



Traffic Noise Analysis Technical Report

Southeast Connector

I-20/I-820/US 287 Interchanges
I-20 from Forest Hill Drive to Park Springs Boulevard
I-820 from I-20 to Brentwood Stair Road
US 287 from Bishop Street to Sublett Road

Tarrant County, Texas
Fort Worth District

CSJ: 0008-13-125, etc.

August 2020

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 December 9, 2019, and executed by FHWA and TxDOT.

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I. INTRODUCTION

The Texas Department of Transportation (TxDOT) is proposing to reconstruct and add capacity to Interstate Highway (I) 20, I-820 and United States Highway (US) 287 including three major interchanges in southeast Tarrant County within the cities of Arlington, Forest Hill, Fort Worth, and Kennedale. The major interchanges are the I-820/US 287 Interchange, the I-20/I-820 Interchange, and the I-20/US 287 Interchange. This proposed project spans approximately 16 miles and would add main lanes and frontage roads to I-20 from Forest Hill Drive to Park Springs Boulevard, I-820 from I-20 to Brentwood Stair Road, and US 287 from Bishop Street to Sublett Road. New frontage roads would be constructed at various locations, and bicycle and pedestrian accommodations would be provided throughout. The proposed project is collectively referred to as the "Southeast Connector." Please see the following document and figures that have been uploaded into TXECOS: Project Description (0008-13-125, etc.).pdf, Project Location Map (0008-13-125, etc.).pdf, and Aerial Project Location Map (0008-13-125, etc.).pdf.

II. NOISE ASSESSMENT

This analysis was accomplished in accordance with TxDOT's (Federal Highway Administration [FHWA] approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011) utilizing TxDOT's (FHWA approved) 2019 for Analysis and Abatement of Roadway Traffic Noise benefitted receiver costs.

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) 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).

Table 1: FHWA Noise Abatement Criteria

Activity Category	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.

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

Absolute criterion - The predicted noise level at a receiver 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 receiver 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.

The FHWA traffic noise modeling software 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. Existing year traffic volumes utilized in the model were approved by TxDOT – Transportation Planning and Programming Division (TPP) and 2045 volumes were extrapolated utilizing the TxDOT-TPP approved data (August 20, 2019).

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 2** and **Noise Receiver Location Map**) 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.

Table 2: Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact
R1 - Single-family Residential	B	67	69	76	+7	Yes
R2 - Chua Vien An Temple (outdoor area)	C	67	68	74	+6	Yes
R3 - Single-family Residential	B	67	65	72	+7	Yes
R4 - Single-family Residential	B	67	64	72	+8	Yes
R5 - Single-family Residential	B	67	68	79	+11	Yes
R6 - Single-family Residential	B	67	67	78	+11	Yes
R7 - Single-family Residential	B	67	68	72	+4	Yes
R8 - Forest Hill United Methodist Church (interior)	D	52	44	48	+4	No
R9 - Single-family Residential	B	67	71	74	+3	Yes
R10 - Vincent Victoria Village Assisted Living (interior)	D	52	44	49	+5	No
R11 - Agape Metropolitan Community Church (interior)	D	52	44	49	+5	No
R12 - Forest Hill Memorial Park (memorial benches)	C	67	68	73	+5	Yes
R13 - Single-family Residential	B	67	71	76	+5	Yes
R14 - Single-family Residential	B	67	70	72	+2	Yes
R15 - Single-family Residential	B	67	71	71	0 ¹	Yes
R16 - Single-family Residential	B	67	74	69	-5 ¹	Yes
R17 - Single-family Residential	B	67	73	73	0 ¹	Yes
R18 - Single-family Residential	B	67	72	67	-5 ¹	Yes
R19 - Knights Inn (motel, pool)	E	72	71	64	-7 ¹	No
R20 - Single-family Residential (mobile home)	D	52	46	43	-3 ¹	No
R21 - Galileo Christian Church (interior)	B	67	66	65	-1 ¹	No
R22 - Single-family Residential	B	67	64	62	-2 ¹	No
R23 - Single-family Residential	B	67	69	66	-3 ¹	Yes
R24 - Single-family Residential	B	67	71	69	-2 ¹	Yes
R25 - Single-family Residential	B	67	74	75	+1	Yes
R26 - Single-family Residential	B	67	66	66	0 ¹	Yes
R27 - Single-family Residential	B	67	63	63	0 ¹	No
R28 - Single-family Residential	B	67	70	73	+3	Yes
R29 - Kingdom Hall Church (interior)	D	52	43	42	-1 ¹	No
R30 - Sterling Crest Apartments (2-story)	B	67	78	78	0 ¹	Yes
R31 - Single-family Residential	B	67	71	74	+3	Yes
R32 - The Trails Apartments (3-story)	B	67	74	74	0 ¹	Yes
R33 - Oak Chase Apartments (2-story)	B	67	73	74	+1	Yes
R34 - Parks at Tree Point (apartment, 2-story)	B	67	70	72	+2	Yes
R35 - Single-family Residential	B	67	62	65	+3	No
R36 - Single-family Residential	B	67	67	68	+1	Yes
R37 - Single-family Residential	B	67	68	73	+5	Yes
R38 - The Welcome Table Christian Church (interior)	D	52	42	45	+3	No
R39 - Old West Cafe (outdoor seating)	E	72	75	71	-4 ¹	Yes

Table 2: Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact
R40 - Sonic Drive-In (restaurant, outdoor seating)	E	72	68	70	+2	No
R41 - Chick-fil-A (restaurant, outdoor seating)	E	72	66	68	+2	No
R42 - The Catch (restaurant, outdoor seating)	E	72	67	69	+2	No
R43 - Scholastic Education Center (school, interior)	D	52	44	45	+1	No
R44 - Single-family Residential	B	67	71	71	0 ¹	Yes
R45 - Single-family Residential	B	67	72	75	+3	Yes
R46 - Single-family Residential	B	67	67	68	+1	Yes
R47 - Single-family Residential	B	67	72	76	+4	Yes
R48 - Single-family Residential	B	67	68	68	0 ¹	Yes
R49 - Single-family Residential	B	67	68	71	+3	Yes
R50 - Single-family Residential	B	67	73	68	-5 ¹	Yes
R51 - Unlike Anything Else in the World (restaurant, outdoor seating)	E	72	63	65	+2	No
R52 - Single-family Residential	B	67	74	76	+2	Yes
R53 - Pleasantview Baptist Church (interior)	D	52	44	41	-3 ¹	No
R54 - City Chapel (playground)	C	67	65	69	+4	Yes
R55 - Single-family Residential	B	67	73	76	+3	Yes
R56 - Amelia Parc Senior Apartments (4-story)	B	67	69	68	-1 ¹	Yes
R57 - The Villas by the Lake (2-story multifamily housing)	B	67	73	74	+1	Yes
R58 - Economy Inn (motel, outdoor area)	E	72	72	73	+1	Yes
R59 - Single-family Residential	B	67	64	68	+4	Yes
R60 - Sun Valley Church (interior)	D	52	42	46	+4	No
R61 - Single-family Residential (mobile home)	B	67	69	71	+2	Yes
R62 - Lakeview RV Park	B	67	68	68	0 ¹	Yes
R63 - Single-family Residential	B	67	67	72	+5	Yes
R64 - Good Shephard Temple of Praise (interior)	D	52	40	45	+5	No
R65 - Single-family Residential	B	67	69	72	+3	Yes
R66 - Without Walls Church of Fort Worth (interior)	D	52	42	46	+4	No
R67 - Holy Tabernacle Church of God in Christ (interior)	D	52	43	46	+3	No
R68 - Single-family Residential	B	67	70	74	+4	Yes
R69 - Single-family Residential	B	67	68	72	+4	Yes
R70 - Plaza Circle Park (memorial)	C	67	65	65	0 ¹	No
R71 - Single-family Residential	B	67	60	60	0 ¹	No
R72 - Single-family Residential	B	67	68	71	+3	Yes
R73 - Single-family Residential	B	67	61	63	+2	No
R74 - Single-family Residential	B	67	67	70	+3	Yes
R75 - Scarborough-Handley Field (FWISD Football Stadium seating)	C	67	57	57	0 ¹	No
R76 - Single-family Residential	B	67	66	64	-2 ¹	No
R77 - Handley Park (baseball seating)	C	67	64	62	-2 ¹	No
R78 - Single-family Residential	B	67	72	73	+1	Yes
R79 - Single-family Residential	B	67	68	67	-1 ¹	Yes

Table 2: Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact
R80 - New Victorious Baptist Church (interior)	D	52	41	42	+1	No
R81 - Single-family Residential	B	67	70	71	+1	Yes
R82 - Las Mariposas Apartments (2-story)	B	67	70	73	+3	Yes
R83 - Single-family Residential	B	67	71	75	+4	Yes
R84 - New Beginnings International Church (interior)	D	52	40	42	+2	No
R85 - Single-family Residential	B	67	73	76	+3	Yes
R86 - Chaparral Apartments (2-story)	B	67	75	76	+1	Yes
R87 - Saintsville Child Care (outdoor play area)	C	67	67	68	+1	Yes
R88 - Bridgewood Church of Christ (outdoor pavilion)	C	67	69	68	-1 ¹	Yes
R89 - Single-family Residential	B	67	67	69	+2	Yes
R90 - Single-family Residential	B	67	69	71	+2	Yes
R91 - Single-family Residential	B	67	69	70	+1	Yes
R92 - Single-family Residential	B	67	69	72	+3	Yes
R93 - Single-family Residential	B	67	64	66	+2	Yes
R94 - New Jerusalem Church (exterior)	D	52	40	40	0 ¹	No
R95 - Single-family Residential	B	67	70	72	+2	Yes
R96 - Single-family Residential	B	67	69	72	+3	Yes
R97 - Single-family Residential	B	67	70	72	+2	Yes
R98 - Single-family Residential	B	67	71	73	+2	Yes
R99 - Single-family Residential	B	67	70	72	+2	Yes
R100 - Single-family Residential	B	67	71	72	+1	Yes
R101 - Saint John's Church (playground)	D	52	41	43	+2	No
R102 - Single-family Residential	B	67	66	67	+1	Yes
R103 - Magical Moments Day Care Center (playground)	C	67	66	67	+1	Yes
R104 - Single-family Residential	B	67	66	67	+1	Yes
R105 - Single-family Residential	B	67	69	70	+1	Yes
R106 - Unnamed Church (interior)	D	52	40	40	0 ¹	No
R107 - Single-family Residential	B	67	66	67	+1	Yes
R108 - Single-family Residential	B	67	65	67	+2	Yes
R109 - Single-family Residential	B	67	69	71	+2	Yes
R110 - Village Creek Park (trail bench)	C	67	70	72	+2	Yes
R111 - Single-family Residential	B	67	67	69	+2	Yes
R112 - Single-family Residential	B	67	68	71	+3	Yes
R113 - Single-family Residential	B	67	68	71	+3	Yes
R114 - Single-family Residential	B	67	71	74	+3	Yes
R115 - Single-family Residential	B	67	72	75	+3	Yes
R116 - Single-family Residential	B	67	69	72	+3	Yes
R117 - Single-family Residential	B	67	72	74	+2	Yes
R118 - Single-family Residential	B	67	70	73	+3	Yes
R119 - Hawkins Cemetery	C	67	70	71	+1	Yes
R120 - Single-family Residential	B	67	72	73	+1	Yes
R121 - Single-family Residential	B	67	71	74	+3	Yes
R122 - Single-family Residential	B	67	65	66	+1	Yes
R123 - Single-family Residential	B	67	67	69	+2	Yes
R124 - Single-family Residential	B	67	68	69	+1	Yes
R125 - Single-family Residential	B	67	71	73	+2	Yes
R126 - Single-family Residential	B	67	66	67	+1	Yes

Table 2: Traffic Noise Levels dB(A) Leq

Representative Receiver	NAC Category	NAC Level	Existing	Predicted 2045	Change (+/-)	Noise Impact
R127 - South Oaks Baptist Church (interior)	D	52	40	40	0 ¹	No
R128 - Chick-fil-A (restaurant, outdoor seating)	E	72	67	68	+1	No
R129 - Starbucks (coffee house, outdoor seating)	E	72	67	71	+4	Yes

¹ - Sound levels are predicted by the traffic noise modeling software to perceptibly increase, remain the same, or decrease due to a change in roadway geometry (moving the traffic to/from the receiver).

As indicated in **Table 2**, the proposed project would result in traffic noise impact to the 95 receivers. 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.

III. PROPOSED MITIGATION

Before any abatement measure can be proposed for incorporation into the project, it must be both feasible and reasonable. In order to be "feasible", the abatement measure must be able to reduce the noise level at greater than 50% of impacted, first row receivers by at least 5 dB(A); in order to be "reasonable", it must not exceed the cost-effectiveness criterion of \$52,500 for each receiver that would benefit by a reduction of at least 5 dB(A) and the abatement measure must be able to reduce the noise level of at least one impacted, first row receiver by at least seven dB(A).

The cost-effectiveness criteria can be met through evaluation of individual noise barriers or through corridor-wide cost averaging of acoustically feasible noise barriers. Cost averaging provides a strategy that may be employed when there are numerous traffic noise impacts throughout a corridor where many impacts can be abated with traffic noise barriers that meet the cost-effectiveness criterion of \$52,500 for each benefitted receiver and other impacts can only be abated with barriers that exceed the cost-effectiveness criterion. By averaging the cost of the abatement measures together, the cost per benefitted receiver criterion may, in some cases, be met. Cost averaging requires that no single traffic noise abatement measure exceed two times the cost-effectiveness criterion (or \$105,000 per benefitted receiver) and that collectively all traffic noise abatement measures being averaged do not exceed \$52,500 per benefitted receiver. This noise analysis was conducted using the corridor-wide cost averaging strategy. In addition, an alternate barrier cost assessment was completed for the propose noise barriers due to utilities and extra ROW requirements to construct the proposed noise barriers. A summary of the cost averaging methodology and the alternative barrier cost assessment worksheets can be found in the **Attachments**.

Traffic management - Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dB(A) per five miles per hour 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 prohibited on state highways.

Alteration of horizontal and/or vertical alignments - Any alteration of the existing alignment would displace existing businesses and residences, require additional right of way (ROW) 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 - This is the most commonly used noise abatement measure. Noise barriers were evaluated for each of the impacted receiver locations.

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

R14 and R15: These receivers represent 18 single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 822 feet in length (15 barriers, one 71 feet long, one 47 feet long, two 43 feet long, one 38 feet long, two 39 feet long, one 36 feet long, one 42 feet long, two 63 feet long, one 72 feet long, one 83 feet long, one 45 feet long, and one 98 feet long) and 20-foot tall non-continuous barrier segments would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,406 feet in length and 20 feet in height between the main lanes and frontage road would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

R16, R17 and R18: These receivers represent five single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 556 feet in length (three barriers, one 197 feet long, one 120 feet long, and one 239 feet long) and 20-foot tall non-continuous barrier segments would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,185 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R24: This receiver represents a single-family residence. A noise barrier 390 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R26: This receiver represents a single-family residence. A noise barrier cannot be proposed along the ROW because it would restrict access to a commercial property.

A noise barrier 173 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R39: This receiver represents Little Old West Cafe outdoor seating. A noise barrier 500 feet in length and 20 feet in height along the ROW would fail to meet the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver.

R44 and **R46:** These receivers represent 24 single-family residences. A noise barrier 2,199 feet in length and 20 feet in height would be sufficient to achieve the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$52,500 per benefitted receiver and the cost averaging criterion of \$105,000 per benefitted receiver.

A noise barrier 2,471 feet in length (two barriers, one 703 feet long, and one 1,768 feet long) and 20 feet in height between the main lanes and frontage road would achieve the 7 dB(A) design goal for at least one receiver, but would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

R50: This receiver represents 12 single-family residences. A noise barrier 1,358 feet in length and 20 feet in height would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

A noise barrier 2,080 feet in length (two barriers, one 881 feet long, and one 1,199 feet long) and 20 feet in height between the main lanes and frontage road would achieve the 7 dB(A) design goal for at least one receiver, but would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

R54: This receiver represents the City Chapel (playground). A noise barrier 286 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 945 feet in length and 20 feet in height along the ROW would be sufficient to achieve the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$52,500 per benefitted receiver and the cost averaging criterion of \$105,000 per benefitted receiver.

R56: This receiver represents the Amelia Parc Apartments, consisting 56 adjacent apartment units (including balconies). A noise barrier 727 feet in length (two barriers, one 319 feet long and one 408 feet long) and 20 feet in height would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,295 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R57: This receiver represents The Villas by the Lake apartments. There are eight adjacent apartment units (including balconies). A noise barrier 508 feet in length and 20 feet in height along the ROW would meet the 7 dB(A) design goal for at least one receiver; however, it would fail to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

A noise barrier 664 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R58: This receiver represents Economy Inn. A noise barrier 155 feet in length (two barriers, one 73 feet long and one 82 feet long) and 20 feet in height along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 289 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R59: This receiver represents two single-family residences. A noise barrier 352 feet in length (two barriers, one 117 feet long and one 235 feet long) and 20 feet in height along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 298 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R62: This receiver represents four single-family residences (mobile homes). A noise barrier 250 feet in length (two barriers, one 73 feet long and one 177 feet long) and 20 feet in height along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 366 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R63: This receiver represents two single-family residences. A noise barrier 295 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 641 feet in length (2 barriers, one 421 feet long, and one 220 feet long) and 20 feet in height between the main lanes and frontage road would meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers, but would fail to meet the 7 dB(A) design goal for at least one receiver.

R65: This receiver represents two single-family residences. Access to cross streets and vacant property adjacent to the roadway excludes a barrier along the ROW as it would block access to the street and property. A noise barrier 352 feet in length and 20 feet in height along inside of the frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 379 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R68 and R69: These receivers represent 25 single-family residences. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting noise barrier 2,082 feet in length (22 barriers, one 69 feet long, one 140 feet long, one 227 feet long, one 235 feet long, one 227 feet long, one 117 feet long, one 49 feet long, two 124 feet long, one 28 feet long, one 79 feet long, one 70 feet long, one 99 feet long, one 38 feet long, one 35 feet long, one 43 feet long, one 51 feet long, one 165 feet long, one 50 feet long, one 44 feet long, one 42 feet long and one 26 feet long) and 20-foot tall non-continuous barrier segments would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

A noise barrier 3,338 feet in length (three 20 feet in height [one 1,236 feet long, and one 698 feet long, and 600 feet] and one barrier 8 feet in height and 804 feet long) between the main lanes and frontage road would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

R72 and R74: These receivers represent 24 residences of a subdivision. A continuous noise barrier along the ROW would restrict access to these residences. Gaps in the noise barriers would satisfy access requirements but the resulting non-continuous 16-barrier segments would be less than 30 feet in length and 20 feet in height along the ROW and would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 2,572 feet in length (three barriers, one 466 feet long one 1,360 feet long, and one 746 feet long) and 20 feet in height between the main lanes and frontage road would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers.

R79 and R81: These receivers represent five single-family residences. A noise barrier 1,061 feet in length (six barriers, one 170 feet long, one 296 feet long, one 167 feet long, one 66 feet long, one 281 feet long, and one 79 feet long) and 20 feet in height along the ROW would be sufficient to achieve the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$52,500 per benefitted receiver and the cost averaging criterion of \$105,000 per benefitted receiver.

A noise barrier 810 feet in length (two barriers, one 411 feet long and one 399 feet long) and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R82: This receiver represents Las Mariposas Apartments. There are 56 adjacent apartment units (including balconies). A noise barrier 685 feet in length (three barriers, one 179 feet long, one 293 feet long, and one 213 feet long) and 20 feet in height along the ROW would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 800 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R83 and R85: These receivers represent 15 single-family residences. A noise barrier 1,708 feet in length (seven barriers, one 276 feet long, one 135 feet long, one 139 feet long, one 206 feet long, one 284 feet long, one 338 feet long, and one 330 feet long) and 14 feet in height along the ROW would meet the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$52,500 per benefitted receiver and the cost averaging criterion of \$105,000 per benefitted receiver.

A noise barrier 2,340 feet in length (two barriers, one 1,068 feet long and one 1,272 feet long) and 20 feet in height between the main lanes and frontage road would meet the minimum feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers, but it would fail to achieve the 7 dB(A) design goal for at least one receiver.

R87: Saintsville Child Care (play area). A noise barrier 161 feet in length (two barriers, one 37 feet long and one 124 feet long) and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,067 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R88: This receiver represents the Bridgewood Church of Christ (pavilion). A noise barrier 648 feet in length (two barriers, 335 feet long and one 313 feet long) and 20 feet in height

along ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R93: This receiver represents three single-family residences. A noise barrier 148 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 159 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R96: This receiver represents seven single-family residences. A noise barrier 837 feet in length (three barriers, one 182 feet long, one 327 feet long, and one 328 feet long) and 16 feet in height along the ROW would meet the 7 dB(A) design goal for at least one receiver, but it would fail to achieve the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers .

A noise barrier 1,072 feet in length and 14 feet in height between the main lanes and frontage road would meet the minimum, feasible reduction of 5 dB(A) and the 7 dB(A) design goal for at least one receiver. However, the noise barriers would exceed the reasonable, cost-effectiveness criterion of \$52,500 per benefitted receiver and the cost averaging criterion of \$105,000 per benefitted receiver.

R102: This receiver represents six single-family residences. A noise barrier 280 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,310 feet in length (two barriers, one 565 feet long and one 745 feet long) and ranging from 8 to 20 feet in height between the main lanes and frontage road would meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers, but would not be sufficient to achieve the 7 dB(A) design goal for at least one receiver.

R103: This receiver represents Magical Moments Day Care Center (playground). A noise barrier 549 feet in length and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,075 feet in length (two barriers, one 565 feet long and one 510 feet long) and ranging from 8 to 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R104: This receiver represents three single-family residences. A noise barrier 381 feet in length (two barriers, one 152 feet long and one 229 feet long) and 20 feet in height along the

ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 362 feet in length and 20 feet in height between the main lanes and frontage road would not meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R107 and **R108**: These receivers represent two single-family residences. A noise barrier 301 feet in length (three barriers, one 166 feet long, one 47 feet long, and one 88 feet long) and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 544 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R113: This receiver represents three single-family residences. A noise barrier 502 feet in length and 20 feet in height along the inside of the frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 476 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R119: This receiver represents Hawkins Cemetery. A noise barrier 200 feet in length and 20 feet in height along the inside of the frontage road would meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers, but would fail to meet the 7 dB(A) design goal for at least one receiver.

A noise barrier 625 feet in length and 20 feet in height between the main lanes and frontage road would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

R122: This receiver represents one single-family residence. A noise barrier 406 feet in length (two barriers, one 296 feet long and one 110 feet long) and 20 feet in height along the ROW would not be sufficient to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

A noise barrier 1,215 feet in length and 20 feet in height between the main lanes and frontage road would meet the minimum, feasible reduction of 5 dB(A), but would fail to meet the 7 dB(A) design goal for at least one receiver.

R129: This receiver represents Starbucks (outdoor seating). A noise barrier 423 feet in length and 20 feet in height along the ROW to meet the minimum, feasible reduction of 5 dB(A) for at least 50 percent of the first row receivers and the 7 dB(A) design goal for at least one receiver.

Noise barriers would be feasible and reasonable for the following impacted receivers and, therefore, are proposed for incorporation into the project (**Table 3**).

R1: This receiver represents eight single-family residences. Based on preliminary calculations, a noise barrier 886 feet in length (four barriers, one 79 feet long, one 171 feet long, one 227 feet long, and one 409 feet long) and 10 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for six first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$310,100 or \$51,683 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R2 through R7, R9, R12, and R13: These receivers represent 16 single-family residences, Chua Vien An Temple, and Forest Hill Memorial Park. Based on preliminary calculations, a noise barrier 3,110 feet in length (three barriers, one 282 feet long, one 2,309 feet long, and one 519 feet long) and 8 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 16 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$870,800 or \$54,425 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$38,547 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R23 and R25: These receivers represent 27 single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 2,150 feet in length (two barriers, one 1,525 feet long and one 625 feet long) and 16 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 17 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$1,532,984 or \$90,176 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$48,244 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R28 and R31: These receivers represent 21 single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 921 feet in length and 10 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 11 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$470,297 or \$42,754 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project

R30 and R32 through R34: This receiver represents the Sterling Crest Apartments (14 adjacent apartment units, including balconies), The Trails apartments (52 adjacent apartment units, including balconies), the Oak Chase Apartments (16 adjacent apartment units, including balconies), and the Parks at Tree Point apartments (24 adjacent apartment units including balconies). Based on preliminary calculations, a noise barrier 2,985 feet in length (two barriers, one 1,577 feet long and one 1,408 feet long) and 20 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 68 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$2,089,500 or \$30,728 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R36 and R37: These receivers represent 28 single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 2,409 feet in length (three barriers, one 131 feet long, one 1,851 feet long and one 427 feet long) and 10 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 22 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$1,085,208 or \$49,328 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R45 and R47 through R49: These receivers represent 39 single-family residences. Two crossings of Key Branch the noise barrier has to be split between the ROW and the main lanes. Based on preliminary calculations, a noise barrier 4,311 feet in length (six barriers, one 193 feet long, one 2,057 feet long, one 142 feet long, one 89 feet long, one 1,679 feet long, and one 151 feet long) and 10 feet in height along the ROW and main lanes would reduce noise levels by at least 5 dB(A) for 26 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$1,508,850 or \$58,033 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$41,734 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R52 and R55: These receivers represent 29 single-family residences. Based on preliminary calculations, a noise barrier 2,201 feet in length (three barriers, one 1,177 feet long, one 855 feet long, and one 169 feet long) and 10 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 18 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$770,350 or \$42,797 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R61: This receiver represents 14 single-family residences (mobile homes). Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 942 feet in length (two barriers, one 157 feet long and one 785 feet long) and 14 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for nine first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$518,641 or \$57,627 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$100,500 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$40,065 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R78: This receiver represents 11 single-family residences. Based on preliminary calculations, a noise barrier 741 feet in length (three barriers, one 85 feet long, one 610 feet long, and one 46 feet long) and 12 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for eight first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$311,220 or \$38,903 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R86, Chaparral Apartments (20 adjacent apartment units including balconies). Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 364 feet in length (two barriers, one 156 feet long and one 208 feet long) and 16 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for eight first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$231,349 or \$28,919 for each benefitted receiver. The estimated cost of the barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R89 and R91: This receiver represents six single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 815 feet in length (three barriers, one 312 feet long, one 74 feet long, and one 429 feet long) and 14 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for five first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$440,568 or \$88,114 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$45,981 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R90: This receiver represents two single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 313 feet in length and 12 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for two first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$147,290 or \$73,645 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$42,988 and is cost-effective cumulatively; therefore, this noise barrier is proposed for incorporation into the proposed project.

R92, R95, R97, and R99: These receivers represent 31 single-family residences. Based on preliminary calculations, a noise barrier 4,582 feet in length (four barriers, one 1,038 feet long, one 2,661 feet long, one 497 feet long, and one 386 feet long) and 12 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 21 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost \$1,924,440 or \$91,640 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$50,826; therefore, this noise barrier is proposed for incorporation into the proposed project.

R98 and R100: These receivers represent 16 single-family residences. Based on preliminary calculations, a noise barrier 2,498 feet in length (three barriers, one 555 feet long [12 feet tall], one 1,307 feet long [12 feet tall], and one 636 feet long [8 feet tall]) and ranging from 8 to 12 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 11 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$959,982 or \$87,271 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$45,301; therefore, this noise barrier is proposed for incorporation into the proposed project.

R105, R109, and R111: This receiver represents 13 single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 1,438 feet in length (five barriers, one 257 feet long, one 124 feet long, one 518 feet long, one 407 feet long, and one 132 feet long) and 12 feet in height between the main lanes and frontage road would reduce noise levels by at least 5 dB(A) for 10 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of 719,765 or \$71,977 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted

receiver is \$42,777; therefore, this noise barrier is proposed for incorporation into the proposed project.

R110: This receiver represents the Village Creek Park. Based on average residential property size of adjacent neighborhoods the park is represented by 11 receivers. Preliminary calculations indicate that a noise barrier 947 feet in length and 10 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for nine first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$331,450 or \$36,828 for each benefitted receiver. The proposed barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R112: This receiver represents eight single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 689 feet in length (two barriers, one 108 feet long and one 581 feet long) and 12 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for seven first row receivers and achieve the 5 dB(A) design goal for at least one receiver at a total cost of 530,925 or 75,846 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$43,757; therefore, this noise barrier is proposed for incorporation into the proposed project.

R114, R115, and R117: These receivers represent 23 single-family residences. Based on preliminary calculations, a noise barrier 1,837 feet in length (seven barriers, one 581 feet long, one 200 feet long, one 423 feet long, one 227 feet long, one 117 feet long, one 168 feet long and one 121 feet long) and 14 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 18 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$900,130 or \$50,007 for each benefitted receiver. The proposed barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project

R116 and R118: These receivers represent 23 single-family residences. Based on preliminary calculations, a noise barrier 1,883 feet in length and 10 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 21 first row receivers and achieve the 5 dB(A) design goal for at least one receiver at a total cost of \$659,050 or \$31,383 for each benefitted receiver. The proposed barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

R120 and R121: This receiver represents 14 single-family residences. Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier. Based on preliminary calculations, a noise barrier 881 feet in length (three barriers, one 118 feet long, one 618 feet long, and one 145 feet long) and 10 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 13 first row receivers and

achieve the 5 dB(A) design goal for at least one receiver at a total cost of \$715,037 or \$55,003 for each benefitted receiver. The estimated cost of the barrier exceeds the reasonable, individual cost-effectiveness criterion of \$52,500 per benefitted receiver, but is less than the cost averaging criterion of \$105,000 per benefitted receiver. The cumulative estimated build cost per benefitted receiver is \$39,420; therefore, this noise barrier is proposed for incorporation into the proposed project.

R123 through R126: These receivers represent 54 single-family residences. Based on preliminary calculations, a noise barrier 2,175 feet in length (four barriers, one 502 feet long, one 682 feet long, one 441 feet long, and one 550 feet long) and 12 feet in height along the ROW would reduce noise levels by at least 5 dB(A) for 27 first row receivers and achieve the 7 dB(A) design goal for at least one receiver at a total cost of \$913,500 or \$33,833 for each benefitted receiver. The proposed barrier is cost-effective stand alone; therefore, this noise barrier is proposed for incorporation into the proposed project.

Table 3 summarizes the corridor-wide cost averaging analysis used for acoustically feasible noise barriers.

Table 3: Preliminary Barrier Proposal

Barrier	Benefitted Receiver(s)	Number Benefitted Receivers	Height (feet)	Total Length (feet)	Estimated Barrier Cost	Cumulative Cost Per Benefitted Receiver
1	R1	6	10	886 ¹	\$310,100	\$37,371
2	R2-R7, R9, R12, and R13	16	8	3,110 ²	\$870,800	\$38,547 ¹⁹
3	R23 and R25	17	16	2,150 ³	\$1,532,984 ²⁰	\$48,244 ¹⁹
4	R28 and R31	11	10	921	\$470,297 ²⁰	\$32,937
5	R30 and R32 through R34	68	20	2,985 ⁴	\$2,089,500	\$30,537
6	R36 and R37	22	10	2,409 ⁵	\$1,085,208 ²⁰	\$35,739
7	R45, R47 through R49	26	10	4,311 ⁶	\$1,508,850	\$41,734 ¹⁹
8	R52 and R55	18	10	2,201 ⁷	\$770,350	\$33,981
9	R61	9	14	942 ⁸	\$518,641 ²⁰	\$40,065 ¹⁹
10	R78	8	12	741 ⁹	\$311,220	\$32,171
11	R86	8	16	364 ¹⁰	\$231,349 ²⁰	\$28,919
12	R89 and R91	5	14	815 ¹¹	\$440,568 ²⁰	\$45,981 ¹⁹
13	R90	2	12	313	\$147,290 ²⁰	\$42,988 ¹⁹
14	R92, R95, R97, and R99	21	12	4,582 ¹²	\$1,924,440	\$50,826 ¹⁹
15	R98 and R100	11	8 - 12	2,498 ¹³	\$959,982	\$45,301 ¹⁹
16	R105, R109, and R111	10	12	1,438 ¹⁴	\$719,765 ²⁰	\$42,777 ¹⁹
17	R110	9	10	947	\$331,450	\$31,766
18	R112	7	12	689 ¹⁵	\$530,925 ²⁰	\$43,757 ¹⁹
19	R114, R115, and R117	18	14	1,837 ¹⁶	\$900,130	\$36,962
20	R116 and R118	21	10	1,883	\$659,050	\$30,721
21	R121 and R122	13	10	881 ¹⁷	\$715,037 ²⁰	\$39,420 ¹⁹
22	R123 through R126	27	12	2,175 ¹⁸	\$913,500	\$31,398
Cumulative Average per benefitted Receiver						\$50,826

Table 3: Preliminary Barrier Proposal

Barrier	Benefitted Receiver(s)	Number Benefitted Receivers	Height (feet)	Total Length (feet)	Estimated Barrier Cost	Cumulative Cost Per Benefitted Receiver
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Source: Project Team, February 2020.

- ¹ The proposed barrier consists of four barriers, one 79 feet long, one 171 feet long, one 227 feet long, and one 409 feet long.
- ² The proposed barrier consists of three barriers, one 282 feet long, one 2,309 feet long, and one 519 feet long.
- ³ The proposed barrier consists of two barriers, one 1,525 feet long and one 625 feet long.
- ⁴ The proposed barrier consists of two barriers, one 1,577 feet long and one 1,408 feet long.
- ⁵ The proposed barrier consists of three barriers, one 131 feet long, one 1,851 feet long and one 427 feet long.
- ⁶ The proposed barrier consists of six barriers, one 193 feet long, one 2,057 feet long, one 142 feet long, one 89 feet long, one 1,679 feet long, and one 151 feet long.
- ⁷ The proposed barrier consists of three barriers, one 1,177 feet long, one 855 feet long, and one 169 feet long.
- ⁸ The proposed barrier consists of two barriers, one 157 feet long and one 785 feet long.
- ⁹ The proposed barrier consists of three barriers, one 85 feet long, one 610 feet long, and one 46 feet long.
- ¹⁰ The proposed barrier consists of two barriers, one 156 feet long and one 208 feet long.
- ¹¹ The proposed barrier consists of three barriers, one 312 feet long, one 74 feet long, and one 429 feet long.
- ¹² The proposed barrier consists of four barriers, one 1,038 feet long, one 2,661 feet long, one 497 feet long, and one 386 feet long.
- ¹³ The proposed barrier consists of three barriers, one 555 feet long [12 feet tall], one 1,307 feet long [12 feet tall], and one 636 feet long [8 feet tall].
- ¹⁴ The proposed barrier consists of five barriers, one 257 feet long, one 124 feet long, one 518 feet long, one 407 feet long, and one 132 feet long.
- ¹⁵ The proposed barrier consists of two barriers, one 108 feet long and one 581 feet long.
- ¹⁶ The proposed barrier consists of seven barriers, one 581 feet long, one 200 feet long, one 423 feet long, one 227 feet long, one 117 feet long, one 168 feet long and one 121 feet long.
- ¹⁷ The proposed barrier consists of three barriers, one 118 feet long, one 618 feet long, and one 145 feet long.
- ¹⁸ The proposed barrier consists of four barriers, one 502 feet long, one 682 feet long, one 441 feet long, and one 550 feet long.
- ¹⁹ The cost per benefitted receiver exceeds the reasonableness criterion, but is still proposed due to cost averaging.
- ²⁰ Due to existing site constraints (utility relocation, and additional ROW), an Alternate Barrier Cost Assessment was performed and the additional estimated construction costs are included in the total cost of this barrier.

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 adjacent property owners.

However, 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, no new activities are planned or constructed along or within the following predicted (2045) noise impact contours (**Table 4**).

Table 4: Noise Impact Contours in the Project Study Area

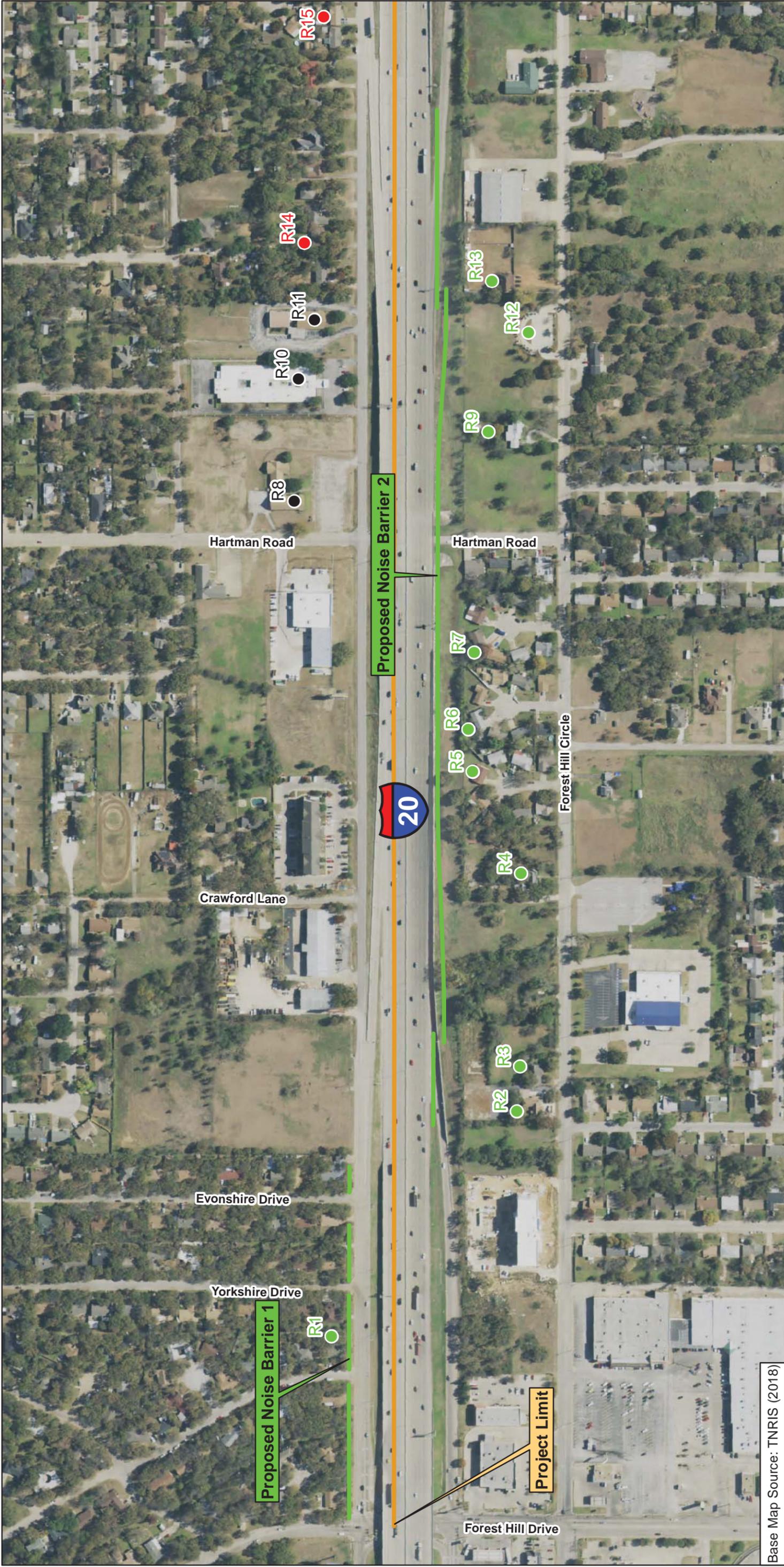
Limits	Land Use NAC Category	Impact Contour	Distance from Proposed ROW Line
I-20 from Forest Hill Drive to I-820	B & C	66 dB(A)	235 feet
	E	71 dB(A)	60 feet
I-20 from I-820 to US 287	B & C	66 dB(A)	320 feet

	E	71 dB(A)	35 feet
I-20 from US 287 to Park Springs Boulevard	B & C	66 dB(A)	90 feet
	E	71 dB(A)	10 feet
I-820 from I-20 to US 287	B & C	66 dB(A)	270 feet
	E	71 dB(A)	90 feet
I-820 from US 287 to US 180	B & C	66 dB(A)	295 feet
	E	71 dB(A)	85 feet
I-820 from US 180 to I-30	B & C	66 dB(A)	345 feet
	E	71 dB(A)	130 feet
US 287 from Berry Street to I-820	B & C	66 dB(A)	75 feet
	E	71 dB(A)	5 feet
US 287 from I-20 to Sublett Road	B & C	66 dB(A)	180 feet
	E	71 dB(A)	40 feet

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 receivers 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.

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

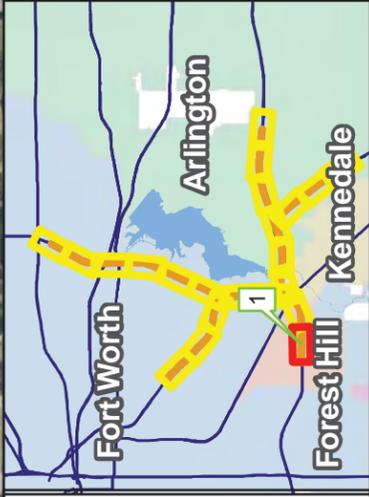
ATTACHMENTS



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd
I-20
I-820

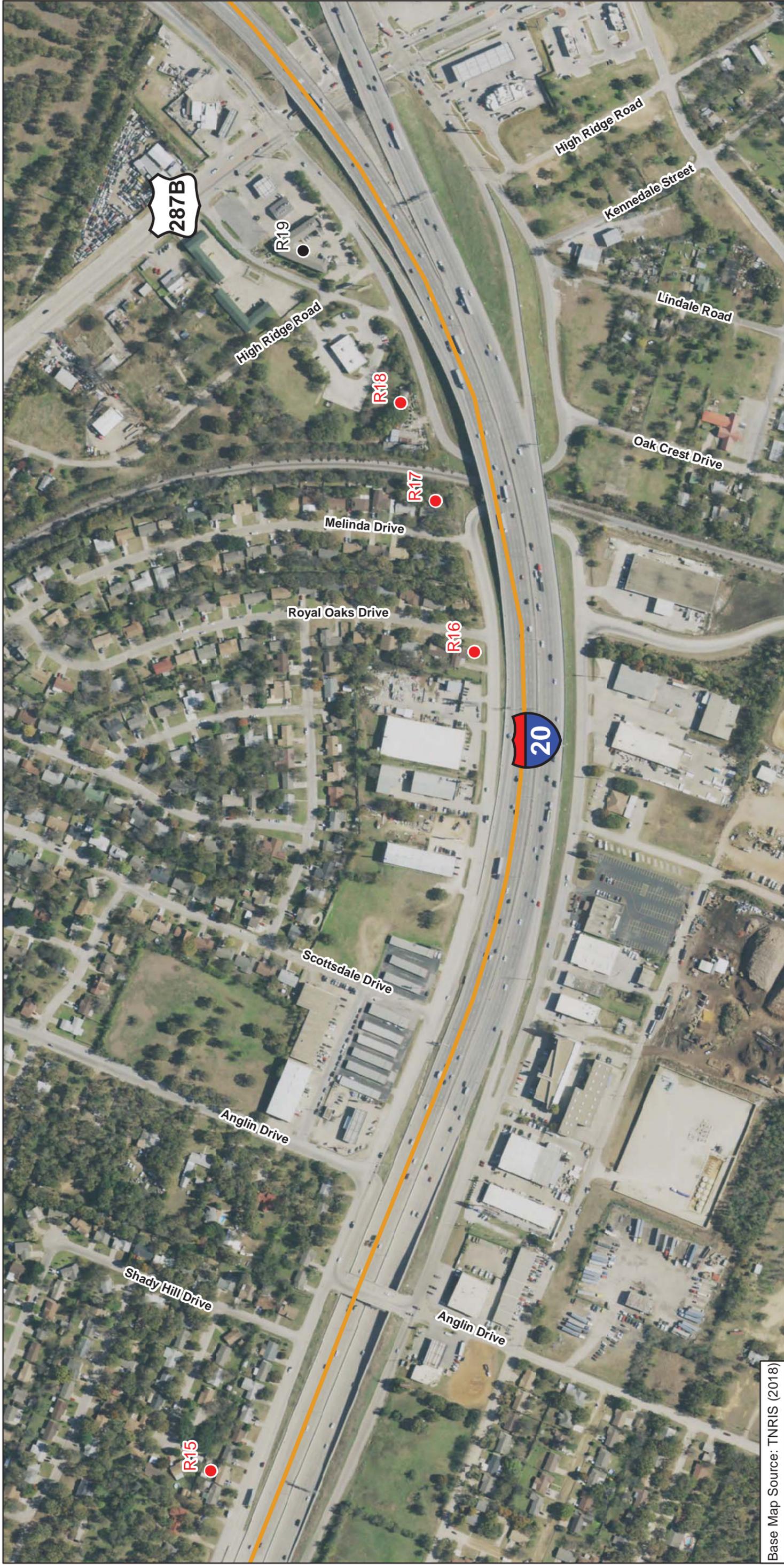
From IH 20 to Brentwood Stair Rd
US 287

From Bishop Street to Sublett Rd
US 287

From Bishop Street to Sublett Rd
US 287

From Bishop Street to Sublett Rd
US 287

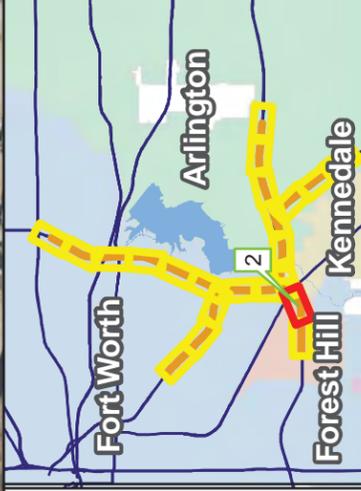
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

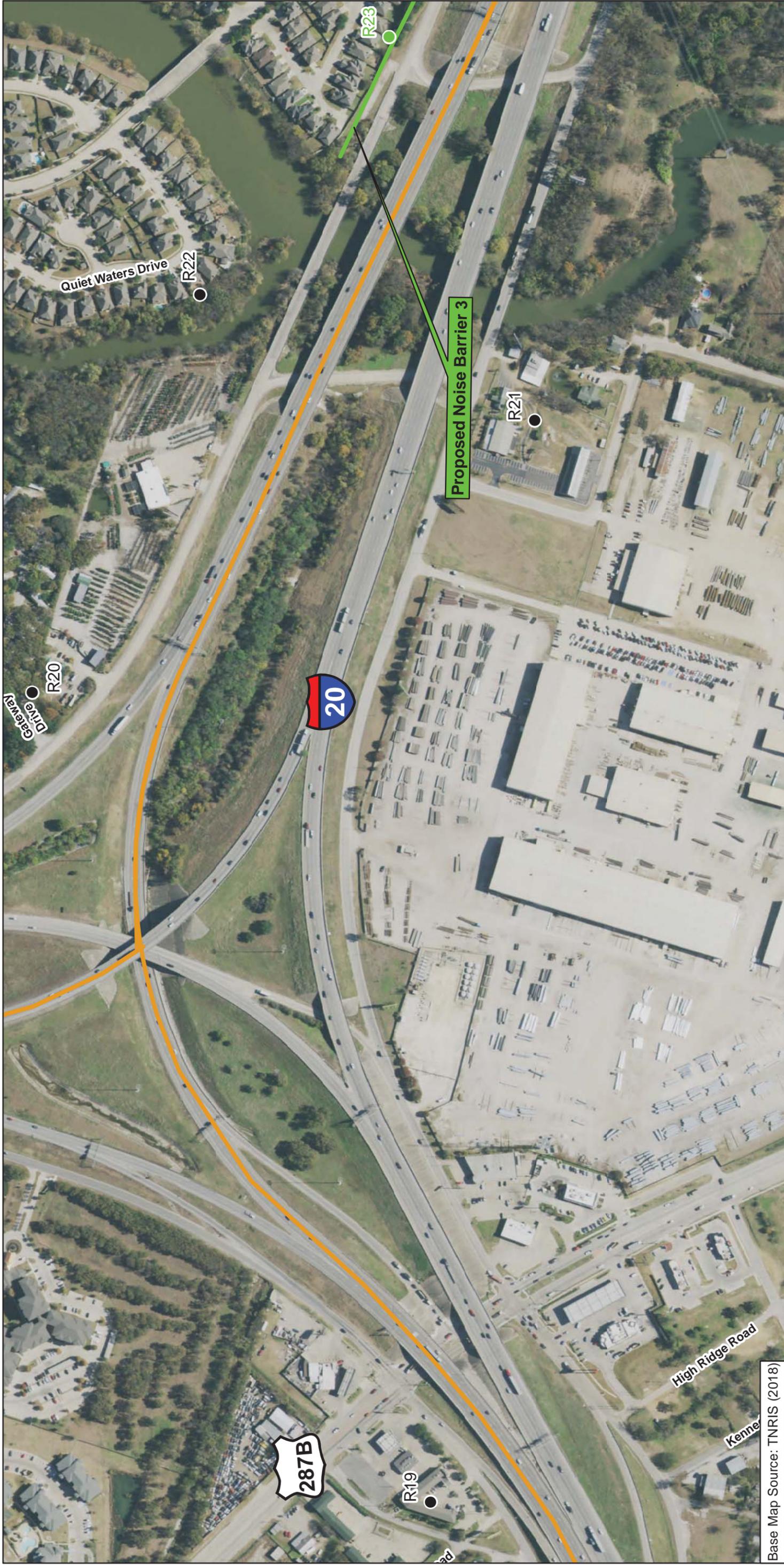
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.



Base Map Source: TNRRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

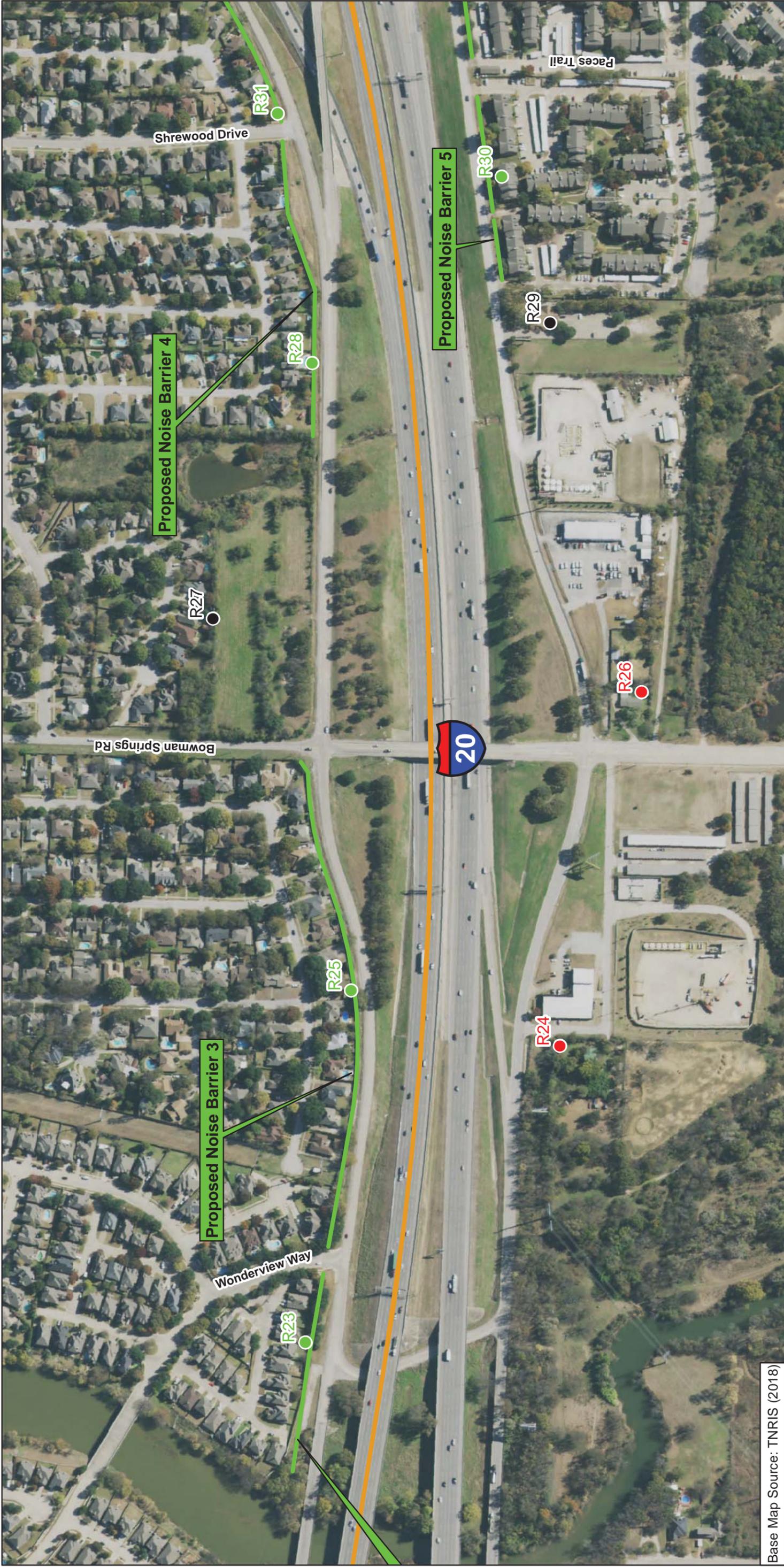
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

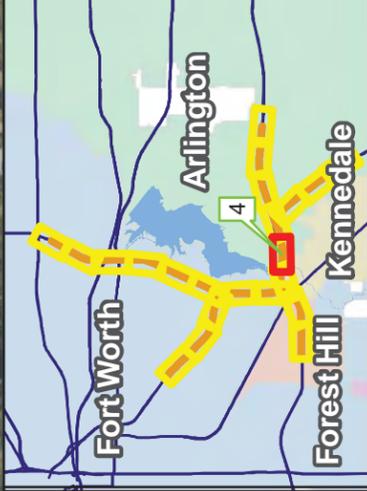
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
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**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

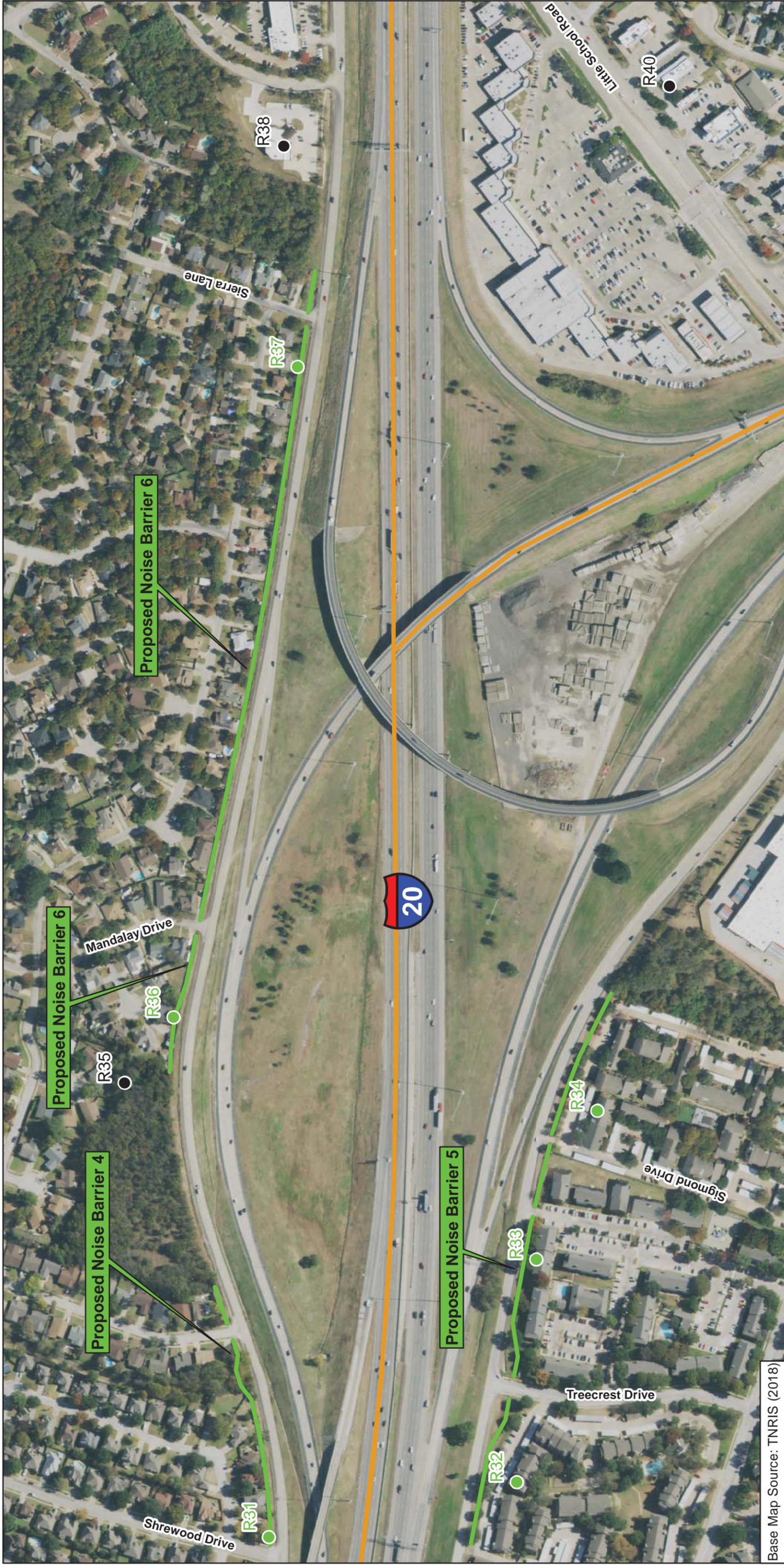
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

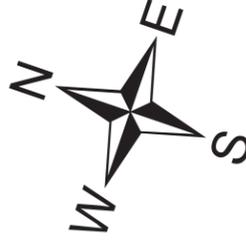
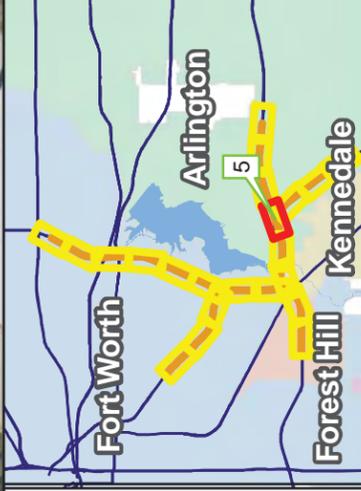
US 287
CSJs: 0008-13-125, etc.



Base Map Source: TNRRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

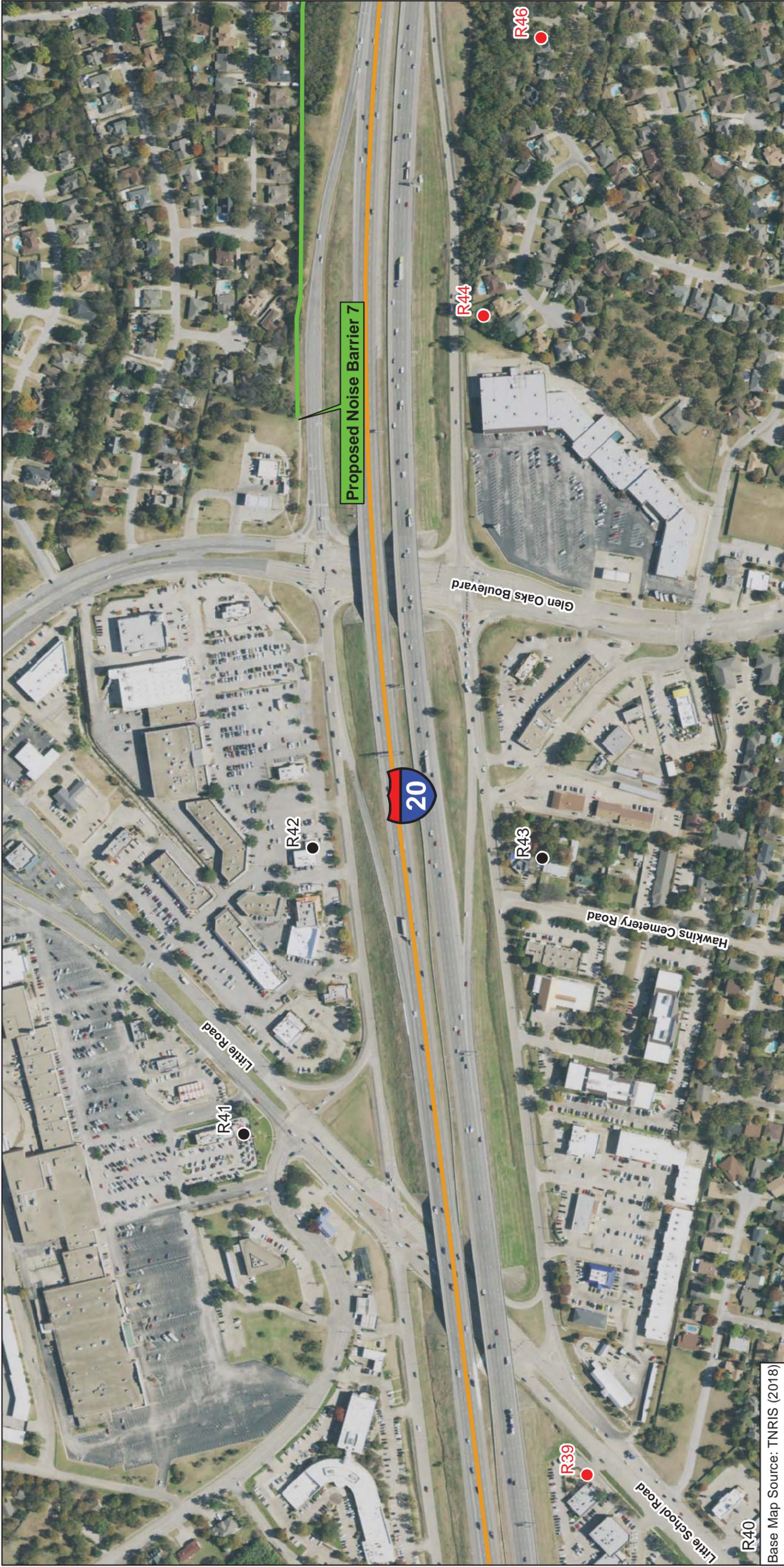
From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

US 287

CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
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NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

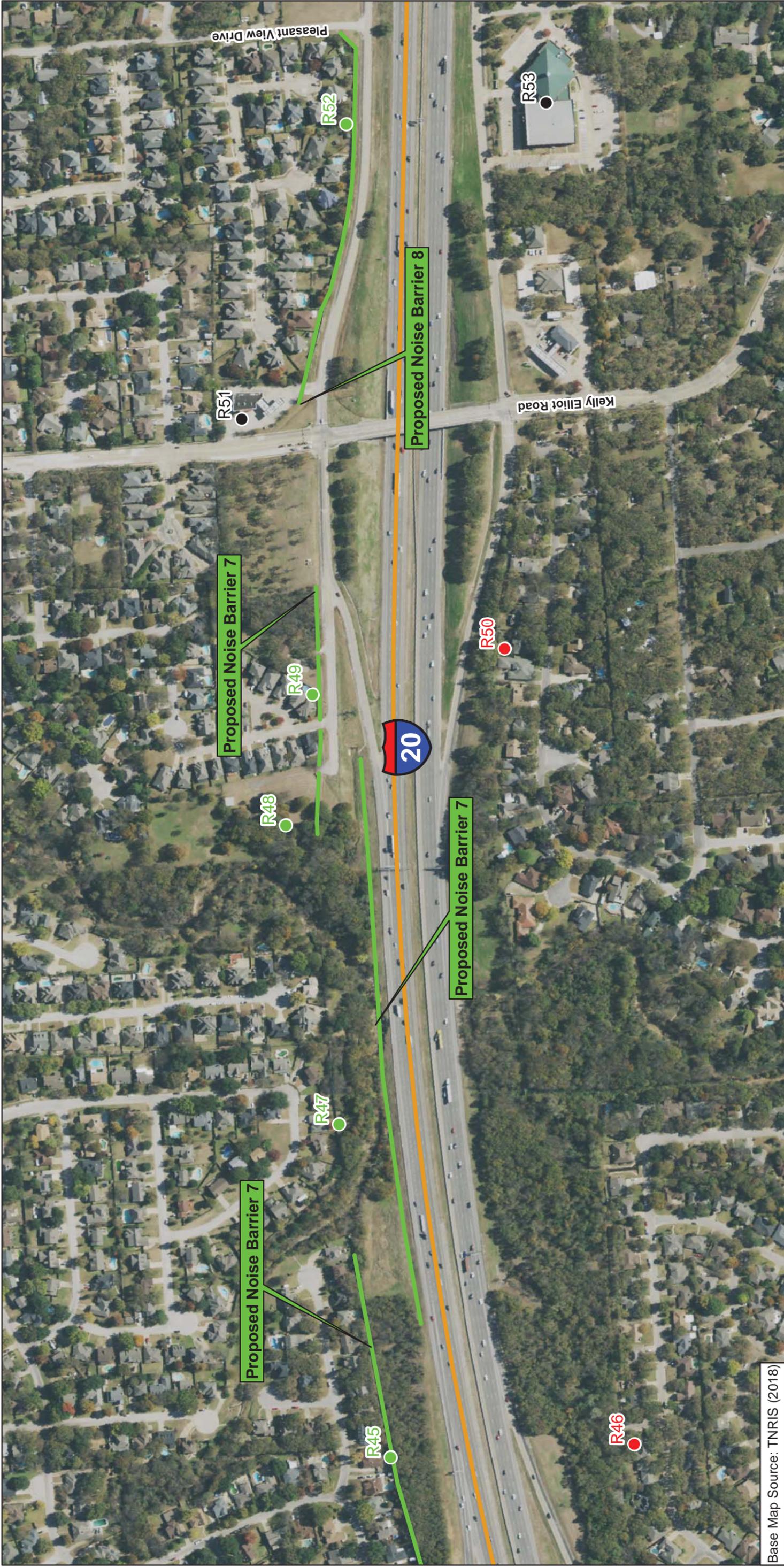
From Bishop Street to Sublett Rd

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

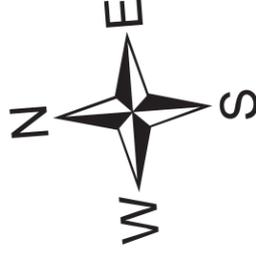
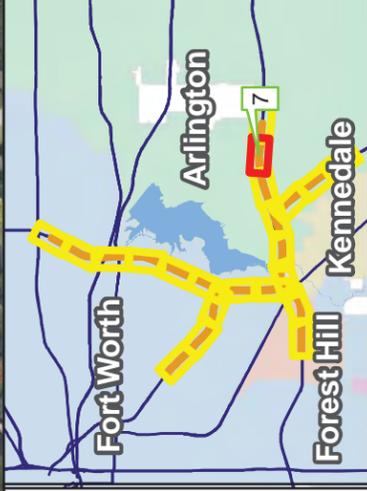
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
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NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

I-20

From Forest Hill Dr to Park Springs Blvd

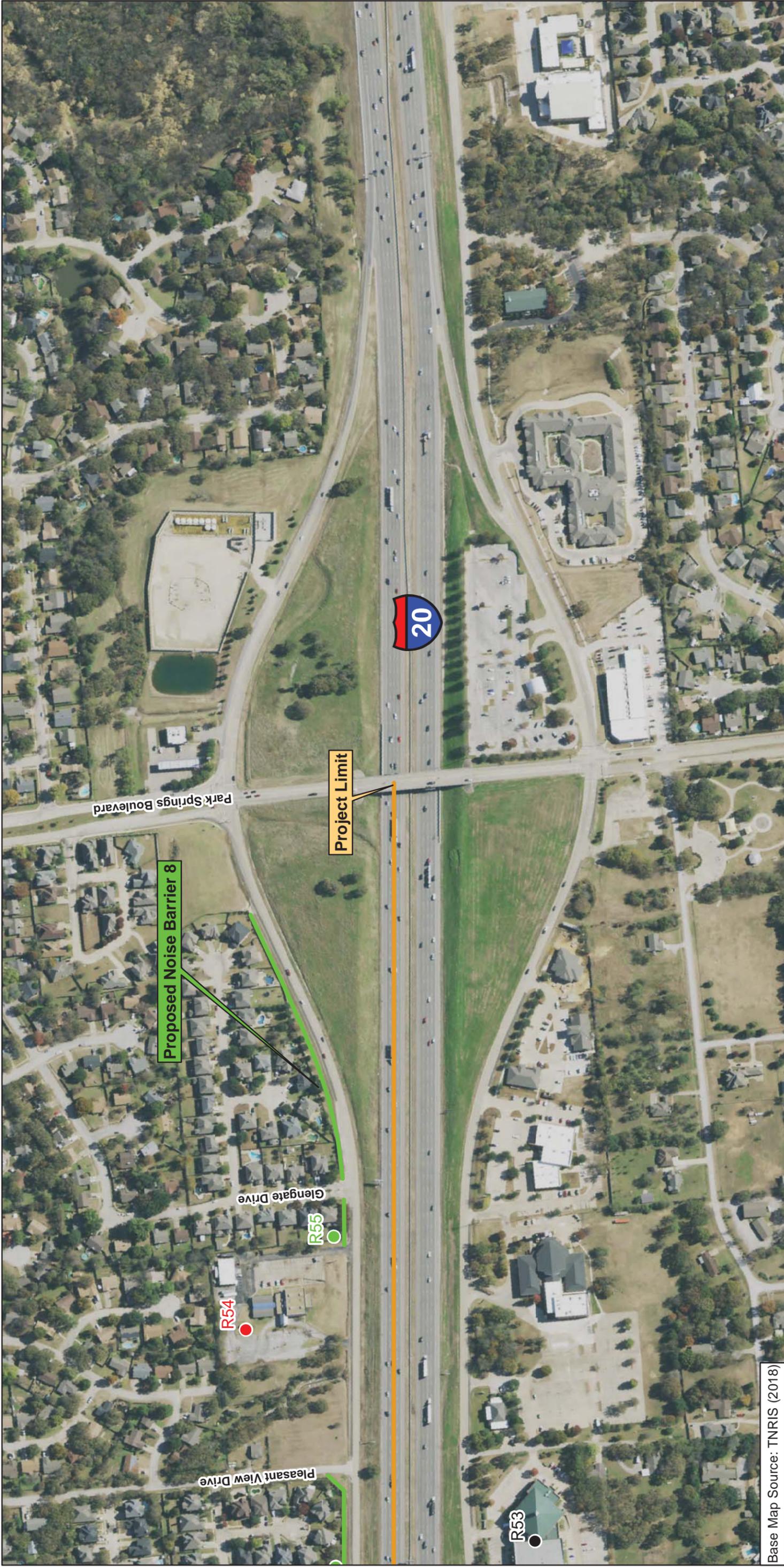
I-820

From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

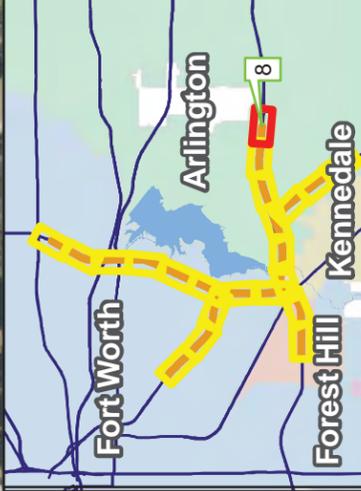
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
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NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

From Forest Hill Dr to Park Springs Blvd

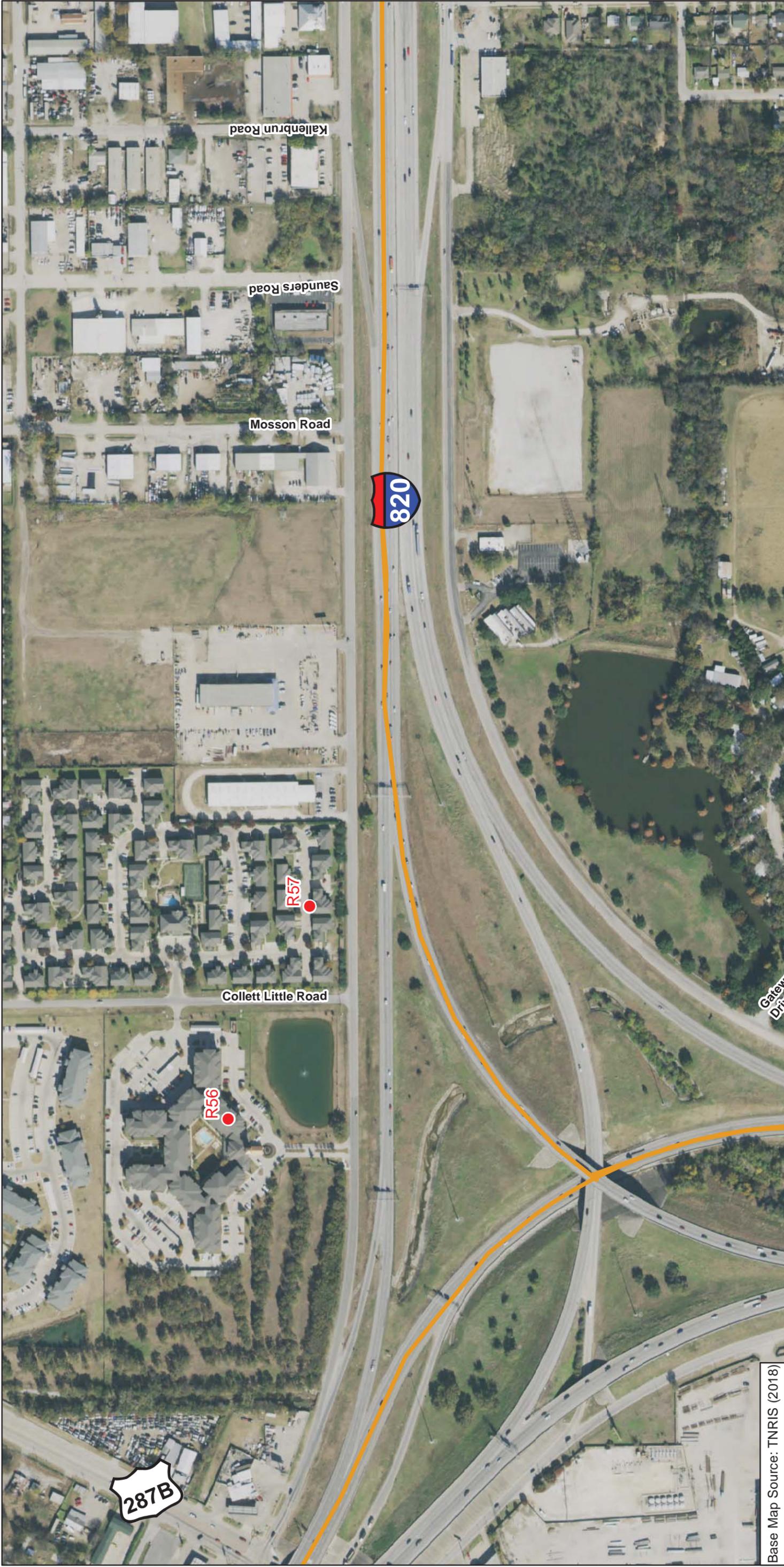
From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

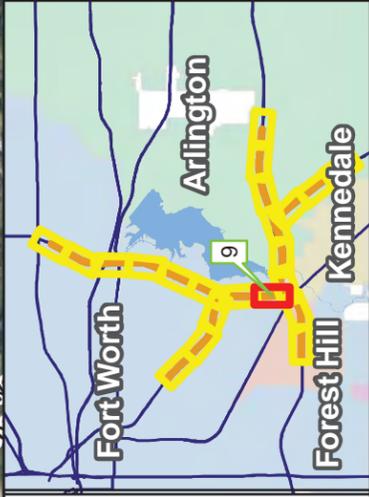
From Bishop Street to Sublett Rd



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
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**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

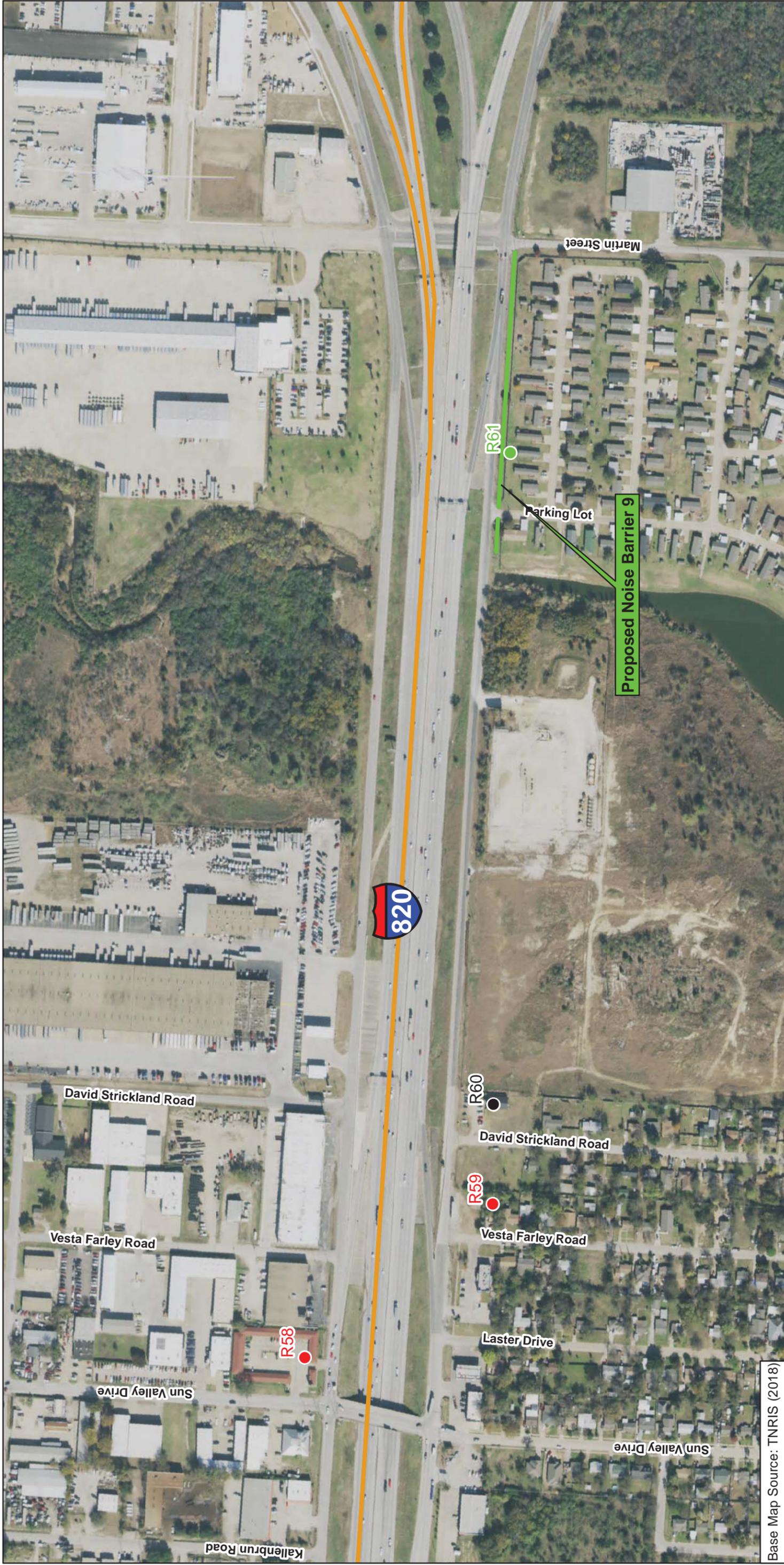
I-20
From Forest Hill Dr to Park Springs Blvd

I-820
From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

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SOUTHEAST CONNECTOR**

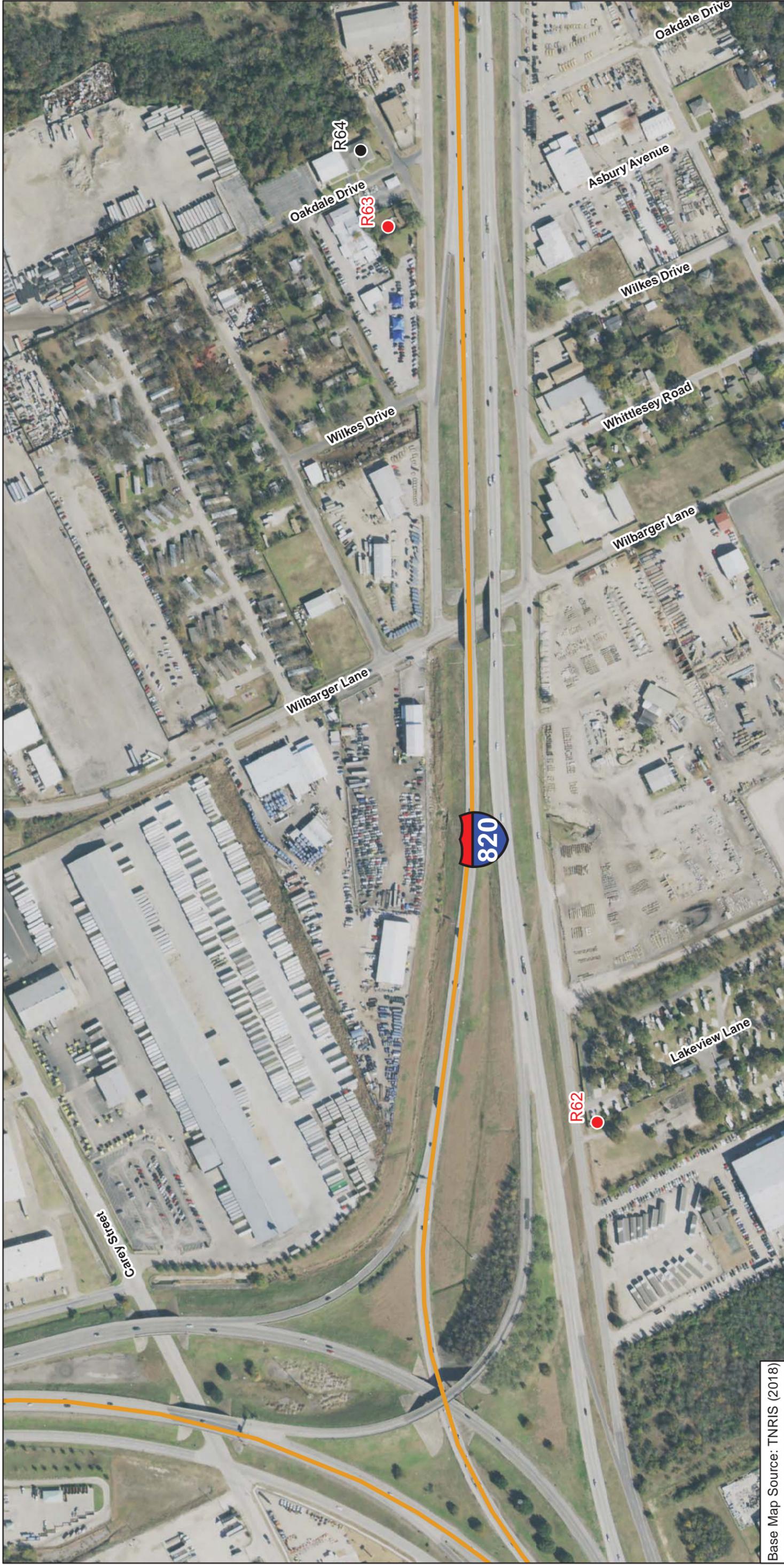
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

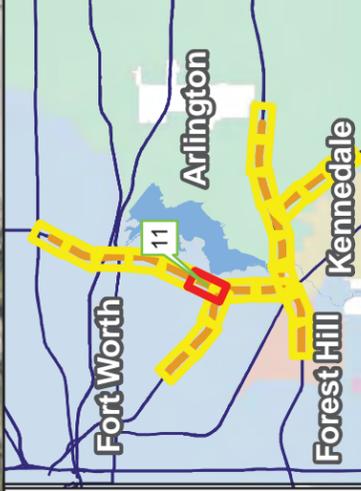
US 287
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
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- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

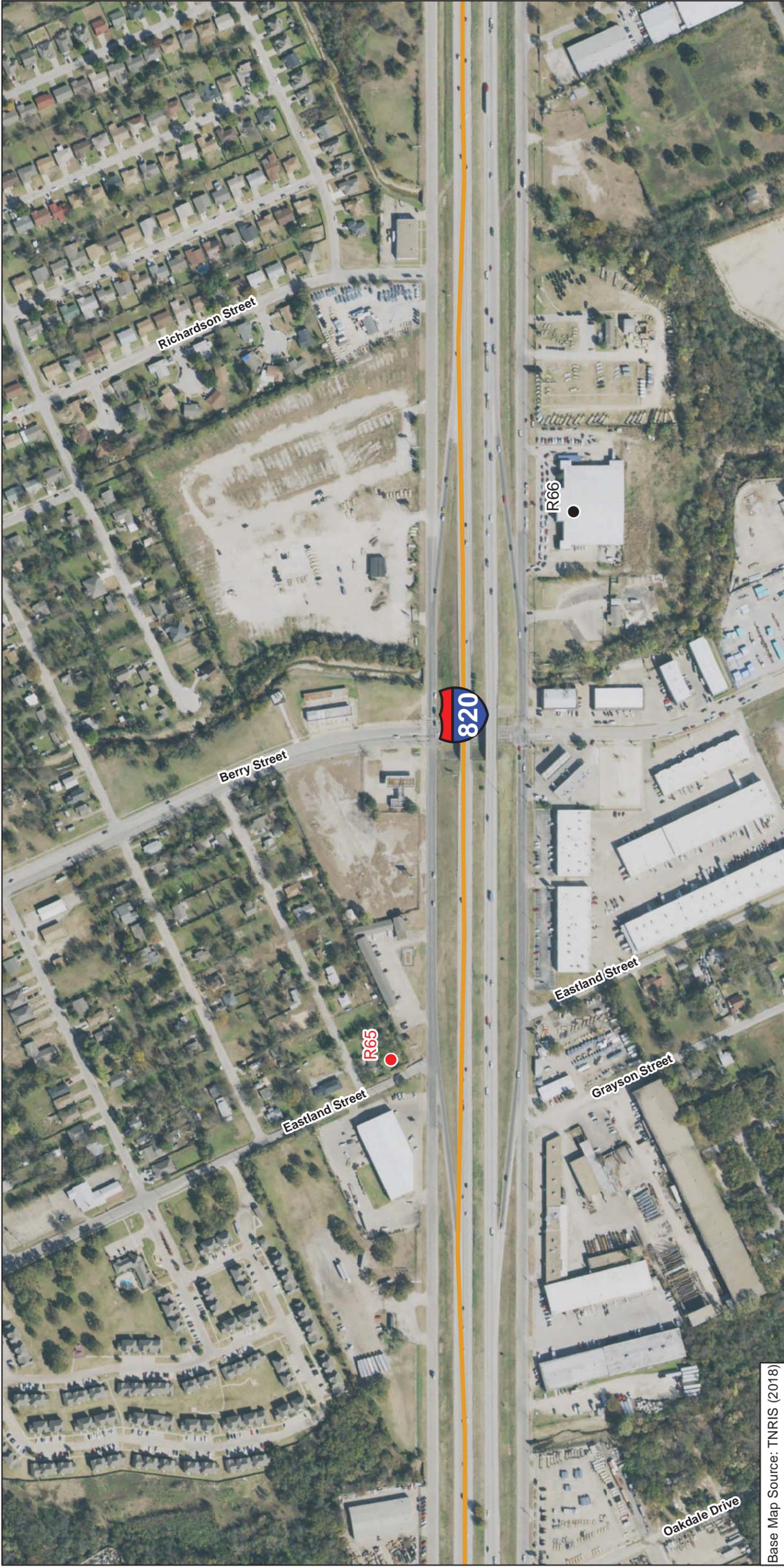
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

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Legend

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**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

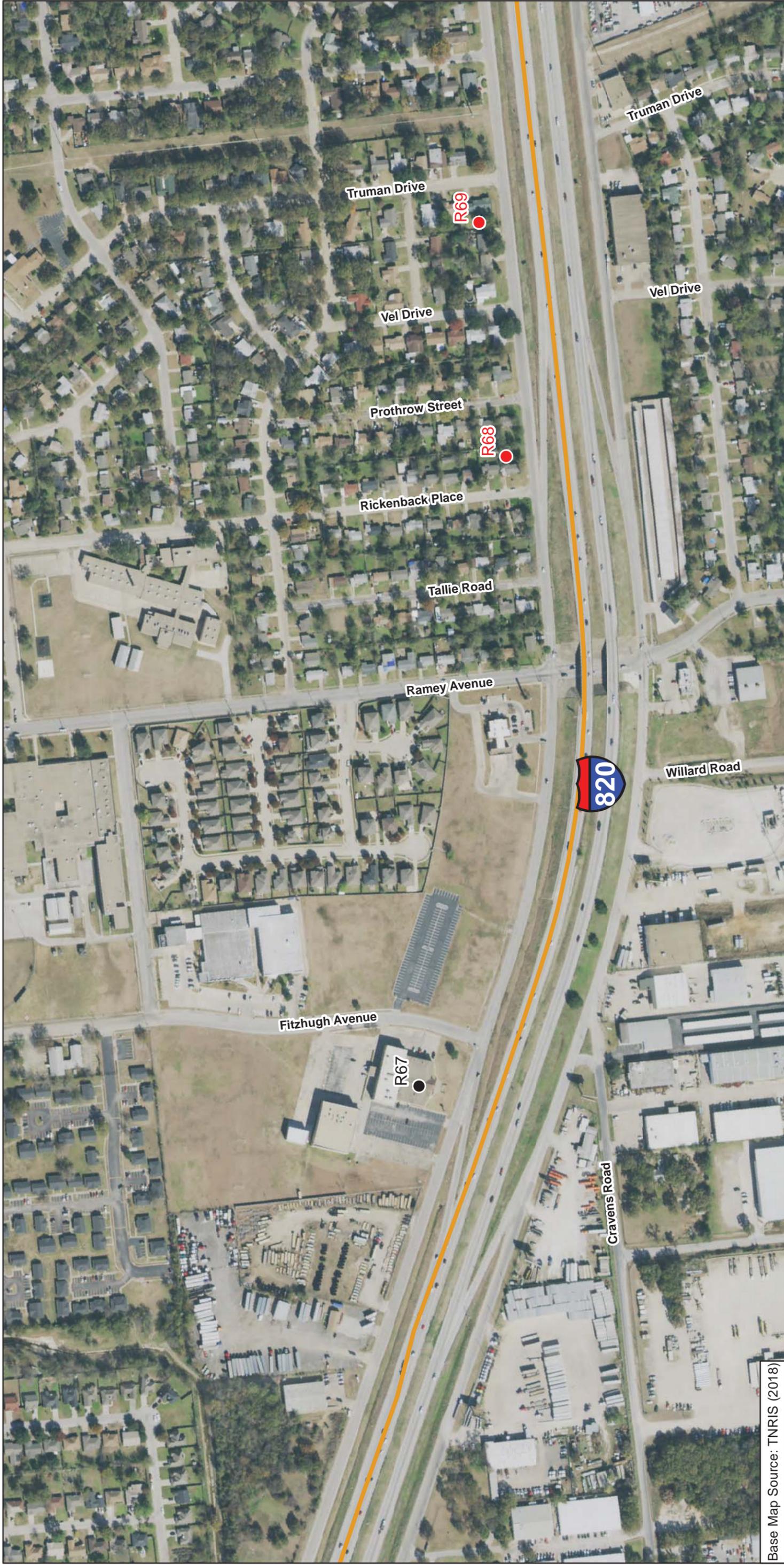
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

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**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

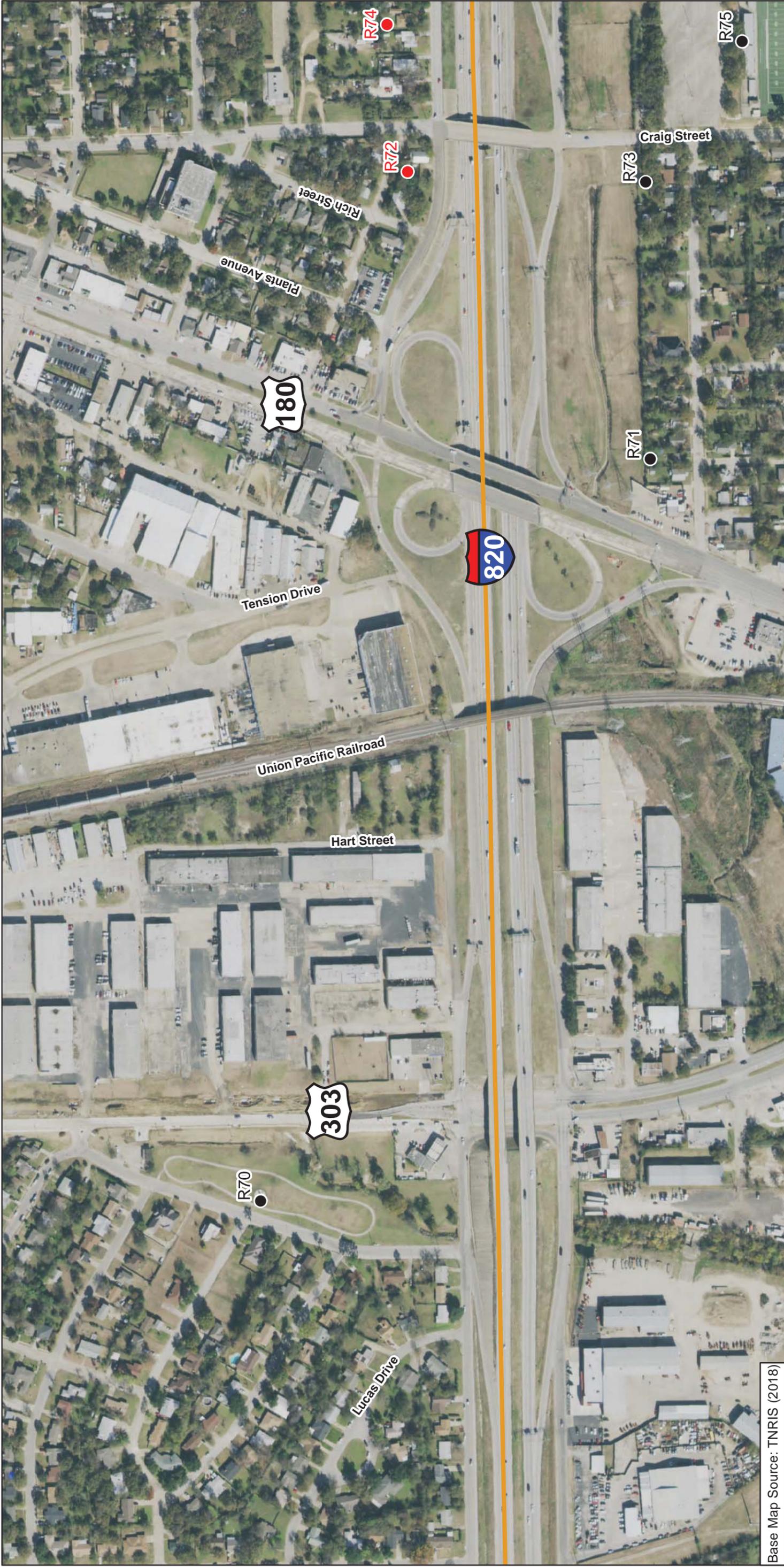
I-20
From Forest Hill Dr to Park Springs Blvd

I-820
From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

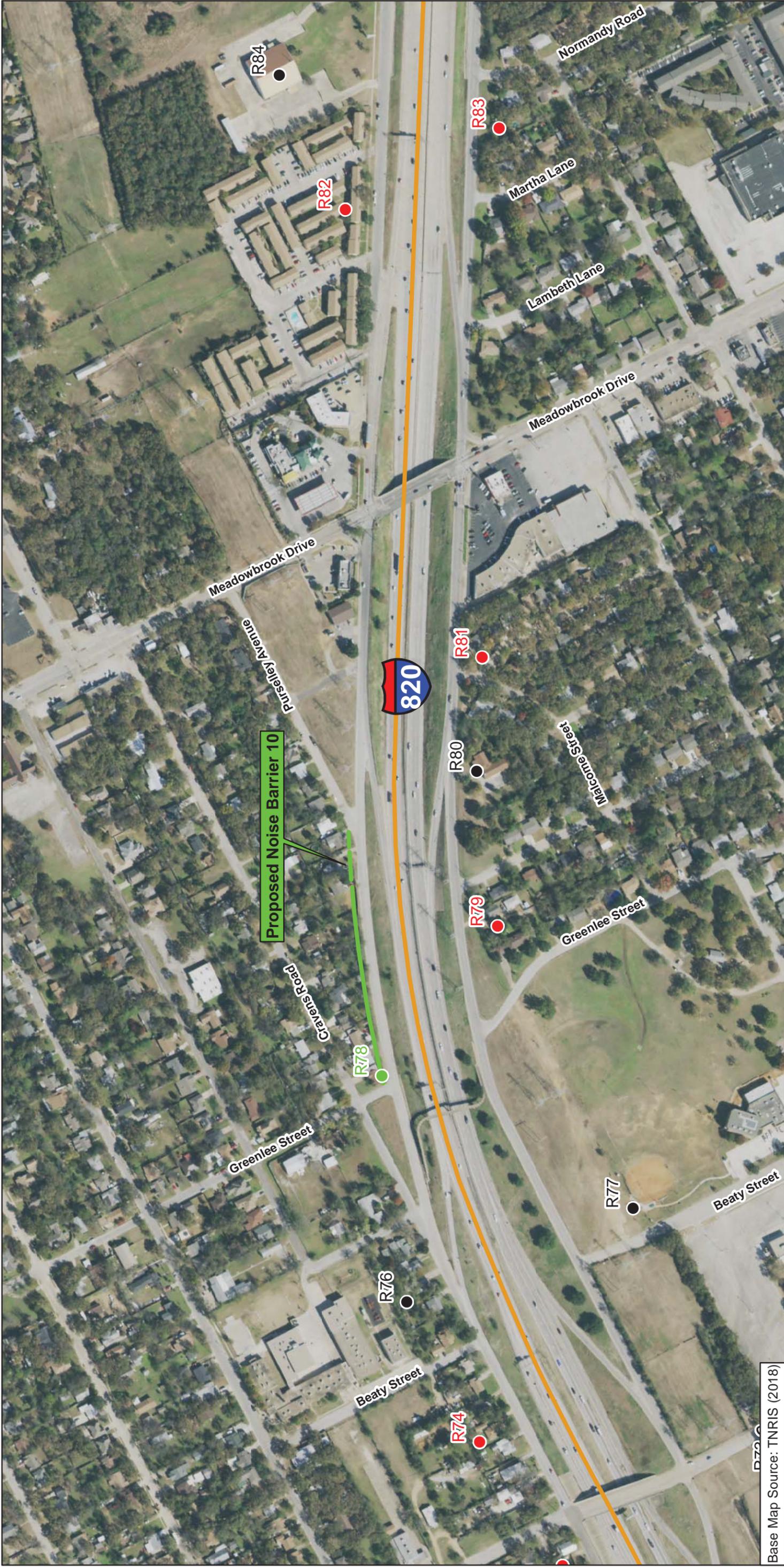
From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

US 287

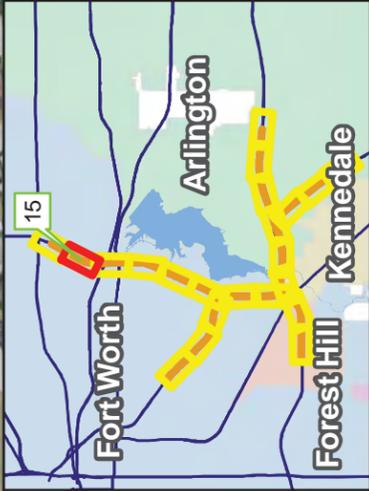
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

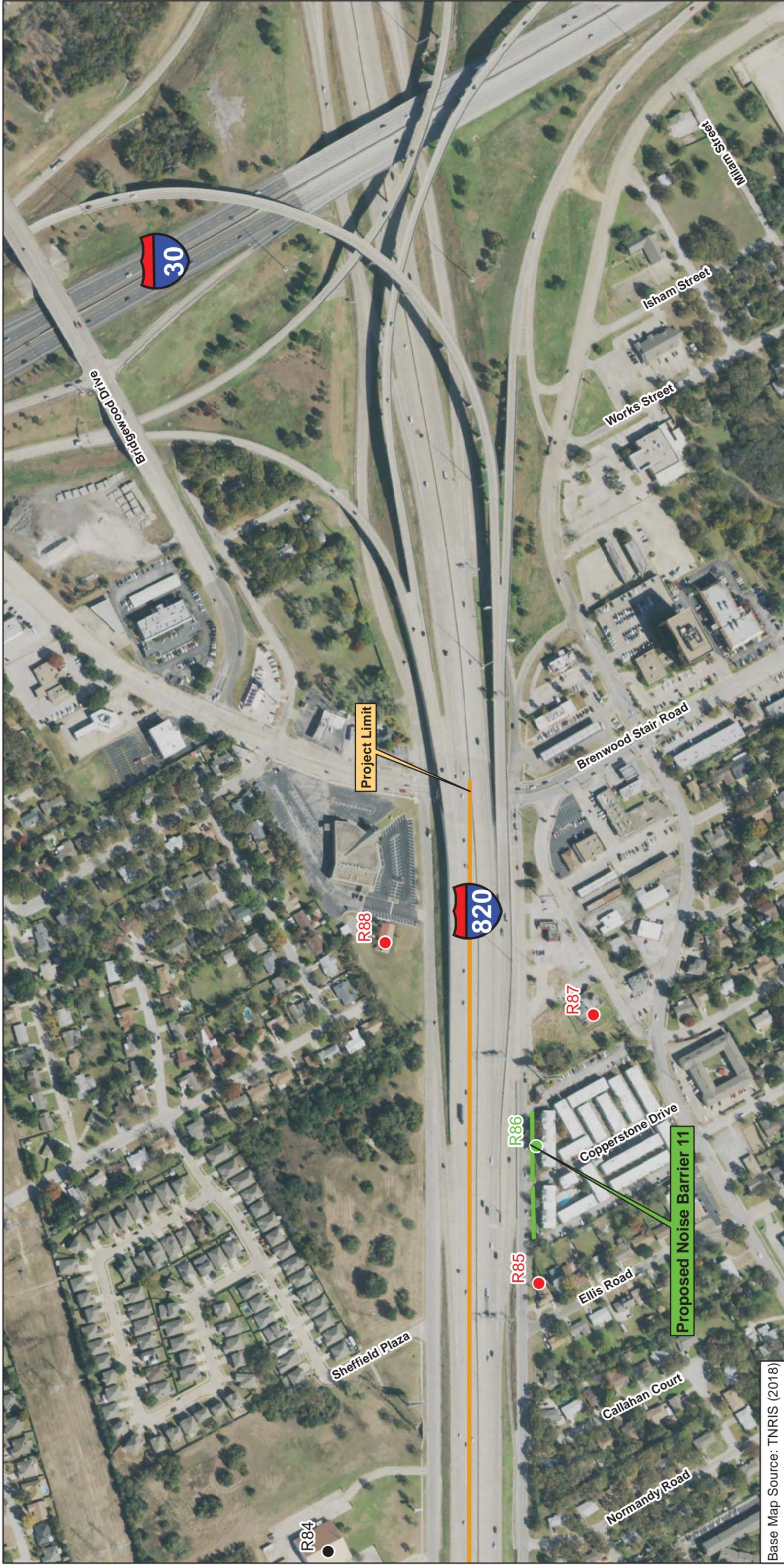
From Bishop Street to Sublett Rd

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

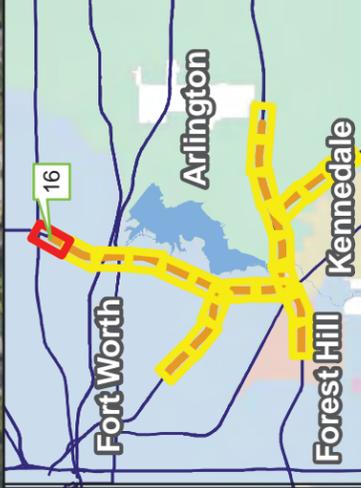
US 287
I-20
I-820



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

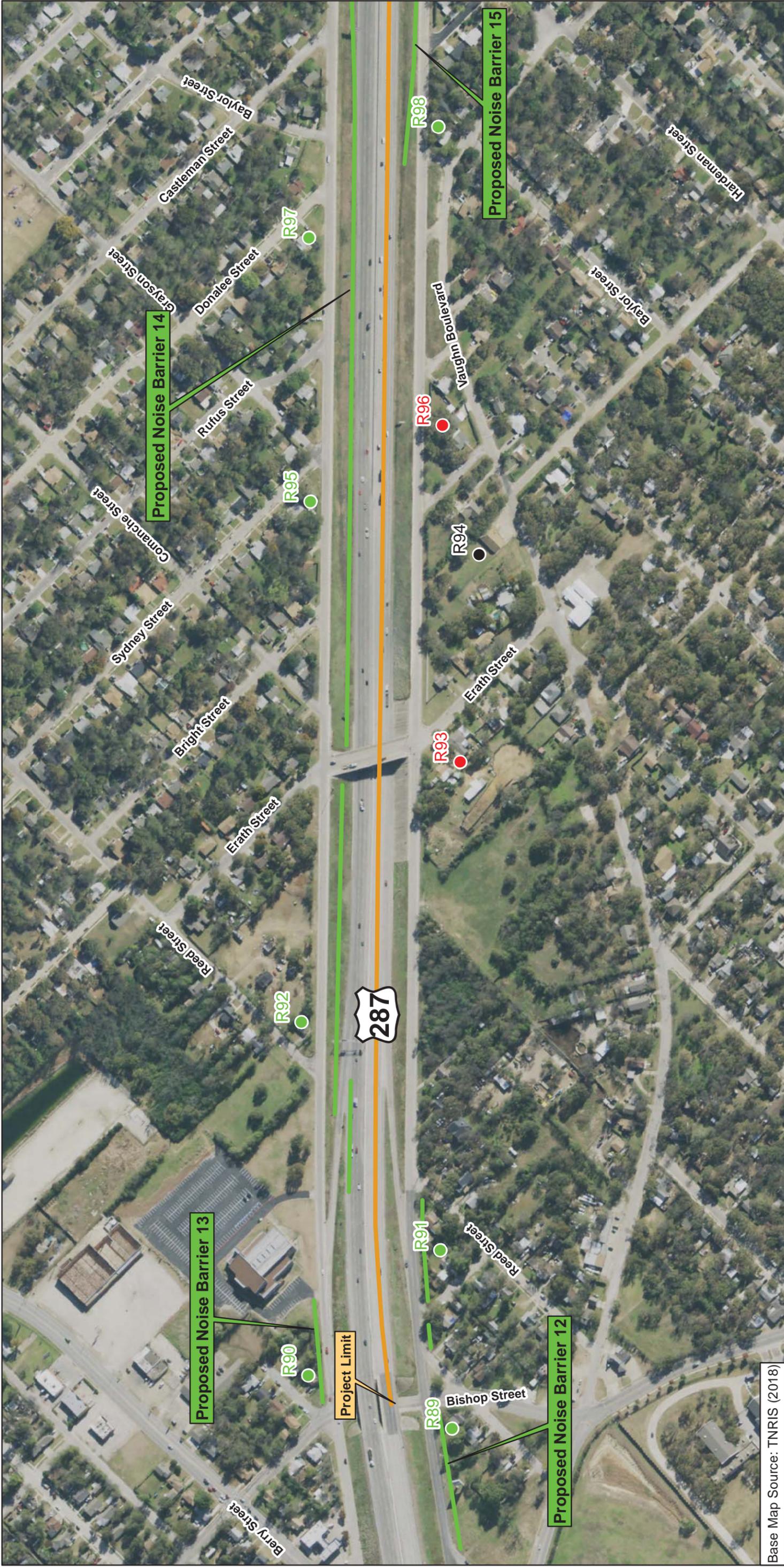
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

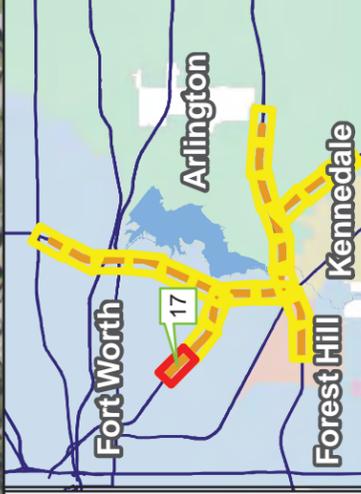
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
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- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

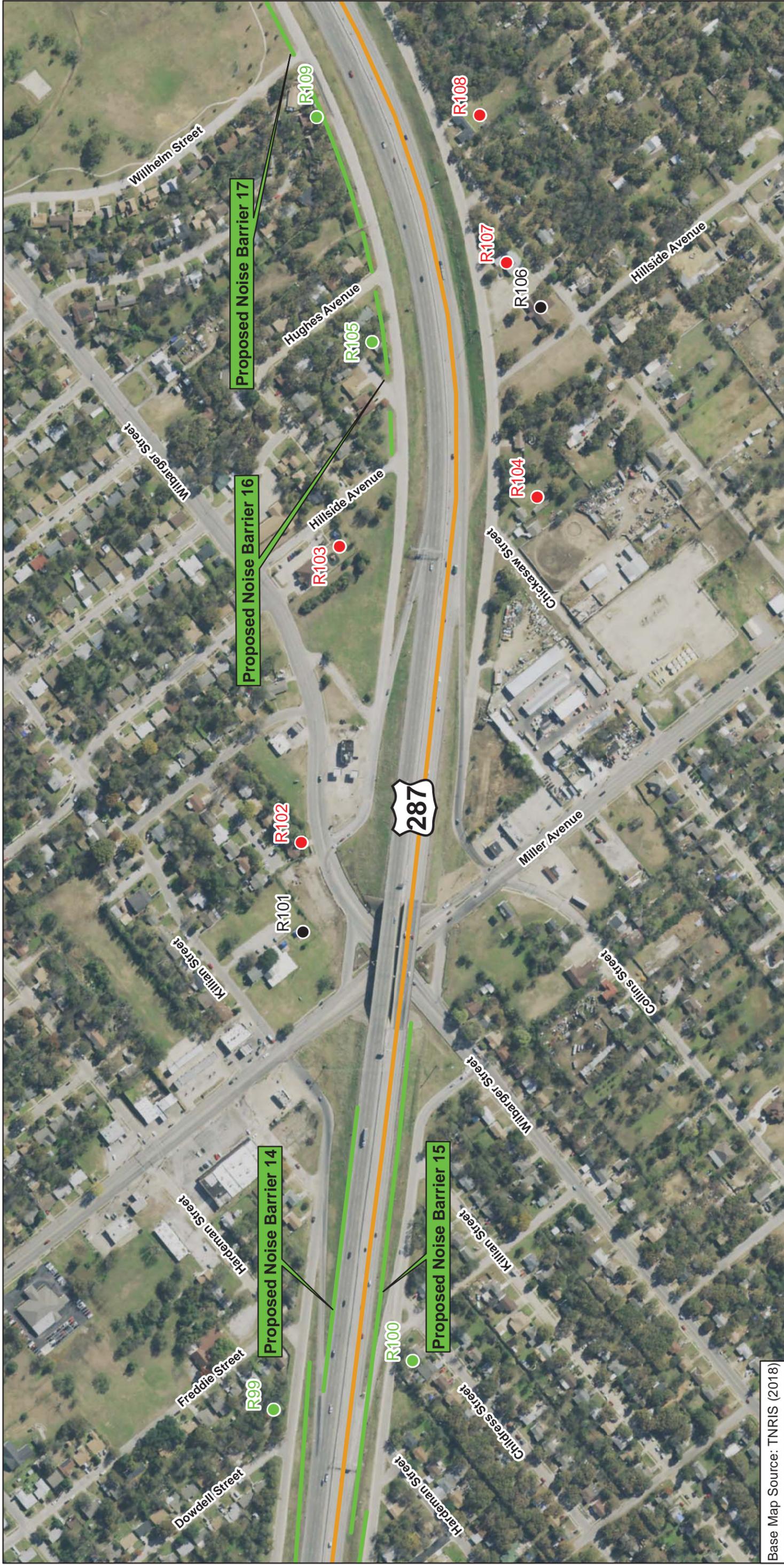
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

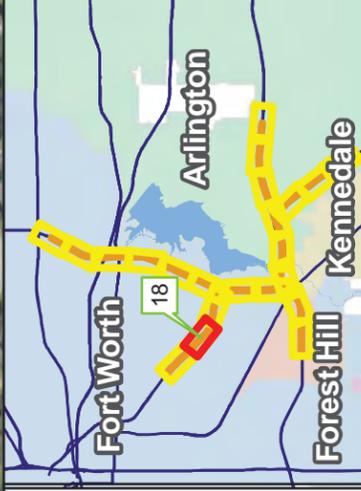
US 287
CSJs: 0008-13-125, etc.



Base Map Source: TNIRIS (2018)

Legend

- Non-impacted Receiver
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- Mitigated Receiver
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- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

I-20

From Forest Hill Dr to Park Springs Blvd

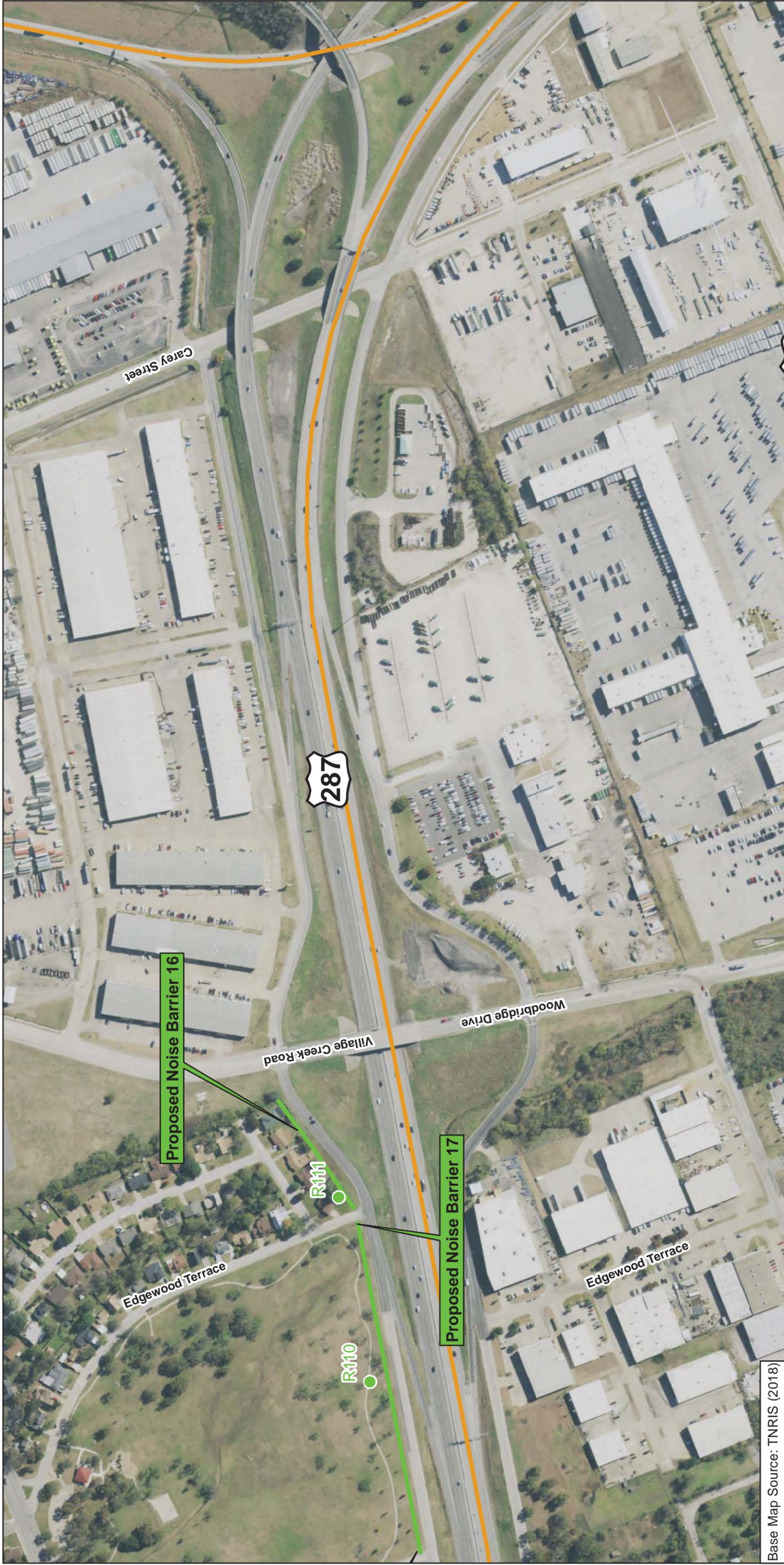
I-820

From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

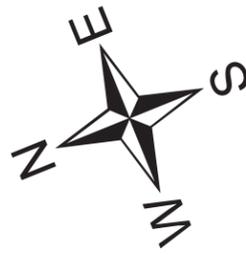
CSJs: 0008-13-125, etc.



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Legend

- Non-impacted Receiver
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- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

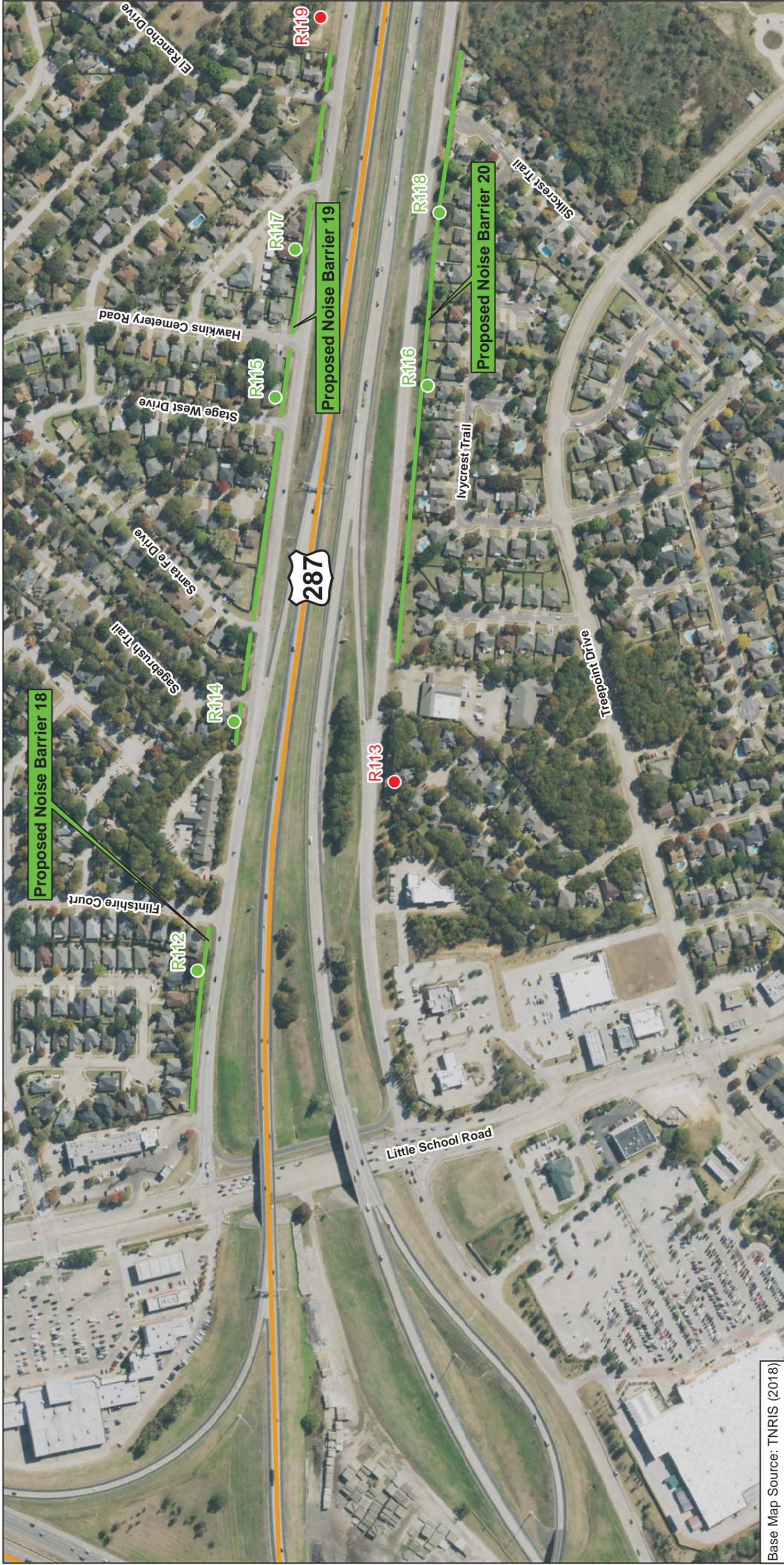
I-20
From Forest Hill Dr to Park Springs Blvd

I-820
From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

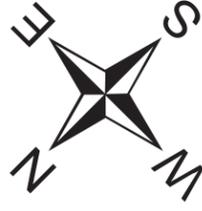
CSJs: 0008-13-125, etc.



Base Map Source: TNRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



NOISE RECEIVER LOCATION MAP

SOUTHEAST CONNECTOR

I-20/I-820/US 287 Interchanges

I-20

From Forest Hill Dr to Park Springs Blvd

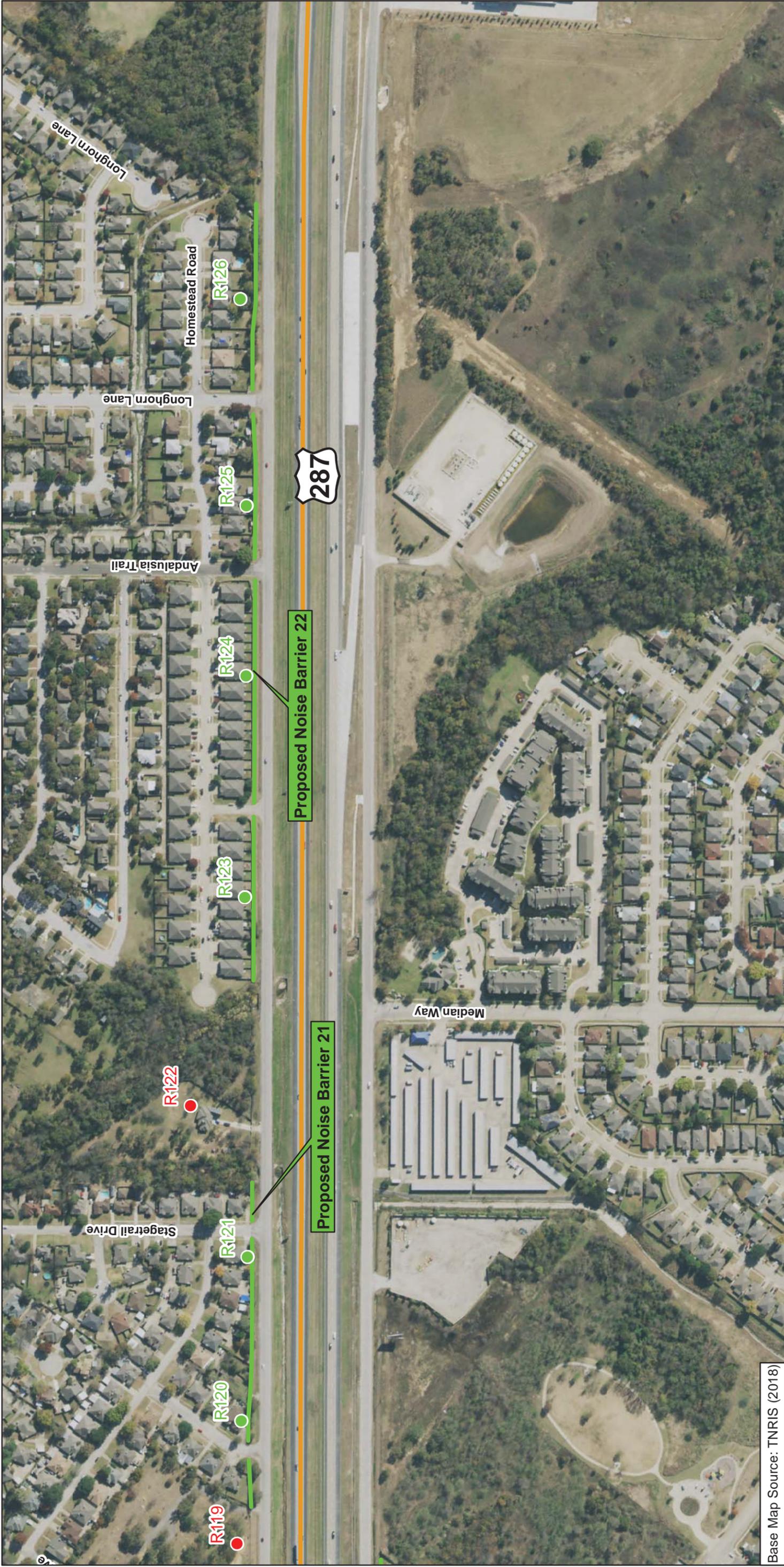
I-820

From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.



Base Map Source: TNRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

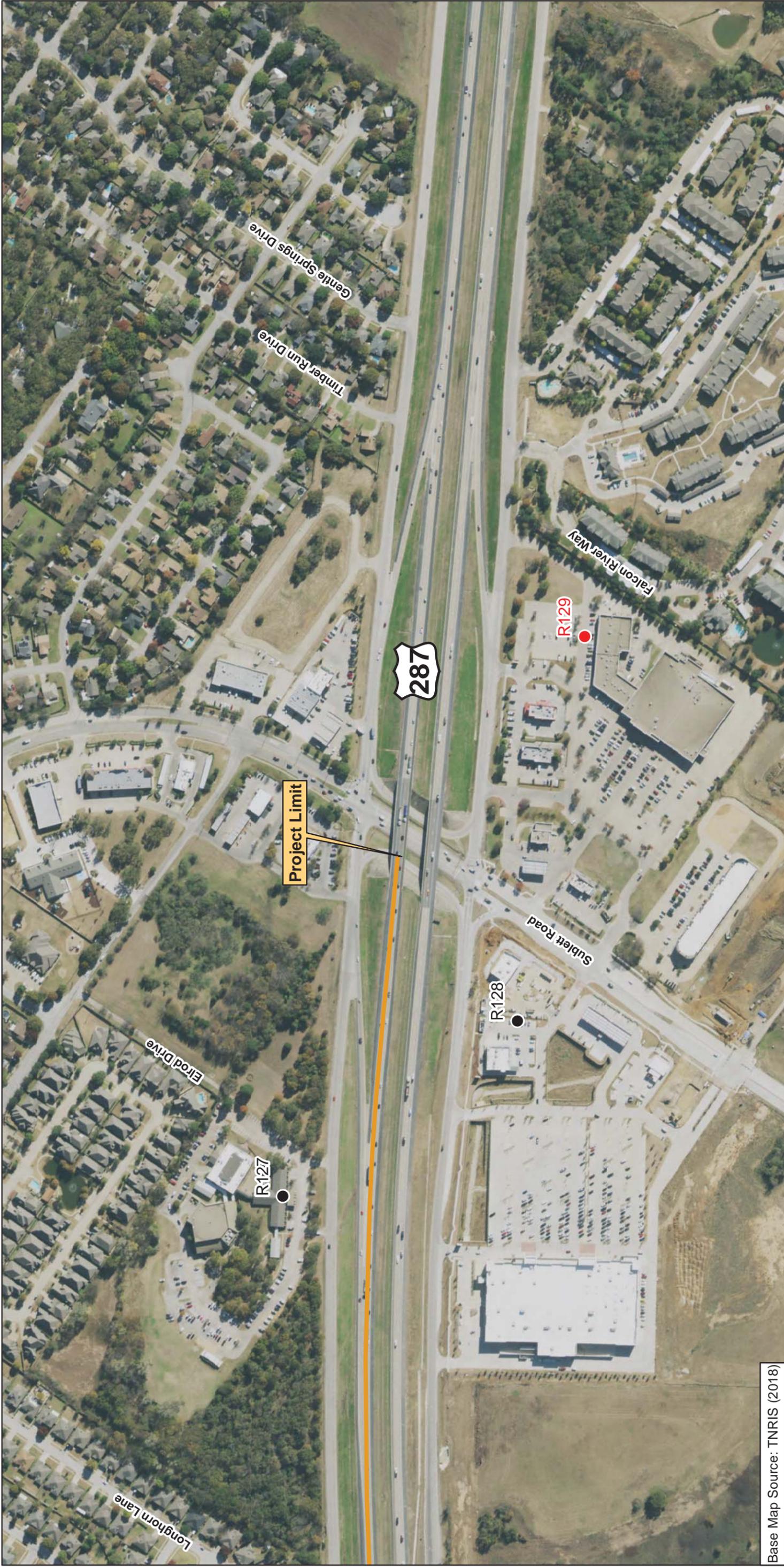
I-20/I-820/US 287 Interchanges

From Forest Hill Dr to Park Springs Blvd

From IH 20 to Brentwood Stair Rd

From Bishop Street to Sublett Rd

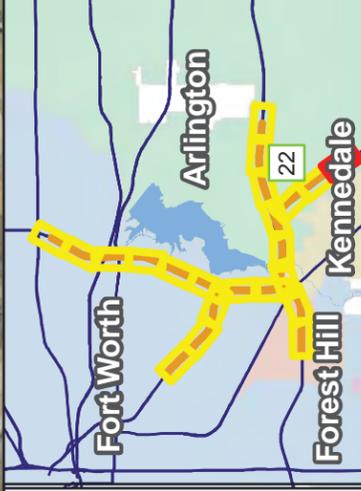
CSJs: 0008-13-125, etc.



Base Map Source: TNRIS (2018)

Legend

- Non-impacted Receiver
- Impacted Receiver
- Mitigated Receiver
- Project Limits
- Proposed Noise Wall



**NOISE RECEIVER LOCATION MAP
SOUTHEAST CONNECTOR**

I-20/I-820/US 287 Interchanges

I-20

From Forest Hill Dr to Park Springs Blvd

I-820

From IH 20 to Brentwood Stair Rd

US 287

From Bishop Street to Sublett Rd

CSJs: 0008-13-125, etc.

I-20 CSJ : 0008-13-206
 FROM I-20+420 INTERCHANGE TO FOREST HILL DRIVE
 CSJ : 2374-05-066

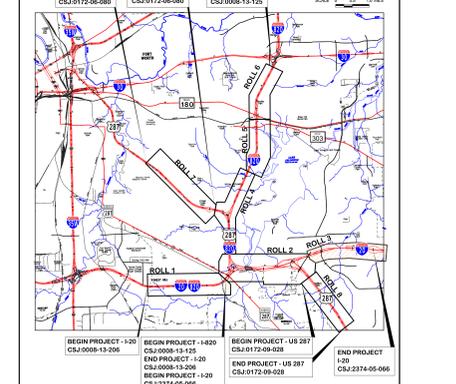
I-820 CSJ : 0008-13-206
 FROM I-820 TO PARK SPRINGS BLVD
 CSJ : 0008-13-206

US 287 CSJ : 0172-06-080
 FROM I-800+307 INTERCHANGE TO BISHOP ST
 CSJ : 0172-09-028

ROADWAY TYPE	FUNCTIONAL CLASS	DESIGN SPEED
GENERAL PURPOSE LINES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
FRONTAGE ROADS/UT-TURNS/CITY STREETS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
SHOULDER	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
SHOULDER	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
SHARED USE PATH	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED CORE AREA	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED BRIDGE/DECK/ABUTMENT	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RETAINING WALL	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING PROPERTY LINES	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED DENIAL-OF-ACCESS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DENIAL-OF-ACCESS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
CITY LIMITS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DRAINAGE EASEMENTS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
POTENTIAL DISPLACEMENTS	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW
CREEKS AND TRIBUTARIES	URBAN INTERSTATE	60 MPH UNLESS OTHERWISE NOTED BELOW

TRAFFIC VOLUMES BASED ON	I-20	I-820	US 287
AVERAGE DAILY TRAFFIC - 2010(24H)	14983 (27380)	21903 (24410)	7810 (12340)
DIRECTIONAL DISTRIBUTION	5%	5%	5%
PERCENT TRUCKS OF ADT	6.6%	6.0%	6.4%
K-FACTOR	1.0	1.0	1.0

END PROJECT	BEGIN PROJECT	END PROJECT	BEGIN PROJECT
US 287	US 287	US 287	US 287
CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080



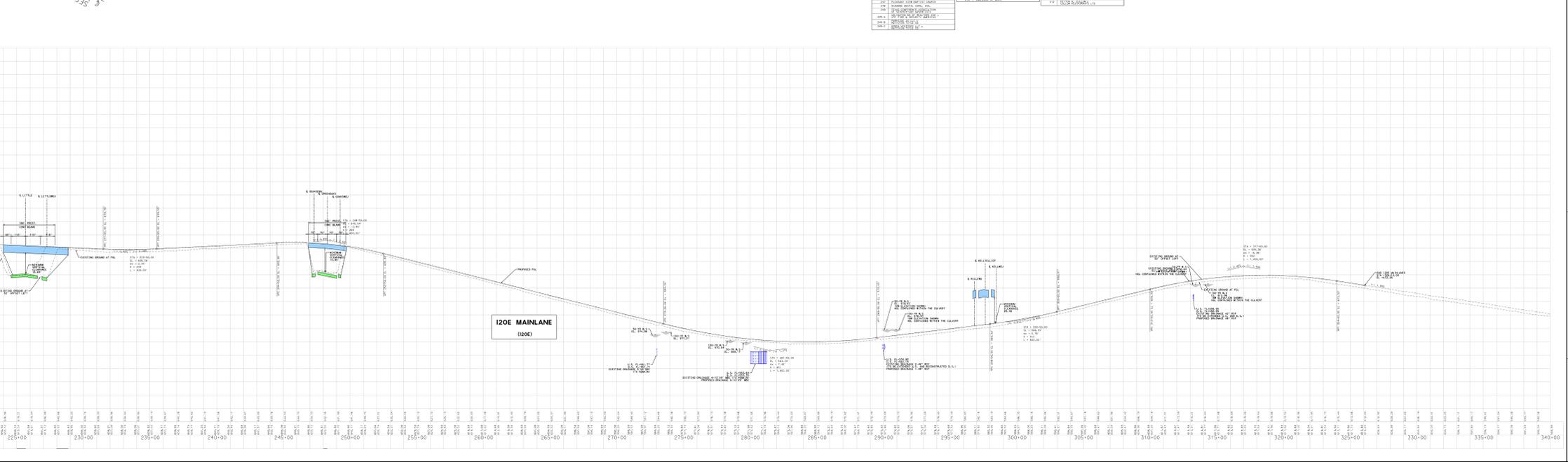
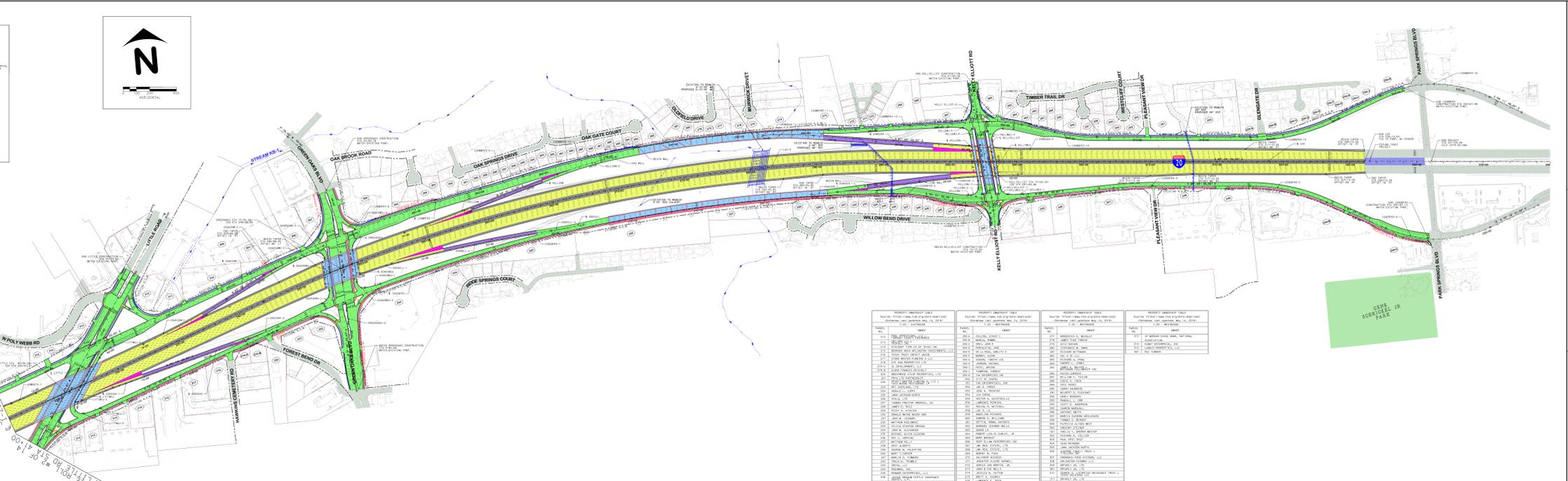
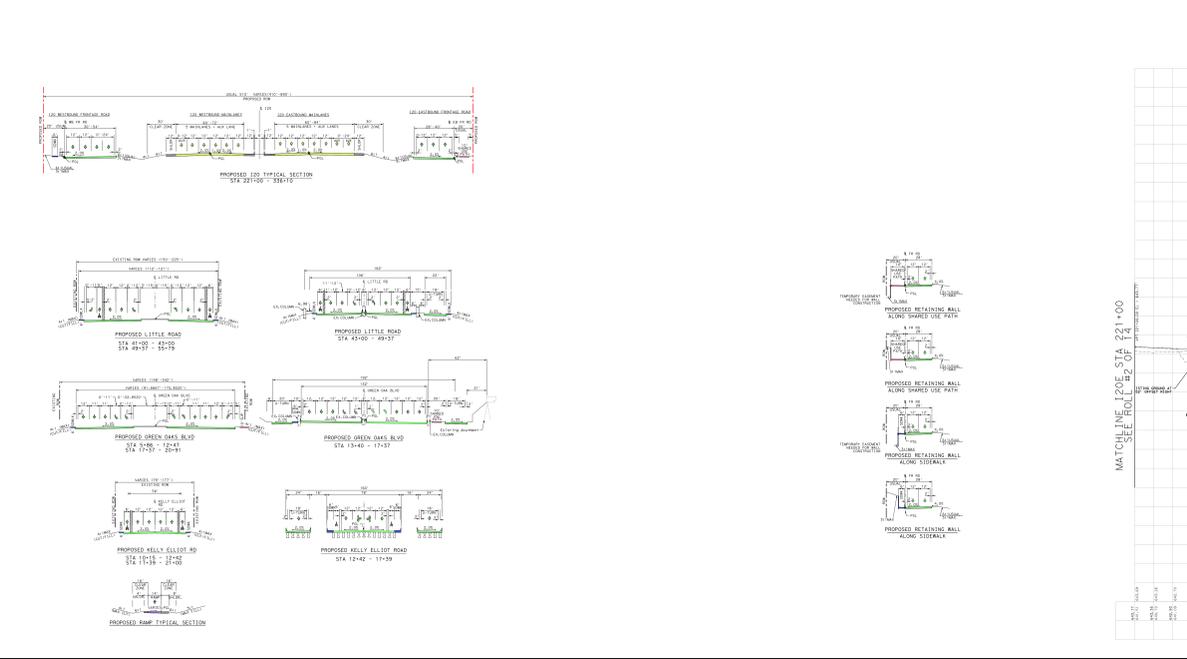
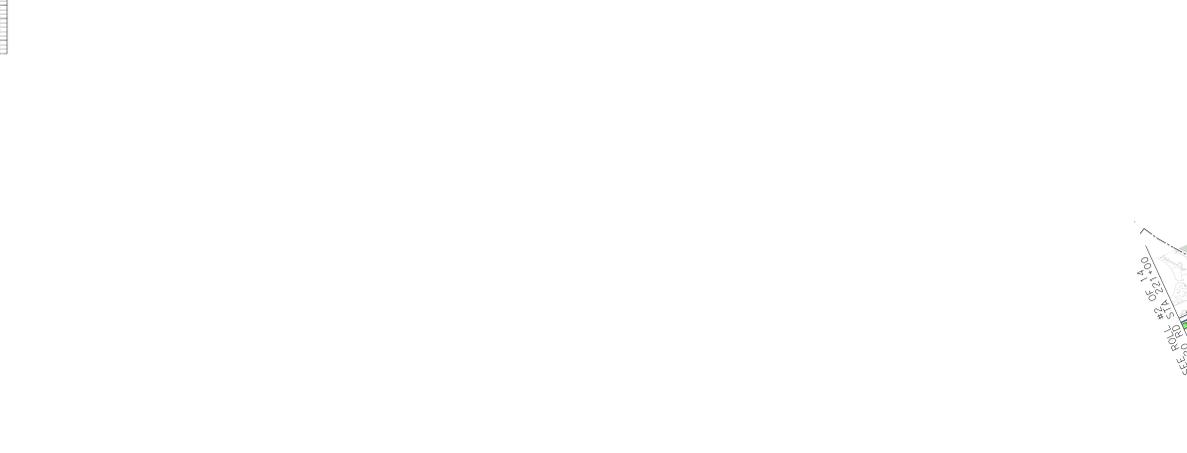
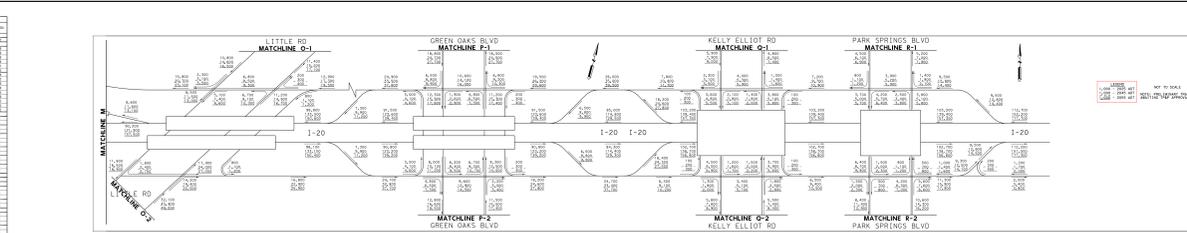
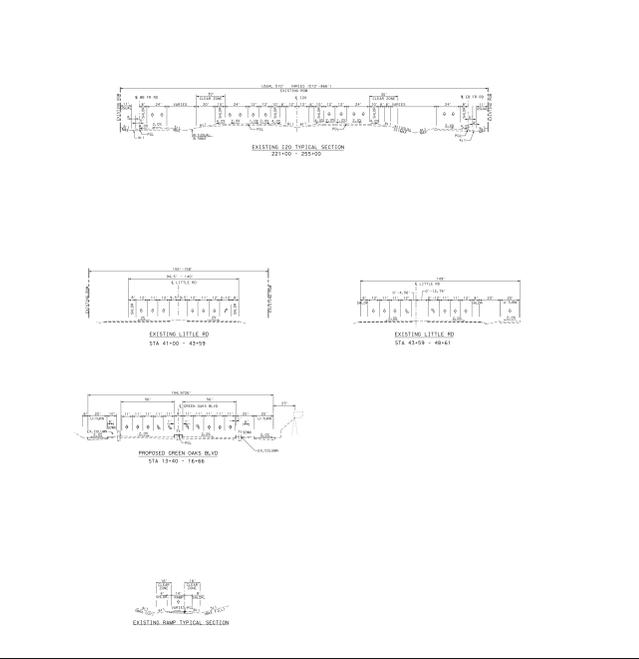
INDEX OF ROLLS

ROLL 01 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 160+00.00 TO 200+00.00
ROLL 02 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 200+00.00 TO 300+42.31 STA 144+49.13 TO 221+00.00
ROLL 03 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 221+00.00 TO 330+00.00
ROLL 04 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 330+00.00 TO STA 327+00.00; STA 327+00.00 TO 421+00.00
ROLL 05 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 421+00.00 TO STA 504+00.00
ROLL 06 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 504+00.00 TO STA 601+00.00
ROLL 07 OF 14	PLAN AND PROFILE US 287 MAINLANE - STA 249+00.00 TO STA 364+00.00
ROLL 08 OF 14	PLAN AND PROFILE US 287 MAINLANE - STA 364+00.00 TO STA 224+75.37
ROLL 09 OF 14	ISD PROFILES - FRONTAGE ROADS/CD'S/DC'S
ROLL 10 OF 14	ISD PROFILES - FRONTAGE ROADS/CD'S/DC'S
ROLL 11 OF 14	ISD PROFILES - FRONTAGE ROADS/CD'S/DC'S
ROLL 12 OF 14	ISD PROFILES - FRONTAGE ROADS
ROLL 13 OF 14	ISD PROFILES - DC'S CROSS STREETS/UT-TURNS/RAMPS
ROLL 14 OF 14	US 287 PROFILES - FRONTAGE ROAD/RAMPS/CROSS STREETS/UT-TURNS

DATE	DESCRIPTION	BY	APP'D
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL

DATE	DESCRIPTION	BY	APP'D
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL

DATE	DESCRIPTION	BY	APP'D
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL

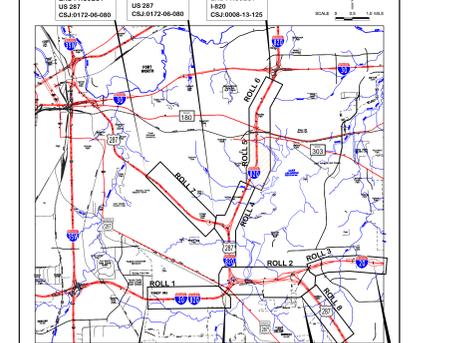


DATE	DESCRIPTION	BY	APP'D
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL
11/22/19	ISSUED FOR PERMIT	CHAD HENDERSON	LOYL C. BUSSELL

I-20 CSJ : 0008-13-206
 FROM I-20+420 INTERCHANGE TO FOREST HILL DRIVE
 CSJ : 2374-05-066
 FROM I-20 TO PARK SPRINGS BLVD
 CSJ : 0008-13-206
 FROM I-20 TO BRENTWOOD STAIR RD
 CSJ : 0172-06-080
 FROM I-20+420 INTERCHANGE TO BISHOP ST
 CSJ : 0172-09-028
 US 287 CSJ : 0172-06-080
 FROM I-20 INTERCHANGE TO SUBLETT RD

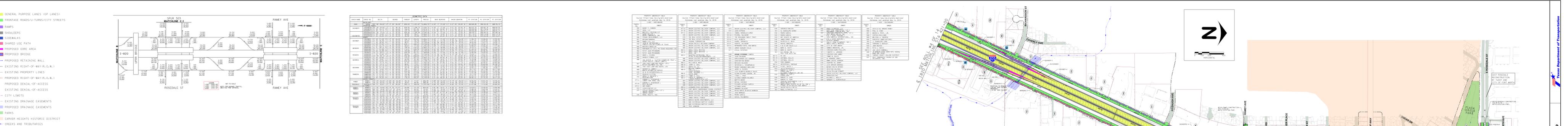
ROADWAY TYPE	FUNCTIONAL CLASS	DESIGN SPEED
GENERAL PURPOSE LINES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
FRONTAGE ROADS/UT-TURNS/CITY STREETS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
RAMP	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SHOULDER	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SIDEWALK	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SHARED USE PATH	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED CORE AREA	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED BRIDGE	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RETAINING WALL	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING PROPERTY LINES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED DENIAL-OF-ACCESS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DENIAL-OF-ACCESS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
CITY LIMITS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DRAINAGE EASEMENTS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED DRAINAGE EASEMENTS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PARKS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
CARVER HEIGHTS HISTORIC DISTRICT	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
CREEKS AND TRIBUTARIES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
DIRECTION OF TRAFFIC	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DRIVEWAYS TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING PAVEMENT TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING STREETS TO REMAIN	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW

TRAFFIC VOLUMES BASED ON	I-20	I-20	US 287
ADJUSTED TO 2010 TRIP DIVISION	FROM I-20 TO FOREST HILL DR	FROM I-20 TO PARK SPRINGS BLVD	FROM I-20 TO BISHOP ST
AVERAGE DAILY TRAFFIC (ADT)	14,000 (24,000)	21,000 (34,100)	11,000 (25,000)
DIRECTIONAL DISTRIBUTION	5%	5%	5%
PERCENT TRUCKS OF ADT	6.6%	6.6%	6.6%
K/FACTOR	1	1	1



INDEX OF ROLLS

ROLL 01 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 160+16.00 TO 200+00.00
ROLL 02 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 250+00.00 TO 300+42.31 STA 144+49.13 TO 221+00.00
ROLL 03 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 221+00.00 TO 320+00.00
ROLL 04 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 210+00.00 TO STA 327+00.00 STA 327+00.00 TO 421+00.00
ROLL 05 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 421+00.00 TO STA 504+00.00
ROLL 06 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 504+00.00 TO STA 604+00.00
ROLL 07 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 364+00.00 TO STA 364+00.00
ROLL 08 OF 14	PLAN AND PROFILE (D) MAINLANE - STA 130+00.00 TO STA 224+75.37
ROLL 09 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 10 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 11 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 12 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 13 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 14 OF 14	US 287 PROFILES - FRONTAGE ROADS/CROSS RAMP



PROPOSED ROADWAY	SECTION	SECTION	SECTION	SECTION	SECTION
SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6
SECTION 7	SECTION 8	SECTION 9	SECTION 10	SECTION 11	SECTION 12
SECTION 13	SECTION 14	SECTION 15	SECTION 16	SECTION 17	SECTION 18
SECTION 19	SECTION 20	SECTION 21	SECTION 22	SECTION 23	SECTION 24
SECTION 25	SECTION 26	SECTION 27	SECTION 28	SECTION 29	SECTION 30
SECTION 31	SECTION 32	SECTION 33	SECTION 34	SECTION 35	SECTION 36
SECTION 37	SECTION 38	SECTION 39	SECTION 40	SECTION 41	SECTION 42
SECTION 43	SECTION 44	SECTION 45	SECTION 46	SECTION 47	SECTION 48
SECTION 49	SECTION 50	SECTION 51	SECTION 52	SECTION 53	SECTION 54
SECTION 55	SECTION 56	SECTION 57	SECTION 58	SECTION 59	SECTION 60
SECTION 61	SECTION 62	SECTION 63	SECTION 64	SECTION 65	SECTION 66
SECTION 67	SECTION 68	SECTION 69	SECTION 70	SECTION 71	SECTION 72
SECTION 73	SECTION 74	SECTION 75	SECTION 76	SECTION 77	SECTION 78
SECTION 79	SECTION 80	SECTION 81	SECTION 82	SECTION 83	SECTION 84
SECTION 85	SECTION 86	SECTION 87	SECTION 88	SECTION 89	SECTION 90
SECTION 91	SECTION 92	SECTION 93	SECTION 94	SECTION 95	SECTION 96
SECTION 97	SECTION 98	SECTION 99	SECTION 100	SECTION 101	SECTION 102
SECTION 103	SECTION 104	SECTION 105	SECTION 106	SECTION 107	SECTION 108
SECTION 109	SECTION 110	SECTION 111	SECTION 112	SECTION 113	SECTION 114
SECTION 115	SECTION 116	SECTION 117	SECTION 118	SECTION 119	SECTION 120
SECTION 121	SECTION 122	SECTION 123	SECTION 124	SECTION 125	SECTION 126
SECTION 127	SECTION 128	SECTION 129	SECTION 130	SECTION 131	SECTION 132
SECTION 133	SECTION 134	SECTION 135	SECTION 136	SECTION 137	SECTION 138
SECTION 139	SECTION 140	SECTION 141	SECTION 142	SECTION 143	SECTION 144
SECTION 145	SECTION 146	SECTION 147	SECTION 148	SECTION 149	SECTION 150
SECTION 151	SECTION 152	SECTION 153	SECTION 154	SECTION 155	SECTION 156
SECTION 157	SECTION 158	SECTION 159	SECTION 160	SECTION 161	SECTION 162
SECTION 163	SECTION 164	SECTION 165	SECTION 166	SECTION 167	SECTION 168
SECTION 169	SECTION 170	SECTION 171	SECTION 172	SECTION 173	SECTION 174
SECTION 175	SECTION 176	SECTION 177	SECTION 178	SECTION 179	SECTION 180
SECTION 181	SECTION 182	SECTION 183	SECTION 184	SECTION 185	SECTION 186
SECTION 187	SECTION 188	SECTION 189	SECTION 190	SECTION 191	SECTION 192
SECTION 193	SECTION 194	SECTION 195	SECTION 196	SECTION 197	SECTION 198
SECTION 199	SECTION 200	SECTION 201	SECTION 202	SECTION 203	SECTION 204
SECTION 205	SECTION 206	SECTION 207	SECTION 208	SECTION 209	SECTION 210
SECTION 211	SECTION 212	SECTION 213	SECTION 214	SECTION 215	SECTION 216
SECTION 217	SECTION 218	SECTION 219	SECTION 220	SECTION 221	SECTION 222
SECTION 223	SECTION 224	SECTION 225	SECTION 226	SECTION 227	SECTION 228
SECTION 229	SECTION 230	SECTION 231	SECTION 232	SECTION 233	SECTION 234
SECTION 235	SECTION 236	SECTION 237	SECTION 238	SECTION 239	SECTION 240
SECTION 241	SECTION 242	SECTION 243	SECTION 244	SECTION 245	SECTION 246
SECTION 247	SECTION 248	SECTION 249	SECTION 250	SECTION 251	SECTION 252
SECTION 253	SECTION 254	SECTION 255	SECTION 256	SECTION 257	SECTION 258
SECTION 259	SECTION 260	SECTION 261	SECTION 262	SECTION 263	SECTION 264
SECTION 265	SECTION 266	SECTION 267	SECTION 268	SECTION 269	SECTION 270
SECTION 271	SECTION 272	SECTION 273	SECTION 274	SECTION 275	SECTION 276
SECTION 277	SECTION 278	SECTION 279	SECTION 280	SECTION 281	SECTION 282
SECTION 283	SECTION 284	SECTION 285	SECTION 286	SECTION 287	SECTION 288
SECTION 289	SECTION 290	SECTION 291	SECTION 292	SECTION 293	SECTION 294
SECTION 295	SECTION 296	SECTION 297	SECTION 298	SECTION 299	SECTION 300



I-20 CSJ : 0008-13-006
 FROM I-20+820 INTERCHANGE TO FOREST HILL DRIVE
 CSJ : 2374-05-066

I-820 FROM I-820 TO PARK SPRINGS BLVD
 CSJ : 0008-13-025
 FROM I-820 TO BRENTWOOD STAIR RD
 CSJ : 0172-06-080

US 287 FROM I-820+US 287 INTERCHANGE TO BISHOP ST
 CSJ : 0172-09-028
 FROM I-20 INTERCHANGE TO SUBLETT RD

ROADWAY TYPE	GENERAL PURPOSE LINES	FUNCTIONAL CLASS	DESIGN SPEED
US 287	GENERAL PURPOSE LINES (OF LANES)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	FRONTAGE ROADS/U-TURNS/CITY STREETS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	RAMP	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	SHOULDER	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	SIDEWALK	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	SHARED USE PATH	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PROPOSED CORE AREA	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PROPOSED FUTURE BRIDGE	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PROPOSED RETAINING WALL	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PROPOSED RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING PROPERTY LINES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PROPOSED DENIAL-OF-ACCESS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING DENIAL-OF-ACCESS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	CITY LIMITS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING DRAINAGE EASEMENTS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	PARKS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	CREEKS AND TRIBUTARIES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	DIRECTION OF TRAFFIC	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING DRIVEWAYS TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING PAVEMENT TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	EXISTING STREETS TO REMAIN	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
US 287	OTHER FDOT PROJECT	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW

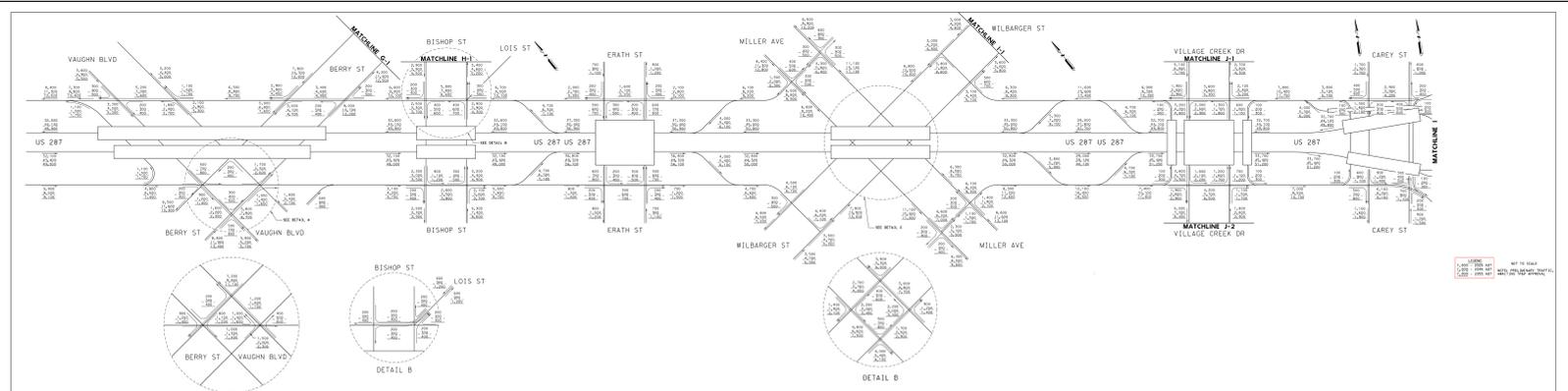
TRAFFIC VOLUMES BASED ON	I-820	I-20	US 287
ADJUSTED TO 2010 TRIP DIVISION	14000 (22180)	21000 (34400)	3100 (12400)
AVERAGE DAILY TRAFFIC - 2010(2024)	5%	5%	5%
PERCENT TRUCKS OF ADT	6.6%	6.6%	6.6%
K FACTOR	1.0	1.0	1.0



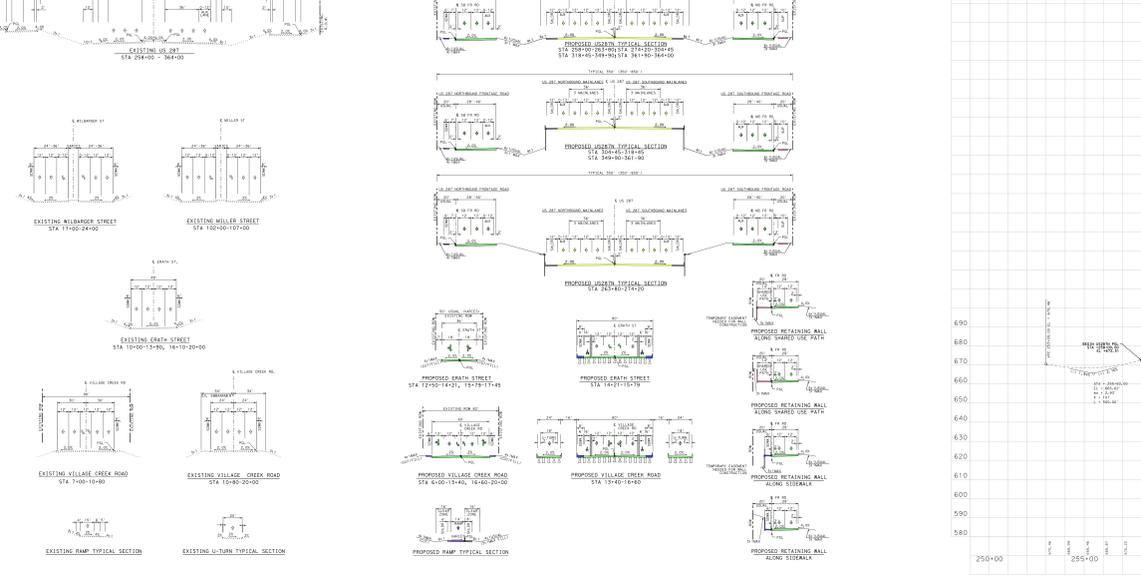
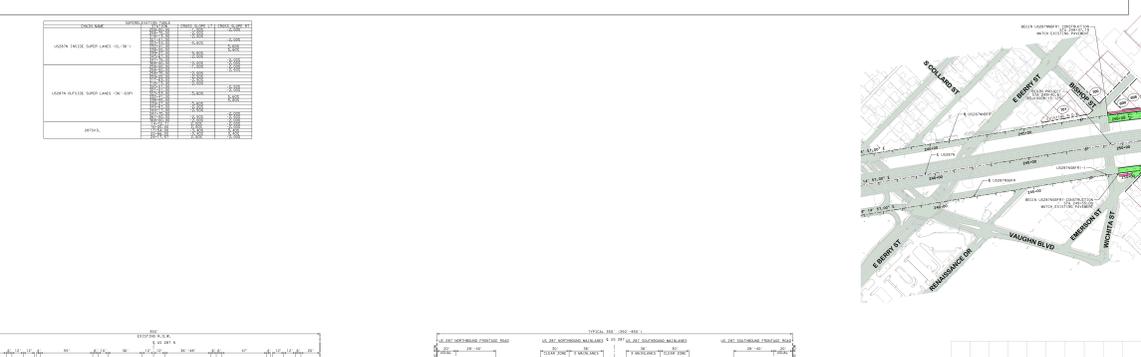
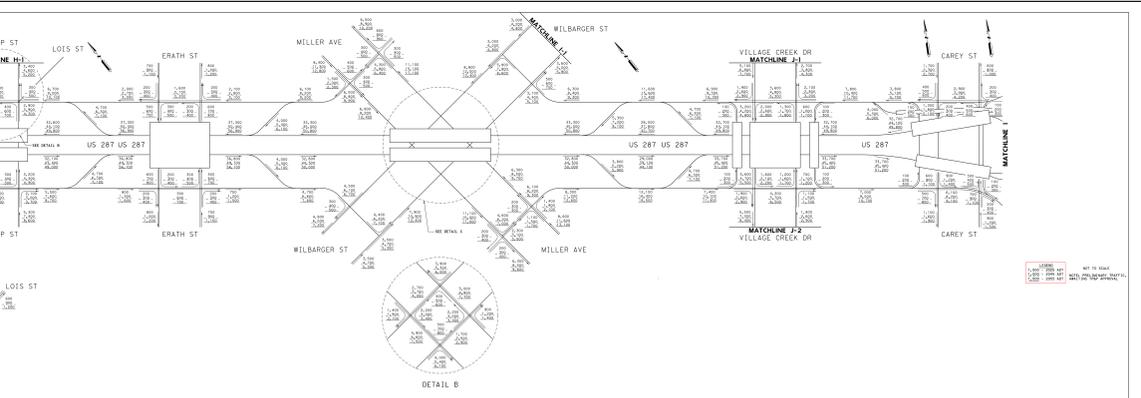
INDEX OF ROLLS	PLAN AND PROFILE	DESCRIPTION
ROLL 01 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 160+16.00 TO 200+00.00
ROLL 02 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 250+00.00 TO 300+42.31 STA 144+90.13 TO 221+00.00
ROLL 03 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 221+00.00 TO 320+00.00
ROLL 04 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 291+00.00 TO STA 327+00.00
ROLL 05 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 41+00.00 TO STA 504+00.00
ROLL 06 OF 14	PLAN AND PROFILE I-20 MAINLINE	STA 160+00.00 TO STA 601+00.00
ROLL 07 OF 14	PLAN AND PROFILE US 287 MAINLINE	STA 269+00.00 TO STA 364+00.00
ROLL 08 OF 14	PLAN AND PROFILE US 287 MAINLINE	STA 130+00.00 TO STA 223+76.37
ROLL 09 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS STREETS	
ROLL 10 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS STREETS	
ROLL 11 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS STREETS	
ROLL 12 OF 14	ISD PROFILES - FRONTAGE ROADS	
ROLL 13 OF 14	ISD PROFILES - DC'S CROSS STREETS/U-TURNS/RAMPS	
ROLL 14 OF 14	US 287 PROFILES - FRONTAGE ROAD/RAMP/CROSS STREETS/U-TURNS	

90% INTERIM
 NOVEMBER 22, 2019

Southeast CONNECTOR
 PREPARED BY CH2M HILL ASSOCIATES, INC.
 UNDER THE SUPERVISION OF
 CHAD HENDERSON, P.E.
 NAJIB ABUSAUD, PE, ACP
 LICENSE NO. 81200



LINE NO.	DATE	DESCRIPTION	BY	CHKD BY	APP'D BY
1	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
2	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
3	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
4	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
5	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
6	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
7	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
8	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
9	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
10	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
11	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
12	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
13	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
14	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
15	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
16	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
17	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
18	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
19	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
20	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
21	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
22	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
23	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
24	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
25	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
26	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
27	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
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29	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
30	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
31	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
32	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
33	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
34	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
35	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
36	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
37	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
38	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
39	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
40	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
41	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
42	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
43	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
44	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
45	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
46	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
47	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
48	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
49	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
50	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
51	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
52	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
53	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
54	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
55	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
56	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
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63	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON
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100	11/22/19	ISSUED FOR PERMITTING	CHAD HENDERSON	CHAD HENDERSON	CHAD HENDERSON



| PROJECT BRIDGE TABLE |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| BRIDGE NO. |
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
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151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166				

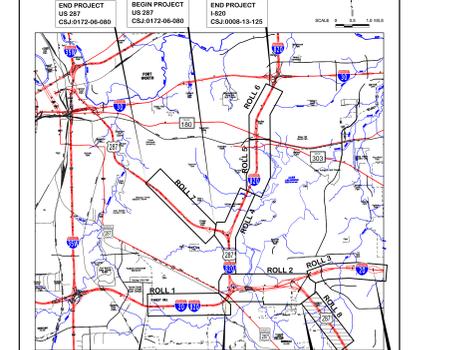
I-20 CSJ : 0008-13-006
 FROM I-20+020 INTERCHANGE TO FOREST HILL DRIVE
 CSJ : 2374-05-066

I-820 CSJ : 0172-06-080
 FROM I-820+357 INTERCHANGE TO BISHOP ST
 CSJ : 0172-09-028

US 287 CSJ : 0172-06-080
 FROM I-20+20 INTERCHANGE TO SUBLETT RD
 CSJ : 0172-09-028

ROADWAY TYPE	FUNCTIONAL CLASS	DESIGN SPEED
GENERAL PURPOSE LANES (OF LANES)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
FRONTAGE ROADS/UTURNS/CITY STREETS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
RAMP	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SHOULDER	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SIDEWALK	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
SHARED USE PATH	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED CORE AREA	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED FUTURE BRIDGE	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING BRIDGE	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RETAINING WALL	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING PROPERTY LINES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED RIGHT-OF-WAY (R.O.W.)	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED DENIAL-OF-ACCESS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING CITY LIMITS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DRAINAGE EASEMENTS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
PROPOSED DRAINAGE EASEMENTS	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
CREEKS AND TRIBUTARIES	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
DIRECTION OF TRAFFIC	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING DRIVEWAYS TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING PAVEMENT TO BE REMOVED	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
EXISTING STREETS TO REMAIN	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW
OTHER TPOOT PROJECT	URBAN INTERSTATE	70 MPH UNLESS OTHERWISE NOTED BELOW

TRAFFIC VOLUMES BASED ON	I-20	I-820	US 287
ADJUSTED TO 2010 TRIP DIVISION	14000 (22400)	27000 (34200)	31000 (24800)
AVERAGE DAILY TRAFFIC (ADT)	14000 (22400)	27000 (34200)	31000 (24800)
PERCENT TRUCKS OF ADT	6.6%	6.6%	6.6%
PERCENT TRUCKS OF ADT	6.6%	6.6%	6.6%



INDEX OF ROLLS

ROLL 01 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 165+00.00 TO 205+00.00
ROLL 02 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 205+00.00 TO 308+42.31; STA 144+93.13 TO 221+00.00
ROLL 03 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 221+00.00 TO 339+00.00
ROLL 04 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 339+00.00 TO STA 327+00.00; STA 327+00.00 TO STA 421+00.00
ROLL 05 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 421+00.00 TO STA 584+00.00
ROLL 06 OF 14	PLAN AND PROFILE I-20 MAINLANE - STA 584+00.00 TO STA 651+00.00
ROLL 07 OF 14	PLAN AND PROFILE US 287 MAINLANE - STA 249+00.00 TO STA 364+00.00
ROLL 08 OF 14	PLAN AND PROFILE US 287 MAINLANE - STA 364+00.00 TO STA 223+75.37
ROLL 09 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 10 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 11 OF 14	ISD PROFILES - FRONTAGE ROADS/CROSS RAMP
ROLL 12 OF 14	ISD PROFILES - FRONTAGE ROADS
ROLL 13 OF 14	ISD PROFILES - DC'S CROSS STREETS/UTURNS/RAMP
ROLL 14 OF 14	US 287 PROFILES - FRONTAGE ROAD/RAMP/CROSS STREETS/UTURNS

ROLL NO.	DATE	BY	CHECKED	REVISION
001	11/22/2019	CHAD HENDERSON	NAJIB ZEIN	ISSUED FOR CONSTRUCTION

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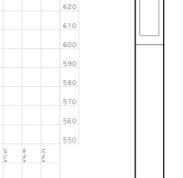
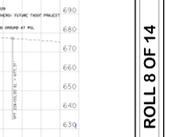
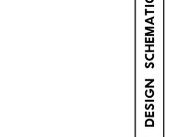
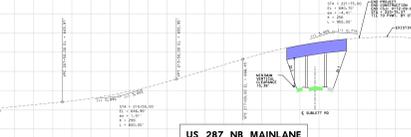
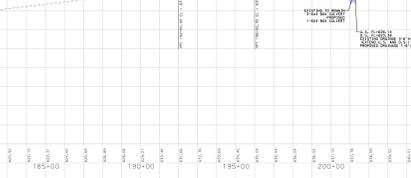
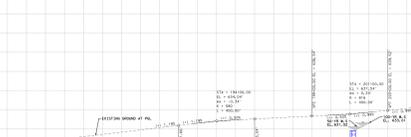
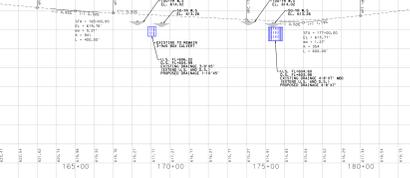
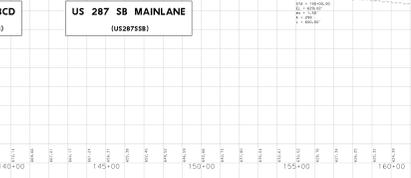
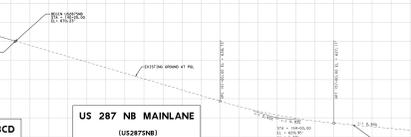
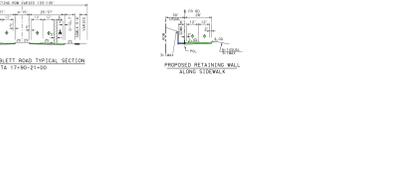
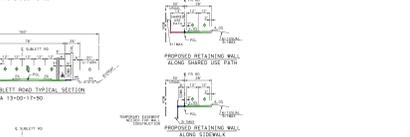
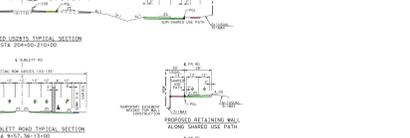
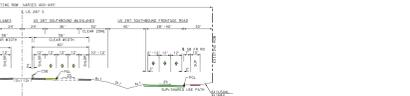
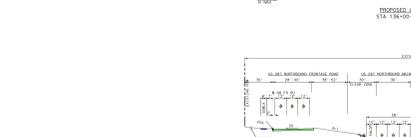
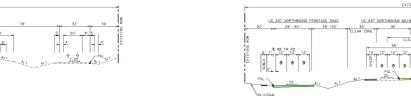
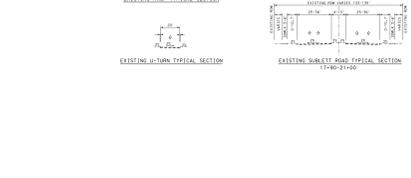
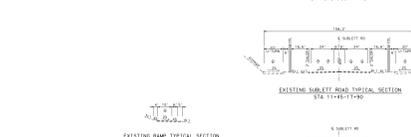
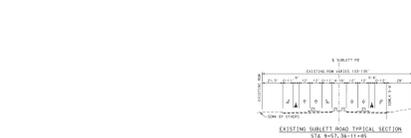
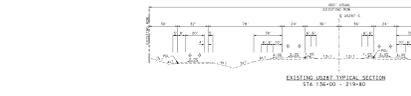
ROLL NO.	DATE	BY	CHECKED	REVISION
001	11/22/2019	CHAD HENDERSON	NAJIB ZEIN	ISSUED FOR CONSTRUCTION

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GENERAL NOTES:

1. THE CLEARANCE SHOWN AT GRADE SEPARATION IS THE CALCULATED MINIMUM VERTICAL CLEARANCE BETWEEN BOTTOM OF UPPER ROADWAY STRUCTURE AND TOP OF LOWER ROADWAY USABLE SHOULDER AT THE MINIMUM CLEARANCE LOCATION.
2. PGL INDICATES PROFILE GRADE LINE.
3. ALL BRIDGE STRUCTURES SHOWN ON PROFILES ARE FOR GRAPHIC INFORMATION ONLY. SUPERSTRUCTURE HEIGHTS SHALL BE DETERMINED DURING FINAL DESIGN.
4. DESIGN ACCOMMODATES 40-67 DESIGN VEHICLE.
5. DESIGN BASED ON STATE PLANE COORDINATE SYSTEM.

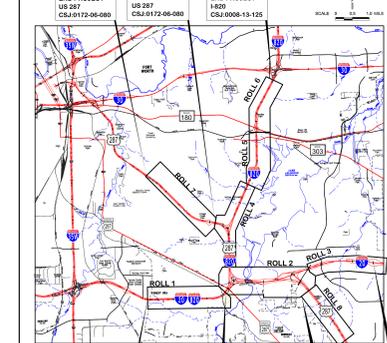


I-20
 CSJ : 0008-13-206
 FROM I-20 INTERCHANGE TO FOREST HILL DRIVE
 CSJ : 2374-05-066
 FROM I-20 TO PARK SPRINGS BLVD
 CSJ : 0008-13-125
 FROM I-20 TO BRENTWOOD STAIR RD
 CSJ : 0172-06-080
 FROM I-20 INTERCHANGE TO BISHOP ST
 CSJ : 0172-09-028

ROADWAY TYPE	GENERAL PURPOSE LANE	DESIGN SPEED
INTERSTATE	URBAN INTERSTATE	70 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	60 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	50 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	40 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	30 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	20 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	15 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	10 MPH - UNLESS OTHERWISE NOTED BELOW
URBAN INTERSTATE	URBAN INTERSTATE	5 MPH - UNLESS OTHERWISE NOTED BELOW

TRAFFIC VOLUMES BASED ON	I-20	I-20	US 287
ADJUSTED FOR TRAFFIC DIVISION	FROM I-20	FROM FOREST HILL DR	FROM BISHOP ST
TO BRENTWOOD STAIR RD	TO PARK SPRINGS BLVD	TO SUBLETT RD	
AVERAGE DAILY TRAFFIC (ADT)	14000 (22100)	2700 (144100)	7010 (12400)
PERCENT TRUCKS OF ADT	5.0%	5.0%	5.0%
PERCENT TRUCKS OF ADT	5.0%	5.0%	5.0%
PERCENT TRUCKS OF ADT	5.0%	5.0%	5.0%

END PROJECT	BEGIN PROJECT	END PROJECT	BEGIN PROJECT	END PROJECT	BEGIN PROJECT
US 287					
CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080
US 287					
CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080	CSJ:0172-06-080



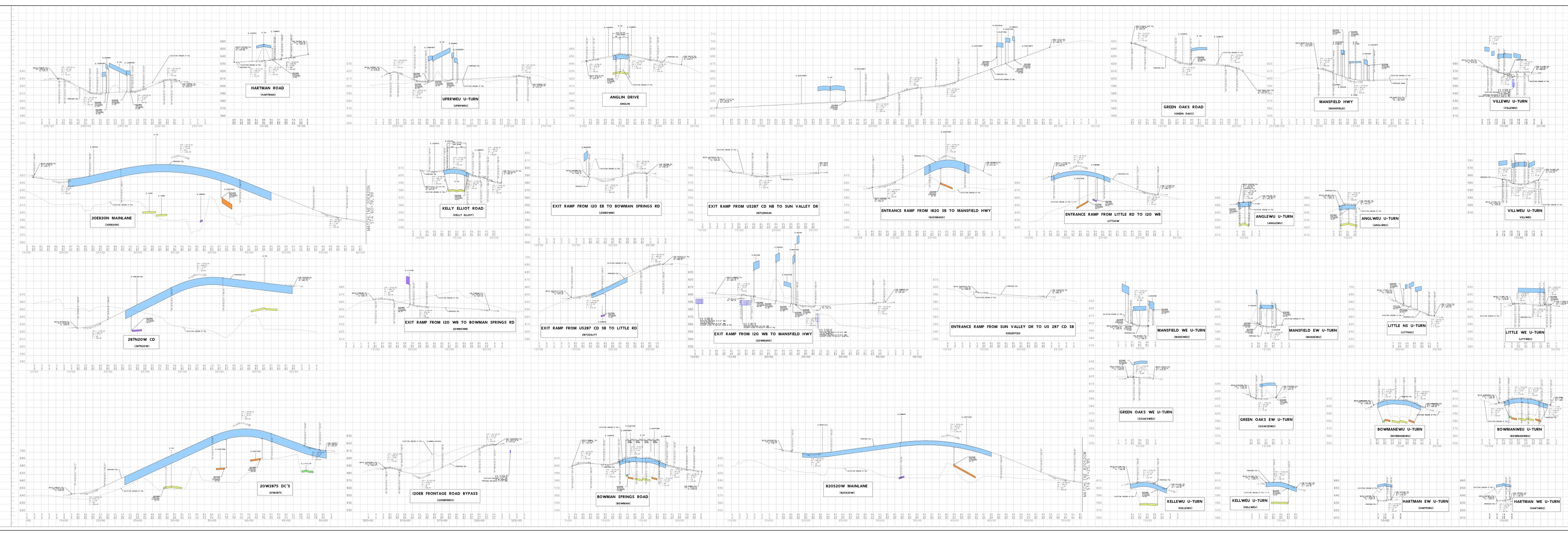
INDEX OF ROLLS

ROLL 01 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 165+00.00 TO 204+00.00
ROLL 02 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 250+00.00 TO 300+42.31 STA 144+93.13 TO 221+00.00
ROLL 03 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 221+00.00 TO 330+00.00
ROLL 04 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 327+00.00 TO 327+00.00 TO 421+00.00
ROLL 05 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 421+00.00 TO 504+00.00
ROLL 06 OF 14	PLAN AND PROFILE (I-20) MAINLINE - STA 504+00.00 TO 574+00.00
ROLL 07 OF 14	PLAN AND PROFILE (US 287) MAINLINE - STA 249+00.00 TO STA 364+00.00
ROLL 08 OF 14	PLAN AND PROFILE (US 287) MAINLINE - STA 130+00.00 TO STA 224+75.37
ROLL 09 OF 14	ISD PROFILES - FRONTAGE ROADS CROSS STREETS/RAMPS
ROLL 10 OF 14	ISD PROFILES - FRONTAGE ROADS CROSS STREETS/RAMPS
ROLL 11 OF 14	ISD PROFILES - FRONTAGE ROADS CROSS STREETS/RAMPS
ROLL 12 OF 14	ISD PROFILES - FRONTAGE ROADS
ROLL 13 OF 14	ISD PROFILES - DC'S CROSS STREETS/TURN RAMP
ROLL 14 OF 14	US 287 PROFILES - FRONTAGE ROAD/RAMPS/CROSS STREETS/TURN RAMP

90% INTERIM
 NOVEMBER 22, 2019

PRELIMINARY

CHAD HENDERSON, P.E.
 NAJIB ZEIN, P.E., ACP
 LICENSE NO. 81200





MEMO

August 20, 2019

To: Loyl C. Bussell, P.E., District Engineer
Attention: Ricardo Gonzalez, P.E., Director of TPD

Through: William E. Knowles, P.E.
Traffic Analysis Section Director, TPP 

From: Gabe Contreras
Planner, TPP

Subject: Traffic Data
CSJ: 0008-13-125
I-820:
From I-20 to Brentwood Stair Rd.

CSJ: 2374-05-066 I-20: From I-20/I-820 Interchange To Park Springs Blvd.	CSJ: 0008-13-206 I-20: From I-20/I-820 Interchange To Forest Hill Dr.
CSJ: 0172-06-080 US 287: From I-820 To Bishop St.	CSJ: 0172-09-028 US 287: From I-20 To Sublett Rd.

Tarrant County

Attached are consultant provided diagrams depicting 2025, 2045 and 2055 average daily traffic volumes and turning movements on the Southeast Connector along I-820, I-20, and US 287 for no build and build conditions. Also attached are tabulations showing traffic analysis for highway design for the 2025 to 2045 twenty year period and 2025 to 2055 thirty year period for the described limits of the route. Also included are tabulations showing data for use in air and noise analysis.

Please refer to your original request dated January 16, 2019.

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

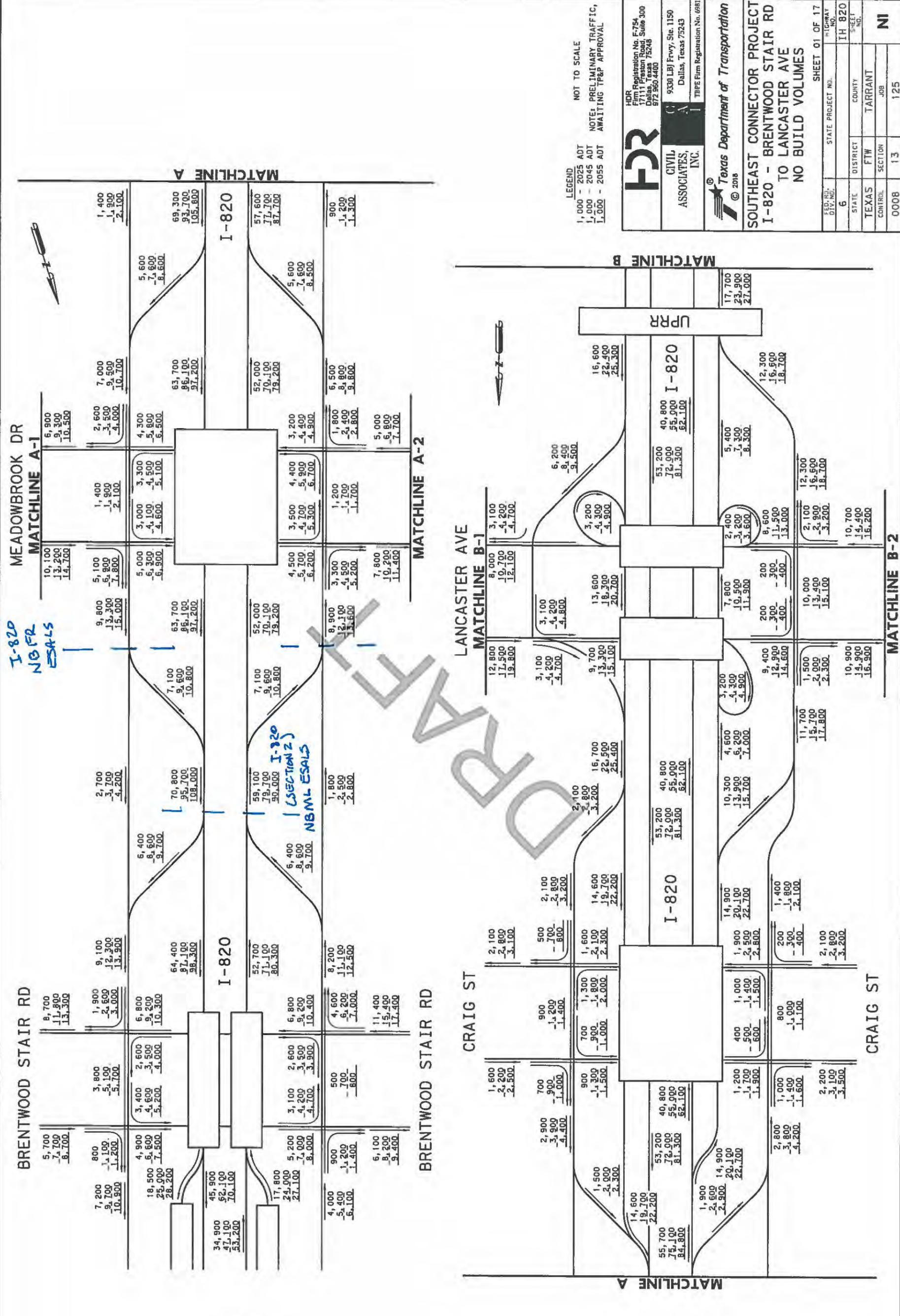
Attachments

CC: Curtis Loftis, P.E., Transportation Engineer, Fort Worth District
Design Division

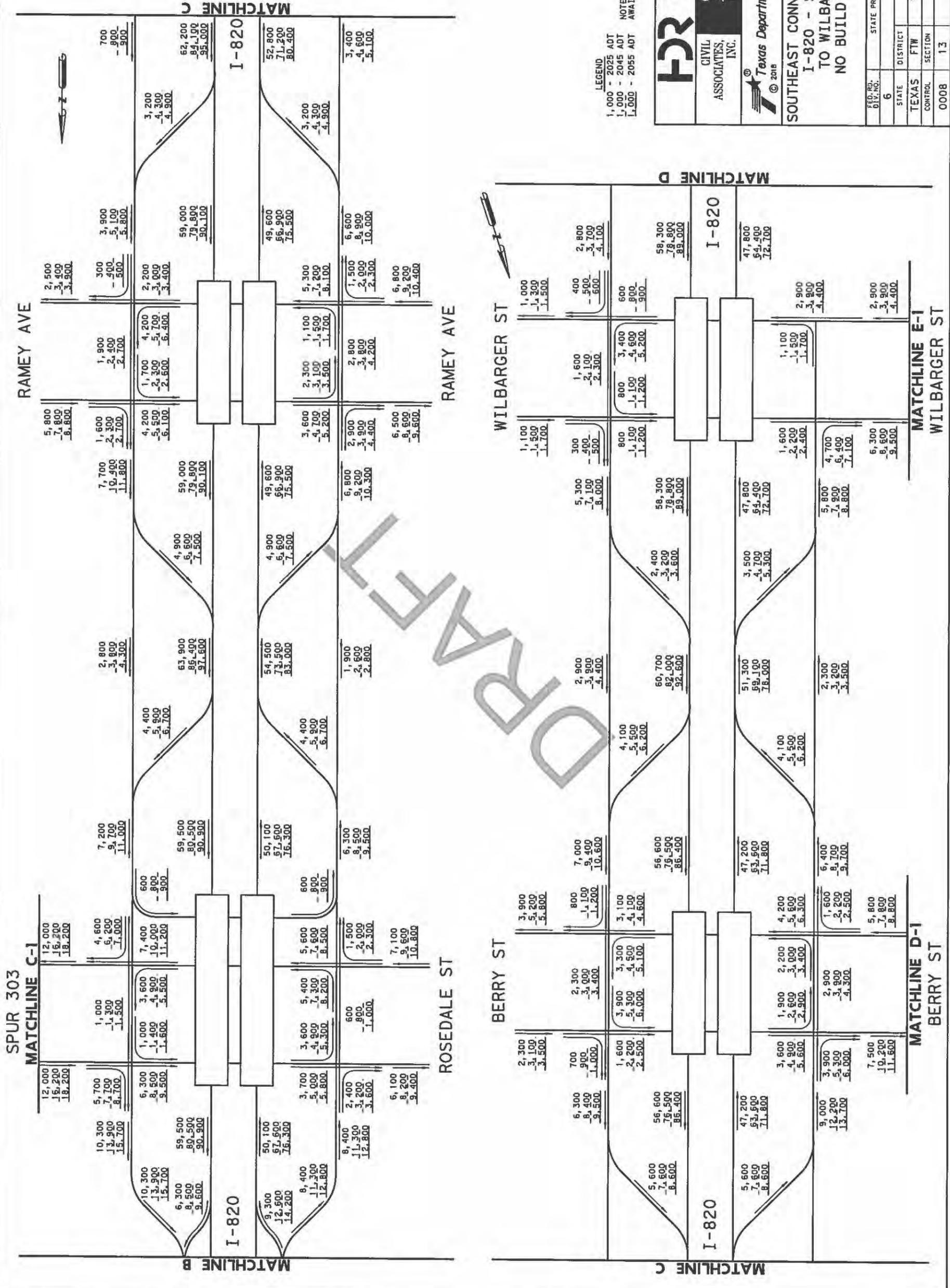
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OUR MISSION: Through collaboration and leadership, we deliver a safe, reliable, and integrated transportation system that enables the movement of people and goods.

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William Erick Knowles, P.E
Serial Number R47N4



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

F2R
 CIVIL ASSOCIATES, INC.
 9330 LBJ Fwy, Ste. 1150
 Dallas, Texas 75243
 TBPE Firm Registration No. 6981

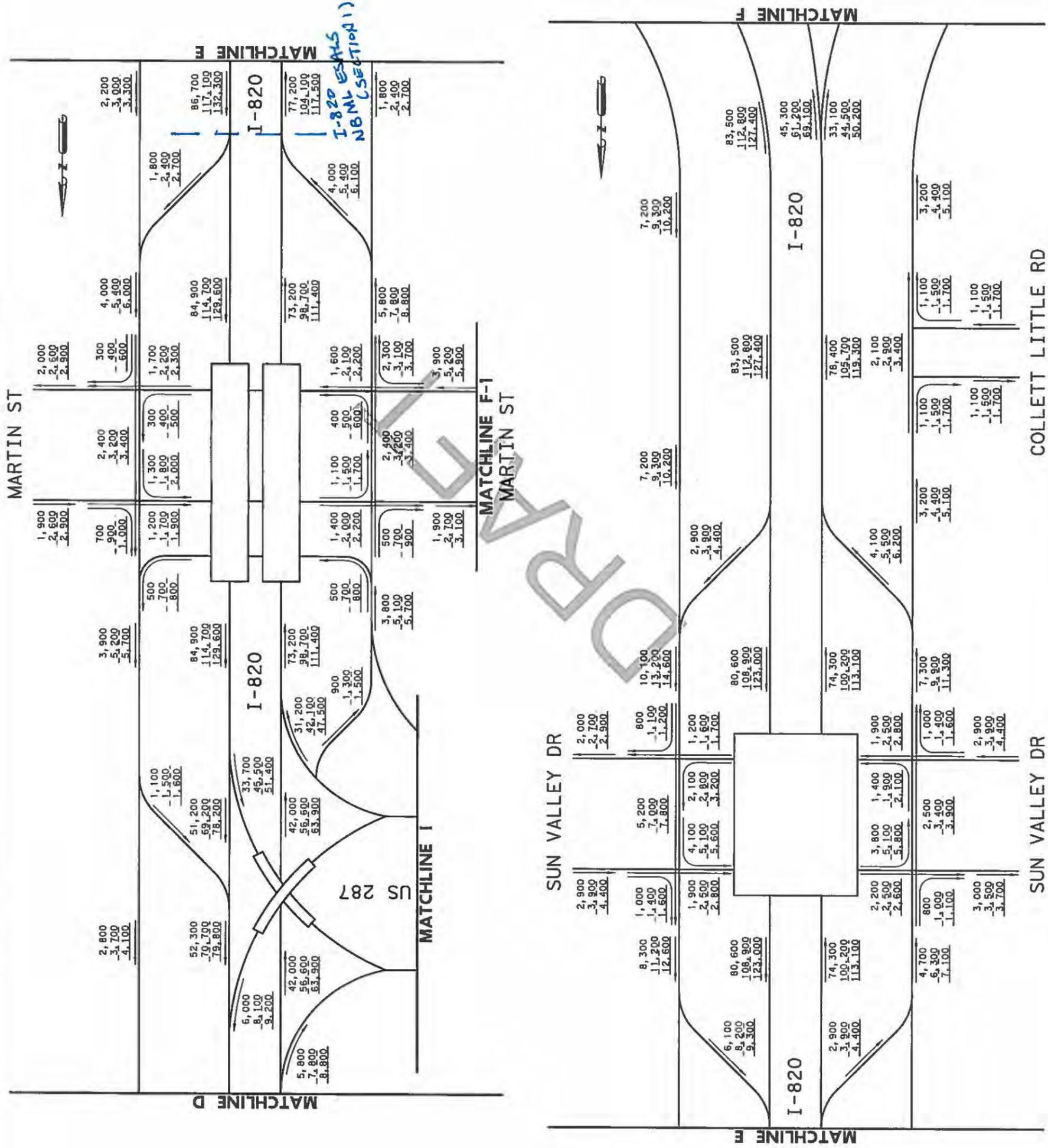
HDR
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 872 960-4400

Texas Department of Transportation
 SOUTHEAST CONNECTOR PROJECT
 I-820 - SPUR 303
 TO WILBARGER ST
 NO BUILD VOLUMES

STATE PROJECT NO.	6	HIGHWAY NO.	IH 820
STATE	TEXAS	DISTRICT	FTW
COUNTY	TARRANT	JOB	N2
CONTROL	0008	SECTION	13
		JOB	125

SHEET 02 OF 17

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 Serial Number RA77A



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 TPEP Firm Registration No. 6981

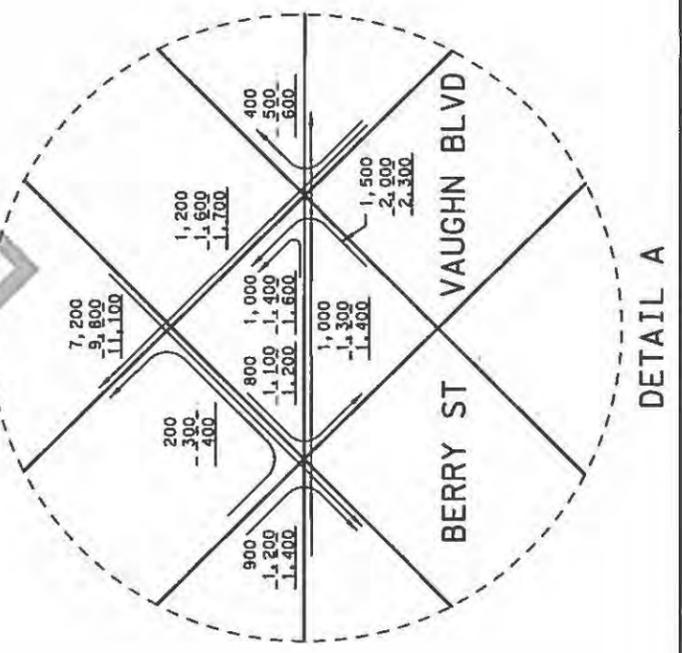
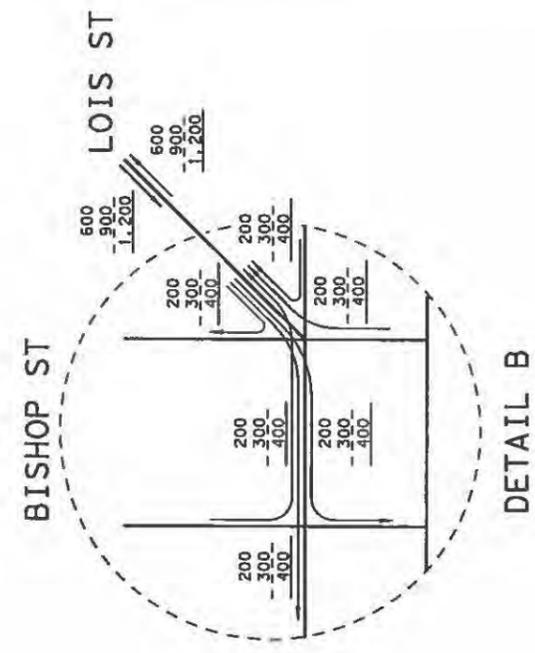
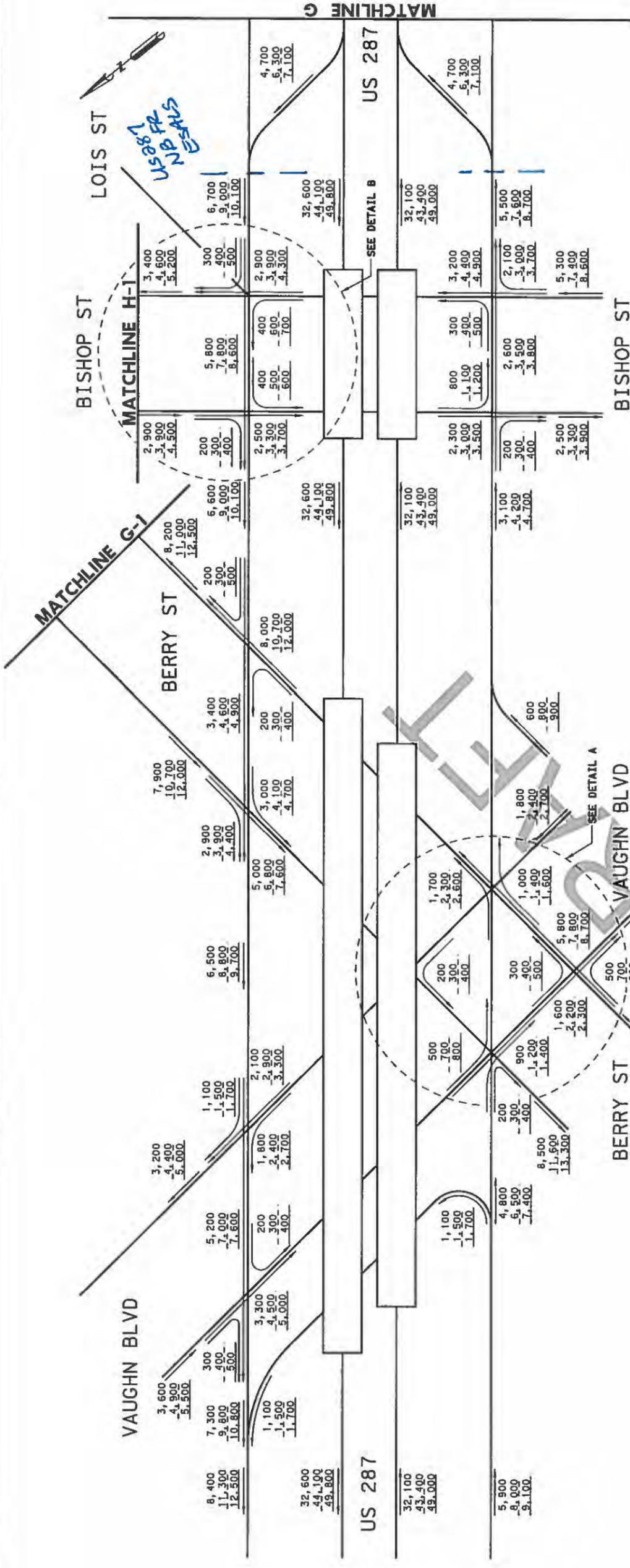
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SOUTHEAST CONNECTOR PROJECT
I-820 - US 287 TO I-20
NO BUILD VOLUMES

SHEET 03 OF 17

STATE PROJECT NO.	HIGHWAY NO.
6	IH 820
STATE	COUNTY
TEXAS	TARRANT
DISTRICT	SECTION
13	125
CONTROL	JOB
0008	

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 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA704



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,500 - 2055 ADT

NOT TO SCALE

NOTES: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

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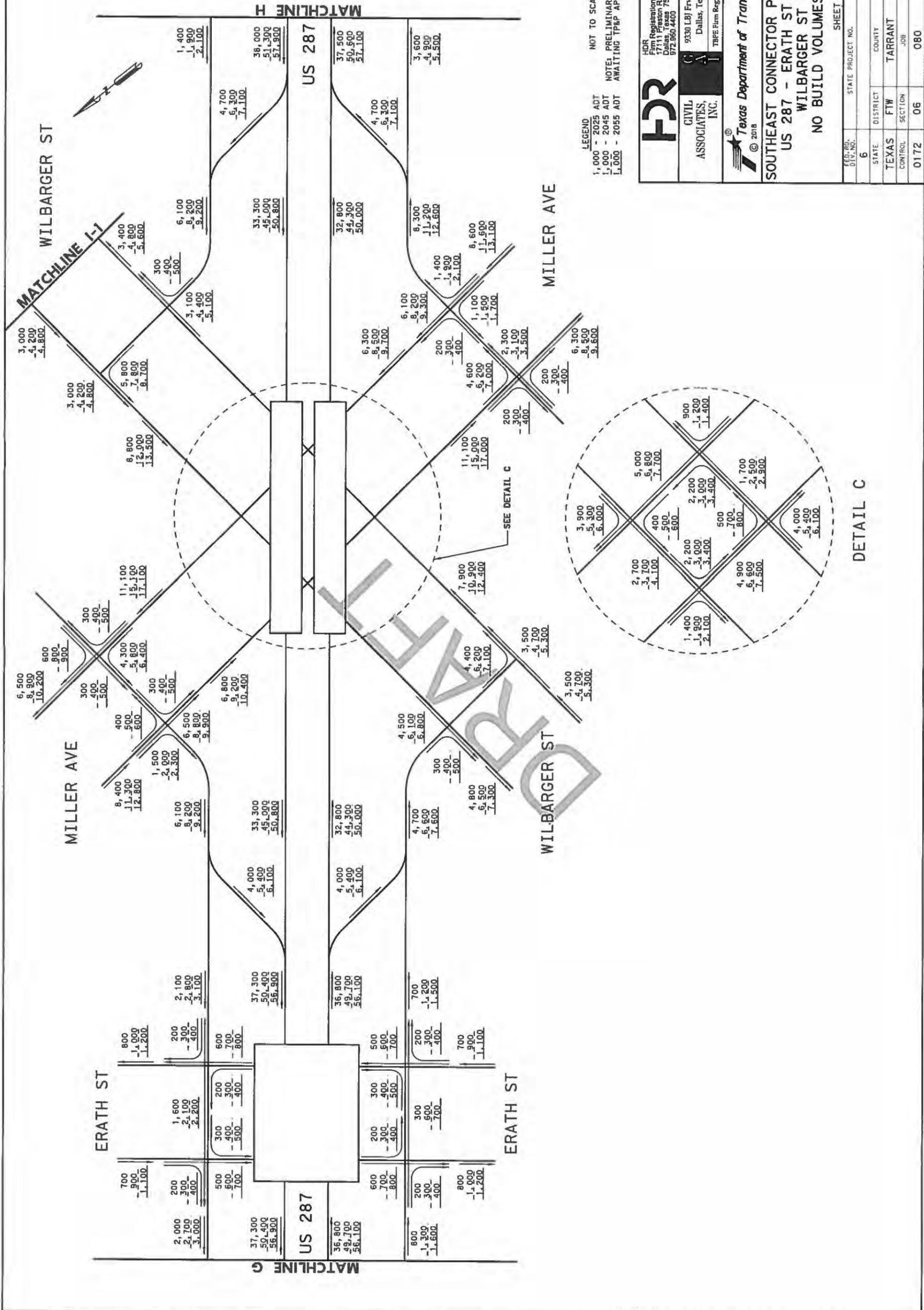
Texas Department of Transportation
 TEXAS DEPARTMENT OF TRANSPORTATION

SOUTHEAST CONNECTOR PROJECT
 US 287 - VAUGHN BLVD
 TO BISHOP ST

NO BUILD VOLUMES

FED. RD. DIV. NO.	STATE PROJECT NO.	PIEWAY NO.
6	US 287	
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0172	06	080
SHEET NO.		SHEET REL.
US 287		N4

NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R2701



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TPEP APPROVAL

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 HDR
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 17111 Preston Road, Suite 300
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 972.960.4400

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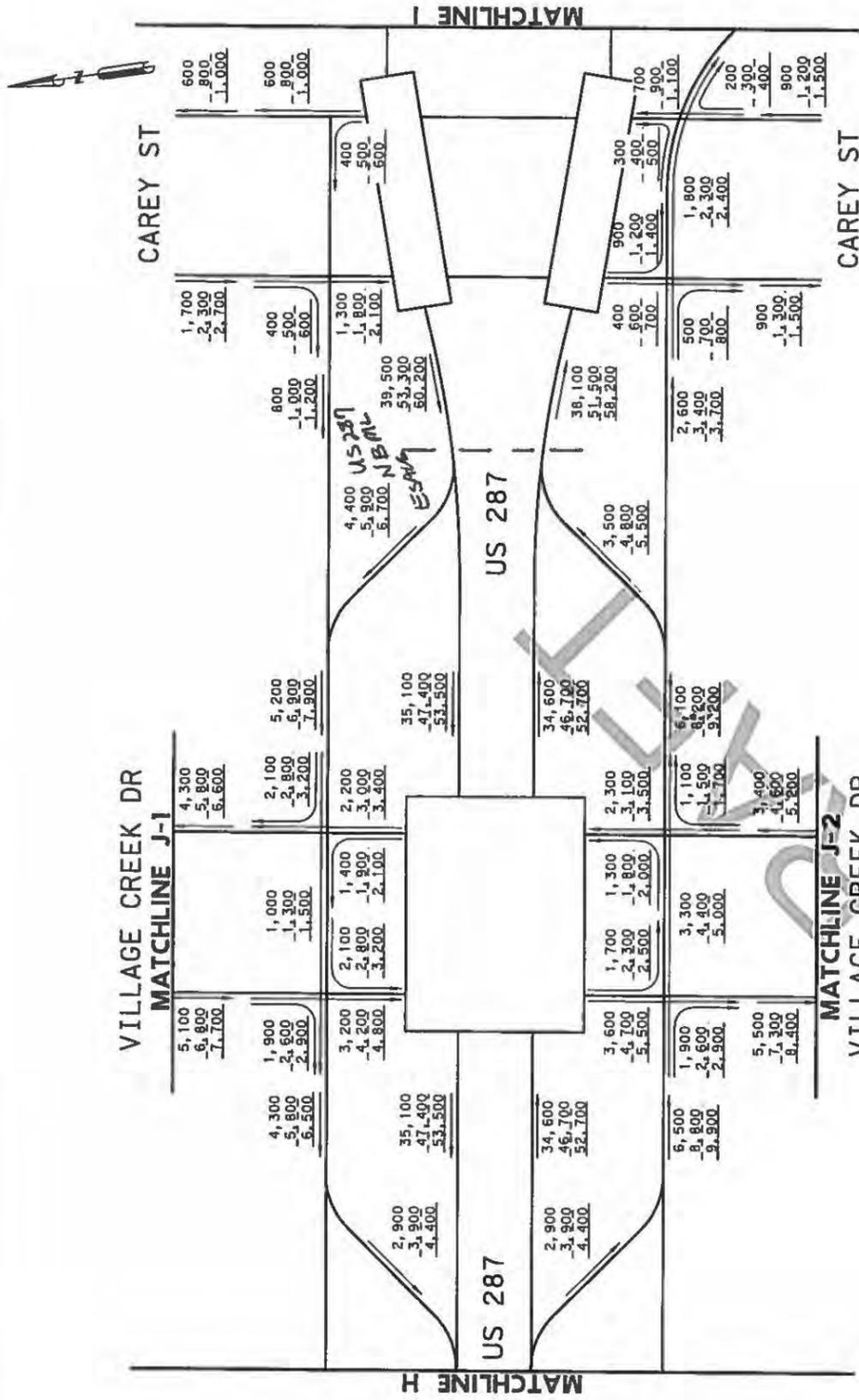
Texas Department of Transportation
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SOUTHEAST CONNECTOR PROJECT
US 287 - ERATH ST TO
WILBARGER ST
NO BUILD VOLUMES

SHEET 05 OF 17

STATE PROJECT NO.	6
ROUTE NO.	US 287
STATE	TEXAS
DISTRICT	FW
COUNTY	TARRANT
SECTION	06
JOB	080
SHEET NO.	N5

NOT INTENDED FOR CONSTRUCTION
 RIDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA701



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

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 HDR
 Firm Registration No. F-754
 7711 Preston Road, Suite 300
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 972.960.4400

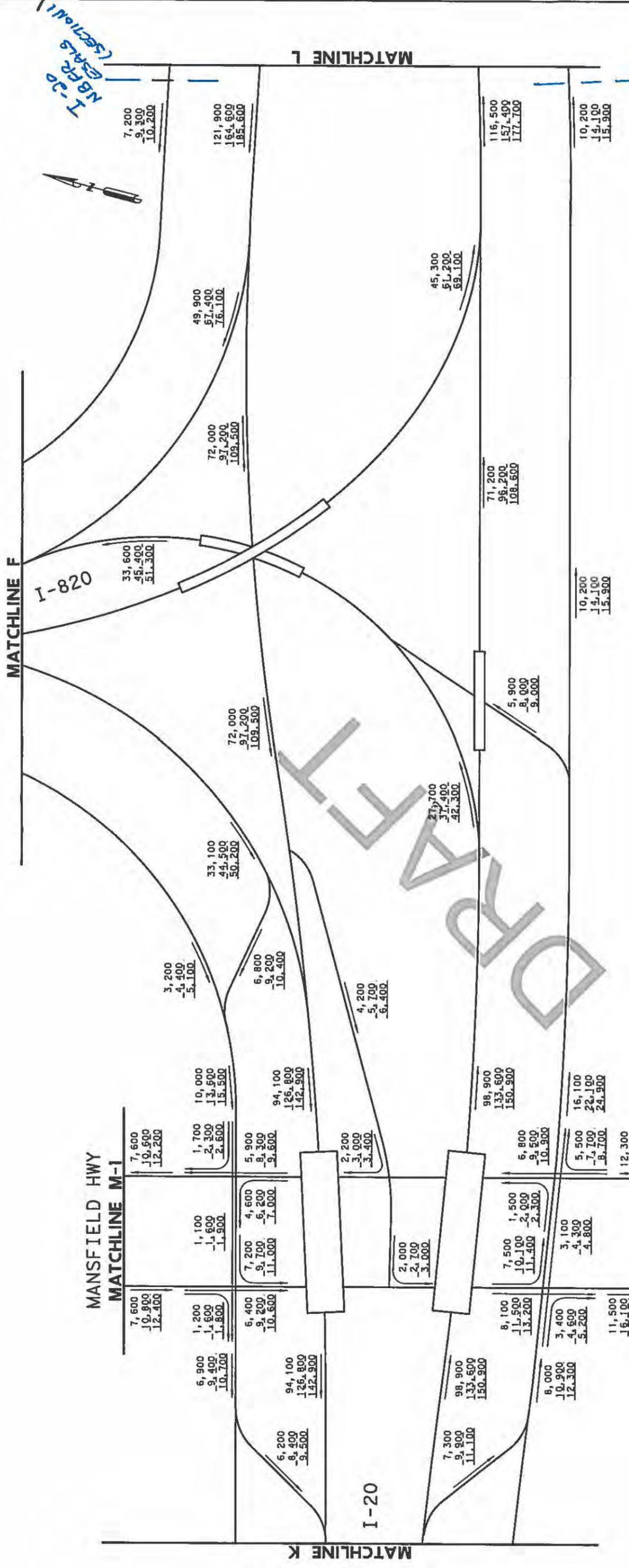
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 9330 LBJ Fwy, Ste. 1150
 Dallas, Texas 75243
 TBPE Firm Registration No. 6981

Texas Department of Transportation
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SOUTHEAST CONNECTOR PROJECT
 US 287 - VILLAGE CREEK DR
 TO CAREY ST
 NO BUILD VOLUMES

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET NO.
6	US 287	US 287	US 287
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	FTW	TARRANT	N6
CONTROL	SECTION	JOB	
0172	06	080	

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 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704



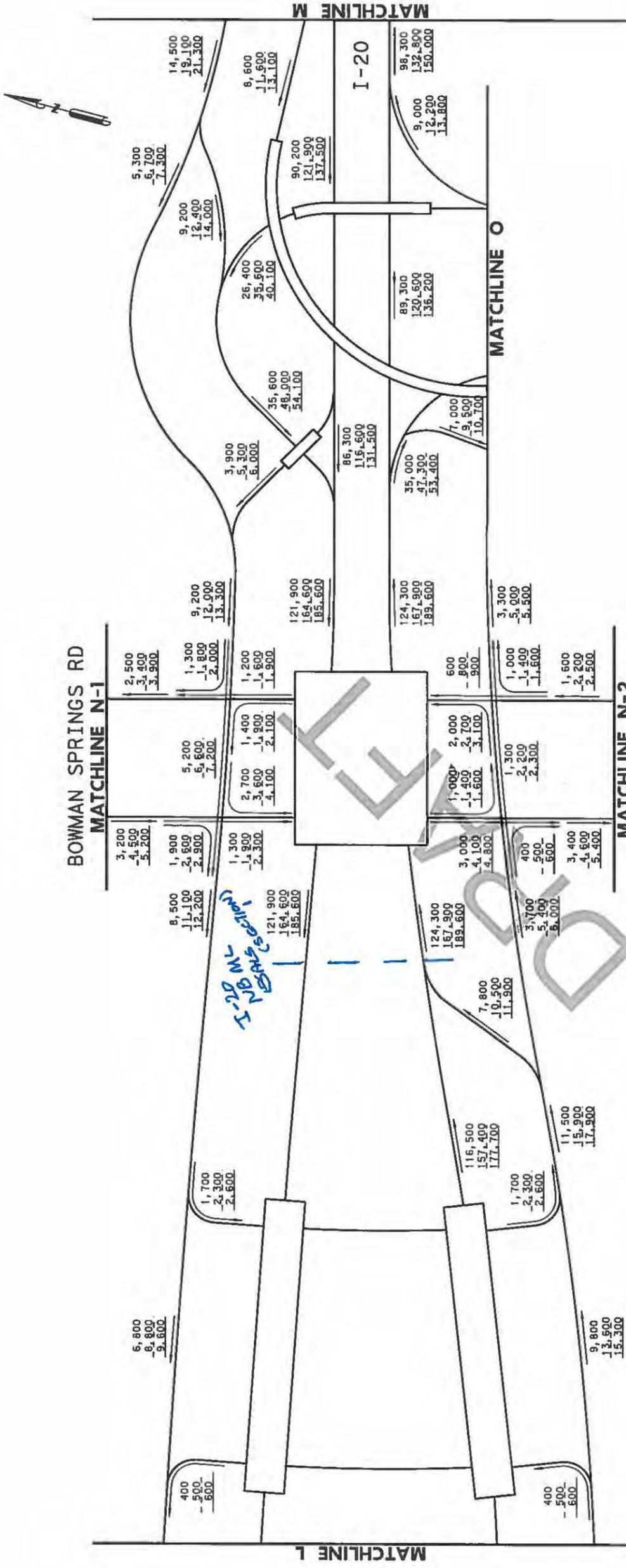
I-20
NBR
E3419
(Section 1)

HDR		HDR Registration No. F-754 1711 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
CIVIL ASSOCIATES, INC.		9330 LBJ Frwy, Ste. 1150 Dallas, Texas 75243	
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Texas Department of Transportation			
SOUTHEAST CONNECTOR PROJECT			
I-20 - MANSFIELD HWY			
TO I-820			
NO BUILD VOLUMES			
STATE PROJECT NO.	STATE	DISTRICT	COUNTY
6	TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB	
0008	13		206
SHEET 08 OF 17		HIGHWAY NO. IH 20	
SHEET NO.		SHEET NO.	
		N8	

LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TBPPE APPROVAL

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704



BOWMAN SPRINGS RD
MATCHLINE N-1

BOWMAN SPRINGS RD
MATCHLINE N-2

MATCHLINE M

MATCHLINE O

I-20

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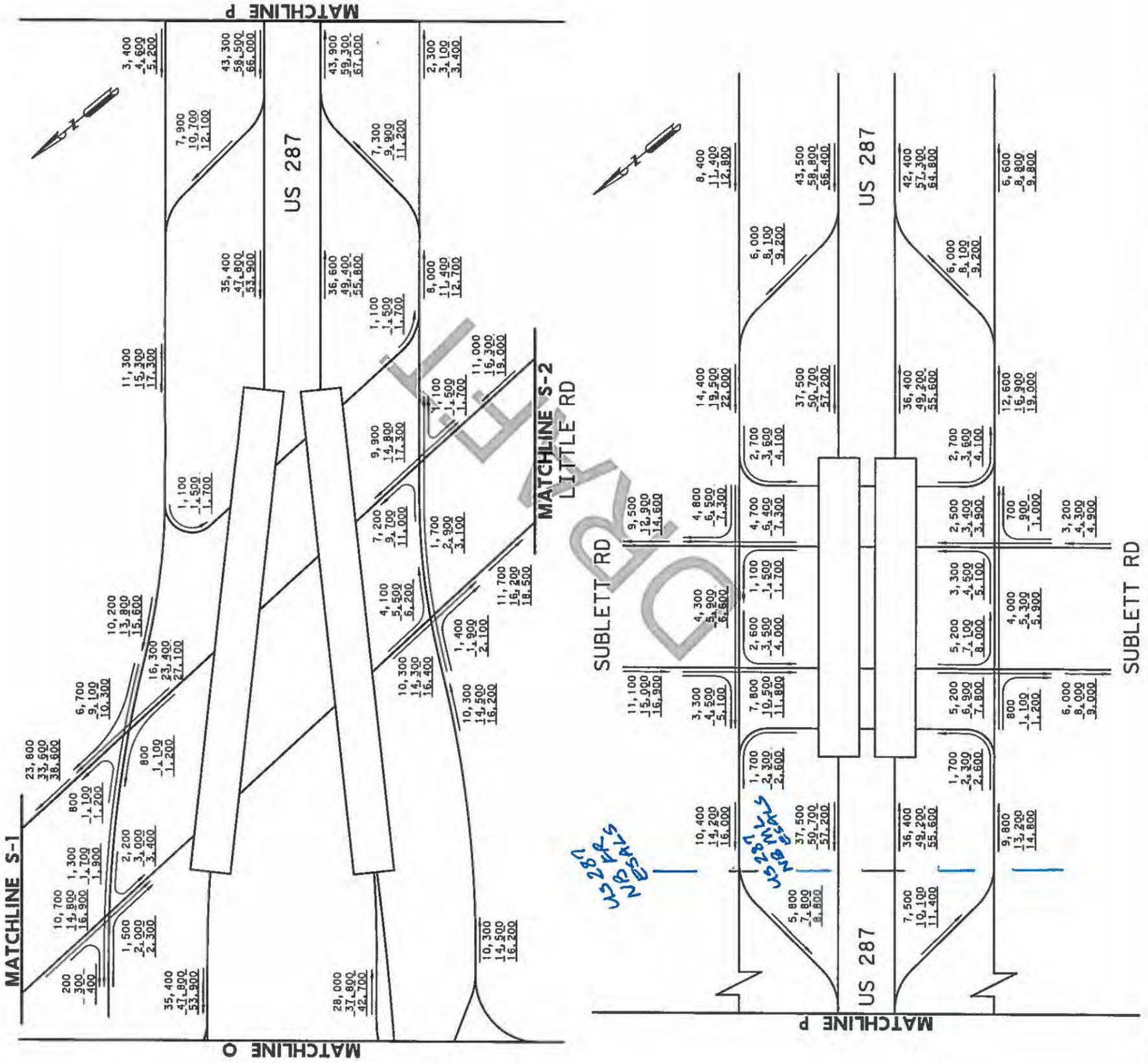
SOUTHEAST CONNECTOR PROJECT
I-20 ~ I-820 TO
US 287
NO BUILD VOLUMES

SHEET 09 OF 17	
FED. ROAD DIST. NO.	STATE PROJECT NO.
6	6
STATE	COUNTY
TEXAS	TARRANT
CONTROL	SECTION
2374	05
JOB	
066	
HIGHWAY NO.	
IH 20	
SHEET NO.	
N9	

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TPEP APPROVAL

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BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Serial Number RA70A



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

HDR
 HDR
 Firm Registration No. F-754
 1711 Preston Road, Suite 300
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 972.960.4400

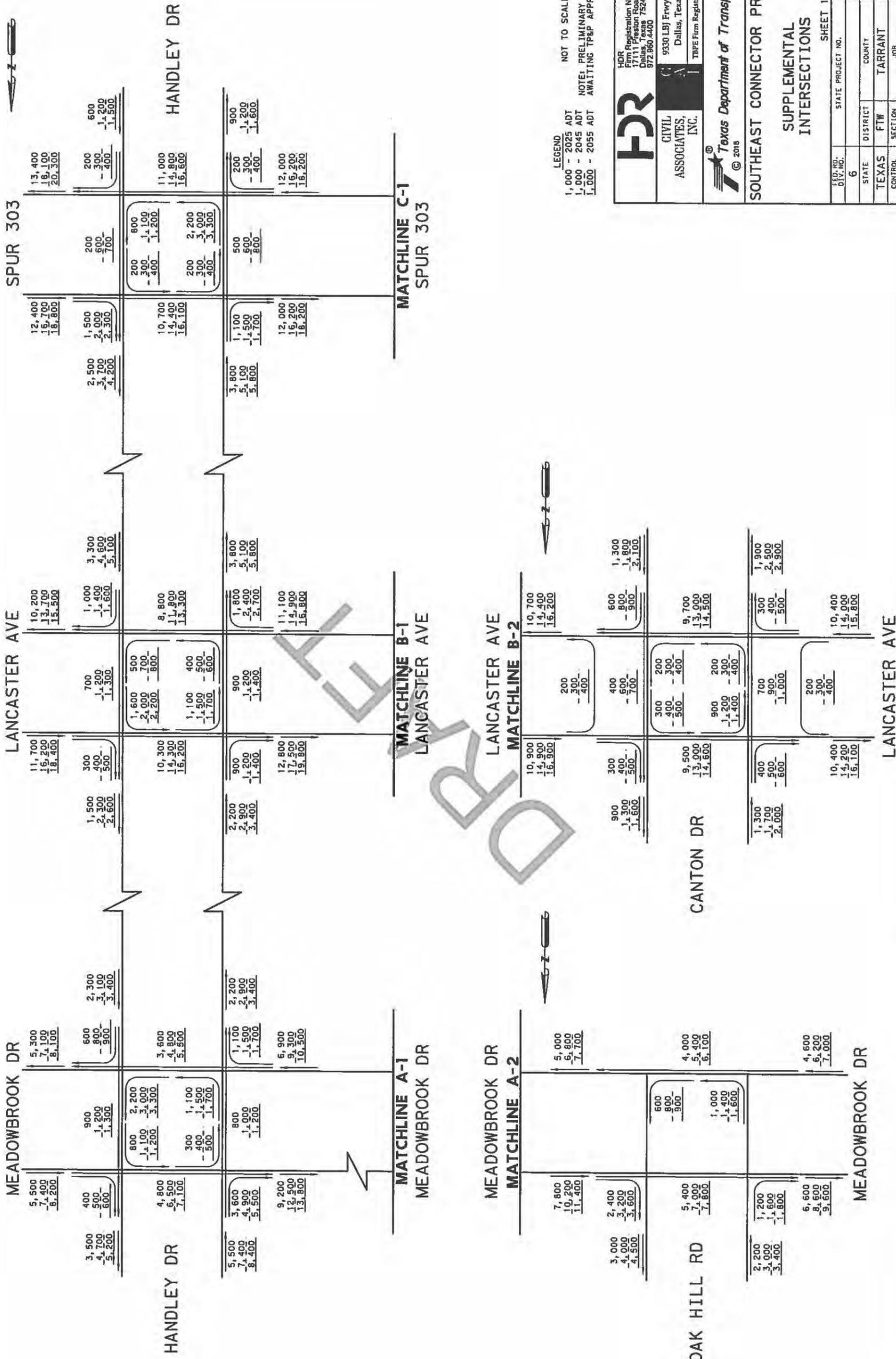
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 9330 LBJ Fwy, Ste. 1150
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SOUTHEAST CONNECTOR PROJECT
 US 287 - FROM I-20
 TO SUBLETT RD
 NO BUILD VOLUMES

FED. RD. DIST. NO.	STATE PROJECT NO.	HIGHWAY NO.
6	US 287	US 287
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0172	09	028

SHEET 11 OF 17



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TPEP APPROVAL

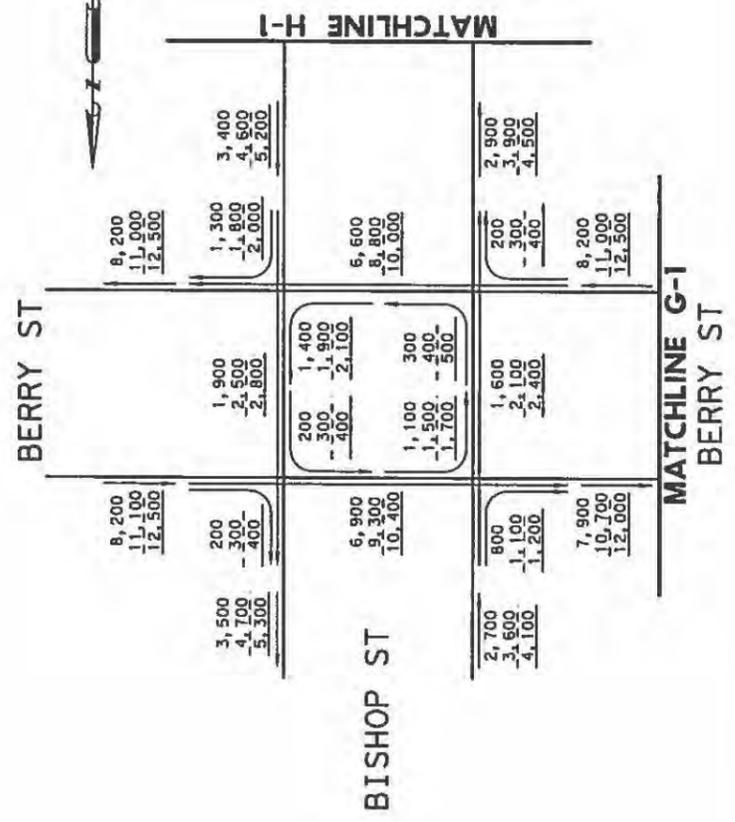
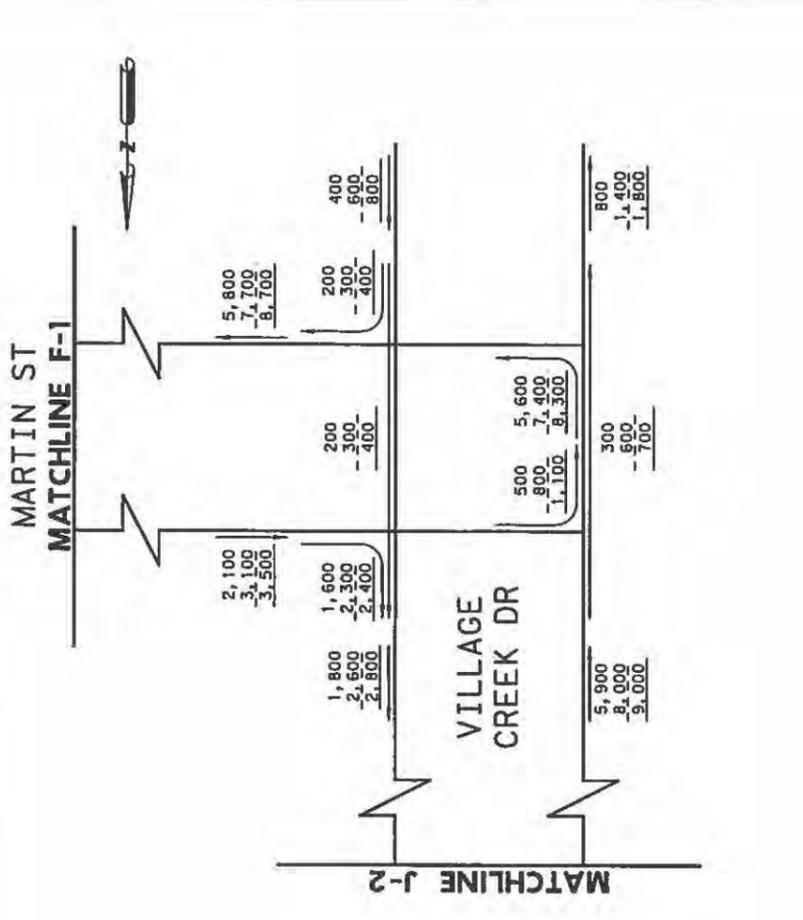
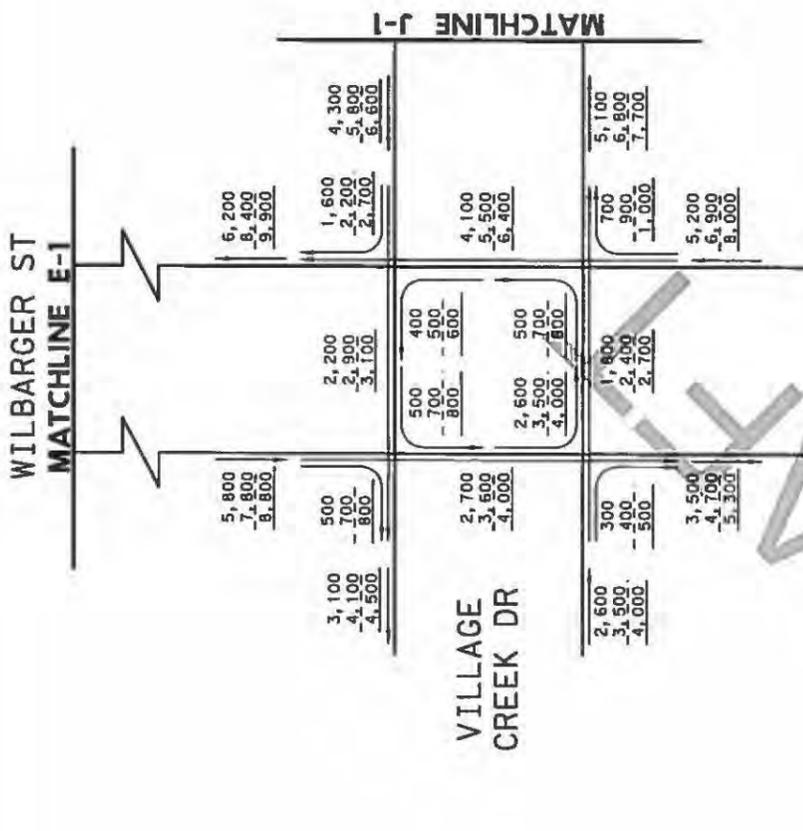
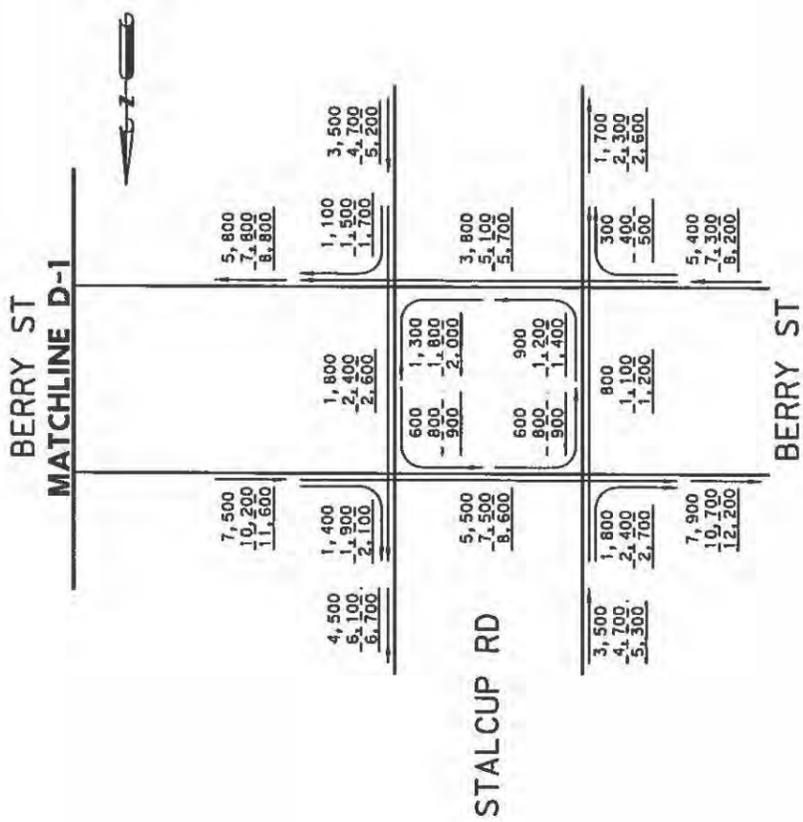
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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

FED. RD. DIV. NO.	STATE PROJECT NO.	ROUTE NO.	SHEET NO. OF 17
6		IH 820	
TEXAS	DISTRICT	COUNTY	SHEET NO.
CONTROL	FTW	TARRANT	
0008	13	JOB	N12
			125



NOT INTENDED FOR CONSTRUCTION
BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Cadastral No. 04734

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TP&P APPROVAL

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HDR
1701 Registration No. E-754
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Dallas, Texas 75243

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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.
6	6	IH 820
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0008	13	125

SHEET 13 OF 17

COLLETT LITTLE RD

ANGLIN DR

FOREST HILL DR

MATCHLINE L-2

MATCHLINE K-1

MATCHLINE M-1

MANSFIELD HWY

FOREST HILL CIRCLE

FOREST HILL CIRCLE

ANGLIN DR

FOREST HILL DR

MATCHLINE L-1
ANGLIN DR

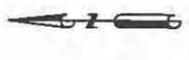
BOWMAN SPRINGS RD
MATCHLINE N-2

MATCHLINE M-2

MANSFIELD HWY

BOWMAN SPRINGS RD

VALLEY LN



LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TR&P APPROVAL

HDR
HDR
Firm Registration No. F-754
17111 Preston Road, Suite 300
Dallas, Texas 75248
972.960.4400

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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

STATE PROJECT NO.	STATE PROJECT NO.		
6	IH 820		
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	FTW	TARRANT	N14
CONTROL	SECTION	JOB	
0008	13	125	

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RIDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Social Number: 2172

ARBORGATE DR

TREEPOINT DR

BOWMAN SPRINGS RD

ENCHANTED BAY BLVD

LITTLE RD

LITTLE RD

ARBORGATE DR

TREEPOINT DR

BOWMAN SPRINGS RD

POLY WEBB RD

LITTLE RD

GREEN OAKS BLVD

POLY WEBB RD

MATCHLINE P-1
GREEN OAKS BLVD

MATCHLINE O-2

MATCHLINE S-1

MATCHLINE S-2

MATCHLINE O-1



LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE

NOTE: PRELIMINARY TRAFFIC,
AWAITING TP&P APPROVAL



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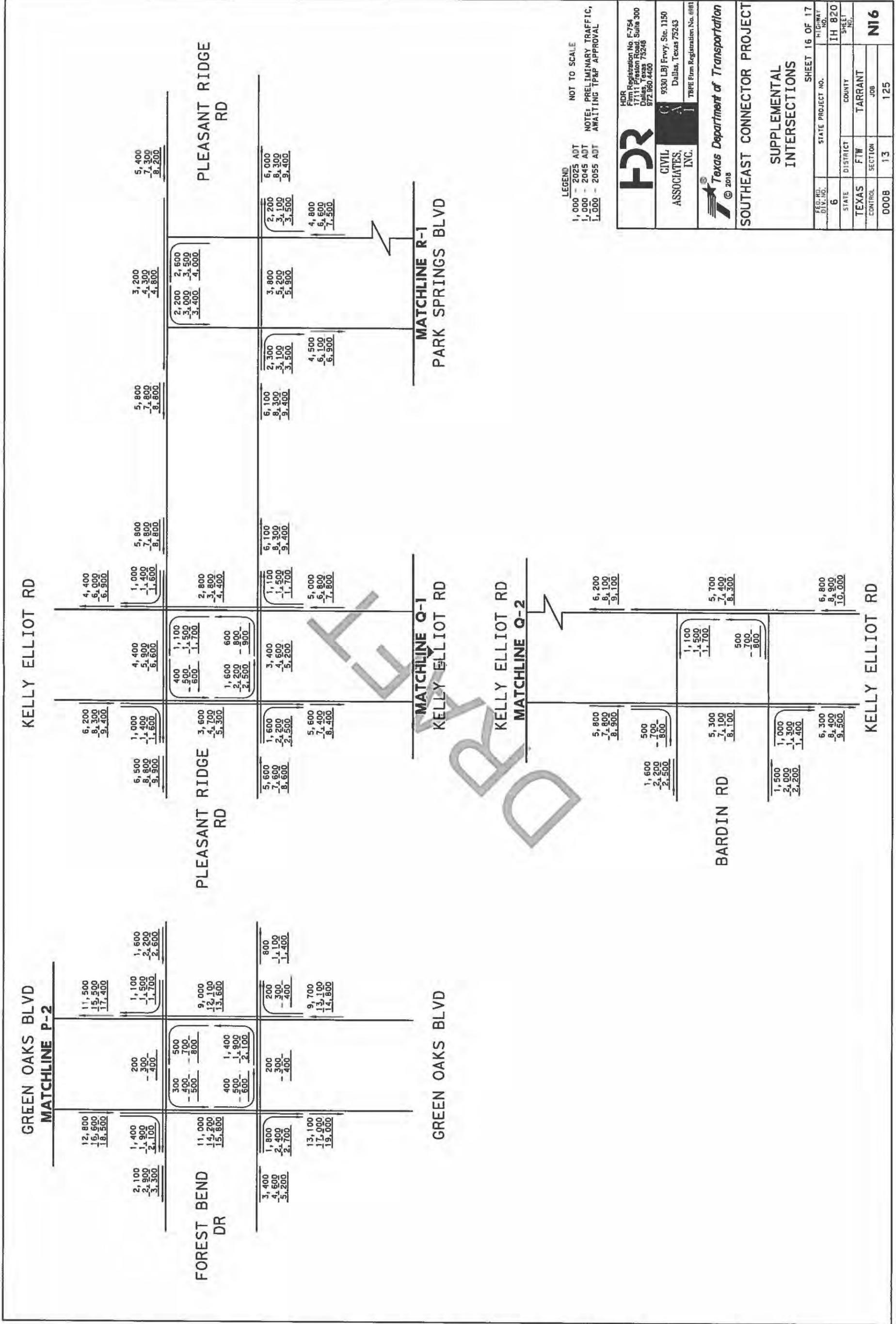


SOUTHEAST CONNECTOR PROJECT

SUPPLEMENTAL INTERSECTIONS

FED. RD. DIST. NO.	STATE PROJECT NO.	ROUTE NO.	SHEET NO.
6	6	IH 820	15
STATE	DISTRICT	COUNTY	SECTION
TEXAS	13	TARRANT	125
CONTROL	SECTION	JOB	
0008	13	125	

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William Erick Knowles, P.E.
Serial Number R4764



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTES: PRELIMINARY TRAFFIC,
 AWAITING TPRP APPROVAL

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 972.960.4460

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SOUTHEAST CONNECTOR PROJECT

SUPPLEMENTAL INTERSECTIONS

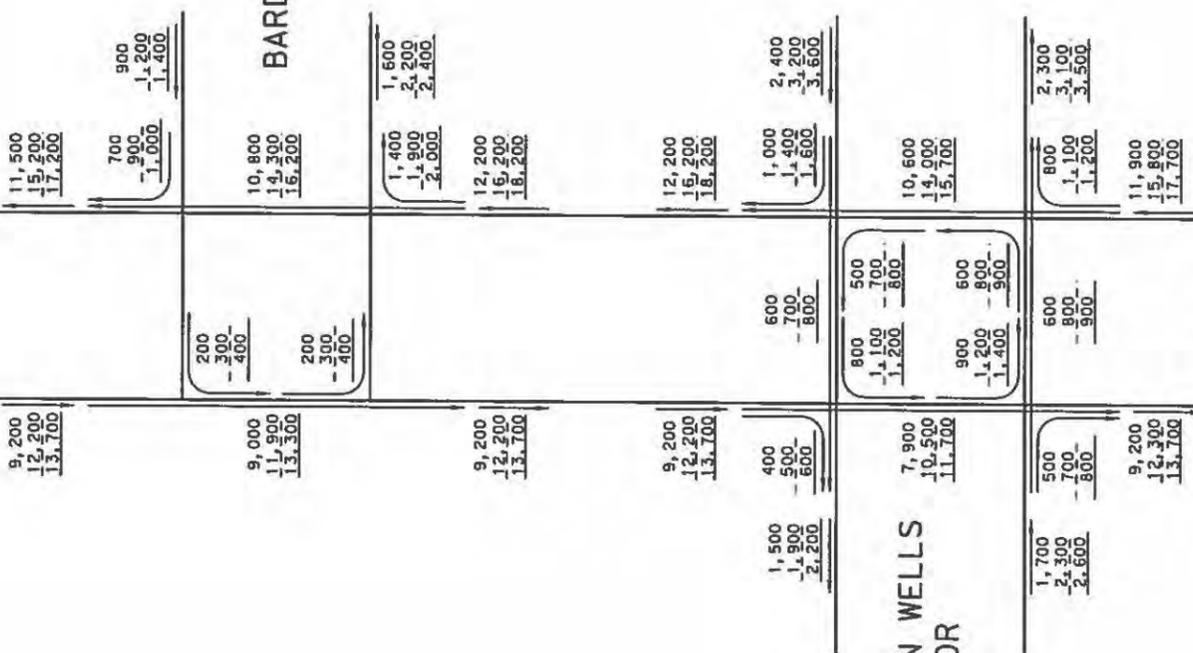
SHEET 16 OF 17

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.
6		IH 820
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
000B	13	125

N16

NOT INTENDED FOR CONSTRUCTION
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 William Erick Knowles, P.E.
 Serial Number R4704

PARK SPRINGS BLVD
MATCHLINE R-2



DRAFT

LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT
 NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

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 HDR
 Firm Registration No. F-754
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 972.960.4400

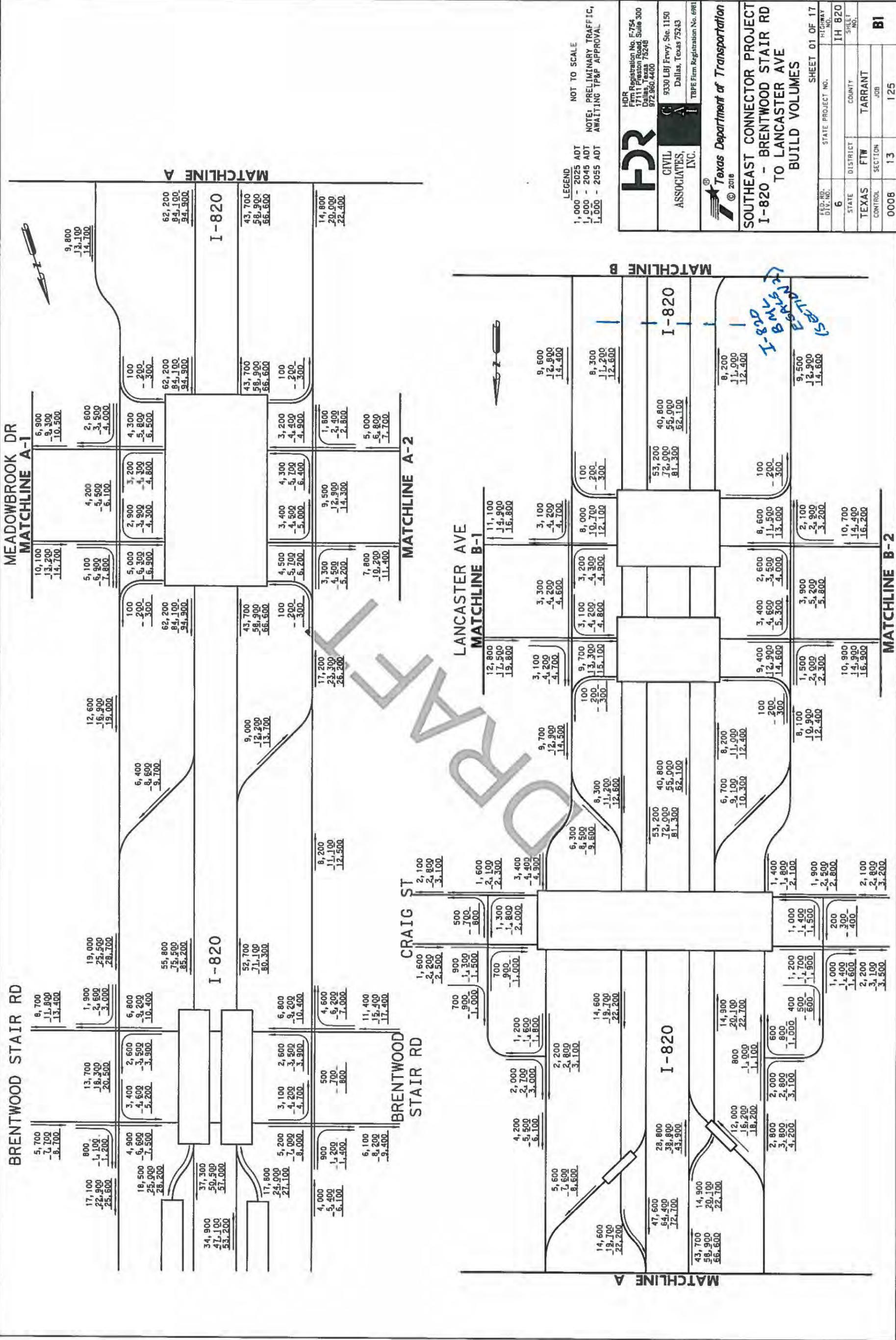
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 CIVIL ASSOCIATES, INC.
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 Dallas, Texas 75243
 TBPE Firm Registration No. 6981

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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET 17 OF 17
6		IH 820	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	
0008	13	125	

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R4701d



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTES: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL.

HDR
 HDR
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 Dallas, Texas 75248
 972.960.4400

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 9330 LBJ Fwy, Ste. 1150
 Dallas, Texas 75243

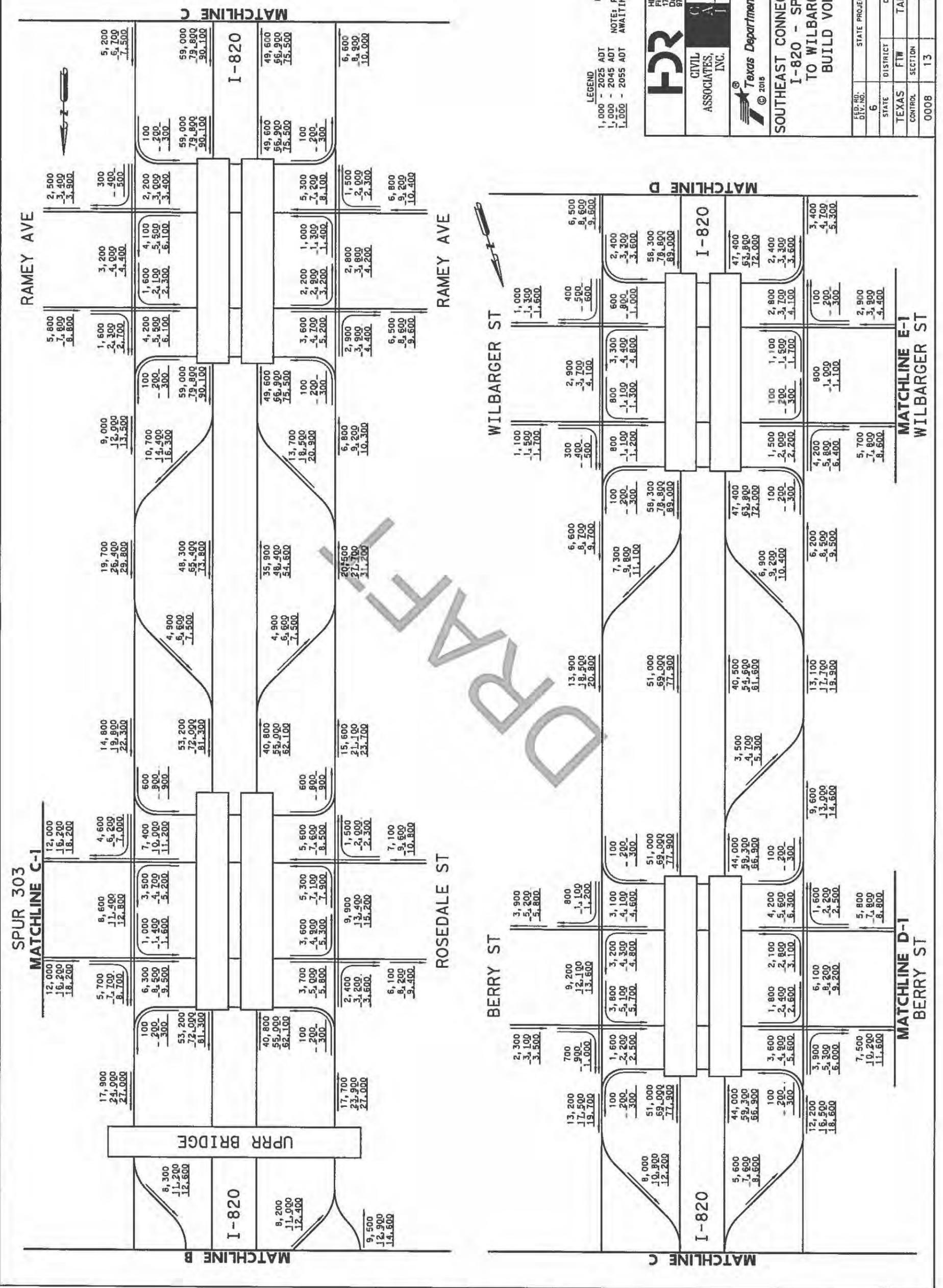
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 TBPE Firm Registration No. 6981

**SOUTHEAST CONNECTOR PROJECT
 I-820 - BRENTWOOD STAIR RD
 TO LANCASTER AVE
 BUILD VOLUMES**

FED. RD. DIV. NO.	6	STATE PROJECT NO.		SHEET 01 OF 17
PICWAY NO.				IH 820
STATE	TEXAS	DISTRICT	FTW	COUNTY
SECTION	0008	SECTION	13	JOB
				125

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 94704

NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 94707



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE

NOTES: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

HDR
 HDR
 Firm Registration No. F-754
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 Dallas, Texas 75248
 872.960.4400

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 9330 LBJ Fwy, Ste. 1150
 Dallas, Texas 75243

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SOUTHEAST CONNECTOR PROJECT
 I-820 - SPUR 303
 TO WILBARGER ST
 BUILD VOLUMES

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.
6		IH 820
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0008	13	125

SHEET 02 OF 17

MATCHLINE E-1
 WILBARGER ST

MATCHLINE D

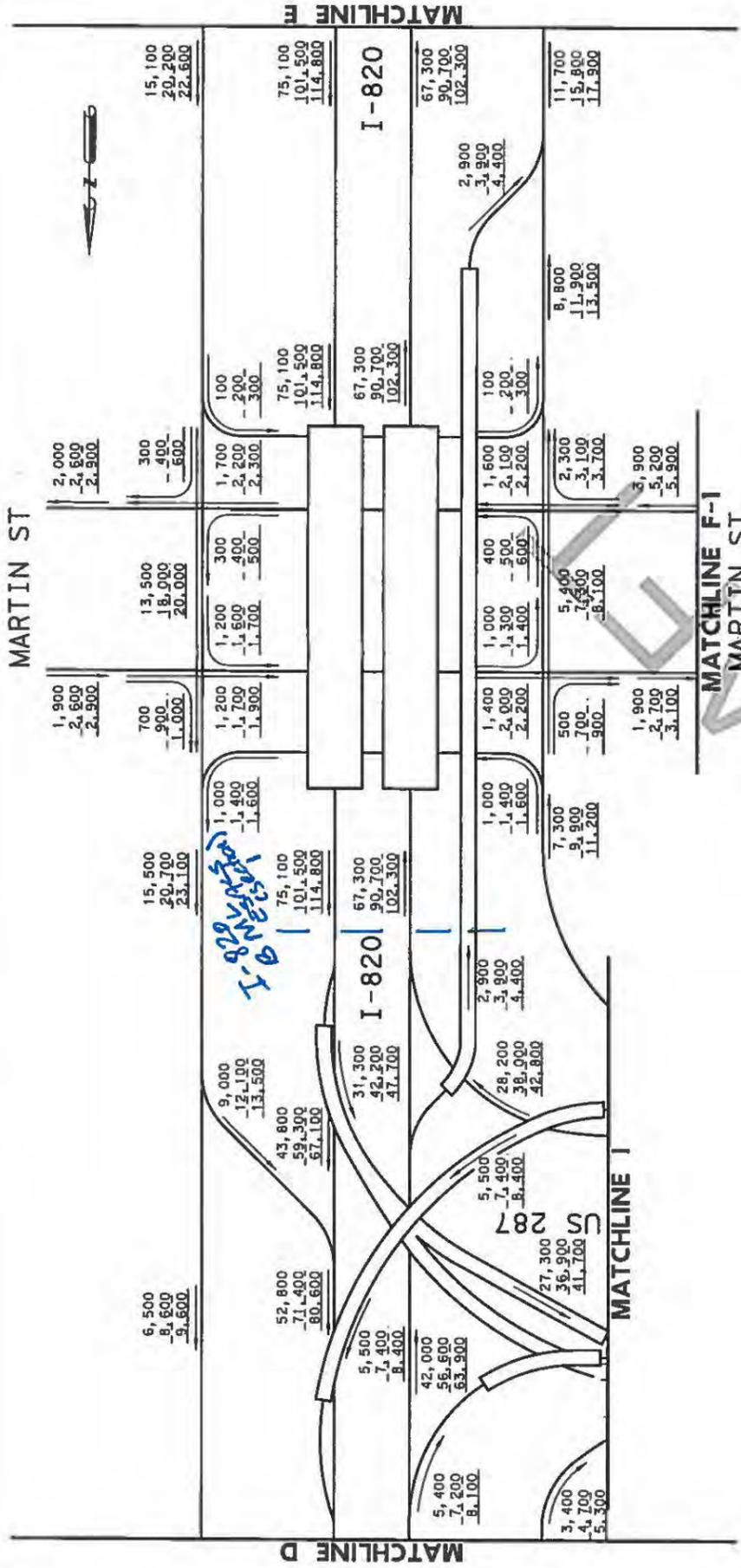
RAMEY AVE

RAMEY AVE

ROSEDALE ST

BERRY ST

MATCHLINE D-1
 BERRY ST



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE

NOTE: PRELIMINARY TRAFFIC,
 AWAITING TR&P APPROVAL

HDR

HDR
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 972.960.4400

CIVIL ASSOCIATES, INC.

9330 LBJ Frwy, Ste. 1150
 Dallas, Texas 75243
 TRPS Firm Registration No. 6981

Texas Department of Transportation

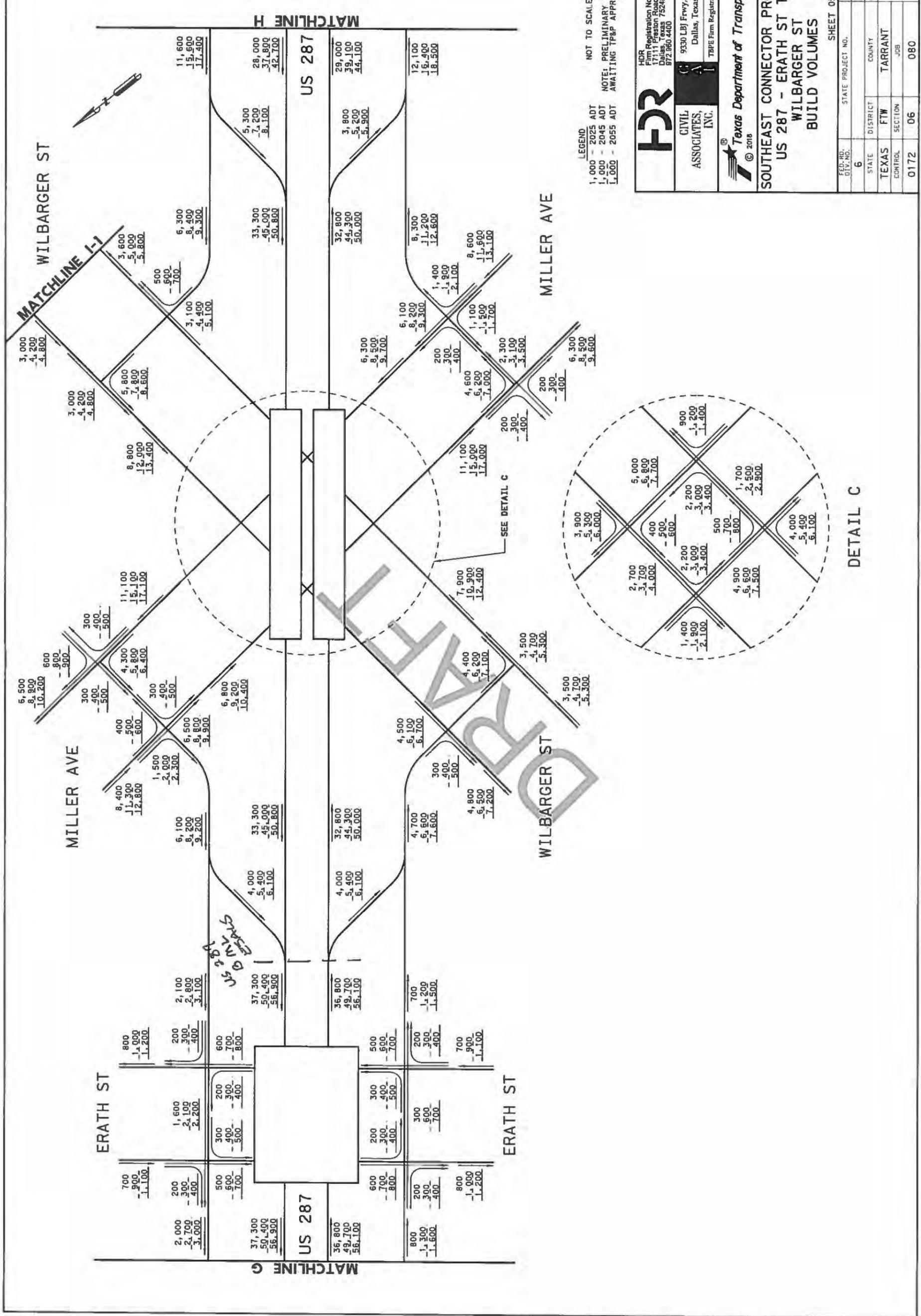
SOUTHEAST CONNECTOR PROJECT
I-820 - US 287 TO
TO I-20
BUILD VOLUMES

SHEET 03 OF 17

FED. PROJ. NO.	STATE PROJECT NO.	HIGHWAY NO.
6		IH 820
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0008	13	125

B3

NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 04704



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTES: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

HDR
 HDR Registration No. F-754
 17111 Parkway, Suite 300
 Dallas, Texas 75248
 972.960.4400

CIVIL ASSOCIATES, INC.
 9330 LBJ Frwy, Ste. 1150
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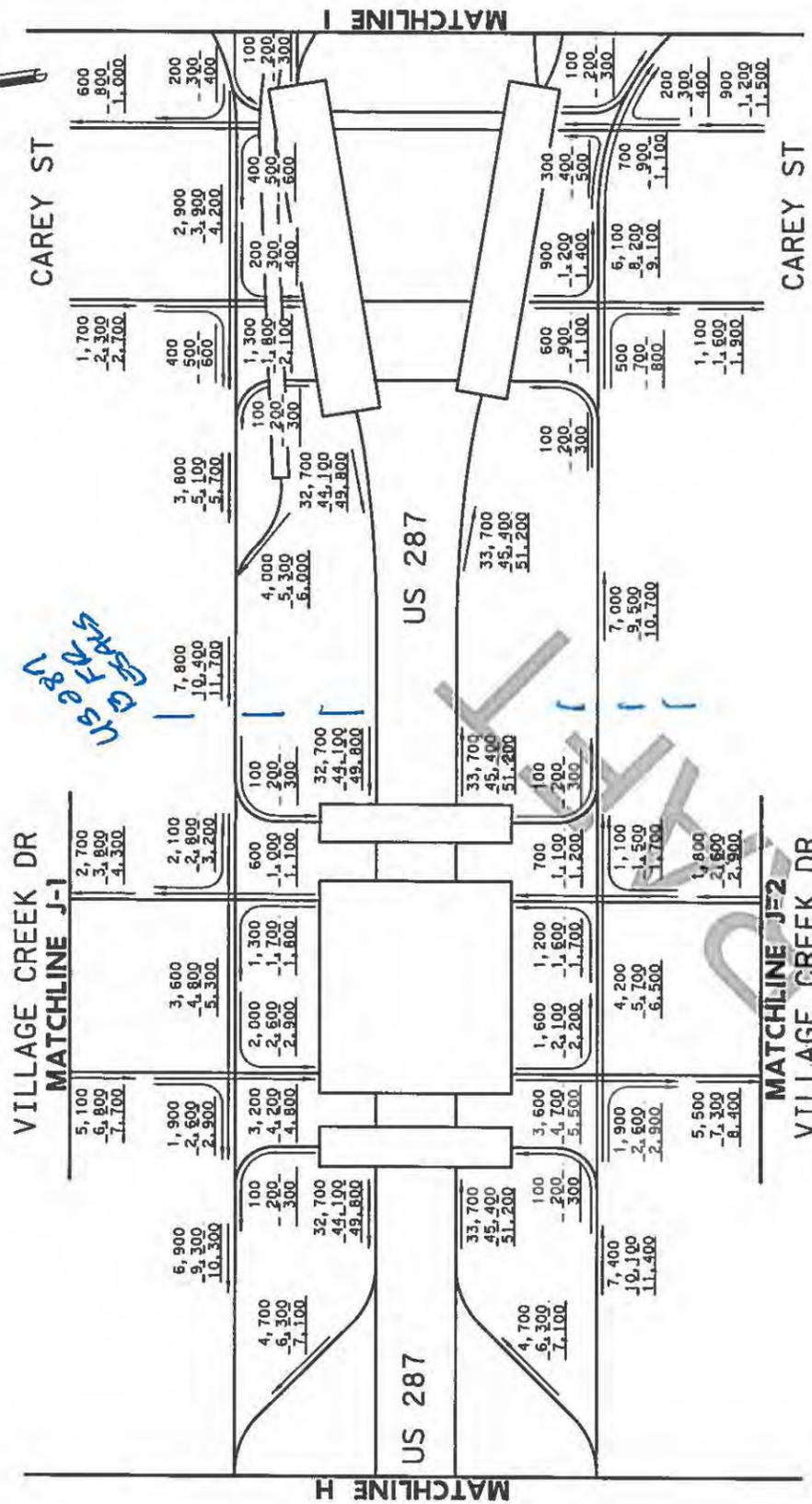
TBPE Firm Registration No. 6981

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SOUTHEAST CONNECTOR PROJECT
 US 287 - ERATH ST TO
 WILBARGER ST
 BUILD VOLUMES

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET NO.
6	US 287	US 287	US 287
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	
0172	06	080	

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R47M



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING T&P APPROVAL

HDR
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 Dallas, Texas 75248
 972.960.4400

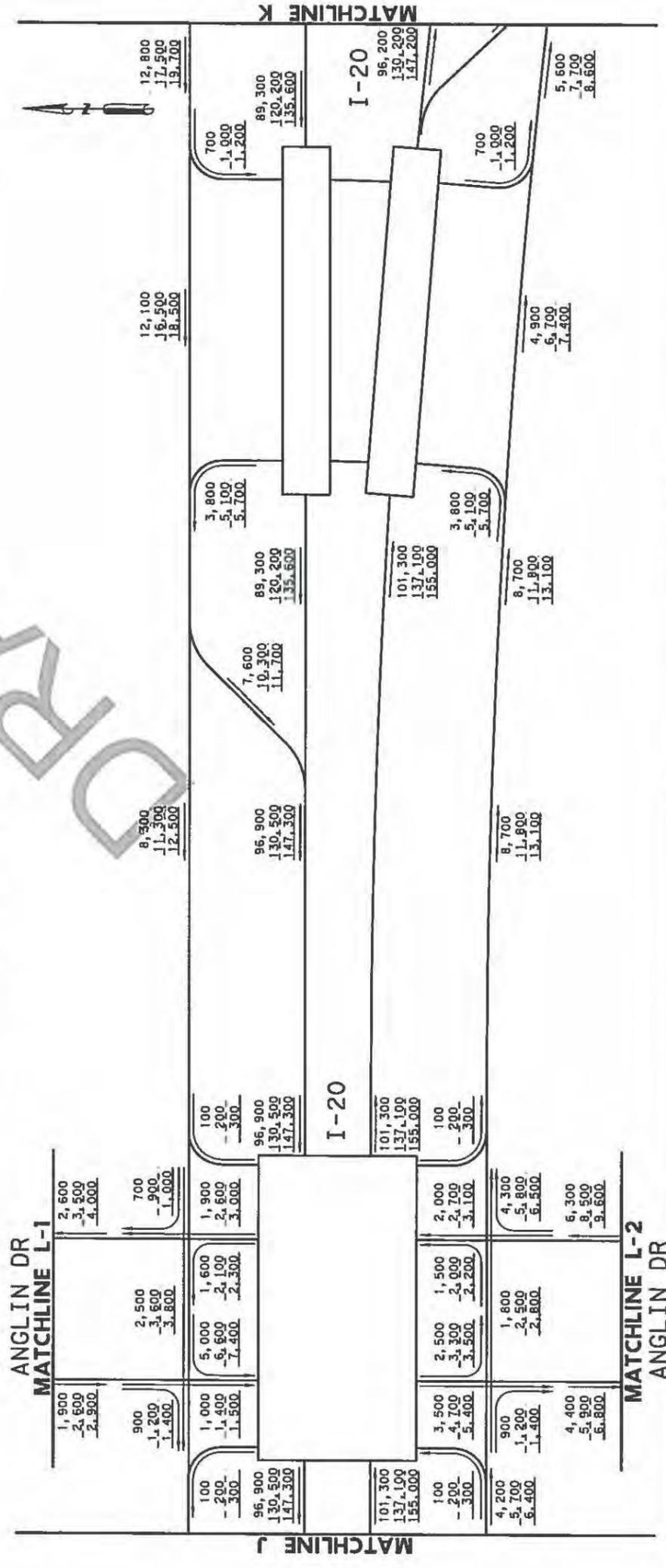
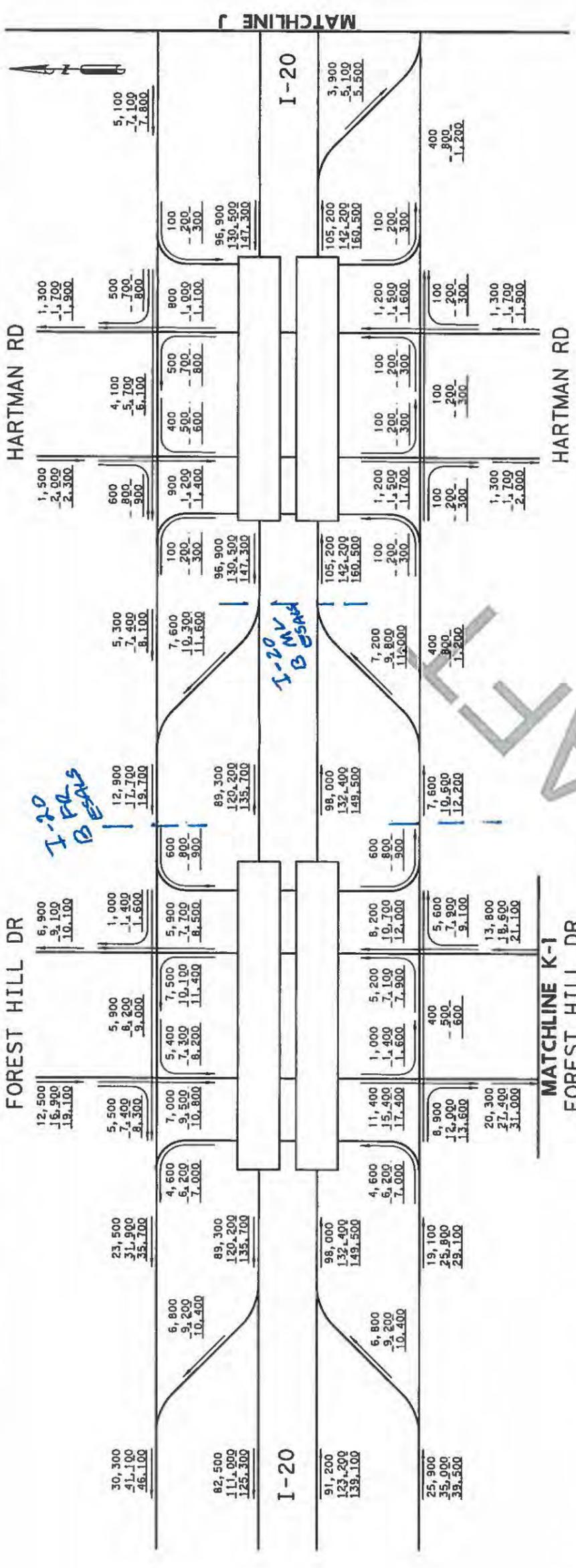
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 Dallas, Texas 75243
 TBPE Firm Registration No. 6961

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SOUTHEAST CONNECTOR PROJECT
 US 287 - VILLAGE CREEK DR
 TO CAREY ST
 BUILD VOLUMES

FED. RD. DIV. NO.	STATE PROJECT NO.	SHEET NO.
6	US 287	US 287
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL	SECTION	JOB
0172	06	080

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA7764



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE

NOTE: PRELIMINARY TRAFFIC,
 AWAITING TRBP APPROVAL

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 CIVIL ASSOCIATES, INC.
 9330 LBJ Fwy, Ste. 1150
 Dallas, Texas 75243
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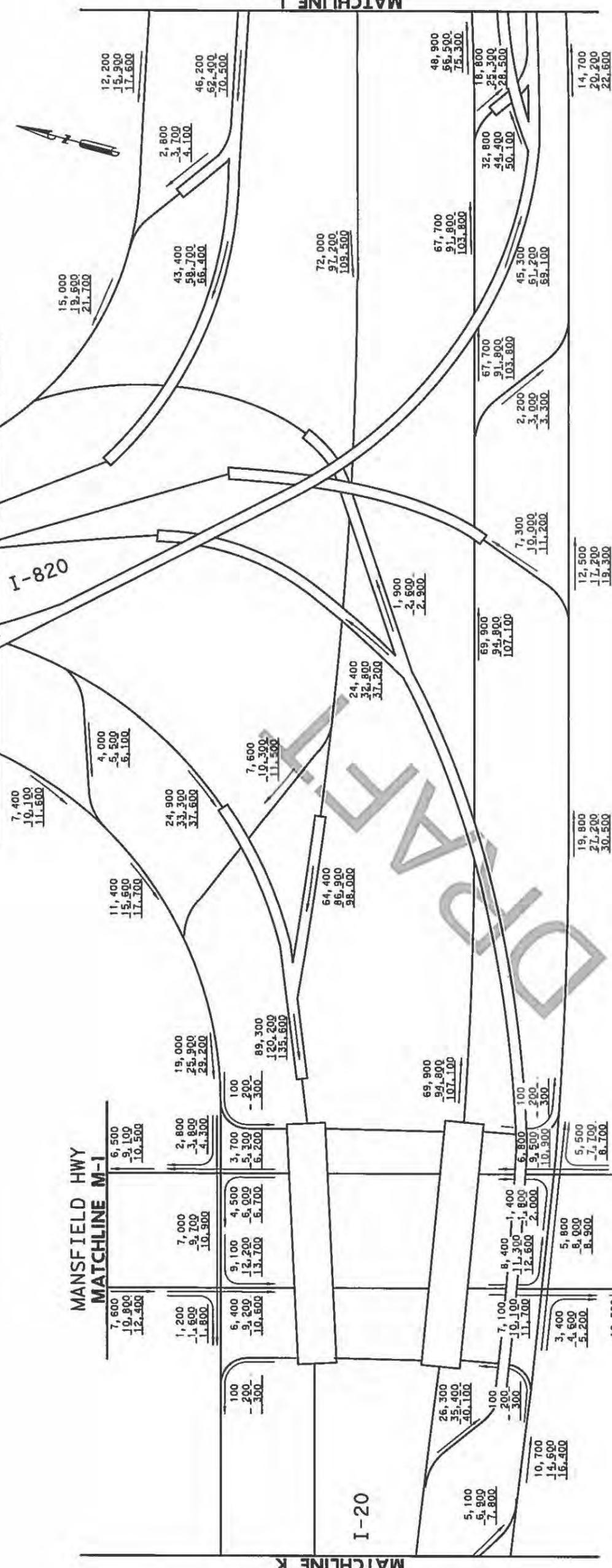
SOUTHEAST CONNECTOR PROJECT
 I-20 - FOREST HILL DR
 TO ANGLIN DR
 BUILD VOLUMES

FED. RD. DIV. NO.	6	STATE PROJECT NO.	IH 20
HIGHWAY NO.		COUNTY	TARRANT
SHEET NO.		DISTRICT	FTW
		SECTION	13
		JOB	206
			B7

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 94704

MATCHLINE L

MATCHLINE F



MANSFIELD HWY
MATCHLINE M-1

MATCHLINE M-2
MANSFIELD HWY

MATCHLINE K

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**SOUTHEAST CONNECTOR PROJECT
I-20 - MANSFIELD HWY
TO I-820
BUILD VOLUMES**

FED. RD. DIST. NO.	STATE PROJECT NO.	TRAVELWAY NO.	SHEET NO.
6			IH 20
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	
0008	13	206	

SHEET 08 OF 17

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

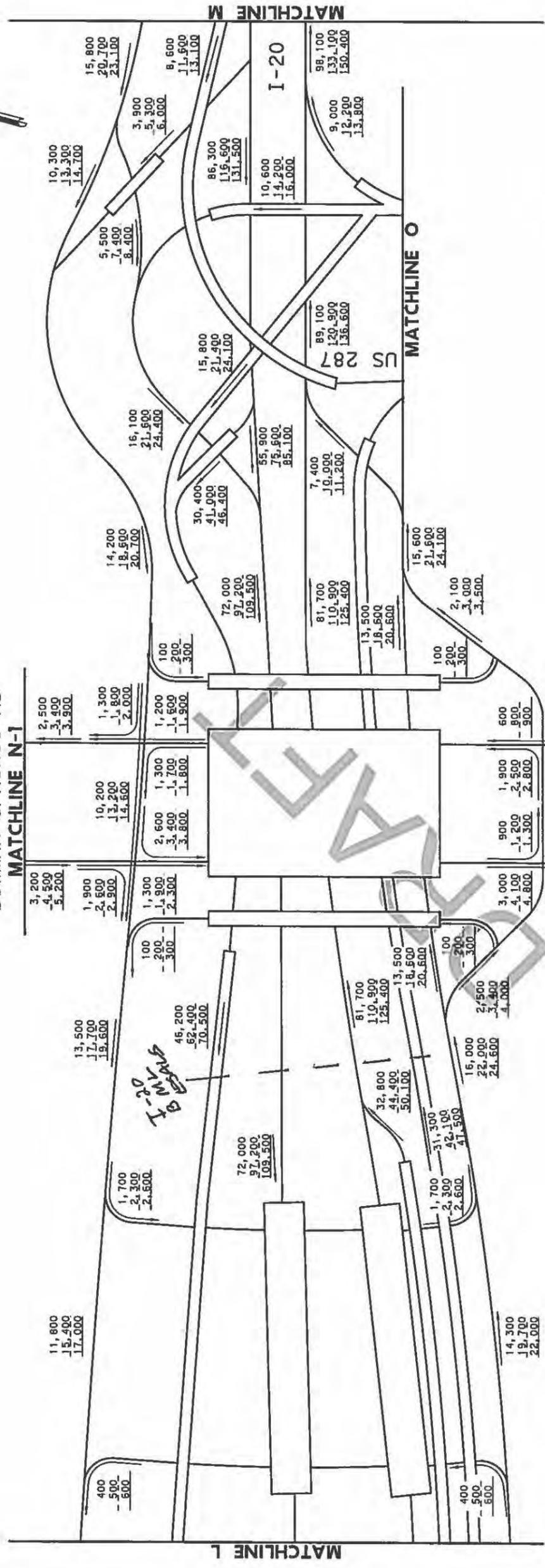
NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TR&P APPROVAL

NOT INTENDED FOR CONSTRUCTION
BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Serial Number R4704



BOWMAN SPRINGS RD
MATCHLINE N-1

BOWMAN SPRINGS RD
MATCHLINE N-2



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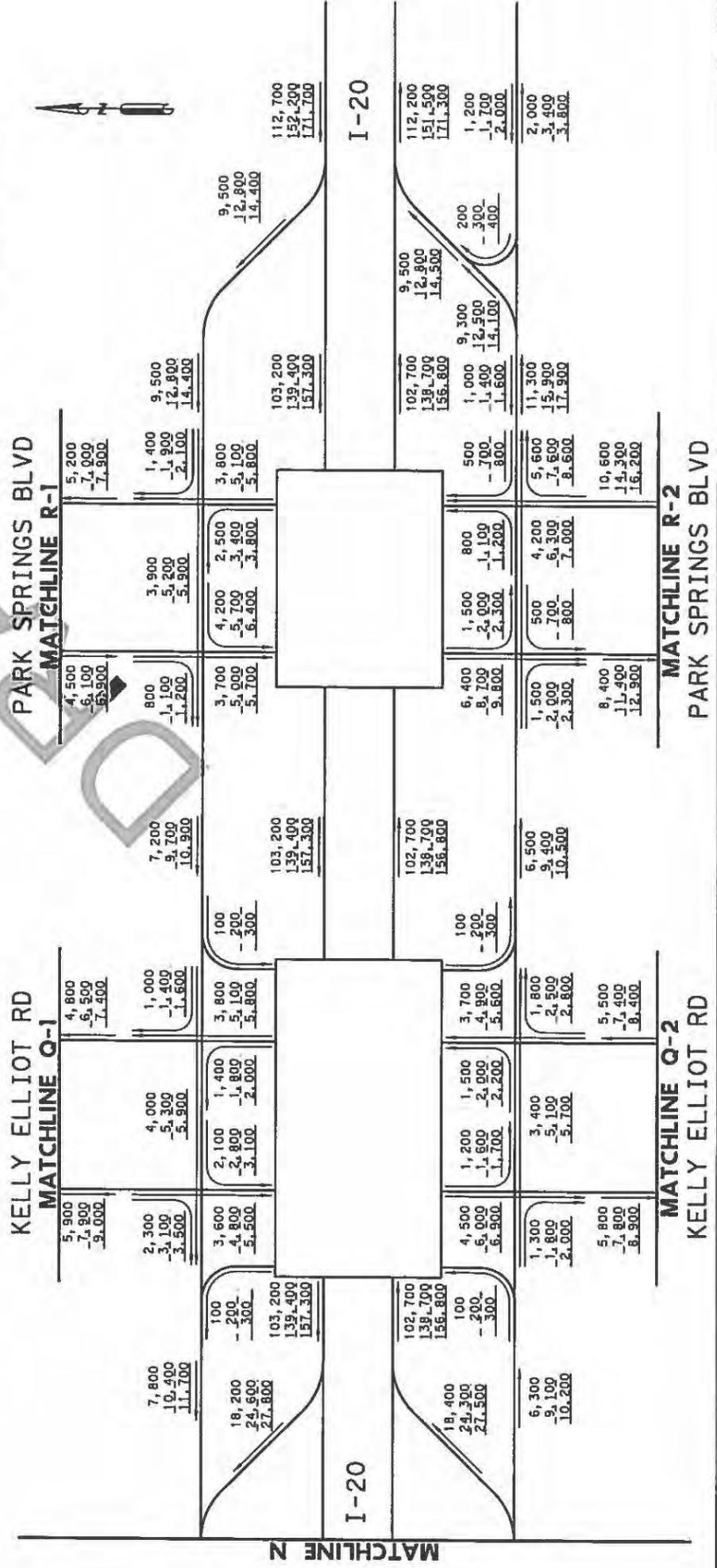
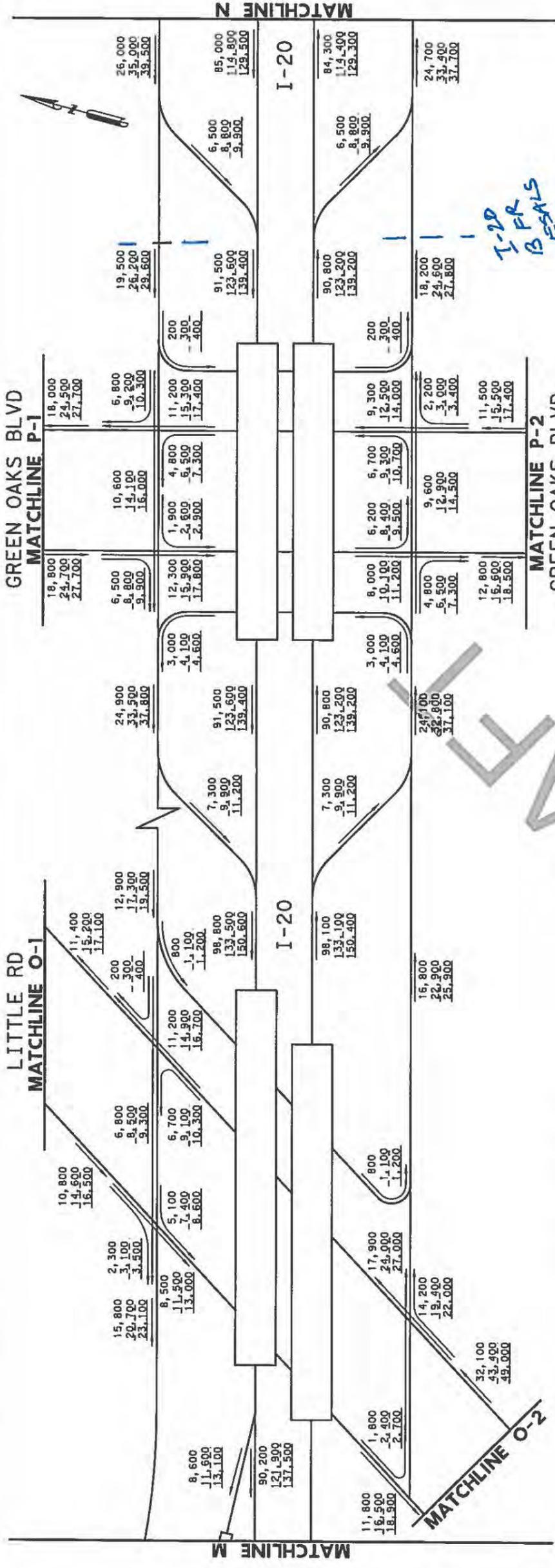
SOUTHEAST CONNECTOR PROJECT
 I-20 - I-820 TO
 US 287
 BUILD VOLUMES

FED. RD. DIST. NO.	STATE PROJECT NO.	STATE PROJECT NO.	HIGHWAY NO.
6	6	6	IH 20
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS		TARRANT	
CONTROL	SECTION	JOB	
2374	05	066	

LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TR&P APPROVAL

NOT INTENDED FOR CONSTRUCTION
 RIDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA704



I-20
FR
ESALS

LEGEND
 1,000 - 2025 ADT
 1,500 - 2045 ADT
 1,800 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

HDR
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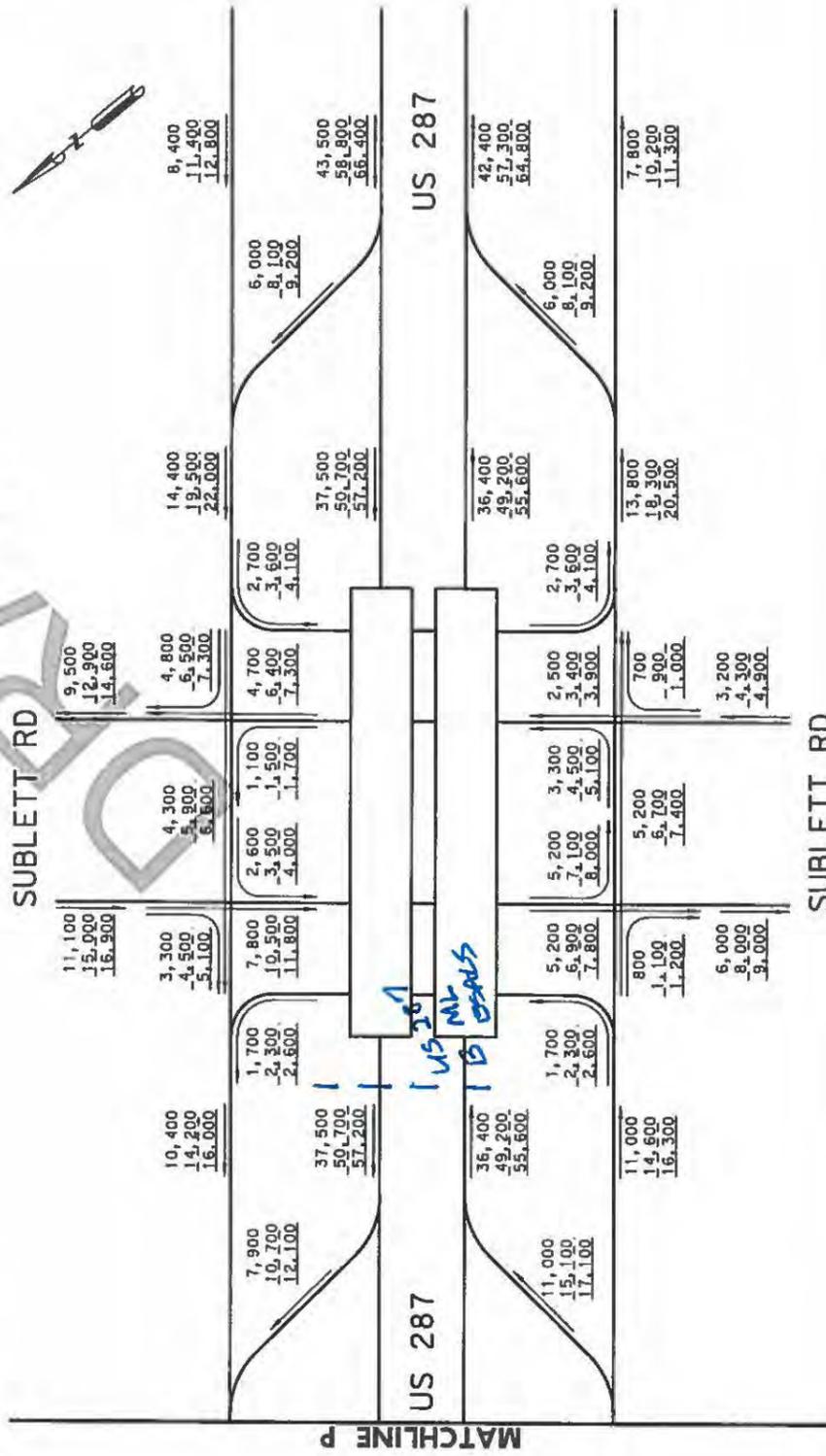
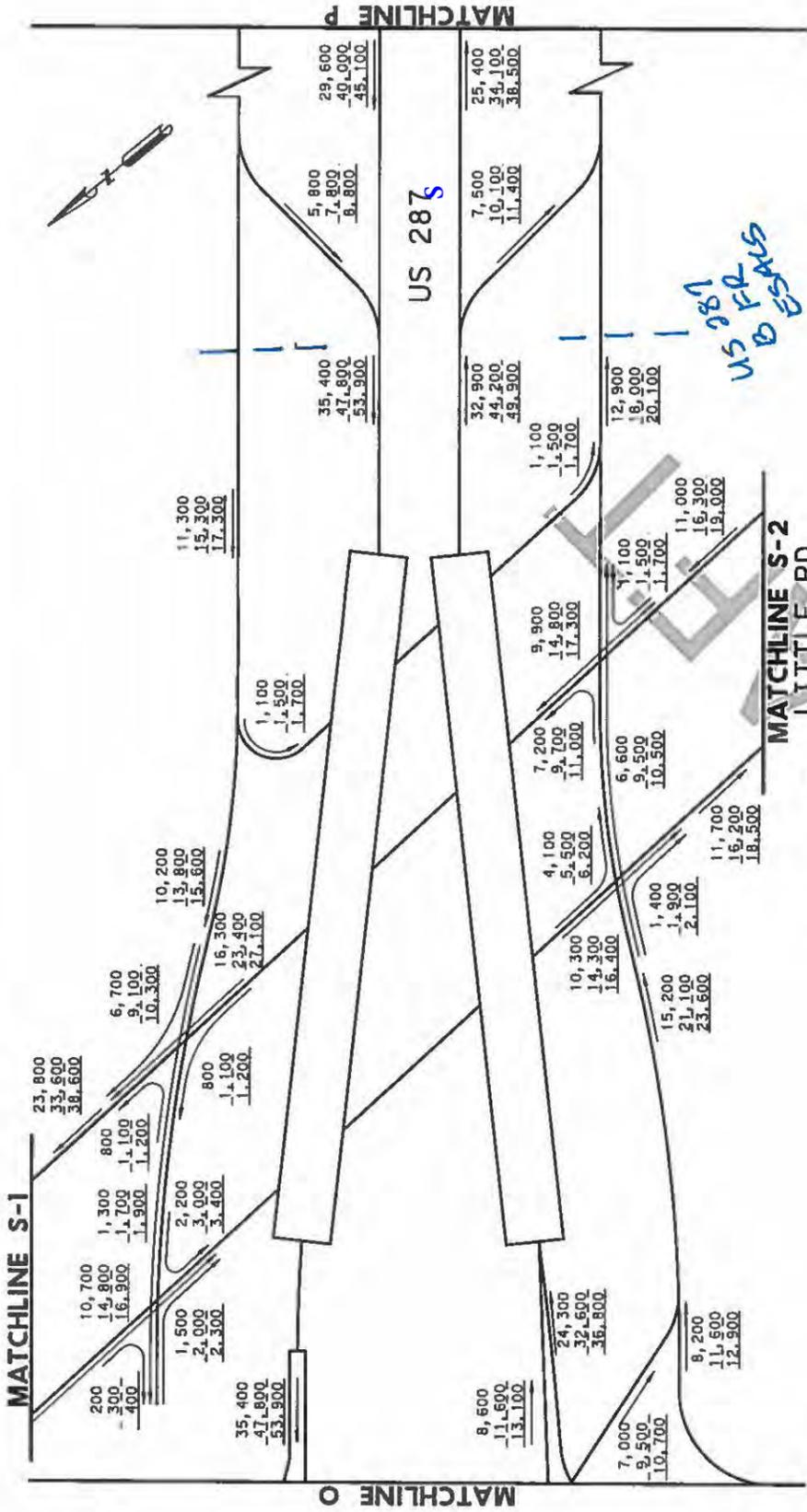
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 Dallas, Texas 75243
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SOUTHEAST CONNECTOR PROJECT
 I-20 - LITTLE RD TO
 PARK SPRINGS BLVD
 BUILD VOLUMES

FED. ROAD DIST. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET NO.
6		IH 20	
STATE	COUNTY		
TEXAS	TARRANT		
CONTROL	SECTION	JOB	
2374	05		066

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA704



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTES: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

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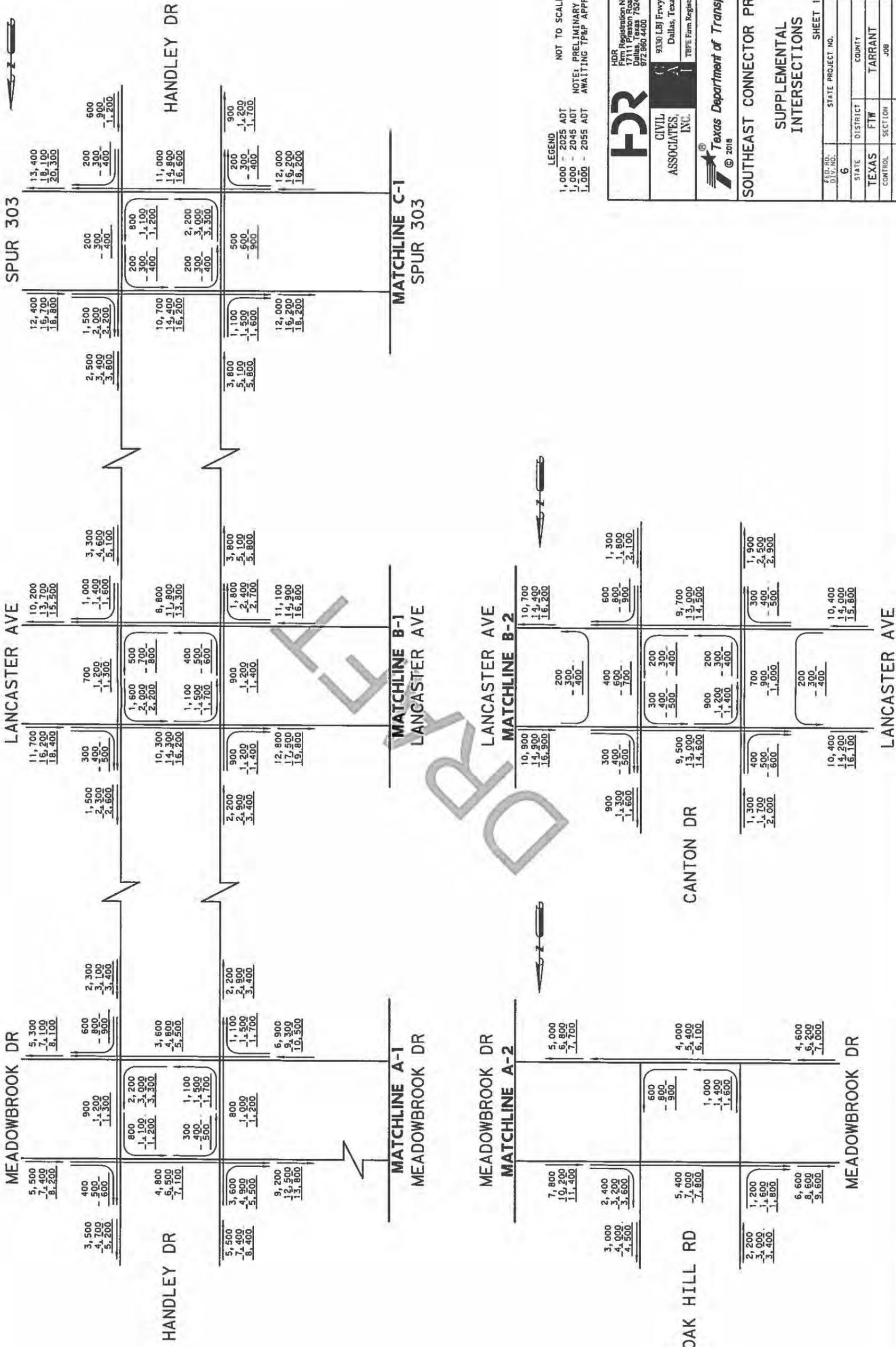
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SOUTHEAST CONNECTOR PROJECT
 US 287 - FROM I-20
 TO SUBLETT RD
 BUILD VOLUMES

SHEET 11 OF 17

FED. RD. DIST. NO.	STATE PROJECT NO.	ROUTE NO.
6	US 287	US 287
STATE	DISTRICT	COUNTY
TEXAS	FTW	TARRANT
CONTROL SECTION	JOB	
0172	09	028

NOT INTENDED FOR CONSTRUCTION
 RIDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA704



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TP&P APPROVAL

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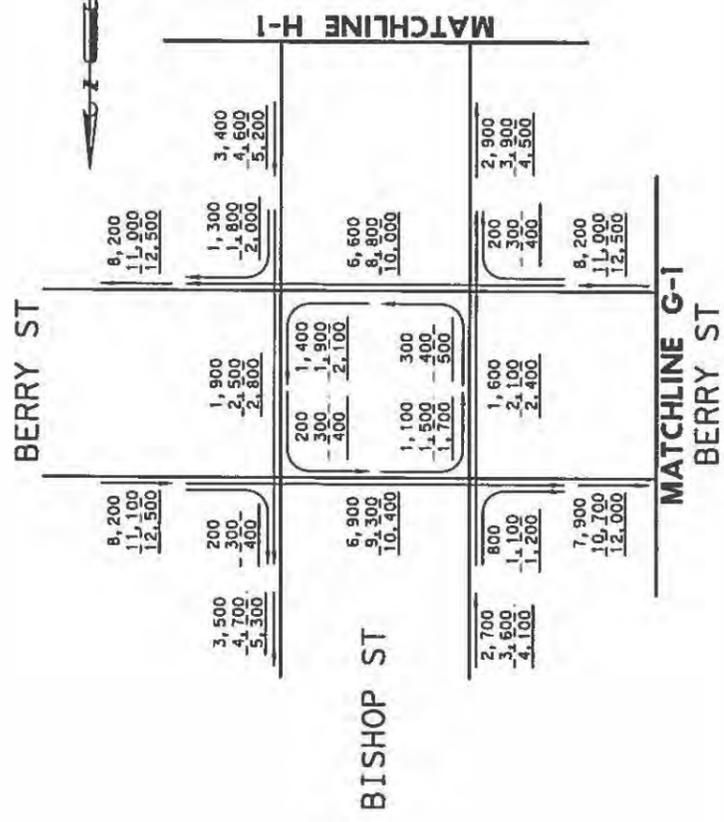
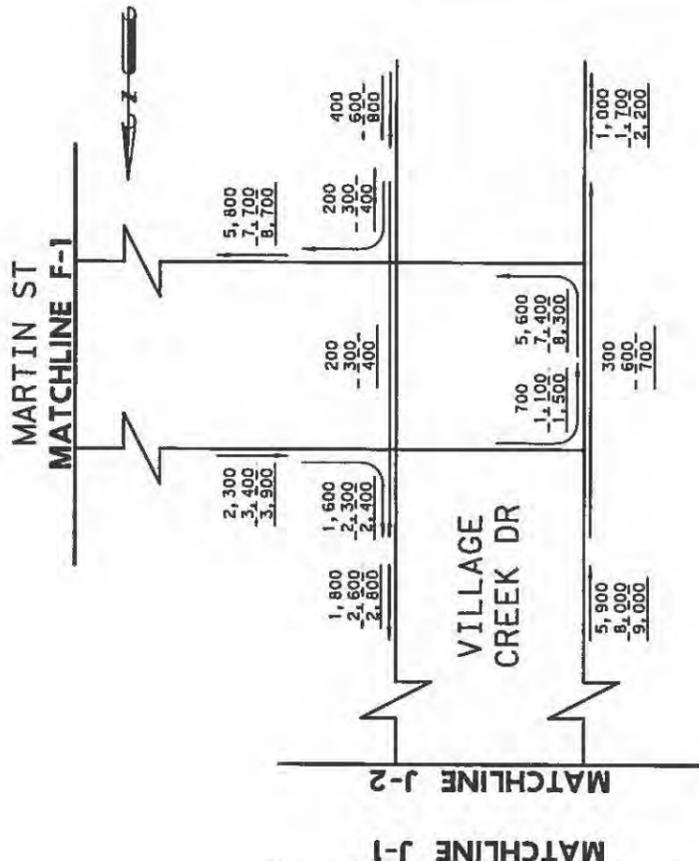
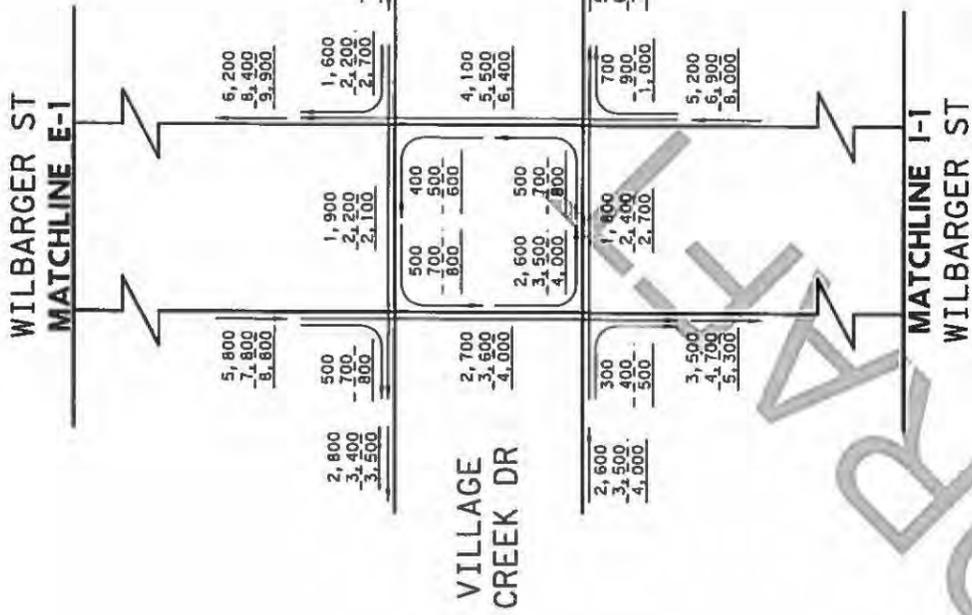
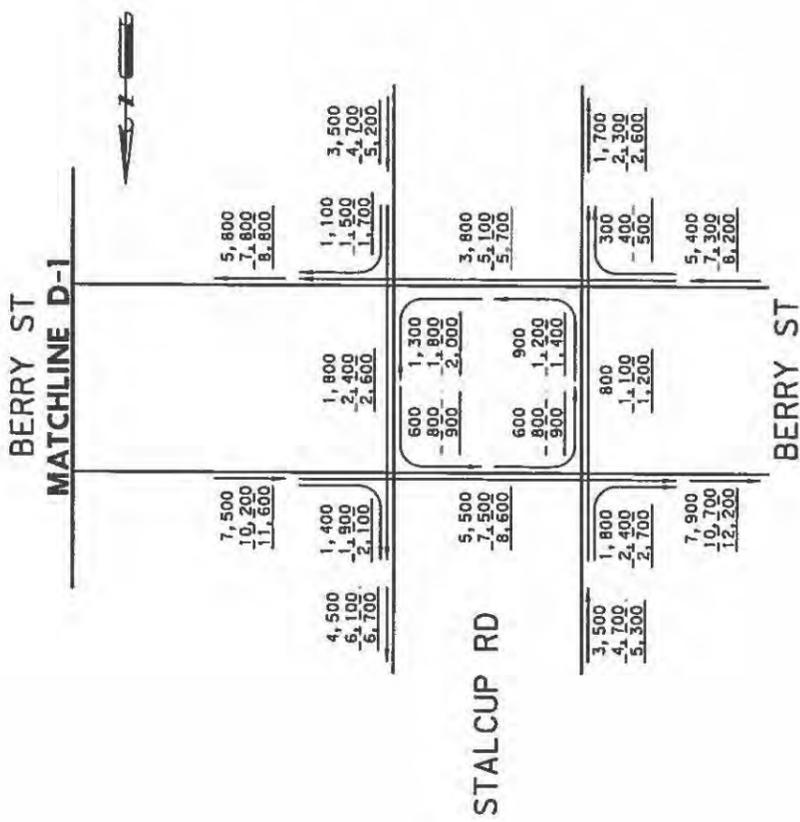
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 Dallas, Texas 75243
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SOUTHEAST CONNECTOR PROJECT
 SOUTHEAST CONNECTOR PROJECT
 SUPPLEMENTAL INTERSECTIONS

STATE PROJECT NO.	SHEET 12 OF 17		
FED. DIST. NO.	STATE	DISTRICT	COUNTY
6	TEXAS	FTW	TARRANT
HIGHWAY NO.	CONTROL	SECTION	JOB
IH 820	0008	13	125
SHEET NO.	B12		

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA70A



LEGEND
 1,000 - 2025 ADT
 1,000 - 2045 ADT
 1,000 - 2055 ADT

NOT TO SCALE
 NOTE: PRELIMINARY TRAFFIC,
 AWAITING TR&P APPROVAL

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 Dallas, Texas 75243
 T&P Firm Registration No. 6981

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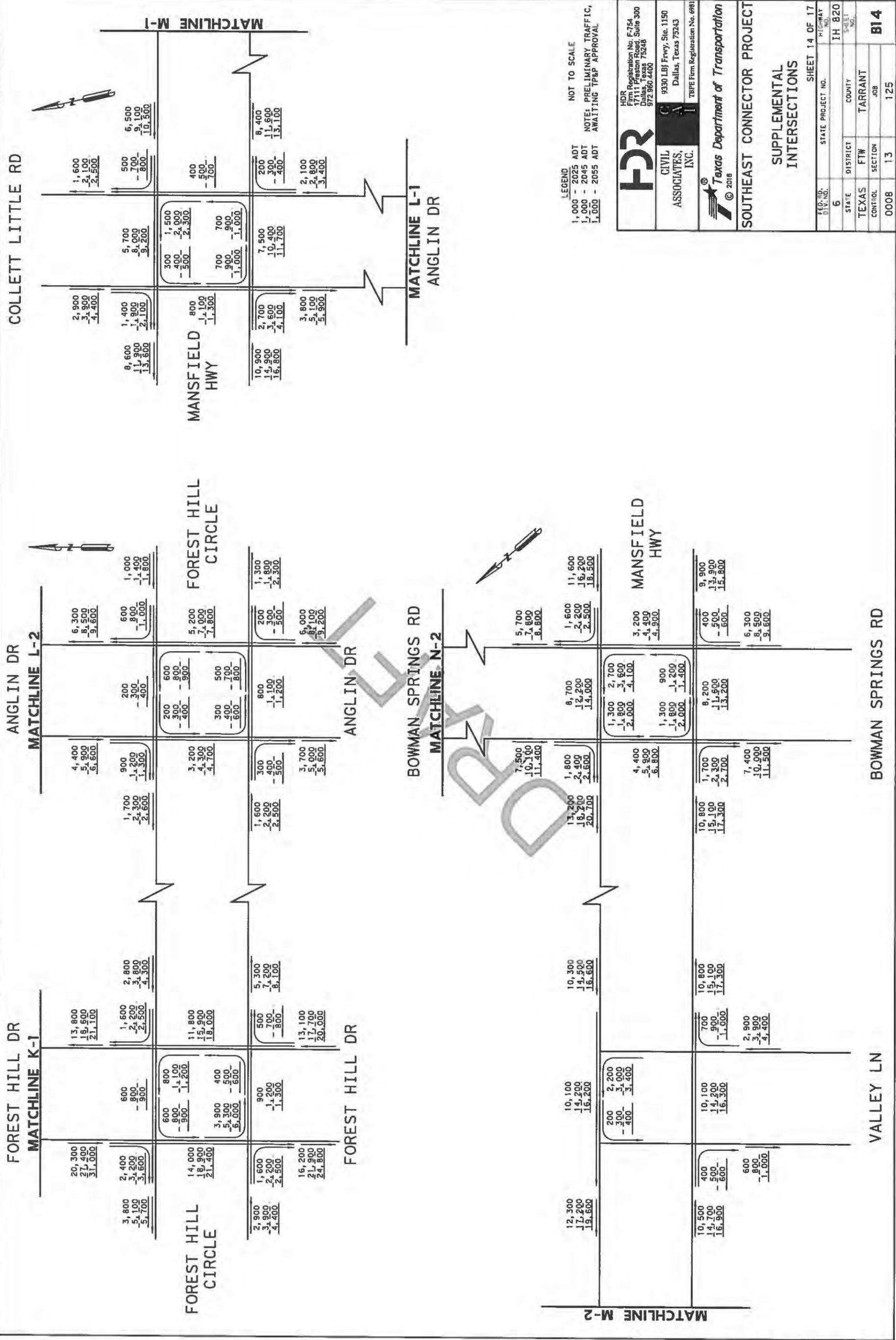
SOUTHEAST CONNECTOR PROJECT

SUPPLEMENTAL INTERSECTIONS

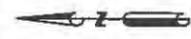
SHEET 13 OF 17

STATE PROJECT NO.	HIGHWAY NO.		
6	IH 820		
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	FTW	TARRANT	B13
CONTROL	SECTION	JOB	
0008	13	125	

NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R470A



NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R476d



BOWMAN SPRINGS RD

3,400	2,600
4,800	3,500
5,500	4,000
500	500
700	700
800	800
1,000	2,000
1,400	2,700
1,600	3,100
900	2,500
1,200	3,300
1,400	3,700
300	2,800
400	3,400
500	4,100
3,200	2,500
4,500	3,400
5,200	3,900

ENCHANTED BAY BLVD

1,000	500
1,400	700
1,600	800
900	600
1,200	800
1,400	900
300	300
400	400
500	500
3,200	2,800
4,500	3,400
5,200	4,100

MATCHLINE N-1

BOWMAN SPRINGS RD

POLY WEBB RD

3,900	5,000
5,300	6,800
6,000	7,700
7,500	500
10,100	700
11,400	800
3,000	8,000
4,100	10,800
4,600	10,800
11,400	12,200
900	8,000
1,200	10,800
1,400	12,200
2,500	25,600
3,900	34,200
4,400	38,500

LITTLE RD

17,400	8,000
23,100	10,800
25,900	12,200

GREEN OAKS BLVD

200	29,000
300	38,400
400	44,500

MATCHLINE P-1

GREEN OAKS BLVD

ARBORGATE DR

2,800	2,100
3,800	2,900
4,400	3,400
200	1,000
300	1,400
400	1,500
10,900	12,500
15,100	17,200
17,300	19,600

MATCHLINE S-1

MATCHLINE S-2

LITTLE RD

1,900	1,400
2,600	1,900
2,900	2,100
8,000	300
10,800	400
12,200	500
3,600	2,800
4,900	3,400
5,400	4,100
4,900	6,700
6,600	9,100
7,400	10,300

TREEPOINT DR



ARBORGATE DR

700	500
900	700
1,000	800
2,400	900
3,200	1,200
3,600	1,400
23,800	28,300
33,600	39,600
38,600	45,200

MATCHLINE S-1

MATCHLINE S-2

LITTLE RD

200	600
300	800
400	900
2,700	2,700
3,600	3,600
4,000	4,000
1,200	3,400
1,600	4,600
1,900	5,200

10,200	12,500
14,100	17,200
16,100	19,600

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TPMP APPROVAL

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Dallas, Texas 75243
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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

STATE PROJECT NO.	6	HIGHWAY NO.	IH 820
STATE	TEXAS	COUNTY	TARRANT
DISTRICT	FTW	COUNTY	TARRANT
SECTION	13	JOB	B15
CONTROL	0008	SECTION	13
		JOB	125

SHEET 15 OF 17

GREEN OAKS BLVD

MATCHLINE P-2

12,800
16,500
18,500

2,100
2,900
3,300

FOREST BEND DR

3,400
4,600
5,200

13,100
17,000
19,000

11,500
15,500
17,400

1,100
1,500
2,200

PLEASANT RIDGE RD

200
300
400

9,700
13,100
14,800

GREEN OAKS BLVD

KELLY ELLIOT RD

4,200
5,100
6,500

5,800
7,800
8,900

PLEASANT RIDGE RD

1,100
1,500
1,700

4,800
6,500
7,400

MATCHLINE R-1

KELLY ELLIOT RD

KELLY ELLIOT RD

MATCHLINE Q-2

6,200
8,100
9,100

5,800
7,800
8,900

BARDIN RD

5,300
7,100
8,100

KELLY ELLIOT RD

6,800
8,900
10,000

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TPMP APPROVAL

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Dallas, Texas 75243
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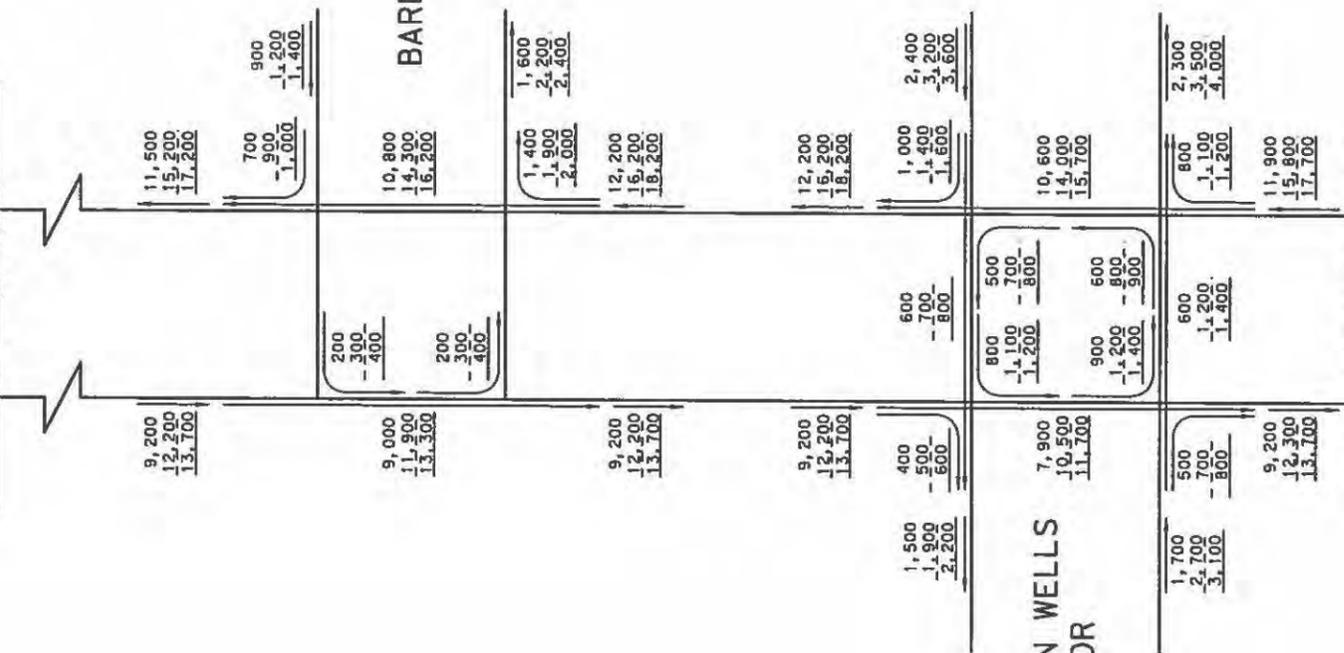
SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET NO.
6		IH 820	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	
0008	13	125	

SHEET 16 OF 17

NOT INTENDED FOR CONSTRUCTION
BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Serial Number RA770A

PARK SPRINGS BLVD
MATCHLINE R-2



BARDIN RD

INDIAN WELLS
DR

PARK SPRINGS BLVD

DRAFT

LEGEND
1,000 - 2025 ADT
1,000 - 2045 ADT
1,000 - 2055 ADT

NOT TO SCALE
NOTE: PRELIMINARY TRAFFIC,
AWAITING TP&P APPROVAL

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SOUTHEAST CONNECTOR PROJECT
SUPPLEMENTAL INTERSECTIONS

FED. RD. DIV. NO.	STATE PROJECT NO.	HIGHWAY NO.	SHEET NO.
6		IH 820	
STATE	DISTRICT	COUNTY	
TEXAS	FTW	TARRANT	
CONTROL	SECTION	JOB	
0008	13	125	B17

NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.
Serial Number RA704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 13, 2019

Description of Location	Base Year				ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
	Average Daily Traffic		Dir Dist %	K Factor			Percent Trucks	Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2045									
	% of ADT	% of DHV									
I-820 (No Build-Mainlanes Only) Section 1 From I-20 To US 287 Tarrant County	163,900	221,200	52 - 48	9.9	2.4	20	30,563,000	3	39,861,000	8"	
Data for Use in Air & Noise Analysis											
Vehicle Class	Base Year										
	% of ADT	% of DHV									
Light Duty	94.7	97.6									
Medium Duty	2.2	1.0									
Heavy Duty	3.1	1.4									
Description of Location	Base Year				ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)				
	Average Daily Traffic		Dir Dist %	K Factor			Percent Trucks	Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2055									
	% of ADT	% of DHV									
I-820 (No Build-Mainlanes Only) Section 1 From I-20 To US 287 Tarrant County	163,900	249,800	52 - 48	9.9	2.4	20	49,249,000	3	64,232,000	8"	

NOT INTENDED FOR CONSTRUCTION,
BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E.

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 13, 2019

Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)			
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2045			ADT	DHV						
	%		%		%							
I-820 (No Build-Frontage Roads Only) From I-20 To Brentwood Stair Rd. Tarrant County	18,700	25,400	52 - 48	9.9	10.7	8.0	12,000	40	7,717,000	3	10,103,000	8"
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year		Base Year		Base Year							
	% of ADT		% of DHV		% of DHV							
Light Duty	89.3		92.0		92.0							
Medium Duty	3.2		2.4		2.4							
Heavy Duty	7.5		5.6		5.6							
Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)			
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2055			ADT	DHV						
	%		%		%							
I-820 (No Build-Frontage Roads Only) From I-20 To Brentwood Stair Rd. Tarrant County	18,700	28,600	52 - 48	9.9	10.7	8.0	12,000	30	12,416,000	3	16,256,000	8"

NOT INTENDED FOR CONSTRUCTION,
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number RA704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)					
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement		Rigid Pavement	
	2025	2045			ADT	DHV			S	N	S	N
	SLAB		SLAB		SLAB		SLAB		SLAB		SLAB	
<p><u>i-20 (No Build-Mainlanes Only)</u></p> <p><u>Section 1</u></p> <p>From I-20/I-820 Interchange To US 287</p> <p>Tarrant County</p>												
	246,200	332,500	53 - 47	7.2	7.9	3.6	13,700	20	76,963,000	3	105,102,000	8"
<p>Data for Use in Air & Noise Analysis</p>												
Vehicle Class	Base Year		Base Year		Base Year		Base Year		Base Year		Base Year	
	% of ADT	% of DHV	% of ADT	% of DHV	% of ADT	% of DHV	% of ADT	% of DHV	% of ADT	% of DHV	% of ADT	% of DHV
Light Duty	92.1	96.4										
Medium Duty	2.3	1.0										
Heavy Duty	5.6	2.6										
<p>Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)</p>												
<p><u>i-20 (No Build-Mainlanes Only)</u></p> <p><u>Section 1</u></p> <p>From I-20/I-820 Interchange To US 287</p> <p>Tarrant County</p>												
	246,200	375,200	53 - 47	7.2	7.9	3.6	13,700	20	123,966,000	3	169,290,000	8"

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Civil Engineer 04701

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year				Dir Dist %	K Factor	Percent Trucks ADT	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
	Average Daily Traffic		Rigid Pavement	Flexible Pavement						S	N	SLAB		
	2025	2045												
I-20 (No Build-Mainlanes Only) Section 2 From US 287 To Park Springs Blvd. Tarrant County														
	218,900	295,700	53 - 47	7.2		8.3	3.7	13,600	20		71,870,000	3	98,168,000	8"
Data for Use in Air & Noise Analysis														
Vehicle Class	Base Year													
	% of ADT	% of DHV												
Light Duty	91.7	96.3												
Medium Duty	2.4	1.1												
Heavy Duty	5.9	2.6												
I-20 (No Build-Mainlanes Only) Section 2 From US 287 To Park Springs Blvd. Tarrant County														
	218,900	333,800	53 - 47	7.2		8.3	3.7	13,700	20		115,794,000	3	158,164,000	8"
Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)														

NOT INTENDED FOR CONSTRUCTION BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84707

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year				Dir Dist %	K Factor	Percent Trucks ADT	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		
	Average Daily Traffic		Flexible Pavement	S						Rigid Pavement	N	SLAB
	2025	2045										
I-20 (No Build-Frontage Roads Only) Section 2 From US 287 To Park Springs Blvd. Tarrant County												
	28,400	38,600	53 - 47	7.2	1.1	0.8	10,400	30	766,000	3	791,000	8"
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year											
	% of ADT	% of DHV										
	98.9	99.2										
Medium Duty	0.9	0.7										
Heavy Duty	0.2	0.1										
I-20 (No Build-Frontage Roads Only) Section 2 From US 287 To Park Springs Blvd. Tarrant County												
	28,400	43,600	53 - 47	7.2	1.1	0.8	10,500	30	1,234,000	3	1,276,000	8"

J1 INVICULEL TUB CONSTRUCTION
 WINDING OR PERMIT PURPOSES:
 William Erick Knowles, P.E.
 Serial Number RA704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Average Daily Traffic				Dir Dist %	K Factor	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		SLAB
	2025		2045				Percent Trucks	ADT	DHV			Flexible Pavement	Rigid Pavement	
	2025	2045	2045	2045										
<u>I-20 (No Build-Mainlanes Only)</u> From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	206,500	278,700	53 - 47	7.2	8.6	3.9	70,194,000	95,892,000	13,600	20	3	8"		
Data for Use in Air & Noise Analysis														
Vehicle Class	Base Year			% of DHV										
	% of ADT	% of DHV	% of DHV											
Light Duty	91.4	96.1	96.1											
Medium Duty	2.5	1.1	1.1											
Heavy Duty	6.1	2.8	2.8											
Description of Location	Average Daily Traffic				Dir Dist %	K Factor	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)		SLAB
	2025		2055				Percent Trucks	ADT	DHV			Flexible Pavement	Rigid Pavement	
	2025	2055	2055	2055										
<u>I-20 (No Build-Mainlanes Only)</u> From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	206,500	314,400	53 - 47	7.2	8.6	3.9	113,043,000	154,429,000	13,700	20	3	8"		

01 IN I N E N D E L T U H C O N S T R U C T I O N
 P E R M I T P U R P O S E
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Average Daily Traffic		Dir Dist %	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		SLAB
	2025	2045		K Factor	ADT	Trucks			DHV	Flexible Pavement	
	Data for Use in Air & Noise Analysis										
I-20 (No Build-Frontage Roads Only) From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	18,400		53 - 47	7.2	1.2	0.9	10,200	30	535,000	3	8"
	24,900										
	2045										
Vehicle Class											
Light Duty	98.8		% of DHV								
Medium Duty	1.0										
Heavy Duty	0.2										
I-20 (No Build-Frontage Roads Only) From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	18,400		53 - 47	7.2	1.2	0.9	10,200	30	859,000	3	8"
	27,900										
	2055										
Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)											

NOT IN CHARGE OF CONSTRUCTION
 ADDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 94704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
	2025	2045			ADT	DHV						
	%		%		%			%		%		
US 287 (No Build-Mainlanes Only) From I-820 To Bishop Street Tarrant County	77,600	104,800	54 - 46	9.7	7.1	4.3	12,700	21,187,000	3	28,914,000	8"	
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year		Base Year		Base Year							
	% of ADT		% of DHV		% of DHV							
Light Duty	92.9		95.7		95.7							
Medium Duty	2.2		1.3		1.3							
Heavy Duty	4.9		3.0		3.0							
Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			ATHWLD	Flexible Pavement	S N	Rigid Pavement	SLAB
	2025	2055			ADT	DHV						
	%		%		%			%		%		

US 287 (No Build-Mainlanes Only)

From I-820
To Bishop Street
Tarrant County

77,600 118,400
54 - 46

9.7 7.1 4.3

12,800

34,150,000 3 46,606,000 8"

NOT FOR CONSTRUCTION
 PERMITTING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Average Daily Traffic		Dir Dist %	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)					
	2025	2045		K Factor	ADT	Percent Trucks			Flexible Pavement	N	S	Rigid Pavement	SLAB	
	Data for Use in Air & Noise Analysis													
	Vehicle Class	Base Year												
US 287 (No Build-Frontage Roads Only) From I-820 To Bishop Street Tarrant County	12,200		54 - 46	9.7	6.6	5.0	11,100	40	2,415,000	3	3,013,000	8"		
	% of ADT		% of DHV											
	Light Duty	93.4		95.0										
Medium Duty	2.0		1.5											
Heavy Duty	4.6		3.5											
US 287 (No Build-Frontage Roads Only) From I-820 To Bishop Street Tarrant County	12,200		54 - 46	9.7	6.6	5.0	11,200	40	3,900,000	3	4,864,000	8"		
	18,800		54 - 46	9.7	6.6	5.0	11,200	40	3,900,000	3	4,864,000	8"		
	2055													
	% of ADT		% of DHV											
Light Duty	93.4		95.0											
Medium Duty	2.0		1.5											
Heavy Duty	4.6		3.5											

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number R4704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)			
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2045			ADT	DHV						
			% of ADT	% of DHV					31,374,000	3	44,291,000	8"
US 287 (No Build-Mainlanes Only) From I-20 To Sublett Road Tarrant County	73,900	99,900	54 - 46	9.7	10.0	6.0	40	31,374,000	3	44,291,000	8"	
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year											
Light Duty	% of ADT		% of DHV									
Medium Duty	90.0		94.0									
Heavy Duty	2.3		1.4									
	7.7		4.6									
Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)			
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2055			ADT	DHV						
			% of ADT	% of DHV					50,557,000	3	71,371,000	8"
US 287 (No Build-Mainlanes Only) From I-20 To Sublett Road Tarrant County	73,900	112,800	54 - 46	9.7	10.0	6.0	40	50,557,000	3	71,371,000	8"	

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.F.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			ATHWLD	Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2045			ADT	DHV						
	Data for Use in Air & Noise Analysis											
Vehicle Class	Base Year											
	% of ADT											
	% of DHV											
<u>US 287 (No Build-Frontage Roads Only)</u> From I-20 To Sublett Road Tarrant County	20,200	27,400	54 - 46	9.7	5.4	4.1	40	3,671,000	3	4,787,000	8"	
Data for Use in Air & Noise Analysis												
Light Duty	94.6		95.9									
Medium Duty	1.2		0.9									
Heavy Duty	4.2		3.2									
Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			ATHWLD	Flexible Pavement	S	Rigid Pavement	SLAB
	2025	2055			ADT	DHV						
	Data for Use in Air & Noise Analysis											
<u>US 287 (No Build-Frontage Roads Only)</u> From I-20 To Sublett Road Tarrant County	20,200	30,800	54 - 46	9.7	5.4	4.1	40	5,900,000	3	7,694,000	8"	

NOT INTENDED FOR CONSTRUCTION
 ADDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Average Daily Traffic				Dir Dist %	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)												
	2025		2045			K Factor	Percent Trucks	ADT			DHV	Flexible Pavement	S	Rigid Pavement	SLAB								
	145,300		196,100													52 - 48	9.9	5.5	2.5	28,102,000	3	36,661,000	8"
	2055		221,500																				
Data for Use in Air & Noise Analysis																							
Vehicle Class	Base Year				% of DHV	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)												
	% of ADT		% of DHV			K Factor	Percent Trucks	ADT			DHV	Flexible Pavement	S	Rigid Pavement	SLAB								
	94.5		97.5													52 - 48	9.9	5.5	2.5	28,102,000	3	36,661,000	8"
	2.3		1.0																				
3.2		1.5		52 - 48	9.9	5.5	2.5	45,289,000	3	59,083,000	8"												
Section 1																							
From I-20 To US 287 Tarrant County																							
Section 1																							
From I-20 To US 287 Tarrant County																							

NOT INTENDED FOR CONSTRUCTION
 ADDITIONAL PERMIT PURPOSES
 William Erick Knowles, P.E.

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Description of Location		Base Year										Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)						
		Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement						Rigid Pavement		SLAB
		2025	2045			ADT	DHV			S	N					S	N	
		2025		2045		% of DHV												
I-820 (Build-Frontage Roads Only) From I-20 To Brentwood Stair Rd. Tarrant County		31,200	41,600	52 - 48	9.9	10.1	7.6	12,300	30	12,030,000	3	15,747,000	8"					
Data for Use in Air & Noise Analysis																		
Vehicle Class		Base Year		% of DHV														
Light Duty		89.9		92.4														
Medium Duty		3.0		2.3														
Heavy Duty		7.1		5.3														
Description of Location		Base Year										Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)						
		Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement						Rigid Pavement		SLAB
		2025	2055			ADT	DHV			S	N					S	N	
		2025		2055		% of DHV												
I-820 (Build-Frontage Roads Only) From I-20 To Brentwood Stair Rd. Tarrant County		31,200	46,700	52 - 48	9.9	10.1	7.6	12,300	30	19,308,000	3	25,275,000	8"					

Fort Worth District

August 14, 2019

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 847M

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year				Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement		Rigid Pavement		SLAB
	Average Daily Traffic		ADT	DHV			S	N							
	2025	2045													
<p><u>I-20 (Build-Mainlanes Only)</u></p> <p>From I-20/I-820 Interchange To Park Springs Blvd.</p> <p>Tarrant County</p>															
231,200	312,600	53 - 47	7.2	8.1	3.6	20	74,132,000	3	101,247,000	8"					
<p>Data for Use in Air & Noise Analysis</p>															
Vehicle Class	Base Year														
	% of ADT	% of DHV													
	91.9	96.4													
Light Duty	2.4	1.1													
Medium Duty	5.7	2.5													
Heavy Duty															
<p><u>I-20 (Build-Mainlanes Only)</u></p> <p>From I-20/I-820 Interchange To Park Springs Blvd.</p> <p>Tarrant County</p>															
231,200	352,900	53 - 47	7.2	8.1	3.6	20	119,449,000	3	163,138,000	8"					

NOT IN INTENDED FOR CONSTRUCTION
 FOR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 241704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year				Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		SLAB
	Average Daily Traffic		ADT	DHV			Flexible Pavement	Rigid Pavement					
	2025	2045											
I-20 (Build-Frontage Roads Only)													
From I-20/I-820 Interchange To Park Springs Blvd. Tarrant County	37,700	50,800	53 - 47	7.2	1.1	0.8	10,700	20	1,011,000	3	1,045,000	8"	
Data for Use in Air & Noise Analysis													
Vehicle Class	Base Year												
	% of ADT												
	% of DHV												
Light Duty	98.9												
Medium Duty	0.9												
Heavy Duty	0.2												
I-20 (Build-Frontage Roads Only)													
From I-20/I-820 Interchange To Park Springs Blvd. Tarrant County	37,700	57,400	53 - 47	7.2	1.1	0.8	10,800	20	1,630,000	3	1,685,000	8"	
Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)													

NOT INTENDED FOR CONSTRUCTION
CONDITIONING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Civil Engineer - License No. 04780

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)					
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	Rigid Pavement		
	2025	2045			ADT	DHV				S	N	
	2025	2045	%	Factor	ADT	DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	S	N	
I-20 (Build-Mainlanes Only) From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	202,100	272,700	53 - 47	7.2	8.7	3.9	13,600	20	69,485,000	3	94,928,000	8"
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year											
	% of ADT	% of DHV										
Light Duty	91.3	96.1										
Medium Duty	2.5	1.1										
Heavy Duty	6.2	2.8										
Description of Location	Base Year						Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)					
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	Rigid Pavement		
	2025	2055			ADT	DHV				S	N	
	2025	2055	%	Factor	ADT	DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	S	N	
I-20 (Build-Mainlanes Only) From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	202,100	307,800	53 - 47	7.2	8.7	3.9	13,600	20	111,924,000	3	152,907,000	8"

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

August 14, 2019

Fort Worth District

Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			Flexible Pavement	S	Rigid Pavement	SLAB	
	2025	2045			ADT	DHV						
<u>I-20 (Build-Frontage Roads Only)</u> From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	20,500	28,300	53 - 47	7.2	1.2	0.9	10,200	30	603,000	3	625,000	8"
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year											
	% of ADT		% of DHV									
Light Duty	98.8		99.1									
Medium Duty	1.0		0.8									
Heavy Duty	0.2		0.1									
Description of Location	Base Year						Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)				
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks			Flexible Pavement	S	Rigid Pavement	SLAB	
	2025	2055			ADT	DHV						
<u>I-20 (Build-Frontage Roads Only)</u> From I-20/I-820 Interchange To Forest Hill Drive Tarrant County	20,500	31,900	53 - 47	7.2	1.2	0.9	10,300	30	972,000	3	1,007,000	8"

OPEN FOR CONSTRUCTION
PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		SLAB	
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S		Rigid Pavement
	2025	2045			ADT	DHV						
US 287 (Build-Mainlanes Only) From I-820 To Bishop Street Tarrant County	74,100	100,100	54 - 46	9.7	7.2	4.3	12,700	30	20,515,000	3	28,000,000	8"
Data for Use in Air & Noise Analysis												
Vehicle Class	Base Year											
	% of ADT		% of DHV									
Light Duty	92.8		95.7									
Medium Duty	2.2		1.3									
Heavy Duty	5.0		3.0									
Description of Location	Base Year						ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)		SLAB	
	Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks				Flexible Pavement	S		Rigid Pavement
	2025	2055			ADT	DHV						
US 287 (Build-Mainlanes Only) From I-820 To Bishop Street Tarrant County	74,100	113,000	54 - 46	9.7	7.2	4.3	12,800	30	33,053,000	3	45,112,000	8"

UNINTENDED CONSTRUCTION
 ENDORSEMENT FOR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

August 14, 2019

Description of Location	Average Daily Traffic				Dir Dist %	K Factor	Base Year			Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)		
	2025		2045				ADT	Percent Trucks	ATHWLD		Flexible Pavement	Rigid Pavement	SLAB
	2025	2045	2025	2045									
<u>US 287 (Build-Frontage Roads Only)</u> From I-820 To Bishop Street Tarrant County	14,800	19,900	54 - 46	9.7	6.1	4.6	11,200	2,693,000	3	3,357,000	8"		
Data for Use in Air & Noise Analysis													
Vehicle Class	Base Year		Base Year		Base Year		Base Year		Base Year		Base Year		
	% of ADT		% of DHV		Dir Dist %		K Factor		Percent Trucks		ATHWLD		
	Light Duty	93.9	95.4										
Medium Duty	1.9	1.4											
Heavy Duty	4.2	3.2											
Data for Use in Air & Noise Analysis													
Description of Location	Average Daily Traffic				Dir Dist %	K Factor	Base Year			Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)		
	2025		2055				ADT	Percent Trucks	ATHWLD		Flexible Pavement	Rigid Pavement	SLAB
	2025	2055	2025	2055									
<u>US 287 (Build-Frontage Roads Only)</u> From I-820 To Bishop Street Tarrant County	14,800	22,400	54 - 46	9.7	6.1	4.6	11,200	4,951,000	3	6,746,000	8"		

CIVIL ENGINEERING CONSULTANTS
 ENGINEERING PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Description of Location		Base Year										Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)				
		Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	Rigid Pavement					SLAB
		2025	2045			ADT	DHV									
US 287 (Build-Mainlanes Only)		73,900	99,900	54 - 46	9.7	10.0	6.0	12,900	40	31,374,000	3	44,291,000	8"			
From I-20 To Sublett Road Tarrant County																
Data for Use in Air & Noise Analysis																
Vehicle Class		Base Year														
		% of ADT	% of DHV													
Light Duty		90.0		94.0												
Medium Duty		2.3		1.4												
Heavy Duty		7.7		4.6												
Description of Location		Base Year										Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2025 to 2055)				
		Average Daily Traffic		Dir Dist %	K Factor	Percent Trucks		ATHWLD	Percent Tandem Axles in ATHWLD	Flexible Pavement	Rigid Pavement					SLAB
		2025	2055			ADT	DHV									
US 287 (Build-Mainlanes Only)		73,900	112,800	54 - 46	9.7	10.0	6.0	12,900	40	50,557,000	3	71,371,000	8"			
From I-20 To Sublett Road Tarrant County																

Fort Worth District

August 14, 2019

NOT INTENDED FOR CONSTRUCTION
 BIDDING OR PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Description of Location	Average Daily Traffic		Dir Dist %	Base Year			ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2025 to 2045)																											
	2025	2045		K Factor	Percent Trucks ADT	DHV			Flexible Pavement	Rigid Pavement	S	N																								
	Data for Use in Air & Noise Analysis																																			
	Vehicle Class	Base Year		% of DHV																																
US 287 (Build-Frontage Roads Only) From I-20 To Sublett Road Tarrant County	24,200	33,300	54 - 46	9.7	4.5	3.4	11,400	40	3,707,000	3	4,826,000	8"																								
	<table border="1"> <thead> <tr> <th rowspan="3">Vehicle Class</th> <th colspan="2">Base Year</th> <th colspan="2">% of DHV</th> </tr> <tr> <th>% of ADT</th> <th>% of DHV</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>Light Duty</td> <td>95.5</td> <td>96.6</td> <td colspan="2"></td> </tr> <tr> <td>Medium Duty</td> <td>1.0</td> <td>0.8</td> <td colspan="2"></td> </tr> <tr> <td>Heavy Duty</td> <td>3.5</td> <td>2.6</td> <td colspan="2"></td> </tr> </tbody> </table>												Vehicle Class	Base Year		% of DHV		% of ADT	% of DHV			Light Duty	95.5	96.6			Medium Duty	1.0	0.8			Heavy Duty	3.5	2.6		
	Vehicle Class	Base Year		% of DHV																																
% of ADT		% of DHV																																		
Light Duty		95.5	96.6																																	
Medium Duty	1.0	0.8																																		
Heavy Duty	3.5	2.6																																		
US 287 (Build-Frontage Roads Only) From I-20 To Sublett Road Tarrant County	24,200	37,400	54 - 46	9.7	4.5	3.4	11,500	40	5,956,000	3	7,756,000	8"																								
	<table border="1"> <thead> <tr> <th rowspan="3">Vehicle Class</th> <th colspan="2">Base Year</th> <th colspan="2">% of DHV</th> </tr> <tr> <th>% of ADT</th> <th>% of DHV</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>Light Duty</td> <td>95.5</td> <td>96.6</td> <td colspan="2"></td> </tr> <tr> <td>Medium Duty</td> <td>1.0</td> <td>0.8</td> <td colspan="2"></td> </tr> <tr> <td>Heavy Duty</td> <td>3.5</td> <td>2.6</td> <td colspan="2"></td> </tr> </tbody> </table>												Vehicle Class	Base Year		% of DHV		% of ADT	% of DHV			Light Duty	95.5	96.6			Medium Duty	1.0	0.8			Heavy Duty	3.5	2.6		
	Vehicle Class	Base Year		% of DHV																																
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Light Duty		95.5	96.6																																	
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Fort Worth District

August 14, 2019

OPEN FOR CONSTRUCTION
 PERMIT PURPOSES
 William Erick Knowles, P.E.
 Serial Number 84704

TXDOT

Cost Averaging for Common Noise Environments

4/19/2013

Cost Averaging of Common Noise Environments

The following explains an alternate methodology to that described in the TxDOT Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011) for determining the reasonableness of abatement proposed for corridor projects.

This methodology provides a cost averaging strategy that may be employed when there are numerous traffic noise impacts throughout a corridor that can be abated by the reasonable and feasible criteria provided for in the TxDOT Noise Guidelines; however there are a few areas where the cost per benefiting receiver is over the criteria.

In this method, cost averaging of noise abatement among **Common Noise Environments (CNE)** is used when conducting the reasonableness evaluation. A CNE implies that a group of receptors of the same NAC activity category are exposed to similar noise sources and levels, traffic volumes, traffic mix, speed, and topographic features. For instance, a CNE could occur along a road segment between interchanges on a controlled access highway if the traffic speed is constant. The CNE may not include mixed activity categories such as having two residential subdivisions that are separated by a commercial land use. In this example, the residential subdivisions would be considered as two separate CNEs.



RECEPTOR SELECTION

Typically, under the evaluation of reasonableness provided for in the TxDOT Noise Guidelines, each CNE is evaluated separately. Utilizing this methodology, for a single noise abatement measure to be considered as part of a cost averaging evaluation, the estimated build cost of noise abatement per benefited receptor may not exceed two times the allowable noise abatement cost per benefited receptor. Noise abatement measures achieve the cost reasonableness criterion if the CNE collective average estimated build cost of noise abatement per benefited receptor is less than the collective average allowable cost per benefited receptor. If the cost allowable per benefiting receptor is \$25,000, then application of this methodology requires that no single CNE exceeds \$50,000/benefited receptor and that collectively all CNEs being averaged do not exceed \$25,000/benefited receptor.

After each CNE has been evaluated independently, the CNEs are ranked in order of increasing ratio of the estimated build cost per benefited receptor to the allowable cost per benefited receptor. This method ranks them in order of increasing cost effectiveness based on the ability to achieve the economic reasonability criterion. The CNEs with values greater than 2.0 are removed from the evaluation, as these will be the ones for which the estimated build cost is more than double the allowable cost per benefited receptor. Once the CNEs are in order of increasing ratio of the estimated build cost per benefited receptor to the allowable cost per benefited receptor, the cumulative cost per benefited receptor is calculated for both the estimated build cost and the allowable cost. In the scenario in the table below, based on the cumulative costs, noise walls for CNEs 2, 3, 5, and 1 would achieve the cost effective evaluation, as the cumulative estimated build cost per benefited receptor (\$24,906) is less than the cumulative allowable cost per benefited receptor (in this example, \$25,000). The build cost for the next noise walls (CNE 4) exceed the allowable cost and therefore would not be recommended for implementation as part of the proposed project.

CNE No.	No. Benefitting Receiver	Noise Wall Cost	Estimated Build Cost per Benefited Receiver (C/B)	Ratio of Build to Reasonable Cost (D/\$25,000)	Cumulative Estimated Build Cost/Benefited (Cumulative Sum of C/Cumulative Sum of B)	Result of Determination
2	6	\$100,000	\$16,667	0.67	\$16,666.67	Cost-effective Stand Alone
3	36	\$670,000	\$18,611	0.74	\$18,333.33	Cost-effective Stand Alone
5	2	\$73,000	\$36,500	1.46	\$19,159.09	Cost-effective Cumulative
1	20	\$751,000	\$37,550	1.50	\$24,906.25	Cost-effective Cumulative
6	1	\$48,000	\$48,000	1.92	\$25,261.54	Not Cost-effective Cumulative
4	8	\$510,000	\$63,750	2.55	Not part of evaluation as estimated cost is more than 2 times the allowable cost	Not Cost-effective

Noise walls for CNE areas 2 and 3 would be considered cost-effective when considered individually. The allowable cost per benefited receptor is less than the estimated build cost per benefited receptor for each of these areas. When the cost averaging approach is used, CNE area 5 and 1 would also be considered cost effective as the allowable cost per benefited receptor is less than the estimated build cost per benefited receptor based on the cumulative costs of CNE areas 2, 3, 5, and 1. The cost effectiveness of the CNE areas 2 and 3 allow for the consideration of other areas for noise wall implementation that do not achieve the cost effective criterion on an individual basis.

Proposed Barrier Numbers (Benefitted Receivers)	No Benefiting Receiver	Noise Wall Cost	Est Build Cost per Benefitted Receiver (C/B)	Ratio of Build to Reasonable Cost (d/52,500)	Cumulative Estimated Build Cost/Cumulative Sum Benefitted Receivers (Cumulative Sum of C/Cumulative Sum of B)	Result of Determination
R86	8	\$231,349	\$28,919	0.55	\$28,919	Cost-effective Stand Alone
R30 and R32 through R34	68	\$2,089,500	\$30,728	0.59	\$30,537	Cost-effective Stand Alone
R116 and R118	21	\$659,050	\$31,383	0.60	\$30,721	Cost-effective Stand Alone
R123 through R126	27	\$913,500	\$33,833	0.64	\$31,398	Cost-effective Stand Alone
R110	9	\$331,450	\$36,828	0.70	\$31,766	Cost-effective Stand Alone
R78	8	\$311,220	\$38,903	0.74	\$32,171	Cost-effective Stand Alone
R28 and R31	11	\$470,297	\$42,754	0.81	\$32,937	Cost-effective Stand Alone
R52 and R55	18	\$770,350	\$42,797	0.82	\$33,981	Cost-effective Stand Alone
R36 and R37	22	\$1,085,208	\$49,328	0.94	\$35,739	Cost-effective Stand Alone
R114, R115, and R117	18	\$900,130	\$50,007	0.95	\$36,962	Cost-effective Stand Alone
R1	6	\$310,100	\$51,683	0.98	\$37,371	Cost-effective Stand Alone
R2-R7, R9, R12, and R13	16	\$870,800	\$54,425	1.04	\$38,547	Cost Effective Cumulative
R121 and R122	13	\$715,037	\$55,003	1.05	\$39,420	Cost Effective Cumulative
R61	9	\$518,641	\$57,627	1.10	\$40,065	Cost Effective Cumulative
R45, R47 through R49	26	\$1,508,850	\$58,033	1.11	\$41,734	Cost Effective Cumulative
R105, R109, and R111	10	\$719,765	\$71,977	1.37	\$42,777	Cost Effective Cumulative
R90	2	\$147,290	\$73,645	1.40	\$42,988	Cost Effective Cumulative
R112	7	\$530,925	\$75,846	1.44	\$43,757	Cost Effective Cumulative
R98 and R100	11	\$959,982	\$87,271	1.66	\$45,301	Cost Effective Cumulative
R89 and R91	5	\$440,568	\$88,114	1.68	\$45,981	Cost Effective Cumulative
R23 and R25	17	\$1,532,984	\$90,176	1.72	\$48,244	Cost Effective Cumulative
R92, R95, R97, and R99	21	\$1,924,440	\$91,640	1.75	\$50,826	Cost Effective Cumulative
All barriers over 105,000/benefitted receiver	1	\$105,001	\$105,001	2.00	Not part of evaluation as estimated cost is more than 2 times the allowable cost.	Not Cost Effective



WorkSheet

Alternate Barrier Cost Assessment Worksheet

This worksheet is used for the Alternate Barrier Cost assessment to determine if projected costs directly associated with the construction of a proposed barrier would be unreasonably high, and therefore not cost reasonable.

TxDOT Environmental Affairs Division

Effective Date: June 2019

Document # 730.02.TEM

Is Cost Averaging

Used? Yes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 1 - R1

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	886
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	6
Standard Barrier Cost Total	\$310,100
Square Footage Per Benefiter	1476.666667
Cost Per Benefited Receiver	\$51,683
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$310,100
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$310,100
Benefited Receivers	6
Project Total Per Benefited Receiver	\$51,683
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 2 - R2-R7, R9, R12, and R13

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	3,110
Average Height of Proposed Barrier (ft)	8
Benefited Receivers	16
Standard Barrier Cost Total	\$870,800
Square Footage Per Benefiter	1555
Cost Per Benefited Receiver	\$54,425
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$870,800
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$870,800
Benefited Receivers	16
Project Total Per Benefited Receiver	\$54,425
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 3 - R23 and R25

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,150
Average Height of Proposed Barrier (ft)	16
Benefited Receivers	17
Standard Barrier Cost Total	\$1,204,000
Square Footage Per Benefiter	2023.529412
Cost Per Benefited Receiver	\$70,824
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING.	
PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

27 Dwelling Units, 17 Benefitted Receivers; however, the cost is below \$105,000. Therefore the barrier is considered for Project Cost Averaging.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$1,204,000
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$161,250
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$1,234
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$166,500
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$1,532,984
Benefited Receivers	17
Project Total Per Benefited Receiver	\$90,176
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = ONCOR O/H ELECTRIC AND ONCOR/CHARTER O/H

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 4 - R28 and R31

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	921
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	11
Standard Barrier Cost Total	\$322,350
Square Footage Per Benefiter	837.2727273
Cost Per Benefited Receiver	\$29,305
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$322,350
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$126,975
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$972
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$20,000
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$470,297
Benefited Receivers	11
Project Total Per Benefited Receiver	\$42,754
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT PARCEL 352
 DETACHED GARAGE ASSUMED \$20,000 ADDT'L COST

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 5 - R30 and R32 through R34

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,985
Average Height of Proposed Barrier (ft)	20
Benefited Receivers	68
Standard Barrier Cost Total	\$2,089,500
Square Footage Per Benefiter	877.9411765
Cost Per Benefited Receiver	\$30,728
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING.	
PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$2,089,500
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$2,089,500
Benefited Receivers	68
Project Total Per Benefited Receiver	\$30,728
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 6 -R36 and R37

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,409
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	22
Standard Barrier Cost Total	\$843,150
Square Footage Per Benefiter	1095
Cost Per Benefited Receiver	\$38,325
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$843,150
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$180,675
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$1,383
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$60,000
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$1,085,208
Benefited Receivers	22
Project Total Per Benefited Receiver	\$49,328
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT
 PARCEL 345 DETACHED GARAGE ASSUMED \$60,000 ADDT'L COST

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 7 - R45, R47 through R49

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	4,311
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	26
Standard Barrier Cost Total	\$1,508,850
Square Footage Per Benefiter	1658.076923
Cost Per Benefited Receiver	\$58,033
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING.	
PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced. Barrier works utilizing cost averaging.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$1,508,850
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$1,508,850
Benefited Receivers	26
Project Total Per Benefited Receiver	\$58,033
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 8 - R52 and R55

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,201
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	18
Standard Barrier Cost Total	\$770,350
Square Footage Per Benefiter	1222.777778
Cost Per Benefited Receiver	\$42,797
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$770,350
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$770,350
Benefited Receivers	18
Project Total Per Benefited Receiver	\$42,797
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 9 - R61

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	942
Average Height of Proposed Barrier (ft)	14
Benefited Receivers	9
Standard Barrier Cost Total	\$461,580
Square Footage Per Benefiter	1465.333333
Cost Per Benefited Receiver	\$51,287
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$461,580
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$56,520
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$541
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$518,641
Benefited Receivers	9
Project Total Per Benefited Receiver	\$57,627
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$12/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 10 - R78

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	741
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	8
Standard Barrier Cost Total	\$311,220
Square Footage Per Benefiter	1111.5
Cost Per Benefited Receiver	\$38,903
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$311,220
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$311,220
Benefited Receivers	8
Project Total Per Benefited Receiver	\$38,903
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 11 - R86

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	364
Average Height of Proposed Barrier (ft)	16
Benefited Receivers	8
Standard Barrier Cost Total	\$203,840
Square Footage Per Benefiter	728
Cost Per Benefited Receiver	\$25,480
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$203,840
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$27,300
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$209
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$231,349
Benefited Receivers	8
Project Total Per Benefited Receiver	\$28,919
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 12- R89 and R91

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	815
Average Height of Proposed Barrier (ft)	14
Benefited Receivers	5
Standard Barrier Cost Total	\$399,350
Square Footage Per Benefiter	2282
Cost Per Benefited Receiver	\$79,870
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

The barrier benefitted five receivers, but it requires 8 Benefitted Receivers; however, with cost averaging the barrier may work because it is under \$105,000.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$399,350
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$40,750
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$468
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$440,568
Benefited Receivers	5
Project Total Per Benefited Receiver	\$88,114
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$10/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 13 - R90

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	313
Average Height of Proposed Barrier (ft)	12
Benefitted Receivers	2
Standard Barrier Cost Total	\$131,460
Square Footage Per Benefiter	1878
Cost Per Benefitted Receiver	\$65,730
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefitted receiver	1500
Current FHWA-approved cost per benefitted receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

2 Benefitted Receivers
 Cost Averaging requires 3 Benefitted Receivers but it only benefits 2 receivers; however, cost averaging allows up to \$105,000.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$131,460
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$15,650
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$180
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$147,290
Benefitted Receivers	2
Project Total Per Benefitted Receiver	\$73,645
Current FHWA-approved Alternate Barrier Cost Per Benefitted Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$10/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = NONE, ALL WITHIN CURRENT PROJECT ROW FOOTPRINT

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 14 - R92, R95, R97, and R99

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	4,582
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	21
Standard Barrier Cost Total	\$1,924,440
Square Footage Per Benefiter	2618.285714
Cost Per Benefited Receiver	\$91,640
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$1,924,440
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$1,924,440
Benefited Receivers	21
Project Total Per Benefited Receiver	\$91,640
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 15 - R98 and R100

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,498
Average Height of Proposed Barrier (ft)	10.98
Benefited Receivers	11
Standard Barrier Cost Total	\$959,981
Square Footage Per Benefiter	2493.458182
Cost Per Benefited Receiver	\$87,271
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.
 This barrier consists of three barriers ranging from 8 to 12 feet tall:
 One 555 foot long, 12 foot tall barrier,
 One 1,307 foot long, 12 foot barrier,
 One 636 foot long, 8 foot tall barrier.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$959,981
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$959,981
Benefited Receivers	11
Project Total Per Benefited Receiver	\$87,271
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 16 - R105, R109, and R111

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	1,438
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	10
Standard Barrier Cost Total	\$603,960
Square Footage Per Benefiter	1725.6
Cost Per Benefited Receiver	\$60,396
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

The barrier would require 11 benefited receivers; however, cost averaging allows values up to \$105,000.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$603,960
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$86,280
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$825
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$27,500
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 below)	\$1,200
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$719,765
Benefited Receivers	10
Project Total Per Benefited Receiver	\$71,977
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$12/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = ONCOR O/H ELECTRIC, CTV, FIBER OPTIC
 PARCEL 634 DETACHED SHED ASSUMED \$1,200 ADDT'L COST

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 17 - R110

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	947
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	9
Standard Barrier Cost Total	\$331,450
Square Footage Per Benefiter	1052.222222
Cost Per Benefited Receiver	\$36,828
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$331,450
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$331,450
Benefited Receivers	9
Project Total Per Benefited Receiver	\$36,828
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 18 - R112

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	689
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	7
Standard Barrier Cost Total	\$289,380
Square Footage Per Benefiter	1181.142857
Cost Per Benefited Receiver	\$41,340
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

NWALL LOCATION ALONG US-287S NBFR, STA 125+00 TO STA 129+50 (LITTLE RD INTERSECTION)
 PARCELS 203 THROUGH 210 SHOWN ON NEPA

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$289,380
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$51,675
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$395
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$172,250
Estimated costs of additional design elements necessary to accommodate unusual topographic features due to the construction of this barrier.	\$17,225
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$530,925
Benefited Receivers	7
Project Total Per Benefited Receiver	\$75,846
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = COA 16-IN WATER LINE (EST \$250/LF CSTRN, 10% DESIGN)

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 19 - R114, R115, and R117

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	1,837
Average Height of Proposed Barrier (ft)	14
Benefited Receivers	18
Standard Barrier Cost Total	\$900,130
Square Footage Per Benefiter	1428.777778
Cost Per Benefited Receiver	\$50,007
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$900,130
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$900,130
Benefited Receivers	18
Project Total Per Benefited Receiver	\$50,007
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 20 - R116 and R118

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	1,883
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	21
Standard Barrier Cost Total	\$659,050
Square Footage Per Benefiter	896.6666667
Cost Per Benefited Receiver	\$31,383
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$659,050
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$659,050
Benefited Receivers	21
Project Total Per Benefited Receiver	\$31,383
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 21 - R121 and R122

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	881
Average Height of Proposed Barrier (ft)	10
Benefited Receivers	13
Standard Barrier Cost Total	\$308,350
Square Footage Per Benefiter	677.6923077
Cost Per Benefited Receiver	\$23,719
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

NWALL LOCATION ALONG US-287S NBFR, STA 159+00 TO STA 169+00 (STAGETRAIL DR SIDESTREET)
 PARCELS 168 THROUGH 180 SHOWN ON NEPA

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$308,350
Estimated costs of any additional ROW (including easements) needed to construct the THIS noise barrier.	\$66,225
Estimated costs for ROW clearing for permanent placement and construction access to THIS noise barrier.	\$507
Estimated costs of utility adjustments directly associated with construction of THIS noise barrier.	\$309,050
Estimated costs of additional design elements necessary to accommodate unusual topographic features due to the construction of this barrier.	\$30,905
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$715,037
Benefited Receivers	13
Project Total Per Benefited Receiver	\$55,003
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes

ASSUMED 5 FEET WIDTH OF ROW AND ANY UTILITIES WITHIN ADDITIONAL 5 FEET.
 EST LAND COST = \$15/SF
 EST ROW CLEARING COST = \$5,000/ACRE
 UTILITIES WITHIN ADDTL 5 FEET ROW = COA 16-IN WATER LINE (EST \$350/LF CSTRN, 10% DESIGN)

Alternate Barrier Cost Assessment Worksheet

CSJs: 0008-13-125, etc
 I-20/I-820/US 287 Interchanges
 I-20 from Forest Hill Drive to Park Springs Boulevard
 I-820 from I-20 to Brentwood Stair Road
 US 287 from Bishop Street to Sublett Road

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

Proposed Noise Barrier 22 - R123 through R126

Module 1: Standard Barrier Cost Assessment

Total Length of Proposed Barrier (ft)	2,175
Average Height of Proposed Barrier (ft)	12
Benefited Receivers	27
Standard Barrier Cost Total	\$913,500
Square Footage Per Benefiter	966.6666667
Cost Per Benefited Receiver	\$33,833
Current FHWA-approved cost	\$35
Current FHWA-approved square footage per benefited receiver	1500
Current FHWA-approved cost per benefited receiver	\$52,500
BARRIER IS COST REASONABLE WITH PROJECT AVERAGING. PROCEED WITH ALTERNATE COST ASSESSMENT	

Notes

No utilities are estimated to be displaced.

Module 2: Alternate Barrier Cost Assessment

Standard Barrier Cost Total (from Module 1)	\$913,500
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.	\$0
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 below)	\$0
<i>Describe issues</i>	
Estimated costs of Alternate Barrier Cost	\$913,500
Benefited Receivers	27
Project Total Per Benefited Receiver	\$33,833
Current FHWA-approved Alternate Barrier Cost Per Benefited Receiver Cannot Exceed	\$105,000
BARRIER IS COST REASONABLE.	

When utilizing the Alternate Barrier Cost Methodology, but sure to describe and document these finding in a tech report or memo.

Notes