The Chat option will be disabled.
- For best audio quality, please listen to the webinar via phone line by using the dial-in number provided.
- To switch from computer audio to phone audio, follow these steps and enter your participant ID.



Training Objectives

- Document and prepare noise submissions in support of applications for Multifamily and Office of Residential Care FHA programs that more fully address regulatory requirements and avoid processing delays.
- Comply with specific Multifamily Accelerated Processing (MAP) Guide and 232 Handbook requirements



Agenda

- Background and overview of HUD noise requirements
- How to evaluate noise for Multifamily and Office of Residential Care FHA applications
- Noise mitigation
- Unacceptable Zone Special Processing– Environmental Impact Statements, Waivers, Special Approval of site and mitigation
- Policy updates and Frequently Asked Questions



The background image shows several pieces of automotive noise measurement equipment. In the foreground, there are three circular sensors: a yellow one on the left with 'PULTECH OPTIM' and 'CE EN 122' printed on it, a black one in the center with 'PULTECH' visible, and a red one on the right. A black cable with a microphone-like tip is positioned above the sensors. The entire scene is dimly lit and has a dark grey overlay.

Background

Overview of HUD Noise Requirements

Ambient noise levels may impact occupants of noise-sensitive residential and healthcare developments in various ways, including:



Impact on health/sleep



Hearing loss



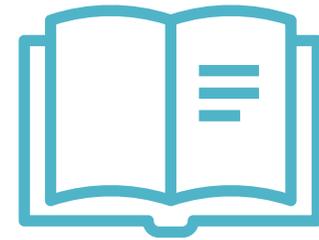
Activity interruption



Annoyance

24 CFR 51B

To address noise impacts, HUD policies at 24 CFR 51B require - in HUD assisted projects – the evaluation of ambient noise levels and use of this information in land use planning, project design, and/or attenuation.



How Loud is Loud?

Rustling Leaves=10 dB



Whisper=20 dB



Soft Radio Music=40 dB



Range of Speech=48-72 dB

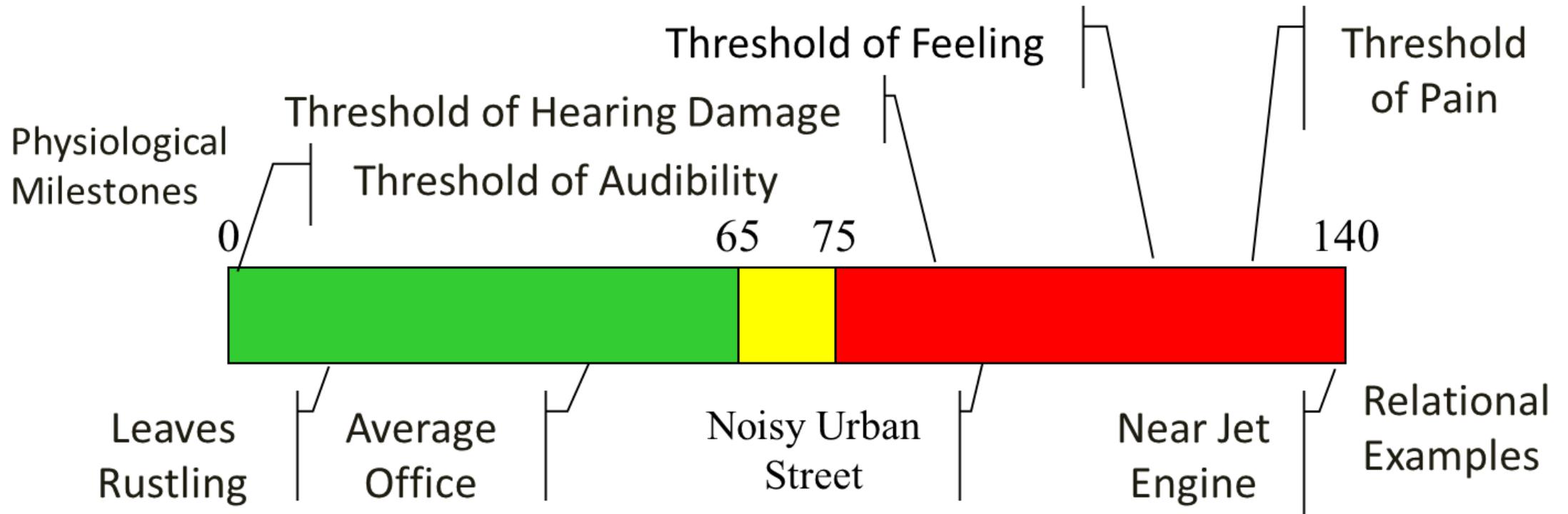


Noisy Urban Street=90 dB



Loud Horn at 10 ft.=100 dB





Noise impact thresholds vs. relational examples

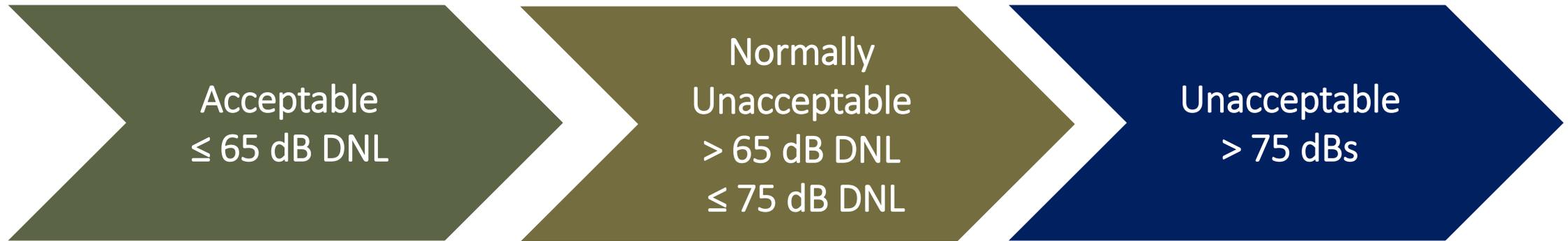


How is Noise Evaluated?

HUD uses Day-Night Level (DNL) Noise Descriptor



HUD site acceptability criteria based on noise level



Goal for indoor living and sleeping spaces: 45 dB DNL

- Standard for outside of building where people sleep: 65 dB DNL
- HUD's noise regulation assumes that if level outdoors is 65 dB DNL, with standard construction this will result in desired 45 dB interior goal

Also, HUD requirement for outdoor areas where quiet is needed: 65 dB DNL

- Not all outdoor recreational uses require quiet – evaluated case by case

HUD noise standards for proposed buildings where people sleep or outdoor quiet spaces:



For a deeper dive into basis for these levels:

2019 Noise Levels Research Synthesis Project

Synthesized findings from recent research on the adverse effects of noise

Compared the findings to those of the Levels Document

Made recommendations for further interagency research

Available at

<https://rosap.ntl.bts.gov/view/dot/49247>

Noise Levels Research Synthesis

Review and Updates to Findings in *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*

Final Report — July 2019



HUD Noise Policy

New Construction and Conversion of Non-Residential to Residential Use

- Normally unacceptable zones = requires mitigation
- Unacceptable zones = not allowed without EIS or waiver (24 CFR 51.101(a)(3))

Sub rehab/221d4 rehab/Environmental Assessment level rehab

- For sites over 65 DNL, HUD actively seeks to incorporate attenuation
- ERR includes documentation of attenuation level using Barrier Performance Module or STraCAT

Modernization/CEST rehab/223f rehab

- Noise level is not calculated
- Noise screening – if noise sources present in search distances, HUD encourages attenuation if feasible w/in scope



Types of mitigation / noise attenuation

Site design/site reconfiguration to create additional distance/shielding from noise



Can be used to protect outdoor spaces that require quiet

Utilize barrier to shield property from noise



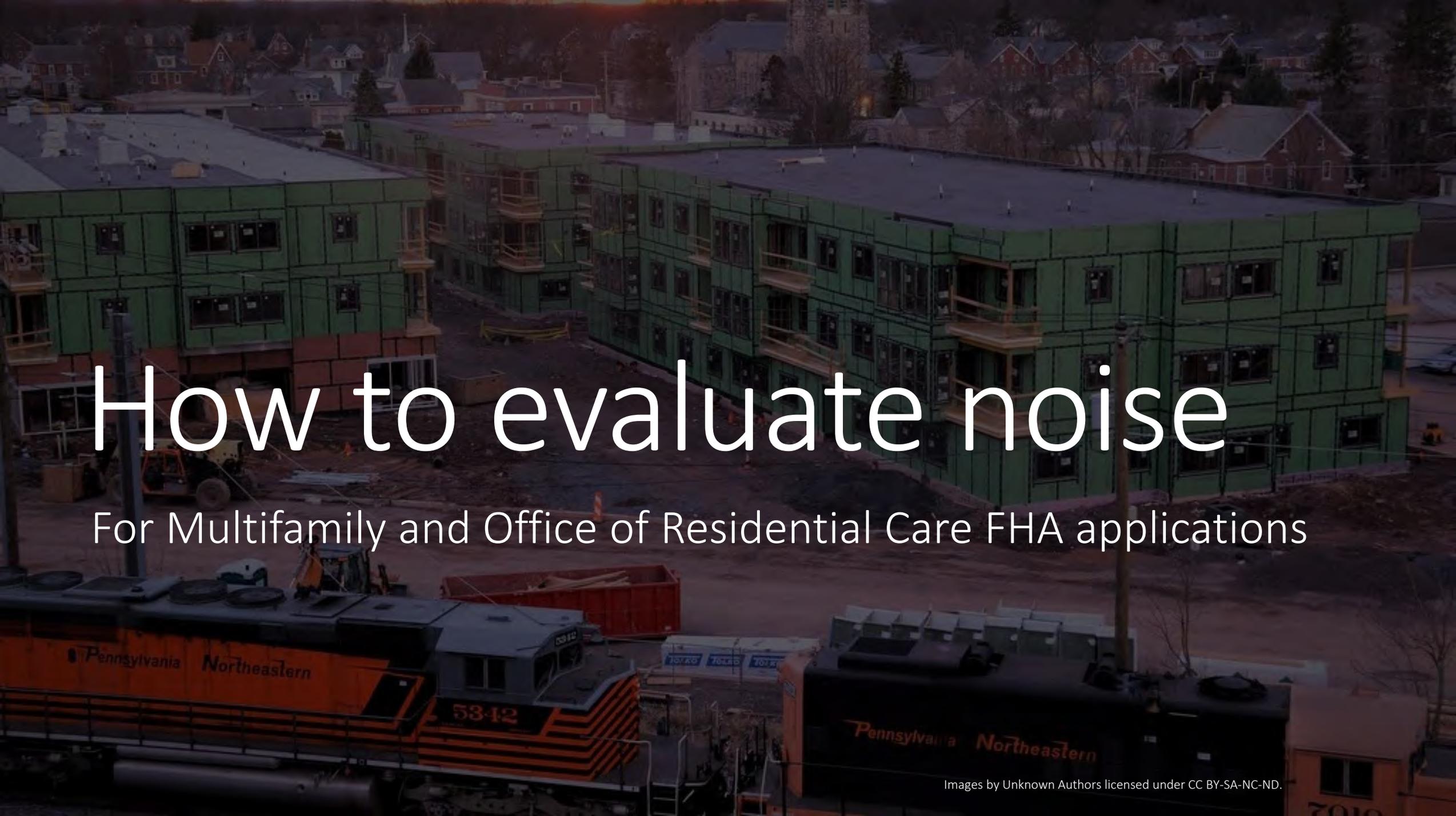
Can be used to protect outdoor spaces that require quiet

Incorporate additional attenuation in structures



Does not protect outdoor spaces that require quiet





How to evaluate noise

For Multifamily and Office of Residential Care FHA applications

Evaluating Noise Impacts and Compliance

1. Screening noise sources within required search distances from project

2. Noise assessment

- Data collection
- Designation of noise assessment location(s)
- Confirmatory site visit

3. Calculation of noise level(s)

4. Classify site according to noise level



Screening: Is the project w/in search distance of a noise source that requires evaluation?

Search distances:

15 miles of a civil or military airport?

3000 feet of a railroad

1000 feet of a noise-contributing roadway?

No sources present = compliance is documented.



Poll 1

Which of the following activities does not require a full noise calculation in HEROS?

- A. New Construction and Conversion to Residential (environmental assessment)
- B. Substantial rehabilitation (environmental assessment)
- C. Refinance and rehabilitation (categorically excluded subject to related laws and authorities including noise abatement)



Completing the HEROS Noise Screen

HEROS prompts change depending on the activities and level of review:

- 223(f)/CEST level of rehab requires screening for noise sources, and if sources are present, evaluation of attenuation measures feasible within scope of rehab, but not calculation of noise level
- 221(d)(4)/EA level of rehab requires both screening for noise sources and a noise calculation, and project may be rejected if attenuation is not feasible

HUD encourages noise attenuation features for rehabilitation projects and strongly encourages them for substantial rehabilitation projects



Noise Screen: 223(f) with Rehabilitation (CEST)

2085 - Noise Abatement and Control (50/58)		Project Name: Sample-Review-
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		
<p>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.</p>		
<p>1. What activities does your project involve? Check all that apply:</p> <p><input type="checkbox"/> New construction for residential use</p> <p><input checked="" type="checkbox"/> Rehabilitation of an existing residential property NOTE: For modernization projects in all noise zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details. The definition of "modernization" is determined by program office guidance.</p> <p><input type="checkbox"/> A research demonstration project which does not result in new construction or reconstruction</p> <p><input type="checkbox"/> An interstate land sales registration</p> <p><input type="checkbox"/> 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</p> <p><input type="checkbox"/> None of the above</p>		
<input type="button" value="Next"/>		



Noise Screen: 223(f) with Rehabilitation (CEST)-2

2. Do you have standardized noise attenuation measures that apply to all modernization and/or minor rehabilitation projects, such as the use of double glazed windows or extra insulation?

Yes

No

3. 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).

Describe findings of the Preliminary Screening:

Project is not within 3000 feet of a railroad. The project is adjacent to Highway 240. The closest units are 180 feet from the highway median. The project is 5.4 miles from Greenfield airport. Uploaded map with distances marked.

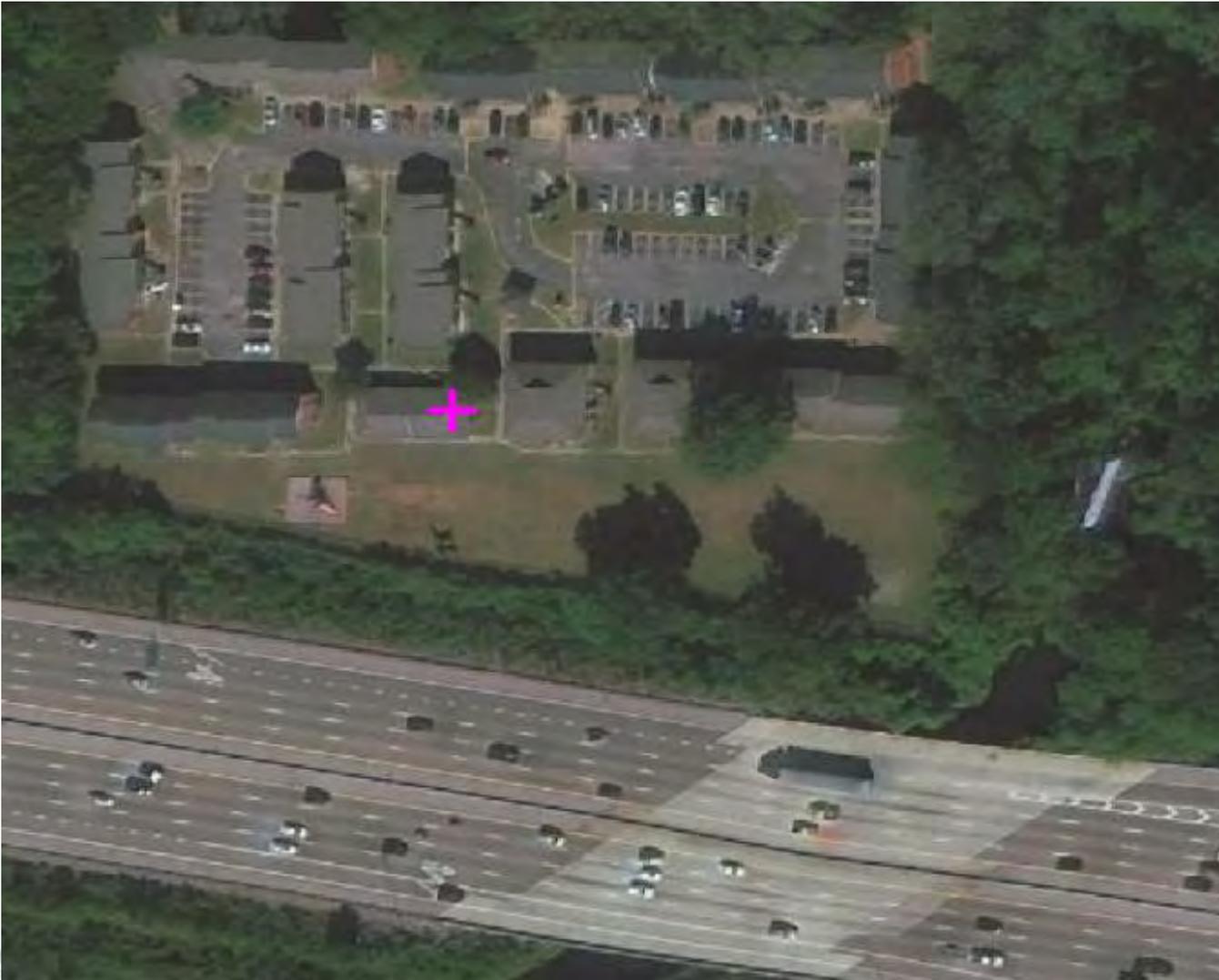
6. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review.

Mitigation as follows will be implemented:

No mitigation is necessary.

Next

Noise Screen: 223(f) with Rehabilitation (CEST)- 3



Proposed Scope of Work:

- Upgrade kitchen cabinets
- Replace Roofing in three buildings
- Replace windows in all units
- Resurface and repaint parking lots

Noise Screen: 221(d)(4) Major Rehab (EAs)

Noise generators were found within the threshold distances.

5. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:

Acceptable: (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))*

Indicate noise level here (in dB):

Upload noise analysis, including noise level and data used to complete the analysis, in the Screen Summary at the conclusion of this screen.

Unacceptable: (Above 75 decibels)

6. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation. This information will be automatically included in the Mitigation summary for the environmental review.

Mitigation as follows will be implemented:

No mitigation is necessary.

Next



Noise Screen: 221(d)(4) New

- 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

A Noise Assessment was conducted. The noise level was normally unacceptable: 68.0 db. See noise analysis. The project is in compliance with HUD's Noise regulation with mitigation.

Supporting documentation

Upload all supporting documents required in this section here:

[Upload File](#)

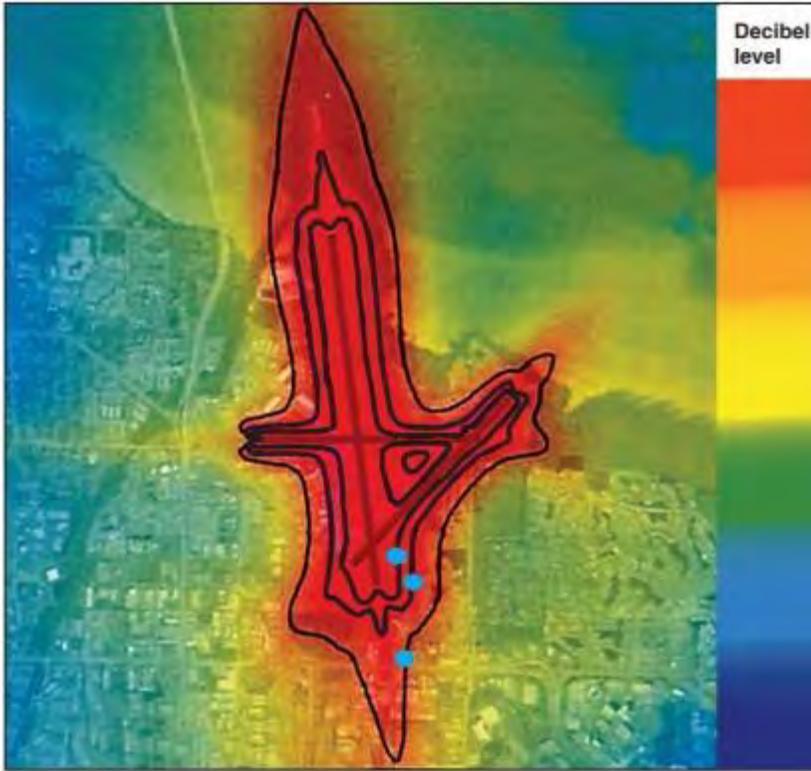
- DNL calculations.docx ✘
- noise map.docx ✘
- noise mitigation plans.docx ✘

Are formal compliance steps or mitigation required?

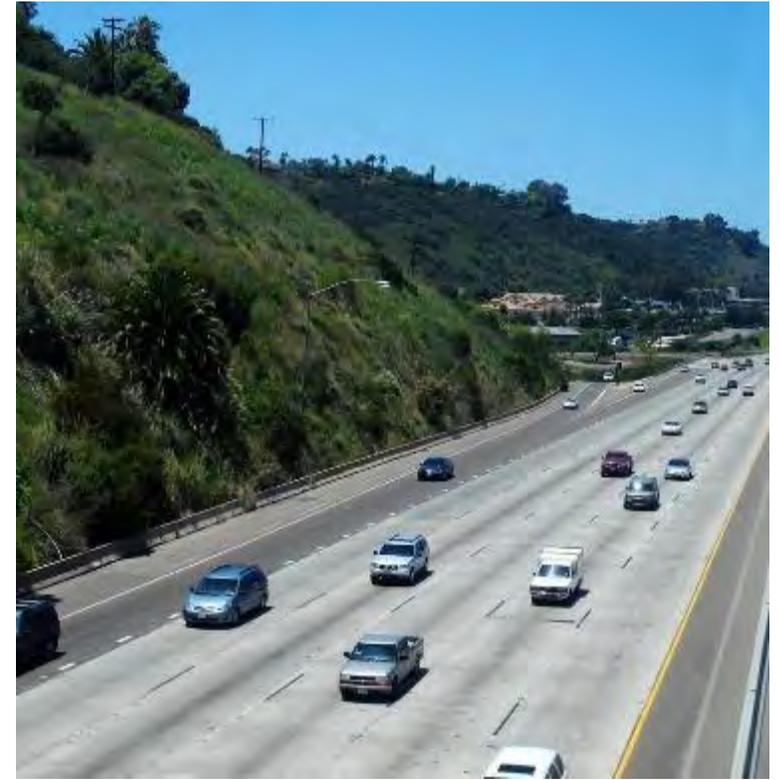
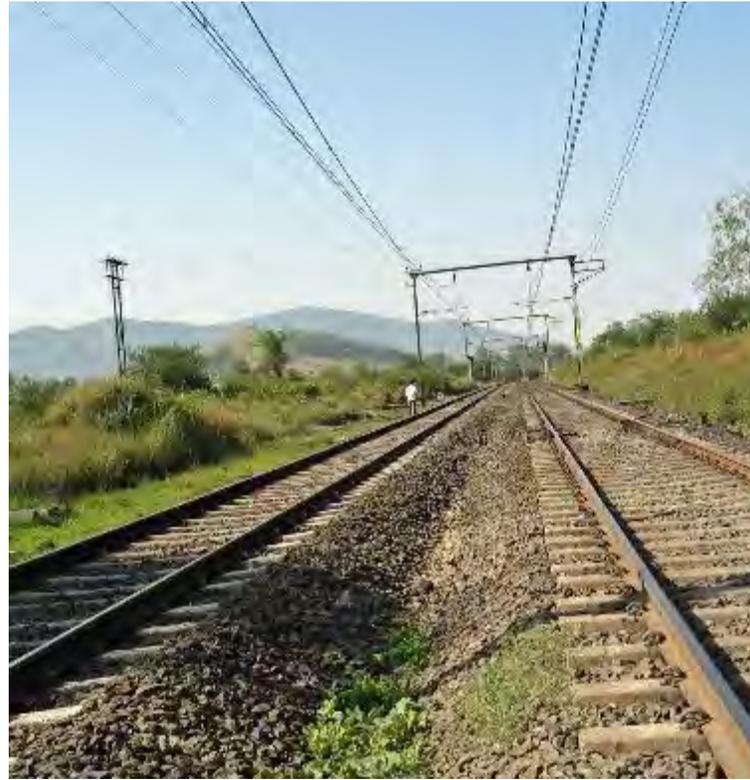
Only Responsible Entity (for Part 58) or HUD (for Part 50) Users may respond to this question. Ensure that this question is complete before finalizing the review.

- Yes
- No





Source: Wyle Aviation Services.



Noise assessment - data collection



Poll 2

Which type of road within 1,000 feet of the project site does not have to be analyzed in the HUD noise assessment?

- A. Interstate and other highways or large roads for which data is available
- B. Small roads for which traffic data is available
- C. Roads for which data is not available based on a web search
- D. Small roads for which data is not available, as confirmed by state/local road planners



Which roads require evaluation?

Roads within 1,000 feet from the project site boundary, for which data is available.

- Before concluding that data is not available for a local arterial or other noise contributing road project must contact state or local planning agencies. If answers are unclear, check in with regional project contact
- Smaller local roads may require evaluation in special circumstances, for example, when they lead to an industrial use and handle heavy trucks



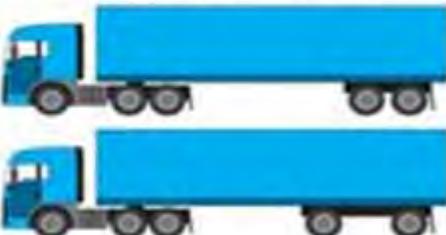
Roadway Noise Sources

Contact State DOT, city or county transportation agency, or regional planning agency to obtain:

- Annual Average Daily Traffic (AADT)
- Percentage breakdown of automobiles, medium trucks, and heavy trucks
- Traffic projections needed for minimum of 10 years from proposed occupancy
- Percentage nighttime use (by class if possible)



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>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



Roads - details included in the data

- Average Annual Daily Traffic (AADT) counts should be broken down into vehicle classification when available
- Classifications include automobiles and light trucks (one category), medium trucks from 10,000 - 26,000 lbs with two axles, and heavy trucks over 26,000 lbs with three or more axles and full-length buses
- Where highway AADT is presented as a number of automobiles with a single “truck” percentage, this number must be treated as classifying heavy trucks



Data currency

Current = within 3 years prior to date of application

If more current data available, should be used

If only data more than 3 years old is available, then document request for more current data from:

- State level DOT or planning agency*
- Local DOT, MPO or planning agency*
- HUD MF/HC point of contact, who can loop in subject matter experts as needed*

If new data from the same agency is issued during HUD review, HUD may update noise assessment using new data up to point of Approving Official ERR signature.

Traffic Data Examples

Each state manages its own traffic data

Local metropolitan planning orgs may also have data

Important to use both online tools and transportation agency staff contacts to verify most current and accurate sources, particularly for future projections



Projecting Future Traffic Counts

Traffic volumes used in HUD noise assessments must be projected 10 years in the future, counting from the date of application (date HEROS assigned to HUD)

HUD prefers official 10-year projections by transportation agency

Future projections must also take into account plans for noise source expansion or development during next 10 years (E.g., planned highway expansion)

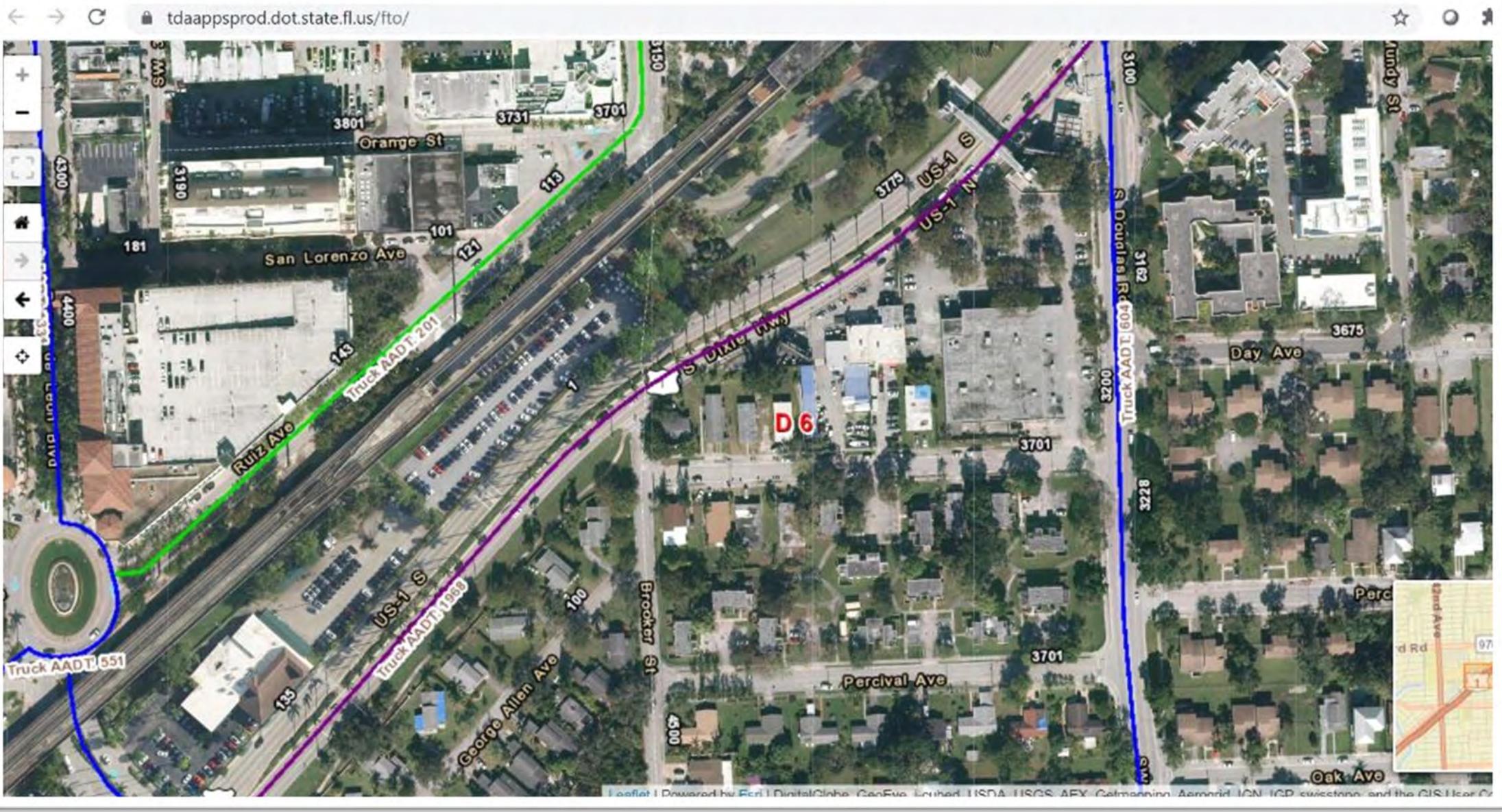


Projecting Future Traffic Counts (cont.)

If no projections from transportation agency are available online and upon request, estimates based on historic trends may be used, but...

Transportation agency projections will be much better!

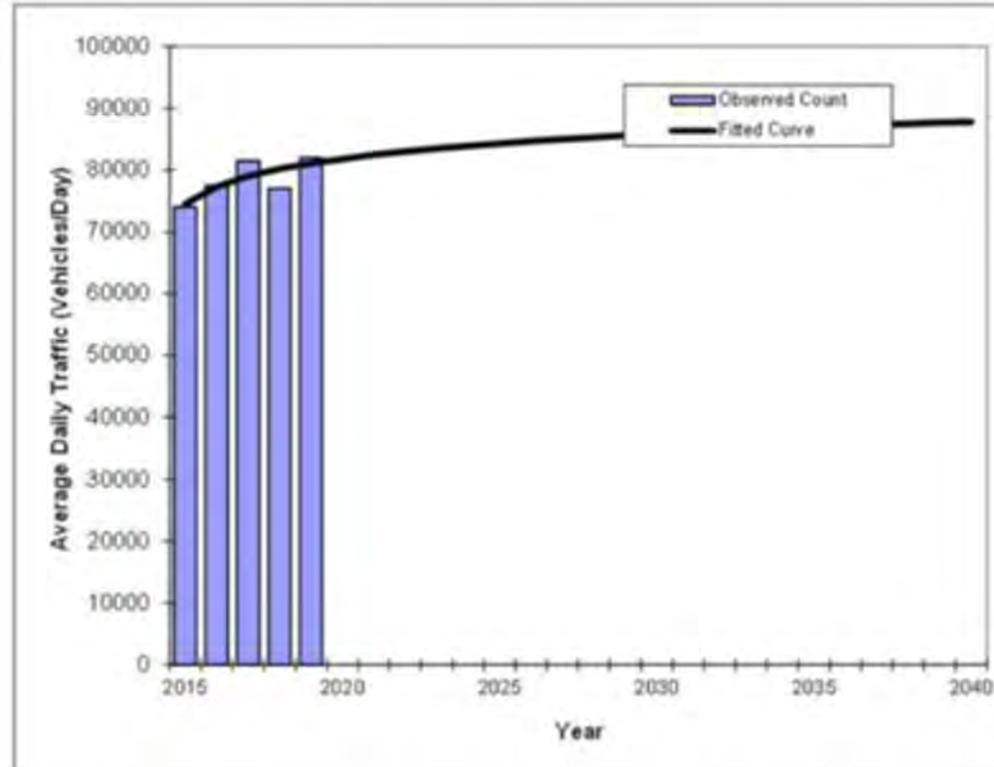




Email from
planning
agency (state
DOT)

Good morning all,

According to the latest traffic volumes in subject area is expected that the Compounded Growth Rate will be approx. **0.38 %**. Please note that this rate is subjected to change.



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2015	74000	74500
2016	77500	77300
2017	81500	79000
2018	77000	80200
2019	82000	81100

Trend R-squared: 60.96%
 Compounded Annual Historic Growth Rate: 2.14%
 Compounded Growth Rate (2019 to Design Year): **0.38%**
 Printed: 16-Jun-20
Decaying Exponential Growth Option

2030 Opening Year Trend		
2030	N/A	85900
2031 Mid-Year Trend		
2031	N/A	86100
2040 Design Year Trend		
2040	N/A	87800
TRANPLAN Forecasts/Trends		

*Axis-Adjusted

Thanks,



Excel forecast

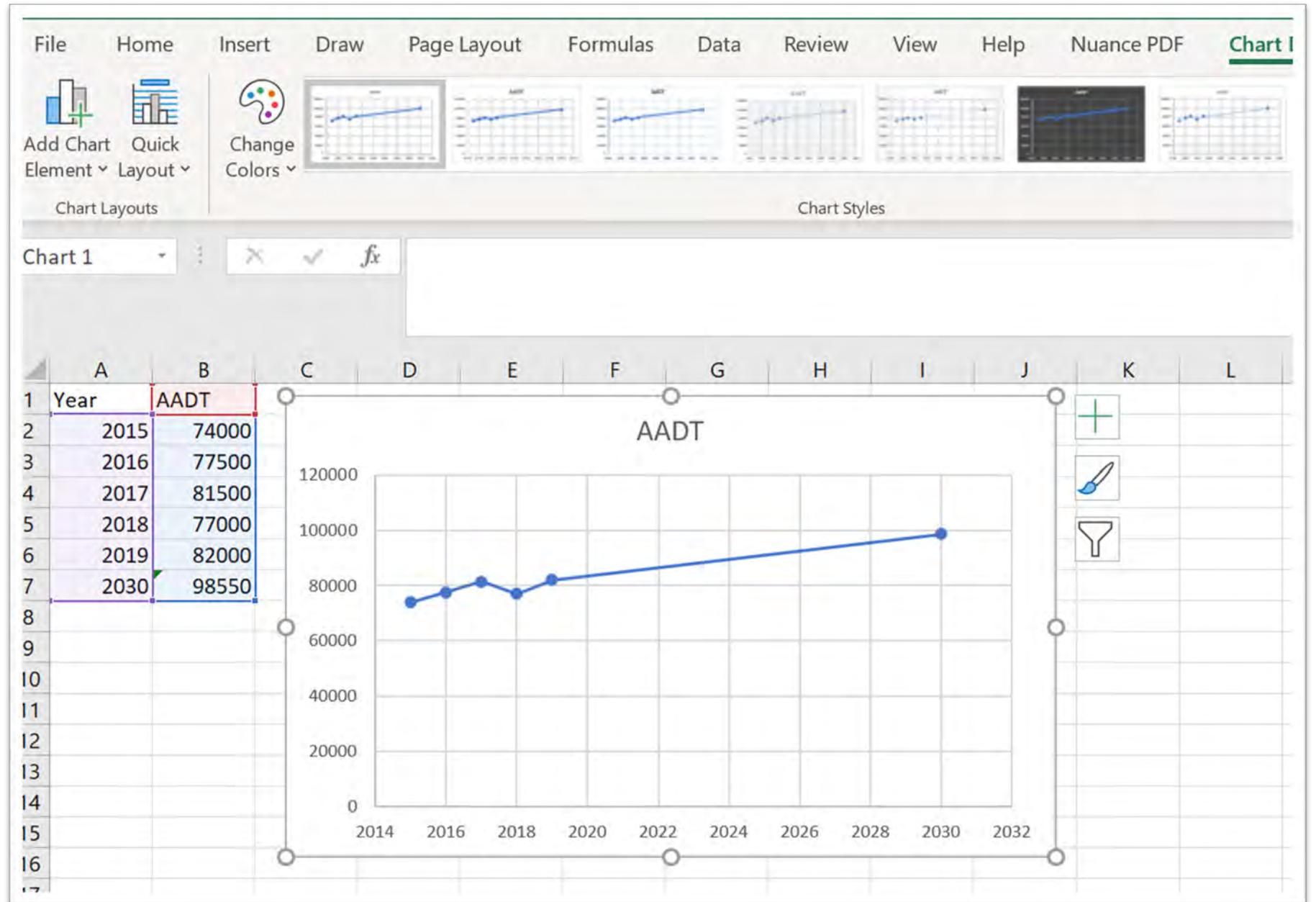
The screenshot shows the Microsoft Excel interface with the following details:

- File Name:** Book1 - Excel
- Active Tab:** Home
- Formula Bar:** B7, `=FORECAST.LINEAR(2030, B2:B6, A2:A6)`
- Spreadsheet Data:**

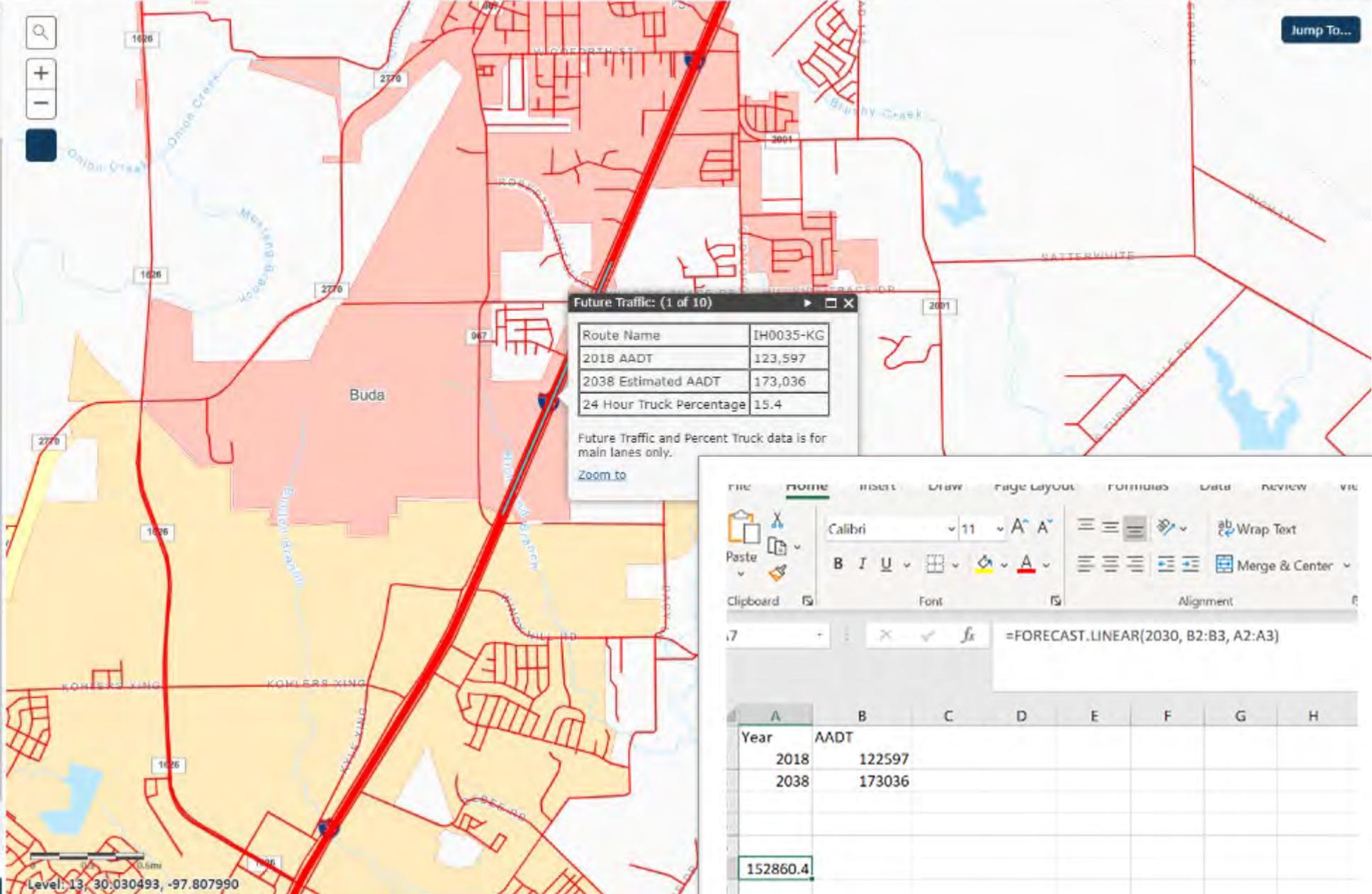
	A	B	C	D	E	F	G	H
1	Year	AAADT						
2	2015	74000						
3	2016	77500						
4	2017	81500						
5	2018	77000						
6	2019	82000						
7		98550						
8								
9								
10								
11								



Excel forecast (cont.)



- Open Street Map
- Overlays**
- Clear Overlays
 - AADT
 - Area Offices
 - Bridges
 - Cemeteries
 - Control Sections
 - Councils of Governments (COG)
 - Connectivity Corridors
 - Congestion (Base Year)
 - Congestion (Forecast Year)
 - Energy Sector Corridors
 - Freight Network (FHWA)
 - Freight Network (TxDOT)
 - Functional Classification & Urban Areas
 - Future Traffic & Percent Truck
 - Highway Designations
 - Hurricane Evacuation Routes
 - Maintenance Section Routes
 - Memorial Highways
 - Metropolitan Planning Organizations (MPO)
 - National Highway System
 - Non-Attainment Areas
 - Permanent Count Stations
 - Projects - Construction underway or begins soon
 - Projects - Construction begins within 4 years
 - Projects - Construction begins in 5 to 10 years
 - Projects - Corridor Studies, construction in 10+ years
 - Railroads
 - Reference Markers
 - Regional Mobility Authorities (RMA)
 - Roadway Inventory - On-System Roadbeds
 - Shale Plays and Basins
 - Speed Limits
 - State House Districts
 - State Senate Districts
 - Strategic Highway Network (STRAHNET)
 - Texas Trunk System & Urban Areas
 - Tolls
 - Tolls (Future & Proposed)
 - Top 100 Congested Roadways
- Download Data



Microsoft Excel interface showing a formula and data table:

Formula: `=FORECAST.LINEAR(2030, B2:B3, A2:A3)`

Year	AAADT
2018	122597
2038	173036
	152860.4



Vehicle
classification
– Medium
Truck = 2%

3	Location ID	MS276	Located On	IH 35		Community	Buda										
4	Counted By	TCDS_Combined	Between			County	Hays										
5	Start Date	9/29/2016	And			Module											
6	Start Time	12:00:00 AM	Direction	2-WAY		Agency	Texas DOT										
7	Source	Syst_Combine	QC Status	Accepted		Owner ID	Bertha.Arellano										
8																	
9																	
10	FHWA-Scheme F Classification																
11	Start Time	Motor cycle	Car	Light Truck	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	14	15	Total
12	12:00 AM	3	714	230	3	24	6	1	18	570	1	40	6	0	0	0	1616
13	1:00 AM	3	445	150	7	24	11	0	17	505	0	35	9	0	0	0	1206
14	2:00 AM	1	341	112	3	26	7	0	16	449	0	37	12	0	0	0	1004
15	3:00 AM	0	335	114	7	42	9	0	21	411	0	42	11	0	0	0	992
16	4:00 AM	0	681	279	7	49	13	0	18	500	0	41	13	0	0	0	1601
17	5:00 AM	8	2561	1155	13	102	25	1	26	499	0	21	6	0	0	0	4417
18	6:00 AM	11	4587	2101	8	106	57	5	28	408	0	9	4	0	0	0	7324
19	7:00 AM	13	4730	1676	11	120	49	12	19	311	3	9	2	0	0	0	6955
20	8:00 AM	19	4222	1594	3	161	38	4	42	411	9	7	0	0	0	0	6510
21	9:00 AM	12	3693	1422	9	178	40	13	48	573	3	10	7	0	0	0	6008
22	10:00 AM	17	3682	1382	6	199	52	8	51	665	6	5	1	0	0	0	6074
23	11:00 AM	9	3663	1309	8	147	53	9	47	562	12	3	0	0	0	0	5822
24	12:00 PM	16	3447	1217	4	152	55	11	40	572	19	5	3	0	0	0	5541
25	1:00 PM	16	4164	1390	16	144	64	14	45	624	25	1	1	0	0	0	6504
26	2:00 PM	16	4772	1568	6	176	53	20	38	641	15	1	0	0	0	0	7306
27	3:00 PM	22	4977	1704	20	184	56	12	34	573	15	4	2	0	0	0	7603
28	4:00 PM	18	5874	1709	14	177	49	12	19	488	7	3	1	0	0	0	8371
29	5:00 PM	24	6180	1814	10	126	41	3	34	391	2	0	1	0	0	0	8626
30	6:00 PM	40	5557	1810	5	87	27	0	37	449	6	7	1	0	0	0	8026
31	7:00 PM	18	4387	1322	8	101	20	0	31	521	5	10	1	0	0	0	6424
32	8:00 PM	3	3522	892	8	63	15	0	20	560	0	13	3	0	0	0	5099
33	9:00 PM	3	2650	665	7	30	10	0	23	319	0	13	1	0	0	0	3721
34	10:00 PM	2	2026	547	11	35	8	0	13	325	0	23	3	0	0	0	2993
35	11:00 PM	1	1648	446	15	37	4	0	5	422	0	16	2	0	0	0	2596
36	TOTAL	275	78858	26608	209	2490	762	125	690	11749	128	355	90	0	0	0	122339
37																	
38																	
39																	



Vehicle
classification
– Heavy
Truck = 12%

2																		
3	Location ID	MS276		Located On	IH 35				Community	Buda								
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11		Motor		Light														
12	Start Time	cycle	Car	Truck	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	14	15	Total	
13	12:00 AM	3	714	230	3	24	6	1	18	570	1	40	6	0	0	0	1616	
14	1:00 AM	3	445	150	7	24	11	0	17	505	0	35	9	0	0	0	1206	
15	2:00 AM	1	341	112	3	26	7	0	16	449	0	37	12	0	0	0	1004	
16	3:00 AM	0	335	114	7	42	9	0	21	411	0	42	11	0	0	0	992	
17	4:00 AM	0	681	279	7	49	13	0	18	500	0	41	13	0	0	0	1601	
18	5:00 AM	8	2561	1155	13	102	25	1	26	499	0	21	6	0	0	0	4417	
19	6:00 AM	11	4587	2101	8	106	57	5	28	408	0	9	4	0	0	0	7324	
20	7:00 AM	13	4730	1676	11	120	49	12	19	311	3	9	2	0	0	0	6955	
21	8:00 AM	19	4222	1594	3	161	38	4	42	411	9	7	0	0	0	0	6510	
22	9:00 AM	12	3693	1422	9	178	40	13	48	573	3	10	7	0	0	0	6008	
23	10:00 AM	17	3682	1382	6	199	52	8	51	665	6	5	1	0	0	0	6074	
24	11:00 AM	9	3663	1309	8	147	53	9	47	562	12	3	0	0	0	0	5822	
25	12:00 PM	16	3447	1217	4	152	55	11	40	572	19	5	3	0	0	0	5541	
26	1:00 PM	16	4164	1390	16	144	64	14	45	624	25	1	1	0	0	0	6504	
27	2:00 PM	16	4772	1568	6	176	53	20	38	641	15	1	0	0	0	0	7306	
28	3:00 PM	22	4977	1704	20	184	56	12	34	573	15	4	2	0	0	0	7603	
29	4:00 PM	18	5874	1709	14	177	49	12	19	488	7	3	1	0	0	0	8371	
30	5:00 PM	24	6180	1814	10	126	41	3	34	391	2	0	1	0	0	0	8626	
31	6:00 PM	40	5557	1810	5	87	27	0	37	449	6	7	1	0	0	0	8026	
32	7:00 PM	18	4387	1322	8	101	20	0	31	521	5	10	1	0	0	0	6424	
33	8:00 PM	3	3522	892	8	63	15	0	20	560	0	13	3	0	0	0	5099	
34	9:00 PM	3	2650	665	7	30	10	0	23	319	0	13	1	0	0	0	3721	
35	10:00 PM	2	2026	547	11	35	8	0	13	325	0	23	3	0	0	0	2993	
36	11:00 PM	1	1648	446	15	37	4	0	5	422	0	16	2	0	0	0	2596	
37	TOTAL	275	78858	26608	209	2490	762	125	690	11749	128	355	90	0	0	0	122339	
38																		



Vehicle classification (cont.)

9	FHWA-Scheme F Classification																
10																	
11	Start Time	Motor cycle	Car	Light Truck	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	14	15	Total
13	12:00 AM	3	714	230	3	24	6	1	18	570	1	40	6	0	0	0	1616
14	1:00 AM	3	445	150	7	24	11	0	17	505	0	35	9	0	0	0	1206
15	2:00 AM	1	341	112	3	26	7	0	16	449	0	37	12	0	0	0	1004
16	3:00 AM	0	335	114	7	42	9	0	21	411	0	42	11	0	0	0	992
17	4:00 AM	0	681	279	7	49	13	0	18	500	0	41	13	0	0	0	1601
18	5:00 AM	8	2561	1155	13	102	25	1	26	499	0	21	6	0	0	0	4417
19	6:00 AM	11	4587	2101	8	106	57	5	28	408	0	9	4	0	0	0	7324
20	7:00 AM	13	4730	1676	11	120	49	12	19	311	3	9	2	0	0	0	6955
21	8:00 AM	19	4222	1594	3	161	38	4	42	411	9	7	0	0	0	0	6510
22	9:00 AM	12	3693	1422	9	178	40	13	48	573	3	10	7	0	0	0	6008
23	10:00 AM	17	3682	1382	6	199	52	8	51	665	6	5	1	0	0	0	6074
24	11:00 AM	9	3663	1309	8	147	53	9	47	562	12	3	0	0	0	0	5822
25	12:00 PM	16	3447	1217	4	152	55	11	40	572	19	5	3	0	0	0	5541
26	1:00 PM	16	4164	1390	16	144	64	14	45	624	25	1	1	0	0	0	6504
27	2:00 PM	16	4772	1568	6	176	53	20	38	641	15	1	0	0	0	0	7306
28	3:00 PM	22	4977	1704	20	184	56	12	34	573	15	4	2	0	0	0	7603
29	4:00 PM	18	5874	1709	14	177	49	12	19	488	7	3	1	0	0	0	8371
30	5:00 PM	24	6180	1814	10	126	41	3	34	391	2	0	1	0	0	0	8626
31	6:00 PM	40	5557	1810	5	87	27	0	37	449	6	7	1	0	0	0	8026
32	7:00 PM	18	4387	1322	8	101	20	0	31	521	5	10	1	0	0	0	6424
33	8:00 PM	3	3522	892	8	63	15	0	20	560	0	13	3	0	0	0	5099
34	9:00 PM	3	2650	665	7	30	10	0	23	319	0	13	1	0	0	0	3721
35	10:00 PM	2	2026	547	11	35	8	0	13	325	0	23	3	0	0	0	2993
36	11:00 PM	1	1648	446	15	37	4	0	5	422	0	16	2	0	0	0	2596
37	TOTAL	275	78858	26608	209	2490	762	125	690	11749	128	355	90	0	0	0	122339
38																	



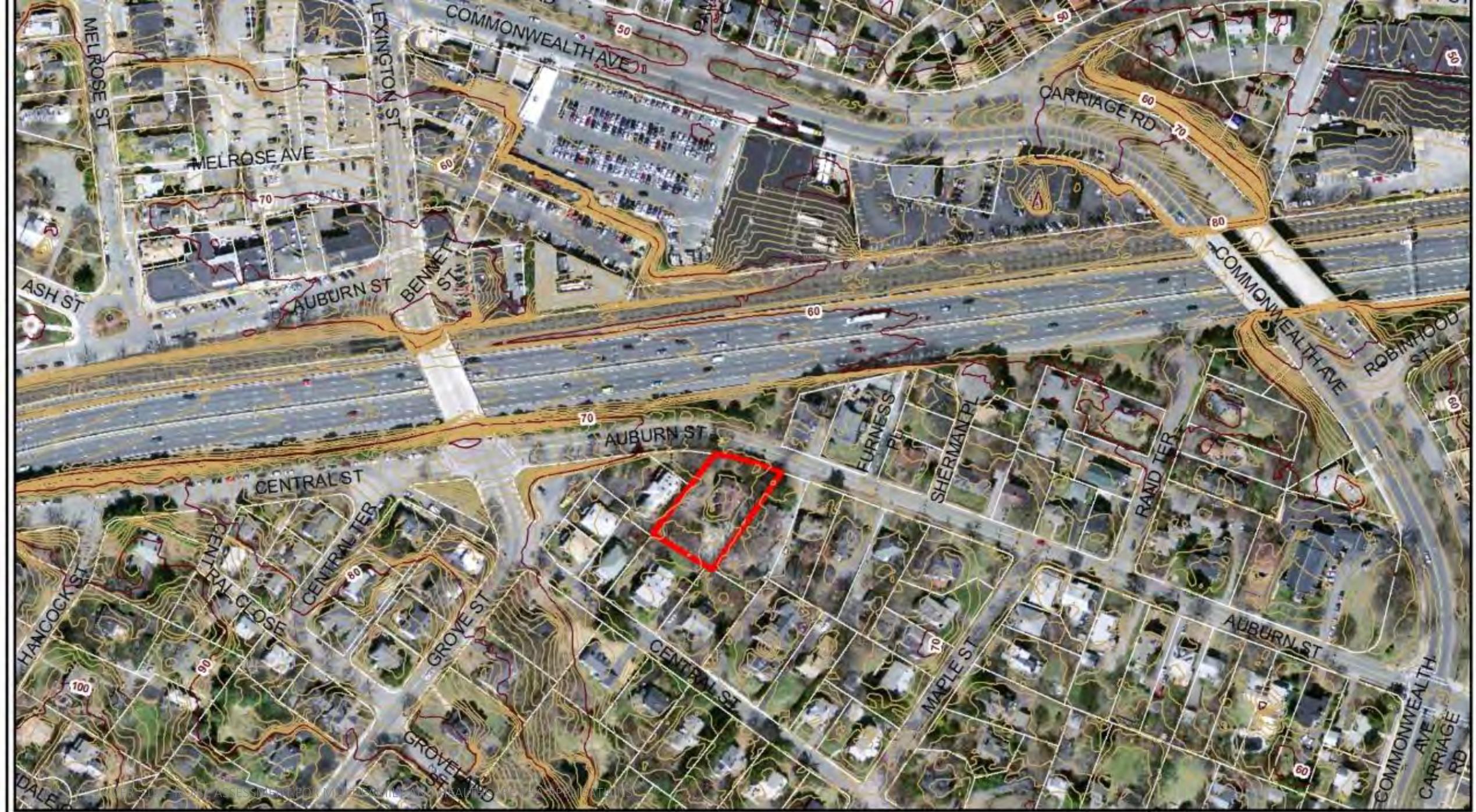
Road Gradient



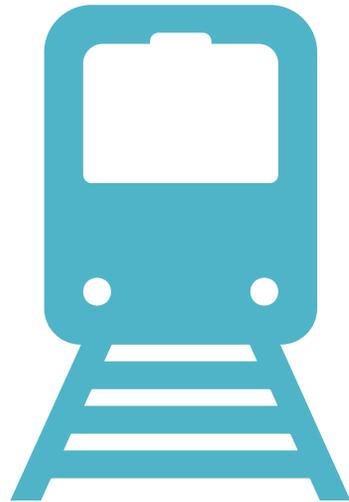
Default assumption is two percent
(when there is a perceptible grade)



If road appears to exceed this, topo
maps can be used to calculate grade
change



Rail - Data Sources



The rail operator is the best source of operational data when available.

If the operator declines to provide data or is not reachable, use the Federal Railroad Administration Safety Map and Crossing Inventory

If rail data is unavailable from any source (including FRA), but an active line is in proximity to the proposed new construction site, noise measurement by a qualified professional may be appropriate



FRA's GIS Safety Map:

<https://fragis.fra.dot.gov/GISFRASafety/>

FRA Crossing Inventory:

<https://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Xingqryloc.aspx>

FRA apps for iOS and Android:

<https://railroads.dot.gov/highway-rail-crossing-and-trespasser-programs/crossing-inventory/rail-crossing-locator-mobile>

Rail – data
sources (cont.)



User's Name

Railroad #1 Track Identifier:

Rail # 1

Train Type

Electric

Diesel

Effective Distance

Average Train Speed

Engines per Train

Railway cars per Train

Average Train Operations (ATO)

Night Fraction of ATO

Railway whistles or horns? Yes: No:

Yes: No:

Bolted Tracks? Yes: No:

Yes: No:

Train DNL

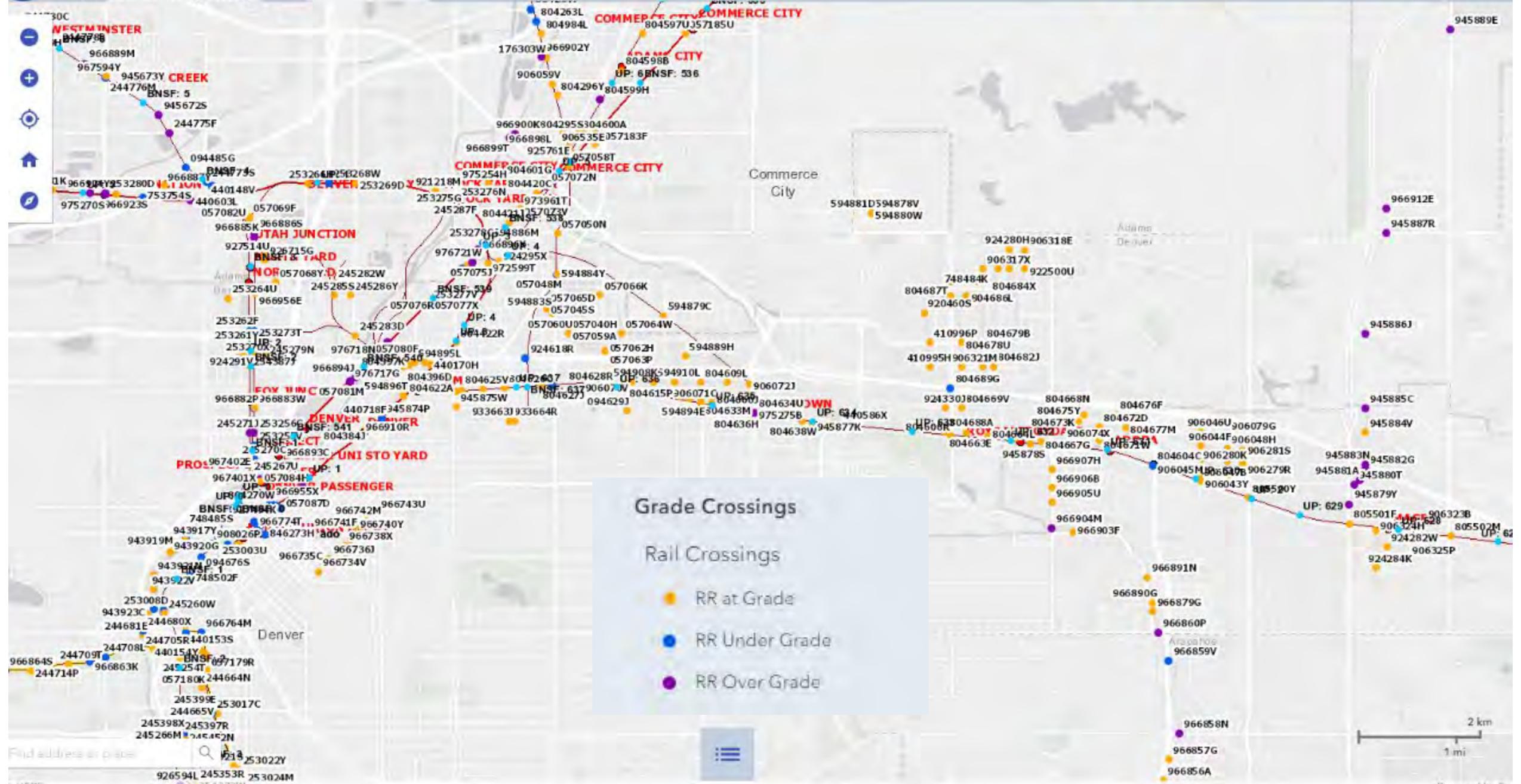
Calculate Rail #1 DNL

Reset

Add Road Source

Add Rail Source

Airport Noise Level



Grade Crossings

Rail Crossings

- RR at Grade
- RR Under Grade
- RR Over Grade



Find address or place

FRA Train Horn Rule

Must sound horn at least 15, no more than 20 seconds before an at-grade crossing; or

If traveling > 60 mph, at least $\frac{1}{4}$ prior to an at-grade crossing

Except in designated 24 hr FRA Quiet Zone

Grade Crossings

Rail Crossings

- RR at Grade
- RR Under Grade
- RR Over Grade

Railway whistles or horns?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
----------------------------	--	--

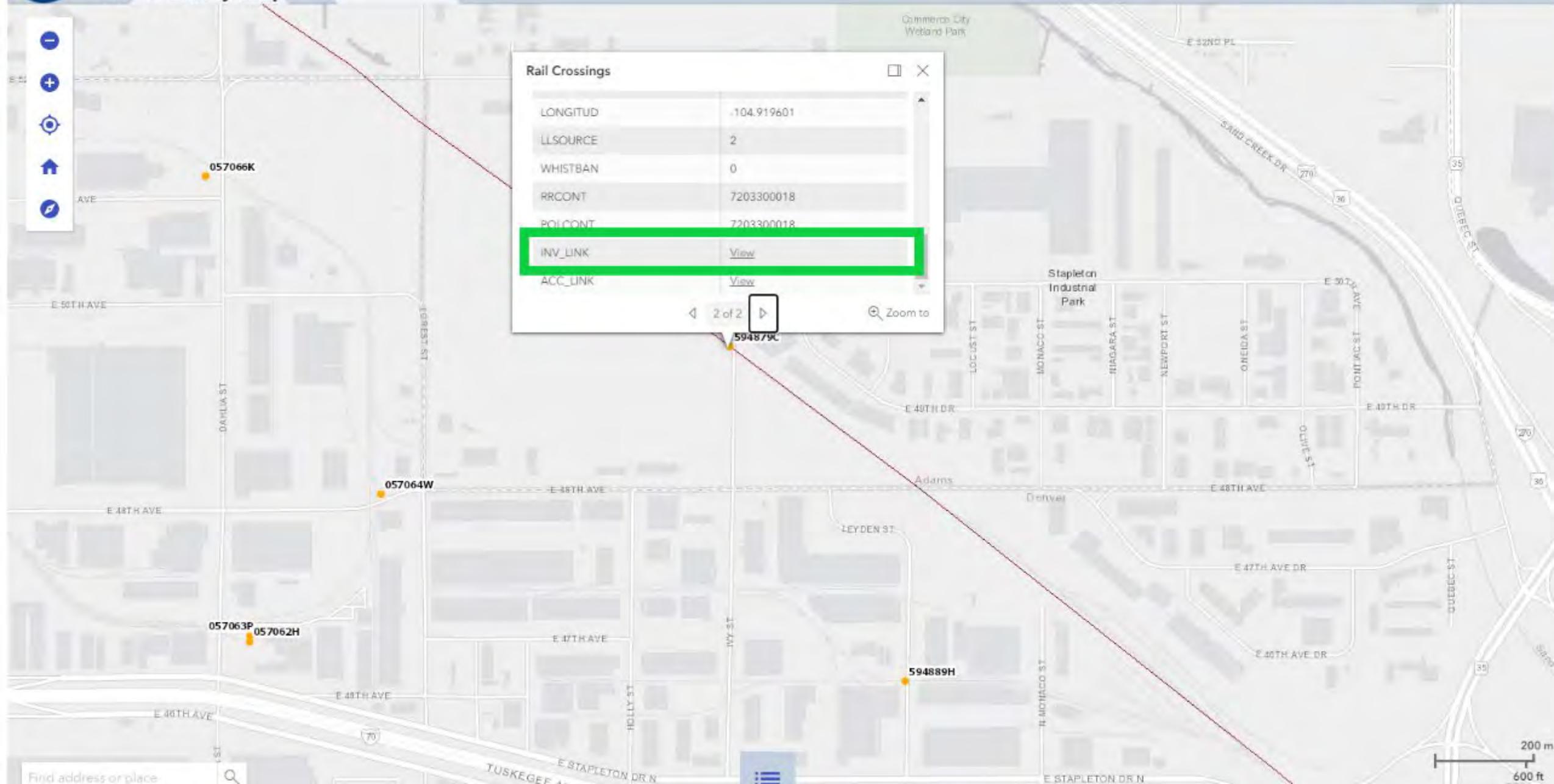


Map navigation controls: Minus, Plus, Home, Location, Home, Compass icons

Rail Crossings

LONGITUD	.104.919601
LLSOURCE	2
WHISTBAN	0
RRCONT	7203300018
POLCONT	7203300018
INV_LINK	View
ACC_LINK	View

2 of 2 | Zoom to



U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Rail crossing
inventory form

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) 02 / 05 / 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 type="checkbox"/> Change in Data <input type="checkbox"/> New Crossing <input type="checkbox"/> Closed <input type="checkbox"/> Re-Open <input type="checkbox"/> Date Change Only <input checked="" 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 594879C
Part I: Location and Classification Information			
1. Primary Operating Railroad Denver Rock Island Railroad [DRIR]		2. State COLORADO	3. County DENVER
4. City / Municipality <input checked="" type="checkbox"/> In <input type="checkbox"/> Near DENVER		5. Street/Road Name & Block Number IVY ST NO 48TH AVE (Street/Road Name) * (Block Number)	
6. Highway Type & No. 522		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 checked="" type="checkbox"/> None	
10. Railroad Subdivision or District <input type="checkbox"/> None silver yard		11. Branch or Line Name <input type="checkbox"/> None airlawn	
12. RR Milepost 0001.81 (prefix) (nnnn.nnn) (suffix)		13. Line Segment *	
14. Nearest RR Timetable Station denver		15. Parent RR (if applicable) <input checked="" type="checkbox"/> N/A	
16. Crossing Owner (if applicable)	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 (if Private Crossing) <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 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 0
23. Type of Land Use <input type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established	
26. HSR Corridor ID <input checked="" type="checkbox"/> N/A	27. Latitude in decimal degrees (WGS84 std: nn.nnnnnn) 39.7863010	28. Longitude in decimal degrees (WGS84 std: -nnn.nnnnnnn) -104.9196010	29. Lat/Long Source <input type="checkbox"/> Actual <input checked="" type="checkbox"/> 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 *	



Rail crossing inventory form (cont.)

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 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 <u>0</u>			
23. Type of Land Use <input type="checkbox"/> Open Space <input type="checkbox"/> Farm <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established							
26. HSR Corridor ID <input checked="" type="checkbox"/> N/A			27. Latitude in decimal degrees (WGS84 std: nn.nnnnnnn) <u>39.7863010</u>			28. Longitude in decimal degrees (WGS84 std: -nnn.nnnnnnn) <u>-104.9196010</u>			29. Lat/Long Source <input type="checkbox"/> Actual <input checked="" type="checkbox"/> 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) <u>720-330-0018</u>				34. Railroad Contact (Telephone No.) <u>720-330-0018</u>				35. State Contact (Telephone No.) <u>303-575-9333</u>					
Part II: Railroad Information													
1. Estimated Number of Daily Train Movements													
1.A. Total Day Thru Trains (6 AM to 6 PM) <u>2</u>			1.B. Total Night Thru Trains (6 PM to 6 AM) <u>1</u>			1.C. Total Switching Trains <u>2</u>			1.D. Total Transit Trains <u>0</u>			1.E. Check if Less Than One Movement Per Day <input type="checkbox"/> How many trains per week? _____	
2. Year of Train Count Data (YYYY) <u>2015</u>						3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) <u>10</u> 3.B. Typical Speed Range Over Crossing (mph) From <u>1</u> to <u>5</u>							
Main <u>0</u>			Siding <u>0</u>			Yard <u>0</u>			Transit <u>0</u>			Industry <u>1</u>	
5. Train Detection (Main Track only) <input 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 checked="" type="checkbox"/> None													
6. Is Track Signaled? <input type="checkbox"/> Yes <input checked="" 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				



Railroad Data Needed

Info to look for:

Average Train Operations (ATO)

Inventory lists in section II(1) of inventory: (1.A) Day Thru Trains, (1.B) Night Thru Trains, (1.C) Switching Trains, and (1.D) Transit Trains

Of these, all count toward ATO except Transit Trains

Night Fraction of ATO

- FRA “night” = 6pm to 6am
- HUD “night” = 10pm to 7am

Convert FRA night operations as follows:

$$((T_N \times 0.75) + (T_S \times 0.375)) \div (T_D + T_N + T_S) = \text{Night ATO}$$

Where:

T_D = Total Day Thru Trains

T_N = Total Night Thru Trains

T_S = Total Switching Trains



Railroad – Data Sources (cont.)

Speed of the train at crossing

Section II(3.A.) of inventory – timetable speed

If not available, default is 30 mph

Rail Whistles or Horns

Trains are required to sound w/in ¼ mile of crossing, for at least 15 seconds, unless there is a Quiet Zone

Section I(25) of inventory form identifies Quiet Zone status

Cars per train – use default 50 unless specific info

Engine type and number – freight default is diesel, 2 per train

Welded or Bolted Tracks?

Default is bolted w/out specific info or site observation for welded



Welded rail

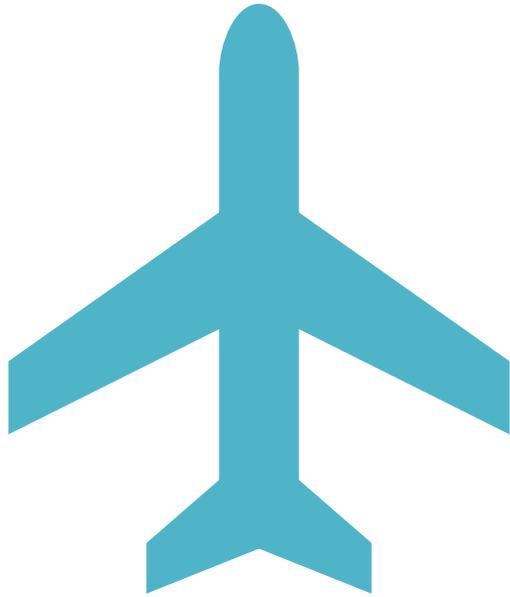
Images by Unknown Authors licensed under CC BY-SA-NC-ND.



Bolted rail



Airport Noise Source Information



Online or via airport/airfield, obtain noise contour map

For Military Installations, ask for their “Air Installation Compatible Use Zone” (AICUZ) Plan



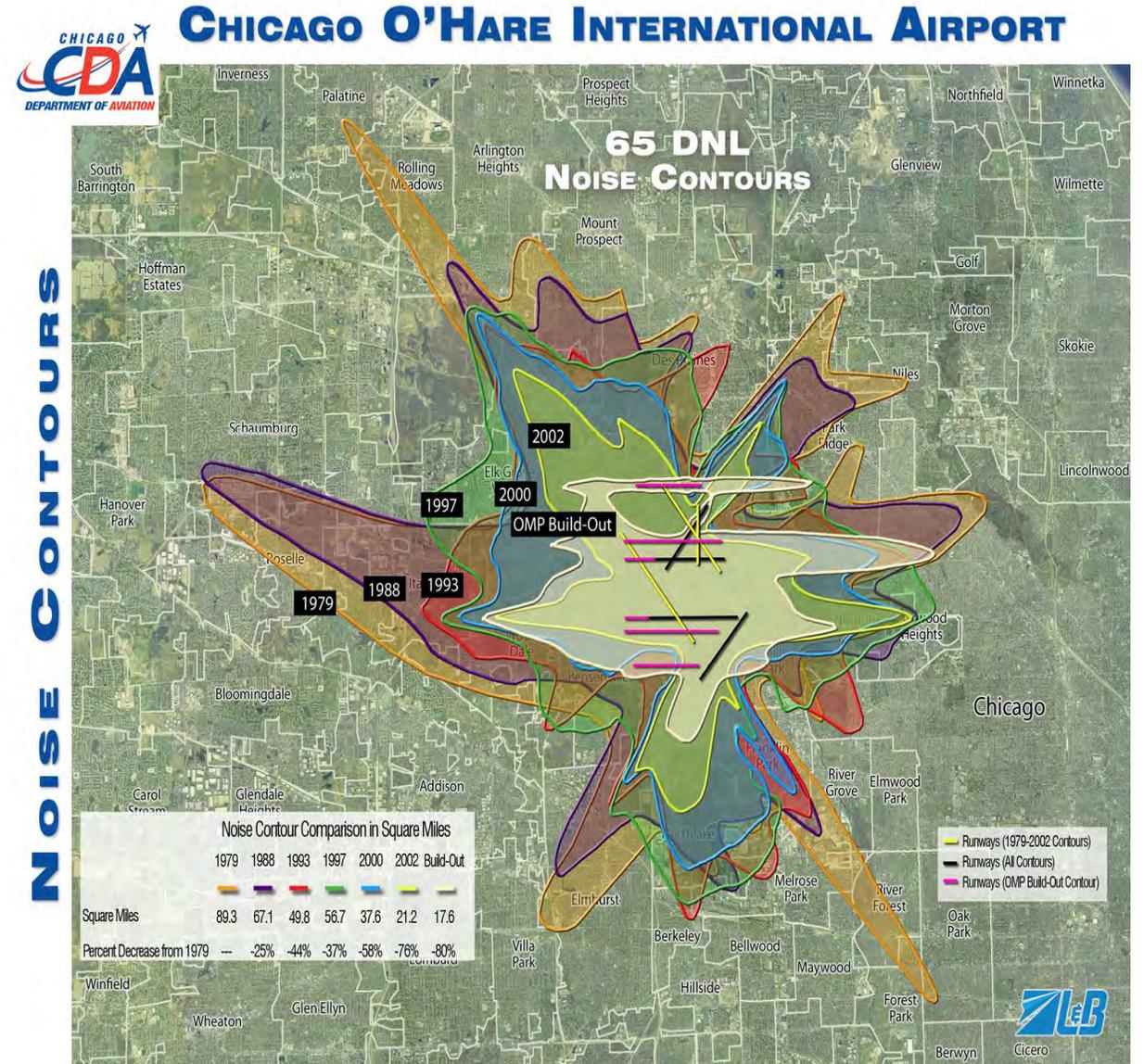
Determine Airport Noise DNL

Airports

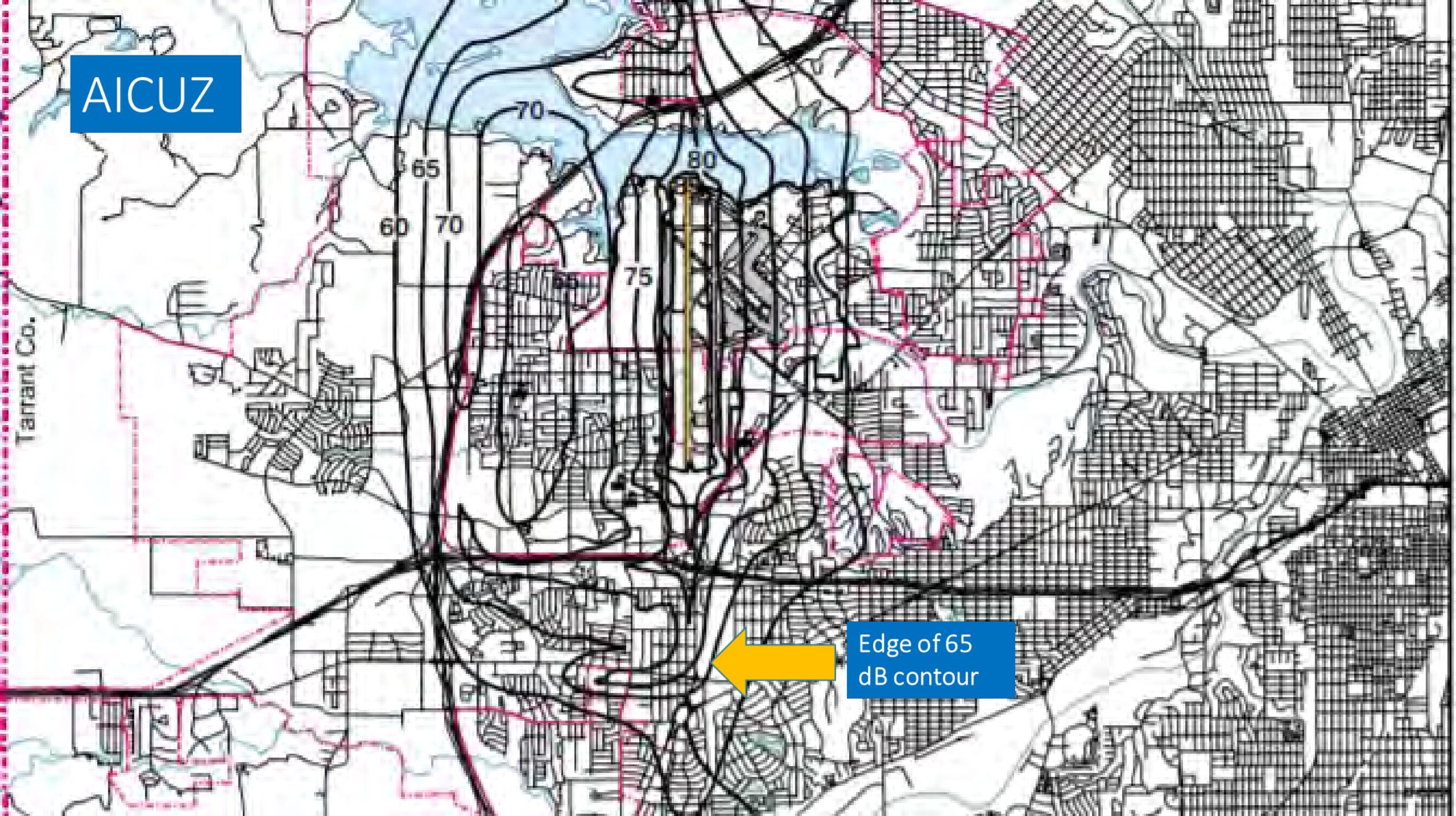
Noise contours can extend far from airport

If project location is outside of noise contours, then provide map showing location.

No further calculation needed

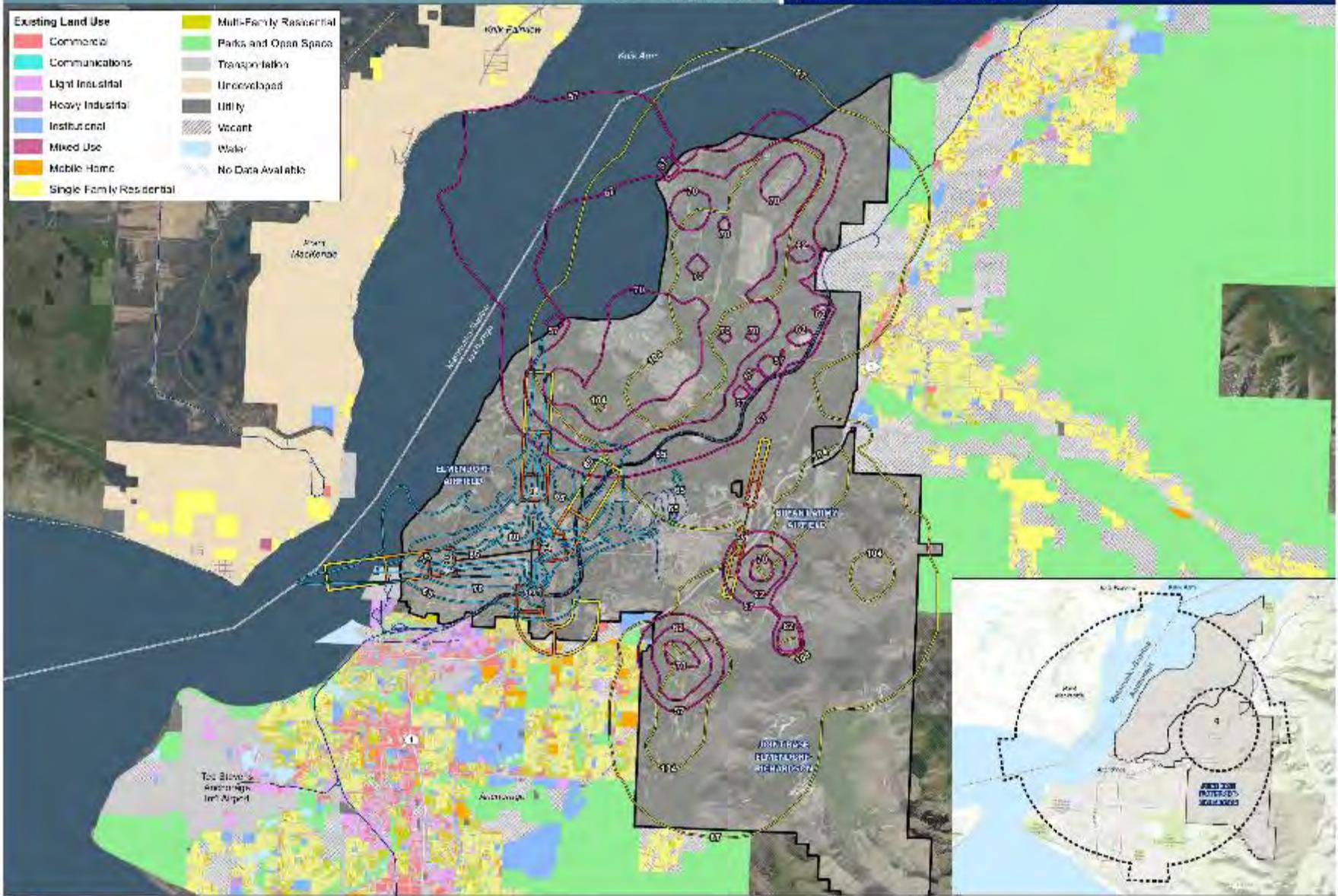


AICUZ



Edge of 65 dB contour

Existing Land Use	
Commercial	Multi-Family Residential
Communications	Parks and Open Space
Light Industrial	Transportation
Heavy Industrial	Undeveloped
Institutional	Utility
Mixed Use	Vacant
Mobile Home	Water
Single Family Residential	No Data Available



Legend

Major Highway	Interway to Elmendorf	Municipal Boundary	Large Caliber Weapons and Explosives Noise Contour, CDNL	Small Arms Peak Noise Contour, 39 PK12 (met)	Clear Zone	Inset
Runway	Municipal Boundary	Corpus Designated Park	Small Arms Peak Noise Contour, 39 PK12 (met)	Clear Zone	Accident Potential Zone I	Inset 2 Consultation Zone
Field Runway	Small Arms Peak Noise Contour, 39 LNL	Accident Potential Zone II				



Roadways

- Average speed = Posted speed limit
- Night time traffic = 15% of ADT
- Non-Highway traffic by class: 92% car, 4% medium truck, 4% heavy truck

Railroads

- 50 cars per diesel train
- 8 cars per electric train
- Night time traffic = 15% of ADT

Assumptions
When Specific
Data Can't Be
Found



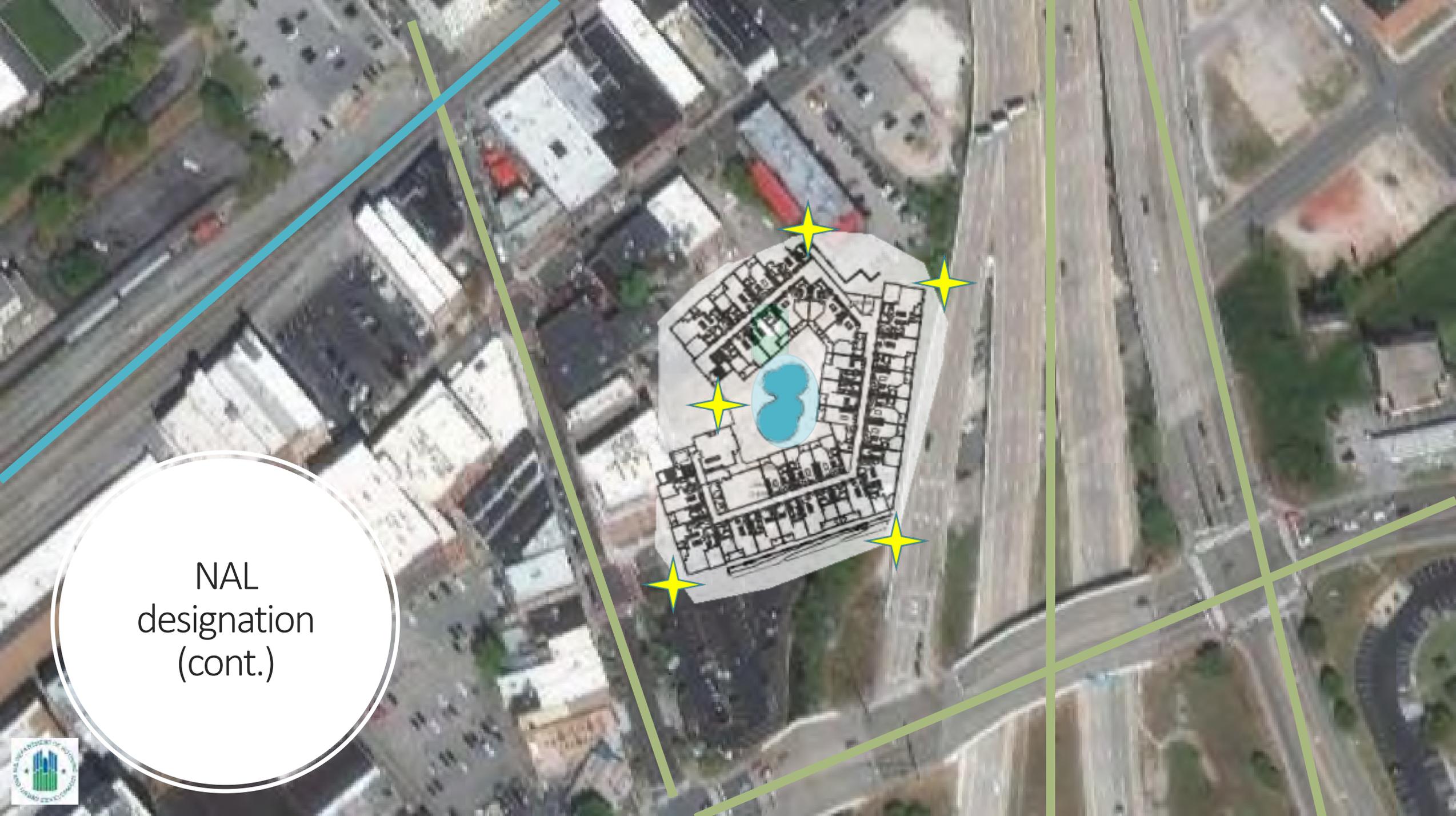
2.b Noise assessment – Designate NALs and Measure Distances

- The Noise Assessment Location is a point or points on the site where significant noise exposure is expected
- NAL is the point on the site where there are noise sensitive uses nearest to the noise source(s)
- For buildings, a point 6.5 ft from façade in direction of noise source(s)



Source: JAL Acoustics, HEROS





NAL
designation
(cont.)



Poll 3 – Outdoor Noise Sensitive Uses

What do you consider to be a use requiring quiet?

- A. Swimming pool
- B. Dog run
- C. Gazebo
- D. all of the above
- E. it depends



Outdoor uses

Outdoor quiet spaces that are determined to require quiet are evaluated as NALs along with building exteriors to determine site acceptability

If an outdoor area requires quiet, HUD's regulation requires evaluation of mitigation strategies to achieve 65 dB or below for these spaces

HUD regulations do not list outdoor uses that are noise sensitive

Evaluated case by case



HUD Balcony Policy (Notice CPD 16-19)



- This policy addresses outdoor spaces that are ancillary to an individual dwelling unit
- Individual units are not outdoor spaces requiring quiet use for purposes of classifying site acceptability or requirements for special processing
- Balconies are allowed in any noise zone
- Requirements:
 - Indoor goal of 45 dB is achieved
 - Mechanical ventilation
 - O+M plan for maintenance of doors and windows



Calculate Noise Level

Sound levels are combined for a total projected noise environment

HUD noise guidelines add a factor to the higher level based on the difference between two levels being compared

Impact noises are handled separately (e.g., sonic booms, stamping mills, artillery and explosives training or testing)

Difference in Sound Levels	Factor to Add to Larger Level
0	3.0
1	2.5
2	2.1
3	1.8
4	1.5
5	1.2
6	1.0
7	0.8
8	0.6
9	0.5
10	0.4
12	0.3
14	0.2
16	0.1
Greater Than 16	0



Enter Data into Online Day/Night Noise Level Calculator Electronic Assessment Tool

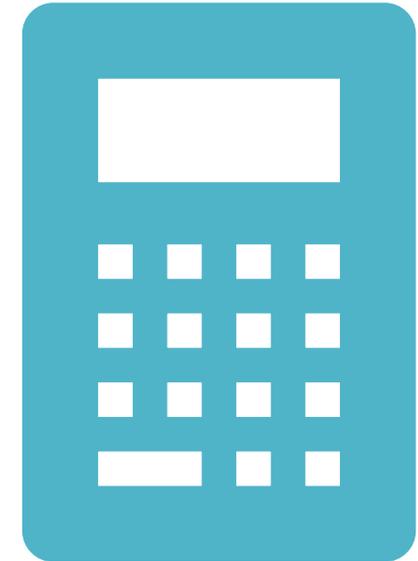
Select Noise Assessment Location—NAL

Measure distance from NAL to noise source

Input noise source data into online calculator

Calculate combined DNL

Re-calculate DNL accounting for barriers and mitigation, as appropriate



<https://www.hudexchange.info/programs/environmental-review/dnl-calculator/>





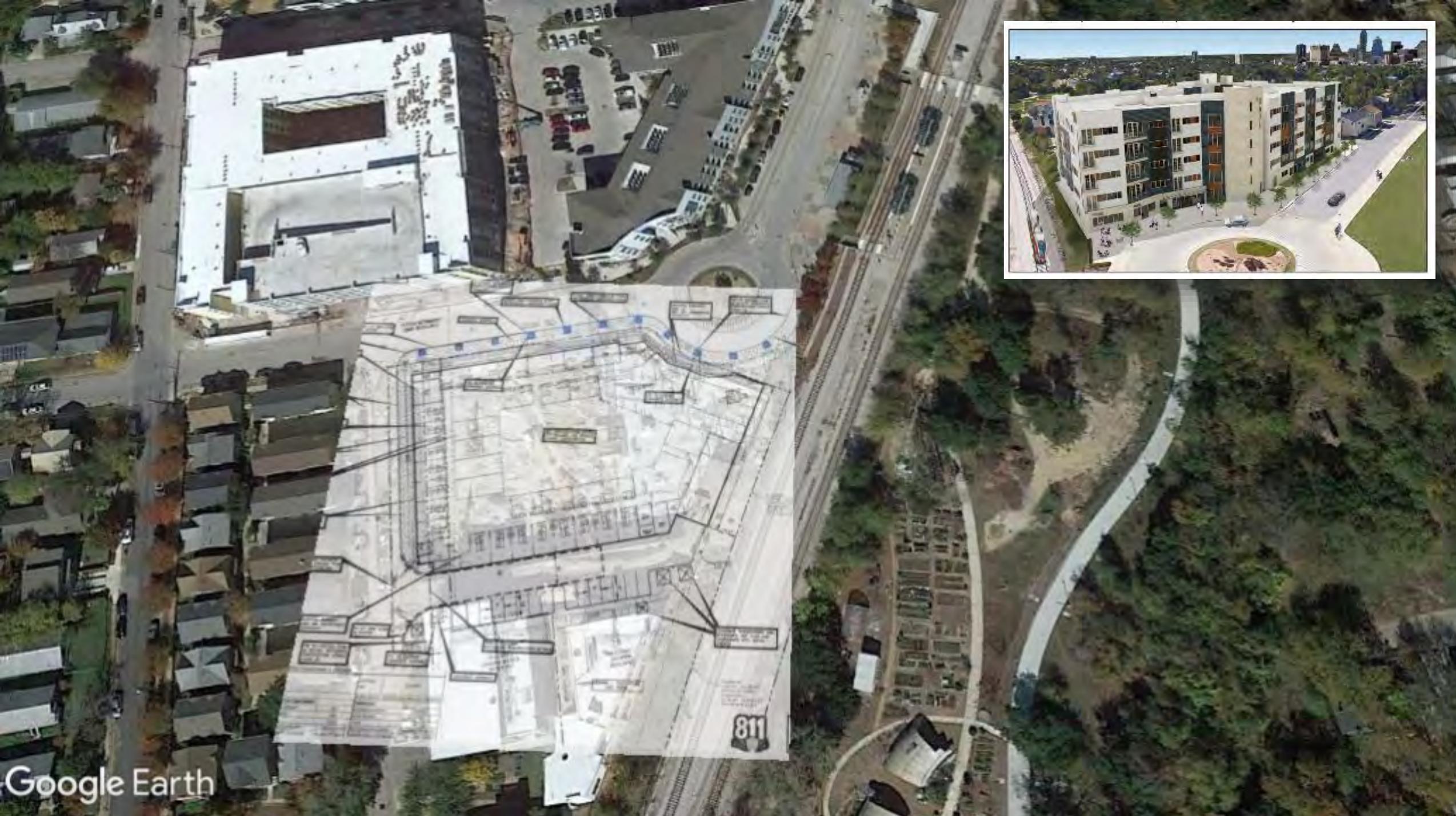
The noise calculator now displays integers, not decimal point values



This reflects the accuracy of the tool given variables in input

Calculator Display – Integer Level





Roadways

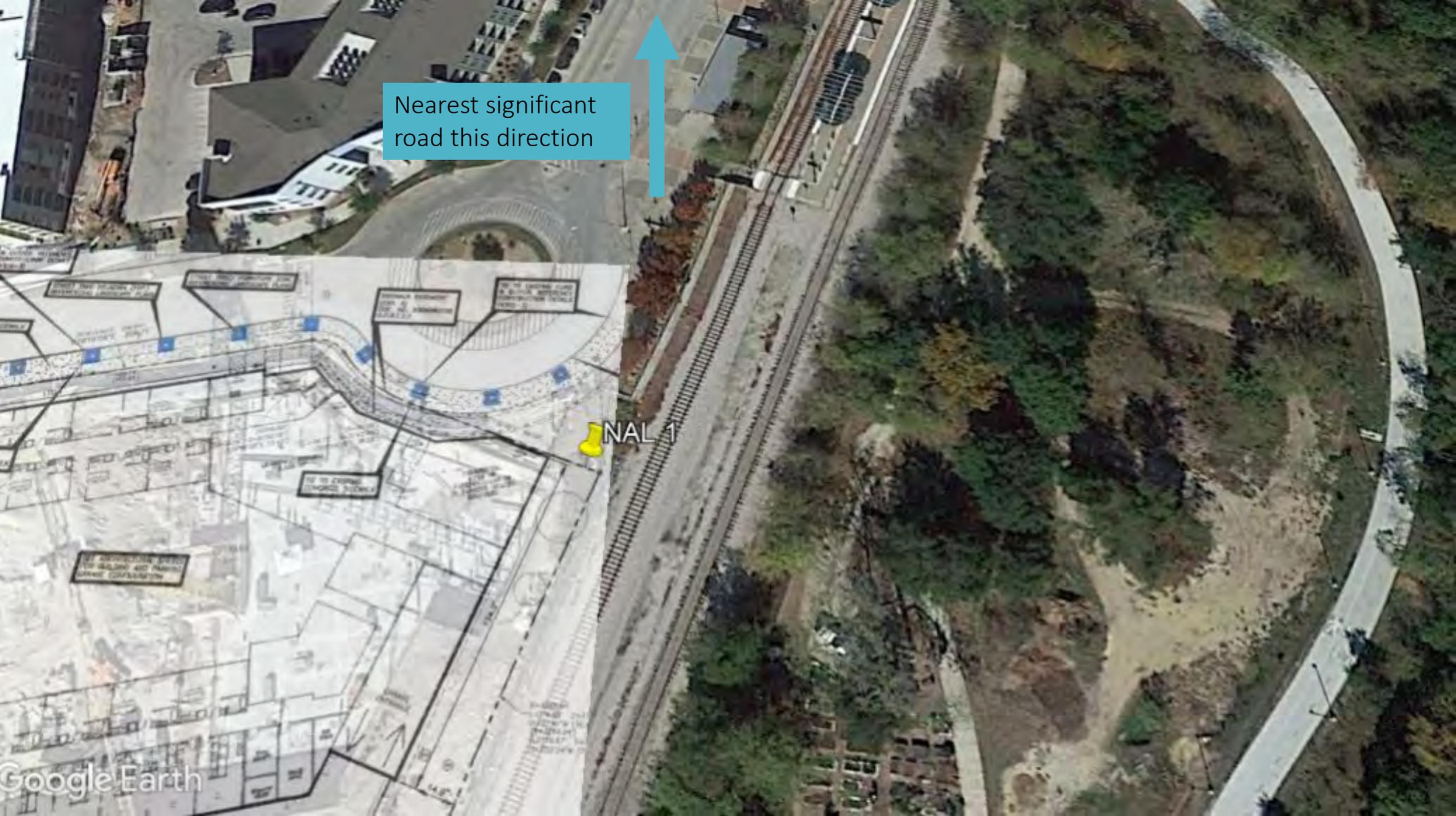
- If symmetrical roadways, measure to centerline
- If more than one building, use nearest to noise source
- If unsymmetrical measure to near edge of nearest lane, far edge of farthest lane, average (add and divide by 2)

Railroads

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

Effective distance – measured from NAL to centerline of noise source





Nearest significant road this direction

NAL 1



Distance 884'

NAL 1

Maps Measure Query LRS Sketch Legend About

Base Maps

- TxDOT
- Texas Imagery Service (Google)
- TxDOT Light Gray
- TxDOT Dark Gray
- Esri Streets
- Open Street Map

Overlays

Clear Overlays

- AAOT
- Area Offices
- Bridges
- Cemeteries
- Control Sections
- Councils of Governments (COG)
- Connectivity Corridors
- Congestion (Base Year)
- Congestion (Forecast Year)
- Energy Sector Corridors
- Freight Network (FHWA)
- Freight Network (TxDOT)
- Functional Classification & Urban Areas
- Future Traffic & Percent Truck
- Highway Designations
- Hurricane Evacuation Routes
- Maintenance Section Routes
- Memorial Highways
- Metropolitan Planning Organizations (MPO)
- National Highway System
- Non-Attainment Areas
- Permanent Count Stations
- Projects - Construction underway or begins soon
- Projects - Construction begins within 4 years
- Projects - Construction begins in 5 to 10 years
- Projects - Corridor Studies, construction in 10+ years
- Railroads
- Reference Markers
- Regional Mobility Authorities (RMA)
- Roadway Inventory - On-System
- Roadbeds

Download Data



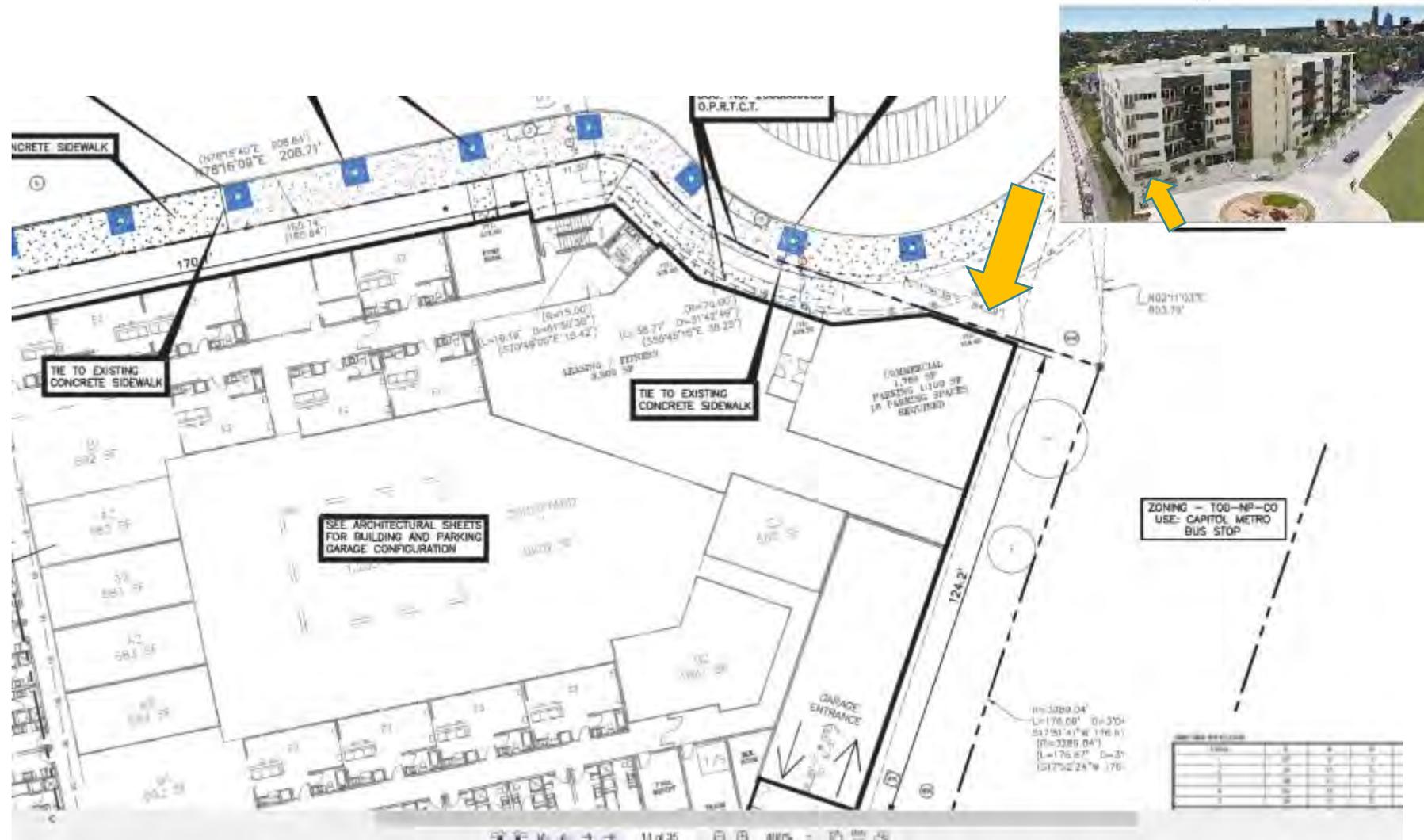
Year	AAOT
2018	12726
2038	17816
15780	

Level: 17, 30.280039, -97.707119

Texas Imagery Service (Google)

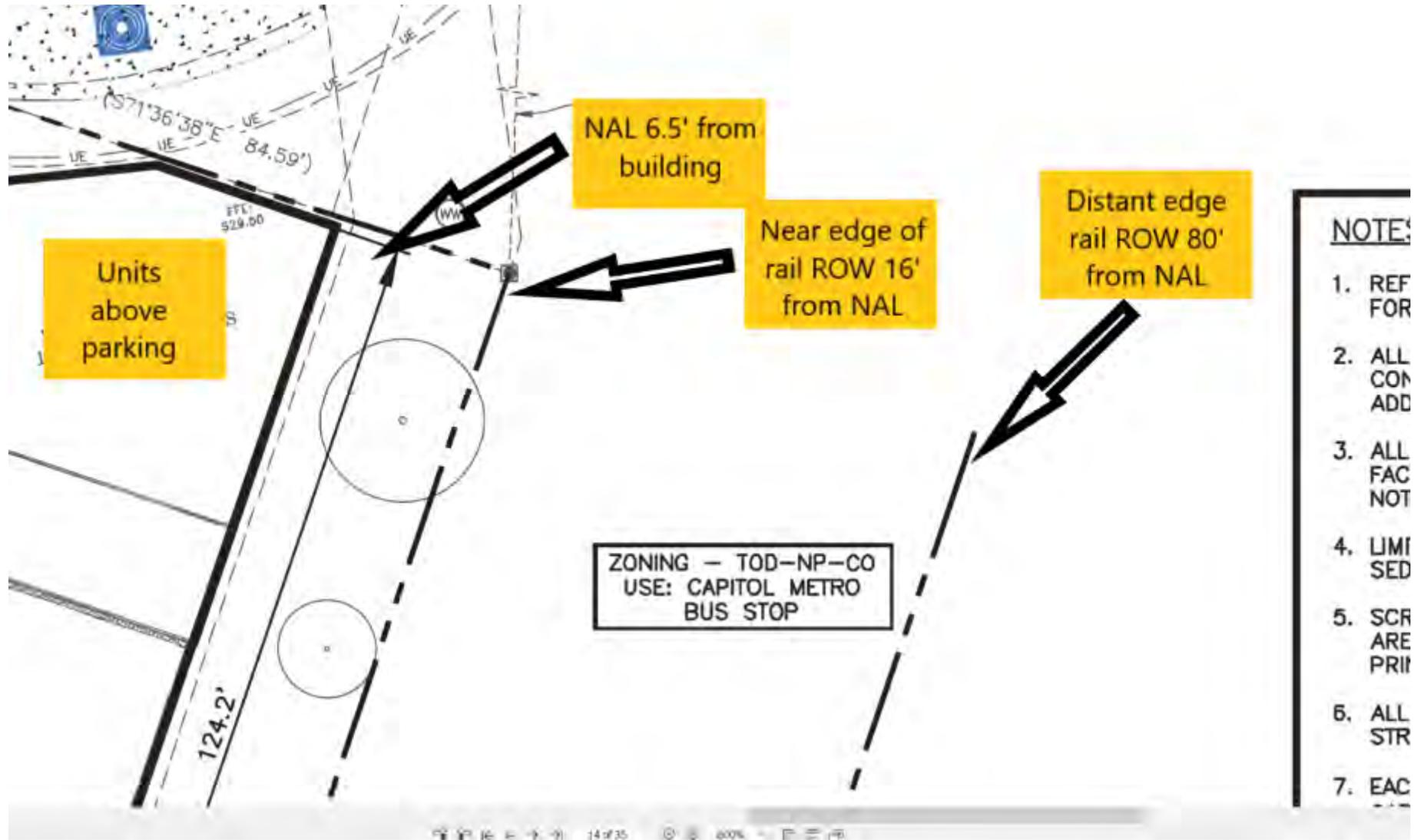


Rail line effective distance from plans



Rail line effective distance from plans (cont'd)

$$16' + 80' / 2 = 48' \text{ effective distance}$$



Commuter & freight rail



Site



Commuter schedule

550 METRO RAIL The Red Line COMMUTER

Monday–Friday • Daytime Service

Southbound to Downtown

Leander	5:55	6:26	6:57	7:28	8:04	8:40	-	-	-	-	-	-	-	-	-	-	-	6:45	5:21
Lakeline	6:08	6:39	7:10	7:41	8:17	8:53	9:22	10:22	11:34	-	1:22	2:22	-	3:22	-	4:19	4:58	5:34	
Howard	6:18	6:49	7:20	7:51	8:27	9:03	9:32	10:32	11:32	12:25	1:32	2:32	-	3:32	-	4:36	5:13	5:44	
Kramer	6:24	6:56	7:27	7:58	8:34	9:09	9:38	10:38	11:38	12:38	1:38	2:38	3:09	3:38	4:13	4:43	5:19	5:51	
Crestview	6:30	7:02	7:33	8:04	8:40	9:15	9:44	10:44	11:44	12:44	1:44	2:44	3:15	3:44	4:19	4:50	5:26	5:57	
Highland	6:32	7:04	7:35	8:06	8:42	9:17	9:46	10:46	11:46	12:46	1:46	2:46	3:17	3:46	4:21	4:53	5:29	5:59	
MLK, Jr.	6:39	7:12	7:43	8:14	8:50	9:24	9:53	10:53	11:53	12:53	1:53	2:53	3:24	3:53	4:28	5:04	5:36	6:06	
Plaza Saitillo	6:45	7:18	7:49	8:20	8:56	9:30	9:59	10:59	11:59	12:59	1:59	2:59	3:30	3:59	4:34	5:10	5:43	6:12	
Downtown	6:48	7:21	7:52	8:23	8:59	9:33	10:02	11:02	12:02	1:02	2:02	3:02	3:33	4:02	4:37	5:13	5:46	6:15	

Monday–Friday • Daytime Service

Northbound from Downtown

Downtown	-	-	7:03	7:34	8:05	8:41	9:15	9:44	10:44	11:44	12:15	1:15	2:15	3:15	3:44	4:19	4:55	5:27	5:57	6:30
Plaza Saitillo	-	-	7:05	7:36	8:07	8:43	9:17	9:46	10:46	11:46	12:17	1:17	2:17	3:17	3:46	4:21	4:57	5:29	5:59	6:32
MLK, Jr.	-	-	7:12	7:43	8:14	8:50	9:24	9:53	10:53	11:53	12:24	1:24	2:24	3:24	3:53	4:28	5:04	5:36	6:06	6:39
Highland	-	-	7:19	7:50	8:21	8:56	9:30	9:59	10:59	11:59	12:30	1:30	2:30	3:30	3:59	4:35	5:11	5:43	6:13	6:45
Crestview	-	-	7:21	7:52	8:23	8:58	9:32	10:01	10:32	11:32	12:32	1:32	2:32	3:32	4:01	4:37	5:13	5:45	6:15	6:47
Kramer	5:00	5:15	7:27	7:58	8:34	9:04	9:38	10:07	10:38	11:38	12:38	1:38	2:38	3:38	4:07	4:43	5:19	5:51	6:21	6:53
Howard	5:06	5:21	7:33	8:04	8:44	-	9:44	-	10:44	11:44	12:49	1:44	2:44	3:44	4:13	4:50	5:26	5:58	6:28	6:59
Lakeline	5:17	5:32	7:44	8:10	8:57	-	9:55	-	10:55	-	1:02	1:55	2:55	3:55	4:24	5:01	5:37	6:09	6:39	7:10
Leander	5:30	5:45	7:57	8:33	-	-	-	-	-	-	-	-	-	-	4:37	5:14	5:50	6:22	6:52	7:23

Friday Evening

Southbound—From Leander Station to Downtown

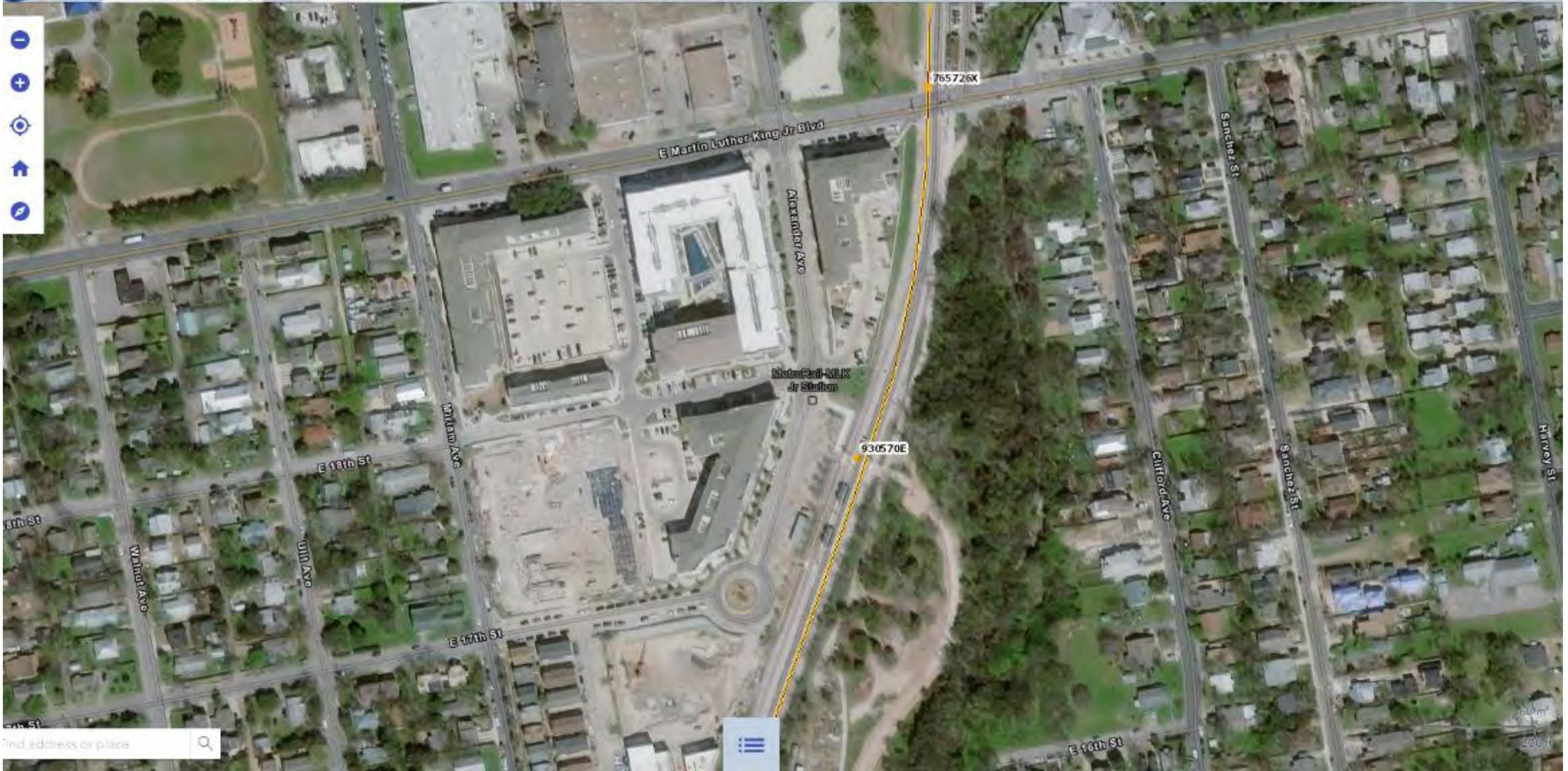
Leander	6:23	7:23	7:54	8:54	9:54	10:54
Lakeline	6:36	7:36	8:07	9:07	10:07	11:07
Howard	6:46	7:46	8:17	9:17	10:17	11:17
Kramer	6:53	7:53	8:24	9:24	10:24	11:24
Crestview	6:59	7:59	8:30	9:30	10:30	11:30
Highland	7:01	8:01	8:32	9:32	10:32	11:32
MLK, Jr.	7:08	8:08	8:39	9:39	10:39	11:39
Plaza Saitillo	7:14	8:14	8:45	9:45	10:45	11:45
Downtown	7:17	8:17	8:48	9:48	10:48	11:48

Northbound—From Downtown to Leander Station

Downtown	7:30	8:30	9:30	10:30	11:30	12:30
Plaza Saitillo	7:32	8:32	9:32	10:32	11:32	12:32
MLK, Jr.	7:39	8:39	9:39	10:39	11:39	12:39
Highland	7:45	8:45	9:45	10:45	11:45	12:45
Crestview	7:47	8:47	9:47	10:47	11:47	12:47
Kramer	7:53	8:53	9:53	10:53	11:53	12:53
Howard	7:59	8:59	9:59	10:59	11:59	12:59
Lakeline	8:10	9:10	10:10	11:10	12:10	1:10
Leander	8:23	9:23	10:23	11:23	12:23	1:23

PM times are indicated in bold





200m
300ft



Part I: Location and Classification Information

1. Primary Operating Railroad Capital Metropolitan Transportation Authority [CMTY]		2. State TEXAS	3. County TRAVIS
4. City / Municipality <input checked="" type="checkbox"/> In <input type="checkbox"/> Near AUSTIN	5. Street/Road Name & Block Number Boggy creek bikeway <small>(Street/Road Name) * (Block Number)</small>		6. Highway Type & No. pathway
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Specify RR ATCX, AWRR	
9. Railroad Division or Region <input type="checkbox"/> None CMTA	10. Railroad Subdivision or District <input type="checkbox"/> None Central	11. Branch or Line Name <input type="checkbox"/> None giddings-llano	12. RR Milepost 0058.280 <small>(prefix) (nnnn.nnn) (suffix)</small>
13. Line Segment *	14. Nearest RR Timetable Station * mlk jr station	15. Parent RR (if applicable) <input type="checkbox"/> N/A CMTY	16. Crossing Owner (if applicable) <input type="checkbox"/> N/A CMTY
17. Crossing Type <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private	18. Crossing Purpose <input type="checkbox"/> Highway <input type="checkbox"/> Pathway, Ped. <input checked="" 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 type="checkbox"/> No
21. Type of Train <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Intercity Passenger <input checked="" 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 checked="" type="checkbox"/> Number Per Day 38			

23. Type of Land Use <input type="checkbox"/> Open Space <input type="checkbox"/> Farm <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Commercial	24. Is there an Adjacent Crossing with a Separate Number? 844-592-8046	25. Quiet Zone (FRA provided) <input type="checkbox"/> No <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> Partial <input type="checkbox"/> Chicago Excused Date Established 2/10/2009 12:00:0	Contact (Telephone No.) 35
--	--	---	--------------------------------------

Part II: Railroad Information

1. Estimated Number of Daily Train Movements					1.E. Check if Less Than One Movement Per Day <input type="checkbox"/> How many trains per week? _____
1.A. Total Day Thru Trains (6 AM to 6 PM) 33	1.B. Total Night Thru Trains (6 PM to 6 AM) 5	1.C. Total Switching Trains 0	1.D. Total Transit Trains 0		
2. Year of Train Count Data (YYYY) 2020		3. Speed of Train at Crossing 3.A. Maximum Timetable Speed (mph) 30 3.B. Typical Speed Range Over Crossing (mph) From 25 to 30			
4. Type and Count of Tracks Main 1 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 checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No		7.B. Remote Health Monitoring <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	



Commuter and freight info from planning agency

1. Which freight line operates on the tracks?
The Freight Company that operates on CMTA Railroad is WATCO Companies, LLC
2. On average, how many freight trains per 24 hour period? Any info on trains between 10 pm and 7 am (nighttime)?
**The average freight trains in the vicinity of MLK is 4 per evening. The time of operations is between 9 pm and 3 am during the week.
On weekends they operate on Saturday and Sunday mornings between 3 am and 8 am. There are times that freight will run on Sunday evenings depending on vendor requests.
Occasionally on Sunday's, there is an Excursion train that will run Downtown. This happens approximately 4 times a year during the afternoon.**
3. Average train speed through that area (both for freight and passenger trains)
**Freight – 25 MPH
Commuter – 30 MPH
Excursion – 25 MPH**
4. Number locomotives for each the freight and passenger trains on average
The number varies (2 or more)
5. Number of rail cars for each of the freight and passenger trains on average
**Freight – The number varies
Commuter – At the moment, 1 Car
Excursion – 1 Locomotive and approximately 3 to 5 cars**

If you have further questions, please let me know.

Thank you,



Resources and assistance to support HUD's community partners

NEED HOUSING ASSISTANCE? Email Updates



HUD EXCHANGE

My HUD Exchange

Programs v

Resources v

Trainings

Program Support v

Grantees v

Home > Programs > Environmental Review > DNL Calculator

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

Tools and Guidance

[Day/Night Noise Level Assessment Tool User Guide](#)

[Day/Night Noise Level Assessment Tool Flowcharts](#)



Road DNL

Road # 1 Name:	E. MLK		
Road #1			
Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	884		884
Distance to Stop Sign			
Average Speed	30		30
Average Daily Trips (ADT)	15275		505
Night Fraction of ADT	15		15
Road Gradient (%)			0
Vehicle DNL	46	0	51
Calculate Road #1 DNL	52	Reset	



Rail DNL

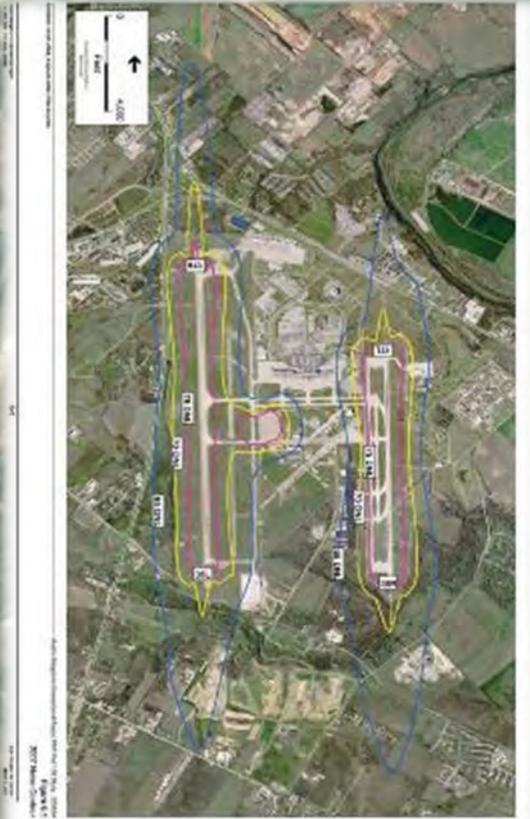
Railroad #1 Track Identifier:	Commuter - Freight	
Rail # 1		
Train Type	Electric <input checked="" type="checkbox"/>	Diesel <input checked="" type="checkbox"/>
Effective Distance	48	48
Average Train Speed	30	25
Engines per Train	2	2
Railway cars per Train	3	50
Average Train Operations (ATO)	48	4
Night Fraction of ATO	13	100
Railway whistles or horns?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
Bolted Tracks?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
Train DNL	57	72
Calculate Rail #1 DNL	72	Reset



NAL 1

Airport noise contours

Google Earth



Loud Impulsive Sounds

Technical definition found at 24 CFR Part 51, Appendix I(3)(i) (based on noise measurement scenario)

Approx. 1 Second Duration or Less

Slow Averaging Meter Reading at Least 6 dB greater than Ambient Level

Fast Averaging Meter Reading at Least 4 dB Greater than Slow Averaging Meter Reading

Sites that produce loud impulse sounds include:

Rail yards

Quarries

Military airfields with supersonic traffic

Bombing ranges

Add 8 dB to the source of the loud impulse sound

If not associated with a specific road, rail or aircraft source, then consult HUD for guidance



Combined DNL

Night Fraction of ATO	<input type="text" value="13"/>	<input type="text" value="100"/>
Railway whistles or horns?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
Bolted Tracks?	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/>
Train DNL	<input type="text" value="57"/>	<input type="text" value="72"/>
Calculate Rail #1 DNL	<input type="text" value="72"/>	<input type="button" value="Reset"/>
<hr/>		
<input type="button" value="Add Road Source"/>	<input type="button" value="Add Rail Source"/>	
Airport Noise Level	<input type="text"/>	
Loud Impulse Sounds?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Combined DNL for all Road and Rail sources	<input type="text" value="72"/>	
Combined DNL including Airport	<input type="text" value="N/A"/>	
Site DNL with Loud Impulse Sound	<input type="text"/>	
<input type="button" value="Calculate"/>	<input type="button" value="Reset"/>	



Poll 4

True or false:

If loud impulse sounds are present, HUD regulations require adding 8 dB to the total noise level for the site after road, rail and aircraft sources are combined.





Site visit

During site visit, ground truth the data collected during noise assessment

Do traffic counts seem to correspond generally to activity?

Are any noise sources present that are not discussed in report?

Topography



When can I use an onsite noise measurement?

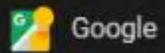
HUD's regulatory approach is focused on calculation of noise using data projections

Circumstances that may justify departure from this, and use of onsite measurement using noise meters and related tools:

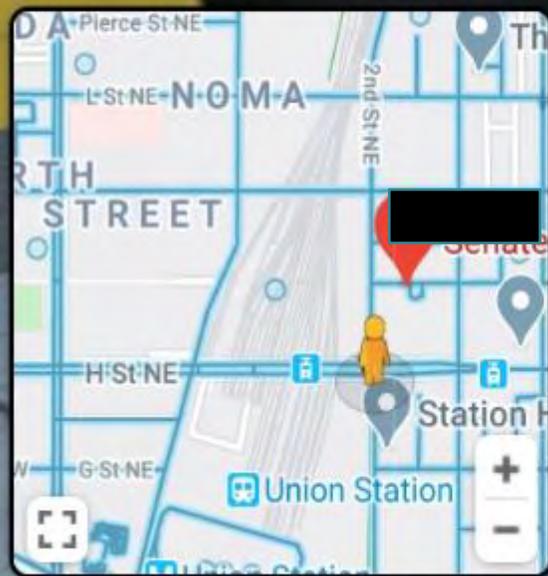
- *When the site has unique features, topography*
- *Data is unavailable for a noise source that impacts the project site (confirmed with request to state or local transportation agency)*
- *When the results of the noise calculation are controversial or dubious, for example because they do not correspond to site observations*
- *Other validation by a qualified profession*



Washington, District of Columbia



Street View



Google

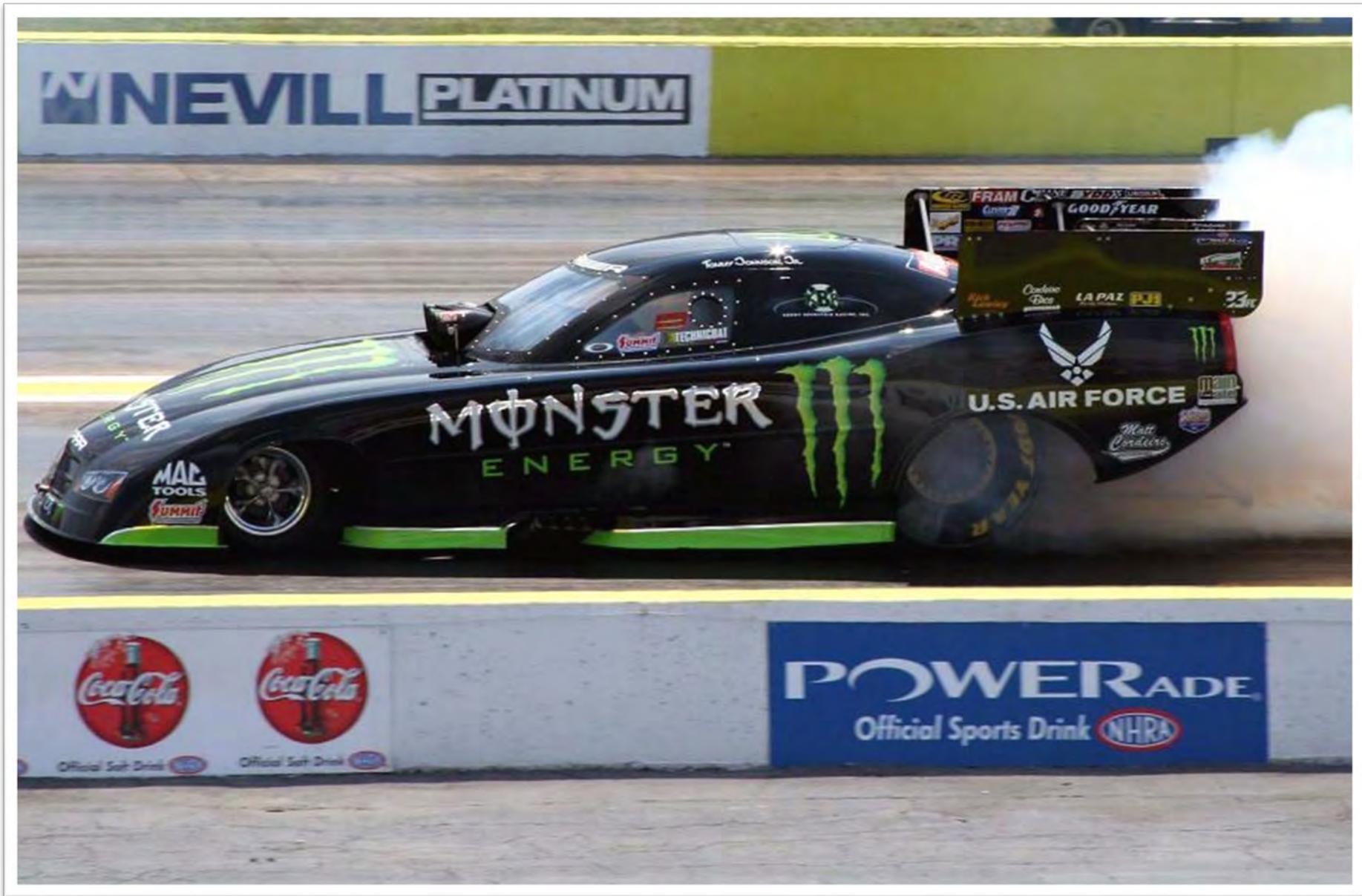


Photo credit: US Air Force.



Before using noise measurement on a site:

- Notify HUD of the proposed approach
- The noise measurement proposal will be reviewed by the Office of Multifamily with comment from Office of Environment & Energy
- A qualified acoustical engineer must be used
- The methodology for projecting 10 years into the future, based on measurement data, must be included

HUD will provide confirmation that measurement is an appropriate technique for the site in question.

What is required for noise measurement?





When should I hire a qualified noise professional?

- When use of a noise meter for sampling is proposed (required)
- When a noise-based Environmental Impact Statement is required, or a waiver of the noise-based EIS requirement is requested (strongly encouraged)
- Such qualification includes engineering qualification by the Institute for Noise Control Engineering (INCE) or equivalent qualification

Classify site according to noise level and determine next steps

HUD support for new construction or conversion from non-residential to residential is prohibited generally for project with unacceptable noise exposure and discouraged for projects with normally unacceptable noise exposure. 24 CFR 51.101(a)(3)

For rehabilitation projects that require an Environmental Assessment level of review, HUD actively will seek noise mitigation for projects in the normally unacceptable noise zone. 24 CFR 51.101(a)(5) If mitigation is not feasible, HUD will consider rejecting project.

For 223(f) and other refinance or rehabilitation projects at the Categorically Excluded, Subject to the Related Laws and Authorities level of review, HUD encourages appropriate noise attenuation measures. Otherwise approvable project at this level of review will not be rejected solely on the basis of noise.



Noise mitigation



Noise Mitigation Types

- Attenuation in building components – wall, window and door components and construction methods
- Site configuration
- Barriers – construction of a barrier between site and noise source, or use of buildings as barriers for outdoor areas; natural barriers (topography)





When noise attenuation is a requirement of approval of the environmental review, HUD requires the design to be submitted before the ERR is finalized and firm commitment is issued



Attenuation measures must be incorporated in construction plans

Mitigation Timing



Mitigation in structure – using STraCAT

Steps when using the STraCAT tool:

1. Provide project info and noise levels from the DNL for our site.
2. After completing the DNL fill in the top of the page then find your values in the bottom.
3. For wall you need to provide an area value for each type of material. Window/Door choose number of windows or doors.
4. On the bottom of the page will provide you with a Printable Page that you can keep for your ERR to go along with DNL.



Quantity of attenuation required

Per 24 CFR 51.104:

Normally Unacceptable

Above 65 dB, but not higher than 70 dB DNL = 25 STC

Above 70 dB, but not higher than 75 dB DNL = 30 STC

Unacceptable/above 75 = amount determined by HUD

Sound Transmission Classification Assessment Tool (STraCAT)

Part I - Description

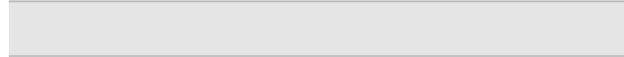
Project New construction	Sponsor/Developer 	
Location 	Prepared by 	
Noise Level 72	Date 	Primary Source(s) Rail

Part II - Wall Components **Part III - Results**

Doors: 0 0 ft² 0%

Evaluation Criteria	
Criteria	Value
Noise source sound level(dB):	72
Combined attenuation for wall component:	0 dB
Required attenuation:	30
Do Wall components meet requirements?	No

 Print



all design with more substantial materials will work, but may



Part II - Wall Components

Wall Construction Detail	Area	STC
<input type="text" value="- select wall -"/> <input type="button" value="▼"/> <input type="button" value="🔍"/> <input type="text" value="0"/>	0	0
<input type="button" value="Add new wall"/>		
	0 Sq. Feet	0

Window Construction Detail	Quantity	Sq Ft/Unit	STC
<input type="button" value="Add new window"/>			

Door Construction Detail	Quantity	Sq Ft/Unit	STC
<input type="button" value="Add new door"/>			

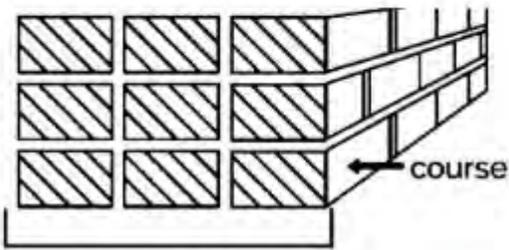


2"x6" wood studs; 16" o.c. staggered with 2"x6" top and bottom plates; double layer 1/2" drywall one side; single layer 1/2" Type X drywall other side



2"x6" wood studs; 16" o.c. staggered with 2"x6" top and bottom plates. Double layer 1/2" drywall one side. Single layer 1/2" Type X drywall other side

Face brick, triple wythe, mortared together; cavity filled with grout



triple wythe

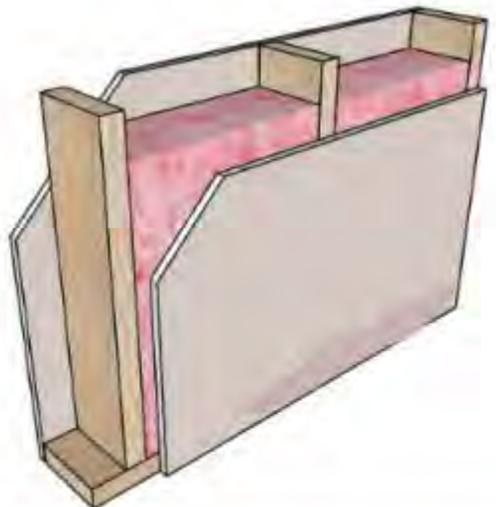
N/A 2

Face brick, triple wythe, mortared together; cavity filled with grout

61

Brick

2"x6" wood studs; 16" o.c.; 5 1/2" glass fiber insulation; 5/8" fire-shield gypsum board one side; 5/8" fire-shield gypsum board other side



N/A-3

2"x6" wood studs; 16" o.c.; 5 1/2" glass fiber insulation; 5/8" fire-shield gypsum board one side; 5/8" fire-shield gypsum board other side

38

Wooden, Studs

Window Construction Detail	Quantity	Sq Ft/Unit	STC
----------------------------	----------	------------	-----

Doors:	0	0 ft ²	0%
--------	---	-------------------	----

Part II - Wall Components

Wall Construction Detail	Area	STC
5.5" - gypsum, R20 batt, sheating and limestor	696	38
<p>Add new wall</p>		
696 Sq. Feet		38

Window Construction Detail	Quantity	Sq Ft/Unit	STC
Vinyl casement double-glazed	5	18	28
<p>Add new window</p>			

Door Construction Detail	Quantity	Sq Ft/Unit	STC
Vinyl w/ full light	2	24	28
<p>Add new door</p>			

Part III - Results

Wall Statistics	
Stat	Value
Area:	696 ft ²
Wall STC:	38

Aperture Statistics			
Aperture	Count	Area	% of wall
Windows:	5	90 ft ²	12.93%
Doors:	2	48 ft ²	6.9%

Evaluation Criteria	
Criteria	Value
Noise source sound level(dB):	72
Combined attenuation for wall component:	33.55 dB
Required attenuation:	30
Do Wall components meet requirements?	Yes

 Print





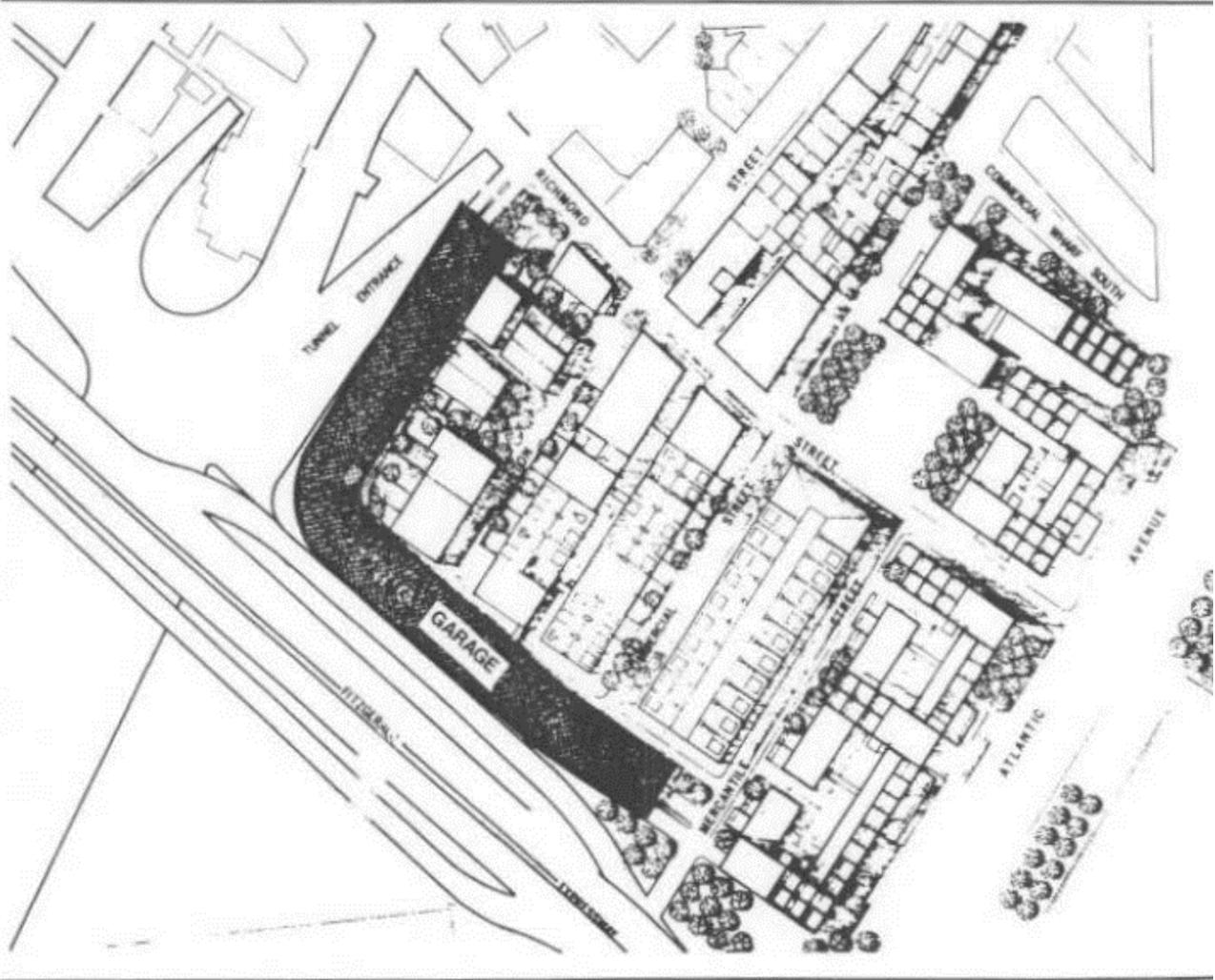
Note: attenuation in climates that do not require air conditioning

Windows may be configured to face away from noise sources

If windows must face noise sources, effective attenuation unlikely to work without air conditioning

See p. 35 of Noise Guidebook for additional discussion

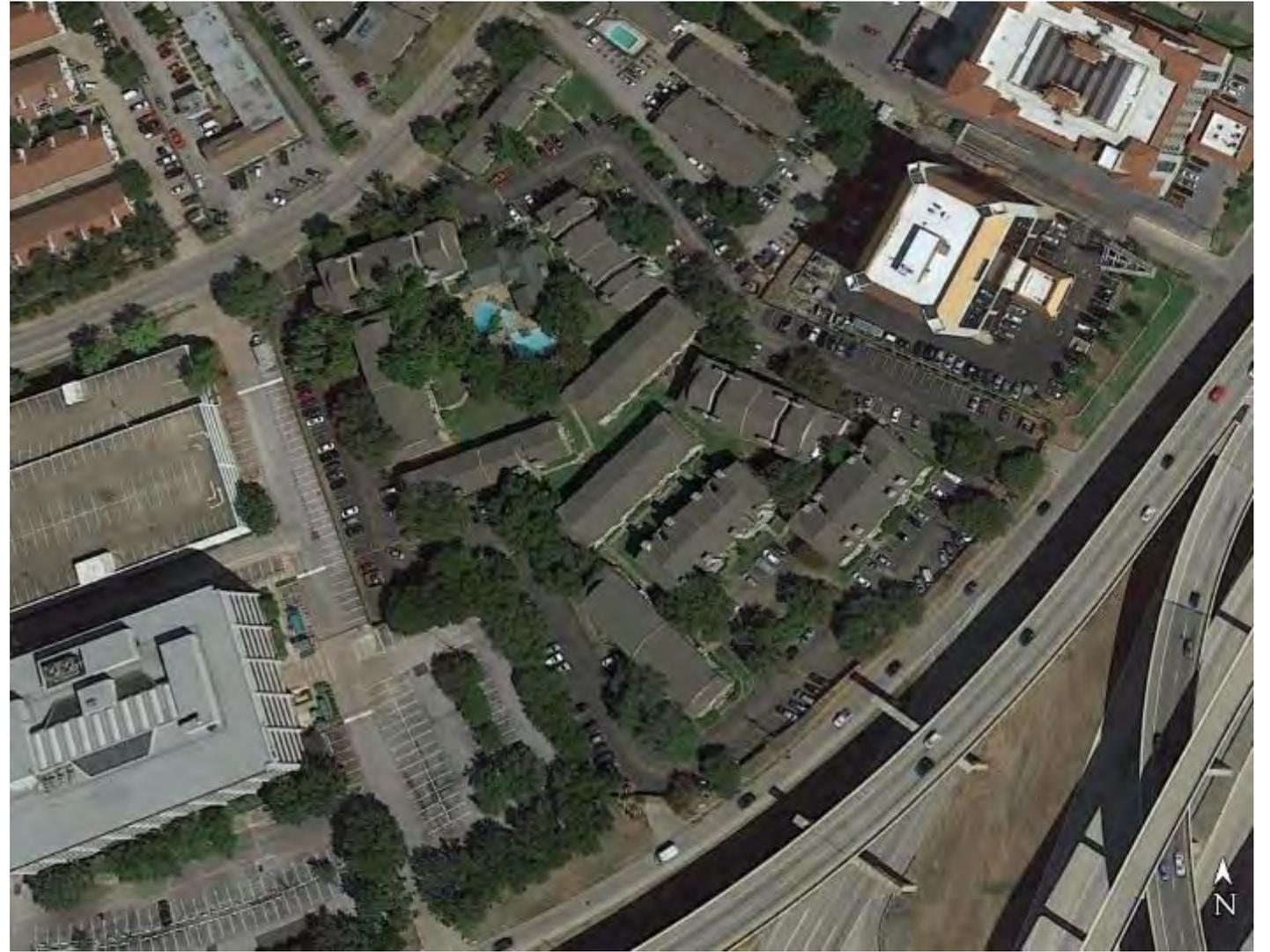
Figure 10
Use of a Parking Garage to
Shield a Residential Area



Site
configuration

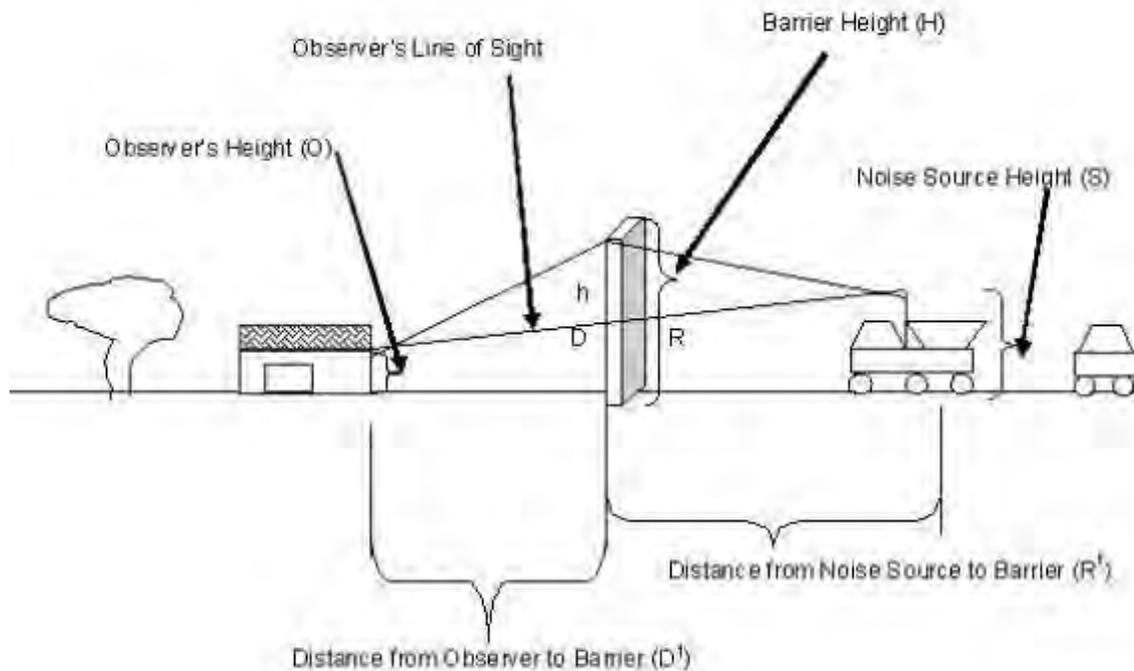


Site configuration (cont.)



Noise Mitigation—Barrier Performance Module

Allows reviewer to incorporate natural/manmade sound barrier into site DNL



- Moving a barrier closer to the source creates better attenuation.
- At a minimum, barriers must break the line-of-sight between noise sources and receivers.
- Noise traveling around and through a barrier reduces its effectiveness.



Barrier effect – example 1

Rooftop Exercise



Path of Sound



Image by Unknown Author licensed under CC BY-SA-NC-ND and elevation from HUD public record.



Note: Barrier height must block the line of sight

Input Data

H	<input type="text" value="64"/>	R ¹	<input type="text" value="47"/>
S	<input type="text" value="15"/>	D ¹	<input type="text" value="13"/>
O	<input type="text" value="69"/>	α	<input type="text" value="180"/>

Calculate Output

Output Data

h	<input type="text" value="5"/>	R	<input type="text" value="76"/>
D	<input type="text" value="13"/>	FS	<input type="text" value="12.3826"/>

New Site DNL:

-12.3826

Barrier effects applied prior to site classification

Regulations at 24 CFR 51.106(f) provide that, “If it is determined by adequate analysis that a berm and/or barrier will reduce noise at a housing site, and if the barrier is existing or there are assurances that it will be in place prior to occupancy, the environmental noise analysis for the site may reflect the benefits afforded by the berm and/or barrier.”



Noise Abatement and Control

- a. Half-size project plans and specifications and related product cut-sheets with the windows' and doors' Sound Transmission Class.
- b. An analysis of interior sound attenuation using Figures 17 and 19 from the HUD Noise Guidebook. (While this was not submitted, the StraCAT submission was acceptable.)
- c. Certification from the Architect of Record that exterior wall assemblies will provide a composite Sound Transmission Class of thirty-three (33) or greater where required. Note that Architect Letter is attached.
- d. An Operations and Maintenance plan that provides regular inspection and replacement of door and window seals for any dwelling unit with a private balcony.
- e. Sealing of all holes, gaps and spaces in exterior walls, including penetrations for pipes, hose bids, ducts, electrical conduit, etc., with a permanently pliable caulk or a permanently resilient gasket material.
- f. Inclusion of back-draft dampers or acoustical baffling on all exhaust vents.
- g. Mechanical ventilation that allows for operation in closed-window and -door conditions in all seasons.

Housing Requirements

Prior to Initial Endorsement, the HUD Construction Analyst shall review project plans and specifications for radon compliance in accordance with ANSI-AARST standard #CC-1000, Soil Gas Control Systems in New Construction of Buildings. Prior to Final Endorsement, and as described at MAP Chapter 9.5.C.2., the Lender must submit to HUD a certificate of completion from the Radon Professional once radon testing and/or mitigation is completed.

No building may be built within 10 feet of the pipeline easement.

Permits, reviews, and approvals

Typical Permits



7000 - Mitigation Follow-Up (50/58)

Review the mitigation measures required of this project below. Follow up on any measures by uploading documentation showing that the measures were carried out. When each measure is completed, check the box in the "Complete" column.

When you have finished updating this screen, update the archived version of the Environmental Review Record on the Complete and Archive Review screen.

Law, Authority, or Factor	Mitigation Measure	Upload Documentation	Comments	Cost Incurred	Complete
Noise Abatement and Control	<ol style="list-style-type: none"> The interior noise levels have been mitigated to not exceed a day-night average noise level of 33 decibels as documented by the Sound Transmission Classification of the dwelling unit's exterior walls factoring in fenestration. Appropriate ventilation is provided by a mechanical ventilation system and not by opening doors or windows. An Operations and Maintenance plan is in place that requires periodically inspecting seals and repairing or replacing building components when their performance diminishes. Noise attenuation of 33 db must be demonstrated by a Figure 17 and Figure 19 prior to initial closing. Outdoor spaces must be designed to meet the required noise attenuation of 65 dB. 	<input type="button" value="Upload"/>	<input type="text"/>	\$ <input type="text"/>	<input type="checkbox"/>
	A Radon report is required for all applications, unless an exception listed in the MAP Guide Chapter 9, Section 5.C.2.c applies. All testing and mitigation must be performed under the direct supervision of a Radon Professional and follow the testing standards outlined in Chapter 9.5.C.2.d of the Map guide. In July 2017 ASTM withdraw the radon standard for new construction currently cited in the MAP Guide				

Mitigation follow up

This screen is updated by HUD staff post-construction to evidence compliance with mitigation conditions



Unacceptable Zone Special Processing

Environmental Impact Statements, Waivers, Special
Approval of site and mitigation



For sites classified as “Unacceptable” (over 75 dB DNL) requirements for new construction and conversion to residential use include:

Environmental Impact Statement or request for waiver of EIS requirement

Approval of the site by the Assistant Secretary for CPD

Approval of noise attenuation by the Assistant Secretary for CPD

Additional
processing
requirement for
sites over 75 dB
DNL



Housing staff have three options for proceeding for new construction or conversion projects over 75 DNL:

1. Reject the project;
2. Complete an EIS, which would take over a year and require two notices published in the federal register; or
3. Pursue a waiver of the EIS requirement, if:
 - a) Noise is the only unresolved environmental issue at the site;
 - b) All environmental impacts have a mitigation plan and related laws compliance steps completed;
 - c) HUD approves the mitigation plan to achieve 45 dB DNL indoors and all noise sensitive outdoor uses have been designed to achieve HUD's noise standard of 65 dB DNL or below.

What about an EIS Waiver for Noise?



EIS Waivers for Noise (cont.) - 1

Lenders considering requesting an EIS/noise waiver must work closely with Housing contact, who will bring in the FEO/REO and HUD's noise expert.

Information HUD needs to process an EIS waiver:

- Complete HEROS Environmental review with FEO/REO review and comment

- Final site plan with detailed noise exposure and attenuation plan

- Written recommendation from the office processing the application.



HEROS Environmental Review components:

- Includes consultation processes such as Section 106 of the National Historic Preservation Act
- Noise attenuation measures (e.g., window components, barriers) are included in project plans used for consultation and compliance for other related laws and authorities, as appropriate.
- Includes all necessary documentation for verifying noise assessment (e.g., site plan)
- The need for a complete environmental review can mean that the EIS waiver request must wait until other issues have been resolved

EIS Waivers for Noise (cont.) - 2



Lender role in the process:

- Identify clearly in app/pre-app when a project has noise exposure >75 dB DNL
- Explain in app/pre-app why HUD should consider an EIS waiver for the project, including market- or mission-driven factors, lack of alternative sites, feasibility of mitigation, best use of site, etc.
- Commit to providing complete and substantial info to support waiver request

EIS Waivers for Noise (cont.)- 3



EIS Waivers for Noise (cont.)-4

Steps and time periods in waiver process after HUD receives review and supporting information:

- Early coordination – Housing staff coordinates early review by HUD staff involved in approval of request
- Housing Field Staff and Office of Environment and Energy Field staff review.
- 30-day review of request by Office of Environment & Energy HQ
- 30-day review by Office of General Counsel
- Approval by Assistant Secretary for CPD



Policy updates and Frequently Asked Questions



Q: How can I avoid a delay in the noise review process?

Provide complete noise data and noise analysis to HUD at preapplication or, in direct-to-firm apps, around concept meeting

When a waiver is sought, request early coordination of the waiver process among relevant HUD offices

Ensure ERR noise analysis provided to HUD meets standards discussed in regulations, training, and guidance



Who at HUD reviews Noise Assessments?

Primary point of contact for noise assessment in FHA activities is the underwriter or appraiser

Housing staff must provide OEE the opportunity for review and comment on any new construction or conversion of use activities 200 units and above

Housing staff encouraged to consult with OEE when a new construction or conversion of land use project is exposed to noise over 65 DNL and noise attenuation is required



What is a Special Environmental Clearance?

The HUD noise regulation and guidebook use the term ‘special environmental clearance’ —an obsolete reference to early HUD env regulations.

In 2019 CPD published Notice CPD-19-06, amending the “Special Environmental Clearance” definition to mean an Environmental Assessment with no additional requirement for FEO/REO review and comment.

Outcome:

- Review and comment no longer required for EA projects 200 units or less with noise under 75 DNL.
- FEOs and REOs remain regional experts on noise and MF will still consult them for Technical Assistance for projects over 65 DNL



FAQ: What is a “largely undeveloped area”?

24 CFR 51.104(b)(1)(i): An EIS is required for proposed projects 65-75 dB DNL (NUNZ) that are in a “largely undeveloped area” – this is any area for the which the following things are not true:

1. *The area within a 2-mile radius of the project boundary is >50 developed for urban uses and*
2. *Infrastructure (particularly water and sewer) is can be established for the project.*



FAQ: What “average speed” for a given road should I use in the noise calculator?



Use the posted speed limit for the road as the average speed



If no signs are observable, the legal speed limit for the road should be obtained from the relevant transportation agency



FAQ: I've heard that there is a 1 dB "tolerance" that may be used for noise calculator results. Is this true?

No, this is no longer HUD policy. It is also no longer needed based on current features of the HUD noise calculator.



Resources

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

Barrier Performance Module:

<https://www.hudexchange.info/programs/environmental-review/bpm-calculator/>

HUD Noise Guidebook: <https://www.hudexchange.info/resource/313/hud-noise-guidebook/>

Sound Transmission Classification Assessment Tool (TraCAT):

<https://www.hudexchange.info/stracat/>



WISER Modules

Getting Started (Part 50 and Part 58)

Tools and Resources

Airport Hazards

Endangered Species

Noise Abatement and Control

Water Elements

Floodplain Management

Flood Insurance

Coastal Barrier Resources

Coastal Zone Management

Sole Source Aquifers

Wetlands

Environmental Justice

Environmental Assessment Factors/Site
Planning

Explosive and Flammable Facilities

Wild & Scenic Rivers

Farmland

Air Quality

Historic Preservation: The Section 106 Process

Site Contamination



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2019 202/811 NOFA Environmental Information

Housing Environmental Guidance

HEROS

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HEROS Guidance for ORCF Partners

This document provides instructions to consultants and lenders assisting with environmental reviews for the Office of Residential Care Facilities, Section 232 FHA-insured projects.

Date Published: April 2020

HEROS Guidance for Multifamily FHA Partners

Date Published: November 2019

MAP Guide Standard Update: Environmental Clearance Officer Review in Normally Unacceptable Noise Zones

Date Published: October 2019

HEROS Guidance for 223(a)(7) and CENST 223(f) Projects

Date Published: August 2019

HEROS Guidance for RAD Partners

Date Published: April 2018

Guidance for Categorizing an Activity as Maintenance for Compliance with HUD Environmental Regulations, 24 CFR Parts 50 and 58

This Notice clarifies the difference between maintenance and repair for compliance with HUD's environmental regulations, 24 CFR Parts 50 and 58. It applies to all HUD program offices – CPD, Housing, and PIH. The Notice supersedes and replaces the March 28, 2006 CPD policy memorandum on the subject.

Date Published: February 2016

HUD Balcony Policy

This Notice reconciles the approach to balconies within the Department's regulatory constraints in 24 CFR Part 51 Subpart B, Noise and Abatement and Control, and clarifies compliance.

Date Published: December 2016

Housing Environmental Website

<https://www.hudexchange.info/programs/environmental-review/housing/>

Upcoming Webinars

HEROS Training for Multifamily and Healthcare FHA Partners (September 15, 2020)

Section 106 Programmatic Agreements (Cancelled)



Past Webinar Materials

Acceptable Separation Distance (ASD) to Industry Standards for Propane Tanks (Feb 21, 2020)

<https://www.hudexchange.info/trainings/courses/oeo-updates-to-hud-s-asd-requirements-for-propane-tanks-webinar/>

Floodplains Overview for all HUD programs (March 31, 2020)

<https://www.hudexchange.info/trainings/courses/24-cfr-part-55-floodplain-management-and-wetlands-protection-rules-webinar/>

Floodplain Training for FHA Partners (May 12, 2020)

<https://www.hudexchange.info/trainings/courses/24-cfr-part-55-floodplain-management-for-multifamily-and-residential-care-fha-programs-webinar/>

Historic Properties Section 106 Review for MF and Healthcare FHA (July 23, 2020)

<https://www.hudexchange.info/trainings/courses/section-106-historic-preservation-for-multifamily-and-office-of-residential-care-fha-programs/>





Questions?

For more questions about specific projects, contact the MF office processing your application or for ORCF, email: LeanThinking@hud.gov.