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Brodie Oaks Center

Transportation Impact Analysis



In partnership with:



Prepared for:

LCFRE Austin Brodie Oaks, LLC

Prepared by:

Bobak J. Tehrany, P.E.

TBPE Firm Registration #: 19220



A handwritten signature in blue ink, appearing to read 'Bobak J. Tehrany', written over the bottom portion of the professional seal.

December 18, 2021

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Introduction

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1.0 INTRODUCTION

BOE Consulting Services, LLC (BOE) was retained by the LCFRE Brodie Oaks, LLC to complete a Transportation Impact Analysis (TIA) for the proposed redevelopment of the Brodie Oaks Shopping Center located at the northwest corner of South Lamar Boulevard (Blvd) and Ben White in Austin, Travis County, Texas. Given the proposed density, approval of a TIA has been required by the City of Austin (COA) in conjunction with the zoning application. The TIA Scoping Document defining the parameters of this analysis and the TIA determination worksheet approved by the COA are contained within the Appendix as *Exhibit 1*. The location of the proposed development is shown in **Figure 1**.

Figure 1 Proposed Site Location¹



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2.0 EXISTING CONDITIONS

The overall project area is comprised of 37.6 acres of land. A Site Location Map identifying the property in relation to the surrounding area are included in the Appendix as *Exhibit 2*.

The site is currently zoned as a mix of Community Commercial (GR) and General Commercial Services (CS-1). The applicant is proposing a mixed-use redevelopment of the Brodie Oaks Shopping Center located adjacent to the South Lamar Blvd and Ben White in Austin, Travis County, Texas. A Preliminary Site Plan has been included within the Appendix of this report as *Exhibit 3*.

2.1 ROADWAY NETWORK

South Lamar Boulevard is a five-lane divided principal arterial with two-lanes in each direction of travel and center two-way left-turn lane. It provides north-south movements in the vicinity of the Project. The posted speed limit on South Lamar Boulevard is 40 miles-per-hour (mph). Based on 2021 Annual Average Daily Traffic (AADT) counts collected by GRAM, South Lamar Boulevard by the Brodie Oaks Driveway, just north of US 290/Capitol of Texas experiences approximately 32,201 vehicles per day (vpd).

Oltorf Street is a four-lane principal arterial that provides east-west movements at South Lamar Blvd within this analysis network. The posted speed limit on Oltorf Street is 35 mph.

Bluebonnet Lane is a two-lane major collector that provides east-west movements at South Lamar Blvd within the analysis network. The posted speed limit on Bluebonnet Lane is 30 mph.

Ben White Blvd (US 290/State Highway 71) is a six-lane freeway, with three-lane frontage road in both directions with posted speed limit of 70 mph on the main lanes and 45 mph on the frontage roads. In the project vicinity, Ben White Blvd generally runs in the east-west direction.

Menchaca Road is a four-lane minor arterial that provides east-west movements at South Lamar Blvd and north-south movement at Ben White Blvd. Two (2) intersections are analyzed as part of this study; Menchaca Road at South Lamar Road, and Menchaca Road at US 290. The posted speed limit on Menchaca Road is 35 mph.

Barton Skyway/Lightsey Road is a two-lane major collector that provides east-west movements at South Lamar Blvd. The posted speed limit on Barton Skyway/Lightsey Road is 30 mph. Barton Skyway, east of South Lamar Blvd is known by the name of Lightsey Road. Barton Skyway/Lightsey Road and Menchaca Road along South Lamar Blvd are clustered intersections for the level of service (LOS) analysis purpose.

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Panther Trail is a two-lane collector road that provides east-west movement at South Lamar Blvd. Panther Trail only extends for a short distance of approximately 1000 feet between South Lamar Blvd and Keats Drive. The speed limit is assumed to be 30 mph.

Capital of Texas Hwy is a principal arterial that generally runs in the north-south direction, except in the vicinity of Mopac Frontage Roads where it was assumed as east-west direction for the analysis purpose. The posted speed limit on Capital of Texas Hwy is 55 mph.

West Gate Blvd is a minor arterial that provides north-south movement in the vicinity of the project. West Gate Blvd has a posted speed limit of 30 mph near the study area.

Mopac Frontage Road (FR) is a major collector that provides north-south movement in the vicinity of the project. The posted speed limit on Mopac FR is 45 mph near the study area.

Barton Creek Plaza Driveway is a driveway that serves the office complex to the north-west of the proposed Brodie Oaks. It is a signalized intersection at Capital of Texas Hwy. Since this is a signalized intersection that provides access from one of the driveways to the proposed site, this is analyzed as the Driveway E to the site. The speed limit is assumed to be 30 mph.

Victory Drive is a collector street that provides north-south movement in the vicinity of the project. The posted speed limit along Victory Drive is 30 mph near the study area. Victory Drive exists only for a short distance that provides access between US 290 and Panther Trail. Two (2) of these access intersections are analyzed as part of this study; Victory Drive at US 290, and Victory Drive at Panther Trail. Victory Drive, south of US 290 is known as Pack Saddle Pass.

Pack Saddle Pass is also a collector street that provides north-south movement surrounding the project site. The posted speed limit along Pack Saddle Pass is 30 mph near the study area. Pack Saddle Pass, north of US 290 is known as Victory Drive.

3.0 PLANNED PUBLIC IMPROVEMENTS

The purpose of the planned public improvements is to make Austin the most livable City by improving the quality of life by promoting multi-modal travel, improve roadway safety, and reduce travel delay. Below are the planned public improvement projects that are applicable to the proposed Brodie Oaks redevelopment projects:

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3.1 AUSTIN STRATEGIC MOBILITY PLAN

The Austin City Council adopted the Austin Strategic Mobility Plan (ASMP) on April 11, 2019. The ASMP is a comprehensive plan that include transportation policies, programs, projects and investments for all modes of transportation for the next twenty plus (20+) years. This plan identifies the mobility needs of Austin into the future for all modes of transportation (e.g., vehicular, pedestrian, bicycle, etc.). The plan will improve effective ways to get around Austin as well as ways to achieve goals and objectives to guide Austin's long-term transportation future.

The ASMP includes recommendations for funding significant regional roadway projects and segments of South Lamar Blvd is designated as one of such projects. South Lamar Corridor Improvements are detailed in **Section 3.3** of this report.

3.2 IMAGINE AUSTIN COMPREHENSIVE PLAN

The COA City Council adopted the Imagine Austin Comprehensive Plan in June 2012. Imagine Austin is comprehensive plan created by the citizens of Austin to guide the growth of the City. The guiding principle of the Imagine Austin Plan is to grow as a compact connected City, integrate nature into the City, develop an affordable and healthy community, and sustain the environmental resources.

The Project lies along the Activity Corridor of South Lamar as defined by the Imagine Austin Comprehensive Plan. Activity Corridors are the connections that link activity centers and other key destinations to one another and allow people to travel throughout the City and region by bicycle, transit, or automobile. Corridors are also characterized by a variety of activities and types of developments located along the roadway. There may also be a series of small neighborhood centers connected by the roadway.

The Project will adhere to the vision of the Imagine Austin Comprehensive Plan by providing a civic use along the South Lamar Activity Corridor, and will allow patrons to walk, bike, or take transit to the Project. A Transit Map reflecting the proximity of the various transit routes to the Project's site has been included in the Appendix of this Report as *Exhibit 4*. Additionally, a Bicycle Map has also been included reflecting the bicycle network surrounding this site as *Exhibit 5*.

3.3 SOUTH LAMAR CORRIDOR IMPROVEMENT PROGRAM

In conjunction with the ASMP, the COA voters approved the 2016 Mobility Bond which allocated funds to improve nine (9) major corridors in Austin. South Lamar Boulevard is one of the major corridors funded in part by the 2016 Mobility Bond. The mobility improvements planned along South Lamar Boulevard corridor

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is between the limits of Riverside Drive and Ben White Boulevard/US 290. The project directly fronts South Lamar Boulevard and thus, the improvements will greatly benefit the mobility for the patrons of the Project.

Improvements associated with the South Lamar Corridor include sidewalk improvements, providing shared-use paths for pedestrians and bicyclists, traffic signal improvements, transit improvements, access management improvements, and intersections improvements. Due to the complexity of this planned improvements along this corridor, the City has phased the improvements in segments. South Lamar Corridor improvements are categorized into six zones. The study area for this project is represented in Zone 4 to Zone 6, where Zone 4 is Mary/Hether Street to Menchaca Road, Zone 5 from Menchaca Road to Panther Trail, and Zone 6 is between Panther Trail to US 290/Ben White Blvd. Mary/Hether Street lies approximately 900 feet north of Oltorf Street, which is the northern end of the study intersections for the TIA. The project fronts South Lamar Blvd and lies within Zone 6.

A schematic layout depicting the planned improvements has been included as *Exhibit 6* within the Appendix of this report.

3.4 PROJECT CONNECT

The COA voters approved the Project Connect bond initiative in November 2020. Project Connect is designed to create a system of high-capacity-transit (HCT) options aimed at increasing transit efficiency and sustainability.

The goal of Project Connect is to find new and better ways to move people into, out of, and around Central Texas. Historically, development teams have been required to evaluate how to better move single occupancy vehicles. This is evident in the Austin modal split, which is dominated by single occupancy vehicle use. Capital Metro and their partners have shifted the methodology of evaluating the movement of cars to the movement of people. This forward-thinking approach re-evaluates the existing infrastructure to be utilized with high-capacity transit. By doing this, it is proven to move more people through the roadway network and encourage the use of alternate modes of transportation. Making high-capacity transit a priority will allow this analysis to become reality. The initial investment System Plan for the Project Connect improvements and a detailed pamphlet summarizing Project Connect are included within *Exhibit 7 of the Appendix*.

Capital Metro is currently underway with various projects to increase transit connectivity, service, and frequency. Recently, Capital Metro implemented the Cap Remap initiative where service was enhanced to become more frequent, reliable, and better connected. Specifically, this increased the frequency of service

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along South Lamar Boulevard, Barton Springs Road, West Riverside Drive and other major roadways surrounding the Project.

Brodie Oaks Station, located within the project site is identified as a Transit Oriented Development (TOD) Village by Capital Metro. As discussed in Section 3.3 of this report, major transit improvements are planned along the South Lamar Corridor which will be further enhanced with the implementation of the Project Connect vision. As part of the Project Connect improvements, all the bus stops along South Lamar corridor will be moved from upstream of the intersection to downstream. According to the system map included in *Exhibit 7* shows that an enhanced MetroRapid Route will be provided along South Lamar Blvd, US 290 at West Gate Blvd, and along Panther Trail to Menchaca Road within the study area. The system map shows that the surrounding roadway network is rich with transit service providing efficient access to downtown Austin, northeast and northwest Austin, and to southeast and southwest Austin. All corners of Austin can be accessed with transit service within this area.

3.5 TXDOT LOOP 360 IMPROVEMENTS

The Loop 360 project led by TxDOT, in partnership with the COA will upgrade multiple intersections to improve safety and mobility throughout the 14-mile corridor using traffic projections through 2040. The 14-mile corridor runs from US 183 on the north end to US 290/SH 71 on the south end.

Improvements associated with the TxDOT Loop 360 include replacing traffic signal with overpasses or underpasses, adding or removing traffic signal at locations, providing shared-use paths for pedestrians and bicyclists, traffic signal improvements, constructing continuous frontage roads within the project limits, transit improvements, and access management improvements.

The Loop 360 program consists of six (6) projects, where each project is represented by segments of the corridor. A portion of the study area for this project is represented in the segment from RM 2244 to southbound Mopac. Construction of these various projects will be anticipated to span from early 2022 to mid-2026. The program fact sheet and a summary of the Loop 360 are provided in the appendix as *Exhibit 8*.

Based on the Loop 360 program, a second right-turn lane has been included along eastbound Capital of Texas Hwy at Mopac SBFR in LOS analysis starting in the Phase 2, 2031 Forecasted condition. This is only included in the phase 2-2031 Forecasted conditions because as per *Exhibit 8*, the construction is anticipated to begin in mid-2025. A table showing the Loop 360 Improvements included in the analysis and its prorata share is provided within *Exhibit 8*.

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4.0 DATA COLLECTION

The data collection for this project included peak hour Turning Movement Counts for 20 intersections described below. In addition, a site visit was made by BOE staff. Per the requirements of the TIA Scope, the captured data included a break-out of heavy vehicles, pedestrians, bicycles, and passenger vehicles.

4.1 TRAFFIC DATA

GRAM Traffic Counting, Inc. (GRAM) was engaged to collect traffic counts for the study intersections. Turning Movement Counts (TMC) were collected from 7:00-9:00 AM and from 4:00-6:00 PM for all the intersections in May and June of 2021. Please note that schools were in session when traffic counts were collected in May. However, the data collection devices were either damaged or stolen at four (4) locations during the counts in May. Therefore, these locations were recounted in June along with one location where good data was captured in May. Please note that the schools were not in session during June counts and therefore, in order to determine school adjustment factor, the good data that was captured in May was compared against the counts taken in June for the one location.

Based on the approved TIA Scoping document, turning movement counts at the following intersections were collected:

Turning Movement Counts

1. S Lamar Blvd and Oltorf Street (June 2021)
2. S Lamar Blvd and Bluebonnet Lane (May 2021)
3. S Lamar Blvd and Menchaca Road (May 2021)
4. S Lamar Blvd and Barton Skyway/Lightsey Road (May 2021)
5. S Lamar Blvd and Panther Trail (May 2021)
6. SB S Lamar Blvd and WB Ben White Blvd (May & June 2021)
7. NB S Lamar Blvd and WB Ben White Blvd (May 2021)
8. SB S Lamar Blvd and EB Ben White Blvd (June 2021)
9. NB S Lamar Blvd and EB Ben White Blvd (June 2021)
10. US 290 WBFR and West Gate Blvd (May 2021)
11. US 290 EBFR and West Gate Blvd (May 2021)
12. Capital of Texas Hwy and Mopac SBFR (May 2021)
13. Capital of Texas Hwy and Mopac NBFR (May 2021)
14. Capital of Texas Hwy and Barton Creek Plaza (May 2021)
15. US 290 WBFR and Victory Drive (May 2021)
16. US 290 EBFR and Pack Saddle Pass (May 2021)

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17. US 290 WBFR and Menchaca Road (May 2021)

18. US 290 EBFR and Menchaca Road (May 2021)

24-Hour Turning Movement Counts

19. S Lamar Blvd/US 290 Off-Ramp and Brodie Oaks (June 2021)

20. Panther Trail and Victory Drive (May 2021)

Moreover, the traffic signal timing for all the signalized intersections which were analyzed as part of this study were obtained from COA. All traffic counts collected by GRAM and the signal timings obtained from COA have been included within the Appendix of this report as *Exhibit 9*. The 2021 Existing May and 2021 Existing June counts can be seen in the Traffic Volume Figures within the Appendix of the report as *Exhibit 10*. The 2021 Existing June Counts with both school and pandemic adjustments factors applied are shown on **Figure 1D** within *Exhibit 10* of the Appendix of this report.

The 2021 Existing May Counts are shown on **Figure 1A**, and 2021 Existing June Counts are shown on **Figure 1B** within *Exhibit 10* of the Appendix.

24-Hour Average Daily Traffic (ADT's)

1. NB Lamar Blvd, south of Driveway B
2. SB Lamar Blvd, south of Driveway B

4.2 TRAFFIC COUNT SCHOOL ADJUSTMENTS

As discussed about the school adjustment factor in **Section 4.1**, the counts taken in May while schools were in session was compared against the counts taken in June when schools are closed for summer break. The data used for this comparison is the counts taken at the intersection of SB South Lamar Blvd and WB Ben White Blvd (Node #7). The Count Adjustment Comparison Table with data used for school adjustment factor is included as *Exhibit 11*. Some June counts were slightly increased and are highlighted in the table. Based the comparison, 10% school adjustments for AM peak and 4% for PM peak have been agreed upon per the correspondence with the City Staff, which is also included in *Exhibit 11*.

The 2021 Existing June Counts with both school and pandemic adjustments factors applied are shown on **Figure 1D** within *Exhibit 10* of the Appendix of this report.

4.3 TRAFFIC COUNT PANDEMIC ADJUSTMENTS

In order to account for the impacts of the COVID-19 Pandemic on traffic volumes, traffic volumes collected for the analysis in 2021 were evaluated against traffic volumes collected during a non-pandemic year. This evaluation then yields a percent adjustment factor to grow the traffic volumes captured in 2021 to better reflect what would otherwise be considered present day, non-pandemic traffic volumes.

The historic non-pandemic traffic volumes from 2018 was obtained for three (3) of the study intersections and are as follows: South Lamar Blvd and Bluebonnet Lane, South Lamar Blvd and Menchaca Road, South Lamar Blvd and Barton Skyway/Lightsey Road. The 2018 historic counts were grown by applying 3% growth rate to forecast it to 2021. The 2021 forecasted trips were compared against the raw data collected in 2021 for comparison purpose. The Count Adjustment Comparison Table with data used for pandemic adjustment factor is included as *Exhibit 11*. Based on the comparison, most of the raw data have decreased but some have increased. If the 2021 raw data is increased compared to 2021 Forecasted data (Pre-pandemic), they have been highlighted in the table. The City has a traffic tracking tool that can be used to compare recent volumes to pre-pandemic levels and the averages shown in the comparison table in Exhibit is fairly consistent with the tracking tool. Therefore, per the direction from the City Staff, 33% pandemic adjustments for AM peak and 15% for PM peak have been used to adjust the 2021 existing counts. The correspondence is also included in *Exhibit 11*.

The 2021 Existing May Counts with pandemic adjustments factors applied are shown on **Figure 1C** within *Exhibit 10*. The 2021 Existing June Counts with both school and pandemic adjustments factors applied are shown on **Figure 1D** within *Exhibit 10* of the Appendix of this report.

4.4 ADJUSTED TRAFFIC COUNTS

This section details the adjustments made to the existing data collected in the field that were used for the analysis. The school and pandemic adjustments were made to the field data collected in both May and June 2021 and are shown in Figure 1C and Figure 1D, respectively. Both of these were condensed into one and are shown on **Figure 1E** (2021 Existing (Final)_Adj).

Please note that existing turning movement counts were only conducted at two (2) of the existing driveways since these driveway intersections were included as study intersections. Since counts were not captured at all driveways to the site, the future Site+Forecasted volumes were not adding up. Therefore, adjustments have been made to the existing counts at the two (2) driveways. The existing collected volumes enter/exiting at two (2) of the driveways were subtracted (see tab named '2021 Exist_Minus Counts Dwy B&E' within

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distribution spreadsheet) out of the network. The existing trips after subtracting the existing site trips can be found in **Figure 1F** within *Exhibit 10* of the Appendix.

In order to account for the existing site trips at all driveways, the total existing site trips based on trip generation were distributed throughout the network (see tab named '2021 ExistSiteDwyAdj4Fut_Trip Gen' within distribution spreadsheet) per the distribution percentages identified in **Section 8.0**. These counts have been shown on **Figure 1G** of the *Exhibit 10*.

The distributed trips in Figure 1G added to Figure 1E and Figure 1F detailed above are used in the analysis for 2021 Existing condition. The adjusted existing final volume can be found on '2021 Exist_Final' tab within the distribution spreadsheet. The final 2021 Existing volumes can be found in **Figure 1H** within the Appendix of the report as *Exhibit 10*.

5.0 FUTURE NO-BUILD CONDITIONS

The future no-build condition represents the analysis of traffic that will be on the study network without the proposed development that is being studied. It includes the traffic projection of the area to the future year plus the trips from other projects within the network that is approved to be developed in the same time frame as the proposed development.

5.1 BACKGROUND GROWTH

Between the existing condition year of 2021 and the build-out years, traffic around the proposed site is expected to increase by the natural growth of the area and other development projects, and must be taken into account. For this study, a growth rate of **three percent (3%) per year** was approved by the COA via the TIA Scoping document, which can be found within the appendix as *Exhibit 1*. The growth rate calculation is based on the TxDOT AADT data obtained from the Statewide Planning Maps. The TxDOT data and the Growth Rate Calculations are included within the appendix of this TIA as *Exhibit 12*.

5.2 BACKGROUND PROJECTS

As for background projects, the COA provided two (2) developments to evaluate and include within this analysis. **Table 1** includes the projects identified by City Staff:

Table 1 Background Project List

Project Name	Permit Number
AISD Ann Richards School	SP-2018-0596CX.F1
Victory Medical	SP-2019-0049C

Each one of the projects listed above was researched and evaluated, first to understand if they should be included in the analysis, and second, if valid, trips associated with these projects were included within the appropriate future no-build (Forecasted) scenario. For those projects in which a TIA was not required to be performed as part of their application process through the COA, the trip generation associated with that development was calculated and distributed through the network utilizing the distribution assumptions detailed later in this report. A summary of all background projects and trip generation details on each project is included within the appendix as *Exhibit 13*.

The background volume from Victory Medical can be seen on **Figure 2A**, the volume from AISD Ann Richards School on **Figure 2B**, and the total background volumes are shown on **Figure 2C** within *Exhibit 10*.

5.3 NO-BUILD (FORECASTED) CONDITION

For the purposes of this analysis, this TIA has assumed that the proposed development will be fully constructed by 2036. Between the 2021 existing condition and the final 2036 build-out year, traffic around the proposed site is expected to increase by the natural growth of the area. For this study, a background growth rate of **3% per year** stated in **Section 5.1** will be applied to each of the existing turning movement counts shown on **Figure 1H** of *Exhibit 10* detailed within **Section 4.3** of this report. The Forecasted (No-Build) traffic volumes are the growth rate applied to the existing volume plus the site volumes from the background projects, but **without** the site volume generated by the proposed Brodie Oaks Development.

The Phase 1-2026 Forecasted (No-Build) traffic volumes are shown on **Figure 3**, Phase 2-2031 Forecasted volumes on **Figure 6**, and Phase 3-2036 Forecasted volumes on **Figure 9** within *Exhibit 10* of the Appendix of this report.

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5.4 SUSTAINABLE MODE INVENTORY

Based on the approved TIA Scoping document, a sustainable mode analysis is required as part of the TIA for South Lamar Blvd between Ben White Blvd and Menchaca Road. For the purpose of performing a sustainable mode analysis, an inventory of the pedestrian, bicycle, and transit infrastructure was obtained along South Lamar Blvd within the limits. The inventory was conducted on June 22, 2021, and the photographs from the inventory along the corridors are included as a .kmz (Google Earth) electronic file with the electronic submittal, which pin-points the location of the photographs. While it was found that there are missing sidewalks, damages along sidewalks, noncompliant ADA ramps and other pedestrian/bicycle infrastructure missing within the roadway network, it should be noted that the Public Improvements identified within **Section 8.2** of this report will substantially fill in these gaps within the study area network map.

5.4.1 Segment 1 - South Lamar Blvd between Ben White Blvd and Panther Trail

Segment 1 is defined as the segment of South Lamar Blvd between Ben White Blvd and Panther Trail. Along this segment, sidewalks are provided along northbound (NB) South Lamar Blvd. Sidewalks along the southbound (SB) South Lamar Blvd stops at the intersection of the Brodie Oaks/Driveway B, and thus sidewalks are missing along the SB South Lamar Blvd, south of Brodie Oaks/Driveway B. The sidewalks are narrow along both sides of NB and SB South Lamar Blvd, where the guardrail exists in front of the shopping center, north of the Brodie Oaks/Driveway B intersection.

Bike paths are not provided along both sides of South Lamar Blvd within this segment.

Bus stops with all amenities such as shelter, bench, and garbage exist along NB South Lamar Blvd, just south of Brodie Oaks/Driveway B. The Bus Stop along SB South Lamar Blvd is located north of Brodie Oaks/Driveway B, which also includes all amenities.

At the signalized intersection of South Lamar Blvd and Brodie Oaks/Driveway B, crosswalks are provided on the northside of the intersection to cross South Lamar Blvd, and also on the west side of the intersection to cross the Driveway. Crosswalks are not provided on the eastside or the southside of the intersection. Flared ADA ramps, and pushbuttons are provided on the northwest and southwest corners of the intersection to complement the crosswalks; however, the ADA ramps on the northwest corner exist with cracks that require replacement. On the northeast corner, curb cuts are provided but are not ADA compliant.

At the signalized intersection of South Lamar Blvd and Panther Trail, crosswalks are provided on the southside of the intersection to cross South Lamar Blvd, and also on the east side of the intersection to cross Panther Trail. Crosswalks are not provided on the westside or the northside of the intersection. Flared ADA

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ramps, and pushbuttons are provided on the northeast, southwest, and southwest corners of the intersection to complement the crosswalks; however, the ADA ramps on the northeast corner exist with cracks that require replacement.

5.4.2 Segment 2 - South Lamar Blvd between Panther Trail and Westrock Drive

Segment 2 is defined as the segment of South Lamar Blvd between Panther Trail and Westrock Drive. Along this segment, sidewalks are provided along NB South Lamar Blvd. However, a sidewalk gap does exist along the frontage of Grove Apartments, approximately 300 feet north of Panther Trail along the east side of the roadway.

Sidewalks are provided along SB South Lamar Blvd within this segment. The sidewalk along the SB directions seems to be narrow for a small segment for approximately 125 feet, just north of Panther Trail.

Bike paths are provided along both sides of South Lamar Blvd within this segment.

Bus stops with all amenities such as shelter, bench, and garbage exist along NB South Lamar Blvd by the frontage of the Apartments south of Broken Spoke. The Bus Stop along SB South Lamar Blvd is located directly opposite to the NB bus stop, which also includes all amenities.

At the unsignalized intersection of South Lamar Blvd and Westrock Drive/Driveway, flared ramps are provided on the northwest and southwest corners of the intersection but are not ADA compliant. On the northeast and southeast corners of the intersection, curb cuts are provided but are not ADA compliant.

5.4.3 Segment 3 - South Lamar Blvd between Westrock Drive and Barton Skyway

Segment 3 is defined as the segment of South Lamar Blvd between Westrock Drive and Barton Skyway. Along this segment, sidewalks are provided along both NB and SB South Lamar Blvd. There are damages spotted along NB sidewalks that requires attention.

Bike paths are not provided along both sides of South Lamar Blvd within this segment.

There are no bus stops provided along NB South Lamar Blvd. The Bus Stop along SB South Lamar Blvd is located approximately 300 feet south of Barton Skyway is missing amenities such as shelter, and garbage; only a bench is provided.

At the signalized intersection of South Lamar Blvd and Brodie Oaks/Driveway B, crosswalks are provided on all four sides of the intersection. Flared ADA ramps, and pushbuttons are also provided on all four corners of the intersection.

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5.4.4 Segment 4 - South Lamar Blvd between Barton Skyway and Menchaca Road

Segment 4 is defined as the segment of South Lamar Blvd between Barton Skyway and Menchaca Road. Along this segment, sidewalks are provided along both NB and SB South Lamar Blvd. There are cracks spotted along NB sidewalks by the frontage of the eatery located just north of Barton Skyway. Similarly, cracks are also spotted along SB sidewalks on the frontage of the 7-Eleven, north of Barton Skyway.

Bike paths are not provided along both sides of South Lamar Blvd within this segment.

There are no bus stops provided along SB South Lamar Blvd. The Bus Stop along NB South Lamar Blvd is located just south of Menchaca Road includes all amenities such as shelter, bench, and garbage.

At the signalized three-legged intersection of South Lamar Blvd and Menchaca Road, crosswalks are provided on the southside of the intersection to cross South Lamar Blvd, and also on the east side of the intersection to cross Menchaca Road. Crosswalks are not provided on the northside of the intersection. Flared ADA ramps, and pushbuttons are provided on the northeast, southeast, and southwest corners of the intersection to complement the crosswalks; however, the ramps on the southwest corner are obstructed by overgrown grass that needs maintenance to provide clear passage for the user.

6.0 TRANSPORTATION DEMAND MANAGEMENT

Understanding the nature of this development, we have elected to evaluate and implement Transportation Demand Management (TDM) as a means to reduce anticipated traffic through various methods. The concept of TDM is to utilize design, technology, and programmatic solutions to promote the use of other means of transportation aside from traditional single occupancy vehicles. The location of this project makes a TDM plan much more impactful given the future improvements anticipated and planned by various public agencies. As previously mentioned in **Section 3** of this report, South Lamar Blvd is a major area of focus for high-capacity transit and transportation improvement plans being developed by Capital Metro, the City of Austin, and TxDOT. Furthermore, the development lies along the Activity Corridor of South Lamar Blvd that promotes alternate modes of transportation with its vision identified in the Imagine Austin Comprehensive Plan.

The essence of TDM is providing viable alternatives to drive-alone auto travel within the network. There are ways to transform the mobility choices in Austin. The upgraded sidewalks, protected bike lane, and shared use path proposed along the South Lamar per the Corridor Improvement Program surrounding the Brodie Oaks development will allow the general public to walk or bike safely in the area. The future high-capacity

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transit system will allow the public to travel worry free through the South Lamar Corridor taking them to where they need to go throughout Austin without the need for a personal vehicle.

In order to analyze this development's potential for TDM and identify which programs and opportunities are best-suited for the site, the Project Team has partnered with Nelson/Nygaard Consulting Associates Inc. (Nelson/Nygaard) to assist. Nelson/Nygaard is regarded as an industry leader with regards to mobility, accessibility, and sustainability. The Nelson/Nygaard analysis concludes that a **25 percent (25%)** reduction in vehicular trips can be achieved with the implementation of a TDM plan for the Brodie Oaks development.

They have performed a study to establish parking and TDM goals for the Brodie Oaks Development outlining the various TDM measures and strategies to further promote the use of alternative transportation from single occupancy vehicles. A copy of the report has been included within the appendix of this report as *Exhibit 14*.

7.0 PROJECTED TRIP GENERATION

The Project is currently anticipated to be completed by 2036 and provide a mix of residential and commercial land uses. A detailed trip generation summary with existing tenant breakdown and proposed land uses has been included within the appendix of this report as *Exhibit 15*.

7.1 UNADJUSTED TRIP GENERATION

The trip generation has evaluated the total build condition, then back-calculated for each phase of development. This methodology was utilized since the ITE Manual defines a log rhythmic equation as the means of calculating anticipated trip generation; therefore, it is not accurate to calculate by phase, as that would not yield an accurate total trip generation. In order to accurately calculate the trip generation, the total trip generation was calculated for the overall, full-build development first, then rates per unit were back-calculated and applied to each phase. **Table 2** below summarizes the overall unadjusted trip generation given the assumed land plan for the total development.

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Table 2 Summary of Overall of Trip Generation

ITE Code	Land Use	Size		24-Hour Daily Volume	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
Existing Development										
Various Uses				19,246	1,036	497	1,532	897	903	1,800
Total Existing				19,246	1,036	497	1,532	897	903	1,800
Proposed Development										
221	Multifamily Housing (Mid-Rise)	1,233	du	6,718	115	329	444	331	212	543
222	Multifamily Housing (High-Rise)	467	du	2,078	34	110	144	102	65	167
310	Hotel	200	keys	1,672	56	39	95	63	61	124
710	General Office	1,260,000	s.f.	12,391	1,257	205	1,462	232	1,217	1,449
820	Shopping Center	140,000	s.f.	7,558	138	84	222	335	362	697
Total Proposed				30,417	1,600	767	2,366	1,063	1,917	2,980
Total Net Increase				11,171	564	270	834	166	1,014	1,180

The existing uses and their associated trip generation shown in **Table 2** is deducted from the proposed trip generation to show the net unadjusted trip generation.

The decision on whether to utilize rates versus equations from the ITE Trip Generation Manual is defined in the ITE Trip Generation Handbook, 3rd Edition. A process flow chart is provided identifying the various parameters that are required to be met in order to utilize a rate versus an equation for a specific land use. This flow chart has been provided as reference in *Exhibit 15*.

Once the total anticipated trip generation for the Project is set, the trip rates were established to calculate trip generation for each phase. Three (3) examples of this unit rate calculations are provided below, and **Table 3** provides a summary of these calculated rates.

$$\text{Hotel: AM Peak Trip Rate per Key} = \frac{95 \text{ AM Peak Trips}}{200 \text{ Keys}} = 0.47 \text{ Trpis per Key}$$

$$\text{General Office: PM Peak Trip Rate per 1,000 s.f.} = \frac{1,449 \text{ PM Peak Trips}}{1,260 \text{ s.f.}} = 1.15 \text{ Trpis per 1,000 s.f.}$$

$$\text{Shopping Center: AM Peak Trip Rate per 1,000 s.f.} = \frac{222 \text{ AM Peak Trips}}{140 \text{ s.f.}} = 1.58 \text{ Trpis per 1,000 s.f.}$$

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Table 3 ITE Calculated Rates

ITE Code	Land Use	Rate	24-Hour Daily Volume	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
221	Multifamily Housing (Mid-Rise)	Trip per DU	5.45	0.09	0.27	0.36	0.27	0.17	0.44
222	Multifamily Housing (High-Rise)	Trip per DU	4.45	0.07	0.24	0.31	0.22	0.14	0.36
310	Hotel	Trip per Key	8.36	0.28	0.19	0.47	0.32	0.30	0.62
710	General Office	Trip per T.S.F.	9.83	1.00	0.16	1.16	0.18	0.97	1.15
820	Shopping Center	Trip per T.S.F.	53.98	0.98	0.60	1.58	2.39	2.59	4.98

Based on the rates provided in **Table 3** above, the anticipated trip generation was calculated for each phase of development. **Table 4** below provides a summary of the unadjusted trip generation by phases for the Project.

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Table 4 Summary of Unadjusted Trip Generation Per Phase

ITE Code	Land Use	Size		24-Hour Daily Volume	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
Existing Development										
-	Phase 1 Total Existing	294,065	s.f.	12,782	767	280	1046	608	653	1262
-	Phase 2 Total Existing	7,000	s.f.	785	38	31	70	42	26	68
-	Phase 3 Total Existing	64,025	s.f.	5,678	230	186	416	246	224	469
Total Existing				19,246	1,036	497	1,532	897	903	1,800
Phase 1 - Blocks 1, 2, 8										
221	Multifamily Housing (Mid-Rise)	629	du	3,426	59	168	226	169	108	277
222	Multifamily Housing (High-Rise)	248	du	1,101	18	58	76	54	35	89
710	General Office	466,200	s.f.	4,585	465	76	541	86	450	536
820	Shopping Center	74,200	s.f.	4,006	73	45	118	177	192	369
Phase 1 Total Proposed				13,118	615	347	961	486	785	1,271
Phase 2 - Blocks 5, 6										
221	Multifamily Housing (Mid-Rise)	160	du	873	15	43	58	43	28	71
710	General Office	667,800	s.f.	6,567	666	108	775	123	645	768
820	Shopping Center	63,000	s.f.	3,401	62	38	100	151	163	314
Phase 2 Total Proposed				10,841	743	189	932	316	836	1,152
Phase 3 - Blocks 3, 4, 7, 9										
221	Multifamily Housing (Mid-Rise)	444	du	2,419	42	119	160	119	76	195
222	Multifamily Housing (High-Rise)	219	du	977	16	52	68	48	31	79
310	Hotel	200	keys	1,672	56	39	95	63	61	124
710	General Office	126,000	s.f.	1,239	126	20	146	23	122	145
820	Shopping Center	2,800	s.f.	151	3	2	4	7	7	14
Phase 3 Total Proposed				6,457	242	231	473	260	297	557
Total Proposed (All Phases)				30,417	1,600	767	2,366	1,063	1,917	2,980
Total Net Change in Trips				11,171	564	270	834	166	1,014	1,180

7.2 ADJUSTED TRIP GENERATION

As it relates to this TIA, the TDM and the implementation of measures identified will shift the trip generation of site traffic from single occupancy vehicles to other modes; therefore, reducing the vehicular trip generation of this development. Based on the TDM plan for Brodie Oaks concluded by Nelson/Nygaard discussed in **Section 6.0**, a **25 percent (25%)** trip reduction in vehicular trips is recommended for trip adjustment. The adjusted trips with the TDM reduction applied is shown in **Table 5** below.

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Table 5 Summary of Adjusted Trip Generation Per Phase

ITE Code	Land Use	Size		24-Hour Daily Volume	AM Peak Hour			PM Peak Hour		
					Enter	Exit	Total	Enter	Exit	Total
Existing Development										
-	Phase 1 Total Existing	294,065	s.f.	12,782	767	280	1046	608	653	1262
-	Phase 2 Total Existing	7,000	s.f.	785	38	31	70	42	26	68
-	Phase 3 Total Existing	64,025	s.f.	5,678	230	186	416	246	224	469
Total Existing				19,246	1,036	497	1,532	897	903	1,800
Phase 1 - Blocks 1, 2, 8										
221	Multifamily Housing (Mid-Rise)	629	du	2,570	44	126	170	127	81	208
222	Multifamily Housing (High-Rise)	248	du	826	14	44	57	41	26	67
710	General Office	466,200	s.f.	3,438	349	57	406	64	338	402
820	Shopping Center	74,200	s.f.	3,004	55	33	88	133	144	277
Phase 1 Total Proposed				9,838	461	260	721	364	589	953
Phase 2 - Blocks 5, 6										
221	Multifamily Housing (Mid-Rise)	160	du	655	11	32	43	32	21	53
710	General Office	667,800	s.f.	4,925	500	81	581	92	484	576
820	Shopping Center	63,000	s.f.	2,551	46	28	75	113	122	235
Phase 2 Total Proposed				8,131	557	142	699	237	627	864
Phase 3 - Blocks 3, 4, 7, 9										
221	Multifamily Housing (Mid-Rise)	444	du	1,814	31	89	120	89	57	146
222	Multifamily Housing (High-Rise)	219	du	733	12	39	51	36	23	59
310	Hotel	200	keys	1,254	42	29	71	47	46	93
710	General Office	126,000	s.f.	929	94	15	110	17	91	109
820	Shopping Center	2,800	s.f.	113	2	1	3	5	5	10
Phase 3 Total Proposed				4,843	182	174	355	195	222	418
Total Proposed (All Phases)				22,812	1,200	576	1,776	797	1,438	2,235
Total Net Change in Trips				3,567	164	78	244	-100	535	435

First, it should be noted that reductions are not applied to the Existing Development's trip generation as the reduction is only for the proposed uses. Next, it can be seen that the net change has been reduced from the values reported in **Table 4**. A detailed summary of trip generation outputs and the calculations of reductions has been included in the appendix of this report as *Exhibit 15*.

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8.0 TRIP DISTRIBUTION

Now that the trip generation has been set as discussed above, the anticipated site generated trips are distributed through the analysis network. Similar to obtaining approval from the City of Austin on data collection methodology and Trip Generation Analysis prior to moving forward, Trip Distribution Analysis was also performed and provided to the City prior to moving forward with the intersection performance analysis. This is an important interim step because the intersection performance analysis depends on the routing of site generated traffic through the analysis network; therefore, the distribution analysis described herein was submitted to City Staff for review and approval prior to undertaking the intersection performance analysis.

As a starting point to the trip distribution, the existing data that was captured on May/June 2021 was evaluated to understand how vehicles are currently traveling through the roadway system. This is done by calculating the percentage of vehicles entering or exiting the system along a specific roadway over the total volume of vehicles in the entire system. **Table 6** below provides a summary of the existing, overall trip distributions calculated from the existing traffic data.

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Table 6 Existing Trip Distributions

Direction	AM Distribution			PM Distribution		
	% Enter	% Exit	Avg. %	% Enter	% Exit	Avg. %
North Lamar Blvd	0%	0%	0%	0%	0%	15%
East Oltorf Street	0%	0%	0%	0%	0%	4%
West Bluebonnet Lane	2%	1%	2%	3%	1%	3%
East Bluebonnet Lane	2%	1%	1%	2%	1%	2%
West Barton Skyway	4%	2%	3%	3%	3%	2%
East Barton Skyway	2%	1%	2%	2%	2%	2%
East Panther Trail	0%	0%	0%	0%	0%	1%
West Capitol of Texas Hwy	17%	33%	25%	32%	20%	15%
West US 290/SH 71	5%	6%	6%	6%	8%	15%
East US 290/SH 71	17%	11%	14%	16%	9%	15%
North Mopac Frontage Road	6%	23%	14%	6%	17%	9%
South Mopac Frontage Road	16%	5%	11%	10%	12%	9%
South West Gate Blvd	9%	5%	7%	6%	10%	1%
North Victory Drive	3%	2%	3%	4%	2%	1%
South Pack Saddle Pass	3%	1%	2%	2%	1%	1%
South Menchaca Road	15%	7%	11%	9%	13%	5%
Total	100%	100%	100%	100%	100%	100%

As an example, the table above shows that approximately 6 percent (6%) of the overall traffic within this area are traveling westbound to go west US 290/SH 71 to exit the network. After calculating the existing trip distributions, the site trips were evaluated to see how it would move throughout the network.

The South Lamar Corridor and US 290/SH 71 are predominately commercial/retail uses with multifamily residential. From the data, it is evident that most trips are heading out of the district to work in the morning, and heading back in the district to their homes in the evening. The proposed development will provide a better mix of uses which includes office land uses. This type of mix will experience different traffic distribution than the existing distribution. **Table 7** provides a summary of the overall traffic distributions utilized within the analysis. An exhibit showing the overall site distributions has been included within the appendix as *Exhibit 16*.

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Table 7 Proposed Site Trip Distributions

Direction	Overall Distribution
North Lamar Blvd	15%
East Oltorf Street	4%
West Bluebonnet Lane	3%
East Bluebonnet Lane	2%
West Barton Skyway	2%
East Barton Skyway	2%
East Panther Trail	1%
West Capitol of Texas Hwy	15%
West US 290/SH 71	15%
East US 290/SH 71	15%
North Mopac Frontage Road	9%
South Mopac Frontage Road	9%
South West Gate Blvd	1%
North Victory Drive	1%
South Pack Saddle Pass	1%
South Menchaca Road	5%
Total	100%

8.1 NETWORK IMPROVEMENTS

Certain adjustments were required to be made to the analysis network to account for the future improvements to be completed by others. As previously discussed in **Section 3.0** of this report, there are planned improvements along South Lamar Corridor is anticipated to be in place by the completion of this Project in 2031; therefore, adjustments have been made and shown in the Phase 1-2026 Forecasted (future, no-build) conditions. A portion of the study area for this project is included in the segment of Loop 360 improvement program. The Loop 360 improvements will begin construction from early 2022 to 2026 and thus, the adjustments have been included in the Phase 2-2031 Forecasted (future no-build) condition. The adjusted conditions carry through the entirety of the analysis.

8.2 SOUTH LAMAR CORRIDOR IMPROVEMENTS

South Lamar Boulevard and Oltorf Street has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has four (4) lanes approaching the intersection with a center left-turn lane, thru, thru, and a channelized right-turn lane in the northbound South Lamar Blvd. Sidewalks are provided on all four (4) approaches of the intersection. Crosswalks exist on the east and south side of the intersection to cross Oltorf Street and South Lamar Blvd, respectively. With Mobility Bond Improvements, the northbound South Lamar Blvd approach will have three (3) lanes with thru, thru, and right-turn lane configuration; the channelizing island will be removed and a median with landscape will be provided for a short distance at the intersection in place of center left-turn lane. Also, the northbound bus queue jump will be provided using the right-turn lane. A queue jump is a type of roadway geometry used to provide preference to buses with either a leading bus interval or active signal priority to allow buses to enter traffic flow at intersections; it consists of an additional travel lane on the approach to signalized intersections. Additionally, the traffic signal at this intersection will be upgraded, the existing crosswalks on the south side of the intersection will be moved to the north side of the intersection. With the Mobility Bond improvements, protected bike lane along northbound South Lamar Blvd, bike lane along southbound South Lamar Blvd, a new bus stop along both northbound and southbound South Lamar Blvd at Oltorf Street.

South Lamar Boulevard and Bluebonnet Lane has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has two (2) lanes approaching the intersection with a left-turn lane, and a shared thru-right-turn lane in the westbound Bluebonnet Lane; the northbound approach currently has three lanes with center left-turn, thru, and a shared thru-right turn lane. Sidewalks are provided on all four (4) approaches of the intersection. Crosswalks exist on the east and west side of the intersection to cross Bluebonnet Lane, and south side of the intersection to South Lamar Blvd. With Mobility Bond Improvements, the northbound South Lamar Blvd approach will have four (4) lanes with center left-turn, thru, thru, and right-turn lane; the westbound Bluebonnet Lane will have one (1) lane for the shared thru-right movement while prohibiting left-turn lane. A new signal will be installed at Del Curto Road, just north of Bluebonnet Lane. Since the westbound left-turns are prohibited at Bluebonnet Lane, the westbound left-turn trips at Bluebonnet Lane were re-routed to Del Curto Road, which allows to make a westbound left onto South Lamar Blvd. This adjustment was done in the analysis of Phase 1-2026 Forecasted condition. Additionally, the traffic signal at this intersection will be upgraded, protected bike lane along both northbound and southbound South Lamar Blvd, crosswalks on all four (4) approaches, and new bus stop along both northbound and southbound South Lamar Blvd to the downstream of the intersection.

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South Lamar Boulevard and Menchaca Road has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has three (3) lanes approaching the intersection with a center left, thru, and a shared thru-right-turn lane in the northbound South Lamar Blvd; the southbound approach currently has three (3) lanes with center left-turn, thru, and thru lane with two (2) receiving lanes. Sidewalks are provided on all three (3) approaches of the intersection. Crosswalks exist on the east and south side of the intersection to cross Menchaca Road, and South Lamar Blvd, respectively. With Mobility Bond Improvements, the northbound South Lamar Blvd approach will continue to have three (3) lanes but with a different lane usage. A median with landscape will be provided for a short distance at the intersection in place of the existing center left-turn lane, thru, thru, and right-turn lane (please note that the corridor improvement schematic shows it as thru, thru, and a shared thru right, but the third thru lane is intended only for Bus and thus, for the analysis it is considered as exclusive right-turn lane). Also, the northbound bus queue jump will be provided using the right-turn lane. Additionally, the traffic signal will be upgraded, shared use path along northbound South Lamar Blvd south of the intersection, protected bike lane along northbound South Lamar Blvd north of the intersection, and bike lane along southbound South Lamar Blvd at this intersection of Menchaca Road.

South Lamar Boulevard and Barton Skyway has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has three (3) lanes approaching the intersection with a left, thru, and right-turn lane in the eastbound Barton Skyway; the westbound Barton Skyway approach also has three (3) lanes with left, thru, and a shared thru-right turn lane with one (1) receiving lane; the northbound South Lamar Blvd approach currently has three lanes with center left-turn, thru, and a shared thru-right turn lane; the southbound South Lamar Blvd approach has three (3) lanes with center left-turn, thru, and a shared thru-right turn lane with two (2) receiving lanes. Sidewalks are provided on all four (4) approaches of the intersection. Crosswalks exist on all approaches of the intersection. With Mobility Bond Improvements, the eastbound Barton Skyway approach will continue to have three (3) lanes but with a different lane usage; left, thru, and a shared thru-right turn lane. The westbound Barton Skyway approach will continue to have the same lane configuration as exiting but with two (2) receiving lanes to complement the revised lane configuration in the eastbound approach. The northbound South Lamar Blvd approach will have four (4) lanes with left, thru, thru, and right-turn lane. The southbound South Lamar Blvd approach will continue to have three (3) lanes with revised lane usage where the center left-turn lane will be replaced to left, thru, and a shared thru-right turn lane. Also, the northbound bus queue jump will be provided using the right-turn lane. Additionally, the traffic signal will be upgraded, protected bike lane along northbound South Lamar Blvd south of the intersection, shared use path along northbound South Lamar Blvd north of the intersection, and protected bike lane along southbound South Lamar Blvd at this intersection of Barton Skyway. The bus

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stops will be relocated along both northbound and southbound South Lamar Blvd to the downstream of the intersection.

South Lamar Boulevard and Panther Trail has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has two (2) lanes approaching the intersection with a left, and a shared thru-right-turn lane in the northbound South Lamar Blvd; the southbound approach currently has four (4) lanes with center left-turn, thru, thru, and right-turn lanes. Sidewalks are provided on all three (3) approaches of the intersection. Crosswalks exist on the east and south side of the intersection to cross Panther Trail, and South Lamar Blvd, respectively. With Mobility Bond Improvements, the northbound South Lamar Blvd approach will have three (3) lanes with center left, thru, and a shared thru-right turn lane. The southbound South Lamar Blvd will continue to have three (3) lanes with revised lane usage; center left-turn will be replaced with left-turn lane, thru, and a shared thru-right turn lane. Also, the northbound bus queue jump will be provided using the right-turn lane. Additionally, the traffic signal will be upgraded, bike lane along both northbound and southbound South Lamar Blvd, and crosswalks on all three (3) approaches of this intersection at Panther Trail.

South Lamar Boulevard and Brodie Oaks/US 290 off-Ramp has been modified to account for the planned Mobility Bond improvements. Currently, the intersection has five (5) lanes approaching the intersection with a left, thru, thru, thru, and a shared thru-right turn lane in the southbound South Lamar Blvd with three (3) receiving lanes. The northwest US 290 off-Ramp currently has two (2) lanes with left, and a thru lane configuration. Sidewalks are provided on all four (4) approaches, but missing sidewalk along southbound South Lamar Blvd south of the intersection. Crosswalks exist on the west and north side of the intersection to cross Brodie Oaks Driveway and South Lamar Blvd, respectively. With Mobility Bond Improvements, the southbound South Lamar Blvd approach will continue to have five (5) lanes but with revised four (4) receiving lanes. The northwest US 290 off-Ramp will also continue to have the two (2) lanes but the left-turn movement will be prohibited; instead, two (2) thru lanes will be provided. Additionally, with the Mobility Bond improvements, sidewalks will be provided for the missing southbound South Lamar direction, crosswalks on all four (4) approaches and the bus stops will be relocated along both northbound and southbound South Lamar Blvd to the downstream of the intersection.

All the South Lamar Corridor improvements detailed above including the pro-rata share is included in a table within the Appendix of this report as *Exhibit 17*. In addition to the improvements to all these intersections, access management will be applied to define driveways along South Lamar Blvd. The number of driveways to the Brodie Oaks development will be reduced from what is currently existing.

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8.3 SITE TRAFFIC VOLUMES

Once the analyses of the overall distribution and network adjustments were completed and established, the site-specific trip assignments were then evaluated to understand the most likely path for people entering and exiting the Project. Given the location of the site driveway per the site plan, the overall distributions were split among the most likely travel paths to and from the site.

Table 8 provides the summary of the driveway distribution percentages of site traffic, entering and exiting at the driveway. There are five (5) driveways being proposed for the Brodie Oaks Redevelopment project where Driveway A, Driveway B, and Driveway C are proposed along South Lamar Blvd, while Driveway D, and Driveway E along Capital of Texas Hwy. The northern most driveway along South Lamar Blvd is Driveway A, and the southernmost driveway along Capital of Texas Hwy is Driveway D. Two (2) existing driveways to the site are being removed with this project; the southernmost existing driveway along South Lamar Blvd and the southernmost existing driveway along Capital of Texas Hwy. Please note that since Driveway E (northernmost proposed driveway along Capital of Texas Hwy) provides access to the signalized Barton Creek Plaza intersection immediately to the north, the trips assigned to Driveway E are captured at this signalized intersection.

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Table 8 Driveway Distribution of Site Traffic

Driveway Distribution													
Direction	Overall Distribution	Driveway A		Driveway B		Driveway C		Driveway D		Driveway E		Total Driveway	
		Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
North Lamar Blvd	15%	50%		40%	100%	10%						100%	100%
East Oltorf Street	4%	50%		40%	100%	10%						100%	100%
West Bluebonnet Lane	3%	50%		40%	100%	10%						100%	100%
East Bluebonnet Lane	2%	50%		40%	100%	10%						100%	100%
West Barton Skyway	2%	50%		40%	100%	10%						100%	100%
East Barton Skyway	2%	50%		40%	100%	10%						100%	100%
East Panther Trail	1%	50%		40%	100%	10%						100%	100%
West Capitol of Texas Hwy	15%							50%	100%	50%		100%	100%
West US 290/SH 71	15%			70%	50%		50%	30%				100%	100%
East US 290/SH 71	15%			50%	50%		50%	50%				100%	100%
North Mopac Frontage Road	9%							50%	100%	50%		100%	100%
South Mopac Frontage Road	9%							50%	100%	50%		100%	100%
South West Gate Blvd	1%			70%	50%		50%	30%				100%	100%
North Victory Drive	1%			50%	50%		50%	50%				100%	100%
South Pack Saddle Pass	1%			50%	50%		50%	50%				100%	100%
South Menchaca Road	5%			50%	50%		50%	50%				100%	100%
Total	100%	350%	0%	620%	1000%	70%	300%	260%	150%	300%	150%	1600%	1600%

The site volumes for each phase are the proposed net trips, which is the new site volumes minus the existing trips reduced due to the demolition of the existing land uses from the site on each phase. As an example, Phase 1-2026 Site trips include all the proposed trips for phase 1 minus existing phase 1 (since phase 1 existing will be demolished). Similarly, Phase 2-2031 Site trips include all the proposed trips for phase 1 and phase 2 minus existing phase 1 and existing phase 2. The site trip volumes for the development can be seen through various Traffic Volume Figures within the Appendix of the report as *Exhibit 10*.

9.0 FUTURE BUILD CONDITIONS

The Project shall consist of a mix of residential and commercial land uses, which will provide employment opportunities as well as basic services for the neighborhoods such as retail uses. The type of uses proposed complements the Activity Corridors that serves the dual purpose of improving mobility and concentrating development while it maintains the neighborhood character.

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The future build condition represents the background condition (future no-build) volume detailed in **Section 5.3** plus the site volume discussed in **Section 8.3** expected to be utilizing the study network.

9.1 BUILD-OUT PHASING

Given the large size of the property, we anticipate that the redevelopment of the overall Project to occur through three (3) major build-out phases over the course of approximately 10 years. As with anything related to real estate, the market will be the driver for the Project Team's ability to move forward and at what speed. Based on the experiences of such developments in the past, assumptions on when development will occur is an estimation at this point in time. This analysis has assumed a realistic timeline based on the information available to us at this time.

- Phase 1 - 2026
- Phase 2 – 2031
- Phase 3 - 2036

The order in which redevelopment may occur and what land uses are constructed may differ from what has been assumed here in. Again, given the current status of this development, this analysis has assumed a realistic redevelopment plan that could adjust depending on market conditions.

The Phase 1-2026 Site+Forecasted (Build) traffic volumes are shown on **Figure 5**, Phase 2-2031 Site+Forecasted volumes on **Figure 8**, and Phase 3-2036 Site+Forecasted volumes on **Figure 11** within *Exhibit 10* of the Appendix of this report.

10.0 INTERSECTION PERFORMANCE ANALYSIS

Per the requirements of the TIA Scope of Work issued by the City of Austin, the intersection performance analysis performed for this study includes a level of service, delay, volume-to-ratio (v/c), and queue analysis for each of the study intersections by movement. This section describes the methodology used in the intersection performance analysis, and the turning movement volumes for the future conditions, including the site trips from the proposed development.

10.1 TRAFFIC MODELING METHODOLOGY

Synchro™ Version 10 was used to perform capacity analysis at each intersection. The capacity analysis functions are based on the Transportation Research Board's Highway Capacity Manual (HCM) 2010. The

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HCM is a nationally recognized standard for performing capacity analyses. The *Synchro* reports have been provided in the Appendix of this report as follows:

- **Exhibit 18** - Synchro Outputs: (No Improvements)
- **Exhibit 19** - Synchro Outputs: (With Improvements)

Capacity analyses are evaluated based on a level of service (LOS) that ranges from A to F. LOS A and B typically represent roadways that experience zero delay with vehicles traveling at or just above the 85th percentile speed. This typically occurs during the middle of the day or in the middle of the night. LOS C and D typically represent roadways that experience minor levels of delay with vehicles traveling at or just below the 85th percentile speed. This typically occurs just before or just after the peak hour conditions (rush hour). LOS E and F represent roadways that experience higher levels of delay with vehicles traveling below the 85th percentile speed. This typically occurs during the peak hour conditions. Facilities that perform at a LOS A through C at all times of the day are considered to be overdesigned and unnecessary. In contrast, some have suggested that LOS E and F, while representing congestion, may also reflect a robust economy.

The level of service thresholds from the Highway Capacity Manual are shown in **Table 9**. In cases where intersections and/or approaches did not meet an acceptable level of service according to the *Synchro* reports, recommendations were made for improving the intersection. For stop-controlled intersections, the LOS for the worse approach was reported.

Table 9 Intersection Level of Service Thresholds

LOS	Control Delay Per Vehicle (seconds)	
	Signalized Intersection	Stop-Controlled Intersection
A	≤ 10	≤ 10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	> 80	> 50

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10.2 INTERSECTION PERFORMANCE RESULTS

The *existing* traffic analysis includes only the traffic volumes obtained by counts and the current geometric conditions and signal programs. The *forecasted* traffic analysis includes the natural growth of the existing traffic volumes plus any background projects as defined in **Section 5.2** of this report. This is also referred to as the Future No-Build condition. The *site plus forecasted* analysis includes the future no-build traffic volumes plus the site traffic associated with each phase of the proposed development. This is also known as the future, build condition. The analysis was completed for each phase of the development creating different analysis scenarios for the baseline condition (no improvements). However, starting with the Phase 1-2026 Forecasted (No-Build) condition, South Lamar Corridor Improvements are included as defined in **Section 8.2**

A table reporting the findings of intersection performance for signalized and unsignalized intersections during AM peak period have been included in **Table 10**. The detailed performance Table **with improvements** have been included within the Appendix of this report as *Exhibit 20*.

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Table 10 Performance Results for AM Peak-Signalized Intersections (No Improvements)

Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted				*Phase 1-2026 Site+Forecasted				*~Phase 2-2031 Forecasted				*~Phase 2-2031 Site+Forecasted				*~Phase 3-2036 Forecasted				*~Phase 3-2036 Site+Forecasted			
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)
1	S Lamar Blvd & Oltorf Street	D	50.4	1.42	-	-	F	81.6	1.65	-	F	81.8	1.65	-	F	129.9	1.91	-	F	130.7	1.91	-	F	189.9	2.22	-	F	190.3	2.22	-
	WBL	D	42.3	0.40	179	-	D	44.0	0.47	211	D	43.7	0.46	204	D	45.6	0.55	245	D	45.8	0.56	250	D	47.7	0.63	286	D	47.9	0.64	290
	WBR	D	48.3	0.79	485	125	E	65.3	0.94	#652	E	65.1	0.93	#651	F	105.4	1.09	#819	F	105.4	1.09	#819	F	173.6	1.26	#1010	F	173.6	1.26	#1010
	NBT	C	31.0	0.96	896	-	E	78.0	1.11	#1193	E	76.9	1.11	#1187	F	154.2	1.29	#1498	F	157.7	1.30	#1514	F	243.9	1.50	m#1638	F	246.5	1.50	m#1635
	NBR	A	6.2	0.24	16	275	A	5.7	0.30	15	A	5.6	0.30	15	A	6.0	0.37	m11	A	6.0	0.37	m10	A	6.4	0.44	m8	A	6.3	0.45	m8
	SBL	F	343.6	1.61	#424	125	F	456.4	1.87	#511	F	456.4	1.87	#511	F	584.7	2.16	#607	F	584.7	2.16	#607	F	740.2	2.51	#722	F	740.2	2.51	#722
	SBT	B	10.6	0.37	197	-	B	11.1	0.43	245	B	10.9	0.41	230	B	12.0	0.50	300	B	12.2	0.51	312	B	13.3	0.58	373	B	13.5	0.59	384
2	S Lamar Blvd & Bluebonnet Lane	C	28.6	0.75	-	-	C	30.9	0.86	-	C	30.6	0.83	-	D	38.7	0.99	-	D	41.9	1.02	-	F	87.0	1.14	-	F	92.5	1.16	-
	EBL	D	44.4	0.29	94	75	D	45.5	0.47	111	D	43.6	0.42	111	E	56.5	0.70	123	E	56.2	0.69	123	E	62.8	0.77	136	E	62.8	0.77	136
	EBT/R	E	63.3	0.57	72	-	D	46.6	0.45	121	D	44.3	0.38	108	D	52.5	0.62	155	D	53.4	0.64	161	D	54.3	0.70	188	E	55.6	0.72	194
	WBL	D	45.8	0.45	146	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT/R	E	59.5	0.36	85	-	E	64.7	0.57	111	E	64.2	0.56	110	E	73.4	0.71	143	E	72.1	0.70	143	E	72.6	0.75	170	E	72.6	0.75	170
	NBL	C	26.0	0.38	m71	50	D	40.0	0.46	m111	D	39.0	0.46	m110	D	44.9	0.57	m113	D	43.9	0.58	m113	D	47.3	0.74	m115	D	47.5	0.75	m116
	NBT/R	B	17.0	0.80	475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	B	11.9	0.83	532	B	14.2	0.85	524	B	16.2	0.94	m733	B	15.6	0.95	m751	E	71.4	1.11	m#1205	E	74.8	1.12	m#1212
	NBR	-	-	-	-	-	A	6.0	0.06	m7	A	6.6	0.06	m7	A	6.7	0.08	m9	A	6.8	0.08	m10	A	7.3	0.09	m9	A	7.3	0.09	m9
	SBL	D	54.2	0.56	25	50	F	106.4	0.81	#55	F	107.5	0.81	#49	F	131.3	0.92	#72	F	131.5	0.92	#71	F	175.2	1.08	#87	F	174.8	1.08	#86
SBT/R	C	34.0	0.76	305	-	D	47.4	0.93	678	D	45.3	0.92	637	E	59.9	1.02	815	E	69.1	1.05	#867	F	120.2	1.18	#1121	F	130.3	1.20	#1160	
3	S Lamar Blvd & Menchaca Road	C	21.2	0.80	-	-	C	29.2	0.94	-	C	29.0	0.94	-	D	46.2	1.10	-	D	46.0	1.11	-	E	78.8	1.28	-	E	79.9	1.29	-
	WBR	D	43.7	0.74	394	-	E	76.5	0.99	#561	E	75.4	0.99	#560	F	145.0	1.19	#722	F	145.7	1.19	#724	F	231.6	1.39	#897	F	232.0	1.39	#898
	NBT/R	B	10.1	0.71	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	B	11.1	0.78	316	B	11.1	0.78	314	B	14.6	0.90	360	B	15.1	0.92	360	D	37.5	1.04	m438	D	41.5	1.06	m456
	NBR	-	-	-	-	-	A	1.7	0.01	m1	A	1.7	0.01	m1	A	1.8	0.01	m0	A	1.8	0.01	m0	A	1.6	0.01	m0	A	1.7	0.01	m0
	SBL	D	41.0	0.68	422	100	D	48.0	0.87	m#480	D	49.5	0.87	#526	E	67.5	1.02	m#503	E	65.1	1.02	m#476	F	124.9	1.19	m#522	F	124.9	1.19	m#506
	SBT	B	13.7	0.53	193	-	B	15.6	0.58	311	B	14.2	0.54	282	B	16.1	0.65	m327	B	16.6	0.68	m332	B	17.5	0.75	m333	B	17.8	0.77	m336



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
4	S Lamar Blvd & Barton Skyway/Lightsey Road	C	30.6	0.71	-	-	D	39.7	0.83	-	D	39.0	0.81	-	E	56.5	1.02	-	E	58.0	1.05	-	E	78.6	1.30	-	F	80.5	1.33	-		
	EBL	E	57.4	0.58	132	90	E	76.5	0.79	153	E	76.5	0.79	153	F	107.5	0.96	179	F	107.5	0.96	179	F	184.3	1.20	#239	F	184.3	1.20	#239		
	EBT	D	47.3	0.32	155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT/R	-	-	-	-	-	D	50.4	0.40	127	D	49.8	0.37	116	D	53.2	0.54	171	D	53.6	0.55	176	E	57.4	0.68	218	E	57.8	0.69	222		
	EBR	D	44.0	0.13	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	WBL	D	50.6	0.40	97	100	F	117.0	0.93	#136	F	97.6	0.84	114	F	253.5	1.32	#187	F	292.4	1.42	#200	F	583.5	2.08	#247	F	625.8	2.18	#257		
	WBT/R	D	44.4	0.19	77	-	D	47.9	0.25	88	D	47.9	0.25	88	D	48.5	0.29	100	D	48.5	0.29	100	D	49.2	0.34	114	D	49.2	0.34	114		
	NBL	F	275.4	1.39	#295	125	F	363.7	1.63	m#296	F	355.8	1.61	m#290	F	458.6	1.87	m#290	F	470.0	1.90	m#291	F	584.9	2.17	m#287	F	597.7	2.20	m#290		
	NBT/R	B	16.7	0.67	217	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	NBT	-	-	-	-	-	B	18.8	0.69	372	B	18.7	0.68	368	C	20.0	0.78	466	C	20.4	0.79	477	C	22.7	0.90	m566	C	23.1	0.91	m575		
	NBR	-	-	-	-	-	C	24.8	0.03	m4	C	25.0	0.03	m4	B	15.2	0.04	m2	B	15.0	0.04	m2	B	14.1	0.05	m115	B	14.3	0.05	m2		
	SBL	D	43.5	0.37	#78	80	F	136.4	0.94	#88	F	129.5	0.93	#88	F	668.0	2.19	#99	F	665.9	2.19	#99	F	807.6	2.54	#115	F	805.2	2.54	#115		
SBT/R	A	3.1	0.53	200	-	A	2.9	0.61	84	A	2.6	0.57	77	A	3.6	0.70	101	A	3.7	0.73	97	A	4.6	0.81	111	A	4.9	0.83	106			
5	S Lamar Blvd & Panther Trail/Private Driveway	C	20.2	0.94	-	-	D	49.0	1.95	-	D	49.1	1.93	-	F	99.4	3.63	-	F	105.6	3.90	-	F	176.5	5.55	-	F	176.9	5.55	-		
	EBL/T/R	E	63.6	0.48	66	-	F	80.2	0.67	79	F	80.2	0.67	79	F	162.4	1.05	96	F	162.4	1.05	96	F	539.4	1.96	#145	F	539.4	1.96	#145		
	WBL	E	57.1	0.54	132	120	E	63.5	0.66	152	E	62.3	0.64	148	E	71.3	0.76	175	E	72.4	0.77	178	F	88.1	0.89	205	F	89.4	0.90	207		
	WBT/R	E	58.2	0.64	109	-	E	64.2	0.74	150	E	64.2	0.74	149	E	75.9	0.86	191	E	75.9	0.86	192	F	100.2	0.99	231	F	100.2	0.99	231		
	NBL	B	12.1	0.06	11	95	B	14.4	0.08	12	B	13.2	0.08	12	B	18.2	0.12	15	B	19.6	0.13	15	C	25.0	0.18	19	C	26.7	0.19	20		
	NBT/R	-	-	-	-	-	B	18.6	0.81	387	B	18.4	0.78	384	C	31.3	0.94	517	C	34.1	0.96	535	F	73.9	1.09	734	F	78.8	1.11	757		
	NBT	B	10.9	0.63	256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NBR	A	6.3	0.15	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	SBL	F	96.8	0.94	#253	125	F	514.1	1.95	m#426	F	503.7	1.93	#430	F	1281.9	3.63	m#476	F	1404.7	3.90	m#476	F	2155.4	5.55	m#532	F	2155.4	5.55	m#530		
SBT/R	A	8.8	0.43	328	-	A	9.8	0.50	m324	A	9.3	0.47	266	B	11.1	0.58	m402	B	11.6	0.61	m433	B	13.2	0.67	m570	B	13.7	0.69	m613			



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Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted				*Phase 1-2026 Site+Forecasted				*~Phase 2-2031 Forecasted				*~Phase 2-2031 Site+Forecasted				*~Phase 3-2036 Forecasted				*~Phase 3-2036 Site+Forecasted					
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
6	S Lamar Blvd/US 290 Off-Ramp & Brodie Oaks/Private Driveway	F	131.0	1.25	-	-	F	121.9	1.29	-	F	104.0	1.21	-	F	176.1	1.53	-	F	197.1	1.63	-	F	247.5	1.81	-	F	264.8	1.90	-		
	Brodie Oaks - EBL	F	83.2	0.91	156	-	F	138.4	1.11	180	F	127.8	1.08	175	F	243.0	1.38	#225	F	322.3	1.56	#287	F	394.1	1.73	#319	F	467.8	1.89	#372		
	Brodie Oaks - EBT/R	D	49.3	0.11	0	-	D	50.4	0.17	7	D	50.1	0.15	4	D	51.2	0.21	6	D	51.5	0.22	2	D	52.9	0.29	11	E	55.0	0.37	22		
	Driveway - WBL	D	44.3	0.38	77	-	D	45.4	0.49	86	D	45.3	0.47	86	D	51.4	0.64	97	D	54.6	0.68	97	E	64.2	0.77	110	E	64.2	0.77	110		
	Driveway - WBT/R	D	50.2	0.15	28	-	D	50.7	0.18	30	D	50.7	0.18	30	D	51.2	0.20	30	D	51.2	0.20	30	D	52.5	0.27	39	D	52.5	0.27	39		
	US 290 Off -Ramp - NBL	D	51.7	0.16	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	US 290 Off -Ramp - NBT	F	281.7	1.51	#734	-	D	54.5	0.92	322	D	54.5	0.92	322	F	89.7	1.07	385	F	89.7	1.07	385	F	158.6	1.24	464	F	158.6	1.24	464		
	S Lamar Blvd - SBL	F	82.8	0.71	108	-	F	96.0	0.82	122	F	96.0	0.82	122	F	118.8	0.94	#150	F	118.8	0.94	#150	F	162.0	1.10	#187	F	162.0	1.10	#187		
	S Lamar Blvd - SBT/R	C	21.9	0.35	175	-	C	22.8	0.41	211	C	22.4	0.38	200	C	23.9	0.48	253	C	24.2	0.49	263	C	25.2	0.55	305	C	25.5	0.57	314		
	S Lamar Blvd - NWL	F	288.6	1.46	#391	-	F	461.3	1.86	#519	F	263.8	1.40	#372	F	592.0	2.15	#612	F	732.4	2.47	#710	F	741.2	2.49	#717	F	853.5	2.74	#794		
S Lamar Blvd - NWT/R	F	107.4	1.11	#463	-	F	192.2	1.31	#638	F	192.2	1.31	#638	F	295.5	1.55	#820	F	295.5	1.55	#820	F	415.0	1.82	#1027	F	415.0	1.82	#1027			
7	SB S Lamar Blvd & WB Capital of Texas Hwy	B	13.5	0.73	-	-	B	16.9	0.86	-	B	16.4	0.84	-	C	21.0	1.00	-	C	21.7	1.02	-	C	26.5	1.16	-	C	27.6	1.18	-		
	WBL	A	0.8	0.38	m0	-	A	2.4	0.46	m0	A	2.5	0.46	m0	A	5.1	0.53	m0	A	5.0	0.53	m0	A	8.9	0.62	m0	A	8.8	0.62	m0		
	WBL/T	A	7.7	0.61	m546	-	B	13.0	0.72	m568	B	12.0	0.70	m560	B	19.5	0.84	m587	C	20.2	0.86	m591	C	28.1	0.97	m189	C	29.6	0.99	m194		
	SBT	D	43.4	0.39	163	-	D	44.6	0.47	194	D	44.5	0.46	191	D	45.8	0.54	225	D	46.3	0.57	236	D	47.5	0.63	262	D	48.0	0.65	272		
	SBR	A	0.2	0.17	0	-	A	0.3	0.20	0	A	0.3	0.20	0	A	0.3	0.23	0	A	0.3	0.23	0	A	0.4	0.26	0	A	0.4	0.26	0		
8	NB S Lamar Blvd & WB Capital of Texas Hwy/Ben White Blvd	D	46.7	0.65	-	-	F	91.8	0.77	-	F	86.6	0.75	-	F	140.9	0.89	-	F	144.4	0.91	-	F	198.3	1.04	-	F	200.9	1.05	-		
	WBT/R	E	80.0	1.04	#621	-	F	158.4	1.23	m#733	F	147.6	1.20	m#732	F	243.6	1.42	m#824	F	251.3	1.44	m#825	F	343.0	1.65	m#932	F	348.9	1.66	m#931		
	NBL	A	1.1	0.23	m5	-	A	1.6	0.29	m6	A	1.5	0.28	m560	A	1.8	0.34	m8	A	1.9	0.35	m8	A	3.3	0.41	m9	A	3.5	0.41	m9		
	NBL/T	A	1.6	0.27	5	-	A	2.4	0.33	8	A	2.3	0.31	7	A	3.0	0.38	m10	A	3.3	0.39	m10	A	4.6	0.45	m22	A	4.9	0.46	m23		
9	SB S Lamar Blvd & EB Capital of Texas Hwy	C	22.3	0.44	-	-	C	27.5	0.54	-	C	27.6	0.53	-	D	40.0	0.62	-	D	39.6	0.63	-	E	64.9	0.72	-	E	64.4	0.73	-		
	EBT/R	D	54.1	0.74	266	-	E	65.3	0.91	#354	E	65.3	0.91	#354	F	95.9	1.04	#443	F	95.9	1.04	#443	F	156.4	1.20	#547	F	156.4	1.20	#547		
	SBL	A	2.6	0.24	1	-	A	3.0	0.29	m2	A	2.9	0.01	2	A	3.4	0.02	m0	A	3.8	0.35	m0	A	5.1	0.40	m19	A	5.5	0.41	m19		
	SBL/T	A	2.1	0.25	2	-	A	2.6	0.30	8	A	2.5	0.29	3	A	3.5	0.02	11	A	3.8	0.36	m11	A	5.5	0.40	m34	A	5.6	0.41	m34		



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)
10	NB S Lamar Blvd & EB Capital of Texas Hwy/Ben White Blvd	C	21.7	0.53	-	-	C	23.5	0.65	-	C	22.7	0.64	-	C	26.0	0.75	-	C	26.5	0.77	-	C	30.7	0.87	-	C	31.7	0.88	-
	EBL	A	1.7	0.31	3	-	A	2.6	0.38	5	A	2.5	0.38	5	A	4.2	0.44	8	A	4.2	0.45	8	A	6.8	0.52	m14	A	6.8	0.53	m14
	EBL/T	A	3.0	0.34	23	-	A	4.0	0.41	m30	A	4.1	0.41	m30	A	5.9	0.48	m35	A	5.9	0.49	m36	A	8.4	0.56	m423	A	8.4	0.56	m424
	NBT/R	D	41.9	0.56	274	-	D	44.5	0.68	341	D	43.8	0.65	324	D	47.6	0.78	#435	D	48.4	0.80	#455	D	54.7	0.91	#558	E	56.4	0.93	#574
11	West Gate Blvd & US 290 WBFR	D	41.3	0.82	-	-	F	99.8	0.96	-	F	98.6	0.96	-	F	174.8	1.12	-	F	188.6	1.13	-	F	274.8	1.30	-	F	280.1	1.30	-
	WBL	E	65.0	0.97	#346	-	F	146.4	1.21	#407	F	146.4	1.21	#407	F	256.2	1.47	#475	F	276.6	1.52	#484	F	401.7	1.80	#553	F	415.1	1.84	#564
	WBL/T	D	51.1	0.97	#269	-	F	141.0	1.23	#328	F	138.5	1.22	#326	F	253.4	1.49	#390	F	272.5	1.53	#395	F	403.8	1.82	#462	F	407.5	1.83	#464
	WBR	C	20.5	0.08	0	-	C	21.5	0.09	0	C	21.5	0.09	0	C	22.2	0.11	0	C	22.4	0.11	0	C	23.0	0.12	0	C	23.0	0.12	0
	NBL	B	15.3	0.51	m42	-	B	16.4	0.60	m45	B	16.4	0.60	m45	B	17.7	0.69	m47	B	17.7	0.69	m46	C	20.3	0.81	m49	C	20.3	0.81	m49
	NBL/T	A	5.2	0.20	m7	-	A	4.8	0.22	m7	A	4.7	0.22	m7	A	4.2	0.26	m733	A	4.2	0.25	m7	A	3.8	0.29	m7	A	3.8	0.29	m7
	SBT/R	B	17.0	0.01	5	-	B	16.2	0.01	6	B	16.2	0.01	6	B	15.8	0.01	6	B	15.6	0.01	6	B	15.3	0.02	7	B	15.3	0.02	7
12	West Gate Blvd & US 290 EBFR	F	122.8	0.80	-	-	F	174.9	0.96	-	F	146.2	0.93	-	F	224.1	1.14	-	F	246.1	1.17	-	F	285.0	1.35	-	F	302.6	1.37	-
	EBL	C	27.4	0.27	34	-	C	27.5	0.31	37	C	27.5	0.31	37	C	27.7	0.36	41	C	27.7	0.36	41	C	28.0	0.42	46	C	28.0	0.42	46
	EBT/R	F	367.1	1.72	#214	-	F	527.4	2.08	#277	F	454.5	1.92	#249	F	682.0	2.43	#335	F	734.5	2.55	#354	F	862.3	2.83	#402	F	903.2	2.92	#417
	NBT/R	C	24.3	0.53	114	-	C	26.4	0.64	139	C	26.3	0.64	139	C	31.6	0.79	#212	C	31.6	0.79	#212	D	50.8	0.97	#281	D	50.9	0.97	#282
	NBR	C	21.1	0.20	43	-	C	21.6	0.24	64	C	21.6	0.23	63	C	22.1	0.27	70	C	22.1	0.27	70	C	22.8	0.32	78.0	C	22.8	0.32	78
	SBL	D	35.1	0.09	m24	-	C	34.6	0.10	m22	C	34.6	0.10	m22	C	34.5	0.12	m22	C	34.5	0.12	m21	C	34.5	0.14	m21	C	34.5	0.14	m21
	SBT	A	0.4	0.23	m1	-	A	0.6	0.27	m1	A	0.6	0.27	m1	A	1.1	0.31	m0	A	1.1	0.31	m0	A	2.4	0.36	m0	A	2.4	0.36	m0
13	Mopac SBFR & Capital of Texas Hwy	C	23.8	0.89	-	-	D	36.9	1.04	-	D	36.2	1.03	-	E	77.8	1.20	-	E	79.1	1.21	-	F	128.9	1.39	-	F	129.3	1.40	-
	EBT	B	15.3	0.40	283	-	B	16.4	0.47	349	B	16.1	0.45	335	B	17.7	0.54	430	B	17.9	0.55	443	B	19.6	0.63	539	B	19.8	0.64	551
	EBR	B	15.1	0.35	39	515	B	17.3	0.46	160	B	17.2	0.46	151	A	0.2	0.25	0	A	0.2	0.25	0	A	0.3	0.29	0	A	0.3	0.29	0
	WBL	A	6.4	0.33	m33	950	B	11.2	0.47	m38	B	11.1	0.44	m37	C	29.2	0.61	m41	D	35.1	0.67	m43	D	54.4	0.80	m67	E	56.1	0.81	m71
	WBT	C	27.3	0.89	m1496	-	D	48.3	1.03	m1708	D	48.0	1.03	m1705	F	119.8	1.20	m1718	F	121.2	1.20	m1716	F	205.1	1.38	m1725	F	205.0	1.38	m1716
	SBL	F	89.1	0.62	194	-	F	100.6	0.76	233	F	92.1	0.66	207	F	115.8	0.87	#282	F	127.5	0.93	#315	F	144.9	1.01	#348	F	159.1	1.06	#374
	SBL/T	F	87.7	0.61	129	-	F	97.0	0.74	152	F	90.3	0.65	136	F	110.0	0.85	172	F	120.7	0.91	183	F	135.5	0.98	196	F	148.2	1.02	204
SBR	A	0.5	0.30	0	-	A	0.6	0.34	0	A	0.6	0.34	0	A	0.8	0.40	0	A	0.8	0.40	0	A	1.0	0.46	0	A	1.0	0.46	0	



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
14	Mopac NBFR & Capital of Texas Hwy	E	78.8	1.28	-	-	F	108.6	1.48	-	F	109.8	1.48	-	F	163.8	1.72	-	F	164.1	1.72	-	F	234.6	1.99	-	F	234.8	1.99	-		
	EBL	E	60.3	0.73	#492	-	F	156.8	1.14	#612	F	157.2	1.14	#619	F	227.0	1.32	m#744	F	226.6	1.32	m#738	F	315.1	1.53	m#886	F	314.8	1.53	m#881		
	EBT	A	0.6	0.49	265	-	A	0.9	0.58	337	A	0.8	0.55	298	A	1.2	0.67	385	A	1.3	0.69	405	A	1.7	0.77	m438	A	1.8	0.79	m451		
	WBT	D	51.0	0.95	m751	-	E	57.5	1.00	m764	E	57.0	1.00	m763	F	115.2	1.15	m777	F	118.9	1.16	m782	F	195.6	1.34	m792	F	199.0	1.34	m797		
	WBR	A	0.0	0.00	m#2822	-	A	0.0	0.00	m#2894	A	0.0	0.00	m#2893	A	0.0	0.00	m#2977	A	0.0	0.00	m#2989	A	0.0	0.00	m#3079	A	0.0	0.00	m#3085		
	NBL	F	203.7	1.28	#805	300	F	292.9	1.48	#987	F	292.9	1.48	#987	F	397.4	1.72	#1198	F	397.4	1.72	#1198	F	519.9	1.99	#1441	F	519.9	1.99	#1441		
	NBT	E	61.8	0.40	214	-	E	62.8	0.47	246	E	62.8	0.47	246	E	64.5	0.54	283	E	64.5	0.54	283	E	67.3	0.63	327	E	67.3	0.63	327		
NBR	A	0.0	0.00	242	-	A	0.0	0.00	381	A	0.0	0.00	315	A	0.0	0.00	#526	A	0.0	0.00	#580	A	0.0	0.00	#669	A	0.0	0.00	#711			
15	Capital of Texas Hwy & Barton Creek Plaza Driveway	F	50.3	1.21	-	-	F	139.2	1.40	-	F	130.9	1.33	-	F	220.9	1.63	-	F	229.6	1.68	-	F	319.6	1.89	-	F	326.0	1.93	-		
	WBR	E	62.0	0.23	94	-	E	62.5	0.27	106	E	62.4	0.26	103	E	63.0	0.31	121	E	63.5	0.35	133	E	63.7	0.36	139	E	64.1	0.39	149		
	NBT	F	112.7	1.19	#2323	-	F	199.2	1.39	#2945	F	198.8	1.39	#2941	F	297.9	1.61	#3644	F	299.6	1.61	#3657	F	412.4	1.86	#4451	F	413.9	1.87	#4463		
	NBR	A	6.7	0.08	20	430	A	6.8	0.10	31	A	6.7	0.09	18	A	7.0	0.12	41	A	7.0	0.12	44	A	7.1	0.14	51	A	7.1	0.14	52		
	SBL	F	224.1	1.27	#793	550	F	308.1	1.48	m#955	F	165.2	1.12	#669	F	410.0	1.71	m#1133	F	520.6	1.96	m#1327	F	530.1	1.99	m#1338	F	615.3	2.18	m#1485		
	SBT	B	18.7	0.86	1064	-	D	40.8	1.01	#1728	D	40.3	1.01	#1730	F	102.2	1.17	m#2206	F	102.3	1.17	m#2186	F	182.9	1.35	m#2747	F	183.0	1.35	m#2733		
16	Victory Drive & US 290 WBFR	D	35.7	0.78	-	-	E	58.6	0.94	-	D	51.3	0.92	-	F	100.4	1.10	-	F	108.6	1.11	-	F	161.4	1.28	-	F	167.9	1.29	-		
	WBL	C	23.1	0.17	m112	-	C	26.0	0.22	m129	C	26.0	0.22	m129	C	26.4	0.25	m148	C	26.4	0.25	m147	C	26.9	0.29	m168	C	26.9	0.29	m168		
	WBT/R	D	37.5	0.82	644	-	E	76.0	1.04	m#885	E	64.0	1.00	m#823	F	139.8	1.21	m#1102	F	152.7	1.24	m#1145	F	223.8	1.40	m#1355	F	233.7	1.42	m#1387		
	NBL	B	17.6	0.24	m45	70	B	16.5	0.27	m49	B	16.5	0.26	m47	B	16.2	0.30	m52	B	16.1	0.31	m53	B	16.0	0.32	m566	B	15.9	0.33	m57		
	NBT	B	16.4	0.32	87	-	B	17.9	0.43	143	B	18.0	0.43	142	B	17.6	0.48	159	B	17.5	0.49	159	B	18.2	0.55	m167	B	18.2	0.55	m166		
	SBT	D	50.4	0.70	289	-	E	55.2	0.79	#412	E	55.0	0.79	#411	F	87.3	0.98	#509	F	89.0	0.98	#509	F	168.2	1.21	#618	F	170.8	1.22	#618		
	SBR	D	39.0	0.09	0	90	D	38.7	0.17	14	D	38.5	0.15	12	D	40.9	0.23	29	D	41.1	0.24	31	D	43.6	0.33	45	D	43.8	0.34	48		
17	Pack Saddle Pass & US 290 EBFR	D	38.8	0.62	-	-	D	48.0	0.77	-	D	47.7	0.77	-	E	74.8	0.90	-	E	78.1	0.91	-	F	120.3	1.06	-	F	123.9	1.07	-		
	EBL/T/R	D	50.6	0.76	449	-	E	63.5	0.95	m#574	E	63.1	0.95	m#578	F	102.5	1.09	m#702	F	107.1	1.10	m#712	F	169.2	1.25	m#849	F	174.3	1.26	m#859		
	NBT	C	32.3	0.24	125	-	C	29.6	0.25	143	C	29.5	0.25	141	C	30.1	0.29	165	C	30.1	0.30	167	C	30.7	0.34	190	C	30.8	0.34	193		
	NBR	C	30.8	0.10	32	125	C	28.8	0.18	66	C	28.8	0.18	66	C	29.4	0.24	87	C	29.4	0.24	87	C	30.2	0.30	112	C	30.2	0.30	112		
	SBL	A	5.9	0.42	33	70	A	9.9	0.53	m134	A	9.8	0.53	m135	B	16.9	0.63	m145	B	17.2	0.64	m146	C	27.2	0.77	m160	C	27.4	0.77	m160		
	SBT	A	4.0	0.11	m14	-	A	4.0	0.13	m13	A	3.9	0.13	m135	A	4.3	0.15	m16	A	4.3	0.15	m16	A	4.7	0.18	m19	A	4.7	0.18	m19		



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)
18	Menchaca Road & US 290 WBFR	F	211.3	1.72	-	-	F	347.7	2.42	-	F	338.3	2.42	-	F	499.1	3.23	-	F	510.4	3.27	-	F	687.1	4.38	-	F	697.2	4.42	-
	WBL	F	334.9	1.58	#725	-	F	452.6	1.85	#865	F	423.5	1.79	#829	F	583.8	2.15	#1016	F	594.2	2.17	#1027	F	736.6	2.49	#1189	F	750.5	2.52	#1204
	WBL/T	F	332.4	1.60	#696	-	F	453.1	1.87	#839	F	426.2	1.81	#807	F	583.8	2.16	#990	F	608.3	2.22	#1019	F	736.8	2.50	#1166	F	752.9	2.54	#1185
	WBR	F	334.5	1.58	#648	-	F	607.7	2.20	#930	F	607.7	2.20	#930	F	889.7	2.83	#1215	F	889.7	2.83	#1215	F	1182.4	3.48	#1508	F	1182.4	3.48	#1508
	NBL	F	295.6	1.58	#648	-	F	626.4	2.34	m#856	F	626.4	2.34	m#864	F	1019.4	3.22	m#932	F	1047.2	3.28	m#950	F	1621.2	4.56	m#1004	F	1650.4	4.63	m#1020
	NBT	A	0.6	0.29	10	-	A	0.5	0.33	m9	A	0.5	0.33	m10	A	0.4	0.39	m8	A	0.4	0.39	m8	A	0.4	0.45	m8	A	0.4	0.45	m8
	SBT/R	F	93.7	1.04	#363	-	F	159.8	1.21	#460	F	159.8	1.21	#460	F	244.8	1.41	#569	F	244.8	1.41	#569	F	345.9	1.64	#693	F	345.9	1.64	#693
19	Menchaca Road & US 290 EBFR	D	50.7	1.00	-	-	E	69.8	1.19	-	E	69.7	1.18	-	F	101.2	1.38	-	F	102.0	1.38	-	F	153.5	1.59	-	F	154.2	1.59	-
	EBL	D	46.5	0.49	207	-	D	52.5	0.68	286	D	52.5	0.68	286	E	58.4	0.77	#354	E	58.4	0.77	#354	E	70.6	0.88	#426	E	70.6	0.88	#426
	EBT	D	46.8	0.53	200	-	D	48.6	0.62	234	D	48.5	0.61	232	D	51.5	0.72	272	D	52.3	0.74	280	E	57.5	0.83	#337	E	59.1	0.85	#349
	EBR	D	42.6	0.11	62	-	D	42.8	0.13	66	D	42.8	0.13	66	D	43.7	0.23	100	D	43.9	0.24	103	D	46.4	0.48	187.0	D	46.6	0.49	193
	NBT/R	C	33.6	0.87	460	-	D	40.6	1.03	589	D	40.0	1.02	581	E	71.6	1.21	#812	E	73.8	1.21	#819	F	141.1	1.41	#1035	F	143.0	1.41	#1040
	SBL	F	155.9	1.28	m#429	-	F	251.5	1.50	m#431	F	251.5	1.50	m#439	F	357.4	1.73	m#432	F	357.5	1.73	m#429	F	481.5	2.01	m#434	F	481.5	2.01	m#432
	SBT	A	7.2	0.28	m57	-	A	7.2	0.32	m57	A	7.2	0.32	m57	A	7.5	0.37	m57	A	7.5	0.37	m57	A	8.1	0.43	m58	A	8.1	0.43	m57
20	Victory Drive/Private Driveway & Panther Trail	A	8.7	0.615	-	-	C	18.6	0.891	-	C	18.2	0.885	-	E	49.6	1.207	-	F	50.9	1.218	-	F	121.5	1.727	-	F	123.8	1.746	-
	EBL/T/R	A	7.7	0.016	2	-	A	7.8	0.018	2	A	7.8	0.02	2	A	7.9	0.022	2	A	7.9	0.022	2	A	8.0	0.0280	2	A	8.0	0.028	2
	WBL/T/R	A	8.0	0.009	0	-	A	8.2	0.012	0	A	8.2	0.01	0	A	8.4	0.015	0	A	8.4	0.015	0	A	8.6	0.0180	2	A	8.6	0.018	2
	NBL/T/R	C	23.7	0.615	82	-	F	54.1	0.891	184	F	52.7	0.89	182	F	150.9	1.207	354	F	155.3	1.218	358	F	373.5	1.7270	620	F	382.1	1.746	626
	SBL/T/R	B	12.7	0.114	8	-	B	14.5	0.160	12	B	14.4	0.16	12	C	16.3	0.203	14	C	16.4	0.204	16	C	19.6	0.2770	22	C	19.8	0.280	22
21	S Lamar Blvd & Driveway A	-	-	-	-	-	-	-	-	A	0.0	0.00	-	-	-	-	-	-	A	0.0	0.00	-	-	-	-	-	A	0.0	0.000	-
	EBR	-	-	-	-	-	-	-	-	A	0.0	0.00	0	-	-	-	-	-	A	0.0	0.00	0	-	-	-	-	A	0.0	0.000	0
22	S Lamar Blvd & Driveway C	-	-	-	-	-	-	-	-	A	0.6	0.159	-	-	-	-	-	-	A	0.9	0.268	-	-	-	-	-	A	1.0	0.338	-
	EBR	-	-	-	-	-	-	-	-	B	14.0	0.159	12	-	-	-	-	-	C	16.8	0.268	22	-	-	-	-	C	19.6	0.338	30
23	Capital of Texas Hwy & Driveway D	-	-	-	-	-	-	-	-	A	0.9	0.297	-	-	-	-	-	-	A	2.2	0.597	-	-	-	-	-	A	4.5	0.87	-
	WBR	-	-	-	-	-	-	-	-	D	27.8	0.297	24	-	-	-	-	-	F	55.1	0.597	64	-	-	-	-	F	114.6	0.87	108



BRODIE OAKS CENTER

Intersection Performance Analysis

December 18, 2021

A table reporting the findings of intersection performance for signalized and unsignalized intersections during PM peak period have been included in **Table 11** below.

SUBJECT TO CHANGE

BRODIE OAKS CENTER

Intersection Performance Analysis

December 18, 2021

Table 11 Performance Results for PM Peak-Signalized Intersections (No Improvements)

Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted				*Phase 1-2026 Site+Forecasted				*~Phase 2-2031 Forecasted				*~Phase 2-2031 Site+Forecasted				*~Phase 3-2036 Forecasted				*~Phase 3-2036 Site+Forecasted					
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
1	S Lamar Blvd & Oltorf Street	C	34.1	0.86	-	-	D	54.7	1.00	-	D	53.7	1.00	-	F	92.9	1.16	-	F	100.4	1.16	-	F	153.2	1.34	-	F	162.4	1.34	-		
	WBL	D	44.5	0.52	224	-	D	47.1	0.61	263	D	46.8	0.60	258	D	50.1	0.71	309	D	50.0	0.71	308	E	55.4	0.82	365	E	55.1	0.82	362		
	WBR	C	25.7	0.49	318	125	C	28.3	0.58	390	C	28.3	0.58	390	C	31.6	0.68	481	C	31.6	0.68	482	D	37.0	0.78	604	D	37.0	0.79	604		
	NBT	D	45.2	0.97	#833	-	F	93.4	1.12	#1075	F	90.9	1.11	#1085	F	167.7	1.30	m#1299	F	190.7	1.35	m#1304	F	257.6	1.50	m#1289	F	282.0	1.56	m#1294		
	NBR	C	20.5	0.54	82	275	C	25.0	0.71	145	C	25.2	0.70	140	C	31.1	0.87	m171	C	33.2	0.91	m170	E	56.5	1.06	m167	E	73.7	1.10	m167		
	SBL	F	83.7	0.97	#397	125	F	129.5	1.12	#508	F	129.5	1.12	#508	F	198.4	1.30	#632	F	198.4	1.30	#632	F	285.7	1.50	#774	F	285.7	1.50	#774		
	SBT	B	18.4	0.78	638	-	C	24.9	0.90	905	C	23.6	0.88	864	D	53.7	1.04	#1368	D	52.7	1.04	#1362	F	121.1	1.21	#1736	F	118.2	1.20	#1722		
2	S Lamar Blvd & Bluebonnet Lane	D	37.8	0.96	-	-	E	56.6	1.08	-	D	51.2	1.06	-	F	96.7	1.25	-	F	97.2	1.25	-	F	173.1	1.59	-	F	180.1	1.66	-		
	EBL	D	42.3	0.38	109	75	D	48.4	0.59	125	D	48.8	0.60	126	D	49.1	0.66	141	D	49.7	0.66	141	D	50.6	0.71	163	D	50.8	0.71	163		
	EBT/R	E	80.0	0.86	92	-	E	61.7	0.80	108	E	60.2	0.78	104	E	69.7	0.88	136	E	70.5	0.88	135	E	79.8	0.95	168	E	78.9	0.94	166		
	WBL	F	139.4	1.05	#134	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	WBT/R	D	54.6	0.38	94	-	E	62.6	0.59	109	E	63.6	0.61	109	E	60.6	0.60	129	E	61.2	0.61	129	E	57.1	0.59	151	E	57.3	0.59	151		
	NBL	F	91.7	0.94	m#265	50	E	61.0	0.85	m#276	E	59.0	0.82	m#265	F	119.4	1.14	m#273	F	141.9	1.21	m#287	F	352.8	1.69	m#275	F	398.5	1.80	m#284		
	NBT/R	C	21.8	0.80	704	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NBT	-	-	-	-	-	B	18.0	0.81	846	B	17.5	0.80	840	C	26.2	0.96	m#1195	C	31.1	1.00	m#1193	F	96.4	1.16	m#1191	F	117.8	1.20	m#1190		
	NBR	-	-	-	-	-	B	10.4	0.13	m51	B	10.4	0.13	m50	A	9.9	0.16	m46	A	9.7	0.17	m49	B	11.0	0.19	m45	B	11.3	0.20	m48		
	SBL	D	51.3	0.66	m34	50	E	74.2	0.83	m#50	E	66.4	0.79	m45	F	95.6	1.00	m#56	F	96.2	1.00	m#56	F	121.9	1.16	m#56	F	121.7	1.16	m#56		
SBT/R	C	31.8	0.93	704	-	F	93.4	1.13	#1338	F	82.0	1.11	#1288	F	173.3	1.31	m#1492	F	171.0	1.31	m#1487	F	266.0	1.52	m#1570	F	261.3	1.51	m#1564			
3	S Lamar Blvd & Menchaca Road	C	34.1	0.99	-	-	D	46.3	1.15	-	D	46.8	1.13	-	E	74.2	1.33	-	E	76.1	1.33	-	F	141.2	1.55	-	F	147.1	1.54	-		
	WBR	D	47.2	0.76	355	-	E	59.8	0.91	#481	E	59.7	0.91	#480	F	101.0	1.07	#627	F	102.5	1.08	#631	F	172.4	1.25	#785	F	173.1	1.26	#786		
	NBT/R	B	13.2	0.72	709	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NBT	-	-	-	-	-	B	14.6	0.82	877	B	14.5	0.81	877	C	20.3	0.95	#1112	C	30.7	1.01	#1233	E	60.8	1.10	#1412	F	86.8	1.16	m#1435		
	NBR	-	-	-	-	-	A	1.2	0.02	m1	A	1.2	0.02	m1	A	1.3	0.03	m1	A	1.0	0.03	m1	A	1.9	0.04	m1	A	1.7	0.04	m1		
	SBL	F	155.5	1.19	m#776	100	F	234.2	1.37	m#755	F	234.9	1.37	m#777	F	329.2	1.59	m#801	F	329.3	1.59	m#803	F	443.1	1.84	m#853	F	443.1	1.84	m#858		
	SBT	A	7.1	0.78	m197	-	A	7.1	0.90	m142	A	6.8	0.87	m140	C	27.2	1.04	m148	C	25.0	1.04	m148	F	100.6	1.21	m155	F	95.8	1.19	m154		

BRODIE OAKS CENTER

Intersection Performance Analysis

December 18, 2021

Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted				*Phase 1-2026 Site+Forecasted				*~Phase 2-2031 Forecasted				*~Phase 2-2031 Site+Forecasted				*~Phase 3-2036 Forecasted				*~Phase 3-2036 Site+Forecasted					
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
4	S Lamar Blvd & Barton Skyway/Lightsey Road	D	46.7	0.88	-	-	E	68.0	1.11	-	E	67.5	1.07	-	F	103.2	1.35	-	F	102.5	1.35	-	F	161.7	1.73	-	F	160.7	1.71	-		
	EBL	E	56.4	0.46	134	90	E	60.1	0.54	154	E	60.1	0.54	154	E	69.0	0.68	#182	E	69.0	0.68	#182	F	90.4	0.85	#247	F	90.4	0.85	#247		
	EBT	D	53.8	0.45	162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EBT/R	-	-	-	-	-	D	53.6	0.52	141	D	53.2	0.50	136	E	56.7	0.64	173	E	56.7	0.63	176172	E	62.4	0.77	211	E	62.1	0.76	210		
	EBR	D	50.9	0.30	89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	WBL	E	58.2	0.47	127	100	F	122.7	0.93	#204	F	106.7	0.86	#191	F	285.0	1.38	#261	F	273.5	1.35	#259	F	721.8	2.37	#331	F	688.0	2.29	#325		
	WBT/R	D	48.4	0.22	83	-	D	48.9	0.26	95	D	48.9	0.26	95	D	49.6	0.31	109	D	49.6	0.31	109	D	50.3	0.36	124	D	50.3	0.36	124		
	NBL	F	378.6	1.62	#392	125	F	492.6	1.89	m#389	F	489.2	1.88	m#391	F	623.0	2.20	m#401	F	661.7	2.30	m#389	F	773.4	2.55	m#398	F	818.7	2.65	m#390		
	NBT/R	B	10.5	0.64	558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	NBT	-	-	-	-	-	A	6.5	0.70	337	A	6.5	0.69	335	A	8.2	0.81	m494	A	8.9	0.87	m508	B	12.2	0.94	m521	B	18.2	1.00	m534		
	NBR	-	-	-	-	-	A	1.1	0.05	m2	A	1.2	0.05	m1	A	0.9	0.06	m1	A	0.8	0.07	m2	A	0.9	0.08	m1	A	0.9	0.09	m2		
	SBL	F	749.1	2.44	m#188	80	F	1456.4	4.04	m#184	F	1460.7	4.04	m#191	F	1710.9	4.68	m#184	F	1710.8	4.68	m#186	F	2052.8	5.44	m#188	F	2052.8	5.44	m#189		
SBT/R	A	4.5	0.82	258	-	A	9.5	0.96	#1100	A	7.2	0.93	371	E	56.2	1.11	m#1201	D	53.5	1.11	m#1199	F	135.7	1.29	m#1212	F	130.2	1.28	m#1210			
5	S Lamar Blvd & Panther Trail/Private Driveway	C	20.9	0.82	-	-	D	35.7	1.28	-	C	34.9	1.26	-	E	64.1	1.90	-	E	73.1	1.98	-	F	114.3	2.29	-	F	125.3	2.29	-		
	EBL/T/R	E	64.6	0.54	68	-	F	87.3	0.76	83	F	87.3	0.76	83	F	207.5	1.20	105	F	207.5	1.20	105	F	651.0	2.23	#182	F	651.0	2.23	#182		
	WBL	E	58.0	0.54	144	120	E	65.7	0.67	169	E	64.8	0.66	166	E	76.0	0.78	196	E	76.0	0.78	196	F	95.1	0.91	#252	F	94.3	0.91	#250		
	WBT/R	E	59.3	0.65	53	-	E	66.3	0.76	89	E	66.3	0.76	89	E	79.6	0.88	125	E	79.6	0.88	127	F	109.6	1.02	161	F	109.6	1.02	163		
	NBL	C	21.6	0.16	32	95	C	32.1	0.25	47	C	28.9	0.23	40	E	58.5	0.42	#91	E	56.7	0.41	#91	F	144.0	0.84	#104	F	131.7	0.79	#104		
	NBT/R	-	-	-	-	-	C	27.5	0.84	769	C	26.8	0.84	751	D	46.4	0.98	#1165	F	56.6	1.02	#1322	F	97.4	1.14	#1496	F	111.1	1.17	#1651		
	NBT	B	17.5	0.66	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	NBR	B	10.4	0.14	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	SBL	D	40.0	0.82	m#238	125	F	195.5	1.28	m#308	F	185.9	1.26	m#321	F	476.6	1.90	m#312	F	511.8	1.98	m#315	F	650.3	2.29	m#315	F	650.3	2.29	m#318		
SBT/R	B	12.1	0.63	74	-	B	14.9	0.73	m123	B	14.0	0.70	m121	C	20.5	0.84	m126	C	20.1	0.84	m125	D	38.9	0.98	m129	D	36.3	0.97	m128			



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Intersection Performance Analysis

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Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted					*Phase 1-2026 Site+Forecasted					*~Phase 2-2031 Forecasted					*~Phase 2-2031 Site+Forecasted					*~Phase 3-2036 Forecasted					*~Phase 3-2036 Site+Forecasted				
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)		
6	S Lamar Blvd/US 290 Off-Ramp & Brodie Oaks/Private Driveway	F	108.9	1.24	-	-	F	187.3	1.56	-	F	156.4	1.48	-	F	252.8	1.87	-	F	299.1	2.09	-	F	336.1	2.25	-	F	384.0	2.47	-						
	Brodie Oaks - EBL	F	150.9	1.15	#442	-	F	283.4	1.47	#555	F	246.8	1.39	#515	F	461.9	1.88	#574	F	828.2	2.70	#897	F	704.7	2.42	#734	F	1111.4	3.33	#1072						
	Brodie Oaks - EBT/R	E	63.7	0.61	113	-	F	82.0	0.83	162	E	78.6	0.80	157	F	138.8	1.08	#249	F	312.1	1.52	#397	F	248.3	1.37	#352	F	449.0	1.84	#506						
	Driveway - WBL	E	71.6	0.82	#184	-	F	100.8	0.95	#229	F	100.8	0.95	#229	F	147.7	1.10	#286	F	147.7	1.10	#286	F	210.1	1.28	#347	F	210.1	1.28	#347						
	Driveway - WBT/R	D	50.6	0.17	16	-	D	51.2	0.20	11	D	51.2	0.20	11	D	52.2	0.25	13	D	52.2	0.25	13	D	54.1	0.34	21	D	54.1	0.34	21						
	US 290 Off -Ramp - NBL	D	53.1	0.30	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	US 290 Off -Ramp - NBT	D	54.6	0.86	#617	-	D	36.6	0.52	284	D	36.6	0.52	284	D	38.4	0.61	334	D	38.4	0.61	334	D	41.2	0.70	400	D	41.2	0.70	400						
	S Lamar Blvd - SBL	F	151.1	1.07	#276	-	F	207.4	1.23	#325	F	207.4	1.23	#325	F	285.6	1.43	#386	F	285.6	1.43	#386	F	382.9	1.66	#453	F	382.9	1.66	#453						
	S Lamar Blvd - SBT/R	C	24.3	0.50	283	-	C	25.8	0.59	347	C	25.5	0.57	334	C	27.9	0.68	423	C	27.8	0.68	421	C	31.0	0.79	526	C	30.7	0.78	520						
	S Lamar Blvd - NWL	F	554.3	2.07	#493	-	F	919.6	2.89	#720	F	738.7	2.48	#608	F	1123.9	3.34	#845	F	1090.6	3.27	#824	F	1364.0	3.88	#988	F	1288.8	3.71	#944						
S Lamar Blvd - NWT/R	F	83.0	1.04	#600	-	F	159.4	1.24	#785	F	159.4	1.24	#785	F	254.7	1.46	#986	F	254.7	1.46	#986	F	367.9	1.71	#1218	F	367.9	1.71	#1218							
7	SB S Lamar Blvd & WB Capital of Texas Hwy	B	14.2	0.73	-	-	B	17.0	0.85	-	B	16.5	0.83	-	C	20.0	0.99	-	C	21.5	1.04	-	C	25.2	1.15	-	C	26.6	1.20	-						
	WBL	A	5.2	0.58	m2	-	A	9.6	0.69	m0	A	8.7	0.68	m0	B	13.8	0.81	m26	B	13.3	0.80	m5	C	20.5	0.95	m347	B	19.6	0.94	m361						
	WBL/T	A	5.3	0.62	m8	-	A	9.4	0.73	m14	A	8.7	0.71	m12	B	14.1	0.85	m26	B	14.0	0.85	m25	C	22.7	0.99	m366	C	22.0	0.98	m383						
	SBT	C	29.3	0.47	280	-	C	30.8	0.55	338	C	30.6	0.54	330	C	32.6	0.64	405	C	34.9	0.73	479	D	35.3	0.74	491	D	38.3	0.83	573						
	SBR	A	0.3	0.18	0	-	A	0.3	0.21	0	A	0.3	0.21	0	A	0.4	0.25	0	A	0.4	0.25	0	A	0.5	0.29	0	A	0.5	0.29	0						
8	NB S Lamar Blvd & WB Capital of Texas Hwy/Ben White Blvd	E	64.7	0.61	-	-	F	110.1	0.73	-	F	104.1	0.71	-	F	159.8	0.85	-	F	159.3	0.84	-	F	219.1	0.98	-	F	217.1	0.97	-						
	WBT/R	F	119.4	1.14	#584	-	F	207.0	1.35	#735	F	195.0	1.32	#714	F	301.5	1.56	#893	F	299.9	1.55	#891	F	414.6	1.80	#1078	F	409.7	1.79	#1069						
	NBL	A	5.6	0.24	m9	-	A	7.7	0.30	m12	A	7.0	0.29	m10	A	9.1	0.35	m15	A	9.2	0.35	m15	B	11.1	0.42	m22	B	11.2	0.42	m20						
	NBL/T	A	3.6	0.26	m10	-	A	6.0	0.32	m13	A	5.5	0.31	m12	A	8.3	0.38	m18	A	8.9	0.38	m17	B	10.9	0.44	m24	B	11.3	0.43	m23						
9	SB S Lamar Blvd & EB Capital of Texas Hwy	F	105.4	0.71	-	-	F	152.4	0.83	-	F	152.4	0.83	-	F	200.3	0.96	-	F	190.3	1.01	-	F	256.2	1.11	-	F	245.4	1.17	-						
	EBT/R	F	261.7	1.44	#463	-	F	376.7	1.70	#601	F	376.7	1.70	#601	F	494.8	1.96	#742	F	494.8	1.96	#742	F	632.7	2.27	#904	F	632.7	2.27	#904						
	SBL	A	3.2	0.37	26	-	A	5.6	0.45	47	A	5.7	0.45	438	A	8.1	0.52	m201	A	8.9	0.58	m481	B	10.7	0.61	m227	B	11.5	0.66	m175						
	SBL/T	A	4.2	0.39	40	-	A	6.1	0.46	135	A	6.1	0.46	155	A	8.3	0.53	m535	A	8.8	0.59	m243	B	11.0	0.62	m84	B	12.1	0.67	m145						



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay
10	NB S Lamar Blvd & EB Capital of Texas Hwy/Ben White Blvd	D	35.1	0.76	-	-	E	74.0	0.93	-	E	65.9	0.91	-	F	113.0	1.07	-	F	108.6	1.12	-	F	159.8	1.25	-	F	154.0	1.29	-		
	EBL	A	0.7	0.33	m0	-	A	1.6	0.38	m0	A	1.7	0.38	m0	A	3.4	0.45	m0	A	2.5	0.45	m0	A	6.4	0.53	m3	A	6.0	0.53	m16		
	EBL/T	A	7.0	0.48	m468	-	A	10.0	0.57	m494	A	9.9	0.57	m490	B	13.5	0.67	m536	B	13.9	0.71	m564	B	18.5	0.77	m590	B	19.6	0.82	m648		
	NBT/R	E	75.8	0.98	#413	-	F	160.6	1.22	#556	F	144.0	1.18	#533	F	246.4	1.42	#674	F	243.6	1.41	#670	F	348.4	1.64	#810	F	343.8	1.63	#804		
11	West Gate Blvd & US 290 WBFR	F	530.6	0.74	-	-	F	667.1	0.86	-	F	661.8	0.86	-	F	822.7	1.00	-	F	867.5	1.02	-	F	1002.2	1.16	-	F	1047.3	1.19	-		
	WBL	F	652.8	2.31	#1182	-	F	818.5	2.68	#1384	F	816.9	2.67	#1384	F	1008.8	3.10	#1615	F	1065.3	3.23	#1683	F	1230.0	3.59	#1881	F	1296.2	3.74	#1960		
	WBL/T	F	655.5	2.32	#1139	-	F	826.3	2.71	#1348	F	818.5	2.69	#1339	F	1020.2	3.14	#1584	F	1065.1	3.24	#1637	F	1243.3	3.63	#1853	F	1283.6	3.72	#1901		
	WBR	D	45.1	0.02	0	-	D	45.1	0.02	0	D	45.1	0.02	0	D	45.2	0.02	0	D	145.2	0.02	0	D	45.2	0.02	0	D	45.2	0.02	0		
	NBL	A	8.2	0.29	m197	-	A	7.2	0.32	m18	A	7.4	0.33	m18	A	7.2	0.36	m19	A	7.2	0.37	m19	A	8.1	0.42	m19	A	8.0	0.42	m19		
	NBL/T	A	2.3	0.11	m4	-	A	2.1	0.13	m4	A	2.1	0.13	m4	A	2.0	0.15	m4	A	2.0	0.15	m4	A	2.1	0.18	m4	A	2.1	0.18	m4		
	SBT/R	C	34.1	0.08	34	-	D	37.9	0.11	38	D	36.8	0.10	38	D	40.3	0.14	43	D	40.2	0.14	43	D	41.9	0.17	47	D	41.9	0.17	47		
12	West Gate Blvd & US 290 EBFR	D	36.3	0.79	-	-	D	43.0	0.93	-	D	42.7	0.92	-	E	56.2	1.09	-	E	56.2	1.08	-	F	98.9	1.27	-	F	98.4	1.26	-		
	EBL	C	32.3	0.05	25	-	C	29.4	0.05	27	C	30.2	0.05	27	C	27.9	0.06	31	C	28.0	0.06	31	C	27.5	0.07	35	C	27.5	0.07	35		
	EBT/R	D	44.1	0.76	290	-	D	44.2	0.82	365	D	44.1	0.80	343	D	50.0	0.91	449	D	49.6	0.90	444	E	78.1	1.04	556	E	74.1	1.03	545		
	NBT/R	E	57.5	0.71	241	-	E	67.3	0.86	#329	E	67.1	0.86	#327	F	99.7	1.03	#430	F	99.7	1.03	#430	F	173.3	1.23	#547	F	173.1	1.23	#547		
	NBR	D	46.5	0.17	57	-	D	47.0	0.20	59	D	47.0	0.20	59	D	50.5	0.36	105	D	50.4	0.36	104	E	63.9	0.69	#220	E	63.4	0.68	217		
	SBL	D	51.6	0.16	m33	-	E	55.7	0.21	m34	D	54.7	0.20	m34	E	58.3	0.25	m36	E	58.1	0.25	m35	E	59.5	0.30	m366	E	59.5	0.30	m36		
	SBT	B	18.2	0.63	m4	-	C	29.6	0.77	m4	C	29.1	0.76	m4	D	42.8	0.93	m4	D	43.0	0.93	m4	F	92.2	1.10	m4	F	93.6	1.10	m4		
13	Mopac SBFR & Capital of Texas Hwy	E	55.6	1.18	-	-	E	55.6	1.18	-	F	80.2	1.38	-	E	59.4	1.38	-	E	63.4	1.62	-	F	96.1	1.60	-	F	99.9	1.83	-		
	EBT	C	25.8	0.78	810	-	C	25.8	0.78	810	C	32.1	0.89	1078	E	63.6	1.05	#1639	E	62.8	1.05	#1633	F	133.0	1.22	#2102	F	131.1	1.21	#2090		
	EBR	F	149.4	1.24	#2102	515	F	149.4	1.24	#2102	F	244.7	1.46	#2646	A	1.0	0.62	0	A	1.0	0.62	0	A	1.6	0.72	0	A	1.6	0.72	0		
	WBL	F	128.9	0.98	m#310	950	F	128.9	0.98	m#310	F	168.4	1.13	m#360	F	245.2	1.35	m#433	F	364.5	1.62	m#555	F	333.2	1.56	m#432	F	458.6	1.84	m#540		
	WBT	B	13.9	0.61	731	-	B	13.9	0.61	731	B	16.0	0.70	m1041	B	19.8	0.82	m1143	B	19.0	0.84	m1287	C	26.6	0.95	m1525	C	27.7	0.97	m1511		
	SBL	F	146.6	1.05	#543	-	F	146.6	1.05	#543	F	193.5	1.19	#641	F	295.8	1.44	#815	F	287.7	1.42	#803	F	393.1	1.67	#970	F	386.4	1.65	#960		
	SBL/T	F	153.2	1.08	#593	-	F	153.2	1.08	#593	F	198.7	1.21	#693	F	299.1	1.45	#868	F	297.5	1.45	#866	F	398.6	1.68	#1035	F	384.5	1.65	#1017		
SBR	A	0.2	0.17	0	-	A	0.2	0.17	0	A	0.3	0.20	0	A	0.3	0.23	0	A	0.3	0.23	0	A	0.4	0.27	0	A	0.0	0.27	0			



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		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)		
14	Mopac NBFR & Capital of Texas Hwy	D	41.1	1.01	-	-	D	41.1	1.01	-	E	74.9	1.19	-	F	133.3	1.40	-	F	134.0	1.40	-	F	207.9	1.62	-	F	209.8	1.62	-						
	EBL	C	22.4	0.51	m350	-	C	22.4	0.51	m350	D	38.6	0.73	m#510	F	107.4	1.09	m#508	F	154.8	1.19	m#513	F	271.6	1.45	m#516	F	271.6	1.45	m#518						
	EBT	F	156.0	1.01	m#870	-	F	156.0	1.01	m#870	F	85.1	1.19	m#2256	F	185.6	1.40	m#2627	F	183.5	1.40	m#2629	F	285.5	1.62	m#2657	F	281.1	1.62	m#2651						
	WBT	E	59.3	0.93	m597	-	E	59.3	0.93	m597	E	55.9	0.93	m512	D	53.6	0.95	m499	E	55.1	0.97	m557	F	75.4	1.05	m510	F	94.6	1.10	m563						
	WBR	A	0.0	0.00	#1286	-	A	0.0	0.00	#1286	A	0.0	0.00	m#1489	A	0.0	0.00	m#1385	A	0.0	0.00	m#1431	A	0.0	0.00	m#1450	A	0.0	0.00	m#1503						
	NBL	F	85.5	0.94	403	300	F	85.5	0.94	403	F	96.0	0.99	#502	F	148.9	1.15	#641	F	148.9	1.15	#641	F	226.7	1.33	#801	F	226.7	1.33	#801						
	NBT	E	62.4	0.27	153	-	E	62.4	0.27	153	E	60.1	0.28	175	E	60.7	0.33	198	E	60.7	0.33	198	E	61.5	0.38	226	E	61.5	0.38	226						
NBR	A	0.0	0.00	#453	-	A	0.0	0.00	#453	A	0.0	0.00	#542	A	0.0	0.00	#762	A	0.0	0.00	#750	A	0.0	0.00	#938	A	0.0	0.00	#913							
15	Capital of Texas Hwy & Barton Creek Plaza Driveway	F	91.2	1.19	-	-	F	91.2	1.19	-	F	142.7	1.33	-	F	252.7	1.61	-	F	254.5	1.60	-	F	356.8	1.87	-	F	357.6	1.84	-						
	WBR	E	66.0	0.47	170	-	E	66.0	0.47	170	E	70.9	0.59	188	E	68.7	0.62	227	F	80.7	0.84	306	E	72.6	0.72	264	F	95.3	0.93	346						
	NBT	C	26.6	0.95	1329	-	C	26.6	0.95	1329	E	58.9	1.07	#2073	F	154.9	1.29	#2651	F	166.1	1.31	#2732	F	246.1	1.49	#3308	F	257.5	1.52	#3389						
	NBR	A	6.1	0.03	4	430	A	6.1	0.03	4	A	5.2	0.04	6	A	6.4	0.05	8	A	6.4	0.05	9	A	6.5	0.06	18	A	6.5	0.06	14						
	SBL	F	100.1	0.95	m379	550	F	100.1	0.95	m379	F	89.0	0.89	m283	F	191.3	1.24	m#470	F	167.6	1.19	m#436	F	273.8	1.44	m#535	F	218.7	1.32	m#459						
	SBT	F	141.6	1.26	m#2534	-	F	141.6	1.26	m#2534	F	213.3	1.42	m#2877	F	342.5	1.71	m#3130	F	342.5	1.71	m#3144	F	464.0	1.98	m#3500	F	464.0	1.98	m#3523						
16	Victory Drive & US 290 WBFR	D	38.4	0.77	-	-	D	53.2	0.90	-	D	53.5	0.88	-	D	53.2	0.90	-	E	74.2	1.04	-	F	102.3	1.21	-	F	101.8	1.29	-						
	WBL	B	14.4	0.13	m79	-	B	14.6	0.16	m92	B	14.6	0.16	m92	B	14.6	0.16	m92	B	14.8	0.18	m104	B	15.1	0.21	m118	B	15.1	0.29	m118						
	WBT/R	B	19.7	0.57	m379	-	C	22.0	0.68	m478	C	21.4	0.65	m451	C	22.0	0.68	m477	C	25.3	0.78	m585	C	33.1	0.91	m765	C	32.2	1.42	m742						
	NBL	C	33.9	0.63	40	70	D	40.5	0.72	m46	D	38.9	0.70	m45	D	40.6	0.72	m46	D	54.4	0.83	m53	F	84.1	0.95	m67	E	78.7	0.33	m62						
	NBT	B	16.6	0.21	m57	-	B	16.9	0.27	m70	B	17.1	0.26	m69	B	16.9	0.27	m69	B	17.6	0.32	m80	B	17.3	0.35	m83	B	17.8	0.55	m87						
	SBT	F	99.2	1.02	#625	-	F	160.2	1.20	#767	F	160.2	1.20	#767	F	160.2	1.20	#767	F	243.1	1.40	#927	F	343.6	1.63	#1107	F	343.6	1.22	#1107						
	SBR	D	39.0	0.05	0	90	D	39.3	0.07	18	D	39.3	0.07	16	D	39.3	0.07	18	D	39.5	0.08	27	D	40.2	0.13	41	D	40.1	0.34	39						
17	Pack Saddle Pass & US 290 EBFR	D	44.3	0.88	-	-	E	78.2	1.06	-	E	76.3	1.05	-	E	75.5	1.06	-	F	155.6	1.28	-	F	213.3	1.48	-	F	233.5	1.51	-						
	EBL/T/R	D	54.5	0.93	m627	-	F	100.1	1.10	m#788	F	97.5	1.10	m#782	F	96.1	1.10	m#757	F	197.3	1.34	m#1064	F	256.8	1.47	m#1195	F	283.7	1.54	m#1274						
	NBT	C	34.6	0.23	118	-	D	35.0	0.27	136	C	35.0	0.26	133	D	35.0	0.27	136	D	35.6	0.31	154	D	36.2	0.36	178	D	36.2	0.36	176						
	NBR	C	33.5	0.14	58	125	C	34.0	0.18	72	C	34.0	0.18	72	C	34.0	0.18	72	C	34.5	0.22	88	D	35.2	0.28	108	D	35.2	0.28	108						
	SBL	B	18.4	0.76	m135	70	C	30.6	0.93	m171	C	30.0	0.92	m168	C	30.6	0.93	m171	E	79.4	1.11	m209	F	187.1	1.35	m250	F	185.8	1.35	m248						
	SBT	A	4.0	0.16	m135	-	A	4.2	0.19	m14	A	4.2	0.19	m140	A	4.2	0.19	m14	A	4.1	0.22	m15	A	4.1	0.25	m15	A	4.1	0.25	m15						



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Node #	Intersection / Movement	2021 Existing					*Phase 1-2026 Forecasted				*Phase 1-2026 Site+Forecasted				*~Phase 2-2031 Forecasted				*~Phase 2-2031 Site+Forecasted				*~Phase 3-2036 Forecasted				*~Phase 3-2036 Site+Forecasted			
		LOS	Delay	V/C	95th % Queue (ft)	Bay Length (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)	LOS	Delay	V/C	95th % Queue (ft)
18	Menchaca Road & US 290 WBFR	E	67.5	0.85	-	-	F	102.6	1.02	-	F	97.6	1.01	-	F	102.6	1.02	-	F	160.5	1.17	-	F	239.9	1.37	-	F	237.8	1.35	-
	WBL	F	125.3	1.09	#849	-	F	200.3	1.29	#1052	F	183.6	1.25	#1009	F	200.3	1.29	#1052	F	278.3	1.47	#1239	F	393.2	1.73	#1507	F	380.3	1.70	#1478
	WBL/T	F	115.3	1.10	#771	-	F	186.6	1.27	#953	F	176.9	1.25	#930	F	186.6	1.27	#953	F	275.8	1.48	#1163	F	378.2	1.71	#1399	F	376.7	1.71	#1394
	WBR	D	49.1	0.61	318	-	E	68.9	0.87	#576	E	68.9	0.87	#576	E	68.9	0.87	#576	F	155.2	1.18	#859	F	294.1	1.51	#1169	F	294.1	1.51	#1169
	NBL	B	10.1	0.52	m54	-	B	14.8	0.69	m70	B	15.3	0.69	m74	B	14.8	0.69	m70	B	16.6	0.79	m68	B	19.8	0.90	m68	B	19.5	0.89	m67
	NBT	A	3.5	0.26	m42	-	A	5.4	0.30	m50	A	5.5	0.30	m52	A	5.4	0.30	m50	A	5.8	0.34	m50	A	6.2	0.40	m49	A	6.2	0.40	m50
	SBT/R	E	57.7	0.86	453	-	E	78.9	1.00	#594	E	78.9	1.00	#594	E	78.9	1.00	#594	F	134.5	1.16	#753	F	214.7	1.34	#940	F	214.7	1.34	#940
19	Menchaca Road & US 290 EBFR	E	59.8	0.86	-	-	F	96.4	1.02	-	F	93.6	1.02	-	F	96.4	1.02	-	F	158.7	1.22	-	F	198.6	1.40	-	F	215.4	1.42	-
	EBL	E	64.9	0.67	248	-	F	101.1	0.94	#399	F	101.1	0.94	#399	F	101.1	0.94	#399	F	136.0	1.07	#474	F	186.9	1.21	#559	F	186.9	1.21	#559
	EBT	E	79.5	0.90	#353	-	F	116.6	1.05	#448	F	111.7	1.04	#437	F	116.6	1.05	#448	F	242.4	1.37	#642	F	259.7	1.41	#666	F	326.8	1.57	#758
	EBR	F	235.0	1.32	#625	-	F	378.6	1.66	#805	F	373.2	1.65	#799	F	378.6	1.66	#805	F	570.3	2.10	#1035	F	676.2	2.33	#1159	F	731.1	2.46	#1225
	NBT/R	F	84.6	0.99	#472	-	F	142.4	1.16	#606	F	137.4	1.15	#594	F	142.4	1.16	#606	F	224.8	1.35	#755	F	325.7	1.58	#930	F	323.2	1.58	#926
	SBL	A	3.6	0.55	m54	-	A	5.2	0.64	m56	A	5.2	0.64	m57	A	5.2	0.64	m56	A	6.7	0.74	m57	A	8.8	0.86	m58	A	8.8	0.86	m59
	SBT	A	0.4	0.49	m8	-	A	0.5	0.57	m8	A	0.5	0.57	m9	A	0.5	0.57	m8	A	1.5	0.66	m9	A	4.1	0.77	m9	A	4.1	0.77	m9
20	Victory Drive/Private Driveway & Panther Trail	B	10.1	0.604	-	-	C	18.0	0.842	-	C	17.8	0.837	-	F	50.4	1.199	-	F	52.3	1.216	-	F	128.5	1.788	-	F	130.3	1.805	-
	EBL/T/R	A	7.6	0.048	4	-	A	7.7	0.057	4	A	7.7	0.06	4	A	7.8	0.067	4	A	7.8	0.067	4	A	7.9	0.0790	6	A	7.9	0.079	6
	WBL/T/R	A	7.9	0.022	2	-	A	8.0	0.026	2	A	8.0	0.03	2	A	8.2	0.032	2	A	8.2	0.033	2	A	8.4	0.0390	2	A	8.4	0.040	2
	NBL/T/R	D	25.9	0.604	78	-	F	51.2	0.842	152	F	50.3	0.84	150	F	155.8	1.199	310	F	162.7	1.216	316	F	409.4	1.7880	548	F	416.8	1.805	552
	SBL/T/R	B	13.4	0.157	12	-	C	15.1	0.205	16	C	15.0	0.21	16	C	17.9	0.279	22	C	18.0	0.280	22	C	22.4	0.3740	34	C	22.5	0.376	34
21	S Lamar Blvd & Driveway A	-	-	-	-	-	-	-	-	A	0.0	0.00	-	-	-	-	-	-	A	0.0	0.00	-	-	-	-	-	A	0.0	0.000	-
	EBR	-	-	-	-	-	-	-	-	A	0.0	0.00	0	-	-	-	-	-	A	0.0	0.00	0	-	-	-	-	A	0.0	0.000	0
22	S Lamar Blvd & Driveway C	-	-	-	-	-	-	-	-	A	1.2	0.381	-	-	-	-	-	-	A	14.8	1.208	-	-	-	-	-	D	29.4	1.660	-
	EBR	-	-	-	-	-	-	-	-	D	25.8	0.381	34	-	-	-	-	-	F	177.5	1.208	254	-	-	-	-	F	372.1	1.660	376
23	Capital of Texas Hwy & Driveway D	-	-	-	-	-	-	-	-	A	1.2	0.272	-	-	-	-	-	-	A	6.2	0.781	-	-	-	-	-	B	12.5	1.025	-
	WBR	-	-	-	-	-	-	-	-	C	19.7	0.272	22	-	-	-	-	-	F	52.3	0.781	120	-	-	-	-	F	111.8	1.025	196



11.0 FINDINGS AND RECOMMENDATIONS

Upon completing the analysis for the roadway network, it became evident that with the anticipated future growth of the area and the proposed development, most of the intersections within the study area require mitigation. Please note that improvements proposed as part of the South Lamar Blvd Mobility Bond Corridor Improvements have been included starting with Phase 1-2021 Forecasted and Site+Forecasted conditions for the analyzed intersections along South Lamar Blvd as detailed in **Section 8.2** of this report. Those base line improvements, costs, and associated pro-rata shares can be seen in the Appendix of this report within *Exhibit 17*.

The summary below details the mitigations that were evaluated for the development which would go above and beyond the improvements identified as part of the Corridor Plan. The summary is broken out by phase as mitigation was evaluated for all phases of development. Please note that the performance of the intersections in future conditions assumes that any mitigation measures recommended in the previous conditions have been implemented. Thus, mitigations recommended for a later phase will be in addition to the mitigations recommended in the previous phases. As a point of reference between this report and the Synchro model, the intersection node nomenclature identified in Synchro has been included below to allow for easier cross-referencing.

A summary table outlining all the various recommended mitigation measures and pro-rata shares for improvements in which site traffic from the development necessitated the improvements has been provided in the appendix as *Exhibit 21*. Additionally, *Exhibit 21* includes an Opinion of Probable Cost for all recommended mitigations, and exhibits showing schematics of all improvements listed for each intersection.

11.1 PHASE 1 (2026)

South Lamar Blvd and Oltorf Street (Node 1): This is a 3-legged signalized T-intersection where Oltorf Street is T-ing into South Lamar Blvd. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a second left-turn deceleration lane on southbound South Lamar Blvd.
- Modify traffic signal phasing to include protected left-turn phasing for southbound South Lamar Blvd. to complement the dual left-turns.
- Revise signal timing.

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With these improvements, the intersection improves to operate at LOS E with reduced delay in the AM peak, and continues to operate at LOS D with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

To meet these improvements, relocation of signal pole, utility pole, and modification to existing traffic signal infrastructure would be necessary. Additionally, given that all three corners are fully developed, on-the-ground survey would be required to verify property lines, right-of-way limits and all existing utilities to understand if these improvements are truly feasible. Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin.

South Lamar Blvd and Bluebonnet Lane (Node 2): This intersection is a traditional 4-legged signalized intersection. The west leg of the intersection, Bluebonnet Lane is at a skewed angle. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a right-turn deceleration lane on eastbound Bluebonnet Lane.
- Revise signal timing.

With these improvements, the intersection continues to operate at LOS C with reduced delay in the AM peak period and it improves to operate at LOS C with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

To meet these improvements, relocation of existing signal pole would be necessary. Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin.

South Lamar Blvd and Menchaca Road (Node 3): This is a 3-legged signalized T-intersection where Menchaca Road is T-ing into South Lamar Blvd. The offset intersections of Menchaca Road and Barton Skyway at South Lamar Blvd are operating as clustered intersection. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvement is recommended:

- Revise signal timing.

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With these improvements, the intersection continues to operate at LOS C with reduced delay and all the movements are also operating at LOS D or better in the AM peak period. The intersection continues to operate at LOS D with reduced delay in the PM peak period, especially the individual movement that was experiencing high delay.

South Lamar Blvd and Barton Skyway/Lightsey Road (Node 4): This intersection is a traditional 4-legged signalized intersection. As stated in Node 3, this is an offset intersection with Menchaca Road and operating as clustered intersection. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a right-turn deceleration lane on eastbound Barton Skyway. The existing lane configuration was as such, but the corridor improvements changed the lane configuration to a shared thru-right movement.
- Revise signal timing.

With these improvements, the intersection improves to operate at LOS B and LOS D with reduced delay in the AM peak and PM peak period, respectively. The individual movements are also operating with reduced delay especially the individual movements that were experiencing high delay.

South Lamar Blvd and Panther Trail (Node 5): This intersection is a traditional 4-legged signalized intersection. The west leg of the intersection is an apartment driveway, and the east leg is Panther Trail. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a right-turn deceleration lane on westbound Panther Trail.
- Add a right-turn deceleration lane on northbound South Lamar Blvd. The existing lane configuration was as such, but the corridor improvements changed the lane configuration to left, thru, hard thru-right movement.
- Modify signal timing plan to provide a permissive+protected left-turn phase to the southbound South Lamar Blvd during AM peak period.
- Revise signal timing.

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With these improvements, the intersection improves to operate at LOS C with reduced delay in the AM peak, and continue to operate at LOS C with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

To meet these improvements, relocation of pedestrian and signal pole, electric box, and cap metro bus stop would be necessary. Additionally, given that all three corners are fully developed, on-the-ground survey would be required to verify property lines, right-of-way limits and all existing utilities to understand if these improvements are truly feasible. Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin.

South Lamar Blvd/US 290 off-ramp and Brodie Oaks (Node 6): This intersection is a 4-legged signalized intersection, but the northbound approach is divided where both US 290 off ramp and NB South Lamar Blvd merge together. For the analysis, US 290 off-ramp as coded as northbound, while South Lamar approach coming from south was named as northwest direction. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Merge the northbound US 290 off Ramp onto the northwest South Lamar Blvd, just north of the right-in/right-out driveway along South Lamar Blvd.
- Eliminate the median between the US 290 off-ramp and northbound South Lamar Blvd for the merge, just north of the right-in/right-out driveway.
- Provide 'cat-track' pavement marking through the intersection.
- Provide pedestrian crossing on all four approaches
- Revise phasing and signal timing.

With these improvements, the intersection improves to operate at LOS D with reduced delay in the AM peak and continue to operate at LOS D with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin. No additional mitigation measures are recommended for this phase.

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SB South Lamar Blvd/WB Capital of Texas Hwy/Ben White Blvd (Node 7): This is one of the four (4) signalized interchange intersections that is operating as clustered under one controller. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are NOT needed in the Phase 1-2026 built condition. However, since this is a clustered intersection, as part of the improvement to other intersection, the following improvement is recommended:

- Revise signal timing.

With this improvement, the intersection continues to operate at acceptable LOS B and all the movements are operating at LOS D or better during both AM and PM peak periods.

NB South Lamar Blvd/WB Capital of Texas Hwy/Ben White Blvd (Node 8): This is one of the four (4) signalized interchange intersections that is operating as clustered under one controller. Given the existing performance of the intersection as well as the added trips due to Phase 1-2026 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Eliminate Channelized Right-turn Island on WB Ben White Blvd and provide exclusive right-turn deceleration lane.
- Revise signal timing.

With these improvements, the intersection improves to operate at LOS E and LOS D in the AM peak and PM peak periods, respectively.

SB South Lamar Blvd/EB Capital of Texas Hwy/Ben White Blvd (Node 9): This is one of the four (4) signalized interchange intersections that is operating as clustered under one controller. Given the existing performance of the intersection as well as the added trips due to Phase 1-2026 of this development, mitigations are needed to improve the performance of the intersection. The following improvement is recommended:

- Revise signal timing.

With these improvements, the intersection continues to operate at LOS C and the individual movement that is experiencing high delay is operating with reduced delay in AM peak period. The intersection improves to operate at LOS D with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

NB South Lamar Blvd/EB Capital of Texas Hwy/Ben White Blvd (Node 10): This is one of the four (4) signalized interchange intersections that is operating as clustered under one controller. Given the existing performance

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of the intersection as well as the added trips due to Phase 1-2026 of this development, mitigations are needed to improve the performance of the intersection. The following improvement is recommended:

- Eliminate Channelized Right-turn Island on NB South Lamar Blvd.
- Revise signal timing.

With these improvements, the intersection improves to operate at LOS C during both AM and PM peak periods with reduced delay, especially the individual movements that were experiencing high delay.

US 290 WBFR and West Gate Blvd (Node 11): This intersection is a 4-legged signalized intersection, where the US 290 WBFR is operating as one-way; thus, no eastbound direction. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Re-stripe westbound US 290 WBFR to add a second left-turn lane (300'/150') to provide dual left-turn lanes
- Re-stripe westbound US 290 WBFR to modify the exclusive right-turn lane to a shared thru-right turn lane
- Re-stripe west side of the intersection to provide three (3) receiving lanes to complement the modification of the WB US 290 WBFR
- Modify the adjacent NB U-turn movement, west of the intersection from a free movement to a yield operation.
- Provide 'cat track' pavement marking through the intersection to guide the westbound through movement.
- Revise signal timing.

With these improvements, the intersection improves to operate at LOS C with reduced delay in the AM peak, and continue to operate at LOS F with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

US 290 EBFR and West Gate Blvd (Node 12): This intersection is a 4-legged signalized intersection, where the US 290 EBFR is operating as one-way; thus, no westbound direction. This intersection is operating as a clustered intersection with the intersection above (US 290 WBFR and West Gate Blvd, Node #11). Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development,

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mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a second right-turn deceleration lane (90'50') on northbound West Gate Blvd
- Revise signal timing.

With these improvements, the intersection continues to operate at LOS F and LOS D in the AM and PM peak periods, respectively with reduced delay.

Mopac SBFR and Capital of Texas Hwy (Node 13): This intersection is a 4-legged signalized intersection, where the Mopac SBFR is operating as one-way; thus, no northbound movement. The proposed development did not add any site trips to the intersection, but the southbound approach of this intersection is operating at unacceptable LOS that requires mitigations to improve performance. Loop 360 improvement program evaluated this intersection for improvements and included in the background improvements. No additional mitigation measures are recommended for the intersection at this time.

Mopac NBFR and Capital of Texas Hwy (Node 14): This intersection is a 4-legged signalized intersection, where the Mopac NBFR is operating as one-way; thus, no southbound movement. The proposed development did not add any site trips to the intersection, but the intersection is operating at unacceptable LOS that requires mitigations to improve performance. The northbound approach has been modified to provide additional left-turn lane and westbound approach with additional lane in late 2017 and therefore, no additional mitigation measures are recommended for the intersection at this time.

Capital of Texas Hwy and Barton Creek Plaza Driveway (Node 15): This intersection is a 3-legged signalized intersection. The proposed development did not add any site trips to the intersection, but the intersection is operating at unacceptable LOS that requires mitigations to improve performance. All three approaches are fully developed with adequate turn lanes. Therefore, no additional geometric improvements are recommended for the intersection at this time.

US 290 WBFR and Victory Drive (Node 16): This intersection is a 4-legged signalized intersection, where the US 290 WBFR is operating as one-way; thus, no eastbound direction. The proposed development did not add any site trips to the intersection, but given the existing performance of the intersection with the completion of Phase 1 of this development, mitigations are needed to improve the performance of the intersection. All three approaches are fully developed with adequate turn lanes. Additional improvement may require acquisition of additional ROW by the City. Therefore, no additional geometric improvements are recommended for the intersection at this time.

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US 290 EBFR and Pack Saddle Pass (Node 17): This intersection is a 4-legged signalized intersection, where the US 290 EBFR is operating as one-way; thus, no westbound direction. This intersection is operating as a clustered intersection with the intersection above (US 290 WBFR and Victory Drive, Node #16). The proposed development did not add any site trips to the intersection, but given the existing performance of the intersection with the completion of Phase 1 of this development, mitigations are needed to improve the performance of the eastbound approach. The eastbound approach is fully developed with adequate turn lanes. Additional improvement may require acquisition of additional ROW by the City. Therefore, no additional geometric improvements are recommended for the intersection at this time.

US 290 WBFR and Menchaca Road (Node 18): This intersection is a 4-legged signalized intersection, where the US 290 WBFR is operating as one-way; thus, no eastbound direction. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add a right-turn deceleration lane (100'/50') along southbound Menchaca Road.
- Revise signal timing.

With these improvements, the intersection continues to operate at LOS F with reduced delay in the AM peak, and the intersection improves to operate at LOS E with reduced delay in the PM peak period, especially the individual movements that were experiencing high delay.

To meet these improvements, relocation of pedestrian pole, and electric box would be necessary. Additionally, given that all three corners are fully developed, on-the-ground survey would be required to verify property lines, right-of-way limits and all existing utilities to understand if these improvements are truly feasible. Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin.

US 290 EBFR and Menchaca Road (Node 19): This intersection is a 4-legged signalized intersection, where the US 290 EBFR is operating as one-way; thus, no westbound direction. This intersection is operating as a clustered intersection with the intersection above (US 290 WBFR and Menchaca Road, Node #18). Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

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- Add a right-turn deceleration lane (100'/50') along northbound Menchaca Road.
- Revise signal timing.

With these improvements, the intersection continues to operate at LOS E and LOS F in the AM and PM peak periods, respectively with reduced delay.

To meet these improvements, relocation of pedestrian pole, utility pole, and street lights would be necessary. Additionally, given that all three corners are fully developed, on-the-ground survey would be required to verify property lines, right-of-way limits and all existing utilities to understand if these improvements are truly feasible. Based on City of Austin and Travis County record data, these improvements can be implemented in the field. With these improvements, the available ROW at this intersection has been fully utilized and no additional geometric improvement can be implemented without the acquisition of additional ROW by the City of Austin.

Panther Trail and Victory Drive (Node 20): This is a 4-legged two-way stop-controlled intersection where the northbound Victory Drive and southbound Driveways are stop controlled while east-west Panther Trail has free movements. Given the existing performance of the intersection as well as the added trips due to Phase 1 of this development, mitigations are needed to improve the performance of the intersection. The following improvements are recommended:

- Add an exclusive left-turn lane (50'50') on the northbound Victory Drive.

With these improvements, the intersection improves to operate at LOS A and LOS B in the AM peak and PM peak, respectively with reduced delay.

Capital of Texas Hwy and Driveway D (Node 23): This is a 3-legged unsignalized intersection where the northbound Capital of Texas Hwy has free movements while the westbound Driveway approach is stop controlled. This is a right-in/right-out proposed driveway intersection. The intersection is operating at acceptable LOS. However, based on the turn lane analysis for TxDOT Roadways, the Capital of Texas Hwy has been evaluated for a right-turn deceleration lane per the TxDOT Austin District Access Management Manual. According to the manual, a right-turn deceleration is required for a driveway access when right-turn volume exceeds 60 vehicles per hour (vph) on a roadway with speed limit less than/equals 45 mph or when turn volume exceeds 50 vph at speed limit greater than 45 mph during the peak hour.

The Capital of Texas Hwy is a TxDOT roadway and thus, the right-turn deceleration lane analysis at Driveway D is based on the threshold detailed above. The speed limit along Capital of Texas Hwy is 45 mph and

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therefore, if the right-turn volume exceeds 50 vph, then the threshold is met for a right-turn deceleration lane along SH 130 NBFR.

The following improvements are recommended:

- Add a right-turn deceleration lane (510'/100') along northbound Capital of Texas Hwy.

11.2 PHASE 2 (2031)

As previously stated, any mitigation measures identified as part of Phase 1 of the Project identified above has been assumed to be in place when evaluating Phase 2 of the Project. Mitigation measures identified as part of Phase 1 continue to mitigate trips into Phase 2 of the Project; therefore, no additional mitigation measures are proposed for this phase.

11.3 PHASE 3 (2036)

As previously stated, any mitigation measures identified as part of Phase 1 the Project identified has been assumed to be in place when evaluating Phase 3 of the Project. Mitigation measures identified as part of Phase 1 continue to mitigate trips into Phase 3 of the Project; therefore, no additional mitigation measures are proposed for this phase.

A summary table outlining all the various recommended mitigation measures and pro-rata shares for improvements in which site traffic from the development necessitated the improvements has been provided in the Appendix of this report as *Exhibit 21*. Additionally, exhibits have been created showing schematics of all recommend improvements listed below for each intersection. Those can be seen also in *Exhibit 21* in the Appendix of this report. A summary of all the mitigations detailed in this section have been provided in the *Table 12* below.

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Table 12 Geometric Mitigation Summary and Pro-rata Cost

NODE #	INTERSECTION	2036 SITE+FORECASTED	PRO-RATA	PRO-RATA COST
1	South Lamar Blvd & Oltorf Street	Add a second Left-Turn Deceleration Lane on SB S Lamar Blvd to provide dual left-turn lanes (150'/50')	2%	\$4,500
		Provide Protected left-turn phasing in the SB S Lamar Blvd	2%	\$400
		Revise phasing and splits	100%	\$6,250
2	South Lamar Blvd & Bluebonnet Lane	Right-Turn Deceleration Lane on EB Bluebonnet Lane (50'/50')	2%	\$3,750
		Revise splits	100%	\$6,250
3	S Lamar Blvd & Menchaca Road	Revise splits	100%	\$6,250
4	S Lamar Blvd & Barton Skyway/Lightsey Road	Right-Turn Deceleration Lane on EB Barton Skyway to provide separate lanes as existing.	1%	\$1,875
		Revise splits	100%	\$6,250
5	S Lamar Blvd & Panther Trail/Private Driveway	Right-Turn Deceleration Lane on WB Panther Trail (100'/50')	1%	\$1,875
		Right-Turn Deceleration Lane on NB S Lamar Blvd to provide lane configurations (1L, 2Th, 1R) as existing.	6%	\$11,250
		Provide permissive+protected left-turn phasing in the SB S Lamar Blvd during AM Peak Period	3%	\$600
		Revise splits	100%	\$6,250

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NODE #	INTERSECTION	2036 SITE+FORECASTED	PRO-RATA	PRO-RATA COST
6	S Lamar Blvd/US 290 Off-Ramp & Brodie Oaks/Private Driveway	Merge the NB US 290 off Ramp onto the NW S Lamar Blvd just north of right-in/right-out driveway.	9%	\$28,125
		Eliminate the median between the US 290 off Ramp and NB S Lamar Blvd for the merge just north of the right-in/right-out driveway	9%	\$28,125
		Provide 'cat track' pavement marking through the intersection	3%	\$1,875
		Provide Pedestrian Crossing on all four approaches	3%	\$9,000
		Revise phasing and splits	100%	\$62,500
7	SB S Lamar Blvd & WB Capital of Texas Hwy	Revise splits	100%	\$6,250
8	NB S Lamar Blvd & WB Capital of Texas Hwy/Ben White Blvd	WB Right-Turn Deceleration Lane	2%	\$3,750
		Eliminate Channelized Right-turn Island on WB Ben White Blvd and provide exclusive Right-turn Deceleration Lane	2%	\$6,250
		WB Pavement Marking Modification	2%	\$1,250
		Revise Splits	100%	\$6,250
9	SB S Lamar Blvd & EB Capital of Texas Hwy	Revise Splits	100%	\$6,250
10	NB S Lamar Blvd & EB Capital of Texas Hwy/Ben White Blvd	Eliminate Channelized Right-turn Island on NB S Lamar Blvd	2%	\$6,250
		NB Pavement Marking Modification	2%	\$1,250
		Revise Splits	100%	\$6,250

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NODE #	INTERSECTION	2036 SITE+FORECASTED	PRO-RATA	PRO-RATA COST
11	West Gate Blvd & US 290 WBFR	Re-stripe WB US 290 WBFR to add a second left-turn lane (300'/150') to provide dual left-turn lanes (LT, LT, Th, Th, Th-RT)	6%	\$13,500
		Re-stripe WB US 290 WBFR to modify the exclusive right-turn lane to a shared thru-right-turn lane (LT, LT, Th, Th, Th-RT)	6%	\$3,750
		Re-stripe west side of the intersection to provide 3 receiving lanes to complement the addition of a 3 rd thru lanes in the WB US 290 WBFR	6%	\$1,125
		Modify the adjacent NB U-turn movement from a Free movement to a Yield operation	6%	\$3,750
		Provide 'cat track' pavement marking through the intersection to guide the WB thru traffic	6%	\$3,750
		Revise Splits	100%	\$6,250
12	West Gate Blvd & US 290 EBFR	Add a second Right-turn Deceleration Lane (90'/50') on NB West Gate Blvd to provide (2Th, 2 R) Lanes	1%	\$1,875
		Revise Splits	100%	\$6,250
18	Menchaca Road & US 290 WBFR	SB Menchaca Road right-turn deceleration lane (100'/50')	1%	\$1,875
		Revise Splits	100%	\$6,250
19	Menchaca Road & US 290 EBFR	NB Menchaca Road right-turn deceleration lane (100'/50')	1%	\$1,875
		Revise Splits	100%	\$6,250
20	Victory Drive/Private Driveway & Panther Trail	Add an exclusive left-turn lane on the NB Victory Drive approach (50'/50')	3%	\$9,375

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NODE #	INTERSECTION	2036 SITE+FORECASTED	PRO-RATA	PRO-RATA COST
23	Capital of Texas Hwy & Driveway D	Right-turn deceleration lane on the NB Capital of Texas Hwy approach (510'/100')	100%	\$187,500
Total Prorata Cost				\$482,250

11.4 STREET IMPACT FEE

The Street Impact Fee (SIF) is the amount the developers will pay its fair share to offset the impacts of the new site trips on the roadways to and from their proposed development. The City Council adopted SIF on December 2020, and the fees will be collected on any and all building permit applications starting on June 20, 2022. The SIF helps fund not only the public infrastructure required by the new development, but it also helps achieve the mobility goals of the ASMP. SIF's are calculated based on the proposed land use and density of a project. As such, given the proposed Brodie Oaks development and taking into account the existing development, the estimated net SIF is anticipated to be \$7,287,061.83 at the time of full build-out. The City of Austin's Street Impact Fee Estimator has been included within *Exhibit 21*.

11.5 ACTIVE MODE RECOMMENDATIONS

In order to the further the goals of the City of Austin and transition the modal split from auto-centric to other modes, Active Mode improvements have been identified that are Transit, Pedestrian, and Bike specific. The sustainable mode analysis was performed along South Lamar Blvd between Ben White Blvd and Menchaca Road. To further enhance the multimode usage, not only for this Project, but for all the residents in Austin traveling along South Lamar Blvd.

It should be noted that the planned South Lamar Mobility Bond improvements shall provide extensive pedestrian, bicycle, and transit improvements along South Lamar Blvd. Those improvements are assumed to be in place and will not be repeated herein; however, select improvements have been included below as ones that this development will impact/benefit from and are, therefore, included within the list of recommended mitigations. Based on the data obtained by collecting infrastructure inventory along segments detailed in **Section 5.4**, the following Sustainable Mode improvements are recommended:

- Crosswalks on all four approaches of the intersection of South Lamar Blvd and Brodie Oaks.

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- Replace the damaged ADA Ramps on the northwest corner of the South Lamar Blvd and Brodie Oaks intersection.
- Replace the damaged ADA Ramps on the northeast corner of the South Lamar Blvd and Panther Trail intersection.
- Provide approximately 200 feet of sidewalk along northbound South Lamar Blvd to avoid the sidewalk gap along the frontage of the existing Grove Apartment, north of Panther Trail.

Table 13 provides a summary of these improvements. Since pro-rata share cannot be calculated with regards to Sustainable Mode mitigation measures, **Table 13** reflects the total cost of improvements. It will be through negotiations and discussion with the City of Austin to understand the appropriate share of these improvements which may be the responsibility of the Project. The costs for the mitigations below do not represent a commitment of the Project to the total amount.

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Table 13 Sustainable Mode Mitigation Summary and Cost

TYPE	LOCATION	IMPROVEMENTS	TOTAL COST
Active	S Lamar Blvd and Brodie Oaks	Replace the damaged ADA Ramps on the northwest corner of the South Lamar Blvd and Brodie Oaks intersection	\$30,000
Active	S Lamar Blvd and Brodie Oaks	Provide 1150 feet of sidewalk (6') along southbound South Lamar Blvd to avoid the sidewalk gap along the frontage of the proposed Development, South of Brodie Oaks Dwy B.	\$172,500
Active	S Lamar Blvd and Brodie Oaks	Provide 2000 feet of bikepath along southbound South Lamar Blvd, South of Panther Trail.	\$300,000
Active	S Lamar Blvd and Brodie Oaks	Provide 900 feet of bikepath along northbound South Lamar Blvd, South of Panther Trail.	\$135,000
Active	S Lamar Blvd and Panther Trail	Replace the damaged ADA Ramps on the northeast corner of the South Lamar Blvd and Panther Trail intersection	\$30,000
Active	S Lamar Blvd and Panther Trail	Provide 200 feet of sidewalk (6') along northbound South Lamar Blvd to avoid the sidewalk gap along the frontage of the Grove Apartment, north of Panther Trail.	\$30,000
Active	S Lamar Blvd, north of West Oak Drive	Pedestrian Hybrid Beacon	\$150,000
Active	S Lamar Blvd between Lightsey Road and Menchaca Road	Shared use path (400')	\$70,000
Transit	S Lamar Blvd and Lightsey Road	Queue Jumps and new dedicated Transit Priority Lane	\$50,000
Transit	S Lamar Blvd and Menchaca Road	Queue Jumps and new dedicated Transit Priority Lane	\$50,000
Active	S Lamar Blvd, north of Dickson Drive	Pedestrian Hybrid Beacon Modification	\$70,000
Transit	S Lamar Blvd and Bluebonnet Lane	Queue Jumps and new dedicated Transit Priority Lane	\$50,000
Active	S Lamar Blvd between Oxford Avenue and Kinney Avenue	Pedestrian Hybrid Beacon Modification	\$70,000
Transit	S Lamar Blvd and Oltorf Street	Queue Jumps and new dedicated Transit Priority Lane	\$50,000
Grand Total			\$1,257,500

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References

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12.0 REFERENCES

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Appendix A

- A.1 TIA SCOPING DOCUMENT
- A.2 SITE LOCATION MAP
- A.3 SITE PLAN
- A.4 TRANSIT MAP
- A.5 BICYCLE FACILITIES MAP
- A.6 SOUTH LAMAR CORRIDOR IMPROVEMENT SCHEMATIC
- A.7 PROJECT CONNECT MAP AND PAMPHLET
- A.8 LOOP 360 PROGRAM SUMMARY
- A.9 TRAFFIC COUNTS AND SIGNAL TIMING
 - A.9.1 TRAFFIC COUNTS
 - A.9.2 SIGNAL TIMING
- A.10 TRAFFIC VOLUME FIGURES
- A.11 COUNT ADJUSTMENT COMPARISON TABLE AND CORRESPONDANCE
 - A.11.1 COUNT ADJUSTMENT COMPARISON TABLE
 - A.11.2 CITY CORRESPONDANCE
- A.12 GROWTH RATE CALCULATION
- A.13 BACKGROUND PROJECT SUMMARY
- A.14 TDM REPORT (PROVIDED BY NELSON/NYGAARD)
- A.15 TRIP GENERATION CALCULATIONS AND SUMMARY

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A.16 OVERALL TRIP DISTRIBUTION MAP

A.17 SUMMARY OF SOUTH LAMAR CORRIDOR IMPROVEMENTS

A.18 SYNCHRO OUTPUTS (NO IMPROVEMENTS)

A.19 SYNCHRO OUTPUTS (WITH IMPROVEMENTS)

A.20 DETAILED PERFORMANCE TABLES (WITH IMPROVEMENTS)

A.21 SUMMARY OF IMPROVEMENTS PRORATA COST AND SCHEMATICS