Traffic Noise Analysis

IH 20 at Clear Fork of the Trinity River
Tarrant County, Texas
CSJ: 0008-16-042

Texas Department of Transportation – Fort Worth District

May 2019

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 16, 2014, and executed by FHWA and TxDOT.

TABLE OF CONTENTS

1.0 PROPOSED ACTION 1
2.0 TRAFFIC NOISE ANALYSIS 1
2.1 Traffic Noise Overview 1
2.2 Results of Traffic Noise Analysis 3
2.3 Discussion of Noise Abatement Measures 4
3.0 REFERENCES 7

LIST OF TABLES

Table 1: FHWA Noise Abatement Criteria 2
Table 2: Traffic Noise Levels dB(A) Leq 3
Table 3: Noise Barrier Proposal (preliminary) 6

LIST OF APPENDICES

Appendix A: Figure 1
Appendix B: Traffic Data and Notes
Appendix C: Proposed Plans for IH 20 Improvement Project

1.0 PROPOSED ACTION

The Texas Department of Transportation (TxDOT) – Fort Worth District is proposing improvements to the Interstate Highway (IH) 20 facility between Winscott Road and Bryant Irvin Road, a 1.1-mile stretch in Tarrant County, Texas, near the city of Benbrook, Texas. The existing condition along IH 20 consists of six, 12-foot-wide lanes (three lanes in each direction) with ten-foot inside and ten-foot outside shoulders and an open ditch center median. There are concrete barriers along both roadways on the bridge crossing the Clear Fork of the Trinity River and a cable barrier along the inside shoulder of the westbound roadway. There is an existing sound wall that stands approximately six feet tall and extends 780 feet along the westbound IH 20 exit ramp to Winscott Road. This existing sound wall should not be affected by the proposed improvements to IH 20. A 2.83-foot-tall typical concrete barrier extends from the exit ramp crossing the bridge at Trinity River along westbound IH 20 before transitioning into guard rail. The proposed improvements include adding 12-foot-wide auxiliary lanes to both eastbound and westbound IH 20 with new four-foot-wide inside shoulders and moving the existing concrete barrier on the westbound lanes to the new shoulder. This project is needed because the existing layout of the highway and ramps in the area do not properly provide for the current and future traffic demands in terms of mobility along IH 20. The average daily traffic along IH 20 from US 377 to Chisholm Trail Parkway is expected to increase from 113,250 vehicles per day in 2025 to 152,325 vehicles per day in 2045. This roadway corridor is situated in an urban setting with the adjacent land uses consisting of commercial businesses, restaurants, and multi-family and single-family residences. The route is used by large trucks, transport vehicles, and passenger vehicles.

2.0 TRAFFIC NOISE ANALYSIS

2.1 Traffic Noise Overview

The Traffic Noise Analysis Study for the proposed improvements to IH 20 between Winscott Road and Bryant Irvin Road was accomplished in accordance with TxDOT's (FHWA approved) Guidelines for Analysis and Abatement of Roadway Traffic Noise (2011).

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."

A 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.

As shown in **Table 1**, 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: FHWA Noise Abatement Criteria

Activity Category	FHWA dB(A) Leq(h)	Evaluation Location	Description of Land Use Activity Area
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential (includes undeveloped lands permitted for residential).
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings. Includes undeveloped lands permitted for these activities.
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. Includes undeveloped lands permitted for these activities.
F	-	-	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	-	-	Undeveloped lands that are not permitted.

Source: 23 CFR 772

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 for the specific land use category in which the receiver is located. "Approach" is defined by TxDOT 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 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.

2.2 Results of Traffic Noise Analysis

The FHWA traffic noise modeling software TNM 2.5 was used to calculate the 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 location of activity areas likely to be impacted by the associated traffic noise.

Existing and predicted traffic noise levels were modeled at receiver locations (**Table 2** and **Figure 1**) 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

Receiver	NAC Category	NAC Level	Existing 2025 Noise Levels	Predicted 2045 Noise Levels	Change (+/-)	Noise Impact
R1 – Residence	B	67	66	67	1	**YES**
R2 – Residence	B	67	65	67	2	**YES**
R3 – Residence	B	67	66	67	1	**YES**
R4 – Residence	B	67	66	68	2	**YES**
R5 – Residence	B	67	66	68	2	**YES**
R6 – Residence	B	67	65	68	3	**YES**
R7 – Residence	B	67	63	67	4	**YES**

Table 2: Traffic Noise Levels dB(A) Leq						
Receiver	NAC Category	NAC Level	Existing 2025 Noise Levels	Predicted 2045 Noise Levels	Change (+/-)	Noise Impact
R8 – Residence	B	67	62	67	5	**YES**
R9 – Residence	B	67	62	67	5	**YES**
R10 – Residence	B	67	61	67	6	**YES**
R11 – Residence	B	67	59	65	6	NO
R12 – Residence	B	67	59	65	6	NO
R13 – Residence	B	67	61	67	6	**YES**
R14.1 – Golf Course	C	67	60	67	7	**YES**
R14.2 – Golf Course	C	67	63	67	4	**YES**
R14.3 – Golf Course	C	67	62	65	3	NO
R15 – Residence	B	67	71	73	2	**YES**
R16 – Residence	B	67	70	71	1	**YES**
R17 – Residence	B	67	67	68	1	**YES**
R18 – Residence	B	67	61	63	2	NO
R19 – Residence	B	67	60	62	2	NO
R20 – Residence	B	67	60	61	1	NO
R21 – Residence	B	67	59	61	2	NO
R22 – Residence	B	67	58	60	2	NO
R23 – Residence	B	67	58	60	2	NO
R24 – Residence	B	67	59	61	2	NO
R25 – Residence	B	67	60	61	1	NO
R26 – Residence	B	67	61	63	2	NO

2.3 Discussion of Noise Abatement Measures

As indicated in **Table 2**, the proposed project would result in a traffic noise impact and 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.

Before any abatement measure can be proposed for incorporation into the proposed 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 five dB(A); and to be "reasonable," it must not exceed the cost-effectiveness criterion of $52,500 (FHWA 2017) for each receiver that would benefit by a reduction of at least five 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).

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

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

  > **R17** – This receiver represents five townhomes in the Meadows West neighborhood, with courtyards that face the roadway. Each courtyard is surrounded by six-foot-high masonry walls which are included in the model. Barriers up to 20 feet in height were tested, alone and in combination, both along the ROW line and adjacent to the eastbound main lanes. None of the tested barrier combinations would be sufficient to achieve the minimum feasible reduction of five dB(A) and the seven dB(A) noise reduction design goal, while also meeting the cost effectiveness criterion of less than $52,500 per benefited 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 through R14** – These receivers represent a total of 28 impacted, single-family residences in the Ridglea Country Club Estates neighborhood with backyards that face the roadway and the Ridglea Country Club golf course. This area of the golf course nearest the roadway includes three greens and five tee location encompassing a total area of 19 acres, which is the equivalent of nine residential lots of approximately 0.5-acre size. Noise barriers were modeled and tested along the ROW line for these receivers. However, due to the elevation difference between IH 20 main lanes and the receivers along much of this area,

a single continuous barrier along the ROW line would not provide reasonable and feasible abatement.

The existing earthen berm adjacent to the westbound main lanes near this neighborhood would be removed as part of this project and the existing six-foot-high wall along the Winscott Road exit ramp would be adjusted to accommodate the proposed auxiliary lane. Because barriers along the ROW line did not provide adequate noise abatement for adjacent impacted receivers, a barrier along the main lanes and exit ramp was modeled. Based on preliminary calculations, a noise barrier approximately 4,095 feet in length and 14 feet in height, placed along the main lanes and exit ramp of westbound IH 20, would reduce noise levels by at least five dB(A) for 41 benefited receivers and meet the seven dB(A) noise reduction design goal for at least one receiver, at a total cost of $2,006,550, or $48,940 per benefited receiver. The preliminary barrier proposal is summarized in **Table 3** and shown on **Figure 1**.

R15 and R16 – These receivers represent eight single-family residences in the Meadow Park neighborhood, with backyards that face the roadway. Three of these residences are shielded by an existing six-foot-high masonry wall, which is included in the model. The remaining five residences have an existing 6-foot-high wood privacy fence, which does not attenuate noise and was not modeled. Based on preliminary calculations, a noise barrier that is 580 feet in length and 14 feet in height and placed along the ROW would reduce noise levels by at least five dB(A) for six benefited receivers and meet the seven dB(A) noise reduction design goal for at least one receiver. At a total cost of $284,200, or $47,367 for each benefited receiver, this barrier would meet the cost effectiveness criterion of less than $52,500 per benefited receiver.

Table 3: Noise Barrier Proposal (preliminary)

Barrier	Representative Receivers	Total # Benefited	Length (ft)	Height (ft)	Total Cost	$/Benefited Receiver
1	R1-R14	41	4,095	14	$2,006,550	$48,940
2	R15 and R16	6	580	14	$284,200	$47,367

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 outreach to adjacent property owners.

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 predicted (2045) noise impact contours.

Land Use	Impact Contour	Distance from Right of Way
NAC categories B and C	66 dB(A)	650 feet
NAC category E	71 dB(A)	0 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 made 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.

3.0 REFERENCES

Federal Highway Administration. Categorical Exclusions.
https://www.environment.fhwa.dot.gov/projdev/docuce.asp

Federal Highway Administration. "Highway Traffic Noise: Analysis and Abatement Guidance." https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/

Federal Highway Administration. 2017. Reasonable Cost Proposal for 2018 Noise Policy. Letter from Michael T. Leary FHWA to Carlos Swonke TxDOT. December 19, 2017.

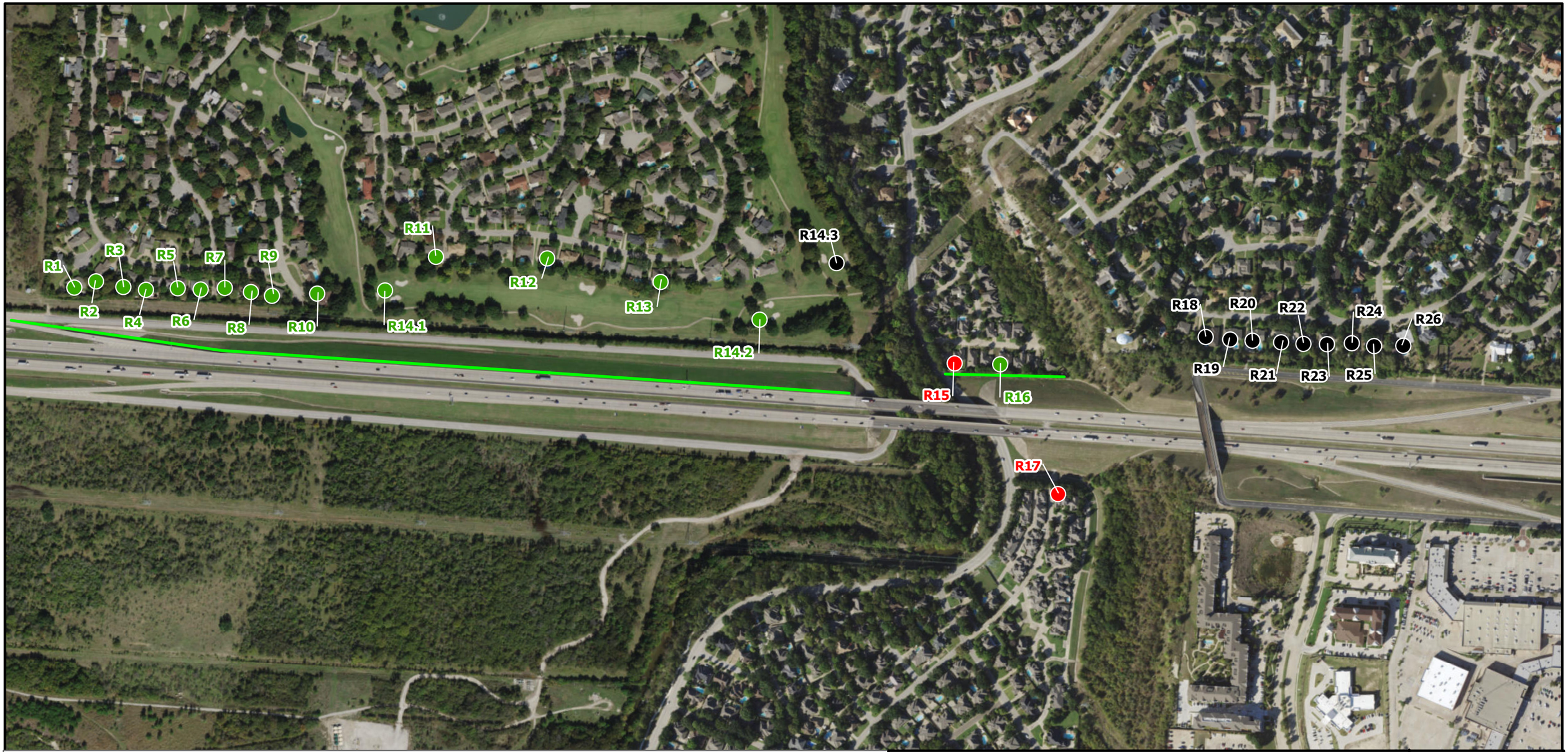
Texas Department of Transportation (TxDOT). 2011. "Guidelines for Analysis and Abatement of Roadway Traffic Noise"' March 2011.

Title 23, Code of Federal Regulations, Part 772 (23 CFR 772), "Procedures for Abatement of Highway Traffic Noise and Construction Noise".

Title 43, Texas Administrative Code, Chapter 2, "Environmental Policy", December 2006.

APPENDIX A

FIGURE 1



Legend

- Non-Impacted Receiver
- Impacted Receiver
- Benefited Receiver
- Proposed Noise Barrier

450 225 0 450
Feet

SCALE IN FEET

1 in = 450 ft

N

TXDOT - FORT WORTH DISTRICT

NOISE REPORT

INTERSTATE HIGHWAY 20 FROM WINSCOTT ROAD TO BRYANT IRVIN ROAD

TARRANT COUNTY, TEXAS

FIGURE

1

PAGE 1 OF 1

SENSITIVE RECEPTOR LOCATIONS

CSJ: 0008-16-042	DATE: NOV. 2018

APPENDIX B

TRAFFIC DATA AND NOTES

FILE

Texas Department of Transportation

MEMO

October 25, 2017

To: Loyl C. Bussell, P.E., District Engineer
Attention: John F. Cordary, Jr., P.E., Director of TPD

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

From: Greg Lancaster
Planner, TPP

Subject: Traffic Data
CSJ: 008-16-042
I-20:
From Team Ranch Road
To Chisholm Trail Parkway

Tarrant County

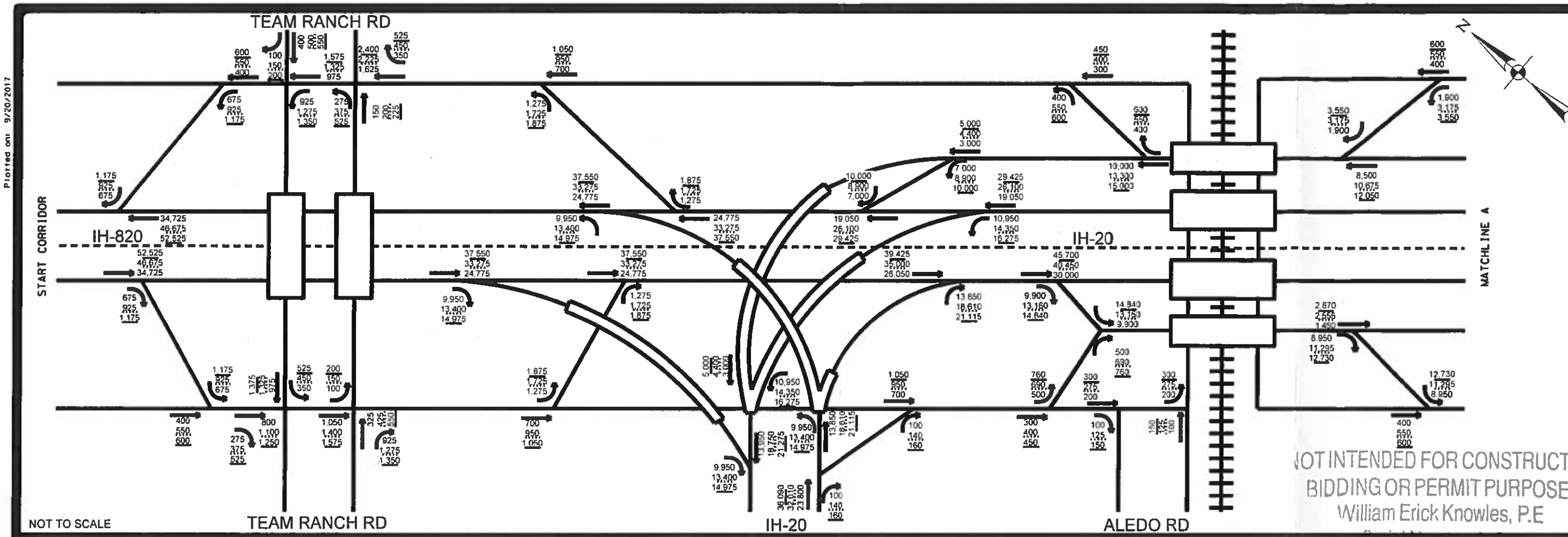
Attached are copies of schematics depicting 2025, 2045 and 2055 anticipated average daily traffic volumes and turning movements along I-20 in your request. Also attached are tabulations showing traffic analysis for highway design for the 2025 to 2045 twenty year period and 2025 to 2055 thirty year period for the described limits of the route. Included is a tabulation showing data for use in air and noise analysis.

Please refer to your original memorandum dated January 20, 2017.

If you have any questions or need additional information, please contact Lee Theobald at (512) 486-5143.

Attachments

cc: Ray Jeyakumar, Fort Worth District
Design Division



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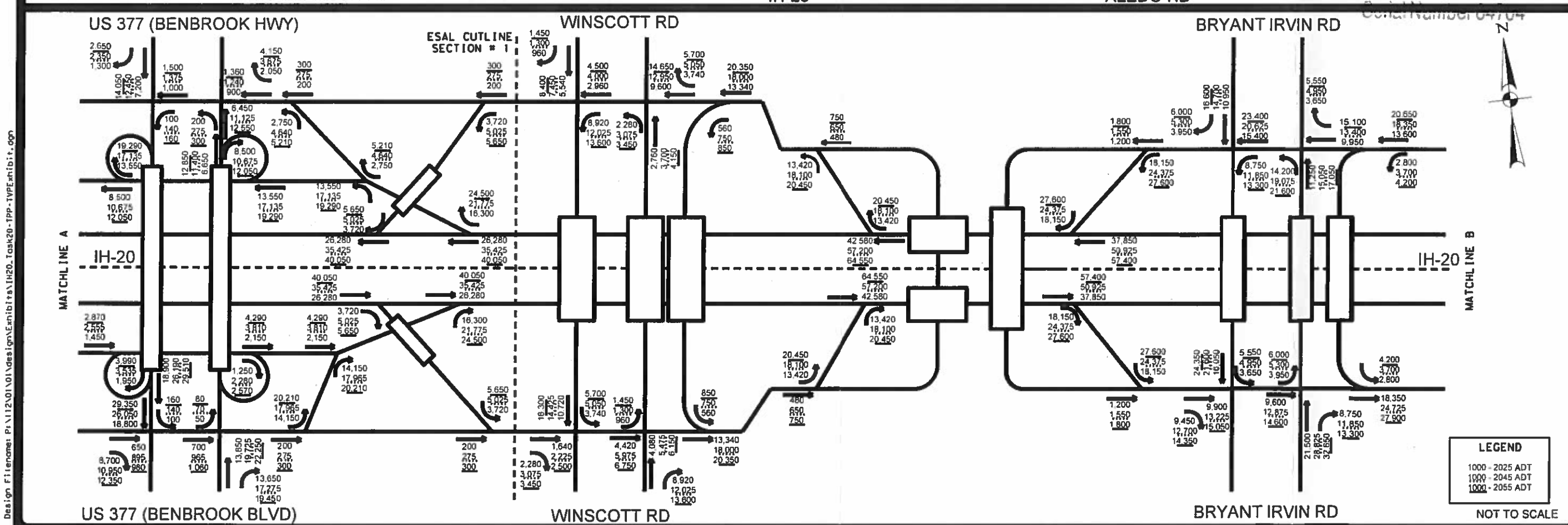
William Erick Knowles, P.E
Serial Number 64704



LEGEND

1000 - 2025 ADT
1000 - 2045 ADT
1000 - 2055 ADT

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2209 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REG STRATION #470 | TBPLS FIRM REGISTRATION #10028800

REVISIONS:

IH-20 FROM IH-820 TO CHISHOLM TRAIL PKWY
CSJ: 0008-16-042
ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES
TARRANT COUNTY, TX
NO-BUILD CONDITIONS

JOB NO. 11201-01
DATE 9/20/2017
DESIGNER
CHECKED DMM DRAWN AMM
SHEET 1 OF 2

Plotted on: 9/20/2017

Design Filename: P:\12\01\01\design\Exhibits\IH20_Task20-TPP-TYPExhibit.dgn

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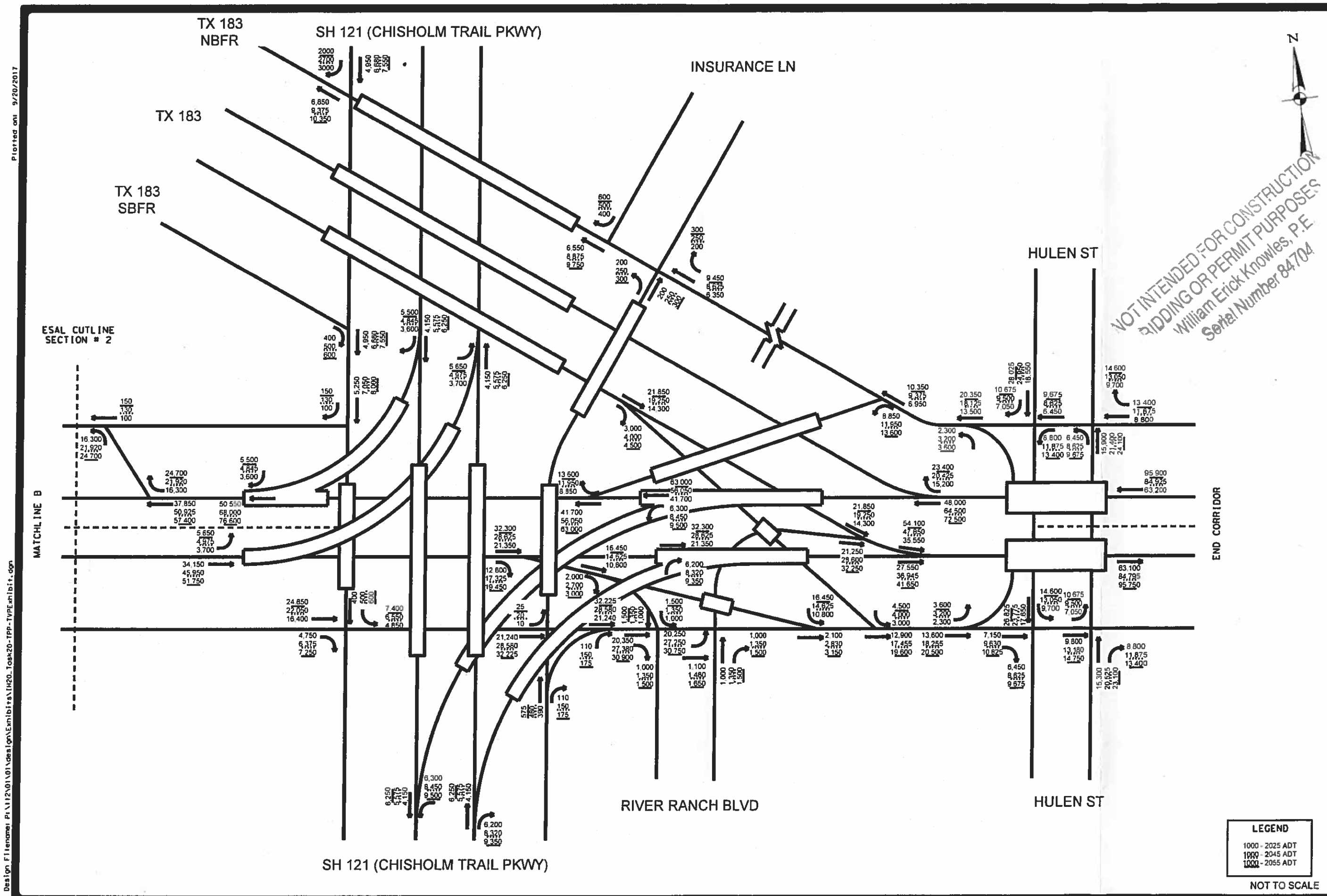

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Serial Number 84704

LEGEND
1000 - 2025 ADT
1000 - 2045 ADT
1000 - 2055 ADT

NOT TO SCALE

REVISIONS

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2008 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

IH-20 FROM IH-820 TO CHISHOLM TRAIL PKWY
CSJ: 0008-16-042
ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES
TARRANT COUNTY, TX
NO-BUILD CONDITIONS

JOB NO. 11201-01
DATE 9/20/2017
DESIGNER
CHECKED DMM DRAWN AMM
SHEET 2 OF 2

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TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

October 17, 2017

Description of Location	Average Daily Traffic 2025	Average Daily Traffic 2045	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	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) Flexible Pavement	S N	Rigid Pavement	SLAB
I 20 Section 1 From Team Ranch Road To US 377 (Benbrook Boulevard) Tarrant County	93,000	125,000	57 - 43	10.3	7.7	3.5	12,900	30	25,965,000	3	35,087,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	92.3	96.5
Medium Duty	3.0	1.4
Heavy Duty	4.7	2.1

Description of Location	Average Daily Traffic 2025	Average Daily Traffic 2055	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	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) Flexible Pavement	S N	Rigid Pavement	SLAB
I 20 Section 1 From Team Ranch Road To US 377 (Benbrook Boulevard) Tarrant County	93,000	141,000	57 - 43	10.3	7.7	3.5	1,290	30	41,806,000	3	56,492,000	8"

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Serial Number 84704

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

October 17, 2017

Description of Location	Average Daily Traffic 2025	Average Daily Traffic 2045	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	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) Flexible Pavement	S N	Rigid Pavement	SLAB
I 20 Section 2 From US 377 (Benbrook Boulevard) To Chisholm Trail Parkway Tarrant County	113,250	152,325	57 - 43	10.3	6.9	3.1	13,000	30	28,378,000	3	38,325,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	93.1	96.9
Medium Duty	2.7	1.2
Heavy Duty	4.2	1.9

Description of Location	Average Daily Traffic 2025	Average Daily Traffic 2055	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	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) Flexible Pavement	S N	Rigid Pavement	SLAB
I 20 Section 2 From US 377 (Benbrook Boulevard) To Chisholm Trail Parkway Tarrant County	113,250	171,750	57 - 43	10.3	6.9	3.1	13,000	30	45,681,000	3	61,693,000	8"

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Serial Number 84704

IH 20

2025 NO BUILD MODEL

Roadway Segment			Total Vehicle Class			Vehicle Class per Lane			
	ADT	**DHV**	Total Light	Total Medium	Total Heavy	Light	Medium	Heavy	
EB IH20-1	**42580**	**8771**	8500	105	167	1615	20	32	3 LANES
RAMP B	**13420**	**2765**	2679	33	53	1527	19	30	1 LANE
EB FRONTAGE-2	**480**	**99**	96	1	2	27	0	1	2 LANES
EB IH20-2	**56000**	**11536**	11178	138	219	2124	26	42	3 LANES
RAMP D	**18150**	**3739**	3623	45	71	2065	26	40	1 LANE
EB IH20-3	**37850**	**7797**	7555	94	148	1436	18	28	3 LANES
IH20 UTURN-1	**1200**	**247**	240	3	5	137	2	3	1 LANE
IH20 UTURN-2	**1200**	**247**	240	3	5	137	2	3	1 LANE
EB FRONTAGE-1	**1200**	**247**	240	3	5	68	1	1	2 LANES
WB IH20-1	**37850**	**7797**	7555	94	148	1436	18	28	3 LANES
WB FRONTAGE-1	**1200**	**247**	240	3	5	68	1	1	2 LANES
RAMP C	**18150**	**3739**	3623	45	71	2065	26	40	1 LANE
WB IH20-2	**56000**	**11536**	11178	138	219	2124	26	42	3 LANES
RAMP A	**13420**	**2765**	2679	33	53	1527	19	30	1 LANE
WB FRONTAGE-2	**480**	**99**	96	1	2	27	0	1	2 LANES
WB IH20-3	**42580**	**8771**	8500	105	167	1615	20	32	3 LANES

NOTES:
1. Anticipated average daily traffic volume and turning movements at specified points along I-20 from Team Ranch Road to Chisholm Trail Parkway were obtained from the TXDOT Transportation Planning and Programming Division on October 25, 2017.

2045 DESIGN YEAR MODEL

Roadway Segment			Total Vehicle Class			Vehicle Class per Lane			
	ADT	**DHV**	Total Light	Total Medium	Total Heavy	Light	Medium	Heavy	
EB IH20-1	**57200**	**11783**	11418	141	224	2169	27	43	3 LANES
RAMP B	**18100**	**3729**	3613	45	71	2059	26	40	1 LANE
EB FRONTAGE-2	**650**	**134**	130	2	3	37	0	1	2 LANES
EB IH20-2	**75300**	**15512**	15031	186	295	2142	27	42	4 LANES
RAMP D	**24375**	**5021**	4866	60	95	2773	34	54	1 LANE
EB FRONTAGE-1	**1550**	**319**	309	4	6	88	1	2	2 LANES
IH20 UTURN-1	**1550**	**319**	309	4	6	176	2	3	1 LANE
IH20 UTURN-2	**1550**	**319**	309	4	6	176	2	3	1 LANE
EB IH20-3	**50925**	**10491**	10165	126	199	1931	24	38	3 LANES
WB IH20-1	**50925**	**10491**	10165	126	199	1931	24	38	3 LANES
WB FRONTAGE-1	**1550**	**319**	309	4	6	88	1	2	2 LANES
RAMP C	**24375**	**5021**	4866	60	95	2773	34	54	1 LANE
WB IH20-2	**75300**	**15512**	15031	186	295	2142	27	42	4 LANES
RAMP A	**18100**	**3729**	3613	45	71	2059	26	40	1 LANE
WB IH20-3	**57200**	**11783**	11418	141	224	2169	27	43	3 LANES
WB FRONTAGE -2	**650**	**134**	130	2	3	37	0	1	2 LANES

NOTES:
1. Anticipated average daily traffic volume and turning movements at specified points along I-20 from Team Ranch Road to Chisholm Trail Parkway were obtained from the TXDOT Transportation Planning and Programming Division on October 25, 2017.

APPENDIX C

PROPOSED PLANS FOR IH 20 IMPROVEMENT PROJECT

LEGEND

PROPOSED BRIDGE

PROPOSED ROADWAY

NOTES:

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3. THE EXISTING ALIGNMENTS INFORMATION SHOWN HEREON WAS TAKEN FROM RECORD PLANS.
4. THE PROPERTY OWNER INFORMATION SHOWN HEREON WAS TAKEN FROM THE TARRANT APPRAISAL DISTRICT (TAD) WEBSITE.

9/13/2017

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REVIEW 1 - COMMENTS
REVIEW 2 - COMMENTS
REVIEW 3 - COMMENTS
REVIEW 4 - COMMENTS

DOCUMENT PREPARED FOR

Texas Department of Transportation

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FORT WORTH DISTRICT
LOYL C. BUSELL, P.E. - DISTRICT ENGINEER
RANDY BOWERS, P.E. - AREA ENGINEER

DESIGN COMPANY

HDR Hotz associates
TEXAS REGISTERED ENGINEERING FIRM F-1386
TEXAS REGISTERED PUBLIC SURVEYING FIRM 10046400

ROLL 1 OF 3

PRELIMINARY SCHEMATIC
IH 20 AT CLEAR FORK OF THE TRINITY RIVER
IN TARRANT COUNTY, TEXAS

CSJ 0081-14-042
LIMITS: FROM IH-20 STA. XXX+XX.XX
TO IH-20 STA. XXX+XX.XX
PROJECT LENGTH: X.X MILES

FRONTAGE ROADS AND U-TURNS: N/A
MAINLANES, ENTRANCE RAMPS, EXIT RAMPS: URBAN INTERSTATE
MIDCUT: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

DESIGN SPEED
MAINLANES: 70 MPH
FRONTAGE ROADS: N/A
FRONTAGE ROAD U-TURNS: N/A
RAMPS: 35 MPH
MIDCUT: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

TARRANT COUNTY
FORT WORTH
WHITE SETTLEMENT
ARLINGTON
BENBROOK
287
20
820
30
1187
1187
1187

LEGEND

PROPOSED BRIDGE

PROPOSED ROADWAY

NOTES:

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9/13/2017

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REVIEW ON: 9/13/2017
REVIEW BY: DANIELLE
REVIEW BY: DANIELLE
REVIEW BY: DANIELLE
DOCUMENT PREPARED FOR:

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FORT WORTH DISTRICT
LOYL C. BUSKELL, P.E. - DISTRICT ENGINEER
RANDY BOWERS, P.E. - AREA ENGINEER

DOCUMENT PREPARED BY:
HDR | Alotz associates
HDR ENGINEERING, INC. TBPE F-754
ALOTZ ASSOCIATES, INC. TBPE F-10183
TEXAS REGISTERED ENGINEERING FIRM

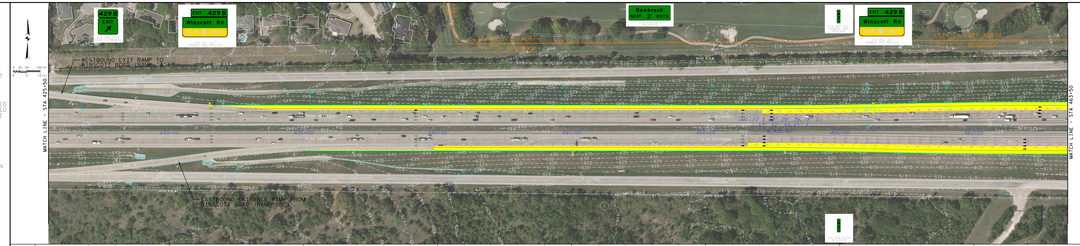
ROLL 2 OF 3

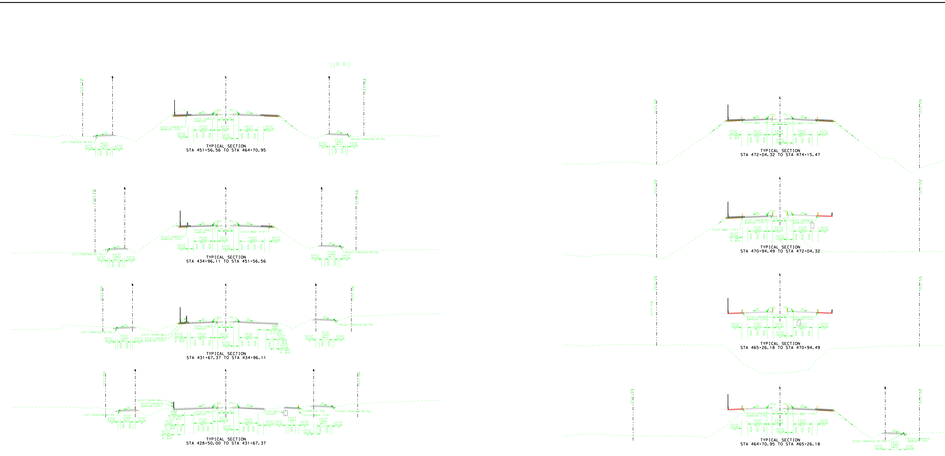
PRELIMINARY SCHEMATIC
IH 20 AT CLEAR FORK OF THE TRINITY RIVER
IN TARRANT COUNTY, TEXAS

CSJ 0081-16-042
LIMITS: FROM IH-20 STA. XXX+XX.XX
TO IH-20 STA. XXX+XX.XX
PROJECT LENGTH: X.X MILES

FRONTAGE ROADS AND U-TURNS: N/A
MAINLANES, ENTRANCE RAMPS, EXIT RAMPS: URBAN INTERSTATE
WHOOSIT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

DESIGN SPEED
MAINLANES: 70 MPH
FRONTAGE ROADS: N/A
FRONTAGE ROAD U-TURNS: N/A
RAMPS: 35 MPH
WHOOSIT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A





LEGEND

PROPOSED BRIDGE

PROPOSED ROADWAY

9/13/2017

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REVIEW ON: 9/13/2017
REVIEW BY: DANIELLE
REVIEW BY: DANIELLE
REVIEW BY: DANIELLE
DOCUMENT PREPARED FOR:

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FORT WORTH DISTRICT
LOYL C. BUSKELL, P.E. - DISTRICT ENGINEER
RANDY BOWERS, P.E. - AREA ENGINEER

DOCUMENT PREPARED BY:
HDR | Alotz associates
HDR ENGINEERING, INC. TBPE F-754
ALOTZ ASSOCIATES, INC. TBPE F-10183
TEXAS REGISTERED ENGINEERING FIRM

ROLL 2 OF 3

PRELIMINARY SCHEMATIC
IH 20 AT CLEAR FORK OF THE TRINITY RIVER
IN TARRANT COUNTY, TEXAS

CSJ 0081-16-042
LIMITS: FROM IH-20 STA. XXX+XX.XX
TO IH-20 STA. XXX+XX.XX
PROJECT LENGTH: X.X MILES

FRONTAGE ROADS AND U-TURNS: N/A
MAINLANES, ENTRANCE RAMPS, EXIT RAMPS: URBAN INTERSTATE
WHOOSIT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

DESIGN SPEED
MAINLANES: 70 MPH
FRONTAGE ROADS: N/A
FRONTAGE ROAD U-TURNS: N/A
RAMPS: 35 MPH
WHOOSIT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

LEGEND

PROPOSED BRIDGE

PROPOSED ROADWAY

NOTES:

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ENGINEER 9/13/2017
PE NO. 123456
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Texas Department of Transportation
*DESIGN AGENCY

FORT WORTH DISTRICT
LOYL C. BUSELL, P.E. - DISTRICT ENGINEER
RANDY BOWERS, P.E. - AREA ENGINEER

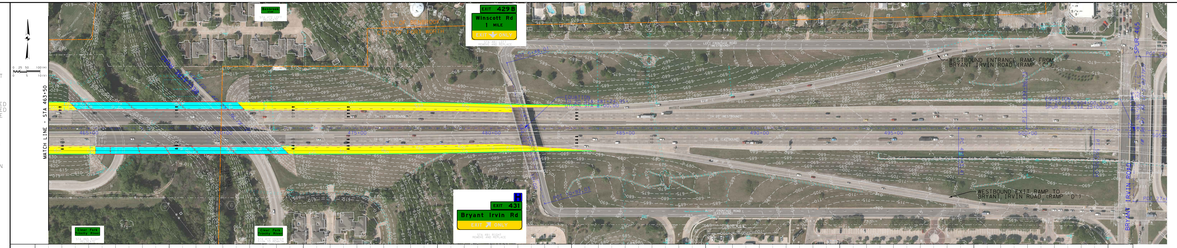
DESIGN COMPANY:
HDR Alotz associates
HDR ENGINEERING, INC. OF THE MID-ATLANTIC
1000 CORPORATE DRIVE, SUITE 300, FORT WORTH, TEXAS 76132-2741

ROLL 3 OF 3
PRELIMINARY SCHEMATIC
IH 20 AT CLEAR FORK OF THE TRINITY RIVER
IN TARRANT COUNTY, TEXAS

CSJ: 0008-14-042
LIMITS: FROM IH-20 STA. XXX+XX.XX
TO IH-20 STA. XXX+XX.XX
PROJECT LENGTH: X.X MILES

FRONTAGE ROADS AND U-TURNS: N/A
MAINLANES, ENTRANCE RAMPS, AND RAMPS: URBAN INTERSTATE
MIDCUTT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A

DESIGN SPEED:
MAINLANES: 70 MPH
FRONTAGE ROADS: N/A
FRONTAGE ROAD U-TURNS: N/A
RAMPS: 35 MPH
MIDCUTT RD: N/A
BRYANT IRVIN RD: N/A
BELAIRE RD: N/A


EXIT 429B
Miescott Rd
1 MILE
EXIT 429A
Bryant Irvin Rd
1 MILE
EXISTING INTERIOR RAMP FROM EASTBOUND IH 20
EXISTING EXIT RAMP TO EASTBOUND IH 20
EXISTING ENTRANCE