

Appendix E – Noise Assessment

NOISE ASSESSMENT REPORT
SCREENING LEVEL NOISE ANALYSIS
ARDOT JOB NUMBER 090069
NORTHWEST ARKANSAS NATIONAL AIRPORT ACCESS (F)

Fundamentals of Sound and Noise

Noise is defined as unwanted or undesirable sound. The three basic parameters of how noise affects people are summarized below.

Intensity is determined by the level of sound expressed in units of decibels (dB). A 3 dB change in sound level is barely perceptible to most people in a common outdoor setting. However, a 5 dB increase presents a noticeable change and a 10 dB sound level increase is perceived to be twice as loud. Outdoor conversation at normal levels at a distance of 3 feet becomes difficult when the sound level exceeds the mid-60 dBA range.

Frequency is related to the tone or pitch of the sound. The amplification or attenuation of different frequencies of sound to correspond to the way the human ear “hears” these frequencies is referred to as “A-weighting.” The A-weighted sound level in decibels is expressed as dBA.

Variation with time occurs because noise fluctuates from moment to moment. A single level called the equivalent sound level (Leq) is used to compensate for this fluctuation. The Leq is a steady sound level containing the same amount of sound energy as the actual time-varying sound evaluated over the same time period. The Leq averages the louder and quieter moments but gives more weight to the louder moments.

For highway noise assessment purposes, Leq is typically evaluated over the worst 1-hour period and written as Leq(h). The Leq(h) commonly describes sound levels at locations of outdoor human use and activity and reflects the conditions that will typically produce the worst traffic noise (e.g., the highest traffic volumes traveling at the highest possible speeds).

Noise Impact and Abatement Criteria

Traffic noise impacts are determined by comparing design year Leq(h) values to: (1) a set of Noise Abatement Criteria (NAC) for different land use categories; and (2) existing Leq(h) values. A noise impact occurs when design year (future build) levels approach or exceed the NAC value or a substantial increase in noise occurs. An approach is considered to be 1 dBA less than the NAC value. A substantial increase is defined as 10 dBA or greater than existing noise levels.

A *noise sensitive receptor* (receptor) is defined as a representative location of a noise sensitive area for various land uses. Most receptors associated with highway traffic noise analysis are categorized as NAC Activity Category B (residential) and C (e.g., parks, hospitals, schools, places of worship). Since the NAC value for Activity Categories B and C is 67 dBA, noise impacts would occur at 66 dBA or greater.

Consideration of noise abatement measures is required when the NAC value is approached or exceeded, or when a substantial increase is predicted. Noise barriers (e.g., walls or berms) are the most common noise abatement measures.

Screening Level Noise Analysis

A screening level noise analysis (screening analysis) may typically be performed for projects that are unlikely to cause noise impacts and/or where noise abatement measures are likely to be unfeasible for acoustical or engineering reasons. Factors common to these types of projects include low traffic volumes, slower speeds, the presence of few or no receptors, and the need for roadway access points (e.g., driveways, roadway intersections, etc.). For screening analysis purposes, the ARDOT noise policy requires determining noise levels within 4 dBA of the NAC value. The screening analysis threshold would therefore be 63 dBA for Activity Categories B and C.

According to the ARDOT noise screening policy (p.18), “1) The model should use the existing and the future “build” condition traffic information, posted speeds, and project receiver distances from the roadway to determine ARDOT noise abatement approach criteria impacts in the future “build” condition. The existing condition is compared to the “build” condition to determine whether impacts due to sound level increases are expected. Traffic data, including existing and design year traffic volume information for certain vehicle classes, can be obtained through the ARDOT’s Transportation Planning and Policy Division.” For this screening analysis, ARDOT has requested that performing an analysis to determine the number of noise receptors predicted to approach, equal or exceed the NAC criteria for the future year No-Action alternative be conducted.

Screening analysis results represent a worst-case scenario with higher sound levels than would be expected in detailed modeling. The results may be used to determine the need for detailed analysis if noise impacts are likely and the placement of noise barriers is feasible. It may also be used for projects that lack receptors in order to assess impacts on undeveloped land.

The FHWA Traffic Noise Model Version 2.5 (TNM) software program is used to predict existing and future Leq(h) traffic noise levels. The TNM straight line model uses the existing year and design year traffic and roadway information. Receivers (discrete points modeled in the TNM program) are incrementally placed away from the roadway centerline to determine the distance to which impacts extend. The model assumes that the roadway and receivers were located at the same elevation with no intervening barriers such as topography or dense vegetation.

Project Evaluation and Screening Analysis Results

Activity Category B and C receptors were identified in the project corridors. A screening analysis was performed to determine potential impacts for three proposed Build Alternatives and the No-Action Alternative in an effort to reduce the number of alternatives and/or select a preferred alternative. Once a preferred alternative is

selected, this analysis will be revisited and an informed decision will be made on requiring a detailed analysis, similar to ones performed for other previous EA alternative analyses. Many impacted receptors have direct driveway access and the remainder are in sparse low-density areas. A detailed analysis is still likely needed as there are new alignment sections without direct driveway access, plus there are some potentially impacted receptors whose backyards abut the road and may be eligible for noise abatement measures.

TNM modeling was completed using the existing year 2018 and design year 2040 (future build and no-action) traffic and roadway information. Due to the difference in design speeds and typical sections, both the improve existing and partial/new alignment alternative segments of the project corridor were modeled. Receivers were identified from the centerline of proposed alternatives to distances correlating to approximately 66 dBA for existing and future build conditions, 63 dBA for future build conditions, 63 dBA for possible substantial increase impacts for the Partial New Location Alternative (53+10 dBA, based on averaged field measurements) and 61 dBA for possible substantial increase impacts for the New Location Alternative (51+10 dBA, based on averaged field measurements). The tenth value was used for rounding the decibel levels (e.g., 62.8 dBA is reported as 63 dBA). The model calculation tables, input data and figures showing the predicted noise impact contours (distance buffers) and receptors are attached.

Short-term noise measurements at each location shown below were conducted by making three consecutive 15-minute measurements in one-minute intervals. Background noises (i.e., local traffic, neighborhood activities, pedestrian activities, sirens, etc., as applicable) were noted during these measurements, and the corresponding one-minute periods were eliminated from the calculation of the measured noise level, as necessary. As indicated in **Table 1**, the existing noise levels at the exterior measurement locations were between approximately 42 and 57 dBA in the less developed areas 1, 2, and 4, and between approximately 62 and 69 dBA in the more developed areas 3, 5, and 6. All of the measurement locations were first-row residences with direct exposure to the proposed Northwest Arkansas National Airport Access (F) Road.

Table 1. Existing Noise Levels at Measurement Locations

Location	Area	Date	Time	Measured L _{eq} (dBA)
Holmes Road	8	10/14/19	11:17-11:32	42.3
			11:33-11:48	53.4
			11:48-12:03	51.5
Wager Road	8	10/13/19	16:36-16:51	49.7
			16:52-17:07	52.3

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			17:07-17:22	57.0
Healing Springs Road (Hwy 264)	5	10/14/19	8:10-8:25	66.2
			8:26-8:41	69.0
			8:42-8:57	67.5
Colonel Myers Road	8	10/14/19	9:35-9:50	52.2
			9:51-10:06	53.7
			10:08-10:23	55.1
Healing Springs Road (Hwy 264)	4	10/13/19	13:29-13:44	65.5
			13:48-14:03	62.9
			14:05-14:20	64.4
South Main Street (Hwy 112)	1	10/13/19	15:07-15:22	68.7
			15:22-15:37	68.3
			15:38-15:53	67.6

No-Action Alternative Results: A total of 59 residential receptors, 61 Recreational Vehicle pads at The Creeks Golf & RV Resort, one food stand with exterior seating, one park (T.R. Wallis), the Cave Springs Community Building with exterior people activity areas and one place of worship with exterior people activity areas were predicted to experience noise impacts within distances of 150, 150, 145, 150 and 140 feet under future no-action conditions for NSA's 1-5 respectively, 73 (including 32 RV pads) of which were predicted to experience noise impacts within distances of 115, 80, 85 and 75 feet under existing conditions for NSAs 2-5, respectively. NSA 1 did not have existing NAC impacts

Eight receptors were predicted to experience noise levels within the 63 dBA screening analysis threshold at distances of 200, 200, 185 and 175 feet (NSAs 1, 2, 4, and 5 respectively), under future no-action conditions. The predicted noise impact and screening analysis threshold distances and receptors are shown on the attached Figures in the Appendix.

Improve the Existing Highways Alternative Results: A total of 23 receptors were predicted to experience noise impacts of 66 dBA within distances of 150, 150, 100, 100 and 135 feet under future build conditions for NSA's 1, 2, 4, 5, and 6 respectively, nine of which were predicted to experience noise impacts within distances of 115, 85 and 75 feet under existing conditions for NSAs 2, 4 and 5. NSA 1 did not have existing NAC impacts and NSA 6 is new alignment (Cave Springs Bypass) with no existing 66 dBA sound level impacts except for one residence immediately at the southern border with NSA 2.

Thirty-two receptors were predicted to experience noise levels within the 63 dBA screening analysis threshold at distances of 190 and 190 feet (NSAs 1 and 2 respectively), under future build conditions. This total includes 29 Recreational Vehicle

pads at The Creeks Golf & RV Resort in NSA 2. Ten of these impacted receptors are within the existing 66 dBA contour distance that approaches the NAC criteria. The predicted noise impact and screening analysis threshold distances and receptors are shown on the attached Figures. Please note that there are noise-sensitive properties (including multi-family apartment buildings) and the first row of Recreational Vehicle pads at The Creeks Golf & RV Resort located within the current proposed right-of-way. None of these properties are included in the total number of noise impacts, as they would likely be considered relocations.

Highway 112

A total of 14 receptors are predicted to experience noise impacts under future build conditions for this section. Three (3) of these 14 receptors are substantial increases (≥ 10 dBA) that were predicted in the Cave Springs Bypass section. The remaining impacted receptors are predicted to be NAC criteria impacts (66 dBA).

Thirty-two (32) receptors are predicted to experience noise levels within the 63 dBA screening analysis threshold under future build conditions. This total includes 29 Recreational Vehicle pads at The Creeks Golf & RV Resort. The remainder are residential.

Please note that there are noise-sensitive properties (including one multi-family apartment) and the first row of Recreational Vehicle pads at The Creeks Golf & RV Resort located within the current proposed right-of-way. None of these properties are included in the total number of noise impacts, as they would likely be right-of-way acquisitions.

Partial New Location Alternative Results: Seventeen receptors were identified in the noise buffer zone under future build conditions, 8 receptors are impacted within the 66 dBA buffer and six are substantial increase impacts. A total of 17 receptors were predicted to experience noise impacts within distances of 85, 100 and 150 feet under future build conditions for NSA's 8, 5 and 1, respectively, one of which was predicted to experience noise impacts within a distance of 75 feet under existing conditions for NSA 5. NSA 1 did not have existing NAC impacts and NSA 8 is new alignment with no existing 66 dBA sound levels. Three receptors were predicted to experience noise levels within the 63 dBA screening analysis threshold at distances of 135, 150 and 190 feet (NSAs 8, 5, 1 respectively), under future build conditions. The predicted noise impact and screening analysis distances and receptors are shown on the attached figures. Please note that there are approximately nine noise-sensitive properties located within the current proposed right-of-way. None of these properties are included in the total number of noise impacts.

New Location Alternative Results: Seven receptors were identified in the noise buffer zone under future build conditions, all of which are substantial increase impacts. None of these impacted receptors are within an existing 66 dBA contour distance that approaches the NAC criteria since NSA 9 is new alignment with no existing 66 dBA sound levels. The predicted noise impact and screening analysis distances and

receptors are shown on the attached figures. Please note that there are approximately four noise-sensitive properties located within the current proposed right-of-way. None of these properties are included in the total number of noise impacts.

As mentioned, there are six substantial increases (≥ 10 dBA) predicted for the Partial New Location Alternative and four predicted for the New Location Alternative. The predicted distance from centerline for the Partial New Location Alternative was 135 feet and was 350 feet for the New Location Alternative. The New Location Alternative distance was greater because of the 70 mph design speed and the larger typical section/cross-section footprint.

As previously noted, this screening analysis was performed to determine potential impacts for three proposed Build Alternatives in an effort to possibly reduce the number of alternatives. A detailed noise analysis will most likely be required when a selected alternative is identified.

Professional judgment indicates that no potentially impacted locations will have both feasible and reasonable mitigation from either one or both of the following reasons:

Feasibility - many impacted sites will have direct driveway access or may be located on the corner of an intersecting cross-street. Both of these conditions preclude a barrier being placed across either of these, leaving gaps in an analyzed barrier and not being able to achieve a minimum decibel reduction. Additionally, the barriers would have to be offset from the driveway or cross-street to allow for line-of-sight safety triangles.

Additionally, it is expected that three of the Osage Vista townhomes may be relocated. These are the western buildings of the six total buildings located near the intersection of the proposed highway bypass and Highway 264. Nonetheless, even though the substantial increase impact criteria contour goes through the remaining three eastern buildings, the only noise receptors at these townhouse units are the patios on the east side of the units. These receptors are shielded from the proposed highway by the buildings themselves. As a result, these receptors are not even likely to be impacted and no mitigation analyses will be needed.

Reasonableness - for other areas that do not have direct access or cross-streets, the density of noise-sensitive receptors is very sparse. Therefore, the cost per benefited receptor criteria likely will be exceeded.

Project construction operations typically increase noise levels. These increases would be temporary and have minimal to minor adverse effects on land uses and activities in the project area. Local ordinances may prohibit construction activities or restrict noise levels or high noise levels between certain time periods (e.g., nighttime and/or weekend work). Temporary construction noise reduction measures such as nighttime and/or weekend work restrictions may also be considered.

Planning Information for Local Officials

The ARDOT encourages local communities and developers to practice noise compatibility planning. As presented in **Table 2**, noise level prediction results for future build conditions are shown. Sound level calculations were made at incremental distances between 25-500 feet from various existing and proposed roadway centerlines. The detailed incremental distance results are included in the Noise Assessment Report Attachments Appendix.

There are nine distinct traffic volume, typical cross-section and/or speed areas in the project corridors with Activity Category B and C exterior receptors, as listed below.

- Area 1 – Highway 112; Highway 612 to Wagon Wheel
- Area 2 – Highway 112; Wagon Wheel to Highway 264 South
- Area 3 – Highway 112; Highway 264 South to Highway 264 North*
- Area 4 – Highway 264; Highway 112 to Mill Dam
- Area 5 – Highway 264; Mill Dam to Airport Blvd.
- Area 6 – Highway 112 Bypass; South of Highway 264 (proposed)
- Area 7 – Highway 112 Bypass; North of Highway 264 (proposed)**
- Area 8 – Partial New Location Alternative (proposed)
- Area 9 – New Location Alternative (proposed)

*Area 3 is bypassed by Area 6 in Cave Springs and is no longer part of the Improve The Existing Highways Alternative.

**Since the initial submission, Area 7 has been removed. Nonetheless, the Areas have not been renumbered so as to maintain continuity with the original draft analysis.

Table 2 shows the specific distances of the 66 dBA, 63 dBA (ARDOT Policy), 63 dBA for Areas 6 and 8 substantial increase criteria and 61 dBA for Area 9 substantial increase criteria contours that may capture noise-sensitive impacts as a result of constructing the proposed improvements in the nine areas. Existing 66 dBA contours are also presented for informational purposes.

These predictions do not represent noise levels at every location at a particular distance back from the roadway. Noise levels will vary with changes in terrain and other site conditions.

Table 2. Noise Levels for Compatibility Planning

	Existing Condition			
Area	Distance (ft)*		Leq(h), dBA**	
1	115		66	
2	115		66	
3	80		66	
4	85		66	
5	75		66	
	No-Action Alternative			
Area	Distance (ft)*	Leq(h), dBA**	Distance (ft)*	Leq(h), dBA**
1	150	66	200	63
2	150	66	200	63
3	145	66	180	63
4	150	66	185	63
5	140	66	175	63
Improve the Existing Highways Alternative				
Area	Distance (ft)*	Leq(h), dBA**	Distance (ft)*	Leq(h), dBA**
1	150	66	190	63
2	150	66	190	63
4	100	66	145	63
5	100	66	140	63
6 (New alignment)	135	66	175	63 (Substantial Inc.)
Partial New Location Alternative				
Area	Distance (ft)*	Leq(h), dBA**	Distance (ft)*	Leq(h), dBA**
1	150	66	190	63
5	100	66	150	63
8 (New alignment)	85	66	135	63 (Screening)
			135	63 (Substantial Inc.)
New Location Alternative				
Area	Distance (ft)*	Leq(h), dBA**	Distance (ft)*	Leq(h), dBA**
9 (New alignment)	240	66	300	63 (Screening)
			350	61 (Substantial Inc.)

* Perpendicular to centerline of Area "X" Roadway

** Rounded to tenth value

Table 3 presents the NAC. This information is included to inform local officials and planners of anticipated noise levels so that future development will be compatible. In compliance with federal guidelines, a copy of this screening analysis will be transmitted to the local agencies for land use planning purposes.

Table 3. Noise Abatement Criteria

Activity Category	L_{eq(h)} dBA	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B*	67	Exterior	Residential properties.
C*	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E*	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

* Includes undeveloped lands permitted for this activity category.

**NOISE ASSESSMENT REPORT ATTACHMENTS
SCREENING LEVEL NOISE ANALYSIS
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APPENDIX

**NOISE DATA WORKSHEETS
(WITH TRAFFIC VOLUMES AND
SOUND LEVELS)**

TNM SOUND LEVEL MODEL OUTPUTS

FIGURES:

PROJECT LOCATION MAP (ALL BUILD ALTERNATIVES)

- **PROJECT LOCATION**

NO-ACTION ALTERNATIVE (AREAS 1-5)

NEW LOCATION ALTERNATIVE: AREA 9

- **PROJECT LOCATION**
- **NEW LOCATION ALTERNATIVE: AREA 9 (RIGHT-OF-WAY, IMPACTS, CONTOURS)**

PARTIAL NEW LOCATION ALTERNATIVE: AREA 8

- **PROJECT LOCATION**
- **PARTIAL NEW LOCATION ALTERNATIVE: AREA 8 (RIGHT-OF-WAY, IMPACTS, CONTOURS)**

IMPROVE THE EXISTING HIGHWAYS ALTERNATIVE: AREAS 1-6 (AREA 7 DELETED FROM STUDY)

- **PROJECT LOCATION**
- **IMPROVE THE EXISTING HIGHWAYS ALTERNATIVE: AREAS 1-6 (RIGHT-OF-WAY, IMPACTS, CONTOURS)**
 - **AREA 1 – HIGHWAY 112; HIGHWAY 612 TO WAGON WHEEL**
 - **AREA 2 – HIGHWAY 112; WAGON WHEEL TO HIGHWAY 264 SOUTH**
 - **AREA 3 – HIGHWAY 112; HIGHWAY 264 SOUTH TO HIGHWAY 264 NORTH (BYPASSED BY AREA 6 IN CAVE SPRINGS)**
 - **AREA 4 – HIGHWAY 264; HIGHWAY 112 TO MILL DAM**
 - **AREA 5 – HIGHWAY 264; MILL DAM TO AIRPORT**
 - **AREA 6 – HIGHWAY 112 BYPASS; SOUTH OF HIGHWAY 264 (CAVE SPRINGS BYPASS)**

NOISE DATA WORKSHEET																														
Job No:	090069																													
Job Name:	Northwest Arkansas National Airport Access (F)																													
Roadway Reference:	Area 5																													
County:	Benton																													
Design Year:	2040																													
Year(s) To Be Modeled:	2018																													
Roadway Cross-Sections: 4 12' lanes; 2 4' shoulders total 32' wide Note: DHV = (ADT)(K) K - Percent of ADT in design hour DDHV = (ADT)(K)(D) D - Directional Distribution PEAK = AM/PM Peak hour, whichever is greater																														
											2018 EXISTING Area 5																			
Operating Speed:	55																													
Traffic Data:	<table border="1"> <thead> <tr> <th>YEAR</th> <th>PM PEAK</th> <th>%TRUCK</th> <th>PEAK</th> <th>CARS</th> <th>MT 2%</th> <th>HT 1%</th> <th>CARS/2</th> <th>MT/2</th> <th>HT/2</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td></td> <td></td> <td>680</td> <td>660</td> <td>14</td> <td>7</td> <td>330</td> <td>7</td> <td>3</td> </tr> </tbody> </table>										YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT 2%	HT 1%	CARS/2	MT/2	HT/2	2018			680	660	14	7	330	7	3
YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT 2%	HT 1%	CARS/2	MT/2	HT/2																					
2018			680	660	14	7	330	7	3																					

NOISE DATA WORKSHEET											
Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 5										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	4 12' lanes; 2 4' shoulders	total 32' wide	Note: DHV = (ADT)(K) K - Percent of ADT in design hour DDHV = (ADT)(K)(D) D - Directional Distribution PEAK = AM/PM Peak hour, whichever is greater								
	2040	No-Action	Area 5								
Operating Speed:	55										
Traffic Data:	YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	
	2040			1261	1194	45	22	597	23	11	

NOISE DATA WORKSHEET											
Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 2										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	<div>37.5' each side of center, Total 75'</div> <div>4-11' lanes, 2-4' Inner & Outer Shldrs, 15' Grass Median</div>										
	<div>2040 Improve Existing Alt</div> <div>Area 2</div>										
Operating Speed:	45 (Proposed Design Speed)										
Traffic Data:											
	YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	
	2040			2544	2409	3.6%	1.7%	1205	46	22	

Note: $DHV = (ADT)(K)$ K - Percent ADT in design hour
 $DDHV = (ADT)(K)(D)$ D - Directional Distribution
 PEAK = AM/PM Peak hour, whichever is greater

NOISE DATA WORKSHEET											
Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 4										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	<div>37.5' each side of center, Total 75'</div> <div>4-11' lanes, 2-4' Inner & Outer Shldrs, 15' Grass Median</div>										
	<div>2040</div> <div>Improve Existing Alt</div> <div>Area 4</div>										
Operating Speed:	45 (Proposed Design Speed)										
Traffic Data:											
	YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	
	2040			1435	1392	29	14	696	14	7	

Note: $DHV = (ADT)(K)$ K - Percent ADT in design hour
 $DDHV = (ADT)(K)(D)$ D - Directional Distribution
 PEAK = AM/PM Peak hour, whichever is greater

NOISE DATA WORKSHEET

Job No:	090069																														
Job Name:	Northwest Arkansas National Airport Access (F)																														
Roadway Reference:	Area 5																														
County:	Benton																														
Design Year:	2040																														
Year(s) To Be Modeled:	2040																														
Roadway Cross-Sections:	<div>37.5' each side of center, Total 75'</div> <div>4-11' lanes, 2-4' Inner & Outer Shldr, 15' Grass Median</div>																														
	<div>2040</div> <div>Improve Existing Alt</div> <div>Area 5</div>																														
Operating Speed:	45 (Proposed Design Speed)																														
Traffic Data:	<table border="1"> <thead> <tr> <th>YEAR</th> <th>PM PEAK</th> <th>%TRUCK</th> <th>PEAK</th> <th>CARS</th> <th>MT</th> <th>HT</th> <th>CARS/2</th> <th>MT/2</th> <th>HT/2</th> </tr> </thead> <tbody> <tr> <td>2040</td> <td></td> <td></td> <td>1269</td> <td>1231</td> <td>25</td> <td>13</td> <td>615</td> <td>13</td> <td>6</td> </tr> </tbody> </table>											YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	2040			1269	1231	25	13	615	13	6
YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2																						
2040			1269	1231	25	13	615	13	6																						

NOISE DATA WORKSHEET											
Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 6										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	<div>37.5' each side of center, Total 75'</div> <div>4-11' lanes, 2-4' Inner & Outer Shldrs, 15' Grass Median</div>										
	<div>2040 Improve Existing Alt</div> <div>Area 6</div>										
Operating Speed:	45 (Proposed Design Speed)										
Traffic Data:											
	YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	
	2040			671	635	3.6%	1.7%	318	12	6	

Note: $DHV = (ADT)(K)$ K - Percent ADT in design hour
 $DDHV = (ADT)(K)(D)$ D - Directional Distribution
 PEAK = AM/PM Peak hour, whichever is greater

NOISE DATA WORKSHEET											
Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 1										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	<div>37.5' each side of center, Total 75'</div> <div>4-11' lanes, 2-4' Inner & Outer Shldrs, 15' Grass Median</div>										
	<div>2040 Partial New Location Area 1</div>										
Operating Speed:	45 (Proposed Design Speed)										
Traffic Data:											
	YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2	
	2040			2654	2513	96	45	1257	48	23	

Note: DHV = (ADT)(K) K - Percent ADT in design hour
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Job No:	090069										
Job Name:	Northwest Arkansas National Airport Access (F)										
Roadway Reference:	Area 5										
County:	Benton										
Design Year:	2040										
Year(s) To Be Modeled:	2040										
Roadway Cross-Sections:	37.5' each side of center, Total 75' 4-11' lanes, 2-4' Inner & Outer Shldrs, 15' Grass Median										
	2040 Partial New Location Area 5										
Operating Speed:	45 (Proposed Design Speed)										
Traffic Data:		YEAR	PM PEAK	%TRUCK	PEAK	CARS	MT	HT	CARS/2	MT/2	HT/2
		2040			1269	1231	25	13	615	13	6

Note: $DHV = (ADT)(K)$ K - Percent ADT in design hour
 $DDHV = (ADT)(K)(D)$ D - Directional Distribution
 PEAK = AM/PM Peak hour, whichever is greater

TNM SOUND LEVEL MODEL OUTPUTS

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

Ex Area 1 SR112; SR612-Wagon

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing	No Barrier		Increase over existing		Type Impact	With Barrier			
			LAeq1h	LAeq1h	Crit'n	Calculated	Crit'n		Calculated	Noise Reduction	Calculated minus Goal	
			Calculated									
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	
25' from centerline	1	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0)
50	2	1	0.0	69.9	66	69.9	10	Snd Lvl	69.9	0.0	8	-8.0)
75	3	1	0.0	67.9	66	67.9	10	Snd Lvl	67.9	0.0	8	-8.0)
100 Say 115'	4	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0)
125	5	1	0.0	65.3	66	65.3	10	—	65.3	0.0	8	-8.0)
150	6	1	0.0	63.3	66	63.3	10	—	63.3	0.0	8	-8.0)
175	7	1	0.0	61.5	66	61.5	10	—	61.5	0.0	8	-8.0)
200	8	1	0.0	59.9	66	59.9	10	—	59.9	0.0	8	-8.0)
225	10	1	0.0	58.5	66	58.5	10	—	58.5	0.0	8	-8.0)
250	11	1	0.0	57.3	66	57.3	10	—	57.3	0.0	8	-8.0)
275	12	1	0.0	56.2	66	56.2	10	—	56.2	0.0	8	-8.0)
300	13	1	0.0	55.2	66	55.2	10	—	55.2	0.0	8	-8.0)
325	14	1	0.0	54.3	66	54.3	10	—	54.3	0.0	8	-8.0)
350	15	1	0.0	53.5	66	53.5	10	—	53.5	0.0	8	-8.0)
375	16	1	0.0	52.7	66	52.7	10	—	52.7	0.0	8	-8.0)
400	17	1	0.0	52.0	66	52.0	10	—	52.0	0.0	8	-8.0)
425	18	1	0.0	51.4	66	51.4	10	—	51.4	0.0	8	-8.0)
450	19	1	0.0	50.8	66	50.8	10	—	50.8	0.0	8	-8.0)
475	21	1	0.0	50.2	66	50.2	10	—	50.2	0.0	8	-8.0)
500	22	1	0.0	49.6	66	49.6	10	—	49.6	0.0	8	-8.0)
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			20	0.0	0.0	0.0						
All Impacted			4	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

Name	No.	#DUs	Existing	No Barrier			With Barrier					
			L _{Aeq} 1h	L _{Aeq} 1h Calculated	Crit'n	Increase over Calculated	existing Crit'n Sub'l Inc	Type Impact	Calculated L _{Aeq} 1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
25' from centerline	1	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
50	2	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
75	3	1	0.0	67.8	66	67.8	10	Snd Lvl	67.8	0.0	8	-8.0
100	4	1	0.0	66.4	66	66.4	10	Snd Lvl	66.4	0.0	8	-8.0
125 Say 115'	5	1	0.0	65.2	66	65.2	10	—	65.2	0.0	8	-8.0
150	6	1	0.0	63.2	66	63.2	10	—	63.2	0.0	8	-8.0
175	7	1	0.0	61.4	66	61.4	10	—	61.4	0.0	8	-8.0
200	8	1	0.0	59.8	66	59.8	10	—	59.8	0.0	8	-8.0
225	10	1	0.0	58.4	66	58.4	10	—	58.4	0.0	8	-8.0
250	11	1	0.0	57.2	66	57.2	10	—	57.2	0.0	8	-8.0
275	12	1	0.0	56.1	66	56.1	10	—	56.1	0.0	8	-8.0
300	13	1	0.0	55.1	66	55.1	10	—	55.1	0.0	8	-8.0
325	14	1	0.0	54.2	66	54.2	10	—	54.2	0.0	8	-8.0
350	15	1	0.0	53.4	66	53.4	10	—	53.4	0.0	8	-8.0
375	16	1	0.0	52.6	66	52.6	10	—	52.6	0.0	8	-8.0
400	17	1	0.0	51.9	66	51.9	10	—	51.9	0.0	8	-8.0
425	18	1	0.0	51.3	66	51.3	10	—	51.3	0.0	8	-8.0
450	19	1	0.0	50.7	66	50.7	10	—	50.7	0.0	8	-8.0
475	21	1	0.0	50.1	66	50.1	10	—	50.1	0.0	8	-8.0
500	22	1	0.0	49.6	66	49.6	10	—	49.6	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			20	0.0	0.0	0.0						
All Impacted			4	0.0	0.0	0.0						

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
25' from centerline	1	1	0.0	71.8	66	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
50	2	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
75	3	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
100	4	1	0.0	65.0	66	65.0	10	—	65.0	0.0	8	-8.0
125	5	1	0.0	63.8	66	63.8	10	—	63.8	0.0	8	-8.0
150	6	1	0.0	61.9	66	61.9	10	—	61.9	0.0	8	-8.0
175	7	1	0.0	60.1	66	60.1	10	—	60.1	0.0	8	-8.0
200	8	1	0.0	58.6	66	58.6	10	—	58.6	0.0	8	-8.0
225	10	1	0.0	57.3	66	57.3	10	—	57.3	0.0	8	-8.0
250	11	1	0.0	56.1	66	56.1	10	—	56.1	0.0	8	-8.0
275	12	1	0.0	55.1	66	55.1	10	—	55.1	0.0	8	-8.0
300	13	1	0.0	54.1	66	54.1	10	—	54.1	0.0	8	-8.0
325	14	1	0.0	53.3	66	53.3	10	—	53.3	0.0	8	-8.0
350	15	1	0.0	52.5	66	52.5	10	—	52.5	0.0	8	-8.0
375	16	1	0.0	51.8	66	51.8	10	—	51.8	0.0	8	-8.0
400	17	1	0.0	51.2	66	51.2	10	—	51.2	0.0	8	-8.0
425	18	1	0.0	50.6	66	50.6	10	—	50.6	0.0	8	-8.0
450	19	1	0.0	50.0	66	50.0	10	—	50.0	0.0	8	-8.0
475	21	1	0.0	49.5	66	49.5	10	—	49.5	0.0	8	-8.0
500	22	1	0.0	49.0	66	49.0	10	—	49.0	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min dB	Avg dB	Max dB						
All Selected			20	0.0	0.0	0.0						
All Impacted			3	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

ARDOT
APK/MBI

18 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

Ex Area 4 SR264; SR112-Mill

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver													
Name	No.	#DUs	Existing LAeq1h	No Barrier		Increase over existing		Type	With Barrier				
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
25' from centerline	1	1	0.0	72.0	66	72.0	10	Snd Lvl	72.0	0.0	8	-8.0	
50	2	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0	
75 Say 85'	3	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0	
100	4	1	0.0	65.2	66	65.2	10	—	65.2	0.0	8	-8.0	
125	5	1	0.0	64.0	66	64.0	10	—	64.0	0.0	8	-8.0	
150	6	1	0.0	62.0	66	62.0	10	—	62.0	0.0	8	-8.0	
175	7	1	0.0	60.1	66	60.1	10	—	60.1	0.0	8	-8.0	
200	8	1	0.0	58.5	66	58.5	10	—	58.5	0.0	8	-8.0	
225	10	1	0.0	57.1	66	57.1	10	—	57.1	0.0	8	-8.0	
250	11	1	0.0	55.8	66	55.8	10	—	55.8	0.0	8	-8.0	
275	12	1	0.0	54.7	66	54.7	10	—	54.7	0.0	8	-8.0	
300	13	1	0.0	53.6	66	53.6	10	—	53.6	0.0	8	-8.0	
325	14	1	0.0	52.7	66	52.7	10	—	52.7	0.0	8	-8.0	
350	15	1	0.0	51.8	66	51.8	10	—	51.8	0.0	8	-8.0	
375	16	1	0.0	51.0	66	51.0	10	—	51.0	0.0	8	-8.0	
400	17	1	0.0	50.3	66	50.3	10	—	50.3	0.0	8	-8.0	
425	18	1	0.0	49.6	66	49.6	10	—	49.6	0.0	8	-8.0	
450	19	1	0.0	49.0	66	49.0	10	—	49.0	0.0	8	-8.0	
475	21	1	0.0	48.4	66	48.4	10	—	48.4	0.0	8	-8.0	
500	22	1	0.0	47.8	66	47.8	10	—	47.8	0.0	8	-8.0	

ARDOT
APK/MBI

21 September 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

No-Act Area 1 SR112; SR612-Wagon

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier		Increase over existing		Type Impact	With Barrier			
				LAeq1h Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction		Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
25' from centerline	1	1	0.0	76.6	66	76.6	10	Snd Lvl	76.6	0.0	8	-8.0
50	2	1	0.0	73.2	66	73.2	10	Snd Lvl	73.2	0.0	8	-8.0
75	3	1	0.0	71.3	66	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
100	4	1	0.0	69.8	66	69.8	10	Snd Lvl	69.8	0.0	8	-8.0
125	5	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
150	6	1	0.0	66.7	66	66.7	10	Snd Lvl	66.7	0.0	8	-8.0
175	7	1	0.0	64.8	66	64.8	10	—	64.8	0.0	8	-8.0
200	8	1	0.0	63.3	66	63.3	10	—	63.3	0.0	8	-8.0
225	10	1	0.0	61.9	66	61.9	10	—	61.9	0.0	8	-8.0
250	11	1	0.0	60.7	66	60.7	10	—	60.7	0.0	8	-8.0
275	12	1	0.0	59.6	66	59.6	10	—	59.6	0.0	8	-8.0
300	13	1	0.0	58.6	66	58.6	10	—	58.6	0.0	8	-8.0
325	14	1	0.0	57.7	66	57.7	10	—	57.7	0.0	8	-8.0
350	15	1	0.0	56.8	66	56.8	10	—	56.8	0.0	8	-8.0
375	16	1	0.0	56.1	66	56.1	10	—	56.1	0.0	8	-8.0
400	17	1	0.0	55.4	66	55.4	10	—	55.4	0.0	8	-8.0
425	18	1	0.0	54.7	66	54.7	10	—	54.7	0.0	8	-8.0
450	19	1	0.0	54.1	66	54.1	10	—	54.1	0.0	8	-8.0
475	21	1	0.0	53.6	66	53.6	10	—	53.6	0.0	8	-8.0
500	22	1	0.0	53.0	66	53.0	10	—	53.0	0.0	8	-8.0

ARDOT

APK/NBI

21 September 2020

TNM 2.5

Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 090069

RUN: No-Act Area 2 SR112; Wagon-SR264

BARRIER DESIGN: INPUT HEIGHTS

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier				Type Impact	With Barrier			
				LAeq1h Calculated	Crit'n	Increase over existing			Calculated LAeq1h	Noise Reduction		
						Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBa	dBa	dBa	dB	dB		dBa	dB	dB	dB
25' from centerline	1	1	0.0	76.5	66	76.5	10	Snd Lvl	76.5	0.0	8	-8.0
50	2	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
75	3	1	0.0	71.1	66	71.1	10	Snd Lvl	71.1	0.0	8	-8.0
100	4	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
125	5	1	0.0	68.5	66	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
150	6	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0
175	7	1	0.0	64.7	66	64.7	10	—	64.7	0.0	8	-8.0
200	8	1	0.0	63.1	66	63.1	10	—	63.1	0.0	8	-8.0
225	10	1	0.0	61.7	66	61.7	10	—	61.7	0.0	8	-8.0
250	11	1	0.0	60.5	66	60.5	10	—	60.5	0.0	8	-8.0
275	12	1	0.0	59.4	66	59.4	10	—	59.4	0.0	8	-8.0
300	13	1	0.0	58.4	66	58.4	10	—	58.4	0.0	8	-8.0
325	14	1	0.0	57.5	66	57.5	10	—	57.5	0.0	8	-8.0
350	15	1	0.0	56.7	66	56.7	10	—	56.7	0.0	8	-8.0
375	16	1	0.0	55.9	66	55.9	10	—	55.9	0.0	8	-8.0
400	17	1	0.0	55.2	66	55.2	10	—	55.2	0.0	8	-8.0
425	18	1	0.0	54.6	66	54.6	10	—	54.6	0.0	8	-8.0
450	19	1	0.0	54.0	66	54.0	10	—	54.0	0.0	8	-8.0
475	21	1	0.0	53.4	66	53.4	10	—	53.4	0.0	8	-8.0
500	22	1	0.0	52.9	66	52.9	10	—	52.9	0.0	8	-8.0

Say 160'

Say 160'

ARDOT
APK/MBI

21 September 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

No-Act Area 3 SR112; SR264-SR264

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier				With Barrier				
				LAeq1h Calculated	Crit'n	Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		
						Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBa	dBa	dBa	dB	dB		dBa	dB	dB	dB
25' from centerline	1	1	0.0	75.1	66	75.1	10	Snd Lvl	75.1	0.0	8	-8.0
50	2	1	0.0	71.7	66	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
75	3	1	0.0	69.7	66	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
100	4	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
125	5	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
150	6	1	0.0	65.2	66	65.2	10	—	65.2	0.0	8	-8.0
175	7	1	0.0	63.4	66	63.4	10	—	63.4	0.0	8	-8.0
200	8	1	0.0	61.9	66	61.9	10	—	61.9	0.0	8	-8.0
225	10	1	0.0	60.6	66	60.6	10	—	60.6	0.0	8	-8.0
250	11	1	0.0	59.4	66	59.4	10	—	59.4	0.0	8	-8.0
275	12	1	0.0	58.3	66	58.3	10	—	58.3	0.0	8	-8.0
300	13	1	0.0	57.4	66	57.4	10	—	57.4	0.0	8	-8.0
325	14	1	0.0	56.6	66	56.6	10	—	56.6	0.0	8	-8.0
350	15	1	0.0	55.8	66	55.8	10	—	55.8	0.0	8	-8.0
375	16	1	0.0	55.1	66	55.1	10	—	55.1	0.0	8	-8.0
400	17	1	0.0	54.4	66	54.4	10	—	54.4	0.0	8	-8.0
425	18	1	0.0	53.8	66	53.8	10	—	53.8	0.0	8	-8.0
450	19	1	0.0	53.3	66	53.3	10	—	53.3	0.0	8	-8.0
475	21	1	0.0	52.8	66	52.8	10	—	52.8	0.0	8	-8.0
500	22	1	0.0	52.3	66	52.3	10	—	52.3	0.0	8	-8.0

Say 145'

ARDOT
APK/MBI

21 September 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

No Act Area 4 SR264; SR112-Mill

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier			
				LAeq1h Calculated	Crit'n	Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal
			dBA	dBA	dBA	Calculated	Crit'n Sub'l Inc		dBA	dB	Goal	dB
25' from centerline	1	1	0.0	75.4	66	75.4	10	Snd Lvl	75.4	0.0	8	-8.0
50	2	1	0.0	72.1	66	72.1	10	Snd Lvl	72.1	0.0	8	-8.0
75	3	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
100	4	1	0.0	68.6	66	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
125	5	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0
150	6	1	0.0	65.5	66	65.5	10	—	65.5	0.0	8	-8.0
175	7	1	0.0	63.6	66	63.6	10	—	63.6	0.0	8	-8.0
200	8	1	0.0	62.0	66	62.0	10	—	62.0	0.0	8	-8.0
225	10	1	0.0	60.6	66	60.6	10	—	60.6	0.0	8	-8.0
250	11	1	0.0	59.4	66	59.4	10	—	59.4	0.0	8	-8.0
275	12	1	0.0	58.2	66	58.2	10	—	58.2	0.0	8	-8.0
300	13	1	0.0	57.2	66	57.2	10	—	57.2	0.0	8	-8.0
325	14	1	0.0	56.3	66	56.3	10	—	56.3	0.0	8	-8.0
350	15	1	0.0	55.4	66	55.4	10	—	55.4	0.0	8	-8.0
375	16	1	0.0	54.7	66	54.7	10	—	54.7	0.0	8	-8.0
400	17	1	0.0	53.9	66	53.9	10	—	53.9	0.0	8	-8.0
425	18	1	0.0	53.3	66	53.3	10	—	53.3	0.0	8	-8.0
450	19	1	0.0	52.7	66	52.7	10	—	52.7	0.0	8	-8.0
475	21	1	0.0	52.1	66	52.1	10	—	52.1	0.0	8	-8.0
500	22	1	0.0	51.5	66	51.5	10	—	51.5	0.0	8	-8.0

ARDOT
APK/MBI

21 September 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

No-Act Area 5 SR264; Mill-Airport

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing		Type Impact	With Barrier			
						Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
25' from centerline	1	1	0.0	74.8	66	74.8	10	Snd Lvl	74.8	0.0	8	-8.0
50	2	1	0.0	71.4	66	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
75	3	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
100	4	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
125	5	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
150	6	1	0.0	64.8	66	64.8	10	—	64.8	0.0	8	-8.0
175	7	1	0.0	63.0	66	63.0	10	—	63.0	0.0	8	-8.0
200	8	1	0.0	61.4	66	61.4	10	—	61.4	0.0	8	-8.0
225	10	1	0.0	60.0	66	60.0	10	—	60.0	0.0	8	-8.0
250	11	1	0.0	58.7	66	58.7	10	—	58.7	0.0	8	-8.0
275	12	1	0.0	57.6	66	57.6	10	—	57.6	0.0	8	-8.0
300	13	1	0.0	56.6	66	56.6	10	—	56.6	0.0	8	-8.0
325	14	1	0.0	55.7	66	55.7	10	—	55.7	0.0	8	-8.0
350	15	1	0.0	54.8	66	54.8	10	—	54.8	0.0	8	-8.0
375	16	1	0.0	54.0	66	54.0	10	—	54.0	0.0	8	-8.0
400	17	1	0.0	53.3	66	53.3	10	—	53.3	0.0	8	-8.0
425	18	1	0.0	52.7	66	52.7	10	—	52.7	0.0	8	-8.0
450	19	1	0.0	52.0	66	52.0	10	—	52.0	0.0	8	-8.0
475	21	1	0.0	51.5	66	51.5	10	—	51.5	0.0	8	-8.0
500	22	1	0.0	50.9	66	50.9	10	—	50.9	0.0	8	-8.0

Say 140'

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

IEA Area 1

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver													
Name	No.	#DUs	Existing	No Barrier			Increase over existing			Type	With Barrier		
			LAeq1h	LAeq1h	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	Calculated	Noise Reduction		Calculated minus Goal	
			Calculated	Calculated					Calculated	Calculated	Goal		
			dBA	dBA	dBA	dB	dB			dBA	dB	dB	dB
50	3	1	0.0	73.3	66	73.3	10	Snd Lvl	73.3	0.0	8	-8.0	
75	4	1	0.0	70.6	66	70.6	10	Snd Lvl	70.6	0.0	8	-8.0	
100	5	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0	
125	6	1	0.0	67.3	66	67.3	10	Snd Lvl	67.3	0.0	8	-8.0	
150	7	1	0.0	65.7	66	65.7	10	—	65.7	0.0	8	-8.0	
175	8	1	0.0	63.8	66	63.8	10	—	63.8	0.0	8	-8.0	
200	10	1	0.0	62.2	66	62.2	10	—	62.2	0.0	8	-8.0	
225	11	1	0.0	60.9	66	60.9	10	—	60.9	0.0	8	-8.0	
250	12	1	0.0	60.0	66	60.0	10	—	60.0	0.0	8	-8.0	
275	13	1	0.0	59.3	66	59.3	10	—	59.3	0.0	8	-8.0	
300	14	1	0.0	58.7	66	58.7	10	—	58.7	0.0	8	-8.0	
325	15	1	0.0	58.1	66	58.1	10	—	58.1	0.0	8	-8.0	
350	16	1	0.0	57.6	66	57.6	10	—	57.6	0.0	8	-8.0	
375	17	1	0.0	57.2	66	57.2	10	—	57.2	0.0	8	-8.0	
400	18	1	0.0	56.8	66	56.8	10	—	56.8	0.0	8	-8.0	
425	19	1	0.0	56.4	66	56.4	10	—	56.4	0.0	8	-8.0	
450	21	1	0.0	56.1	66	56.1	10	—	56.1	0.0	8	-8.0	
475	22	1	0.0	55.5	66	55.5	10	—	55.5	0.0	8	-8.0	
500	24	1	0.0	54.9	66	54.9	10	—	54.9	0.0	8	-8.0	
Dwelling Units			# DUs	Noise Reduction									
				Min	Avg	Max							
				dB	dB	dB							
All Selected			19	0.0	0.0	0.0							
All Impacted			4	0.0	0.0	0.0							
All that meet NR Goal			0	0.0	0.0	0.0							

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

IEA Area 2

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver												
Name	No.	#DUs	Existing	No Barrier		Increase over existing		Type Impact	With Barrier			
			LAeq1h	LAeq1h	Crit'n	Calculated	Crit'n		Calculated	Noise Reduction		Calculated minus Goal
			dB	dB	dB	dB	Sub'l Inc		dB	dB	dB	
50	3	1	0.0	73.1	66	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
75	4	1	0.0	70.4	66	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
100	5	1	0.0	68.8	66	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
125	6	1	0.0	67.1	66	67.1	10	Snd Lvl	67.1	0.0	8	-8.0
150	7	1	0.0	65.5	66	65.5	10	—	65.5	0.0	8	-8.0
175	8	1	0.0	63.6	66	63.6	10	—	63.6	0.0	8	-8.0
200	10	1	0.0	62.0	66	62.0	10	—	62.0	0.0	8	-8.0
225	11	1	0.0	60.7	66	60.7	10	—	60.7	0.0	8	-8.0
250	12	1	0.0	59.8	66	59.8	10	—	59.8	0.0	8	-8.0
275	13	1	0.0	59.1	66	59.1	10	—	59.1	0.0	8	-8.0
300	14	1	0.0	58.5	66	58.5	10	—	58.5	0.0	8	-8.0
325	15	1	0.0	57.9	66	57.9	10	—	57.9	0.0	8	-8.0
350	16	1	0.0	57.4	66	57.4	10	—	57.4	0.0	8	-8.0
375	17	1	0.0	57.0	66	57.0	10	—	57.0	0.0	8	-8.0
400	18	1	0.0	56.6	66	56.6	10	—	56.6	0.0	8	-8.0
425	19	1	0.0	56.2	66	56.2	10	—	56.2	0.0	8	-8.0
450	21	1	0.0	55.9	66	55.9	10	—	55.9	0.0	8	-8.0
475	22	1	0.0	55.3	66	55.3	10	—	55.3	0.0	8	-8.0
500	24	1	0.0	54.7	66	54.7	10	—	54.7	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			19	0.0	0.0	0.0						
All Impacted			4	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

IEA Area 4

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver

Name	No.	#DUs	Existing LAeq1h	No Barrier					With Barrier				
				LAeq1h Calculated	Crit'n	Increase over existing		Type Impact	Calculated LAeq1h	Noise Reduction		Calculated minus Goal	
						Calculated	Crit'n Sub'l Inc			Calculated	Goal		
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
50	3	1	0.0	70.1	66	70.1	10	Snd Lvl	70.1	0.0	8	-8.0	
75	4	1	0.0	67.5	66	67.5	10	Snd Lvl	67.5	0.0	8	-8.0	
100	5	1	0.0	65.8	66	65.8	10	—	65.8	0.0	8	-8.0	
125	Say 145'	6	0.0	64.1	66	64.1	10	—	64.1	0.0	8	-8.0	
150		7	0.0	62.5	66	62.5	10	—	62.5	0.0	8	-8.0	
175	8	1	0.0	60.5	66	60.5	10	—	60.5	0.0	8	-8.0	
200	10	1	0.0	58.9	66	58.9	10	—	58.9	0.0	8	-8.0	
225	11	1	0.0	57.6	66	57.6	10	—	57.6	0.0	8	-8.0	
250	12	1	0.0	56.7	66	56.7	10	—	56.7	0.0	8	-8.0	
275	13	1	0.0	56.0	66	56.0	10	—	56.0	0.0	8	-8.0	
300	14	1	0.0	55.3	66	55.3	10	—	55.3	0.0	8	-8.0	
325	15	1	0.0	54.8	66	54.8	10	—	54.8	0.0	8	-8.0	
350	16	1	0.0	54.3	66	54.3	10	—	54.3	0.0	8	-8.0	
375	17	1	0.0	53.9	66	53.9	10	—	53.9	0.0	8	-8.0	
400	18	1	0.0	53.5	66	53.5	10	—	53.5	0.0	8	-8.0	
425	19	1	0.0	53.1	66	53.1	10	—	53.1	0.0	8	-8.0	
450	21	1	0.0	52.8	66	52.8	10	—	52.8	0.0	8	-8.0	
475	22	1	0.0	52.2	66	52.2	10	—	52.2	0.0	8	-8.0	
500	24	1	0.0	51.6	66	51.6	10	—	51.6	0.0	8	-8.0	

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	19	0.0	0.0	0.0
All Impacted	2	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

IEA Area 5

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier		Increase over existing		Type Impact	With Barrier			
				LAeq1h	Crit'n	Calculated	Crit'n		Calculated	Noise Reduction		
				Calculated			Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50	3	1	0.0	69.6	66	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
75	4	1	0.0	66.0	66	66.0	10	Snd Lvl	66.0	0.0	8	-8.0
100	5	1	0.0	65.2	66	65.2	10	—	65.2	0.0	8	-8.0
125	6	1	0.0	63.6	66	63.6	10	—	63.6	0.0	8	-8.0
150	7	1	0.0	61.9	66	61.9	10	—	61.9	0.0	8	-8.0
175	8	1	0.0	60.0	66	60.0	10	—	60.0	0.0	8	-8.0
200	10	1	0.0	58.4	66	58.4	10	—	58.4	0.0	8	-8.0
225	11	1	0.0	57.1	66	57.1	10	—	57.1	0.0	8	-8.0
250	12	1	0.0	56.2	66	56.2	10	—	56.2	0.0	8	-8.0
275	13	1	0.0	55.4	66	55.4	10	—	55.4	0.0	8	-8.0
300	14	1	0.0	54.8	66	54.8	10	—	54.8	0.0	8	-8.0
325	15	1	0.0	54.3	66	54.3	10	—	54.3	0.0	8	-8.0
350	16	1	0.0	53.8	66	53.8	10	—	53.8	0.0	8	-8.0
375	17	1	0.0	53.3	66	53.3	10	—	53.3	0.0	8	-8.0
400	18	1	0.0	52.9	66	52.9	10	—	52.9	0.0	8	-8.0
425	19	1	0.0	52.6	66	52.6	10	—	52.6	0.0	8	-8.0
450	21	1	0.0	52.2	66	52.2	10	—	52.2	0.0	8	-8.0
475	22	1	0.0	51.7	66	51.7	10	—	51.7	0.0	8	-8.0
500	24	1	0.0	51.0	66	51.0	10	—	51.0	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			19	0.0	0.0	0.0						
All Impacted			2	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

IEA Area 6-SR112 Byp South of SR264

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing	No Barrier		Increase over existing		Type Impact	With Barrier			
			LAeq1h	LAeq1h	Crit'n	Calculated	Crit'n		Calculated	Noise Reduction		
				Calculated			Sub'l Inc		LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
50	3	1	0.0	72.6	66	72.6	10	Snd Lvl	72.6	0.0	8	-8.0
75	4	1	0.0	70.0	66	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
100	5	1	0.0	68.3	66	68.3	10	Snd Lvl	68.3	0.0	8	-8.0
125	6	1	0.0	66.6	66	66.6	10	Snd Lvl	66.6	0.0	8	-8.0
150	7	1	0.0	65.0	66	65.0	10	—	65.0	0.0	8	-8.0
175	8	1	0.0	63.2	66	63.2	10	—	63.2	0.0	8	-8.0
200	10	1	0.0	61.7	66	61.7	10	—	61.7	0.0	8	-8.0
225	11	1	0.0	60.4	66	60.4	10	—	60.4	0.0	8	-8.0
250	12	1	0.0	59.6	66	59.6	10	—	59.6	0.0	8	-8.0
275	13	1	0.0	58.8	66	58.8	10	—	58.8	0.0	8	-8.0
300	14	1	0.0	58.2	66	58.2	10	—	58.2	0.0	8	-8.0
325	15	1	0.0	57.7	66	57.7	10	—	57.7	0.0	8	-8.0
350	16	1	0.0	57.2	66	57.2	10	—	57.2	0.0	8	-8.0
375	17	1	0.0	56.7	66	56.7	10	—	56.7	0.0	8	-8.0
400	18	1	0.0	56.3	66	56.3	10	—	56.3	0.0	8	-8.0
425	19	1	0.0	56.0	66	56.0	10	—	56.0	0.0	8	-8.0
450	21	1	0.0	55.6	66	55.6	10	—	55.6	0.0	8	-8.0
475	22	1	0.0	55.1	66	55.1	10	—	55.1	0.0	8	-8.0
500	24	1	0.0	54.5	66	54.5	10	—	54.5	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			19	0.0	0.0	0.0						
All Impacted			4	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

53 is existing
condition. 63 dBA is
substantial impact
criteria.

[illegible]

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

Partial New Location Area 5

BARRIER DESIGN:

INPUT HEIGHTS

Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		Calculated minus Goal
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	
			dBA	dBA	dBA	dB	dB			dBA	dB	
75	4	1	0.0	68.2	66	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
100	5	1	0.0	66.3	66	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
125	6	1	0.0	64.9	66	64.9	10	—	64.9	0.0	8	-8.0
150	7	1	0.0	63.3	66	63.3	10	—	63.3	0.0	8	-8.0
175	8	1	0.0	61.3	66	61.3	10	—	61.3	0.0	8	-8.0
200	10	1	0.0	59.5	66	59.5	10	—	59.5	0.0	8	-8.0
225	11	1	0.0	57.9	66	57.9	10	—	57.9	0.0	8	-8.0
250	12	1	0.0	56.6	66	56.6	10	—	56.6	0.0	8	-8.0
275	13	1	0.0	55.4	66	55.4	10	—	55.4	0.0	8	-8.0
300	14	1	0.0	54.3	66	54.3	10	—	54.3	0.0	8	-8.0
325	15	1	0.0	53.4	66	53.4	10	—	53.4	0.0	8	-8.0
350	16	1	0.0	52.5	66	52.5	10	—	52.5	0.0	8	-8.0
375	17	1	0.0	51.7	66	51.7	10	—	51.7	0.0	8	-8.0
400	18	1	0.0	50.9	66	50.9	10	—	50.9	0.0	8	-8.0
425	19	1	0.0	50.3	66	50.3	10	—	50.3	0.0	8	-8.0
450	21	1	0.0	49.7	66	49.7	10	—	49.7	0.0	8	-8.0
475	22	1	0.0	49.1	66	49.1	10	—	49.1	0.0	8	-8.0
500	24	1	0.0	48.5	66	48.5	10	—	48.5	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min dB	Avg dB	Max dB						
All Selected			18	0.0	0.0	0.0						
All Impacted			2	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

ARDOT
APK/MBI

11 March 2020
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT:

090069

RUN:

New Location Area 9

BARRIER DESIGN:

INPUT HEIGHTS

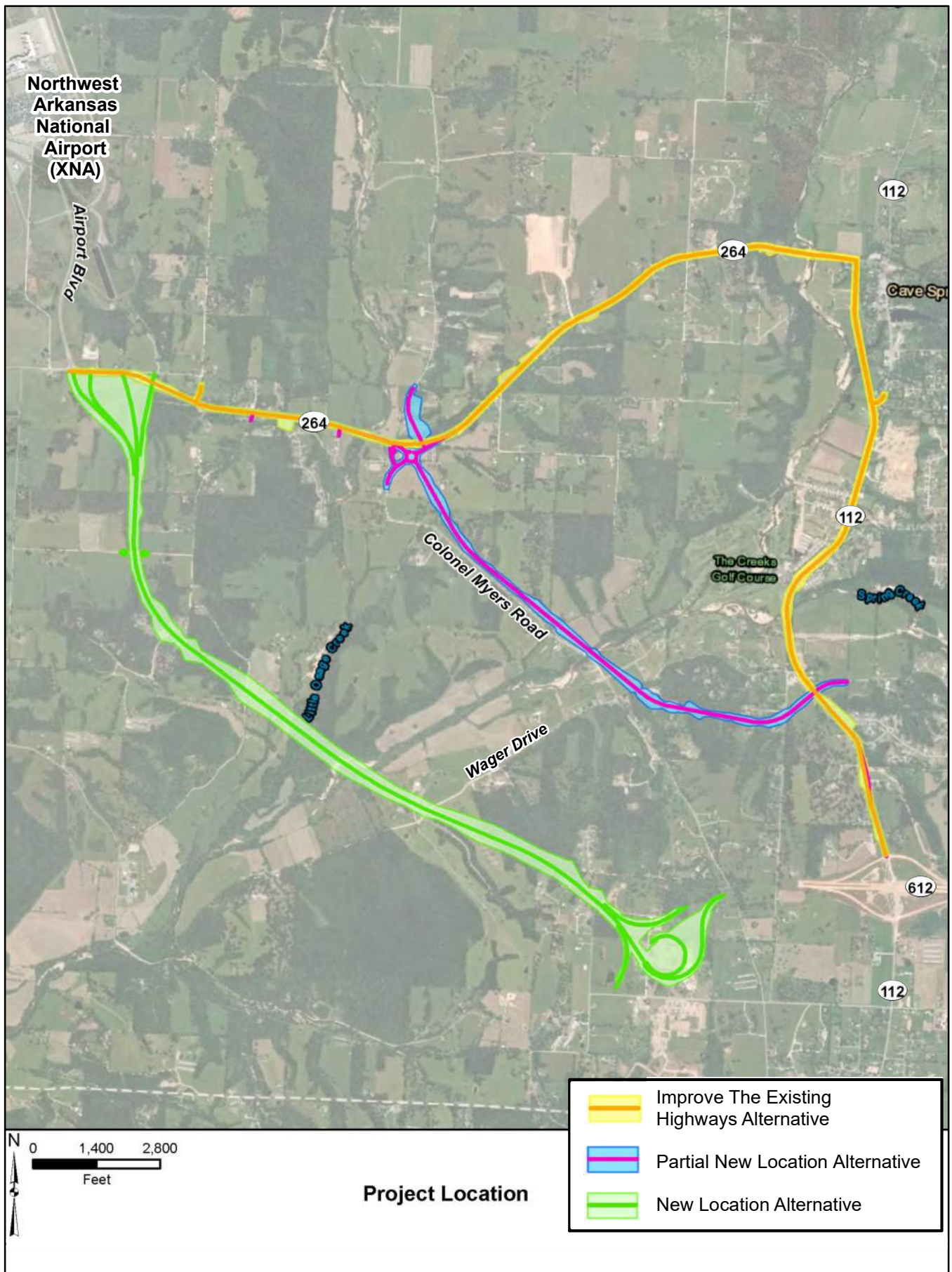
Average pavement type shall be used unless
a State highway agency substantiates the use
of a different type with approval of FHWA.

ATMOSPHERICS:

68 deg F, 50% RH

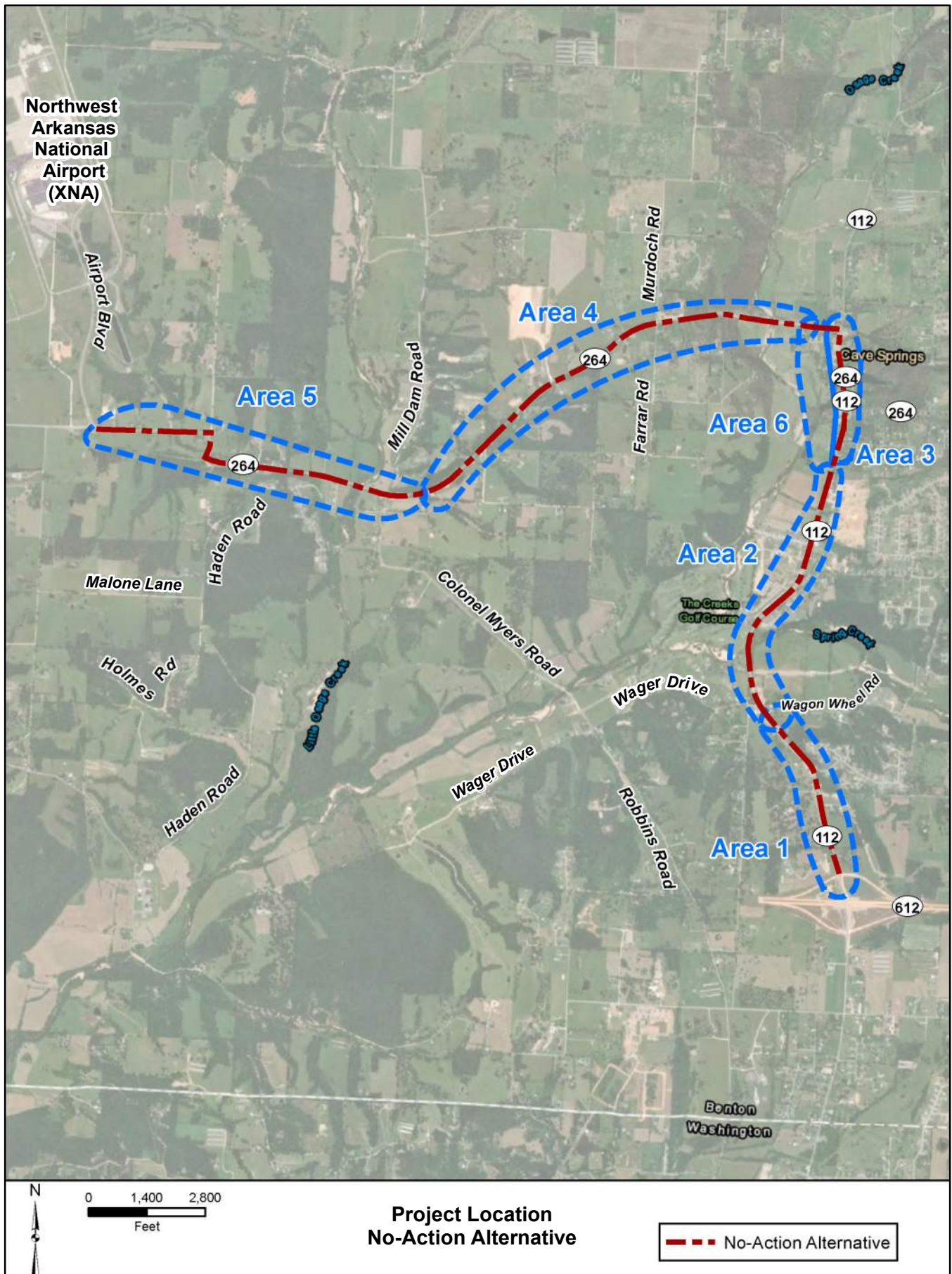
Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier				Type Impact	With Barrier			
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc		Calculated LAeq1h	Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
75	4	1	0.0	76.2	66	76.2	10	Snd Lvl	76.2	0.0	8	-8.0
100	5	1	0.0	73.8	66	73.8	10	Snd Lvl	73.8	0.0	8	-8.0
125	6	1	0.0	72.2	66	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
150	7	1	0.0	70.7	66	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
175	8	1	0.0	69.5	66	69.5	10	Snd Lvl	69.5	0.0	8	-8.0
200	10	1	0.0	68.4	66	68.4	10	Snd Lvl	68.4	0.0	8	-8.0
225	11	1	0.0	66.8	66	66.8	10	Snd Lvl	66.8	0.0	8	-8.0
250	12	1	0.0	65.3	66	65.3	10	—	65.3	0.0	8	-8.0
275	13	1	0.0	64.0	66	64.0	10	—	64.0	0.0	8	-8.0
300	14	1	0.0	62.8	66	62.8	10	—	62.8	0.0	8	-8.0
325	15	1	0.0	61.7	66	61.7	10	—	61.7	0.0	8	-8.0
350	16	1	0.0	60.7	66	60.7	10	—	60.7	0.0	8	-8.0
375	17	1	0.0	59.7	66	59.7	10	—	59.7	0.0	8	-8.0
400	18	1	0.0	58.9	66	58.9	10	—	58.9	0.0	8	-8.0
425	19	1	0.0	58.1	66	58.1	10	—	58.1	0.0	8	-8.0
450	21	1	0.0	57.4	66	57.4	10	—	57.4	0.0	8	-8.0
475	22	1	0.0	56.7	66	56.7	10	—	56.7	0.0	8	-8.0
500	24	1	0.0	56.4	66	56.4	10	—	56.4	0.0	8	-8.0
Dwelling Units			# DUs	Noise Reduction								
				Min	Avg	Max						
				dB	dB	dB						
All Selected			18	0.0	0.0	0.0						
All Impacted			7	0.0	0.0	0.0						
All that meet NR Goal			0	0.0	0.0	0.0						

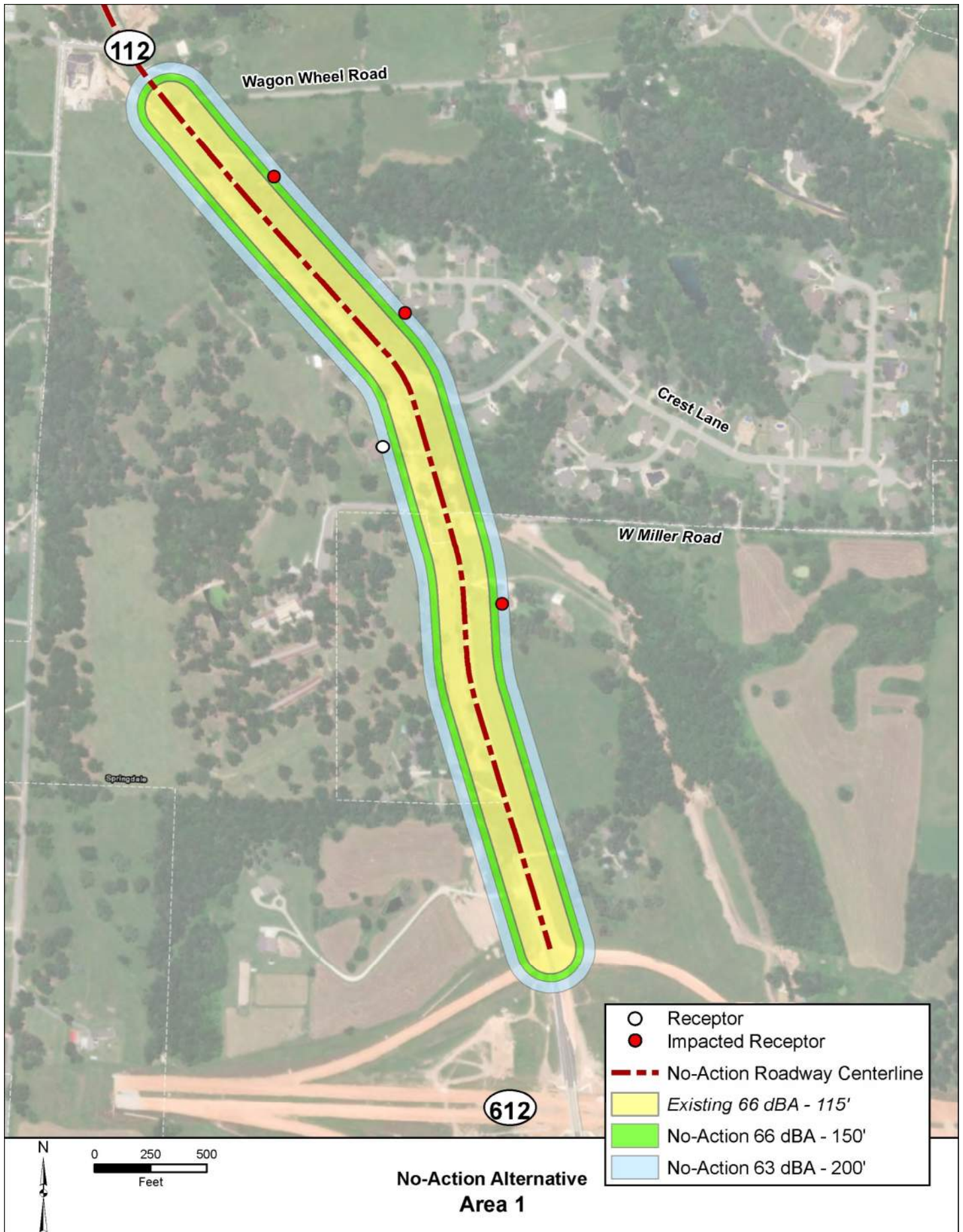
51 dBA is existing
condition. 61 dBA is
substantial increase
criteria

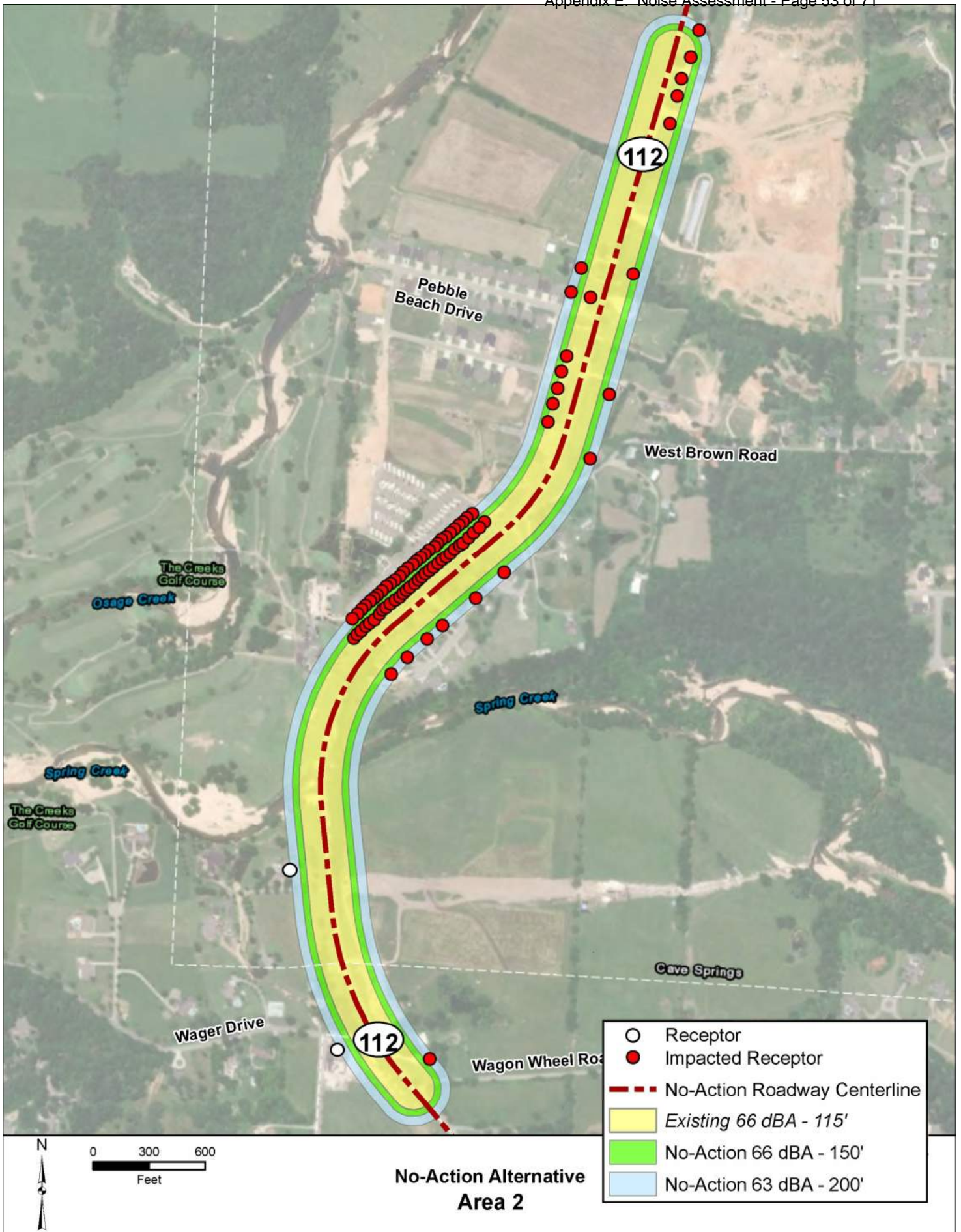
PROJECT LOCATION MAP (ALL BUILD ALTERNATIVES)

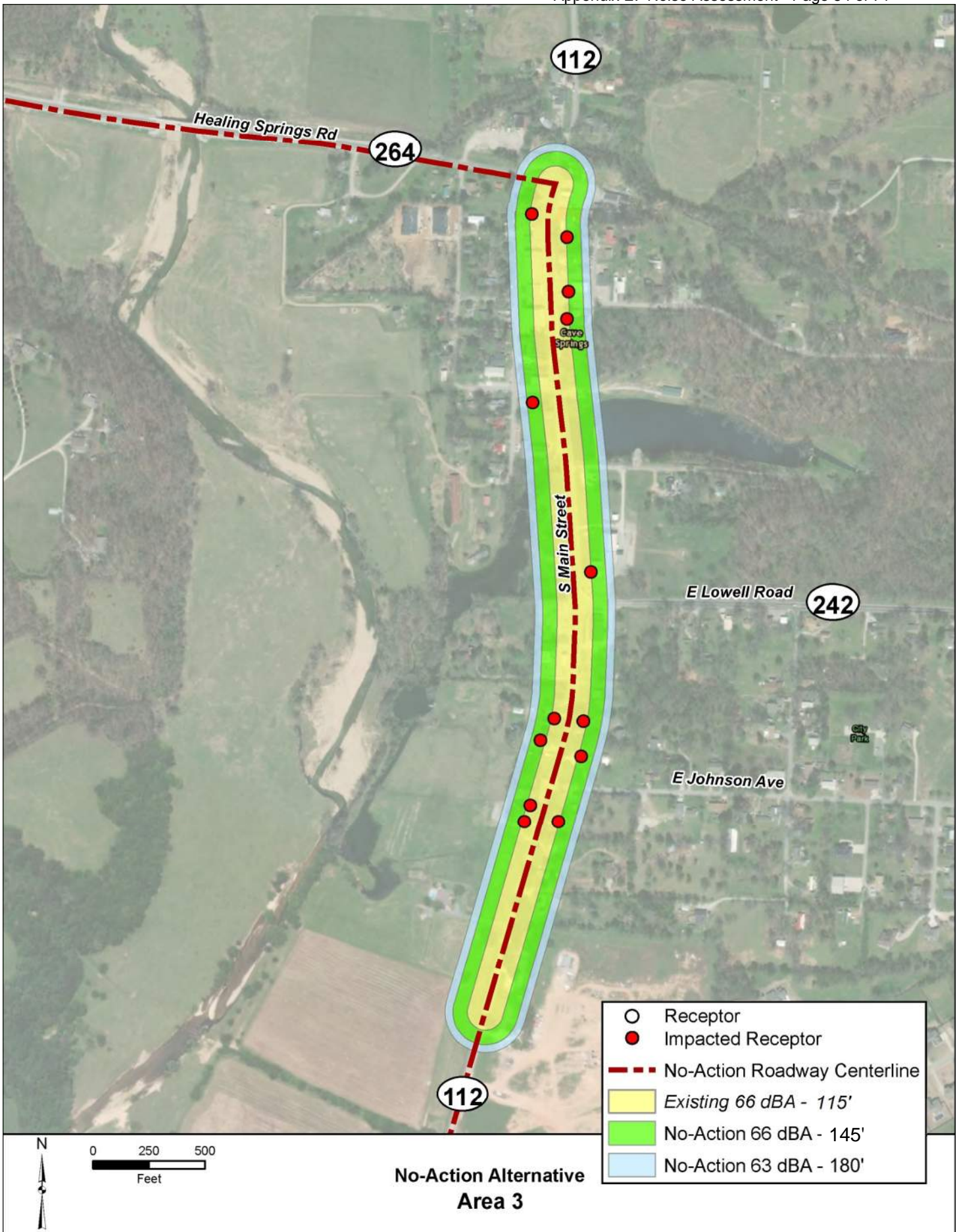
NO-ACTION ALTERNATIVE (AREAS 1-5)

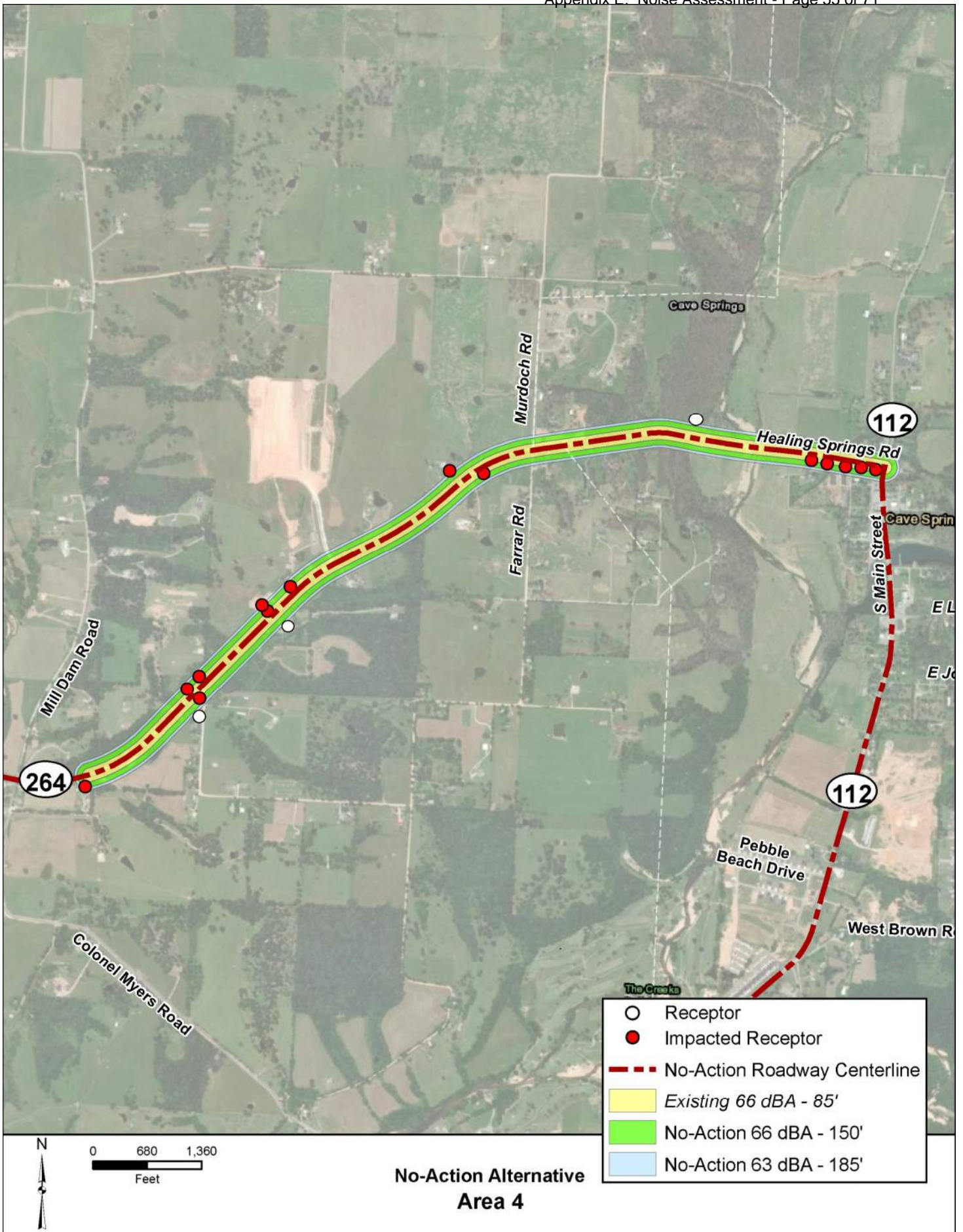
- **PROJECT LOCATION**
- **NO ACTION ALTERNATIVE: AREAS 1-5 (SITES APPROACHING, EQUALLING OR EXCEEDING THE NAC CRITERIA, CONTOURS)**
 - **AREA 1 – HIGHWAY 112; HIGHWAY 612 TO WAGON WHEEL**
 - **AREA 2 – HIGHWAY 112; WAGON WHEEL TO HIGHWAY 264 SOUTH**
 - **AREA 3 – HIGHWAY 112; HIGHWAY 264 SOUTH TO HIGHWAY 264 NORTH (AREA 3 IS BYPASSED BY AREA 6 IN CAVE SPRINGS - NOT ANALYZED).**
 - **AREA 4 – HIGHWAY 264; HIGHWAY 112 TO MILL DAM**
 - **AREA 5 – HIGHWAY 264; MILL DAM TO AIRPORT**

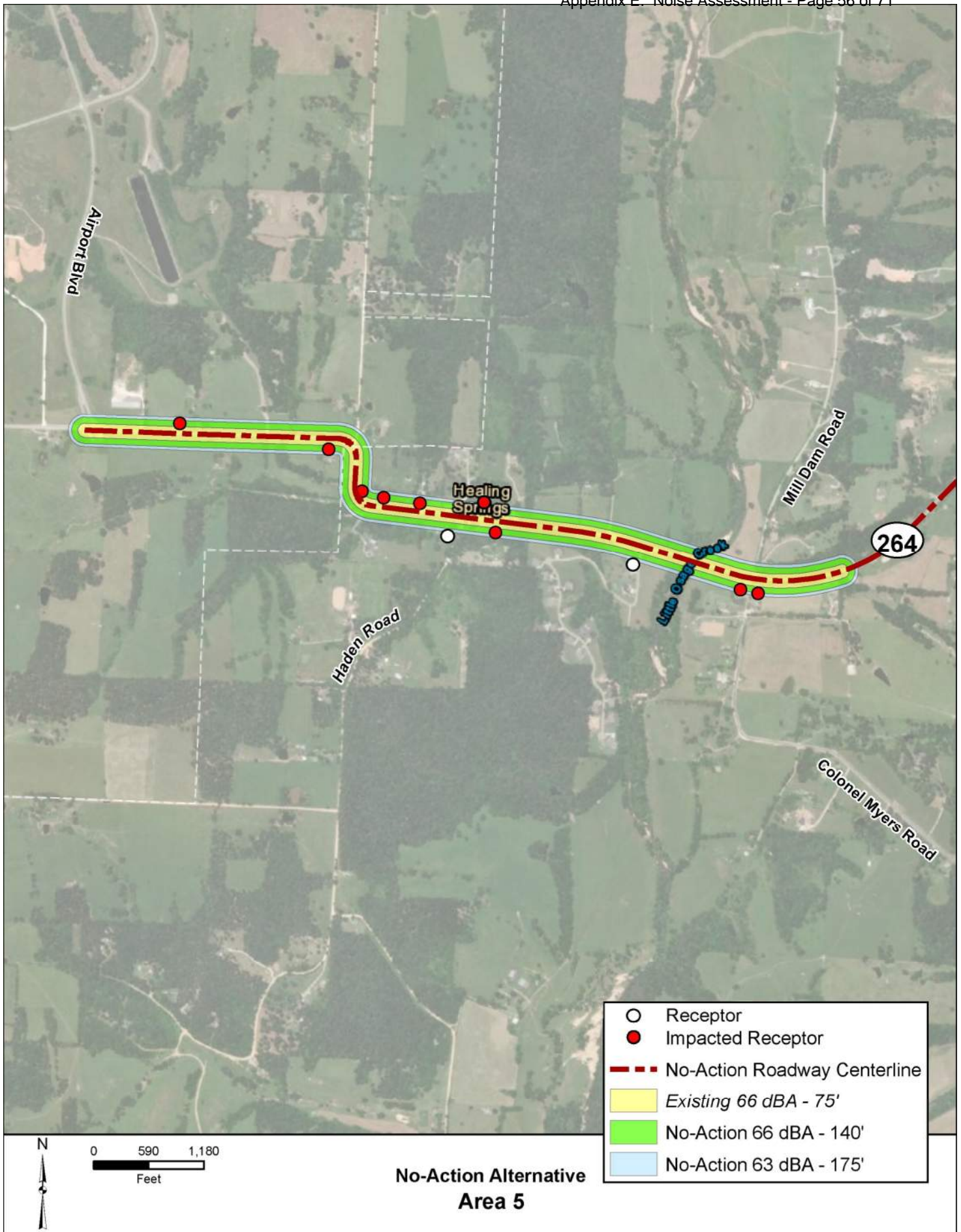






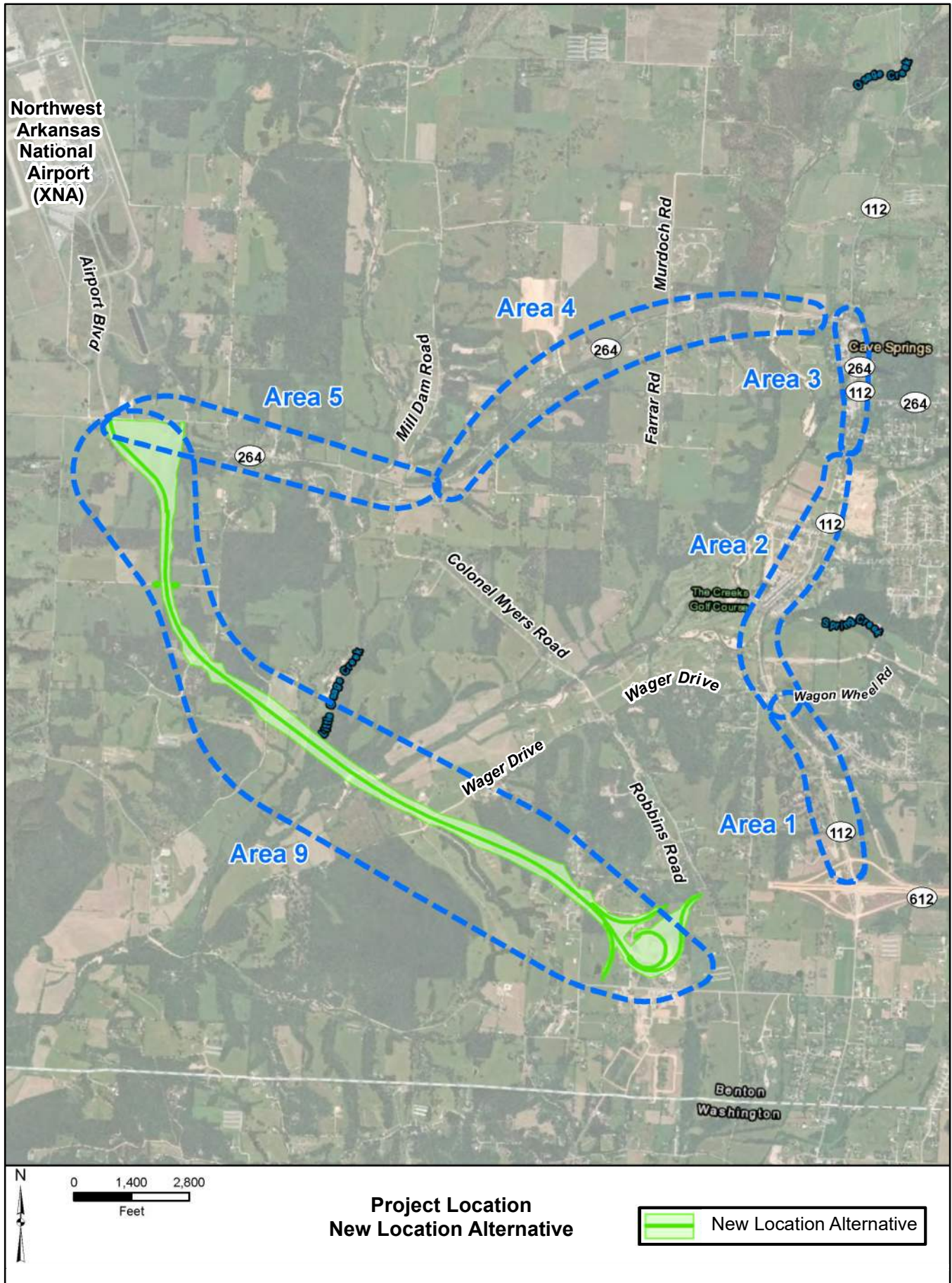


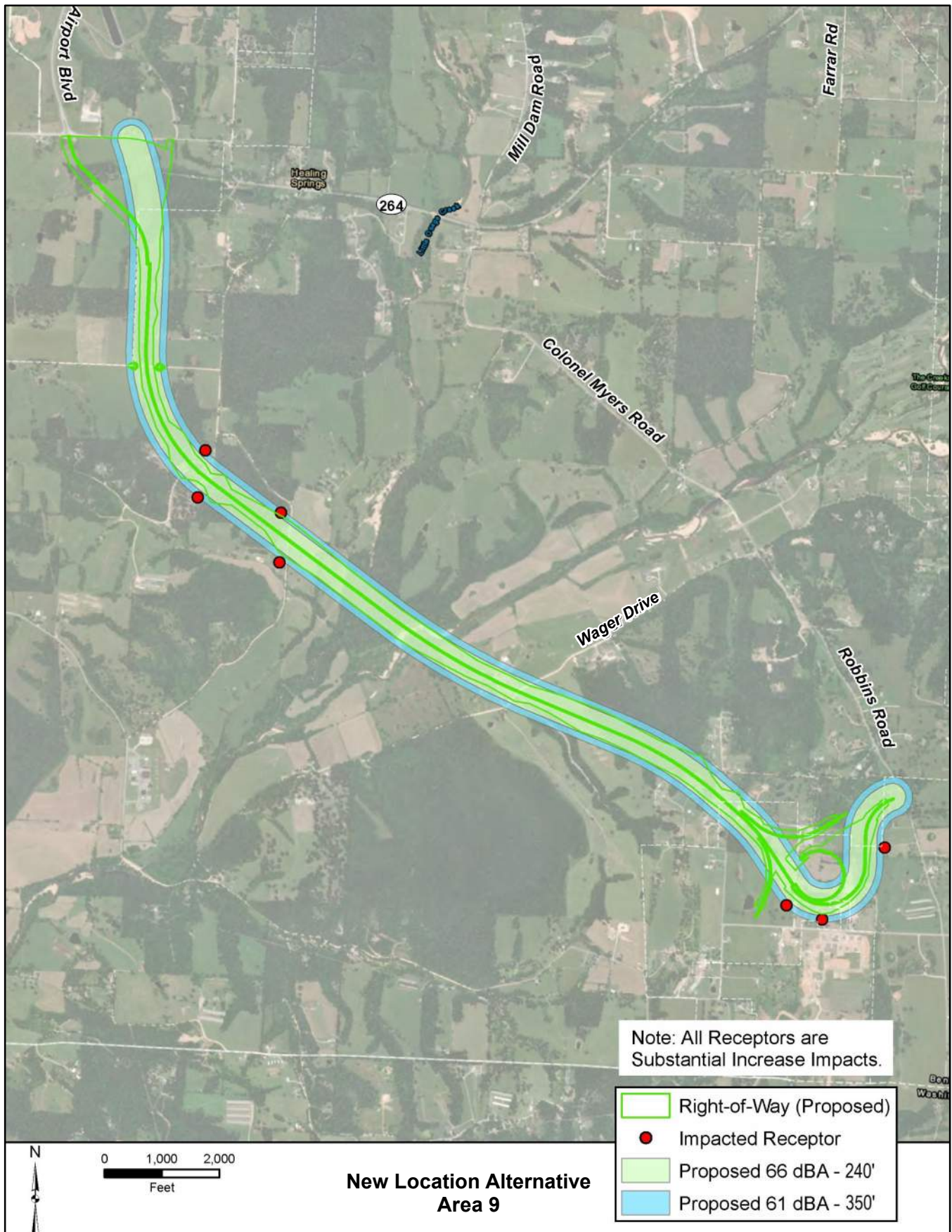




NEW LOCATION ALTERNATIVE; AREA 9

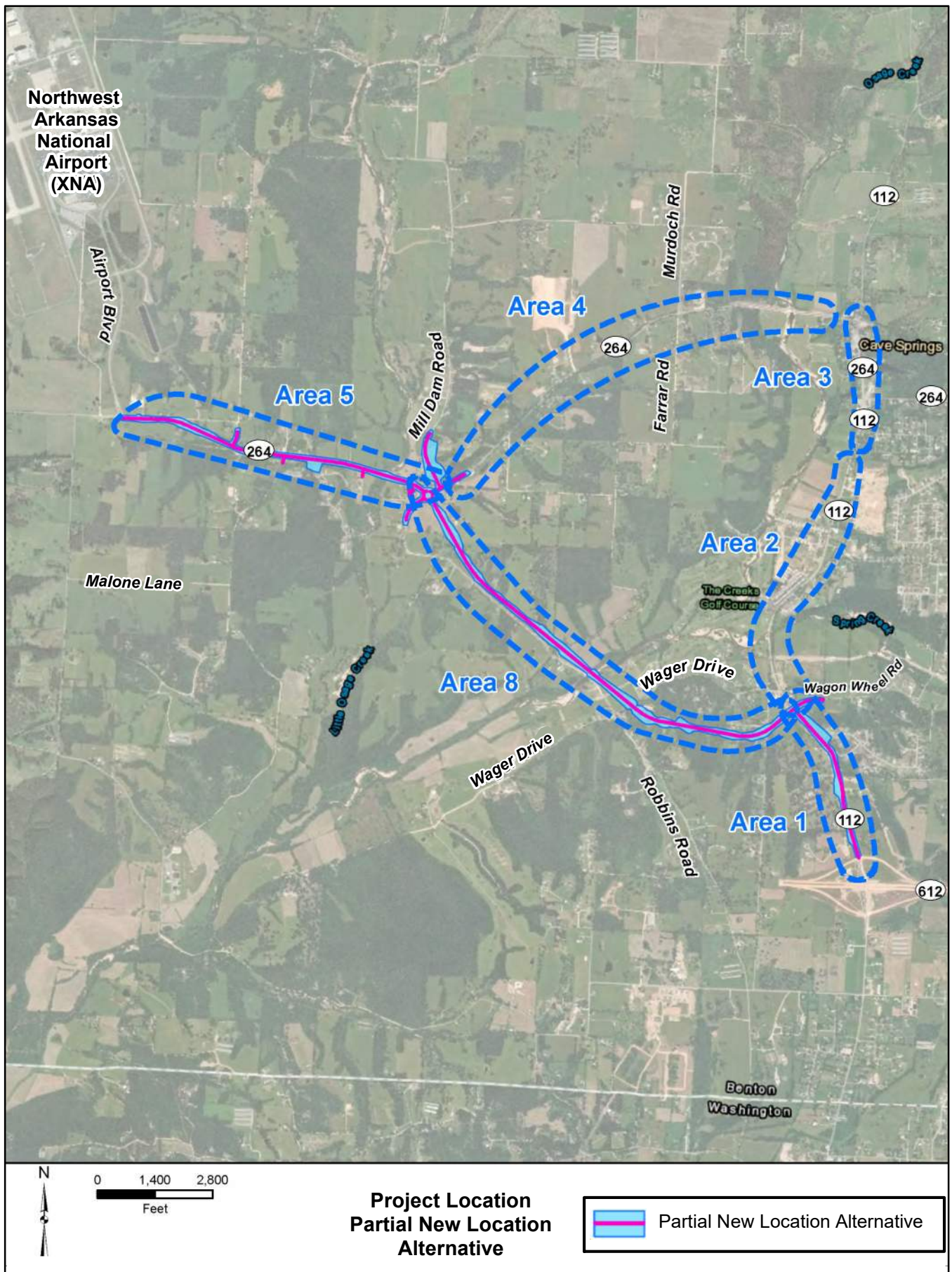
- **PROJECT LOCATION**
- **NEW LOCATION ALTERNATIVE: AREA 9 (RIGHT-OF-WAY, IMPACTS, CONTOURS)**

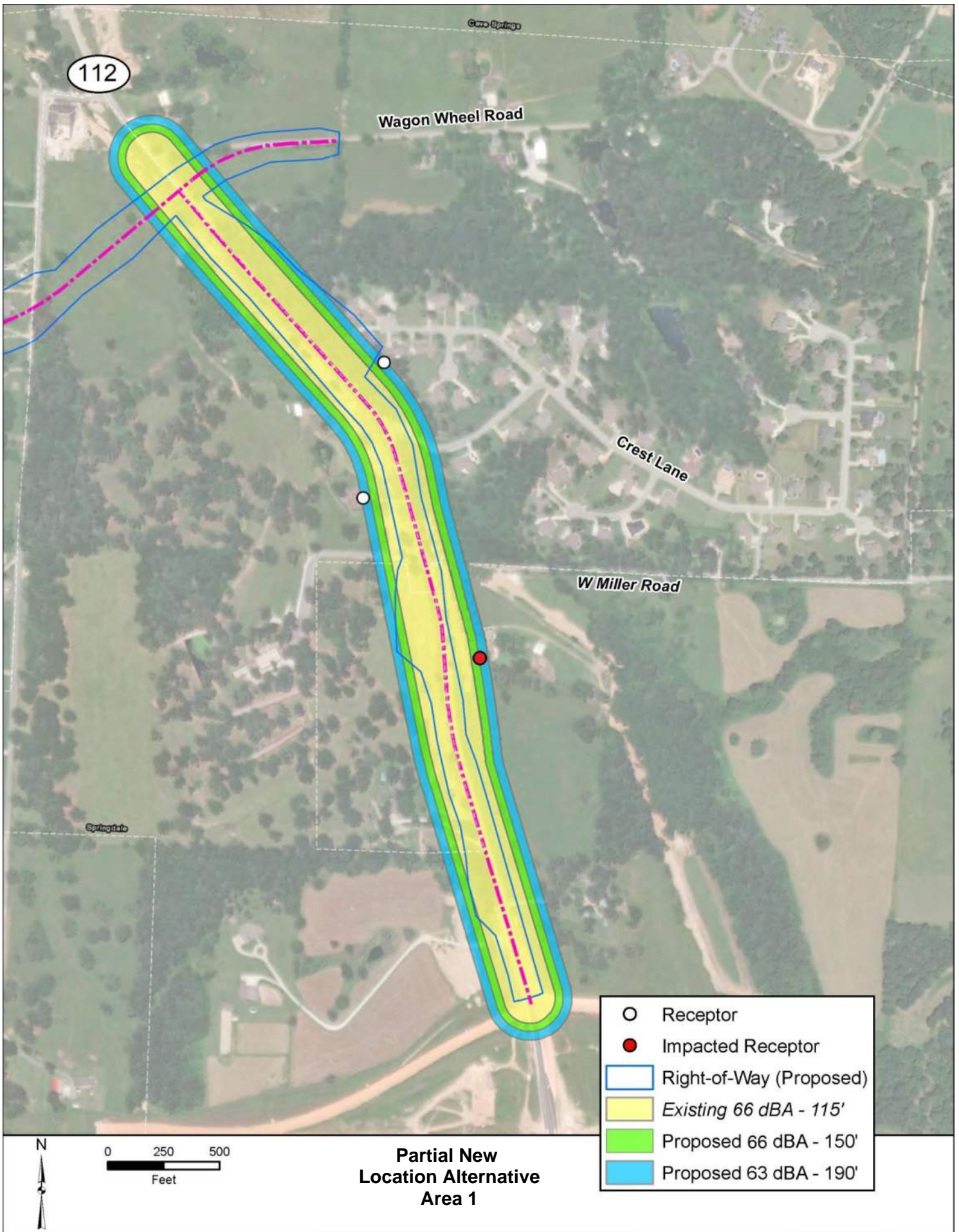




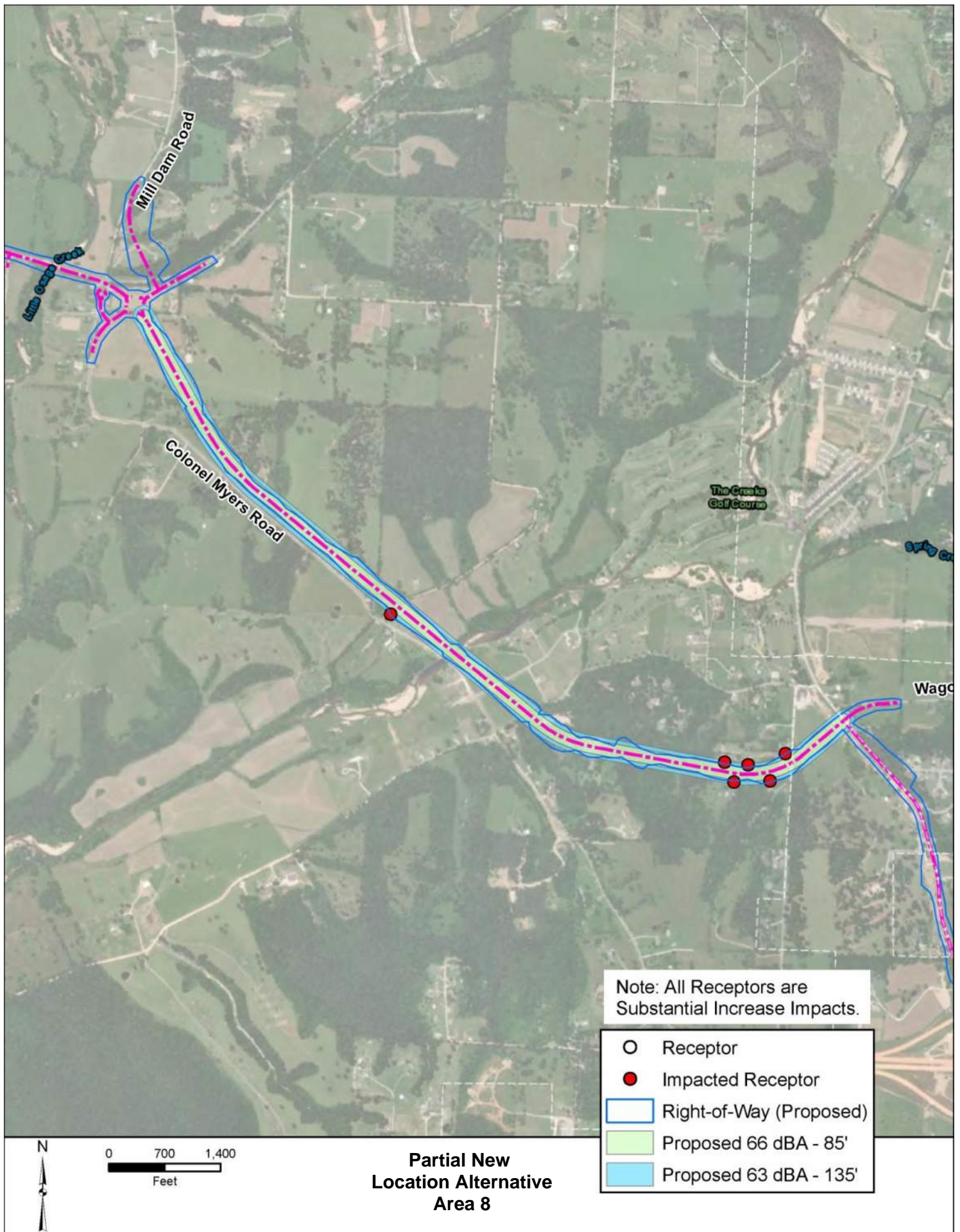
PARTIAL NEW LOCATION ALTERNATIVE; AREAS 1, 5, 8

- **PROJECT LOCATION**
- **PARTIAL NEW LOCATION ALTERNATIVE: AREAS 1, 5, 8
(RIGHT-OF-WAY, IMPACTS, CONTOURS)**









IMPROVE THE EXISTING HIGHWAYS ALTERNATIVE; AREAS 1-6 (AREA 7 DELETED FROM STUDY)

- **PROJECT LOCATION**
- **IMPROVE THE EXISTING HIGHWAYS ALTERNATIVE:
AREAS 1-6 (RIGHT-OF-WAY, IMPACTS, CONTOURS)**
 - **AREA 1 – HIGHWAY 112; HIGHWAY 612 TO WAGON WHEEL**
 - **AREA 2 – HIGHWAY 112; WAGON WHEEL TO HIGHWAY 264 SOUTH**
 - **AREA 3 – HIGHWAY 112; HIGHWAY 264 SOUTH TO HIGHWAY 264 NORTH (AREA 3 IS BYPASSED BY AREA 6 IN CAVE SPRINGS - NOT ANALYZED).**
 - **AREA 4 – HIGHWAY 264; HIGHWAY 112 TO MILL DAM**
 - **AREA 5 – HIGHWAY 264; MILL DAM TO AIRPORT**
 - **AREA 6 – HIGHWAY 112 BYPASS; SOUTH OF HIGHWAY 264 (PROPOSED) (CAVE SPRINGS BYPASS)**



