RESOLUTION 2022-08

SUBJECT: APPROVAL OF FUNCTIONAL CLASSIFICATION AMENDMENT TO RESOLUTION 2022-05

WHEREAS, the Rio Grande Valley Metropolitan Planning Organization (RGVMPO), is the designated agency for Transportation Planning in the Transportation Management Area; and

WHEREAS, the RGVMPO is required to have a systematic way to gather citizen input on transportation issues; and

WHEREAS, these procedures have been duly discussed and gone through the required public comment period; and

NOW THEREFORE, BE IT RESOLVED, that the Rio Grande Valley Metropolitan Planning Organization Transportation Policy Board agreed by a majority vote to approve the Functional Classification Amendment of Resolution 2022-05.

APPROVAL OF Functional Classification Resolution Amendment

Entity	Road Name	CSJ	Current Classification	From	To	Length	New Classification
CCRMA	East Loop	0921-06-315	Not Classified	I-69E	SH 4	10.1	Minor Arterial

PASSED AND APPROVED on this 30th day of March 2022.

The Honorable Eddie Trevino
Cameron County Judge
Chairman of the RGVMPO Policy Board

FOR Pedro R. Álvarez, P.E.
District Engineer
TxDOT – Pharr District

Andrew A. Canon
RGV MPO Executive Director

RMA
CAMERON COUNTY REGIONAL
MOBILITY AUTHORITY

IMPROVING MORE THAN JUST ROADS

August 11, 2020

Andrew A. Canon
Executive Director
Rio Grande Valley MPO
510 S. Pleasantview Dr.
Weslaco, Texas 78596

Re: **East Loop**
I-69E to SH4 – 10.1 mi
CSJ: 0921-06-315

Dear Andrew:

The purpose of this correspondence is to formally request the Functional Classification (FC) of the subject project from the RGVMPO and subsequently FHWA. The CCRMA is requesting the project be classified as a Major Collector.

Justification

The East Loop Project consists of the construction of a 10.1 mile four to six-lane roadway from SH 4 to I-69E (U.S. 77/83) and the Veterans International Bridge at Los Tomates. The project was previously FC as a proposed Major Collector but TxDOT removed all of the proposed corridors from their mapping system. The project includes the construction of a new four-lane divided highway from the Port Road Connector at SH 4 to the Veterans International Bridge and I-69E (U.S. 77/83).

This will be the single continuous route from the land port of entry to the seaport in the region and serve for truck traffic ad hazardous cargo to have a dedicated route in the region. The project is intended to serve both existing developments (commercial and residential) along the roadway and traffic circulation in higher density residential, and commercial/industrial areas. Connecting roadways serve to penetrate residential neighborhoods. The project will serve to distribute and channel trips between Local Roads and Arterials and will propose a higher design speed and more signalized intersections to facilitate safety.

A CCRMA traffic study indicates the road would receive significant use, serve as both land access, and traffic circulation in higher density residential, and commercial/industrial areas. This project is intended to improve the safety and quality of life for residents by improving safety, mobility, reducing congestion on adjacent parallel roadways, and eliminating travel time delays for first responder personnel and residents during an emergency.

The East Loop project would serve to connect and penetrate residential neighborhoods for a corridor extending over 10.1 miles in a highly urbanized area in Brownsville. The proposed project in conjunction with the existing facility would serve to distribute and channel trips between Local Roads and Arterials. The proposed design speed is 65 and the project will include an urban section with a median and signalized intersections at all major crossings where warranted.

The project was previously FC as a proposed Major Collector but TxDOT removed all the proposed corridors from their mapping system. The CCRMA is currently in development of the Preliminary Engineering (PE) and Environmental Documents. To proceed the CCRMA respectfully requests that the East Loop project be Functionally Classified as a Major Collector roadway.

The CCRMA has provided the following exhibits to support the FC of the subject roadway:

- Attachment A - Location Map
- Attachment B - Traffic Data
- Attachment F - Proposed FC Map (Dashed Line)

If you need any additional information or have any questions, please contact me at (956) 621-5571.

Sincerely,

Pete Sepulveda, Jr.
Executive Director

Cc: Pete Alvarez, P.E. TxDOT Pharr District Engineer
Melba Schaus, P.E. TxDOT Planning Director

PLAN LEGEND

- PROPOSED EAST LOOP
- OVERSIZE/OVERWEIGHT CORRIDOR
- STATE HIGHWAYS
- PROPOSED SOUTH PORT CONNECTOR
- POSSIBLE LAND SWAP TRACTS
- NATIONAL WILDLIFE REFUGE

PROPOSED SOUTH PORT CONNECTOR

END PROJECT EAST LOOP STA.394+74.92

BEGIN PROJECT EAST LOOP STA.175+71.71

STATION EQUATION: STA.455+00.00 BACK STA.86+44.63 AHEAD

BROWNSVILLE

BROWNSVILLE-SOUTH PADRE ISLAND INTERNATIONAL AIRPORT

VETERANS INTERNATIONAL BRIDGE AT LOS TOMATES

MATAMOROS

BROWNSVILLE SHIP CHANNEL

INTERSTATE TEXAS 69E

48 802 511 4 1419 3068

RMA CAMERON COUNTY REGIONAL MOBILITY AUTHORITY

S&B INFRASTRUCTURE, LTD.

TEXAS BOARD OF PROFESSIONAL ENGINEERS #: F-1582

BROWNSVILLE CAMERON COUNTY

EAST LOOP LOCATION MAP

-DRAFT V1-

SH 32 (East Loop)

Traffic Projections

Prepared by:

C&M Associates, Inc.

Submitted to:

S&B INFRASTRUCTURE, LTD.

February 2018

SH 32 (East Loop) Traffic Projections

Prepared For:

S&B INFRASTRUCTURE, LTD.

Prepared By:

C&M Associates, Inc.

Draft Report Version 1

February 2018

Disclaimer

INTERIM REVIEW ONLY

Preliminary Submittal. Not intended for permit, bidding, or construction.

Engineer: Behruz Paschai-Awwal
P.E. Serial No: 104752
Date: January 19, 2018

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Acronyms & Abbreviations

AADT	Average Annual Daily Traffic
ADT	Average Daily Traffic
BPR	Bureau of Public Roads
CCRMA	Cameron County Regional Mobility Authority
C&M	C&M Associates, Inc.
FM #	Farm-to-Market Road #
HSBMPO	Harlingen-San Benito Metropolitan Planning Organization
I-#	Interstate Highway #
LRGV	Lower Rio Grande Valley
SBI	S&B Infrastructure, Ltd.
SH #	State Highway #
TAHD	Traffic Analysis Highway Design
TAZ	Traffic Analysis Zone
TCDS	Traffic Counts Database System
TDM	Travel Demand Model
TPP	Transportation Planning and Programming Division
TTI	Texas Transportation Institute
TxDOT	Texas Department of Transportation
US #	U.S. Route #
V/C	Volume Over Count Ratio
VDF	Volume-Delay Function

Section 1
INTRODUCTION

C&M Associates (C&M) has been retained by S&B Infrastructure, Ltd. (SBI) to develop daily traffic projections for State Highway 32 (SH 32, or East Loop) in Cameron County, TX. The Cameron County Regional Mobility Authority (CCRMA) has chosen Option C for the development of SH 32 traffic projections. In this option, the CCRMA will approve the developed projections with minimal input from the Transportation Planning and Programming Division (TPP) of the Texas Department of Transportation (TxDOT).

The proposed SH 32 corridor falls within the limits of the Lower Rio Grande Valley (LRGV) travel demand model (TDM) developed by the Texas Transportation Institute (TTI) for TxDOT. The LRGV model is a trip-based TDM developed in the TransCAD environment and used by C&M to produce traffic split shares when needed.

C&M used the standard TPP methodology to develop the SH 32 traffic projections and subsequently used the TDM to estimate traffic rerouting after construction of SH 32. This method relies on historical growth rates and traffic counts to produce future forecasts. The traffic count data used in the analysis were obtained from the following sources:

- TxDOT's Traffic Count Database System (txdot.ms2soft.com)
- TxDOT's planning maps (http://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html)

1.1. Project Description

SH 32 is divided into two projects: SH 32 West—from U.S. Route 77/83 (US 77/83) to Farm-to-Market Road 3068 (FM 3068)—and SH 32—from FM 3068 on FM 1419 to SH 4 (until intersecting with the connector to the proposed Port International Bridge).

SH 32 West comprises the following two segments:

1. CSJ 3626-01-001: From US 77/83 to Paloma Blanca Drive
2. CSJ 1426-01-037: From Paloma Blanca Drive to FM 3068

SH 32 comprises the following four segments:

1. CSJ 3626-02-001: From FM 3068 to FM 3550
2. CSJ 1426-01-043: From FM 3550 to FM 3551
3. CSJ 3626-03-001: From FM 3551 to SH 4
4. CSJ 0039-10-076: From SH 4 to Proposed Port Connector

Figure 1-1 illustrates the project's alignment. The scope of the present report by C&M is to develop traffic projections for Opening Year 2020, Future Year 2040, and Pavement Design Year 2050. It was assumed that the proposed Port International Bridge will not be constructed within the traffic projection period.

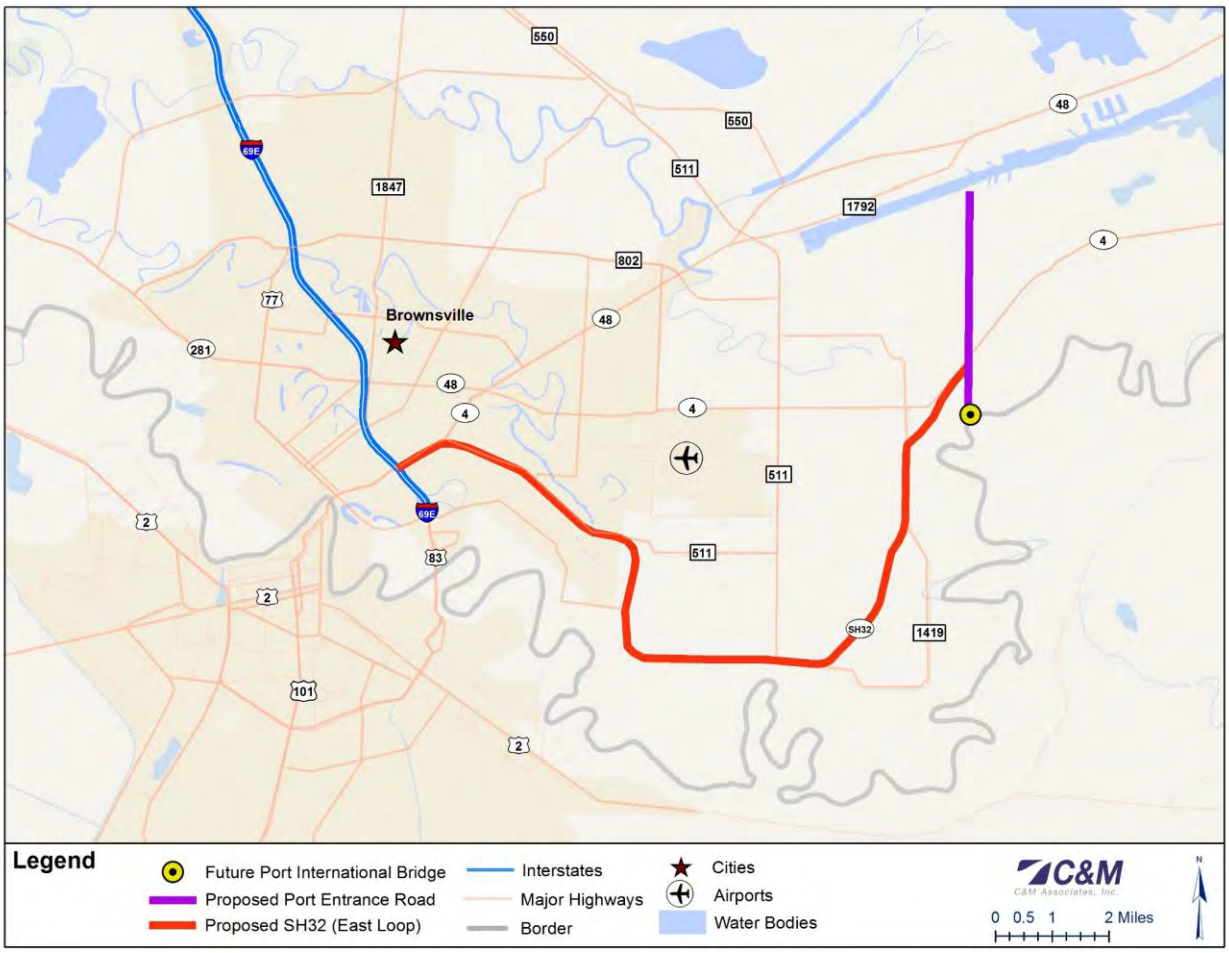


Figure 1-1. Project Location Map

1.2. Organization of the Report

The remainder of this report is organized as follows:

- Section 2 presents details regarding the existing data used in this study.
- Section 3 presents the LRGV structure and model results.
- Section 4 presents C&M's traffic projection methodology and the resultant projections.

Section 2
EXISTING INFORMATION

This section presents an overview and analysis of relevant existing traffic information within the study area. This information was either obtained from available online data sources or provided by the CCRMA or TxDOT.

2.1. Existing Roadway Network

The CCRMA is planning to improve and upgrade the transportation infrastructure in Cameron County, TX. These plans will support economic development, improve quality of life, and increase safety. The proposed SH 32 corridor is intended to reduce truck traffic on Interstate Highway 69 E (I-69E) and SH 48, which currently serves the Port of Brownsville. These and other major facilities within the study area are summarized below.

Interstate Highway 69. I-69 is a north–south freeway that crosses Texas, Tennessee, Mississippi, Michigan, Louisiana, Kentucky, Indiana, and Arkansas. In southern Texas, I-69 has three alignments: I-69E, I-69C, and I-69W. The I-69E starts from the Veterans International Bridge at Brownsville and continues north to Raymondville. I-69E has a four- to six-lane cross section with auxiliary lanes through the Brownsville area. The speed limit varies between 60 and 70 mph in the study area.

State Highway 4 (International Boulevard/Boca Chica Boulevard). SH 4 is an east–west state highway that runs from the Gateway International Bridge in Brownsville, TX to the Gulf of Mexico. SH 4 is a four-lane road with a center turn lane until South Indiana Avenue (FM 511). Afterwards, it turns into a two-lane roadway. The speed limit varies between 35 and 55 mph.

State Highway 48. SH 48 is an east–west state highway that starts from US 281 and ends at SH 100. It is a four-lane roadway with center turn lanes west of I-69E. It then turns into a six-lane roadway with a center turn lane until SH 4. Afterwards, it becomes a four-lane road with a center turn lane until Padre Island Highway. Traveling eastward, it becomes a four-lane divided roadway followed by a four-lane undivided section closer to its terminus. The speed limit varies between 35 and 75 mph.

FM 1419 (Southmost Boulevard). This road starts at SH 4 just west of Downtown Brownsville and continues eastward, following a U-shaped alignment, and again ends at SH 4 at the eastern city limits. The road has a four-lane cross section with a middle turn lane until Monsees Road. Afterwards, it turns into a two-lane road. The speed limit varies between 35 and 55 mph along this road.

2.2. TxDOT Annual Average Daily Traffic (AADT)

The traffic counts used in this study were obtained from TxDOT's Traffic Count Database System (TCDS). The count locations within the study area are shown in Figure 2-1.

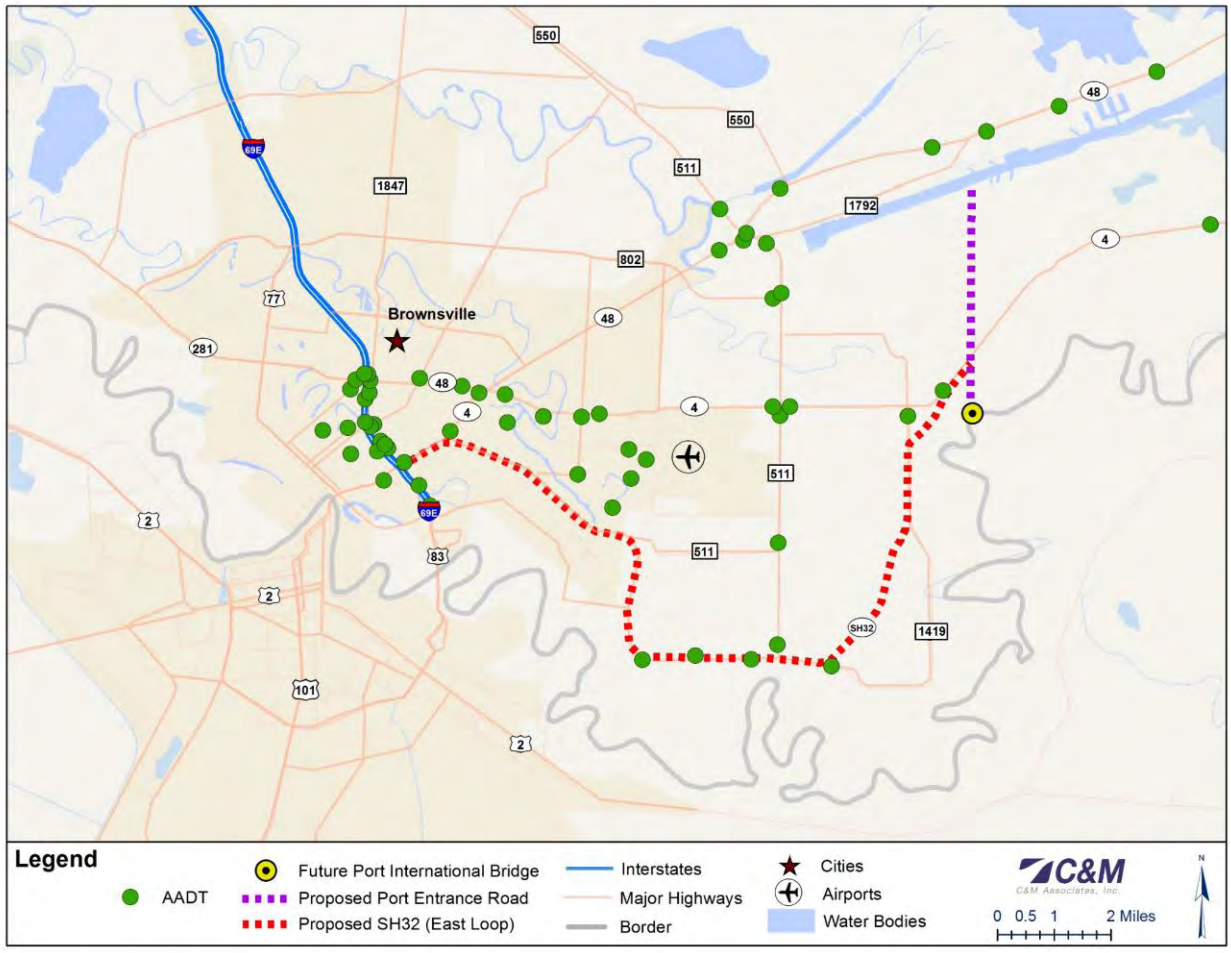


Figure 2-1. Study Area TxDOT Traffic Count Stations

Table 2-1 compares TxDOT's 2015 and 2016 AADT counts at select locations. The daily traffic on I-69E has shown significant growth between 2015 and 2016, in the range of 11.1 to 17.2 percent. SH 4 has also shown high growth ranging from 2.8 to 17.5 percent during the same time period. The growth pattern on SH 48 varies in different segments and is its highest east of I-69E, with 8.7 percent growth. The 2016 traffic counts and the corresponding truck traffic percentages, K factors, and D factors are presented in Table 2-2.

Table 2-1. Study Area AADT Comparisons

Location	AADT		Growth
	2015	2016	2015–2016
I-69E north of Veterans Intl. Bridge	9,361	10,967	17.2%
I-69E north of East University Blvd.	24,963	29,156	16.8%
I-69E north of Mc Davitt Blvd.	47,896	54,133	13.0%
I-69E north of SH 48	48,189	54,557	13.2%
I-69E at FM 802	61,377	68,301	11.3%
I-69E north of E Alton Blvd.	62,136	69,056	11.1%
I-69E north of I-169	50,878	60,335	18.6%
I-69E south of SH 100	49,070	58,548	19.3%
SH 4 east of I-69E	29,843	34,203	14.6%
SH 4 south of SH 48	26,409	27,141	2.8%
SH 4 east of SH 48	32,045	34,400	7.3%
SH 4 west of FM 511	10,503	11,517	9.7%
SH 4 east of FM 1419	326	383	17.5%
FM 1419 west of Tulipan St.	23,294	23,030	-1.1%
FM 1419 east of Villa Bonita St.	15,768	16,027	1.6%
FM 1419 south of SH 4	870	2,233	156.7%
SH 48 east of BUS 77	17,544	18,111	3.2%
SH 48 west of I-69E	18,791	20,432	8.7%
SH 48 west of SH 4	41,219	40,713	-1.2%
SH 48 north of SH 4	30,766	30,490	-0.9%
SH 48 west of FM 511	19,258	19,490	1.2%
SH 48 east of FM 1792	12,035	12,613	4.8%
SH 48 west of SH 100	6,733	6,866	2.0%

Source: TxDOT ms2soft

Table 2-2. Study Area AADTs, Truck Shares, K Factors, and D Factors (2016)

Location	ADT	Truck %	K	D
I-69E north of Veterans Intl. Bridge	10,967	16%	8%	59%
I-69E north of East University Blvd.	29,156	11%	9%	53%
I-69E north of Mc Davitt Blvd.	54,133	8%	9%	65%
I-69E north of SH 48	54,557	8%	9%	65%
I-69E at FM 802	68,301	7%	9%	65%
I-69E north of E Alton Blvd.	69,056	7%	9%	65%
I-69E north of I-169	60,335	7%	9%	65%
I-69E south of SH 100	58,548	7%	9%	65%
SH 4 east of I-69E	34,203	3%	12%	68%
SH 4 south of SH 48	27,141	3%	8%	52%
SH 4 east of SH 48	34,400	3%	8%	50%
SH 4 west of FM 511	11,517	6%	10%	64%
SH 4 east of FM 1419	383	7%	10%	71%
FM 1419 west of Tulipan St.	23,030	1%	9%	52%
FM 1419 east of Villa Bonita St.	16,027	5%	9%	50%
FM 1419 south of SH 4	2,233	7%	18%	52%
SH 48 east of BUS 77	18,111	3%	8%	52%
SH 48 west of I-69E	20,432	3%	8%	53%
SH 48 west of SH 4	40,713	3%	8%	50%
SH 48 north of SH 4	30,490	3%	8%	52%
SH 48 west of FM 511	19,490	3%	9%	64%
SH 48 east of FM 1792	12,613	4%	11%	70%
SH 48 west of SH 100	6,866	10%	11%	59%

2.3. Corridor Schematics

The corridor schematics used in the present study were prepared by SBI for SH 32 and SH 32 West (dated March 9, 2017), as presented in Appendix A. From west to east, the SH 32 corridor intersects with I-69E, Valor Street, East Avenue, Azucena Avenue, Calle Milpa Verde, Monsees Road, Southmost Boulevard, Paloma Blanca, George Saenz Road, S Dakota Avenue, Dave Drive, FM 3068, FM 1049, Browne Road, Duckberry Road, Florida Road, SH 4, and the future Port International Bridge access road.

Section 3
TRAVEL DEMAND MODEL

For the present study, C&M adopted the Harlingen-San Benito Metropolitan Planning Organization's (HSBMPO) TDM. The HSBMPO TDM is a trip-based model developed in the TransCAD environment. It is based on the LRGV TDM developed by TTI for TxDOT.

The HSBMPO TDM was only used to determine the diversion shares at SH 32 intersections and to estimate the increased demand due to the construction of the SH 32 corridor. The traffic projections were developed using TPP's standard methodology of historical growth rates, which is explained in more detail in Section 4.

This section presents an overview of the TDM platform referenced in this study.

3.1. TDM Overview

C&M obtained the following files for this study:

- HSBMPO TDM data:
    - Roadway network for year 2035
    - Daily trip table for year 2035 (not by mode) and assignment results
    - Traffic analysis zone (TAZ) structure
    - Demographic data:
        - Total population
        - Household population, median household income
        - Employment by sector
            - Basic
            - Retail
            - Service
            - Educational
        - Employment at special generators
- HSBMPO model output PDFs:
    - Roadway volumes and volume over count (V/C) ratios for years 2004, 2009, 2030, and 2035

As shown in Figure 3-1, the model's TAZ layer includes a total of 1,414 zones (internal, external, and reserve zones) that cover two counties—Hidalgo and Cameron—with a total area of approximately 2,600 square miles. The link network in the TDM is shown in Figure 3-2. The Bureau of Public Roads (BPR) function is used as the volume-delay function (VDF).

The total number of daily trip generated in the region is 4,913,345 in year 2035. The model platform uses TripCal5 and ATOM2 for trip generation and trip distribution. The total population of the modeling area is forecasted to grow to 1,055,394 by year 2035, with a total employment of 245,888.

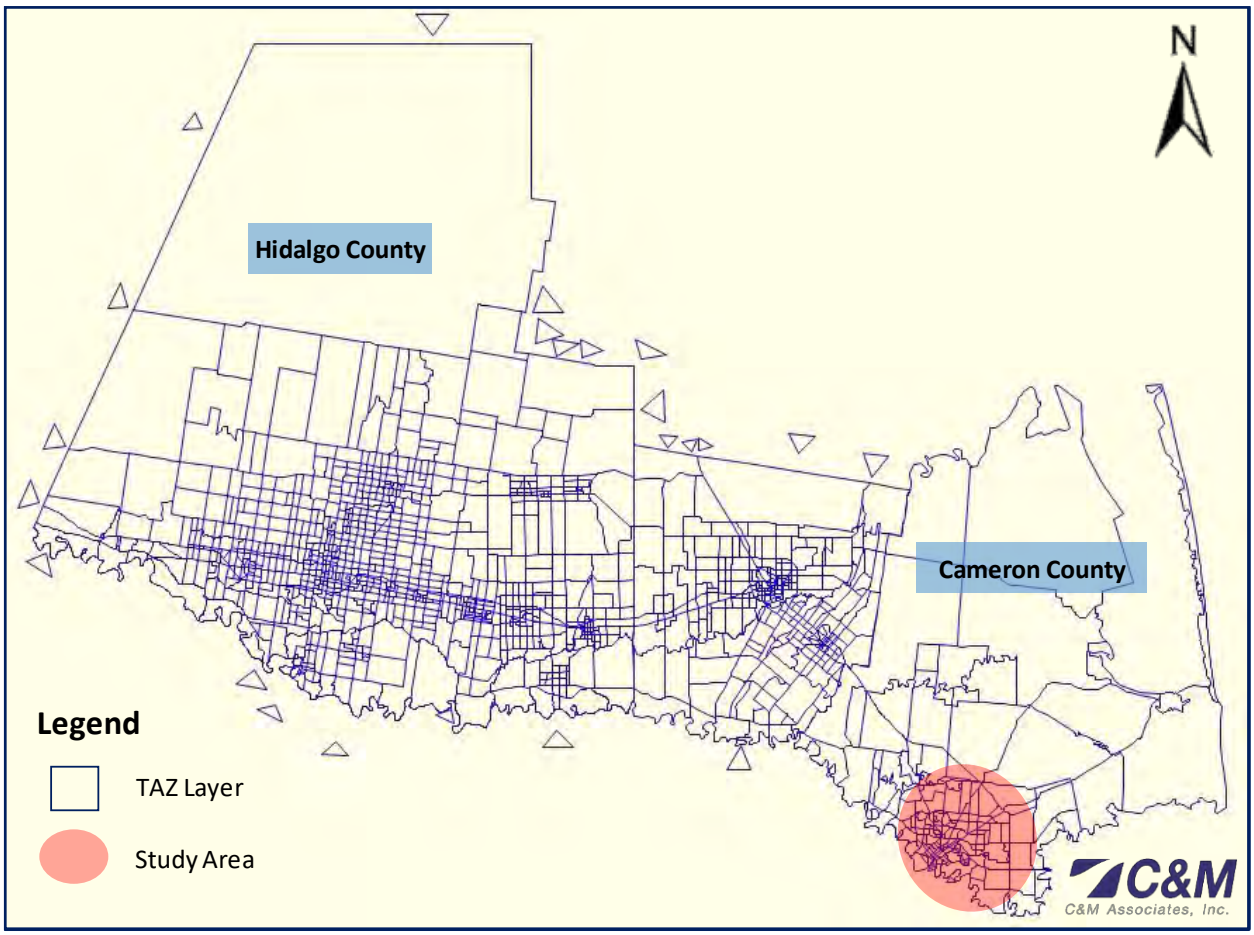


Figure 3-1. HSBMPO Zone Structure

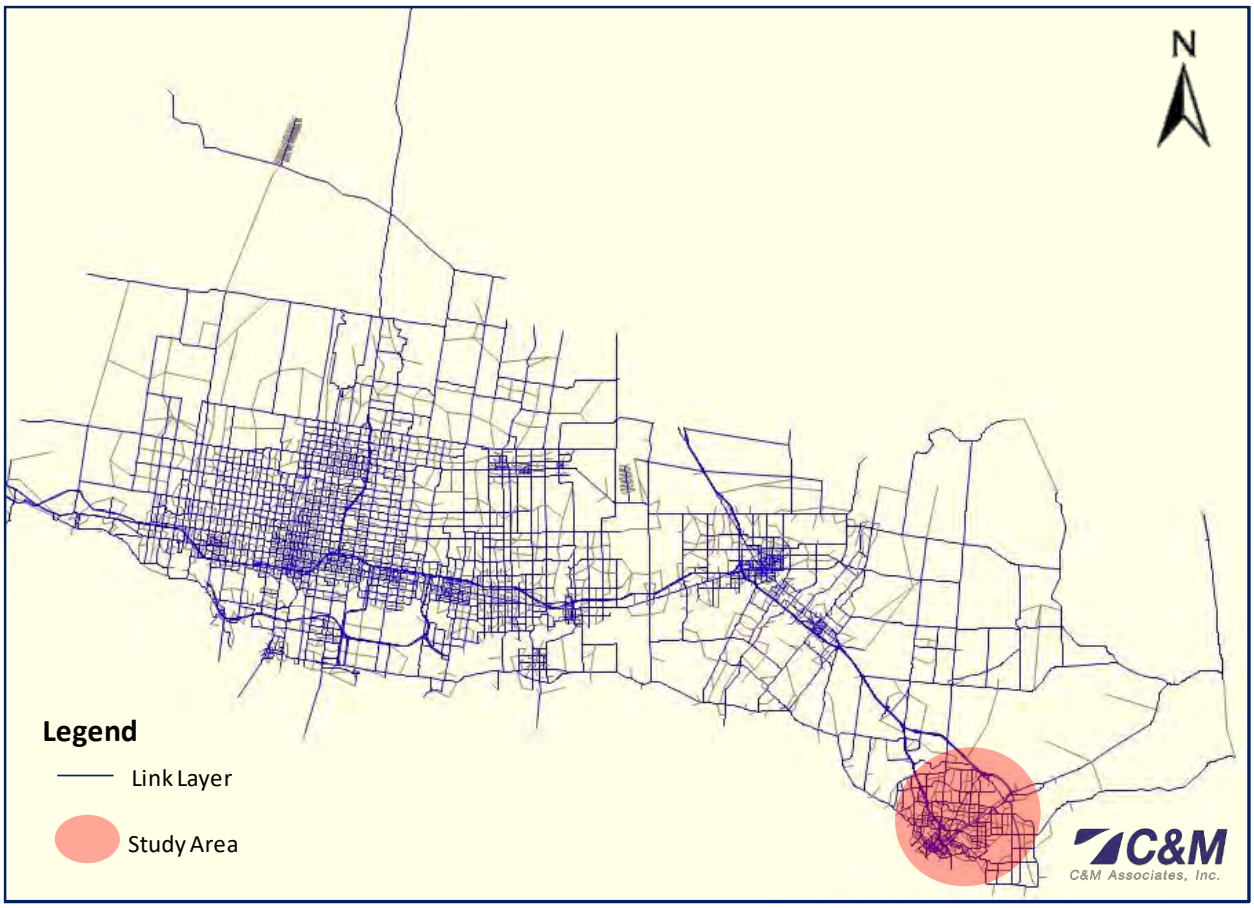


Figure 3-2. HSBMPO Link Network

Section 4
TRAFFIC PROJECTIONS

This section presents C&M's methodology for developing traffic projections for the SH 32 (East Loop) corridor. The section also includes an explanation of the adopted TPP methodology and the corresponding analysis of historical traffic counts, as well as a description of how the traffic projections were adjusted to account for increased demand due to traffic shifting onto the proposed SH 32.

4.1. Traffic Growth Rate Development

The standard TPP methodology for corridor traffic projections consists of using 20-year regression-derived growth rates and calculating opening, design, and pavement design years based on the Pivot method. This standard methodology allows for rerouting traffic to a new corridor by making engineering judgements and local observations. For this study, C&M relied on the HSBMPO TDM for calculating traffic diverted to the proposed SH 32 corridor, latent demand, and traffic on SH 32 that is associated with major cross streets. The TPP methodology is explained in more detail below.

Historical Traffic Counts. TxDOT provides annual counts at specific points along the regional highway system. TPP methodology recommends 20 years as the range of historical counts required for analysis. TxDOT's TCDS has traffic count data for I-69E from 1999 to 2016. It also includes historical data on Southmost Boulevard, S. Indiana Avenue, S. Oklahoma Avenue, SH 4 (Boca Chica Boulevard), and SH 48. The TCDS also includes 2016 counts on several other roadways in the vicinity of the proposed SH 32 corridor.

Existing Traffic Counts. 2016 is considered the existing traffic counts year for the purposes of this analysis. The existing year traffic volumes are used as the basis for future projections even beyond the pivot year.

Growth Rate Post-Pivot Year. TPP methodology states to use the pre-20/pivot year growth rate if it is less than 2.0 percent; otherwise, the post-20/pivot year is typically greater than 2.0 percent.

Pivot Method. TPP uses the Pivot method to calculate average daily traffic (ADT) projections. The Pivot Year, which is the existing traffic counts year (Counts Year) plus 20 years, is the last year in which the initial growth rate is used. All ADT calculations are based on the existing year volumes.

The standard equation for traffic projections prior to the Pivot Year is as follows:

Analysis Year ADT = (Count Year ADT)*[1+(Analysis Year-Count Year)*(≤20-year G.R./100)]

The Pivot Year ADT equation is as follows:

Pivot Year ADT = (Count Year ADT)*[1+(Pivot Year-Count Year)*(≤20-year G.R./100)]

The Post-Pivot Year ADT equation is as follows:

Post-Pivot Year ADT = (Count Year ADT)*[1+(Pivot Year-Count Year) * (≤20-year G.R./100) + (Analysis Year-Pivot Year)*(>20-Year G.R./100)]

4.2. Existing Traffic Counts

All analyses, comparisons, and growth rates are based on 2016 traffic counts obtained from the TCDS. Table 4-1 presents the 2016 traffic counts (AADT) on I-69E in the vicinity of the project corridor and the calculated growth rates for each location. The average growth rate on the southern end of the I-69E corridor is 2.2 percent per year based on the 2016 traffic counts. The growth rate will be reduced to 2.0 percent per year beyond year 2036. These growth rates are also appropriate for other count locations along the proposed corridor as calculated through the TCDS historical counts.

Table 4-1. I-69E Historical Traffic Counts (AADT) and Growth Rates

Year	North of Mc Davitt Blvd. (Station 31H91)	South of Morelos St. (Station 31H92)	North of SH 48 (Station 31H93)
1999	27,000	55,000	56,000
2000	27,000	46,000	53,000
2001	40,000	51,000	61,000
2002	44,000	57,000	66,000
2003	39,000	49,000	58,000
2004	58,000	66,000	71,000
2005	59,260	66,650	72,450
2006	55,710	59,870	42,600
2007	67,000	71,000	74,000
2008	64,500	65,000	73,000
2009	62,000	74,000	81,000
2010	60,000	60,000	80,000
2011	68,000	78,000	90,000
2012	57,000	67,000	78,000
2013	56,573	67,019	73,032
2014	60,324	60,461	81,674
2015	54,419	54,690	73,586
2016	60,600	56,281	85,653
Low Linear Growth	1.2%	0.0%	0.8%
Forecast Growth	2.5%	1.0% (2.0%)	2.2%
High Linear Growth	3.8%	2.2%	3.2%
Slope	1689.44	654.77	1675.91
Intercept	38994.51	55766.2	56310.06
Average Growth Rate		**2.2%**	

Vehicle classifications were obtained from Station HP965 on US 77/I-69E located north of FM 732, as shown in Table 4-2.

Table 4-2. Vehicle Classification for I-69E (at Station HP695)

Start Time	Motor-cycle	Car	Pickup	Bus	2A SU	3A SU	>3A SU	<5A 2U	5A 2U	>5A 2U	<6A >2U	6A >2U	>6A >2U	14	15	TOTAL
12:00 AM	3	423	69	1	3	0	0	0	39	1	0	0	0	0	0	**539**
1:00 AM	1	232	30	1	7	2	0	3	30	0	0	0	0	0	0	**306**
2:00 AM	0	189	38	1	1	1	0	2	31	0	0	0	0	0	0	**263**
3:00 AM	0	154	41	5	10	0	0	4	33	0	1	0	0	0	0	**248**
4:00 AM	0	275	68	4	13	2	0	3	22	0	2	0	0	0	0	**389**
5:00 AM	1	631	111	4	31	5	0	8	62	1	2	1	0	0	0	**857**
6:00 AM	2	1,525	354	7	37	5	1	9	67	0	2	1	0	0	0	**2,010**
7:00 AM	8	3,255	784	7	65	18	2	12	118	4	0	0	0	0	0	**4,273**
8:00 AM	7	2,745	627	12	59	23	1	8	143	6	0	0	0	0	0	**3,631**
9:00 AM	1	2,338	602	5	68	26	1	12	185	2	1	1	0	0	0	**3,242**
10:00 AM	3	2,356	627	9	71	22	1	15	172	2	0	0	0	0	0	**3,278**
11:00 AM	8	2,410	623	10	66	20	1	12	181	5	1	0	0	0	0	**3,337**
12:00 PM	8	2,538	572	4	80	28	2	9	140	8	0	0	0	0	0	**3,389**
1:00 PM	4	2,602	751	6	70	23	0	13	144	2	0	0	0	0	0	**3,615**
2:00 PM	7	2,789	679	8	60	23	1	13	122	4	0	0	0	0	0	**3,706**
3:00 PM	1	2,764	681	17	67	25	2	18	130	5	0	0	0	0	0	**3,710**
4:00 PM	5	3,200	798	12	64	19	1	9	122	3	0	0	0	0	0	**4,233**
5:00 PM	6	3,965	859	5	58	20	2	21	112	1	0	0	0	0	0	**5,049**
6:00 PM	10	2,929	618	6	35	11	1	11	108	4	3	0	0	0	0	**3,736**
7:00 PM	7	2,049	492	5	27	14	1	11	84	4	0	0	0	0	0	**2,694**
8:00 PM	11	1,619	353	10	15	2	0	7	82	0	4	0	0	0	0	**2,103**
9:00 PM	4	1,443	292	5	13	2	0	1	64	0	0	0	0	0	0	**1,824**
10:00 PM	3	1,043	209	6	4	3	0	2	68	0	0	0	0	0	0	**1,338**
11:00 PM	0	732	178	2	1	4	0	0	50	0	0	0	0	0	0	**967**
TOTAL	**100**	**44,206**	**10,456**	**152**	**925**	**298**	**17**	**203**	**2,309**	**52**	**16**	**3**	**0**	**0**	**0**	**58,737**

4.3. Traffic Projections

The traffic projections were developed by following the steps listed below, using both available traffic counts and the TDM runs.

1) Start from 2016 traffic counts (AADT) provided by TxDOT (ms2soft interface) at available locations in the TDM.
2) Estimate the missing 2016 counts by growing the 2014 counts obtained from the Urban Traffic Maps at growth rates calculated from neighboring traffic count locations.
3) Develop the 2016 roadway network and trip tables.
4) Run the TDM for year 2016 with the existing network configuration.
5) Run the TDM for year 2016 with SH 32 and the proposed Port Connector included in the network.

6) Calculate the ratio of the model run results in step 5 over step 4 (this ratio represents the rerouting of traffic due to the construction of SH 32).
7) Apply the rates calculated in step 6 to their corresponding 2016 traffic counts; at this stage, we have an estimate of the 2016 counts had SH 32 been constructed.
8) Use the turning movement percentages from the TDM model run in step 5 to get an estimate of the daily intersection turning movements. The approach volumes are kept constant, as calculated in step 7, and necessary turning movement adjustments are performed where needed.
9) Reroute all truck traffic (16%) from the Veteran's Bridge Border Crossing onto SH 32 and then to the Port using the new Port Connector.
10) Grow the 2016 traffic to 2020 and thereafter to 2040 and 2050 using the calculated historical growth rates.

The SH 32 daily traffic projections for years 2020, 2040, and 2050 are shown in Figure 4-1 through Figure 4-9.

The Traffic Analysis Highway Design (TAHD) tables are presented in Table 4-3 through Table 4-6.

The section locations are illustrated in Figure 4-10.

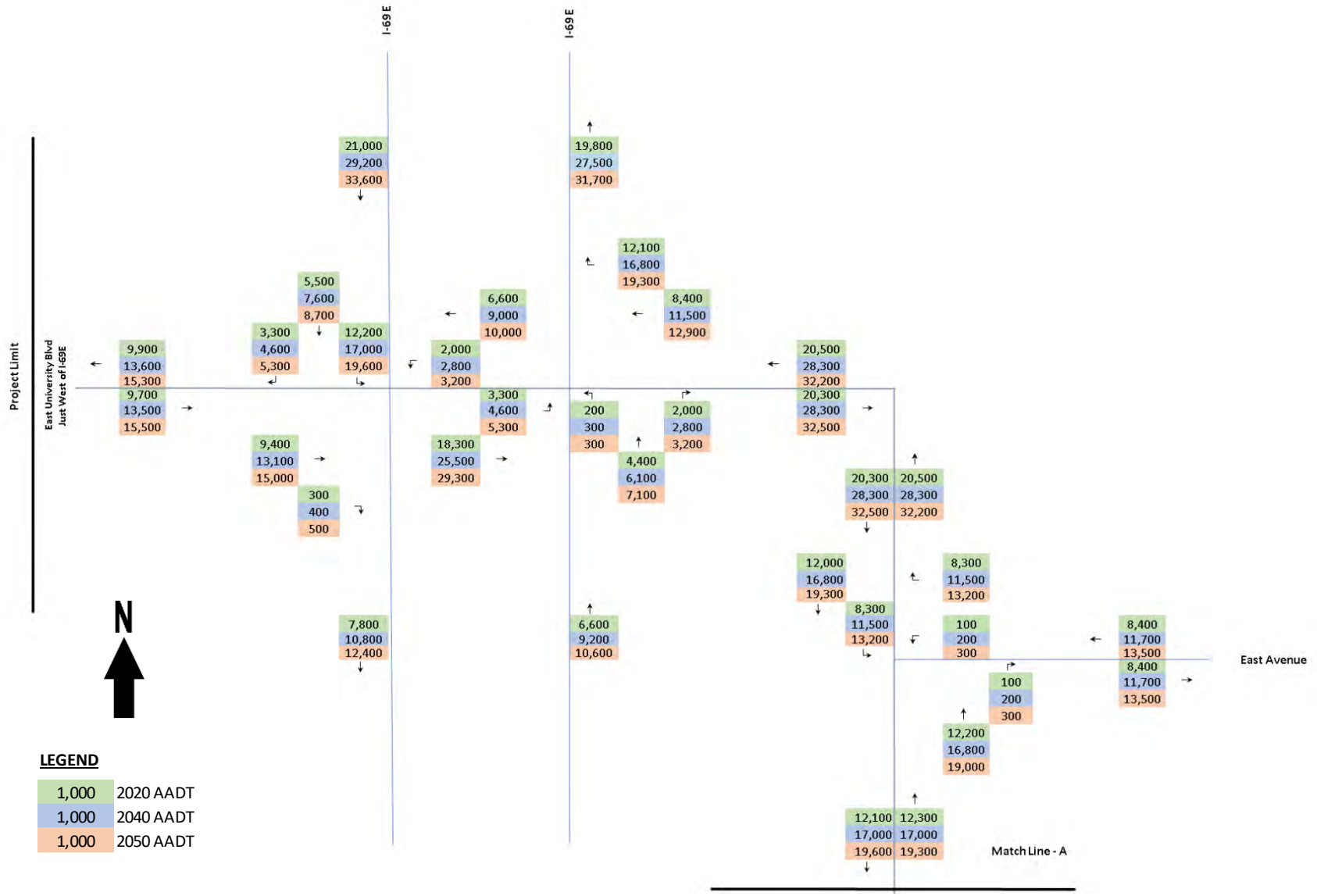


Figure 4-1. SH 32 AADT Projections (2020, 2040, 2050)

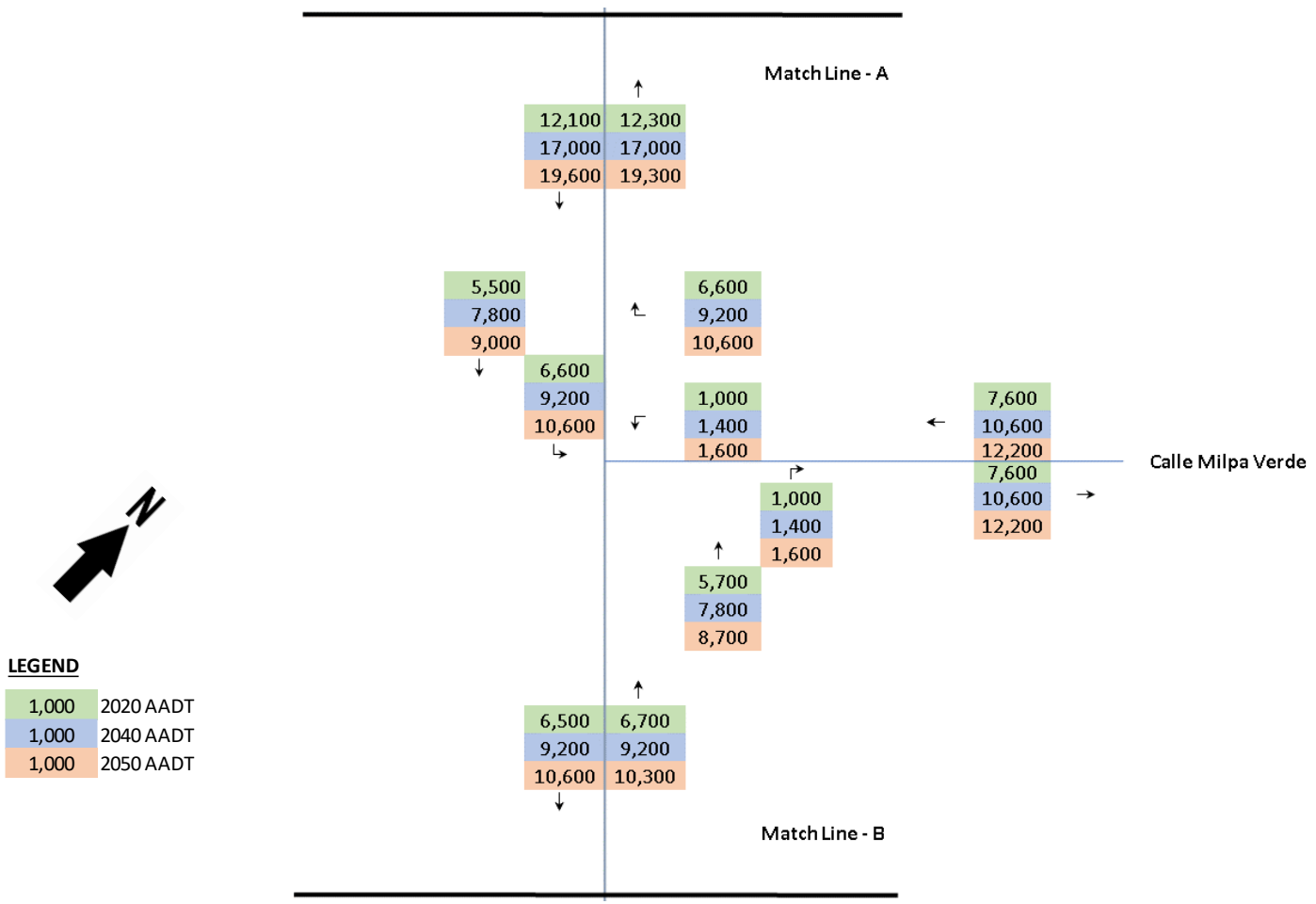


Figure 4-2. SH 32 AADT Projections (2020, 2040, 2050)

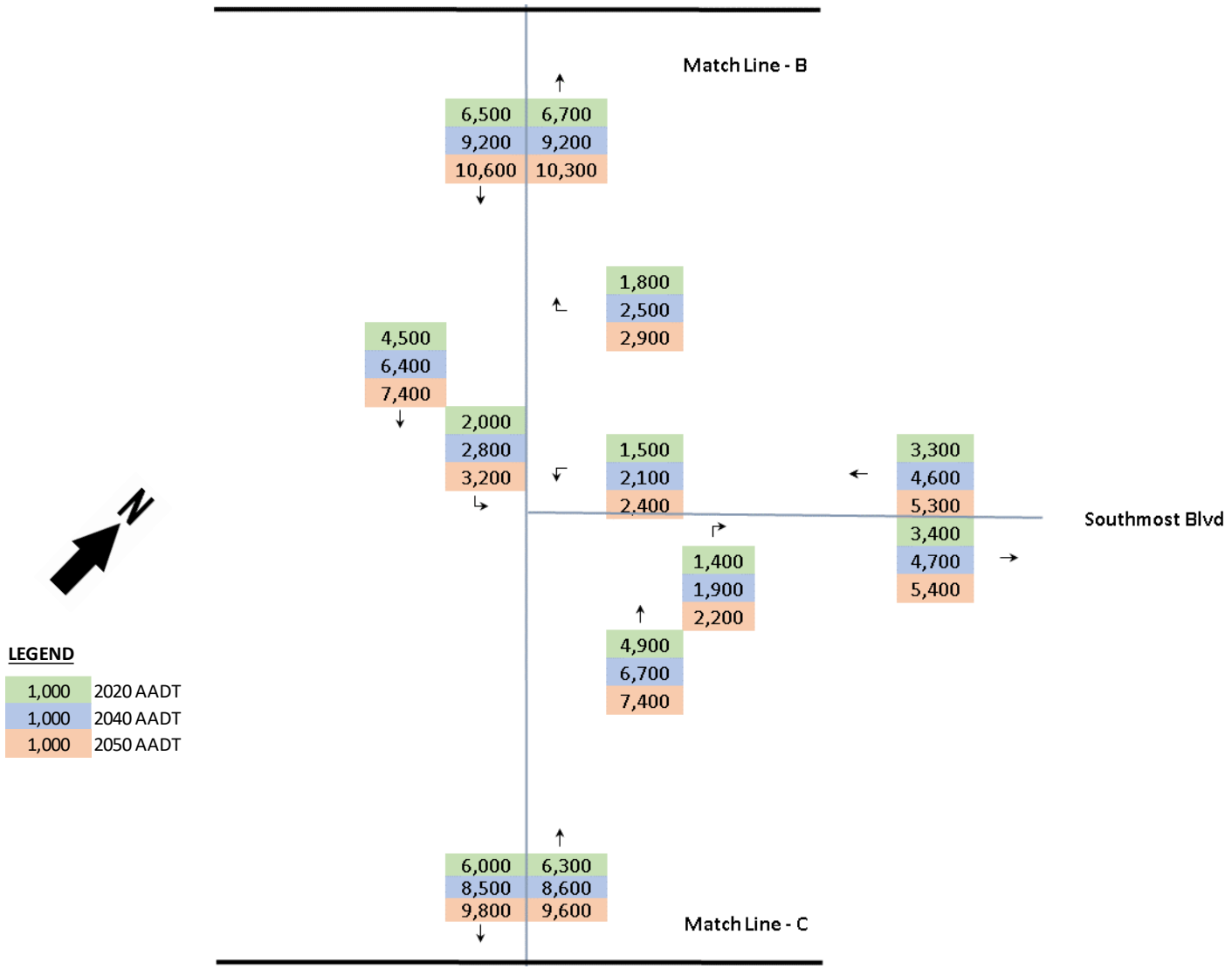


Figure 4-3. SH 32 AADT Projections (2020, 2040, 2050)

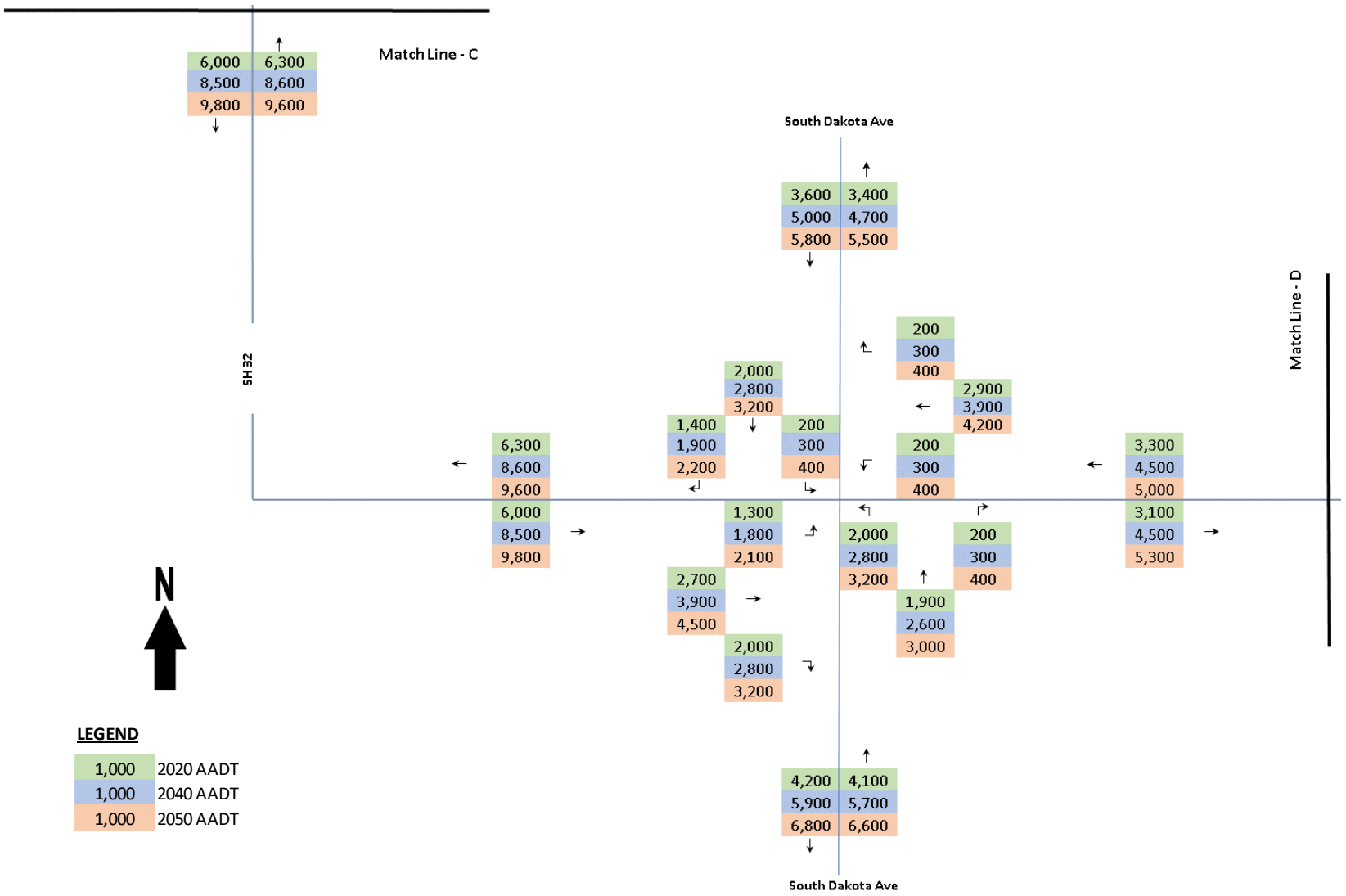


Figure 4-4. SH 32 AADT Projections (2020, 2040, 2050)

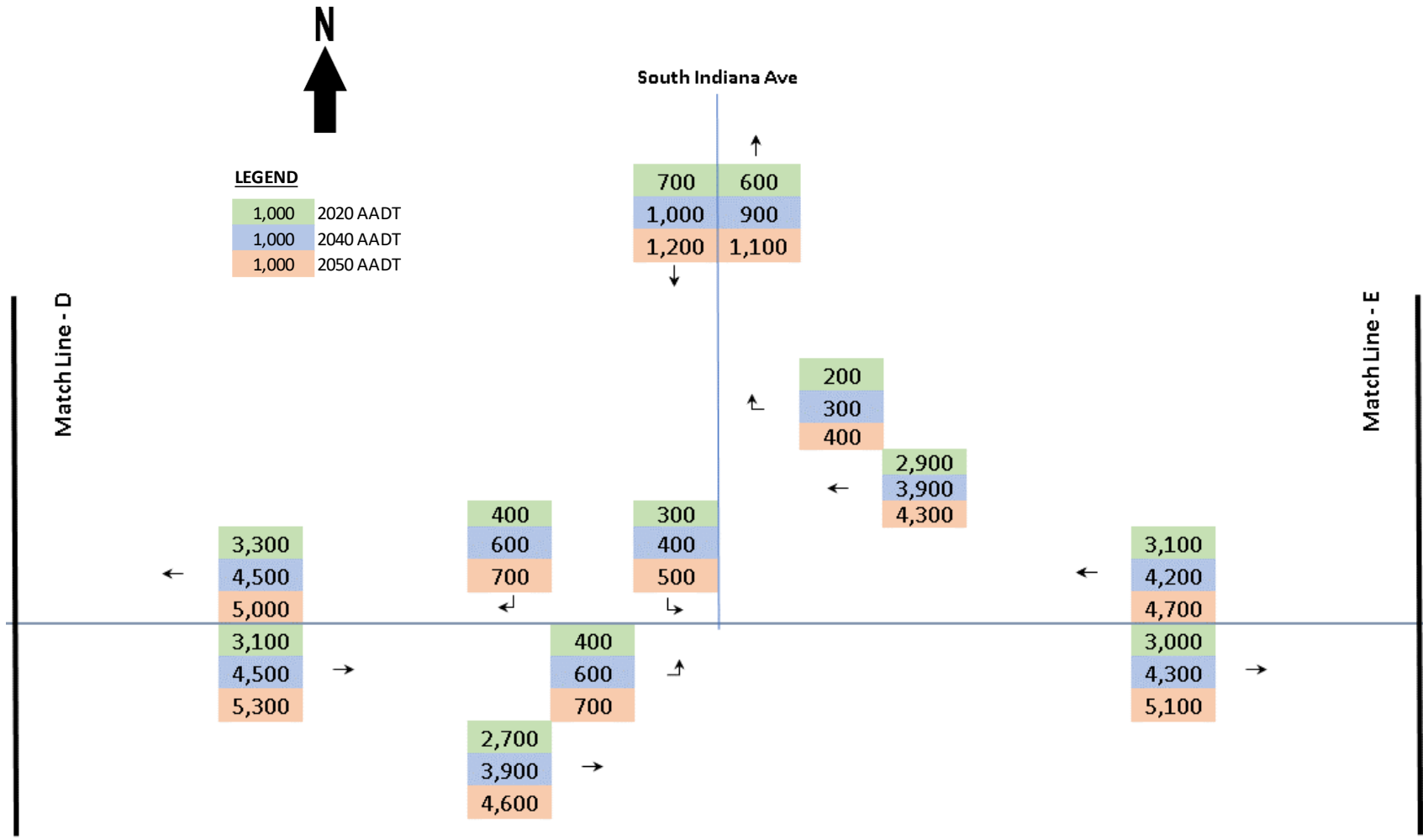


Figure 4-5. SH 32 AADT Projections (2020, 2040, 2050)

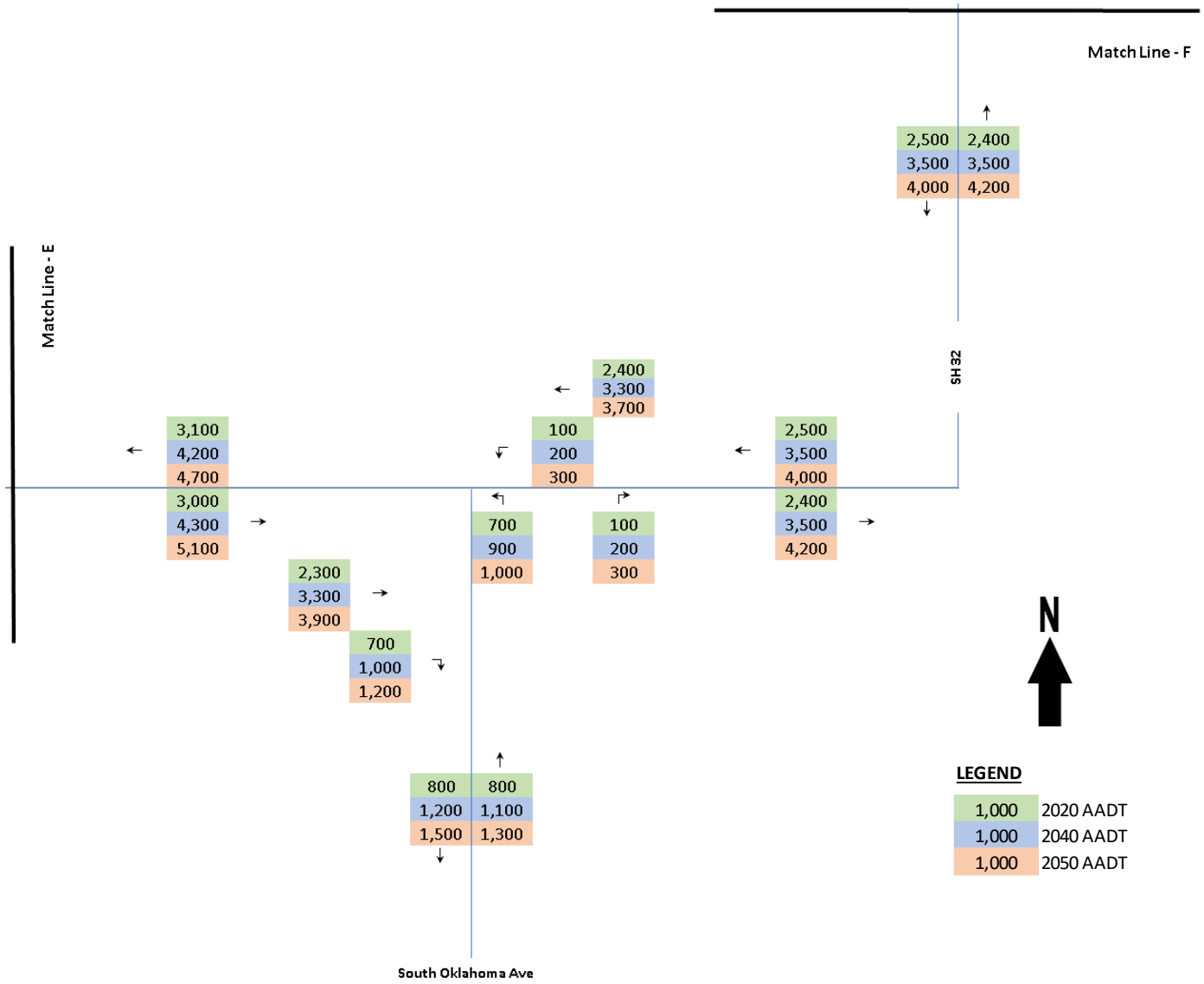


Figure 4-6. SH 32 AADT Projections (2020, 2040, 2050)

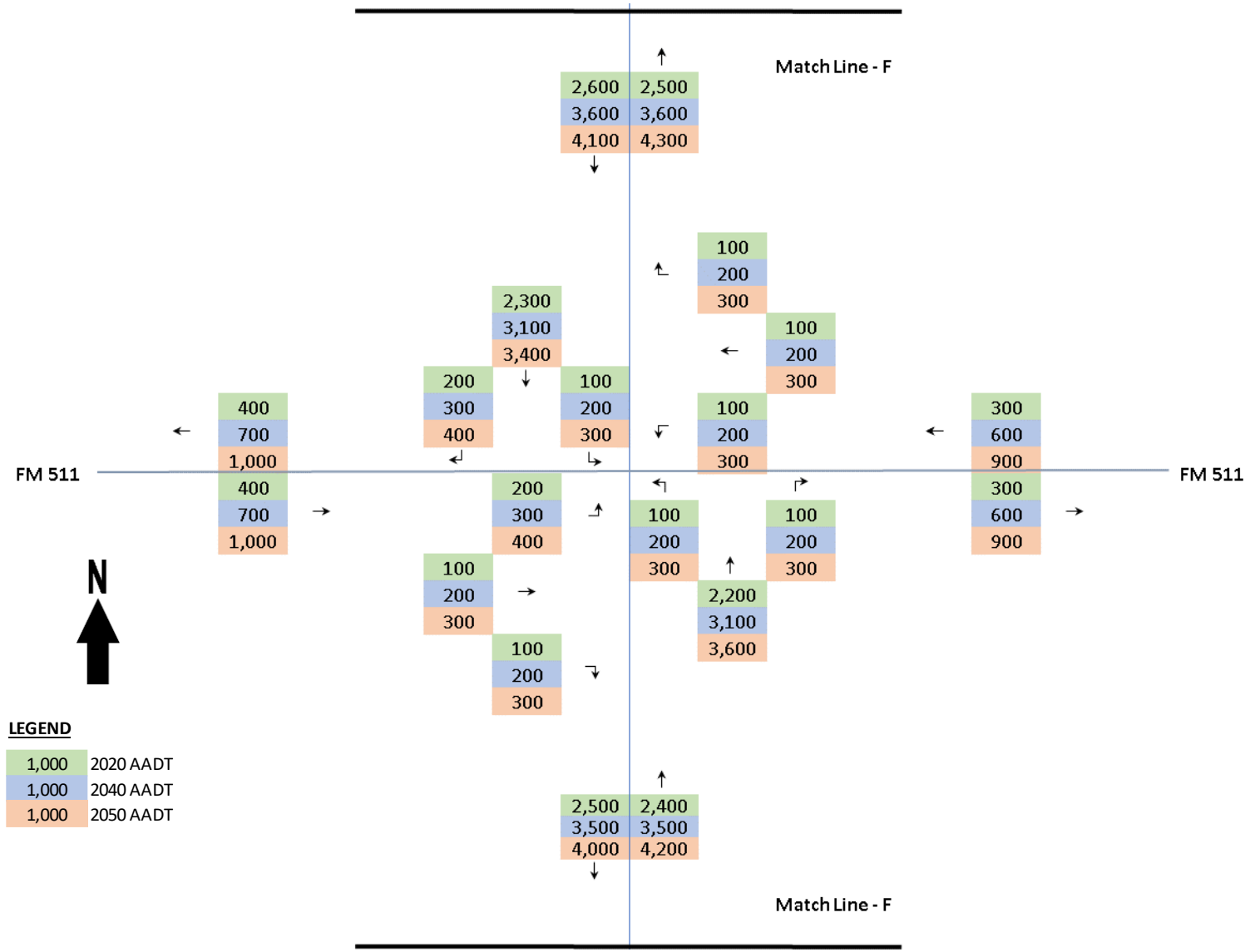


Figure 4-7. SH 32 AADT Projections (2020, 2040, 2050)

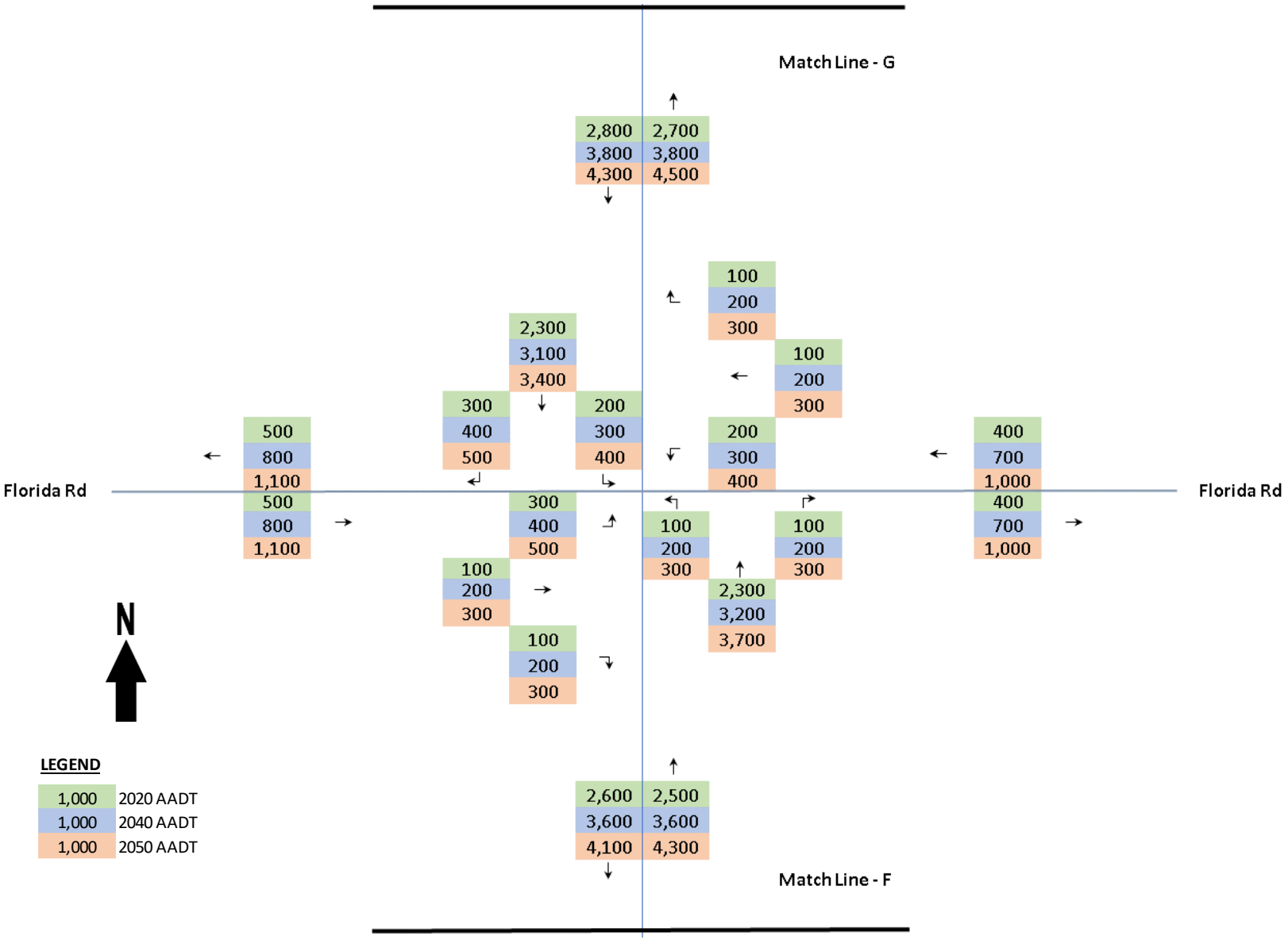


Figure 4-8. SH 32 AADT Projections (2020, 2040, 2050)

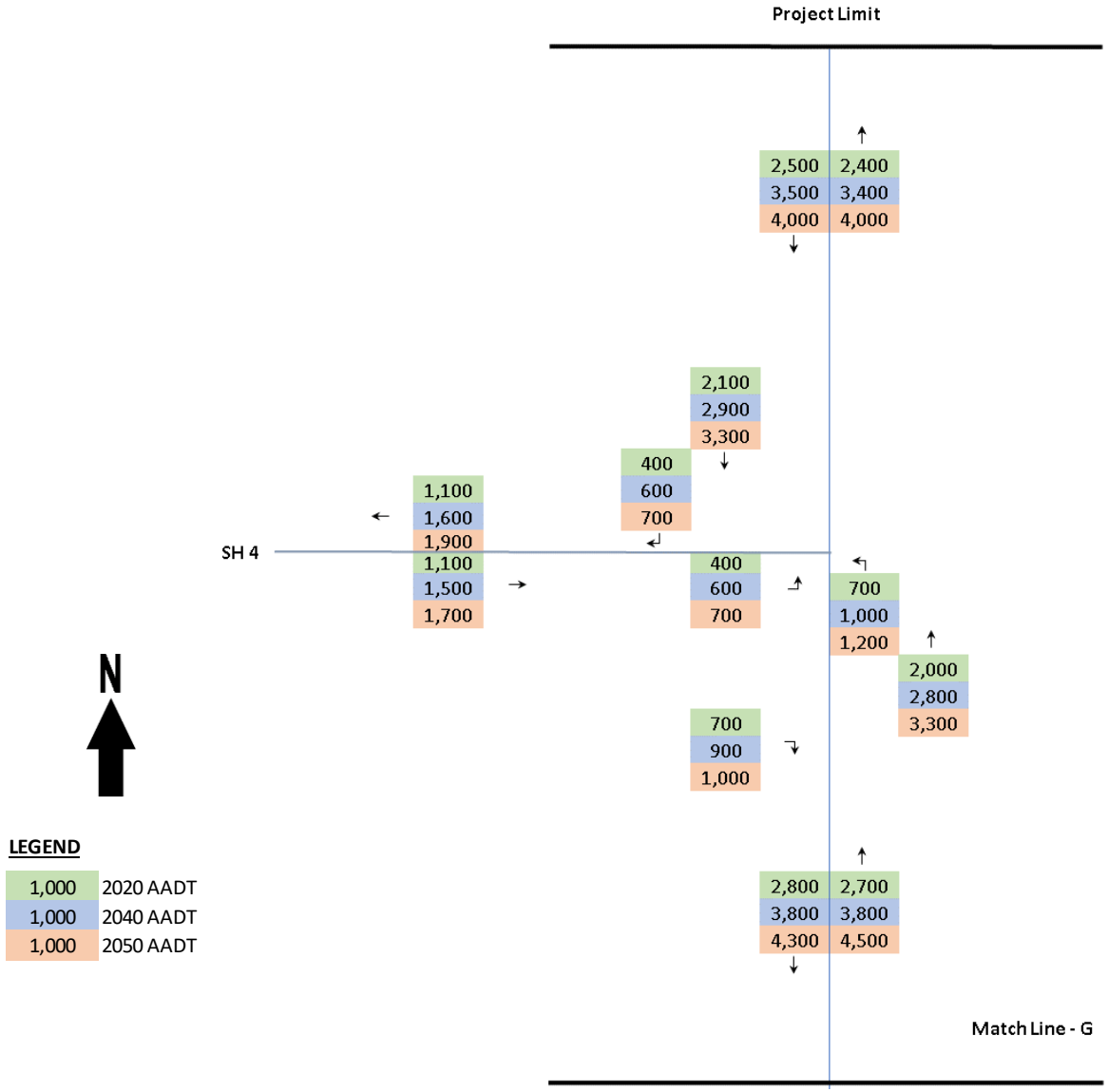


Figure 4-9. SH 32 AADT Projections (2020, 2040, 2050)

Table 4-3. TAHD for Proposed SH 32 West – CSJ 3626-01-001, Section 1

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Pharr District — January 18, 2018

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 PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 20 Year Period (2020-2040) Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 3626-01-001 Section 1 From US77/83 To East Ave Cameron County	40,800	56,600	60-40	10.0	16.9	13.0	TBD	TBD	TBD	TBD	TBD	TBD

Data for Use in Air & Noise Analysis		
	Base Year	
Vehicle Class	% of ADT	% of DHV
Light Duty	83.1	87.0
Medium Duty	3.0	2.3
Heavy Duty	13.9	10.7

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 PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 20 Year Period (2020-2050) Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 3626-01-001 Section 1 From US77/83 To East Ave Cameron County	40,800	64,700	60-40	10	16.9	13.0	TBD	TBD	TBD	TBD	TBD	TBD

Table 4-4. TAHD for Proposed SH 32 West – CSJ 3626-01-001, Section 2

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Pharr District — January 18, 2018

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 PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Single Axle Load Applications One Direction Expected for a 20 Year Period (2020-2040) Flexible Pavement	SN	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 3626-01-001 Section 2 From East Ave To Paloma Blanca Dr Cameron County	24,400	34,000	60-40	10.0	28.3	21.8	TBD	TBD	TBD	TBD	TBD	TBD

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	71.7	78.2
Medium Duty	5.0	3.9
Heavy Duty	23.2	17.9

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 PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a 20 Year Period (2020-2050) Flexible Pavement	SN	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 3626-01-001 Section 2 From East Ave To Paloma Blanca Dr Cameron County	24,400	38,900	60-40	10	28.3	21.8	TBD	TBD	TBD	TBD	TBD	TBD

Table 4-5. TAHD for Proposed SH 32 West – CSJ 1426-01-037

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Pharr District — January 18, 2018

Description of Location	Base Year Average Daily 2020	Base Year Average Daily 2040	Dir Dist %	K Factor	Percent ADT	Percent PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a: Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 1426-01-037 From Paloma Blanca Dr To FM 3068 Cameron County	12,300	17,100	60-40	10.0	57.0	43.9	TBD	TBD	TBD	TBD	TBD	TBD

Data for Use in Air & Noise Analysis		
	Base Year	
Vehicle Class	% of ADT	% of DHV
Light Duty	43.0	56.1
Medium Duty	10.2	7.8
Heavy Duty	46.9	36.1

Description of Location	Base Year Average Daily 2020	Base Year Average Daily 2050	Dir Dist %	K Factor	Percent ADT	Percent PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a: Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 (West) CSJ 1426-01-037 From Paloma Blanca Dr To FM 3068 Cameron County	12,300	19,400	60-40	10	57.0	43.9	TBD	TBD	TBD	TBD	TBD	TBD

Table 4-6. TAHD for Proposed SH 32 – All CSJs

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Pharr District — January 18, 2018

Description of Location	Base Year Average Daily 2020	Base Year Average Daily 2040	Dir Dist %	K Factor	Percent ADT	Percent PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 All CSJs From FM 3068 To SH 4 Cameron County	6,400	9,000	60-40	10.0	57.0	43.9	TBD	TBD	TBD	TBD	TBD	TBD

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	43.0	56.1
Medium Duty	10.2	7.8
Heavy Duty	46.9	36.1

Description of Location	Base Year Average Daily 2020	Base Year Average Daily 2050	Dir Dist %	K Factor	Percent ADT	Percent PHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18K Single Axle Load Applications One Direction Expected for a Flexible Pavement	S N	Rigid Pavement	SLAB
Proposed SH 32 All CSJs From FM 3068 To SH 4 Cameron County	6,400	10,300	60-40	10	57.0	43.9	TBD	TBD	TBD	TBD	TBD	TBD

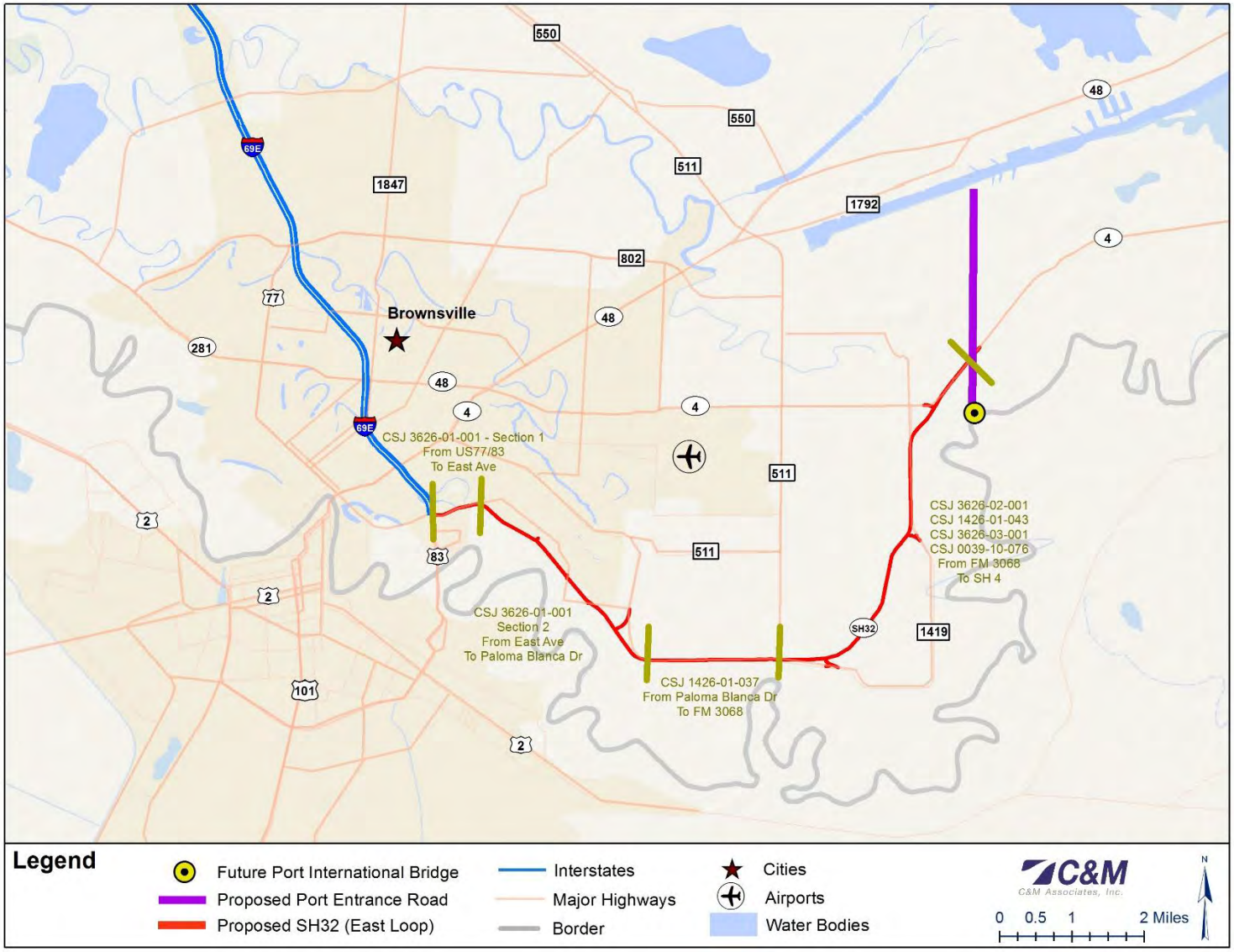


Figure 4-10. SH 32 ESAL Section Locations

Appendix A

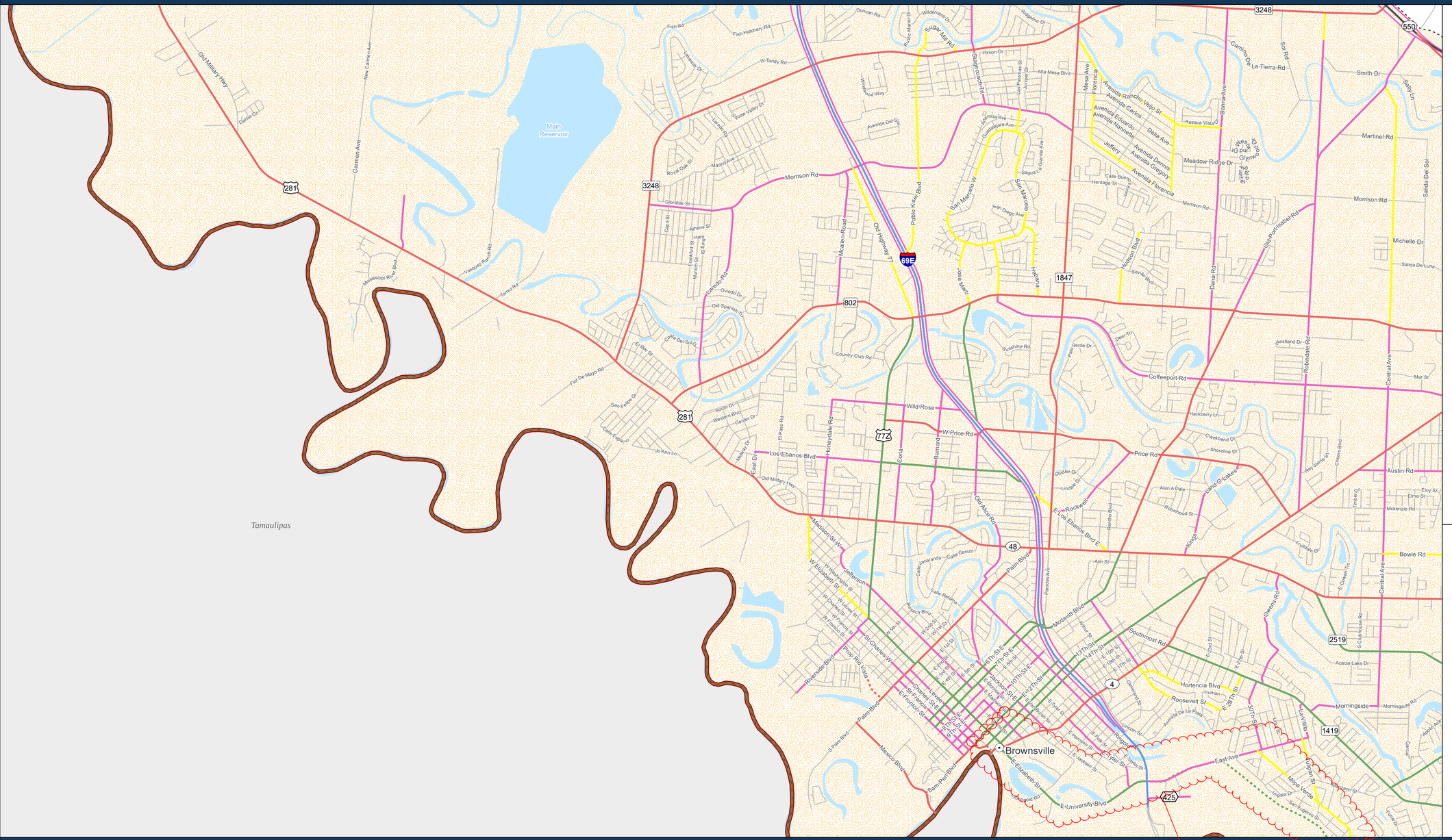
SH 32 Corridor Schematics

To facilitate printing of this report, the SH 32 corridor schematics have been included as file attachments:

- "SH32 West Schematics.pdf" illustrates the following segments:
  - CSJ 3626-01-001: From US 77/83 to Paloma Blanca Drive
  - CSJ 1426-01-037: From Paloma Blanca Drive to FM 3068

- "SH32 Schematics.pdf" illustrates the following segments:
  - CSJ 3626-02-001: From FM 3068 to FM 3550
  - CSJ 1426-01-043: From FM 3550 to FM 3551
  - CSJ 3626-03-001: From FM 3551 to SH 4
  - CSJ 0039-10-076: From SH 4 to Proposed Port Connector

2010 Functional Classification - Brownsville - Sheet 6



City

- Community
- Incorporated City

Functional Classification

- Interstate
- Principal Arterial - Other Freeways and Expressways
- Principal Arterial - Other
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Proposed

Boundaries

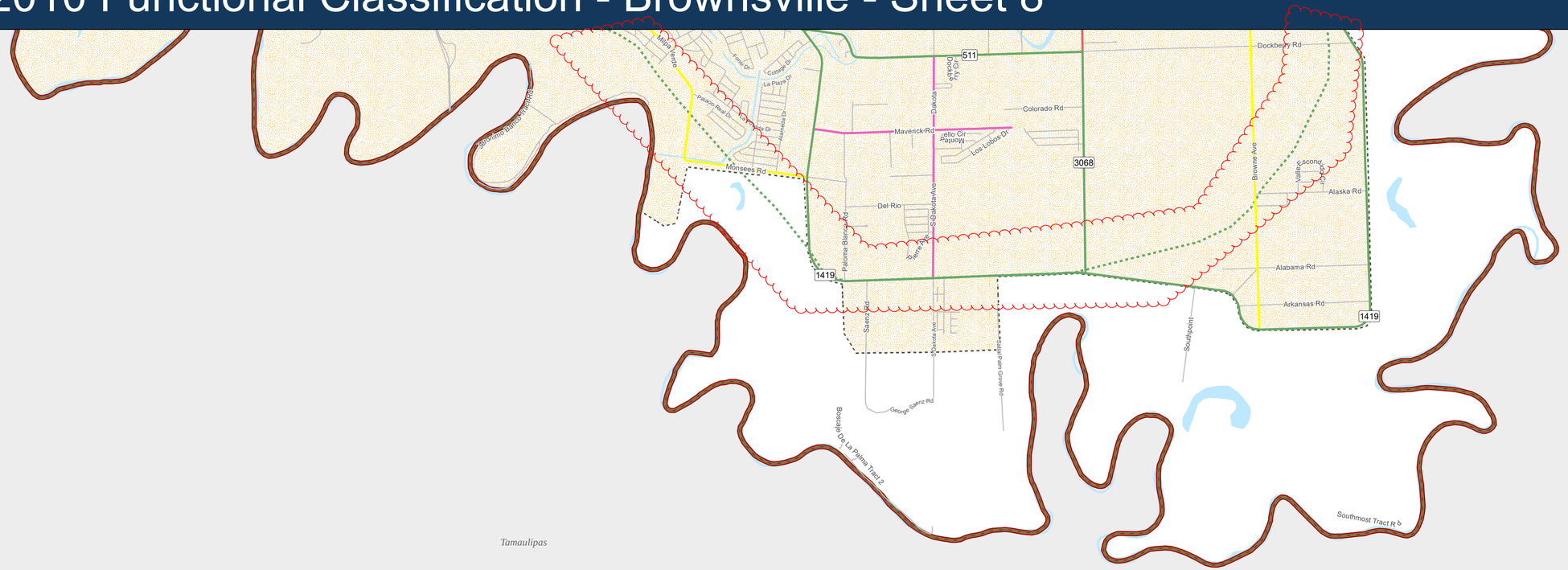
- County
- Adjusted 2010 Small Urban Area (SUA)
- Adjusted 2010 Urbanized Area (UA)
- Adjusted 2010 Large Urban Area (LUA)
- MPO Planning Boundary

Notes:

0 1 2 Miles

Texas Department of Transportation
Transportation Planning and Programming Division
Data Analysis, Mapping and Reporting Branch
July 31, 2015

2010 Functional Classification - Brownsville - Sheet 8



City

- Community
- Incorporated City

Functional Classification

- Interstate
- Principal Arterial - Other Freeways and Expressways
- Principal Arterial - Other
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Proposed

Boundaries

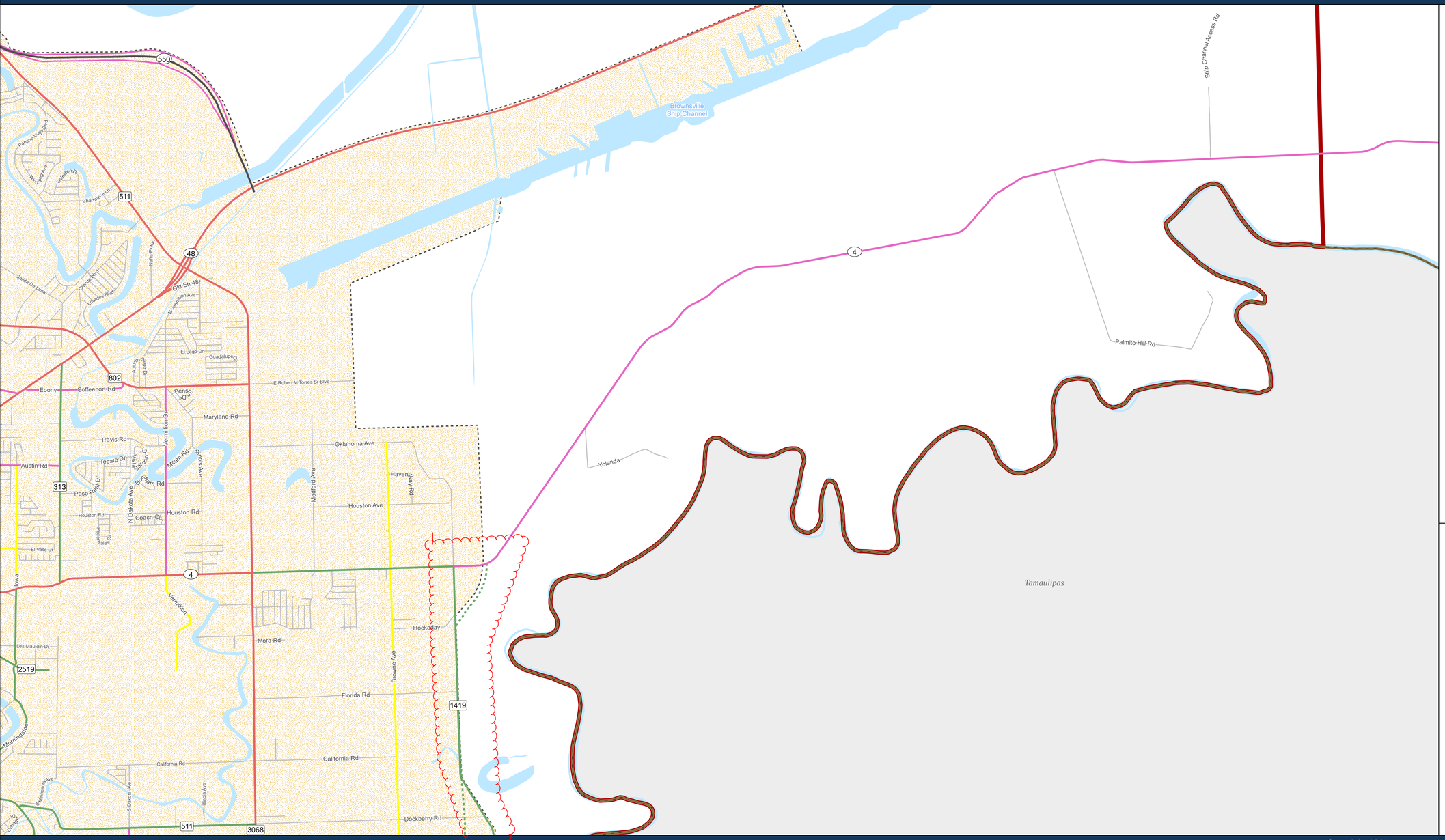
- County
- Adjusted 2010 Small Urban Area (SUA)
- Adjusted 2010 Urbanized Area (UA)
- Adjusted 2010 Large Urban Area (LUA)
- MPO Planning Boundary

Notes:

0 1 2 Miles

Texas Department of Transportation
Transportation Planning and Programming Division
Data Analysis, Mapping and Reporting Branch
July 31, 2015

2010 Functional Classification - Brownsville - Sheet 7



City

- Community
- Incorporated City

Functional Classification

- Interstate
- Principal Arterial - Other Freeways and Expressways
- Principal Arterial - Other
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Proposed

Boundaries

- County
- Adjusted 2010 Small Urban Area (SUA)
- Adjusted 2010 Urbanized Area (UA)
- Adjusted 2010 Large Urban Area (LUA)
- MPO Planning Boundary

Notes:

0 1 2 Miles

Texas Department of Transportation
Transportation Planning and Programming Division
Data Analysis, Mapping and Reporting Branch
July 31, 2015