ARIZONA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PLANNING

NOISE ANALYSIS TECHNICAL REPORT

Final State Route 30
South 97th Ave to South 71st Ave

Federal Project Number: 030-C(002)
ADOT Project Number: Trac F0504 01D

Submittal Date: February 2026

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Daniel Torres 6/16/2026
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ACRONYMS AND ABBREVIATIONS

µPa	Micropascal
ADOT	Arizona Department of Transportation
ANSI	American National Standards Institute
AUX	Auxiliary
C-D	Collector-Distributor
CFR	Code of Federal Regulations
dB	Decibel
dB(A)	A-Weighted Decibel
DMS	Dynamic Message Sign
EA	Environmental Assessment
EB	Eastbound
F	Fahrenheit
FHWA	Federal Highway Administration
FMS	Freeway Management System
FTA	Federal Transit Administration
HD	High Definition
GPL	General Purpose Lane
HOV	High-Occupancy Vehicle
Hz	Hertz
$L_{Aeq(h)}$	1-Hour A-weighted Equivalent Sound Level
L_{eq}	Equivalent Sound Level
LOS	Level of Service
LPA	Local Public Agency
MAG	Maricopa Association of Governments
MP	Milepost
mph	Miles Per Hour
NAC	FHWA Noise Abatement Criteria
NAR	ADOT Noise Abatement Requirements (2017)
NB	Northbound
NEPA	National Environmental Policy Act
Pa	Pascal
SB	Southbound
SPL	Sound Pressure Level
SR	State Route
TCE	Temporary Construction Easement
TI	Traffic Interchange
TNM	Traffic Noise Model
vph	Vehicles per hour
WB	Westbound

1 EXECUTIVE SUMMARY

1.1 PROJECT OBJECTIVES

In 2019, the Arizona Department of Transportation (ADOT) completed an environmental and engineering study that identified the selected route for the future State Route 30 (SR 30) freeway corridor between State Route Loop 202 (SR 202L) at approximately 59th Avenue and the future State Route Loop 303 (SR 303L) at approximately Sarival Avenue, which would serve as an alternate route to Interstate 10. The segment of SR 30 between 97th Avenue and SR 202L as well as a portion of SR 202L between approximately W Van Buren Street and Carver Road (the Project) are in final design and is anticipated to begin construction in 2027. Construction is expected to take approximately three years. The project is a new and expanded highway project with two SR 30 segments: 97th Ave to 71st Ave and 71st Ave to SR 202L (which includes the expansion of SR 202L). The project is located within Phoenix and Maricopa County, Arizona (**Figure 1**). The project will occur within ADOT right-of-way (ROW), Maricopa County Department of Transportation (MCDOT) ROW, Salt River Project (SRP) easement on Bureau of Reclamation (BOR), SRP easement on City of Phoenix (COP), and SRP easement on private lands.

The purpose of the project is to improve east-west highway capacity in western Maricopa County by constructing this segment of SR 30 and connect to SR 202L as a three-legged system Traffic Interchange (TI) (north, south, and west legs) during the initial phase. It will accommodate anticipated growth and future traffic volumes through 2050, with the ability to expand to the ultimate planned roadway configuration consisting of four general purpose lanes and one HOV lane in each direction, and direct connecting HOV ramps between SR 30 and SR 202L.

The project has undergone design and environmental analysis for two segments, as described below.

SR 30 – 97th Ave to 71st Ave Segment

The scope of work for this Project segment includes:

- Construct SR 30 mainline between 97th Avenue and 71st Avenue providing three general purpose lanes, as well as ramp auxiliary lanes in each direction
- Construct diamond traffic interchanges at 91st Avenue and 83rd Avenue
- Construct new overpasses at 87th Avenue and 75th Avenue
- Construct an equipment crossing at 79th Avenue
- Construct a bridge over and/or fill in the material source pit west of 75th Avenue
- Construct retaining walls, as needed
- Construct sound barriers, as needed
- Construct new pavement, curb and gutter, barriers, and guardrails, as needed

- Construct interim connections from existing crossroads to ultimate crossroads
- Construct temporary roadways to maintain traffic, as needed
- Remove temporary roadways, as needed
- Reconstruct existing roadways, as needed
- Modify existing drainage facilities and construct new drainage facilities, as needed
- Construct new Americans with Disabilities Act (ADA) features, as needed
- Construct shared-use paths and pedestrian bridges and associated amenities, as needed
- Construct new and/or replace fence, as needed
- Install signals and lighting, as needed
- Remove existing signage and provide new signage, including embedded advance warning signs
- Obliterate and install roadway striping and raised pavement markers, as needed
- Install Freeway Management System (FMS) infrastructure
- Trim and/or remove vegetation, as needed
- Install best management practices (BMPs) for erosion control, as needed
- Install planting and irrigation, as needed
- Seed disturbed areas with native plants species, as needed
- Construct new utilities and/or relocate and adjust utilities, as needed
- Conduct utility potholing and geotechnical investigations, as needed

SR 30 – 71st Ave to SR 202L Segment

The scope of work for this project segment includes:

- Construct the outermost six lanes (three in each direction, or 3+0), auxiliary lanes, and the outside shoulders of the ultimate typical section
- Construct the three-legged system TI at SR 202L South Mountain including the following connections:
  - Eastbound (EB) SR 30 Ramp to Northbound (NB) SR 202L
  - NB SR 202 Ramp to Westbound (WB) SR 30
  - EB SR 30 Ramp to Southbound (SB) SR 202L
  - SB SR 202 Ramp to WB SR 30
- Construct a west half-diamond interchange at 67th Avenue
- Construct an East-South bridge over the future 67th Avenue EB on-ramp to SR30
- Construct three SR 30 general purpose lanes in each direction to 71st Avenue
- Construct new Americans with Disabilities Act features where applicable at 67th Avenue
- Widen SR 202L mainline to accommodate the ramp connections to and from SR 30
- Frontage Road bridges would include:
  - NB Frontage Road connection ramp over Baseline Road
  - NB Frontage Road over Southern Avenue
  - NB Frontage Road over Salt River
- An interim 8-foot-wide asphaltic concrete inside shoulder would also be included. The interim median will be a varying width open-graded median with cable barriers.

Features Common to Both Segments

General project wide items for both segments include:

- Noise walls where warranted
- Installing FMS signage, signalization, lighting, other signing, and pavement marking
- Construction Maintenance of Traffic (MOT)
- Utility relocations within existing ADOT right of way and in arterial street crossings

New ROW, easements, and temporary construction easements (TCEs) would be required. Access to residences and businesses would be maintained throughout construction. The staging/stockpiling area would be designated within the project limits within previously disturbed areas. The construction start date is dependent on funding for construction. The construction duration is anticipated to be approximately 30 months. Once funding for construction is secured, additional schedule information will be developed and distributed during final

1.2 CURRENT NOISE ENVIRONMENT

To describe the current noise environment, the study area has been divided into ten subsections:

- **North of SR30 from 67th Avenue to 75th Avenue (Modeling Area A) –** Land use in this area is mainly residential (Activity Category B). Between 67th Avenue and 69th Avenue the homes are new and there is a 16-foot-high barrier on the property line between the homes and the proposed SR-30 these homes are included in the study for the design package for the interchange to the east. From 69th Avenue to 73rd Avenue the homes are older and more widespread, there is currently no barrier in this area. From 73rd Avenue to 75th Avenue, there are no noise sensitive receivers. Field measurements were taken at three sites within this portion of the study area along the north side of the SR-30, LT-1, ST-1 and LT-2 (see **Figure 5**).
- **South of SR30 from 67th Avenue to 75th Avenue (Modeling Area B) –** Land use in this area is open space or quarry operations and dairy farms. (Activity Categories F and G). The existing homes are being studied by the study for the design package for the interchange to the east (see **Figure 5**).
- **North of SR30 from 75th Avenue to 83rd Avenue (Modeling Area C)–** Land use between the proposed project and Broadway Road is the quarry and dairy farm operations (Activity F). (see **Figure 5**). The first row of single-family homes (Activity Category B) is north of Broadway Road, over 1,000 feet from the north edge of the proposed project.

  Field measurements were taken at three sites in this area, LT-3, LT-4 and ST-2 The measurements were taken in the first row of homes north of Broadway Road, to be used as the existing noise levels in the area (see **Figure 5**).

- **South of SR30 from 75h Avenue to 83rd Avenue (Modeling Area D) –** Land use in this area is open space or quarry operations and open space. (Activity Categories F and G), see **Figure 5**).
- **North of SR30 from 83rd Avenue to 91rst Avenue (Modeling Area E) –** Land use between the proposed project and Broadway Road is dairy and other agricultural operations (Activity F) with four homes (Activity B) near Broadway Road (see **Figure 5**). There are three homes (Activity Category B), north of Broadway Road. All homes in the area are between 500 to 1000 feet from the north edge of the proposed project.
- **South of SR30 from 83rd Avenue to 91st Avenue (Modeling Area F) –** Land use in this area is agriculture. (Activity Categories F), (see **Figure 5**).
- **North of SR30 from 91st Avenue to 99thAvenue (Modeling Area G) –** Land use between the proposed project and Broadway Road between 91st Avenue and 95th Avenue dairy and other agricultural operations (Activity F) with four homes (Activity B) near Broadway Road. (see **Figure 5**). A new housing development is being built between 95th Avenue and 99th Avenue. (Activity Category B), these new homes are less than 200 feet from the edge of the proposed roadway.

  Field measurements were taken at two sites in this area, LT-5 and ST-3. ST-3 was taken in the first row of homes north of Broadway Road, to be used as the existing noise levels in the area (see **Figure 5**). Measurement site LT-5 is located at the south edge of the new housing development (see **Figure 5**).
- **South of SR30 from 91st Avenue to 99thAvenue (Modeling Area H) –** Land use in this area is agriculture (Activity Categories F), (see **Figure 5**).

  A field measurement was taken at site ST-6, in the first row of homes south of the proposed project at the home just west of 99th Avenue. ST-4 was be compared to LT-6 to calculate the existing noise levels in the area (see **Figure 5**).

1.3 NOISE IMPACTS INFORMATION

Table 1 depicts a summary of the modeled Existing, and Build traffic noise levels, along with the Build impacted receptors indicating where consideration of abatement measures is warranted. Two barriers NB A and NB G meet the feasible and reasonable thresholds. The homes that would be benefited by NB G, were approved after the date of public knowledge for this project, so this project would not be providing funds for noise barrier NB G, but the information is provided for local official if they would like to fund the placement of the noise barrier. Noise Barrier NB A is proposed as for this area.

Table 1. Noise Modeling Summary

Study Area Subsection	Existing	Build	Abatement Measure Consideration
North of SR 30 from 69th to 75th Avenue (Area A)	58.0 dB(A) to 60.0 dB(A)	56.1 dB(A) to 70.0 dB(A)	The modeled noise levels at 7 out 32 receivers approach or exceed FHWA NAC for Activity Category B (residence). Therefore, consideration of abatement measures is warranted.
North of SR 30 from 75th to 83rd Avenue (Area C)	57.0 dB(A) to 73.1 dB(A)	49.2 dB(A) to 62.9 dB(A)	The modeled noise levels of all 28 receivers do approach or exceed FHWA NAC Therefore, consideration of abatement measures is not warranted.
North of SR 30 from 83rd to 91st Avenue (Area E)	61.7dB(A) to 62.4 dB(A)	57.8 dB(A) to 66.5 dB(A)	The modeled noise levels at 2 out of 9receivers do approach or exceed FHWA NAC for Activity Category B, residences. Therefore, consideration of abatement measures is warranted.
North of SR 30 from 91st to 99th Avenue (Area G)	53.0 dB(A) to 62.0 dB(A)	51.2 dB(A) to 73.9 dB(A)	The modeled noise levels at 16 of the 31 receivers do approach or exceed FHWA NAC for Activity Category B, residences, therefore, consideration of abatement measures is warranted. The impacted residences were permitted following the project's date of public knowledge, so this project is not responsible for the noise mitigation.
North of SR 30 from 99th to 101STAvenue (Area I)	61.7dB(A) to 62.4 dB(A)	53.5 dB(A) to 61.4 dB(A)	The modeled noise levels of all 11 receivers do approach or exceed FHWA NAC Therefore, consideration of abatement measures is not warranted. This area is outside of the WSP area of design for this project, This area was included to provide data for all receivers in the noise study area. These numbers will be updated by the project design time for the next section west.
South of SR 30 from 69th to 99h Avenue (Areas B,D, F, and H)	NA	NA	There are currently no noise sensitive land uses in these areas.

2 INTRODUCTION

2.1 PROJECT DESCRIPTION

In 2019, the Arizona Department of Transportation (ADOT) completed an environmental and engineering study that identified the selected route for the future State Route 30 (SR 30) freeway corridor between State Route Loop 202 (SR 202L) at approximately 59th Avenue and the future State Route Loop 303 (SR 303L) at approximately Sarival Avenue, which would serve as an alternate route to Interstate 10. The segment of SR 30 between 97th Avenue and SR 202L as well as a portion of SR 202L between approximately W Van Buren Street and Carver Road (the Project) are in final design and is anticipated to begin construction in 2027. Construction is expected to take approximately three years. The project is a new and expanded highway project with two SR 30 segments: 97th Ave to 71st Ave and 71st Ave to SR 202L (which includes the expansion of SR 202L as well). The project is located within Phoenix and Maricopa County, Arizona (**Figure 1**). The project would occur within ADOT right-of-way (ROW), Maricopa County Department of Transportation (MCDOT) ROW, Salt River Project (SRP) easement on Bureau of Reclamation (BOR), SRP easement on City of Phoenix (COP), and SRP easement on private lands. (see **Figure 1**).

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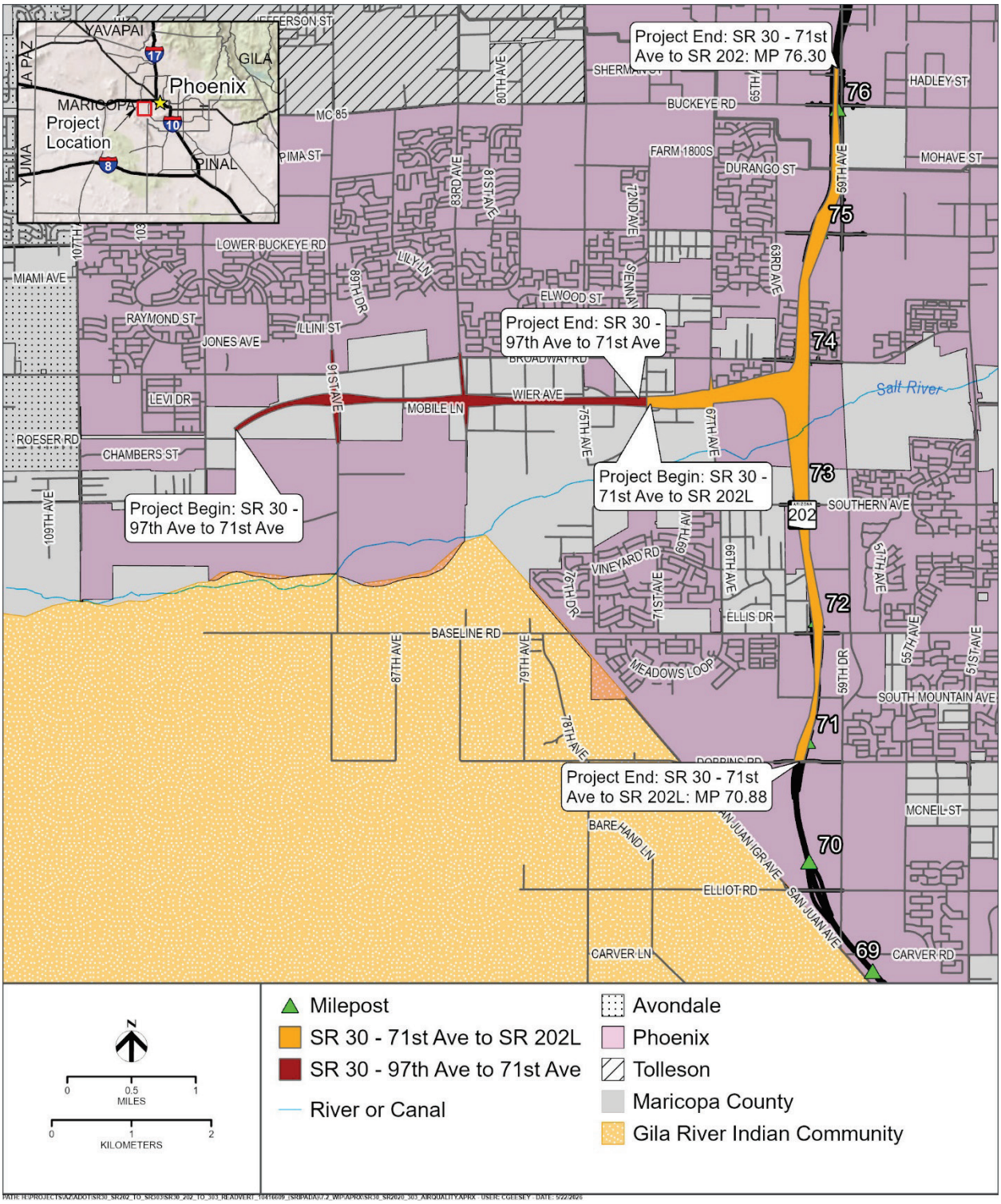
Figure 1. Project Location Map



The project has undergone design and environmental analysis for two segments, as described below.

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The scope of work for this Project segment includes:

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The scope of work for this Project segment includes:

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General Project wide items for both segments include:

- Noise walls where warranted
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- Utility relocations within existing ADOT right of way and in arterial street crossings

New ROW, easements, and temporary construction easements (TCEs) would be required. Access to residences and businesses would be maintained throughout construction. The staging/stockpiling area would be designated within the project limits within previously disturbed areas. The construction start date is dependent on funding for construction. The construction duration is anticipated to be approximately 30 months. Once funding for construction is secured, additional schedule information will be developed and distributed during final design.

2.2 TYPE I TRIGGER FOR NOISE ANALYSIS

Per 23 CFR 772 and ADOT NAR, traffic noise analysis is required for any projects that receive federal-aid funds or are otherwise subject to FHWA approval. They include federal projects that are administered by Local Public Agencies (LPAs) as well as ADOT. In addition to federal projects, it is required for other ADOT-funded projects that involve:

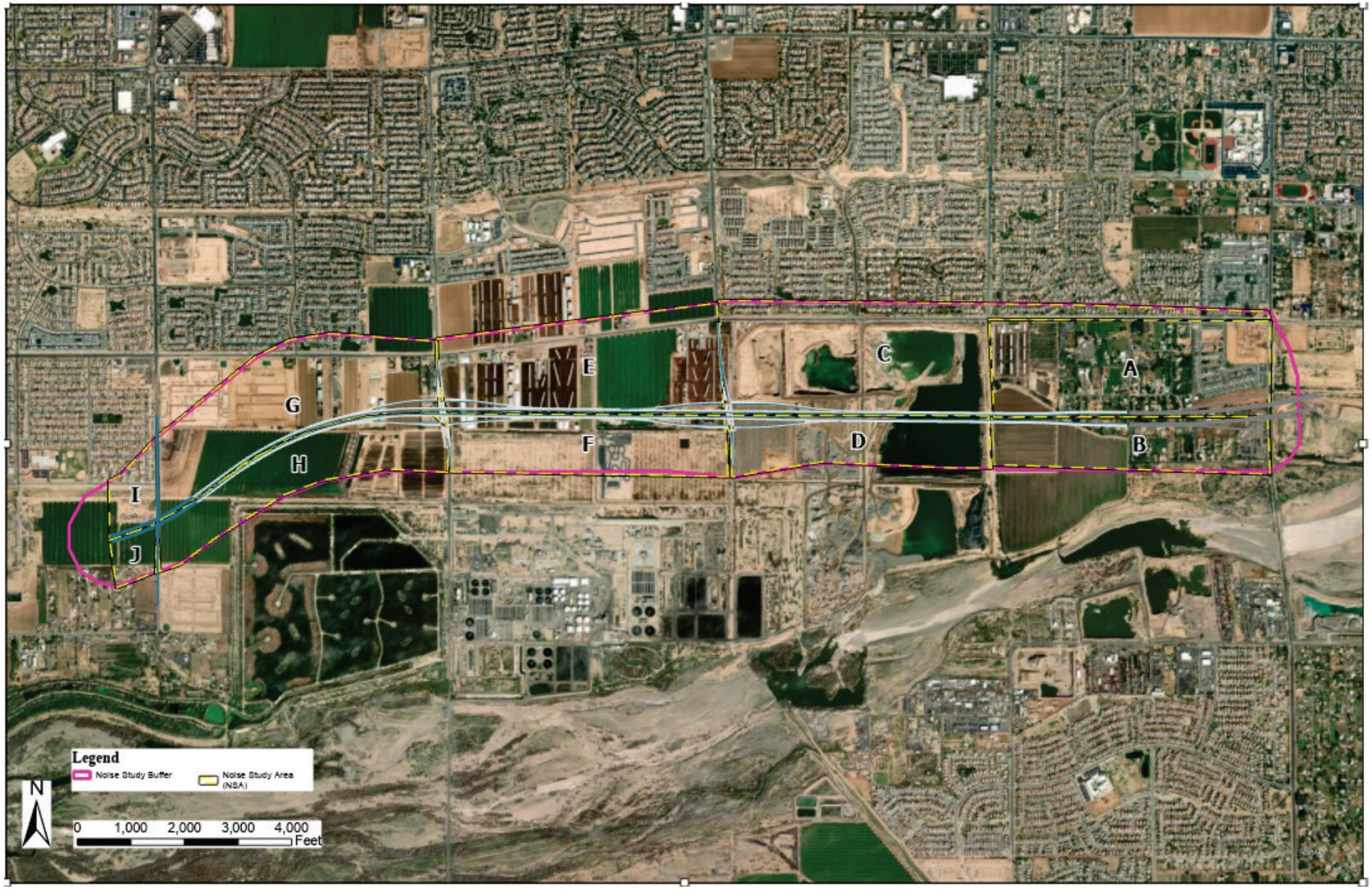
- construction of a highway on new alignment or
- a significant change in the horizontal or vertical alignment of an existing highway or
- adding new through lanes to an existing highway.

The proposed alternative is a new highway alignment. The Design Year for the project is 2050. This project includes various land uses along the corridor with a number of residences, a place of worship, and businesses along the freeway. A search for residential permitted developments within Maricopa County found no development plans for the open area between 67th Avenue and 99th Avenue. The technical analysis provides thorough details and methodology used to determine impacts, appropriate noise abatement measures, and its feasibility and reasonableness.

The technical analysis for the study area provides thorough details and methodology used to determine impacts, appropriate noise abatement measures, and its feasibility and reasonableness. The technical analysis is presented for the eight subsections of the Project study area and shown in **Figure 2**. Only four of the subsections, A, C, E, and G, include noise sensitive land uses, Subsections B, D, F, H are included to address these areas of land to the south of the project, which are either vacant, farmland or quarry operations and are not noise sensitive.

- North of SR30 from 69th Avenue to 73rd Avenue (Subsection Area A)
- South of SR30 from 69th Avenue to 73rd Avenue (Subsection Area B)
- North of SR30 from 73rd Avenue to 83rd Avenue (Subsection Area C)
- South of SR30 from 73rd Avenue to 83rd Avenue (Subsection Area D)
- North of SR30 from 83rd Avenue to 91st Avenue (Subsection Area E)
- South of SR30 from 83rd Avenue to 91st Avenue (Subsection Area F)
- North of SR30 from 91st Avenue to 99th Avenue (Subsection Area G)
- South of SR30 from 91st Avenue to 99th Avenue (Subsection Area H)

Figure 2. Project Noise Study Area



3 FUNDAMENTALS OF TRAFFIC NOISE

Sound is the sensation produced by stimulation of the hearing organs produced by continuous and regular vibrations of a longitudinal pressure wave that travels through an elastic medium (e.g., air, water, metal, wood) and can be heard when they reach a person's or animal's ear. When sound travels through air, the atmospheric pressure wave variations occur periodically. It travels in air at a speed of approximately 1,087 feet per second at sea level and a temperature of 32° F. *Noise* is usually defined as "any unwanted sound," and consists of sounds that are perceived as interfering with communication, work, rest, and recreation. It is characterized as a non-harmonious or discordant group of sounds.

3.1 SOUND PRESSURE LEVELS, DECIBELS, FREQUENCIES, AND A-WEIGHTED DECIBELS-DB(A)

Noise can be measured in Pa (Pascals). A healthy human ear can detect a pressure variation of 20 µPa, which is referred to as the threshold of hearing. A logarithmic scale is useful for handling numbers on a wide scale, but for a smaller span, the decibel (dB) scale is used. Sound pressure level (SPL) is calculated using measured sound level and the hearing threshold of 20 µPa, or 20 x 10^{-6} Pa, as the reference level; this level can also be defined as 0 dB. The decibel alone is insufficient to describe how the human ear responds to sound pressures at all frequencies. The human ear has its peak response in the range of 2,500 to 3,000 vibrations per second, or Hertz (Hz), and has a somewhat low response at lower or higher frequencies. In response to the human ear sensitivity, the A-weighted noise level, referenced in units of dB(A), was developed to better represent people's perception of sound levels. The dB(A) unit of measurement is used in noise studies and reporting. Changes in sound level under 3 dB(A) are not noticed by the human ear, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound.

3.2 NOISE DESCRIPTORS

The most commonly used noise descriptor in traffic noise analysis is Equivalent Sound Level (L_{eq}). L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that occurs during the same period. The 1-hour A-weighted equivalent sound level [$L_{Aeq(h)}$] is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise criteria used by ADOT.

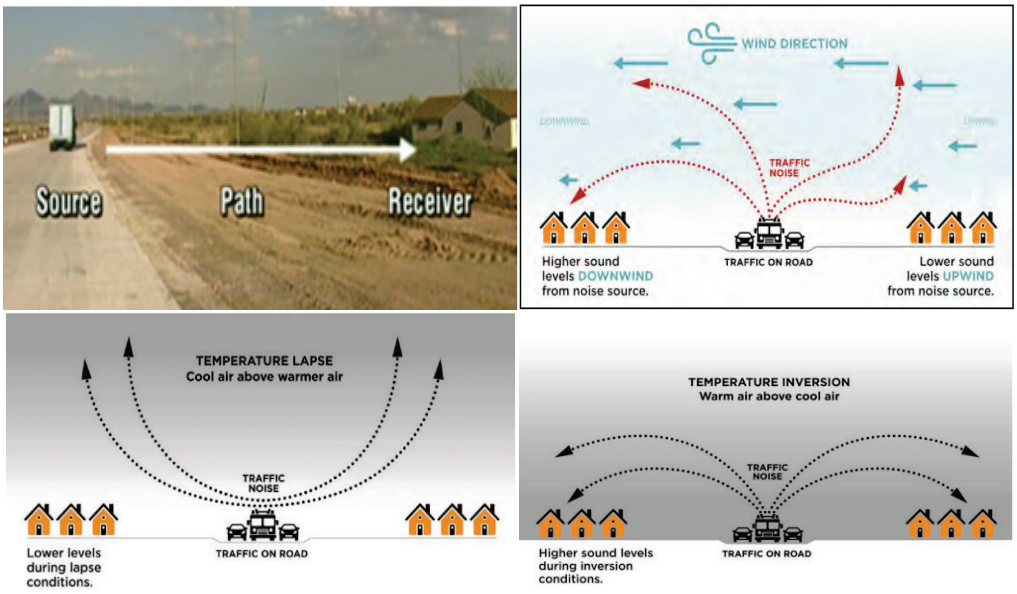
3.3 WHAT ARE THE SOURCE, RECEIVER, RECEPTOR, AND PATH OF TRAFFIC NOISE?

Traffic noise is a combination of the noises produced by vehicle engines, exhaust, and tires. The source of highway traffic comes from vehicles traveling on highways. The noise level at the *Source* depends on pavement type, number of heavy trucks, traffic volumes, and traffic speeds.

The predominant noise sources in vehicles at speeds less than 30 miles per hour (mph) are engine and exhaust. At speeds greater than 30 mph, tire noise becomes the dominant noise source.

As shown on **Figure** , the receptor is any location where people are affected by traffic noise. It can be a residence, park, school, playground, or any other place where frequent human activity occurs. The area between the source and the receptor *(receiver* represents a receptor[s] when modeled in FHWA's Traffic Noise Model software) is considered a *path*. Depending on the path surface, propagation of sound may be reduced; such is the case with soft ground and fresh snow. Doubling the distance between the source and receptor reduces noise by three dB(A), depending on the ground.

Figure 3. Source, Propagation Path, Receptor



Source, Propagation Path, Receptor

Air changes its density due to variations in humidity and temperature, and wind influences refraction of sound waves. Wind, humidity, and temperature may have a significant impact on propagation of sound, but only influences receptors located a long distance from the source. As residents are usually much closer to the noise source, atmospheric conditions are insignificant for consideration in modeling.

For more information on noise, please visit ADOT's Environmental Planning Noise webpage.

4 NOISE IMPACT CRITERIA

As required by the Code of Federal Regulations Title 23, Section 772.5 (23 CFR 772.5), ADOT defines a Substantial Increase in noise levels as an increase of 15 dB(A) in the predicted noise level over the existing noise level. As required by 23 CFR 772.11(e), the point at which the noise levels "approach" the FHWA Noise Abatement Criteria (NAC) (**Table 2**) is defined by ADOT as one dB(A), for Activity Categories A, B, C, D, and E. There is no noise impact threshold for Category F or Category G locations.

Table 2. FHWA Noise Abatement Criteria [1]

Activity Category	dB(A), L_{eq1h}[2]	Activity Description
A	57 (exterior)	Land 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
C	67 (exterior)	Active sports 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 structures, radio studios, 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 structures, radio structures, recording studios, schools, and television studios
E	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in categories 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

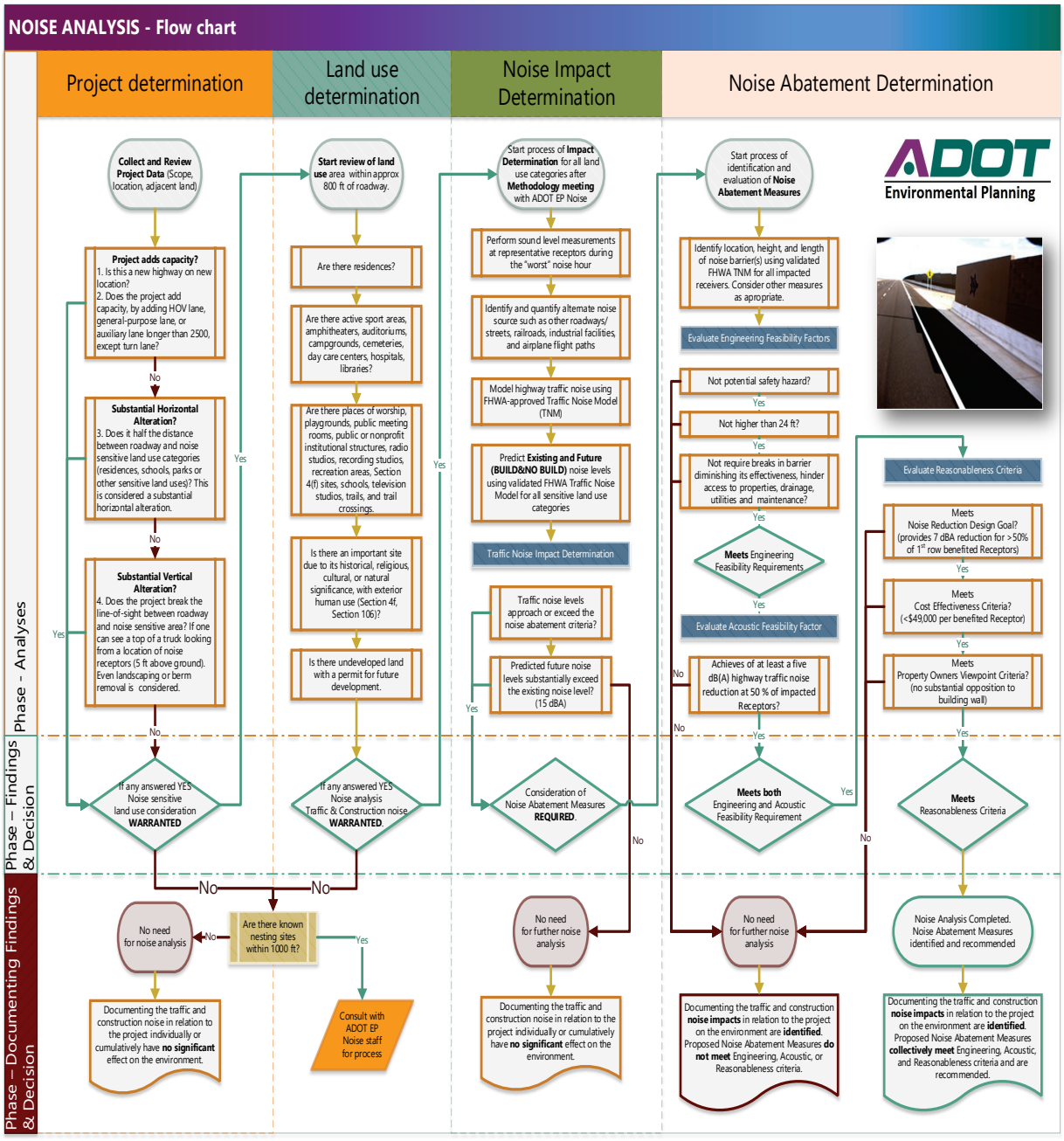
[1] Sources: Federal Highway Administration (2011); 23 Code of Federal Regulations § 772
[2] The 1-hour equivalent loudness in A-weighted decibels, which is the logarithmic average of noise over a 1-hour period

5 ANALYSIS METHODOLOGY

The noise analysis procedure is exhibited on **Figure 4**. In principle, once the project is identified as Type I in line with 23 CFR 772.5, the next three major steps are:

1. Land use determination (refer to the Instructions on *Land Use Determination*) answering the question whether there are noise sensitive areas, per **Table 2**. If there are noise sensitive areas within approximately 500-800 feet from the highway, the analysis continues with noise impact determination.
2. Noise impact determination (refer to the *Instructions on Determining Existing Noise Levels* and *Instructions on Predicting Future Noise Levels*), answering whether there are any noise sensitive areas impacted by the project itself. If any of the noise sensitive areas are determined to be impacted, consideration of noise abatement measures is required.
3. Noise abatement measures, answering whether there are measures that meet all feasibility and reasonableness criteria, as per ADOT NAR.

Figure 4. Noise Analysis Flow Chart



6 DETERMINATION OF EXISTING NOISE LEVELS

6.1 GENERAL INFORMATION

Since there is no existing highway in the proposed project location, existing noise levels are based on measurements and not an existing noise model. No existing or no building noise model was done, and no validation of an existing noise model was performed. Existing noise levels were determined by noise measurement at 6 24-hour locations and 4 short-term sites.

Measurements were taken under meteorologically acceptable conditions, with winds less than 12 mph and dry pavement. All measurement equipment had a valid calibration certificate at the time of measurements, in line with ADOT NAR and the *Instruction on Determination of Existing Noise levels and Noise Measurement* Data Form.

In general, for all Activity Categories, existing noise levels were established by:

- field measurements alone during *worst noise hour*, or

Field measurements are required, as existing background noise is usually a composite from many sources, and noise prediction models are applicable only to noise originating from a specific source.

6.2 BACKGROUND NOISE CONSIDERATION

Any noise source contributing to the noise levels at a location, other than observed traffic noise, must be identified and captured in the TNM model for that modeled receiver. For multimodal projects, or when a background noise source is from an adjoining facility under the jurisdiction of the Federal Transit Administration (FTA) or Federal Railroad Administration (FRA), one may use the following resources:

- FHWA Traffic Noise Model (TNM2.5)
  - For ADOT-managed infrastructure, ample traffic information is available on the Transportation Data Management System. Following Steps 1 to 6, one may access continuous traffic monitoring data that may provide answers on traffic patterns to determine the “noisiest hour”
- Federal Transit Administration Noise Impact Assessment Spreadsheet, version 1/29/2019
  - Federal Railroad Administration General Freight Noise Assessment – CREATE Freight Noise and Vibration Model.

The noise measurement yields the worst hourly noise level generated from representative noise sources for that area. It is critical to understand that the FHWA NAC focuses on noise levels where highway traffic noise could potentially interfere with speech communication in

exterior areas. Therefore, in properly determining existing noise conditions, the following factors are essential for consideration.

- The location is a representative area of frequent human use.
- The time of measurements at the location coincides with frequent human use common occurrence.
- The worst noise hours of existing noise sources are captured, and
- The worst noise hours of existing noise sources at the time when frequent human use commonly occurs is captured.

6.2.1 Noise Measurement Site Selection:

The purpose for conducting noise measurements of in areas without existing highway traffic is to document the existing noise levels, so that the base line existing levels can be used to calculate if there will be a substantial increase, 15 dBA or more, if the highway is built. Field notes were written up for each measurement location. The field notes include time, temperature, geographic coordinates (or street address), and photos. For 24-hour measurements, the field notes also list and graph the hour noise levels for the 24 hours, highlighting the peak noise hours at each location.

A total of 6 long term measurement sites were selected for field noise measurement locations along the proposed project improvements. Measurements were conducted for at least 24 hours, between November 11 to November 13, 2025. Four additional short term (15 minute) measurements were taken on November 11 and November 12, at locations between the long-term sites, to identify any areas where peak noise levels could differ from the long-term measurements. The two short-term measurements were conducted at each site in the morning and in the afternoon.

To describe the current noise environment, the study area has been divided into nine subsections. Measurements taken between 67th and 69th Avenue and west of 99th Avenue were made to get a clear idea of the overall existing noise level in the area; these measurement areas are not part of this report:

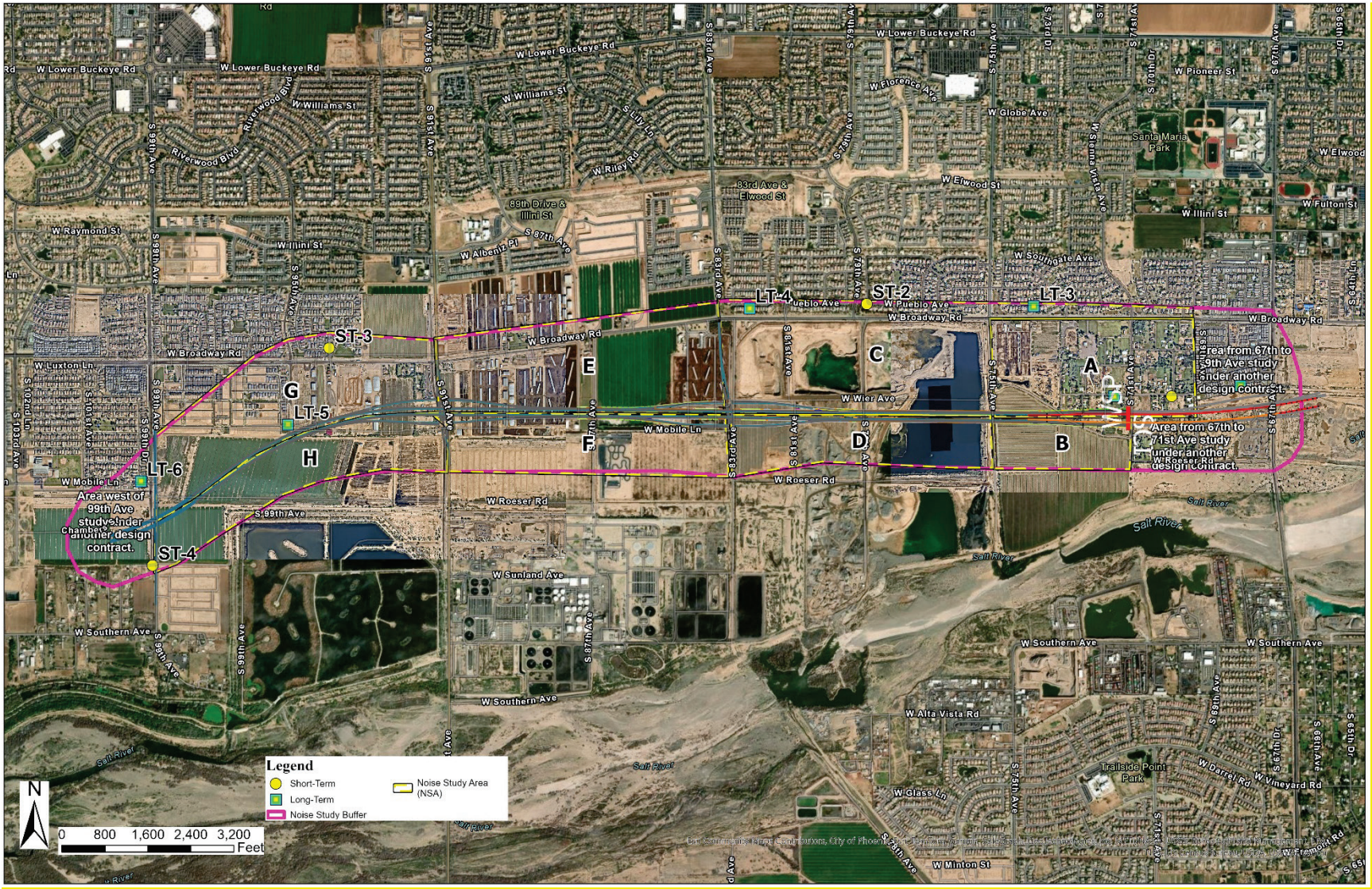
- **North of SR30 from 67th Avenue to 75th Avenue (Modeling Area A) –** Land use in this area is mainly residential (Activity Category B). Between 67th Avenue and 69th Avenue the homes are new and there is a 16-foot-high barrier on the property line between the homes and the proposed SR-30, this area is included in the report for the design package of the interchange to the east. From 69th Avenue to 73rd Avenue the homes are older and more widespread , there is currently no barrier in this area. From 73rd Avenue to 75th Avenue, there are no noise sensitive receivers. Field measurements were taken at three sites within this portion of the study area along the north side of the SR-30, LT-1, ST-1 and LT-2 (see **Figure 5**).
- **South of SR30 from 67th Avenue to 75th Avenue (Modeling Area B) –** Land use in this area is open space or quarry operations and dairy farms. (Activity Categories F and G).

This area is included in the report for the design package of the interchange to the East (see **Figure 5**).

- **North of SR30 from 75th Avenue to 83rd Avenue (Modeling Area C)–** Land use between the proposed project and Broadway Road is the quarry and dairy farm operations (Activity F). (see **Figure 5**). The first row of single-family homes (Activity Category B) is north of Broadway Road, over 1,000 feet from the north edge of the proposed project.
- Three field measurements were taken a in this area, LT-3, LT-4 and ST-2. The measurements were taken in the first row of homes north of Broadway Road, to be used as the existing noise levels in the area (see **Figure 5**).
- **South of SR30 from 75h Avenue to 83rd Avenue (Modeling Area D) –** Land use in this area is open space or quarry operations and open space. (Activity Categories F and G), (see **Figure 5**).
- **North of SR30 from 83rd Avenue to 91rst Avenue (Modeling Area E) –** Land use between the proposed project and Broadway Road is dairy and other agricultural operations (Activity F) with four homes (Activity B) near Broadway Road (see **Figure 5**). There are three homes (Activity Category B), north of Broadway Road. All homes in the area are between 500 to 1000 feet from the north edge of the proposed project.
- South of SR30 from 83rd Avenue to 91st Avenue (Modeling Area F) – Land use in this area is agriculture (Activity Categories F) (see **Figure 5**).
- **North of SR30 from 91st Avenue to 99thAvenue (Modeling Area G) –** Land use between the proposed project and Broadway Road between 91st Avenue and 95th Avenue dairy and other agricultural operations (Activity F) with four homes (Activity B) near Broadway Road (see **Figure 5**). A new housing development is being built between 95th Avenue and 99th Avenue. (Activity Category B), these new homes are less than 200 feet from the edge of the proposed roadway.
- Field measurements were taken at two sites in this area, LT-5 and ST-3. ST-3 was taken in the first row of homes north of Broadway Road, to be used as the existing noise levels in the area (see **Figure 5**). LT-5 measurement site is located at the south edge of the new housing development (see **Figure 5**).
- South of SR30 from 91st Avenue to 99thAvenue (Modeling Area H) – Land use in this area is agriculture. (Activity Categories F) (see **Figure 5**).
- **North SR30 west 99th Avenue–** Land use north of the proposed project is single family homes (Activity B) located north of Mobile Lane, between 99th Avenue and 101st Avenue (see **Figure 5**). This area is included in the report for the design package of the west.
- A field measurement was taken at site LT-6, in the first row of homes north of Mobile Lane, to be used as the existing noise levels in the area (see **Figure 5**).
- **South SR30 west of 99th Avenue () –** Land use south of the proposed project has three single family homes (Activity B) located north of Mobile Lane, west of 99th Avenue (see **Figure 5**). This area is included in the report for the design package of the west.

A field measurement was taken at site ST-6, in the first row of homes south of the proposed project at the home just west of 99th Avenue. ST-4 was be compared to LT-6 to calculate the existing noise levels in the area (see **Figure 5**).

Figure 5. Existing Noise Measurement Locations



6.2.2 Measurement Instrumentation

The instruments used for the noise measurements include the following:

- Long-Term:
  - Integrating Sound Level Meter – Six (6) Sigicom Infra C50 Sound Monitors with American National Standards Institute (ANSI) Type 1 accuracy.
- Short-Term:
  1. Integrating Sound Level Meter – One (1) Bruel & Kjaer Type 2250 Meter with American National Standards Institute (ANSI) Type 1 accuracy.
- Other Instrumentation:
  1. Acoustic Field Calibrator – One (1) Bruel & Kjaer Type 4231
  2. Wind Monitor, Temperature & Humidity Gauge – One (1) Kestrel 3000 Pocket weather meter.

All measurement systems were calibrated on site using the acoustic field calibrator. All the systems that were used were laboratory, calibrated within a 12-month period prior to the measurements.

6.2.3 Measurement Procedure

The measurement instruments were field calibrated before and after each measurement series. The calibration check conducted after the completion of the measurements is to verify that the instruments are operating within the normal operating parameters. For each measurement, the A-weighted, slow detector response was used. The systems were configured to store noise level data on an interval basis (one-hour or 15-minute intervals for long-term sites, and 15-minute intervals for short-term sites). The data included the average, minimum, maximum, and selected exceedance levels for each interval period (L_{eq}, L_{MIN}, L_{MAX}, L_{10}, L_{50}, L_{90}).

The microphone positions were at least 10 feet from any wall or building to prevent reflections or unrepresentative shielding of traffic noise, and two noise measurements were taken along the same line perpendicular to the highway. Measurement sites were not used if there was a possibility of any unusual noises such as barking dogs, air conditioning compressors, pool pumps, or children that would affect the measured sound level. The microphone was located 5 feet above ground with the manufacturer's recommended windscreen. Site geometry, such as distances, elevations, and location of walls and buildings, were noted for each location.

Meteorological conditions, including temperature, relative humidity, wind direction, and speed were recorded for all noise measurement sites using a pocket weather meter. These records were noted on the measurement forms while observers were present at the sites.

6.3 TRAFFIC NOISE MODEL - VALIDATION AND PREDICTION DATA

Since this is new highway alignment, no validation of existing conditions was conducted. Existing noise levels were determined by field noise measurements at six 24-hour measurements and at four 15-minute sites. The 15-minute measurements were taken twice at the same locations, once in the AM hours and once in the PM hours. The existing noise levels based on these measurements are shown in section 7 and used to determine if the project would significantly increase the noise levels.

7 FUTURE PREDICTED NOISE LEVELS

The highway noise prediction computer model FHWA TNM Version 2.5 was used for traffic noise computations. This model is based on the highway traffic noise prediction method specified in FHWA-RD-77-108. Project area topographical drawings generated as part of this task order were used to mark all roadway and barrier segments, as well as noise sensitive receptors. These locations were digitized using MicroStation. An ARCGIS application developed by WSP's Noise Group that provides an interface between MicroStation and TNM was used to capture the coordinates of the roadway and barrier segment points, as well as sensitive receptor coordinates. This unique program substantially increases the accuracy of the data input and reduces the time required to prepare the data.

A sufficient number of receptor points were analyzed to present the future noise levels without noise barriers and identified the areas with noise levels above the NAC, which would be considered a noise impact and requires noise mitigation, in the form of a barrier, be analyzed to determine if the barrier is feasible and reasonable.

A sufficient number of receptor points were analyzed and presented so that future noise levels (with a noise barrier) may be determined, and the number of residential units that achieve a minimum noise level reduction of 5 dB(A) can be counted. Noise barriers starting with 8-foot height and taller with 2-foot increments were used for modeling. The critical receptor at each end of the wall is defined as the last residential unit that can achieve at least a 5 dB(A) reduction by extending the wall. So, if the last receptor examined achieved a reduction of more than 5 dB(A), such as 5.3 dB(A), it was likely that the next residential unit further up might achieve a 5 dB(A) reduction. The process continued until the last receptor examined was shown to achieve a less than 5 dB(A) reduction. This is an exhaustive process to demonstrate all the receptors that might have potential for achieving a 5 dB(A) reduction. The same exhaustive process was applied to receptors perpendicular to the highway. However, if the future noise level at any receptor was less than 66 dB(A), the wall did not have to be extended any further.

All measured receptors and modeled receptors were clearly shown and identified in the survey topographic maps or aerial photographic maps. These maps are included in the noise report as **Figure 6** through **Figure 8**. Additionally, all the measured and modeled receptors, including those that achieve a reduction of less than 5 dB(A), were shown in tables with corresponding insertion losses. The purpose of a noise barrier is to provide maximum noise reduction for the impacted receptors. As such, if the receptors at each end of the wall achieve a reduction of 5 dB(A) or more, extension of the length of the wall was modeled and considered for providing the maximum noise reduction for those receptors.

The predicted noise levels are shown in the report within at least one decimal accuracy. For example, 68.6 dB(A) is shown as 68.6 dB(A) and not 69 dB(A). The insertion loss table was also prepared accordingly.

Future predicted Traffic Noise Analysis relies on project-specific traffic data pertaining to all lanes, general purpose lanes, ramps, at Level of Service (LOS) C, and on other highway-influenced infrastructure that may not be considered inconsequential to increasing noise levels within project area. These data include:

- Traffic volumes, with lateral distribution (per lane).
- Vehicle type, vehicle distribution between automobiles, medium trucks, heavy trucks, buses, and motorcycles, with attention to percentage of heavy trucks with lateral distribution (per lane).
- Speed of traffic (per lane).

When predicting noise levels for the design year, a 'worst-case' approach is used, wherein the traffic characteristics that produce the worst traffic noise impact are considered. In general, this should reflect LOS C traffic conditions during the peak noise hour with traffic moving at five miles per hour above the posted speed limit. For the Existing, No Build and Build, the I-10 operating speed of 70 mph was used (5 mph above the posted speed limit). If future traffic volumes are less than maximum LOS C volumes, future traffic volumes are utilized. If no other information is available, the peak hourly volume should be 10 percent of the predicted Annual average daily traffic (AADT), with factors K, D, and T included in the analysis and with lateral lane across the travel lanes of a multiple-lane highway.

An exception to worst-case approach is pavement type, as all TNM-noise level predictions must utilize "average" pavement type unless FHWA approval to use a different pavement type has been obtained.

7.1 ROADWAY GEOMETRY & TOPOGRAPHIC DATA AND GROUND TYPE

The roadway geometry data used for the noise modeling effort, such as roadway and lane width, horizontal and vertical coordinates, were based on the electronic roadway geometry data and plans provided. Terrain lines determined the elevation of sound propagation interfering features between the source and the noise receiver. Ground type for modeling purposes was determined as loose soil with ground zone in some areas depending on the land use.

7.2 TRAFFIC VOLUMES AND MIX

Different vehicle types have different noise emission levels, with trucks producing higher noise levels than passenger automobiles. Furthermore, trucks with higher cargo weight capacity produce higher noise levels than trucks with lower cargo weight capacity. Vehicles are categorized as follows:

- Automobiles are categorized as vehicles with two axles and four wheels designed primarily for passenger or cargo transportation (including light trucks). Generally, the gross weight of an automobile is less than 10,000 pounds.

- Medium trucks are categorized as vehicles having two axles. Generally, the gross weight of a medium truck is greater than 10,000 pounds but less than 26,400 pounds.
- Heavy trucks are categorized as vehicles having three or more axles and designed for the transportation of cargo. Generally, the gross weight of a heavy truck is greater than 26,400 pounds.

Traffic data was generated by Maricopa Association of Governments (MAG) traffic from December 2025. The predicted 2050 PM traffic volumes with traffic traveling 5 miles per hour above the posted speed limit used for modeling are presented in **Table 3**.

Table 3. 2050 PM Peak Traffic Volumes

SR 30 Roadway	Total Vehicles	Lanes	Truck %(MT/HT)	Auto Per Lane	MT Per Lane	HT Per Lane
EB West of 91st Ave 4 Lanes	3183	4	14.2/7.3	624	113	58
EB West of 91st Ave 5 Lanes	3183	5	14.2/7.3	499	91	47
EB between EB 91st Off Ramp and On Ramp	3103	4	14.4/7.5	606	112	58
EB From 91st On to 83rd Off Ramp	3510	5	13.7/7.0	557	96	49
EB between 83rd Off and On Ramps	3411	4	13.9/7.2	673	119	61
EB 83 East of 83rd 3 Lanes	3673	3	13.7/7.4	966	167	91
EB 83 East of 83rd 4 Lanes	3673	4	13.7/7.4	725	125	68
EB 83 East of 83rd 5 Lanes	3673	5	13.7/7.4	580	100	55
WB 83 East of 83rd 5 Lanes	3615	5	13.2/4.2	597	96	31
WB 83 East of 83rd 4 Lanes	3615	4	13.2/4.2	746	119	38
WB 83 East of 83rd 3 Lanes	3615	3	13.2/4.2	995	159	51

SR 30 Roadway	Total Vehicles	Lanes	Truck %(MT/HT)	Auto Per Lane	MT Per Lane	HT Per Lane
WB between 83rd Off and On Ramps	3375	4	23.4/3.7	700	113	31
WB from 83rd On to 91st Off Ramp	3498	4	13.1/3.6	728	115	31
WB Between 91st Off and On Ramp	3058	4	13.8/3.7	631	105	28
WB west of 91st	3142	4	13.6/3.6	650	107	28
EB Off to 91st	80	2	7.8/0.6	37	3	1
EB On from 91st	407	2	8.5/3.0	180	17	6
WB Off to 91st	440	2	8.5/2.9	195	19	6
WB On from 91st	84	1	7.4/0.7	77	6	1
EB Off to 83rd	99	2	6.4/0.8	46	3	1
EB On to 83rd	262	2	10.3/10.8	103	14	14
WB Off to 83rd	240	2	11.0/11.9	383	34	12
WB On to 83rd	123	2	6.2/0.8	57	4	0
EB Off to 67th	252	2	7.3/1.1	116	9	1
EB Off to SR202	163	2	13.3/2.4	69	11	2
WB On from 202	1042	3	19.1/9.4	248	66	33
WB On from 67th	276	2	6.8/1.0	127	9	1

7.3 VEHICLE SPEED

The modeled vehicle speeds are 5 mph above free-flow speed for all vehicle categories as listed below:

- Main Lane Speed: 70 mph
- Ramp Speed: 0 to 65 mph
- Local Roadways : 45 mph

7.4 ATMOSPHERIC VARIABLES

Noise levels are affected by temperature and humidity. For noise modeling purposes, FHWA recommends the default values to be a temperature of 68 degrees Fahrenheit and the humidity level at 50 percent.

7.5 RECEPTOR AND RECEIVER LOCATIONS

The ADOT NAR defines a "receptor" as a discrete or representative location of a noise sensitive area(s) for any of the land uses listed in **Table 4** through **Table 8**. The "receiver" is defined as a location used in noise modeling to represent the measured and predicted noise level at a point. The backyard or common outdoor areas of residential properties are noise-sensitive receptors.

7.6 SHIELDING EFFECTS

TNM 2.5 can account for the noise shielding effects created by existing noise barriers, privacy walls, buildings, and terrain changes that are an obstruction between noise sources and receptors. Neighborhood privacy walls were modeled as barriers, while large buildings were modeled as building rows. Cut-and-fill slopes and corresponding elevation changes were modeled as terrain lines. Rows of homes in neighborhoods were modeled as building rows.

Based on the assumptions stated in this report, FHWA TNM 2.5 predicts noise levels along the project route in the design year after construction of the project has occurred. Actual noise levels in the future may differ somewhat due to a number of factors outside the scope of this modeling effort.

This analysis determines the traffic noise impacts based on the FHWA Noise Abatement Criteria (NAC), which are referred to in ADOT's Noise Abatement Requirement (NAR). The FHWA NAC specify an allowable traffic noise level for different categories of land use and activities. Homes, place of worship, schools, and parks are classified in Categories B and C, and the noise abatement criteria for these categories is 67 dB(A) hourly equivalent sound level ($L_{Aeq(h)}$). Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in categories B and C are classified in Category E and have a NAC of 72 dB(A). In the absence of traffic noise impacts, noise abatement measures considerations are not warranted. **Table 4** through **Table 7** shows the list of receivers with existing measured noise levels and the modeled predicted future noise levels. The location of the receivers is shown in **Figure 6** through **Figure 8**. Since this is a new highway alignment existing noise levels cannot be modeled, so the existing noise levels are based on the worst hours from the six long term measurements and the 4 short-term measurements.

Table 3. Modeled Noise Levels (Existing and Build Conditions): North of SR 30 67th Avenue to 73rd Avenue (Modeling Area A)

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-1	SFR	4635 S70th Ave	1	66	58.0	69.7	Impact
N-1E	ACT E, Recreational Use	4635 S70th Ave	3	71	58.0	69.3	No
N-2	SFR	7014 S Weir Ave	2	66	58.0	70.0	Impact
N-2E	ACT E, Recreational Use	7002 W Weir Ave	3	71	58.0	63.4	No
N-3	SFR	7042 S Weir Ave	2	66	58.0	69.5	Impact
N-3E	ACT E, Recreational Use	7042 W Weir Ave	4	71	58.0	65.8	No
N-4	SFR	7122 S Weir Ave	2	66	58.0	69.4	Impact
N-4E	ACT E, Recreational Use	7122 W Weir Ave	3	72	58.0	67.3	No
N-5	SFR	7148 S Weir Ave	2	66	58.0	69.0	Impact
N-5E	ACT E, Recreational Use	7148 W Weir Ave	3	71	58.0	64.9	No
N-6	SFR	7222 S Weir Ave	2	66	58.0	69.5	Impact
N-6E	ACT E, Recreational Use	7222 W Weir Ave	5	71	58.0	66.4	No
N-7	SFR	7246 S Weir Ave	2	66	58.0	69.3	Impact
N-7E	ACT E, Recreational Use	7246 W Weir Ave	2	71	58.0	65.7	No
N-8	SFR	4619 D 70th Ave	1	66	58.0	64.4	No
N-9	SFR	7001 W Parkway Dr	2	66	58.0	63.0	No

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-10	SFR	7120 W Tamarisk Ave	3	66	58.0	63.5	No
N-11	SFR	4615 W 73rd Ave	1	66	58.0	64.3	No

Table 4. Modeled Noise Levels (Existing and Build Conditions): North of SR 30 73rd Avenue to 83rd Avenue (Modeling Area C)

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-12	SFR	7321 W Pueblo Ave	3	66	57.0	53.9	No
N-13	Park	7333 W Pueblo Ave	3	66	57.0	53.4	No
N-14	Park	7345 W Pueblo Ave	3	66	57.0	53.7	No
N-15	Park	7407 W Pueblo Ave	3	66	57.0	53.6	No
N-16	Park	7419 W Pueblo Ave	3	66	57.0	53.7	No
N-17	SFR	7427 W Pueblo Ave	2	66	57.0	51.3	No
N-18	SFR	7509 W Pueblo Ave	2	66	62.0	52.2	No
N-19	SFR	7517 W Pueblo Ave	3	66	62.0	52.1	No
N-20	SFR	W Pueblo Ave(Park 1)	2	66	62.0	62.9	No
N-21	SFR	W Pueblo Ave(Park 2)	2	66	62.0	62.9	No
N-22	SFR	W Pueblo Ave(Park 3)	2	66	62.0	62.5	No
N-23	SFR	W Pueblo Ave(Park 4)	2	66	62.0	55.0	No
N-24	SFR	7621 W Pueblo Ave	1	66	62.0	50.7	No

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-25	SFR	7705 W Pueblo Ave	3	66	62.0	50.5	No
N-26	SFR	7717 W Pueblo Ave	3	66	62.0	49.2	No
N-27	SFR	7801 W Pueblo Ave	2	66	62.0	51.3	No
N-28	SFR	7813 W Pueblo Ave	3	66	62.0	50.9	No
N-29	SFR	7909 W Pueblo Ave	3	66	62.0	50.1	No
N-30	SFR	7921 W Pueblo Ave	3	66	62.0	51.1	No
N-31	SFR	7933 W Pueblo Ave	3	66	62.0	52.9	No
N-32	SFR	7945 W Pueblo Ave	3	66	62.0	50.4	No
N-33	SFR	8015 W Pueblo Ave	3	66	62.0	52.0	No
N-34	SFR	8027 W Pueblo Ave	3	66	62.0	50.4	No
N-35	SFR	4233S 81st Ln	3	66	62.0	52.2	No
N-36	SFR	8129 W Pueblo Ave	3	66	62.0	53.1	No
N-37	SFR	8141 W Pueblo Ave	3	66	62.0	51.5	No
N-38	SFR	8207 W Pueblo Ave	3	66	62.0	53.5	No
N-39	SFR	8219 W Pueblo Ave	4	66	62.0	53	No

Table 5. Modeled Noise Levels (Existing and Build Conditions): North of SR 30 83rd Avenue to 91st Avenue (Modeling Area E)

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-40	SFR	8475-8461 W Broadway Rd	2	66	62	53	No
N-41	SFR	8506 A(2) W Broadway Rd	1	66	62	64.1	No
N-42	SFR	8506 A W Broadway Rd	1	66	62.0	57.8	No
N-43	SFR	8506 W Broadway Rd	1	66	62.0	57.8	No
N-44	SFR	8639 W Broadway Rd	1	66	62.0	64.4	No
N-45	SFR	8700 - 8734 W Broadway	2	66	62.0	64.4	No
N-46	SFR	8811 W Broadway Rd	1	66	62.0	65.8	Impact
N-47	SFR	8808-8812 W Broadway Rd	2	66	62.0	64.3	No
N-48	SFR	8921 W Broadway Rd	1	66	62.0	66.5	Impact

Table 6. Modeled Noise Levels (Existing and Build Conditions): North of SR 30 91st Avenue to 99th (Modeling Area G)

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-49	SFR	9133 W Broadway	3	66	62.0	67	Impact
N-50	SFR	9211 W Broadway	1	66	62.0	66.9	Impact
N-51	SFR	9311 W Pueblo Ave	2	66	62.0	58.1	No
N-52	SFR	Park 93 to 94 (1)	2	66	62.0	59.2	No
N-53	SFR	Park 93 to 94 (2)	2	66	62.0	56.8	No

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-54	SFR	Park 93 to 94 (3)	2	66	62.0	55.4	No
N-55	SFR	4232- S 93rd Dr	1	66	62.0	58.5	No
N-56	SFR	4321 S 94th Ave	1	66	62.0	54.3	No
N-57	SFR	4317 S 94th Ave	1	66	62.0	57.3	No
N-58	SFR	9411 W Trumbull Rd	3	66	62.0	52.6	No
N-59	SFR	9427 W Trumbull Rd	3	66	62.0	53.7	No
N-60	SFR	9545 W Broadway	1	66	62.0	64.5	No
N-61	SFR	9507 W Trumbull Rd	3	66	62.0	51.2	No
N-62	SFR	New Dev	3	66	54.0	65.6	Impact
N-63	SFR	New Dev	3	66	54.0	66.5	Impact
N-64	SFR	New Dev	3	66	54.0	67.3	Impact
N-65	SFR	New Dev	3	66	54.0	69.7	Impact
N-66	SFR	New Dev	3	66	54.0	71.2	Impact
N-67	SFR	New Dev	2	66	53.0	73.3	Impact
N-68	SFR	New Dev	3	66	53.0	73.9	Impact
N-69	SFR	New Dev	3	66	53.0	72.3	Impact
N-70	SFR	New Dev	3	66	53.0	70.6	Impact
N-71	SFR	New Dev	3	66	53.0	69.1	Impact

Receiver	Facility Type (MF, SF, etc.)	Address	Dwelling Units	NAC	Laeq1h, dB(A)		Impacted
					Existing	Build	
N-72	SFR	New Dev	3	66	53.0	66.3	Impact
N-73	SFR	New Dev	3	66	53.0	65.5	Impact
N-74	SFR	New Dev	3	66	53.0	64.4	No
N-75	SFR	New Dev	3	66	53.0	63.6	No
N-76	SFR	New Dev	6	66	53.0	70.6	Impact
N-77	SFR	New Dev	6	66	53.0	68.5	Impact
N-78	SFR	New Dev	6	66	53.0	65.1	No
N-79	SFR	New Dev	6	66	53.0	63.4	No

Below is a summary of the modeled existing, no-build, and build traffic noise levels:

- **North of SR30 from 67th Avenue to 73rd Avenue (Modeling Area A)**
  - Existing – 58 dB(A) to 59 dB(A)
  - Build – 63.0 dB(A) to 70.0 dB(A)

    The modeled noise levels at 7 of the 25 receivers do approach or exceed FHWA NAC for Activity Category B (residence). Therefore, consideration of abatement measures is warranted. The homes between 67th and 69th Avenue along W Gaby Road are included in HDR noise study for the SR30/SR202 Interchange.

- **South of SR30 from 67th Avenue to 73rd Avenue (Modeling Area B)**

  The homes between 67th and 71st Avenue along W Gaby Road are included in HDR noise study for the SR30/SR202 Interchange. There are no existing noise sensitive land uses in the area west of 71st Avenue.

- **North of SR30 from 73rd Avenue to 83rd Avenue (Modeling Area C)**
  - Existing – 57 dB(A) to 62 dB(A)
  - Build – 49 dB(A) to 63 dB(A)

The modeled noise levels of the 28 receivers do not approach or exceed FHWA NAC for Activity Category B (residence). Therefore, consideration of abatement measures is not warranted.

- **South of SR30 from 67th Avenue to 73rd Avenue (Modeling Area D)**

  There are no existing noise sensitive land uses in the area.

- **North of SR30 from 83rd Avenue to 91st Avenue (Modeling Area E)**
  - Existing – 62 dB(A) to 62 dB(A)
  - Build – 58 dB(A) to 67 dB(A)

  The modeled noise levels of 2 of 9 receivers do approach or exceed FHWA NAC for Activity Category B (residence). Therefore, consideration of abatement measures is warranted.

- **South of SR30 from 83rd Avenue to 91st Avenue (Modeling Area F)**

  There are no existing noise sensitive land uses in the area.

- **North of SR30 from 91st Avenue to 99th Avenue (Modeling Area G)**
  - Existing – 53 dB(A) to 62 dB(A)
  - Build – 51 dB(A) to 74 dB(A)

  The modeled noise levels of 16 of 31 receivers do approach or exceed FHWA NAC for Activity Category B (residence). Therefore, consideration of abatement measures is warranted.

- **South of SR30 from 91st Avenue to 99th Avenue (Modeling Area H)**

  There are no existing noise sensitive land uses in the area.

  Modeling area I and J below are out of the area covered by the design plans from WSP, the results below are provided for information only. Once the design for the project from 99th Avenue west is completed, this area will be evaluated by an additional noise study.

- **West of 99th Avenue**

  The noise studies for the areas west of 99th Avenue are part of the design packet to the west.

Figure 6 67th Avenue to 79th Avenue – Receiver Impacts

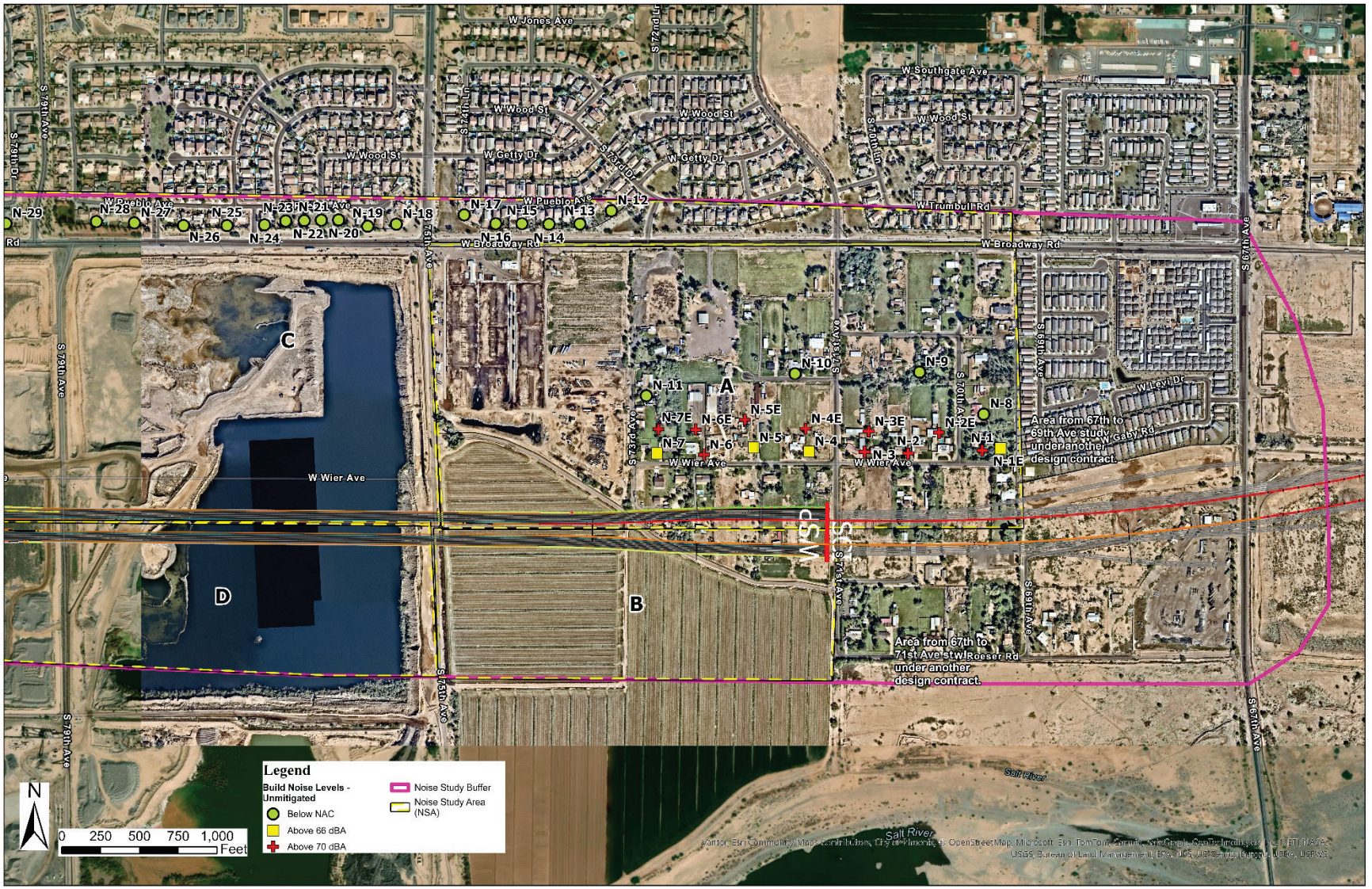


Figure 7 79th Avenue to 91st Avenue – Receiver Impacts

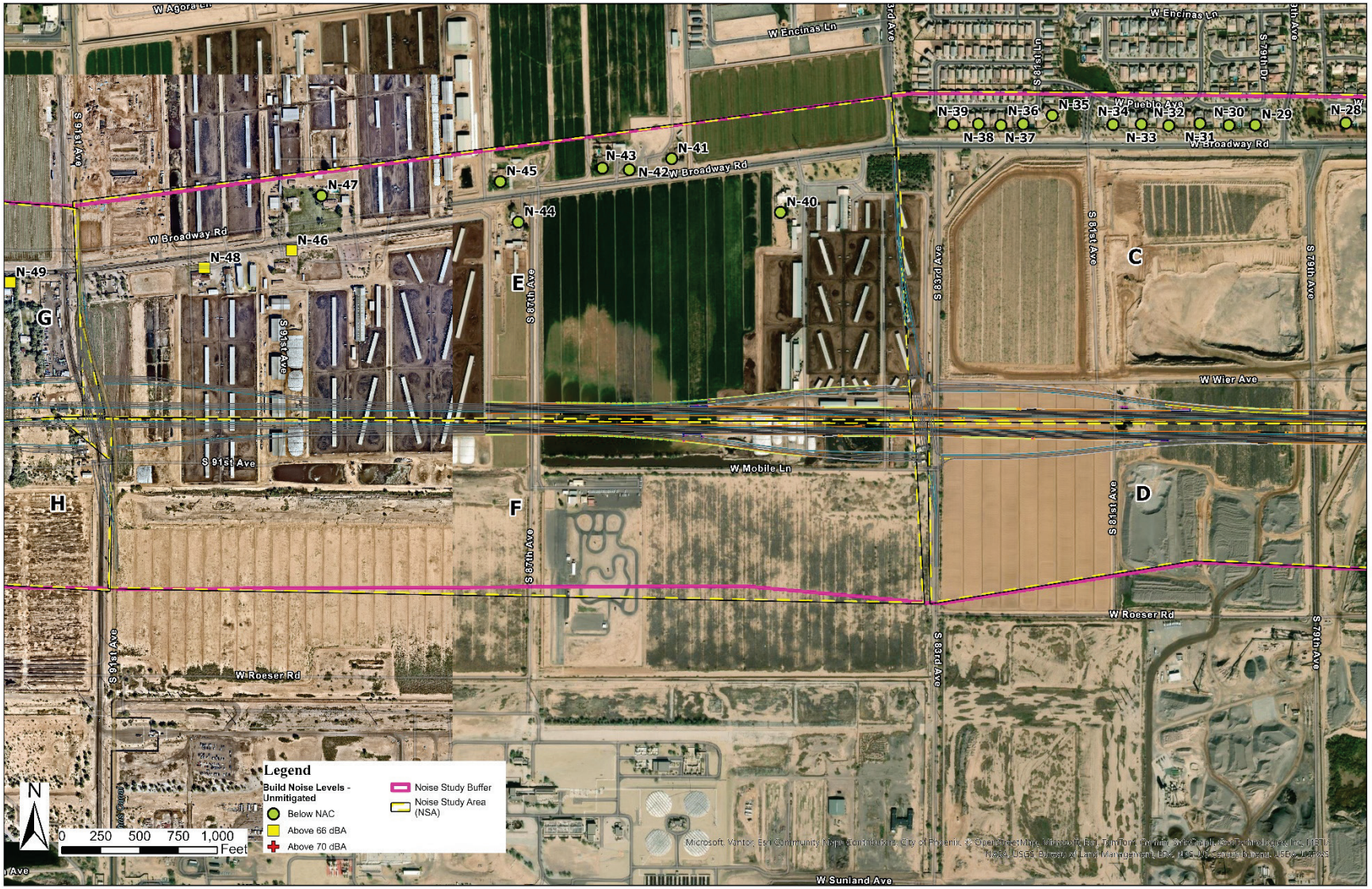
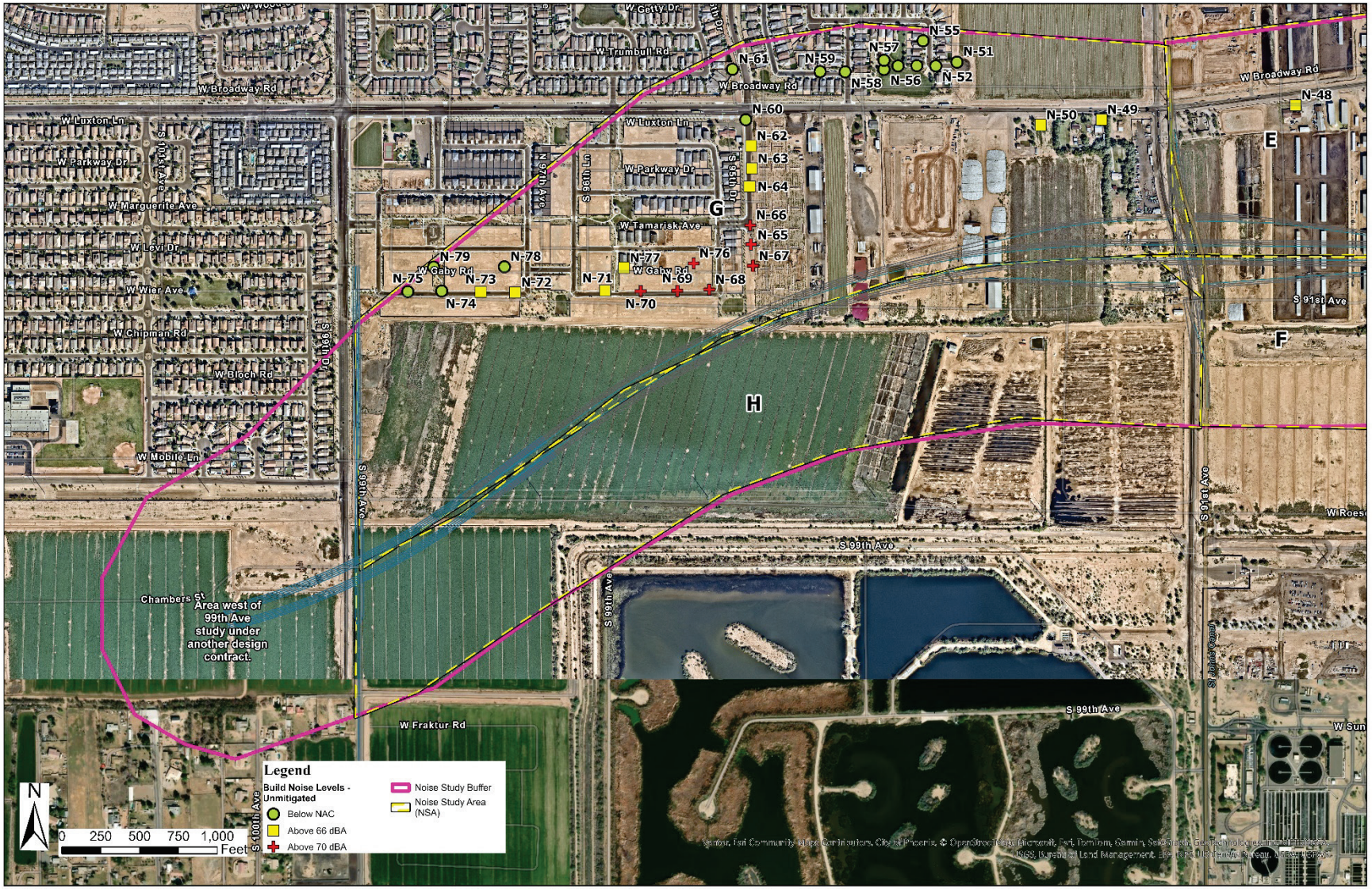


Figure 8. 91st Avenue to 99th Avenue – Receiver Impacts



8 CONSIDERATION OF ABATEMENT

ADOT considers abatement measures as mitigation for receivers predicted to be impacted by traffic noise associated with a proposed transportation improvement project. For a mitigation measure, such as a noise barrier to be proposed in the project, it must meet criteria for being both feasible and reasonable.

Pursuant to 23 CFR 772.13(d)(1), the initial considerations for each potential abatement measure are both the engineering and acoustic factors that determine whether it is possible to design and construct .

Per Chapter 5.1 of ADOT NAR, engineering feasibility factors are:

- Safety, Barrier height, curvature, and breaks in barriers
- Topography, Drainage, Utilities
- Maintenance requirements, Access to adjacent properties
- Overall project purpose

Per Chapter 5.2 of ADOT NAR, for a noise abatement measure to be acoustically feasible, ADOT requires achievement of at least a five dB(A) highway traffic noise reduction at 50 percent of impacted receptors. In some instances, the noise level at a location may be affected by an alternate noise source, such as other roadways/streets, railroads, industrial facilities, and airplane flight paths. In such locations, noise abatement for the proposed transportation project may not be acoustically feasible, since a substantial overall noise reduction cannot be achieved due to other noise sources.

As per Chapter 6 ADOT NAR, there are three reasonableness factors or “tests” that must collectively be achieved for a noise abatement measure to be deemed reasonable.

These are:

- Viewpoints or Preferences of Property Owners and Residents
- Noise Reduction Design Goal, and
- Cost-effectiveness

Noise barriers should be designed to reduce projected unmitigated noise levels by at least seven dB(A) for benefited receptors closest to the transportation facility. To be considered reasonable, at least half of the benefited receptors in the first row would need to achieve this level of noise reduction. The maximum reasonable cost of abatement is $49,000 per benefited receptor (cost-per-benefited-receptor) with barrier costs calculated at $35 per square foot, $85 per square foot if constructed on a structure. The cost of removing any previously built walls, drainage, and other similar construction work is included in the cost assessment.

A noise barrier analysis was conducted using TNM to abate the noise impacts and achieve at least 5-decibel or higher noise reductions. Possible noise barriers (berms may be considered too) may be located at the freeway shoulder, right-of-way line, or on the top of slopes (if that is the case), whichever would provide maximum noise reduction and be more desirable for other considerations, such as freeway expansion and maintenance. If more than one barrier location (alignment) was possible and appeared feasible, all such locations were studied, modeled, and presented in the report with the same level of detail and accuracy.

As part of this project, the following noise barriers were modeled to determine if they met the ADOT feasibility guidelines. A summary of the noise barriers that were considered for abatement but did not meet the ADOT acoustical feasibility guidelines is presented in **Table 8**. The recommended noise barriers that meet the ADOT feasibility and reasonability guidelines are presented in **Table 9**. The location of these noise barriers is presented in **Figure 9** through **Figure 11**. Barriers below are label by the CNE area that they are located within.

NB-A

At this location, a noise barrier is proposed at the north mainline EOS as noise abatement for 32 dwelling units (N-15 to N-25). At a height of 14 feet and a length of 2,945 feet, all dwelling units with an impact would achieve at least 5-decibel reduction. The noise barrier does achieve a 7-decibel reduction of 7 of the 7 first row dwelling units. The maximum cost of abatement is $45,095 per benefited receptor. A noise barrier at this location is considered reasonable and is recommended for mitigation.

NB-E

At this location, a noise barrier was modeled at the EOS of the WB off ramp to 91st Avenue as noise abatement for 2 dwelling units. At a height of 22 feet and a length of 1,661 feet, none of the dwelling units (N-60 to N-62) achieve a 5-decibel reduction. A noise barrier at this location does not meet the ADOT's acoustic feasibility requirements and is not recommended for mitigation.

NB-G

At this location, a noise barrier was modeled at the North EOS of the WB On Ramp from 91st Street and the north bound mainline EOS as noise abatement for two existing dwelling units (N-63 and N-64). At a height of 22 feet and a length of 5,307 feet, none of the dwelling units would achieve a 5-decibel reduction. A noise barrier at this location does not meet the ADOT's acoustic feasibility requirements and is not recommended for mitigation.

This barrier was also modeled to provide noise mitigation for the new homes being built, between 94th and 99th Avenue and south of Broadway Road (N-76 to N-93). At a height of 12 feet and a length of 3,796 feet, all of the dwelling units with an impact would achieve at least 5-decibel reduction. The noise barrier does achieve a 7-decibel reduction at 11 of the 13 first row dwelling units. The maximum cost of abatement is $31,543 per benefited receptor. Because these homes were not approved at the time of the public knowledge of the project (Date), funding for noise mitigation for these homes is not provided by FHWA or ADOT. The

information provided here is for local government or developer use, if they wish to study and fund noise mitigation for this area.

Table 8. Noise Barriers Considered for Mitigation

Noise Barrier	Length (ft)	Station	Feasible or Reasonable
NB-E	1861	WB OFF Ramp 91st Avenue 13+00 to 29+75	Not Feasible
NB-G	5307	WB Main Line 1800+07 to WB On Ramp from 91st Avenue 27+00	Feasible but not recommended based on development occurring after the project's date of public knowledge

Table 9. Proposed Noise Barrier Summary

Noise Barrier ID	Project Study Area Subsection	Barrier Height (ft)	Barrier Length (ft)	Area of Barrier (ft^2)	Total Barrier Cost(1)	Number of Benefited Receptors	Cost-Per-Benefited-Receptor	Cost Reasonable (Y/N) (2)	Station (Approximate from Mainline)
NB-A	67th Avenue to 73rd Avenue	16	2,945	47,120	$1,649,200	43	$38,353	Y	WB 1978+45 to 2008+00

(1) Total cost of the noise barrier is based on the unit cost of $35/$85 per square foot for off/on structure placement of noise barriers.
(2) Based on a cost of $49,000 per benefited receptor.

Figure 9. Noise Barrier A

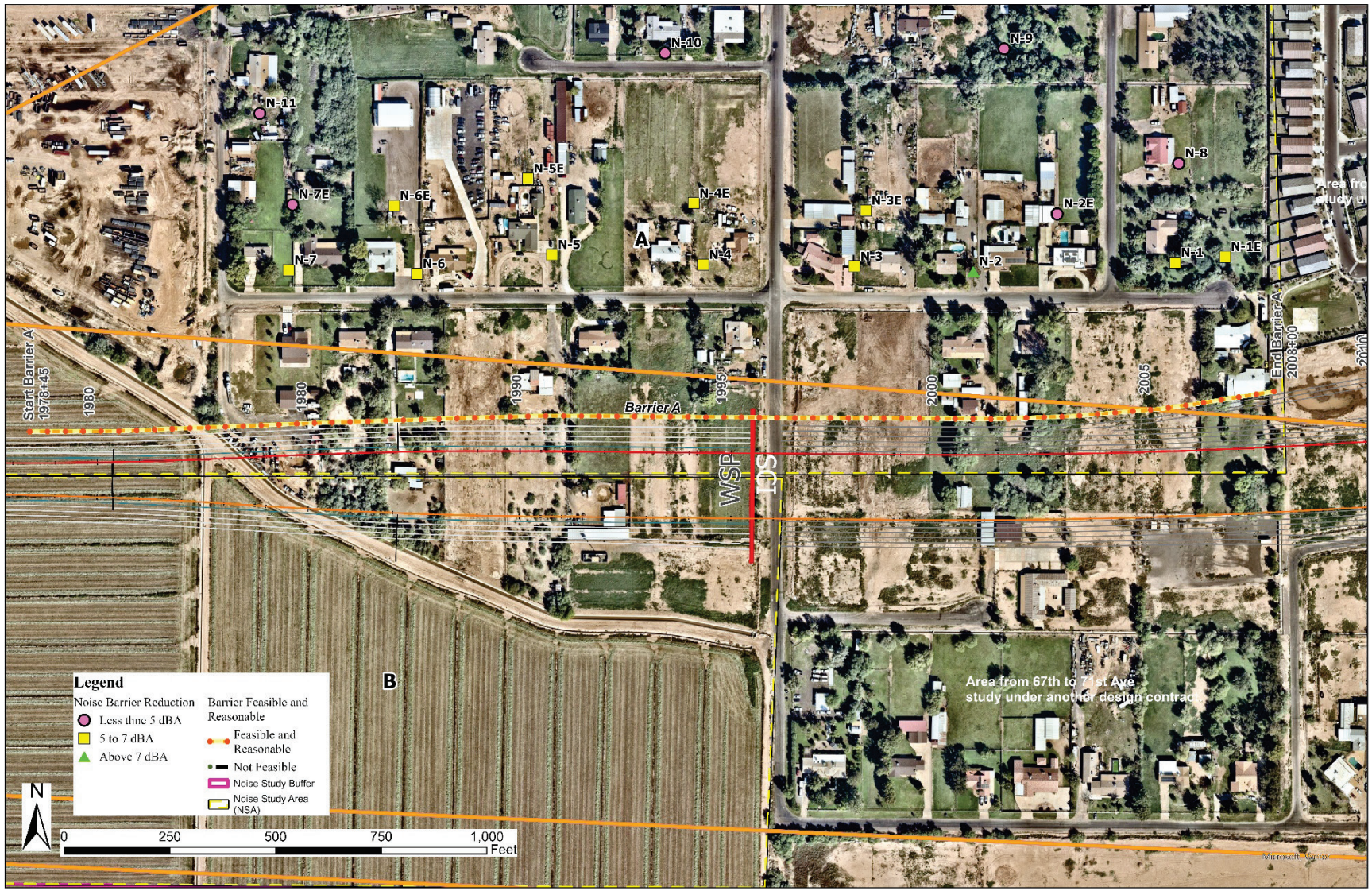


Figure 10. Noise Barrier E

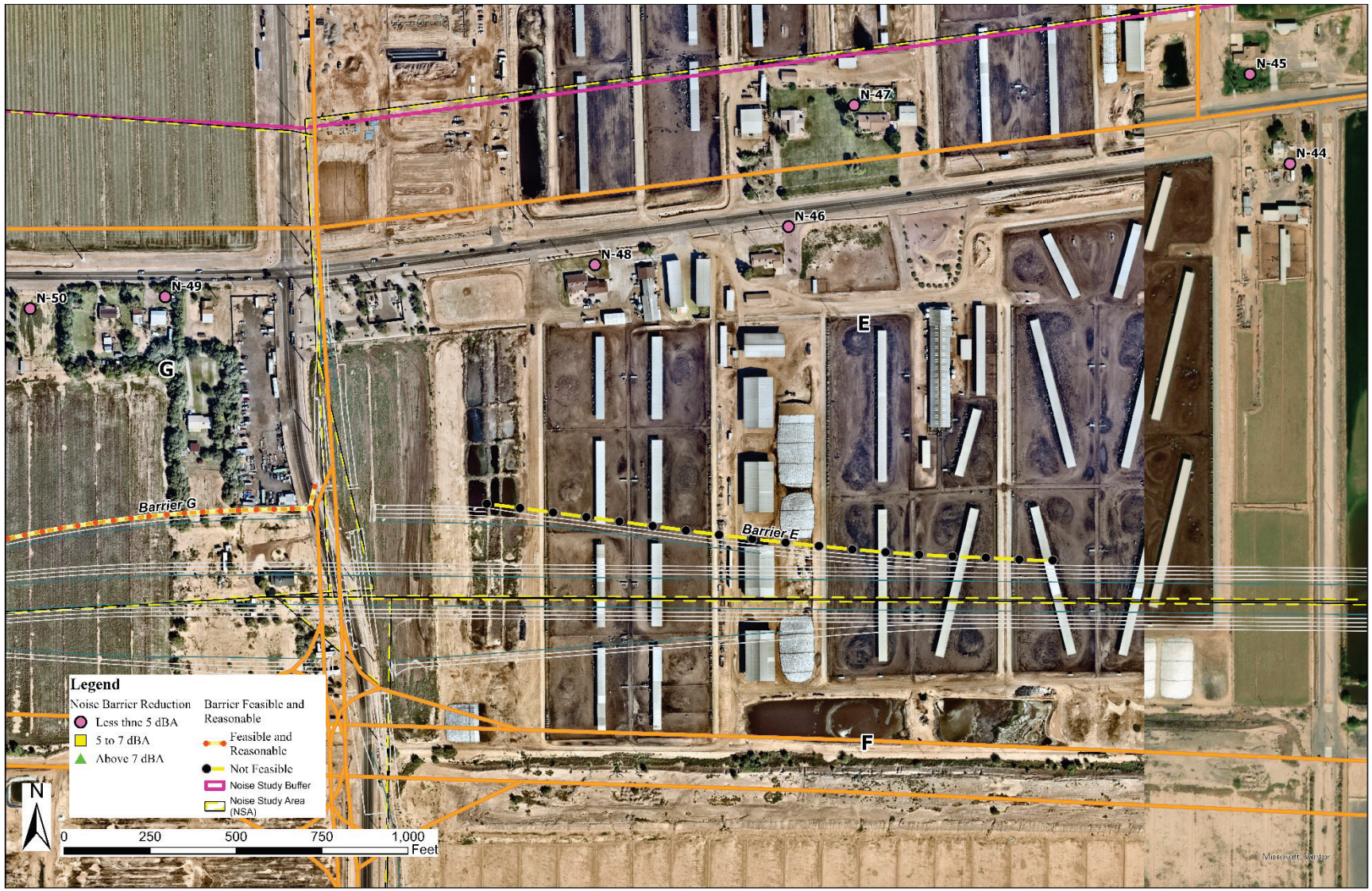
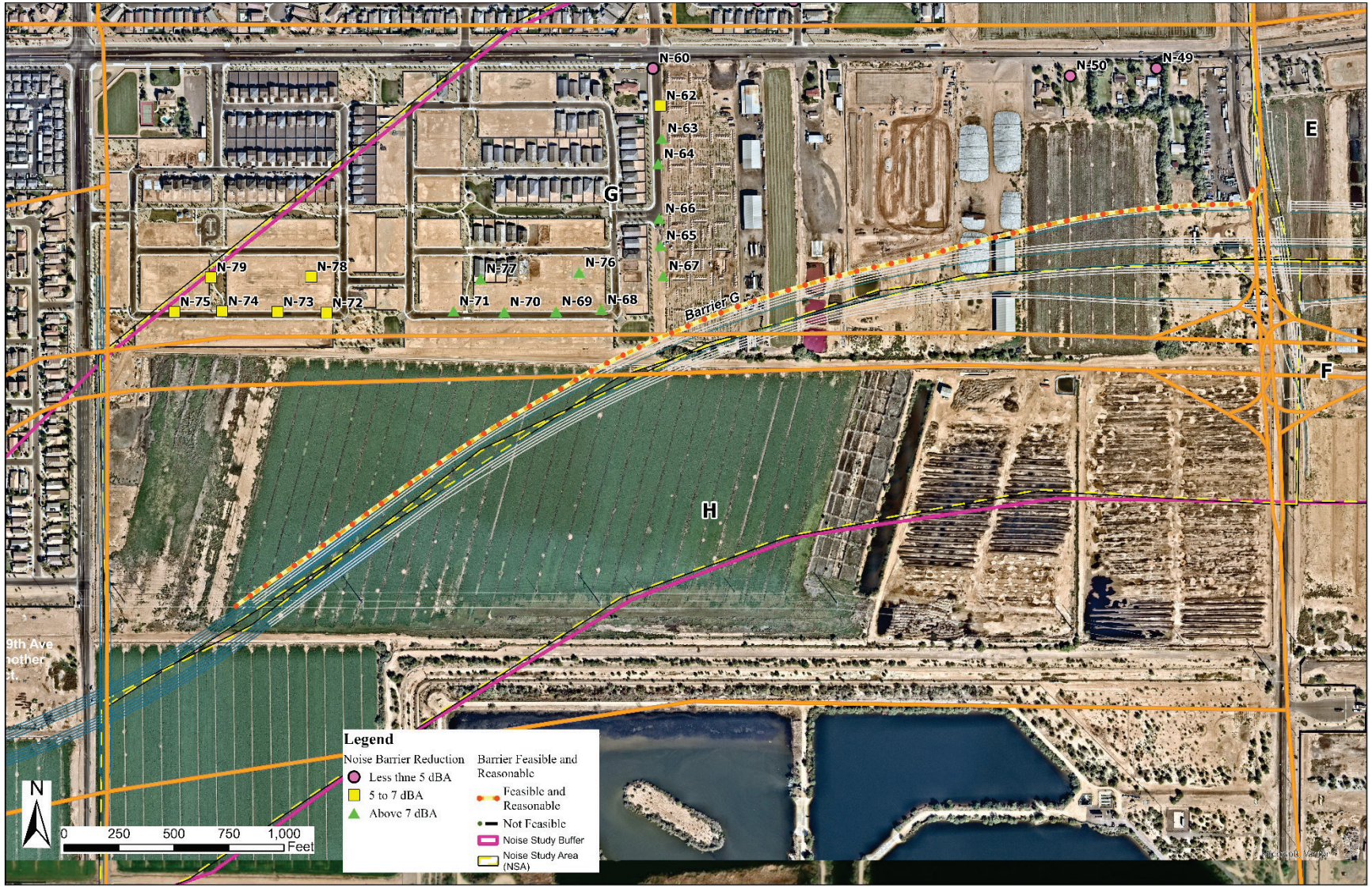


Figure 11. Noise Barrier G



9 CONSTRUCTION NOISE AND VIBRATION

Depending on the nature of construction operations, the duration of the associated noise could last from seconds (e.g., a truck passing a customer) to months (e.g., constructing a bridge).

Construction noise is also intermittent and depends on the type of operation, location and function of the equipment, and the equipment usage cycle. Construction equipment is typically considered as a point source, as opposed to traffic, which is considered as a line source; therefore, the noise level decreases, theoretically, by 6 dB(A) per doubling of the distance from it, as opposed to a 3 dB(A) decrease for a line source. Noise levels at various distances, using listed equipment, are shown in Table . ADOT has set forth guidelines for construction noise in ADOT's Standard Specifications for Road and Bridge Construction, 2008.

Table 10. Construction Noise Levels at Various Distances from Equipment

Equipment	Land Use	Residential		Descriptor	L10
	R_300 ft	R_600 ft	R_900 ft	R_1200 ft	R_1500 ft
Auger Drill Rig	64.8	58.8	55.3	52.8	50.8
Boring Jack Power Unit	67.4	61.4	57.9	55.4	53.4
Compactor (ground)	63.7	57.7	54.1	51.6	49.7
Concrete Mixer Truck	62.3	56.2	52.7	50.2	48.3
Dump Truck	59.9	53.9	50.4	47.9	45.9
Excavator	64.2	58.1	54.6	52.1	50.2
Generator	65.1	59	55.5	53	51.1
Compressor (air)	61.1	55.1	51.6	49.1	47.1
Grader	68.5	62.4	58.9	56.4	54.5
Warning Horn	57.6	51.6	48.1	45.6	43.6
All Other Equipment > 5 HP	69.4	63.4	59.9	57.4	55.4
Bar Bender	60.4	54.4	50.9	48.4	46.5
Concrete Pump Truck	61.8	55.8	52.3	49.8	47.9
Soil Mix Drill Rig	64.4	58.4	54.9	52.4	50.4
Concrete Saw	70	64	60.5	58	56
Auger Drill Rig	64.8	58.8	55.3	52.8	50.8
Roller	60.4	54.4	50.9	48.4	46.5

Per ADOT specifications 104.08, Prevention of Air and Noise Pollution:

"The contractor shall comply with all local sound control and noise rules, regulations and ordinances which apply to any work pursuant to the contract. Each internal combustion engine used for any purpose on the work or related to the work shall be equipped with a muffler of the

type recommended by the manufacturer. No internal combustion engine shall be operated on the work without its muffler being in good working condition.

Ground vibration and ground-borne noise can also be a source of annoyance to individuals who live or work close to vibration-generating activities. Pile driving, demolition activity, blasting, and crack-and-seal operations are the primary sources of vibration, while the impact of pile driving can be the most significant source of vibration at construction sites. It is recommended to apply methods that may be practical and appropriate in specific situations, to reduce vibration to an acceptable level. Such measures may be:

- Jetting
- Predrilling
- Cast-in-place or auger-cast piles
- Non-displacement piles
- Pile cushioning
- Using alternative non-impact drivers
- Scheduling activities to minimize disturbance at near-construction sites

10 COORDINATION WITH LOCAL OFFICIALS

At the time of the preparation of this noise analysis technical report, results had not been presented to the local officials. Upon request of the local land use planning agency or local public agency, noise contour lines may be produced during the noise analysis process for project alternative screening and planning purposes only, as per ADOT NAR, Section 4, Point (e).

11 STATEMENT OF LIKELIHOOD

Per 23 CFR 772.13(g)(3), the noise analysis was completed to the extent of currently available design information. A statement of likelihood is being included in the noise technical report since feasibility and reasonableness determinations may change due to modifications in project design after approval. The proposed noise abatement measures in the form of barrier A is feasible and reasonable and will be looked at in detail in the designs.

12 REFERENCES

- Arizona Department of Transportation, Noise Abatement Requirement, 2017
- Arizona Department of Transportation, Standard Specifications for Road and Bridge Construction, ADOT, 2008.
- Federal Highway Administration, FHWA Traffic Noise Model, Version 1.0: Technical Manual and Addendums (FHWA PD-96-010,) February 1998.
- Federal Highway Administration, Highway Traffic Noise Analysis and Abatement Policy and Guidance, June 1995.
- Maricopa Association of Governments, MAG's Transportation Data Management System, data downloaded, Dember 2025.
- Recommended Best Practices for the Use of the FHWA Traffic Noise Model (TNM), FHWA-HEP-16-018, December 2015
- Federal Highway Administration, Measurement of Highway Related Noise (FHWA PD-96-010), June 2018.
- FHWA Construction Noise Handbook, FHWA-HEP-06-015, August 2006
- U.S. Code of Federal Regulations, Title 23, Part 772. Procedures for Abatement of Highway Traffic Noise and Construction Noise.

APPENDIX A – TRAFFIC DATA

Name	2050 Build													PM Peak							
	AADT	Med Truck Vol	Heavy Truck Vol	Truck (%)	K Factor	Auto%	MT %	HT %	Lanes	K Factor	Auto%	MT %	HT %	Total Vehicle Per Hour	Auto	Med Truck Vol	Heavy Truck Vol	Lanes	Auto per lane	MT per lane	HT per Lane
NB 99th Ave at SR30	3,465	134	9	4.13%	2.5%	95.87%	3.9%	0.3%	2	3.6%	95.87%	3.9%	0.3%	126	121	5	0	2	60	2	0
SB 99th Ave at SR30	3,139	102	9	3.54%	2.5%	96.46%	3.2%	0.3%	2	3.6%	96.46%	3.2%	0.3%	114	110	4	0	2	55	2	0
NB 99th Ave Broad to Mobile	4,317	126	13	3.22%	2.5%	96.78%	2.9%	0.3%	2	3.6%	96.78%	2.9%	0.3%	157	152	5	0	2	76	2	0
SB 99th Ave Broad to Mobile	4,539	155	11	3.66%	2.5%	96.34%	3.4%	0.2%	2	3.6%	96.34%	3.4%	0.2%	165	159	6	0	2	79	3	0
NB 99th Ave north of Broadway	7,067	352	166	7.33%	2.5%	92.67%	5.0%	2.3%	1	3.6%	92.67%	5.0%	2.3%	257	238	13	6	1	238	13	6
SB 99th Ave North of Broadway	6,850	349	180	7.72%	2.5%	92.28%	5.1%	2.6%	2	3.6%	92.28%	5.1%	2.6%	249	229	13	7	2	115	6	3
EB Broadway to 99th to 95	10,354	500	207	6.83%	2.5%	93.17%	4.8%	2.0%	1	3.6%	93.17%	4.8%	2.0%	376	350	18	8	1	350	18	8
WB Broadway from 95th to 99	9,907	480	207	6.93%	2.5%	93.07%	4.8%	2.1%	2	3.6%	93.07%	4.8%	2.1%	360	335	17	8	2	167	9	4
EB Broadway to 95th to 91st	9,090	469	206	7.43%	2.5%	92.57%	5.2%	2.3%	1	3.6%	92.57%	5.2%	2.3%	330	305	17	7	1	305	17	7
WB Broadway from 91st to 95th	9,315	486	206	7.43%	2.5%	92.57%	5.2%	2.2%	1	3.6%	92.57%	5.2%	2.2%	338	313	18	7	1	313	18	7
NB 91 Ramp to Broadway	12,255	981	333	10.72%	2.5%	89.28%	8.0%	2.7%	1	3.6%	89.28%	8.0%	2.7%	445	397	36	12	1	397	36	12
SB 91 Broadway to Ramps	11,424	915	322	10.83%	2.5%	89.17%	8.0%	2.8%	4	3.6%	89.17%	8.0%	2.8%	415	370	33	12	4	92	8	3
NB 91 from Off Ramps	12,255	981	333	10.72%	2.5%	89.28%	8.0%	2.7%	4	3.6%	89.28%	8.0%	2.7%	445	397	36	12	4	99	9	3
SB 91 to On ramps	11,424	915	322	10.83%	2.5%	89.17%	8.0%	2.8%	4	3.6%	89.17%	8.0%	2.8%	415	370	33	12	4	92	8	3
NB 91 Off to +On Ramps	3,290	200	19	6.66%	2.5%	93.34%	6.1%	0.6%	4	3.6%	93.34%	6.1%	0.6%	119	111	7	1	4	28	2	0
SB 91 Off to on ramps	11,590	937	319	10.84%	2.5%	89.16%	8.1%	2.8%	4	3.6%	89.16%	8.1%	2.8%	421	375	34	12	4	94	9	3
NB SR91 to SR30	3,527	213	17	6.52%	2.5%	93.48%	6.0%	0.5%	4	3.6%	93.48%	6.0%	0.5%	128	120	8	1	4	30	2	0
SB SR91 from SR30	3,441	223	12	6.83%	2.5%	93.17%	6.5%	0.3%	2	3.6%	93.17%	6.5%	0.3%	125	116	8	0	2	58	4	0
NB 91 North of Broadway	7,645	600	144	9.73%	2.5%	90.27%	7.8%	1.9%	1	3.6%	90.27%	7.8%	1.9%	278	251	22	5	1	251	22	5
SB 91 South of Broadway	7,973	620	149	9.65%	2.5%	90.35%	7.8%	1.9%	2	3.6%	90.35%	7.8%	1.9%	289	262	23	5	2	131	11	3
WB Broadway 83 to 87	7,800	229	45	3.51%	2.5%	96.49%	2.9%	0.6%	1	3.6%	96.49%	2.9%	0.6%	283	273	8	2	1	273	8	2
EB Broadway 87 to 83	6,989	191	36	3.25%	2.5%	96.75%	2.7%	0.5%	1	3.6%	96.75%	2.7%	0.5%	254	245	7	1	1	245	7	1
WB Broadway 87 to 91	5,369	126	23	2.78%	2.5%	97.22%	2.3%	0.4%	1	3.6%	97.22%	2.3%	0.4%	195	189	5	1	1	189	5	1
EB Broadway 91 to 87 SL	6,067	149	28	2.92%	2.5%	97.08%	2.5%	0.5%	1	3.6%	97.08%	2.5%	0.5%	220	214	5	1	1	214	5	1
83rd SB North of Broadway	8,020	731	724	18.14%	2.5%	81.86%	9.1%	9.0%	1	3.6%	81.86%	9.1%	9.0%	291	238	27	26	1	238	27	26
83rdNB North of Broadway	6,829	685	751	21.03%	2.5%	78.97%	10.0%	11.0%	1	3.6%	78.97%	10.0%	11.0%	248	196	25	27	1	196	25	27
83rd SB SR30 Ramps to Broadway	9,823	881	752	16.62%	2.5%	83.38%	9.0%	7.7%	1	3.6%	83.38%	9.0%	7.7%	357	297	32	27	1	297	32	27
83rd NB Broadway to SR30 Ramps	8,575	824	757	18.44%	2.5%	81.56%	9.6%	8.8%	4	3.6%	81.56%	9.6%	8.8%	311	254	30	27	4	63	7	7
SB 83 RT to On Ramp	2,966	171	24	6.57%	2.5%	93.43%	5.8%	0.8%	1	3.6%	93.43%	5.8%	0.8%	108	101	6	1	1	101	6	1
SB 83 On to Off Ramp	6,960	176	730	13.02%	2.5%	86.98%	2.5%	10.5%	4	3.6%	86.98%	2.5%	10.5%	253	220	6	26	4	55	2	7
SB 83 South of Off Ramp	6,617	689	728	21.41%	2.5%	78.59%	10.4%	11.0%	1	3.6%	78.59%	10.4%	11.0%	240	189	25	26	1	189	25	26

Name	2050 Build													PM Peak							
	AADT	Med Truck Vol	Heavy Truck Vol	Truck (%)	K Factor	Auto%	MT %	HT %	Lanes	K Factor	Auto%	MT %	HT %	Total Vehicle Per Hour	Auto	Med Truck Vol	Heavy Truck Vol	Lanes	Auto per lane	MT per lane	HT per Lane
NB 83rd South of On Ramp	498	44	1	9.04%	2.5%	90.96%	8.8%	0.2%	1	3.6%	90.96%	8.8%	0.2%	18	16	2	0	1	16	2	0
NB 83rd Between Ramps	2,714	177	21	7.30%	2.5%	92.70%	6.5%	0.8%	3	3.6%	92.70%	6.5%	0.8%	99	91	6	1	3	30	2	0
WB Broadway 79 to 83rd	5,337	228	48	5.17%	2.5%	94.83%	4.3%	0.9%	2	3.6%	94.83%	4.3%	0.9%	194	184	8	2	2	92	4	1
EB Broadway 83 to 79th	6,091	637	36	11.05%	2.5%	88.95%	10.5%	0.6%	1	3.6%	88.95%	10.5%	0.6%	221	197	23	1	1	197	23	1
WB Broadway 75 to 79th	5,622	207	35	4.30%	2.5%	95.70%	3.7%	0.6%	2	3.6%	95.70%	3.7%	0.6%	204	195	8	1	2	98	4	1
EB Broadway 79 to 75th	4,869	180	48	4.68%	2.5%	95.32%	3.7%	1.0%	1	3.6%	95.32%	3.7%	1.0%	177	168	7	2	1	168	7	2
SB 79 North of Broadway	92	2	1	3.26%	2.5%	96.74%	2.2%	1.1%	1	3.6%	96.74%	2.2%	1.1%	3	3	0	0	1	3	0	0
NB 79 North of Broadway	83	3	0	3.61%	2.5%	96.39%	3.6%	0.0%	2	3.6%	96.39%	3.6%	0.0%	3	3	0	0	2	1	0	0
WB Broadway 71 to 75th	5,266	246	68	5.96%	2.5%	94.04%	4.7%	1.3%	1	3.6%	94.04%	4.7%	1.3%	191	180	9	2	1	180	9	2
EB Broadway 75 to 71st	5,723	398	190	10.27%	2.5%	89.73%	7.0%	3.3%	1	3.6%	89.73%	7.0%	3.3%	208	186	14	7	1	186	14	7
SB 71 North of Broadway	1,699	65	14	4.65%	2.5%	95.35%	3.8%	0.8%	1	3.6%	95.35%	3.8%	0.8%	62	59	2	1	1	59	2	1
NB 71 North of Broadway	2,022	71	15	4.25%	2.5%	95.75%	3.5%	0.7%	1	3.6%	95.75%	3.5%	0.7%	73	70	3	1	1	70	3	1
SB 71 south of Broadway	903	21	4	2.77%	2.5%	97.23%	2.3%	0.4%	1	3.6%	97.23%	2.3%	0.4%	33	32	1	0	1	32	1	0
NB 71 south of Broadway	905	25	4	3.20%	2.5%	96.80%	2.8%	0.4%	1	3.6%	96.80%	2.8%	0.4%	33	32	1	0	1	32	1	0
WB Broadway 67 to 71st	7,433	326	85	5.53%	2.5%	94.47%	4.4%	1.1%	1	3.6%	94.47%	4.4%	1.1%	270	255	12	3	1	255	12	3
EB Broadway 71 to67th	8,369	488	206	8.29%	2.5%	91.71%	5.8%	2.5%	1	3.6%	91.71%	5.8%	2.5%	304	279	18	7	1	279	18	7
SB 67 North of Broadway	6,369	276	102	5.93%	2.5%	94.07%	4.3%	1.6%	2	3.6%	94.07%	4.3%	1.6%	231	217	10	4	2	109	5	2
NB 67 North of Broadway	6,276	296	106	6.41%	2.5%	93.59%	4.7%	1.7%	1	3.6%	93.59%	4.7%	1.7%	228	213	11	4	1	213	11	4
SB 67 South of Broadway	9,045	435	99	5.90%	2.5%	94.10%	4.8%	1.1%	1	3.6%	94.10%	4.8%	1.1%	328	309	16	4	1	309	16	4
NB 67 South of Broadway	7,767	524	120	8.29%	2.5%	91.71%	6.7%	1.5%	1	3.6%	91.71%	6.7%	1.5%	282	259	19	4	1	259	19	4
WB Ramp from 67th	7,072	484	74	7.89%	2.8%	92.11%	6.8%	1.0%	2	3.9%	92.11%	6.8%	1.0%	276	254	19	3	2	127	9	1
WB Ramp for 202	26,712	5,098	2,513	28.49%	2.8%	71.51%	19.1%	9.4%	3	3.9%	71.51%	19.1%	9.4%	1,042	745	199	98	3	248	66	33
EB Ramp to 202	4,176	556	101	15.73%	2.8%	84.27%	13.3%	2.4%	2	3.9%	84.27%	13.3%	2.4%	163	137	22	4	2	69	11	2
EB Off to 67	6,474	471	68	8.33%	2.8%	91.67%	7.3%	1.1%	2	3.9%	91.67%	7.3%	1.1%	252	231	18	3	2	116	9	1

APPENDIX B – TNM RUNS

Please provide details on the electronically submitted files, with:

- Titles
- The segment of the roadway
- Barriers evaluations or other purpose

No.	TNM run title	Description
7.	Build	Model of Build conditions.
8.	WSP SR30 Barriers	Model Barriers A,E,G and J.

APPENDIX C – FIELD DATA MEASUREMENTS

Time	LT-1 LAeq	LT-2 LAeq	LT-3 LAeq	LT-4 LAeq	LT-5 LAeq	LT-6 LAeq	ST-1 LAeq	ST-2 LAeq	ST-3 LAeq	ST-4 LAeq
12 AM	51.3	46.4	47.9	46.1	43	43.8	40.8	45.2	50.1	41.4
1 AM	51	49.3	49.1	43.2	43.2	46.6	43.7	46.4	47.2	44.2
2 AM	49.9	51.7	47	48.4	43.3	49.9	46.1	44.3	52.4	47.5
3 AM	51.9	50.4	52.4	48.2	46.6	47.8	44.8	49.7	52.2	45.4
4 AM	54.2	52.8	52.3	52.7	49.8	57	47.2	49.6	56.7	54.6
5 AM	57.6	54.8	54	53.8	49.7	55.8	49.2	51.3	57.8	53.4
6 AM	59.2	55.6	55.7	55	51.6	58.1	50	53	59	55.7
7 AM	60.0	57.2	56.9	55.6	53.2	**61.8**	**51.6**	54.2	59.6	**59.4**
8 AM	57.7	**58**	**57.1**	**62**	**53.6**	56.5	**52.4**	**54.4**	**66**	54.1
9 AM	52.3	54.5	**57.1**	56.8	52.9	54.2	48.9	**54.4**	60.8	51.8
10 AM	50.6	52	55.2	52.9	51	54.8	46.4	52.5	56.9	52.4
11 AM	52.2	52.3	54.1	56	48.4	57.7	46.7	51.4	60	55.3
12 PM	51	50.5	53.2	58.5	48	58.4	44.9	50.5	62.5	56
1 PM	53	52.2	53.3	51.8	47.3	54.6	46.6	50.6	55.8	52.2
2 PM	52	51.5	54.2	53	44.8	55	45.9	51.5	57	52.6
3 PM	53.9	53.7	55.4	53.4	49.7	56.3	48.1	52.7	57.4	53.9
4 PM	**60.1**	52.2	53.2	52.2	44.7	56.6	46.6	50.5	56.2	54.2
5 PM	55.2	51.3	54.3	54.8	44.4	58.3	45.7	51.6	58.8	55.9
6 PM	52.1	53	54.9	53.8	45.8	55.3	47.4	52.2	57.8	52.9
7 PM	52.4	53.6	54	53.9	47	56	48	51.3	57.9	53.6
8 PM	52.1	53	52.3	53	44.5	54.4	47.4	49.6	57	52
9 PM	51	52.9	53.6	52.7	50	52.7	47.3	50.9	56.7	50.3
10 PM	52	47.4	52.3	50.8	47.2	50.9	41.8	49.6	54.8	48.5
11 PM	49.4	47.6	49.5	47.8	43.7	48.1	42	46.8	51.8	45.7

Bold and Highlighted numbers are the peak hour noise levels at each site.

Site LT-1

Long-term Site 1 – 6809 W Gaby Road– Looking South

Site LT-2

Long-term Site LT-2 – 7123 W Weir Ave – Looking East

Long-term Site LT-2 – 7123 W Weir Ave – Looking South

Site LT-3

Long-term Site LT-3 – 7343 W Pueblo Ave – Looking South

Site LT-4

Long-term Site LT-4 – 8207 W Pueblo Av– Looking South

Site LT5

Long-term Site LT-5 – South-East Boundary of New Development between 94th and 99th Avenue

Site LT6

Long-term Site LT-6 – Parking on Mobile Lane, just west of S 99th Drive – South of 5028 S 99th Drive

Site ST1

Short-term Site ST-1 – 7013 W Weir Ave – Looking South

Short-term Site ST-1 – 7013 W Weir Ave – Looking West

Site ST-2

Short-term Site ST-2 – 7815 W Pueblo Ave – Looking west at S 79th Ave and W Broadway Road

Short-term Site ST-2 – 7815 W Pueblo Ave – Looking east

Site ST-3

Short-term Site ST-3 – On Sidewalk on S 94th Ave looking south at W Broadway Road

Short-term Site ST-3 – On Sidewalk on S 94th Ave looking east at 4321 S 94th Ave

Short-term Site ST-3 – On Sidewalk on S 94th Ave looking west at 9411 W Trumbull Road

Site ST-4

Short-term Site ST-4 – in access driveway to 5622 S 99th Avenue looking South at 5608 S 99th Avenue

Certificate Of Completion

Envelope Id: 5D3CD70B-AE30-8E1D-804A-FC20746E691E
Status: Completed
Subject: Complete with Docusign: Final_ADOT Noise Report_SR30_South 67th Ave to South 99 Ave_RC_Feb18_26...
Source Envelope:
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Phoenix, AZ 85007
dtorres4@azdot.gov
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Status: Original
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Holder: Daniel Torres
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Daniel Torres dtorres4@azdot.gov ADOT Security Level: Email, Account Authentication (None)	DocuSigned by: Daniel Torres 0A764598C75B43B... Signature Adoption: Pre-selected Style Using IP Address: 170.85.54.111	Sent: 6/16/2026 11:31:41 AM Viewed: 6/16/2026 11:31:45 AM Signed: 6/16/2026 11:32:24 AM Freeform Signing

Electronic Record and Signature Disclosure:
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In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	6/16/2026 11:31:41 AM
Certified Delivered	Security Checked	6/16/2026 11:31:45 AM
Signing Complete	Security Checked	6/16/2026 11:32:24 AM
Completed	Security Checked	6/16/2026 11:32:24 AM

Payment Events	Status	Timestamps