Air Quality Technical Report

SH 71 at FM 1209

Bastrop County, Texas

CSJ: 0265-03-041

February 2019

Prepared for Texas Department of Transportation, Austin District

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.

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Appendices

1.0 PROJECT DESCRIPTION

The Texas Department of Transportation (TxDOT) Austin District is proposing a grade separation and other roadway improvements to State Highway (SH) 71 from County Road (CR) 206 to SH 21 in Bastrop County, Texas (CSJ 0265-03-041). The proposed improvements would include constructing new frontage roads, a grade-separation over Farm-to-Market (FM) 1209, and shared-use paths. FM 1209 would be widened to include a 12-foot-wide left turn lane in each direction. East/west turnarounds would also be added on either side of the SH 71 and FM 1209 intersection and on the west side of the SH 71 intersection with SH 21. See **Figures 1** and **2** in **Appendix A** for project location maps.

The existing SH 71 facility consists of two 12-foot-wide travel lanes in each direction with 10-foot-wide outside shoulders and 4-foot-wide inside shoulders. Directions of travel are separated by a grassy depressed median, approximately 68 feet in width. The existing right-of-way (ROW) is approximately 240 feet wide. The existing FM 1209 facility consists of one 12-foot-wide travel lane in each direction. The existing ROW along FM 1209 is approximately 80 feet wide. See **Figures 3.1** and **3.3** in **Appendix A** for existing and proposed typical sections. In the No Build scenario, construction would not occur, and the existing conditions would remain.

In the Build scenario, the proposed project would add a grade separation at FM 1209 and construct new frontage roads along SH 71 while maintaining access to adjacent properties. Access to FM 1209 would be provided via ramps to the anticipated signalized intersection. If completed, the mainlanes of the SH 71 facility would consist of two 12-foot-wide lanes in each direction with 4-foot-wide inside shoulders 10- to 22-foot-wide outside shoulders. Directions of travel would be separated by a grassy median that would be approximately 64 feet in width. Each frontage road would consist of two 12-foot-wide travel lanes with 2-foot-wide inside and outside curb and gutter. Ramps would have a 14-foot-wide travel lane with a 4-foot-wide inside shoulder, a 6-foot-wide outside shoulder, and 2-foot-wide curb and gutter on both sides. Median openings would be removed along SH 71 at the CR 206, River Oaks Drive, Blue Flame Road, and Stephen F. Austin Boulevard intersections, and farther east just past the Shell gas station near the eastern project limit. Deceleration and acceleration lanes would be added to the median break along SH 71 just west of the CR 206 intersection.

The proposed improvements to FM 1209 at SH 71 include construction of one 12-foot-wide travel lane and a 12-foot-wide left turn lane in each direction. Twenty-four-foot-wide at-grade turnarounds for east/west traffic would be added at the SH 71/FM 1209 intersection, and an east/west turnaround would be added to the west side of the SH 71/SH 21 intersection. A 10-foot-wide shared-use path would be constructed on each side of SH 71 and FM 1209. See **Figures 3.1** through **3.3** in **Appendix A** for existing and proposed typical sections.

The proposed project length is approximately 2.5 miles, and it is anticipated approximately 32.5 acres of additional ROW would be required.

Based on Transportation Planning and Programming Division (TPP)-approved traffic data (**Appendix B**, ***Draft Traffic Data Memo***, March 23, 2017), the proposed project's estimated time of completion (ETC) year is 2020, and the design year is 2040.

2.0 TRANSPORTATION CONFORMITY

The project is located in an area in attainment or unclassifiable for all national ambient air quality standards (NAAQS); therefore, the transportation conformity rules do not apply.

3.0 HOT-SPOT ANALYSIS

The project is not located within a carbon monoxide (CO) or particulate matter (PM) nonattainment or maintenance area; therefore, a project level hot-spot analysis is not required.

4.0 TRAFFIC AIR QUALITY ANALYSIS

Generally, projects such as the proposed action are considered exempt from a transportation air quality analysis (TAQA) because they are intended to enhance traffic safety and improve traffic flow. The proposed action would not add capacity to an existing facility. Current and future emissions should continue to follow existing trends not being affected by this project. Due to the nature of this project, further carbon monoxide analysis was not required.

5.0 MOBILE SOURCE AIR TOXICS ANALYSIS

The purpose of this project is to improve mobility and reduce congestion along SH 71 at FM 1209 by constructing a grade separation. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air Toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the No-Build alternative.

Moreover, Environmental Protection Agency (EPA) regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA

Documents, Federal Highway Administration, October 12, 2016 – https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

6.0 CONGESTION MANAGEMENT PROCESS

The project is within an attainment or unclassifiable area for ozone and CO; therefore, a project level Congestion Management Process analysis is not required.

7.0 CONSTRUCTION-RELATED EMISSIONS

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles.

The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: https://www.tceq.texas.gov/airquality/terp/.

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

APPENDIX A

Figures

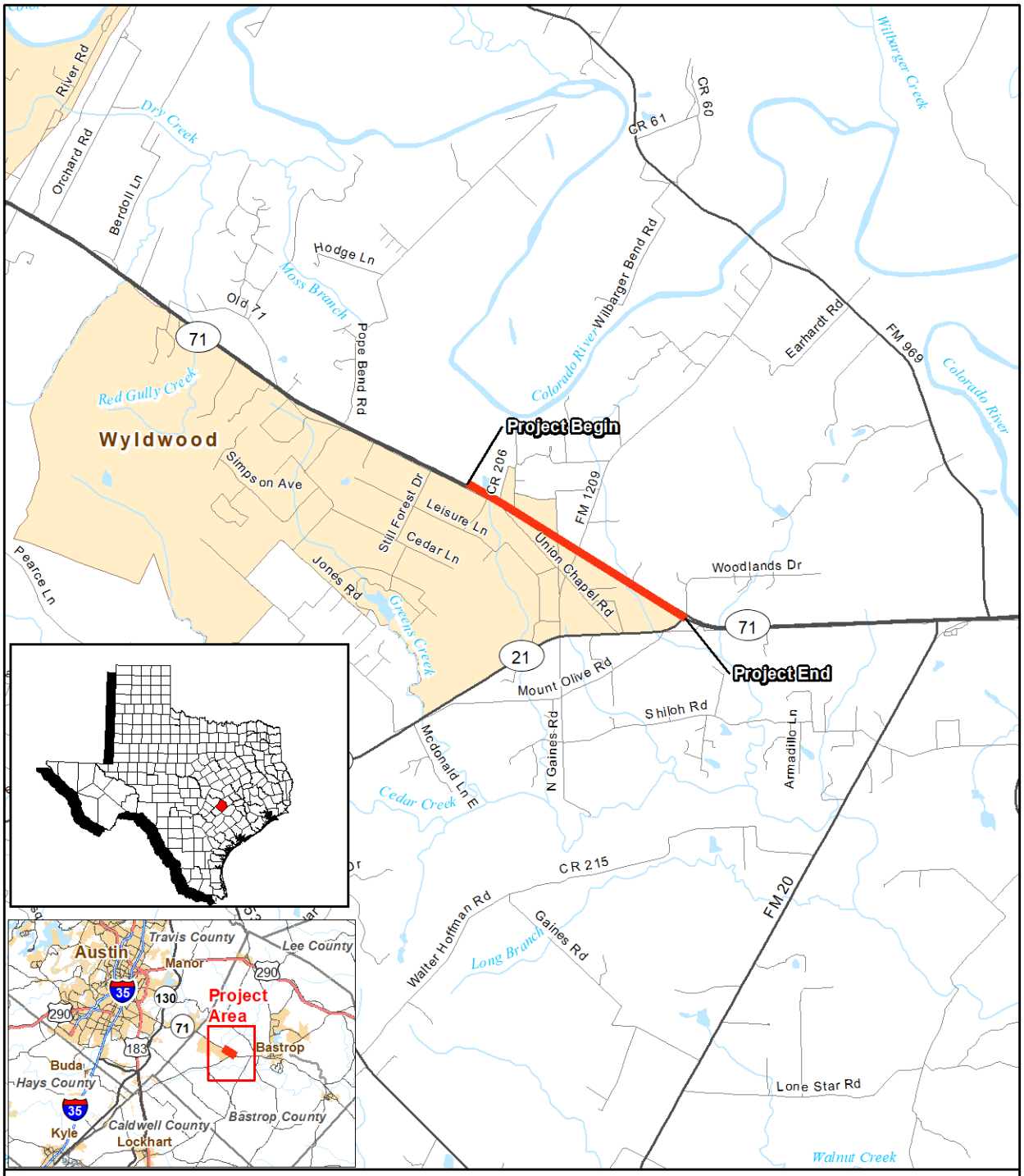


Figure 1
Project Location on County Map
SH 71 from CR 206 to SH 21
Bastrop County, Texas
CSJ: 0265-03-041

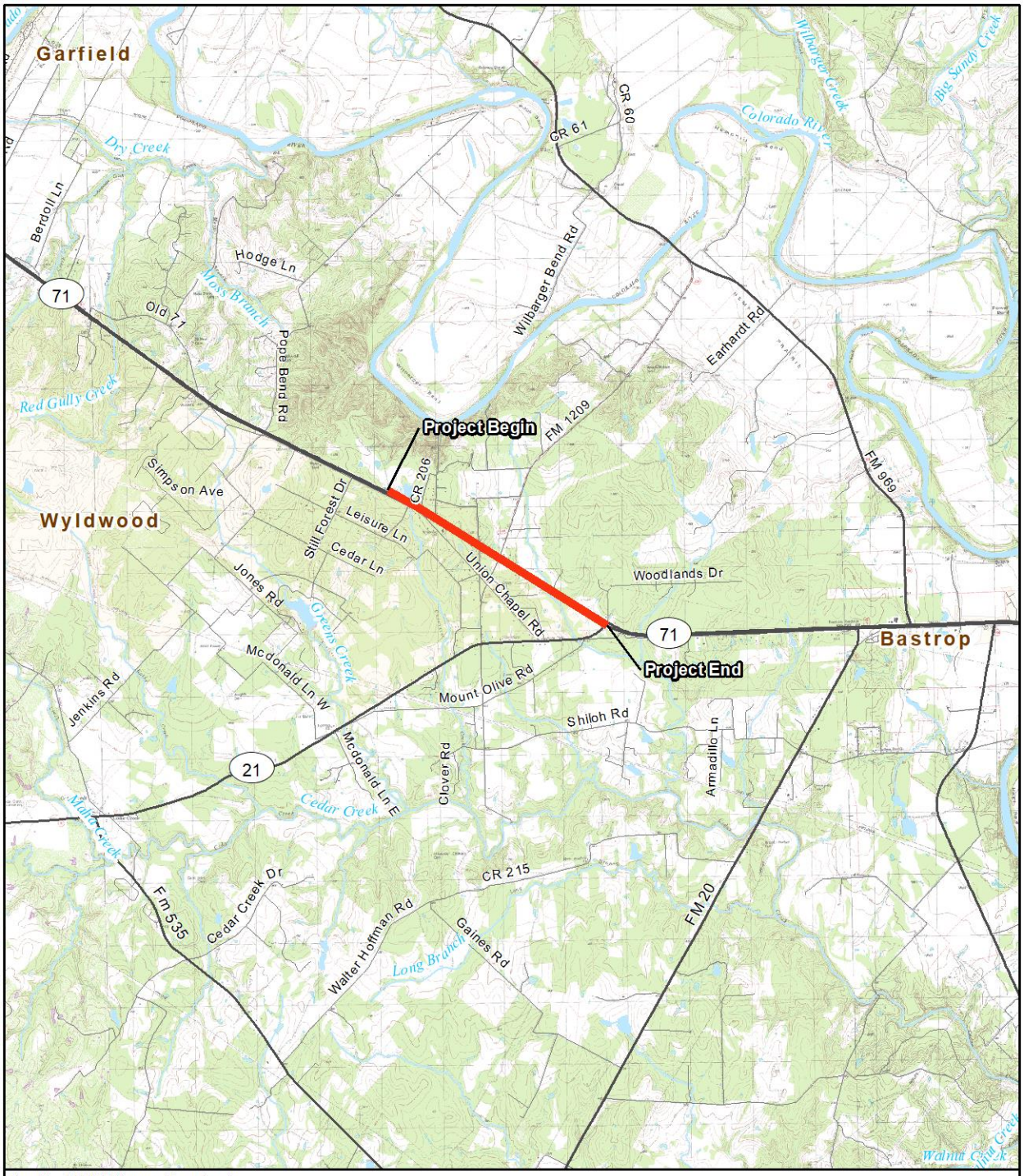
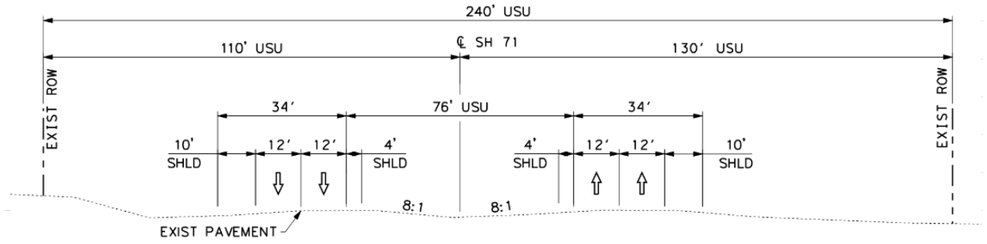
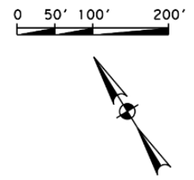


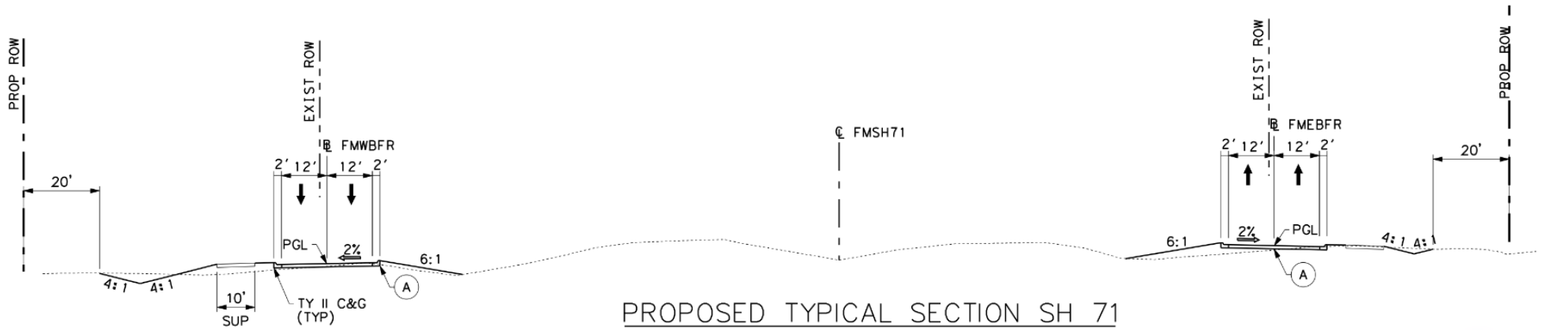
Figure 2
Project Location on Topographic Map
SH 71 from CR 206 to SH 21
Bastrop County, Texas
CSJ: 0265-03-041



EXISTING TYPICAL SECTION SH 71

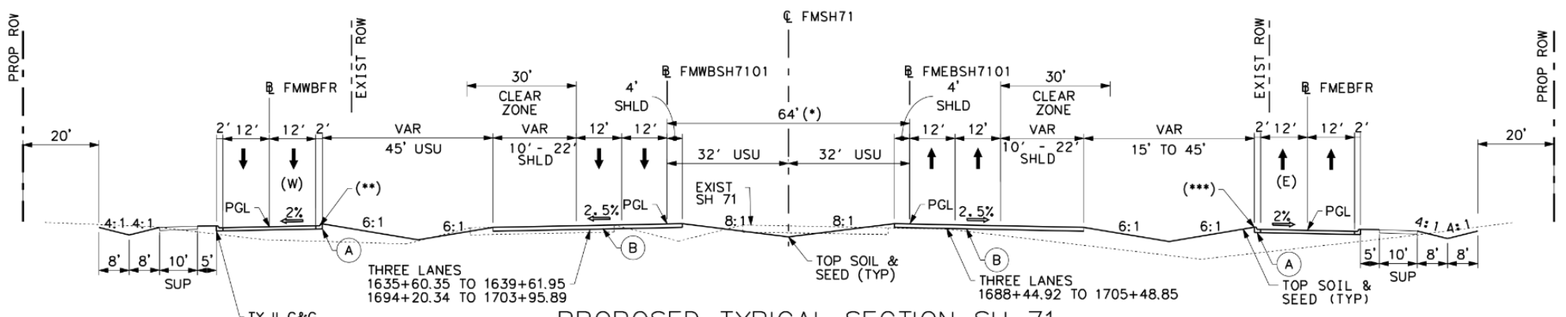
STA 1620+00 TO STA 1695+00





PROPOSED TYPICAL SECTION SH 71
AT FM1209

STA 1610+32 TO STA 1625+60



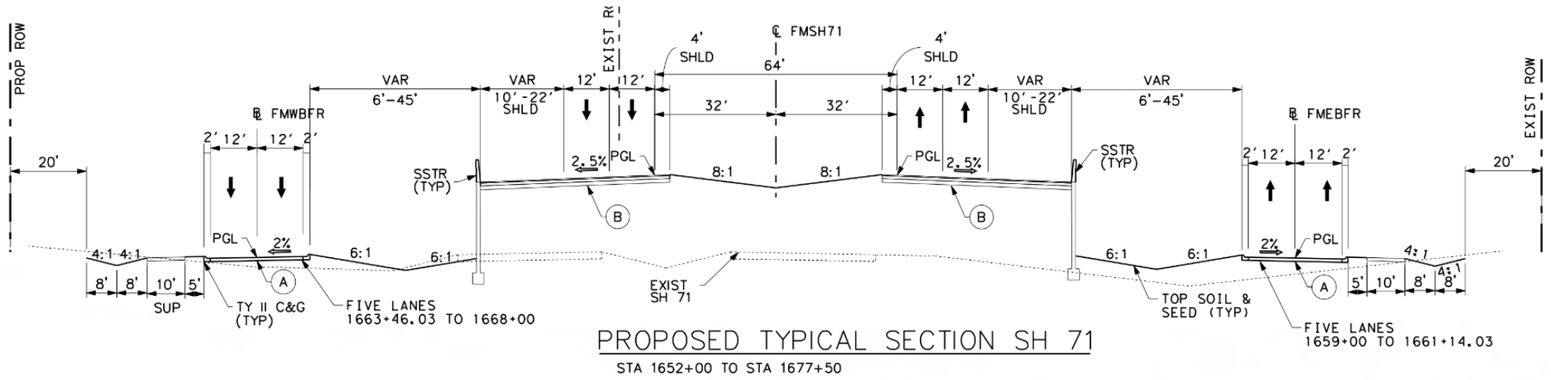
PROPOSED TYPICAL SECTION SH 71

(**) AUXILLARY LANE ADDED TO WBFR
STA 1686+00 TO STA 1702+00

(*) STA 1625+60 TO STA 1634+50 VARIES 76' TO 64'
STA 1634+50 TO STA 1652+00
STA 1677+50 TO STA 1691+61
STA 1692+31 TO STA 1703+95
(*) STA 1703+95 TO STA 1714+00 VARIES 64' TO 60'

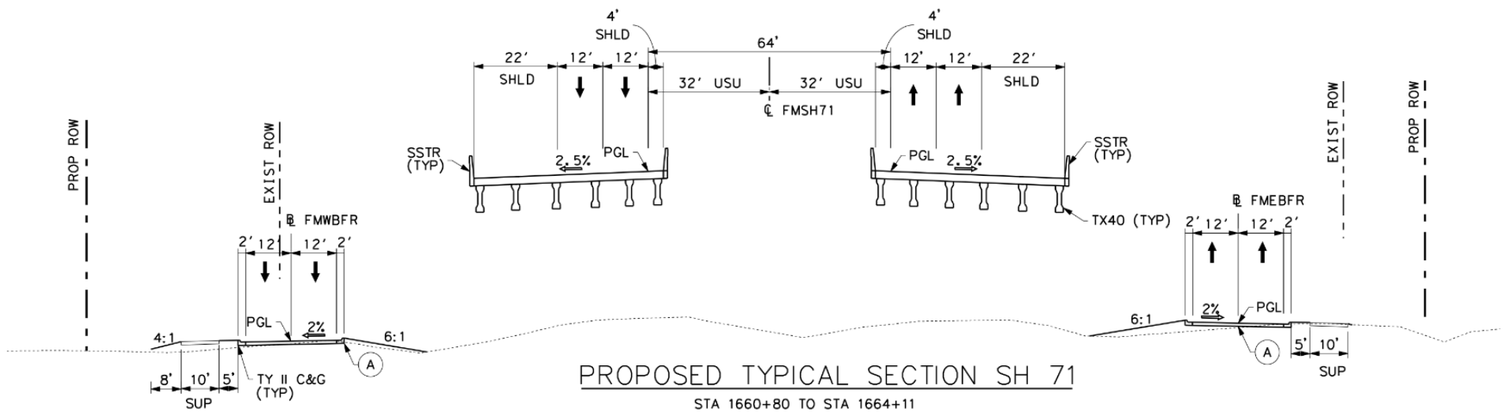
(***) AUXILLARY LANE ADDED TO EBFR
STA 1684+00 TO STA 1700+00

Figure 3.1
Existing and Proposed Typical Sections
SH 71 from CR 206 to SH 21
Bastrop County, Texas
CSJ: 0265-03-041



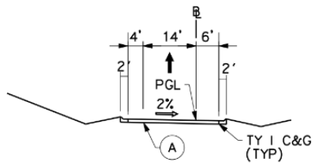
PROPOSED TYPICAL SECTION SH 71

STA 1652+00 TO STA 1677+50



PROPOSED TYPICAL SECTION SH 71

STA 1660+80 TO STA 1664+11



PROPOSED TYPICAL RAMP SECTION

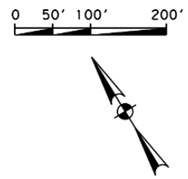
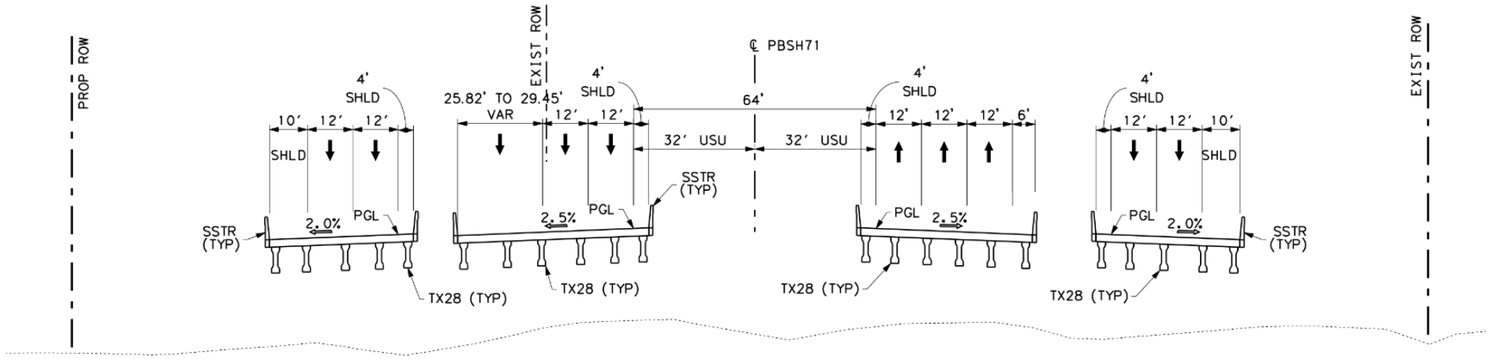
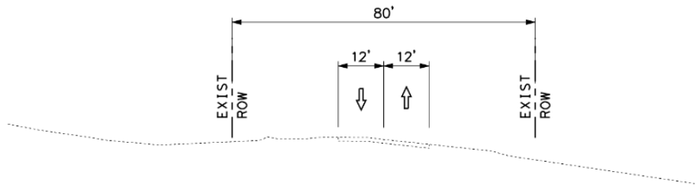


Figure 3.2
Existing and Proposed Typical Sections
SH 71 from CR 206 to SH 21
Bastrop County, Texas
CSJ: 0265-03-041

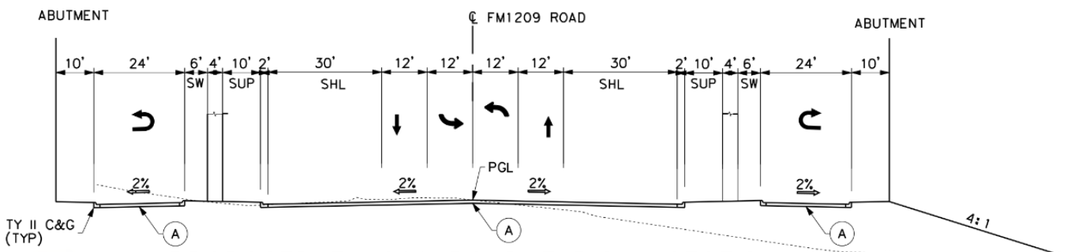


PROPOSED TYPICAL SECTION SH 71

STA 1691+60 TO STA 1693+00



EXISTING FM1209 ROAD TYPICAL SECTION



PROPOSED FM1209 ROAD TYPICAL SECTION

STA 28+00 TO STA 31+00

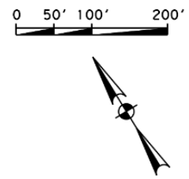


Figure 3.3
Existing and Proposed Typical Sections
SH 71 from CR 206 to SH 21
Bastrop County, Texas
CSJ: 0265-03-041

APPENDIX B

DRAFT TPP Approved Traffic Memo

Texas Department of Transportation

MEMO

March 23, 2017

To: Terry McCoy, P.E., District Engineer
Attention: Lorena E Echeverria De Misi, P.E., Director of TPD

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

From: Tammye A. Fontenot
Transportation Analyst, TPP

DRAFT

Subject: Traffic Data
CSJ: 7990-00-014
SH 71 (Main Lanes and Frontage Roads):
From SH 130
To SH 21

Travis and Bastrop Counties

Attached are copies of schematics depicting 2020, 2040 and 2050 anticipated average daily traffic volumes and turning movements along SH 71 from SH 130 to SH 21 for Existing and Proposed Conditions as specified in your request. Also attached are tabulations showing traffic analysis for highway design for the 2020 to 2040 twenty year period and 2020 to 2050 thirty year period for the described limits of the route. Included are tabulations showing data for use in air and noise analysis.

Due to differences in traffic volumes along this route, the main lanes and the frontage roads were separated into multiple sections:

Existing Conditions
Section 1: From SH 130 to Kellam Road
Section 2: From Kellam Road to SH 21

Main Lanes (Proposed Conditions)
Section 1: From SH 130 to Ross Road
Section 2: From Ross Road to SH 21

Frontage Roads (Proposed Conditions)
Section 1: From SH 130 to Norwood Lane
Section 2: From Norwood Lane to SH 21

Please refer to your original memorandum dated September 29, 2016.

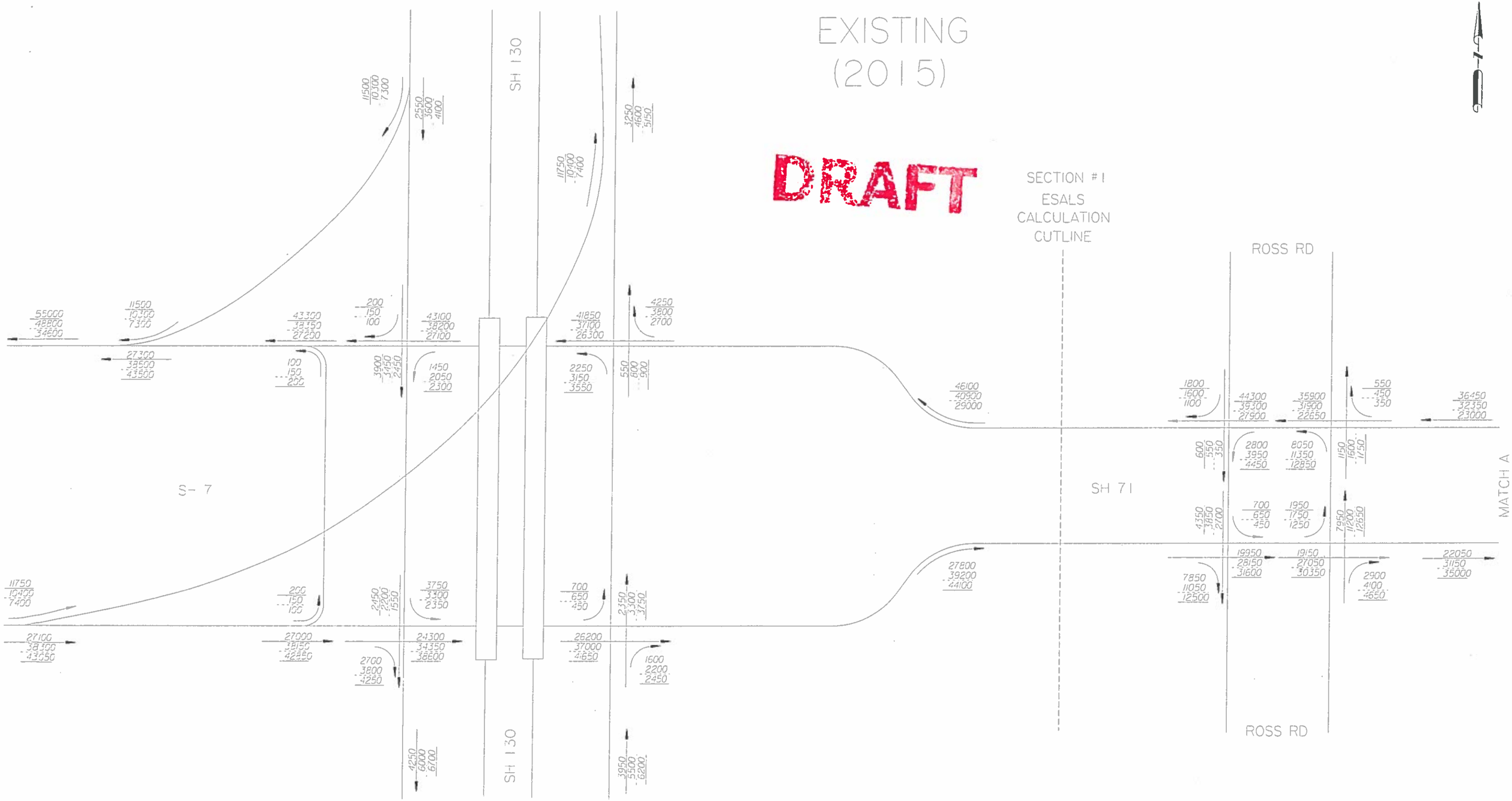
If you have any questions or need additional information, please contact Tammye Fontenot at (512) 486-5108.

Attachments

CC: Carmen Ramos, Planner, Austin District
Design Division

EXISTING (2015)

DRAFT



LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S-7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

EXISTING
(2015)

DRAFT

SECTION #2
ESALS
CALCULATION
CUTLINE

BURC- DR.

DR. SCOTT

NORWOOD LN

MAICIA

SH 71

MATCH B

KELLAM RD

NAVARRO
CREEK RD

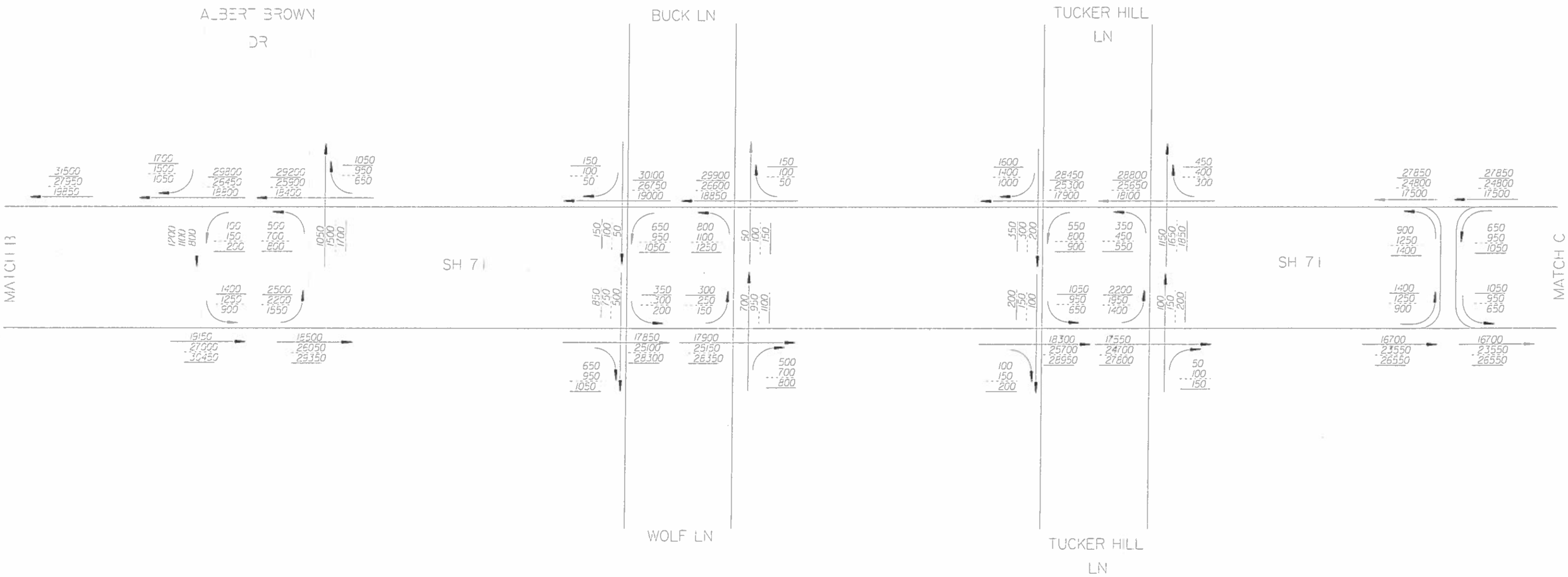
LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM S- 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

EXISTING
(2015)

DRAFT



LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM S- 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

EXISTING (2015)

DRAFT

POPE BEND RD

FM 1209

WOODLANDS DR

SH 71

SH 21

MAICIIC

POPE BEND RD

FM 1209

SH 71

SH 21

LEGEND
CCC - 2020 ADT
CCC - 2040 ADT
CCC - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

PROPOSED
(ULTIMATE - OPTION 2)

DRAFT

MAINLANES
SECTION # 1
ESALS
CALCULATION
CUTLINE

FRONTAGE ROADS
SECTION # 1
ESALS
CALCULATION
CUTLINE

ROSS RD

SH 130

SH 71

S- 7

MATCH A

ROSS RD

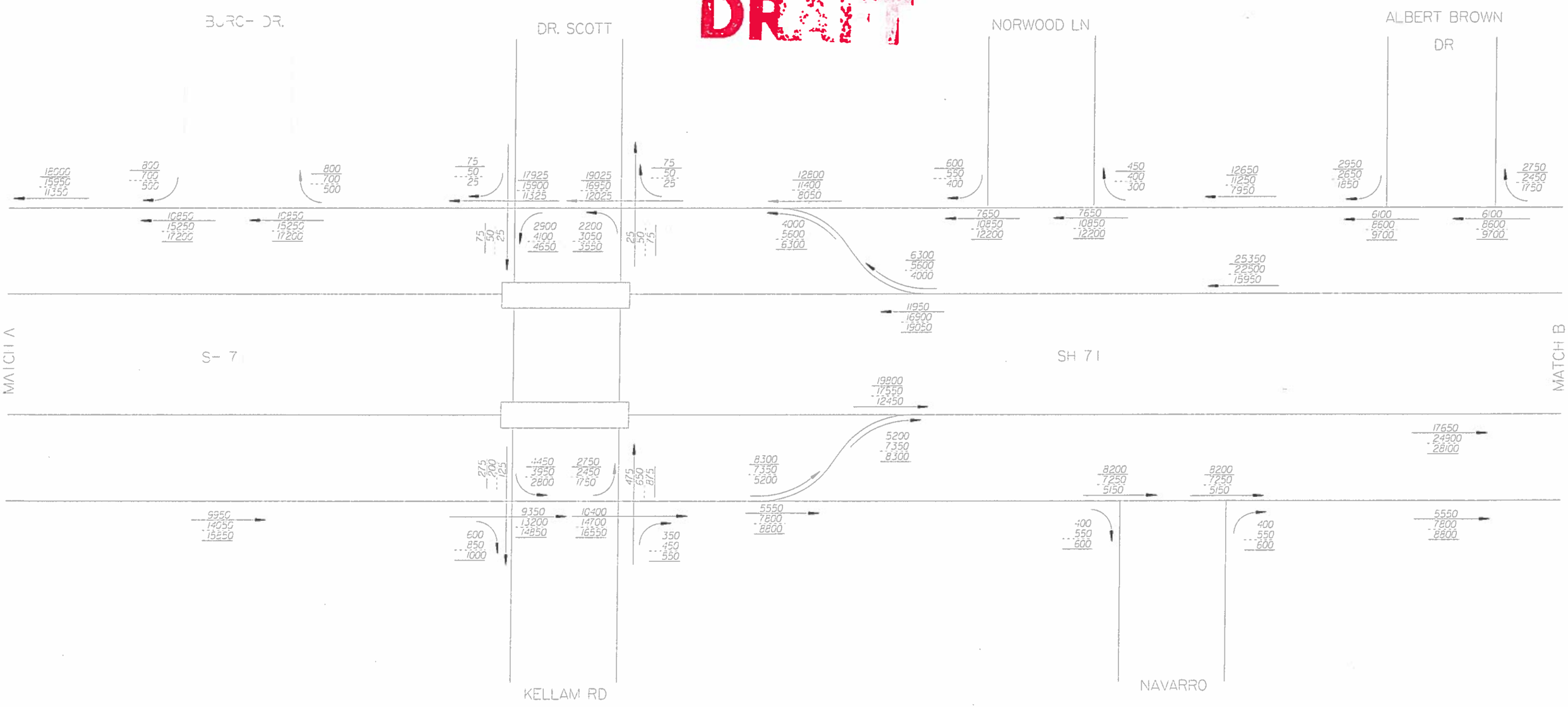
LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG
S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

PROPOSED
(ULTIMATE - OPTION 2)

DRAFT



LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

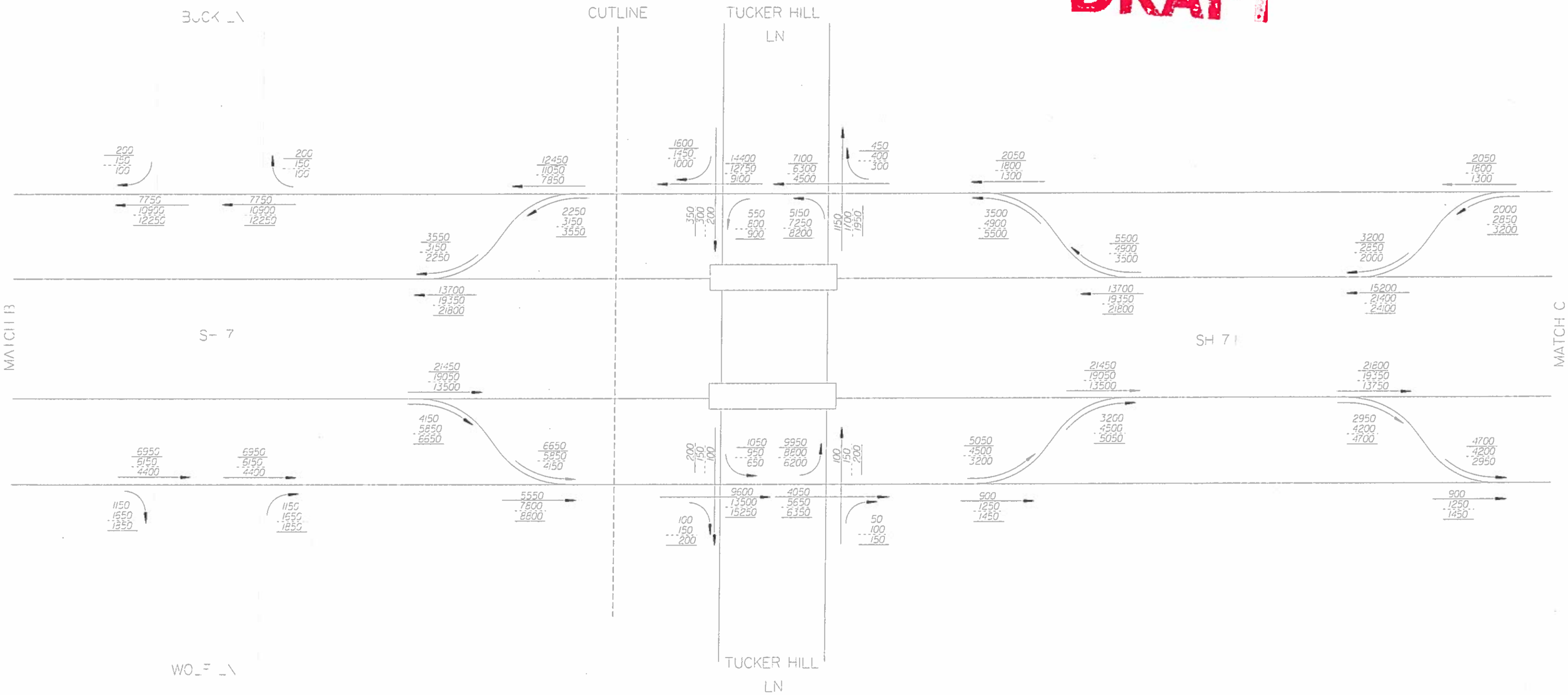
2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

PROPOSED
(ULTIMATE - OPTION 2)

DRAFT

FRONTAGE ROADS
SECTION #2
ESALS
CALCULATION
CUTLINE



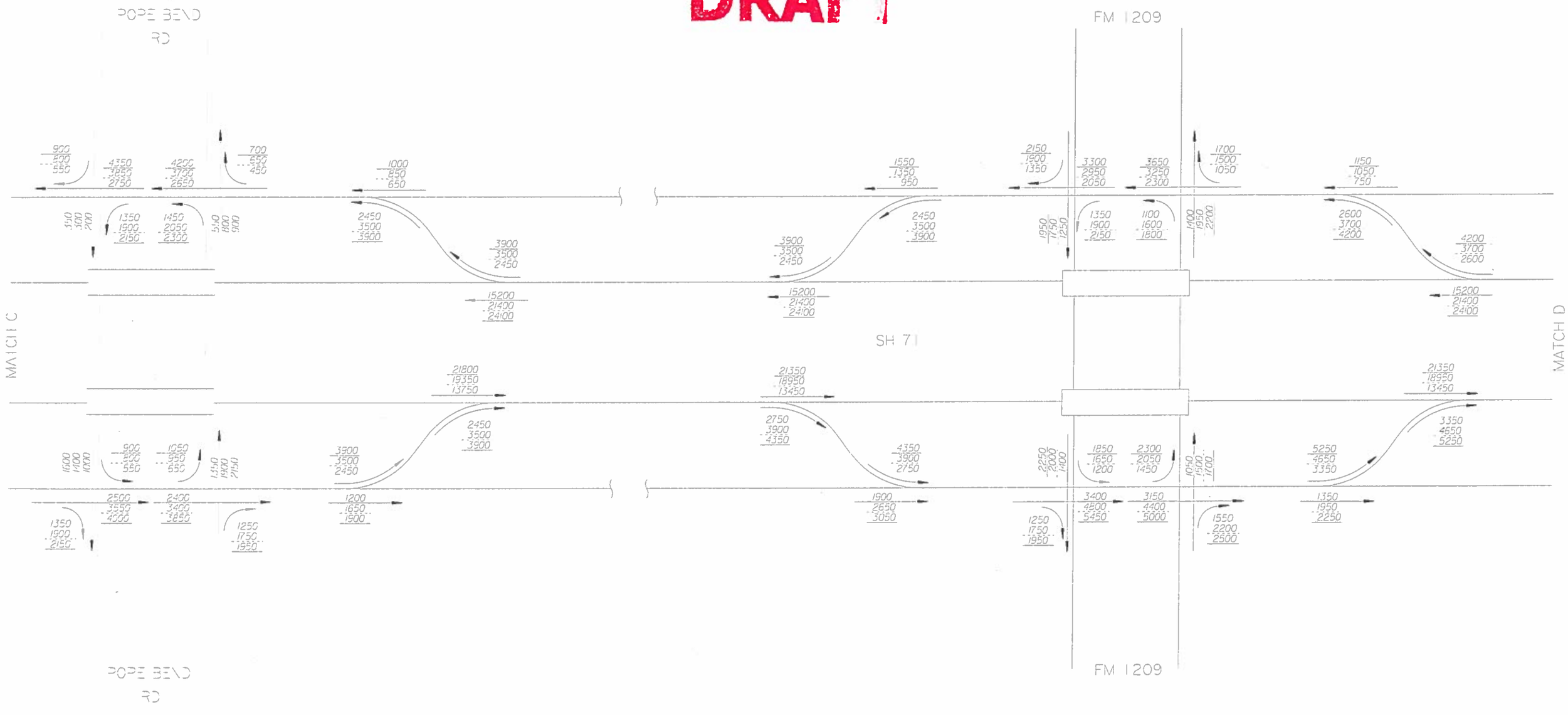
LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

PROPOSED
(ULTIMATE - OPTION 2)

DRAFT



LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017.

PROPOSED
(ULTIMATE - OPTION 2)

DRAFT

VARIABLES
SECTION #2
ESALS
CALCULATION
OUTLINE

WOODLANDS DR

MAICHILD

S- 71

SH 71

SH 21

1150 / 1050 / 750
200 / 150 / 100
2550 / 2300 / 1650
11550 / 10300 / 7300
200 / 150 / 100
1000 / 1400 / 1600
200 / 150 / 100
6300 / 8950 / 10050
650 / 950 / 1050
100 / 150 / 200
1500 / 1400 / 1000
11750 / 10450 / 7400
16800 / 23700 / 26700
16800 / 23700 / 26700
24200 / 34150 / 38450
24650 / 21850 / 15550
24650 / 21850 / 15550
36300 / 32200 / 22900
1250 / 1750 / 1950
1950 / 1750 / 1250
9750 / 8650 / 6050
500 / 450 / 350
350 / 300 / 200
550 / 800 / 900
7350 / 10350 / 11650
1350 / 1950 / 2250
1600 / 2300 / 2600
1750 / 2450 / 2750
1000 / 1400 / 1600
5600 / 7900 / 8900

LEGEND
000 - 2020 ADT
000 - 2040 ADT
000 - 2050 ADT

2020, 2040 AND 2050 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT SPECIFIED POINTS ALONG S- 7 FROM SH 130 TO SH 21
TRAVIS AND BASTROP COUNTIES

TRANSPORTATION PLANNING AND PROGRAMMING DIVISION
MARCH 23, 2017

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2020 to 2040) Rigid Pavement	SLAB
SH 71 Existing Conditions Section 1 From SH 130 To Kellam Rd Travis and Bastrop Counties	56,800	80,100	53 - 47	8.6	7.4	4.9	12,400	30	15,230,000	3	20,357,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	92.6	95.1
Medium Duty	3.3	2.2
Heavy Duty	4.1	2.7

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Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2020 to 2050) Rigid Pavement	SLAB
SH 71 Existing Conditions Section 1 From SH 130 To Kellam Rd Travis and Bastrop Counties	56,800	90,200	53 - 47	8.6	7.4	4.9	12,500	30	24,530,000	3	32,789,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Existing Conditions Section 2 From Kellam Rd To SH 21 Travis and Bastrop Counties	42,200	59,600	53 - 47	8.6	8.6	5.7	12,300	40	13,143,000	3	17,581,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	91.4	94.3
Medium Duty	3.9	2.6
Heavy Duty	4.7	3.1

DRAFT

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Existing Conditions Section 2 From Kellam Rd To SH 21 Travis and Bastrop Counties	42,200	67,100	53 - 47	8.6	8.6	5.7	12,400	30	21,167,000	3	28,314,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Mainlanes Section 1 From SH 130 To Ross Road Travis and Bastrop Counties	55,700	78,500	53 - 47	8.6	7.5	5.0	12,400	30	15,129,000	3	20,225,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	92.5	95.0
Medium Duty	3.4	2.2
Heavy Duty	4.1	2.8

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Mainlanes Section 1 From SH 130 To Ross Road Travis and Bastrop Counties	55,700	88,500	53 - 47	8.6	7.5	5.0	12,500	30	24,385,000	3	32,597,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Mainlanes Section 2 From Ross Road To SH 21 Travis and Bastrop Counties	34,600	48,700	53 - 47	8.6	9.5	6.3	12,200	40	11,870,000	3	15,885,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	90.5	93.7
Medium Duty	4.3	2.8
Heavy Duty	5.2	3.5

DRAFT

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Mainlanes Section 2 From Ross Road To SH 21 Travis and Bastrop Counties	34,600	54,900	53 - 47	8.6	9.5	6.3	12,300	40	19,130,000	3	25,601,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Frontage Roads Section 1 From SH 130 To Norwood Lane Travis and Bastrop Counties	32,400	45,650	53 - 47	8.6	7.6	5.7	12,000	20	6,808,000	3	8,246,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	92.4	94.3
Medium Duty	3.4	2.6
Heavy Duty	4.2	3.1

DRAFT

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Frontage Roads Section 1 From SH 130 To Norwood Lane Travis and Bastrop Counties	32,400	51,400	53 - 47	8.6	7.6	5.7	12,100	20	10,965,000	3	13,280,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Austin District

March 23, 2017

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2040	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 (2020 to 2040) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Frontage Roads Section 2 From Norwood Lane To SH 21 Travis and Bastrop Counties	19,800	27,850	53 - 47	8.6	3.4	2.6	11,000	40	1,890,000	3	2,272,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	96.6	97.4
Medium Duty	1.5	1.1
Heavy Duty	1.9	1.5

DRAFT

Description of Location	Average Daily Traffic 2020	Average Daily Traffic 2050	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 (2020 to 2050) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 71 Proposed Frontage Roads Section 2 From Norwood Lane To SH 21 Travis and Bastrop Counties	19,800	31,450	53 - 47	8.6	3.4	2.6	11,100	40	3,048,000	3	3,665,000	8"