



Traffic Noise Analysis Report

Project Name: 183A Toll Added Capacity Project

Highway: 183A Toll

District(s): Austin

County(s): Willilamson

CSJ Number(s): 0914-05-238

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 09-25-2023, and executed by FHWA and TxDOT.

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The Central Texas Regional Mobility Authority (CTRMA) plans to widen the existing 183A Toll Road from a six-lane to an eight-lane cross-section to provide improvements that address the forecasted transportation needs. The study corridor is in Williamson County, approximately 15 miles north of the Central Austin area, providing connection between Leander and Cedar Park to the Greater Austin area. The study area for the project extends from 0.3 miles south of San Gabriel Parkway at the northern end to Ranch-to-Market Road (RM) 620/ State Highway (SH) 45N at the southern end with a total project length of around 11.6 miles. The purpose of the roadway widening is to provide solutions for these concerns. The project team will analyze potential improvements to this section, such as adding capacity with an additional inside lane in each direction within the existing right-of-way.

The proposed project increases the number of through-traffic lanes; therefore, a traffic noise analysis is required by Federal Highway Administration (FHWA) Regulation 23 CFR 772 or TxDOT's (FHWA-approved) Traffic Noise Policy (2024).

Introduction

This analysis was accomplished in accordance with TxDOT's (FHWA-approved) Traffic Noise Policy (2024).

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB".

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dB(A)".

Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC), shown in **Table 1**, for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur.

Table 1 FHWA Noise Abatement Criteria (NAC)

Activity Category	FHWA (dB(A) Leq)	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary 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 sport areas, amphitheatres, 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 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	--	Agricultural, 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.

A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion - The predicted noise level at a receptor approaches, equals, or exceeds the NAC. "Approach" is defined as one dB(A) below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dB(A) or above.

Relative criterion - The predicted noise level substantially exceeds the existing noise level at a receptor even though the predicted noise level does not approach, equal or exceed the NAC. "Substantially exceeds" is defined as more than 10 dB(A). For example: a noise impact would occur at a Category B residence if the existing level is 54 dB(A) and the predicted level is 65 dB(A).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

Analysis

The FHWA traffic noise modeling software (TNM 2.5) was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

The traffic data approved by TxDOT has been used in this analysis and is included in **Attachment B**.

The following noise barriers and neighborhood walls exist within the project limits and were included in the model runs:

- Noise Barriers
 - 12 ft. ROW noise barrier - Northbound 183A from Brushy Creek Rd. to ~300 ft. south of E. Park St. (**Attachment A, Sheet 4 and 5**)
 - 12 ft. ROW noise barrier - Southbound 183A from Brushy Creek Rd. to ~850 ft. south of E. Park St. (**Attachment A, Sheet 4 and 5**)
 - 12 ft. ROW noise barrier – Northbound 183A from ~370 ft. north of E. Park St. to ~250 ft. north of Bogart Rd. (includes a future planned extension) (**Attachment A, Sheet 5**)
 - 12 ft. ROW noise barrier and 8 ft. shoulder noise barrier – Southbound 183A from ~1,000 ft. south of Whitestone Blvd. to ~970 ft. north of E. Park St. (**Attachment A, Sheet 5 and 6**)
- Neighborhood Walls
 - 8 ft. neighborhood wall (constructed by CTRMA) – Southbound 183A from north of Catalina Dr. to S. of Mojave Bend (Block House Creek) (**Attachment A, Sheet 8 and 9**)
 - 8 ft. neighborhood wall (constructed by CTRMA) – Southbound 183A from north of Rutherford Dr. to S. of Spumanti Ln. (Block House Creek) (**Attachment A, Sheet 9**)

There are two areas in the project corridor that have overpasses, at Scottsdale Dr. and E. Park St., where the mainlines are depressed, with retaining walls on either side. These areas were modeled using barriers and terrain lines to capture the retaining walls.

Notably, a TxDOT project to construct General Purpose Lanes (GPL), CSJ: 0151-10-001 from RM 1431 to Avery Ranch Blvd., will be completed by the time this project is under construction. This GPL project was included in the modeling efforts in the future Build condition including the resulting recommended noise barrier near Park St. north of Bogart Rd. along northbound 183A mentioned above

Validation

A validation study was performed in order to ensure that traffic noise is the main source of noise and to verify that the existing model accurately predicts existing traffic noise based on current conditions. Model validation compares field-collected sound level measurements to traffic noise levels calculated in an existing condition model that used field-collected traffic parameters. Differences between the measured and calculated levels for this project were within the +/- 3 dB(A) tolerance allowed by FHWA. Therefore, the existing noise model is considered validated for this project. Additional information on the validation study is included in **Attachment C** and field sheets are provided in **Attachment D**.

Results

Existing and predicted traffic noise levels were modeled at receiver locations found in figures in **Attachment A** that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. All noise sensitive sites within approximately 500 ft. of the facility were evaluated in TNM and assigned a representative receptor to be reported. Each representative receptor is shown in map figures found in **Attachment A** and represents one or more noise sensitive site. Receptors are numbered from south to north along northbound 183A and continue sequentially from south to north along southbound 183A. A summary of these results is presented in **Table 2**. Results for each representative receptor are shown in **Table 3**. Results for each individual noise sensitive site can be found in the TNM files.

Table 2 Summary of Results

Metric	Number
Total Noise Sensitive Sites Identified	2,104
Total Representative Receptors Reported	80
Total Residences	2,062
Impacted	1,101
Not Impacted	961
Total Non-Residential Land Uses	42
Impacted	13
Not Impacted	29
Total TNM-modeled Receptors	1,256
Impacted (Absolute)	776
Impacted (Relative)	0
Not Impacted	480
Total Locations Where Noise Barriers Were Considered	27
Locations of Noise Barriers NOT Evaluated in TNM	10
Locations of Noise Barriers Evaluated in TNM	17
Total Locations where Noise Barriers Recommended	5
Locations of Noise Barriers not reasonable/feasible	22

As indicated in **Table 3** below, the proposed project would result in a traffic noise impact at one or more representative receiver locations. As shown, of the 1,256 modeled receptors evaluated, 776 receptors representing 2,062 residences and 42 non-residential land uses were found to be impacted (absolute criterion). No receptors were found to have a substantial increase (relative criterion). Noise abatement measures were considered for each location with predicted noise impacts.

Table 3 Traffic Noise Levels dB(A) Leq

Representative Receiver	Number of Noise Sensitive Sites Represented	NAC Category	FHWA NAC Level	Existing	Predicted 2048	Change (+/-)	Noise Impact (Yes/No)
R1 - Residential	19	B	67	70	70	0	YES
R2 - Residential	2	B	67	67	65	-2	NO
R3 - Restaurant	3	E	72	66	67	1	NO
R4 - Restaurant	2	E	72	69	71	2	YES
R5 - Restaurant	2	E	72	71	74	3	YES
R6 - Restaurant	3	E	72	64	67	3	NO
R7 - Residential - Apartments	40	B	67	75	77	2	YES
R8 - Medical Facility	1	D	52	45*	47*	2	NO
R9 - Residential - Apartments	244	B	67	70	72	2	YES

Representative Receiver	Number of Noise Sensitive Sites Represented	NAC Category	FHWA NAC Level	Existing	Predicted 2048	Change (+/-)	Noise Impact (Yes/No)
R10 - Residential - Apartments	67	B	67	66	64	-2	NO
R11 - Residential	40	B	67	60	58	-2	NO
R12 - Residential	27	B	67	70	75	5	YES
R13 - Residential	6	B	67	59	64	5	NO
R14 - Residential	3	B	67	61	66	5	YES
R15 - Trail	0.25	C	67	70	68	-2	YES
R16 - Trail	0.25	C	67	66	65	-1	NO
R17 - School - Exterior	1	C	67	70	73	3	YES
R18 - Residential	39	B	67	64	72	8	YES
R19 - Residential	19	B	67	61	63	2	NO
R20 - Residential	6	B	67	64	66	2	YES
R21 - Residential	13	B	67	68	68	0	YES
R22 - Residential	39	B	67	59	60	1	NO
R23 - Residential	7	B	67	65	67	2	YES
R24 - Residential	6	B	67	60	64	4	NO
R25 - Community Center	1	C	67	58	59	1	NO
R26 - Residential	8	B	67	61	65	4	NO
R27 - Residential	41	B	67	67	68	1	YES
R28 - Residential	11	B	67	64	69	5	YES
R29 - Residential	2	B	67	59	63	4	NO
R30 - Residential	5	B	67	68	68	0	YES
R31 - Residential	1	B	67	63	65	2	NO
R32 - Restaurant	3	E	72	64	67	3	NO
R33 - Restaurant	1	E	72	67	70	3	NO
R34 - Restaurant	2	E	72	69	71	2	YES
R35 - Hotel Pool	1	E	72	63	66	3	NO
R36 - Residential	4	B	67	59	62	3	NO
R37 - Apartments	203	B	67	60	60	0	NO
R38 - Apartments	198	B	67	73	76	3	YES

Representative Receiver	Number of Noise Sensitive Sites Represented	NAC Category	FHWA NAC Level	Existing	Predicted 2048	Change (+/-)	Noise Impact (Yes/No)
R39 - Residential	148	B	67	55	59	4	NO
R40 - Residential	131	B	67	68	71	3	YES
R41 - Place of Worship (interior)	1	D	52	37*	40*	3	NO
R42 - Residential	3	B	67	58	61	3	NO
R43 - Restaurant	3	E	72	71	70	-1	NO
R44 - Restaurant	3	E	72	65	69	4	NO
R45 - Restaurant	1	E	72	66	69	3	NO
R46 - Residential	8	B	67	62	65	3	NO
R47 - Active Sports Field	1	C	67	62	62	0	NO
R48 - Trail	0.25	C	67	61	64	3	NO
R49 - Trail	0.25	C	67	71	70	-1	YES
R50 - Residential - Multi-Unit	66	B	67	62	63	1	NO
R51 - Residential - Multi-Unit	18	B	67	71	71	0	YES
R52 - Residential	5	B	67	66	69	3	YES
R53 - Residential	39	B	67	62	63	1	NO
R54 - Residential	8	B	67	58	60	2	NO
R55 - Residential	7	B	67	73	75	2	YES
R56 - Residential	10	B	67	68	69	1	YES
R57 - Residential	21	B	67	61	65	4	NO
R58 - Residential	52	B	67	61	63	2	NO
R59 - Residential	10	B	67	63	67	4	YES
R60 - Residential - Apartments	52	B	67	76	79	3	YES
R61 - Residential - Apartments	124	B	67	64	67	3	YES
R62 - Medical	1	D	52	37*	41*	4	NO
R63 - Restaurant	2	E	72	71	74	3	YES
R64 - Restaurant	2	E	72	66	70	4	NO
R65 - Restaurant	2	E	72	69	72	3	YES

Representative Receiver	Number of Noise Sensitive Sites Represented	NAC Category	FHWA NAC Level	Existing	Predicted 2048	Change (+/-)	Noise Impact (Yes/No)
R66 - Restaurant	2	E	72	65	69	4	NO
R67 - Restaurant	1	E	72	68	72	4	YES
R68 - Residential	11	B	67	63	67	4	YES
R69 - Residential	67	B	67	54	57	3	NO
R70 - Residential	18	B	67	57	60	3	NO
R71 - Residential	24	B	67	64	67	3	YES
R72 - Residential	22	B	67	62	66	4	YES
R73 - Residential	27	B	67	60	63	3	NO
R74 - Residential	30	B	67	59	63	4	NO
R75 - Neighborhood Recreational Area	1	C	67	58	62	4	NO
R76 - Residential	60	B	67	67	70	3	YES
R77 - Residential	20	B	67	58	62	4	NO
R78 - Residential	30	B	67	65	68	3	YES
R79 - Residential	1	B	67	68	70	2	YES
R80 - Place of Worship (exterior)	1	C	67	56	59	3	NO

* Indicates interior noise levels

Abatement Analysis

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. Feasibility and reasonableness considerations include constructability, the predicted acoustic reductions provided by an abatement measure, a cost allowance, and whether the adjacent receptors desire abatement. Receptors associated with an abatement measure that achieve a noise reduction of five dB(A) or greater are called benefited receptors.

In order to be "feasible," the abatement measure must benefit a minimum of two impacted receptors AND reduce the predicted noise level by at least five dB(A) at greater than 50% of first-row impacted receptors.

In order to be "reasonable," the abatement measure must also reduce the predicted noise level by at least seven dB(A) for at least one benefited receptor (noise reduction design goal) and not exceed the standard barrier cost of 1,500 square feet per benefited receptor. In addition, an abatement measure may not be reasonable if the construction costs are unreasonably high due to site constraints, as determined through an alternate barrier cost assessment.

The following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone, and the construction of noise barriers.

Traffic management – Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are not feasible.

Alteration of horizontal and/or vertical alignments – Any alteration of the existing alignment would displace existing businesses and residences, require additional right of way and not be cost effective/reasonable.

Buffer zone – The acquisition of undeveloped property to act as a buffer zone is designed to avoid rather than abate traffic noise impacts and, therefore, is not feasible.

Noise barriers – Noise barriers in the form of noise walls are the most commonly used noise abatement measures and were considered for this project.

Noise barriers would not be feasible and reasonable for any of the following impacted receptors, and therefore, are not proposed for incorporation into the project:

R1 (Bexley at Whitestone Apartments) – This impacted receiver is not a first-row property and represents a total of 19 impacted residences (classified under NAC Activity Category B) in Bexley at Whitestone Apartments (**Attachment A, Sheet 1**). Commercial properties are located along the first row between these residences and the right-of-way (ROW). Because this receiver is not a first-row property, a noise abatement measure for this location is not feasible and is not proposed for incorporation into the project, as an abatement measure must provide at least a 5 dB(A) reduction for majority of first-row receptors.

R4 (Potbelly's Sandwich Shop and Foxhole Tavern), R5 (Chipotle and Mala Chili), R34 (VIA313 Pizzeria and Mighty Fine – Burgers, Fries and Shakes), R63 (Tumble 22 Hot Chicken and Lupe Tortilla Mexican Restaurant), R65 (Chuy's Tex Mex and Starbucks), R67 (Corner Store Outside Dining) – These impacted receivers represent outside dining areas of Potbelly's Sandwich Shop, Foxhole Tavern, Chipotle, Mala Chili, VIA313 Pizzeria, Lupe Tortilla Mexican Restaurant, Tumble 22 Hot Chicken, Chuy's Tex Mex, Starbucks, and a Corner Store and are classified under NAC Activity Category E, each worth one receptor (**Attachment A, Sheets 1, 6, and 7**). Because a noise abatement measure must potentially benefit a minimum of two impacted receptors, noise abatement for these locations are not feasible and is not proposed for incorporation into the project.

R7 (Brightleaf at Lakeline Apartments) – This impacted receiver represents a total of 40 impacted residences (classified under NAC Activity Category B) in Brightleaf at Lakeline Apartments, adjacent to northbound 183A (**Attachment A, Sheet 2**). A continuous 20 ft. high noise barrier located along the ROW would restrict access to these residences. Gaps in the noise barrier would satisfy access requirements, but the resulting non-continuous wall segments would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted first-row receptors or the noise reduction design goal of 7 dB(A). Therefore, a 20 ft. high noise barrier (limited to 8 ft. along the existing structure) mounted along the shoulder of northbound 183A was evaluated. However, results found that the shoulder barrier would not reduce noise levels by at least 5 dB(A) for a majority of impacted first-row receptors or meet the noise reduction design goal of 7 dB(A). Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R14 (Residences along Reading Way) – This impacted receiver is not a first-row property and represents three (3) impacted residences (classified under NAC Activity Category B) near Reading Way along northbound 183A (**Attachment A, Sheet 3**). Recreational properties are located along the first row between these residences and the ROW. Because this receiver is not a first-row property, a noise abatement measure for this location is not feasible and is not proposed for incorporation into

the project, as an abatement measure must provide at least a 5 dB(A) reduction for majority of first-row receptors.

R15 and R49 (Brushy Creek Trail along Northbound and Southbound 183A) – These impacted receptors represent a recreational trail (classified under NAC Activity Category C) (**Attachment A, Sheet 3**). A continuous noise barrier located along the ROW would restrict access to the trail. Therefore, a noise barrier mounted along the shoulder of northbound and southbound 183A, limited to 8 ft. in height due to being on structure, was evaluated. However, results found that the shoulder barrier would not reduce noise levels by at least 5 dB(A). Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R17 (Cox Elementary School) - This impacted receiver represents the outdoor use area of Cox Elementary School (classified under NAC Activity Category C) (**Attachment A, Sheet 4**). Based on preliminary calculations performed in TNM, it was determined that a 20 ft. high noise barrier located along the ROW would not be sufficient to achieve the noise reduction design goal of 7 dB(A). Therefore, a noise barrier mounted along the shoulder of northbound 183A, limited to 8 ft. in height due to being on structure, was evaluated. However, results found that the shoulder barrier would not reduce noise levels by at least 5 dB(A) or meet the noise reduction design goal of 7 dB(A). Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R18, R20, R21, and R23 (Residences from Brushy Creek Rd. to E. Park St. along Northbound 183A) - These impacted receivers represent a total of 65 impacted residences (classified under NAC Activity Category B) from Brushy Creek Rd. to E. Park St. along Northbound 183A (**Attachment A, Sheet 4 and 5**). The mainline in this area is a 12 ft. noise barrier currently exists at this location. Following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*, the existing noise barrier meets criteria by providing a benefit to greater than 50% of the first row of homes and meeting the noise reduction design goal of 7 dB(A). Therefore, the barrier is not eligible to be replaced.

R27 and R28 (Residences from E. Park St. to E. Whitestone Blvd. along Northbound 183A) - These impacted receivers represent a total of 52 impacted residences (classified under NAC Activity Category B) from E. Park St. to E. Whitestone Blvd. along Northbound 183A (**Attachment A, Sheet 5**). A 12 ft. noise barrier currently exists at this location, and an additional extension of this 12 ft. barrier is planned for construction; both of which were incorporated into the modeling efforts. Following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*, the existing noise barrier meets criteria by providing a benefit to greater than 50% of the first row of homes and meeting the noise reduction design goal of 7 dB(A). Therefore, the barrier is not eligible to be replaced.

R30 (Residences near C-Bar Ranch Trail) – This impacted receptor represents a total of five (5) impacted residences (classified under NAC Activity Category B) near C-Bar Ranch Trail (**Attachment A, Sheet 5**). Based on preliminary calculations performed in TNM, it was determined that a 20 ft. high noise barrier mounted along the ROW would not be sufficient to meet the noise reduction design goal of 7 dB(A). Therefore, a 14 ft. high noise barrier mounted along the shoulder of northbound 183A was evaluated. However, results found that the shoulder barrier would not reduce noise levels by at least 5 dB(A). Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R38 (The Evergrove Apartments) – This impacted receiver represents a total of 198 impacted residences (classified under NAC Activity Category B) in The Evergrove Apartments, adjacent to northbound 183A (**Attachment A, Sheet 9**). A continuous 20 ft. high noise barrier located along the ROW would restrict access to these residences. Gaps in the noise barrier would satisfy access requirements, but the resulting non-continuous wall segments would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted first-row receptors. Therefore, a 14

ft. high noise barrier mounted along the shoulder of northbound 183A was evaluated. However, results found that the shoulder barrier would not achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted first-row receptors or meet the noise reduction design goal of 7 dB(A). Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R51 (Cedar Park Townhomes) – This impacted receiver represents 18 impacted residences (classified under NAC Activity Category B) in Cedar Park Townhomes (**Attachment A, Sheet 4**). Based on preliminary calculations performed in TNM, it was determined that a 20 ft. noise barrier located along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for a majority of impacted first-row receptors or meet the noise reduction design goal of 7 dB(A). Therefore, a noise barrier mounted along the shoulder of northbound 183A, limited to 8 ft. in height due to being on structure, was evaluated. However, results found that the shoulder barrier would not reduce noise levels by at least 5 dB(A) or meet the noise reduction design goal of 7 dB(A) and would not be cost reasonable. Therefore, a noise barrier for this location is not proposed for incorporation into the project.

R52 and R55 (Residences from Brushy Creek Rd. to E. Park St. along Southbound 183A) – These impacted receivers represent a total of eleven (11) impacted residences (classified under NAC Activity Category B) from Brushy Creek Rd. to E. Park St. along Southbound 183A (**Attachment A, Sheet 4 and 5**). A 12 ft. noise barrier currently exists at this location, however, it fails to meet acoustic criteria. Therefore, a replacement noise barrier was evaluated following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*. Based on preliminary calculations performed in TNM, a noise barrier located along the ROW of 3,679 feet in length and 18 feet in height would reduce noise levels by at least 5 dB(A) for greater than 50% first-row impacted receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. However, with a total area of abatement of 2,365 sq. ft. per benefited receptor, the barrier would not be cost reasonable. Therefore, a 20 ft. high noise barrier mounted along the shoulder of southbound 183A was evaluated. Based on preliminary calculations performed in TNM, a noise barrier located along the shoulder of 3,517 feet in length and 20 feet in height would reduce noise levels by at least 5 dB(A) for greater than 50% first-row impacted receptors and meet the noise reduction design goal of 7 dB(A) for at least one of those receptors. However, with a total area of abatement of 3,908 sq. ft. per benefited receptor, the barrier would not be cost reasonable. Additionally, an 838 ft. extension of the existing 12 ft. high ROW barrier was evaluated for impacted residences represented by R55. However, results found that the ROW extension to the north was not cost reasonable at 5,028 sq. ft. per benefited receptor. Therefore, a replacement or supplementary noise barrier for this location is not proposed for incorporation into the project.

R56 (Residences from E. Park St. to E. Whitestone Blvd. – Buffalo Ave. along Southbound 183A) – These impacted receivers represent a total of eleven (11) impacted residences (classified under NAC Activity Category B) north of E. Park St. along Buffalo Ave. along Southbound 183A (**Attachment A, Sheet 5**). An 8 ft. noise barrier mounted along the shoulder of Southbound 183A currently exists at this location, but only shields a portion of the neighborhood. Therefore, an extension of the barrier to the south was evaluated to consider residences not already shielded by a noise barrier. Based on preliminary calculations performed in TNM, a noise barrier located along the ROW of 1,869 feet in length and 20 feet in height would reduce noise levels by at least 5 dB(A) for all first-row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 10 receptors. However, with a total area of abatement of 2,492 sq. ft. per benefited receptor, the barrier would not be cost reasonable. A noise barrier mounted along the shoulder of southbound 183A was not evaluated, as the roadway is depressed in this location. Therefore, a noise barrier at this location is not proposed for incorporation into the project.

R59 (Residences from E. Park St. to E. Whitestone Blvd. – Settlement St. along Southbound 183A) – These impacted receivers represent a total of 10 impacted residences (classified under NAC Activity Category B) approximately 1,000 ft. south of E. Whitestone Blvd. along Settlement St. along Southbound 183A (**Attachment A, Sheet 5 and 6**). A 12 ft. noise barrier currently exists at this location, Following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*, the existing noise barrier meets criteria by providing a benefit to greater than 50% of the first row of homes and meeting the noise reduction design goal of 7 dB(A). Therefore, the barrier is not eligible to be replaced.

R72 (Residences along Spumanti Ln. and Rutherford Dr. – This impacted receiver represents a total of 27 impacted residences (classified under NAC Activity Category B) along Spumanti Ln. and Rutherford Dr. along Southbound 183A (**Attachment A, Sheet 9**). An 8 ft. neighborhood wall currently exists at this location. Following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*, the existing neighborhood wall meets criteria by providing a benefit to greater than 50% of the first row of homes and meeting the noise reduction design goal of 7 dB(A). Therefore, a replacement barrier was not evaluated and is not proposed for incorporation into the project.

R76 (The Hills at Leander: Senior Apartments) - This impacted receiver is not a first-row property and represents a total of 60 impacted residences (classified under NAC Activity Category B) in The Hills at Leander Senior Apartments (**Attachment A, Sheet 10 and 11**). Vacant properties are located along the first row between these residences and the ROW. Because this receiver is not a first-row property, a noise abatement measure for this location is not feasible and is not proposed for incorporation into the project, as an abatement measure must provide at least a 5 dB(A) reduction for majority of first-row receptors.

R78 (The Gabriel Apartments) – This impacted receiver is not a first-row property and represents a total of 30 impacted residences (classified under NAC Activity Category B) in The Gabriel Apartments (**Attachment A, Sheet 11**). Vacant properties are located along the first row between these residences and the ROW. Because this receiver is not a first-row property, a noise abatement measure is not feasible and is not proposed for incorporation into the project, as an abatement measure must provide at least a 5 dB(A) reduction for majority of first-row receptors, noise abatement for this location is not feasible and is not proposed for incorporation into the project.

R79 (Isolated Residence) – This impacted receiver represents a single, isolated house which is not associated with a neighborhood or subdivision (**Attachment A, Sheet 12**). Because a noise abatement measure must potentially benefit a minimum of two impacted receptors, noise abatement for this location is not feasible.

Proposed Abatement

Noise barriers would be feasible and reasonable for the following impacted receptors, and therefore, are proposed for incorporation into the project (**Table 4**).

Barrier ID #1 – R9 (Astra Avery Ranch Apartments) - This impacted receiver represents a total of 244 impacted residences (classified under NAC Activity Category B) in Astra Avery Ranch Apartments, adjacent to northbound 183A (**Attachment A, Sheet 2 and 3**). Based on preliminary calculations, a noise barrier located along the ROW of 1,529 feet in length and 20 feet in height would reduce noise levels by at least 5 dB(A) for 19 first row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 40 receptors. With a total surface area of abatement of 30,580 square feet, or 281 sq. ft. per benefited receptor, the barrier would be cost reasonable. The alignment of this proposed abatement is shown in **Attachment A**.

Barrier ID #2 – R12 (Prominence Homes) – This impacted receiver represents a total of 27 impacted residences (classified under NAC Activity Category B) along northbound 183A (**Attachment A, Sheet 3**). Based on preliminary calculations, a noise barrier located along the ROW of 707 feet in length and 12 feet in height would reduce noise levels by at least 5 dB(A) for all first row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 11 receptors. With a total surface area of abatement of 8,484 square feet, or 566 sq. ft. per benefited receptor, the barrier would be cost reasonable. The alignment of this proposed abatement is shown in **Attachment A**.

Barrier ID #3 – R60 (Arboleda Apartment Homes) – This impacted receptor represents 128 impacted residences (classified under NAC Activity Category B) in Arboleda Apartment Homes (**Attachment A, Sheet 6**). Based on preliminary calculations performed in TNM, it was determined that an 18 ft. high noise barrier mounted along the ROW of 729 ft. in length would reduce noise levels by at least 5 dB(A) for 7 first row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 9 receptors. With a total surface area of abatement of 13,122 square feet, or 691 sq. ft. per benefited receptor, the barrier would be cost reasonable. The alignment of this proposed abatement is shown in **Attachment A**.

Barrier ID #4 – R68 and R71 (Residences from Socorro Bend to north of Rosspport Bend) – This impacted receptor represents 35 impacted residences (classified under NAC Activity Category B) from Socorro Bend to north of Rosspport Bend (**Attachment A, Sheet 8 and 9**). An 8 ft. neighborhood wall currently exists at this location. However, this barrier fails to meet acoustic criteria. Therefore, a replacement noise barrier was evaluated following FHWA HEP-12-051, *Consideration of Existing Noise Barrier in a Type I Noise Analysis*. Based on preliminary calculations, a noise barrier located along the ROW of 3,766 feet in length and 12 feet in height would reduce noise levels by at least 5 dB(A) for 21 first row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 30 receptors. With a total surface area of abatement of 45,192 square feet, or 853 sq. ft. per benefited receptor, the barrier would be cost reasonable. The alignment of this proposed abatement is shown in **Attachment A**. Additionally, the TxDOT *Alternate Barrier Cost Assessment Worksheet* was used to incorporate the cost of demolition of the existing barrier as well as utility relocation costs. The Worksheet confirms that the barrier is cost reasonable with the additional costs and is shown in **Attachment E**.

Barrier ID #5 - R40 (Park at Crystal Falls Apartments) – This impacted receiver represents a total of 122 impacted residences (classified under NAC Activity Category B) in The Park at Crystal Falls Apartments, adjacent to northbound 183A (**Attachment A, Sheet 10**). A continuous noise barrier located along the ROW would restrict access to these residences. Based on preliminary calculations performed in TNM, a noise barrier located along the ROW (with gaps to accommodate access) of 641 feet in length and 20 feet in height would not reduce noise levels by at least 5 dB(A) for a majority of first-row impacted receptors. Therefore, a 20 ft. high noise barrier mounted along the shoulder of northbound 183A was evaluated. Based on preliminary calculations performed in TNM, it was determined that a 20 ft. high noise barrier mounted along the shoulder of 899 ft. in length would reduce noise levels by at least 5 dB(A) for 9 first row impacted receptors and meet the noise reduction design goal of 7 dB(A) for 15 receptors. With a total surface area of abatement of 17,980 square feet, or 383 sq. ft. per benefited receptor, the barrier would be cost reasonable. The alignment of this proposed abatement is shown in **Attachment A**.

Table 4 Noise Barrier Proposal

Barrier ID	Impacted Representative Receivers	Barrier Location	Total # Benefited	Length (feet)	Height (feet)	Total Sq. Ft.	Sq. Ft. per Benefited Receptor
1	R9 – Astra Avery Ranch Apartments	ROW	109	1,529	20	30,580	281
2	R12 – Prominence Homes	ROW	15	707	12	8,484	566
3	R60 - Arboleda Apartment Homes	ROW	19	729	18	13,122	691
4	R68 and R71 - Residences from Socorro Bend to north of Rosspport Bend	ROW (replacement)	53	3,766	12	45,192	853
5	R40 - Park at Crystal Falls Apartments	Mainline Lanes Shoulder	47	899	20	17,980	383

Any subsequent project design changes may require a reevaluation of this preliminary noise barrier proposal. The final decision to construct the proposed noise barrier will not be made until completion of the project design, utility evaluation, and polling of all benefited and adjacent property owners and residents.

Noise Contours for Land Use Planning

To avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs must ensure, to the maximum extent possible, that no new activities are planned or constructed along or within the following predicted (2048) noise impact contours (Table 5).

Table 5 Noise Contours

Roadway Segment	Land Use	Impact Contour	Distance from the Right of Way
NB Mainline 183A from Lakeline Mall Dr. to Lakeline Blvd.	NAC B & C	66 dB(A)	410 ft.
	NAC E	71 dB(A)	80 ft.
SB Mainline 183A from Lakeline Blvd. to Lakeline Mall Rd.	NAC B & C	66 dB(A)	460 ft.
	NAC E	71 dB(A)	130 ft
NB Mainline 183A from Lakeline Blvd. to Avery Ranch Blvd.	NAC B & C	66 dB(A)	760 ft.
	NAC E	71 dB(A)	310 ft.
	NAC B & C	66 dB(A)	170 ft.

Roadway Segment	Land Use	Impact Contour	Distance from the Right of Way
SB S Bell Blvd. (Frontage Rd.) from Avery Ranch Blvd. to Lakeline Blvd.	NAC E	71 dB(A)	60 ft.
NB Mainline 183A from Avery Ranch Blvd. to Brushy Creek Blvd (Midway)	NAC B & C	66 dB(A)	330 ft.
	NAC E	71 dB(A)	150 ft.
SB Mainline 183A from Brushy Creek Blvd. to Avery Ranch Blvd (Midway)	NAC B & C	66 dB(A)	560 ft.
	NAC E	71 dB(A)	320 ft.
SB 183A Mainline from Brushy Creek Blvd. to Avery Ranch Blvd. (Junc)	NAC B & C	66 dB(A)	510 ft.
	NAC E	71 dB(A)	70 ft.
NB Brushy Creek Blvd. to E Park St.	NAC B & C	66 dB(A)	370 ft.
	NAC E	71 dB(A)	190 ft.
SB 183A Mainline from E Park St. to Brushy Creek Blvd.	NAC B & C	66 dB(A)	380 ft.
	NAC E	71 dB(A)	200 ft.
NB 183A Mainline from E Park St. to E Whitestone Blvd.	NAC B & C	66 dB(A)	350 ft.
	NAC E	71 dB(A)	60 ft.
SB 183A Mainline from E Whitestone Blvd. to E Park St.	NAC B & C	66 dB(A)	490 ft.
	NAC E	71 dB(A)	90 ft.
NB 183A Mainline from E Whitestone Blvd. to E New Hope Dr.	NAC B & C	66 dB(A)	340 ft.
	NAC E	71 dB(A)	130 ft.
SB 183A Mainline from E New Hope Dr. to E Whitestone Blvd.	NAC B & C	66 dB(A)	350 ft.
	NAC E	71 dB(A)	160 ft.
NB 183A Mainline from E New Hope Dr. to Scottsdale Dr.	NAC B & C	66 dB(A)	380 ft.
	NAC E	71 dB(A)	180 ft.
SB 183A Mainline from Scottsdale Dr. to E New Hope Dr.	NAC B & C	66 dB(A)	310 ft.
	NAC E	71 dB(A)	150 ft.
NB 183A Mainline from Scottsdale Dr. to E Crystal Falls Pkwy.	NAC B & C	66 dB(A)	60 ft.
	NAC E	71 dB(A)	30 ft.
SB 183A Mainline from E Crystal Falls Pkwy. to Scottsdale Dr.	NAC B & C	66 dB(A)	350 ft.
	NAC E	71 dB(A)	160 ft.
NB 183A Mainline from E Crystal Falls Pkwy. to Ranch Road 2243	NAC B & C	66 dB(A)	250 ft.
	NAC E	71 dB(A)	130 ft.
SB 183A Mainline from Ranch Road 2243 to E Crystal Falls Pkwy.	NAC B & C	66 dB(A)	320 ft.
	NAC E	71 dB(A)	140 ft.
NB 183A Mainline from Ranch Road 2243 to Hero Way	NAC B & C	66 dB(A)	280 ft.

Roadway Segment	Land Use	Impact Contour	Distance from the Right of Way
	NAC E	71 dB(A)	40 ft.
SB 183A Mainline from Hero Way to Ranch Road 2243	NAC B & C	66 dB(A)	350 ft.
	NAC E	71 dB(A)	70 ft.

Construction Noise

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receptors are expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

Local Official Notification and Date of Public Knowledge Statement

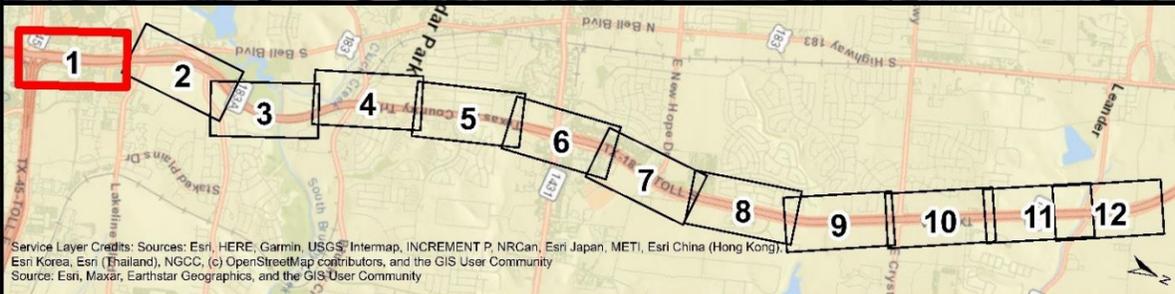
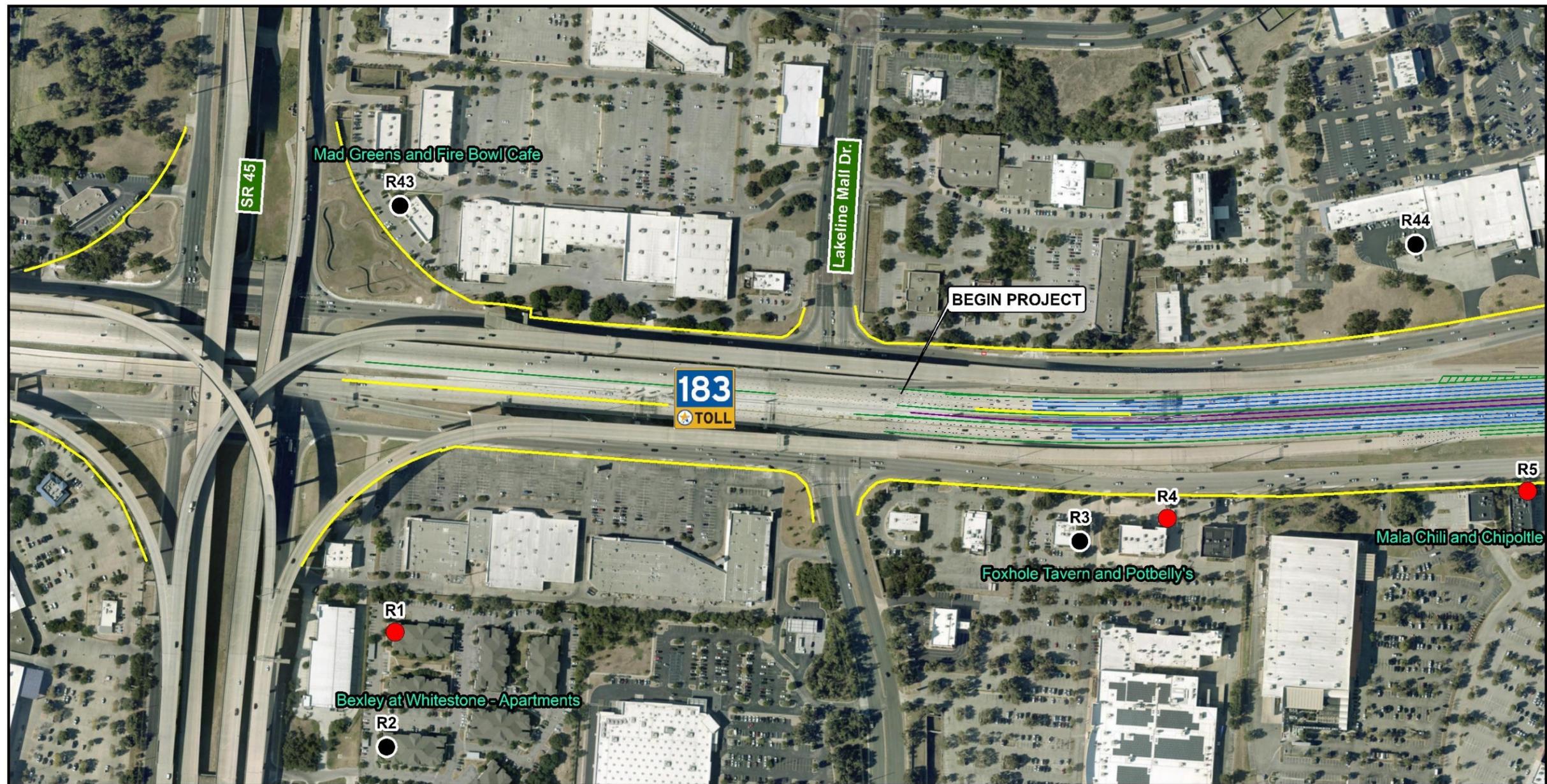
A copy of this traffic noise analysis will be available to local officials. On the date of the environmental decision for this project (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

List of Attachments

- A. Map Figures
- B. Traffic Data
- C. Existing Model Validation Study
- D. Field Measurement Data Sheets
- E. Alternate Barrier Cost Assessment

Attachments

Attachment A: Map Figures



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 Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- Existing Noise Barriers (Blue line)
- Proposed Barriers (Green line)
- Existing Neighborhood Walls (Orange line)
- Validation Sites (Yellow star)
- ROW (Yellow line)

Noise Sensitive Sites

- Benefited (Green circle)
- Impacted (Red circle)
- Not Impacted (Black circle)

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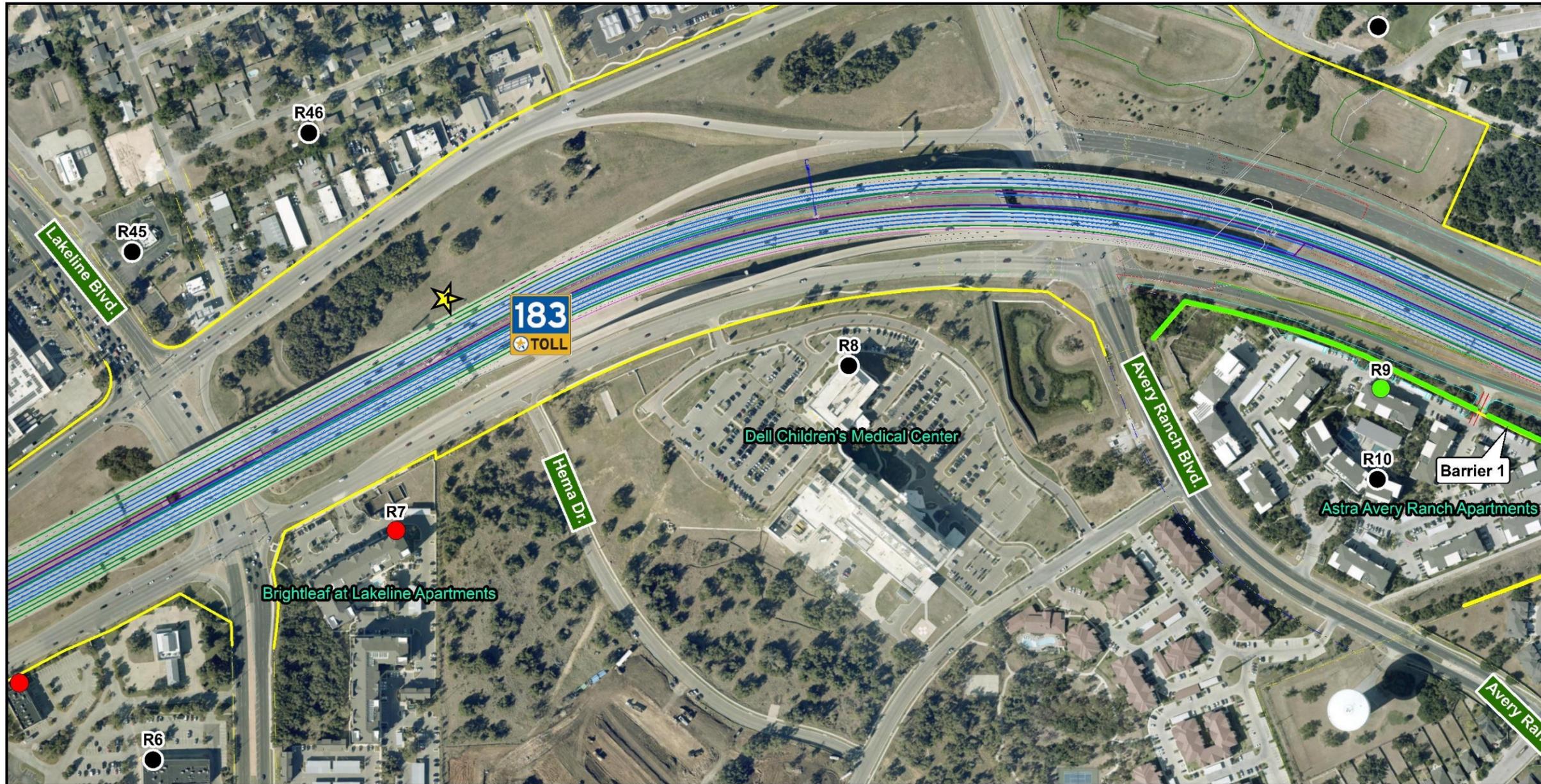
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 Williamson County, Texas
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0 50 100 200 Feet

Sheet 1

Multi-story units are not represented graphically, but were evaluated in the noise model.



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Legend

Noise Sensitive Sites

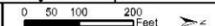
- Benefited
- Impacted
- Not Impacted

- Existing Noise Barriers
- Proposed Barriers
- Existing Neighborhood Walls
- ★ Validation Sites
- ROW



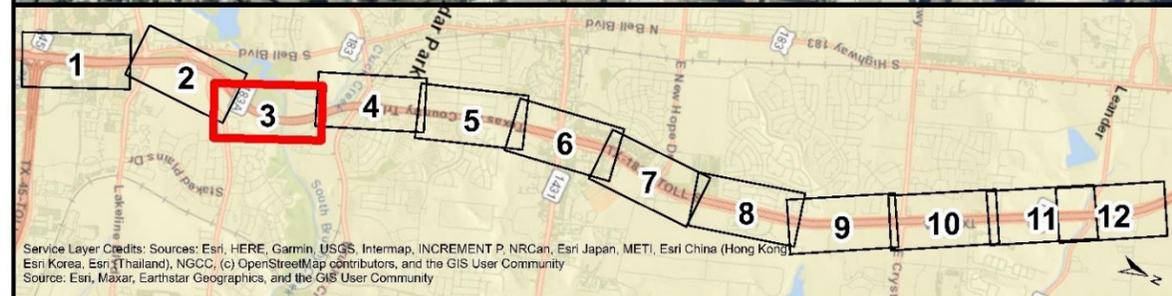
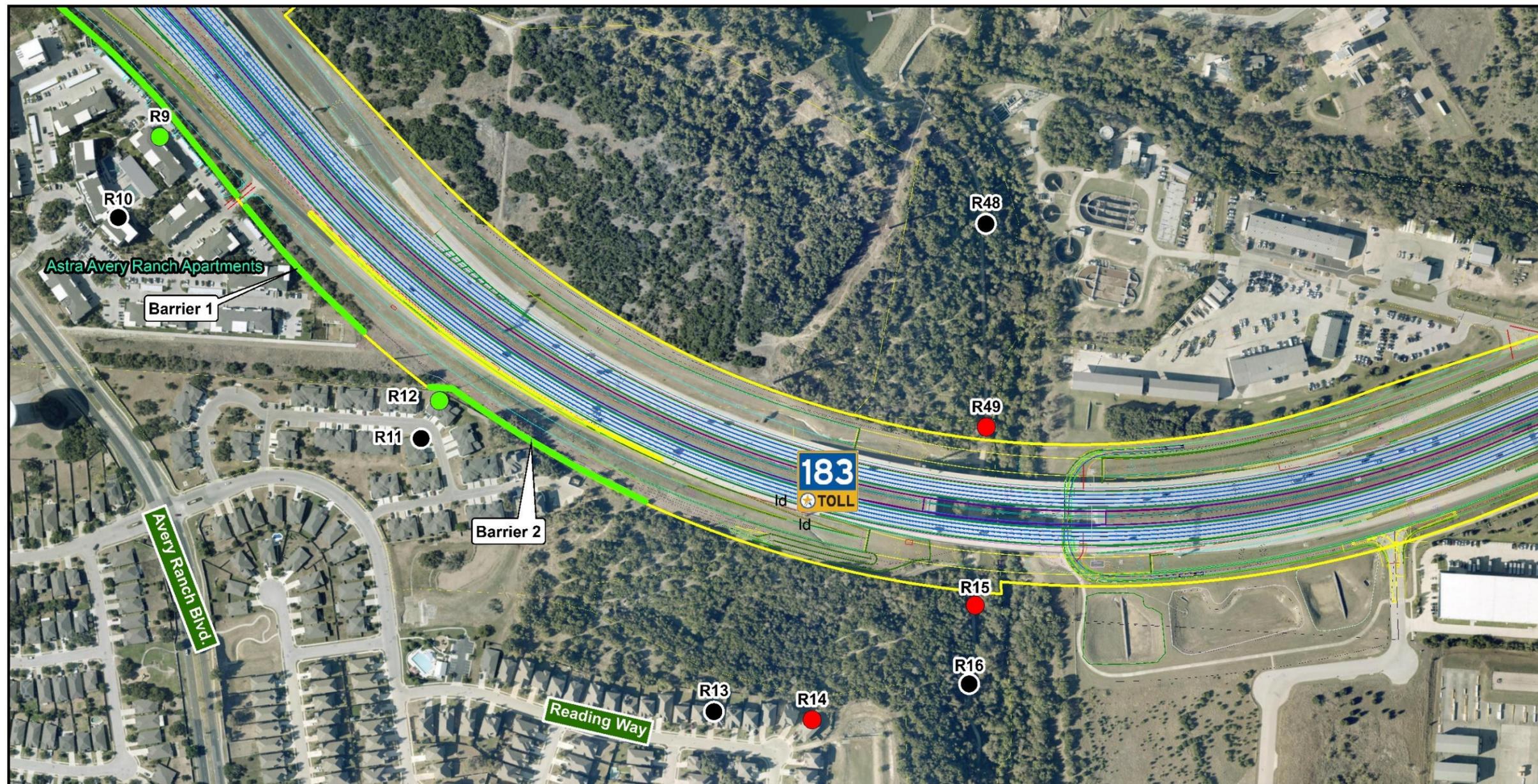
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Sheet 2

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Legend

Noise Sensitive Sites

- Benefited
- Impacted
- Not Impacted

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- Proposed Barriers
- Existing Neighborhood Walls
- ★ Validation Sites
- ROW

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Legend

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- ROW
- Benefited
- Impacted
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- ★ Validation Sites

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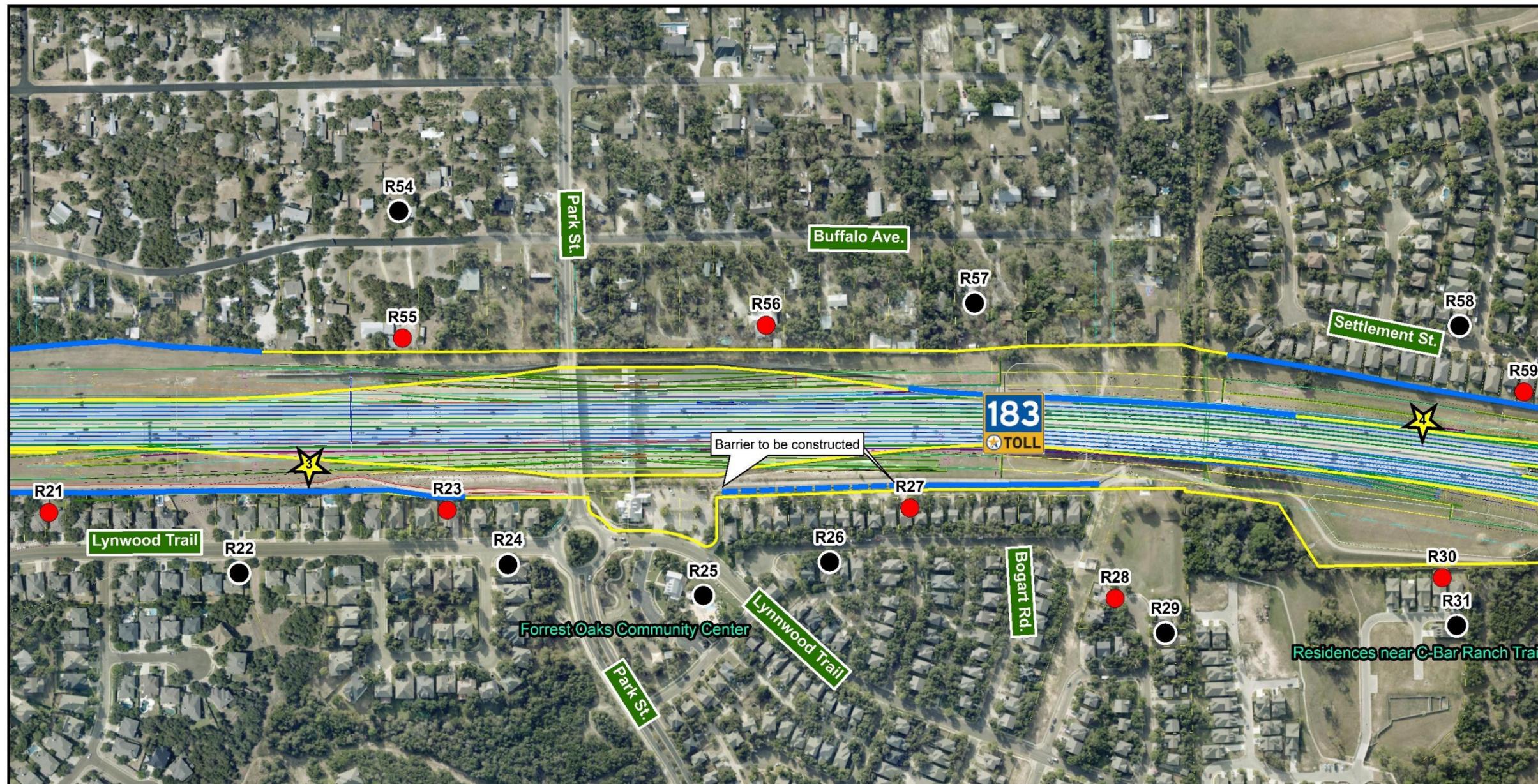
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Legend

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- Existing Neighborhood Walls
- ★ Validation Sites
- ROW

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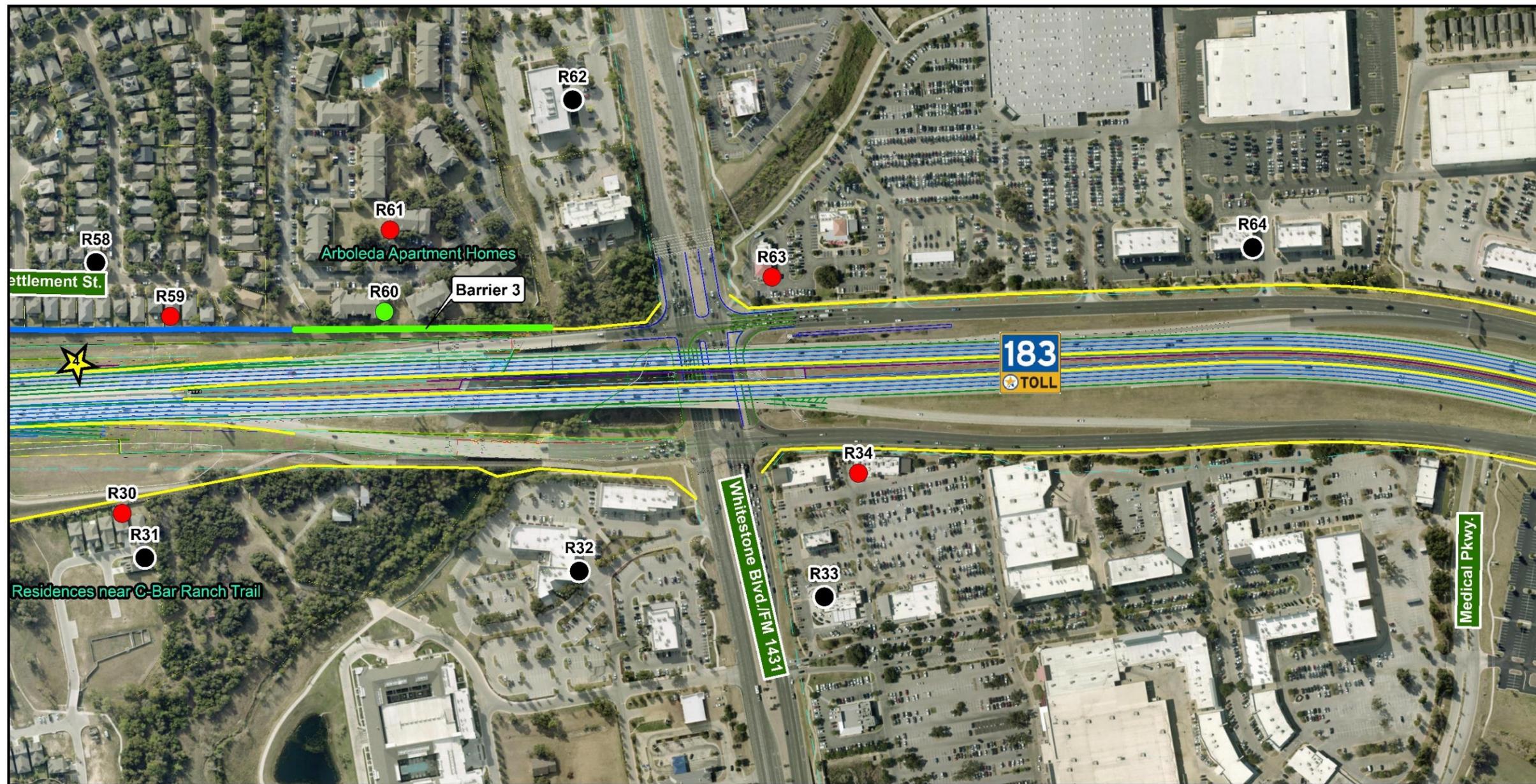
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Sheet 5

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Legend

- Benefited
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- Not Impacted
- Existing Noise Barriers
- Proposed Barriers
- Existing Neighborhood Walls
- ★ Validation Sites
- ROW

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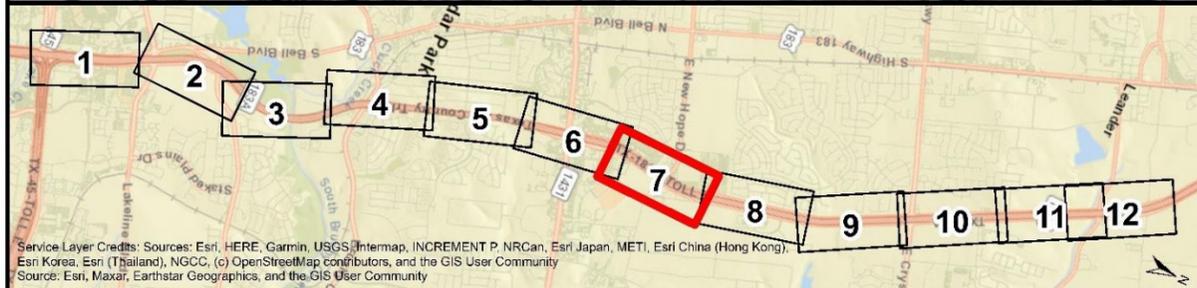
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Sheet 6

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Legend

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- Validation Sites (Yellow star)
- ROW (Yellow line)

Noise Sensitive Sites

- Benefited (Green dot)
- Impacted (Red dot)
- Not Impacted (Black dot)

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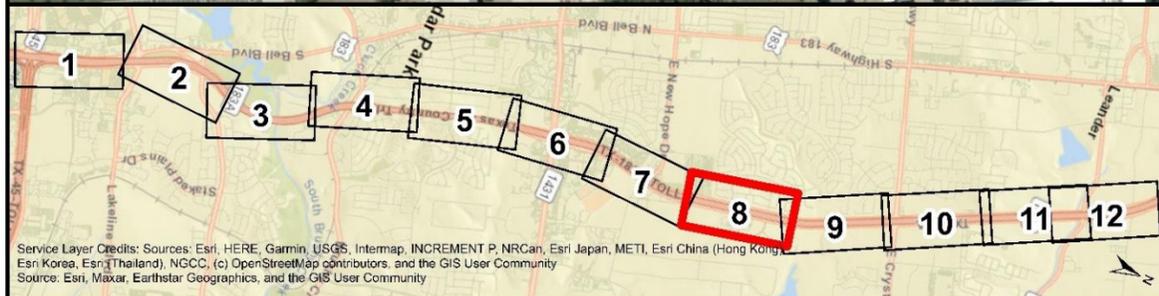
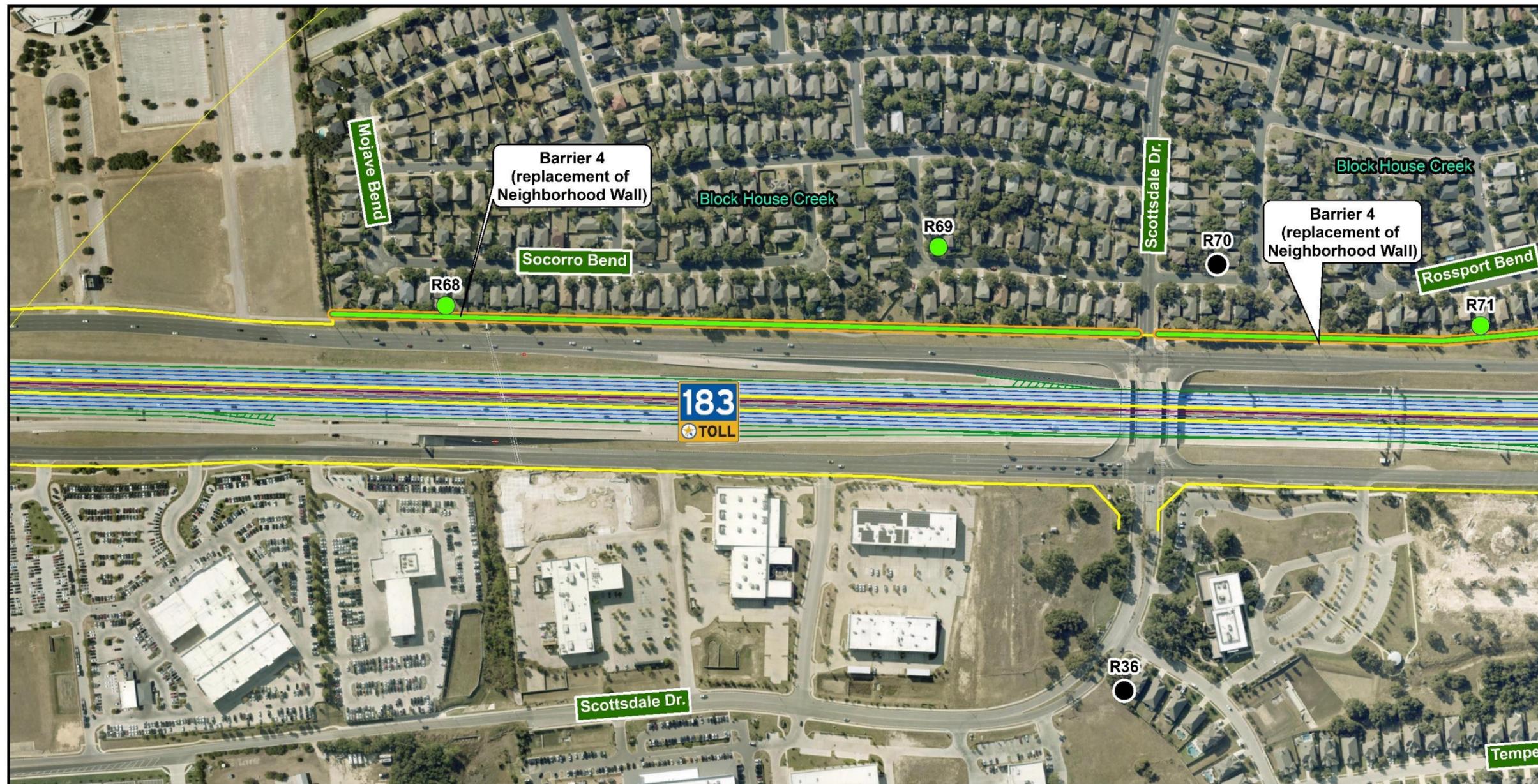
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Sheet 7

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Legend

Noise Sensitive Sites

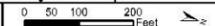
- Benefited
- Impacted
- Not Impacted

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- ★ Validation Sites
- ROW

AtkinsRéalis

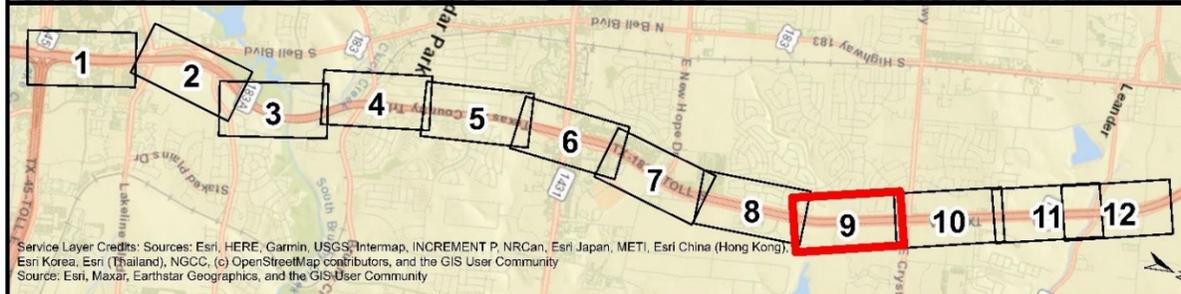
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Sheet 8

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Legend

Noise Sensitive Sites

- Benefited
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- ★ Validation Sites

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Sheet 9

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Legend

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Sheet 10

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Legend

Noise Sensitive Sites

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Sheet 11

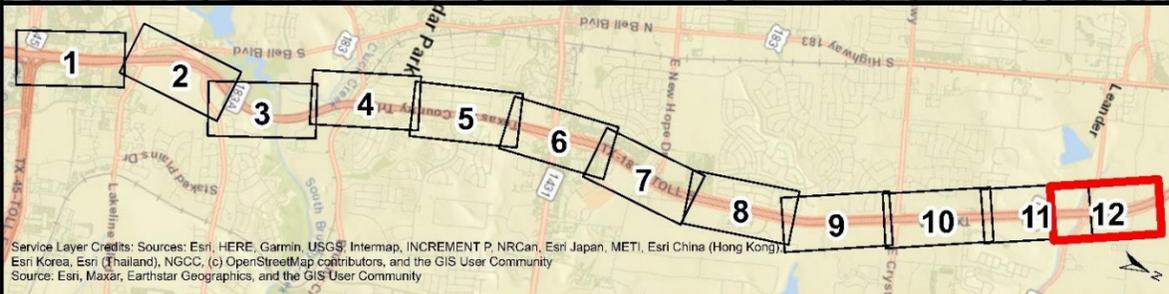
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Legend

Noise Sensitive Sites

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- Impacted
- Not Impacted

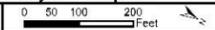
- Existing Noise Barriers
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- ROW
- ★ Validation Sites

Sheet 12



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Attachment B: Traffic Data



MEMO

November 6, 2023

To: Harold Ferguson Jr., P.E., District Engineer
Attention: Heather Ashley-Nguyen P.E., Director of TPD

From: Larry Alaka
Planner, TPP

Subject: Traffic Data
CSJ: 0914-05-238
US 183A
From: RM 620
To: 0.3 miles south of San Gabriel Parkway

Williamson County

Attached is a corridor analysis information packet for the described limits of the route.

Please refer to your original request dated October 20, 2023.

If you have any questions or need additional information, please contact Gabe Contreras at (512) 486-5180.

Attachments

CC: Solomon Bekele, P.E., Transportation Engineer
Austin District
Design Division

OUR VALUES: People • Accountability • Trust • Honesty
OUR MISSION: Connecting You With Texas

An Equal Opportunity Employer

Traffic Data Request Form	
Request ID	2022170
Date Created	10/20/2023 09:35
County	Williamson
District	Austin
CSJ	0914-05-238
Project Highway	US 183A
Limit From	RM 620
Limit To	0.3 miles south of San Gabriel Parkway
Number of Lanes Existing	3
Number of Lanes Proposed	4
District Contact Person	Solomon Bekele
Contact Number	5128327374
Estimated Letting Date	1 January, 2026
District Priority	1
Attach Drawings or other documents	0914-05-238_Traffic Data Request.pdf
Special Instructions (Please include applicable special instruction details such as:	
<ul style="list-style-type: none">Proposed land use information	

- High volume truck area
- Main lane and frontage road ESAL separation)

The following to be completed (Please mark information to be provided)

1. Basic highway traffic data for pavement design

A. Open to Traffic Year*	2026	<input type="checkbox"/>
B. Forecasted 20 Years	2046	<input checked="" type="checkbox"/>
C. Forecasted 30 Years	2056	<input checked="" type="checkbox"/>
D. Directional Distribution		
E. K-factor		
F. Percent Trucks ADT/DHV		
G. Average Ten Heaviest Wheel Loads (ATHWLD)		
H. Percent Tandem Axles in the ATHWLD		
I. Equivalent Single Axle Load data (ESALs)		
J. Slab Thickness(8" unless otherwise specified)	8	<input type="checkbox"/>
K. Structural Number(3" unless otherwise specified)	3	<input type="checkbox"/>

2. Vehicle Classification for environmental studies (Air and Noise Analysis)

3. Line Diagram Analysis (straight line turning movements; please provide line diagram)

4. Complete Corridor analysis (includes basic highway traffic data for pavement design and environmental studies and detailed schematic turning movements; please provide detailed) schematic

5. Consultant Corridor Information Packet

6. Methodology Review

7. No build Traffic Analysis



Request for Traffic Data

Form 2124
(Rev. 2/19)
Page 1 of 1

Date: 09/27/2023

District: Austin County: Williamson CSJ: 091405238/TL0183

Highway: 183A

Limits: From 620 to 0.3 miles south of San Gabriel Parkway

Texas Reference Marker System

From Marker: _____ From Displacement: _____ From DFO: 0

To Marker: _____ To Displacement: _____ To DFO: 10.559

Is it in the UTP: Yes No District Priority: _____ Est. Letting Date: 01/01/2026

Existing Number of Lanes: 3

Proposed Number of Lanes: 4

District Contact Person: _____

Phone Number: _____

Please attach an 8-1/2" x 11" location map and make note of any existing or proposed development that will be a traffic generator. NOTE: _____

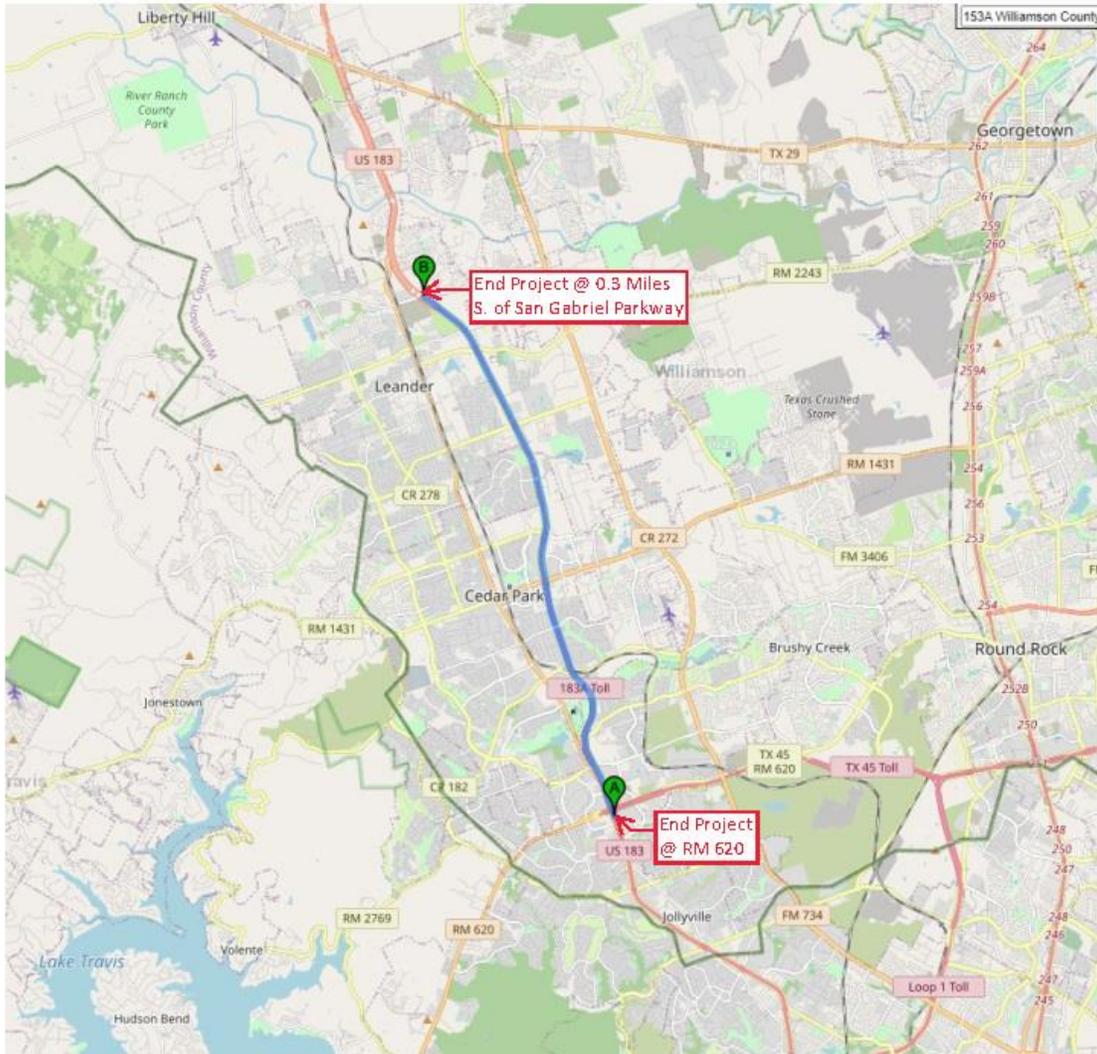
The following to be completed (Please mark information to be provided):

- 1. Basic Highway Traffic Data for pavement design
(No line diagram analysis required)
 - A. Base year/ Beginning year: 2026
 - B. Forecasted 20 year: 2046
 - C. Forecasted 30 year: 2056
 - D. Directional Distribution
 - E. K-factor
 - F. Percent Trucks ADT/DHV
 - G. Average Ten Heaviest Wheel Loads (ATHWLD)
 - H. Percent Tandem Axles in the ATHWLD
 - I. One Directional cumulative 18 KSA at the end of the 20 years/30 years
 - J. Slab Thickness (8" unless otherwise specified): _____
 - K. Structural Number (3 unless otherwise specified): _____
- 2. Vehicle classification for environmental studies (Air and Noise Analysis)
- 3. Line diagram analysis (straight line turning movements; please provide line diagram).
- 4. Complete Corridor Analysis (includes basic highway traffic data for pavement design, environmental studies and detailed schematic turning movements; *please provide detailed schematic*).
- 5. Consultant Corridor Information Packet
- 6. No build traffic analysis: Required when a hot-spot POAQC or a quantitative MSAT analysis are needed. POAQC (only applies in El Paso County), and MSAT (contact District Environmental Coordinator for applicability).
 - EA
 - EIS
 - EA/EIS Reevaluation

Note: If complete corridor analysis is requested, please attach a traffic schematic diagram.



Project Location Map



Project SharePoint ID	2022170	District	Austin
Project	US 183A	County	Williamson
Rd Type	US	Direction	Two-Way
Project Limits	From: RM 620 To: 0.3 miles south of San Gabriel Parkway	CSJ	CSJ14-05-238
Date: Request		Received	
District Contact	Solomon Bekele	Started	
		Completed	
		Analyst	LMA
		Phone #	512-832-7374

Year	ADT's	Open To Traffic	Year	% Trucks
2022	73669		ADT	
2026	82500		DHV	
Forecast	2046	123800	# Trucks	4620
Forecast	2056	138500		

SPR Station	A348	VC Stn	M2041	Total Vehicles	82404
Year	2022	Dir / Intrscn leg	2-WAY	% Trucks	5.6
Peak Hour	8.5	Year	2022	Number of Trucks	4655
DD	55	Optional		Truck Axle Factor	2.24
100-DD	45	Info		Truck % Single Axles	74
K-Factor	8.1				

Vehicle Classification Input		VC Station M2041, 2-WAY, Year 2022		
Select for use in VC Data:		<input checked="" type="radio"/> One Data Set	<input type="radio"/> Two Data Sets	Selected VC Data Total
		One for Mainlanes and one for Frontage Roads		
Light Duty Vehicles	Motorcycles	39		39
	Passenger Cars	57908		57908
	Pickup or Van	19802		19802
Single Unit Trucks	Buses	124		124
	2D	2748		2748
	3 Axles	561		561
	4 Axles or more	91		91
Single Trailer	3-4 Axles	151		151
	5 Axles	950		950
	6 Axles or more	28		28
Multi-Trailers	5 Axles or less	2		2
	6 Axles	0		0
	7 Axles or more	0		0

Main Road Growth Rate	3.0	TDM Assignment	n/a
Growth Rate after 20 Years	2.0		
20 Year Growth Factor	2.503		
30 Year Growth Factor	2.263		
Design Period 1	20		
Design Period 2	30		

LOD [89999]-Statewide Data

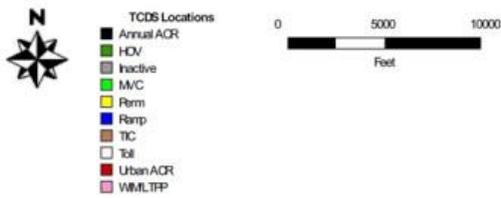
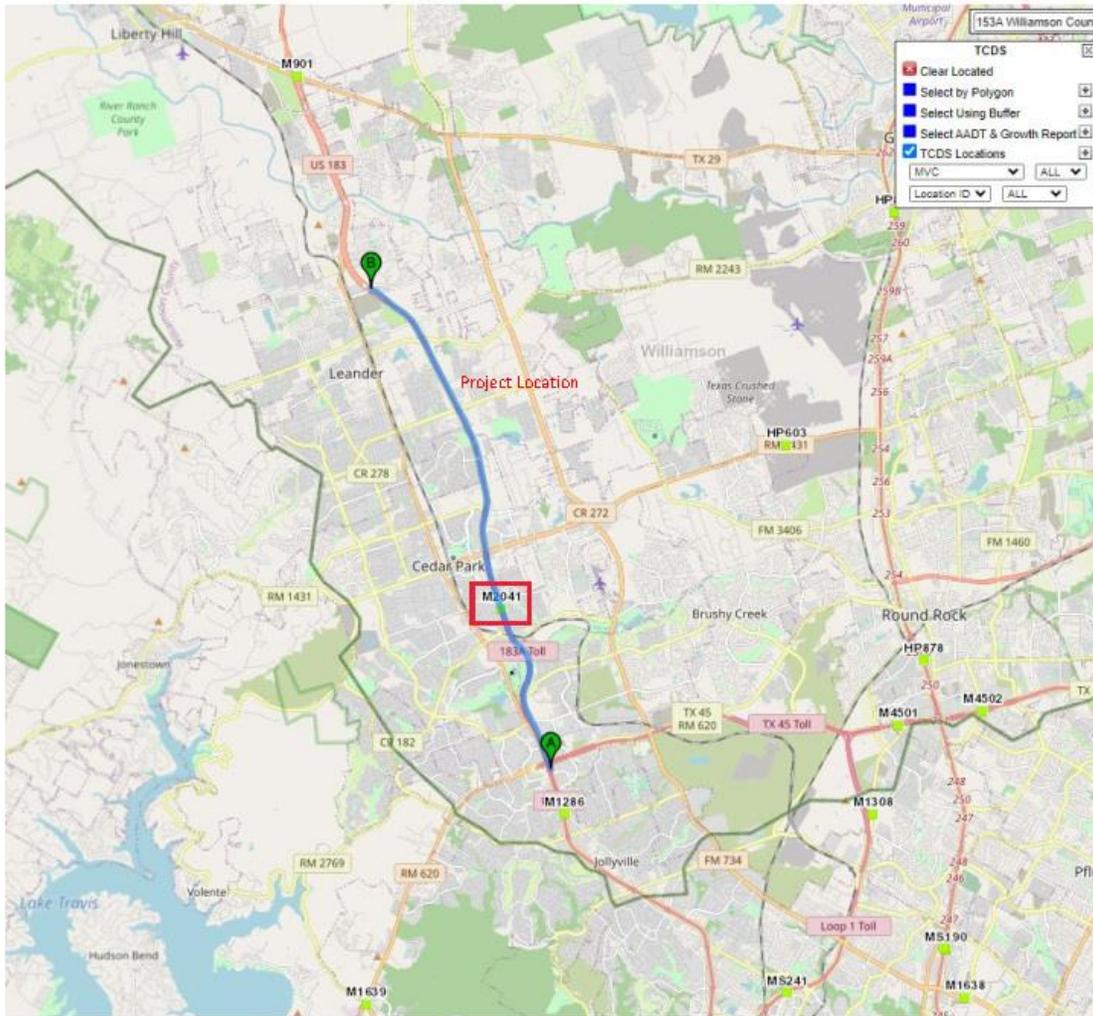
Structural Number (SN)		Existing	# Lanes
Slab Thickness (ST)		Proposed	3
			4

Past Project	
Project	none
From	
To	
Date	
County	
CSJ	

Items Done on This Project			
Straight Line Turning Movements	X	Detailed Schematic Turning Movements	X
Traffic Analysis for Highway Design	X	Field Trip	X
Vehicle Mix	X	Travel Demand Model Used	X
Vehicle Classification Worksheet	X		

NOTES:
 The traffic projections provided are "DRAFT" volumes to be used as a guide for the project. For general forecasting purpose. This represents the highest point within the project limits.
 Please use STARS for the traffic counts information.
<https://tcdot.ms2soft.com/tcds/tsearch.asp?lc=tcdot&mod=TCDS>

MVC Location Map



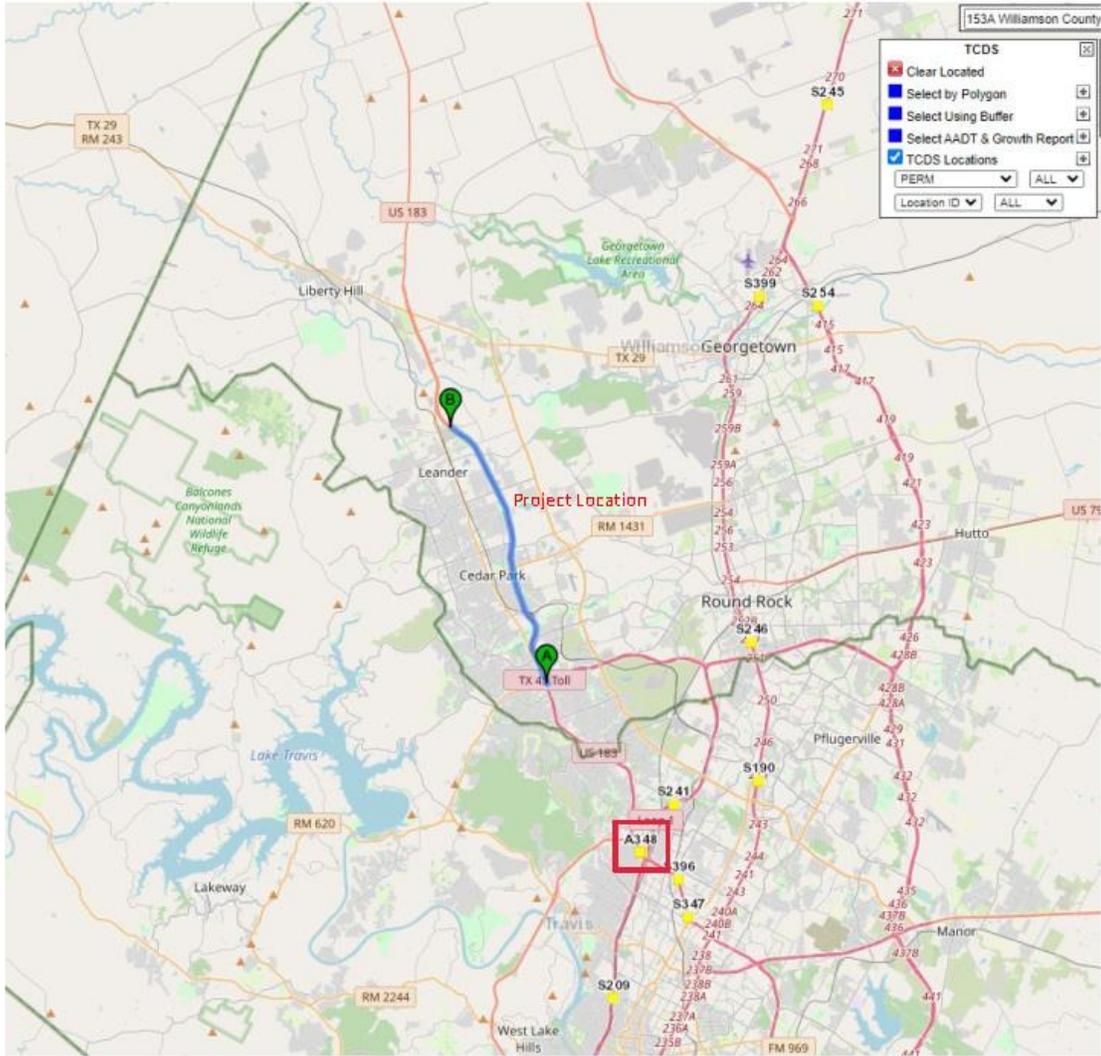


Classification Report

Location ID	M2041	Located On	TL0183A	County	Williamson
Counted By	TCDS_Combined	BETWEEN	E Park St AND Brushy Creek Rd	Community	Cedar Park
Start Date	Tue 11/22/2022	Loc On Alias	TL0183A-KG	Station	
Start Time	12:00:00 AM	Direction	2-WAY	Agency	Texas DOT
Source	TCDS_BIN_IMPORT_COMBINE	Sensor Type		Owner	Karen.Chohrach
Axle Factor	0.976	Count Status	Accepted	Holiday	No
Filename					

FHWA Classification																
Start Time	Motor cycle	Car	Pick up	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	Unk	Err	TOTAL
12:00 AM	0	353	86	0	9	2	0	1	9	0	0	0	0	0	0	460
1:00 AM	0	203	61	0	5	1	0	0	10	0	0	0	0	0	0	280
2:00 AM	0	117	36	0	8	0	0	1	12	0	0	0	0	0	0	174
3:00 AM	0	91	27	0	9	1	0	0	16	0	0	0	0	0	0	144
4:00 AM	0	143	47	0	11	1	0	2	11	0	0	0	0	0	0	215
5:00 AM	0	259	87	1	25	3	0	1	23	0	1	0	0	0	0	400
6:00 AM	0	845	295	4	34	12	0	4	45	0	0	0	0	0	0	1239
7:00 AM	1	2182	816	11	125	34	2	10	53	1	1	0	0	0	0	3236
8:00 AM	5	3261	1594	7	214	39	8	12	67	3	0	0	0	0	0	5210
9:00 AM	3	3218	1394	6	221	38	11	13	77	2	0	0	0	0	0	4983
10:00 AM	1	3101	1278	12	273	64	11	11	83	1	0	0	0	0	0	4835
11:00 AM	3	3479	1181	7	177	44	10	11	78	3	0	0	0	0	0	4993
12:00 PM	0	3595	1300	7	174	49	8	14	70	4	0	0	0	0	0	5221
1:00 PM	4	3833	1375	8	179	41	7	13	64	3	0	0	0	0	0	5527
2:00 PM	0	3916	1382	5	184	47	11	10	67	2	0	0	0	0	0	5624
3:00 PM	2	4021	1508	4	198	53	10	15	55	3	0	0	0	0	0	5869
4:00 PM	5	4670	1419	9	207	44	5	4	55	2	0	0	0	0	0	6420
5:00 PM	9	5149	1587	9	227	29	7	11	40	4	0	0	0	0	0	7072
6:00 PM	3	5563	1671	16	169	26	1	9	24	0	0	0	0	0	0	7482
7:00 PM	2	3821	1077	12	123	15	0	5	25	0	0	0	0	0	0	5080
8:00 PM	1	2367	630	4	82	11	0	2	24	0	0	0	0	0	0	3121
9:00 PM	0	1617	428	2	45	6	0	2	19	0	0	0	0	0	0	2119
10:00 PM	0	1156	298	0	25	1	0	0	9	0	0	0	0	0	0	1489
11:00 PM	0	948	225	0	24	0	0	0	14	0	0	0	0	0	0	1211
TOTAL	39	57908	19802	124	2748	561	91	151	950	28	2	0	0	0	0	82404

SPR Location Map



TCDS

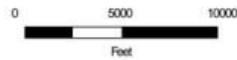
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- Select by Polygon
- Select Using Buffer
- Select AADT & Growth Report
- TCDS Locations

PERM ALL

Location ID ALL



- TCDS Locations
- Annual ACR
 - HOV
 - Inactive
 - M/C
 - Perm
 - Ramp
 - TIC
 - Toll
 - Urban ACR
 - WM/ITP





Transportation Planning and Programming Division's
Statewide Traffic Analysis and Reporting System II

High Hourly Volumes for Year for 1/1/2022 - 12/31/2022
Criteria: Location ID = A348

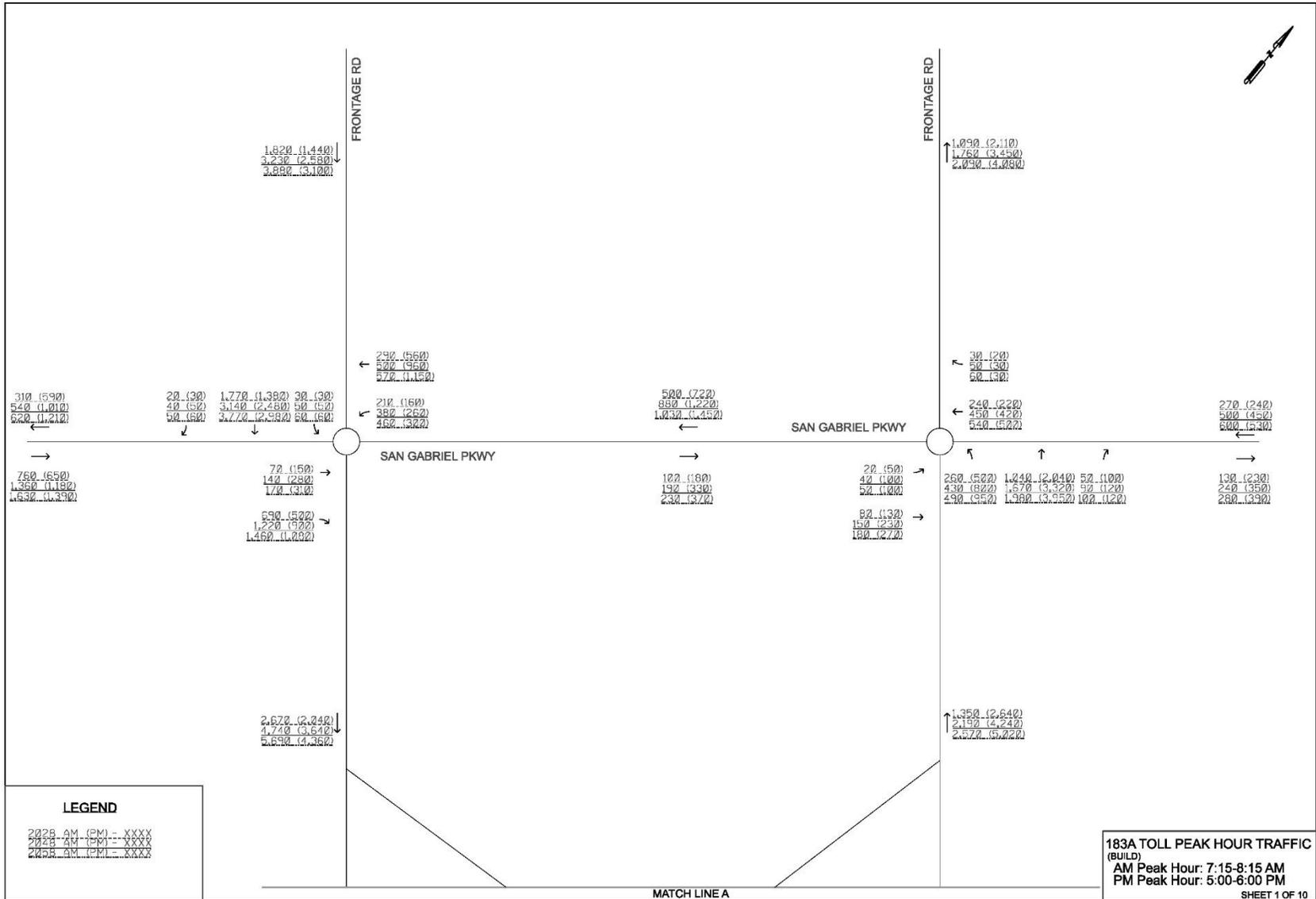
District : Austin County : Travis Community : Austin
Route : On Road : US0183
Location ID : A348 Collection Type : PERM AADT : 89,450
Roadbed : ML

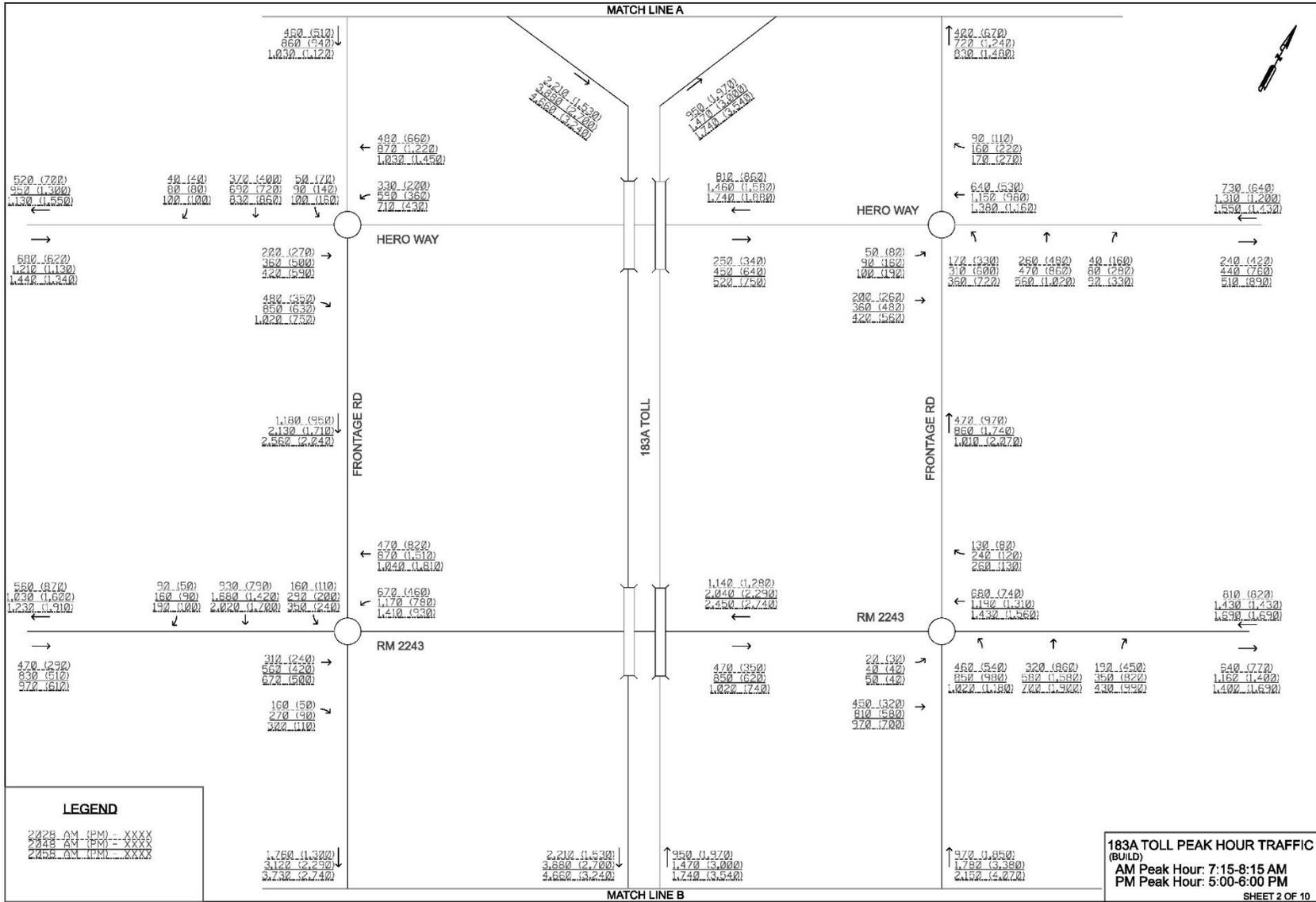
Ordinal High Hour	Date	Day of Week	Hour	Volume	K Factor	Peak Direction	Directional Distribution
1	4/5/2022	Tuesday	8am-9am	7616	8.5	SB	56
2	4/12/2022	Tuesday	8am-9am	7542	8.4	SB	56
3	4/20/2022	Wednesday	8am-9am	7535	8.4	SB	56
4	5/10/2022	Tuesday	8am-9am	7530	8.4	SB	55
5	3/30/2022	Wednesday	8am-9am	7514	8.4	SB	56
6	5/12/2022	Thursday	8am-9am	7503	8.4	SB	55
7	4/19/2022	Tuesday	8am-9am	7483	8.4	SB	55
8	5/25/2022	Wednesday	8am-9am	7468	8.3	SB	51
9	3/24/2022	Thursday	8am-9am	7461	8.3	SB	54
10	4/26/2022	Tuesday	8am-9am	7451	8.3	SB	53
20	5/18/2022	Wednesday	8am-9am	7304	8.2	SB	54
25	3/29/2022	Tuesday	8am-9am	7229	8.1	SB	53
30	10/18/2022	Tuesday	8am-9am	7209	8.1	SB	55
35	5/24/2022	Tuesday	8am-9am	7184	8	SB	53
40	4/19/2022	Tuesday	7am-8am	7138	8	SB	56
45	11/9/2022	Wednesday	7am-8am	7096	7.9	SB	55
50	9/20/2022	Tuesday	8am-9am	7078	7.9	SB	57
75	3/4/2022	Friday	3pm-4pm	7001	7.8	SB	52
100	5/20/2022	Friday	2pm-3pm	6923	7.7	NB	50
125	4/14/2022	Thursday	7am-8am	6874	7.7	SB	56
150	6/16/2022	Thursday	3pm-4pm	6829	7.6	NB	51
175	4/22/2022	Friday	2pm-3pm	6779	7.6	SB	51
200	9/22/2022	Thursday	7am-8am	6745	7.5	SB	57

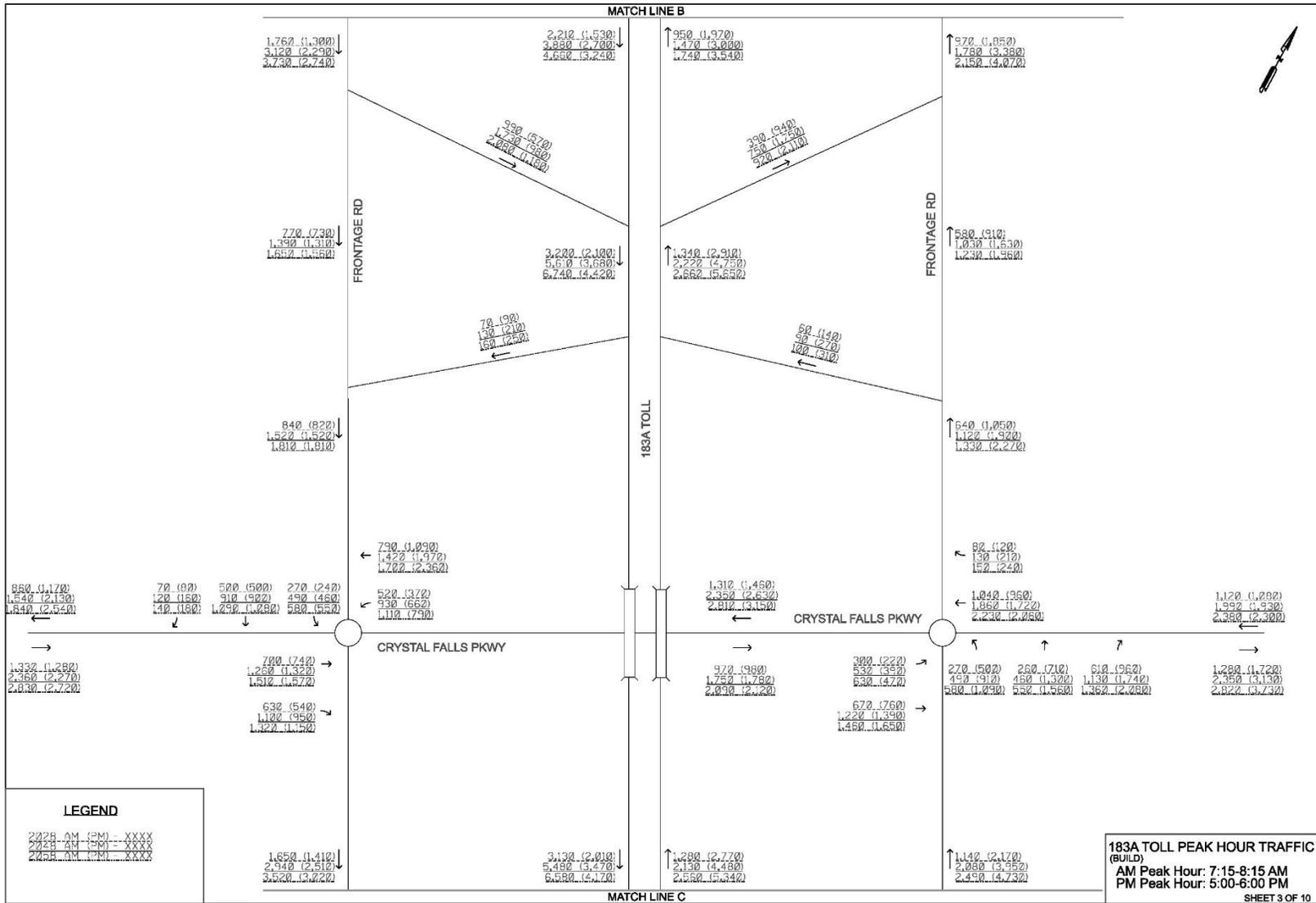
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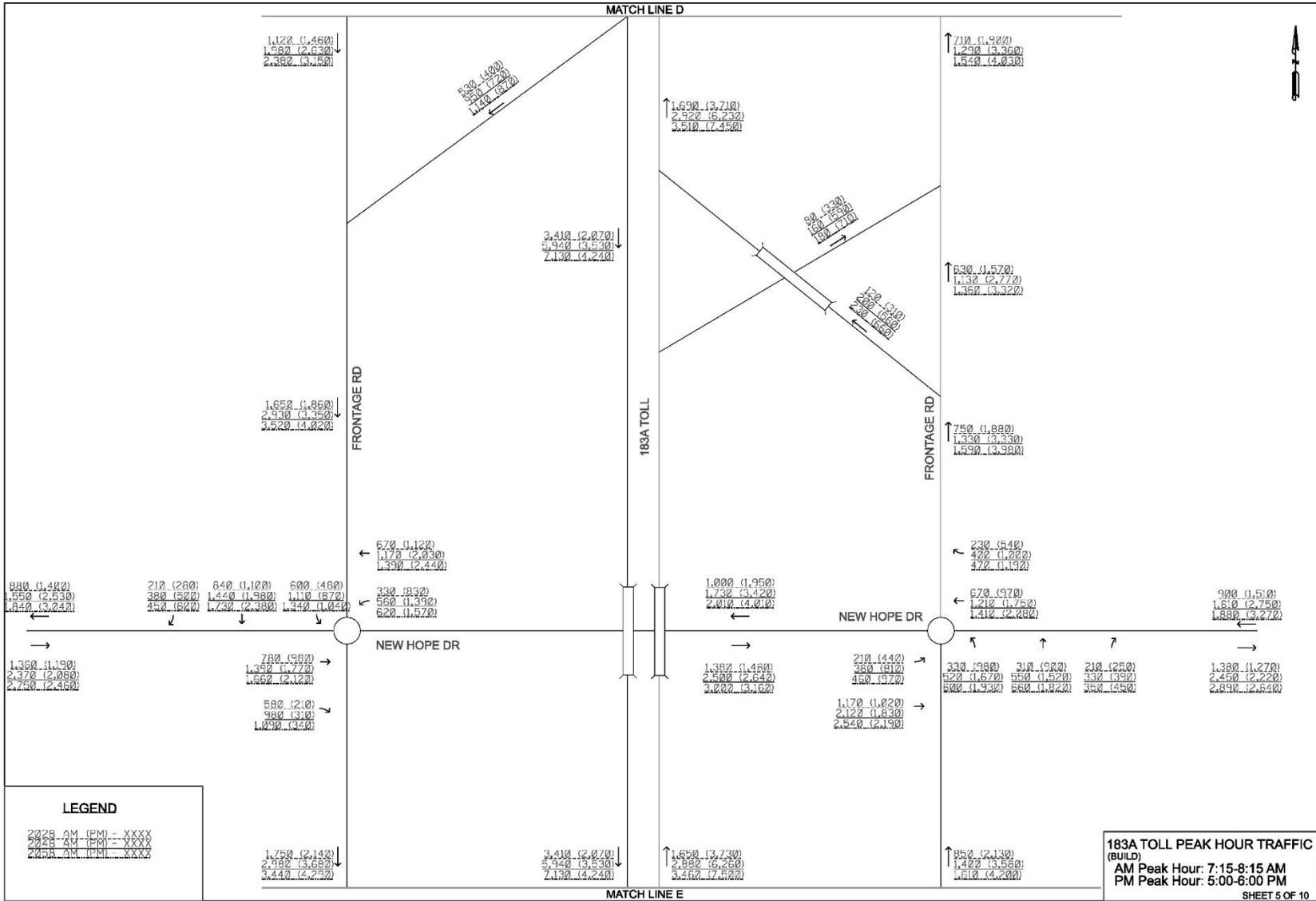
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Texas Department of Transportation.
Accuracy is limited to the validity of available data as of date shown.

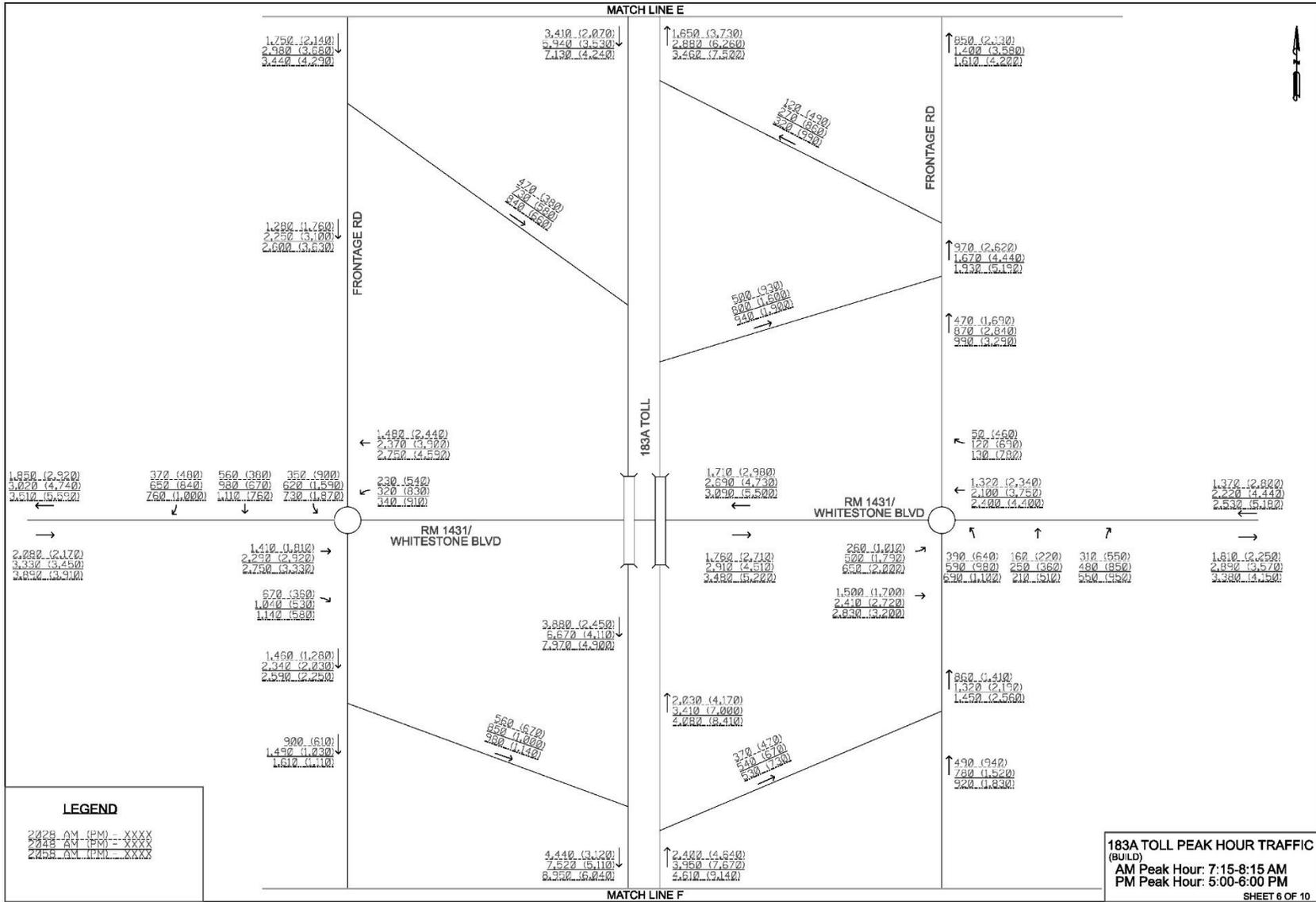
Page 1 of 1

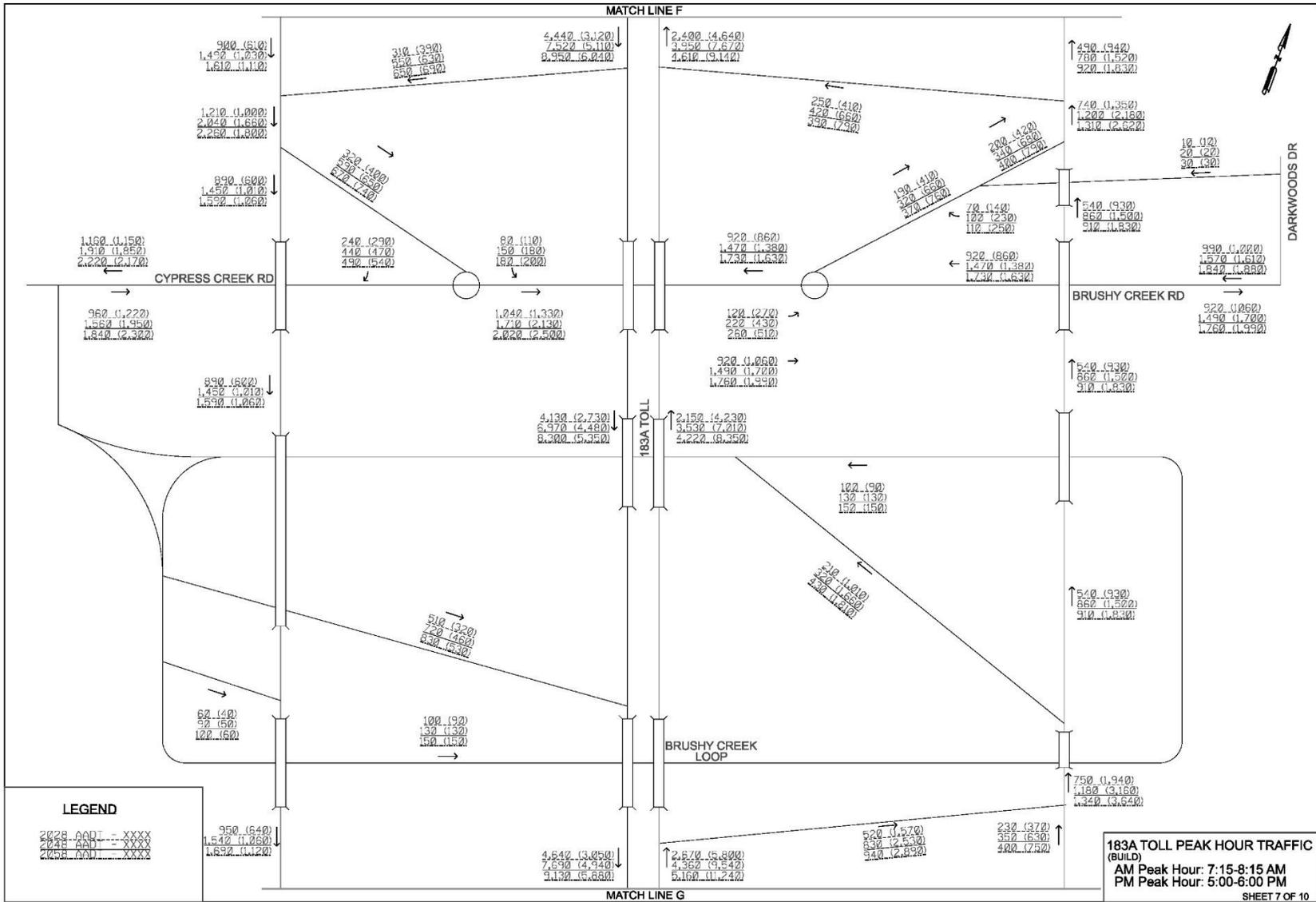


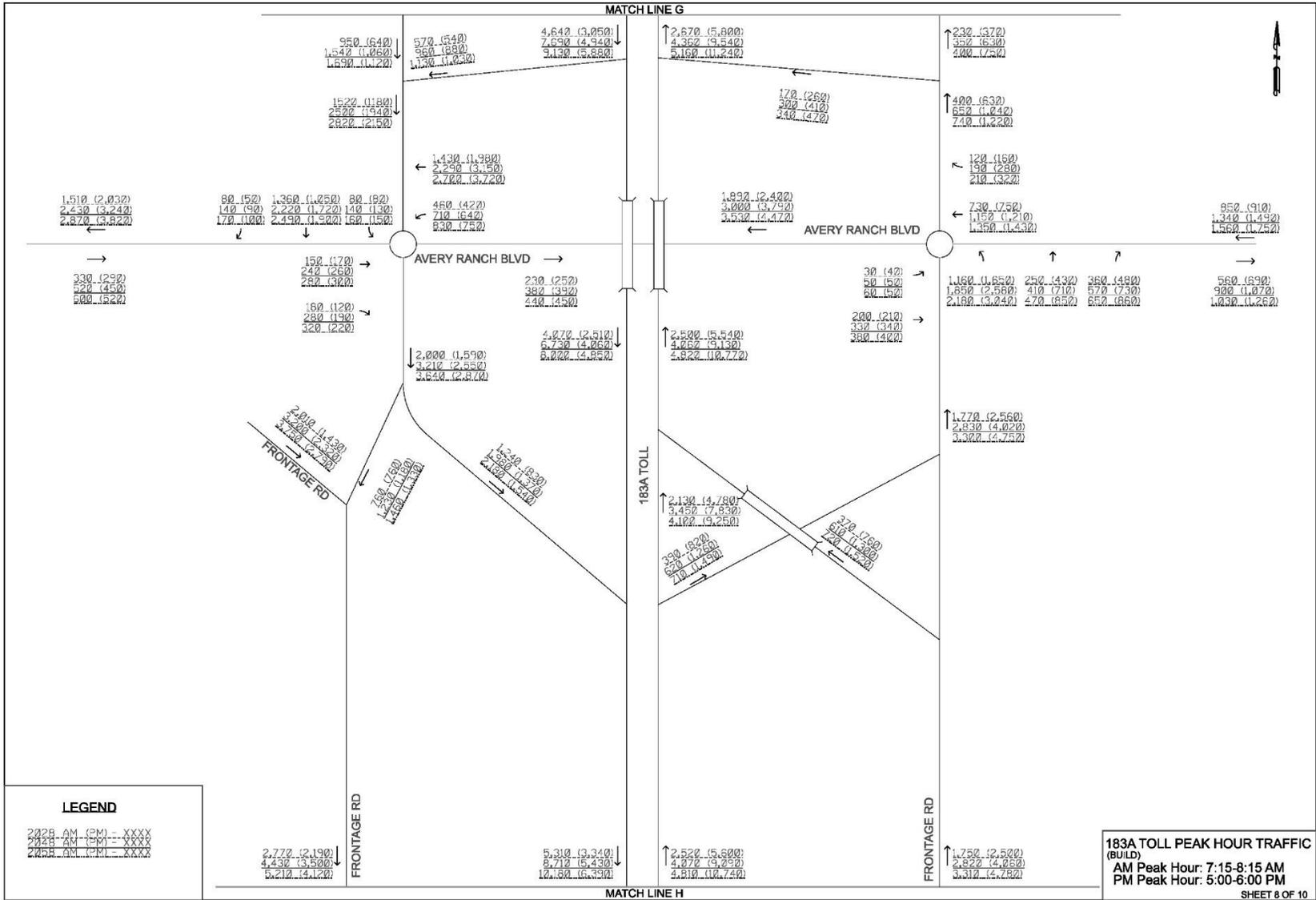


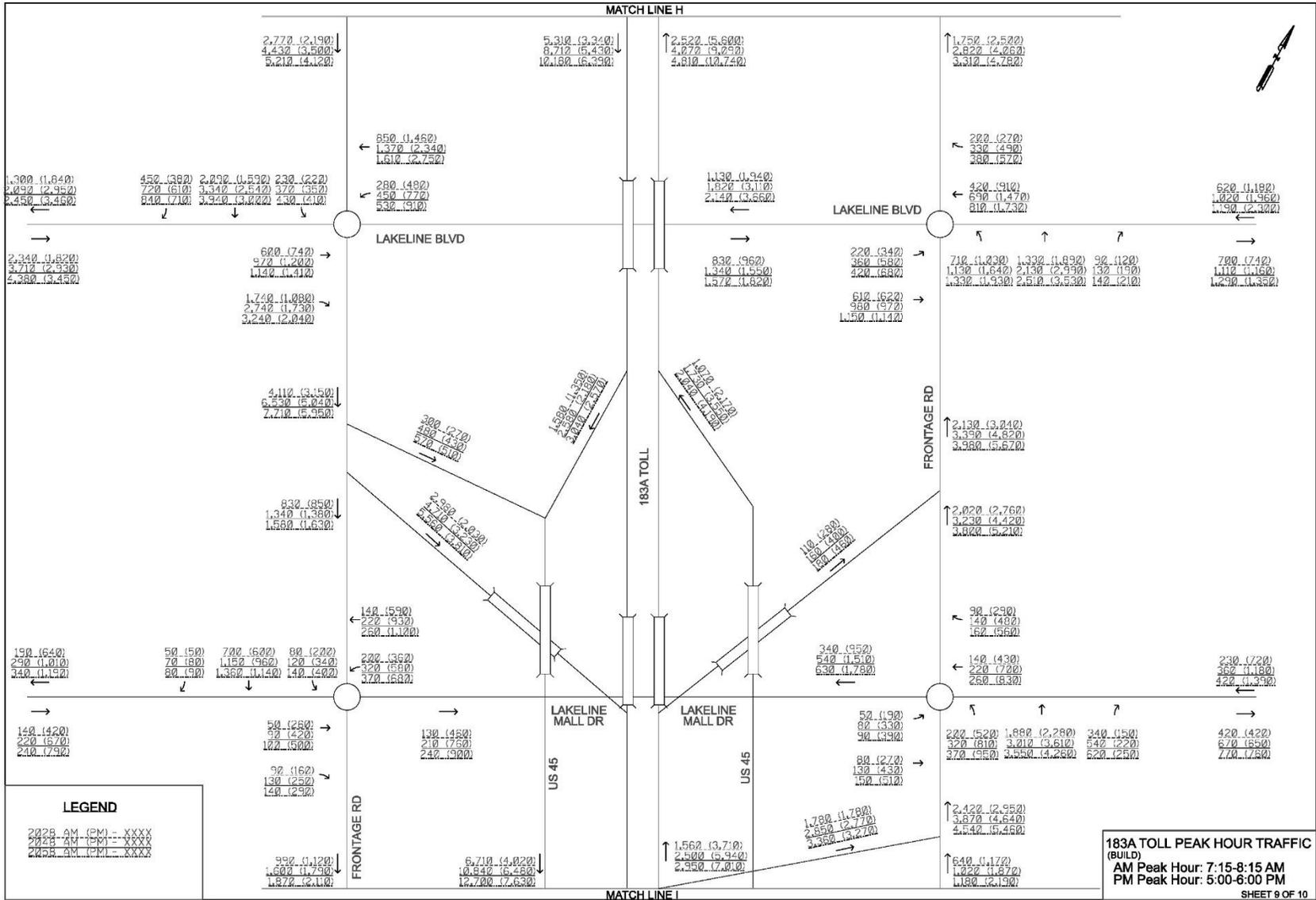


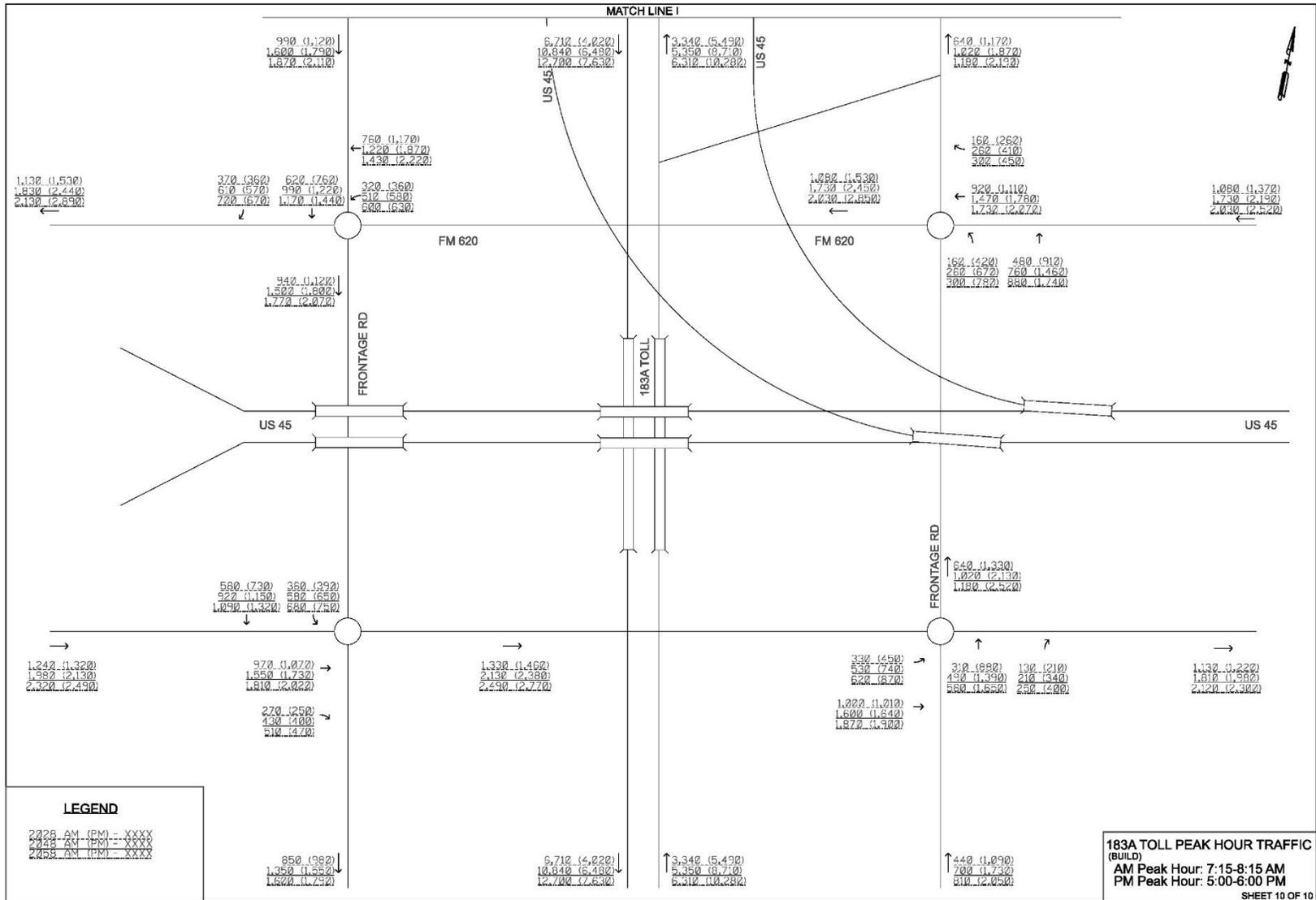












Attachment C: Existing Model Validation Study

Existing Model Validation Study

A validation study was performed in order to ensure that traffic noise is the main source of noise and to verify that the existing model accurately predicts existing traffic noise based on current conditions. Model validation compares field-collected sound level measurements to traffic noise levels calculated in an existing condition model that used field-collected traffic parameters.

Seven validation sites were selected along the project ROW (**Attachment A; Aerial Sheets 2, 4-6, 9, and 10**) after consultation with CTRMA district staff and ENV noise subject matter experts. Field measurements were collected on September 16, 2024 between approximately 9 AM and 1 PM. The weather was sunny and dry, with calm to light winds. During the measurements, traffic was free-flowing and traveling at a relatively constant speed around 75 mph.

A Larson Davis Model 831 Class 1 sound level meter was used to measure sound levels in dB(A) Leq. The sound level meter was positioned on a tripod with the microphone facing the roadway and set at a height of five feet. The measurement duration was 15 minutes. The meter was calibrated before measurements were taken and at the end of the day.

Concurrently with the sound level measurement, video cameras were used to record traffic conditions for all existing travel lanes adjacent to the noise meter. Traffic speeds for all travel lanes were measured using a vehicle traveling concurrently with the free-flowing traffic. Weather conditions, including temperature and wind speed/direction, were also recorded during the measurement period. Field data sheets are included in **Attachment D**.

Upon return from the field, traffic video recordings were reviewed to obtain traffic counts by vehicle classification (car, medium truck, and heavy truck). Because the noise modeling software uses a vehicle per hour input, vehicle counts for the 15-minute measurement interval were multiplied by four to convert the values to the hourly condition. Traffic counts and model inputs are shown in **Tables C-1 through C-4**.

The FHWA traffic noise modeling software (TNM 2.5) was used to calculate existing traffic noise levels at each validation location, based on the field-observed conditions. The validation model run(s) used the existing roadway parameters, observed hourly traffic counts, and observed speeds.

The traffic noise model validation results are shown in **Table C-8**.

Differences between the measured and calculated levels for this project were within the +/- 3 dB(A) tolerance allowed by FHWA. Therefore, the existing noise model is considered validated for this project.

Table C-1: Site #1 - North of Lakeline Boulevard (Sheet 2)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	1,680	2,400
Medium Truck	96	52
Heavy Truck	68	36
Buses	4	0
Motorcycles	0	4
Lane Total	1,848	2,492

Table C-2: Site #2 - North of Brushy Creek Road (Sheet 4)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	1,896	2,184
Medium Truck	92	60
Heavy Truck	84	48
Buses	4	0
Motorcycles	0	4
Lane Total	2,076	2,296

Table C-3: Site #3 – North of Cypress Creek Road (Sheet 5)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	2,516	1,884
Medium Truck	48	216
Heavy Truck	68	48
Buses	4	0
Motorcycles	0	8
Lane Total	2,636	2,156

Table C-4: Site #4 - South of East Park Street (Sheet 5)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	1,992	1,920
Medium Truck	68	32
Heavy Truck	80	60
Buses	12	4
Motorcycles	0	0
Lane Total	2,152	2,016

Table C-5: Site #5- North of East Whitestone Boulevard (Sheet 9)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	1,580	1,552
Medium Truck	92	36
Heavy Truck	56	52
Buses	8	4
Motorcycles	0	4
Lane Total	1,736	1,648

Table C-6: Site #6- North of East Whitestone Boulevard (Sheet 9)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	2,148	1,332
Medium Truck	68	44
Heavy Truck	64	56
Buses	0	0
Motorcycles	4	4
Lane Total	2,284	1,436

Table C-7: Site #7- North of Scottsdale Drive (Sheet 10)

Vehicle Type	Southbound Lane	Northbound Lane
	Mainline (vehicles per hour)	
Auto	1,740	1,200
Medium Truck	72	76
Heavy Truck	76	68
Buses	0	0
Motorcycles	4	0
Lane Total	1,892	1,344

Table C-8: Traffic Noise Model Validation

Validation Site	Field-Measured Level dB(A) Leq	Modeled Level dB(A) Leq	Difference (-/+)	Validated?
1	83	81.2	-1.8	Yes
2	84	81.4	-2.6	Yes
3	77.6	75.9	-1.7	Yes
4	84.3	81.5	-2.8	Yes
5	72.8	71.6	-1.2	Yes
6	76.5	73.7	-2.8	Yes
7	75.9	75.3	-0.6	Yes

Attachment D: Field Measurement Data Sheets for Validation

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location #1 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): 8 ft

X: 30.4823333 Y: -97.8042222

Table 1: Weather Information

Weather Data			
Wind (mph):	2.7	Humidity (%):	74.1
Temperature (F):	95.2	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	NB lane
John Huter	SB lane

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	12:30	12:40	183A Mainline	nb	600	13	9	1	0	75 (avg)	83.0
			183A Mainline	sb	420	24	17	0	1		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location #2 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): 7 ft

X: 30.508611 Y: -97.811167

Table 1: Weather Information

Weather Data			
Wind (mph):	2.3	Humidity (%):	68
Temperature (F):	91.9	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	NB lane
John Huter	SB lane

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	12:00	12:10	183A Mainline	nb	546	15	12	1	0	75 (avg)	84.0
			183A Mainline	sb	474	23	21	0	1		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location #3 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): _____

X: 30.51200 Y: 97.81190

Table 1: Weather Information

Weather Data			
Wind (mph):	1.0	Humidity (%):	63.3
Temperature (F):	81.5	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	
John Huter	

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	9:02	9:12	183A Mainline	NB	471	54	12	2	0	75 (avg)	77.6
			183A Mainline	SB	629	12	17	0	1		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location #4 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): _____

X: 30.5203333 Y: -97.8154444

Table 1: Weather Information

Weather Data			
Wind (mph):	4.8	Humidity (%):	57.0
Temperature (F):	89.0	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	
John Huter	

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	11:32	11:32	183A Mainline	NB	480	8	15	0	1	75 (avg)	84.3
			183A Mainline	SB	498	17	20	0	3		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location #5 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): 27 ft

X: 30.5542778 Y: -97.8202500

Table 1: Weather Information

Weather Data			
Wind (mph):	2.2	Humidity (%):	48.6
Temperature (F):	88.3	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson David Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	
John Huter	

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	10:45	10:55	183A Mainline	NB	388	9	13	1	1	75 (avg)	72.8
			183A Mainline	SB	395	23	14	0	2		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location # 6 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): _____

X: 30.5589444 Y: -97.8228889

Table 1: Weather Information

Weather Data			
Wind (mph):	1.8	Humidity (%):	41.5
Temperature (F):	85.0	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	
John Huter	

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	10:18	10:28	183A Mainline	NB	333	11	14	1	0	75 (avg)	76.5
			183A Mainline	SB	537	17	16	1	0		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

TRAFFIC SOUND LEVEL DATA FOR VALIDATION OF NOISE MODEL

Project: 183A

Date: 09/16/2024

Location # 7 Description: 6-lane divided highway with 2-lane feeder in each direction

Feet from Edge of Pavement (if possible; can be measured using XY below): _____

X: 30.5704722 Y: -97.8295833

Table 1: Weather Information

Weather Data			
Wind (mph):	1.5	Humidity (%):	41.9
Temperature (F):	88.3	Cloud Cover (%):	0

Table 2: Noise Meter Information

SLM Model	Larson Davis Model 831
SLM Serial #:	000384

Table 3: Calibration Information

Type	Calibration Time	Calibration Level Result
Pre-Measurement		
Post-Measurement		

Table 4: Observer Information

Name of Observer	Tasks
Ashley House	
John Huter	

Contains *sensitive* information

Table 5: Traffic Counts and Resulting dB(A)

File Name	Start Time	End Time	Roadway Type (Mainline, Frontage, Ramp, Cross Street)	Roadway Direction (NB/SB/EB/WB)	Cars	Medium Trucks	Heavy Trucks	Motor-cycles	Buses	Speed	Measured Sound Level dB(A)
	9:48	9:58	183A Mainline	NB	300	19	17	0	0	75 (avg)	75.9
			183A Mainline	SB	435	18	19	1	0		
Notes (erroneous noises, problems, etc.)											

Contains sensitive information

Attachment E: TxDOT Alternate Barrier Cost Assessment

Barrier # 4 - Residences from Socorro Bend to north of Rosspart Bend	
Usage of the Alternate Barrier Cost Assessment Worksheet is optional. Only use this sheet if all costs are known and the direct costs to implement the barrier are unusual and potentially "too costly". Before utilizing the following worksheet, be certain that the barrier being proposed meets the acoustic feasibility and reasonableness criteria in the FHWA-approved TxDOT Noise Policy	
Module 1: Standard Barrier Cost Assessment	
Total Length of Proposed Barrier (ft)	3766
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	53
Standard Barrier Cost Total	\$2,033,640
Square Footage Per Benefiter	852.7
Cost Per Benefited Receiver	\$38,371
Current FHWA-approved cost	\$45
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited	\$67,500
BARRIER IS COST REASONABLE. PROCEED WITH ALTERNATE COST ASSESSMENT	
Module 2: Alternate Barrier Cost Assessment	
Standard Barrier Cost Total (from Module 1)	\$2,033,640
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$0
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$0
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$1,045,000
Estimated costs of additional design elements necessary to accommodate unusual topographic features due to the construction of this barrier.	\$0
Estimated costs of drainage features directly associated with construction of THIS noise barrier.	\$0
Estimated costs of additional design elements directly associated with THIS noise barrier (describe <i>Demolition of existing barrier @ \$50/linear ft. (3,766 x 50)</i>)	\$188,300
Estimated costs of Alternate Barrier Cost	\$3,266,940
Benefited Receivers	53
Project Total Per Benefited Receiver	\$61,640
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot	\$135,000
BARRIER IS COST REASONABLE.	

Figure E-1: Alternate Barrier Cost Assessment – Barrier #4 – Residences from Socorro Bend to north of Rosspart Bend