New Mexico DEPARTMENT OF TRANSPORTATION

September 20, 2021

Mr. Jonathan Kruse, PE, PTOE
Lee Engineering, LLC
8220 San Pedro Drive NE, Suite 150
Albuquerque, NM 87113

Subject: Aspire Subdivision Traffic Impact Study
Southeast quadrant of 118th Street and Amole Mesa Ave., North of NM 500
Albuquerque, Bernalillo County, New Mexico

Dear Mr. Kruse:

This letter is to inform you that the **FINAL** Traffic Impact Study (TIS) for the proposed Aspire Subdivision located on north of NM 500 on the southeast quadrant of 118th Street and Amole Mesa Ave. dated June 2021 has been reviewed.

The NMDOT has no objection to the proposed development located on the on the southeast quadrant of 118th Street and Amole Mesa Ave. as shown in Exhibit A. Based on this TIS the proposed recommendations have been made for this development, these can be found in Exhibit B. NMDOT gives final concurrence of this development given the conditions below are met.

1. At NM 500 and Unser Blvd., the development shall install the following off-site improvements:
    a. A second southbound left turn via eradication and restriping.
    b. A second receiving through lane on the eastbound departure side of the intersection at a length of 550-feet including 170-foot taper via restriping and pavement extension.
    c. Extend the eastbound left lane via eradication and restriping.

2. At NM 500 and NM 45, the development shall install the following off-site improvements:
    a. Extend the northbound left lane on NM 45. Split storage lane with La Monica Blvd.
    b. Install second westbound left lane via eradication of hatching and restriping.
    c. Install second eastbound through lane via eradication of hatching and restriping. Eradication of all eastbound striping is expected with this effort.
    d. Install dedicated eastbound right lane via eradication and restriping.

e. Signal improvements associated with the additional second westbound left resulting in conversion of westbound and eastbound left turns converted from protected-permissive to protected left turns only.
f. Signal improvements to include retiming of the signal with restriping improvements.

3. The NMDOT shall provide final approval on the design for the offsite improvements. The developer shall agree to incorporate all the comments requested by the NMDOT.

In addition to the TIA, all improvements are based on other factors, including but not limited to, the State Access Management Manual (SAMM) design criteria, Pedestrian Right of Way Accessibility Guidelines (PROWAG), roadway design references and any local jurisdiction planning documents.

The following information will be required in combination with the approval of the development:

a. All geometric details associated with the proposed offsite improvements as shown in Exhibit B must be approved by the NMDOT. Any schematic layout(s) for the proposed improvements that is contained in the report is for informational purposes only and should not be considered as an approved final design. These proposed improvements may include, but are not limited to:

- Acceleration/deceleration lanes
- Roadway widening
- Traffic signal

b. Detailed construction plans, including traffic control plans, for the proposed roadway improvements shall be submitted to Margaret Haynes, P.E at Margaret.Haynes@state.nm.us prior to any driveway application submittals. The roadway design shall be compliant with proposed right-of-way accessibility guidelines (PROWAG) for pedestrian facilities.

c. Grading and drainage plans, shall be submitted with the driveway application for review and approval by Mr. Timothy Trujillo, PE District 3 Engineer. Mr. Trujillo can be reached at TimothyR.Trujillo@state.nm.us

d. Cultural resource approval will need to be obtained from Ms. Miller for disturbance to the state right-of-way. Ms. Miller can be reached at Kasey.Miller@state.nm.us

e. All utility and traffic control permits, within state right-of-way related to the proposed development shall be submitted to Nancy Perea. Ms. Perea can be reached at Nancy.Perea@state.nm.us

If you have any questions, please feel free to call me at 505.288.2086 or email me at Margaret.Haynes@state.nm.us.

Sincerely,

Digitally signed by Margaret Haynes
Date: 2021.09.20 14:01:31 -06'00'

Margaret Haynes, P.E.
District 3 Assistant Traffic Engineer

Copies:
Nancy R. Perea, NMDOT D3 DTE
Brad Julian, NMDOT TTS
Tim Trujillo, NMDOT D3
Kasey Miller, NMDOT GO
Richard Meadows, Bernalillo County
Julie Luna, Bernalillo County
Matt Grush, COA
Tim Brown, COA
file

Attachments:
Exhibit A – Vicinity Map and Site Plan
Exhibit B – TIS page 74-80 – Capacity Mitigations and Street Improvements

EXHIBIT A

Figure 1: Vicinity Map

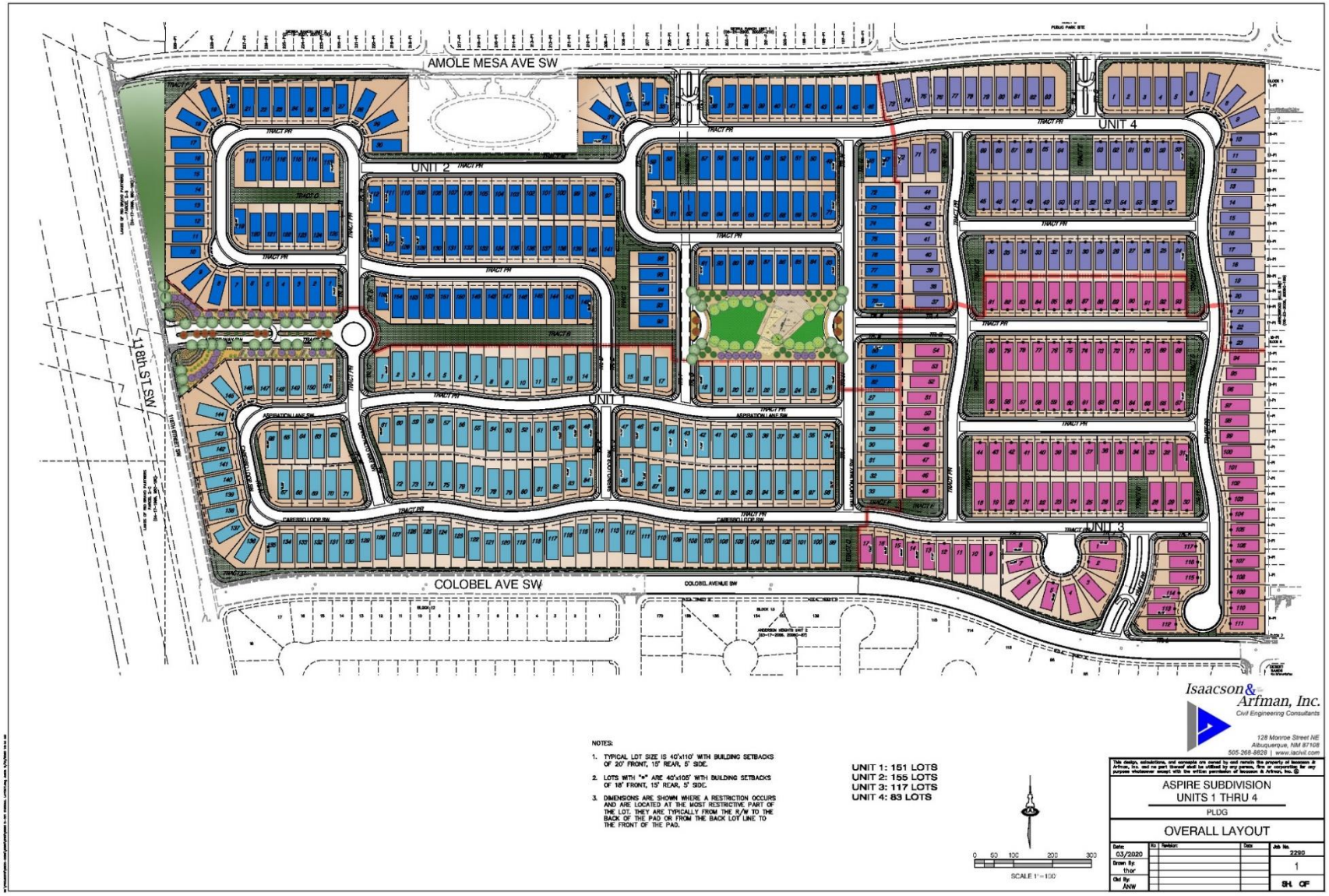

Figure 2: Site Plan

EXHIBIT B

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.

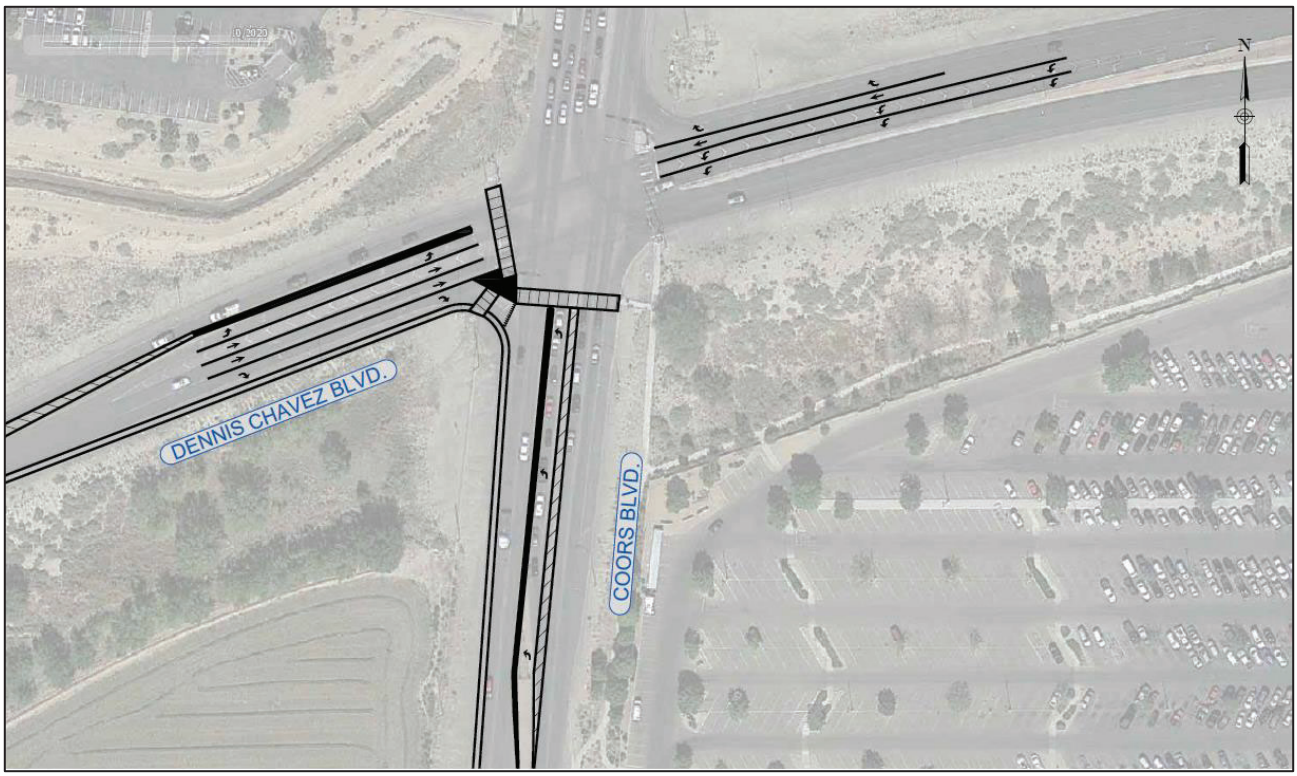

Figure 16. Coors Blvd Roadway Re-Configuration Concept Drawing

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.