
# Traffic Forecasting Study

## US 290/SH 71 West Corridors
## Oak Hill Parkway

City of Austin, Texas

August 27, 2018

# Traffic Forecasting Study

# *US 290/SH 71 West Corridors*

## *Oak Hill Parkway*

***Prepared for:***

***Texas Department of Transportation***
***Austin District***

**August 27, 2018**

***Prepared by:***

RTG | RODRIGUEZ TRANSPORTATION GROUP
FIRM #587

17510 Huffmeister, Suite 101
Cypress, TX 77429
(832) 220-1508


8·27·18

# TABLE OF CONTENTS

# LIST OF FIGURES



# LIST OF TABLES



# LIST OF APPENDICES

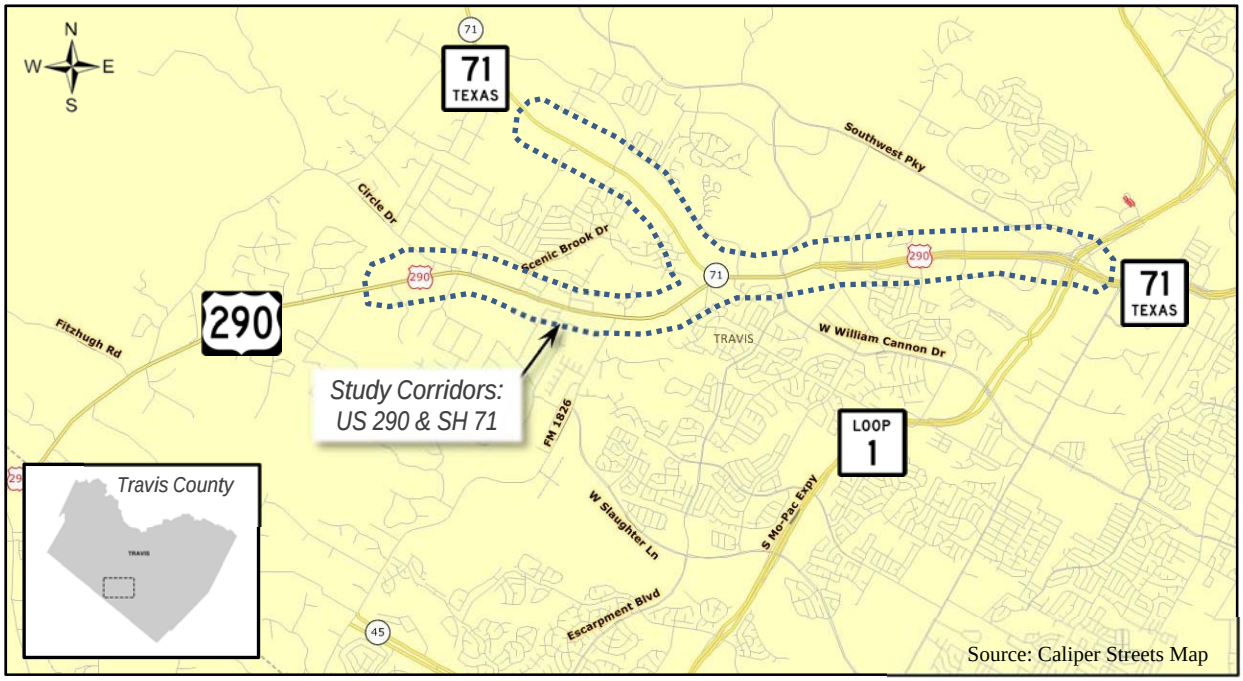
# 1. INTRODUCTION

This report documents the methodology for forecasting the 2040 "No Build" and "Build" traffic projections of the reconstruction of the United States Highway (US 290) and State Highway 71 (SH 71) West corridors located in the southwest region of Austin, Texas. The projections were developed in support of the environmental analysis of the "Build" alternatives, A and C, as well as the "No Build" alternative. Alternatives A and C each include full freeway and ramp configurations, while the "No Build" alternative includes the existing roadway facilities within the study corridors. The approximate limits of the study corridors are shown in **Figure 1**.

The traffic projections were forecasted by applying the Capital Area Metropolitan Planning Organization (CAMPO) travel demand model. This updated version of the CAMPO travel demand model was approved by the Transportation Planning and Programming (TP&P) division of TxDOT and includes a base year of 2010 and future years of 2020 and 2040. The provided reference guide for the model is called the *CAMPO 2010 Planning Model Guide* (dated March 2015). For the purposes of this study, the model is referred to as the 2040 CAMPO travel demand model. The study was comprised of the following tasks:

- Evaluation of the 2010 Base Model traffic assignments.
- Modification of the 2040 highway network to represent the "No Build" and "Build" alternative geometry and roadway connectivity.
- Application of CAMPO's 2040 travel demand model and a Multi-modal Multi-class User equilibrium vehicle assignment process to develop peak period and daily traffic assignments for "No Build" and "Build" alternatives.

**Figure 1: Location Map**



# 2. 2010 BASE MODEL EVALUATION

## 2.1. CAMPO TRAVEL DEMAND MODEL

The CAMPO travel demand model is a regional model covering the entire 5-county area (Bastrop, Caldwell, Hays, Travis, and Williamson) and is currently used to develop traffic projections for the years 2010, 2020, and 2040 based on population and employment estimates. Although the context of the model was developed to derive a regional sense of travel demand and movement, this model is the preferred tool used to forecast traffic projections at the corridor and project level for the CAMPO region. The TransCAD software is utilized by CAMPO for travel demand modeling. The model was obtained in late July 2015 for use in this study for the purpose of evaluating the travel demands of the various corridor options. In addition, the updated 2040 model includes a "Time-of-day" (TOD) analysis, which considers various time periods of the day.

## 2.2. HISTORICAL DATA FOR BASE MODEL EVALUATION

Historical 2010 traffic count data was obtained from TxDOT's "On System" and "Off System" traffic count efforts, which were accessed through TxDOT's statewide planning map and CAMPO's traffic count and regional data website. TxDOT's "On System" counts are generally collected on major highways and regionally significant arterials, while the "Off System" counts were collected on minor arterials, collectors, and local streets. These data sets provided sufficient information to compare the updated CAMPO model assignments for the 2010 Base Model with observed traffic counts within the study area. The following section discusses this comparison.

## 2.3. PERFORMANCE OF 2010 BASE MODEL

The initial step in developing traffic forecasts, when utilizing a travel demand model, is to evaluate the performance of the base model in order to validate the model. The percent assignment error test and coefficient of determination tests were used as the validation tests before moving forward with future forecasts. This analysis employs the guidelines suggested by the Federal Highway Administration's (FHWA) report, *Calibration and Adjustment of System Planning Models*, dated December 1990. A screen line analysis was also completed to evaluate the base models ability to distribute demand across several facilities along the screen line count locations.

### 2.3.1. Percent Assignment Error Test

**Table 1** shows the location number and description of the counts used in this analysis. **Table 2** shows a comparison of 2010 observed daily volumes and the traffic volume assignments from the CAMPO 2010 base model for various roadway segments in the study area. The daily volumes shown in the table are 2-way traffic volumes in vehicles per day (vpd) and their locations are identified in **Figure 2**. Freeway locations include the total main lane and frontage road volumes. Based on the comparison, the model estimates are comparable to the actual traffic volumes observed in the count data. Since the total overall assignment percent error between the two sets of data (for all facility types) fall within the acceptable range of 5%, the CAMPO base model passes this test.

**Table 1. List of Study Area Count Locations**

| Location No. | Location Description |
|---|---|
| 1 | Southwest Parkway - East of William Cannon Drive (Screen line) |
| 2 | SH 71 - North of US 290 (Screen line) |
| 3 | US 290 - West of SH 71 (Screen line) |
| 4 | Slaughter Lane - East of RM 1826 (Screen line) |
| 5 | SH 45 S - East of RM 1826 (Screen line) |
| 6 | RM 1826 - South of Travis County Line (Screen line) |
| 7 | Southwest Parkway - West of Mission Oaks Boulevard |
| 8 | Loop 1 - South of US 290 |
| 9 | US 290 - East of William Cannon Drive |
| 10 | William Cannon Drive - South of US 290 |
| 11 | Convict Hill Road - East of US 290 |
| 12 | RM 1826 - South of US 290 |
| 13 | US 290 - West of RM 1826 |
| 14 | Circle Drive - North of US 290 |
| 15 | US 290 - East of Fitzhugh Road |
| 16 | US 290 - at Travis/Hays County Line |
| 17 | William Cannon Drive - West of Loop 1 |
| 18 | Slaughter Lane - East of Loop 1 |
| 19 | Escarpment Boulevard - South of Slaughter Lane |
| 20 | Loop 1 - North of US 290 |

**Figure 2: Study Area Count Locations for 2010 Base Model Evaluation**

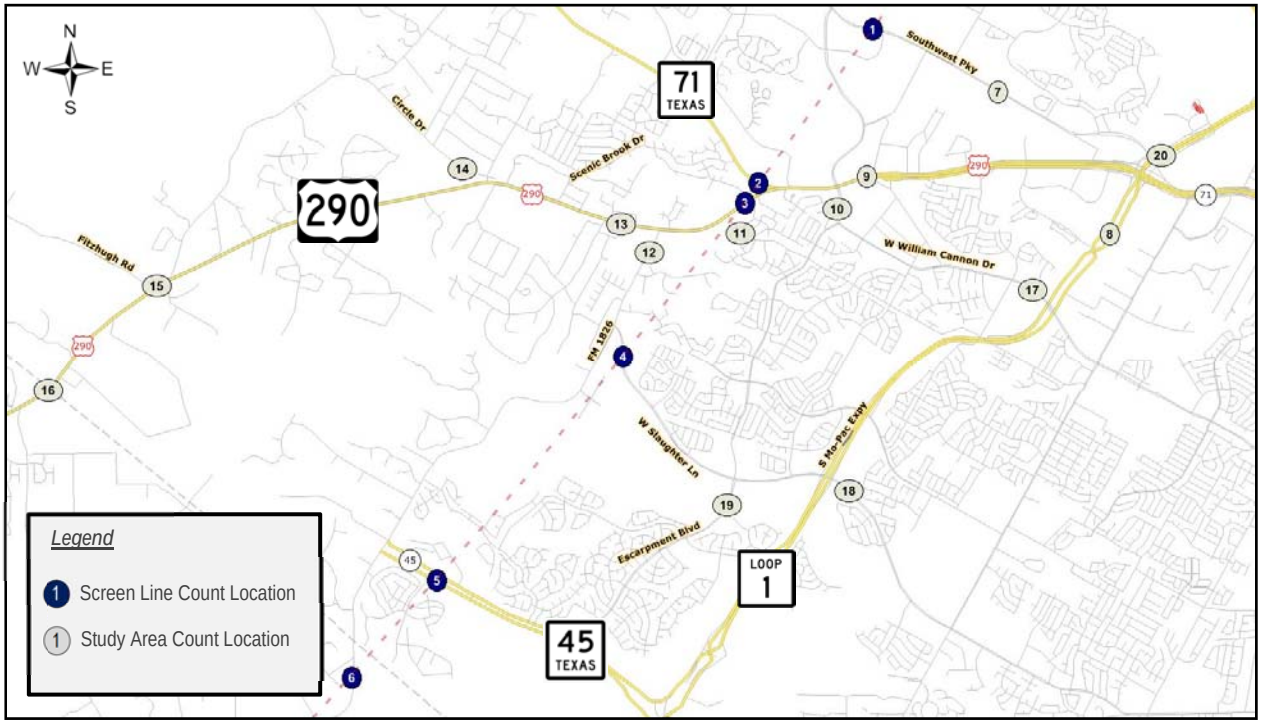


**Table 2. Summary of Percent Assignment Error Analysis**

| Location No. | 2010 Assigned Volumes (vpd) | 2010 Observed Volumes (vpd) | Percent Assignment Error |
|---|---|---|---|
| 1 | 25,250 | 24,630 | 2.5% |
| 2 | 24,450 | 26,000 | -6.0% |
| 3 | 33,170 | 37,000 | -10.4% |
| 4 | 12,920 | 11,270 | 14.6% |
| 5 | 9,800 | 10,600 | -7.5% |
| 6 | 11,280 | 9,300 | 21.3% |
| 7 | 31,550 | 29,650 | 6.4% |
| 8 | 86,290 | 82,000 | 5.2% |
| 9 | 47,540 | 54,000 | -12.0% |
| 10 | 30,490 | 22,350 | 36.4% |
| 11 | 10,240 | 8,300 | 23.4% |
| 12 | 12,630 | 12,800 | -1.3% |
| 13 | 27,210 | 34,000 | -20.0% |
| 14 | 3,960 | 3,370 | 17.5% |
| 15 | 23,590 | 27,000 | -12.6% |
| 16 | 20,010 | 24,000 | -16.6% |
| 17 | 36,940 | 34,980 | 5.6% |
| 18 | 27,110 | 38,040 | -28.7% |
| 19 | 16,840 | 16,180 | 4.1% |
| 20 | 117,220 | 110,000 | 6.6% |
| **Totals** | **608,490** | **615,470** | **-1.1%** |
| **Total Assignment Percent Error Suggested Range** | | | **+/- 5%** |

The percent assignment error test was also carried out for the screen line count locations. A screen line analysis provides a check of the total demand crossing an imaginary line through the study area. The screen line alignment was chosen based on the limited count data available along SH 71. **Table 3** below shows the results of the percent assignment error for the screen line count locations. The total screen line volumes are within 1.6% of each other. In addition, the average absolute value of the percent assignment error is 10%, which is an acceptable margin.

**Table 3. Summary of Percent Assignment Error Analysis for Screen Line**

| Location No. | 2010 Assigned Volumes (vpd) | 2010 Observed Volumes (vpd) | Percent Assignment Error |
|---|---|---|---|
| 1 | 25,250 | 24,630 | 2.5% |
| 2 | 24,450 | 26,000 | -6.0% |
| 3 | 33,170 | 37,000 | -10.4% |
| 4 | 12,920 | 11,270 | 14.6% |
| 5 | 9,800 | 10,600 | -7.5% |
| 6 | 11,280 | 9,300 | 21.3% |
| **Totals** | **116,870** | **118,800** | **-1.6%** |
| **Total Assignment Percent Error Suggested Range** | | | **+/- 5%** |

### 2.3.2. Coefficient of Determination Test

The Coefficient of Determination, $R^2$, shows how well a regression line represents the data being plotted between two sets of data. An $R^2$ value of 0.88 or higher is desirable, while a value of 1.0 is perfect. This test was completed for the two sets of data available for the base model validation for the study area counts (**Table 2**) as well as for the screen line counts (**Table 3**). An $R^2$ value was calculated to be 0.97 for the study area, while the $R^2$ value for the screen line was calculated to be 0.98. These results indicate that the CAMPO base model passes this test.

### 2.3.3. Screen Line Analysis

A screen line analysis was also completed to evaluate the base models ability to distribute demand across several facilities along the screen line count locations. The results of the screen line data in **Table 4** shows that the assigned distribution of demand across the facilities are closely matching the observed distribution patterns.

**Table 4. Summary of Screen Line Analysis**

| Location No. | 2010 Assigned Volume Distribution | 2010 Observed Volume Distribution |
|---|---|---|
| 1 | 21.6% | 20.7% |
| 2 | 20.9% | 21.9% |
| 3 | 28.4% | 31.1% |
| 4 | 11.1% | 9.5% |
| 5 | 8.4% | 8.9% |
| 6 | 9.7% | 7.8% |

Based on the three evaluation tests completed for the 2010 base model, the model estimates are comparable to the actual 2010 traffic volumes with a few minor exceptions. Ultimately, the differences per location did not warrant additional calibration of the adopted CAMPO base model, thus maintaining the integrity of the adopted model.

# 3. 2040 CAMPO MODEL

This section provides a discussion of the basic assumptions and parameters used in the CAMPO Model for the 2040 traffic assignments.

## 3.1. PROGRAMMED PROJECTS WITHIN STUDY AREA

A review of CAMPO's 2040 Regional Transportation Plan's (RTP) programmed projects was completed to understand the future committed roadway improvements within the study area. A list of relevant roadway improvements are found in **Table 5**. A cursory check was completed and confirmed that these projects were already coded in the original 2040 highway network provided by CAMPO. An exhibit illustrating CAMPO's road projects programmed for year 2040 is provided in **Appendix A**.

**Table 5. Summary of Programmed Projects**

| Projects | Limits/Location | Let Year | Description |
|---|---|---|---|
| Loop 1 | Cesar Chavez - Slaughter | 2020 | Construct 2 express lanes in each direttion |
| RM 2244 | Walsh Tarlton - Redbud Trail | 2020 | Widen to 4-lane major arterial divided |
| SH 45 SW | Loop 1 S - FM 1626 | 2015 | Construct 4-lane tolled freeway; shared path |
| US 290 W | West of RM 1826 - Loop 1 | 2018 | Construct 6-lane tolled freeway |
| US 290 W | Nutty Brown - RM 1826 | 2040 | Widen to 6-lane major arterial divided |
| US 290 W | RM 12 - Nutty Brown | 2035 | Widen to 6-lane major arterial divided |
| SH 71 W | Silvermine - US 290 W | 2018 | Construct tolled lanes with frontage road |
| RM 1826 | US 290 W - Slaughter | 2022 | Widen to 4-lane major arterial divided |
| RM 1826 | Slaughter - SH 45 SW | 2040 | Widen to 4-lane major arterial divided |
| RM 1826 | SH 45 SW - Nutty Brown | 2025 | Widen to 4-lane major arterial divided |
| Fitzhugh Rd | US 290 W - County line | 2030 | Widen to 2-lane major arterial divided |
| Fitzhugh Rd | County line - RM 12 | 2025 | Widen to 4-lane major arterial undivided |

## 3.2. 2040 CAMPO MODEL APPLICATION

Traffic projections were developed by applying the key elements provided by the 2040 CAMPO travel demand model. Specifically, the 2040 highway network and trip tables were utilized in conjunction with TransCAD's native Multi-modal Multi-class User equilibrium assignment (MMA) process. The 2040 highway network was modified to develop "No Build" and "Build" scenarios. The key assumptions used in the assignment process are discussed further in subsequent sections.

Although the 2040 highway network was modified in this study, the TOD trip tables provided by the approved CAMPO model were kept unchanged for the purposes of this study. Per discussions with CAMPO staff, the original 2040 TOD trip tables should be kept unchanged for purposes of analyzing a specific project at the corridor level. The trip tables were not modified to maintain the integrity of the regionally adopted model. The traffic assignments in this forecasting study were run with the developed "No Build" and "Build" highway networks and the provided 2040 trip tables.

## 3.3. TRAFFIC ASSIGNMENT ALGORITHM AND ASSUMPTIONS

Essentially, each link within the entire roadway network of the CAMPO model includes a generalized cost or impedance, which may include a toll cost and/or an operating cost. The generalized costs are reflected in the model in terms of dollars and converted to time based on value of time (VOT) rates depending on peak period and purpose. The MMA routine process allows the application of multiple costs and multiple VOTs for different trip classes. These classes include SOV, HOV2, HOV3, Auto External and Others, and Truck External and Others.

The assignment algorithms were run using a convergence factor of 0.0001 for a maximum number of iterations of 500. In general, the TOD assignments converged to an equilibrium state with less than 80 iterations. The detailed list of turn penalties used in the traffic assignments are provided in **Appendix B**. Furthermore, global passenger car equivalent (PCE) values of 1.0 were used in the assignments for all trip classes except for Truck External and Others. The global PCE value of 2.0 was used for the Truck External and Others trip class.

The specific assignment method used in this analysis is the Bi-conjugate Frank Wolfe (BFW) user equilibrium assignment method. The MMA assignment iterates between assigning volumes and recalculating loaded travel times such that a state of equilibrium is reached. The key behavioral assumption is that in the equilibrium state, no traveler can improve their travel time by changing to another route.

### 3.3.1. Volume Delay Function

The equilibrium traffic assignment procedure is dependent on the Bureau of Public Roads (BPR) volume-delay function (VDF) to estimate travel speeds under congested conditions. The BPR equation determines the change in travel as congestion is approached by relating link travel times as a function of the volume/capacity ratio. As part of CAMPO's refinement of the updated 2040 model, the BPR function's parameters, alpha and beta, were calibrated to improve the assignment results of various roadway classifications. The updated VDF parameters are provided in **Table 6**.

**Table 6. Volume Delay Function Parameters**

| Functional Class | Alpha (α) | Beta (β) |
|---|---|---|
| Interstate/Freeway | 1.00 | 6.00 |
| Principal Arterial | 1.30 | 4.00 |
| Minor Arterial | 1.50 | 4.00 |
| Major Collector | 0.50 | 5.30 |
| Local | 0.50 | 5.30 |
| Frontage Road | 0.50 | 4.00 |
| Ramp | 0.15 | 4.00 |

### 3.4. HIGHWAY NETWORK ASSUMPTIONS

The link and highway attributes used in building the generalized cost networks are detailed in a CAMPO's speed-capacity look-up table provided in **Appendix C**. These attributes depend on each link's functional classification and area type and include speed, per lane hourly capacity, alpha coefficient, and beta coefficient values. An update in the 2040 CAMPO model includes an improved representation of speeds on various tolled facilities. New functional classifications (class numbers 21-24) were added to the speed-capacity look-up tables as a result of this update.

### 3.5. TOLL FACILITY ASSUMPTIONS

This section provides a discussion of the tolling parameters utilized for surrounding tolled facilities as well as any tolled alternatives. During the initial forecasting efforts, the proposed alternatives were set to be tolled facilities since these specific projects were programmed in CAMPO's 2040 RTP (shown in **Table 5**). Therefore, a tolled operations were initially assumed for alternatives A and C and were analyzed under the "Build" scenarios as tolled facilities. However, TxDOT's funding mechanisms changed in 2017, which limited the use of toll roads. This report includes an update for the Preferred Alternative A as a non-tolled facility.

The main toll parameters that have a significant effect of toll diversion behavior in the model are VOT, vehicle operating costs, and toll costs. A distance-based toll was inputted for the study corridors since the location of toll gantries or toll tag readers were not specifically coded along each highway corridor. No changes were made to other programmed or coded tolled facilities for year 2040, which were generally coded at the link-level toll plaza.

**Table 7**, shown below, provides a summary of the toll parameters used in this study, which also includes the toll costs for the study corridors.

**Table 7. Summary of Toll Parameters**

| Toll Parameters | | |
|---|---|---|
| | Passenger Car | Truck |
| Value of Time - Peak Period (per hour) | $14.70 | $28.16 |
| Value of Time - Off Peak Period (per hour) | $14.08 | $28.16 |
| Operating Cost (per mile) | $0.1674 | $0.4185 |
| Toll Cost for US 290 W/SH 71 W (per mile) | $0.18 | $0.25 |

After review of the *CAMPO 2010 Planning Model Guide*, it was found that testing and fine tuning of the previous generalized cost assignment process for the CAMPO travel demand model has led to further dampening (discounting) of the toll rates on tolled facilities. The dampening factors help the assignment procedure to avoid the "cliff" effect where at a certain toll rate may cause a drastic change in users of the facility. Varying the dampening factors by corridor and vehicle type is consistent with potential variations in value of time by area of the model. The complete list of dampening factors used in the 2040 CAMPO travel demand model is provided in **Appendix D**.

### 3.6. TIME OF DAY (TOD) MODEL

An update in the 2040 CAMPO model included the disaggregation of trip tables into four specific time periods as detailed in **Table 8**. The outputs of the four assignments were then aggregated to develop the daily traffic volume projections. This approach to time of day modeling is considered the state of the practice and improves the sensitivity of the model to congestion in the peak periods. As shown in the table, the morning and afternoon peak periods each include a 3-hour time period.

**Table 8. Time of Day Periods**

| Analysis Period | Time | Hours |
|---|---|---|
| AM Peak | 6:00 - 9:00 AM | 3.0 |
| Mid-Day | 9:00 AM - 3:30 PM | 6.5 |
| PM Peak | 3:30 - 6:30 PM | 3.0 |
| Night | 6:30 PM - 6:00 AM | 11.5 |

# 4. FUTURE TRAFFIC FORECASTING

## 4.1. "NO BUILD" SCENARIO

The "No Build" scenario represents the future year 2040 time period without any significant roadway improvement to the US 290 and SH 71 corridors within the study area. This means that the programmed improvements for US 290 and SH 71, which were mentioned earlier in this report, would not occur. This scenario assumes that the existing roadway cross sections and geometry along the study corridors would remain.

For example, the existing US 290 corridor located in the Oak Hill Area and further west would remain a 4-lane highway with two through lanes in each direction. To achieve this scenario, the original 2040 highway network was modified by reducing the planned widening projects and the construction of the tolled freeway facilities back to the existing roadway facilities. Other programmed projects outside the study area were left unchanged and considered "in place" under the 2040 "No Build" scenario.

## 4.2. "BUILD" SCENARIO

There were two alternatives analyzed under the 2040 "Build" scenario, Alternative A and Alternative C. These alternatives were the final two options that were carried forward in the screening and environmental evaluation of several schematic options for the US 290 and SH 71 corridors. As mentioned previously, the decision to provide a proposed tolled facility was initially determined by CAMPO's 2040 RTP. This "Build" scenario considers each alternative as "tolled" as an initial assumption to compare two alternatives equally.

### 4.2.1. Alternative A

The first "Build" scenario was developed by modifying the original 2040 highway network to include the proposed roadway geometry of Alternative A. This alternative includes a tolled freeway section with generally three through lanes and two frontage road lanes in each direction. In addition, the tolled freeway section is extended on SH 71, just north of Scenic Brook Drive. Alternative A includes direct ramp connections to/from the west on SH 71 and the east on US 290. The locations of the proposed access ramps and the details of the at-grade cross street intersections are shown in exhibits found in **Appendix E**.

### 4.2.2. Alternative C

The second "Build" scenario was developed by also modifying the original 2040 highway network to include the proposed roadway geometry of Alternative C. Similar to Alternative A, this alternative includes a tolled freeway section with generally three through lanes and two frontage road lanes in each direction along the US 290 and SH 71 study corridors. Alternative C includes direct ramp connections to/from the west on SH 71 and the east on US 290. Alternative C's main lane geometry differs from Alternative A generally between SH 71 and Old Fredericksburg Road. The main lanes for Alternative C are slightly shifted to north in this section and at-grade intersection at William Cannon Drive is configured differently. Exhibits of Alternative C are found in **Appendix F**.

### 4.3. PROJECTED TRAFFIC VOLUME ADJUSTMENTS

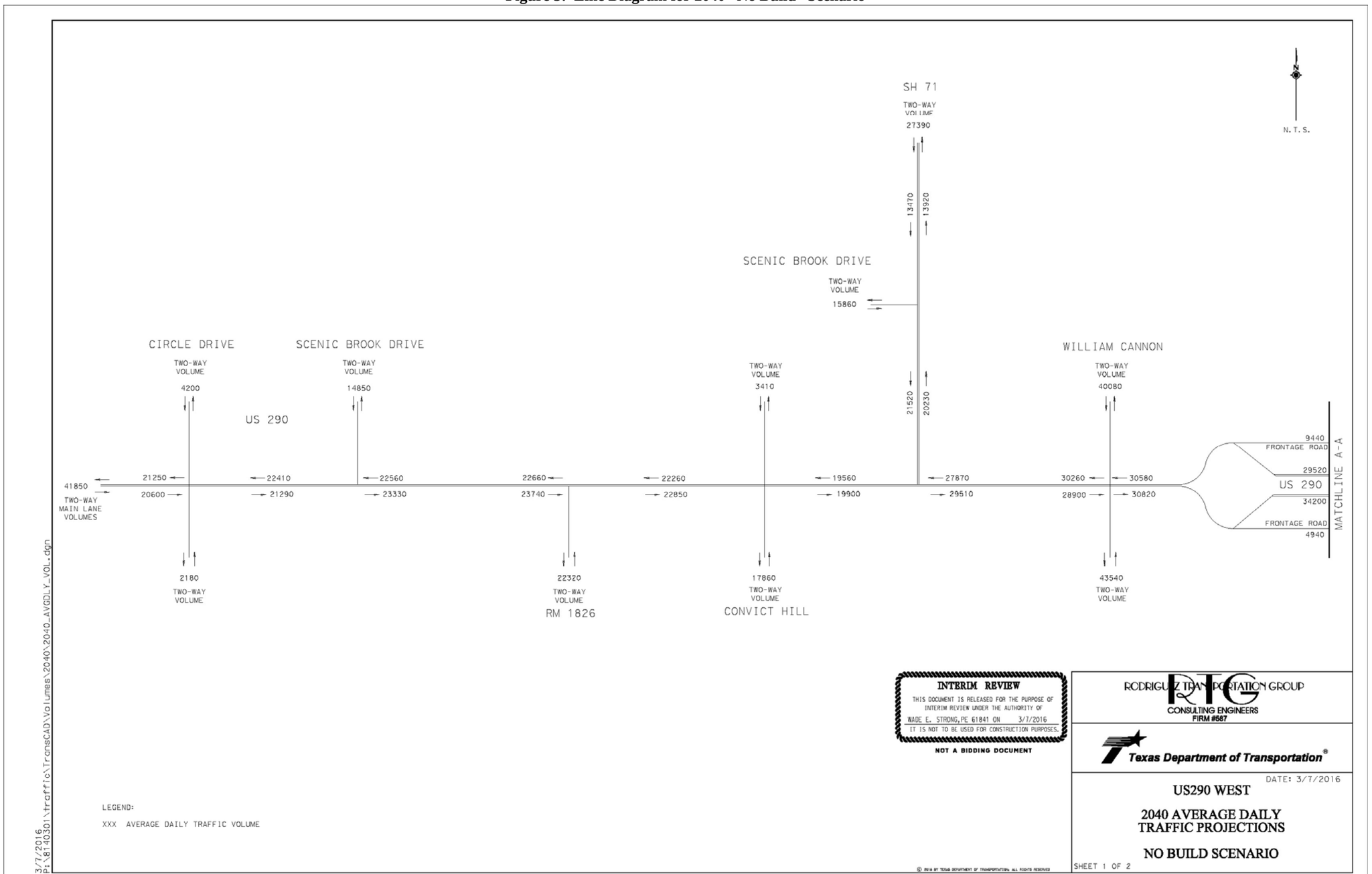
The resulting TOD traffic assignments for the "No Build" and "Build" scenarios were aggregated to forecast the daily traffic volumes. After a review of the model assignments two minor adjustments were made based on engineering judgement. There was a minor adjustment to the assignments that are related to the eastbound braided exit ramp at Monterey Oaks Boulevard under the "No Build" scenario. Under the "No Build" scenario, the existing US 290 freeway section begins near Old Fredericksburg Road. The regional travel demand model assigned traffic (that was destined to use the braided exit ramp) to continue along the eastbound frontage road rather than using the main lanes to by-pass the at-grade signalized intersections. The minor adjustment was made to shift a percentage of traffic from the upstream exit ramp to the eastbound braided exit ramp at Monterey Oaks Boulevard.

Regional models with large traffic analysis zones that can encompass diverse land uses and large geographic areas may have limited local street grids. In this case, the roadway extension of Convict Hill Road, north of US 290 was not included in the regional model. This led to the other minor adjustment to the traffic assignments. This adjustment consisted of taking a small percentage of traffic from the Scenic Brook Drive corridor and assigning the volume to the north leg of Convict Hill Road, which provides access to the Austin Community College Pinnacle Campus.

### 4.4. 2040 "NO BUILD" AND "BUILD" TRAFFIC FORECASTS

The end results of running the traffic assignments and making the minor adjustments discussed previously include daily and peak hour period traffic volume projections. The 3-hour AM and PM volume assignments were divided by 3 to estimate the hourly volumes for the AM and PM peak hour periods. This assumes that in year 2040 the peak hour periods are spread over a longer time period with less peaking conditions. See **Figures 3 thru 5** for the line diagrams with forecasted 2040 daily volumes under the "No Build", Alternative A "Build", and Alternative C "Build scenarios. The forecasted 2040 AM and PM peak hour volumes are provided in **Appendix G**. The limits of the exhibits reach from Circle Drive on the west side of the study area to Loop 1 on the east side of the study area.

**Figure 3: Line Diagram for 2040 "No Build" Scenario**



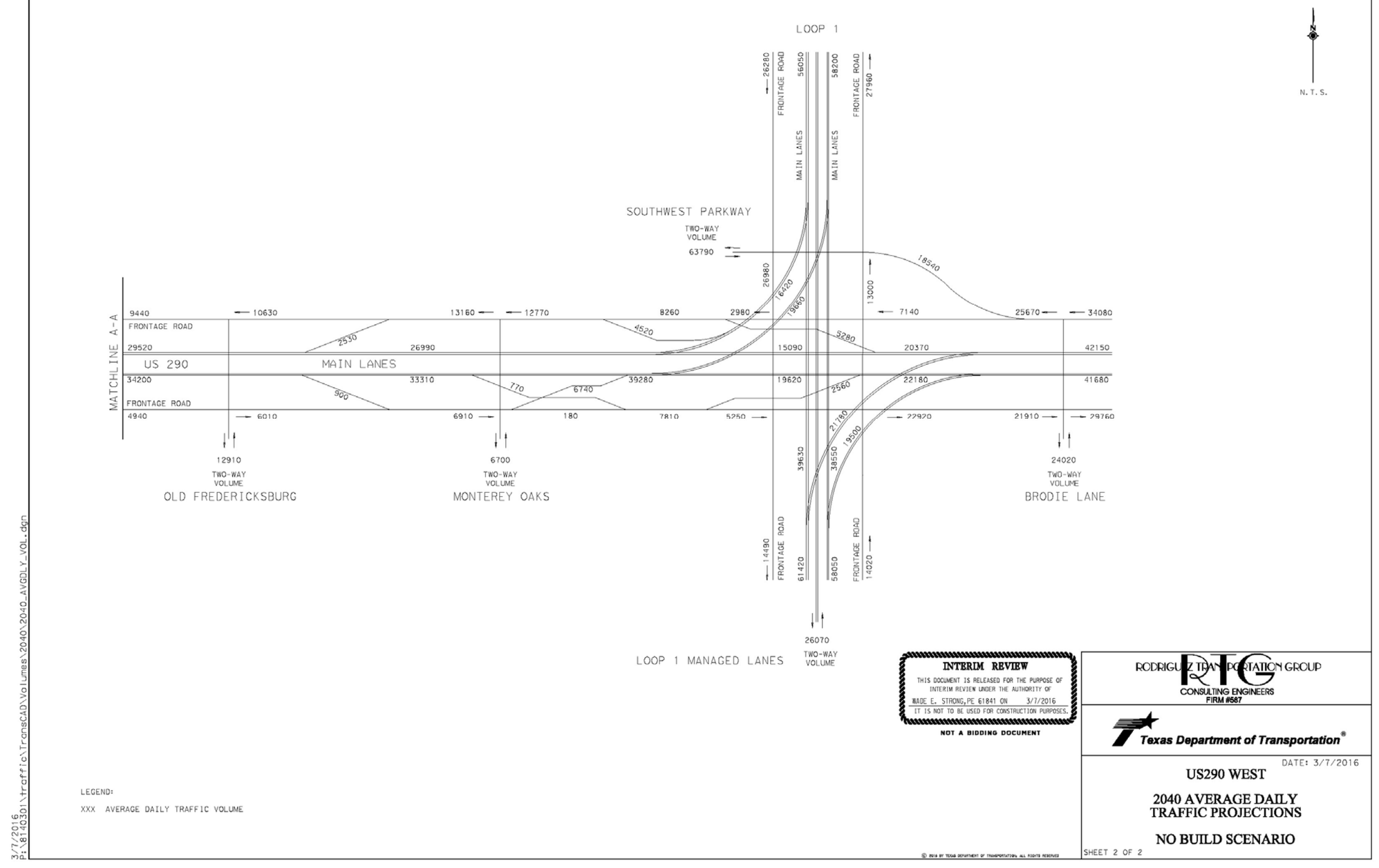
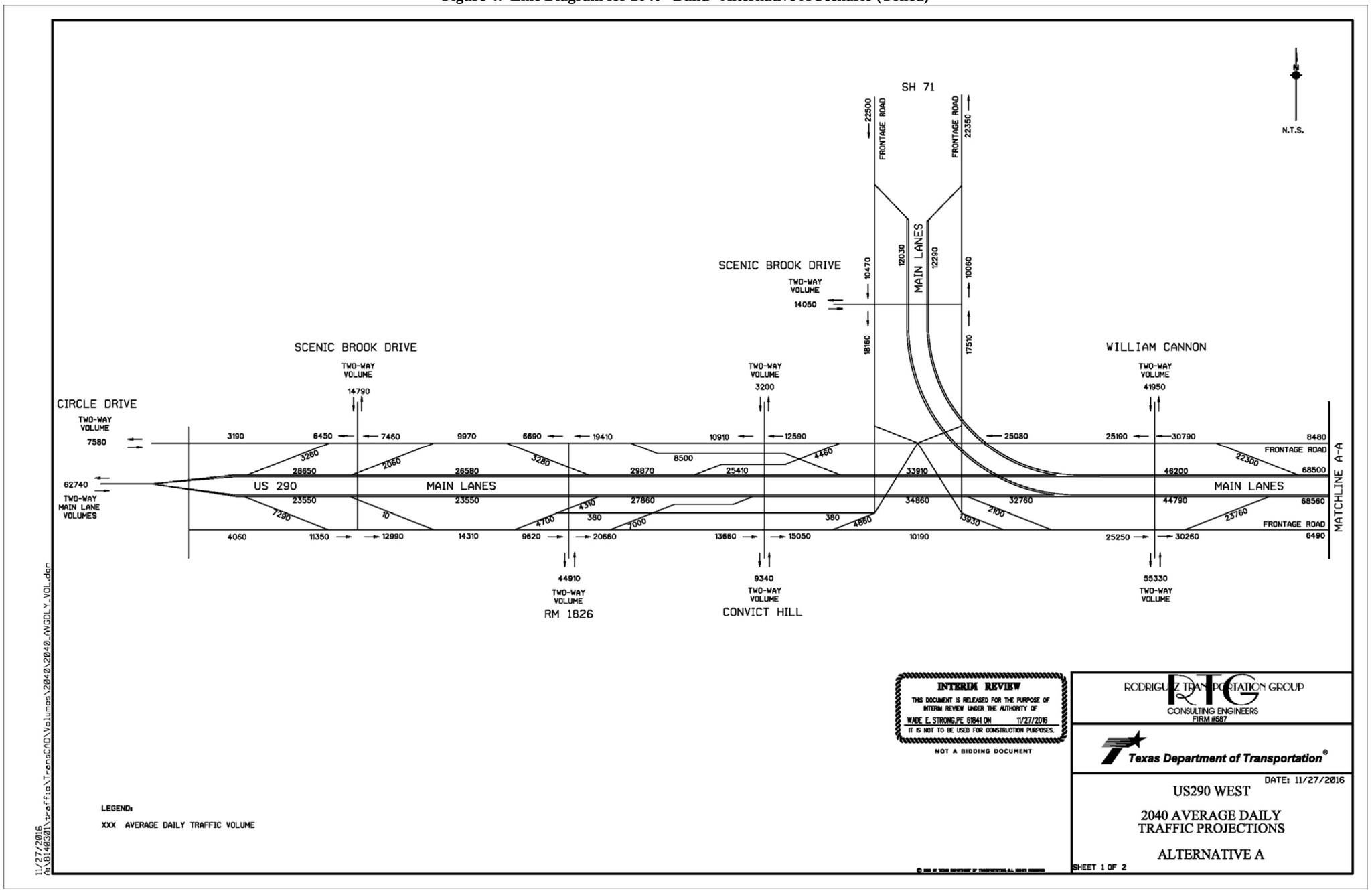

LOOP 1
N. T. S.
SOUTHWEST PARKWAY
TWO-WAY VOLUME
63790
MATCHLINE A-A
US 290
FRONTAGE ROAD
MAIN LANES
9440
10630
13160
12770
8260
2980
7140
25670
34080
29520
26990
15090
20370
42150
34200
33310
39280
19620
22180
41680
4940
6010
6910
180
7810
5250
22920
21910
29760
12910
TWO-WAY VOLUME
OLD FREDERICKSBURG
6700
TWO-WAY VOLUME
MONTEREY OAKS
24020
TWO-WAY VOLUME
BRODIE LANE
26070
TWO-WAY VOLUME
LOOP 1 MANAGED LANES
LEGEND:
XXX AVERAGE DAILY TRAFFIC VOLUME
INTERIM REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG, PE 61841 ON 3/7/2016
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
NOT A BIDDING DOCUMENT
RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587
Texas Department of Transportation
DATE: 3/7/2016
US290 WEST
2040 AVERAGE DAILY TRAFFIC PROJECTIONS
NO BUILD SCENARIO
SHEET 2 OF 2
3/7/2016
P:\8140301\traffic\TransCAD\Volumes\2040\2040_AVGDLY_VOL.dgn

**Figure 4: Line Diagram for 2040 "Build" Alternative A Scenario (Tolled)**



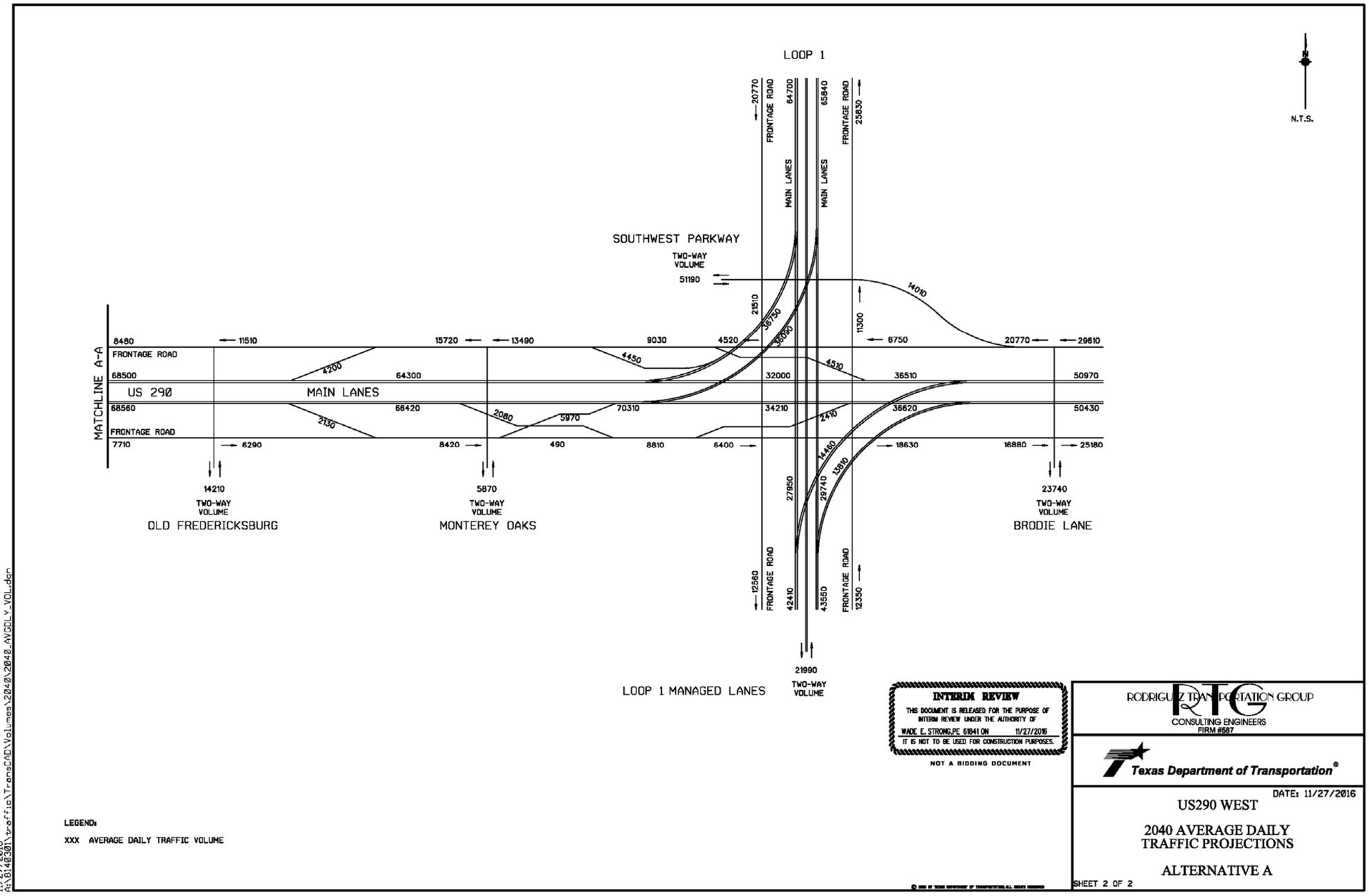
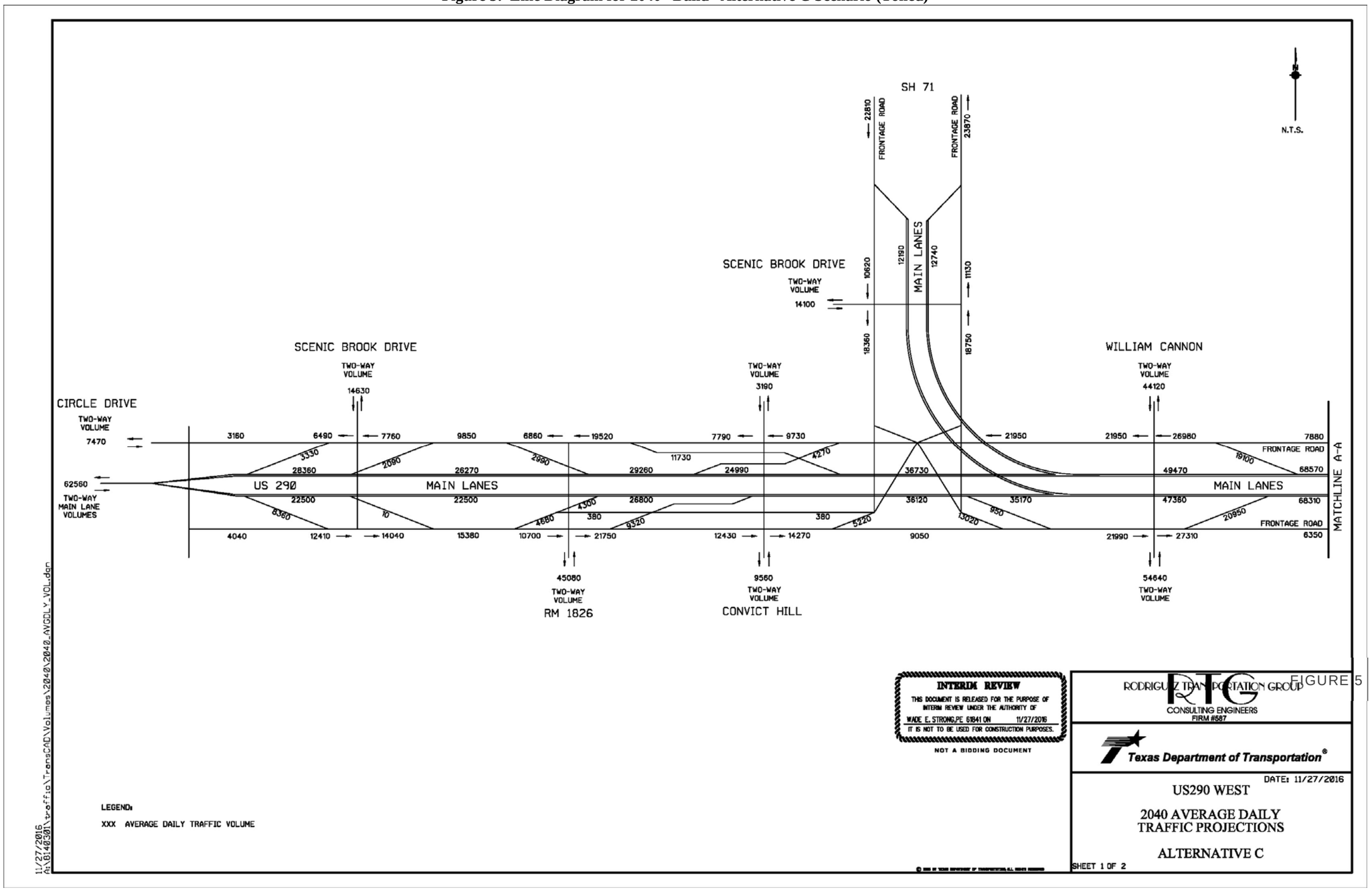

LOOP 1
N.T.S.
SOUTHWEST PARKWAY
TWO-WAY VOLUME
51190
MATCHLINE A-A
FRONTAGE ROAD
US 290
MAIN LANES
FRONTAGE ROAD
MAIN LANES
FRONTAGE ROAD
8480
11510
15720
13490
9030
4520
6750
20770
29610
68500
64300
32000
36510
50970
68560
66420
70310
34210
38620
50430
7710
6290
8420
490
8810
6400
18630
16880
25180
20770
64700
65840
29830
21510
36750
35060
11300
14010
4200
4450
4510
2130
2080
5970
2410
14480
13810
27950
29740
14210
TWO-WAY VOLUME
OLD FREDERICKSBURG
5870
TWO-WAY VOLUME
MONTEREY OAKS
23740
TWO-WAY VOLUME
BRODIE LANE
12560
42410
43550
12330
21990
TWO-WAY VOLUME
LOOP 1 MANAGED LANES
INTERIM REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG,PE 91841 ON 11/27/2016
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
NOT A BIDDING DOCUMENT
RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587
Texas Department of Transportation®
DATE: 11/27/2016
US290 WEST
2040 AVERAGE DAILY TRAFFIC PROJECTIONS
ALTERNATIVE A
SHEET 2 OF 2
LEGEND:
XXX AVERAGE DAILY TRAFFIC VOLUME
11/27/2016
A:\6140301\traffic\TransCAD\Volumes\2040\2040_AVGDLY_VOL.dgn

**Figure 5: Line Diagram for 2040 "Build" Alternative C Scenario (Tolled)**



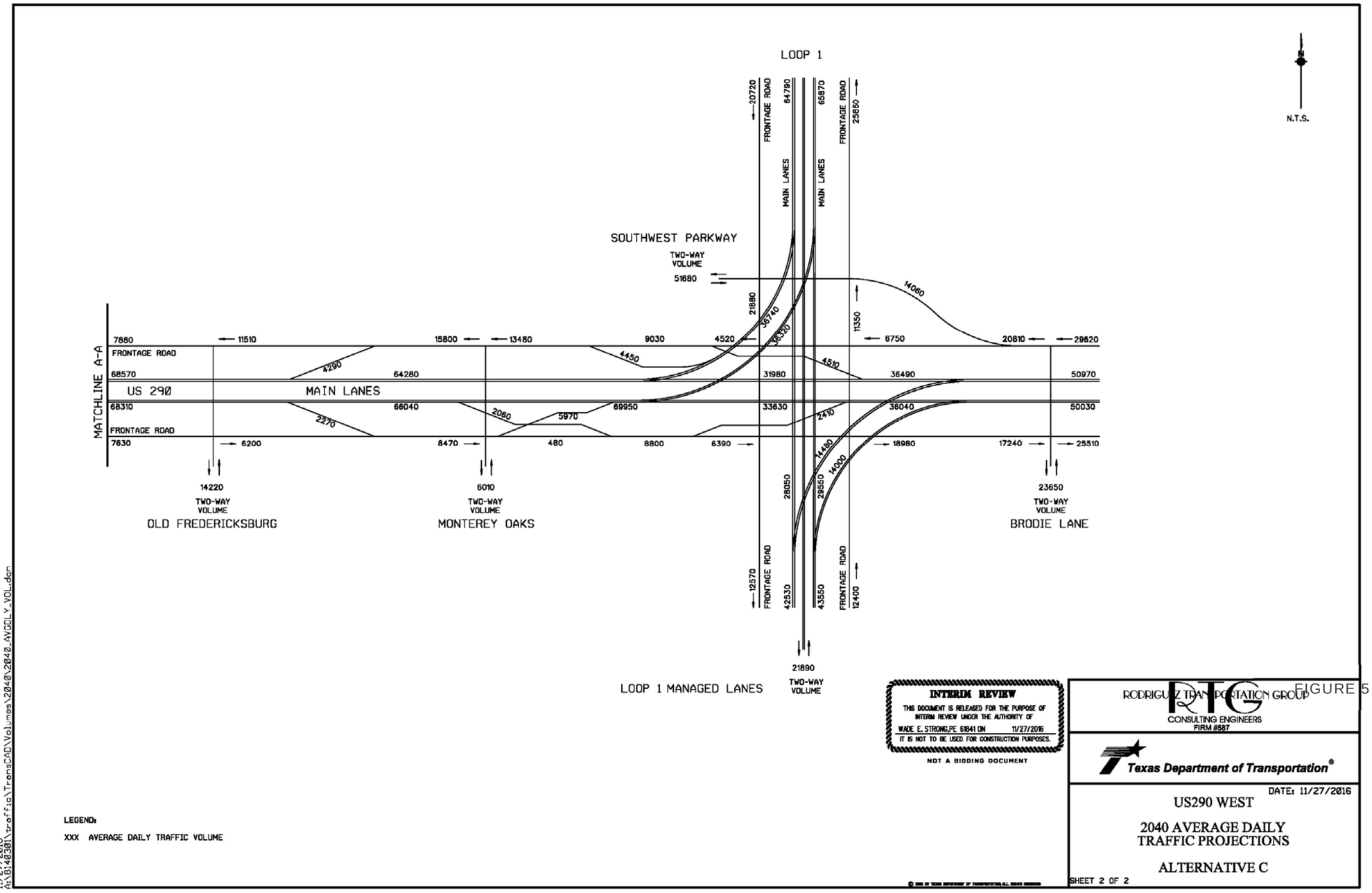

LOOP 1
N.T.S.
SOUTHWEST PARKWAY
TWO-WAY VOLUME
51680
FRONTAGE ROAD
MAIN LANES
MAIN LANES
FRONTAGE ROAD
20720
64790
65870
23860
21880
36740
38350
11350
14060
MATCHLINE A-A
7880
11510
15800
13480
9030
4520
6750
20810
29620
FRONTAGE ROAD
68570
4290
64280
4450
31980
4510
36490
50970
US 290
MAIN LANES
68310
66040
2060
5970
69950
33630
2410
36040
50030
FRONTAGE ROAD
2270
7630
6200
8470
480
8800
6390
18980
17240
25510
14220
TWO-WAY VOLUME
OLD FREDERICKSBURG
6010
TWO-WAY VOLUME
MONTEREY OAKS
28050
14480
14000
29550
23650
TWO-WAY VOLUME
BRODIE LANE
12570
FRONTAGE ROAD
42530
43550
FRONTAGE ROAD
12400
21890
TWO-WAY VOLUME
LOOP 1 MANAGED LANES
INTERIM REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG,PE 91841 ON 11/27/2016
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
NOT A BIDDING DOCUMENT
LEGEND:
XXX AVERAGE DAILY TRAFFIC VOLUME
11/27/2016
At\61402301\traffic\TransCAD\Volumes\2040\2040_AVGDLY_VOL.dgn
RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587
Texas Department of Transportation
DATE: 11/27/2016
US290 WEST
2040 AVERAGE DAILY TRAFFIC PROJECTIONS
ALTERNATIVE C
SHEET 2 OF 2

FIGURE 5

# 5. NETWORK RESULTS AND CONCLUSIONS

This report documented the methodology for forecasting the 2040 "No Build" and "Build" traffic projections of the reconstruction of the US 290 and SH 71 corridors located in the southwest region of Austin, Texas. Alternatives A and C were each analyzed under the 2040 "Build" scenario, while the 2040 "No Build" alternative includes the existing roadway facilities within the study corridors. The traffic projections were forecasted by applying the updated 2040 CAMPO travel demand model, which included TOD traffic assignments.

The final step in this forecasting study included summarizing some network results within the surrounding study area. The network results include statistics for vehicle miles of travels (VMT), vehicle hours of travel (VHT), and average speeds. The limits of the network statistics are illustrated in an exhibit provided in **Appendix H**. A summary of the study area network results are provided in **Table 9**.

**Table 9. Summary of 2040 Network Results**

| Network Statistic | No Build | Alternative A | Alternative C |
|---|---|---|---|
| Total Daily VMT | 4,930,014 | 5,032,802 | 5,017,448 |
| **VMT Percent Difference to No Build** | | **2.1%** | **1.8%** |
| Total Daily VHT | 175,557 | 154,506 | 154,044 |
| **VHT Percent Difference to No Build** | | **-12.0%** | **-12.3%** |
| Average Speed | 33.3 | 35.7 | 35.7 |
| **Average Speed Percent Difference to No Build** | | **7.3%** | **7.3%** |

The results indicate that Alternative A and Alternative C provide similar results. There is an approximate 2% increase in VMT due to traffic along the US 290 and SH 71 study corridors utilizing a higher functional classification under Alternative A and C as compared to the "No Build" condition. The increased capacity and more efficient operation of alternatives A and C result in approximately 12% reduction in VHT. The improvements in both alternatives provide a positive increase in overall average speeds of about 7%.

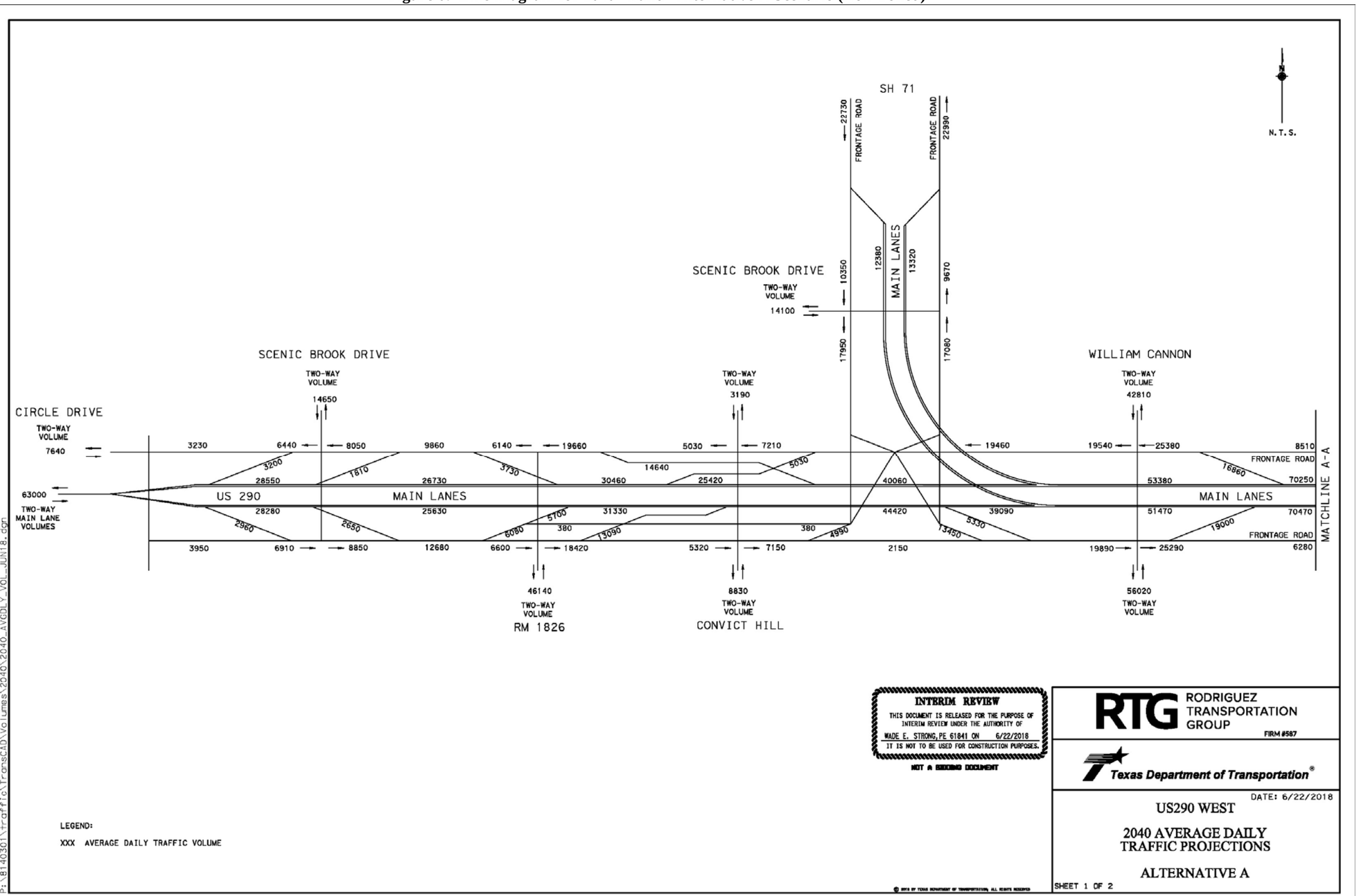
## 5.1. PREFERRED ALTERNATIVE

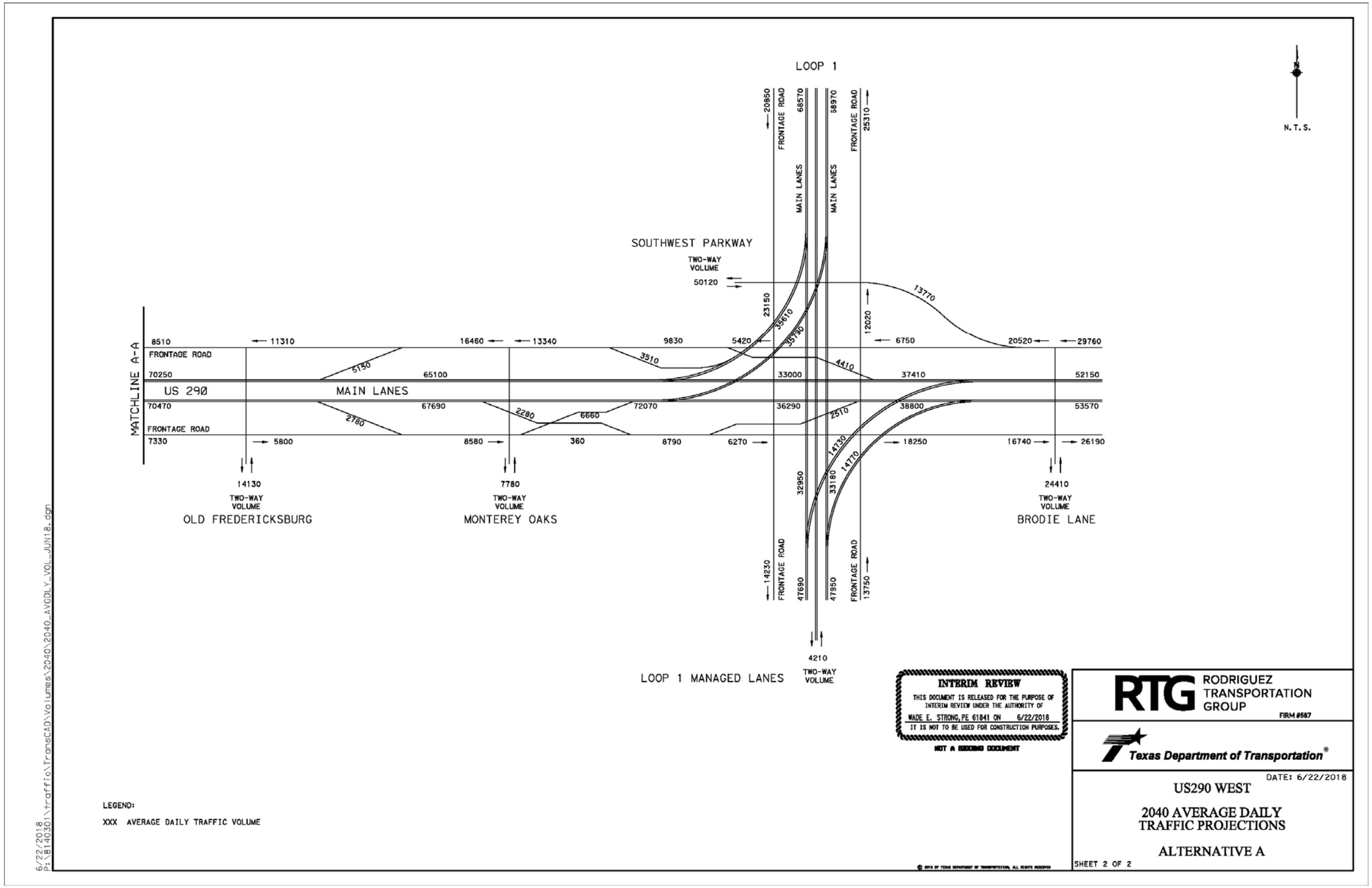
Based on the results found in this traffic forecasting study as well as the overall environmental analysis, Alternative A was chosen as the preferred option. One of the principle reasons Alternative A was chosen was that it provided better access to the traveling public as compared to Alternative C. Due to a change in TxDOT's funding mechanisms in 2017, the direction to proceed with Alternative A under non-tolled operations was given. Therefore, additional TOD traffic assignments were completed with all toll costs along the US 290 and SH 71 study corridors removed. There were no other changes to the previous Alternative A "Build" scenario except for the toll cost removal.

The updated non-tolled Alternative A forecasts showed an insignificant increase of total traffic along US 290. At William Cannon Drive, the 2040 projected total volume (main lanes and frontage roads) on US 290 increased from approximately 141,400 vpd to 144,300 vpd, which represents an increase of 2%. This indicates that there would be relatively insignificant change in the comparison between the "No Build" and "Build" operations found in the network results under non-tolled conditions. In addition, the change to non-tolled operation shifted a portion of traffic from the frontage roads to the main lanes. At William Cannon Drive, the percentage of traffic that the main lanes are projected to carry would increase from approximately 64% to 73% under the non-tolled operation.

See **Figure 6** for the latest line diagrams with forecasted 2040 daily volumes under the preferred non-tolled Alternative A "Build" scenarios. The forecasted 2040 AM and PM peak hour volumes for the non-tolled Alternative A are provided in **Appendix I**. The recent exhibits for Alternative A with the proposed geometry and details for the environmental study is provided in **Appendix J**.

**Figure 6: Line Diagram for 2040 "Build" Alternative A Scenario (Non-Tolled)**



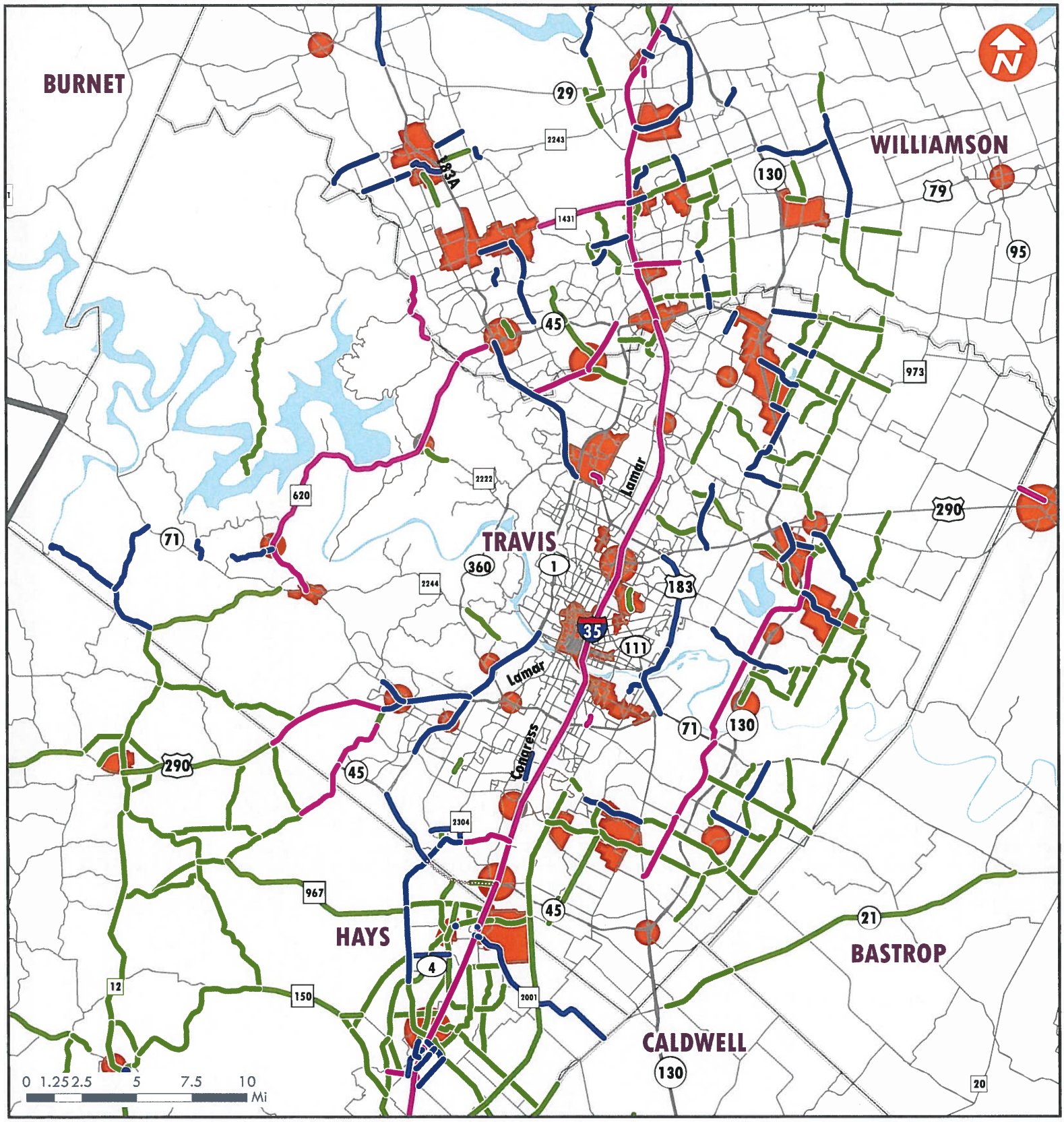

LOOP 1
N
N. T. S.
SOUTHWEST PARKWAY
TWO-WAY VOLUME
50120
MATCHLINE A-A
FRONTAGE ROAD
MAIN LANES
US 290
8510
11310
16460
13340
9830
5420
20850
68570
58970
25310
12020
6750
20520
29760
13770
23150
35610
35790
3510
5150
4410
70250
65100
33000
37410
52150
70470
67690
72070
36290
38800
53570
2780
2280
6660
2510
7330
5800
8580
360
8790
6270
18250
16740
26190
14730
14770
33180
32950
14130
TWO-WAY VOLUME
OLD FREDERICKSBURG
7780
TWO-WAY VOLUME
MONTEREY OAKS
24410
TWO-WAY VOLUME
BRODIE LANE
14230
47690
47950
13750
4210
TWO-WAY VOLUME
LOOP 1 MANAGED LANES
INTERIM REVIEW
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG, PE 61841 ON 6/22/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
NOT A BIDDING DOCUMENT
RODRIGUEZ TRANSPORTATION GROUP
FIRM #587
Texas Department of Transportation
DATE: 6/22/2018
US290 WEST
2040 AVERAGE DAILY TRAFFIC PROJECTIONS
ALTERNATIVE A
SHEET 2 OF 2
LEGEND:
XXX AVERAGE DAILY TRAFFIC VOLUME
6/22/2018
P:\8140301\traffic\TransCAD\Volumes\2040\2040_AVGDLY_VOL_JUN18.dgn

# APPENDIX A

CAMPO'S 2040 PROGRAMMED PROJECTS EXHIBIT

# Road Projects 2040 with Centers

Travis County
Date: 9/8/2015




This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Revised Plan Maps\CAMPO 2040 Plan Road Projects with Centers.mxd

- Committed
- Design
- Local
- Preferred
- 2040 Plan Centers

CAMPO

# APPENDIX B

TURN PENALTIES

| FROM_ID | TO_ID | PENALTY |
|---|---|---|
| 5890 | 6045 | -- |
| 6045 | 6046 | -- |
| 6052 | 6045 | -- |
| 21497 | 21495 | -- |
| 18240 | 15262 | -- |
| 14775 | 14776 | -- |
| 14777 | 14774 | -- |
| 18213 | 18192 | -- |
| 1329 | 20826 | -- |
| 20823 | 20814 | -- |
| 20831 | 20834 | -- |
| 3992 | 20275 | -- |
| 20278 | 20273 | -- |
| 14768 | 14765 | -- |
| 14768 | 4184 | -- |
| 4184 | 14765 | -- |
| 14766 | 4184 | -- |
| 14766 | 14767 | -- |
| 12723 | 12714 | -- |
| 12750 | 12749 | -- |
| 15002 | 15003 | -- |
| 12971 | 12970 | -- |
| 12971 | 18371 | -- |
| 12571 | 12544 | -- |
| 15031 | 15023 | -- |
| 14116 | 14117 | -- |
| 14118 | 14115 | -- |
| 14118 | 14114 | -- |
| 4073 | 14095 | -- |
| 5422 | 5425 | -- |
| 5659 | 5656 | -- |
| 5671 | 5675 | -- |
| 14485 | 14487 | -- |
| 5589 | 14488 | -- |
| 22409 | 20752 | -- |
| 4784 | 4780 | -- |
| 4878 | 20372 | -- |
| 14469 | 14471 | -- |
| 6004 | 5941 | -- |
| 5997 | 5942 | -- |
| 6143 | 6133 | -- |
| 4815 | 4816 | -- |
| 3394 | 3309 | -- |
| 3394 | 3395 | -- |
| 3312 | 3309 | -- |
| 3312 | 3395 | -- |
| 15185 | 15186 | -- |
| 15222 | 13674 | -- |
| 15219 | 15221 | -- |
| 15439 | 20922 | -- |
| 15043 | 15044 | -- |
| 7663 | 7665 | -- |
| 16959 | 16957 | -- |
| 21515 | 14077 | -- |
| 6398 | 6385 | -- |
| 20951 | 20952 | -- |
| 20951 | 20959 | -- |
| 20955 | 20956 | -- |
| 6376 | 6375 | -- |
| 6254 | 6249 | -- |
| 4787 | 17613 | -- |
| 20545 | 20544 | -- |
| 12828 | 12831 | -- |

| FROM_ID | TO_ID | PENALTY |
|---|---|---|
| 12829 | 12833 | -- |
| 14775 | 12503 | -- |
| 14777 | 14774 | -- |
| 12503 | 14774 | -- |
| 25213 | 25209 | -- |
| 25213 | 25215 | -- |
| 25220 | 25219 | -- |
| 25220 | 25209 | -- |
| 2865 | 25219 | -- |
| 2865 | 25215 | -- |

# APPENDIX C

SPEED CAPACITY LOOK-UP TABLES

| FUNCL | ATYPE | HWY_SPEED | CAP_24HR | CAP_PEAK | ALPHA | BETA | TRN_FACTOR |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 15.00 | 99999 | 49999 | 0.15 | 4.00 | 1.00 |
| 0 | 2 | 20.00 | 99999 | 49999 | 0.15 | 4.00 | 1.00 |
| 0 | 3 | 25.00 | 99999 | 49999 | 0.15 | 4.00 | 1.00 |
| 0 | 4 | 30.00 | 99999 | 49999 | 0.15 | 4.00 | 1.00 |
| 0 | 5 | 40.00 | 99999 | 49999 | 0.15 | 4.00 | 1.00 |
| 1 | 1 | 62.00 | 28200 | 2170 | 1.00 | 6.00 | 0.80 |
| 1 | 2 | 65.00 | 25100 | 2170 | 1.00 | 6.00 | 0.80 |
| 1 | 3 | 72.00 | 22500 | 2160 | 1.00 | 6.00 | 0.80 |
| 1 | 4 | 72.00 | 20200 | 2150 | 1.00 | 6.00 | 0.80 |
| 1 | 5 | 76.00 | 16700 | 2130 | 1.00 | 6.00 | 0.80 |
| 2 | 1 | 55.00 | 28200 | 2170 | 1.00 | 6.00 | 0.80 |
| 2 | 2 | 60.00 | 25100 | 2170 | 1.00 | 6.00 | 0.80 |
| 2 | 3 | 63.00 | 22500 | 2160 | 1.00 | 6.00 | 0.80 |
| 2 | 4 | 68.00 | 20200 | 2150 | 1.00 | 6.00 | 0.80 |
| 2 | 5 | 72.00 | 16700 | 2130 | 1.00 | 6.00 | 0.80 |
| 3 | 1 | 40.00 | 13300 | 1170 | 1.00 | 6.00 | 0.35 |
| 3 | 2 | 44.00 | 11800 | 1150 | 1.00 | 6.00 | 0.40 |
| 3 | 3 | 47.00 | 10400 | 1130 | 1.00 | 6.00 | 0.40 |
| 3 | 4 | 54.00 | 9200 | 1090 | 1.00 | 6.00 | 0.40 |
| 3 | 5 | 69.00 | 7000 | 980 | 1.00 | 6.00 | 0.40 |
| 4 | 1 | 28.00 | 9400 | 900 | 1.30 | 4.00 | 0.30 |
| 4 | 2 | 38.00 | 9000 | 890 | 1.30 | 4.00 | 0.35 |
| 4 | 3 | 44.00 | 8000 | 870 | 1.30 | 4.00 | 0.35 |
| 4 | 4 | 55.00 | 7000 | 840 | 1.30 | 4.00 | 0.35 |
| 4 | 5 | 63.00 | 5300 | 760 | 1.30 | 4.00 | 0.35 |
| 5 | 1 | 26.00 | 9400 | 900 | 1.30 | 4.00 | 0.30 |
| 5 | 2 | 35.00 | 9000 | 890 | 1.30 | 4.00 | 0.35 |
| 5 | 3 | 43.00 | 8000 | 870 | 1.30 | 4.00 | 0.35 |
| 5 | 4 | 52.00 | 7000 | 840 | 1.30 | 4.00 | 0.35 |
| 5 | 5 | 59.00 | 5300 | 760 | 1.30 | 4.00 | 0.35 |
| 6 | 1 | 23.00 | 9100 | 770 | 1.30 | 4.00 | 0.30 |
| 6 | 2 | 29.00 | 8200 | 760 | 1.30 | 4.00 | 0.35 |
| 6 | 3 | 38.00 | 7300 | 750 | 1.30 | 4.00 | 0.35 |
| 6 | 4 | 47.00 | 6300 | 720 | 1.30 | 4.00 | 0.35 |
| 6 | 5 | 53.00 | 4800 | 660 | 1.30 | 4.00 | 0.35 |
| 7 | 1 | 25.00 | 8100 | 810 | 1.50 | 4.00 | 0.30 |
| 7 | 2 | 33.00 | 7700 | 800 | 1.50 | 4.00 | 0.35 |
| 7 | 3 | 39.00 | 6900 | 780 | 1.50 | 4.00 | 0.35 |
| 7 | 4 | 46.00 | 6000 | 760 | 1.50 | 4.00 | 0.35 |
| 7 | 5 | 59.00 | 4600 | 690 | 1.50 | 4.00 | 0.35 |
| 8 | 1 | 24.00 | 8100 | 810 | 1.50 | 4.00 | 0.30 |
| 8 | 2 | 31.00 | 7700 | 800 | 1.50 | 4.00 | 0.35 |
| 8 | 3 | 37.00 | 6900 | 780 | 1.50 | 4.00 | 0.35 |
| 8 | 4 | 46.00 | 6000 | 760 | 1.50 | 4.00 | 0.35 |
| 8 | 5 | 56.00 | 4600 | 690 | 1.50 | 4.00 | 0.35 |
| 9 | 1 | 22.00 | 7800 | 700 | 1.50 | 4.00 | 0.30 |
| 9 | 2 | 28.00 | 7000 | 690 | 1.50 | 4.00 | 0.35 |
| 9 | 3 | 33.00 | 6200 | 670 | 1.50 | 4.00 | 0.35 |
| 9 | 4 | 41.00 | 5500 | 660 | 1.50 | 4.00 | 0.35 |
| 9 | 5 | 51.00 | 4200 | 610 | 1.50 | 4.00 | 0.35 |
| 10 | 1 | 23.00 | 6500 | 680 | 0.50 | 5.30 | 0.30 |
| 10 | 2 | 28.00 | 6000 | 670 | 0.50 | 5.30 | 0.50 |
| 10 | 3 | 33.00 | 5700 | 650 | 0.50 | 5.30 | 0.50 |
| 10 | 4 | 43.00 | 5200 | 640 | 0.50 | 5.30 | 0.50 |
| 10 | 5 | 50.00 | 2500 | 500 | 0.50 | 5.30 | 0.60 |
| 11 | 1 | 23.00 | 6500 | 680 | 0.50 | 5.30 | 0.30 |
| 11 | 2 | 28.00 | 6000 | 670 | 0.50 | 5.30 | 0.50 |
| 11 | 3 | 33.00 | 5700 | 650 | 0.50 | 5.30 | 0.50 |
| 11 | 4 | 40.00 | 5200 | 640 | 0.50 | 5.30 | 0.50 |
| 11 | 5 | 47.00 | 2500 | 500 | 0.50 | 5.30 | 0.60 |
| 12 | 1 | 22.00 | 6500 | 680 | 0.50 | 5.30 | 0.30 |

| FUNCL | ATYPE | HWY_SPEED | CAP_24HR | CAP_PEAK | ALPHA | BETA | TRN_FACTOR |
|---|---|---|---|---|---|---|---|
| 12 | 2 | 27.00 | 6000 | 670 | 0.50 | 5.30 | 0.50 |
| 12 | 3 | 32.00 | 5700 | 650 | 0.50 | 5.30 | 0.50 |
| 12 | 4 | 37.00 | 5200 | 640 | 0.50 | 5.30 | 0.50 |
| 12 | 5 | 44.00 | 2500 | 500 | 0.50 | 5.30 | 0.60 |
| 13 | 1 | 21.00 | 3800 | 410 | 0.50 | 5.30 | 0.30 |
| 13 | 2 | 26.00 | 3500 | 400 | 0.50 | 5.30 | 0.50 |
| 13 | 3 | 31.00 | 3100 | 390 | 0.50 | 5.30 | 0.50 |
| 13 | 4 | 36.00 | 2800 | 380 | 0.50 | 5.30 | 0.50 |
| 13 | 5 | 49.00 | 2100 | 350 | 0.50 | 5.30 | 0.60 |
| 14 | 1 | 21.00 | 3800 | 410 | 0.50 | 5.30 | 0.30 |
| 14 | 2 | 25.00 | 3500 | 400 | 0.50 | 5.30 | 0.50 |
| 14 | 3 | 30.00 | 3100 | 390 | 0.50 | 5.30 | 0.50 |
| 14 | 4 | 35.00 | 2800 | 380 | 0.50 | 5.30 | 0.50 |
| 14 | 5 | 47.00 | 2100 | 350 | 0.50 | 5.30 | 0.60 |
| 15 | 1 | 20.00 | 3800 | 410 | 0.50 | 5.30 | 0.30 |
| 15 | 2 | 24.00 | 3500 | 400 | 0.50 | 5.30 | 0.50 |
| 15 | 3 | 29.00 | 3100 | 390 | 0.50 | 5.30 | 0.50 |
| 15 | 4 | 34.00 | 2800 | 380 | 0.50 | 5.30 | 0.50 |
| 15 | 5 | 45.00 | 2100 | 350 | 0.50 | 5.30 | 0.60 |
| 16 | 1 | 45.00 | 28150 | 1971 | 0.15 | 4.00 | 0.80 |
| 16 | 2 | 50.00 | 26300 | 1971 | 0.15 | 4.00 | 0.80 |
| 16 | 3 | 55.00 | 24650 | 1971 | 0.15 | 4.00 | 0.80 |
| 16 | 4 | 60.00 | 21600 | 1945 | 0.15 | 4.00 | 0.80 |
| 16 | 5 | 65.00 | 17750 | 1907 | 0.15 | 4.00 | 0.80 |
| 17 | 1 | 26.00 | 22350 | 1565 | 0.15 | 4.00 | 0.80 |
| 17 | 2 | 30.00 | 20850 | 1565 | 0.15 | 4.00 | 0.80 |
| 17 | 3 | 35.00 | 19550 | 1565 | 0.15 | 4.00 | 0.80 |
| 17 | 4 | 42.00 | 17150 | 1544 | 0.15 | 4.00 | 0.80 |
| 17 | 5 | 54.00 | 14100 | 1514 | 0.15 | 4.00 | 0.80 |
| 18 | 1 | 37.00 | 8100 | 810 | 0.50 | 4.00 | 0.30 |
| 18 | 2 | 43.00 | 7700 | 800 | 0.50 | 4.00 | 0.35 |
| 18 | 3 | 47.00 | 6900 | 780 | 0.50 | 4.00 | 0.35 |
| 18 | 4 | 53.00 | 6000 | 760 | 0.50 | 4.00 | 0.35 |
| 18 | 5 | 58.00 | 4600 | 690 | 0.50 | 4.00 | 0.35 |
| 19 | 1 | 60.00 | 28200 | 2170 | 1.00 | 6.00 | 0.80 |
| 19 | 2 | 63.00 | 25100 | 2170 | 1.00 | 6.00 | 0.80 |
| 19 | 3 | 65.00 | 22500 | 2160 | 1.00 | 6.00 | 0.80 |
| 19 | 4 | 70.00 | 20200 | 2150 | 1.00 | 6.00 | 0.80 |
| 19 | 5 | 75.00 | 16700 | 2130 | 1.00 | 6.00 | 0.80 |
| 20 | 1 | 60.00 | 28150 | 1971 | 0.15 | 4.00 | 0.35 |
| 20 | 2 | 63.00 | 26300 | 1971 | 0.15 | 4.00 | 0.40 |
| 20 | 3 | 65.00 | 24650 | 1971 | 0.15 | 4.00 | 0.40 |
| 20 | 4 | 70.00 | 21600 | 1945 | 0.15 | 4.00 | 0.40 |
| 20 | 5 | 75.00 | 17750 | 1907 | 0.15 | 4.00 | 0.40 |
| 21 | 1 | 70.00 | 28200 | 2170 | 1.00 | 6.00 | 0.80 |
| 21 | 2 | 73.00 | 25100 | 2170 | 1.00 | 6.00 | 0.80 |
| 21 | 3 | 76.00 | 22500 | 2160 | 1.00 | 6.00 | 0.80 |
| 21 | 4 | 79.00 | 20200 | 2150 | 1.00 | 6.00 | 0.80 |
| 21 | 5 | 82.00 | 16700 | 2130 | 1.00 | 6.00 | 0.80 |
| 22 | 1 | 71.00 | 28200 | 2170 | 1.00 | 6.00 | 0.80 |
| 22 | 2 | 75.00 | 25100 | 2170 | 1.00 | 6.00 | 0.80 |
| 22 | 3 | 79.00 | 22500 | 2160 | 1.00 | 6.00 | 0.80 |
| 22 | 4 | 83.00 | 20200 | 2150 | 1.00 | 6.00 | 0.80 |
| 22 | 5 | 87.00 | 16700 | 2130 | 1.00 | 6.00 | 0.80 |
| 23 | 1 | 26.00 | 28150 | 1971 | 0.15 | 4.00 | 0.80 |
| 23 | 2 | 30.00 | 26300 | 1971 | 0.15 | 4.00 | 0.80 |
| 23 | 3 | 35.00 | 24650 | 1971 | 0.15 | 4.00 | 0.80 |
| 23 | 4 | 35.00 | 21600 | 1945 | 0.15 | 4.00 | 0.80 |
| 23 | 5 | 42.00 | 17750 | 1907 | 0.15 | 4.00 | 0.80 |
| 24 | 1 | 45.00 | 28150 | 1971 | 0.15 | 4.00 | 0.80 |
| 24 | 2 | 50.00 | 26300 | 1971 | 0.15 | 4.00 | 0.80 |

| FUNCL | ATYPE | HWY_SPEED | CAP_24HR | CAP_PEAK | ALPHA | BETA | TRN_FACTOR |
|---|---|---|---|---|---|---|---|
| 24 | 3 | 55.00 | 24650 | 1971 | 0.15 | 4.00 | 0.80 |
| 24 | 4 | 55.00 | 21600 | 1945 | 0.15 | 4.00 | 0.80 |
| 24 | 5 | 60.00 | 17750 | 1907 | 0.15 | 4.00 | 0.80 |

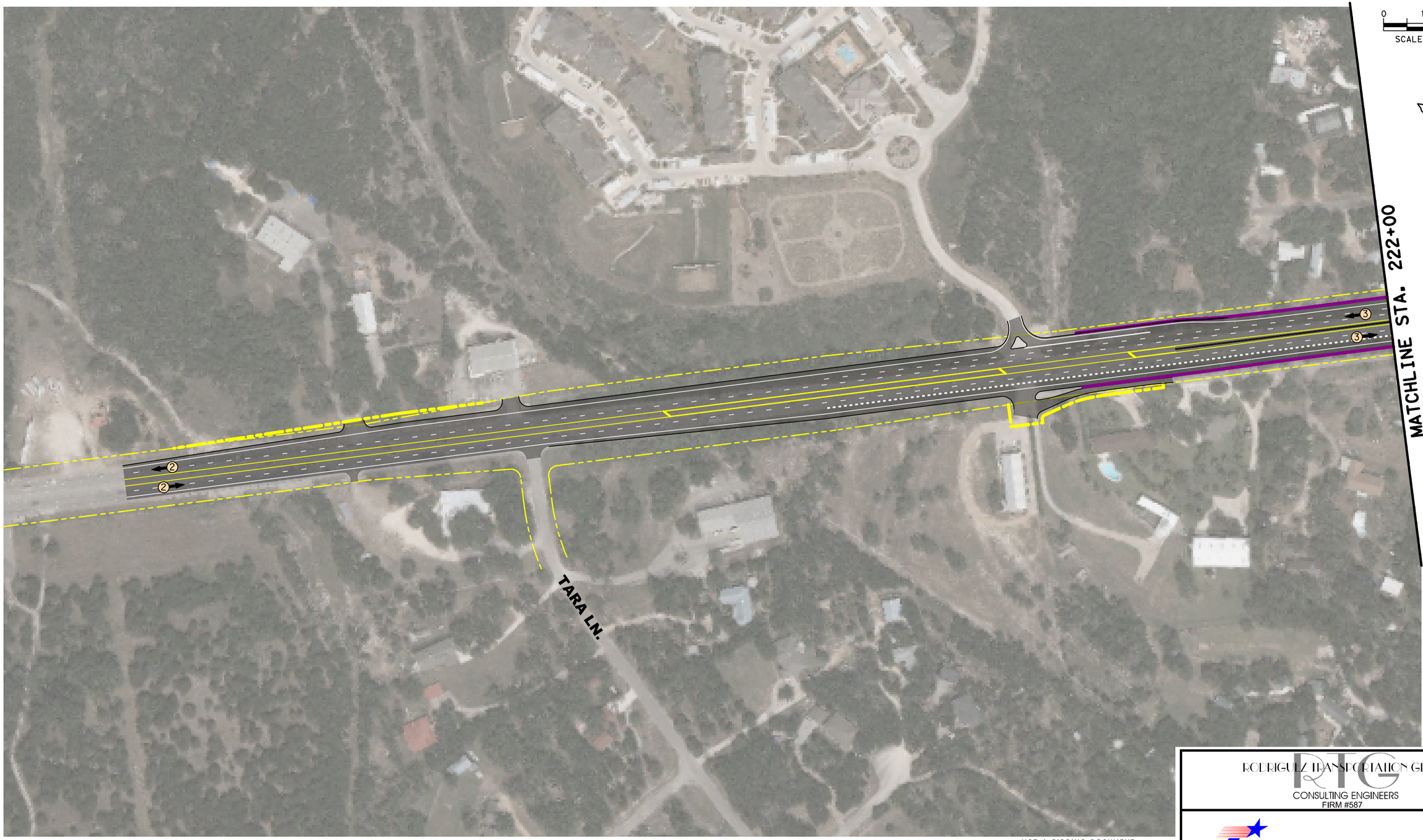
# APPENDIX D

DAMPENING FACTORS

| Facility | AutoDampValue | TruckDampValue |
|---|---|---|
| Default | 1.0000 | 1.0000 |
| 183A | 0.4500 | 0.5500 |
| IH 35 Managed Lane | 0.5500 | 0.5500 |
| IH 35 N Managed Lane | 0.5500 | 0.5500 |
| IH 35 S Managed Lane | 0.3000 | 0.4500 |
| Loop 1 N | 0.5500 | 0.5500 |
| Loop 1 N ML | 0.5500 | 0.5500 |
| Loop 1 S ML | 0.5500 | 0.5500 |
| LW01 | 0.4500 | 0.5500 |
| SH 130 Seg 1 | 0.3000 | 0.4500 |
| SH 130 Seg 2 | 0.3000 | 0.4500 |
| SH 130 Seg 3 | 0.3000 | 0.4500 |
| SH 130 Seg 4 | 0.3000 | 0.4500 |
| SH 130 Seg 5 & 6 | 0.3000 | 0.4500 |
| SH 45 N Seg 1 | 0.3000 | 0.5500 |
| SH 45 N Seg 2 | 0.3000 | 0.5500 |
| SH 45 N Seg 3 | 0.3000 | 0.5500 |
| SH 45 N Seg 4 | 0.3000 | 0.5500 |
| SH 45 SE | 0.3000 | 0.4500 |
| SH 45 SW | 0.3000 | 0.4500 |
| SH 71 E | 0.4500 | 0.5500 |
| SH 71 W | 0.4500 | 0.5500 |
| US 183 N ML | 0.5500 | 0.5500 |
| US 183 S | 0.4500 | 0.5500 |
| US 290 E | 0.4500 | 0.5500 |
| US 290 W | 0.4500 | 0.5500 |

# APPENDIX E

ALTERNATIVE A EXHIBITS




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

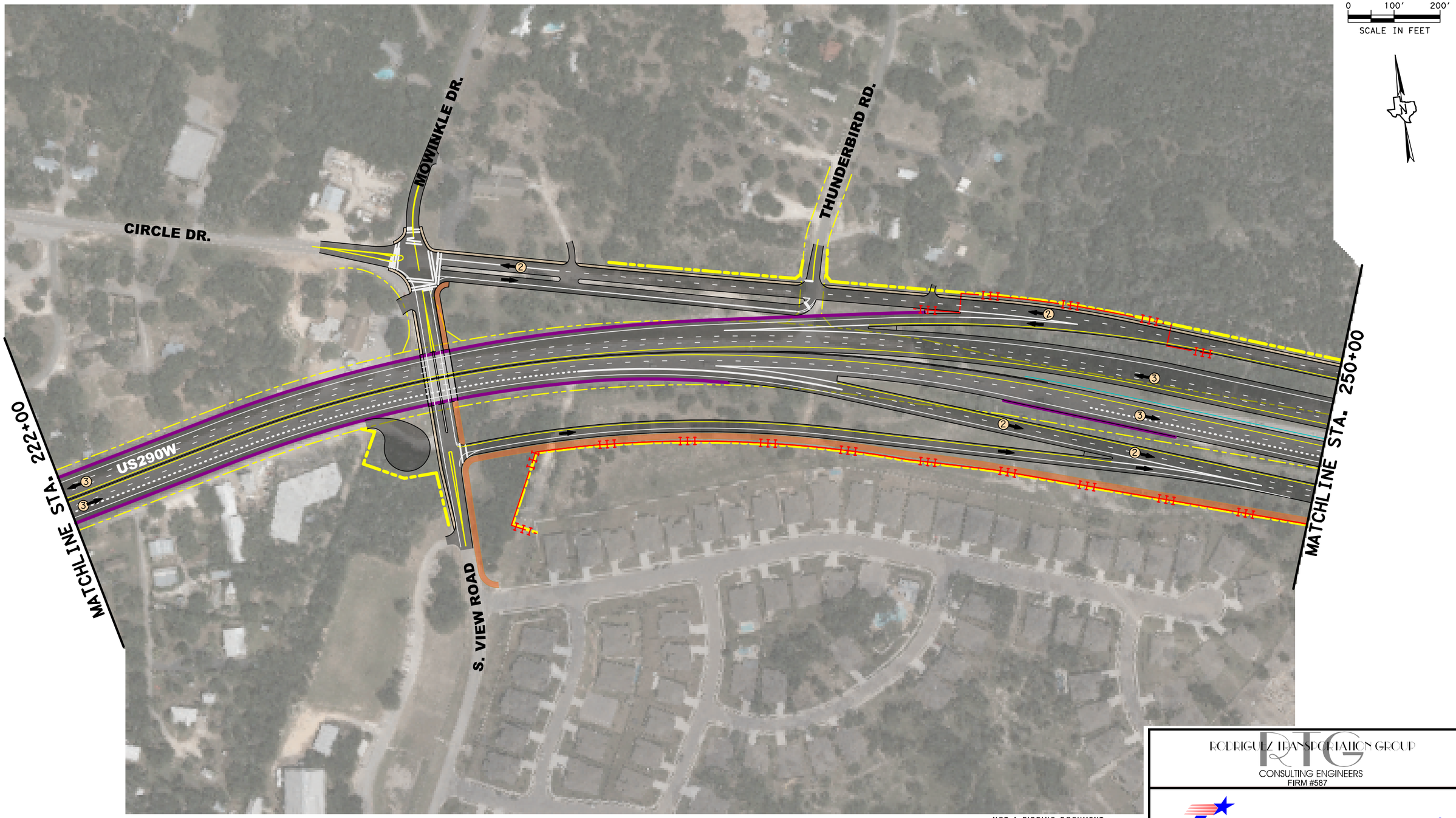
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE A"

## TRAFFIC FORECASTING STUDY



3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\US290TFSA01.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

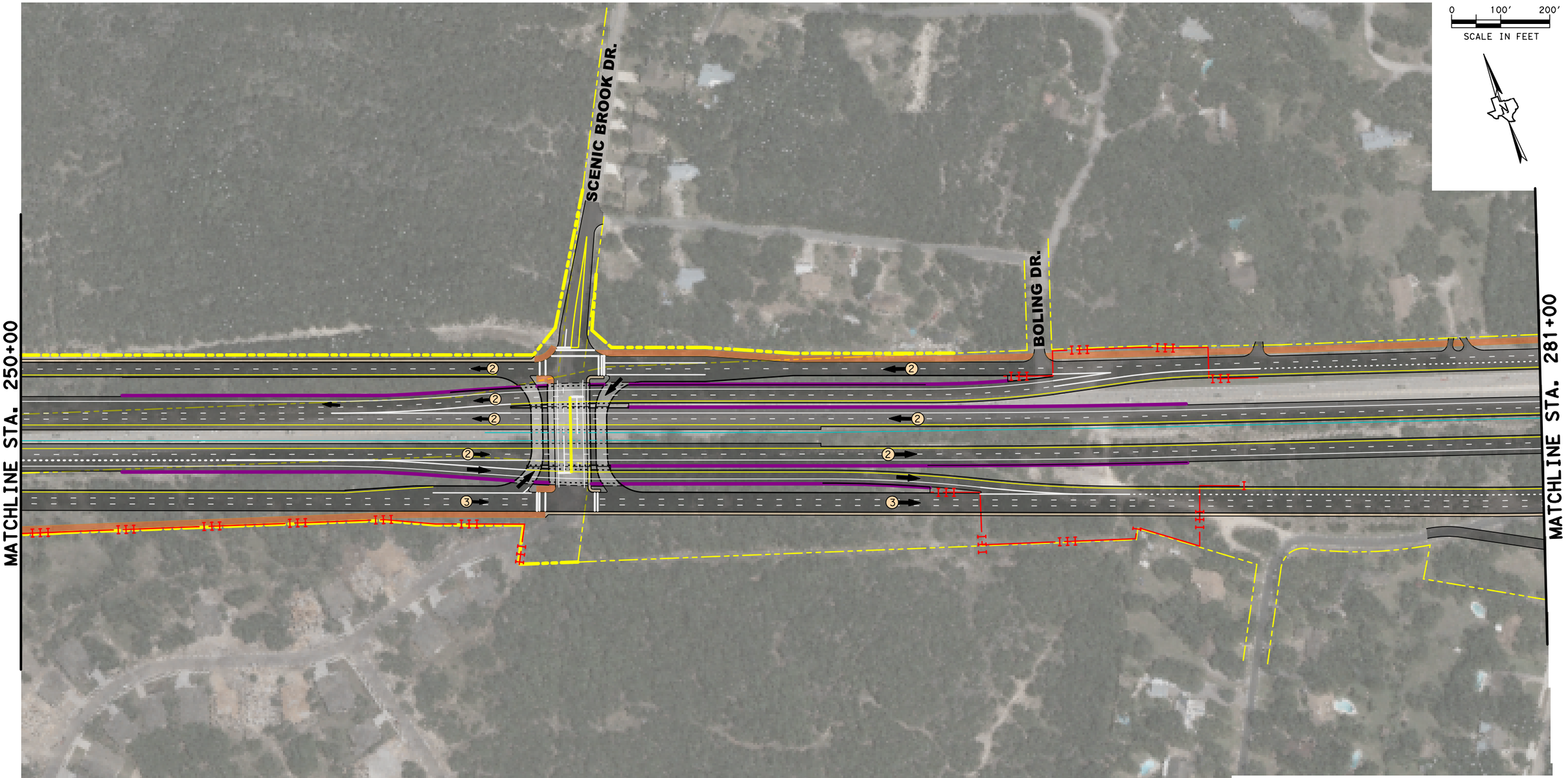
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE A"

## TRAFFIC FORECASTING STUDY

SHEET 2 OF 13

3/28/2016
P:\81140301\dlv\plansht\Traffic Forecasting Study\US290TFSA02.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

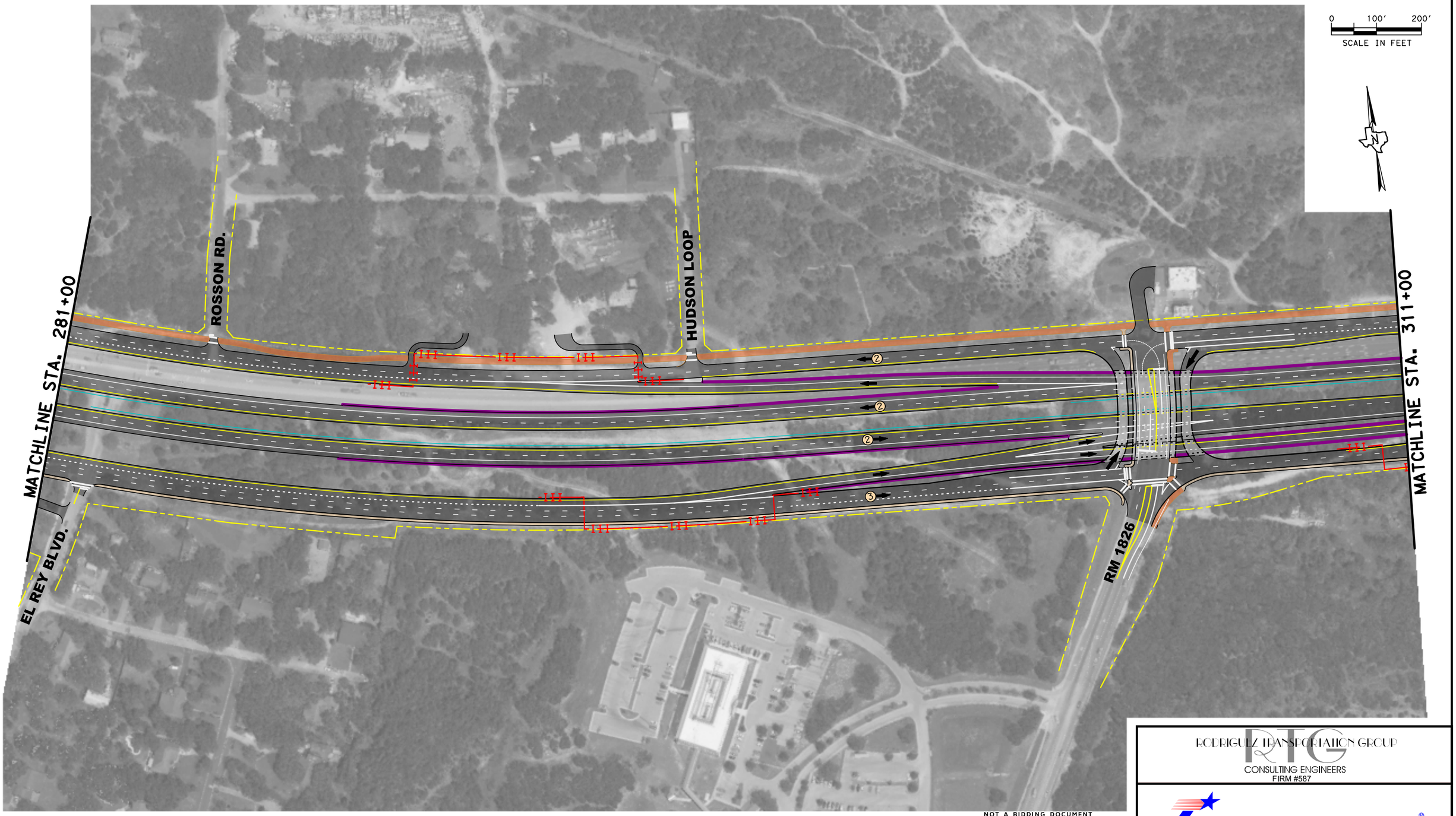
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 3 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\US290TFSA03.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE A"

## TRAFFIC FORECASTING STUDY

SHEET 4 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\Alt A\US290TFSA04.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 301+00

MATCHLINE STA. 332+00

RM 1826

NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 5 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\US290TFSA05.dgn

SEE SHEET 13 OF 13
MATCHLINE STA. 1093+00

0 100' 200'
SCALE IN FEET

OAK MEADOW DR.

WB SH71

DIRECT CONNECT

WB FRONTAGE RD.

EB SH71

DIRECT CONNECT

MATCHLINE STA. 362+00

MATCHLINE STA. 332+00

US 290W MAINLANES

WOLFCREEK PASS

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

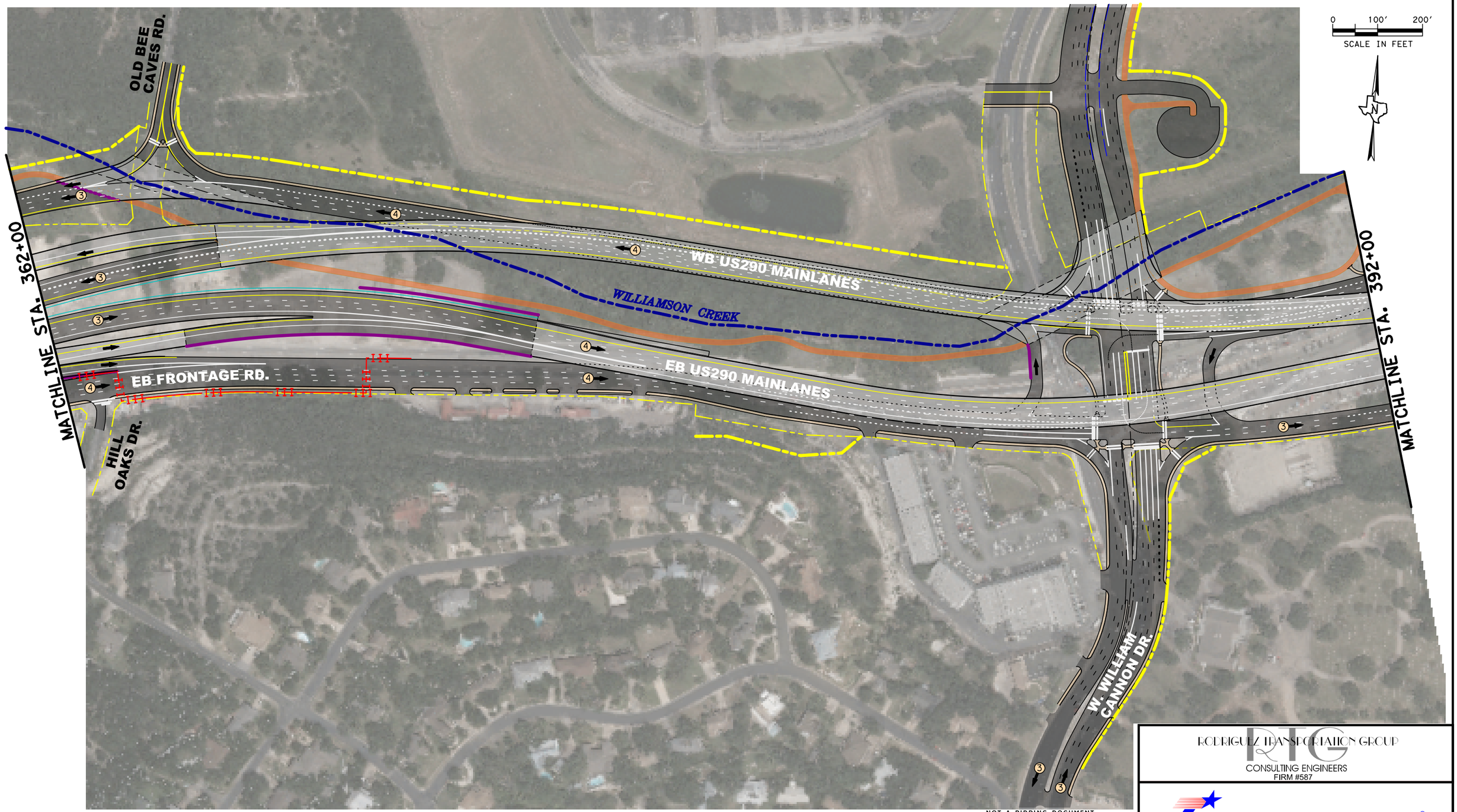
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 6 OF 13

3/28/2016
P:\81403011\dlv\planSht\Traffic Forecasting Study\Alt A\US290TFSA06.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

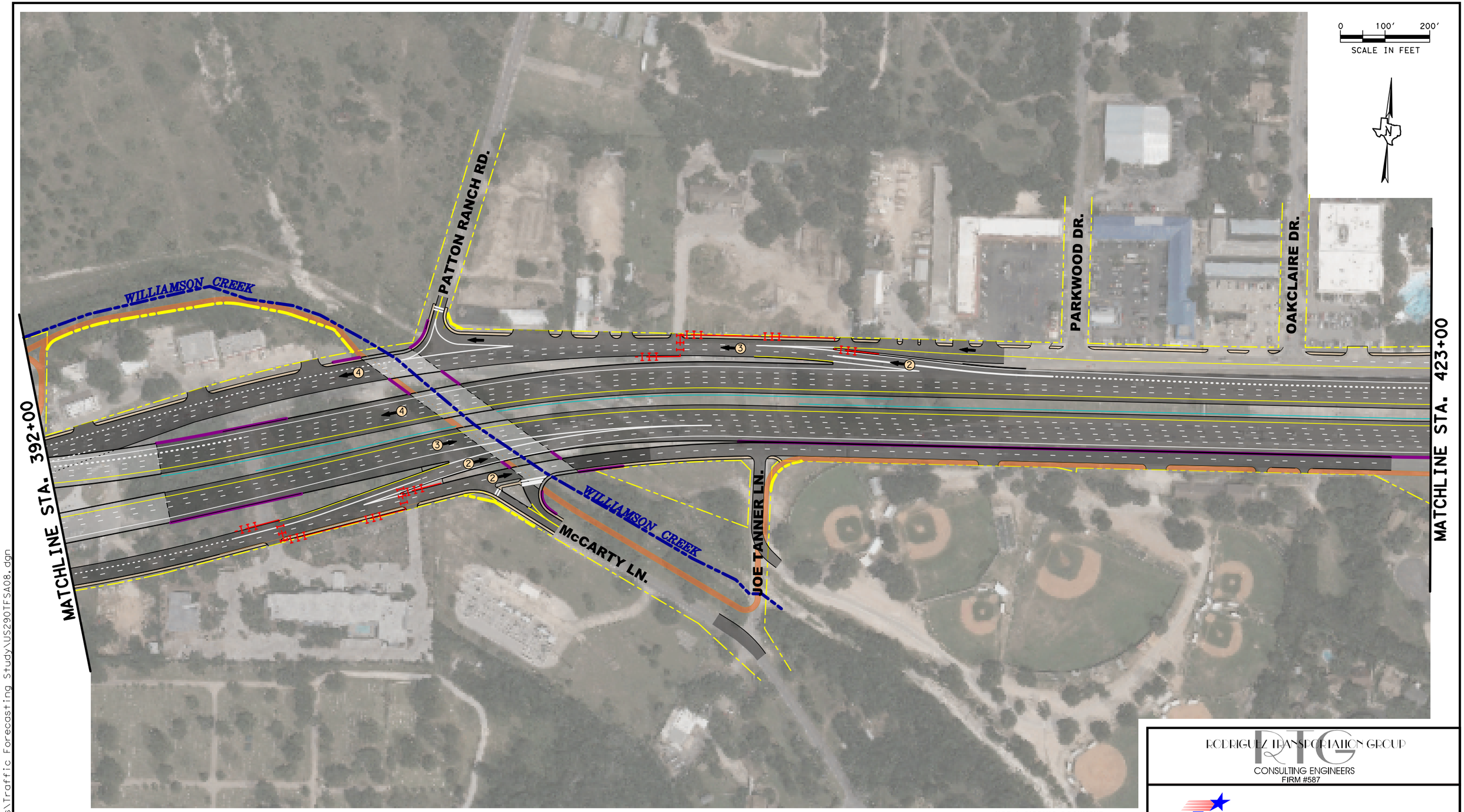
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 7 OF 13

3/28/2016
P:\8140301\dlv\planSht s\Traffic Forecasting Study\US290TFSA07.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY



3/28/2016
P:\8140301\dlv\planSht s\Traffic Forecasting Study\US290TFSA08.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 423+00

MATCHLINE STA. 454+00

US290 / SH71 WEST

OLD FREDERICKSBURG RD.

NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

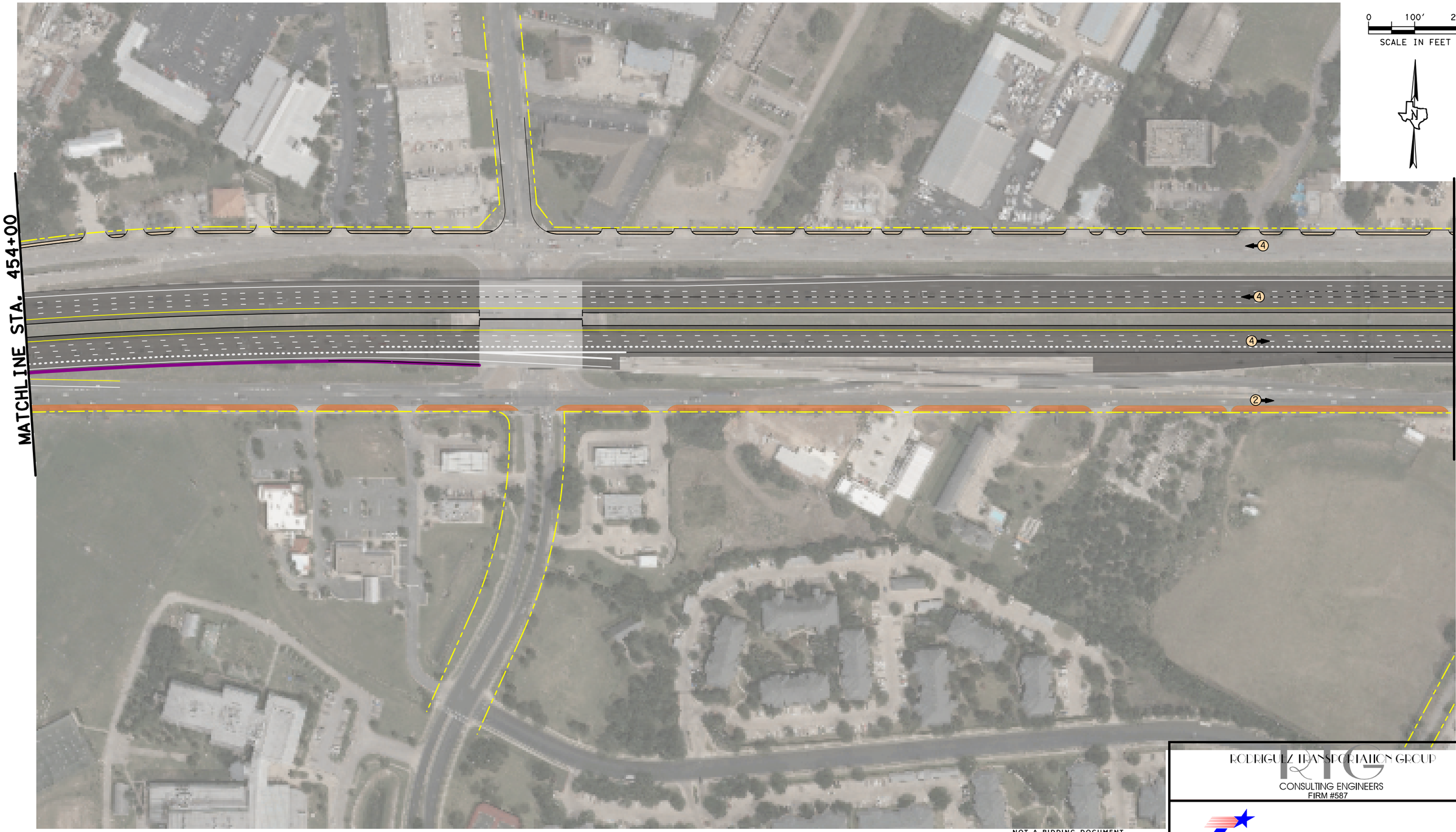
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 9 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\US290TFSA09.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

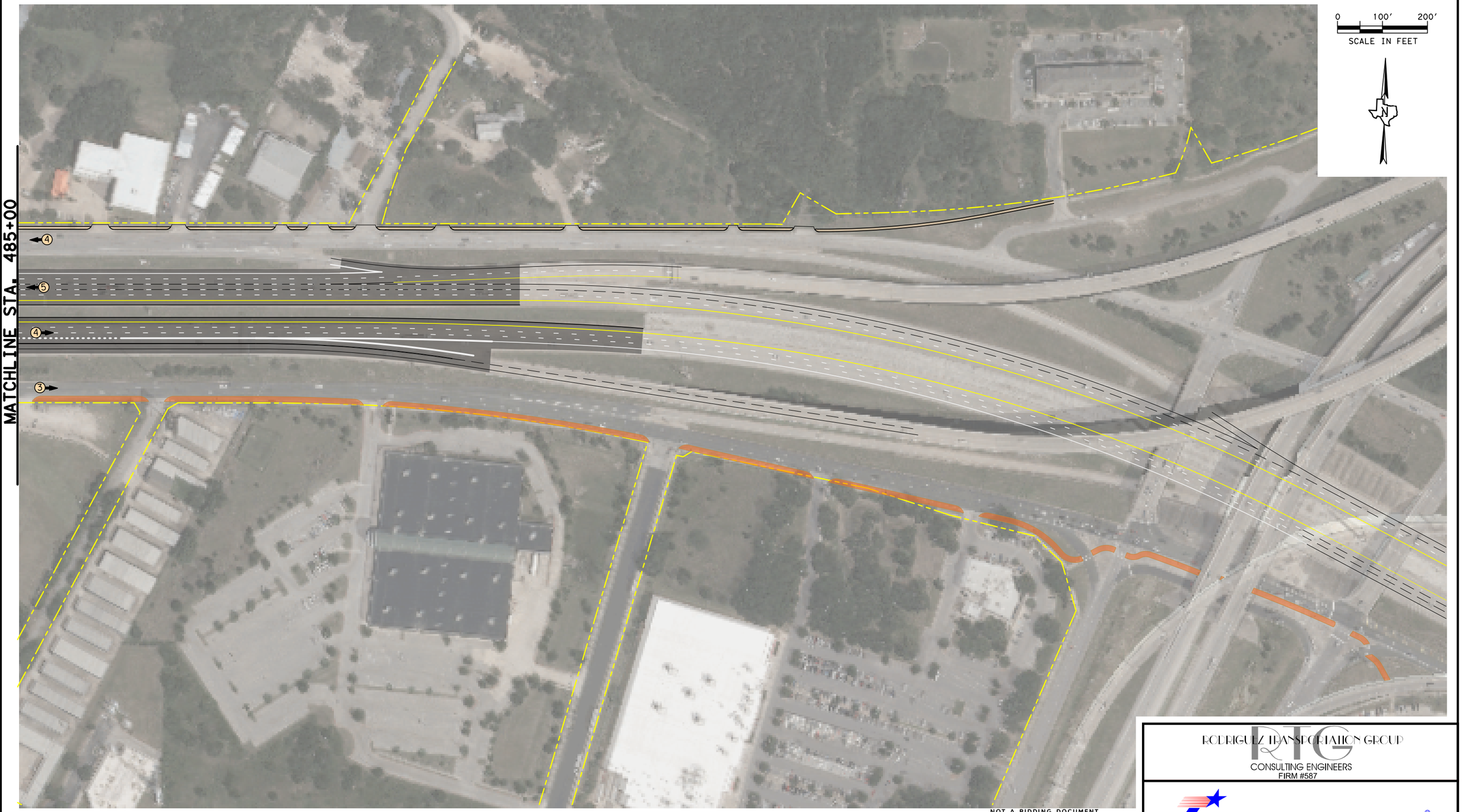
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE A"

## TRAFFIC FORECASTING STUDY



3/28/2016
P:\81403301\div\planSht s\Traffic Forecasting Study\US290TFSA10.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE A"

## TRAFFIC FORECASTING STUDY

SHEET 11 OF 13

3/28/2016
P:\8140301\dlv\plansht\Traffic Forecasting Study\US290TFSA11.dgn


NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

SH71
PRELIMINARY DESIGN
"ALTERNATIVE A"

TRAFFIC FORECASTING STUDY

SHEET 12 OF 13

3/28/2016
P:\8140301\div\planSht\Traffic Forecasting Study\US290TFSA12.dgn


NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

SH71
PRELIMINARY DESIGN
"ALTERNATIVE A"

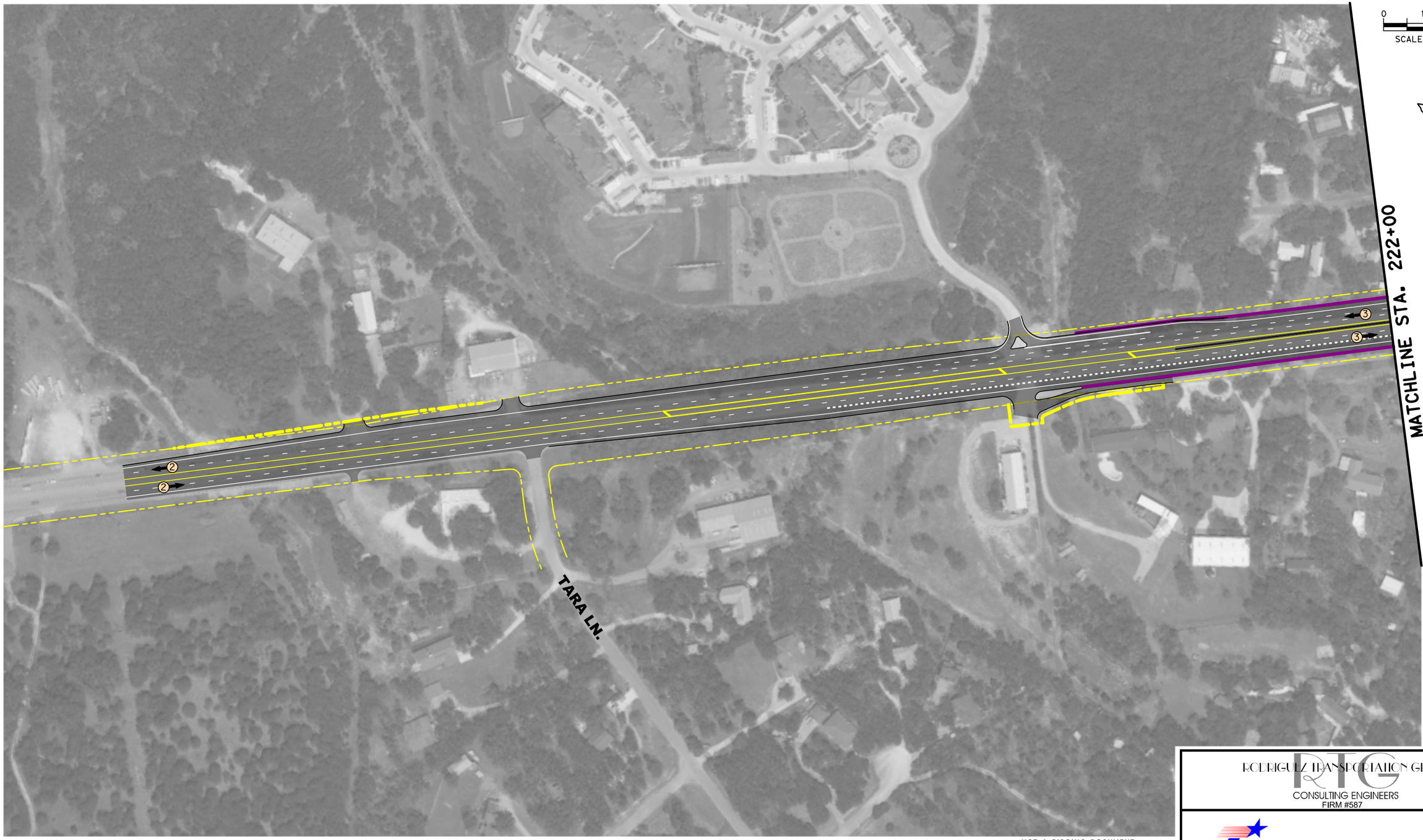
TRAFFIC FORECASTING STUDY

SHEET 13 OF 13

3/28/2016
P:\8140301\dlv\PlanSht s\Traffic Forecasting Study\US290TFSA13.dgn

# APPENDIX F

ALTERNATIVE C EXHIBITS




NOT A BIDDING DOCUMENT



OAK HILL PARKWAY

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

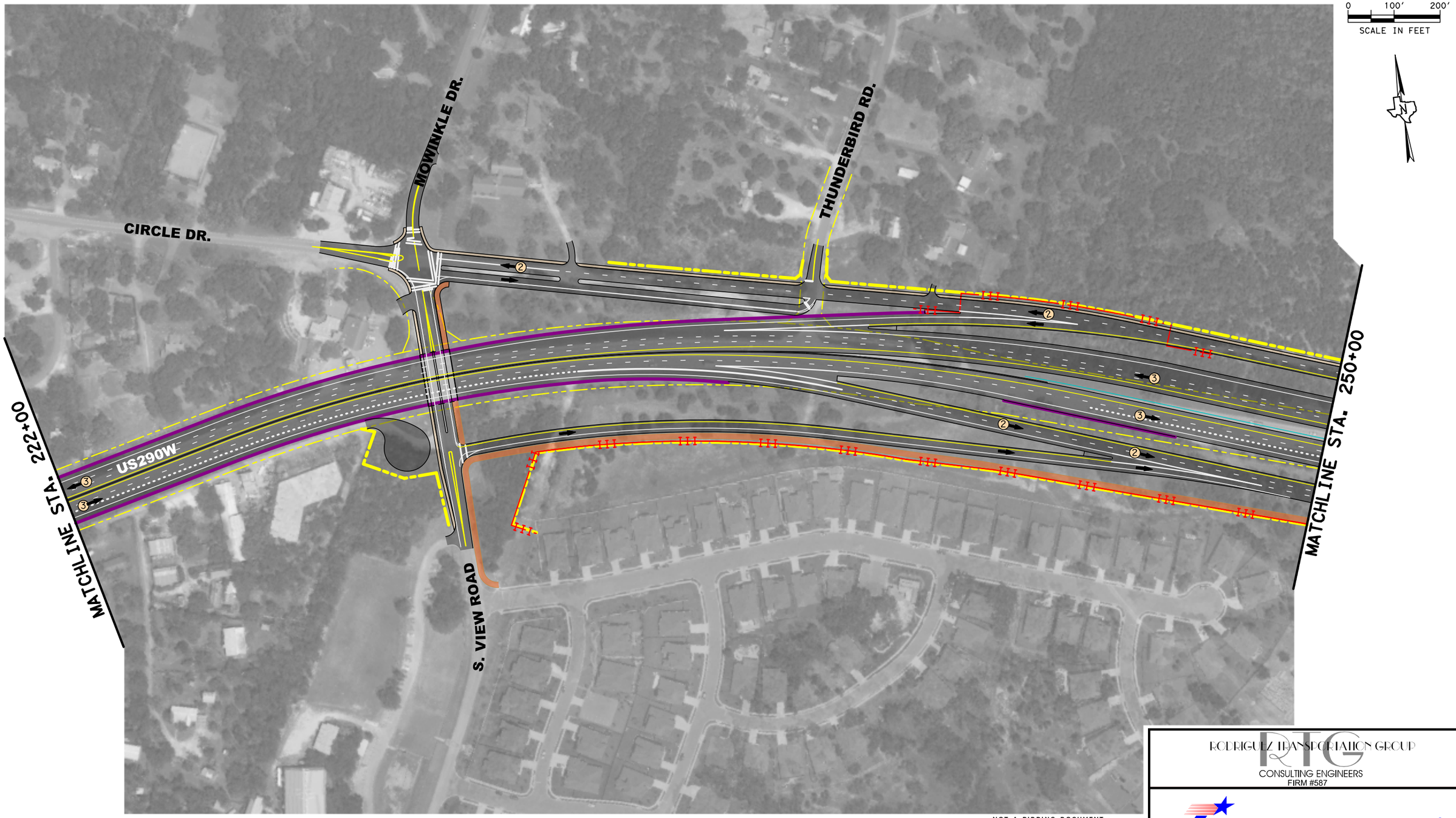
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 1 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\Alt CUS290TFSC01.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

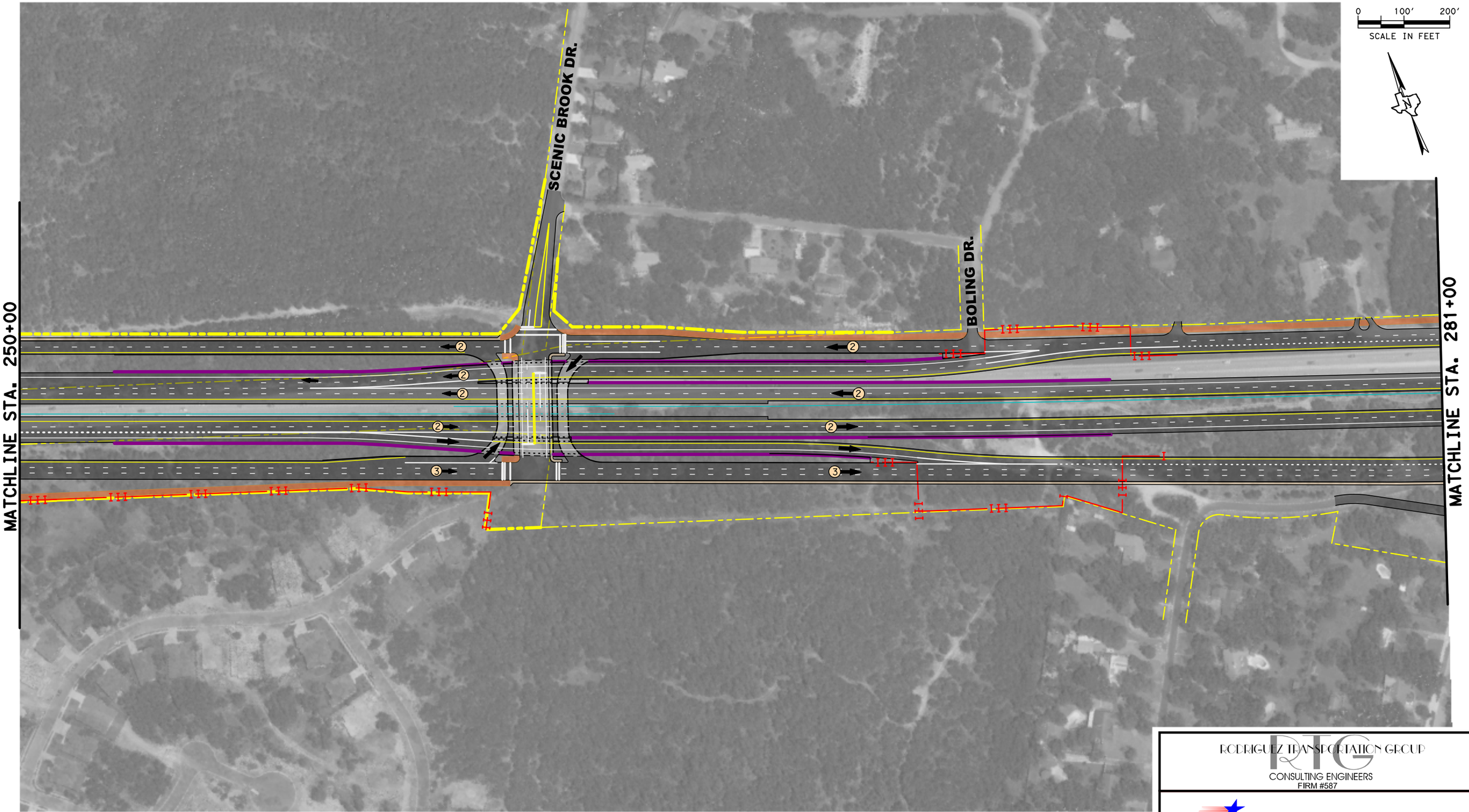
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 2 OF 13

3/28/2016
P:\81403O1\dlv\planSht\Traffic Forecasting Study\Alt C\US290TFSC02.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

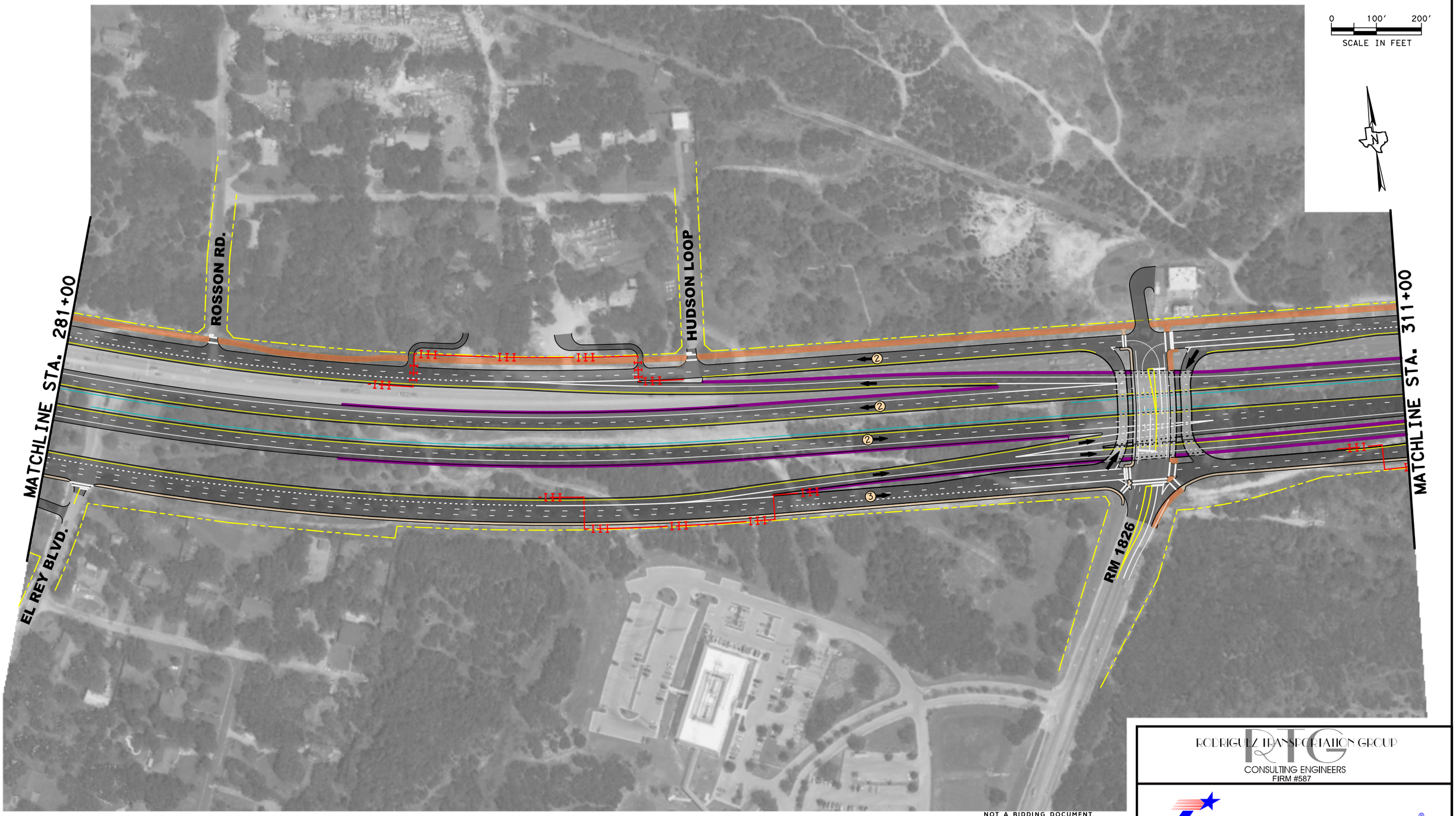
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE C"

## TRAFFIC FORECASTING STUDY



3/28/2016
P:\8140301\dlv\planSht\Traffic Forecasting Study\Alt C\US290TFSC03.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

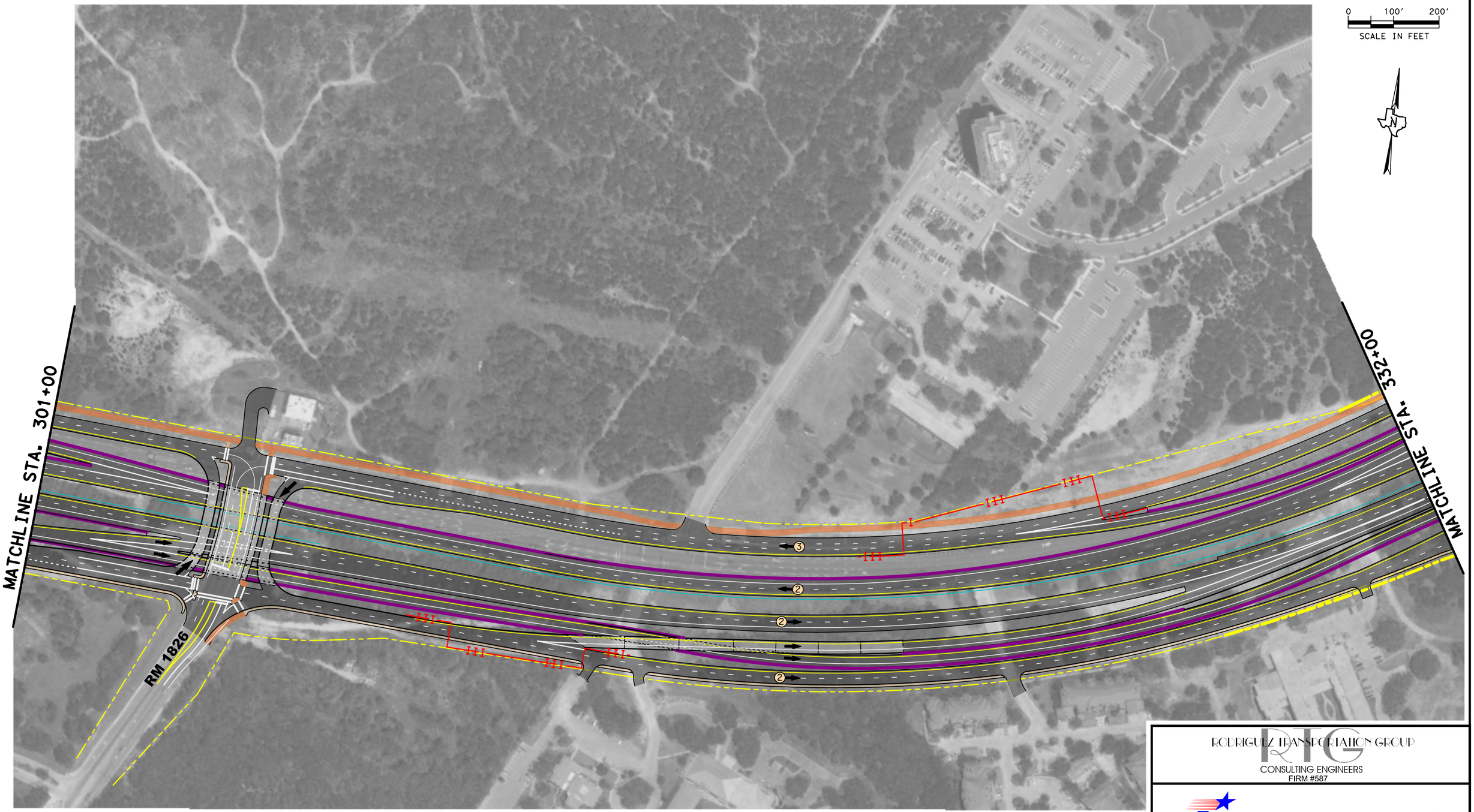
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE C"

## TRAFFIC FORECASTING STUDY

SHEET 4 OF 13

3/28/2016
P:\8140301\dlv\planSht\Traffic Forecasting Study\Alt C\US290TFSC04.dgn




NOT A BIDDING DOCUMENT



OAK HILL PARKWAY

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 5 OF 13

3/28/2016
P:\8140301\dlv\planSht\Traffic Forecasting Study\Alt C\US290TFSC05.dgn

SEE SHEET 13 OF 13
MATCHLINE STA. 1093+00

0 100' 200'
SCALE IN FEET

OAK MEADOW DR.

WB SH71

DIRECT CONNECT

MATCHLINE STA. 362+00

MATCHLINE STA. 332+00

US 290W MAINLANES

WOLFCREEK PASS

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

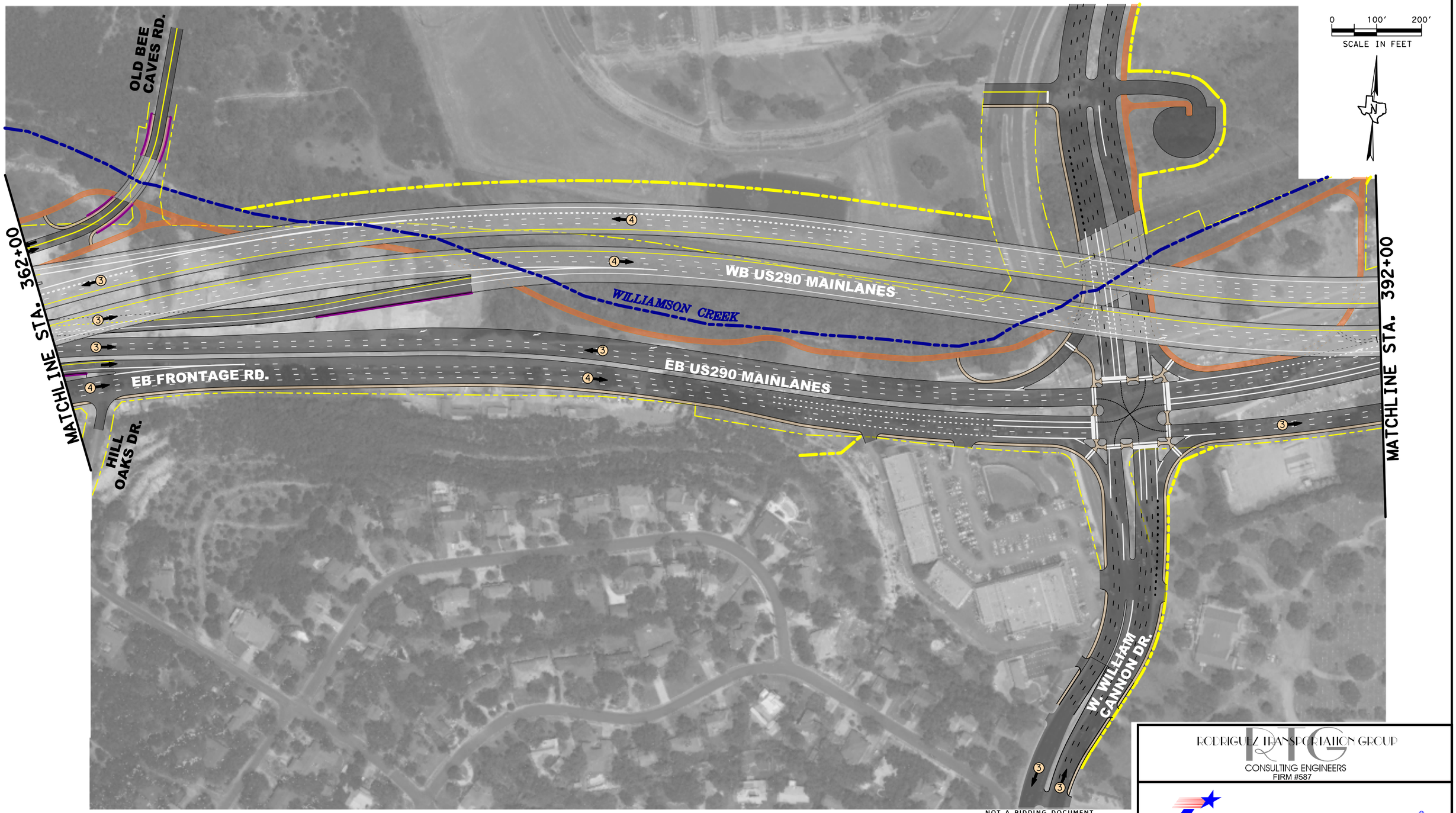
DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE C"

## TRAFFIC FORECASTING STUDY

SHEET 6 OF 13

3/28/2016
P:\8140301\dlv\planSht s\Traffic Forecasting Study\Alt C\US290TFSC06.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

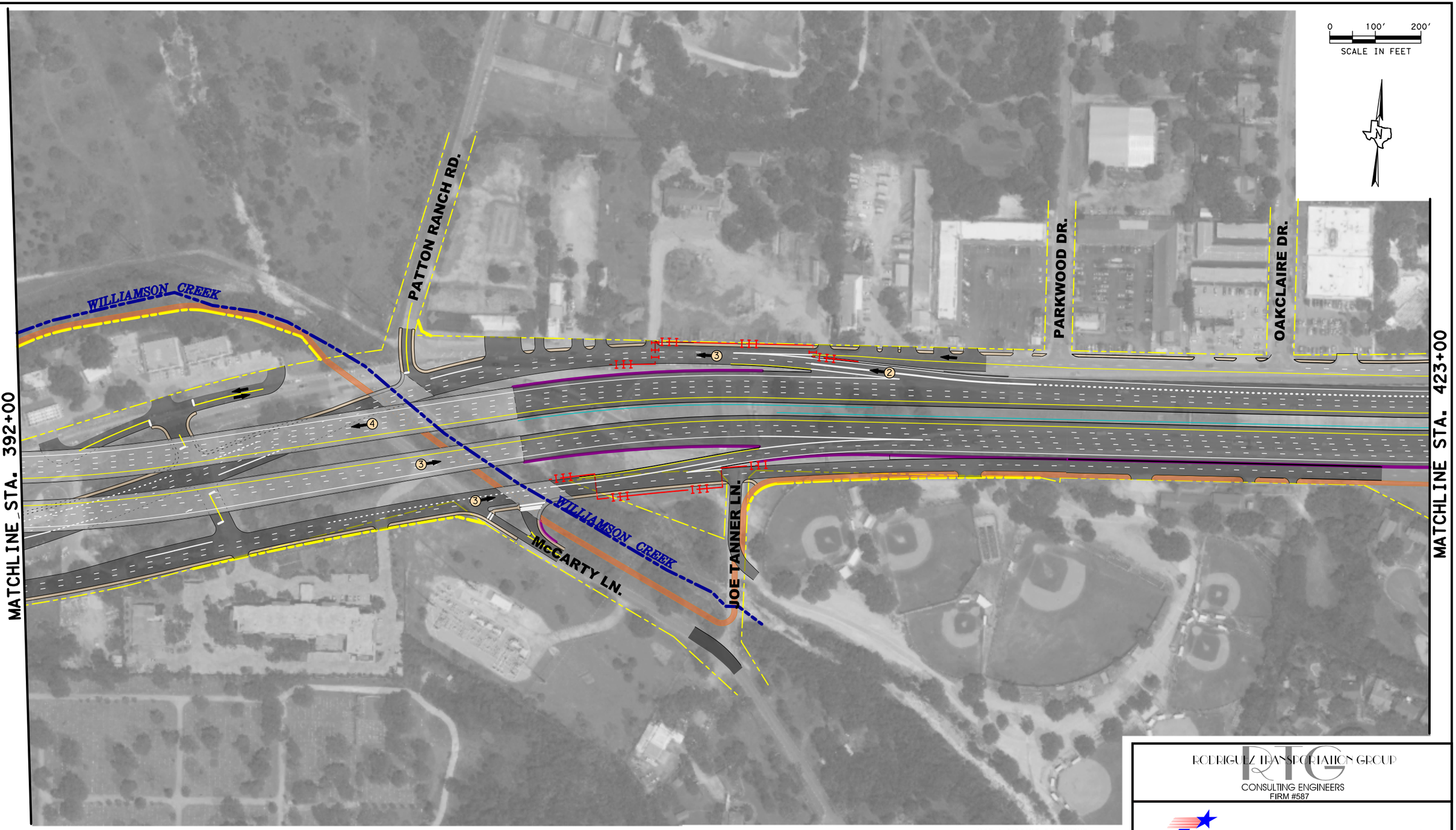
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 7 OF 13

3/28/2016
P:\8140301\dlv\planSht s\Traffic Forecasting Study\Alt C\US290TFSC07.dgn




NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

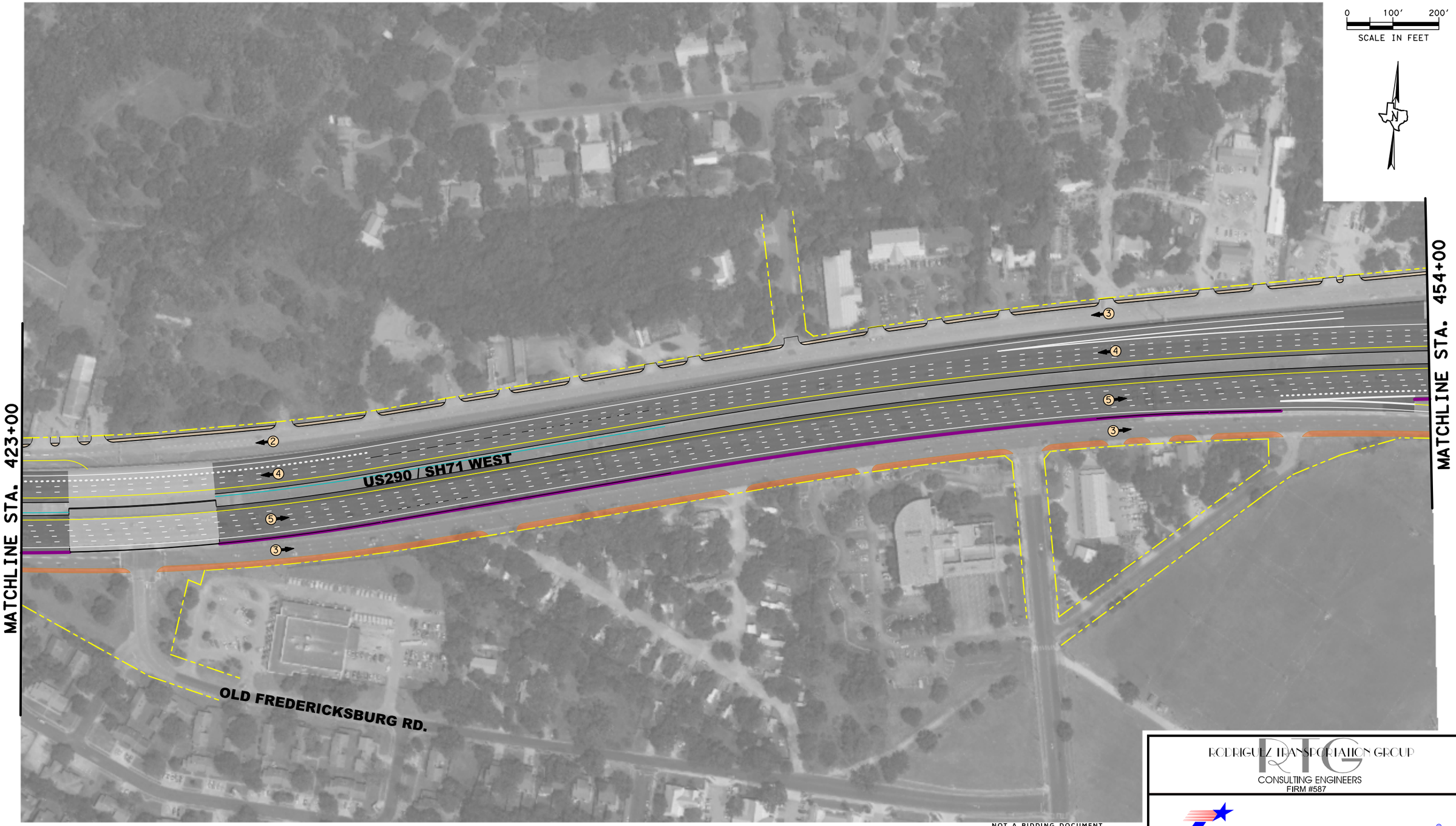
DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY



3/28/2016
P:\8140301\dlv\planSht s\Traffic Forecasting Study\Alt C\US290TFSC08.dgn




NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 9 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\Alt C\US290TFSC09.dgn

MATCHLINE STA. 454+00

MATCHLINE STA. 485+00

0 100' 200'
SCALE IN FEET

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

# US290 WEST
# PRELIMINARY DESIGN
# "ALTERNATIVE C"

## TRAFFIC FORECASTING STUDY

SHEET OF 13

3/28/2016
P:\81403301\div\planSht\Traffic Forecasting Study\Alt C\US290TFSC10.dgn

MATCHLINE STA. 485+00

4

5

4

3

0 100′ 200′

SCALE IN FEET

N

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

US290 WEST
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 11 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\Alt C\US290TFSC11.dgn


NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

SH71
PRELIMINARY DESIGN
"ALTERNATIVE C"

TRAFFIC FORECASTING STUDY

SHEET 12 OF 13

3/28/2016
P:\8140301\div\planSht\Traffic Forecasting Study\Alt C\US290TFSC12.dgn


NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/28/2016

SH71
PRELIMINARY DESIGN
"ALTERNATIVE C"

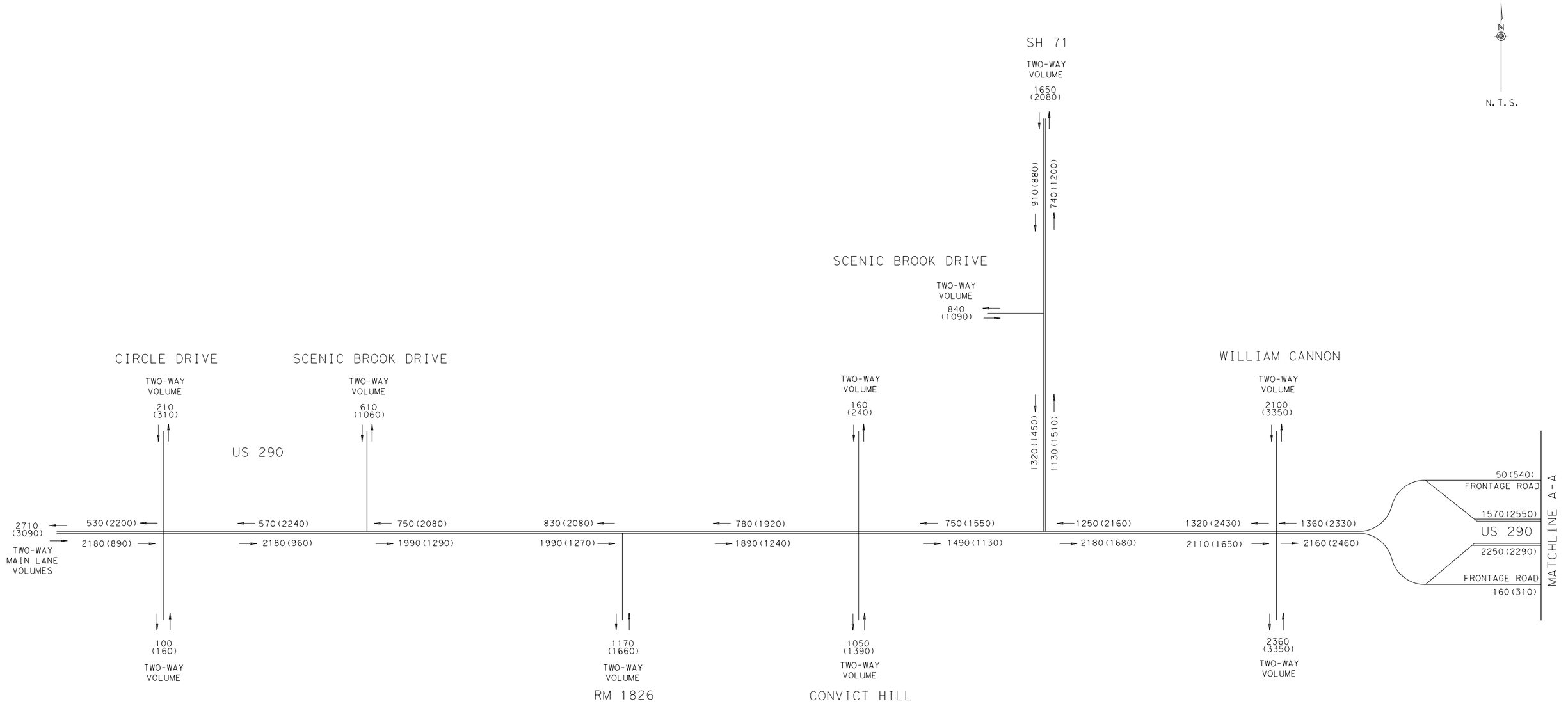
TRAFFIC FORECASTING STUDY

SHEET 13 OF 13

3/28/2016
P:\8140301\dlv\planShts\Traffic Forecasting Study\Alt C\US290TFSC13.dgn

# APPENDIX G

2040 PEAK HOUR TRAFFIC PROJECTIONS




**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 3/7/2016 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/7/2016

# US290 WEST

## 2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

## NO BUILD SCENARIO

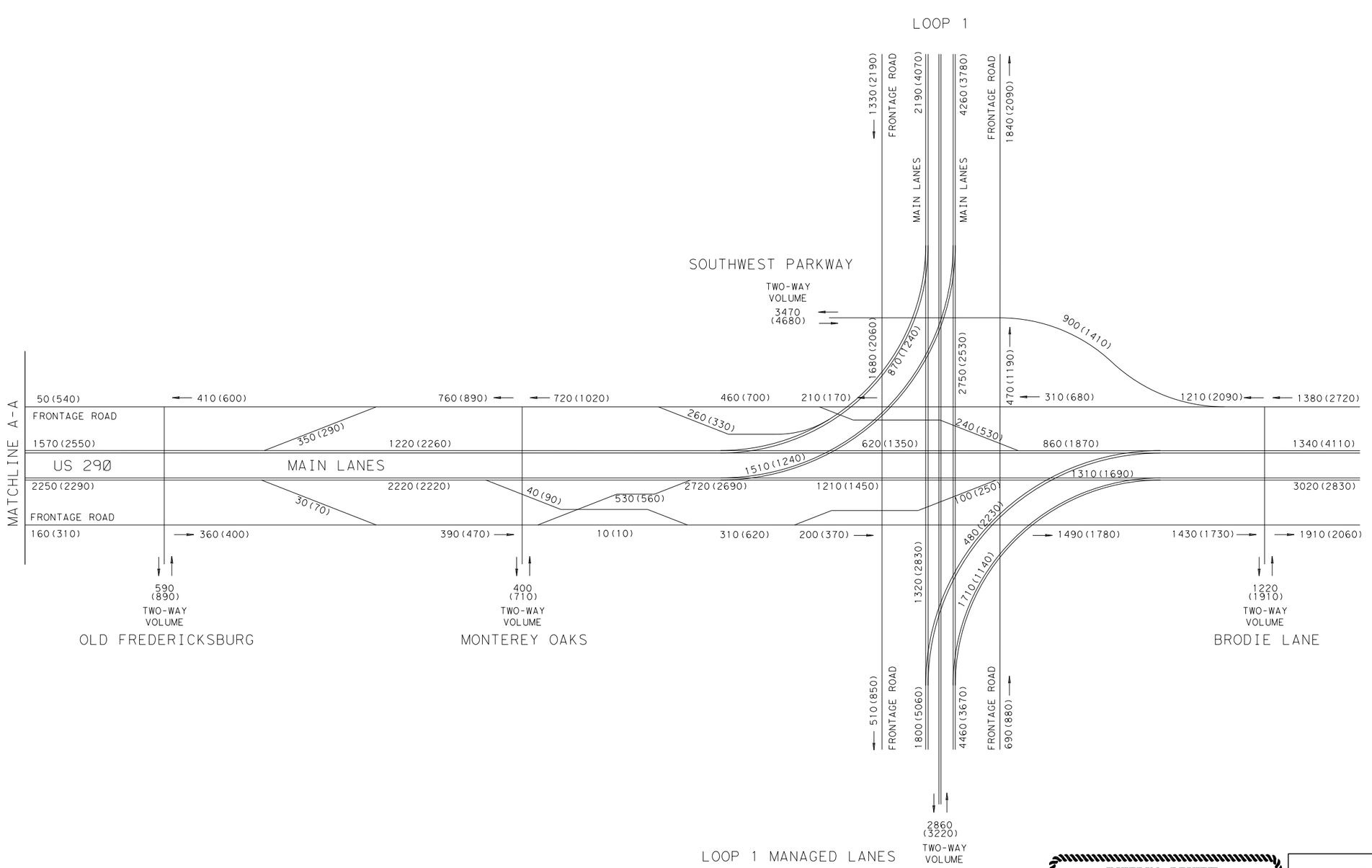
SHEET 1 OF 2

LEGEND:

XXX AVERAGE DAILY TRAFFIC VOLUME



3/7/2016
P:\8140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn




LEGEND:

XXX AVERAGE DAILY TRAFFIC VOLUME

INTERIM REVIEW

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 3/7/2016 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 3/7/2016

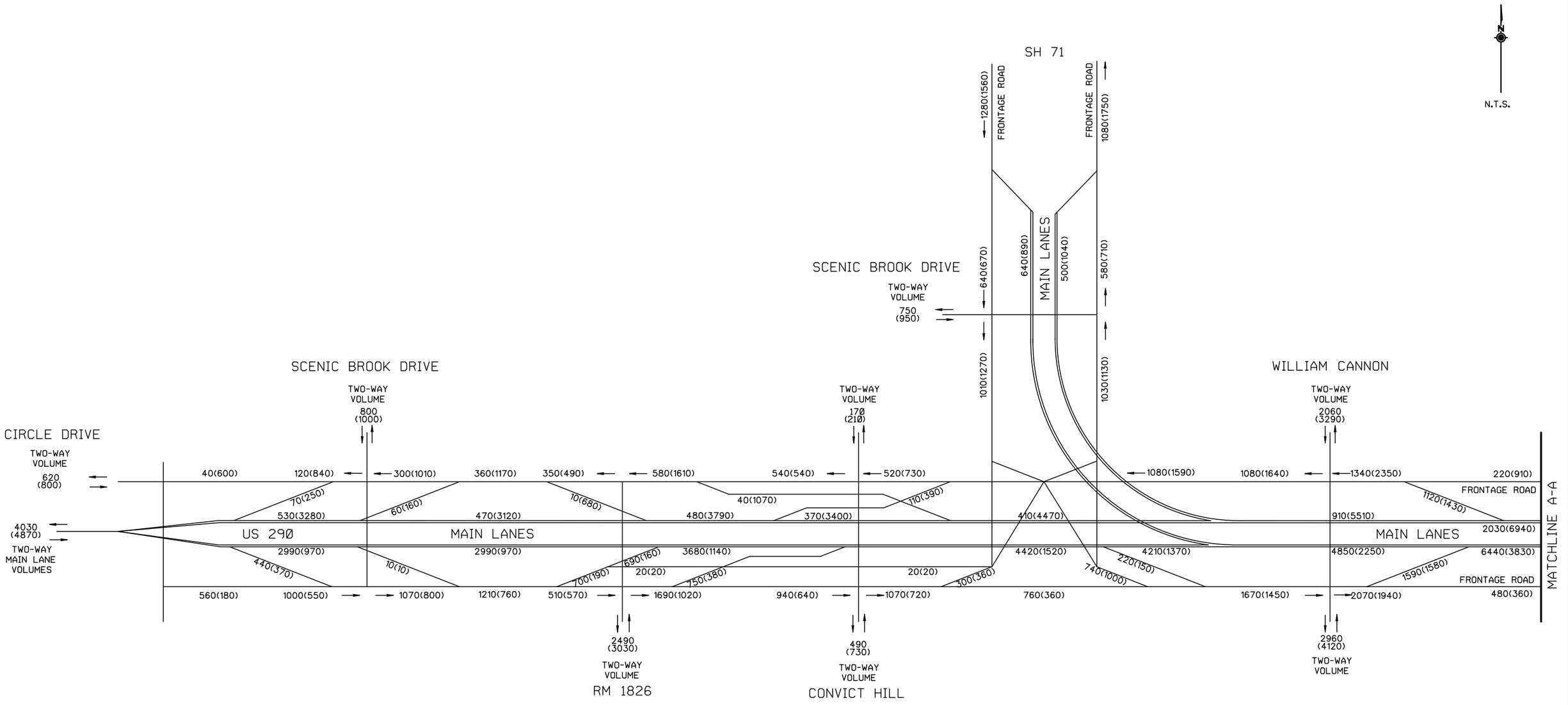
# US290 WEST

## 2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

## NO BUILD SCENARIO

SHEET 2 OF 2

3/7/2016
P:\81140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn




**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG,PE 61841 ON 11/27/2016

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 11/27/2016

# US290 WEST

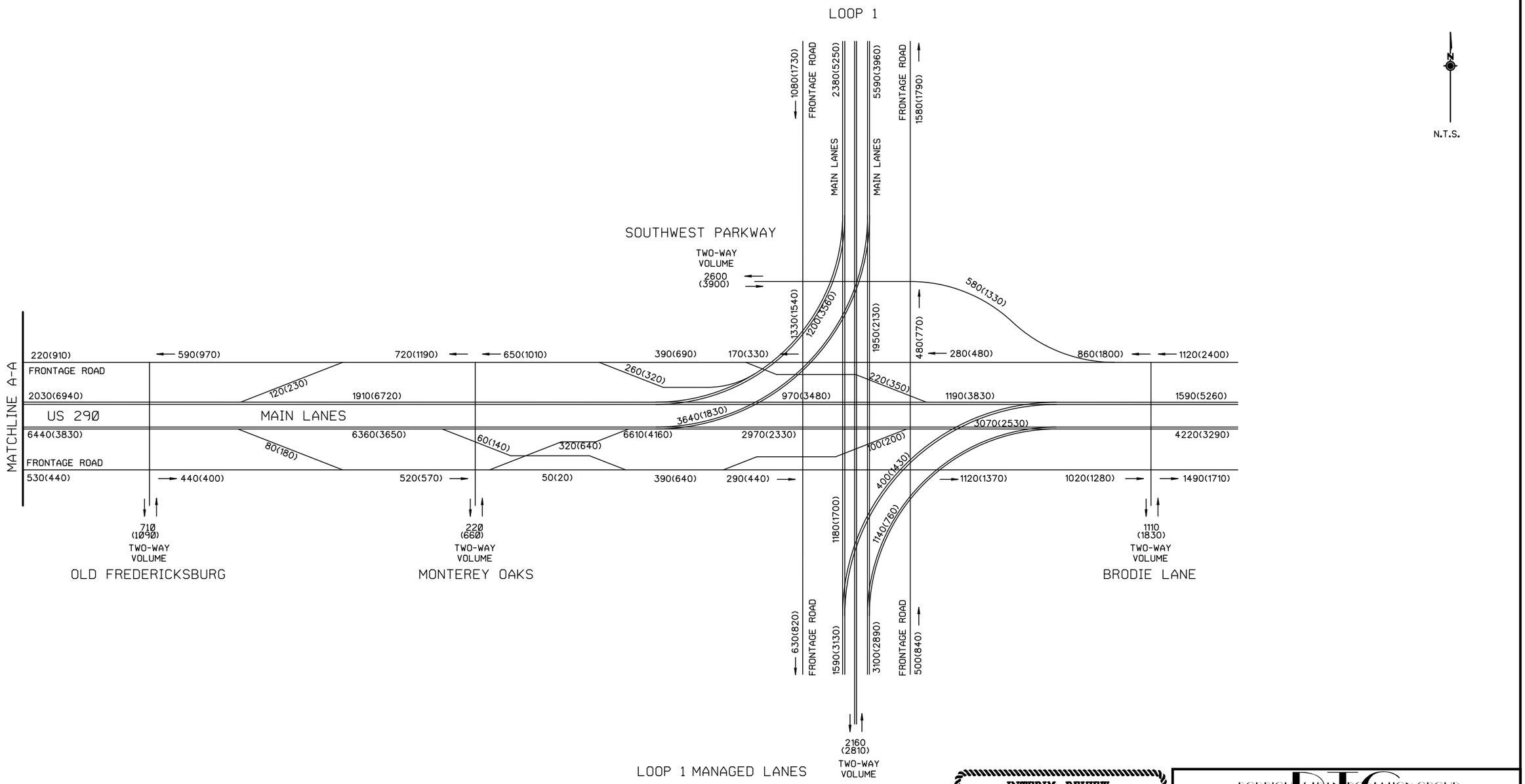
## 2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

## ALTERNATIVE A

SHEET 1 OF 2



11/27/2016
A:\8140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn




LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

WADE E. STRONG,PE 61841 ON 11/27/2016

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 11/27/2016

US290 WEST

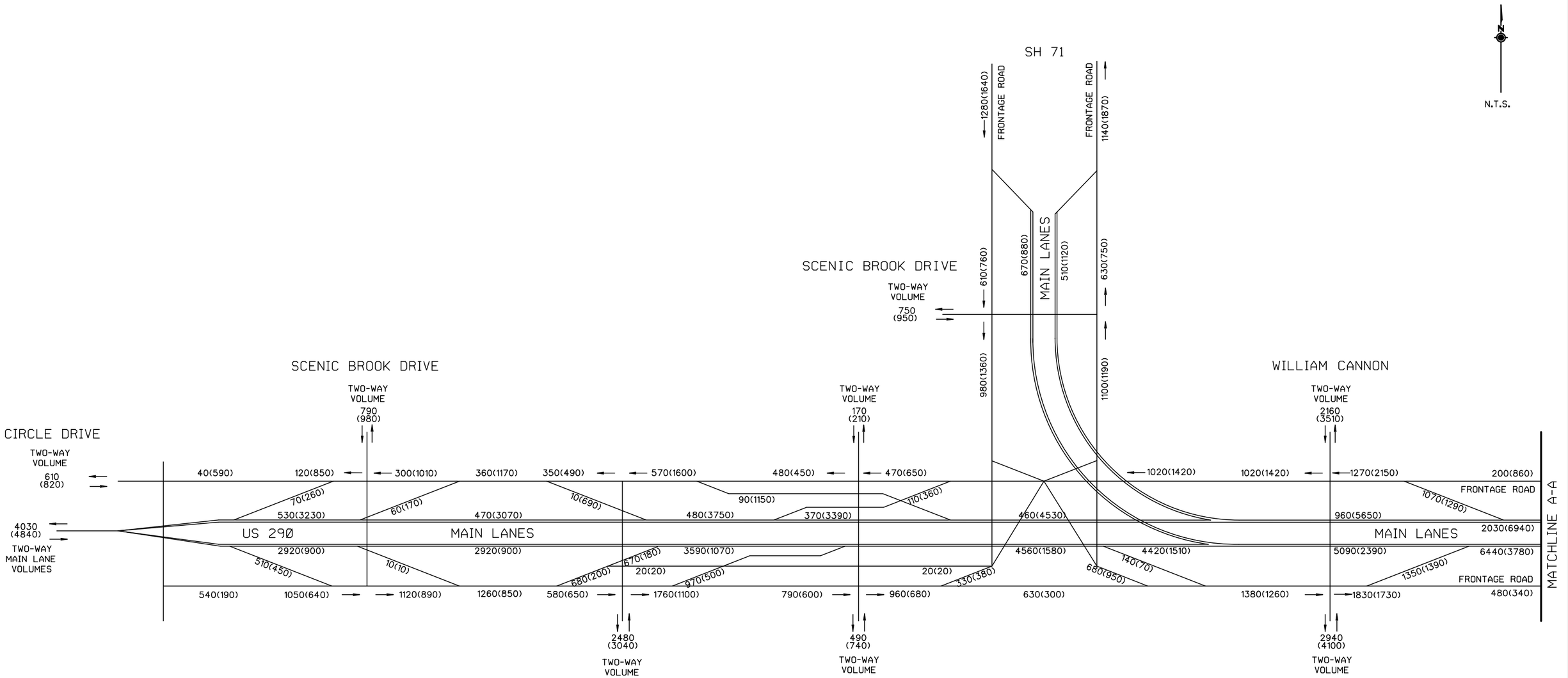
2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

ALTERNATIVE A

SHEET 2 OF 2



11/27/2016
A:\8140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn




LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

WADE E. STRONG,PE 61841 ON 11/27/2016

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 11/27/2016

# US290 WEST

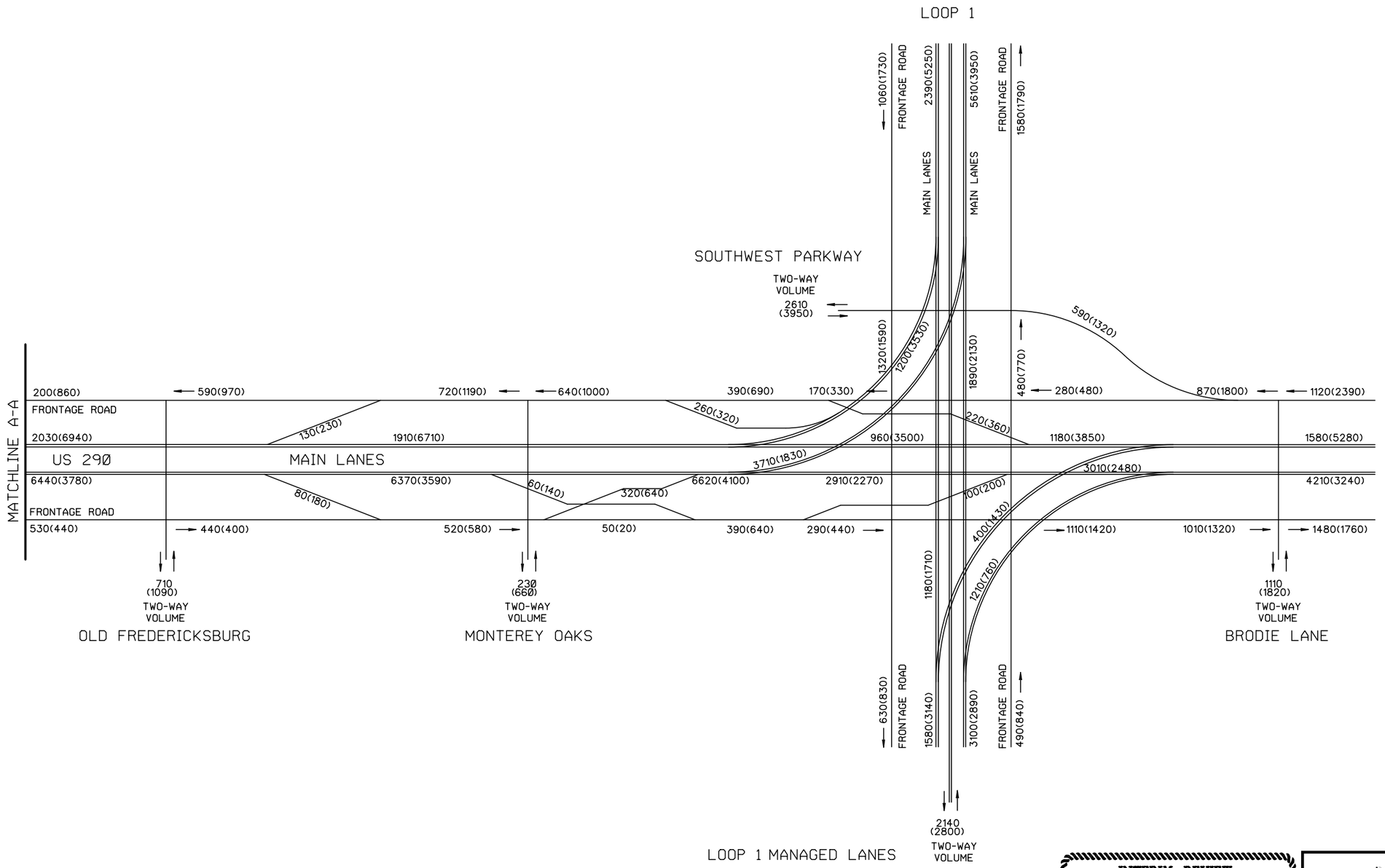
## 2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

## ALTERNATIVE C

SHEET 1 OF 2



11/27/2016
A:\6140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn




LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

WADE E. STRONG,PE 61841 ON 11/27/2016

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation®

DATE: 11/27/2016

US290 WEST

2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

ALTERNATIVE C

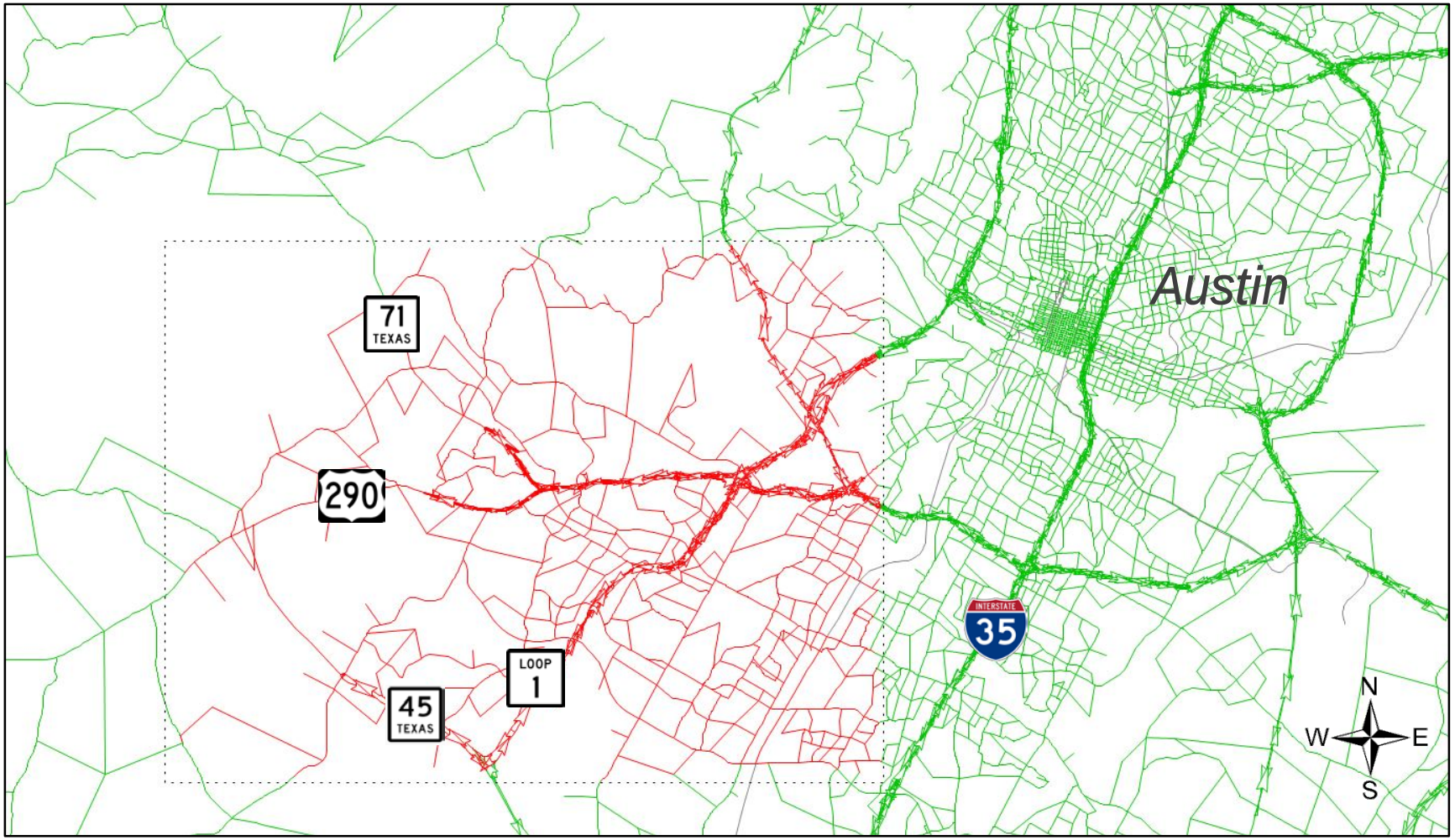
SHEET 2 OF 2

11/27/2016
A:\8140301\traffic\TransCAD\Volumes\2040\2040_PKHR_VOL.dgn

# APPENDIX H

NETWORK RESULTS STUDY AREA EXHIBIT

# *Network Results Study Area Exhibit*

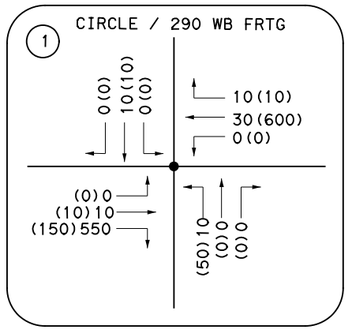


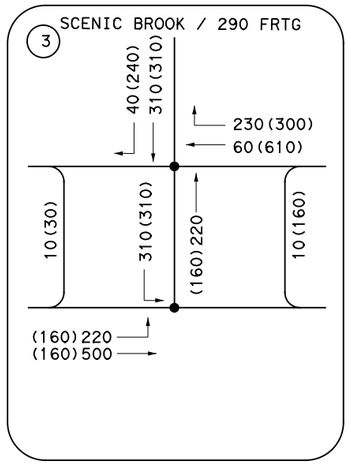

Note: Network results provided in the report are specific to the red highlighted links.

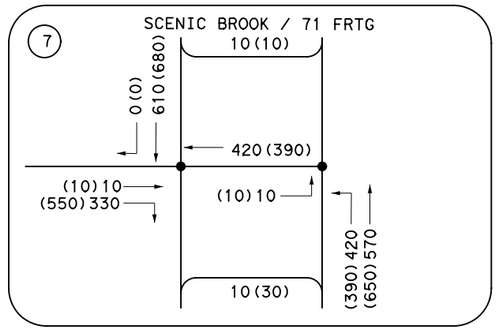
# APPENDIX I

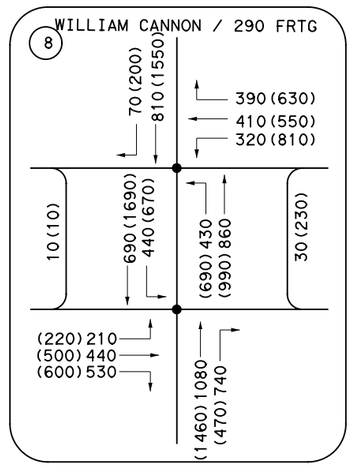
2040 PEAK HOUR TRAFFIC PROJECTIONS

ALTERNATIVE A NON-TOLLED

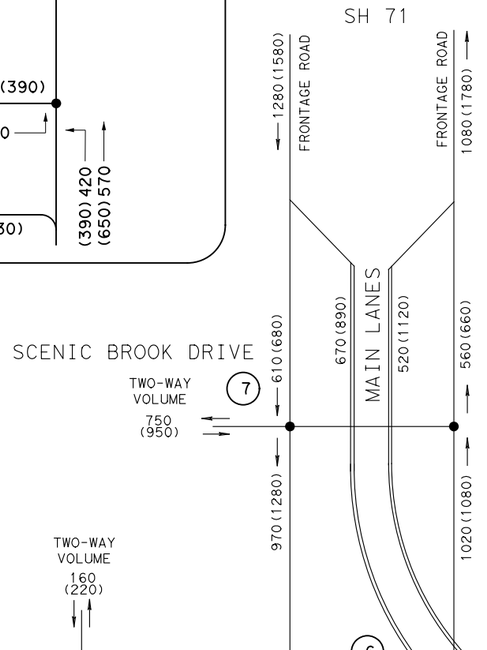


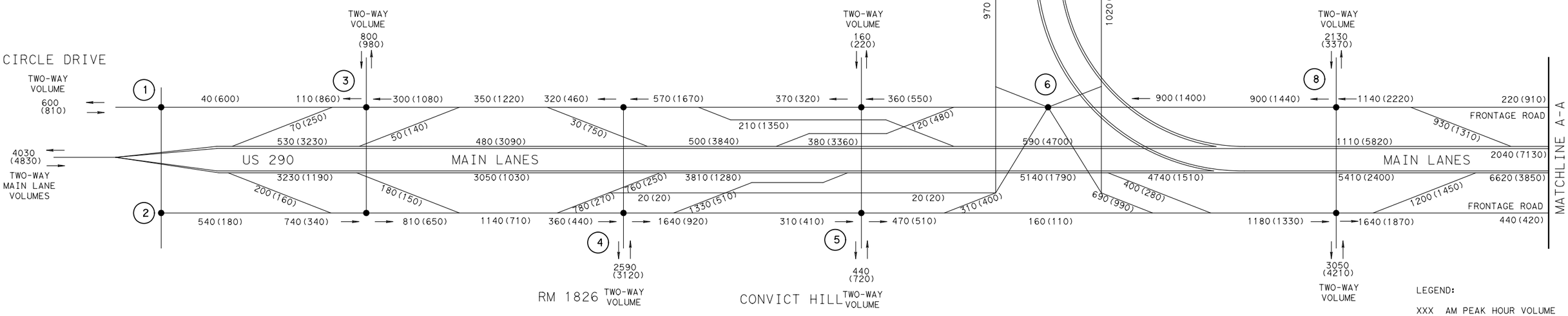



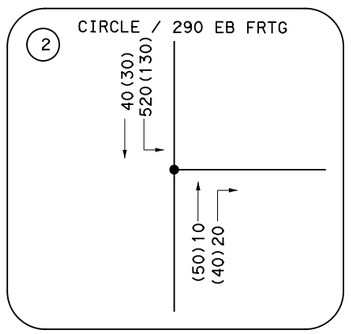



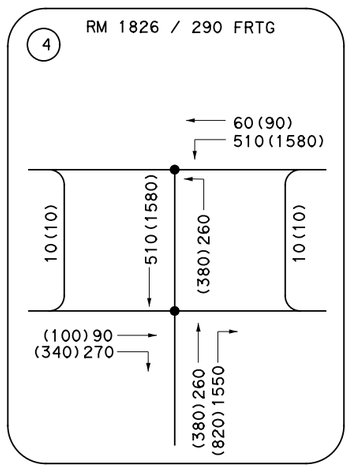



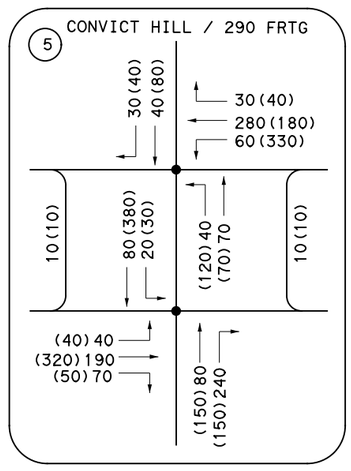

N. T. S.

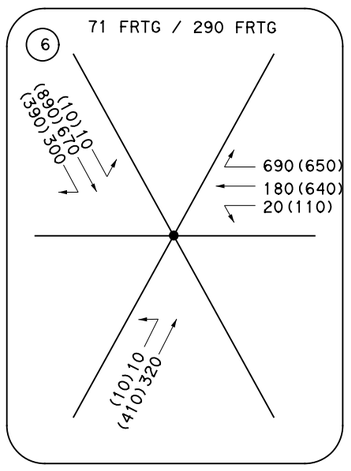



LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

(X) INTERSECTION NUMBER

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 6/22/2018

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

**NOT A BIDDING DOCUMENT**

RODRIGUEZ TRANSPORTATION GROUP

FIRM #587

Texas Department of Transportation®

DATE: 6/22/2018

# US290 WEST

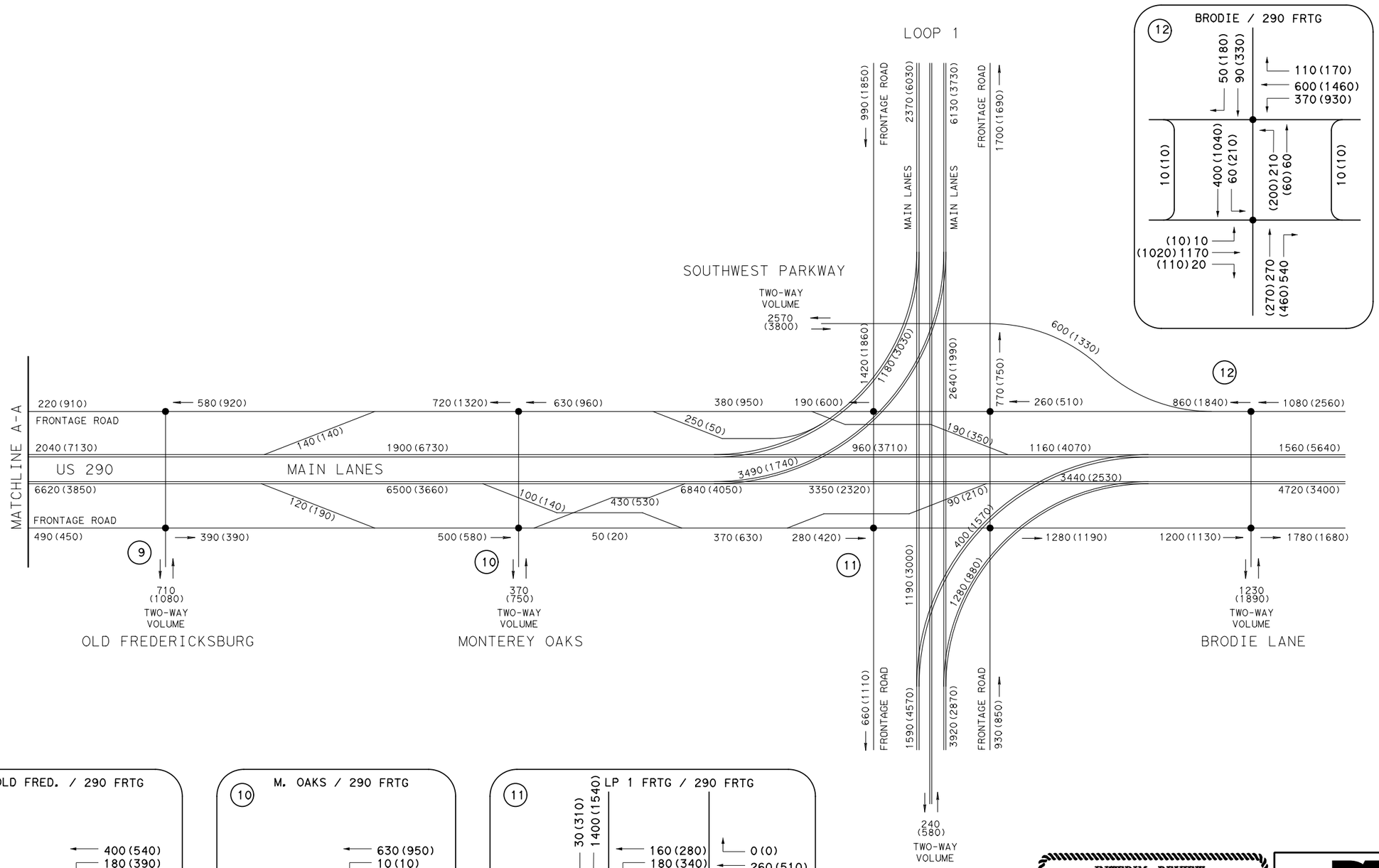
## 2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

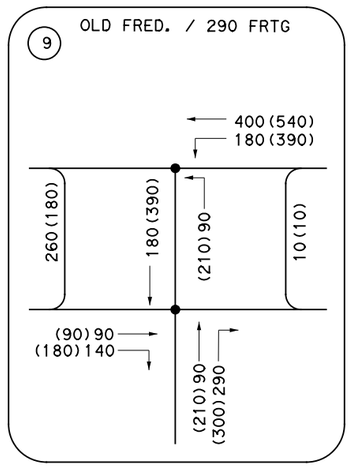
## ALTERNATIVE A

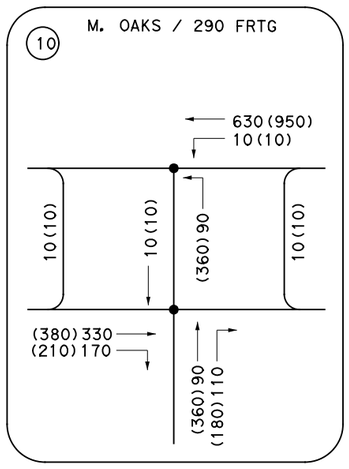
SHEET 1 OF 2

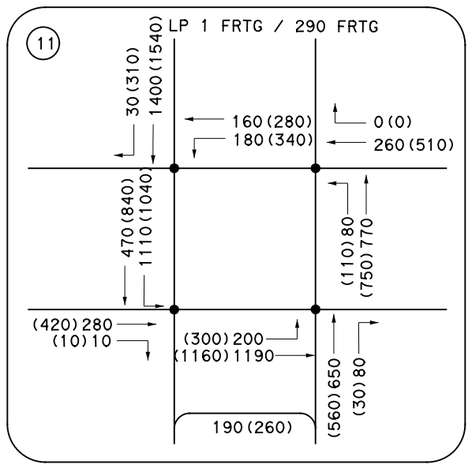


6/22/2018
P:\8140301\traffic\TransCAD\Volumes\2040\MAY2017_TMCs\2040_PKHR_VOL_JUN18.dgn




LEGEND:

XXX AM PEAK HOUR VOLUME

(XXX) PM PEAK HOUR VOLUME

(X) INTERSECTION NUMBER

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 6/22/2018

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

**NOT A BIDDING DOCUMENT**

RODRIGUEZ TRANSPORTATION GROUP
FIRM #587

Texas Department of Transportation®

DATE: 6/22/2018

US290 WEST

2040 AM AND PM PEAK HOUR TRAFFIC PROJECTIONS

ALTERNATIVE A

SHEET 2 OF 2

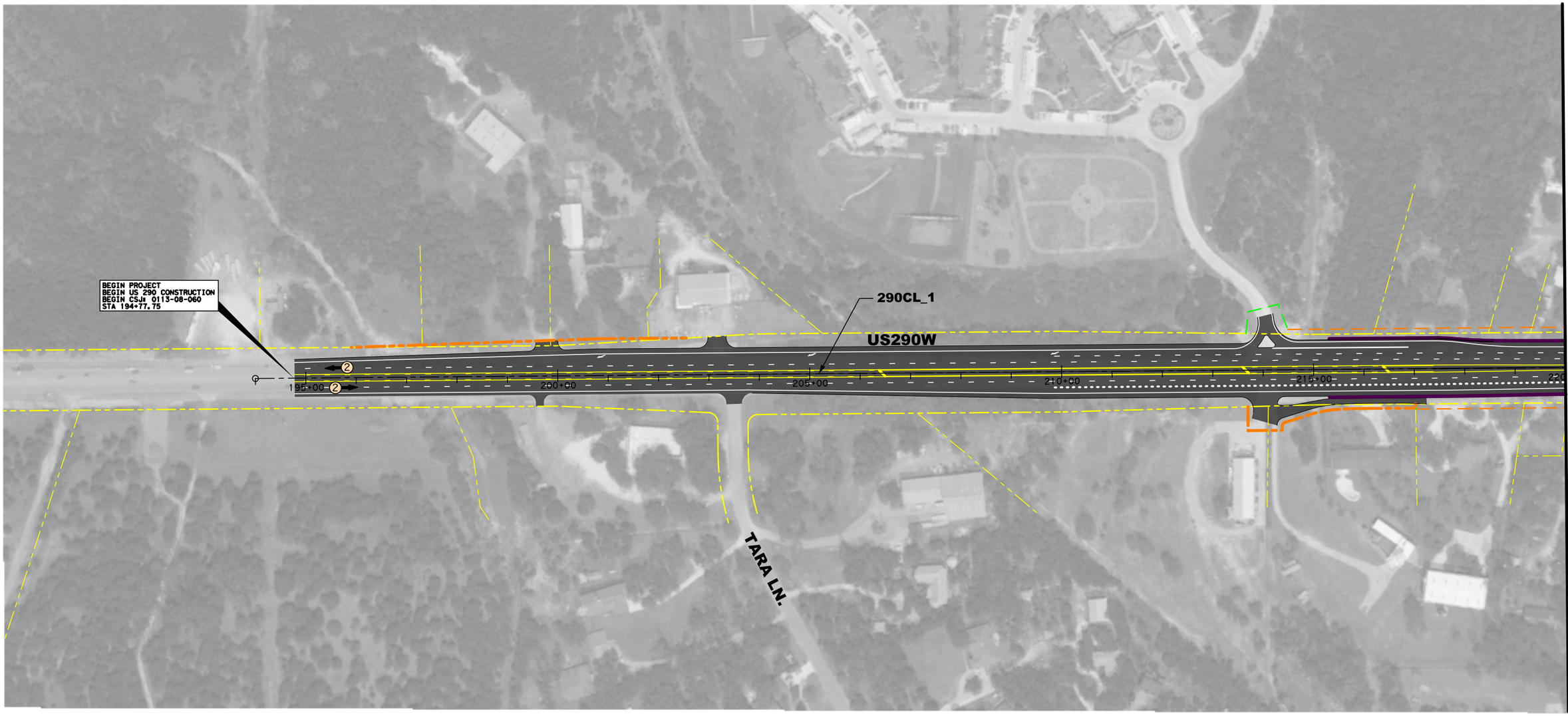


6/22/2018
P:\8140301\traffic\TransCAD\Volumes\2040\MAY2017_TMCs\2040_PKHR_VOL_JUN18.dgn

# APPENDIX J

PREFERRED ALTERNATIVE A EXHIBITS

0 100′ 200′
SCALE IN FEET




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

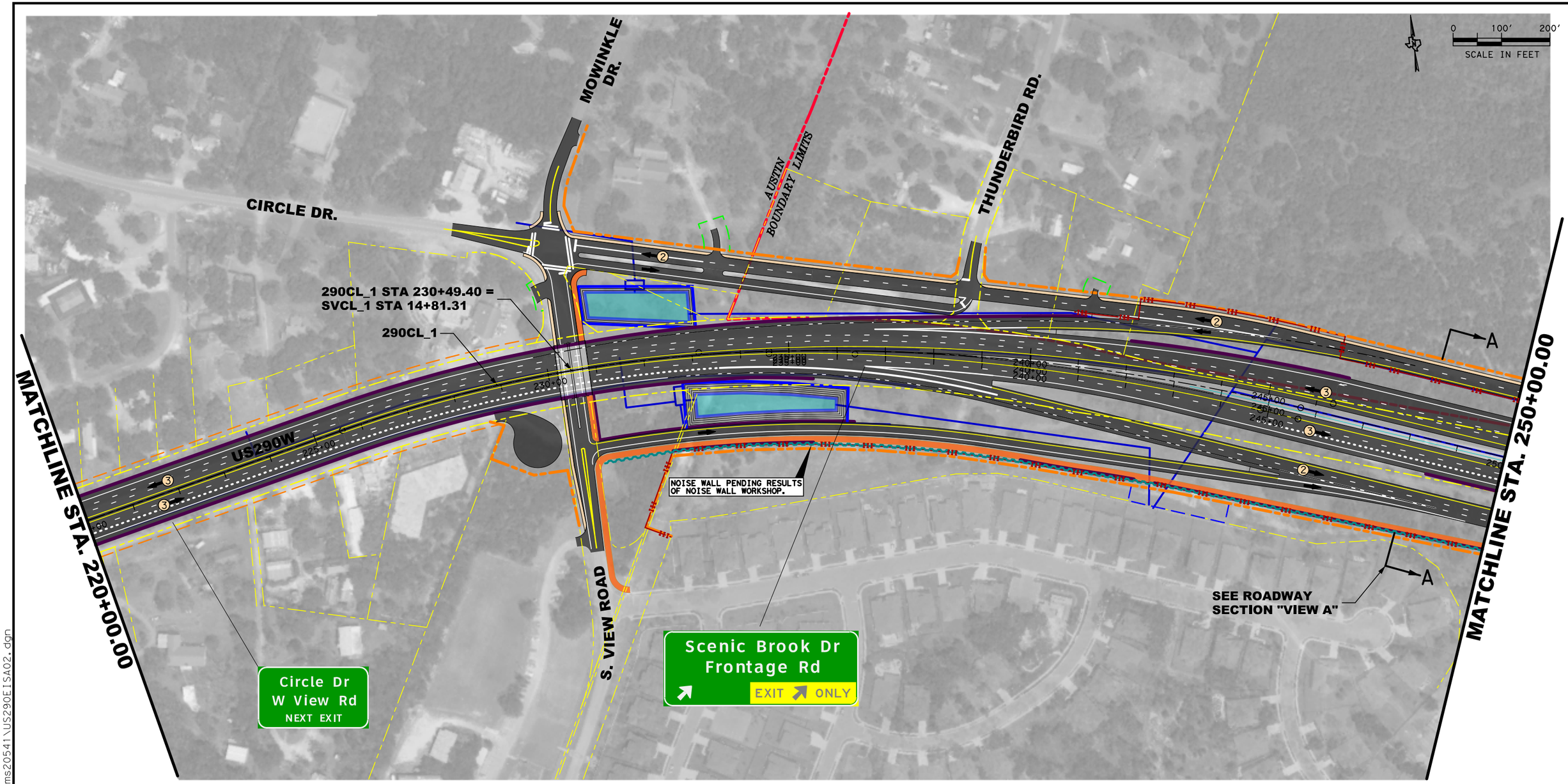
# US290 / SH71
# OAK HILL PARKWAY
# PREFERRED ALTERNATIVE
# ENVIRONMENTAL IMPACT STUDY

BEGIN TO STA. 220+00.00

SHEET 1 OF 15

DATE: 8/21/2018

8/21/2018
c:\bns\pwe-useast-008\lance.peltier\dms20541\US290EISA01.dgn




## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY

STA. 220+00.00 TO STA. 250+00.00



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA02.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 250+00.00

MATCHLINE STA. 280+00.00

SCENIC BROOK DR.

AUSTIN BOUNDARY LIMITS

BOLING DR.

US290W

290CL_1

255+00 260+00 265+00 270+00 275+00

290CL_1 STA 261+20.79 =
SBCL_1 STA 12+16.96

## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

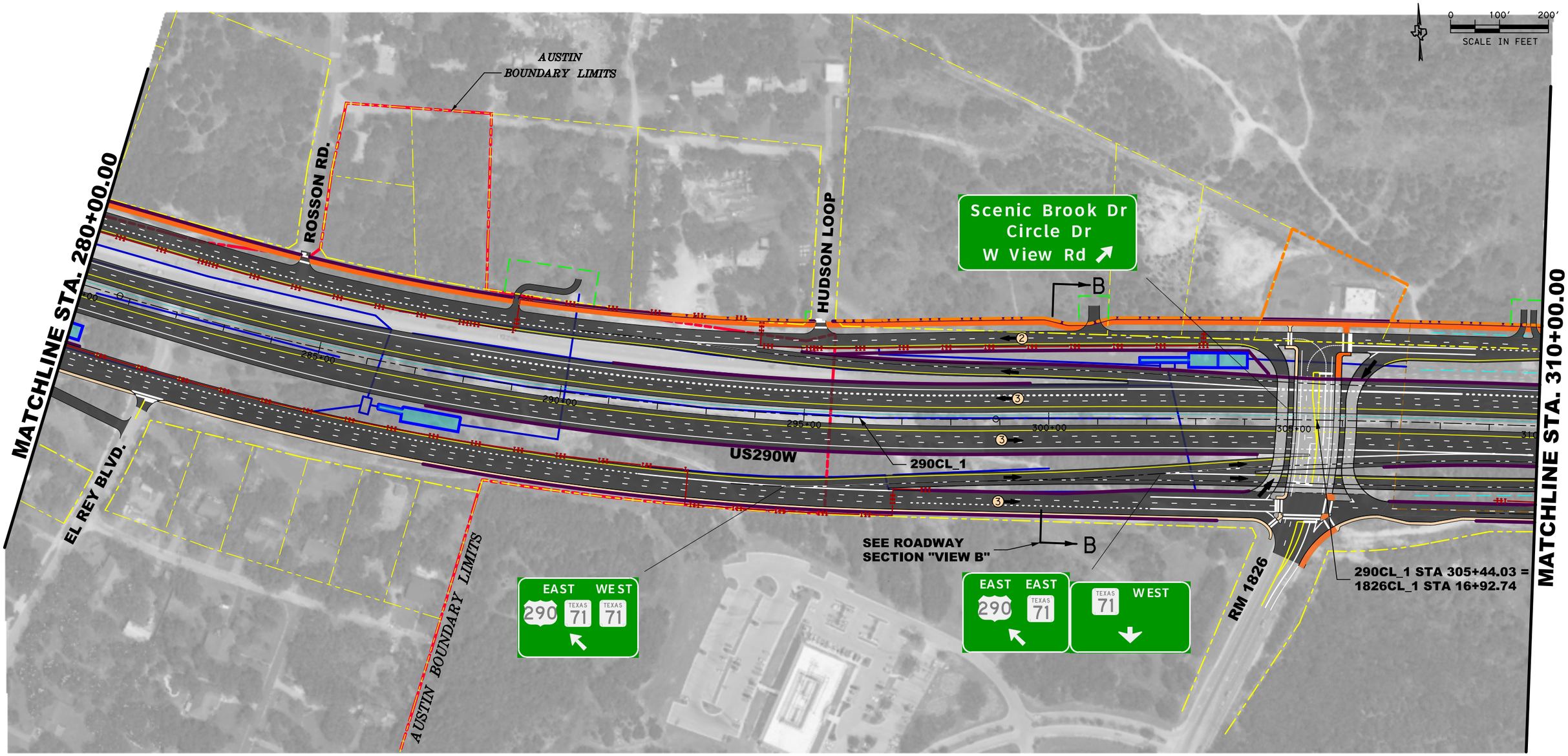
Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY

STA. 250+00.00 TO STA. 280+00.00

SHEET 3 OF 15 DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA03.dgn




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- ③ DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

# US290 / SH71
# OAK HILL PARKWAY
# PREFERRED ALTERNATIVE
# ENVIRONMENTAL IMPACT STUDY

STA. 280+00.00 TO STA. 310+00.00



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA04.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 310+00.00

MATCHLINE STA. 340+00.00

290CL_1 STA 335+80.38 =
CHCL_1 STA 15+60.93

US290W

315+00

320+00

325+00

330+00

335+00

340

C

C

290CL_1

SEE ROADWAY
SECTION "VIEW C"

NOISE WALL PENDING RESULTS OF NOISE WALL WORKSHOP.

NOISE WALL PENDING RESULTS OF NOISE WALL WORKSHOP.

CONVICT HILL RD.

## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

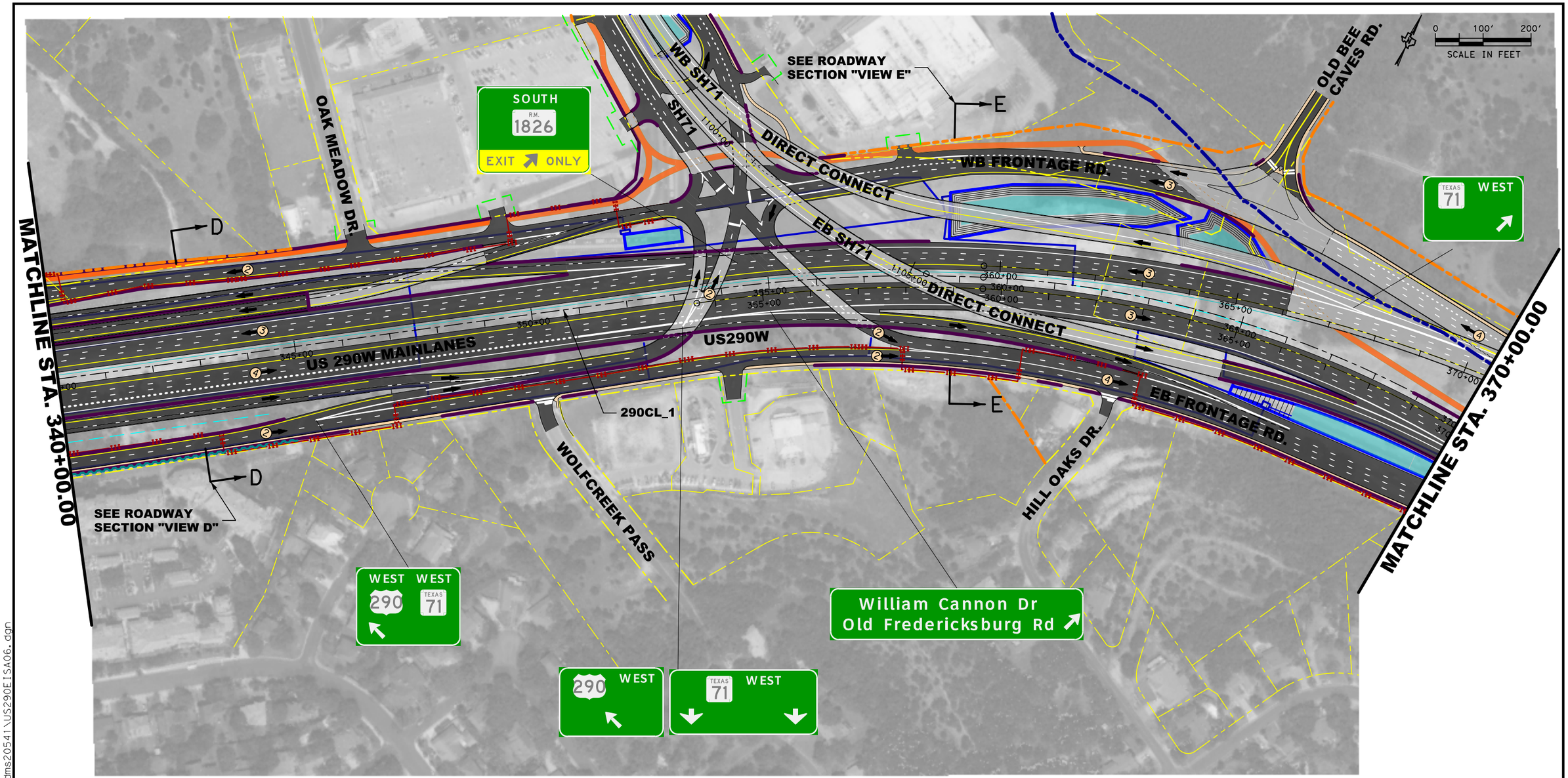
US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE

ENVIRONMENTAL IMPACT STUDY

STA. 310+00.00 TO STA. 340+00.00

SHEET 5 OF 15 DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA05.dgn




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY
STA. 340+00.00 TO STA. 370+00.00

SHEET 6 OF 15 DATE: 8/21/2018

8/21/2018
C:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA06.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 370+00.00

MATCHLINE STA. 400+00.00

SEE ROADWAY SECTION "VIEW F"

F

F

WB US290 MAINLANES

EB US290 MAINLANES

WILLIAMSON CREEK

WILLIAMSON CREEK

290CL_1

290CL_1 STA 386+16.13 =
WCCL_1 STA 20+58.37

US290W

W. WILLIAM CANNON DR.

W. WILLIAM CANNON DR.

TRAILHEAD PARKING

EDWARDS AQUIFER CONTRIBUTING ZONE

EDWARDS AQUIFER RECHARGE ZONE

375+00

380+00

385+00

390+00

395+00

EAST 290 EAST TEXAS 71

Old Fredericksburg Rd

## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

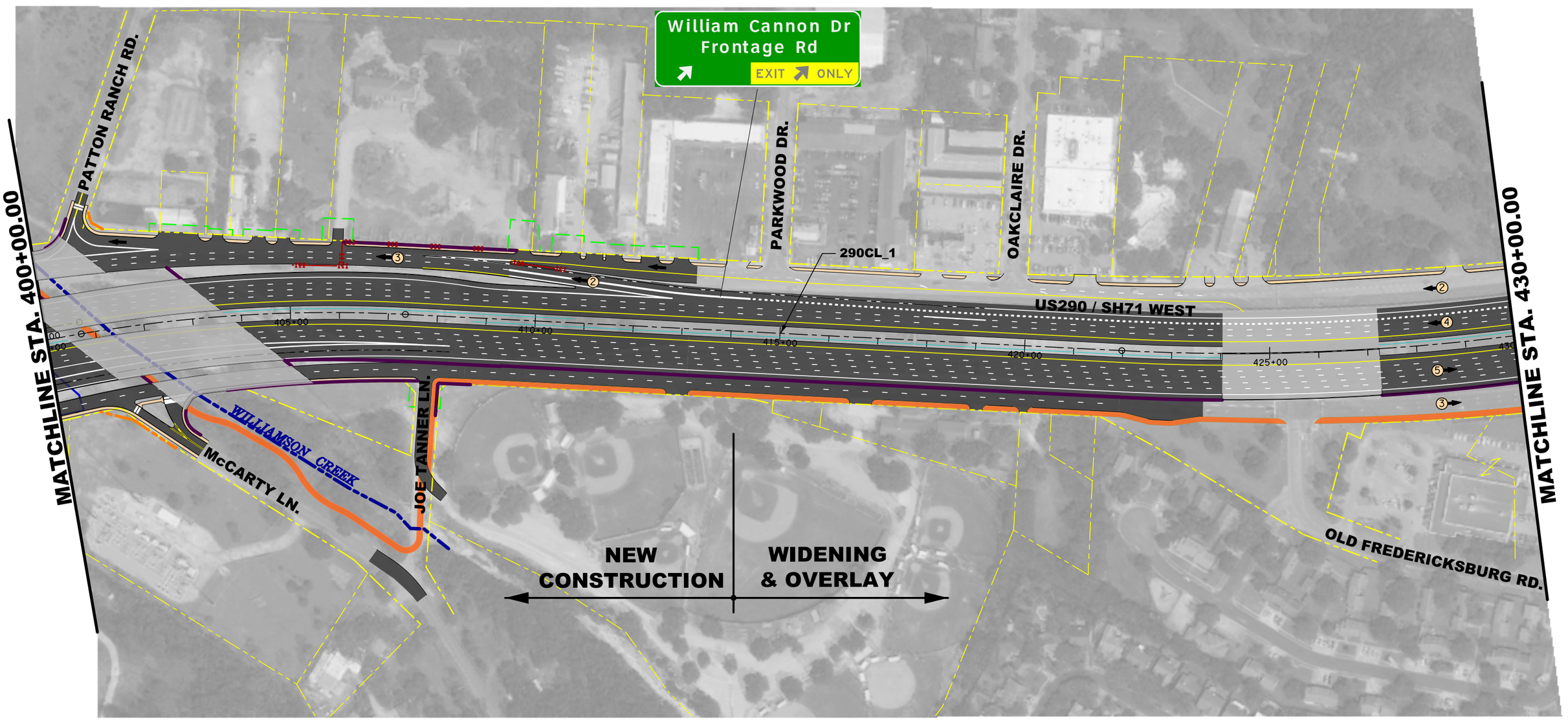
Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY
STA. 370+00.00 TO STA. 400+00.00



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA07.dgn




## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation


US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE

ENVIRONMENTAL IMPACT STUDY

STA. 400+00.00 TO STA. 430+00.00



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA08.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 430+00.00

MATCHLINE STA. 460+00.00

US290 / SH71 WEST

290CL_1

435+00

440+00

445+00

450+00

455+00

460

NOISE WALL PENDING RESULTS OF NOISE WALL WORKSHOP.

WESTCREEK DR.

OLD FREDERICKSBURG RD.

## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE

ENVIRONMENTAL IMPACT STUDY

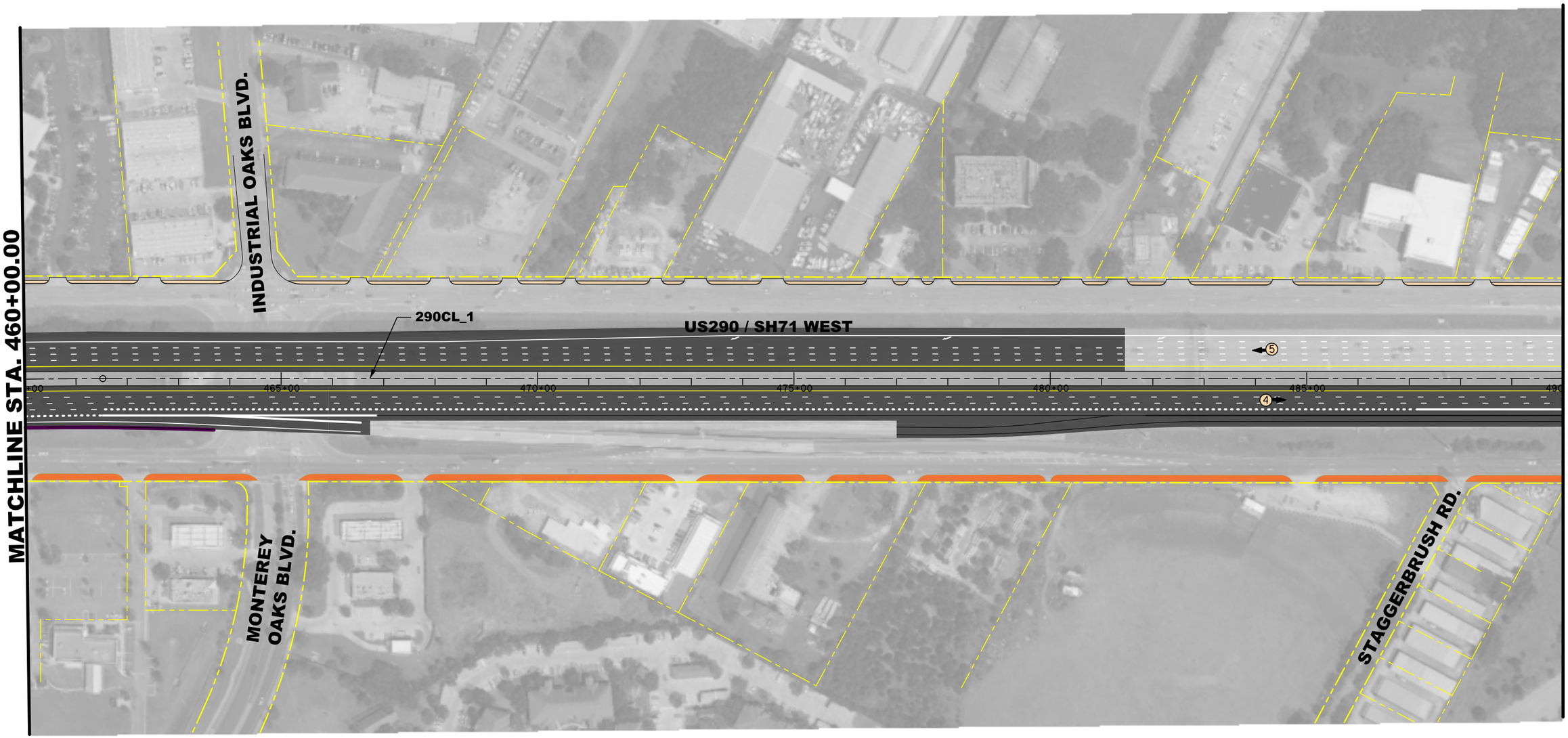
STA. 430+00.00 TO STA. 460+00.00



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EIS\A09.dgn

0 100′ 200′
SCALE IN FEET




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- ③ DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

# US290 / SH71
# OAK HILL PARKWAY
# PREFERRED ALTERNATIVE
# ENVIRONMENTAL IMPACT STUDY

STA. 460+00.00 TO STA. 490+00.00

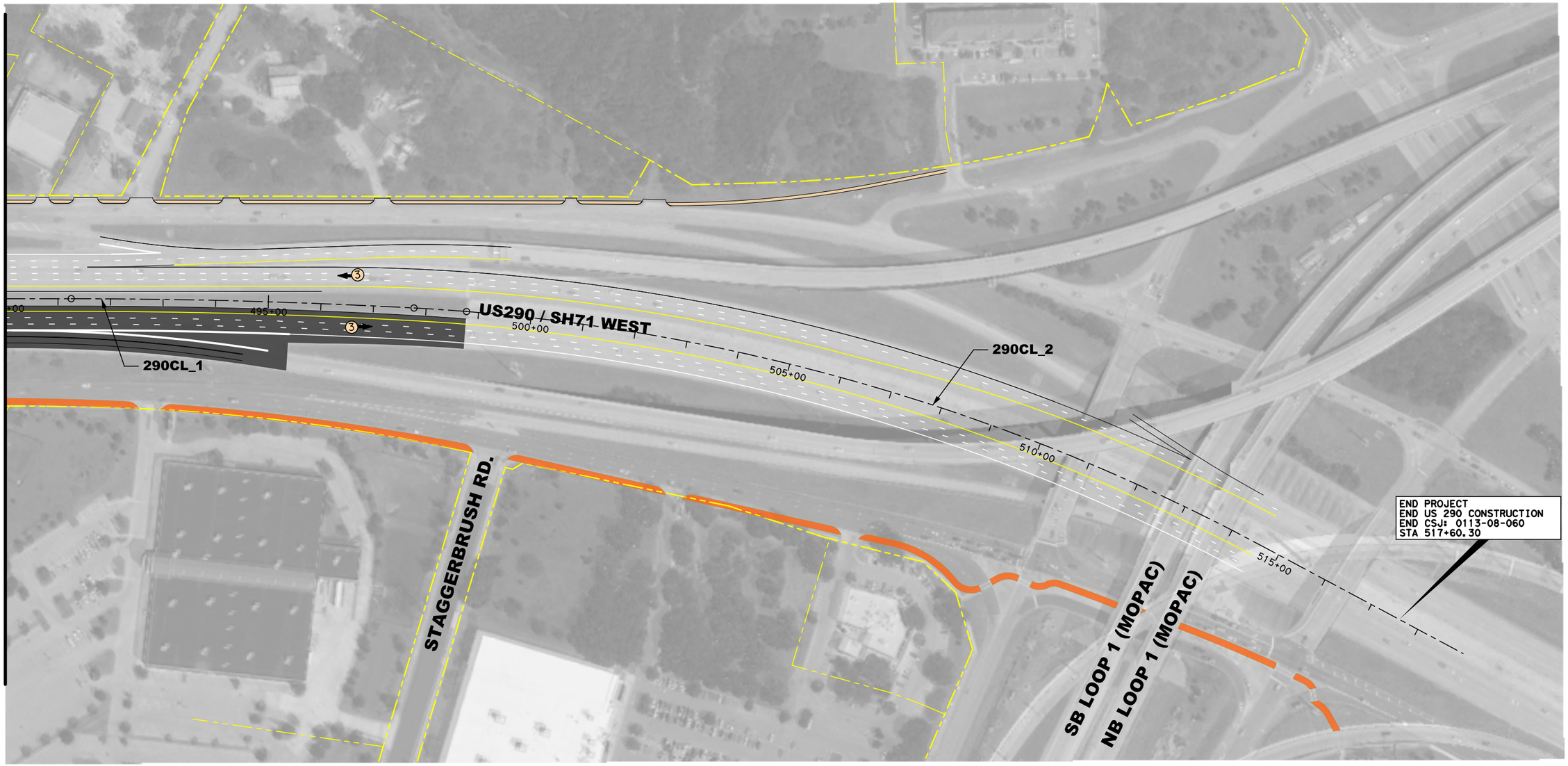


DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA10.dgn

0 100′ 200′
SCALE IN FEET

MATCHLINE STA. 490+00.00




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- ③ DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE

ENVIRONMENTAL IMPACT STUDY

STA. 490+00.00 TO END



DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\ance.peltier\dms20541\US290EISA11.dgn

0 100′ 200′
SCALE IN FEET

**MATCHLINE STA. POND 2**
**SEE NEXT SHEET**

**MATCHLINE STA. 1015+00.00**

71CL_1
1000+00
1005+00
1010+00
SH71
COVERED BRIDGE DR.

## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
WADE E. STRONG, PE 61841 ON 8/22/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY
BEGIN TO STA. 1015+00.00

SHEET 12 OF 15 DATE: 8/22/2018

8/22/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EIS\A12.dgn

0 100′ 200′
SCALE IN FEET

## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**MATCHLINE POND 2**

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/23/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



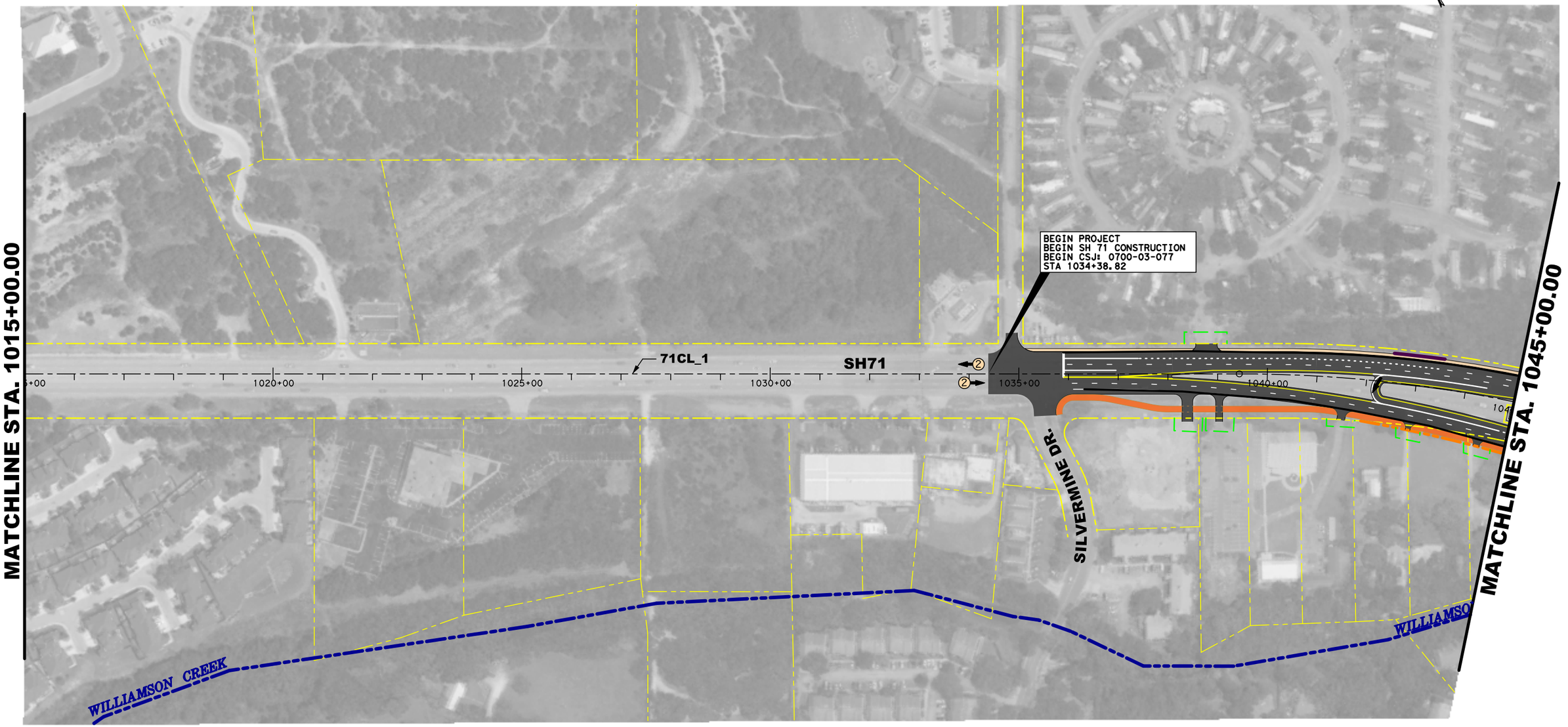
RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY

SHEET 12A OF 15 DATE: 8/23/2018

8/23/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA12A.dgn




## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/22/2018 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

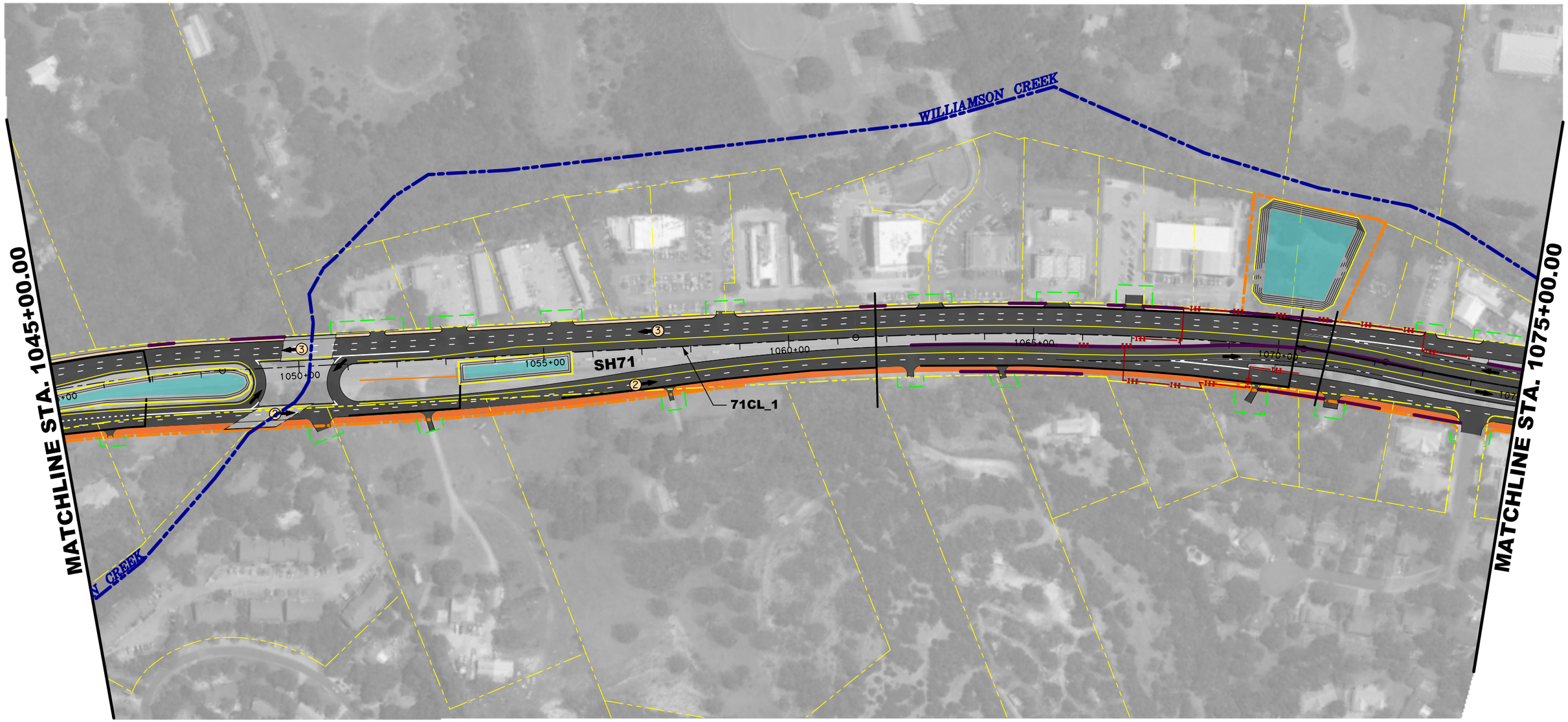
US290 / SH71
OAK HILL PARKWAY
PREFERRED ALTERNATIVE
ENVIRONMENTAL IMPACT STUDY

STA. 1015+00.00 TO STA. 1045+00.00

SHEET 13 OF 15 DATE: 8/22/2018

8/22/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA13.dgn

0 100′ 200′
SCALE IN FEET




## LEGEND

- PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT
- PROPOSED BRIDGE STRUCTURE
- PROPOSED SHARED USE PATHS
- PROPOSED SIDEWALKS
- WATER QUALITY POND
- RETAINING WALLS
- CONTROL OF ACCESS
- PROPOSED SOUND BARRIER WALLS
- EXISTING CREEK ALIGNMENT
- PROPOSED ROW
- PROPOSED DRAINAGE EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED DRIVEWAY LICENSE
- EXISTING ROW
- LANE STRIPING
- CABLE BARRIERS
- DITCH LINE
- ③ DIRECTION ARROWS / NO. LANES

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

WADE E. STRONG, PE 61841 ON 8/23/2018

IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation
© 2018

# US290 / SH71
# OAK HILL PARKWAY
# PREFERRED ALTERNATIVE
# ENVIRONMENTAL IMPACT STUDY

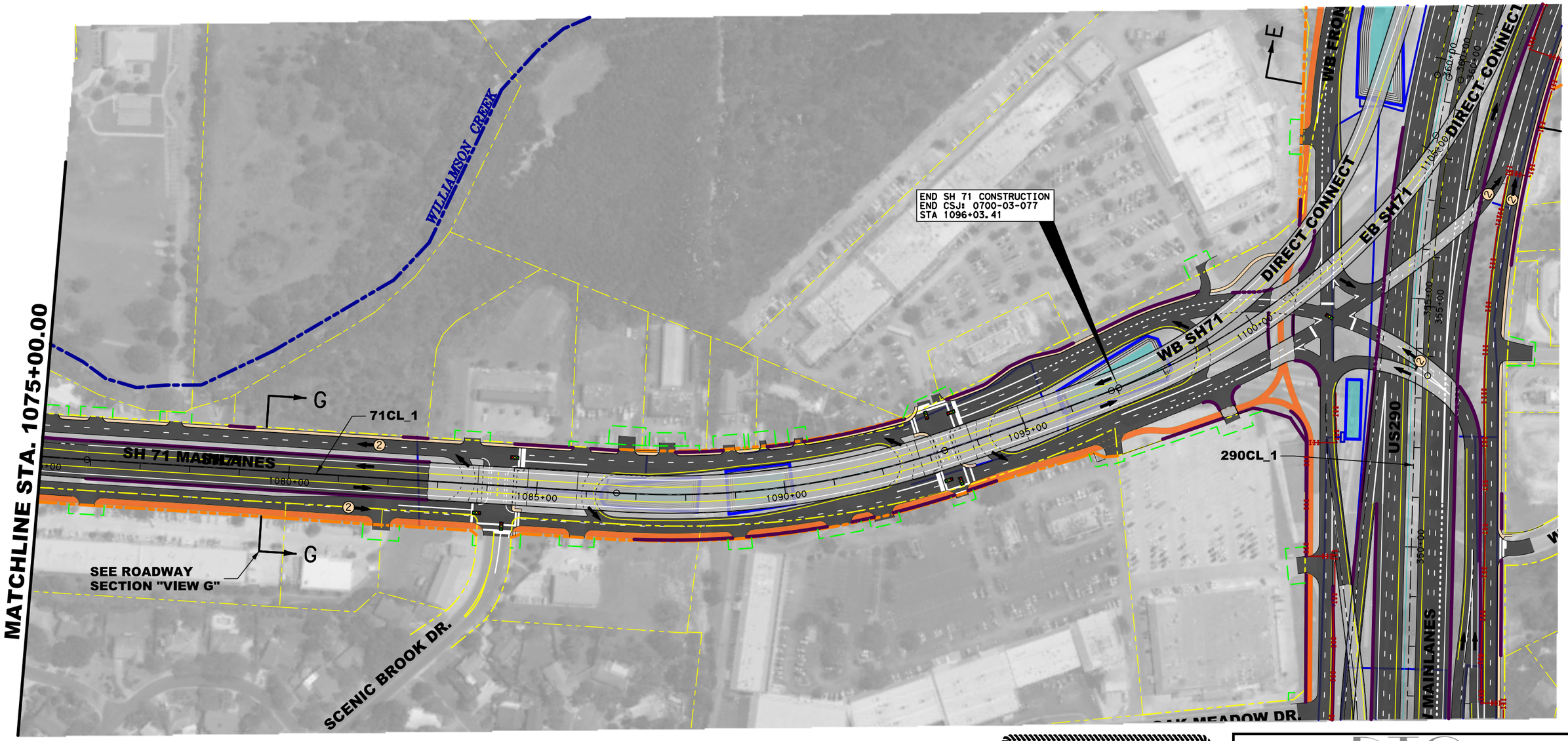
STA. 1045+00.00 TO STA. 1075+00.00

SHEET 14 OF 15

DATE: 8/23/2018

8/23/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA14.dgn

0 100′ 200′
SCALE IN FEET




## LEGEND

| | | |
|---|---|---|
| PROPOSE PAVEMENT/ OVERLAYED EXISTING PAVEMENT | PROPOSED SOUND BARRIER WALLS | LANE STRIPING |
| PROPOSED BRIDGE STRUCTURE | EXISTING CREEK ALIGNMENT | CABLE BARRIERS |
| PROPOSED SHARED USE PATHS | PROPOSED ROW | DITCH LINE |
| PROPOSED SIDEWALKS | PROPOSED DRAINAGE EASEMENT | ③ DIRECTION ARROWS / NO. LANES |
| WATER QUALITY POND | TEMPORARY CONSTRUCTION EASEMENT | |
| RETAINING WALLS | PROPOSED DRIVEWAY LICENSE | |
| CONTROL OF ACCESS | EXISTING ROW | |

**INTERIM REVIEW**

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF WADE E. STRONG, PE 61841 ON 8/21/2018
IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

NOT A BIDDING DOCUMENT

OAK HILL PARKWAY



RODRIGUEZ TRANSPORTATION GROUP
CONSULTING ENGINEERS
FIRM #587

Texas Department of Transportation


# US290 / SH71
# OAK HILL PARKWAY
# PREFERRED ALTERNATIVE
# ENVIRONMENTAL IMPACT STUDY

STA. 1075+00.00 TO END

SHEET 15 OF 15 DATE: 8/21/2018

8/21/2018
c:\bms\pwe-useast-008\lance.peltier\dms20541\US290EISA15.dgn