TRAFFIC IMPACT STUDY

For Aspire Subdivision

Final Report

Prepared for

Success Land Holdings LLC

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Prepared June 2021 by:

LEE ENGINEERING

Aspire Traffic Impact Study

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EXECUTIVE SUMMARY

The following contains a Traffic Impact Study (TIS) for a proposed residential development to be located between Amole Mesa Ave. and Colobel Ave. Within Albuquerque, NM. This report has been completed by Lee Engineering for Success Land Holding LLC. All analyses and items contained herein conform to scoping requirements outlined in the scoping meeting held on April 29, 2020. Scoping meeting notes are located in Appendix A.

Additionally, this report incorporates comments received from the City of Albuquerque, Bernalillo County, and NMDOT. A teleconference meeting was held with the NMDOT on April 23, 2021 to discuss the additional improvements determined by NMDOT to study corridor. Additionally, a teleconference meeting was held with Bernalillo County on May 27, 2021. Comments and resolutions agreed in the above-mentioned meetings have been incorporated into this report.

BACKGROUND

A proposed residential development is to be located between Amole Mesa Ave. and Colobel Ave. Within the City of Albuquerque, NM. Surrounding major intersections include Dennis Chavez Blvd. & 118th St., Dennis Chavez & Coors Blvd. In total, the site will contain 506 units of single-family detached housing to be completed by 2027. A detailed site plan is included in
Figure 2 of this report. Access to the site is to be taken directly from Amole Mesa Ave, Colobel Ave, and 118th St via four full access driveways to the Aspire development. Study intersections, as shown in Figure 1, include:

- Dennis Chavez Blvd & 118th St
- Dennis Chavez Blvd & 98th St
- Dennis Chavez Blvd & Unser Blvd
- Dennis Chavez Blvd & Condershire Dr
- Dennis Chavez Blvd & Coors Blvd
- 98th St & Colobel Ave
- 98th St & Amole Mesa Ave
- Amole Mesa Ave & Messina Dr

Construction is anticipated to begin in 2021 with full completion of the development in 2027. The development is to be constructed in three phases.

1. Phase 1 – 306 units in 2023
2. Phase 2 – 117 units in 2025
3. Phase 3 – (full Build) – 83 units in 2027

Analyses included in this report was performed for the following scenarios:

- Existing (current year 2020) conditions
- Background 2023 (no build)
- Build-out 2023 (phase 1) with 306 units
- Background 2025
- Build-out 2025 (phase 2) with an additional 117 units
- Background 2027
- Full Build 2027 (phase 3) with 83 additional units
- Mitigated Full Build 2027
- Horizon Year 2037

A volume adjustment factor was calculated and applied to study intersections where traffic data was collected during the Covid-19 pandemic (see traffic counts section for details). Traffic data for Dennis Chavez & 118th and Dennis Chavez & 98th was taken from the Ceja Vista Traffic Study. Furthermore, while the Ceja Vista study was completed in 2018, count data was taken from the Atrisco Heritage Academy High School Traffic Study, which collected data in 2017. Therefore, traffic data for Dennis Chavez & 118th and Dennis Chavez & 98th was forecasted from the 2017 counts using MRCOG travel demand growth rates.

Summary of Recommendations

As shown in the capacity analysis, a general corridor-wide capacity issue is observed to exist on Dennis Chavez Blvd. This contributes to poor levels of service on both Dennis Chavez Blvd and side streets, restricting possible near-term improvements as any additional auxiliary lanes feeding Dennis Chavez Blvd would not have receiving lanes departing the intersections. Currently, Dennis Chavez Blvd is shown in the MRCOG 2040 plan to be widened with an additional eastbound and westbound travel lane; however, funding has not yet been programmed in the current STIP. Widening of Dennis Chavez would be anticipated to include additional eastbound and westbound travel lane(s) and thereby have significant impacts at each traffic signal and intersection. Additional lanes would mitigate poor levels of service and allow for auxiliary lanes to be constructed at intersections. It is therefore recommended that the NMDOT & Bernalillo County consider developing a future project to widen Dennis Chavez Blvd. It should be noted that these overcapacity conditions, specifically due to lack of through capacity on Dennis Chavez Blvd, carry through all phased build-out analyses and thus, the proposed Aspire Development is not solely responsible for those associated movements and intersections operating at an unacceptable LOS and/or over capacity. As a widening project on Rio Bravo has not been developed or funded, capacity analysis did not consider additional lanes on Rio Bravo or at the Dennis Chavez Blvd & Coors Blvd intersection in intersection geometries. The following table and paragraph below details capacity mitigations and recommendations for each intersection.

Dennis Chavez Blvd & 118th St

It is recommended that the traffic signal be periodically re-time and adjusted as developments in the surrounding area are constructed. It is also noted that the development does not contribute traffic to the northbound left and right movements. Additional through lanes and right turn lanes are not recommended at this intersection as receiving lanes is not currently present departing the intersection. Additionally, it is understood that Bernalillo County is in the process of designing minor signal improvements to add flashing yellow arrow left turns at the intersection. However, the details of this project are not currently finalized. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 7% (170 trips generated / 2608 total peak hour vehicles) during the AM peak and 16% (226 trips generated / 1413 total peak hour vehicles) during the PM peak.

Dennis Chavez Blvd & 98th St

It is understood that a construction project to add additional lanes at 98th & Dennis Chavez Blvd is currently underway as part of the Ceja Vista development. Current construction efforts are widening the intersection to accommodate additional lane geometry, including a southbound left-turn auxiliary lane, eastbound and westbound through lanes, and northbound lanes. It is understood that while the project is constructing an additional southbound left turn lane, the additional lanes will not have receiving lanes on Dennis Chavez Blvd outside of the intersection and, therefore, will not be activated until Dennis Chavez is widened. Auxiliary lanes are being constructed therefore satisfy the above recommendation. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 6% (172 trips

generated / 2728 total peak hour vehicles) during the AM peak and 10% (231 trips generated / 2416 total peak hour vehicles) during the PM peak.

Dennis Chavez Blvd & Unser Blvd

It is recommended that an additional southbound left turn auxiliary lane be constructed at the intersection. Currently, space exists between the southbound right turn lane and the southbound left-turn lane that could be used as an additional left-turn lane. To accommodate the additional southbound left turn lane, it is recommended that the westbound approach be re-striped moving back existing stop bar and adding additional pavement to receiving eastbound legs will allow for both left south bound left turns to make dual movement. Furthermore, extending eastbound left storage bay to 400' by restriping lanes will provide more capacity. Concept drawing with roadway re-configuration is shown below in Figure 15. It is noted that the development does not contribute traffic to the southbound left turn movement. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 5% (172 trips generated / 3616 total peak hour vehicles) during the AM peak and 6% (231 trips generated / 4034 total peak hour vehicles) during the PM peak.

Dennis Chavez & Condershire Blvd

No recommended improvements as deficiencies exist under 2020 conditions, and the development is not anticipated to contribute traffic to the failing side-street movements. The addition of sidewalks and bike facilities should be considered to meet current street element dimensions set forth by DPM. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 6% (147 trips generated / 2445 total peak hour vehicles) during the AM peak and 7% (196 trips generated / 2714 total peak hour vehicles) during the PM peak.

Dennis Chavez & Coors Blvd

The following recommendations are made:

- For the eastbound left, it is recommended that the signal be re-timed with the completion of other improvements at this intersection. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the eastbound through/right turn lane, it is recommended that a dedicated right turn auxiliary lane be constructed and restriping and removing chevron median markings to add additional eastbound through lane. Additionally, for the newly-created right turn lane it is recommended that the sweeping portion of the turn be modified to remove the curvature as much as possible. The development's traffic volume contribution to this movement, based on the fully constructed development, is calculated to be approximately 4.82% of the movement's total combined peak hour traffic volume (53 total peak trips / 1,100 total peak hour vehicles).
- For the westbound left turn, it is recommended that additional capacity be added by restriping existing pavement, currently configured as a chevron striped median between the through and left-turn lane, into an additional left-turn lane. It is also recommended that signal control for this movement be changed from protected-permitted to protected only because of sight distance restrictions.
- For the westbound through, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the northbound left turn, it is recommended that the storage capacity be extended to approximately 400' by to reconfiguring median south of the intersection to a "back-to-back" curb configuration. Possibility exists to add an additional turn lane and construct a merge point west of

the intersection; however, this could cause additional safety issues and traffic slow-downs due to vehicles merging on a high-speed roadway. Therefore, dual left-turn lanes for the north to west movement are not recommended until Dennis Chavez has been widened to accommodate dual movements.

- For the northbound through, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the southbound left, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that the southbound left-turn current utilizes dual-auxiliary lanes, and recommendations to add additional capacity for other movements would free additional green time at the traffic signal that could be added to the southbound left-turn movement.

Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 4% (147 trips generated / 4167 total peak hour vehicles) during the AM peak and 4% (196 trips generated / 4916 total peak hour vehicles) during the PM peak.

98TH ST & AMOLE MESA AVE

It is recommended that a traffic signal warrant analysis be performed for the intersection once traffic volumes return to non-COVID conditions. As previously stated, a traffic signal could be warranted in the future as traffic volumes grow. If future operation of intersection becomes unacceptable but does not warrant a traffic signal, then a two-lane roundabout should be considered. Construction of multi-lane roundabout could pose challenges geometrically. Furthermore, cost-to-benefit of installing a roundabout should be examined. See the signal warrant section for more details. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 9% (105 trips generated / 1183 total peak hour vehicles) during the AM peak and 11% (141 trips generated / 1325 total peak hour vehicles) during the PM peak.

98TH ST & COLOBEL AVE

Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 8% (90 trips generated / 1082 total peak hour vehicles) during the AM peak and 10% (121 trips generated / 1215 total peak hour vehicles) during the PM peak. No recommended improvements.

AMOLE MESA AVE & MESSINA DR

Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 33% (131 trips generated / 395 total peak hour vehicles) during the AM peak and 35% (175 trips generated / 506 total peak hour vehicles) during the PM peak. No recommended improvements.

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INTRODUCTION

This report details the procedures and findings of a Traffic Impact Study (TIS) performed by Lee Engineering for Success Land Holding LLC. This report and the analyses contained herein were performed for a proposed residential development located between Amole Mesa Ave. and Colobel Ave. Within Albuquerque, NM. The purpose of this study is to examine the impacts of the development on surrounding traffic conditions.

The scope of this report and the analyses performed were completed in agreement with the scoping requirements outlined with the City of Albuquerque, NMDOT, and Bernalillo County. Meeting notes from the scoping meeting held on April 29, 2020, are included in Appendix A. Analysis procedures, conclusions, and recommendations for this study were developed according to the *ITE Trip Generation Manual 10th Edition, and Highway Capacity Manual 6th Edition*.

Additionally, this report incorporates comments received from the City of Albuquerque, Bernalillo County, and NMDOT. A teleconference meeting was held with the NMDOT on April 23, 2021 to discuss the additional improvements determined by NMDOT to study corridor. Additionally, a teleconference meeting was held with Bernalillo County on May 27, 2021. Comments and resolutions agreed in the above-mentioned meetings have been incorporated into this report.

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PROJECT LOCATION & SITE PLAN

The proposed housing development of 506 units is to be constructed on currently undeveloped land, located approximately 6 miles west of I-25 between Amole Mesa Ave. & Colobel Ave. Figure 1 shows the site location, study intersections, and the surrounding area. Surrounding major intersections include Dennis Chavez Blvd & Coors Blvd, Dennis Chavez Blvd & Unser Blvd, Dennis Chavez Blvd & 98th St, Dennis Chavez & 118th St, and Amole Mesa Ave & 98th St. The project area is bounded by existing residential development to the north, south, and east. To the west of the development is undeveloped rural land.
Figure 2 shows the site plan of the proposed housing development.

SITE ACCESS

Access to the site is to be taken directly via four full-access driveways. Two driveways are to be constructed on the north end on Amole Mesa Ave, one to the south on Colobel Ave, and one driveway west of the development on 118th St.

Figure 1: Vicinity Map

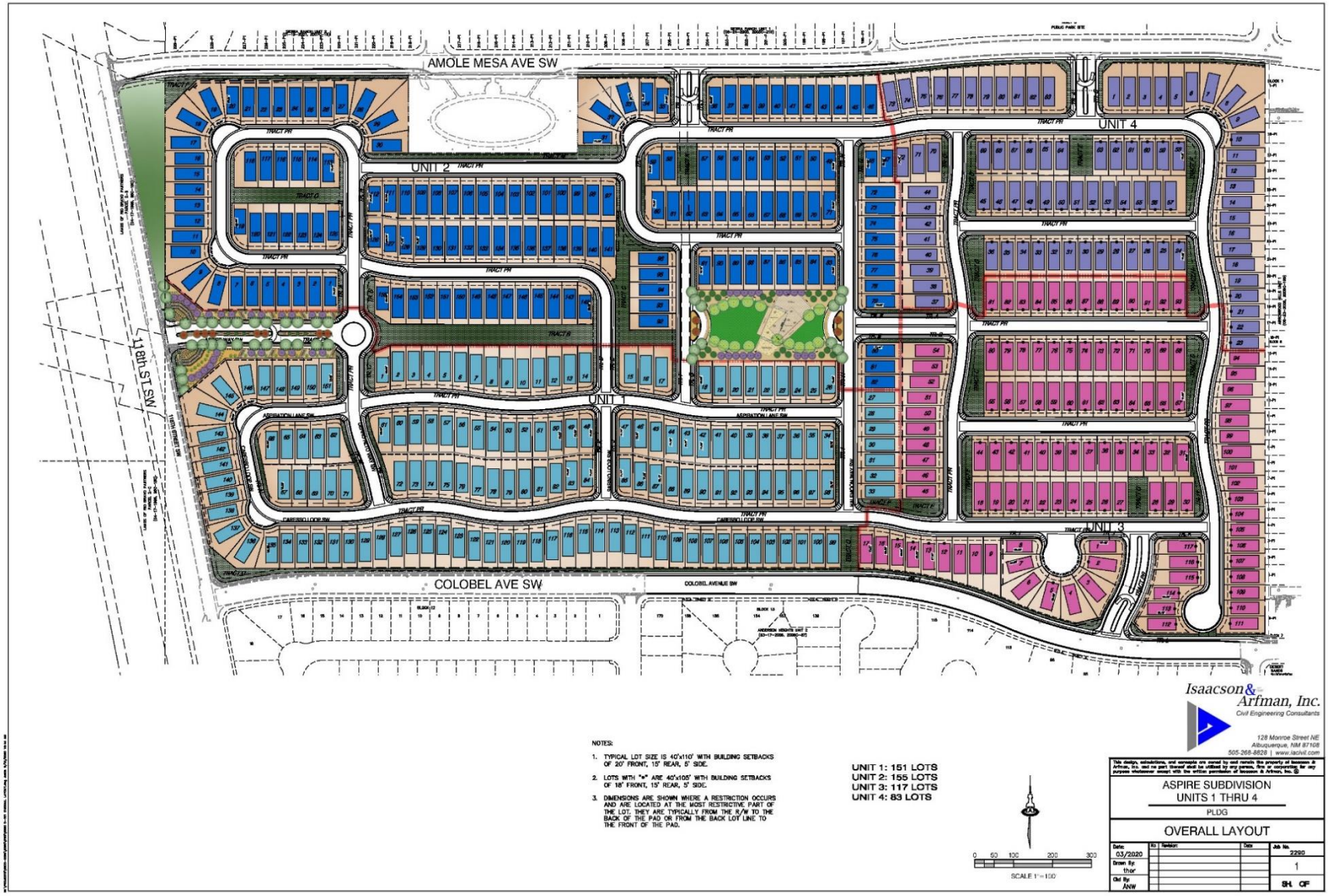

Figure 2: Site Plan

Study Area, Area Land Use, and Streets

STUDY AREA

The study area is defined as the area bounded by Amole Mesa Ave, Colobel Ave, 118th St, and the Arrowwood Hills housing development. The following intersections were identified and agreed upon in the scoping meeting, and serve as the study intersections for this report:

- Dennis Chavez Blvd & 118th St
- Dennis Chavez Blvd & 98th St
- Dennis Chavez Blvd & Unser Blvd
- Dennis Chavez Blvd & Condershire Dr
- Dennis Chavez Blvd & Coors Blvd
- 98th St & Colobel Ave
- 98th St & Amole Mesa Ave
- Amole Mesa Ave & Messina Dr

AREA LAND USE

As described, the development is to be located between Amole Mesa Ave and Colobel Ave, approximately 6 miles west of I-25. Adjacent to and surrounding the project site are land uses consisting of the following:

- Residential: Most of the developed surrounding land use is residential single-family housing. Other developments in the area include public schools south of the site near the Dennis Chavez Blvd & 118th St intersection and east of the site near Amole Mesa Ave & 98th St intersection.
- Undeveloped/Not-Improved: A large portion of the land use is undeveloped immediately to the west.

STREETS

The following details the characteristics and features of streets included in the study area:

Dennis Chavez Blvd is a National Highway System (NHS) two-lane roadway currently classified by MRCOG as an urbanized Principal Arterial running east and west. Travel lanes are approximately 12 feet wide, and the roadway is undivided, separating opposing travel direction. The roadway incorporates 10-15-foot-wide shoulder in both directions, a dedicated left or right deceleration turning lane at each intersection, does not have curb and gutter facilities, and is signed for a speed limit of 45 MPH within the project area. MRCOG traffic count data (2018) reports average weekday traffic to be between 9,200 to 20,400 vehicles per day in the study area, decreasing as you head west. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of Dennis Chavez Blvd meets the requirements.

118th St is a two-lane undivided roadway, currently classified by MRCOG as an Urban Major Collector and runs north and south. Travel lanes are approximately 12 feet wide with curb, gutter, sidewalk, and a 6-foot-wide bike lane on the northbound side of the roadway. The road is to be signed with a speed limit of 30 MPH. The most recently available MRCOG traffic count data (2018) reports the average weekday traffic of 118th St in the study area to be 4,300 vehicles per day. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of 118th St meets the requirements.

98th St is a four-lane roadway currently classified by MRCOG as an urbanized Principal Arterial that runs north and south. Travel lanes are approximately 12 feet wide, and the roadway is divided with a 55-feet wide raised median. The roadway incorporates curb, gutter, sidewalk, and 6-foot bike lanes on both sides of the street and is signed for a speed limit of 40 MPH. A 6-foot dedicated bike lane is present on either side of the roadway, and access is unrestricted with all driveways having full access to 98th St. MRCOG traffic count data (2018) reports the average weekday traffic of 98th St in the study area to be 9,600 vehicles per day. As per

the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of 98th St meets the requirements.

Unser Blvd is a four-lane roadway currently classified by MRCOG as an urbanized Principal Arterial that runs north and south. Travel lanes are approximately 12 feet wide, and the roadway is divided with a 55-foot-wide raised median. The roadway incorporates curb, gutter, sidewalk, and 6-foot bike lanes on both sides of the roadway and is signed for a speed limit of 40 MPH. Access is unrestricted, with all driveways having full access to Unser Blvd. MRCOG traffic count data (2018) reports the average weekday traffic of Unser Blvd in the study area to be 10,800 vehicles per day. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of Unser Blvd meets the requirements.

Condershire Dr is a two-lane undivided roadway, currently classified by MRCOG as an Urban Major Collector and runs north and south. Travel lanes are approximately 11 feet wide, and the roadway is undivided with long segments of no striping. The roadway does not have curb, gutter, sidewalk, or bike facilities. The roadway is signed for a speed limit of 25 MPH. MRCOG traffic count data (2018) reports the average weekday traffic of Condershire Dr in the study area to be 1,200 vehicles per day. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of Condershire Dr meets the requirements for travel lane width, but the addition of sidewalk and bike facilities should be considered.

Coors Blvd is a National Highway System (NHS) four-lane roadway currently classified by MRCOG as an urbanized Principal Arterial running north and south. Travel lanes are approximately 11 feet wide, and the roadway is divided by a 5-foot raised median. The roadway near study intersection does not have curb, gutter, sidewalk, or bike facilities. The roadway is signed for a speed limit of 45 MPH and has an 8-foot paved shoulder on both sides. MRCOG traffic count data (2018) reports the average weekday traffic of Coors Blvd in the study area to be 26,900 vehicles per day. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.2.29 Street Element Dimensions, existing cross-section of Coors Blvd meets the requirements for travel lane width, but the addition of sidewalk and bike facilities should be considered.

Amole Mesa Ave is a two-lane undivided residential roadway classified by MRCOG as a local street running east to west. Travel lanes are approximately 12 feet wide and incorporate curbs, gutters, and sidewalks on both sides of the street. A speed limit sign could not be located within the roadway's termini and was thus assumed to be 30 MPH MRCOG traffic count data for Amole Mesa could not be found. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.4.73 Street Element Dimensions, existing cross-section of Amole Mesa Ave meets the requirements for local street design standards.

Colobel Ave is a two-lane undivided residential roadway classified by MRCOG as a local street running east to west. Travel lanes are approximately 12 feet wide and incorporate curbs, gutters, sidewalks, and a 6-foot bike lane on both sides of the street. A speed limit sign could not be located within the roadway's termini and was thus assumed to be 30 MPH. MRCOG traffic count data for Colobel could not be found. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.4.73 Street Element Dimensions, existing cross-section of Colobel Ave meets the requirements for local street design standards.

Messina Dr is a two-lane undivided and unstriped residential roadway classified by MRCOG as a local street running east to west. Travel lanes are approximately 12 feet wide and incorporate curbs, gutters, and sidewalks on both sides of the street. A speed limit sign could not be located within the roadway's termini and was thus assumed to be 30 MPH. MRCOG traffic count data for Messina could not be found. As per the *2020 City of Albuquerque Development Process Manual (DPM)* on table 7.4.73 Street Element Dimensions, existing cross-section of Messina Dr meets the requirements for local street design standards.

Intersections

The following details the traffic control and characteristics of existing intersections in the study area:

Dennis Chavez Blvd & 118th St is a 4-legged signalized controlled intersection maintained by the City of Albuquerque. The signal operates with time-of-day coordination. Pedestrian crosswalks are present on all approaches except the northbound approach of the intersection.

Dennis Chavez Blvd & 98th St is a 3-legged signalized-controlled intersection maintained by the City of Albuquerque. The signal operates with time-of-day coordination. The only crosswalk is present across the northbound approach of the intersection.

Dennis Chavez Blvd & Unser Blvd is a 3-legged signalized-controlled intersection maintained by the City of Albuquerque. Signal detection is present for all lanes and approaches, and the signal operates with time-of-day coordination. Pedestrian crosswalks are present across the north and west legs of the intersection.

Dennis Chavez Blvd & Condershire Dr is a 4-legged stopped controlled intersection maintained by the City of Albuquerque. Stop control is present for the northbound and southbound approaches.

Dennis Chavez Blvd & Coors Blvd is a 4-legged signalized intersection maintained by the City of Albuquerque. Signal detection is present for all movements, and the signal is time-of-day coordinated. Pedestrian crosswalks are present on all approaches except the north leg of the intersection. Furthermore, crosswalks exist across the westbound, and eastbound channelized right turns.

98th St & Colobel Ave is a 3-legged stopped controlled intersection maintained by the City of Albuquerque. Stop control is present for the west leg of the intersection on Colobel. Northbound and southbound on 98th are free movement.

98th St & Amole Mesa Ave is a 4-legged 4-way stopped controlled intersection maintained by the City of Albuquerque. Stop control is present for all approaches.

Amole Mesa Ave & Messina Dr is a 3-legged stopped controlled intersection maintained by the City of Albuquerque. Stop control is present for the north leg on Messina, while westbound and eastbound movement on Amole Mesa is free.

Transit

Currently, two bus routes are present in the area surrounding the Aspire development. These include routes 198 and 155. Route 198 travels from the Central & Unser Transit Center to Coors Blvd and Dennis Chavez Blvd via 98th Street, and Route 155 travels from the Northwest Transit Center near Cottonwood Mall to Valley Gardens near Coors Blvd & Gun Club Rd via Coors Blvd.

Multimodal Connectivity

Currently, bicycle facilities are present near the development, as previously stated on 118th St, 98th St, and Colobel Ave.

Current Adjacent Projects

As discussed in the scoping meeting, adjacent projects to be constructed or are under construction near the development site include:

A. Ceja Vista Development- 1,393 single-family residential units, 540 apartment units, & 120,000 S.F. of retail commercial uses south of Dennis Chavez Blvd in the vicinity of Unser Blvd and 98th St.
   - Additional lanes on Dennis Chavez, 98th to Unser, and additional auxiliary lanes for side streets.

- Development and improvements are understood to be constructed by phase 1 (2023) of Aspire.

B. Bernalillo County Internal project at NM 500 and 118th St. Flashing Yellow Arrow (FYA) and school improvement.
   - Improvements are understood to be constructed by phase 1 (2023) of Aspire.

C. Bernalillo County Condershire NM 500 project to re-align south Condershire with Mead Rd.
   - Auxiliary lanes to South Condershire from Dennis Chavez Blvd
   - Pending funding/development construction and will not be considered in the background network for Aspire.

ANALYSIS OF EXISTING CONDITIONS

DATA COLLECTION

Turning movement counts for the study intersections at 98th & Colobel, 98th & Amole Mesa, and Amole Mesa & Messina were collected for 12 hours from 6:00 AM to 6:00 PM on August 5, 2020. Covid-19 volume adjustment factor was calculated and applied to these intersections. This factor was calculated by comparing the AM and PM peak hours of a 2018 Dennis Chavez & Coors turning movement counts (TMC) to a newly collected 2020 Dennis Chavez & Coors TMC. Notably, the AM peak hour shows a difference of 1472 vehicles (a difference of 41%) while the PM peak hour shows a difference of only 200 vehicles (a difference of 6%).

Traffic data for Dennis Chavez & 118th and Dennis Chavez & 98th was taken from the Ceja Vista Traffic Study. While the Ceja Vista study was completed in 2018, count data was taken from the Atrisco Heritage Academy High School Traffic Study, which collected data in 2017. Therefore, traffic data for Dennis Chavez & 118th St and Dennis Chavez & 98th St were forecasted from the 2017 counts using MRCOG travel demand growth rates (see growth rate section for rates & details). Growth/forecasting methods for each study intersection are summarized in Table 1. It is important to note a limiting factor of the multi-peak period intersection analyzation extended beyond the traffic data collection hours and could not be studied further. Traffic data for the intersections of Dennis Chavez Blvd & 118th St and Dennis Chavez Blvd & 98th was not available outside of the AM and PM peak hours listed in Table 2.

Table 1: Reconciled data for 2020 condition

Study Intersection	Base Data Source	Growth Method
Dennis Chavez & 118th	Astrico Heritage High School 2017 / Ceja Vista 2017 (Same Data Source)	MRCOG TDM Growth Rates
Dennis Chavez & 98th	Astrico Heritage High School 2017 / Ceja Vista 2017 (Same Data Source)	MRCOG TDM Growth Rates
Dennis Chavez & Unser	Lee Engineering - Sunrise Village 2018 Data	MRCOG TDM Growth Rates
Dennis Chavez & Condershire	Lee Engineering - Sunrise Village 2018 Data	MRCOG TDM Growth Rates
Dennis Chavez & Coors	Lee Engineering - Sunrise Village 2018 Data	MRCOG TDM Growth Rates
98th & Colobel	New Count	COVID Adjustment Factor
98th & Amole Mesa	New Count	COVID Adjustment Factor
Amole Mesa & Messina	New Count	COVID Adjustment Factor

Table 2: AM and PM Peak Hours

Intersection	Data Collection Date	AM Peak Hour	PM Peak Hour
Dennis Chavez & 118th	10/4/2017	6:35 AM	2:15 PM
Dennis Chavez & 98th	10/4/2017	6:35 AM	2:10 PM
Dennis Chavez & Unser	4/3/2018	7:00 AM	4:00 PM
Dennis Chavez & Condershire	4/3/2018	7:00 AM	5:00 PM
Dennis Chavez & Coors	4/3/2018	7:00 AM	4:00 PM
98th & Colobel	8/5/2020	7:15 AM	4:30 PM
98th & Amole Mesa	8/5/2020	11:00 AM	4:45 PM
Amole Mesa & Messina	8/5/2020	7:00 AM	5:00 PM

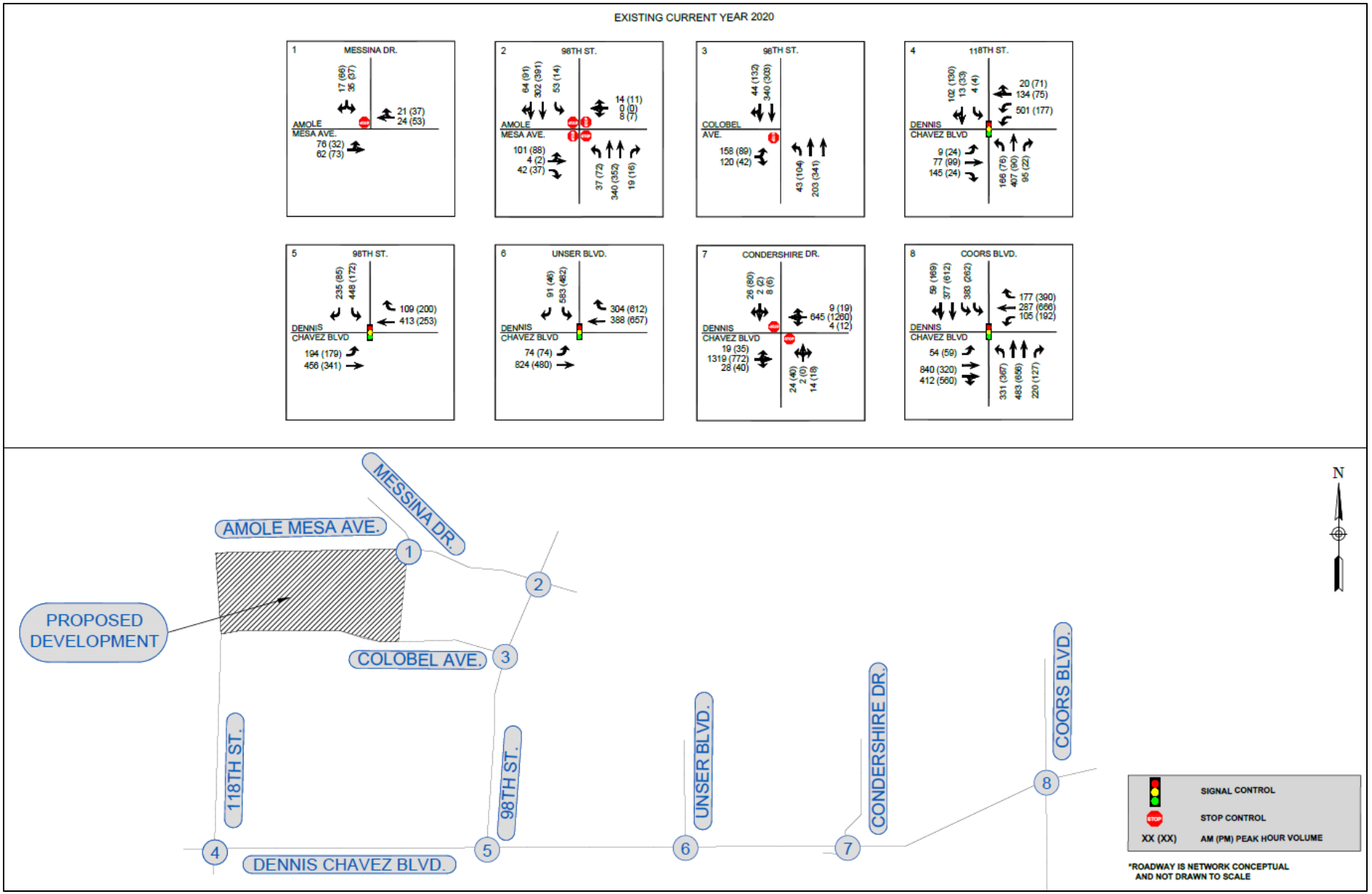

Figure 3: Existing (2020) Turning Movement Counts

Level of Service and Capacity Analysis

Intersection Analysis

Intersection Capacity and Level of Service (LOS) analysis was performed according to the methods and procedures provided in the Highway Capacity Manual, 6th Edition (HCM6). Highway Capacity Software (HCS) and Transmodeler Simulation Software were used to facilitate the analysis. Per the Highway Capacity Manual (HCM), LOS is presented as a letter grade (A through F) based on the calculated average delay for an intersection or movement. Delay is calculated as a function of several variables, including signal phasing operations, cycle length, traffic volumes, and opposing traffic volumes, but is a measurement of the average wait time a driver can expect when moving through an intersection. Factors such as total cycle time (for all movements), queueing restrictions, and vehicle volumes can affect measurements of delay, especially for lower volume movements and side streets. Generally, these factors are only realized when delays reach or exceed LOS E thresholds. In such cases, a narrative is offered in subsequent sections specific to the individual movement in question.

Table 3 below, reproduced from the Highway Capacity Manual, shows delay thresholds and the associated Level of Service assigned to delay ranges. Generally, a LOS of D/E or better is considered an acceptable level of service. For the purposes of this study, failing movements are defined as those exhibiting a LOS F for any single analysis period.

Table 3: LOS Criteria and Descriptions for Signalize Intersections

Level of Service	Average Control Delay (sec/vehicle)	General Description (Signalized Intersections)
A	≤10	Free flow
B	>10 – 20	Stable flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized intersection LOS is divided into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way stop-controlled intersection LOS is expressed in terms of average vehicle delay of all the movements. Two-way stop-controlled intersection LOS is defined in terms of average vehicle delay of an individual movement. Table 4 shows LOS criteria for unsignalized intersections.

Table 4: LOS Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Analysis was first performed using HCS software. However, for the signalized intersections several analysis periods showed queue storage ratios (QSR) greater than 1 resulting in lane blockage and inaccurate lane utilization percentages. Therefore, capacity analysis for the signalized intersections was instead performed using a simulation analysis via Transmodeler software. The Transmodeler simulation was performed for a 1-hour period using 15-minute volumes. The simulation models were then pre-loaded with vehicles prior to recording capacity analysis results. This methodology is understood to overcome limitations of the HCS software where QSR's are greater than 1 and accounts for incremental delay between periods and initial delay (via pre-loading of the network).

The HCS analysis performed and HCS models, including multi-period analysis and additional periods for failing movements, can be found in the appendix. Capacity analysis results shown for stop-controlled intersections below was performed using the HCS software.

SIMULATION ANALYSIS OF SIGNALIZED INTERSECTIONS

Table 5 provides results from the Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

It is noted that due to the nature of the simulation, variations and fluctuations in vehicle behaviors can be present between models. Variable interactions between vehicles can cause small reactions that affect network operations thereby possibly causing variations in reported delay between analysis scenarios and analysis years.

Table 5: 2020 Existing Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	2.6	A	0	200	EBL	15.3	B	72	525	EBL	11.1	B	24	670	EBL	23.1	C	21	500
	EBR	6.0	A	19	350	EBT	7.6	A	75	-	EBT	6.2	A	134	-	EBT	33.6	C	314	-
	EBT	17.5	B	23	-	SBL	38.6	D	260	900	SBL	38.3	D	342	1120	EBT/R	30.9	C	304	-
	NBL	57.2	E	103	250	SBR	23.8	C	127	870	SBR	24.2	C	67	425	NBL	40.6	D	278	250
	NBR	14.3	B	0	500	WBR	3.5	A	15	635	WBR	4.6	A	22	1830	NBR	22.2	C	108	-
	NBT	58.0	E	586	500	WBT	11.3	B	80	-	WBT	14.5	B	100	-	NBT	41.6	D	185	-
	SBL	0.0	A	0	200											SBL	58.7	E	212	250
	SBT/R	7.8	A	18	-											SBT	42.9	D	110	-
	WBL	11.4	B	122	1200											SBT/R	47.1	D	187	-
	WBT/R	6.8	A	16	-											WBL	44.8	D	82	350
																WBT	15.2	B	111	-

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	10.4	B	0	200	EBL	7.1	A	40	525	EBL	21.6	C	44	670	EBL	33.7	C	38	500
	EBR	4.8	A	0	350	EBT	3.1	A	18	-	EBT	9.5	A	64	-	EBT	31.6	C	169	-
	EBT	7.8	A	16	-	SBL	43.3	D	131	900	SBL	37.6	D	279	1120	EBT/R	38.0	D	356	-
	NBL	30.4	C	39	250	SBR	38.1	D	74	870	SBR	28.8	C	22	425	NBL	57.0	E	298	250
	NBR	2.4	A	0	500	WBR	7.1	A	35	635	WBR	10.2	B	114	1830	NBR	7.1	A	15	-
	NBT	26.7	C	47	500	WBT	16.4	B	108	-	WBT	20.5	C	233	-	NBT	29.8	C	220	-
	SBL	0.0	A	0	200											SBL	56.7	E	134	250
	SBT/R	9.0	A	41	-											SBT	42.2	D	170	-
	WBL	6.4	A	15	1200											SBT/R	44.3	D	269	-
	WBT/R	3.9	A	0	-											WBL	57.5	E	128	350
																WBT	31.0	C	387	-

From the tables above, the following is summarized:

- For Dennis Chavez Blvd & 118th St, individual movements are also observed to operate at an acceptable Level of Service (LOS) except for northbound left movement LOS E and northbound through movement with a LOS E in the AM.
    - 95th percentile lengths affected by the development are observed to be over capacity for northbound through movement in the AM. 95th percentile lengths during the PM peak is observed to be acceptable by existing storage lengths.
- For Dennis Chavez Blvd & 98th St, individual movements are also observed to operate at an acceptable LOS in both the AM and PM peak hours.
    - 95th percentile lengths at the intersection is observed to be accommodated and acceptable by existing storage lengths during AM and PM peak hours.
- For Dennis Chavez Blvd & Unser Blvd, individual movements are also observed to operate at an acceptable level of service in both the AM and PM peak hours.
    - 95th percentile lengths at the intersection is observed to be accommodated and acceptable by existing storage lengths during AM and PM peak hours.
- For Dennis Chavez Blvd & Coors Blvd, failing individual movements in the AM for southbound left movement is operating at LOS E. In the PM peak hour, northbound left, southbound left, and westbound left movements operating at LOS E.
    - 95th percentile lengths is observed to be overcapacity in the AM and PM for northbound left movement.

HCS ANALYSIS OF STOP CONTROLLED INTERSECTIONS

Table 6 below summarizes stop controlled capacity analysis performed for 2020 existing conditions. HCS models and detailed capacity output sheets are included in the appendix. A summary of deficiencies by analysis scenario is provided on page 62.

Table 6: 2020 Existing Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2020 Existing	EBL/T	0.05	7.50	A	0.20	0.02	7.50	A	0.10
	SBL/T/R	0.07	10.10	B	0.20	0.13	9.70	A	0.40
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2020 Existing	EBL	-	11.20	B	0.80	-	12.90	B	0.80
	EBT/R	-	8.60	A	0.20	-	10.10	B	0.20
	WBL/T/R	-	9.30	A	0.10	-	10.70	B	0.01
	NBL	-	9.20	A	0.20	-	10.90	B	0.50
	NBT	-	15.20	C	3.60	-	22.30	C	5.30
	NBR	-	7.70	A	0.10	-	8.60	A	0.10
	SBL	-	10.20	B	0.40	-	9.90	A	0.10
	SBT	-	8.90	A	0.00	-	13.00	B	1.80
	SBR	-	8.80	A	0.40	-	15.90	C	3.20
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2020 Existing	EBL/T/R	0.45	14.80	B	2.40	0.25	13.60	B	1.00
	NBL/T	0.05	8.60	A	0.20	0.11	8.90	A	0.40
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2020 Existing	EBL/T/R	0.02	9.20	A	0.10	0.08	13.00	B	0.30
	WBL/T/R	0.01	12.90	B	0.00	0.02	9.80	A	0.10
	NBL/T/R	1.21	392.90	F	4.50	4.76	2261.60	F	8.90
	SBL/T/R	0.48	85.90	F	2.00	0.91	139.00	F	5.40

- For Amole Mesa Ave & Messina Ave, the intersection is observed to operate at an acceptable level of service in the AM and PM peak hours, with all movements operating at acceptable levels of service in the AM and PM peak hours.
    - 95th percentile Queueing is observed to be accommodated by existing storage lengths.

- For Amole Mesa Ave & 98th St, the intersection is observed to operate at an acceptable level of service in the AM and PM peak hours with all movements operating at acceptable levels of service in the AM and PM peak hours.
    - 95th percentile Queueing is observed to be accommodated by existing storage lengths.
- For Colobel Ave & 98th St, the intersection is observed to operate at an acceptable level of service in the AM and PM peak hours with all movements operating at acceptable levels of service in the AM and PM peak hours.
    - 95th percentile Queueing is observed to be accommodated by existing storage lengths.
- For Dennis Chavez Blvd & Condershire Dr, the intersection is observed to operate at a level of service of F in the AM and PM peak hours. Failing Individual movements in the AM peak hour includes all northbound and southbound movements from Condershire Dr. Failing individual movements in the PM peak hour include northbound and southbound movements from Condershire Dr.
    - 95th percentile queues are observed to be an issue for the northbound and southbound approaches.

SEGMENT ANALYSIS

Urban Streets Segments analysis was performed according to the methods and procedures provided in the HCM6 with the use HCS software. HCM explicitly models the traffic signal at one end of segment and its influence on the operation of the traffic signal at the other end of the segment. Therefore, a segment evaluation considers both directions of travel when the street serves two-way traffic. Two performance measures are used to characterize LOS for a given direction of travel along an urban street segment. One measure is travel speed for through vehicles. The second measure is the volume-to-capacity ratio for the through movement at the downstream intersection. These performance measures indicate the degree of mobility provided by the segment. Per the Highway Capacity Manual, LOS is presented as a letter grade (A through F) based on the calculated travel speed as a percentage of base free-flow speed (FFS), and the volume-to-capacity ratio. Table 7 below and LOS descriptions were taken from the (HCM 6), shows travel speeds as a percentage of FFS thresholds and the associated Level of Service assigned by volume-to-capacity ratio. Generally, a LOS of D/E or better is considered an acceptable level of service. For the purposes of this study, failing movements are defined as those exhibiting a LOS F for any single analysis period.

Table 7: Urban Streets Segment Criteria

Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Volume-to-Capacity Ratio[a]	
	≤1.0	> 1.0
>85	A	F
>67–85	B	F
>50–67	C	F
>40–50	D	F
>30–40	E	F
≤30	F	F

Note: [a] Volume-to-capacity ratio of through movement at downstream boundary intersection.

LOS A: Describes primarily free-flow operation. Vehicles are unimpeded in their ability to maneuver within the traffic stream. Control delay at the boundary intersection is minimal. The travel speed exceeds free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.

LOS B: Describes reasonably unimpeded operation. The ability within the traffic stream is only slightly restricted, and control delay at the boundary intersection is not significant. The travel speed is between 67% and 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
LOS C: Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to capacity ratio is no greater than 1.0.
LOS D: Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersection. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
LOS E: Is characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersection. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to capacity ratio is no greater than 1.0.
LOS F: Is characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersection, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed, or the volume-to-capacity ratio is greater than 1.0.
Table 8 provides an overall summary of the LOS and the associated measurements for each segment between signalized intersections on Dennis Chavez Blvd.

Table 8: 2020 Existing Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	65.0	69.3	46.3	62.2	115.5	105.6
	Travel Speed, mph	39.9	37.4	39.8	29.6	31.3	34.2
	Through vol/cap Ratio	0.1	0.2	0.4	0.5	0.7	0.6
	Base Free Flow Speed (FFS), %	85.9	80.5	85.7	63.7	67.4	73.7
	Level of Service (LOS)	A	A	A	C	B	B
	Time Period 2: (15-min interval)						
	Travel Time, s	67.4	80.7	48.7	54.7	112.6	105.8
	Travel Speed, mph	38.4	32.1	37.8	33.7	32.1	34.2
	Through vol/cap Ratio	0.1	0.1	0.5	0.3	0.7	0.4
	Base Free Flow Speed (FFS), %	82.8	69.2	81.4	72.5	69.1	73.6
	Level of Service (LOS)	A	B	A	B	B	B
	Time Period 3: (15-min interval)						
	Travel Time, s	66.6	86.6	48.8	53.2	116.0	97.3
	Travel Speed, mph	38.9	29.9	37.7	34.6	31.2	37.2
	Through vol/cap Ratio	0.1	0.2	0.5	0.3	0.8	0.3
	Base Free Flow Speed (FFS), %	83.9	64.5	81.3	74.5	67.1	80.0
	Level of Service (LOS)	A	C	A	B	B	A
	Time Period 4: (15-min interval)						
	Travel Time, s	68.9	70.7	51.4	56.2	109.7	100.5
	Travel Speed, mph	37.6	36.6	35.8	32.8	32.9	36.0
	Through vol/cap Ratio	0.1	0.1	0.6	0.2	0.8	0.3
	Base Free Flow Speed (FFS), %	81.0	78.9	77.2	70.6	70.9	77.5
	Level of Service (LOS)	A	B	B	B	B	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	59.5	66.2	64.7	47.6	111.3	101.6
	Travel Speed, mph	43.5	39.1	28.5	38.7	32.5	35.6
	Through vol/cap Ratio	0.1	0.2	0.2	0.3	0.5	0.7
	Base Free Flow Speed (FFS), %	93.8	84.3	61.3	83.4	70.0	76.6
	Level of Service (LOS)	A	A	C	A	B	B
	Time Period 2: (15-min interval)						
	Travel Time, s	60.0	63.2	66.4	46.9	114.0	102.3
	Travel Speed, mph	43.2	41.0	27.7	39.2	31.7	35.3
	Through vol/cap Ratio	0.1	0.2	0.2	0.3	0.5	0.6
	Base Free Flow Speed (FFS), %	93.1	88.3	59.8	84.5	68.3	76.1
	Level of Service (LOS)	A	A	C	A	B	B
	Time Period 3: (15-min interval)						
	Travel Time, s	60.1	65.3	59.0	49.7	104.6	94.7
	Travel Speed, mph	43.1	39.7	31.2	37.0	34.6	38.1
	Through vol/cap Ratio	0.1	0.2	0.1	0.3	0.4	0.5
	Base Free Flow Speed (FFS), %	92.8	85.4	67.2	79.7	74.5	82.2
	Level of Service (LOS)	A	A	B	B	B	A
	Time Period 4: (15-min interval)						
	Travel Time, s	58.2	64.7	60.9	49.1	108.9	95.5
	Travel Speed, mph	44.5	40.1	30.2	37.5	33.2	37.8
	Through vol/cap Ratio	0.1	0.1	0.2	0.2	0.5	0.6
	Base Free Flow Speed (FFS), %	95.9	86.3	65.1	80.7	71.5	81.5
	Level of Service (LOS)	A	A	C	A	B	A

- Segment 1: 118th St to 98th St
    - Under existing conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 2: 98th St to Unser Blvd

    - Under existing conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 3: Unser Blvd to Coors Blvd
    - Under existing conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.

ANALYSIS OF FUTURE TRAFFIC SCENARIOS

The following sections detail the methods and calculations used to obtain traffic volumes for each analysis scenario. This process used the following tools, as described below: Traffic Projections, Trip Overlays, and Site Trip Distributions & Assignment. Figures at the end of this section show the resulting traffic volumes determined for each analysis scenario.

TRAFFIC PROJECTIONS

Construction is anticipated to begin in 2021 with full completion of the development in 2027. To forecast existing traffic volumes to future analysis background conditions, loading values from the 2016 & 2040 (updated) travel demand models were provided by MRCOG. These models were then compared, using AM and PM peak hour directional volumes (AMPH LOAD & PMPH LOAD), to calculate anticipated growth rates for individual roadways. Growth rates were then converted to growth factors for the specific analysis scenarios. Growth factors used in the analysis for different growth periods are shown in Table 9. Values provided by MRCOG are reproduced verbatim below. Growth factors were then applied to the 2020 Existing Conditions turning movement volumes to forecast future volumes.

Table 9: Growth Rates

Roadway			MRCOG 2016 Model "Peak Hour Load"	MRCOG 2040 Model "Peak Hour Load"	Yearly Growth Rate	Average Yearly Growth	Growth Rate for Analysis
Dennis Chavez West of 118th	AM	PH	99	376	5.71%	0.99%	1.00%
	PM	PH	178	360	2.96%		
Dennis Chavez 118th to 98th	AM	PH	83	220	4.13%		
	PM	PH	305	328	0.30%		
Dennis Chavez 98th to Unser	AM	PH	421	372	-0.51%		
	PM	PH	646	607	-0.26%		
Dennis Chavez Unser to Condershire	AM	PH	548	531	-0.13%		
	PM	PH	1035	846	-0.84%		
Dennis Chavez Condershire to Coors	AM	PH	506	525	0.15%		
	PM	PH	979	710	-1.33%		
Dennis Chavez East of Coors	AM	PH	1359	1543	0.53%		
	PM	PH	789	1044	1.17%		
118th North of Dennis Chavez	AM	PH	17	186	10.45%	9.22%	9.25%
	PM	PH	55	350	7.98%		
118th South of Dennis Chavez	AM	PH	Not Present	355	N/A		
	PM	PH	Not Present	196	N/A		
98th North of Dennis Chavez	AM	PH	684	609	-0.48%	-0.55%	*1.00%
	PM	PH	428	369	-0.62%		
98th South of Dennis Chavez	AM	PH	Not Present	8	N/A		
	PM	PH	Not Present	131	N/A		
Unser North of Dennis Chavez	AM	PH	425	673	1.94%	2.43%	2.50%
	PM	PH	261	521	2.92%		
Unser South of Dennis Chavez	AM	PH	Not Present	473	N/A		
	PM	PH	Not Present	349	N/A		
Condershire North of Dennis Chavez	AM	PH	14	36	3.99%	5.05%	5.00%
	PM	PH	15	27	2.40%		
Condershire South of Dennis Chavez	AM	PH	29	223	8.88%		
	PM	PH	42	133	4.92%		
Coors North of Dennis Chavez	AM	PH	1352	1935	1.51%	0.82%	1.00%
	PM	PH	1140	1461	1.04%		
Coors South of Dennis Chavez	AM	PH	971	1097	0.51%		
	PM	PH	1091	1149	0.22%		

Trip Overlays

As stated above, Aspire will be constructed in phases. To account for additional background trips generated by the development, trip generations were obtained and overlaid on the 2023 build-out traffic volumes and subsequent background traffic volumes as the phases progress.

Trip Generation

Trip generation for the development was performed using the procedures and methodologies provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition.* The land use category Single Family Detached Housing (ITE 210) was used to generate trips for the development. Trips were calculated using rates for daily, AM peak hour, and PM peak hour generators. As previously stated, the development is to consist of 3 phases. Total development trips and trips generated for each building are shown below in the tables. Excerpts from the *Trip Generation Manual, 10th Edition* are included in the appendix. Site trips for the Development site were generated using data and procedures according to the *Institute of Transportation Engineer's Trip Generation Manual*. Site trips were added to background traffic volumes to create build-out traffic volumes.

Table 10 through Table 12 provided below, shows expected trips generated by the development. Due to the nature of this development, and as agreed in the scoping meeting, no pass-by or internal capture trips are anticipated.

Table 10: 2023 Phase 1 ITE Trip Generation

Use	Units		TRIP GENERATION							TRIPS				
			Daily Rate	AM Peak			PM Peak			Daily	AM Peak		PM Peak	
				Rate	Enter	Exit	Rate	Enter	Exit		In	Out	In	Out
Single Family Detached Housing (210) Phase 1	306	Dwelling Units	9.44	0.74	25%	75%	0.99	63%	37%	2889	57	170	191	113

Table 11: 2025 Phase 2 ITE Trip Generation

Use	Units		TRIP GENERATION							TRIPS				
			Daily Rate	AM Peak			PM Peak			Daily	AM Peak		PM Peak	
				Rate	Enter	Exit	Rate	Enter	Exit		In	Out	In	Out
Single Family Detached Housing (210) Phase 2	117	Dwelling Units	9.44	0.74	25%	75%	0.99	63%	37%	1105	22	65	73	43

Table 12: 2027 Phase 3 ITE Trip Generation

Use	Units		TRIP GENERATION							TRIPS				
			Daily Rate	AM Peak			PM Peak			Daily	AM Peak		PM Peak	
				Rate	Enter	Exit	Rate	Enter	Exit		In	Out	In	Out
Single Family Detached Housing (210) Phase 3	83	Dwelling Units	9.44	0.74	25%	75%	0.99	63%	37%	784	16	47	52	31

Trip Distribution and Assignment

Trip Distribution was determined based on the analysis of existing intersection demand characteristics within the study area. Overall, trips were distributed within the roadway network to and from the development based on the proportions of existing turning movement counts/demands and employment data. Trip routing was based on logical trip attractions and destinations for commercial based trips. The figures below show the trip distribution and assignment for the development of each analysis scenario.

Trips were then assigned to the background roadway networks to create build-out volumes and are shown in Figure 4 through Figure 12.

Traffic Volume Calculations

Traffic volumes used in the analysis were calculated based on the following:

1. Existing Conditions: direct turning movement counts from 2020

2. Background 2023: 2023 growth rate applied to existing conditions with additional trip overlays
3. Build-out 2023: Background 2023 traffic volumes plus phase 1 site trips
4. Background 2025: 2025 growth rate applied to existing conditions with additional trip overlays
5. Build-out 2025: Background 2025 traffic volumes plus phase 1 + 2 site trips
6. Background 2027: 2027 growth rate applied to existing conditions with additional trip overlays
7. Full Build-out 2027: Background 2027 traffic volumes plus phase 1 + 2 + 3 site trips
8. Horizon Year 2037: 2037 growth rate + select trips

As stated above, build-out traffic volumes were calculated using the growth rates and factors detailed in previous sections plus site trips from the preceding analysis year. Site trips were added to study intersections with direct access to the proposed development. Figure 4 through Figure 13 show the traffic volumes used for each individual analysis scenario.

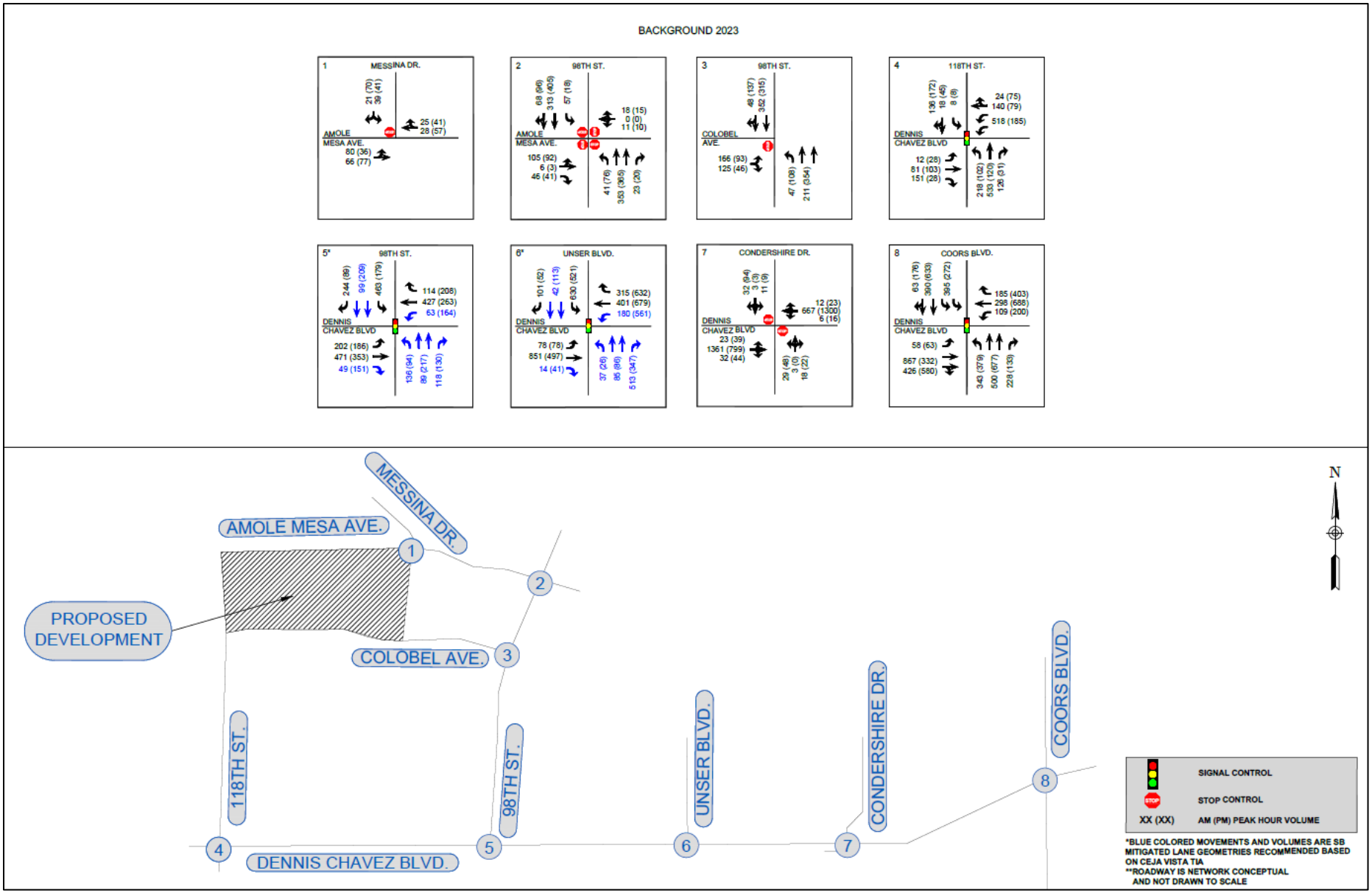

Figure 4: Background 2023 Turning Movement Traffic Volume

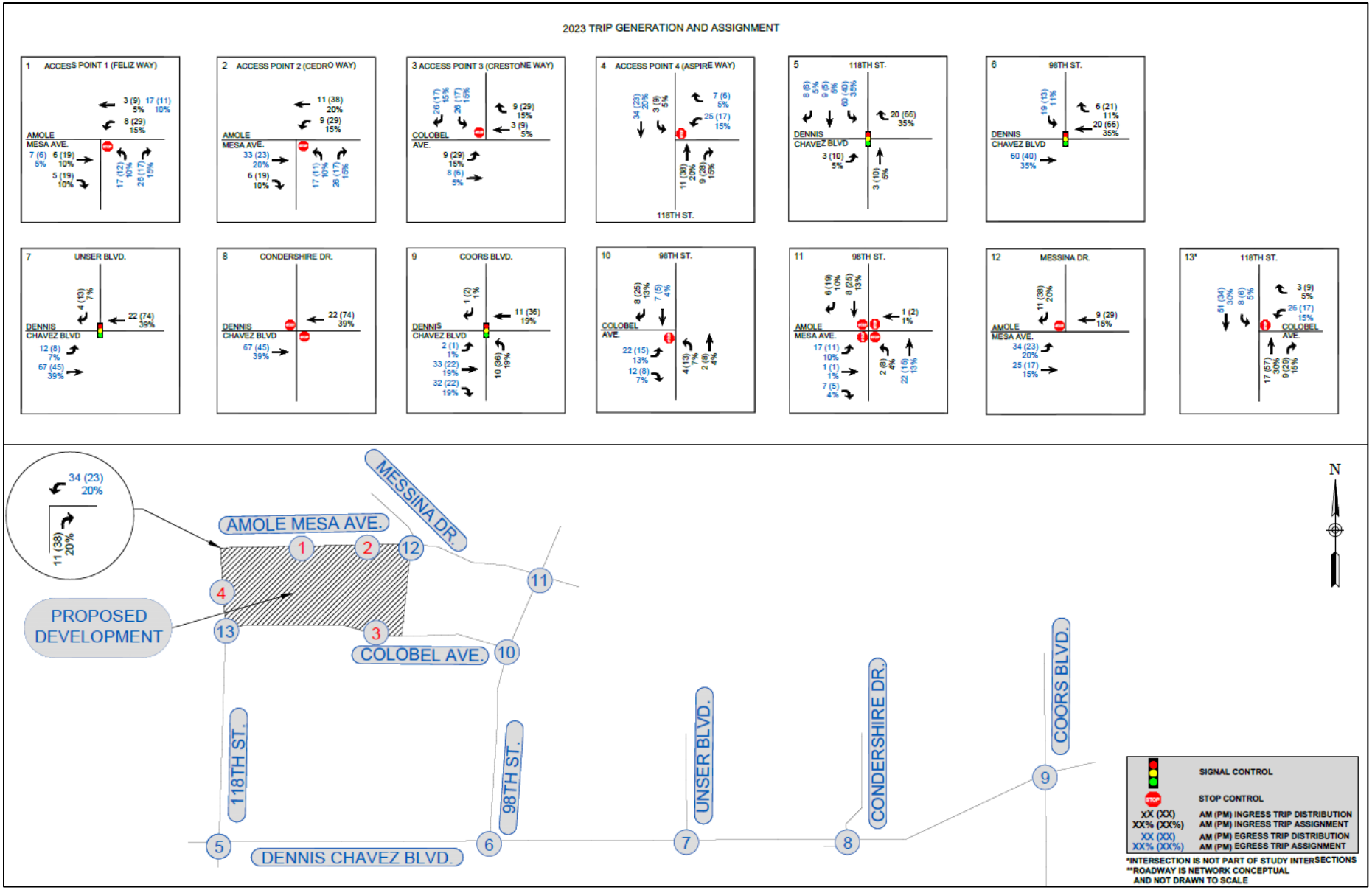

Figure 5: 2023 Trip Distribution and Assignment

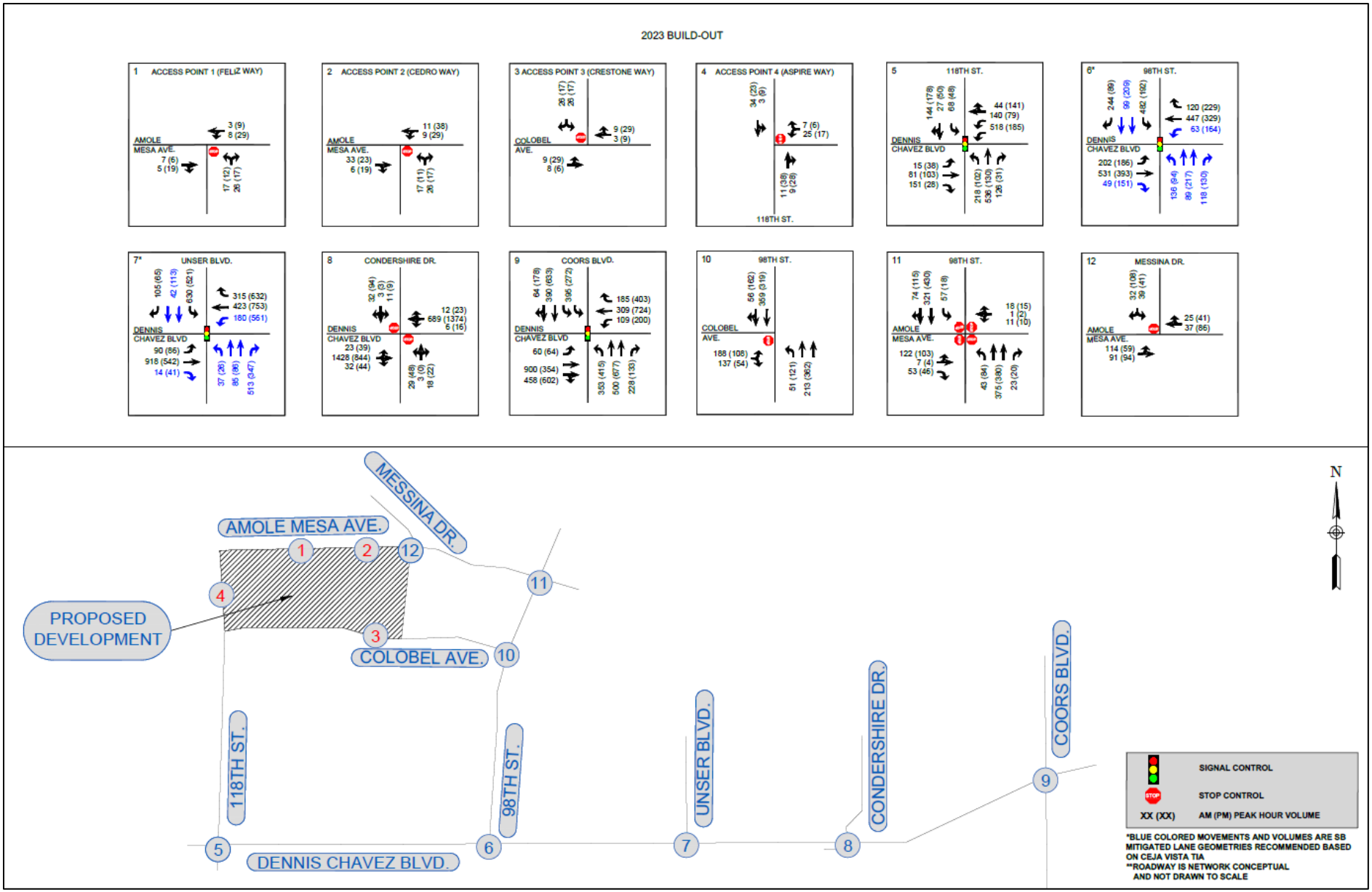

Figure 6: 2023 Buildout

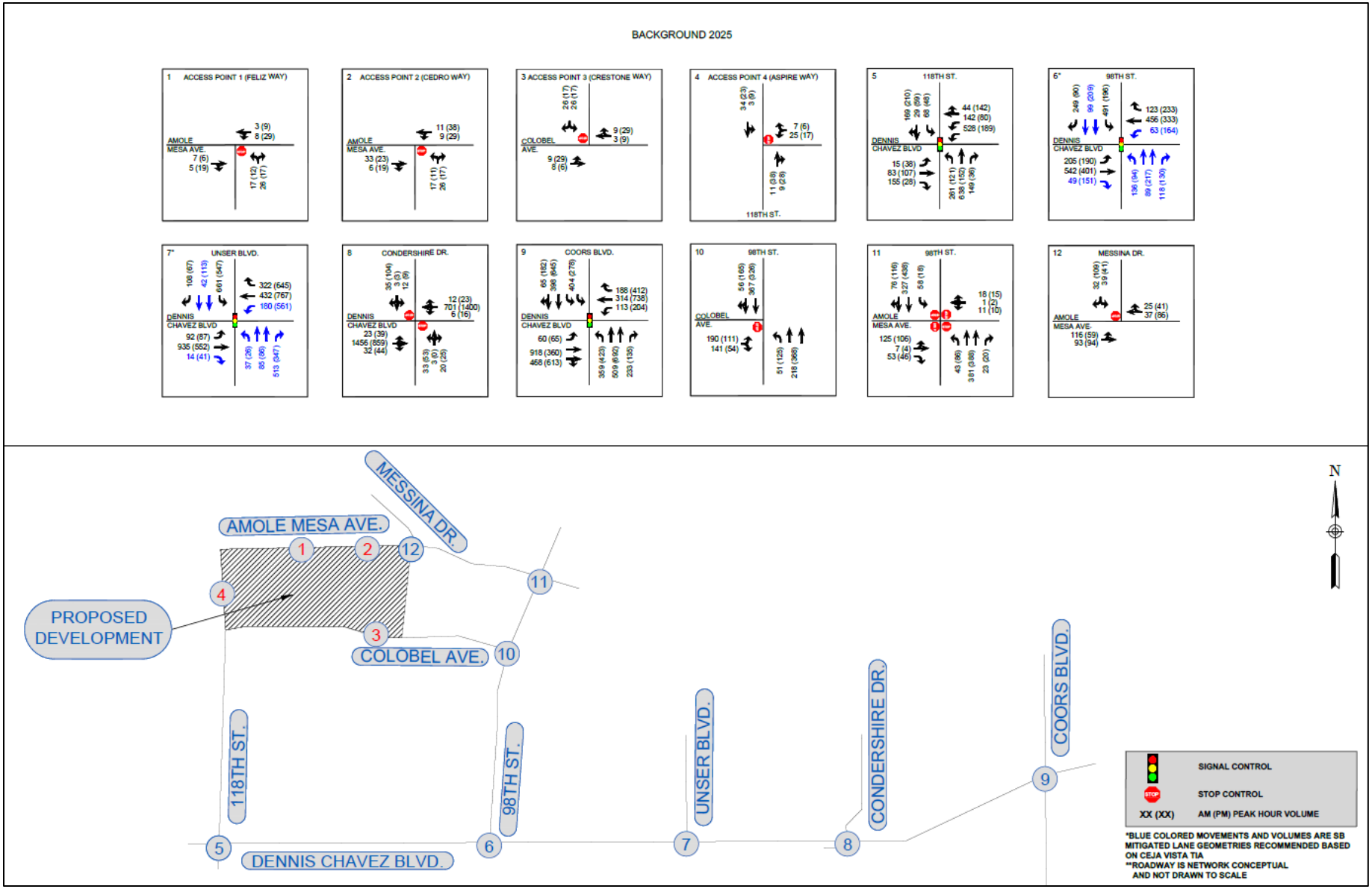

Figure 7: Background 2025 Turning Movement Traffic Volume

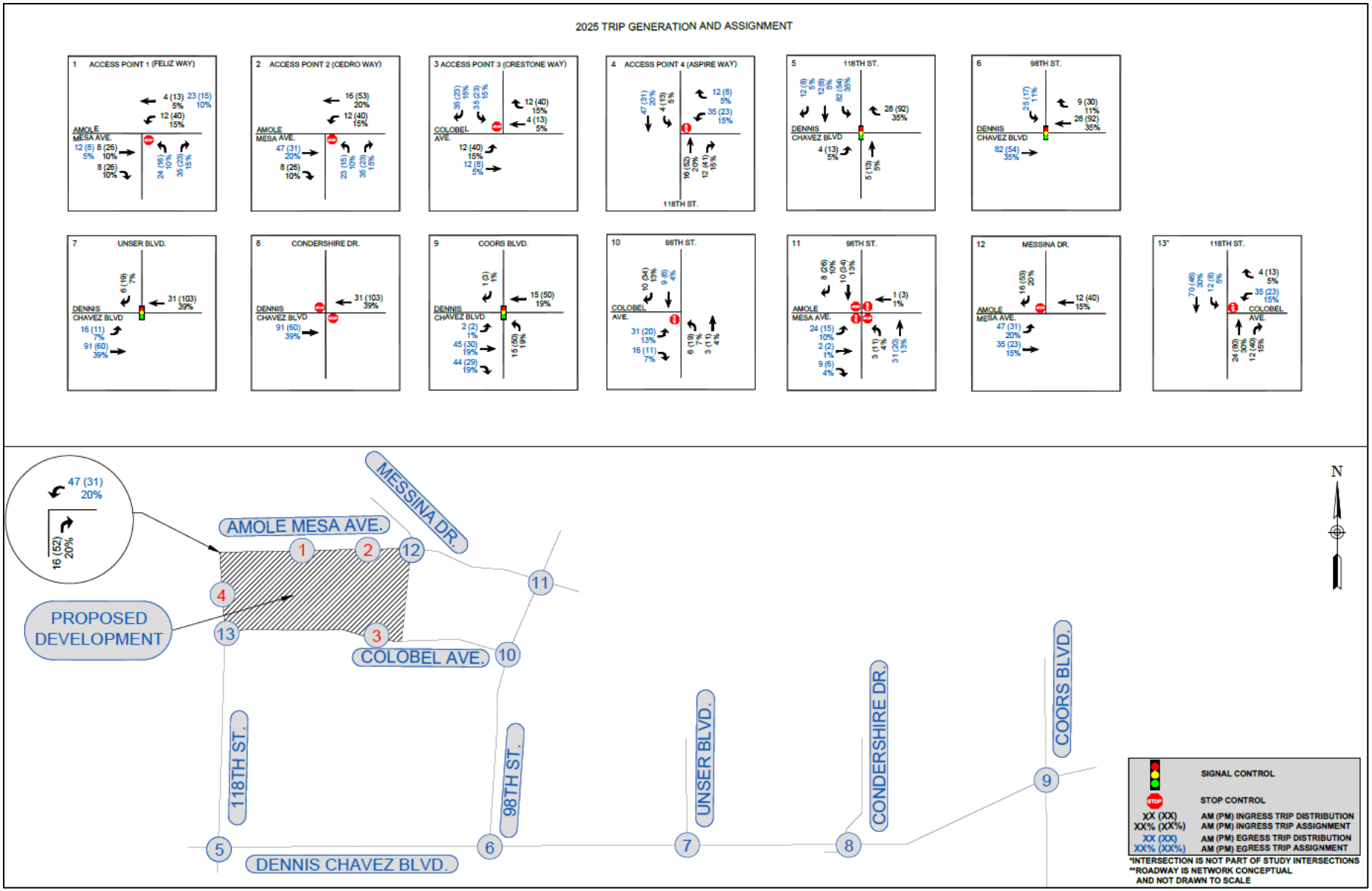

Figure 8: 2025 Trip Distribution and Assignment

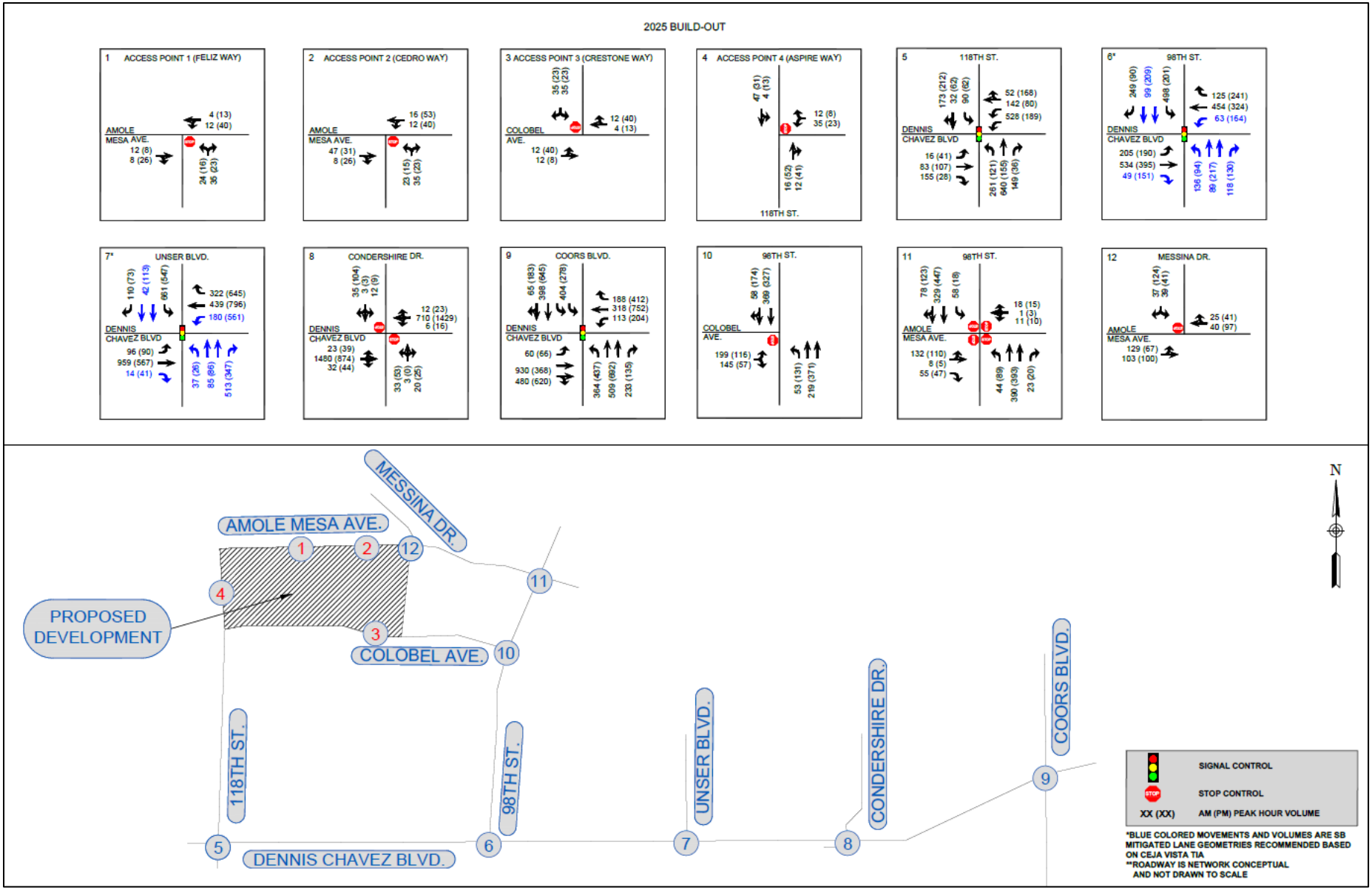

Figure 9: 2025 Build-Out

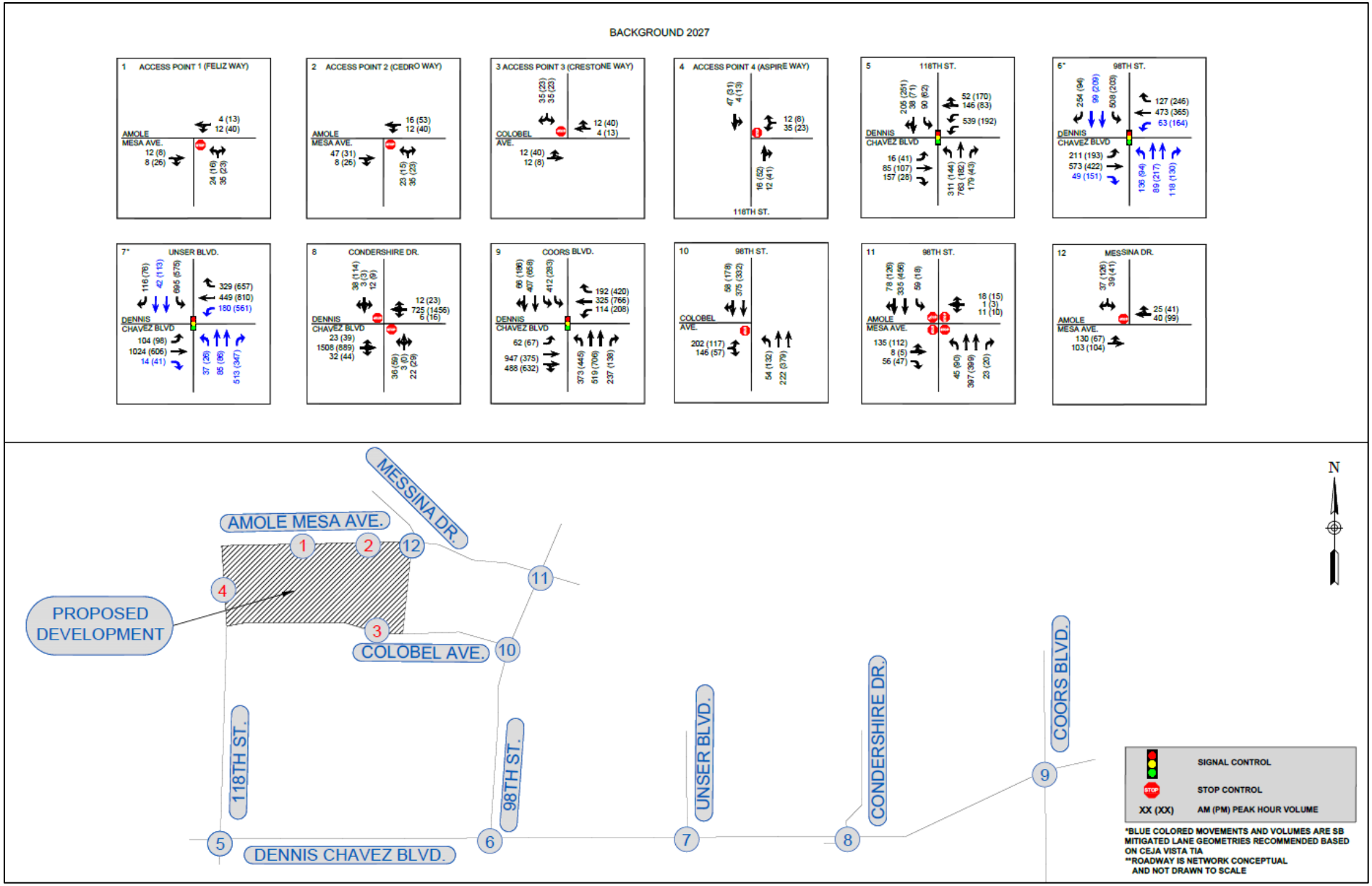

Figure 10: Background 2027 Turning Movement Traffic Volumes

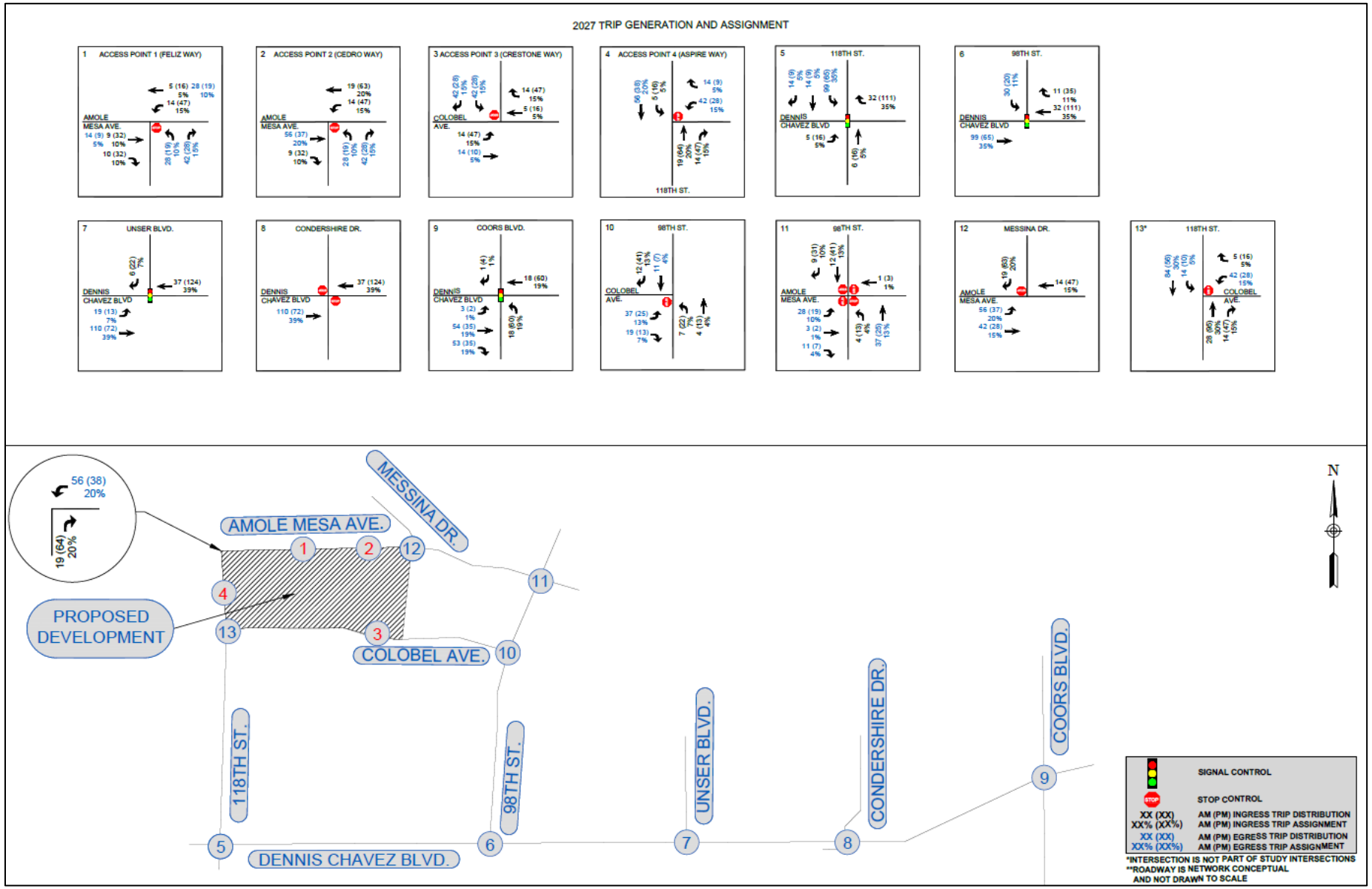

Figure 11: 2027 Trip Distribution and Assignment

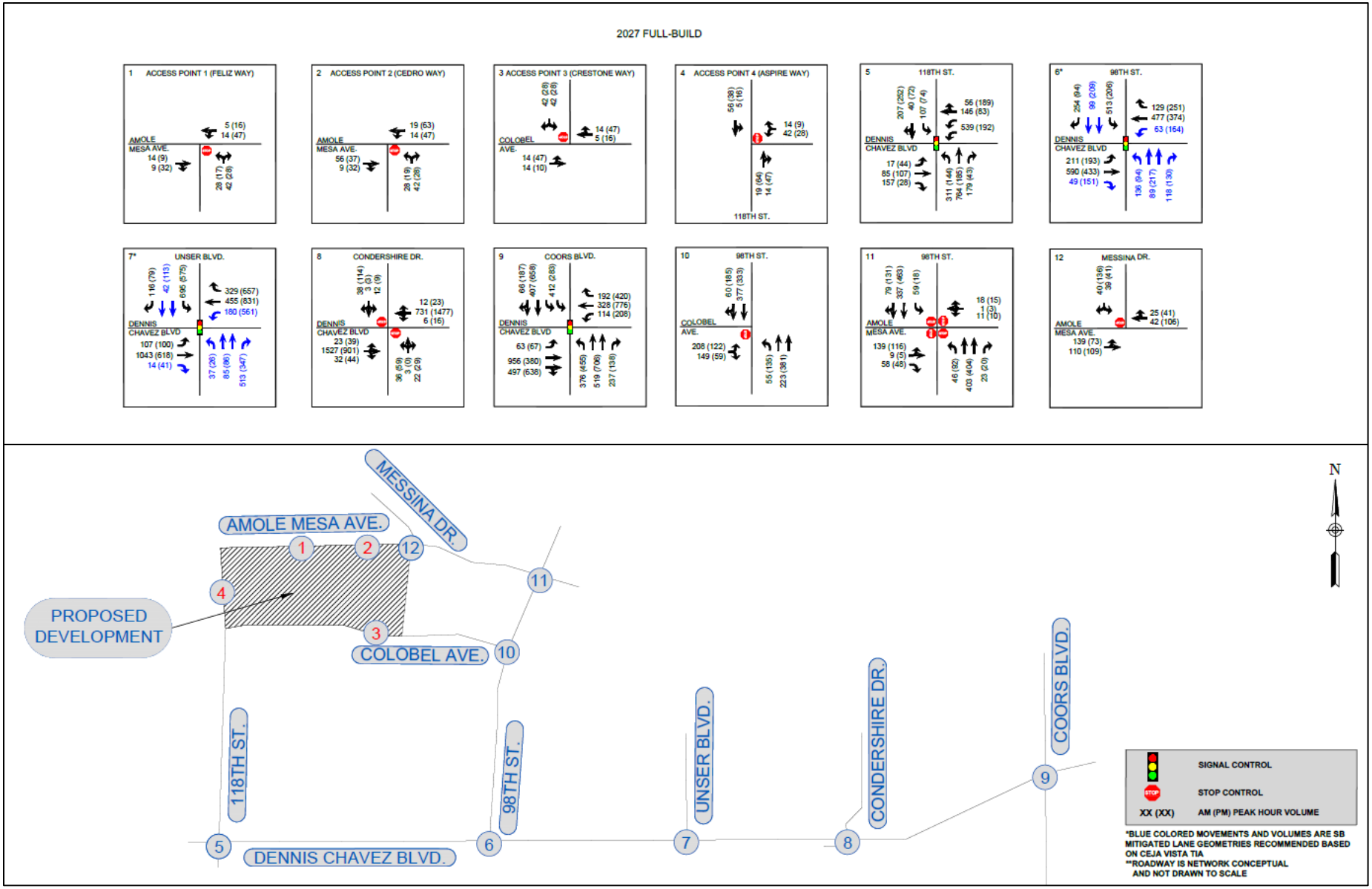

Figure 12: 2027 Full Build-Out

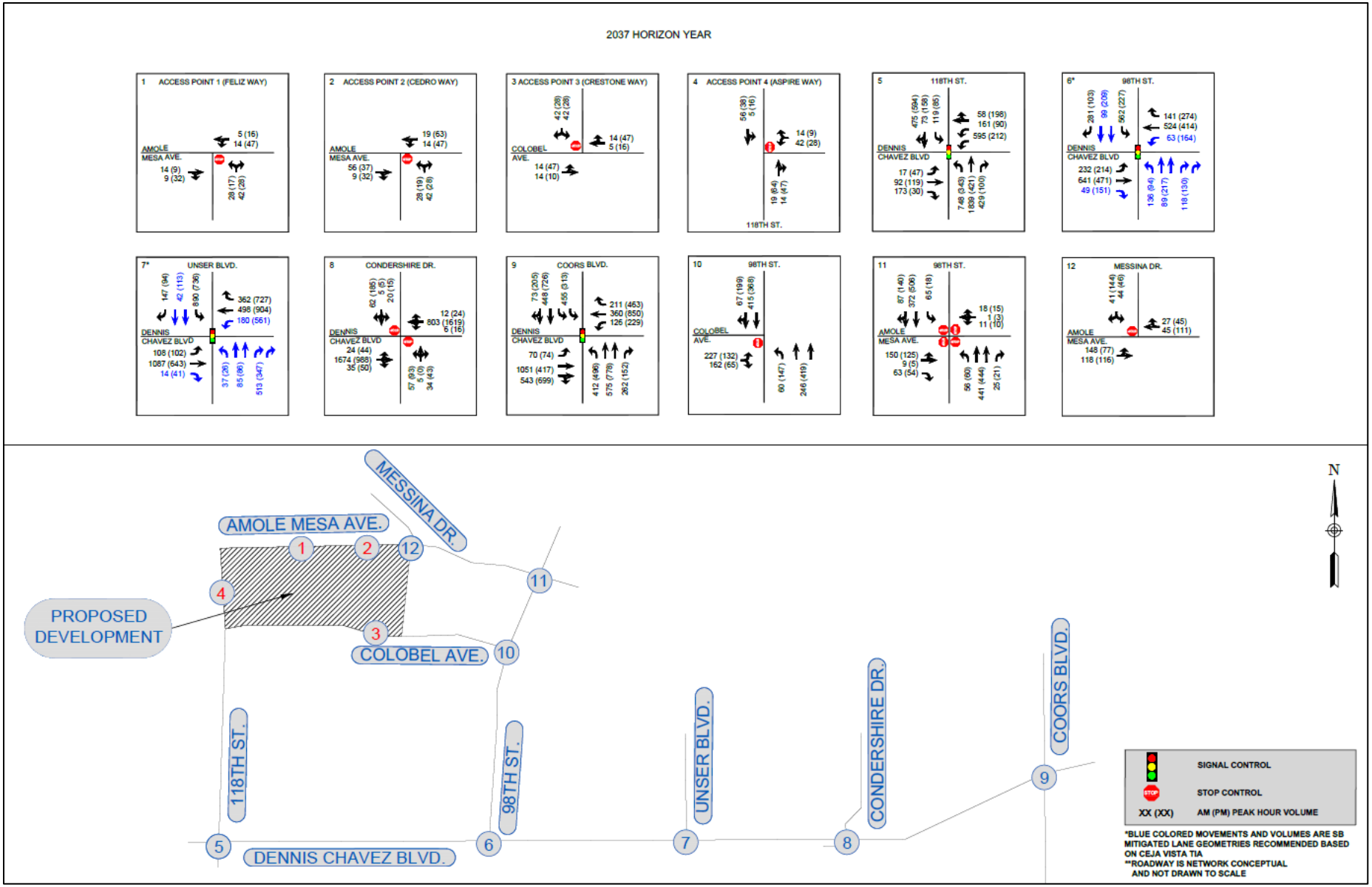

Figure 13: 2037 Horizon Year

TRAFFIC ANALYSIS OF BUILD-OUT AND HORIZON YEARS

As performed for existing conditions, a LOS and capacity analysis was performed for all future analysis scenarios using the same procedures and assumptions. Signal timings used in the existing conditions analysis were retained and used for background conditions, build-out condition analysis, and horizon year.

Lanes serving the Ceja Vista Development were added to the intersections of 98th St and Unser Blvd. Dual lanes, as recommended in the Ceja Vista TIA, were not analyzed as no receiving lanes are present on Dennis Chavez Blvd. The lack of dual lanes is noted to contribute to capacity issues for these intersections. Additionally, signal timings for new movements were adjusted to fit existing timings at the intersection. However, signal timings are likely to be re-calculated with the opening of the new movements upon completion of the traffic signal.

It is noted that as signal timings were not updated from analysis year to analysis year, LOS and capacity issues exhibited in 2023 conditions continue to be present in 2025 and 2027 conditions.

2023 Conditions

SIMULATION ANALYSIS OF SIGNALIZED INTERSECTIONS

Table 13 and Table 14 provided results from Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

Table 13: 2023 Background Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	14.8	B	0	200	EBL	47.8	D	166	525	EBL	31.9	C	53	670	EBL	21.7	C	20	500
	EBR	6.5	A	13	350	EBR	3.5	A	0	450	EBR	9.5	A	0	400	EBT	30	C	269	-
	EBT	16.4	B	40	-	EBT	16.4	B	147	-	EBT	35.3	D	401	-	EBT/R	28	C	255	-
	NBL	241.4	F	110	250	NBL	34.9	C	76	420	NBL	29.4	C	19	420	NBL	35.9	D	234	250
	NBR	212.6	F	0	500	NBR	13.7	B	24	335	NBR	39.4	D	314	295	NBR	18.8	B	104	-
	NBT	312.5	F	1795	500	NBT	45.5	D	44	-	NBT	44.3	D	48	-	NBT	40.7	D	182	-
	SBL	0.0	A	0	200	SBL	46.4	D	339	900	SBL	570.4	F	4321	1120	SBL	58.4	E	177	250
	SBT/R	8.6	A	48	-	SBR	13.3	B	48	870	SBR	70.9	E	20	425	SBT	45.2	D	139	-
	WBL	8.1	A	50	1200	SBT	36.2	D	48	-	SBT	241.7	F	127	-	SBT/R	44.3	D	176	-
	WBT/R	5.1	A	16	-	WBL	46.0	D	50	470	WBL	34.4	C	132	470	WBL	48.7	D	90	350
						WBR	2.8	A	0	635	WBR	4.5	A	19	1830	WBT	15.7	B	138	-
						WBT	28.6	C	238	-	WBT	23.4	C	209	-					
	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	7.7	A	1	200	EBL	46.8	D	177	525	EBL	46.6	D	53	670	EBL	43.4	D	49	500
	EBR	4.2	A	0	350	EBR	4.8	A	15	450	EBR	30.2	C	16	400	EBT	39.5	D	302	-
	EBT	7.5	A	17	-	EBT	17.1	B	130	-	EBT	63.1	E	782	-	EBT/R	142.7	F	1226	-
	NBL	26.9	C	51	250	NBL	40.3	D	75	420	NBL	26.6	C	17	420	NBL	49.2	D	296	250
	NBR	3.0	A	0	500	NBR	11.8	B	46	335	NBR	16.1	B	91	295	NBR	10.3	B	19	-
	NBT	22.8	C	48	500	NBT	47.0	D	87	-	NBT	46.3	D	42	-	NBT	31.3	C	196	-
	SBL	0.0	A	0	200	SBL	41.6	D	133	900	SBL	636.7	F	4335	1120	SBL	58.3	E	131	250
	SBT/R	12.5	B	66	-	SBR	9.0	A	18	870	SBR	134.3	F	19	425	SBT	40.9	D	196	-
	WBL	6.3	A	16	1200	SBT	42.6	D	75	-	SBT	170.4	F	98	-	SBT/R	45.4	D	263	-
	WBT/R	5.7	A	20	-	WBL	68.2	E	136	470	WBL	44.9	D	363	470	WBL	95.2	F	220	350
						WBR	1.1	A	0	635	WBR	4.7	A	76	1830	WBT	32.1	C	444	-
						WBT	2.6	A	17	-	WBT	20.4	C	261	-					

Table 14: 2023 Build-Out Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	22.2	C	0	200	EBL	45.9	D	176	525	EBL	26.8	C	45	670	EBL	18	B	18	500
	EBR	8.6	A	23	350	EBR	4.5	A	0	450	EBR	16.4	B	0	400	EBT	29.8	C	269	-
	EBT	20.9	C	44	-	EBT	19.7	B	208	-	EBT	51.3	D	683	-	EBT/R	30.5	C	266	-
	NBL	199.8	F	133	250	NBL	37.9	D	99	420	NBL	30.6	C	20	420	NBL	48.1	D	337	250
	NBR	180.2	F	0	500	NBR	17.0	B	46	335	NBR	45.4	D	335	295	NBR	18.7	B	93	-
	NBT	292.3	F	1496	500	NBT	48.5	D	47	-	NBT	55.0	D	46	-	NBT	43.7	D	192	-
	SBL	47.1	D	58	200	SBL	48.8	D	446	900	SBL	588.3	F	4849	1120	SBL	57.3	E	173	250
	SBT/R	10.9	B	65	-	SBR	12.8	B	78	870	SBR	126.9	F	20	425	SBT	48	D	156	-
	WBL	13.0	B	86	1200	SBT	32.6	C	20	-	SBT	222.6	F	96	-	SBT/R	47.4	D	180	-
	WBT/R	9.2	A	45	-	WBL	41.9	D	45	470	WBL	40.5	D	134	470	WBL	47.1	D	79	350
						WBR	4.0	A	0	635	WBR	4.8	A	46	1830	WBT	14.8	B	110	-
						WBT	28.1	C	207	-	WBT	22.5	C	186	-					

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	12.3	B	15	200	EBL	44.9	D	200	525	EBL	42.3	D	96	670	EBL	44.4	D	50	500
	EBR	4.3	A	0	350	EBR	4.5	A	17	450	EBR	17.6	B	17	400	EBT	39.6	D	177	-
	EBT	11.9	B	20	-	EBT	19.0	B	159	-	EBT	42.1	D	427	-	EBT/R	37.2	D	369	-
	NBL	30.1	C	54	250	NBL	45.5	D	82	420	NBL	34.8	C	15	420	NBL	210.5	F	1060	250
	NBR	5.0	A	0	500	NBR	8.6	A	20	335	NBR	16.9	B	136	295	NBR	12.5	B	17	-
	NBT	26.3	C	70	500	NBT	47.2	D	76	-	NBT	44.3	D	46	-	NBT	37.8	D	295	-
	SBL	25.1	C	16	200	SBL	38.9	D	139	900	SBL	621.9	F	4437	1120	SBL	59.8	E	158	250
	SBT/R	13.8	B	81	-	SBR	12.1	B	19	870	SBR	128.3	F	20	425	SBT	40.5	D	214	-
	WBL	8.1	A	18	1200	SBT	40.1	D	78	-	SBT	139.8	F	108	-	SBT/R	47.8	D	248	-
	WBT/R	6.2	A	37	-	WBL	64.2	E	146	470	WBL	32.8	C	274	470	WBL	80.4	F	173	350
						WBR	1.0	A	0	635	WBR	4.7	A	44	1830	WBT	36.9	D	517	-
						WBT	3.2	A	18	-	WBT	23.0	C	271	-					

From the tables above, the following is summarized:

- Dennis Chavez Blvd & 118th St
  - Capacity Analysis:
    - Under background conditions, Individual movements are also observed to operate at an acceptable Level of Service (LOS) except for all northbound movement with a LOS F in the AM. PM peak hours are observed to operate at an acceptable LOS.
    - Under build conditions, Similar to background conditions failing individual movements in the AM are expected to operate at LOS F for all northbound movements. PM peak hours are observed to operate at an acceptable LOS.
  - Queue Analysis:
    - Background queue conditions, 95th percentile is observed to be over capacity in the AM for northbound through storage. For the PM peak hour, similar to the 2020 background conditions, the intersection is observed to be acceptable by existing storage lengths.
    - Under build conditions, 95th percentile is observed to be over capacity in the AM for northbound through storage in the AM. 95th percentile for the PM peak hour, similar to the 2023 background conditions, the intersection is observed to be acceptable by existing storage lengths.
- Dennis Chavez & 98th St
  - Capacity Analysis:
    - Under background conditions, individual movements in the AM peak hours are observed to operate at an acceptable LOS. Failing individual movements in the PM were observed to be the westbound left movement operating at LOS E.
    - Under build conditions, individual movements in the AM peak hours are observed to operate at an acceptable LOS. Failing individual movements in the PM were observed to be the westbound left movement operating at LOS E.
  - Queue Analysis:

        - Background queue conditions, 95th percentile for the AM and PM peak hours, the intersection is observed to be acceptable based on existing storage lengths.
        - Under build conditions, 95th percentile for the AM and PM peak hours, the intersection is observed to be acceptable based on existing storage lengths.
- Dennis Chavez Blvd & Unser Blvd
    - Capacity Analysis:
        - Under background conditions, failing individual movements in the AM were observed to be the southbound left and southbound through movement with a LOS F, and the southbound right operating at LOS E. Failing individual movements in the PM were observed to be the eastbound through movement at LOS E, and all southbound movement operating at LOS F.
        - Under build conditions, failing individual movements in the AM were observed to be all southbound movement with a LOS F. Failing individual movements in the PM were observed to be all southbound movement operating at LOS F.
    - Queue Analysis:
        - Background queue conditions, 95th percentile is observed to be over capacity in the AM for northbound right storage and southbound left storage. 95th percentile is observed to be overcapacity for the PM peak hour for southbound left storage.
        - Under build conditions, 95th percentile is observed to be overcapacity in the AM and PM peak hour for southbound left storage.
- Dennis Chavez Blvd & Coors Blvd
    - Capacity Analysis:
        - Under background conditions, failing individual movements in the AM were observed to be the southbound left movement operating at a LOS E. Failing individual movements in the PM were observed to be the eastbound right, westbound left with a LOS F, and the southbound left operating at LOS E.
        - Under build conditions, failing individual movements in the AM were observed to be the southbound left movement operating at a LOS E. Failing individual movements in the PM were observed to be the northbound left and westbound left movements at LOS F, and the southbound left movements operating at LOS E.
    - Queue Analysis:
        - Background queue conditions, 95th percentile for the AM and PM peak hours, the intersection is observed to be acceptable based on existing storage lengths.
        - Under build conditions, 95th percentile for the AM peak hour, the intersection is observed to be acceptable based on existing storage lengths. The 95th percentile is observed to be over capacity in the PM for the northbound left storage.

HCS ANALYSIS OF STOP CONTROLLED INTERSECTIONS

Table 15 and Table 16 below summarizes stop controlled capacity analysis performed for 2023 conditions. HCS models and detailed capacity output sheets are included in the appendix. A summary of deficiencies by analysis scenario is provided on page 62.

Table 15: 2023 Background Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Background	EBL/T	0.06	7.50	A	0.20	0.03	7.50	A	0.10
	SBL/T/R	0.09	10.20	B	0.30	0.14	9.90	A	0.50
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Background	EBL	-	13.40	B	1.10	-	13.40	B	0.90
	EBT/R	-	10.10	B	0.30	-	10.40	B	0.30
	WBL/T/R	-	10.90	B	0.20	-	11.10	B	0.20
	NBL	-	10.40	B	0.30	-	11.30	B	0.60
	NBT	-	23.00	C	5.50	-	25.40	D	6.10
	NBR	-	8.80	A	0.10	-	8.90	A	0.10
	SBL	-	10.80	B	0.40	-	10.10	B	0.10
	SBT	-	12.20	B	1.30	-	13.70	B	1.90
	SBR	-	13.80	B	2.20	-	17.40	C	3.60
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Background	EBL/T/R	0.48	15.50	C	2.60	0.28	14.10	B	1.10
	NBL/T	0.06	8.70	A	0.20	0.12	9.00	A	0.40
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Background	EBL/T/R	0.03	9.30	A	0.10	0.09	13.40	B	0.30
	WBL/T/R	0.01	13.30	B	0.00	0.02	10.00	A	0.10
	NBL/T/R	1.91	725.40	F	6.40	10.06	5032.30	F	11.10
	SBL/T/R	0.85	190.00	F	3.80	1.41	331.40	F	9.00

Table 16: 2023 Build-Out Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Build-Out	EBL/T	0.08	7.60	A	0.30	0.04	7.60	A	0.10
	SBL/T/R	0.11	10.80	B	0.40	0.20	10.50	B	0.70
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Build-Out	EBL	-	14.40	B	1.30	-	14.40	B	1.10
	EBT/R	-	10.40	B	0.40	-	10.90	B	0.30
	WBL/T/R	-	11.20	B	0.20	-	11.60	B	0.20
	NBL	-	10.70	B	0.30	-	11.80	B	0.70
	NBT	-	28.10	D	6.80	-	31.30	D	7.40
	NBR	-	9.00	A	0.10	-	9.20	A	0.10
	SBL	-	11.10	B	0.40	-	10.70	B	0.30
	SBT	-	12.90	B	1.40	-	14.90	B	2.30
	SBR	-	14.80	B	2.40	-	19.70	C	4.30
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Build-Out	EBL/T/R	0.55	17.20	C	3.40	0.34	15.40	C	1.50
	NBL/T	0.06	8.80	A	0.20	0.14	9.20	A	0.50
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2023 Build-Out	EBL/T/R	0.03	9.30	A	0.10	0.10	13.80	B	0.30
	WBL/T/R	0.02	13.60	B	0.00	0.02	10.10	B	0.10
	NBL/T/R	2.25	908.80	F	6.90	14.04	7147.00	F	11.60
	SBL/T/R	0.97	240.10	F	4.30	1.58	409.20	F	9.80

- Amole Mesa Ave & Messina Dr
    - Capacity Analysis:
        - Background conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.

        - Under build conditions, the intersection is expected to remain at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.
    - Queue Analysis:
        - Background queue conditions: Queue Storage Ratio are expected to be accommodated existing storage lengths under both background and build conditions.
        - Under build conditions, Queue Storage Ratio is expected to see similar queueing conditions as under background conditions.
- Amole Mesa Ave & 98th St
    - Capacity Analysis:
        - Background conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movement operating at a LOS D or better in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service with no change in levels of service.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected for movements affected by the development.
        - Under build conditions, Queue Storage Ratio is expected to see similar queueing conditions as under background conditions.
- Colobel Ave & 98th St
    - Capacity Analysis:
        - Background conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movement operating at a LOS C or better in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service with no change in levels of service.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, the northbound right turn Queue Storage Ratio is expected to exceed existing storage capacities in the PM peak hour.
- Dennis Chavez Blvd & Condershire Dr
    - Capacity Analysis:
        - Background conditions: Similiar to background 2020, the intersection is operating at the level of service F for all movement in the northbound and southbound approaches.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service, LOS F, for all northbound and southbound movements.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, Queue Storage Ratio is expected to be accommodated by existing storage lengths under both background and build conditions.

SEGMENT ANALYSIS

Table 17 and Table 18 provide an overall summary of the urban streets segment analysis for each direction of through travel between signalized intersections on Dennis Chavez Blvd for 2023 conditions. HCS models are included in the appendix.

Table 17: 2023 Background Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	72.1	67.3	62.7	55.5	158.9	112.5
	Travel Speed, mph	36.0	38.5	29.4	33.2	22.7	32.1
	Through vol/cap Ratio	0.1	0.2	0.7	0.4	1.1	0.5
	Base Free Flow Speed (FFS), %	77.5	83.0	63.2	71.4	49.0	69.2
	Level of Service (LOS)	B	A	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	74.8	75.5	81.7	64.8	202.9	106.2
	Travel Speed, mph	34.7	34.3	22.5	28.4	17.8	34.0
	Through vol/cap Ratio	0.2	0.1	0.8	0.4	1.0	0.4
	Base Free Flow Speed (FFS), %	74.6	73.9	48.5	61.2	38.4	73.3
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	72.4	77.9	82.6	68.4	268.4	103.8
	Travel Speed, mph	35.8	33.3	22.3	26.9	13.5	34.8
	Through vol/cap Ratio	0.1	0.2	0.8	0.3	1.1	0.3
	Base Free Flow Speed (FFS), %	77.1	71.7	48.0	58.0	29.0	75.0
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	72.3	74.4	84.5	63.6	280.6	104.0
	Travel Speed, mph	35.8	34.9	21.8	29.0	12.9	34.8
	Through vol/cap Ratio	0.1	0.2	0.8	0.2	1.0	0.3
	Base Free Flow Speed (FFS), %	77.2	75.1	46.9	62.4	27.7	74.9
	Level of Service (LOS)	B	B	D	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	70.2	67.3	55.7	52.3	127.6	99.2
	Travel Speed, mph	36.9	38.5	33.1	35.2	28.3	36.5
	Through vol/cap Ratio	0.1	0.2	0.4	0.2	0.8	0.5
	Base Free Flow Speed (FFS), %	79.5	82.9	71.2	75.8	61.0	78.5
	Level of Service (LOS)	B	A	B	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	69.0	66.2	74.8	52.3	164.6	102.7
	Travel Speed, mph	37.5	39.1	24.6	35.2	22.0	35.2
	Through vol/cap Ratio	0.1	0.2	0.4	0.2	0.8	0.4
	Base Free Flow Speed (FFS), %	80.9	84.3	53.0	75.9	47.3	75.8
	Level of Service (LOS)	A	A	C	B	D	B
	Time Period 3: (15-min interval)						
	Travel Time, s	69.7	67.4	73.6	52.4	182.5	104.9
	Travel Speed, mph	37.2	38.4	25.0	35.1	19.8	34.5
	Through vol/cap Ratio	0.1	0.2	0.4	0.2	0.8	0.4
	Base Free Flow Speed (FFS), %	80.1	82.8	53.9	75.7	42.7	74.2
	Level of Service (LOS)	A	A	C	B	D	B
	Time Period 4: (15-min interval)						
	Travel Time, s	69.8	66.1	75.3	51.1	219.4	103.3
	Travel Speed, mph	37.1	39.2	24.4	36.1	16.5	35.0
	Through vol/cap Ratio	0.1	0.2	0.5	0.2	0.9	0.4
	Base Free Flow Speed (FFS), %	80.0	84.4	52.6	77.7	35.5	75.4
	Level of Service (LOS)	A	A	C	B	E	B

Table 18: 2023 Build-Out Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	64.7	71.6	61.8	55.9	191.3	111.9
	Travel Speed, mph	40.0	36.2	29.8	32.9	18.9	32.3
	Through vol/cap Ratio	0.2	0.3	0.8	0.4	1.2	0.6
	Base Free Flow Speed (FFS), %	86.2	78.0	64.2	70.9	40.7	69.6
	Level of Service (LOS)	A	B	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	76.7	76.2	82.3	67.1	286.1	106.6
	Travel Speed, mph	33.8	34.0	22.4	27.4	12.6	33.9
	Through vol/cap Ratio	0.2	0.1	0.9	0.3	1.1	0.4
	Base Free Flow Speed (FFS), %	72.8	73.2	48.2	59.1	27.2	73.0
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	77.0	79.0	85.2	74.2	441.6	104.3
	Travel Speed, mph	33.6	32.8	21.6	24.8	8.2	34.7
	Through vol/cap Ratio	0.2	0.2	0.9	0.4	1.2	0.4
	Base Free Flow Speed (FFS), %	72.5	70.7	46.6	53.5	17.6	74.6
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	73.5	77.6	77.5	65.1	501.3	104.7
	Travel Speed, mph	35.3	33.4	23.8	28.3	7.2	34.5
	Through vol/cap Ratio	0.2	0.2	0.8	0.2	1.0	0.3
	Base Free Flow Speed (FFS), %	76.0	72.0	51.2	61.0	15.5	74.4
	Level of Service (LOS)	B	B	C	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	69.4	64.6	54.9	52.4	121.3	97.5
	Travel Speed, mph	37.3	40.1	33.5	35.1	29.8	37.1
	Through vol/cap Ratio	0.1	0.2	0.4	0.3	0.7	0.5
	Base Free Flow Speed (FFS), %	80.4	86.4	72.2	75.7	64.2	79.9
	Level of Service (LOS)	A	A	B	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	66.5	64.0	73.1	54.2	202.6	104.2
	Travel Speed, mph	38.9	40.5	25.2	33.9	17.8	34.7
	Through vol/cap Ratio	0.1	0.3	0.4	0.2	0.8	0.4
	Base Free Flow Speed (FFS), %	83.9	87.2	54.3	73.1	38.4	74.7
	Level of Service (LOS)	A	A	C	B	E	B
	Time Period 3: (15-min interval)						
	Travel Time, s	67.3	64.6	71.8	53.9	220.3	106.9
	Travel Speed, mph	38.5	40.1	25.6	34.2	16.4	33.8
	Through vol/cap Ratio	0.1	0.2	0.4	0.2	0.7	0.5
	Base Free Flow Speed (FFS), %	82.9	86.5	55.2	73.6	35.3	72.8
	Level of Service (LOS)	A	A	C	B	E	B
	Time Period 4: (15-min interval)						
	Travel Time, s	66.9	63.1	73.5	51.6	304.9	105.1
	Travel Speed, mph	38.7	41.1	25.1	35.7	11.9	34.4
	Through vol/cap Ratio	0.1	0.2	0.5	0.2	0.9	0.5
	Base Free Flow Speed (FFS), %	83.4	88.4	54.0	76.9	25.5	74.1
	Level of Service (LOS)	A	A	C	B	F	B

- Segment 1: 118th St to 98th St
  - Under background conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
  - Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.

- Segment 2: 98th St to Unser Blvd
    - Under background conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
    - Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 3: Unser Blvd to Coors Blvd
    - Under background conditions, the urban street segment is expected to operate at a level of service of F for four multi-peak periods during AM peak hour for eastbound through movement. During the PM peak traffic is expected to operate at a level of service of E for one multi-peak periods for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.
    - Under build conditions, the urban street segment is expected to operate at a level of service of F for four multi-peak periods during AM peak hour for eastbound through movement. During the PM peak traffic is expected to operate at a level of service of E for two multi-peak periods and level of service F for one multi-peak period for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hour.

2025 Conditions

Simulation Analysis of Signalized Intersections

Table 19 and Table 20 provided results from Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

Table 19: 2025 Background Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	11.1	B	0	200	EBL	283.1	F	1854	525	EBL	30.0	C	43	670	EBL	17.3	B	18	500
	EBR	7.7	A	27	350	EBR	27.3	C	0	450	EBR	12.7	B	0	400	EBT	29.9	C	241	-
	EBT	20.7	C	42	-	EBT	34.9	C	150	-	EBT	39.3	D	460	-	EBT/R	28.6	C	262	-
	NBL	290.3	F	130	250	NBL	36.5	D	90	420	NBL	31.2	C	19	420	NBL	75.2	E	541	250
	NBR	250.9	F	0	500	NBR	13.8	B	24	335	NBR	48.1	D	401	295	NBR	18.7	B	100	-
	NBT	415.8	F	1520	500	NBT	45.6	D	45	-	NBT	51.4	D	47	-	NBT	45.1	D	216	-
	SBL	39.1	D	51	200	SBL	34.4	C	261	900	SBL	628.5	F	5036	1120	SBL	56.9	E	167	250
	SBT/R	10.8	B	71	-	SBR	15.9	B	107	870	SBR	148.7	F	27	425	SBT	49.6	D	170	-
	WBL	14.2	B	81	1200	SBT	32.8	C	40	-	SBT	256.6	F	103	-	SBT/R	52.2	D	194	-
	WBT/R	8.6	A	45	-	WBL	71.5	E	79	470	WBL	41.1	D	154	470	WBL	49.1	D	82	350
						WBR	3.5	A	0	635	WBR	4.0	A	19	1830	WBT	14.9	B	131	-
						WBT	24.5	C	225	-	WBT	21.0	C	181	-					
	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	10.2	B	16	200	EBL	460.8	F	1855	525	EBL	42.9	D	76	670	EBL	44.5	D	55	500
	EBR	6.6	A	0	350	EBR	55.5	E	0	450	EBR	14.8	B	15	400	EBT	32.2	C	160	-
	EBT	12.3	B	18	-	EBT	59.8	E	103	-	EBT	29.6	C	296	-	EBT/R	32	C	281	-
	NBL	36.1	D	77	250	NBL	32.3	C	67	420	NBL	34.2	C	16	420	NBL	309.7	F	1670	250
	NBR	2.8	A	0	500	NBR	6.2	A	18	335	NBR	16.6	B	113	295	NBR	19	B	16	-
	NBT	29.3	C	99	500	NBT	44.9	D	77	-	NBT	40.4	D	35	-	NBT	44	D	262	-
	SBL	18.5	B	18	200	SBL	33.1	C	123	900	SBL	661.3	F	4728	1120	SBL	57	E	137	250
	SBT/R	15.6	B	101	-	SBR	8.7	A	18	870	SBR	179.1	F	42	425	SBT	35	D	177	-
	WBL	9.7	A	18	1200	SBT	38.0	D	77	-	SBT	229.7	F	75	-	SBT/R	41.4	D	240	-
	WBT/R	6.5	A	19	-	WBL	67.8	E	158	470	WBL	32.4	C	280	470	WBL	78.4	E	301	350
						WBR	1.1	A	0	635	WBR	4.3	A	34	1830	WBT	30.1	C	427	-
						WBT	2.8	A	17	-	WBT	18.7	B	246	-					

Table 20: 2025 Build-Out Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	12.50	B	0	200	EBL	227.0	F	1849	525	EBL	32.3	C	51	670	EBL	21.6	C	18	500
	EBR	7.30	A	17	350	EBR	43.3	D	0	450	EBR	27.2	C	0	400	EBT	32.4	C	255	-
	EBT	21.40	C	28	-	EBT	33.1	C	181	-	EBT	46.2	D	615	-	EBT/R	31.3	C	317	-
	NBL	236.20	F	132	250	NBL	30.9	C	84	420	NBL	32.3	C	19	420	NBL	81.8	F	659	250
	NBR	204.50	F	0	500	NBR	18.6	B	48	335	NBR	39.9	D	331	295	NBR	18.6	B	84	-
	NBT	312.20	F	1810	500	NBT	46.5	D	41	-	NBT	46.2	D	28	-	NBT	42.5	D	196	-
	SBL	49.40	D	79	200	SBL	35.6	D	259	900	SBL	616.1	F	5203	1120	SBL	55.0	D	186	250
	SBT/R	10.10	B	25	-	SBR	14.3	B	78	870	SBR	122.8	F	22	425	SBT	45.1	D	143	-
	WBL	12.60	B	79	1200	SBT	26.2	C	20	-	SBT	303.5	F	101	-	SBT/R	47.6	D	163	-
	WBT/R	7.00	A	20	-	WBL	56.9	E	67	470	WBL	39.2	D	133	470	WBL	52.9	D	100	350
						WBR	2.0	A	0	635	WBR	4.1	A	14	1830	WBT	16.9	B	135	-
						WBT	26.9	C	267	-	WBT	22.0	C	201	-					

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	13.4	B	17	200	EBL	473.6	F	1913	525	EBL	136.1	F	502	670	EBL	55.0	E	48	500
	EBR	4.3	A	0	350	EBR	42.1	D	0	450	EBR	12.8	B	15	400	EBT	31.2	C	136	-
	EBT	11.0	B	23	-	EBT	70.6	E	113	-	EBT	39.9	D	407	-	EBT/R	28.3	C	317	-
	NBL	34.6	C	75	250	NBL	33.1	C	75	420	NBL	32.7	C	16	420	NBL	332.4	F	1870	250
	NBR	5.4	A	0	500	NBR	9.3	A	16	335	NBR	17.0	B	117	295	NBR	32.8	C	17	-
	NBT	30.8	C	107	500	NBT	41.9	D	80	-	NBT	49.4	D	45	-	NBT	53.8	D	389	-
	SBL	22.4	C	19	200	SBL	39.5	D	107	900	SBL	673.3	F	4723	1120	SBL	59.1	E	139	250
	SBT/R	13.5	B	102	-	SBR	8.5	A	18	870	SBR	103.9	F	17	425	SBT	40.2	D	174	-
	WBL	11.0	B	19	1200	SBT	37.1	D	69	-	SBT	222.3	F	75	-	SBT/R	48.0	D	252	-
	WBT/R	9.0	A	51	-	WBL	71.9	E	168	470	WBL	31.4	C	302	470	WBL	81.4	F	252	350
						WBR	0.5	A	0	635	WBR	5.4	A	67	1830	WBT	53.2	D	394	-
						WBT	2.3	A	16	-	WBT	23.0	C	294	-					

From the tables above, the following is summarized:

- Dennis Chavez Blvd & 118th St
  - Capacity Analysis:
    - Under background conditions similar to 2023 background conditions, individual movements are also observed to operate at an acceptable Level of Service (LOS) except for all northbound movement with a LOS F in the AM. PM peak hours are observed to operate at an acceptable LOS.
    - Under build conditions, failing individual movements in the AM are expected to operate at LOS F for all northbound movements. PM peak hours are observed to operate at an acceptable LOS.
  - Queue Analysis:
    - Background queue conditions, 95th percentile is observed to be over capacity in the AM for northbound through storage. For the PM peak hour, similar to the 2023 background conditions, the intersection is observed to be acceptable based on existing storage lengths.
    - Under build conditions similar to 2025 background conditions, 95th percentile is observed to be over capacity in the AM for northbound through storage. For the PM peak hour, the intersection is observed to be acceptable based on existing storage lengths.
- Dennis Chavez & 98th St
  - Capacity Analysis:
    - Under background conditions, failing individual movements in the AM were observed to be the eastbound left LOS F and westbound left movement operating at a LOS E. Failing individual movements in the PM were observed to be the eastbound left movement at LOS F, eastbound right, eastbound through, and the westbound left movement operating at LOS E.

        - Under build conditions, failing individual movements in the AM peak hour were observed to be eastbound left movement LOS F, as well as the westbound left movement operating with a LOS E. Failing individual movements in the PM were observed to be the eastbound left movement at LOS F, eastbound through and the westbound left movement operating at LOS E.
    - Queue Analysis:
        - Background queue conditions, 95th percentile is observed to be over capacity in the AM for the eastbound left storage. For the PM peak hour, the 95th percentile is observed to be over capacity for the eastbound left storage.
        - Under build conditions, 95th percentile queueing is expected to see similar queueing conditions as under 2025 background conditions.
- Dennis Chavez Blvd & Unser Blvd
    - Capacity Analysis:
        - Under background conditions, failing individual movements in the AM were observed to be all southbound movement with a LOS F. Failing individual movements in the PM were observed to be all southbound movement operating at LOS F.
        - Under build conditions, failing individual movements in the AM were observed to be all southbound movement with a LOS F. Failing individual movements in the PM were observed to be eastbound left movement and all southbound movement operating at LOS F.
    - Queue Analysis:
        - Background queue conditions, 95th percentile is observed to be over capacity in the AM for northbound right storage and southbound left storage. 95th percentile is observed to be overcapacity for the PM peak hour for southbound left storage.
        - Under build conditions, 95th percentile is observed to be overcapacity in the AM and PM peak hour for southbound left storage.
- Dennis Chavez Blvd & Coors Blvd
    - Capacity Analysis:
        - Under background conditions, failing individual movements in the AM were observed to be the northbound left and the southbound left movement operating at LOS E. Failing individual movements in the PM were observed to be the northbound left with a LOS F, southbound left and westbound left movements operating at LOS E.
        - Under build conditions, failing individual movements in the AM were observed to be the northbound left operating at LOS F. Failing individual movements in the PM were observed to be the eastbound left and southbound left movements operating at LOS E, and northbound left and westbound left movements with a LOS F.
    - Queue Analysis:
        - Background queue conditions: 95th percentile is observed to be over capacity in the AM for the northbound left storage. The 95th percentile is observed to be over capacity in the PM for the northbound left storage.
        - Under build conditions, 95th percentile is observed to be over capacity in the AM for northbound left storage in the AM. The 95th percentile is observed to be over capacity in the PM for the northbound left storage.

HCS ANALYSIS OF STOP CONTROLLED INTERSECTIONS

Table 21 and Table 22 below summarizes stop controlled capacity analysis performed for 2025 conditions. HCS models and detailed capacity output sheets are included in the appendix. A summary of deficiencies by analysis scenario is provided on page 62.

Table 21: 2025 Background Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Background	EBL/T	0.08	7.60	A	0.30	0.04	7.60	A	0.10
	SBL/T/R	0.11	10.90	B	0.40	0.20	10.50	B	0.70
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Background	EBL	-	14.80	B	1.40	-	14.70	B	1.20
	EBT/R	-	10.60	B	0.40	-	0.30	B	0.30
	WBL/T/R	-	11.40	B	0.20	-	0.20	B	0.20
	NBL	-	10.80	B	0.30	-	0.70	B	0.70
	NBT	-	30.30	D	7.30	-	8.00	D	8.00
	NBR	-	9.10	A	0.10	-	0.10	A	0.10
	SBL	-	11.20	B	0.40	-	0.10	B	0.10
	SBT	-	13.20	B	1.50	-	2.30	C	2.40
	SBR	-	15.50	C	2.60	-	2.30	C	5.10
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Background	EBL/T	0.08	7.60	A	0.30	0.04	7.60	A	0.10
	SBL/T/R	0.11	10.90	B	0.40	0.20	10.50	B	0.70
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Background	EBL/T/R	0.03	9.40	A	0.10	0.10	14.10	B	0.30
	WBL/T/R	0.02	13.90	B	0.00	0.02	10.20	B	0.10
	NBL/T/R	2.83	1202.90	F	7.80	24.17	12438.50	F	12.70
	SBL/T/R	1.21	348.00	F	5.10	1.81	511.30	F	11.20

Table 22: 2025 Build-Out Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Build-Out	EBL/T	0.09	7.60	A	0.30	0.05	7.70	A	0.20
	SBL/T/R	0.12	11.10	B	0.40	0.22	10.70	B	0.90
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Build-Out	EBL	-	15.30	C	1.50	-	15.10	C	1.30
	EBT/R	-	10.70	B	0.40	-	11.10	B	0.30
	WBL/T/R	-	11.50	B	0.20	-	11.90	B	0.20
	NBL	-	10.90	B	0.30	-	12.20	B	0.80
	NBT	-	33.40	D	0.80	-	36.80	E	8.60
	NBR	-	9.20	A	0.10	-	9.30	A	0.10
	SBL	-	11.40	B	0.50	-	10.50	B	0.10
	SBT	-	13.40	B	1.50	-	15.80	C	2.50
	SBR	-	16.00	C	2.70	-	24.10	C	5.60
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Build-Out	EBL/T/R	0.59	18.50	C	3.90	0.38	16.60	C	1.70
	NBL/T	0.06	8.90	A	0.20	0.16	9.40	A	0.50
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2025 Build-Out	EBL/T/R	0.03	9.40	A	0.10	0.10	14.20	B	0.30
	WBL/T/R	0.02	14.00	B	0.00	0.02	10.20	B	0.10
	NBL/T/R	3.08	1335.70	F	8.10	29.89	15390.30	F	13.10
	SBL/T/R	1.28	380.30	F	5.40	1.87	537.50	F	11.70

- Amole Mesa Ave & Messina Dr
    - Capacity Analysis:
        - Background conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.

        - Under build conditions, the intersection is expected to remain at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected for movements affected by the development.
        - Under build conditions, 95th percentile queueing is expected to see similar queueing conditions as under background conditions.
- Amole Mesa Ave & 98th St
    - Capacity Analysis:
        - Background conditions: the intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS D or better in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service except for NBT operating at LOS E in the PM peak hour.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected for movements affected by the development.
        - Under build conditions, 95th percentile queueing is expected to see similar queueing conditions as under background conditions.
- Colobel Ave & 98th St
    - Capacity Analysis:
        - Background conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service with the worst operating movement at a LOS C.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, the northbound right turn 95th percentile queue is expected to exceed existing storage capacities in the PM peak hour.
- Dennis Chavez Blvd & Condershire Dr
    - Capacity Analysis:
        - Background conditions: Background conditions: Similar to background 2023, the intersection is operating at a level of service F for all northbound and southbound approach movements.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service for all northbound and southbound movements.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, the northbound right turn 95th percentile queueing is expected to exceed existing storage capacities in the PM peak hour.

SEGMENT ANALYSIS

Table 23 and Table 24 provide an overall summary of the urban streets segment analysis for each direction of through travel between signalized intersections on Dennis Chavez Blvd for 2025 conditions. HCS models are included in the appendix.

Table 23: 2025 Background Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	72.7	71.8	64.6	57.4	170.2	105.9
	Travel Speed, mph	35.7	36.1	28.5	32.1	21.2	34.1
	Through vol/cap Ratio	0.2	0.3	0.8	0.5	1.1	0.6
	Base Free Flow Speed (FFS), %	76.8	77.7	61.4	69.1	45.7	73.5
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	77.6	76.3	81.6	59.4	226.4	107.5
	Travel Speed, mph	33.4	33.9	22.6	31.0	16.0	33.6
	Through vol/cap Ratio	0.2	0.1	0.7	0.4	1.0	0.5
	Base Free Flow Speed (FFS), %	71.9	73.1	48.6	66.8	34.4	72.4
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	78.9	79.1	99.3	57.5	305.7	104.4
	Travel Speed, mph	32.9	32.8	18.5	32.0	11.8	34.6
	Through vol/cap Ratio	0.2	0.2	1.0	0.3	1.3	0.3
	Base Free Flow Speed (FFS), %	70.8	70.6	40.0	68.9	25.5	74.6
	Level of Service (LOS)	B	B	F	B	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	70.0	77.6	82.9	60.4	363.7	104.9
	Travel Speed, mph	37.0	33.4	22.2	30.5	9.9	34.5
	Through vol/cap Ratio	0.2	0.2	0.7	0.2	1.0	0.3
	Base Free Flow Speed (FFS), %	79.8	72.0	47.8	65.7	21.4	74.2
	Level of Service (LOS)	B	B	D	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	76.4	70.2	55.1	48.9	127.6	106.6
	Travel Speed, mph	33.9	36.9	33.4	37.6	28.3	33.9
	Through vol/cap Ratio	0.1	0.3	0.5	0.3	0.8	0.5
	Base Free Flow Speed (FFS), %	81.3	79.5	72.0	78.6	61.0	73.0
	Level of Service (LOS)	A	B	B	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	75.9	69.0	73.7	50.5	302.3	104.3
	Travel Speed, mph	34.1	37.5	25.0	36.5	12.0	34.6
	Through vol/cap Ratio	0.1	0.3	0.5	0.3	0.9	0.4
	Base Free Flow Speed (FFS), %	81.8	80.9	53.8	76.2	25.8	74.6
	Level of Service (LOS)	A	A	C	B	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	76.5	69.9	71.7	49.4	379.1	107.2
	Travel Speed, mph	33.9	37.1	25.7	37.3	9.5	33.7
	Through vol/cap Ratio	0.1	0.2	0.4	0.2	0.8	0.5
	Base Free Flow Speed (FFS), %	81.2	79.8	55.3	77.9	20.5	72.6
	Level of Service (LOS)	A	B	C	B	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	76.3	67.9	74.3	47.2	586.6	105.3
	Travel Speed, mph	33.9	38.2	24.8	39.0	6.2	34.3
	Through vol/cap Ratio	0.1	0.2	0.5	0.2	1.0	0.5
	Base Free Flow Speed (FFS), %	81.4	82.2	53.4	81.5	13.3	73.9
	Level of Service (LOS)	A	A	C	A	F	B

Table 24: 2025 Build-Out Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	73.8	71.3	67.9	57.3	183.2	111.7
	Travel Speed, mph	35.1	36.3	27.1	32.1	19.7	32.4
	Through vol/cap Ratio	0.2	0.3	0.8	0.5	1.1	0.6
	Base Free Flow Speed (FFS), %	75.6	78.3	58.4	69.2	42.5	69.7
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	76.7	75.5	87.7	66.1	268.7	108.0
	Travel Speed, mph	33.8	34.3	21.0	27.9	13.5	33.5
	Through vol/cap Ratio	0.2	0.2	0.9	0.4	1.1	0.5
	Base Free Flow Speed (FFS), %	72.8	73.9	45.2	60.0	29.0	72.1
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	77.3	79.3	94.7	74.0	415.6	105.2
	Travel Speed, mph	33.5	32.7	19.5	24.9	8.7	34.4
	Through vol/cap Ratio	0.2	0.2	1.0	0.4	1.2	0.4
	Base Free Flow Speed (FFS), %	72.2	70.4	41.9	53.6	18.7	74.0
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	73.8	77.8	78.0	64.5	470.6	105.2
	Travel Speed, mph	35.1	33.3	23.6	28.6	7.7	34.4
	Through vol/cap Ratio	0.2	0.3	0.9	0.3	1.0	0.4
	Base Free Flow Speed (FFS), %	75.6	71.7	50.9	61.5	16.5	74.0
	Level of Service (LOS)	B	B	C	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	72.6	70.8	54.2	52.4	128.0	106.2
	Travel Speed, mph	35.7	36.6	33.9	35.2	28.2	34.0
	Through vol/cap Ratio	0.1	0.3	0.4	0.3	0.8	0.5
	Base Free Flow Speed (FFS), %	76.8	78.8	73.1	75.7	60.8	73.3
	Level of Service (LOS)	B	B	B	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	73.7	68.9	74.2	52.8	300.3	104.9
	Travel Speed, mph	35.2	37.6	24.8	34.9	12.0	34.5
	Through vol/cap Ratio	0.1	0.2	0.5	0.2	0.9	0.4
	Base Free Flow Speed (FFS), %	75.8	81.0	53.5	75.2	25.9	74.2
	Level of Service (LOS)	B	A	C	B	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	75.0	69.6	71.9	53.8	371.8	118.8
	Travel Speed, mph	34.6	37.2	25.6	34.2	9.7	30.4
	Through vol/cap Ratio	0.1	0.2	0.3	0.3	0.7	0.7
	Base Free Flow Speed (FFS), %	74.4	80.2	55.1	73.7	20.9	65.5
	Level of Service (LOS)	B	A	C	B	F	C
	Time Period 4: (15-min interval)						
	Travel Time, s	73.3	67.8	74.8	51.1	548.9	105.7
	Travel Speed, mph	35.4	38.2	24.6	36.0	6.6	34.2
	Through vol/cap Ratio	0.1	0.2	0.6	0.2	1.1	0.5
	Base Free Flow Speed (FFS), %	76.2	82.4	53.0	77.6	14.2	73.6
	Level of Service (LOS)	B	A	C	B	F	B

- Segment 1: 118th St to 98th St
    - Under background conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
    - Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 2: 98th St to Unser Blvd

- Under background conditions, the urban street segment is expected to operate at a level of service of F for one multi-peak periods during AM peak hour for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.
- Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.

- Segment 3: Unser Blvd to Coors Blvd
  - Under background conditions, the urban street segment is expected to operate at a level of service of F for four and three multi-peak periods during AM and PM peak hours for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.
  - Under build conditions, the urban street segment is expected to operate at a level of service of F for four and three multi-peak periods during AM and PM peak hours for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.

2027 Full Build Conditions

Simulation Analysis of Signalized Intersections

Table 25 and Table 26 provided results from Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

Table 25: 2027 Background Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	22.7	C	2	200	EBL	45.7	D	163	525	EBL	70.3	E	60	670	EBL	20.0	C	18	500
	EBR	9.4	A	43	350	EBR	4.4	A	0	450	EBR	96.3	F	0	400	EBT	33.8	C	272	-
	EBT	21.4	C	42	-	EBT	21.3	C	202	-	EBT	125.7	F	1354	-	EBT/R	30.9	C	265	-
	NBL	202.7	F	151	250	NBL	38.1	D	95	420	NBL	27.8	C	18	420	NBL	115.5	F	851	250
	NBR	167.7	F	0	500	NBR	16.6	B	40	335	NBR	43.8	D	331	295	NBR	22.2	C	103	-
	NBT	265.7	F	1333	500	NBT	46.2	D	23	-	NBT	42.7	D	41	-	NBT	47.5	D	342	-
	SBL	47.8	D	95	200	SBL	116.3	F	1863	900	SBL	683.5	F	5468	1120	SBL	59.8	E	278	250
	SBT/R	9.5	A	68	-	SBR	14.4	B	83	870	SBR	154.4	F	23	425	SBT	45.8	D	131	-
	WBL	14.0	B	103	1200	SBT	41.1	D	47	-	SBT	286.4	F	88	-	SBT/R	46.0	D	211	-
	WBT/R	7.3	A	40	-	WBL	46.7	D	51	470	WBL	39.0	D	125	470	WBL	47.7	D	87	350
						WBR	2.4	A	0	635	WBR	4.4	A	42	1830	WBT	17.7	B	135	-
						WBT	31.8	C	266	-	WBT	24.1	C	187	-					
	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	16.6	B	18	200	EBL	46.1	D	206	525	EBL	49.2	D	81	670	EBL	45.2	D	48	500
	EBR	7.9	A	0	350	EBR	4.5	A	1	450	EBR	24.7	C	16	400	EBT	30.4	C	168	-
	EBT	16.4	B	42	-	EBT	19.0	B	142	-	EBT	55.9	E	693	-	EBT/R	34.4	C	329	-
	NBL	38.1	D	87	250	NBL	42.2	D	74	420	NBL	41.3	D	19	420	NBL	326.9	F	1859	250
	NBR	3.5	A	0	500	NBR	12.3	B	25	335	NBR	26.3	C	141	295	NBR	28.4	C	17	-
	NBT	28.7	C	128	500	NBT	49.3	D	81	-	NBT	38.4	D	38	-	NBT	51.1	D	375	-
	SBL	19.1	B	20	200	SBL	42.4	D	150	900	SBL	733.4	F	5064	1120	SBL	52.9	D	137	250
	SBT/R	17.1	B	125	-	SBR	9.3	A	18	870	SBR	194.2	F	17	425	SBT	36.6	D	189	-
	WBL	10.1	B	24	1200	SBT	41.8	D	72	-	SBT	312.7	F	103	-	SBT/R	42.5	D	235	-
	WBT/R	9.2	A	77	-	WBL	64.1	E	145	470	WBL	51.4	D	366	470	WBL	152.9	F	430	350
						WBR	0.9	A	0	635	WBR	4.7	A	52	1830	WBT	41.6	D	553	-
						WBT	3.8	A	18	-	WBT	22.7	C	306	-					

Table 26: 2027 Full Build Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	18.5	B	0	200	EBL	42.0	D	138	525	EBL	72.6	E	49	670	EBL	17.1	B	18	500
	EBR	9.5	A	23	350	EBR	5.1	A	0	450	EBR	98.1	F	0	400	EBT	29.1	C	252	-
	EBT	31.7	C	48	-	EBT	20.4	C	193	-	EBT	124.8	F	1338	-	EBT/R	29.8	D	266	-
	NBL	324.9	F	247	250	NBL	36.0	D	79	420	NBL	33.8	C	19	420	NBL	46.6	D	356	250
	NBR	296.0	F	0	500	NBR	15.9	B	19	335	NBR	88.0	F	577	295	NBR	34.9	C	160	-
	NBT	481.3	F	1756	500	NBT	52.4	D	39	-	NBT	53.7	D	46	-	NBT	45.1	D	223	-
	SBL	69.6	E	144	200	SBL	94.6	F	1370	900	SBL	597.0	F	5700	1120	SBL	53.2	D	192	250
	SBT/R	10.9	B	53	-	SBR	14.8	B	116	870	SBR	134.5	F	18	425	SBT	53.3	D	205	-
	WBL	41.0	D	192	1200	SBT	37.3	D	44	-	SBT	248.1	F	97	-	SBT/R	51.7	D	196	-
	WBT/R	8.9	A	38	-	WBL	43.5	D	48	470	WBL	45.6	D	133	470	WBL	49.1	D	105	350
						WBR	2.6	A	0	635	WBR	3.7	A	14	1830	WBT	18.8	B	162	-
						WBT	29.8	C	226	-	WBT	23.3	C	218	-					
	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	17.1	B	16	200	EBL	45.4	D	191	525	EBL	51.8	D	73	670	EBL	50.6	D	41	500
	EBR	5.8	A	0	350	EBR	5.3	A	17	450	EBR	36.7	D	1	400	EBT	30.0	C	143	-
	EBT	15.6	B	55	-	EBT	17.7	B	161	-	EBT	72.6	E	1018	-	EBT/R	36.6	D	372	-
	NBL	44.9	D	160	250	NBL	44.2	D	95	420	NBL	39.2	D	17	420	NBL	233.4	F	1360	250
	NBR	4.6	A	0	500	NBR	12.9	B	44	335	NBR	20.8	C	154	295	NBR	17.3	B	19	-
	NBT	26.6	C	124	500	NBT	50.9	D	99	-	NBT	49.2	D	47	-	NBT	42.9	D	189	-
	SBL	20.3	C	23	200	SBL	44.5	D	142	900	SBL	842.9	F	5568	1120	SBL	59.0	E	129	250
	SBT/R	21.2	C	247	-	SBR	12.2	B	24	870	SBR	377.2	F	17	425	SBT	49.8	D	222	-
	WBL	12.6	B	35	1200	SBT	45.1	D	81	-	SBT	430.0	F	104	-	SBT/R	51.6	D	265	-
	WBT/R	8.7	A	56	-	WBL	63.6	E	139	470	WBL	50.6	D	393	470	WBL	138.3	F	306	350
						WBR	1.4	A	0	635	WBR	4.7	A	51	1830	WBT	75.6	E	716	-
						WBT	2.7	A	19	-	WBT	23.1	C	269	-					

From the tables above, the following is summarized:

- Dennis Chavez Blvd & 118th St
  - Capacity Analysis:
    - Under background conditions, failing individual movements in the AM peak hour were observed to be northbound left, northbound through, and northbound right movements LOS F. For PM peak hour, the intersection, is expected to operate at an acceptable LOS.
    - Under build conditions, failing individual movements in the AM peak hour were observed to be southbound left movement LOS E, and northbound through, northbound left, and northbound right movements LOS F. For PM peak hour, the intersection, is expected to operate at an acceptable LOS.
  - Queue Analysis:
    - Background queue conditions, 95th percentile lengths are observed to be over capacity in the AM for the northbound through storage. No queueing issues are expected for movements affected by the development in the PM peak hour.
    - Under build conditions, 95th percentile lengths are observed to be over capacity in the AM for the northbound through storage. No queueing issues are expected for movements affected by the development in the PM peak hour.
- Dennis Chavez & 98th St
  - Capacity Analysis:
    - Under background conditions, failing individual movements in the AM peak hour were observed to be the southbound left movement LOS F. Failing individual movements in the PM peak hour were observed to be the westbound left movement LOS E.
    - Under build conditions, failing individual movements in the AM peak hour were observed to be the southbound left movement LOS F. Failing individual movements in the PM peak hour were observed to be the westbound left movement LOS E.

- Queue Analysis:
  - Background queue conditions: 95th percentile lengths are observed to be over capacity in the AM for the southbound left storage. No queueing issues are expected for movements affected by the development in the PM peak hour.
  - Under build conditions: 95th percentile lengths are observed to be over capacity in the AM for the southbound left storage. No queueing issues are expected for movements affected by the development in the PM peak hour.

- Dennis Chavez Blvd & Unser Blvd
  - Capacity Analysis:
    - Under background conditions, failing individual movements in the AM were observed to be all southbound movement operating at LOS F, the eastbound right and eastbound through movements LOS F, and the eastbound left movement operating at LOS E. Failing individual movements in the PM were observed to be the eastbound through movement at LOS E, and all southbound movement operating at LOS F.
    - Under build conditions, failing individual movements in the AM were observed to be all southbound movement with a LOS F, the eastbound right and eastbound through movements LOS F, the northbound right movement LOS F, and the eastbound left movement operating at LOS E. Failing individual movements in the PM were observed to be all southbound movement operating at LOS F, and the eastbound through movement operating at a LOS E.
  - Queue Analysis:
    - Background queue conditions, 95th percentile is observed to be over capacity in the AM for the southbound left storage and northbound right storage. 95th percentile is observed to be overcapacity for the PM peak hour for southbound left storage.
    - Under build conditions, 95th percentile is observed to be overcapacity in the AM peak hour for the southbound left storage and northbound right storage. 95th percentile is observed to be overcapacity for the PM peak hour for southbound left storage.
- Dennis Chavez Blvd & Coors Blvd
  - Capacity Analysis:
    - Under background conditions, failing individual movements in the AM peak hour are expected to include southbound left movement LOS E and the northbound left movement LOS F. Failing individual movements in the PM peak hour include northbound left movement and westbound left movement at LOS F.
    - Under build conditions, individual movements in the AM peak hours are observed to operate at an acceptable LOS. Failing individual movements in the PM peak hour include northbound left movement LOS F, southbound left movement LOS E, westbound left movement LOS F, and westbound through movement LOS E.
  - Queue Analysis:
    - Background queue conditions: 95th percentile lengths in the AM are observed to be over capacity for the northbound left storage and southbound left storage. 95th percentile lengths in the PM are observed to be over capacity for northbound left storage and the westbound left storage.
    - Under build conditions: 95th percentile lengths in the AM are observed to be over capacity for the northbound left storage. 95th percentile lengths in the PM are observed to be over capacity for northbound left storage.

HCS ANALYSIS OF STOP CONTROLLED INTERSECTIONS

Table 27 and Table 28 below summarizes stop controlled capacity analysis performed for 2027 full-build conditions. HCS models and detailed capacity output sheets are included in the appendix. A summary of deficiencies by analysis scenario is provided on page 62.

Table 27: 2027 Background Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Background	EBL/T	0.09	7.60	A	0.30	0.05	7.70	A	0.20
	SBL/T/R	0.12	11.10	B	0.40	0.23	10.80	B	0.90
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Background	EBL	-	15.60	C	1.60	-	15.30	C	1.30
	EBT/R	-	10.80	B	0.40	-	11.20	B	0.40
	WBL/T/R	-	11.60	B	0.20	-	12.00	B	0.20
	NBL	-	11.00	B	0.30	-	12.40	B	0.80
	NBT	-	35.90	E	8.50	-	39.80	E	9.10
	NBR	-	9.20	A	0.10	-	9.40	A	0.10
	SBL	-	11.50	B	0.50	-	10.60	B	0.10
	SBT	-	13.70	B	1.60	-	16.30	C	2.60
	SBR	-	16.40	C	2.80	-	25.60	D	6.00
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Background	EBL/T/R	0.60	19.00	C	4.00	0.39	16.90	C	1.80
	NBL/T	0.07	8.90	A	0.20	0.16	9.40	A	0.60
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Background	EBL/T/R	0.03	9.50	A	0.10	0.10	14.50	B	0.30
	WBL/T/R	0.02	14.30	B	0.10	0.03	10.30	B	0.10
	NBL/T/R	3.90	1763.30	F	8.90	73.01	37736.20	F	14.30
	SBL/T/R	1.56	519.40	F	6.10	2.15	671.30	F	13.10

Table 28: 2027 Full-Build Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Build-Out	EBL/T	0.09	7.60	A	0.30	0.06	7.70	A	0.20
	SBL/T/R	0.13	11.10	B	0.40	0.24	11.00	B	1.00
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Build-Out	EBL	-	16.00	C	1.70	-	15.70	C	1.40
	EBT/R	-	10.90	B	0.40	-	11.30	B	0.40
	WBL/T/R	-	11.70	B	0.20	-	12.20	B	0.20
	NBL	-	11.10	B	0.30	-	12.50	B	0.80
	NBT	-	38.60	E	9.00	-	42.90	E	9.60
	NBR	-	9.30	A	0.10	-	9.50	A	0.10
	SBL	-	11.60	B	0.50	-	10.70	B	0.10
	SBT	-	13.90	B	1.60	-	16.70	C	2.70
	SBR	-	16.80	C	2.90	-	27.50	D	6.50
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Build-Out	EBL/T/R	0.62	19.70	C	4.30	0.45	18.30	C	2.30
	NBL/T	0.07	8.90	A	0.20	0.16	9.50	A	0.60
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2027 Build-Out	EBL/T/R	0.03	9.50	A	0.10	0.11	14.60	B	0.40
	WBL/T/R	0.02	14.30	B	0.10	0.03	10.30	B	0.10
	NBL/T/R	4.27	1957.60	F	9.20	96.42	49748.20	F	14.80
	SBL/T/R	1.66	568.60	F	6.40	2.19	685.40	F	13.40

- Amole Mesa Ave & Messina Dr
    - Capacity Analysis:
        - Under background conditions, the intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.

        - Under build conditions, the intersection is expected to remain at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.
    - Queue Analysis:
        - Under background conditions, no queueing issues are expected for movements affected by the development.
        - Under build conditions, 95th percentile queueing is expected to see similar queueing conditions as under background conditions.
- Amole Mesa Ave & 98th St
    - Capacity Analysis:
        - Under background conditions, the intersection as a whole is expected to operate at an acceptable level of service with all movements except northbound through operating at a LOS E in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service except for NBT operating at LOS E in the AM and PM peak hour.
    - Queue Analysis:
        - Under background conditions, no queueing issues are expected for movements affected by the development.
        - Under build conditions, 95th percentile queueing is expected to see similar queueing conditions as under background conditions.
- Colobel Ave & 98th St
    - Capacity Analysis:
        - Under background conditions, the intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS C or better in both the AM and PM peak hours.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service with the worst operating movement at a LOS C.
    - Queue Analysis:
        - Under background conditions, no queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, the northbound right turn 95th percentile queueing is expected under existing storage capacities in the PM peak hour.
- Dennis Chavez Blvd & Condershire Dr
    - Capacity Analysis:
        - Under background conditions, similar to background 2025, the intersection is expected to operate at a level of service F for all northbound and southbound approach movement.
        - Under build conditions, the intersection and worst-case movements are expected to operate at similar levels of service for all northbound and southbound movements.
    - Queue Analysis:
        - Background queue conditions: No queueing issues are expected under background or build conditions for the AM and PM peak hours under background conditions.
        - Under build conditions, the northbound right turn 95th percentile queueing is expected under existing storage capacities in the PM peak hour.

SEGMENT ANALYSIS

Table 29 and Table 30 provide an overall summary of the urban streets segment analysis for each direction of through travel between signalized intersections on Dennis Chavez Blvd for 2027 conditions. HCS models are included in the appendix.

Table 29: 2027 Background Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	73.7	75.4	68.4	57.5	192.2	111.5
	Travel Speed, mph	35.1	34.3	26.9	32.0	18.8	32.4
	Through vol/cap Ratio	0.2	0.3	0.8	0.5	1.2	0.6
	Base Free Flow Speed (FFS), %	75.7	74.0	58.0	69.0	40.5	69.8
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	77.3	76.7	102.0	67.0	307.5	109.3
	Travel Speed, mph	33.5	33.8	18.0	27.5	11.8	33.1
	Through vol/cap Ratio	0.3	0.2	1.0	0.4	1.1	0.5
	Base Free Flow Speed (FFS), %	72.3	72.7	38.9	59.2	25.3	71.2
	Level of Service (LOS)	B	B	E	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	77.7	79.4	100.4	74.8	495.9	105.5
	Travel Speed, mph	33.4	32.6	18.3	24.6	7.3	34.3
	Through vol/cap Ratio	0.2	0.2	1.0	0.4	1.3	0.4
	Base Free Flow Speed (FFS), %	71.9	70.3	39.5	53.0	15.7	73.8
	Level of Service (LOS)	B	B	F	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	74.1	77.9	74.8	64.9	572.0	105.2
	Travel Speed, mph	35.0	33.3	24.6	28.4	6.3	34.4
	Through vol/cap Ratio	0.2	0.3	0.9	0.3	1.1	0.3
	Base Free Flow Speed (FFS), %	75.3	71.6	53.0	61.1	13.6	74.0
	Level of Service (LOS)	B	B	C	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	70.6	73.2	63.8	51.4	127.5	108.7
	Travel Speed, mph	36.7	35.4	28.9	35.8	28.4	33.2
	Through vol/cap Ratio	0.1	0.3	0.6	0.3	0.8	0.5
	Base Free Flow Speed (FFS), %	79.0	76.2	62.2	77.2	61.1	71.6
	Level of Service (LOS)	B	B	C	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	71.9	70.5	75.3	51.2	339.0	108.5
	Travel Speed, mph	36.0	36.7	24.5	36.0	10.7	33.3
	Through vol/cap Ratio	0.1	0.3	0.5	0.2	0.9	0.5
	Base Free Flow Speed (FFS), %	77.6	79.2	52.7	77.5	23.0	71.7
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	72.7	71.6	73.9	51.8	462.5	111.2
	Travel Speed, mph	35.7	36.2	24.9	35.5	7.8	32.5
	Through vol/cap Ratio	0.1	0.3	0.5	0.2	0.8	0.5
	Base Free Flow Speed (FFS), %	76.8	77.9	53.7	76.5	16.8	70.0
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	72.0	69.7	76.1	50.3	704.3	109.6
	Travel Speed, mph	36.0	37.2	24.2	36.6	5.1	33.0
	Through vol/cap Ratio	0.1	0.2	0.6	0.2	1.1	0.5
	Base Free Flow Speed (FFS), %	77.6	80.1	52.1	78.9	11.1	71.0
	Level of Service (LOS)	B	A	C	B	F	B

Table 30: 2027 Full-Build Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	74.2	75.8	69.6	57.7	195.0	111.8
	Travel Speed, mph	34.9	34.2	26.5	31.9	18.5	32.3
	Through vol/cap Ratio	0.3	0.3	0.9	0.5	1.2	0.6
	Base Free Flow Speed (FFS), %	75.2	73.7	57.0	68.8	39.9	69.6
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	77.6	77.0	93.7	67.1	312.2	108.6
	Travel Speed, mph	33.4	33.7	19.6	27.5	11.6	33.3
	Through vol/cap Ratio	0.3	0.2	1.0	0.4	1.1	0.5
	Base Free Flow Speed (FFS), %	71.9	72.5	42.3	59.1	24.9	71.7
	Level of Service (LOS)	B	B	D	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	77.9	79.5	102.4	74.9	495.6	105.6
	Travel Speed, mph	33.3	32.6	18.0	24.6	7.3	34.2
	Through vol/cap Ratio	0.3	0.2	1.0	0.4	1.3	0.4
	Base Free Flow Speed (FFS), %	71.6	70.2	38.7	53.0	15.7	73.7
	Level of Service (LOS)	B	B	F	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	74.4	78.2	66.7	65.0	574.5	105.3
	Travel Speed, mph	34.8	33.2	27.6	28.3	6.3	34.3
	Through vol/cap Ratio	0.2	0.3	0.9	0.3	1.1	0.4
	Base Free Flow Speed (FFS), %	75.0	71.4	59.5	61.0	13.6	73.9
	Level of Service (LOS)	B	B	C	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	73.5	74.8	63.9	52.4	125.3	105.7
	Travel Speed, mph	35.3	34.6	28.8	35.1	28.8	34.2
	Through vol/cap Ratio	0.1	0.4	0.6	0.3	0.8	0.5
	Base Free Flow Speed (FFS), %	76.0	74.6	62.1	75.7	62.1	73.7
	Level of Service (LOS)	B	B	C	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	72.5	72.5	69.6	51.5	304.6	106.0
	Travel Speed, mph	35.8	35.8	26.5	35.7	11.9	34.1
	Through vol/cap Ratio	0.1	0.3	0.5	0.3	0.9	0.5
	Base Free Flow Speed (FFS), %	77.0	77.0	57.0	77.0	25.6	73.5
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	73.1	73.3	74.1	52.0	390.2	108.0
	Travel Speed, mph	35.5	35.3	24.9	35.4	9.3	33.5
	Through vol/cap Ratio	0.1	0.3	0.5	0.2	0.8	0.5
	Base Free Flow Speed (FFS), %	76.4	76.1	53.6	76.3	20.0	72.1
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	72.1	70.2	77.3	50.3	618.3	107.1
	Travel Speed, mph	35.9	36.9	23.8	36.6	5.8	33.8
	Through vol/cap Ratio	0.1	0.3	0.6	0.2	1.0	0.5
	Base Free Flow Speed (FFS), %	77.4	79.6	51.3	78.9	12.6	72.7
	Level of Service (LOS)	B	B	C	B	F	B

- Segment 1: 118th St to 98th St
    - Under background conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
    - Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 2: 98th St to Unser Blvd

- Under background conditions, the urban street segment is expected to operate at a level of service of E for one multi-peak period and level of service of F for one multi-peak during AM peak hour for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.
- Under build conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.

- Segment 3: Unser Blvd to Coors Blvd
  - Under background conditions, the urban street segment is expected to operate at a level of service of F for four and three multi-peak periods during AM and PM peak hours for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.
  - Under build conditions, the urban street segment is expected to operate at a level of service of F for four and three multi-peak periods during AM and PM peak hours for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.

HORIZON YEAR 2037

SIMULATION ANALYSIS OF SIGNALIZED INTERSECTIONS

Table 31 provided results from Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

Table 31: 2037 Horizon Year Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	20.8	C	0	200	EBL	46.3	D	107	525	EBL	30.7	C	47	670	EBL	24.0	C	19	500
	EBR	11.8	B	52	350	EBR	3.8	A	0	450	EBR	19.0	B	0	400	EBT	34.7	C	261	-
	EBT	25.3	C	46	-	EBT	15.2	B	134	-	EBT	47.7	D	606	-	EBT/R	34.5	C	297	-
	NBL	954.8	F	13980	250	NBL	33.9	C	74	420	NBL	36.5	D	20	420	NBL	229.9	F	1356	250
	NBR	858.9	F	0	500	NBR	16.2	B	44	335	NBR	66.5	E	481	295	NBR	62.5	E	107	-
	NBT	929.2	F	188	500	NBT	50.1	D	51	-	NBT	53.9	D	49	-	NBT	101.0	F	1013	-
	SBL	33.2	C	95	200	SBL	127.6	F	1436	900	SBL	1077.7	F	9584	1120	SBL	56.5	E	144	250
	SBT/R	20.7	C	229	-	SBR	17.5	B	152	870	SBR	409.0	F	44	425	SBT	40.9	D	151	-
	WBL	16.2	B	130	1200	SBT	37.1	D	45	-	SBT	643.3	F	142	-	SBT/R	41.3	D	241	-
	WBT/R	10.6	B	51	-	WBL	42.2	D	49	470	WBL	40.1	D	133	470	WBL	43.2	D	112	350
						WBR	2.6	A	0	635	WBR	3.9	A	18	1830	WBT	15.1	B	138	-
						WBT	31.7	C	297	-	WBT	21.6	C	212	-					
	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	25.7	C	19	200	EBL	367.9	F	1882	525	EBL	47.1	D	80	670	EBL	51.6	D	45	500
	EBR	4.2	A	0	350	EBR	32.5	C	0	450	EBR	7.5	A	0	400	EBT	32.9	C	197	-
	EBT	23.7	C	53	-	EBT	48.9	D	118	-	EBT	20.3	C	232	-	EBT/R	34.9	C	344	-
	NBL	1757.3	F	8332	250	NBL	34.4	C	72	420	NBL	32.8	C	17	420	NBL	539.3	F	5182	250
	NBR	1344.1	F	0	500	NBR	10.1	B	26	335	NBR	19.1	B	155	295	NBR	193.3	F	17	-
	NBT	1481.0	F	243	500	NBT	40.9	D	92	-	NBT	45.5	D	45	-	NBT	190.6	F	390	-
	SBL	33.8	C	41	200	SBL	38.7	D	153	900	SBL	983.1	F	7925	1120	SBL	60.5	E	173	250
	SBT/R	34.9	C	448	-	SBR	10.2	B	18	870	SBR	537.0	F	24	425	SBT	35.4	D	213	-
	WBL	13.9	B	48	1200	SBT	36.7	D	74	-	SBT	616.6	F	118	-	SBT/R	41.6	D	315	-
	WBT/R	10.5	B	42	-	WBL	68.9	E	156	470	WBL	32.5	C	243	470	WBL	217.1	F	1150	350
						WBR	1.0	A	0	635	WBR	4.7	A	77	1830	WBT	143.2	F	1383	-
						WBT	4.6	A	38	-	WBT	22.3	C	249	-					

From the tables above, the following is summarized:

- Dennis Chavez Blvd & 118th St
  - Capacity Analysis:
    - Horizon year conditions: The intersection is expected to operate at a level of service of F during 4 multi-peak periods in both the AM and PM peak hours. Failing individual movements in the AM peak hour were observed to be the northbound left,

northbound right, and northbound through movements LOS F. For the PM peak hour, failing movements are northbound left, northbound right, and northbound through movements LOS F.

- Queue Analysis:
  - Horizon year queue conditions: Queueing issues are expected for northbound left storage and northbound through storage for AM and PM peak hours.

- Dennis Chavez & 98th St
  - Capacity Analysis:
    - Horizon year conditions: The intersection is expected to operate at a level of service of F for three multi-peak periods and LOS E for one multi-peak period in the AM. For PM peak hour, the intersection is expected to operate at an acceptable level. Failing individual movements in the AM peak hour were observed to be the southbound left movement LOS F for one multi-peak period. Failing individual movements for PM peak hour include eastbound left movement LOS F for one multi-peak period and westbound left movement LOS E for one multi-peak period.
  - Queue Analysis:
    - Horizon year queue conditions: Queuing issues are expected in the AM southbound left storage. Queuing issues are expected in the for PM eastbound left storage.
- Dennis Chavez Blvd & Unser Blvd
  - Capacity Analysis:
    - Horizon year conditions: The intersection as a whole is expected to operate at LOS F for 4 multi-peak periods for both AM and PM peak hours. Worst case movements in the AM peak hour were expected to include southbound through, southbound left, and southbound right movements LOS F, and northbound right movement LOS E. For the PM peak hour, the southbound left, southbound right, and southbound through movements LOS F.
  - Queue Analysis:
    - Horizon year queue conditions: Queueing and overcapacity issues are expected in the AM for the northbound right storage and southbound left storage. Queuing issues are expected in the for PM southbound left storage.
- Dennis Chavez Blvd & Coors Blvd
  - Capacity Analysis:
    - Horizon year conditions: The intersection as a whole is expected to operate at LOS F for 4 multi-peak periods for both AM and PM peak hours. Failing individual movements for the AM peak include northbound through movement and northbound left movement LOS F, as well as the northbound right movement and southbound left movement LOS E. Failing individual movements for the PM peak include northbound through, northbound right, and northbound left movements LOS F, westbound left and westbound through movements LOS F, and southbound left movement LOS E.
  - Queue Analysis:
    - Horizon year queue conditions: Queueing issues are expected for northbound left storage in the AM peak hour. Overcapacity issues for the PM peak are also expected for the westbound left storage and northbound left storage.

HCS ANALYSIS OF STOP CONTROLLED INTERSECTIONS

Table 32 below summarizes stop controlled capacity analysis performed for 2037 Horizon Year conditions. HCS models and detailed capacity output sheets are included in the appendix. A summary of deficiencies by analysis scenario is provided on page 62.

Table 32: 2037 Horizon Year Stop Control Intersections Analysis Summary

Amole Mesa & Messina									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2037 Horizon Year	EBL/T	0.11	7.70	A	0.40	0.06	7.70	A	0.20
	SBL/T/R	0.14	11.50	B	0.50	0.27	11.30	B	1.10
Amole Mesa & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2037 Horizon Year	EBL	-	17.70	C	2.00	-	16.80	C	1.60
	EBT/R	-	11.60	B	0.50	-	11.80	B	0.40
	WBL/T/R	-	12.40	B	0.30	-	12.70	B	0.30
	NBL	-	11.70	B	0.50	-	13.30	B	0.90
	NBT	-	61.90	F	12.70	-	70.30	F	13.70
	NBR	-	9.70	A	0.20	-	9.80	A	70.30
	SBL	-	12.20	B	0.60	-	10.90	B	9.80
	SBT	-	15.50	C	2.00	-	19.00	C	10.90
	SBR	-	20.10	C	3.80	-	37.20	E	37.20
Colobel & 98th									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2037 Horizon Year	EBL/T/R	0.71	24.70	C	5.80	0.48	20.20	C	2.50
	NBL/T	0.08	9.10	A	0.20	0.18	9.80	A	0.70
Dennis Chavez & Condershire									
Scenario	Movement	AM				PM			
		v/c	Delay	LOS	95th Percentile Queue	v/c	Delay	LOS	95th Percentile Queue
2037 Horizon Year	EBL/T/R	0.03	9.80	A	0.10	0.13	16.50	C	0.50
	WBL/T/R	0.02	15.90	C	0.10	0.04	10.90	B	0.10
	NBL/T/R	8.68	4071.70	F	14.30	>100	>50000	F	>15.00
	SBL/T/R	3.99	1679.30	F	11.80	>3.0	>700	F	>15.00

- Amole Mesa Ave & Messina Dr
  - Capacity Analysis:
    - Horizon year conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS B or better in both the AM and PM peak hours.
  - Queue Analysis:

        - Horizon year queue conditions: No queueing issues are expected for movements affected by the development.
- Amole Mesa Ave & 98th St
    - Capacity Analysis:
        - Horizon year conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements except northbound through operating at a LOS F in both the AM and PM peak hours.
    - Queue Analysis:
        - Horizon year queue conditions: Queueing and overcapacity issues are expected for northbound through movement affected by the development.
- Colobel Ave & 98th St
    - Capacity Analysis:
        - Horizon year conditions: The intersection as a whole is expected to operate at an acceptable level of service with all movements operating at a LOS C or better in both the AM and PM peak hours.
    - Queue Analysis:
        - Horizon year queue conditions: Queueing and overcapacity issues are expected for the eastbound leg in the AM and PM peak hours during the horizon year.
- Dennis Chavez Blvd & Condershire Dr
    - Capacity Analysis:
        - Horizon year conditions: Similiar to background 2027, the intersection is expected to operate at a level of service F for all northbound and southbound approach movement.
    - Queue Analysis:
        - Horizon year queue conditions: Queueing and overcapacity issues are expected for the horizon year AM and PM peak hours for all northbound and southbound movement.

SEGMENT ANALYSIS

Table 33 provides an overall summary of the urban streets segment analysis for each direction of through travel between signalized intersections on Dennis Chavez Blvd for 2037 Horizon Year conditions. HCS models are included in the appendix.

Table 33: 2037 Horizon Year Streets Module Analysis Summary

	Dennis Chavez Blvd					
	Segment	118th to 98th		98th to Unser		Unser to Coors	
	Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
AM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	74.4	81.1	116.2	61.8	257.6	111.7
	Travel Speed, mph	34.8	31.9	15.8	29.8	14.0	32.3
	Through vol/cap Ratio	0.4	0.4	1.1	0.6	1.3	0.6
	Base Free Flow Speed (FFS), %	75.0	68.8	34.1	64.2	30.2	69.7
	Level of Service (LOS)	B	B	F	C	F	B
	Time Period 2: (15-min interval)						
	Travel Time, s	81.7	78.4	272.1	71.2	495.5	110.1
	Travel Speed, mph	31.7	33.0	6.8	25.9	7.3	32.8
	Through vol/cap Ratio	0.5	0.2	1.3	0.5	1.2	0.5
	Base Free Flow Speed (FFS), %	68.3	71.2	14.6	55.7	15.7	70.7
	Level of Service (LOS)	B	B	F	C	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	82.2	80.1	525.5	78.2	850.9	106.8
	Travel Speed, mph	31.5	32.3	3.5	23.5	4.3	33.9
	Through vol/cap Ratio	0.5	0.3	1.3	0.5	1.4	0.4
	Base Free Flow Speed (FFS), %	67.9	69.7	7.6	50.7	9.2	72.9
	Level of Service (LOS)	B	B	F	C	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	76.4	78.5	716.8	67.2	1016.8	106.6
	Travel Speed, mph	33.9	33.0	2.6	27.4	3.6	33.9
	Through vol/cap Ratio	0.4	0.3	1.1	0.3	1.2	0.4
	Base Free Flow Speed (FFS), %	73.0	71.1	5.5	59.1	7.7	73.0
	Level of Service (LOS)	B	B	F	C	F	B
PM Peak Hour	Time Period 1: (15-min interval)						
	Travel Time, s	74.5	80.9	53.1	53.1	128.7	109.3
	Travel Speed, mph	34.8	32.0	34.7	34.7	28.1	33.1
	Through vol/cap Ratio	0.2	0.4	0.5	0.3	0.9	0.7
	Base Free Flow Speed (FFS), %	75.0	69.0	74.7	74.7	60.5	71.2
	Level of Service (LOS)	B	B	B	B	C	B
	Time Period 2: (15-min interval)						
	Travel Time, s	72.1	80.4	76.1	54.0	388.0	106.5
	Travel Speed, mph	35.9	32.3	24.2	34.1	9.3	33.9
	Through vol/cap Ratio	0.2	0.4	0.6	0.3	0.9	0.4
	Base Free Flow Speed (FFS), %	77.4	69.5	52.1	73.4	20.1	73.1
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 3: (15-min interval)						
	Travel Time, s	72.3	80.5	75.3	54.5	511.6	110.6
	Travel Speed, mph	35.8	32.2	24.4	33.8	7.1	32.7
	Through vol/cap Ratio	0.2	0.3	0.5	0.3	0.9	0.5
	Base Free Flow Speed (FFS), %	77.2	69.3	52.7	72.8	15.2	70.4
	Level of Service (LOS)	B	B	C	B	F	B
	Time Period 4: (15-min interval)						
	Travel Time, s	70.2	79.7	77.9	50.6	762.1	100.7
	Travel Speed, mph	36.9	32.5	23.6	36.4	4.7	35.9
	Through vol/cap Ratio	0.2	0.3	0.7	0.1	1.1	0.3
	Base Free Flow Speed (FFS), %	79.5	70.1	50.9	78.4	10.2	77.3
	Level of Service (LOS)	B	B	C	B	F	B

- Segment 1: 118th St to 98th St
    - Under horizon year conditions, the urban street segment is expected to operate at an acceptable level of service during AM and PM peak hours in both the westbound through movement and eastbound through movement of traffic.
- Segment 2: 98th St to Unser Blvd
    - Under horizon year conditions, the urban street segment is expected to operate at a level of service of F for four multi-peak periods for the eastbound through movement. Westbound

through movement is expected to operate at an acceptable level of service during AM and PM peak hours.

- Segment 3: Unser Blvd to Coors Blvd
    - Under horizon year conditions, the urban street segment is expected to operate at a level of service of F for four and three multi-peak periods during AM and PM peak hours for eastbound through movement. Westbound through movement is expected to operate at an acceptable level of service during AM and PM peak hours.

Summary of Capacity & Queueing Deficiencies

The following table presents a summary of deficiencies for the study intersections based on HCS analysis results.

Table 34: Summary of Deficiencies

Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 AM Horizon Year
Dennis Chavez & 118th	NBL	E	-	F/F	-	F/F	-	F/F	-	F	F
	NBT	E	-	F/F	-	F/F	-	F/F	-	F	F
	NBR	-	-	F/F	-	F/F	-	F/F	-	F	F
	SBL	-	-	-	-	-	-	/E	-	-	-
Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 PM Horizon Year
Dennis Chavez & 98th	EBL	-	-	-	-	F/F	F/F	-	-	-	F
	EBT	-	-	-	-	-	E/E	-	-	-	-
	EBR	-	-	-	-	-	E	-	-	-	-
	WBL	-	-	-	E/E	E/E	E/E	-	E/E	-	E
	SBL	-	-	-	-	-	-	F/F	-	F	-
Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 PM Horizon Year
Dennis Chavez & Unser	EBL	-	-	-	-	-	/F	E/E	-	-	-
	EBT	-	-	-	E	-	-	F/F	E/E	-	-
	EBR	-	-	-	-	-	-	F/F	-	-	-
	NBR	-	-	-	-	-	-	/F	-	E	-
	SBL	-	-	F/F	F/F	F/F	F/F	F/F	F/F	F	F
	SBT	-	-	E/F	F/F	F/F	F/F	F/F	F/F	F	F
	SBR	-	-	F/F	F/F	F/F	F/F	F/F	F/F	F	F
Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 PM Horizon Year
Dennis Chavez & Coors	EBL	-	-	-	-	-	/E	-	-	-	-
	EBR	-	-	-	F	-	-	-	-	-	-
	WBL	-	E	-	F/F	-	E/F	-	F/F	-	F
	WBT	-	-	-	-	-	-	-	/E	-	F
	NBL	-	E	-	/F	E/F	F/F	F	F/F	F	F
	NBT	-	-	-	-	-	-	-	-	F	F
	NBR	-	-	-	-	-	-	-	-	E	F
	SBL	E	E	E/E	E/E	E	E/E	E	/E	E	E
Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 PM Horizon Year
Amole Mesa & 98th	NBT	-	-	-	-	-	/E	E/E	E/E	F	F
	SBR	-	-	-	-	-	-	-	-	-	E
Intersection	Movement	Scenario									
		AM Existing	PM Existing	2023 AM Background / Buildout	2023 PM Background / Buildout	2025 AM Background / Buildout	2025 PM Background / Buildout	2027 AM Background / Buildout	2027 PM Background / Buildout	2037 AM Horizon Year	2037 PM Horizon Year
Dennis Chavez & Condershire	NBL	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F
	NBT	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F
	NBR	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F
	SBL	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F
	SBT	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F
	SBR	F	F	F/F	F/F	F/F	F/F	F/F	F/F	F/F	F/F

CRASH SUMMARY & IHSDM PREDICTIVE CRASH METHOD

CRASH SUMMARY

Aggregate crash data were obtained for the study area for the most recently available five years of data. This included the years 2014 to 2018. Crashes were then summarized by year, type, lighting conditions, severity, and cause. To compare and summarize trends, crashes were grouped by major streets and divided into the following:

- Dennis Chavez Blvd
    - Dennis Chavez Blvd & 118th St
    - Between 118th St & 98th St
    - Dennis Chavez Blvd & 98th St
    - Between 98th St & Unser Blvd
    - Dennis Chavez Blvd & Unser Blvd
    - Between Unser Blvd & Condershire Dr
    - Dennis Chavez Blvd & Condershire Dr
    - Between Condershire Dr & Coors Blvd
    - Dennis Chavez Blvd & Coors Blvd
- 98th St
    - Between Dennis Chavez Blvd & Colobel Ave
    - 98th St & Colobel Ave
    - Between Colobel Ave & Amole Mesa Ave
    - 98th St & Amole Mesa Ave
- Amole Mesa Ave
    - Between 98th St & Messina Dr
    - Amole Mesa Ave & Messina Dr
    - Between Messina Dr & 118th St
- 118th St
    - Amole Mesa Ave & 118th St
    - Between Amole Mesa Ave & Dennis Chavez Blvd

DENNIS CHAVEZ BLVD CORRIDOR

Table 35 below summarizes crashes occurring along Dennis Chavez Blvd for the project area.

Table 35: Dennis Chavez Blvd Crash Summary

	Crash Summary	DENNIS CHAVEZ BLVD								
		Dennis Chavez Blvd & 118th St	Between 118th St & 98th St	Dennis Chavez Blvd & 98th St	Between 98th St & Unser Blvd	Dennis Chavez Blvd & Unser Blvd	Between Unser Blvd & Condershire Dr	Dennis Chavez Blvd & Condershire Dr	Between Condershire Dr & Coors Blvd	Dennis Chavez Blvd & Coors Blvd
	Total Crashes	40	7	24	1	36	0	18	2	280
By Year	2014	2	1	2	0	5	0	2	1	51
	2015	6	1	4	0	4	0	2	0	57
	2016	10	2	6	0	8	0	2	0	57
	2017	13	2	5	0	8	0	7	0	59
	2018	9	1	7	1	11	0	5	1	56
By Type	Fixed Object	2	0	2	0	4	0	1	0	11
	Invalid Code	3	0	2	0	6	0	0	0	19
	Left Blank	2	1	4	0	2	0	0	0	13
	Other (Non-Collision)	2	0	0	0	0	0	0	0	0
	Other (Object)	1	0	0	0	3	0	0	0	2
	Other Vehicle - All Others/Entering At Angle	1	0	2	0	2	0	2	0	19
	Other Vehicle - Both Going Straight/Entering At Angle	0	0	1	0	0	0	0	0	3
	Other Vehicle - Both Turn Left/Entering At Angle	0	0	0	0	0	0	0	0	0
	Other Vehicle - Both Turn Right/Entering At Angle	0	0	0	0	0	0	0	0	5
	Other Vehicle - From Opposite Direction	3	0	0	0	2	0	1	1	28
	Other Vehicle - From Opposite Direction/All Others	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Opposite Direction/Both Going Straight	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Opposite Direction/Head-On Collision	0	0	0	0	0	0	1	0	0
	Other Vehicle - From Opposite Direction/One Left Turn	2	1	0	0	0	0	0	0	8
	Other Vehicle - From Opposite Direction/Sideswipe Collision	0	0	0	0	0	0	1	0	2
	Other Vehicle - From Same Direction/All Others	0	0	0	0	1	0	0	0	1
	Other Vehicle - From Same Direction/Both Going Straight	5	0	4	0	2	0	5	0	42
	Other Vehicle - From Same Direction/Both Turn Left	0	0	0	0	0	0	0	0	1
	Other Vehicle - From Same Direction/Both Turn Right	0	0	0	0	0	0	0	0	3
	Other Vehicle - From Same Direction/One Left Turn	1	0	0	0	0	0	0	0	4
	Other Vehicle - From Same Direction/One Right Turn	0	0	1	0	0	0	0	0	1
	Other Vehicle - From Same Direction/One Stopped	0	0	2	0	3	0	0	1	15
	Other Vehicle - From Same Direction/Rear End Collision	6	1	4	1	6	0	3	0	45
	Other Vehicle - From Same Direction/Sideswipe Collision	2	2	0	0	1	0	1	0	8
	Other Vehicle - From Same Direction/Vehicle Backing	0	0	0	0	0	0	0	0	3
	Other Vehicle - One Left Turn/Entering At Angle	8	1	1	0	2	0	3	0	31
	Other Vehicle - One Vehicle/Leave Driveway Access	0	0	0	0	0	0	0	0	1
	Other Vehicle - One Vehicle/Making A U-Turn	0	1	0	0	0	0	0	0	0
	Other Vehicle - One Vehicle/Stopped Traffic	1	0	0	0	0	0	0	0	5
	Overturn/Rollover	0	0	1	0	2	0	0	0	4
	Parked Vehicle	0	0	0	0	0	0	0	0	4
	Pedalcyclist	0	0	0	0	0	0	0	0	0
	Pedestrian	0	0	0	0	0	0	0	0	1
	Vehicle on Other Road	1	0	0	0	0	0	0	0	1
	% Other Vehicle - From Same Direction	35%	43%	46%	100%	36%	0%	50%	50%	44%
	% Other Vehicle - From Opposite Direction	13%	14%	0%	0%	6%	0%	17%	50%	14%
	% Other Vehicle - One Left Turn/Entering At Angle	20%	14%	4%	0%	6%	0%	17%	0%	11%
By Lighting Conditions	Day	29	6	11	1	22	0	14	1	158
	Dawn/Dusk	2	0	2	0	2	0	0	0	12
	Dark	6	0	4	0	5	0	4	1	73
	Invalid Code/Not Specified	3	1	7	0	7	0	0	0	37
	% Day	73%	86%	46%	100%	61%	0%	78%	50%	56%
By Severity	PDO	28	5	19	0	21	0	9	1	211
	Injury	12	2	5	1	15	0	9	1	69
	Fatality	0	0	0	0	0	0	0	0	0
	% Property Damage Only	70%	71%	79%	0%	58%	0%	50%	50%	75%
	% Injury	30%	29%	21%	100%	42%	0%	50%	50%	25%
By Cause	Alcohol/Drug Involved	4	0	2	0	1	0	0	0	12
	Avoid No Contact - Other	0	0	1	0	1	0	0	0	1
	Avoid No Contact - Vehicle	1	0	0	0	2	0	0	0	11
	Defective Tires	0	0	0	0	1	0	0	0	0
	Disregarded Traffic Signal	4	1	0	0	2	0	0	0	12
	Driver Inattention	9	0	7	0	7	0	6	0	85
	Drove Left Of Center	1	0	0	0	0	0	1	0	2
	Excessive Speed	1	0	1	0	3	0	2	1	15
	Failed to Yield Right of Way	2	1	1	1	0	0	3	0	32
	Following Too Closely	4	2	1	0	5	0	3	1	33
	Improper Backing	0	0	0	0	2	0	0	0	4
	Improper Lane Change	2	1	0	0	0	0	0	0	5
	Improper Overtaking	0	1	0	0	0	0	0	0	1
	Inadequate Brakes	0	0	0	0	0	0	0	0	1
	Made Improper Turn	4	0	2	0	0	0	0	0	3
	Missing Data	4	1	6	0	7	0	1	0	41
	None	1	0	0	0	3	0	0	0	8
	Other - No Driver Error	2	0	1	0	0	0	0	0	3
	Other Improper Driving	0	0	0	0	1	0	0	0	1
	Other Mechanical Defect	0	0	0	0	0	0	0	0	3
	Passed Stop Sign	0	0	0	0	0	0	1	0	1
	Road Defect	0	0	0	0	0	0	0	0	1
	Speed Too Fast for Conditions	1	0	2	0	1	0	1	0	5
	% Driver Inattention	*23%*	*0%*	*29%*	*0%*	*19%*	*0%*	*33%*	*0%*	*30%*
	% Following Too Closely	*10%*	*29%*	*4%*	*0%*	*14%*	*0%*	*17%*	*50%*	*12%*
	% Failed to Yield Right of Way	*5%*	*14%*	*4%*	*100%*	*0%*	*0%*	*17%*	*0%*	*11%*
	% Excessive Speed	*3%*	*0%*	*4%*	*0%*	*8%*	*0%*	*11%*	*50%*	*5%*

From the table shown above, the following observations are made:

- Dennis Chavez Blvd &118th St
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 40 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 73% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 30% of the crashes reported involved injuries.
    - The most common cause of crashes is observed to be Driver Inattention.
- Between 118th St & 98th St
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 7 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 86% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 29% of the crashes reported involved injuries.
    - The most common cause of crashes is observed to be Following Too Closely.
- Dennis Chavez Blvd & 98th St
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 24 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 46% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 21% of crashes reported involved injuries.
    - The most common cause of crashes is observed to be Driver Inattention.
- Between 98th St & Unser Blvd
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 1 crash was reported.
    - The only crash at this intersection occurred during the daylight hours.
    - No fatal crashes were reported from 2014 to 2018. However, the only crash reported involved injuries.
    - The cause of the crash reported is observed to be Failed to Yield Right of Way.
- Dennis Chavez Blvd & Unser Blvd
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 36 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 36% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 42% of the crashes reported involved injuries.

    - The most common cause of crashes is observed to be Driver Inattention.
- Between Unser Blvd & Condershire Dr
    - No crashes were reported for this part of the corridor from 2014 to 2018.
- Dennis Chavez Blvd & Condershire Dr
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 18 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 78% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 50% of the crashes reported involved injuries.
    - The most common cause of crashes is observed to be Driver Inattention.
- Between Condershire Dr & Coors Blvd
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction and Other Vehicle - From Opposite Direction.
    - For the years 2014 to 2018, 2 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 50% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 50% of the crashes reported involved injuries.
    - The most common cause of crashes is observed to be Following Too Closely or Excessive Speed.
- Dennis Chavez Blvd & Coors Blvd
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 280 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 56% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 25% of the crashes reported involved injuries.
    - The most common cause of crashes is observed to be Driver Inattention.

Crashes Along Dennis Chavez Blvd (NM 500)

Data from Table 35 above shows that the majority of vehicular crashes along the Dennis Chavez Blvd (NM 500) corridor occurred in the same direction. Further analysis to identify any directional trends by time of day was conducted. Table 36 below summarizes the findings along Dennis Chavez (NM 500).

Table 36: Crashes in Same Direction Along Dennis Chavez Blvd (NM500)

Crashes along Dennis Chavez Blvd (NM 500)		Directional			
		*North	*South	West	East
Time of Day	Total	29%	26%	23%	22%
Day	71%	67%	65%	69%	77%
Dawn/Dusk	8%	6%	12%	11%	8%
Dark	21%	27%	23%	20%	15%
*North and south directional indicate crashes occurred on a minor street adjacent to Dennis Chavez Blvd (NM 500)					

From the table shown above the following observations are made:

- 71% of all crashes in the same direction happened on during the day, 21% happened at night, and 8% during dawn (sunrise) and dusk (sunset) hours.
- There were no obvious trends determined based on direction, as the highest amount of same direction crashes happened going northbound on intersecting minor roads at Dennis Chavez Blvd (NM 500).

98TH ST, AMOLE MESA AVE, AND 118TH ST

Table 37 below summarizes crashes occurring along 98th St, Amole Mesa Ave, and 118th St for the project area.

Table 37: 98th St, Amole Mesa Ave, and 118th St Crash Summary

	Crash Summary	98TH ST				AMOLE MESA AVE			118TH ST	
		Between Dennis Chavez Blvd & Colobel Ave	98th St & Colobel Ave	Between Colobel Ave & Amole Mesa Ave	98th St & Amole Mesa Ave	Between 98th St & Messina Dr	Amole Mesa Ave & Messina Dr	Between Messina Dr & 118th St	Amole Mesa Ave & 118th St	Between Amole Mesa Ave & Dennis Chavez Blvd
	Total Crashes	4	23	0	28	8	3	2	4	6
By Year	2014	0	4	0	4	1	1	1	0	2
	2015	1	6	0	9	1	1	0	0	0
	2016	0	5	0	2	0	1	0	3	2
	2017	2	1	0	5	2	0	1	0	2
	2018	1	7	0	8	4	0	0	1	0
By Type	Fixed Object	0	1	0	1	0	0	0	2	2
	Invalid Code	0	3	0	1	0	0	1	0	0
	Left Blank	0	2	0	0	1	0	0	0	0
	Other (Non-Collision)	0	0	0	1	0	0	0	0	0
	Other (Object)	1	0	0	0	0	0	0	0	0
	Other Vehicle - All Others/Entering At Angle	2	3	0	2	3	0	0	1	0
	Other Vehicle - Both Going Straight/Entering At Angle	0	1	0	0	0	1	0	0	0
	Other Vehicle - Both Turn Left/Entering At Angle	0	1	0	0	0	0	0	0	0
	Other Vehicle - Both Turn Right/Entering At Angle	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Opposite Direction	0	3	0	4	0	0	0	0	0
	Other Vehicle - From Opposite Direction/All Others	0	0	0	1	0	0	0	0	0
	Other Vehicle - From Opposite Direction/Both Going Straight	0	1	0	2	1	0	0	0	0
	Other Vehicle - From Opposite Direction/Head-On Collision	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Opposite Direction/One Left Turn	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Opposite Direction/Sideswipe Collision	0	0	0	1	0	1	0	0	0
	Other Vehicle - From Same Direction/All Others	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/Both Going Straight	0	2	0	3	0	0	0	0	1
	Other Vehicle - From Same Direction/Both Turn Left	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/Both Turn Right	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/One Left Turn	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/One Right Turn	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/One Stopped	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/Rear End Collision	0	3	0	2	1	0	0	1	1
	Other Vehicle - From Same Direction/Sideswipe Collision	0	0	0	0	0	0	0	0	0
	Other Vehicle - From Same Direction/Vehicle Backing	0	0	0	1	0	1	0	0	0
	Other Vehicle - One Left Turn/Entering At Angle	1	2	0	8	1	0	1	0	2
	Other Vehicle - One Vehicle/Leave Driveway Access	0	1	0	0	0	0	0	0	0
	Other Vehicle - One Vehicle/Making A U-Turn	0	0	0	0	0	0	0	0	0
	Other Vehicle - One Vehicle/Stopped Traffic	0	0	0	0	0	0	0	0	0
	Overturn/Rollover	0	0	0	0	1	0	0	0	0
	Parked Vehicle	0	0	0	0	0	0	0	0	0
	Pedalcyclist	0	0	0	1	0	0	0	0	0
	Pedestrian	0	0	0	0	0	0	0	0	0
	Vehicle on Other Road	0	0	0	0	0	0	0	0	0
	% Other Vehicle - From Same Direction	0%	22%	0%	21%	13%	33%	0%	25%	33%
	% Other Vehicle - From Opposite Direction	0%	17%	0%	29%	13%	33%	0%	0%	0%
	% Other Vehicle - One Left Turn/Entering At Angle	25%	9%	0%	29%	13%	0%	50%	0%	33%
By Lighting Conditions	Day	2	16	0	21	5	3	1	4	4
	Dawn/Dusk	0	1	0	0	0	0	0	0	0
	Dark	2	2	0	4	3	0	0	0	1
	Invalid Code/Not Specified	0	4	0	3	0	0	1	0	1
	% Day	50%	70%	0%	75%	63%	100%	50%	100%	67%
By Severity	PDO	3	14	0	12	6	3	1	4	5
	Injury	1	9	0	16	2	0	1	0	1
	Fatality	0	0	0	0	0	0	0	0	0
	% Property Damage Only	75%	61%	0%	43%	75%	100%	50%	100%	83%
	% Injury	25%	39%	0%	57%	25%	0%	50%	0%	17%
By Cause	Alcohol/Drug Involved	0	0	0	0	0	0	0	0	0
	Avoid No Contact - Other	0	0	0	1	0	0	0	0	0
	Avoid No Contact - Vehicle	0	0	0	0	0	0	0	0	0
	Defective Tires	0	0	0	0	0	0	0	0	0
	Disregarded Traffic Signal	0	1	0	0	1	1	0	0	0
	Driver Inattention	1	6	0	8	2	1	0	2	3
	Drove Left Of Center	0	0	0	0	1	1	0	0	0
	Excessive Speed	0	2	0	0	1	0	0	0	0
	Failed to Yield Right of Way	1	3	0	10	0	0	1	0	1
	Following Too Closely	1	4	0	2	1	0	0	0	1
	Improper Backing	0	0	0	1	0	0	0	0	0
	Improper Lane Change	0	0	0	0	0	0	0	0	0
	Improper Overtaking	0	0	0	0	0	0	0	0	0
	Inadequate Brakes	0	0	0	0	0	0	0	0	0
	Made Improper Turn	0	0	0	0	0	0	0	0	1
	Missing Data	0	5	0	3	1	0	1	1	0
	None	1	0	0	0	0	0	0	1	0
	Other - No Driver Error	0	2	0	0	0	0	0	0	0
	Other Improper Driving	0	0	0	0	0	0	0	0	0
	Other Mechanical Defect	0	0	0	0	0	0	0	0	0
	Passed Stop Sign	0	0	0	3	1	0	0	0	0
	Road Defect	0	0	0	0	0	0	0	0	0
	Speed Too Fast for Conditions	0	0	0	0	0	0	0	0	0
	% Driver Inattention	25%	26%	0%	29%	25%	33%	0%	50%	50%
	% Following Too Closely	25%	17%	0%	7%	13%	0%	0%	0%	17%
	% Failed to Yield Right of Way	25%	13%	0%	36%	0%	0%	50%	0%	17%
	% Excessive Speed	0%	9%	0%	0%	13%	0%	0%	0%	0%

From the table shown above, the following observations are made:

- Between Dennis Chavez Blvd & Colobel Ave:
    - The most common classification of a vehicle crash is observed to be Other Vehicle - All Others/Entering At Angle.
    - For the years 2014 to 2018, 4 crashes were reported.
    - Two crashes were reported during the day, and two crashes were reported at night.
    - No fatal crashes were reported from 2014 to 2018. However, 25% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Driver Inattention, Following Too Closely, and Failed to Yield Right of Way.
- 98th St & Colobel Ave:
    - The most common classification of a vehicle crash is observed to be Other Vehicle - From the Same Direction.
    - For the years 2014 to 2018, 23 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 70% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 39% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Driver Inattention.
- Between Colobel Ave & Amole Mesa Ave:
    - No crashes were reported for this part of the corridor from 2014 to 2018.
- 98th St & Amole Mesa Ave:
    - The most common classifications of vehicle crashes are observed to be Other Vehicle - From Opposite Direction and Other Vehicle - One Left Turn/Entering At Angle.
    - For the years 2014 to 2018, 28 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 75% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 57% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Failed to Yield Right of Way.
- Between 98th St & Messina Dr:
    - The most common classifications of vehicle crashes are observed to Other Vehicle - From the Same Direction, Other Vehicle - From Opposite Direction, or Other Vehicle - One Left Turn/Entering At Angle.
    - For the years 2014 to 2018, 8 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 63% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 25% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Driver Inattention.
- Amole Mesa Ave & Messina Dr:
    - The most common classifications of vehicle crashes are observed to Other Vehicle - From the Same Direction, Other Vehicle - From Opposite Direction, or Other Vehicle - Both Going Straight/Entering At Angle.

    - For the years 2014 to 2018, 3 crashes were reported.
    - All of the crashes at this intersection occurred during the daylight hours.
    - No fatal or injury-related crashes were reported from 2014 to 2018.
    - The most common causes of crashes are observed to be Driver Inattention.
- Between Messina Dr & 118th St:
    - The most common classifications of vehicle crashes are observed to Other Vehicle - One Left Turn/Entering at Angle.
    - For the years 2014 to 2018, 2 crashes were reported.
    - One crash occurred during the daylight hours totaling 50% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 50% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Failed to Yield Right of Way.
- Amole Mesa Ave & 118th St:
    - The most common classifications of vehicle crashes are observed to Fixed Object.
    - For the years 2014 to 2018, 4 crashes were reported.
    - All of the crashes at this intersection occurred during the daylight hours.
    - No fatal or injury crashes were reported from 2014 to 2018.
    - The most common causes of crashes are observed to be Driver Inattention.
- Between Amole Mesa Ave & Dennis Chavez Blvd:
    - The most common classifications of vehicle crashes are observed to be Other Vehicle - From Same Direction and Other Vehicle - One Left Turn/Entering At Angle.
    - For the years 2014 to 2018, 6 crashes were reported.
    - A majority of the crashes at this intersection occurred during the daylight hours totaling 67% of crashes.
    - No fatal crashes were reported from 2014 to 2018. However, 17% of the crashes reported involved injuries.
    - The most common causes of crashes are observed to be Driver Inattention.

Highway Safety Manual Predictive Crash Method

Using existing roadway configurations and existing traffic conditions, an Interactive Highway Safety Design Manual (IHSDM) model, based on Highway Safety Manual Safety Performance Functions (SPF), was developed for the intersections of Dennis Chavez Blvd & 118th St, Dennis Chavez Blvd & 98th St, Dennis Chavez Blvd & Unser Blvd, Dennis Chavez & Condershire Dr, and Dennis Chavez & Coors Blvd. Crash rates and total expected crash frequencies were predicted for a 5-year period to be consistent with historical crash data review period in the previous section. Table 38 shows the results of the IHSDM analysis and compares the calculated results to crash data detailed in the intersection crash analysis section of this report. The following intersections were not analyzed because Average Annual Daily Traffic data is not available for local roadways: 98th & Colobel Ave, 98th & Amole Mesa Ave, and Amole Mesa Ave & Messina Dr. Output sheets from the IHSDM software can be found in the Appendix.

Table 38: IHSDM Predictive Crash Analysis

Location	IHSDM Analysis		Crash Data (From Intersection Crash Summary)	
	Predicted Total Crashes in 5 Year Period	Predicted No. of Crashes/Year	Total Crashes in 5 Year Period	Average Crash Rate (crashes/year)
Dennis Chavez Blvd & 118th St	22.64	4.53	40	8
Dennis Chavez Blvd & 98th St	23.36	4.67	24	5
Dennis Chavez Blvd & Unser Blvd	29.94	5.99	36	7
Dennis Chavez & Condershire Dr	19.87	3.97	18	4
Dennis Chavez & Coors Blvd	264.22	52.84	280	56

As shown in Table 38, the intersections are observed to have slightly higher actual crash rates and total crashes than are predicted by the IHSDM software. It is noted that IHSDM software uses various factors as default inputs that are based on national trends, and the state of New Mexico has not yet developed local calibration adjustments. This lack of calibration would explain some of the differences between observed and predicted crash frequencies. In addition, the predictive model is focused primarily on the volume of demand, traffic control, and lane geometry. However, it does not account for other local factors that may impact crash frequency.

DEVELOPMENT SITE SIGHT SPECIFIC OBSERVATIONS AND RECOMMENDATIONS

SITE ACCESS SIGHT DISTANCE EVALUATION

The following presents a narrative detailing recommended intersection sight distance requirement for the development. Intersection sight distance requirements were calculated based on the 2018 AASHTO "Green Book" chapter 9.5. Two sight distance cases were used for this analysis:

- Case B1 – A stopped vehicle turning left from a minor street approach onto a major road.
- Case B2 – A stopped vehicle turning right from a minor street approach onto a major road.

Intersection sight distances were calculated based on the following assumptions:

- Required intersection sight distance for Case B1 at all four access driveways were calculated based on the design vehicle crossing a single lane of traffic and median two-way left turn lane on an undivided roadway.
- Required intersection sight distance for Case B2 at all four access driveways were calculated based on the design vehicle crossing into the nearest lane of traffic.

Due to the nature of this development, a single passenger vehicle was used as the design vehicle. Values shown below in Table 39 were rounded up to the nearest 5-foot increment. Formulas, values, and calculations used in the sight distance analysis can be found in the appendix.

Table 39: Sight Distance Requirements

Case	Location	Speed	Sight Distance
Case B1 – Turning Left	Both Driveways on Amole Mesa	30 MPH	335 FT
Case B2 – Turning Right	Both Driveways on Amole Mesa	30 MPH	290 FT
Case B1 – Turning Left	Access Driveway on 118th	30 MPH	335 FT
Case B2 – Turning Right	Access Driveway on 118th	30 MPH	290 FT
Case B1 – Turning Left	Access Driveway on Colobel	30 MPH	335 FT
Case B2 – Turning Right	Access Driveway on Colobel	30 MPH	290 FT

Using the values shown above, it is recommended that all development driveways adhere to the sight distance provisions detailed in the AASHTO "Green Book." An area bounded by the above sight distances with the decision point placed 14.5 feet back from the edge of the shoulder midway between the outbound driving lane should be maintained clear of any obstructions.

Turn Lane Analysis

Per the City of Albuquerque in affect at the time of this study and plat submission, NMDOT auxiliary lane warrants were reviewed for the site access driveway(s). Table 17.B-2 was used to determine if auxiliary lanes are warranted for site access points on non-residential roads (118th St), and formula 9-1 was used to determine deceleration length and taper length, if applicable. Furthermore, ultimate cross-section of 118th St is understood to be 4-lanes categorizing 118th St as multi-lane urban highway per the SAMM. The results of this analysis are shown below in Table 40. 2027 Full-Build turning movement volumes and full build-out trips were used in the analysis. It is noted that a southbound left turn lane has been previously constructed for the 4-lane configuration of 118th St.

Table 40: Auxiliary Lane Analysis

Turning Lane	Turning Volume AM(PM)	Through Volume AM(PM)	Warrant Result (Table 17.B-2)	Required Deceleration Length (per Table 18.K-1)	Required Taper Length (per Table 18.K-1)
NBR at Aspire Way/118th Driveway	14(47)	19(64)	Not Required	N/A	N/A

Based on the above table, auxiliary lanes are not required at the site access driveway on 118th St.

Signal Warrant Analysis

A planning level signal warrant analysis based on traffic volumes has been completed for the intersection of 98th St and Amole Mesa using current (adjusted) traffic volumes and forecasted traffic volumes with site trips according to the procedures set forth in the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* for warrants 1 and 2 to analyze the effects of current and future traffic volumes on the intersection. It is noted that the analyses performed were performed using adjusted and forecasted data that do not meet MUTCD data stipulations to definitively determine the need for a traffic signal. MUTCD recommends that non adjusted or forecasted traffic counts be collected as the need for a traffic signal is evaluated.

The following table presents the results for the scenarios:

98th St & Amole Mesa	2009 MUTCD Warrants Satisfied									
	Warrant 1 (8 Hour)	Warrant 2 (4 Hour)	Warrant 3B (Peak Hour)	Warrant 4 (Pedestrian)	Warrant 5 (School Crossing)	Warrant 6 (Coordinated Signal System)	Warrant 7 (Crash)	Warrant 8 (Roadway Network)	Warrant 9 (Intersection Near a Grade Crossing)	All-Way Stop Control
2020 Existing Conditions	✘	✘	Not Analyzed							
2027 without Site Trips	✘	✘								
2027 with Site Trips	✓	✓								
2037 Horizon (no site trips)	✓	✘								
✘ Not Satisfied										
✓ Satisfied										

Figure 14: Planning Level Signal Warrant Analysis

As summarized above, a traffic signal is not warranted undercurrent (adjusted) traffic volumes but could be warranted in the future as traffic volumes grow. It is therefore recommended that, if desired, a true traffic signal warrant analysis be performed in the future and when traffic volumes return to non-COVID-19 conditions. It is noted that the MUTCD requires a full signal warrant analysis using un-forecasted and un-adjusted traffic volumes to be satisfied prior to the activation of a traffic signal.

CAPACITY MITIGATIONS AND STREET IMPROVEMENTS

As shown in the capacity analysis, a general corridor-wide capacity issue is observed to exist on Dennis Chavez Blvd. This contributes to poor levels of service on both Dennis Chavez Blvd and side streets, restricting possible near-term improvements as any additional auxiliary lanes feeding Dennis Chavez Blvd would not have receiving lanes departing the intersections. Currently, Dennis Chavez Blvd is shown in the MRCOG 2040 plan to be widened with an additional eastbound and westbound travel lane; however, funding has not yet been programmed in the current STIP. Widening of Dennis Chavez would be anticipated to include additional eastbound and westbound travel lane(s) and thereby have significant impacts at each traffic signal and intersection. Additional lanes would mitigate poor levels of service and allow for auxiliary lanes to be constructed at intersections. It is therefore recommended that the NMDOT & Bernalillo County consider developing a future project to widen Dennis Chavez Blvd. It should be noted that these overcapacity conditions, specifically due to lack of through capacity on Dennis Chavez Blvd, carry through all phased build-out analyses and thus, the proposed Aspire Development is not solely responsible for those associated movements and intersections operating at an unacceptable LOS and/or over capacity. As a widening project on Rio Bravo has not been developed or funded, capacity analysis did not consider additional lanes on Rio Bravo or at the Dennis Chavez Blvd & Coors Blvd intersection in intersection geometries. The following table and paragraph below details capacity mitigations and recommendations for each intersection.

Dennis Chavez Blvd & 118th St

Under full build and mitigated conditions, the intersection as a whole is expected to operate at acceptable levels of service. However, several capacity issues are expected for individual movements. These include the northbound left turn, northbound through, northbound right, and southbound through movements. It is therefore recommended that the traffic signal be periodically re-timed and adjusted as developments in the surrounding area are constructed. When performing the capacity analysis, operating the signal as uncoordinated provided the best results. However, for northbound movement though still showed failing conditions. Results are shown below in Table 41. It is also noted that the development does not contribute traffic to the northbound left and right movements. Additional through lanes and right turn lanes are not recommended at this intersection as receiving lanes is not currently present departing the intersection. Additionally, it is understood that Bernalillo County is in the process of designing minor signal improvements to add flashing yellow arrow left turns at the intersection. However, the details of this project are not currently finalized. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 7% (170 trips generated / 2608 total peak hour vehicles) during the AM peak and 16% (226 trips generated / 1413 total peak hour vehicles) during the PM peak.

Dennis Chavez Blvd & 98th St

Under full build conditions, the intersection as a whole is shown to operate at acceptable levels of service. However, capacity issues are expected for the southbound left. Under mitigated conditions, the entire southbound movement experienced a failing LOS caused by left lane queueing restricting through and right movement. To mitigate, it would be recommended that an additional southbound left-turn lane be constructed, however, current receiving lanes on Dennis Chavez Blvd prevent the construction of this mitigation. It is recommended that the traffic signal to be re-timed upon completion of construction. Furthermore, in comparison to full build results, eastbound movement under optimized and mitigated conditions from 98th to Unser simulation showed long delays and queuing. As previously mentioned, roadway widening of the eastbound and westbound travels lanes on Dennis Chavez Blvd would mitigate this issue but should be completed as a widening to the entire corridor.

It is understood that a construction project to add additional lanes at 98th & Dennis Chavez Blvd is currently underway as part of the Ceja Vista development. Current construction efforts are widening the intersection to accommodate additional lane geometry, including a southbound left-turn auxiliary lane, eastbound and westbound through lanes, and northbound lanes. It is understood that while the project is constructing an additional southbound left turn lane, the additional lanes will not have receiving lanes on Dennis Chavez Blvd outside of the intersection and, therefore, will not be activated until Dennis Chavez is widened. Auxiliary lanes are being constructed therefore satisfy the above recommendation. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 6% (172 trips generated / 2728 total peak hour vehicles) during the AM peak and 10% (231 trips generated / 2416 total peak hour vehicles) during the PM peak. Mitigated results are shown below in Table 41.

Dennis Chavez Blvd & Unser Blvd

Under full build conditions, the intersection as a whole is expected to operate at acceptable levels of service. However, capacity issues are expected for the southbound left and turns. It is therefore recommended that an additional southbound left turn auxiliary lane be constructed at the intersection. Currently, space exists between the southbound right turn lane and the southbound left-turn lane that could be used as an additional left-turn lane. To accommodate the additional southbound left turn lane, it is recommended that the westbound approach be re-striped moving back existing stop bar and adding additional pavement to receiving eastbound legs will allow for both left south bound left turns to make dual movement. Furthermore, extending eastbound left storage bay to 400’ by restriping lanes will provide more capacity. Concept drawing

with roadway re-configuration is shown below in Figure 15. It is noted that the development does not contribute traffic to the southbound left turn movement. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 5% (172 trips generated / 3616 total peak hour vehicles) during the AM peak and 6% (231 trips generated / 4034 total peak hour vehicles) during the PM peak. Results are shown below in Table 41.

Figure 15. Unser Blvd Roadway Re-Configuration Concept Drawing

Dennis Chavez & Condershire Blvd

No recommended improvements as deficiencies exist under 2020 conditions, and the development is not anticipated to contribute traffic to the failing side-street movements. The addition of sidewalks and bike facilities should be considered to meet current street element dimensions set forth by DPM. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 6% (147 trips generated / 2445 total peak hour vehicles) during the AM peak and 7% (196 trips generated / 2714 total peak hour vehicles) during the PM peak.

Dennis Chavez & Coors Blvd

As shown in the HCS analysis and Simulation analysis for full build conditions, the intersection as a whole is expected to operate at acceptable levels of service. However, capacity issues are expected for the following movements:

- Eastbound left
- Eastbound right
- Westbound left
- Westbound through
- Northbound left
- Northbound through
- Northbound right
- Southbound left

Therefore, the following recommendations are made:

- For the eastbound left, it is recommended that the signal be re-timed with the completion of other improvements at this intersection. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the eastbound through/right turn lane, it is recommended that a dedicated right turn auxiliary lane be constructed and restriping and removing chevron median markings to add additional eastbound through lane. Additionally, for the newly-created right turn lane it is recommended that the sweeping portion of the turn be modified to remove the curvature as much as possible. The development's traffic volume contribution to this movement, based on the fully constructed development, is calculated to be approximately 4.82% of the movement's total combined peak hour traffic volume (53 total peak trips / 1,100 total peak hour vehicles).
- For the westbound left turn, it is recommended that additional capacity be added by restriping existing pavement, currently configured as a chevron striped median between the through and left-turn lane, into an additional left-turn lane. It is also recommended that signal control for this movement be changed from protected-permitted to protected only because of sight distance restrictions.
- For the westbound through, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the northbound left turn, it is recommended that the storage capacity be extended to approximately 400' by to reconfiguring median south of the intersection to a "back-to-back" curb configuration. Possibility exists to add an additional turn lane and construct a merge point west of the intersection; however, this could cause additional safety issues and traffic slow-downs due to vehicles merging on a high-speed roadway. Therefore, dual left-turn lanes for the north to west movement are not recommended until Dennis Chavez has been widened to accommodate dual movements.
- For the northbound through, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that recommendations below for other movements will allow additional green time to be distributed around the signal.
- For the southbound left, it is recommended that the signal be re-timed with the completion of other improvements. It is noted that the southbound left-turn current utilizes dual-auxiliary lanes, and recommendations to add additional capacity for other movements would free additional green time at the traffic signal that could be added to the southbound left-turn movement.

Concept drawing Coors Blvd with roadway re-configuration is shown below in Figure 16. In addition to the previously mentioned roadway improvements and mitigation, signal timing was optimized using Transmodeler software. Simulation under mitigated and optimized conditions showed improved AM peak conditions to be operating at LOS D or better. For PM conditions analysis showed slightly better results but similar failure to northbound left movement. Results are shown below in Table 41. It is noted that several movements show LOS E or F in the AM and PM peak hours. No further mitigations are recommended at this time as no receiving lane is present for an additional lane and, as stated previously, is attributed to a regional traffic issue. Furthermore, the addition of sidewalks and bike facilities should be considered to meet current street element dimensions set forth by the 2020 City of Albuquerque Development Process Manual (DPM). Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 4% (147 trips generated / 4167 total peak hour vehicles) during the AM peak and 4% (196 trips generated / 4916 total peak hour vehicles) during the PM peak.

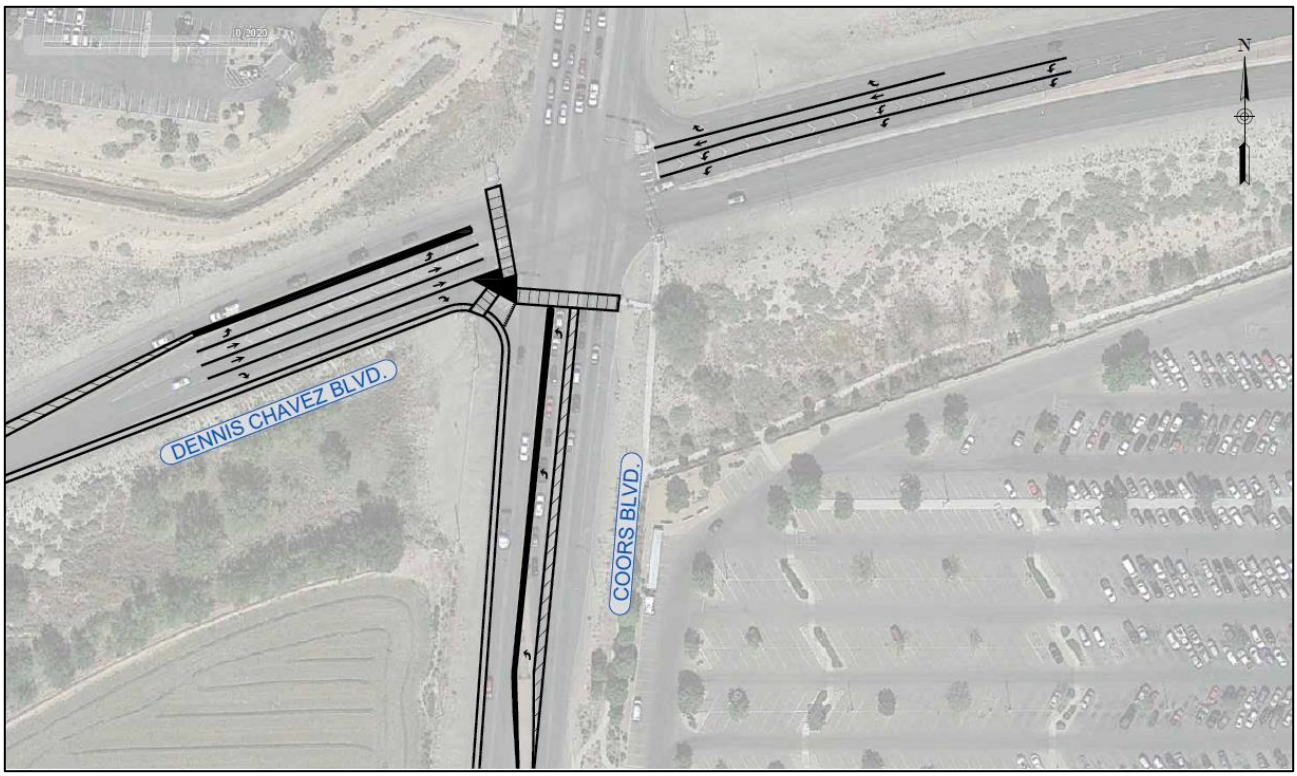

Figure 16. Coors Blvd Roadway Re-Configuration Concept Drawing

98TH ST & AMOLE MESA AVE

It is recommended that a traffic signal warrant analysis be performed for the intersection once traffic volumes return to non-COVID conditions. As previously stated, a traffic signal could be warranted in the future as traffic volumes grow. If future operation of intersection becomes unacceptable but does not warrant a traffic signal, then a two-lane roundabout should be considered. Construction of multi-lane roundabout could pose challenges geometrically. Furthermore, cost-to-benefit of installing a roundabout should be examined. See the signal warrant section for more details. See the signal warrant section for more details. Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 9% (105 trips generated / 1183 total peak hour vehicles) during the AM peak and 11% (141 trips generated / 1325 total peak hour vehicles) during the PM peak.

98TH ST & COLOBEL AVE

Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 8% (90 trips generated / 1082 total peak hour vehicles) during the AM peak and 10% (121 trips generated / 1215 total peak hour vehicles) during the PM peak. No recommended improvements.

AMOLE MESA AVE & MESSINA DR

Under 2027 full-build conditions the developments share of contribution to traffic volumes at this intersection is projected to be 33% (131 trips generated / 395 total peak hour vehicles) during the AM peak and 35% (175 trips generated / 506 total peak hour vehicles) during the PM peak. No recommended improvements.

ANALYSIS OF 2027 MITIGATED CONDITIONS

The following presents a capacity and queueing analysis of the recommended mitigations for intersections on Dennis Chavez Blvd as detailed in the previous section of this report.

Transmodeler analysis was performed to included mitigated conditions based on resolve of additional improvements. In addition to roadway re-configuration, signals in the study corridor of Dennis Chavez Blvd were optimized. Table 41 provided results from Transmodeler Traffic Simulation for AM and PM peak hours. Simulation models are included in the appendix.

Table 41: 2027 Mitigated Transmodeler Simulation Analysis Summary

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
AM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	19.9	B	13	200	EBL	91.0	F	265	525	EBL	168.2	F	103	450	EBL	21.9	C	24	500
	EBR	9.2	A	26	350	EBR	22.8	C	0	450	EBR	147.5	F	0	400	EBT	28.0	C	207	-
	EBT	27.5	C	61	-	EBT	76.9	E	1082	-	EBT	186.8	F	1835	-	EBR	6.9	A	70	500
	NBL	325.1	F	229	250	NBL	37.9	D	97	420	NBL	34.0	C	33	420	NBL	38.9	D	279	400
	NBR	288.9	F	2	500	NBR	37.9	D	95	335	NBR	39.2	D	342	295	NBR	16.7	B	84	-
	NBT	491.6	F	2041	500	NBT	54.9	D	46	-	NBT	50.8	D	45	-	NBT	36.1	D	168	-
	SBL	44.9	D	125	200	SBL	324.7	F	3804	900	SBL	52.2	D	298	1500	SBL	53.9	D	166	250
	SBT/R	15.3	B	123	-	SBR	128.3	F	77	870	SBT/R	21.5	C	100	425	SBT	50.2	D	178	-
	WBL	44.1	D	245	1200	SBT	156.1	F	3	-	WBL	49.4	D	169	470	SBT/R	50.5	D	192	-
	WBT/R	13.2	B	74	-	WBL	51.0	D	3	470	WBR	5.3	A	27	1830	WBL	42.5	D	46	1000
						WBR	7.4	A	15	635	WBT	35.3	D	321	-	WBT	29.1	C	159	-
						WBT	38.6	D	440	-										

	Dennis Chavez & 118th					Dennis Chavez & 98th					Dennis Chavez & Unser					Dennis Chavez & Coors				
PM Peak Hour	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)	Movement	Delay (s/veh)	LOS	95th % Length (ft)	Storage Length (ft)
	EBL	15.3	B	18	200	EBL	53.4	D	277	525	EBL	133.3	F	75	450	EBL	51.8	D	69	500
	EBR	5.0	A	0	350	EBR	5.6	A	17	450	EBR	124.4	F	1	400	EBT	11.7	B	167	-
	EBT	15.0	B	43	-	EBT	19.3	B	213	-	EBT	176.1	F	1648	-	EBR	26.7	C	91	500
	NBL	52.8	D	114	250	NBL	35.0	C	83	420	NBL	38.2	D	33	420	NBL	302.4	F	1205	400
	NBR	4.1	A	0	500	NBR	13.8	B	41	335	NBR	19.0	B	138	295	NBR	34.2	C	20	-
	NBT	34.0	C	129	500	NBT	43.4	D	76	-	NBT	46.8	D	45	-	NBT	67.3	E	497	-
	SBL	28.9	C	51	200	SBL	38.4	D	147	900	SBL	41.5	D	196	1500	SBL	63.7	E	110	250
	SBT/R	19.4	B	142	-	SBR	11.7	B	25	870	SBT/R	32.5	C	117	425	SBT	53.4	D	288	-
	WBL	5.7	A	17	1200	SBT	39.0	D	69	-	WBL	45.9	D	355	470	SBT/R	71.6	E	375	-
	WBT/R	4.1	A	20	-	WBL	64.8	D	143	470	WBR	6.6	A	51	1830	WBL	50.3	D	174	1000
						WBR	1.9	A	135	635	WBT	23.3	C	305	-	WBT	44.8	D	398	-
						WBT	14.4	B	8	-										

From the tables above, the following is summarized:

- Dennis Chavez Blvd & 118th St *(No physical roadway improvements/mitigations were included at this intersection)*
    - Capacity Analysis:
        - Optimized conditions had failing individual movements in the AM peak hour and were observed to be northbound left, northbound through, and northbound right movements LOS F. For PM peak hour, the optimized intersection, is expected to operate at an acceptable LOS.
    - Queue Analysis:
        - Optimized queue conditions, 95th percentile lengths are observed to be over capacity in the AM for the northbound through storage. No queueing issues are expected for movements affected by the development in the PM peak hour.
- Dennis Chavez & 98th St *(No physical roadway improvements/mitigations were included at this intersection)*
    - Capacity Analysis:

        - Optimized conditions had failing individual movements in the AM peak hour and were observed to be the eastbound through movement LOS E, eastbound left movement, and all southbound movement LOS F. For PM peak hour, the optimized intersection, is expected to operate at an acceptable LOS.
    - Queue Analysis:
        - Optimized queue conditions, 95th percentile lengths are observed to be over capacity in the AM for the southbound left storage. No queueing issues are expected for movements affected by the development in the PM peak hour.
- Dennis Chavez Blvd & Unser Blvd
    - Capacity Analysis:
        - Mitigated and optimized conditions had failing individual movements in the AM were observed to be all eastbound movement operating at LOS F. Similar to AM conditions, failing individual movements in the PM were observed to be the eastbound through movement at LOS F.
    - Queue Analysis:
        - Mitigated and optimized conditions, 95th percentile is observed to have no queueing issues for expected for movements affected by the development in the AM and PM peak hour.
- Dennis Chavez Blvd & Coors Blvd
    - Capacity Analysis:
        - Mitigated and optimized conditions had individual movements in the AM peak hours are observed to operate at an acceptable LOS. Failing individual movements in the PM peak hour include northbound left movement LOS F, northbound through, southbound left, and southbound right movement LOS E.
    - Queue Analysis:
        - Mitigated and optimized conditions, 95th percentile is observed to have no queueing issues for expected for movements affected by the development in the AM. 95th percentile lengths in the PM are observed to be over capacity for northbound left storage.

LEE ENGINEERING

8220 San Pedro Drive NE, Suite 150
Albuquerque, NM 87113

505) 338-0988

www.leeengineering.com