



**SOUTHEAST MORTGAGEE ADVISORY COUNCIL**

## HIT THE NAIL ON THE HEAD

**Environmental Part I – Laws and Authorities – Overview, Common Deficiencies, FAQ's. Session 2 Presented by:**

- Sara Jensen, Environmental Specialist, Office of Housing;
- Jacob Levine, Environmental Specialist, Office of Housing;
- Chuck Melton, Field Environmental Officer, Region IV;
- Moderated by Amy Long, JLL Real Estate Capital, LLC

# NOISE

## Supporting Documentation

Road # 1 Name:	<input type="text"/>		
Road #1			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	

NAL = Noise Assessment Location (aka “Receiver”)

Noise Source: Roadway, Railway, or Airport

Lateral Distance: NAL to Source distance measured on a map

Effective Distance: Lateral distance adjusted for difference in elevation between Source and NAL

# NOISE

## Noise Assessment Location (NAL) Selection

- i. Most multifamily projects require multiple NALs
- ii. Number of NALs increases with number of:
  - Noise-sensitive Uses (Buildings and Outdoor Uses)
  - Noise Sources
  - Source-Receiver Vectors (distance and direction)
- iii. NAL selection becomes complex with multiple source-receiver vectors

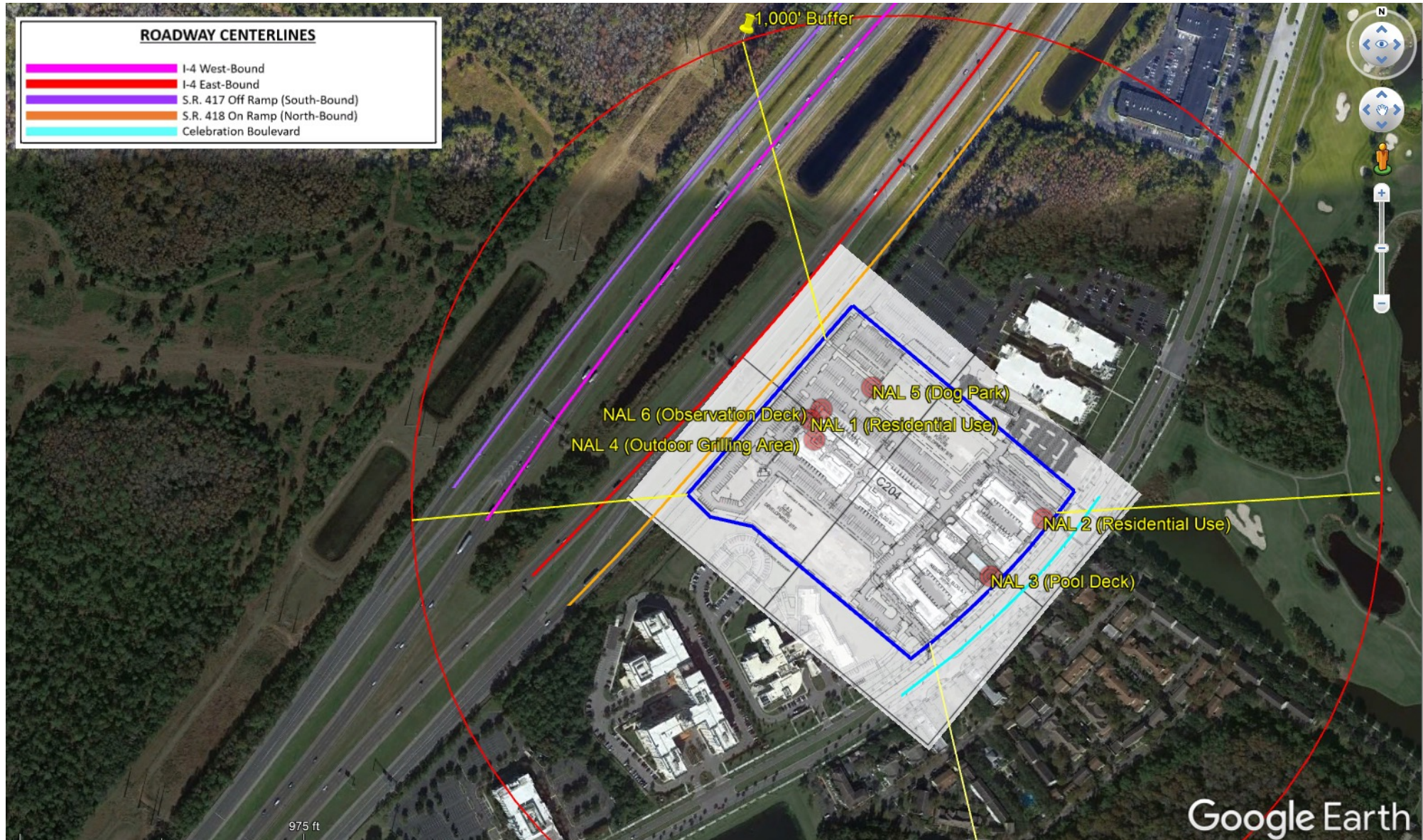
# NOISE

## Noise Assessment Location (NAL) Selection

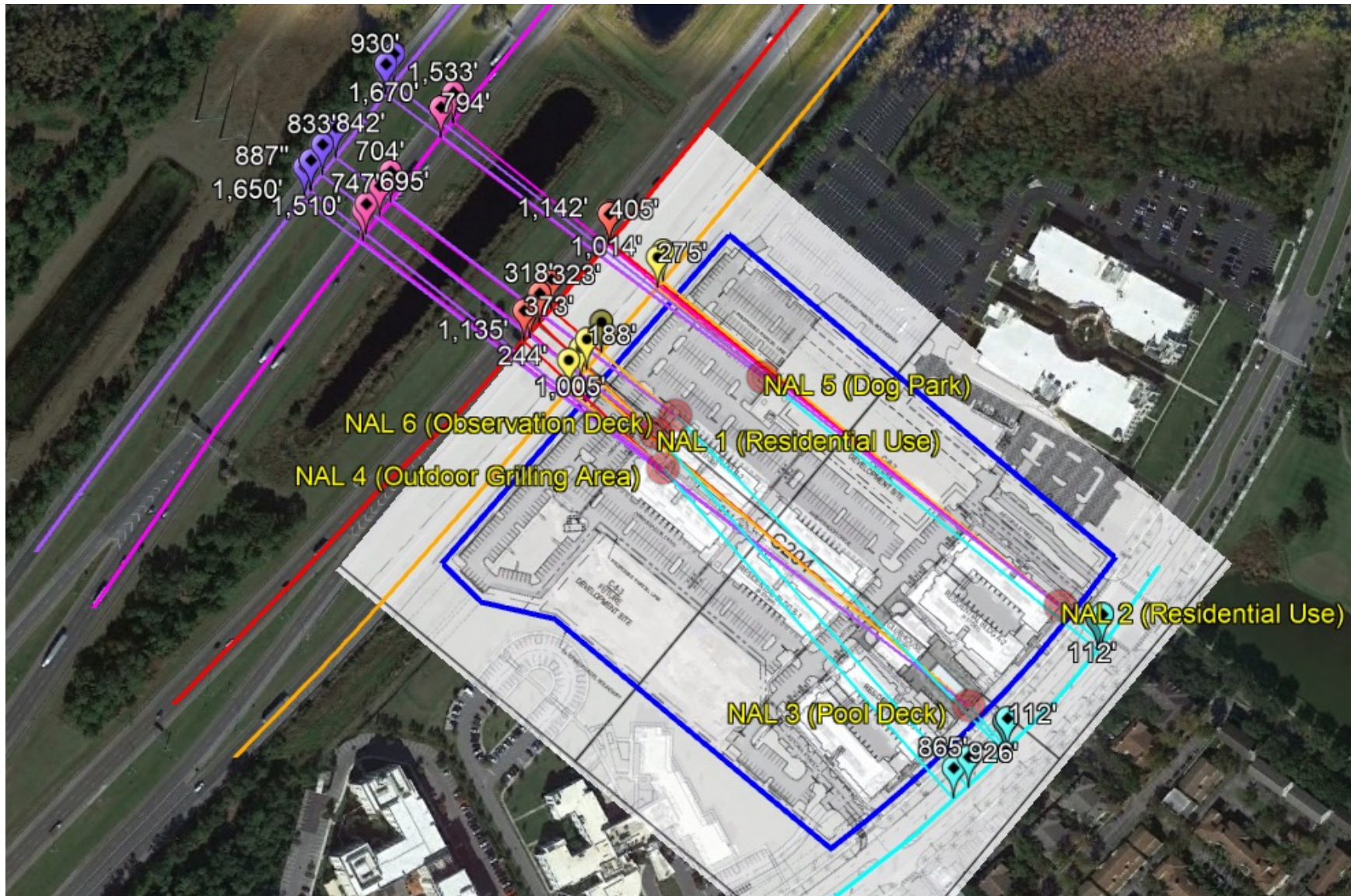
### Supporting Documentation

- NAL Overview Map – showing all NALs and roadway/railway sources (ideally with site plan overlay)
- Additional maps showing each NAL and Sources annotated with measurement points and distances (multiple maps may be necessary for legibility)

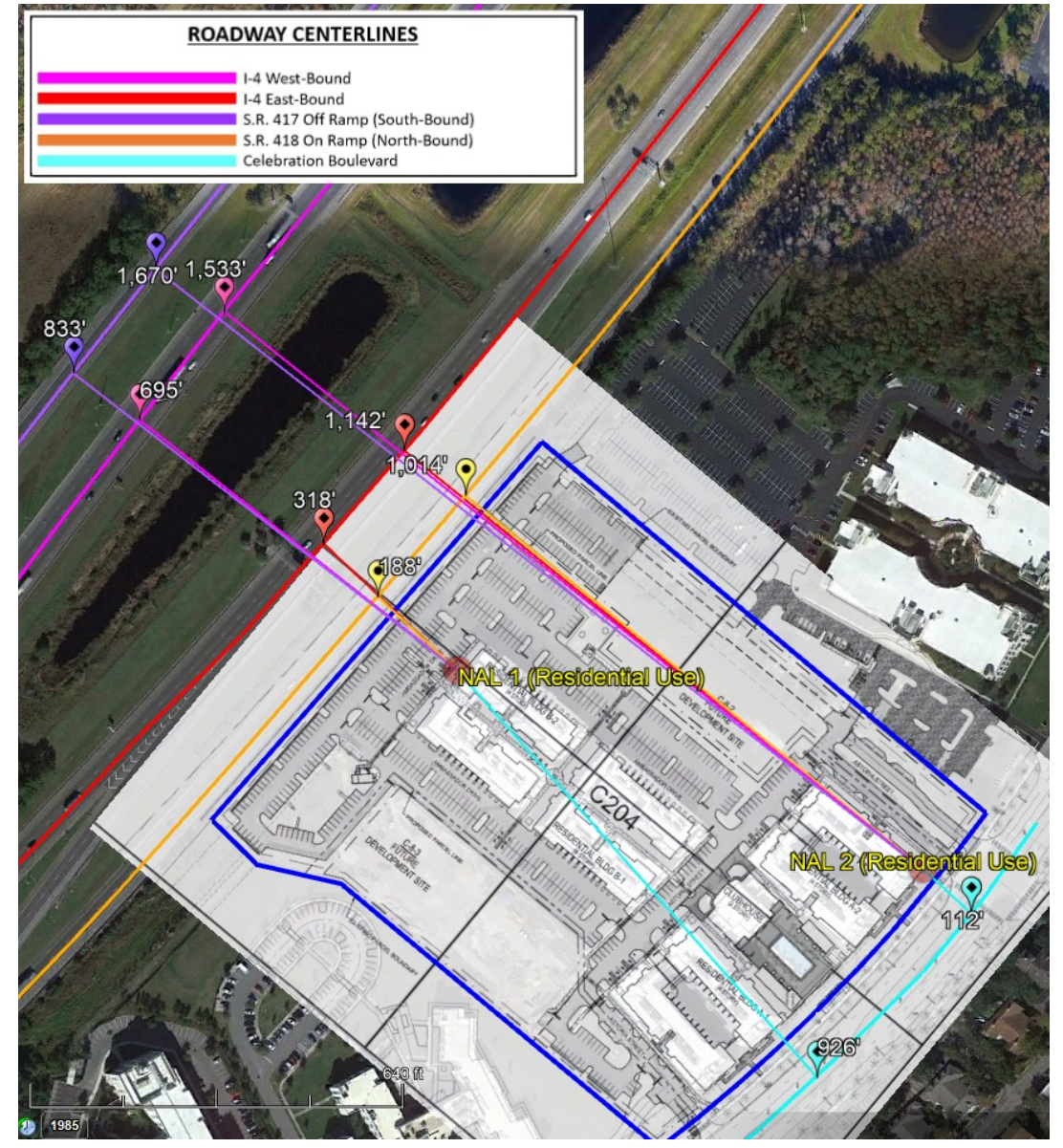
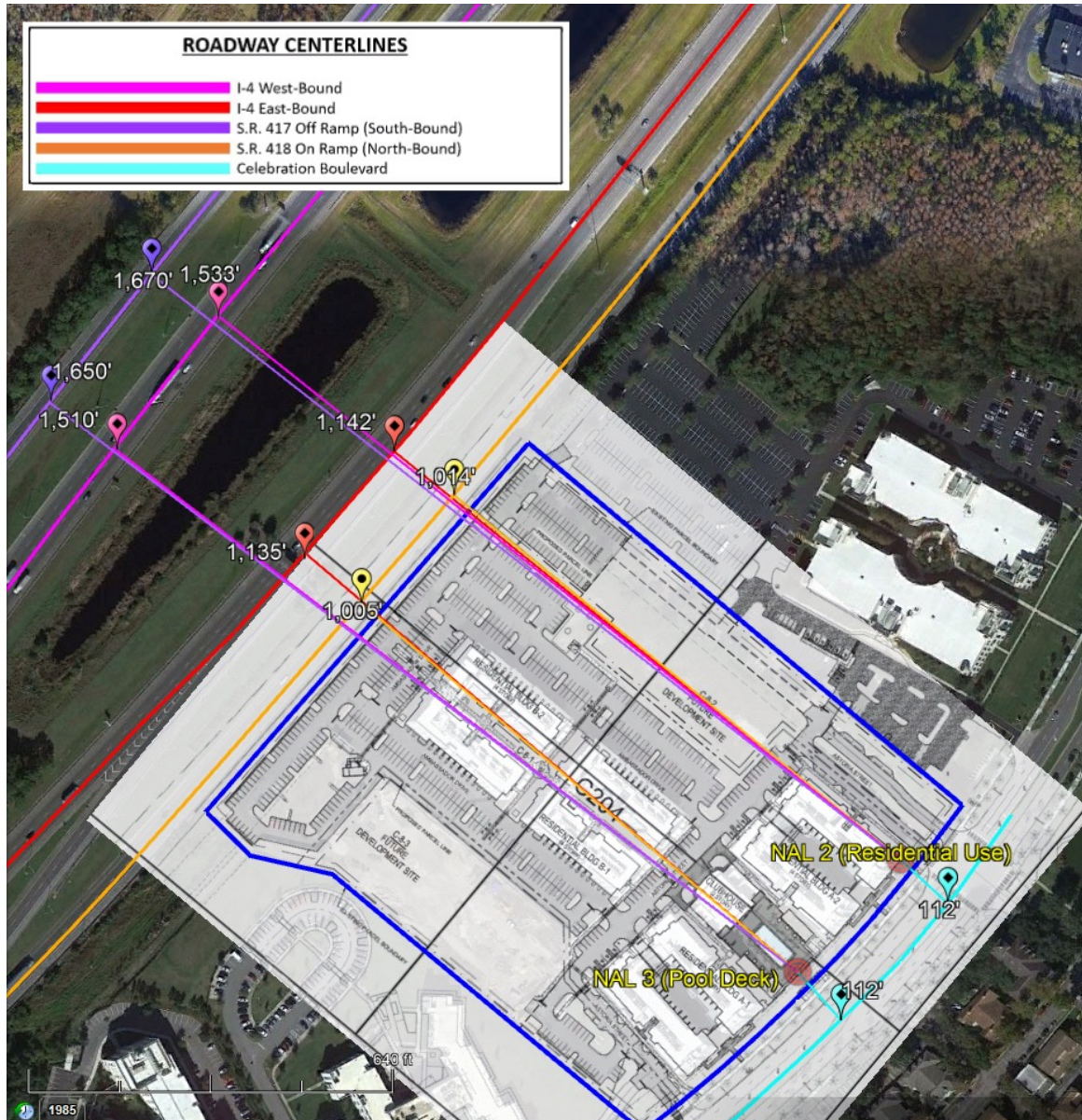
# NOISE: NAL Overview Map



# NOISE: NAL – Source Distances (not useful)



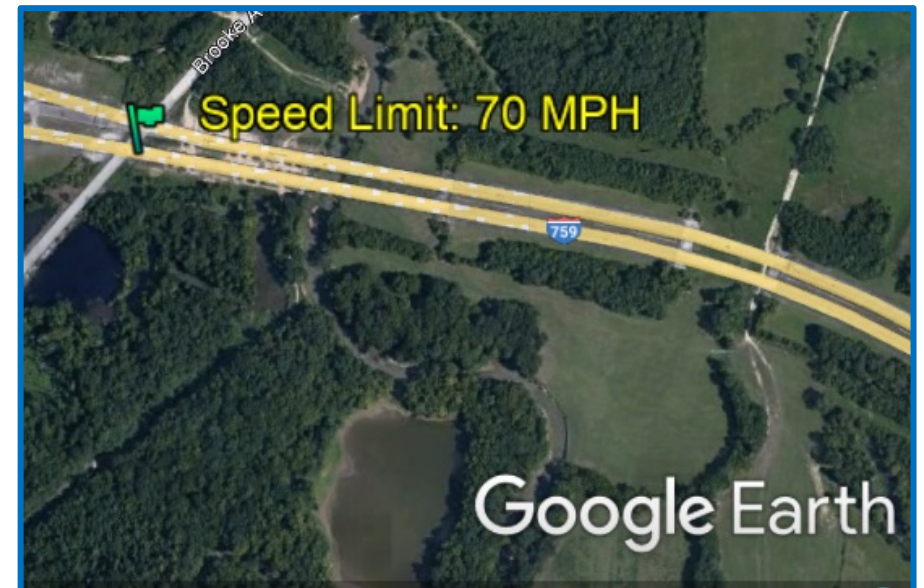
# NOISE: NAL – Source Distances



# NOISE

## Average Speed

Road # 1 Name:	<input type="text"/>		
Road #1			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	





# NOISE

## AADT: Historical Data – Total AADT

### Preferred Sources

Local/State Roadway Authorities

- State DOT
- City/County Transportation/Roadway Departments

Road # 1 Name:	<input type="text"/>		
Road #1			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	

# NOISE – Historical AADT Data Source

AF Group	14	Route	
GF Group	Davidson	Active	Yes
Class Dist Grp	14	Category	CC
Seas Class Grp			
WIM Group			
QC Group	Default		
Funct'l Class	Other Principal Arterial	Milepost	
Located On	NOLENSVILLE PK.		
Loc On Alias	NEAR THOMPSON LANE		
More Detail	▶		

## STATION DATA

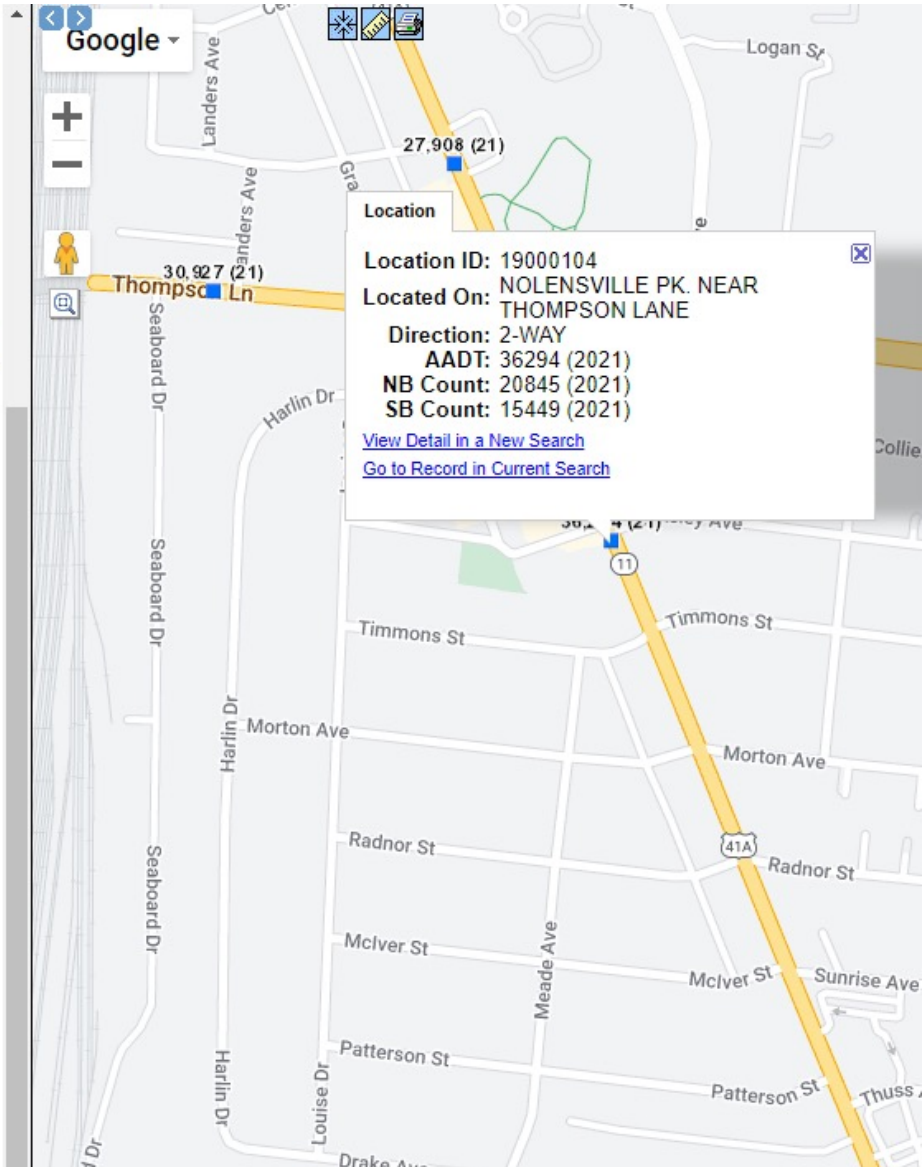
Directions: **2-WAY** NB SB

AADT							
Year	AADT	DHV-30	K %	D %	PA	BC	Src
2021	36,294	2,414	7	51	33,135 (91%)	3,159 (9%)	
2020	27,034	2,401	9	54	24,656 (91%)	2,378 (9%)	
2019	32,494		10	60			
2018	38,138		8	75			
2017	31,151 <sup>2</sup>						

Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV
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VOLUME COUNT			
Date	Int	Total	
Mon 2/22/2021	15	35,152	
Wed 2/19/2020	15	32,722	
Mon 3/4/2019	60	34,539	
Wed 2/28/2018	60	39,711	
Wed 3/16/2016	60	33,753	
Mon 1/26/2015	60	30,523	
Mon 1/27/2014	60	30,042	
Mon 1/14/2013	60	29,637	
Tue 1/17/2012	60	34,100	
Wed 2/2/2011	60	33,420	

VOLUME TREND	
Year	Annual Growth
2021	34%
2020	-17%
2019	-15%
2018	22%
2017	3%
2016	-7%
2015	9%
2014	-2%
2013	-10%
2012	9%



# NOISE

## AADT: Historical Data – Vehicle Class Counts

### Preferred Sources

Most Recent Classification Count from:

- State DOT
- City/County Transportation/Roadway Departments

Road # 1 Name:	<input type="text"/>		
Road #1			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	<input type="text"/>

# NOISE – Counts with Vehicle Class Data

AADT <span>?</span>							
Year	AADT	DHV-30	K %	D %	PA	BC	Src
2021	20,819	1,702	8	64	19,010 (91%)	1,809 (9%)	
2020	23,422	2,283	10	70	21,360 (91%)	2,062 (9%)	
2019	25,576		10	70			
2018	25,558		9	71			
2017	22,202 <sup>2</sup>				19,467 (88%)	2,734 (12%)	

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Travel Demand Model									
Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV

VOLUME COUNT			
	Date	Int	Total
👁	Tue 1/19/2021	15	22,254
👁	Mon 1/6/2020	15	27,571
👁	Mon 2/4/2019	60	25,353
👁	Mon 1/29/2018	60	24,625
👁	Mon 3/21/2016	60	22,095
👁	Mon 1/13/2014	60	23,475
👁	Mon 2/11/2013	60	23,781
👁	Thu 1/5/2012	60	23,032
👁	Mon 1/11/2010	60	20,361
👁	Tue 1/13/2009	60	21,454

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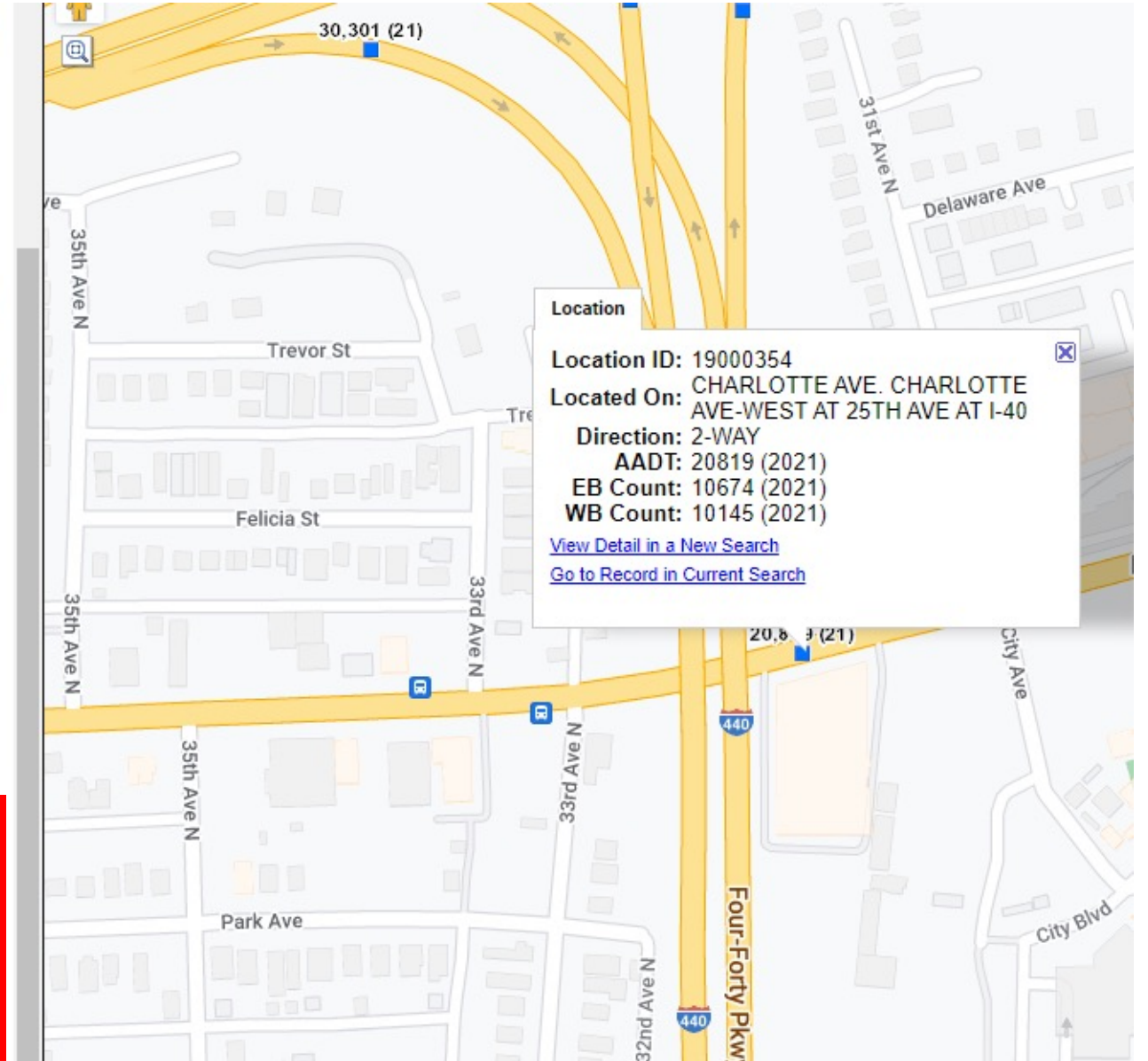
mm/dd/yyyy To Date

VOLUME TREND <span>?</span>	
Year	Annual Growth
2021	-11%
2020	-8%
2019	0%
2018	15%
2017	5%
2016	-14%
2015	3%
2014	4%
2013	10%
2012	13%

1-10 of 36

SPEED				
Date	Int	Pace	85th	Total
No Data				

CLASSIFICATION			
	Date	Int	Total
👁	Mon 5/8/2017	60	19,568
👁	Mon 3/13/2017	60	13,910
👁	Tue 1/20/2015	60	12,691
👁	Mon 10/28/2013	60	19,171



# NOISE

## AADT Future Projections

Road # 1 Name:	<input type="text"/>		
<b>Road #1</b>			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	<input type="text"/>

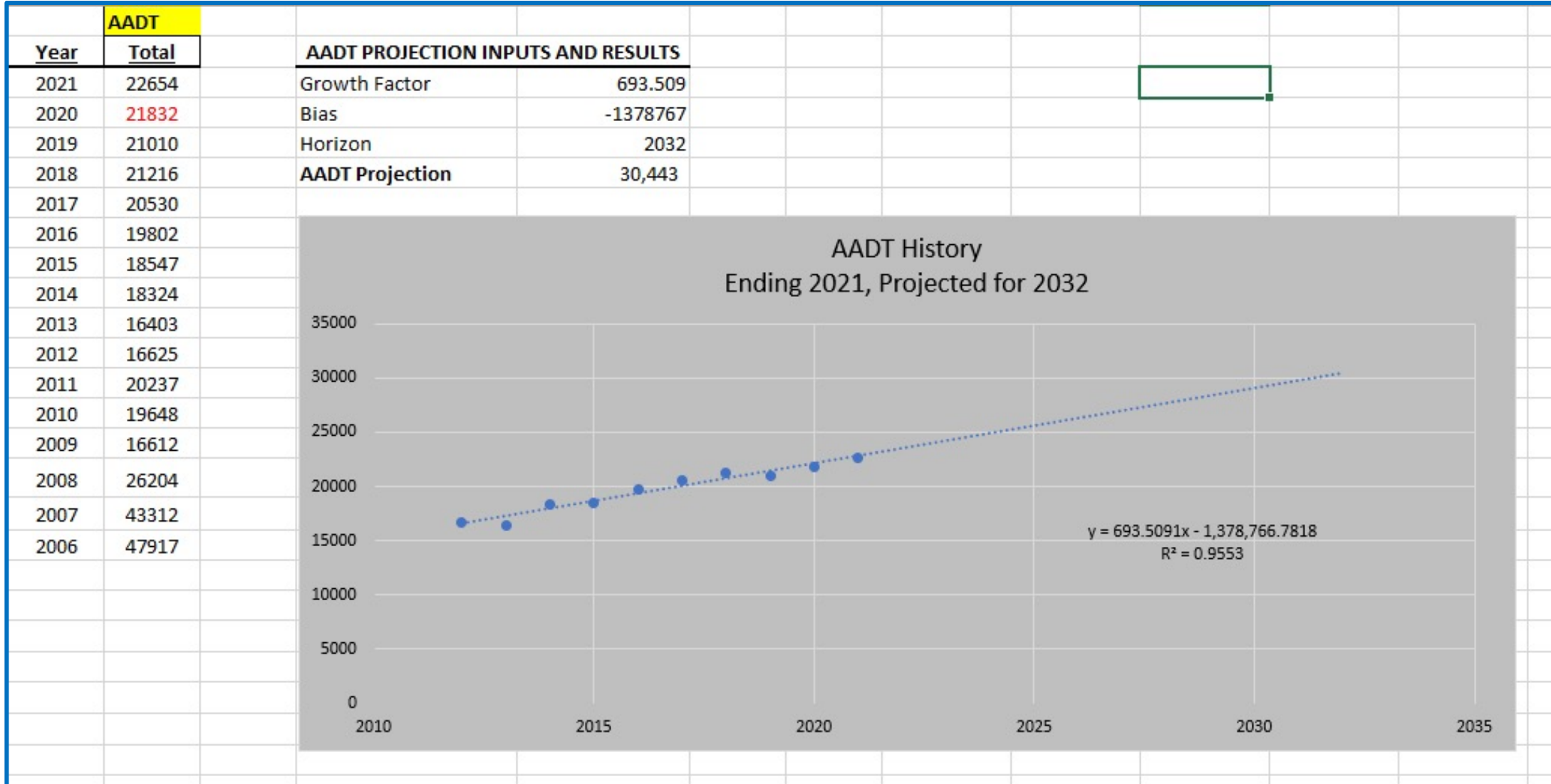
### Preferred Sources:

- State/Federal Highway Planning Departments
- Regional Transportation Planning Agencies
- Local Roadway Departments

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- Regression Analysis of Historical Data
- Other: as justified by narrative explanation with attached supporting documentation

# NOISE – Regression Analysis Example



# NOISE

## Night Fraction of AADT

Road # 1 Name:			
Road #1			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance			
Distance to Stop Sign			
Average Speed			
Average Daily Trips (ADT)			
Night Fraction of ADT			
Road Gradient (%)			
Vehicle DNL			
Calculate Road #1 DNL		Reset	

### Preferred Sources: Future Projections

- Hourly summary of most recent count **with vehicle class info**
- Hourly summary of most recent count without vehicle class info
- Standard values provided by local/state agencies based on roadway Functional Classification
- HUD default Value: 15

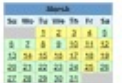
REAL WORLD: These values are never identical

# NOISE – vehicle Class and Night Fraction


## Example

FHWA-Scheme F Classification																
Start Time	Motor cycle	Car	Pick up	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	Unk	Err	TOTAL
12:00 AM	1	107	15	0	0	0	0	1	0	0	0	0	0	0	0	124
1:00 AM	0	65	4	0	2	0	0	0	0	0	0	0	0	0	0	71
2:00 AM	0	38	4	0	0	1	0	0	0	0	0	0	0	0	0	43
3:00 AM	0	38	9	0	0	1	0	0	0	0	0	0	0	0	0	48
4:00 AM	0	82	11	0	1	0	0	0	1	0	0	0	0	0	0	95
5:00 AM	1	286	63	0	8	1	2	3	0	0	3	1	0	0	0	368
6:00 AM	1	623	120	0	21	8	11	15	6	1	17	11	18	0	0	852
7:00 AM	8	731	160	2	10	11	35	36	16	7	37	26	119	0	0	1198
8:00 AM	8	413	118	2	9	16	28	40	10	8	33	21	158	0	0	864
9:00 AM	9	843	227	0	14	7	23	32	9	7	23	16	11	0	0	1221
10:00 AM	3	771	222	0	17	10	21	28	6	8	26	12	15	0	0	1139
11:00 AM	4	853	258	1	20	11	21	42	5	6	27	11	15	0	0	1274
12:00 PM	6	988	254	0	14	11	30	38	7	5	43	15	22	0	0	1433
1:00 PM	7	996	204	0	20	10	25	30	9	1	32	11	16	0	0	1361
2:00 PM	7	921	218	0	16	6	12	29	4	3	25	15	16	0	0	1272
3:00 PM	15	911	228	0	17	8	31	60	5	7	37	28	23	0	0	1370
4:00 PM	14	1080	208	0	12	14	51	60	8	4	31	43	37	0	0	1562
5:00 PM	9	1071	180	0	9	15	36	60	7	7	31	27	44	0	0	1496
6:00 PM	6	898	128	0	7	5	29	28	0	3	22	18	22	0	0	1166
7:00 PM	2	769	103	0	5	4	12	32	1	1	8	8	8	0	0	953
8:00 PM	2	555	59	0	4	0	8	17	1	2	6	3	2	0	0	659
9:00 PM	5	366	51	0	6	0	4	5	1	0	5	1	2	0	0	446
10:00 PM	2	311	28	0	2	0	3	3	0	0	2	0	0	0	0	351
11:00 PM	2	178	19	0	1	0	1	1	0	0	0	0	0	0	0	202
TOTAL	112	13894	2891	5	215	139	383	560	96	70	408	267	528	0	0	19568

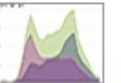
Count Navigation: <<< < > >>>




[View Calendar](#)




[Bar Graph](#)



[Line Graph](#)



[View in Excel](#)



[Monthly](#)

FHWA-Scheme F Classification															
Start Time	Motor cycle	Car	Pickups	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U		Total
12:00 AM	0	56	15	0	0	0	0	0	2	0	0	0	0	0	73
1:00 AM	0	37	5	0	0	1	1	0	1	0	0	0	0	0	45
2:00 AM	1	36	7	0	0	1	0	1	2	1	0	0	0	0	49
3:00 AM	1	31	8	0	0	2	1	2	0	0	0	0	2	0	47
4:00 AM	1	123	35	0	3	0	0	2	1	0	0	0	0	0	165
5:00 AM	6	281	107	0	4	1	1	12	5	0	0	2	2	0	421
6:00 AM	10	692	265	0	15	18	28	22	10	6	11	8	16	0	1101
7:00 AM	7	991	336	0	9	27	48	53	13	3	33	21	26	0	1567
8:00 AM	8	1028	372	0	21	15	34	57	16	4	24	16	19	0	1614
9:00 AM	7	801	325	0	14	12	24	43	8	3	21	13	11	0	1282
10:00 AM	6	826	316	1	9	19	26	36	13	6	12	13	11	0	1294
11:00 AM	8	862	322	0	8	21	45	40	13	6	27	17	14	0	1383
12:00 PM	8	908	320	1	7	17	22	44	9	4	15	16	12	0	1383
1:00 PM	7	892	355	0	13	6	20	35	8	2	12	19	10	0	1379
2:00 PM	6	961	349	0	6	14	37	37	4	6	23	16	15	0	1474
3:00 PM	5	1108	392	0	12	18	31	58	4	4	26	24	20	0	1702
4:00 PM	7	1230	375	0	5	12	30	57	5	1	28	20	19	0	1789
5:00 PM	9	1216	370	0	7	6	37	61	7	4	24	25	20	0	1786
6:00 PM	9	887	270	0	1	2	15	32	6	1	15	11	15	0	1264
7:00 PM	7	733	185	0	3	0	16	18	5	2	11	7	4	0	991
8:00 PM	5	502	131	0	1	2	5	14	3	3	6	2	1	0	675
9:00 PM	1	341	69	1	0	1	2	11	0	0	1	0	1	0	428
10:00 PM	2	219	44	0	0	3	3	2	3	0	2	1	2	0	281
11:00 PM	0	129	23	0	0	0	1	1	1	0	0	0	0	0	155
TOTAL	121	####	4996	3	138	198	427	638	139	56	291	231	220	0	22348

% of Total	<b>CARS</b> 89.52%	<b>MEDIUM TRUCKS</b> 0.62%	<b>HEAVY TRUCKS</b> 9.85%	<b>OVERALL NIGHT %</b> 10.46%
Nighttime Fraction	10.67%	15.94%	8.22%	



# NOISE

## Road Gradient

Road # 1 Name:	<input type="text"/>		
<b>Road #1</b>			
Vehicle Type	Cars <input type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input type="checkbox"/>
Effective Distance	<input type="text"/>	<input type="text"/>	<input type="text"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Daily Trips (ADT)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Night Fraction of ADT	<input type="text"/>	<input type="text"/>	<input type="text"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Vehicle DNL	<input type="text"/>	<input type="text"/>	<input type="text"/>
Calculate Road #1 DNL	<input type="text"/>	Reset	<input type="text"/>

### Requires a map exhibit showing:

- Points at which elevation values were taken
- Elevation at each point
- Distance between points

# NOISE – Road Grade Documentation Example



# NOISE

## Building Mitigation of Noise: STC and STraCAT

- Analysis must be broken down by unit type
- For the same floorplan, a corner unit will require a separate analysis comprised of both exterior wall sections
- **DO NOT** analyze aggregate of entire exterior wall area by building or level

### Part I - Description

Project:  Sponsor/Developer:

Location:  Prepared by:

Noise Level:  Date:

Primary Source(s):

### Part II - Wall Components

Wall Construction Detail	Area	STC
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>

0 Sq. Feet      0

Window Construction Detail	Quantity	Sq Ft/Unit	STC
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Door Construction Detail	Quantity	Sq Ft/Unit	STC
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Part III - Results

#### Wall Statistics

Stat	Value
Area:	0 ft <sup>2</sup>
Wall STC:	0

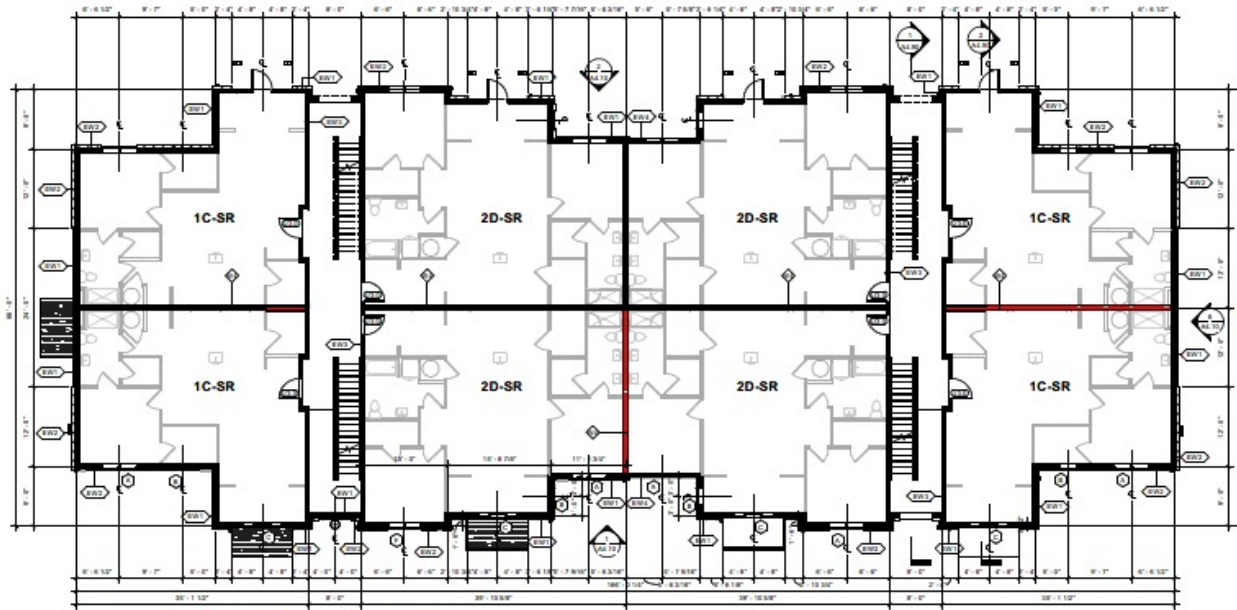
#### Aperture Statistics

Aperture	Count	Area	% of wall
Windows:	0	0 ft <sup>2</sup>	0%
Doors:	0	0 ft <sup>2</sup>	0%

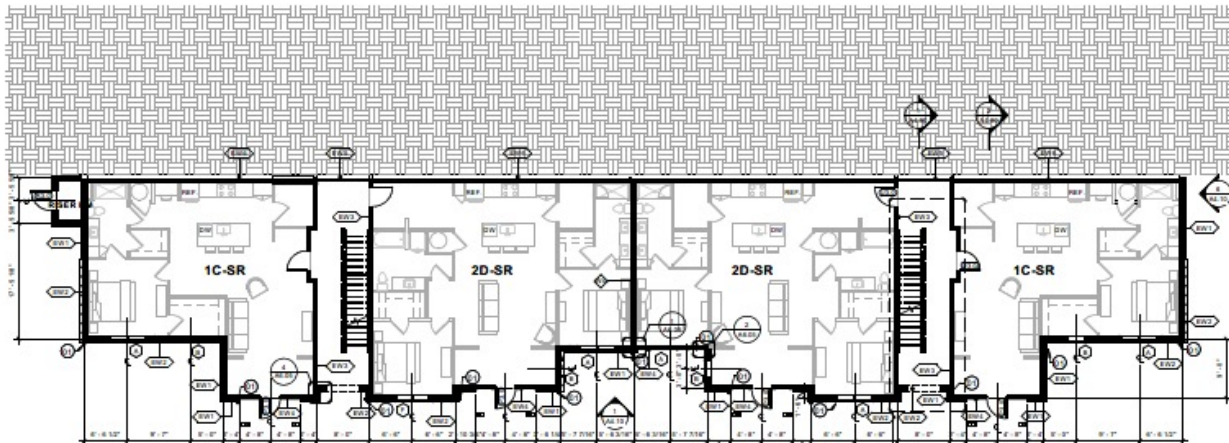
#### Evaluation Criteria

Criteria	Value
Noise source sound level (dB):	0

Noise Continued...



2 OVERALL BLDG PLAN - 1,2,3 - LEVEL 2-3



1 OVERALL BLDG PLAN - 1,2,3 - LEVEL 1

# NOISE

## Building Mitigation of Noise: STC and STraCAT

### SUPPORTING DOCUMENTATION

- Floorplans showing location of unit types
- Scaled plan for each unit type, annotated with measured length of exterior wall sections
- Elevation drawings for noise-exposed façades annotated with wall heights, door and window locations/dimensions
- Manufacturers specification sheets showing STC or OITC ratings

#### Part I - Description

Project	Sponsor/Developer		
<input type="text"/>	<input type="text"/>		
Location	Prepared by		
<input type="text"/>	<input type="text"/>		
Noise Level	Date	<input type="text"/>	Primary Source(s)
<input type="text" value="0"/>	8/25/2022	<input type="text"/>	<input type="text"/>

#### Part II - Wall Components

Wall Construction Detail	Area	STC
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>
<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"/>			

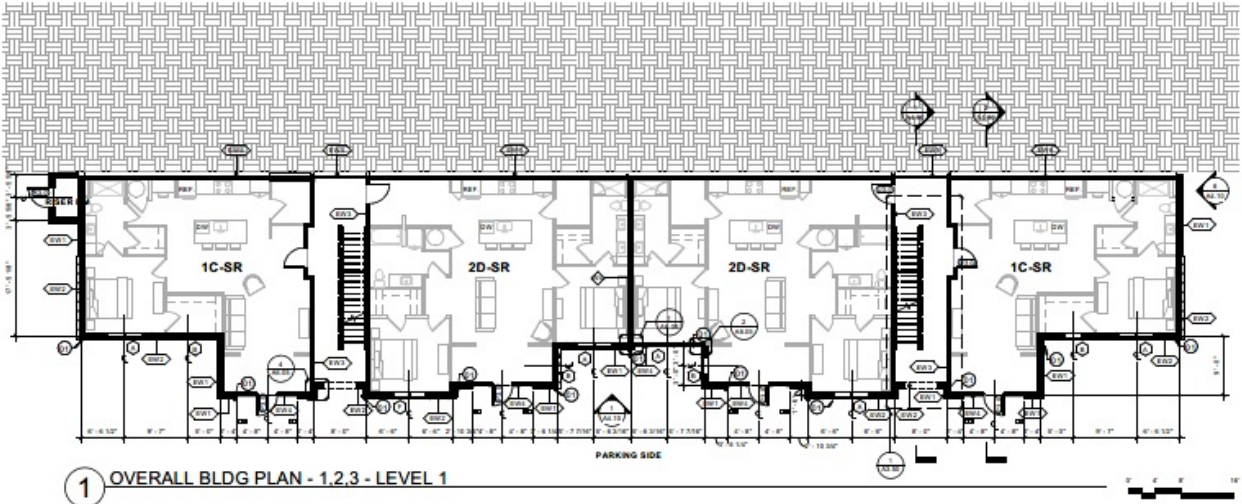
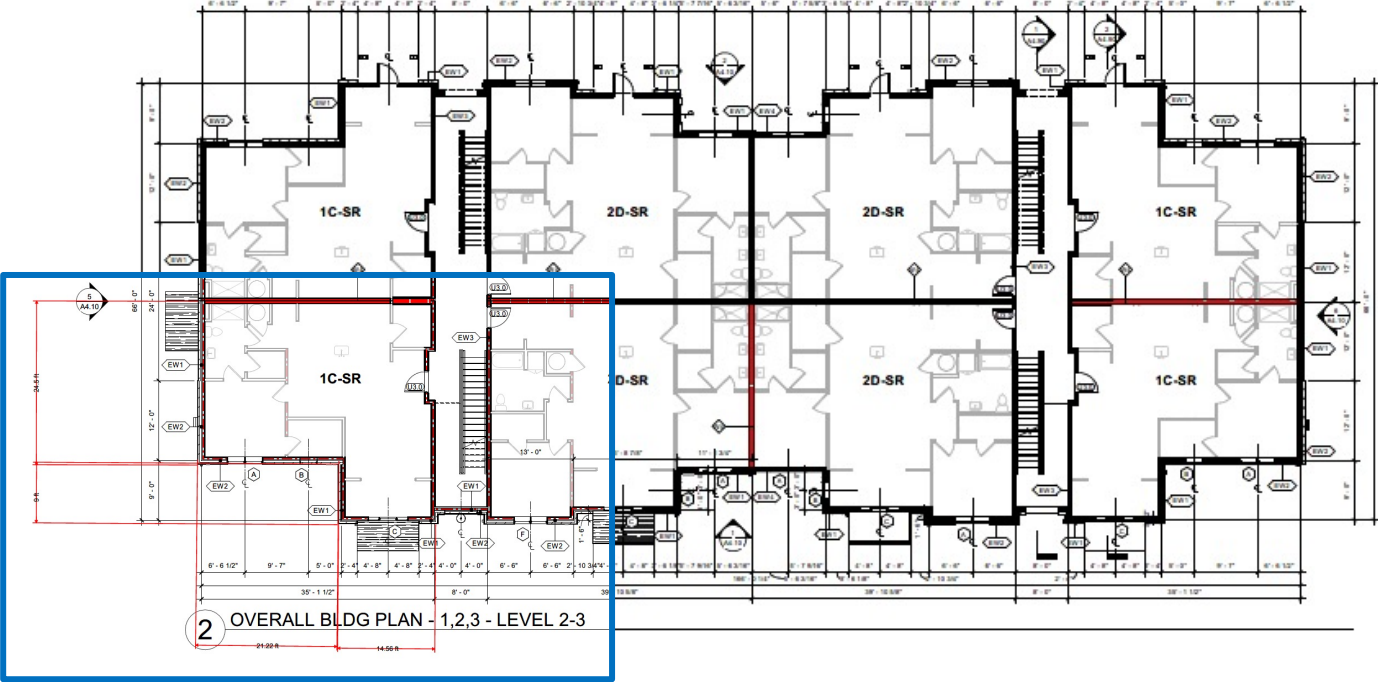
#### Part III - Results

Wall Statistics	
Stat	Value
Area:	0 ft <sup>2</sup>
Wall STC:	0

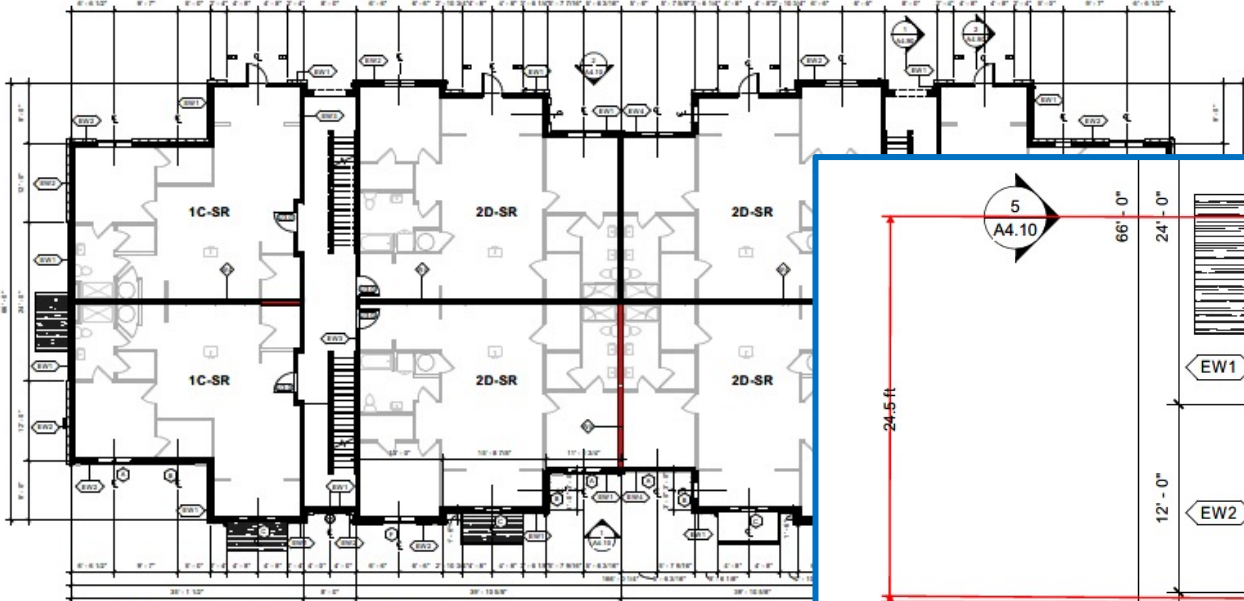
Aperture Statistics			
Aperture	Count	Area	% of wall
Windows:	0	0 ft <sup>2</sup>	0%
Doors:	0	0 ft <sup>2</sup>	0%

Evaluation Criteria	
Criteria	Value
Noise source sound level (dB):	0

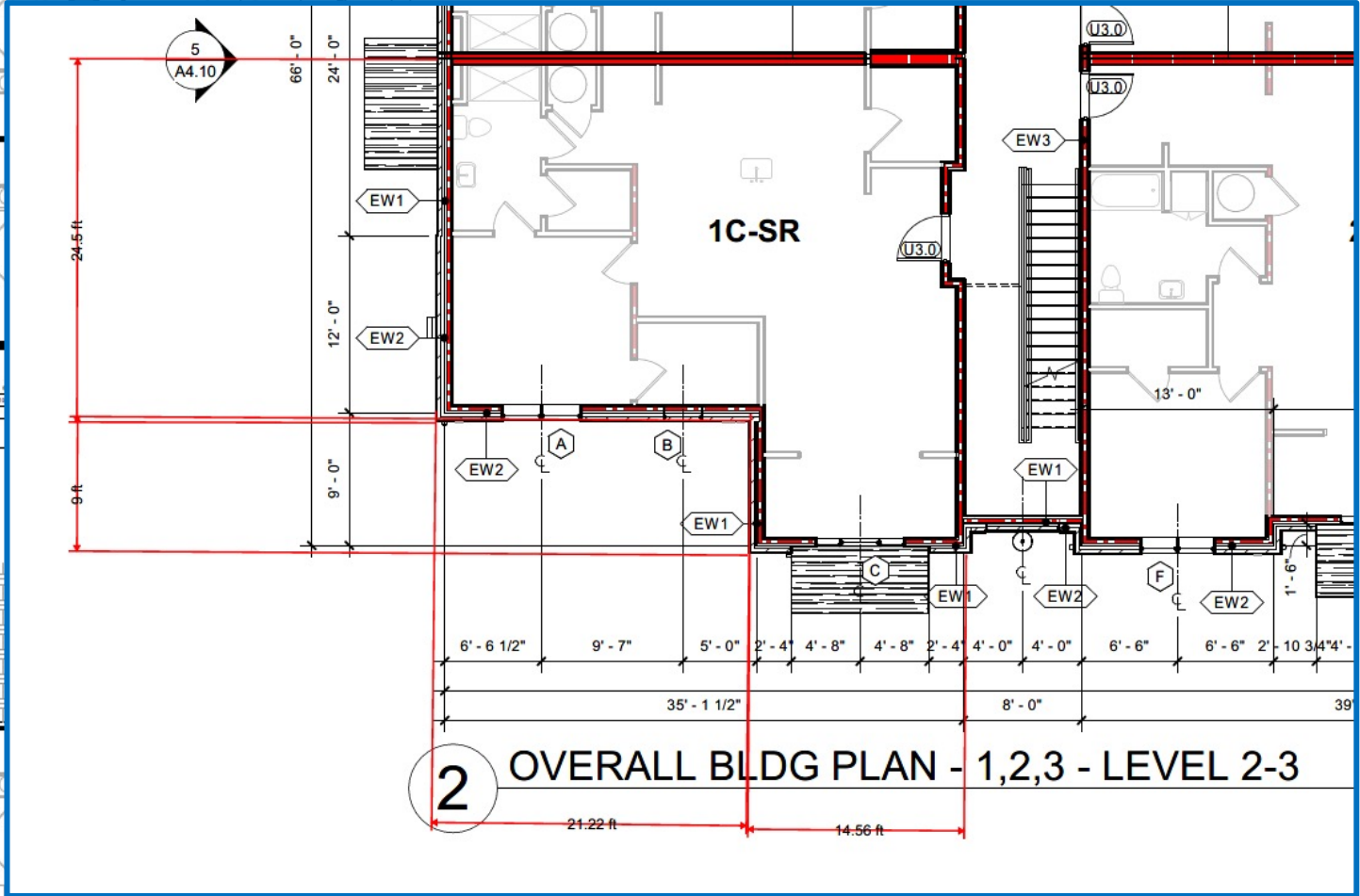
Noise Continued...



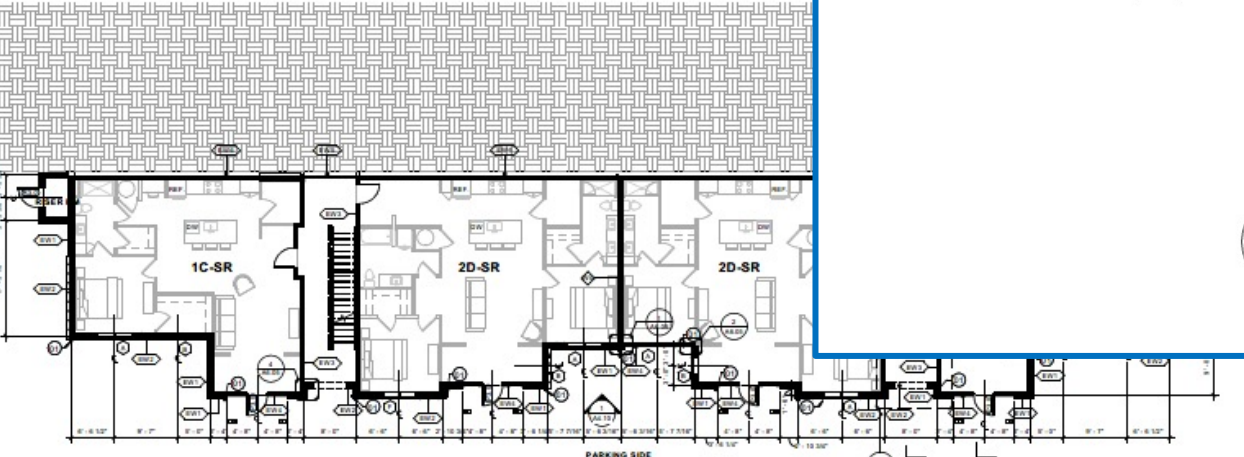
Noise Continued...



2 OVERALL BLDG PLAN - 1,2,3 - LEVEL 2-3



2 OVERALL BLDG PLAN - 1,2,3 - LEVEL 2-3



1 OVERALL BLDG PLAN - 1,2,3 - LEVEL 1

# NOISE





# NOISE

## Building Mitigation of Noise: STC and STraCAT

### SUPPORTING DOCUMENTATION

- Applicable wall section drawings and specification sheets documenting materials and assembly
- Certification by architect performing the analysis, or
- Certification by Architect's reviewing and confirming analysis performed by 3<sup>rd</sup> party.

#### Part I - Description

Project	Sponsor/Developer		
<input type="text"/>	<input type="text"/>		
Location	Prepared by		
<input type="text"/>	<input type="text"/>		
Noise Level	Date	<input type="text"/>	Primary Source(s)
<input type="text" value="0"/>	8/25/2022	<input type="text"/>	<input type="text"/>

#### Part II - Wall Components

Wall Construction Detail	Area	STC
<input type="text"/>	<input type="text" value="0"/>	<input type="text"/>
<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"/>			

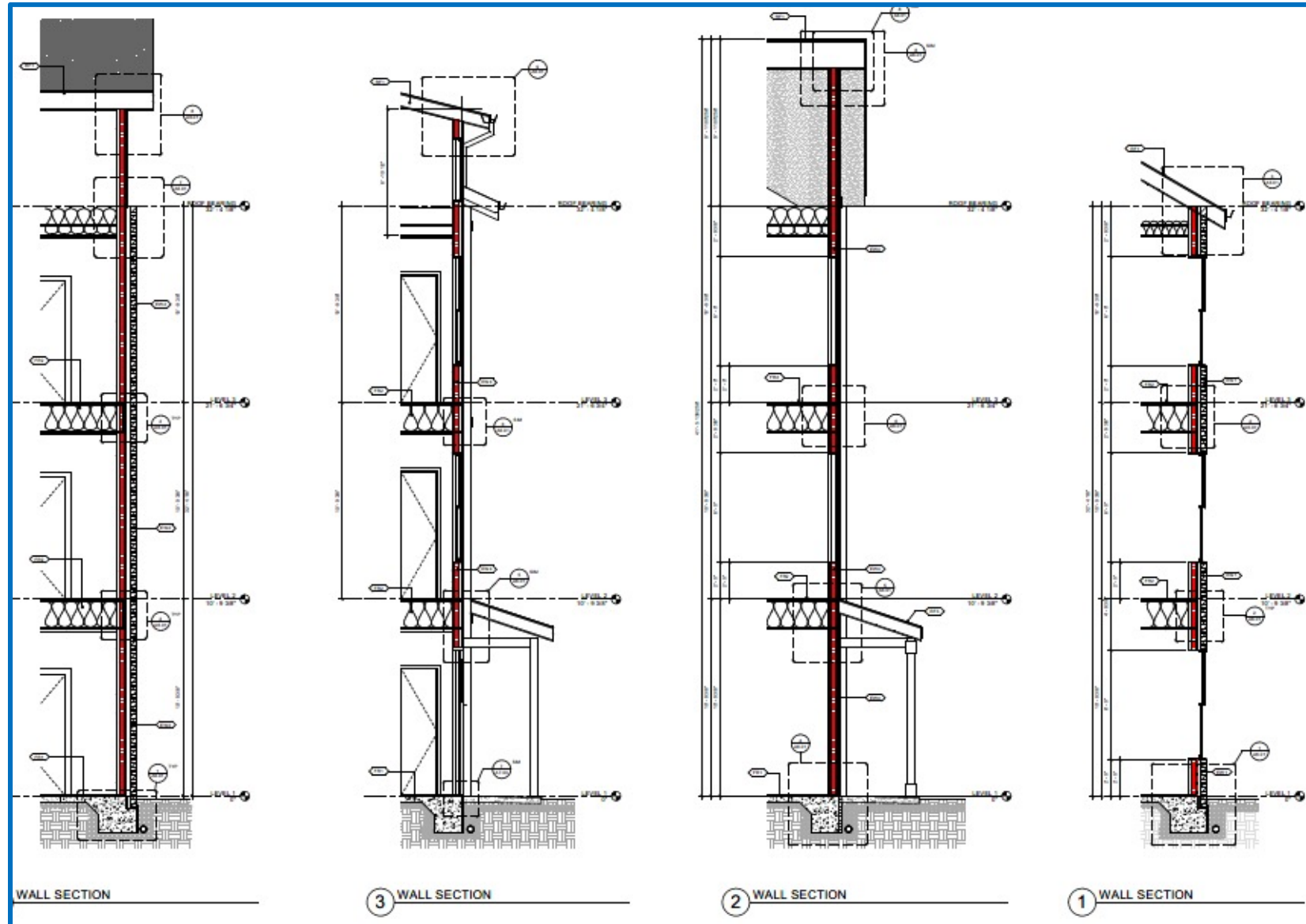
#### Part III - Results

Wall Statistics	
Stat	Value
Area:	0 ft <sup>2</sup>
Wall STC:	0

Aperture Statistics			
Aperture	Count	Area	% of wall
Windows:	0	0 ft <sup>2</sup>	0%
Doors:	0	0 ft <sup>2</sup>	0%

Evaluation Criteria	
Criteria	Value
Noise source sound level (dB):	0

# NOISE





## Draft Noise Policy Updates

- Definition of noise-sensitive outdoor use
- Addition of  $L_{\text{day}}$  metric for outdoor amenities closed at night

Ancillary use area description	Is the area noise sensitive?	Justification
Swimming pool Playground	Yes	Potential safety issues if verbal warnings are not intelligible
Enclosed/fenced dog run or dog wash Car wash Trails	No	Speech communication not required AND average duration of activity <14 hours/week
Private gathering space associated with individual dwelling unit (balconies, patios, porches, decks, and terraces constructed integrally to a building)	No, however must comply with balcony policy requirements	See Balcony Policy Memo and 2020 MAP Guide 9.6.8.1
Shared or common gathering outdoor space Other types of outdoor space, performance venue, sport or play area with specific use Undefined/Open areas	Case-specific	Yes, if speech communication required for safety or is an integral part of use  No, if speech communication not required AND average duration of activity <14 hours/week

[Draft policy potentially subject to change](#)



## L<sub>day</sub>

- Removes nighttime weighting for outdoor amenities closed at night.
- Requires approval of Assistant Secretary

Nighttime Fraction	Offset
0.00	+2.1
0.05	+0.2
0.10	-1.2
0.15	-2.3
0.20	-3.4
0.25	-4.3
0.30	-5.2
0.35	-6.0
0.40	-6.8
0.45	-7.6
0.50	-8.3
0.55	-9.1
0.60	-10.0
0.65	-10.8
0.70	-11.8
0.75	-12.8
0.80	-14.1
0.85	-15.5
0.90	-17.5
0.95	-20.7

$L_{\text{day}}$

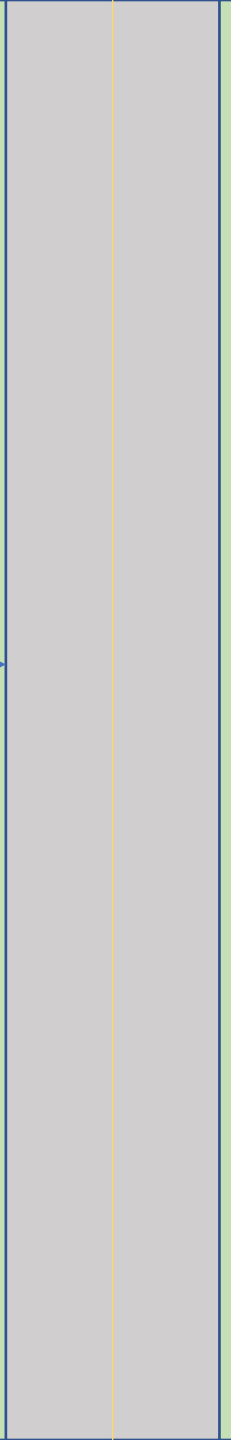
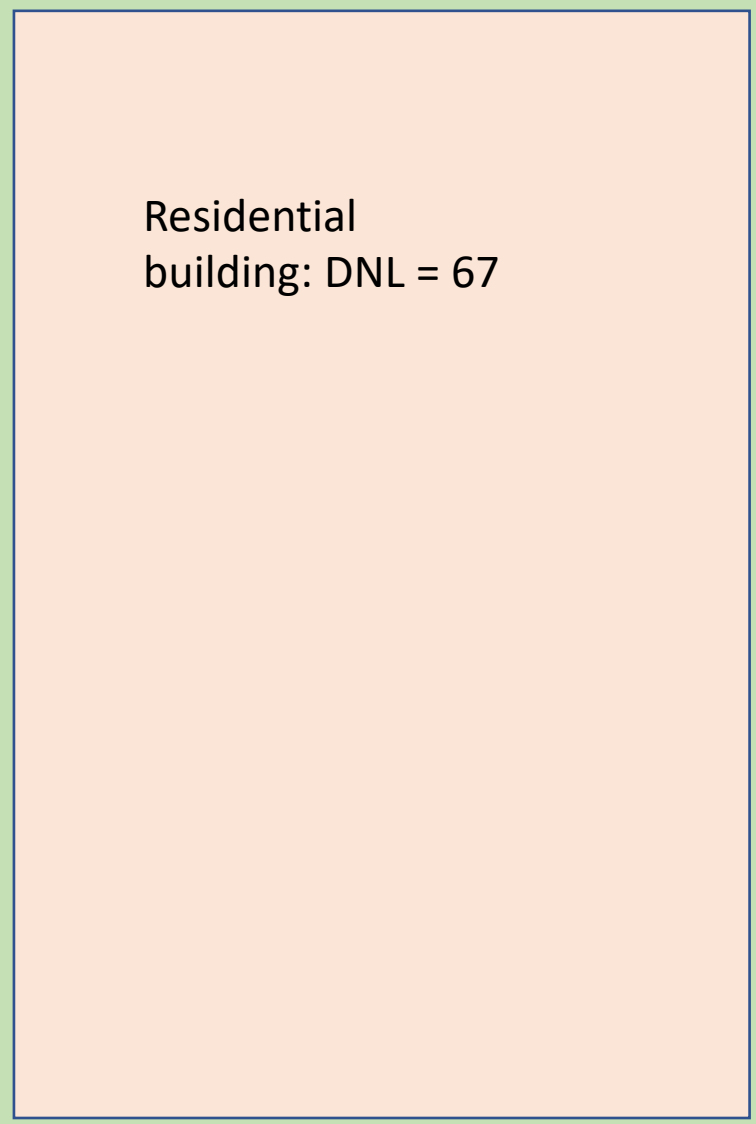
Make sure to use offset table instead of setting nighttime fraction to zero in DNL calculator

14,000  
AADT Hwy

Residential  
building: DNL = 67

Pool: DNL = 68

130 feet



**Road #1**

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	<input type="text" value="130"/>	<input type="text" value="130"/>	<input type="text" value="130"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text" value="42"/>	<input type="text" value="42"/>	<input type="text" value="42"/>
Average Daily Trips (ADT)	<input type="text" value="12400"/>	<input type="text" value="700"/>	<input type="text" value="1000"/>
Night Fraction of ADT	<input type="text" value="9"/>	<input type="text" value="9"/>	<input type="text" value="9"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text" value="3"/>
Vehicle DNL	<input type="text" value="59"/>	<input type="text" value="56"/>	<input type="text" value="67"/>
<b>Calculate Road #1 DNL</b>	<input type="text" value="68"/>	<input type="button" value="Reset"/>	

Standard DNL calculation



**Road #1**

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	130	130	130
Distance to Stop Sign			
Average Speed	42	42	42
Average Daily Trips (ADT)	11284	637	910
Night Fraction of ADT	0	0	0
Road Gradient (%)			3
Vehicle DNL	56	53	64
Calculate Road #1 DNL	65	Reset	

**Incorrect: Nighttime numbers removed from ADT and night fraction set to zero**

Nighttime Fraction	Offset
0.00	+2.1
0.05	+0.2
0.10	-1.2
0.15	-2.3
0.20	-3.4
0.25	-4.3
0.30	-5.2
0.35	-6.0
0.40	-6.8
0.45	-7.6
0.50	-8.3
0.55	-9.1
0.60	-10.0
0.65	-10.8
0.70	-11.8
0.75	-12.8
0.80	-14.1
0.85	-15.5
0.90	-17.5
0.95	-20.7

$L_{\text{day}}$

Using linear interpolation, an offset of -1.0 is selected

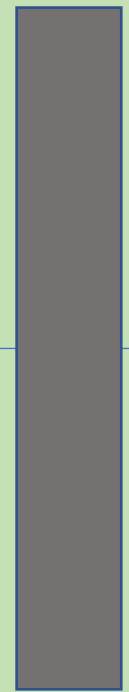
14,000  
AADT Hwy

Residential  
building: DNL = 67



Pool: DNL = 68

130 feet



Barrier  
performance of  
-2.5 decibels

L<sub>day</sub> reduced level to 67.  
Not enough to reach Acceptable,  
but might make mitigation  
feasible



Road #1

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	130	130	130
Distance to Stop Sign			
Average Speed	42	42	42
Average Daily Trips (ADT)	8000	600	600
Night Fraction of ADT	20	20	20
Road Gradient (%)			3
Vehicle DNL	59	58	67
<b>Calculate Road #1 DNL</b>	68	Reset	

Offset of -3.4, Lday of 64.6



**Radon**

# Radon-2016 MAP Guide

- Radon report not required for 223(f) projects with low radon risk as per EPA Zone 3 and state and local radon data.
- Radon testing must include at least 25% of ground level units plus 10% of upper floor units

Project-level Data from July 7, 2017 to March 17, 2021

Total 223(f)	Total Tested for radon	Total with radon over 4 pCi/L	% elevated radon/tested
1111	810	393	48%

# Radon-2020 MAP Guide

- Radon report required for all 223(f) projects
- Radon testing must include 100% of ground floor units plus 10% of upper floor units

Project-level Data from March 18, 2021 to July 26, 2022

Total 223(f)	Total Tested for radon	Total with radon over 4 pCi/L	% elevated radon/tested
341	332	152	46%

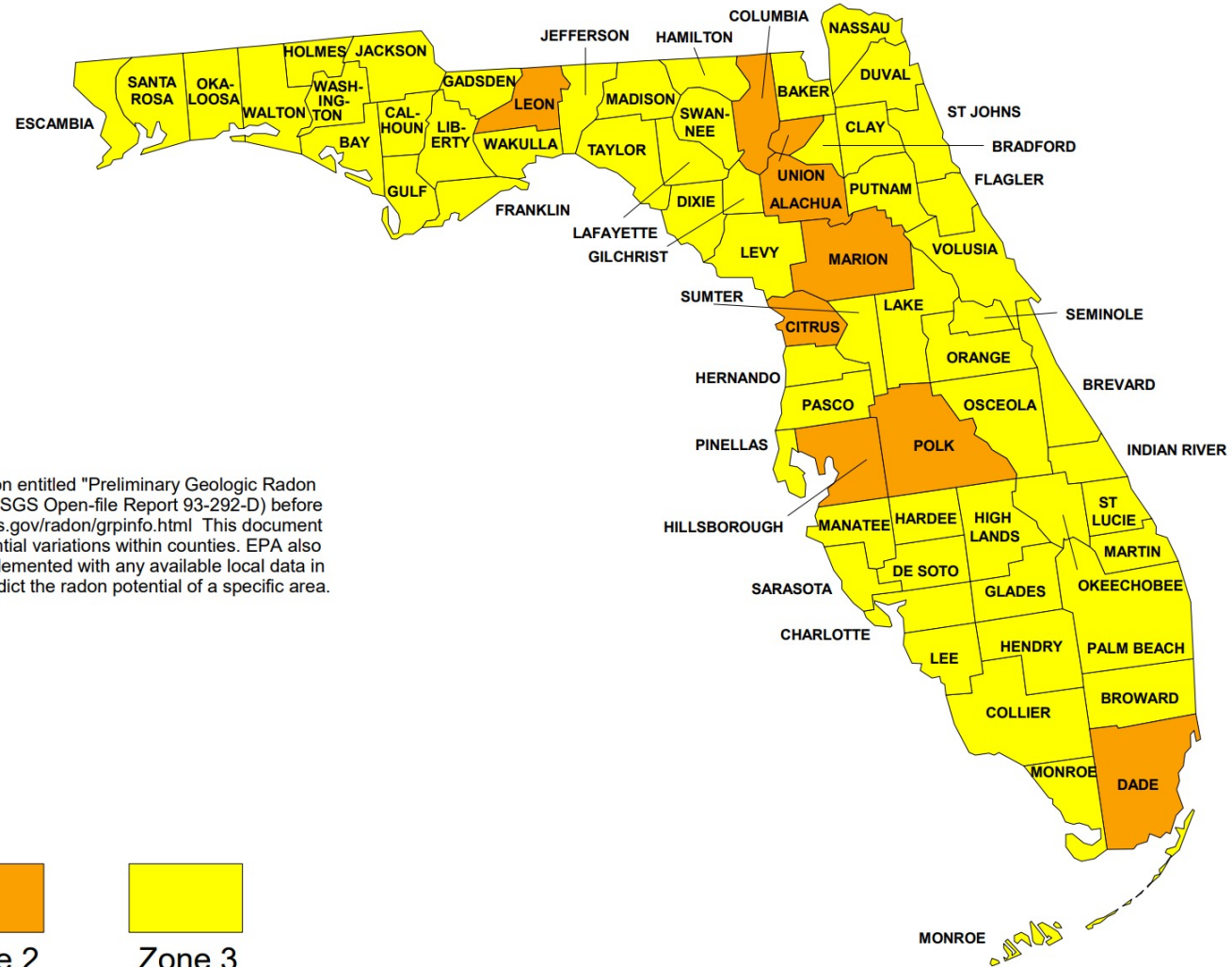
# FLORIDA - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon. Homes with elevated levels of radon have been found in all three zones.

**All homes should be tested, regardless of zone designation.**



**IMPORTANT:** Consult the publication entitled "Preliminary Geologic Radon Potential Assessment of Florida" (USGS Open-file Report 93-292-D) before using this map. <http://energy.cr.usgs.gov/radon/grpinfo.html> This document contains information on radon potential variations within counties. EPA also recommends that this map be supplemented with any available local data in order to further understand and predict the radon potential of a specific area.



Zone 1



Zone 2



Zone 3



SELECT DATA

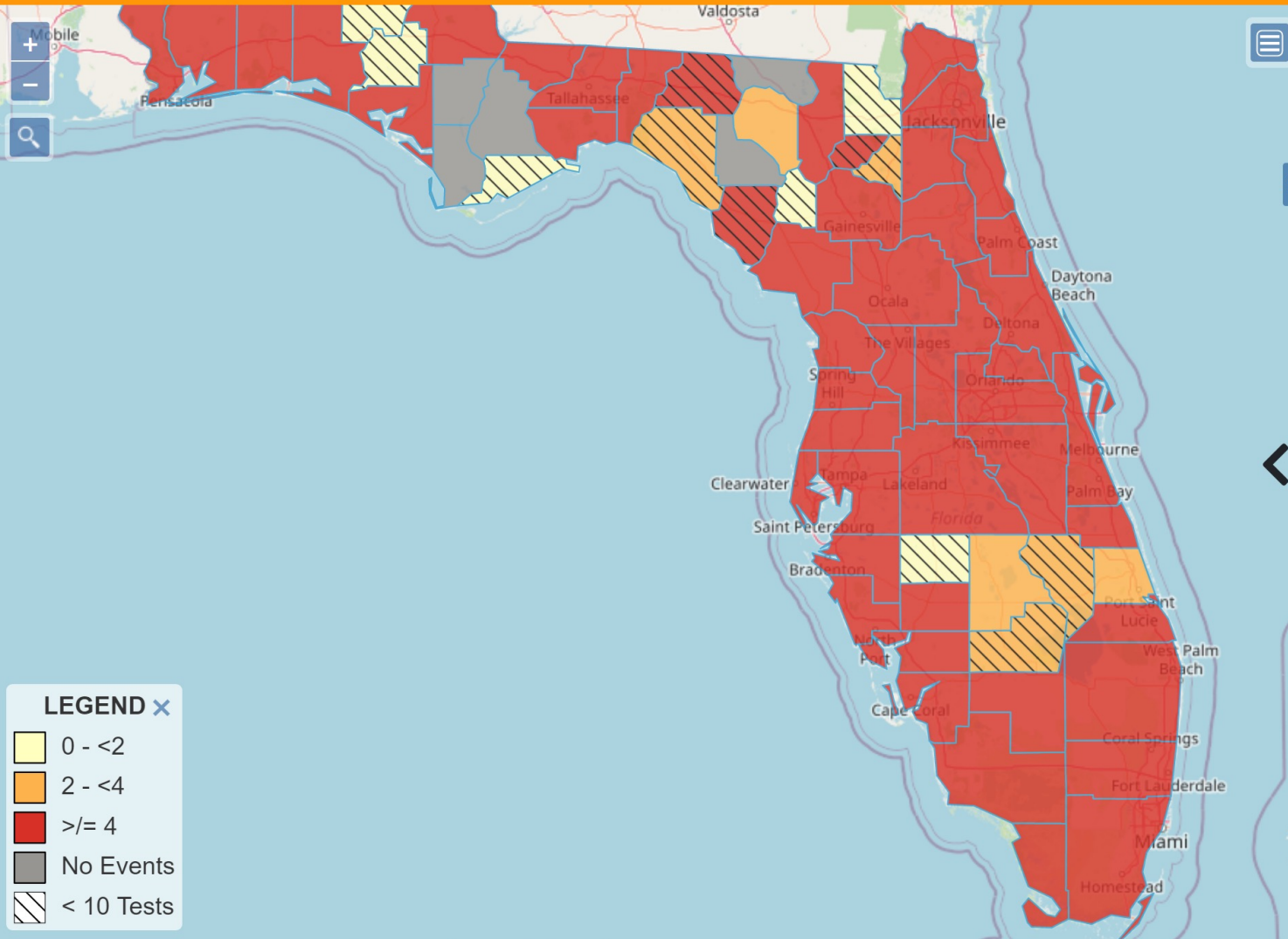


RADON | RADON TESTS FROM LABS | MAXIMUM PRE-MITIGATION RADON LEVEL IN TESTED BUILDINGS OVER A 10-YEAR PERIOD | FLORIDA

2008-2017

ABOUT DATA

To avoid duplication, do not combine data from state and lab radon datasets. KS and NJ data are available under the "State Radon Data" indicator.



# RADON: Mitigation Requirements for New Construction

- Radon mitigation systems designed according to standards cited at 9.6.3.5.F.1.B.2
- HUD staff not qualified to design or review plans for radon mitigation systems
- 24 CFR 50.32 applies nonetheless

## 24 CFR 50.32

*"The program staff in the HUD office responsible for processing the project application..."*

- "...The **HUD program staff** may use any information supplied by the applicant or contractor, provided HUD"
- Independently evaluates the information
- **Will be responsible for its accuracy,**
- **Supplements the information,** if necessary, to conform to the requirements of this part, and
- Prepares the environmental finding

# RADON: Mitigation Requirements for New Construction

- Radon mitigation systems designed according to standards cited at 9.6.3.5.F.1.B.2
- HUD staff not qualified to design or review plans for radon mitigation systems
- 24 CFR 50.32 applies nonetheless: **THEREFORE**
- Certification by licensed radon mitigation professional OR project architect should be provided at firm application
- Subsequent modifications or change orders should include updated certification.

# RADON: Testing & Mitigation Plan Details

Mitigation narrative should include the following boilerplate information:

- Requirement for incorporation of radon mitigation systems and the applicable standard
- Requirement for satisfactory radon testing performed post construction but prior to final endorsement
- Overview of applicable testing standard (i.e., number and locations of units to be tested - 1st floor vs. upper floors, etc.)

# RADON: Testing & Mitigation Plan Details

Mitigation narrative should include the following boilerplate information:

- Threshold for acceptable/unacceptable results
- Brief description of additional mitigation options and process to be followed when test results reveal radon levels  $> 4$  pCi/L:
  - Mitigation system upgrades
  - Requirement for retesting

# RADON

## Housing Requirements

Requirements for evaluating additional housing requirements vary by program. Refer to the appropriate guidance for your program area (HUD, etc.).  
Tips for completing this screen:

- Discuss compliance steps and determinations in the text boxes below each topic. Upload documentation.
  - Any required mitigation measures (for example, radon mitigation or asbestos remediation) must be summarized in the Mitigation Text Box.
  - Summarize compliance determinations in the final Compliance Determination Text Box. This will appear after you complete the Mitigation Text Box.
- You may upload additional documents here if not already captured in the documentation uploaded for each topic.

## Lead-based paint

Lead-based paint may be present in buildings built prior to 1978. Guidance materials related to lead-based paint, including a helpful online resource, are available in the Resources section.

Was a lead-based paint inspection or survey performed by the appropriate certified lead professional?

- Yes
- No, because the project was previously deemed to be lead free.  
Upload all lead free certificates.
- No, because the project does not involve any buildings constructed prior to 1978.  
Provide documentation of construction date(s) below.
- No, because program guidance does not require testing for this type of project.  
For example: HUD's lead-based paint requirements at 24 CFR Part 35 do not apply to housing designated exclusively for the elderly or persons with disabilities.

Describe how compliance or exemption was met and upload any relevant documents such as reports, surveys, and letters below.

The proposed project will represent new construction through HUD's 221(d)(4) program.

File upload:

## Radon

Many Housing Programs require radon testing and mitigation. Radon is a colorless, odorless gas that can enter the air inside of buildings.

Was radon testing performed following the appropriate and latest ANSI-AARST standard?

- Yes
- No, because program guidance does not require testing for this type of project.  
Note that radon testing is encouraged for all HUD projects, even where it is not required. Explain why radon testing was not complete below.

Describe how compliance or exemption was met and upload any relevant documents such as reports, surveys, and letters below.

Review of the USEPA's Radon Map for the Project indicated that the Project is located within Zone 2, areas with a predicted average indoor radon screening between 2 and 4 pCi/L (picoCuries per liter of air). Radon levels should be taken into consideration when designing and developing the Project for residential use including passive radon resistant construction according to ASTM E 1465-08a (or most recent edition) and AARST/ANSI CC-1000. Post-construction radon testing is required based on AARST/MAMF-2017 (or current Industry Standard) and then current HUD guidelines, before Final Closing.

File upload:

[RadonMap.pdf](#)

## Asbestos

Asbestos may be present in older buildings and in roofing materials through the present day. Refer to specific program guidance for details.

Was a comprehensive asbestos building survey performed pursuant to the relevant requirements of the latest ASTM standard?

- Yes
- No, because the project meets a date threshold in program guidance.  
Provide documentation of construction date(s) and how this fits program guidance below.
- No, because program guidance does not require testing for this type of project.  
Explain in textbox below.

Describe how compliance or exemption was met and upload any relevant documents such as reports, surveys, and letters below.

The proposed project will represent new construction through HUD's 221(d)(4) program.

## Additional Nuisances and Hazards

Many Housing Programs have additional requirements with respect to common nuisances and hazards. These include High Pressure Pipelines; Fall Hazards; etc.

Describe how compliance or exemption was met for any relevant nuisance, hazard or local requirement and upload any documents such as reports, surveys, and letters below.

Construction plans were developed in compliance with the relevant requirements. Also, an ALTA Survey has been completed showing no high-pressure pipelines, transmission lines, or supporting structures. During the Phase I ESA, no oil or wells were identified on or near the Proposed Project. Based on the Phase I ESA and the Geotechnical Report the soil present is native and is not considered fill.

File upload:

[Gas Transmission Pipelines.pdf](#)

## Mitigation:

Explain in detail the exact measures that must be implemented to mitigate for any impact or effect discussed on this screen, including the timeline for implementation.

Post-construction radon testing is required based on AARST/MAMF-2017 (or current Industry Standard) and then current HUD guidelines, before Final Closing. If indoor radon screening is above 4 pCi/L, retesting and/or mitigation will be required.

## Screen Summary

### Compliance Determination

Describe the basis that led to your determination here, identifying all key elements from your support documentation that substantiate your 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

# CONTAMINATION & TOXIC SUBSTANCES

- Offsite Contamination
- REC under Phase I Def. Vs HUD Requirements
- Buried Utility Service Lines as Preferential Pathways
- Mixed Use Sites, Shared Infrastructure, and Site Work



# MAP Guide 9.4.7: Offsite Contamination

- Risks posed to occupants or use of property by offsite contamination are not acceptable
- Offsite contamination under Sponsor's control, must be remediated in accordance with 9.4.3 through 9.4.5
- Offsite contamination where Sponsor does not have control: RBCA or other acceptable program meeting requirements of 9.4.3 and 9.4.5 is mandatory

# HUD Requirements: 24 CFR 50.32

*"The program staff in the HUD office responsible for processing the project application..."*

"...The **HUD program staff** may use any information supplied by the applicant or contractor, provided HUD

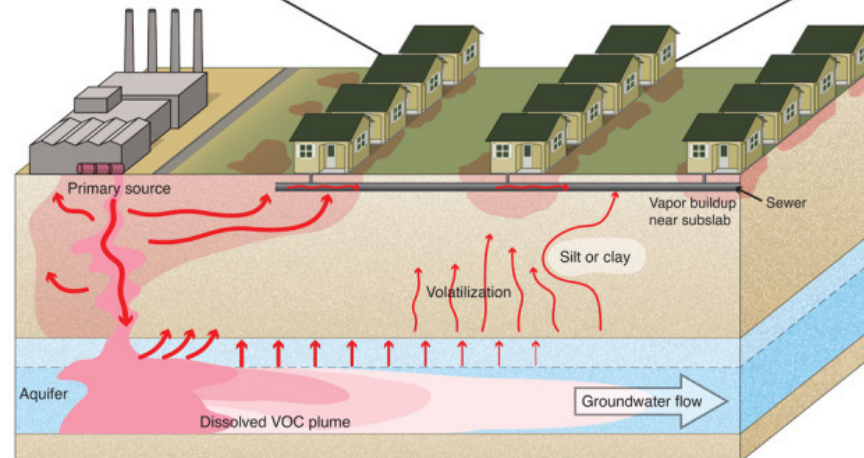
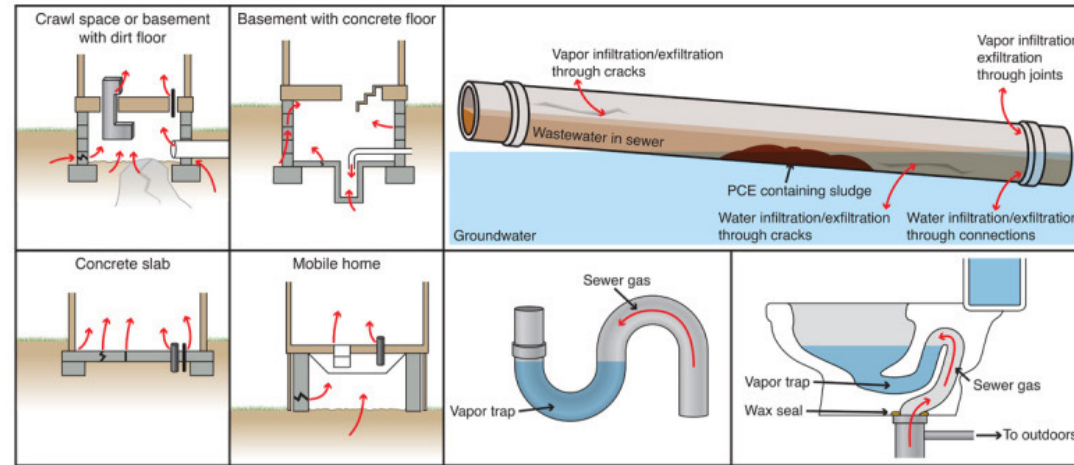
- independently evaluates the information
- **will be responsible for its accuracy,**
- **supplements the information,** if necessary, to conform to the requirements of this part, and
- prepares the environmental finding

# HUD Requirements: Aggregation

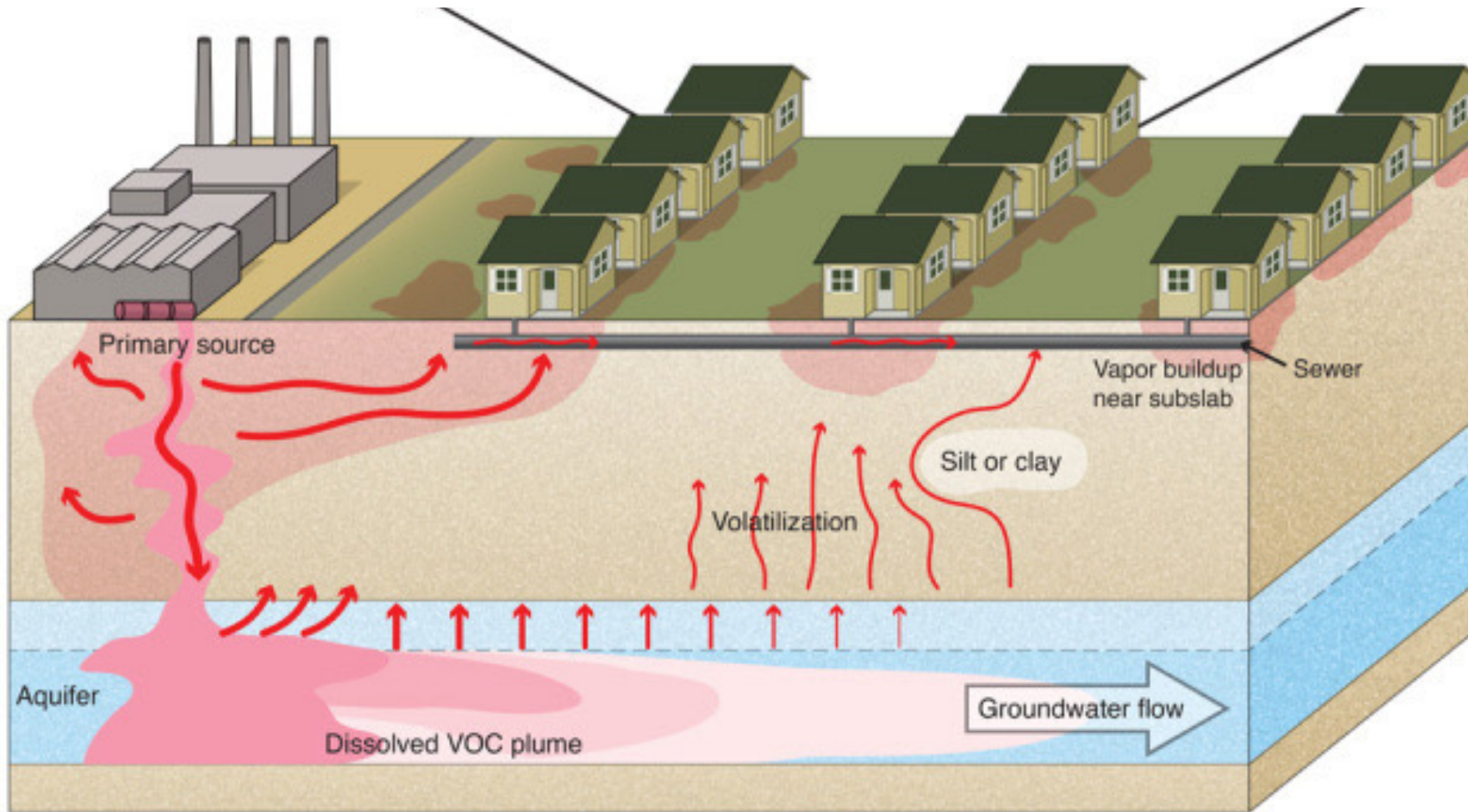
## MAP Guide 9.1.2.A.1.b.:

- b. In most cases, the Lender is required to cover only the FHA collateral parcel for the Phase I Environmental Site Assessment conducted under ASTM E1527-13. (This applies to ASTM E1527-13 in-scope items only). However, the Phase I Environmental Site Assessment **must consider the impact of contamination from offsite parcels on the collateral parcel.** Remediation would be required for non-collateral areas only to the extent the hazard could affect the health and safety of occupants of the property securing the mortgage or conflict with the intended utilization of the property and as per [Section 9.4.7](#).

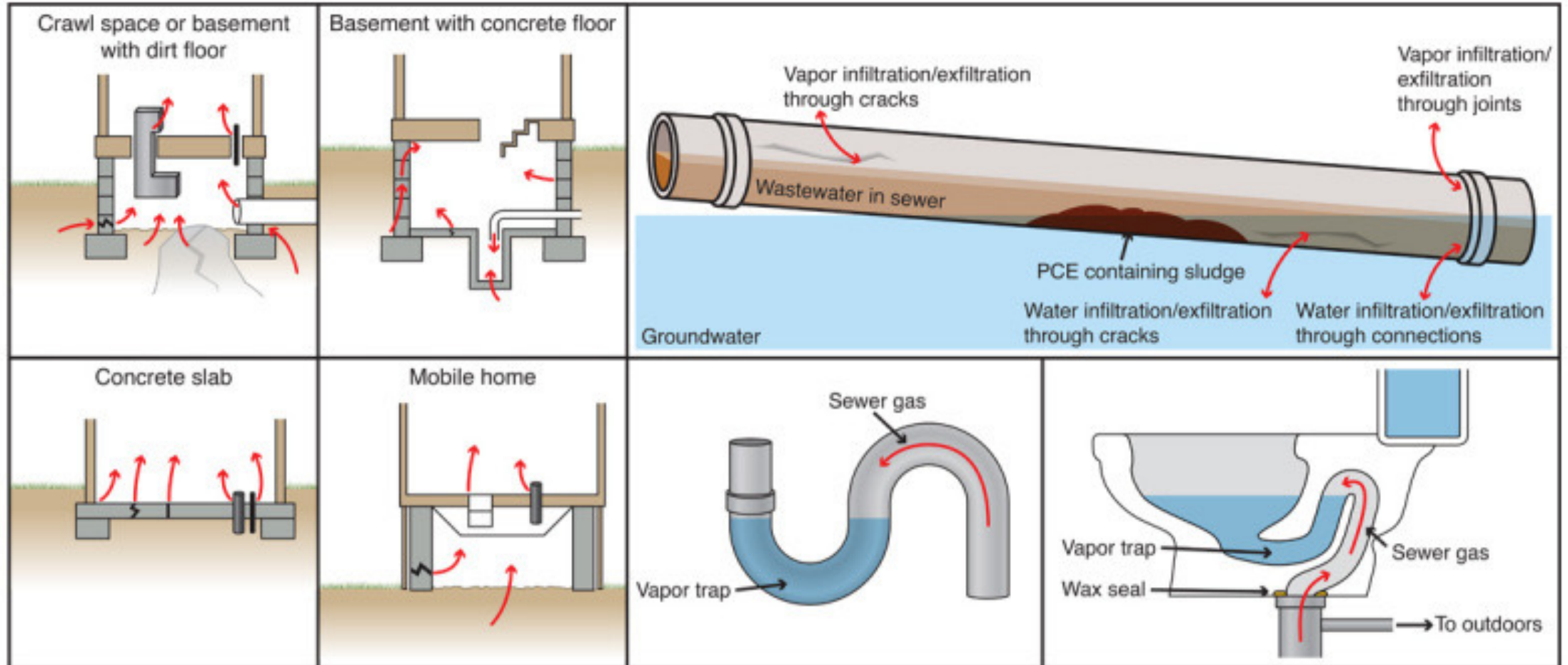
# UTILITY SERVICES LINES & PREFERENTIAL PATHWAYS



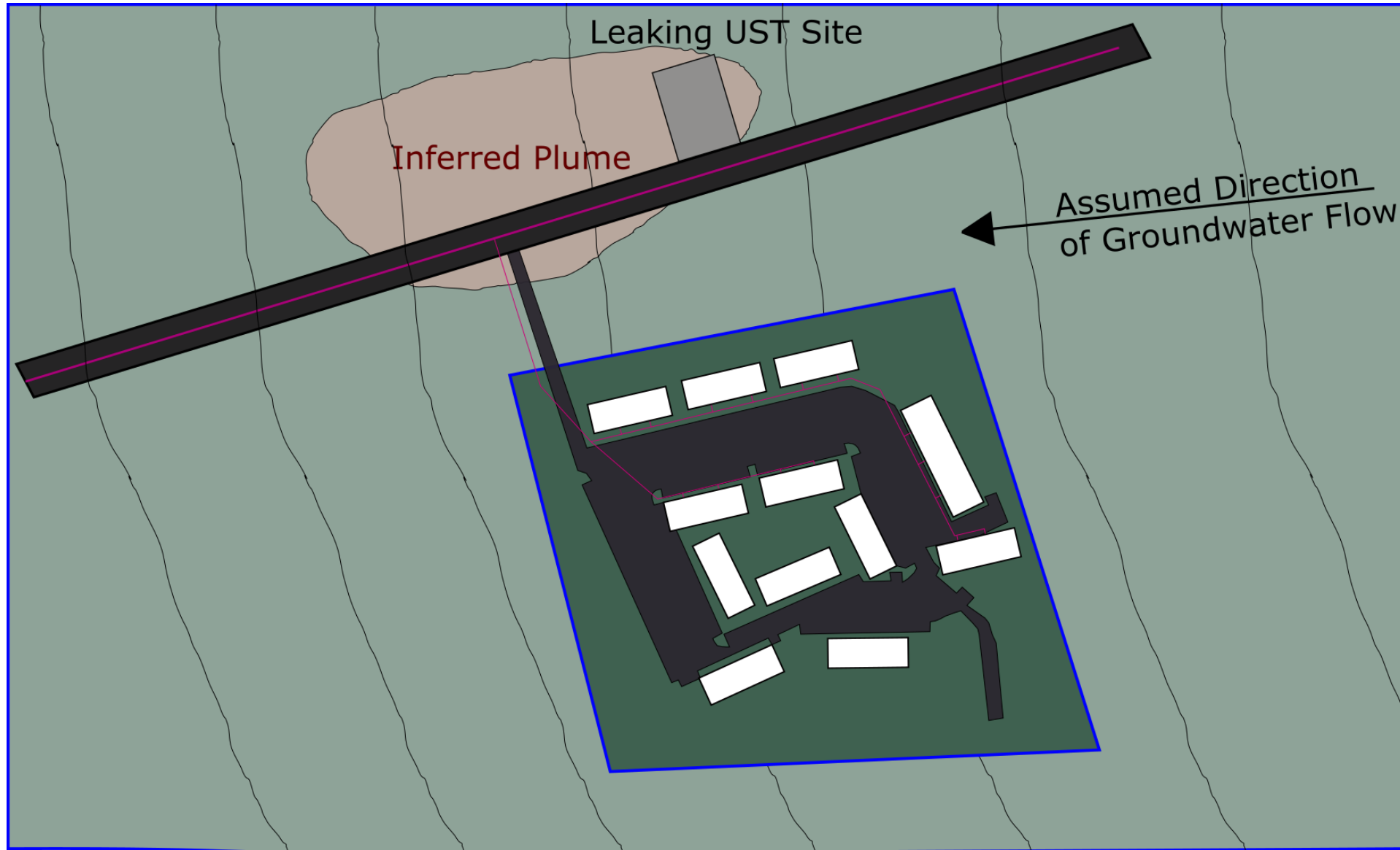
# UTILITY SERVICES LINES & PREFERENTIAL PATHWAYS



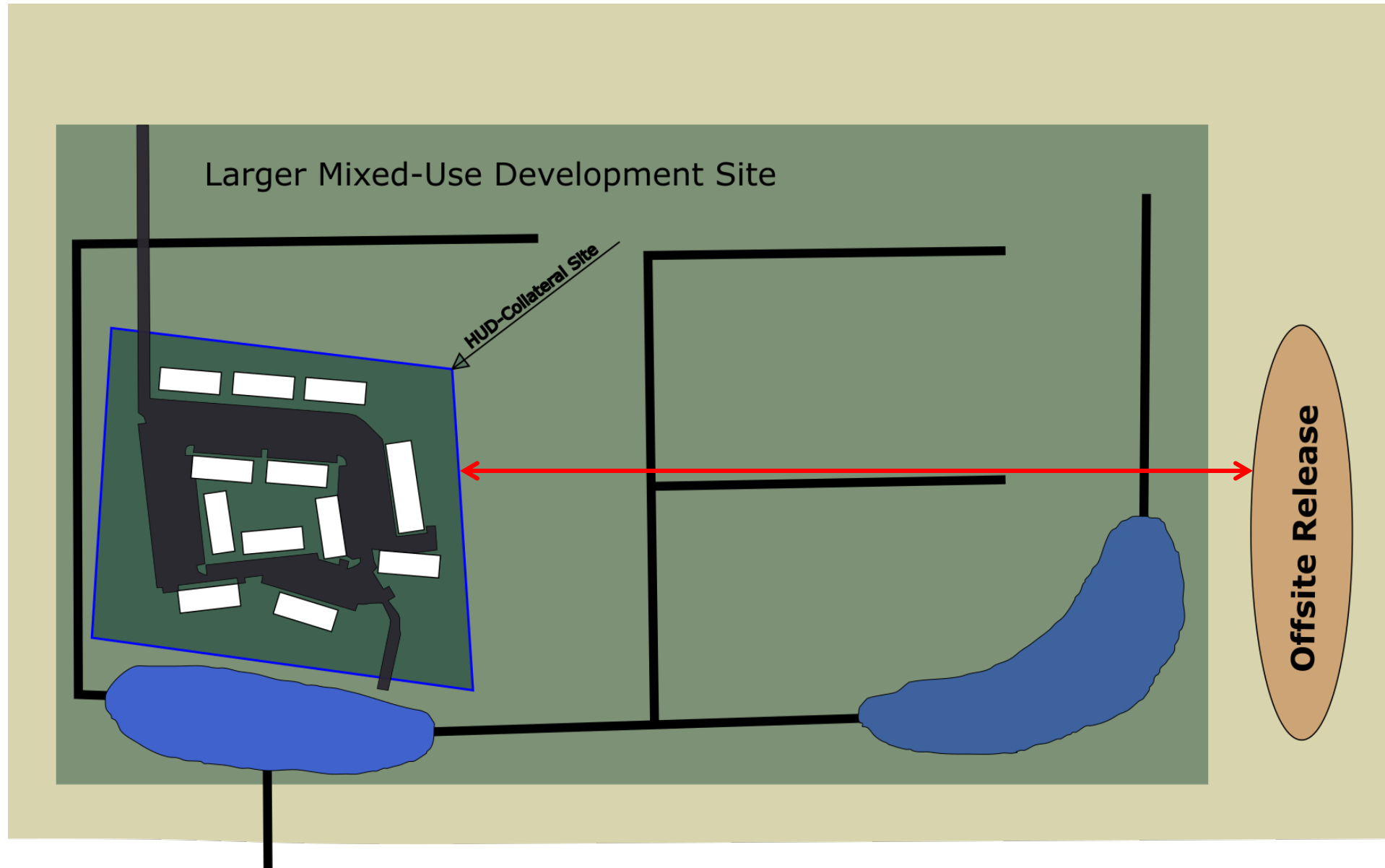
# UTILITY SERVICES LINES & PREFERENTIAL PATHWAYS



# UTILITY SERVICES LINES & PREFERENTIAL PATHWAYS



# NEW CONSTRUCTION ON MIXED-USE SITES





# Lead-based Paints

- Interim controls vs. abatement vs. ongoing maintenance
- 24 CFR Part 35 is the controlling resource
- Disclosure, disclosure, disclosure

# Asbestos

- Baseline survey vs. Pre-construction survey vs. Post-1989 treatment
- Verification of roofing materials through receipts or sampling
  - MSDS or Standard Specification
  - Presumption of ACM?
- O&M Program





# SMAC

**SOUTHEAST MORTGAGEE ADVISORY COUNCIL**

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## HIT THE NAIL ON THE HEAD

Questions??



**SOUTHEAST MORTGAGEE ADVISORY COUNCIL**

## HIT THE NAIL ON THE HEAD

### Environmental Training Morning Session Contacts:

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- Chuck Melton, [Chuck.A.Melton@hud.gov](mailto:Chuck.A.Melton@hud.gov)
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