



NORTH LAS VEGAS AIRPORT

CAREY AVENUE REALIGNMENT TRAFFIC STUDY

501-540

July 2025

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I. INTRODUCTION

The Clark County Department of Aviation (CCDOA) proposes to lengthen Runways 12L-30R and 12R-30L at the North Las Vegas Airport by extending them southward, and the vacation and realignment a segment of Carey Avenue is required to facilitate the proposed runway extensions.

Carey Avenue is a City of North Las Vegas four-lane minor arterial street with shoulder lanes within a 100-foot right-of-way that is operated and maintained by the Department of Public Works. For the CCDOA to lengthen the runways, the segment of Carey Avenue to be vacated and realigned would extend from Simmons Street on the east to approximately the Allen Lane alignment on the west, a length of about one-half mile. The vacated segment of Carey Avenue would be incorporated into the contiguous area of the North Las Vegas Airport.

Along with the vacation of a segment of Carey Avenue, a realigned Carey Avenue roadway connection would be constructed on CCDOA property from approximately the Allen Lane alignment to Lake Mead Boulevard. With this connection, Carey Avenue traffic could be rerouted around the southern perimeter of the extended runways via Simmons Street, Lake Mead Boulevard and the new Carey Avenue Realignment Connection. The new roadway connection would also maintain access and circulation for the existing and planned commercial properties located between Carey Avenue and Lake Mead Boulevard east of Rancho Drive.

The purpose of this study is to evaluate the potential traffic impacts of a vacation and realignment of a segment of Carey Avenue from Simmons Avenue to west of the Allen Lane alignment, and to consider possible mitigation measures in addition to the proposed Carey Avenue Realignment Connection to improve traffic flow with the vacation and realignment.

The study area, as shown in Figure 1, includes the street network in the vicinity of the North Las Vegas Airport which could be affected by the vacation and realignment of a segment of Carey Avenue. This street network serves both the North Las Vegas Airport and the suburban community in the vicinity of the Airport, including many Airport related businesses.

For purposes of this study, two alternatives are evaluated for comparison:

- The No-Build Alternative assumes that the segment of Carey Avenue west of Simmons Avenue would not be vacated, so that Carey Avenue continues to operate as it currently does, and
- The Build Alternative assumes that the segment of Carey Avenue west of Simmons Avenue would be vacated with a realignment connection to Lake Mead Boulevard near Allen Lane. This would result in east-west travel on Carey Avenue being discontinuous on the south side of the Airport.

II. EXISTING TRAFFIC NETWORK

The North Las Vegas Airport is located within a developed suburban area of the City of North Las Vegas. The existing street network, comprised of arterial streets and collector streets, is laid out in a north-south/east-west grid pattern, with Rancho Drive cutting diagonally through the area in a northwest to southeast direction. Rancho Drive forms the western boundary of the Airport.

East-west arterial streets include Carey Avenue on the south side of the Airport, Cheyenne Avenue on the north side of the Airport (located one-mile north of Carey Avenue), and Lake Mead Boulevard (located one-half mile south of Carey Avenue). North-south arterial streets include Decatur Boulevard west of the Airport, and Simmons Street east of the Airport.

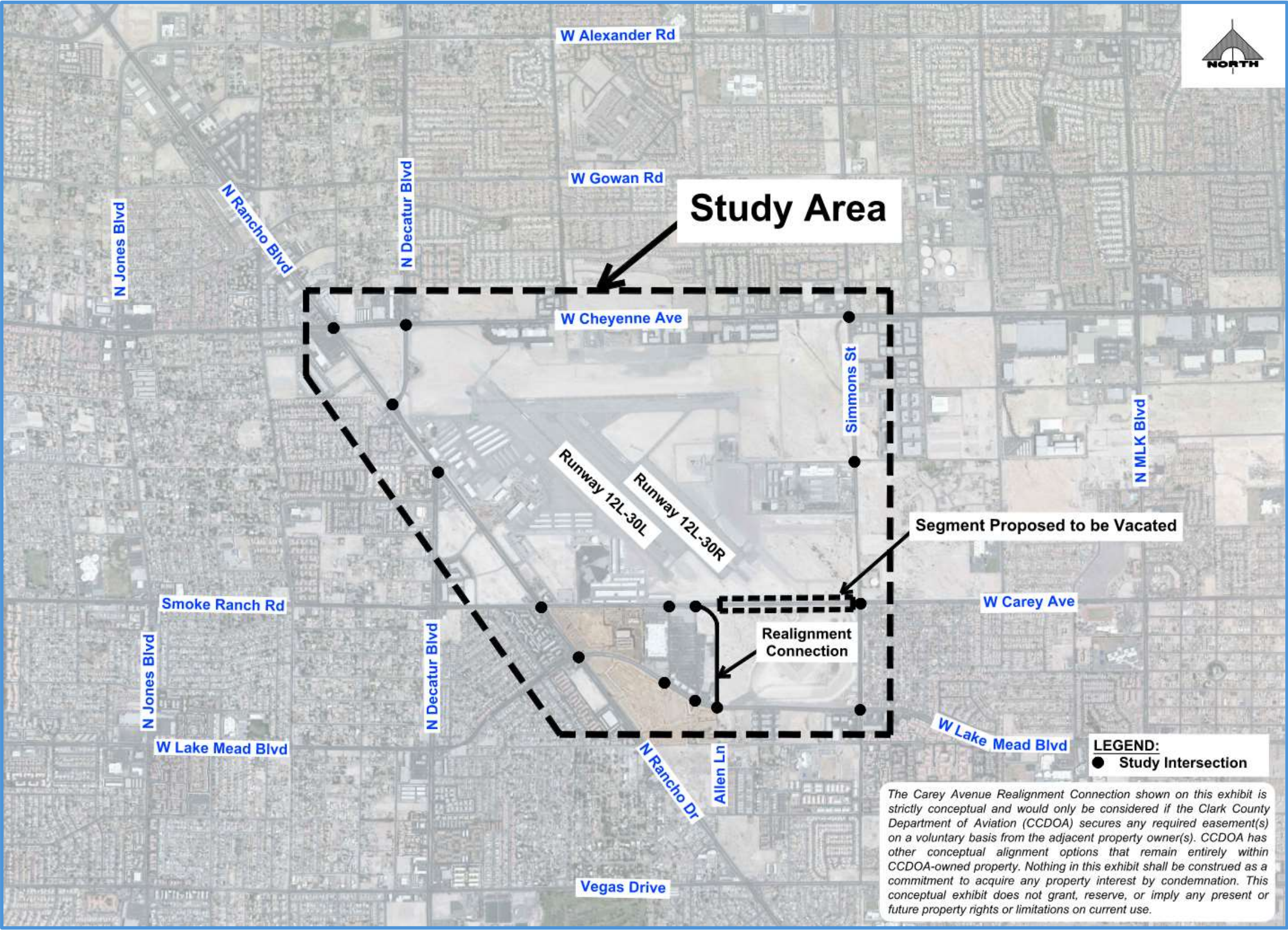


Figure 1. Study Area

III. TRAFFIC DATA COLLECTION

To evaluate existing traffic conditions on the roadway network in the study area, traffic counts on the existing street network were taken from 11/12/2024 to 11/16/2024, which consisted of the following:

A. Turning Movement Counts

Peak period turning movement traffic counts (7-9:00 am and 4-6:00 pm) taken on 11/12/2024, during a typical weekday, at the following fifteen (15) study intersections.

- Cheyenne Avenue/Rancho Drive
- Cheyenne Avenue/Decatur Boulevard
- Cheyenne Avenue/Simmons Street
- Rancho Drive/Decatur Boulevard North
- Ranch Drive/Decatur Boulevard South
- Carey Avenue/Rancho Drive
- Carey Avenue/West Walmart Driveway
- Carey Avenue/ East Walmart Driveway
- Carey Avenue/ Simmons Street
- Lake Mead Boulevard/Rancho Drive
- Lake Mead Boulevard/ West Walmart Driveway
- Lake Mead Boulevard/ East Walmart Driveway
- Lake Mead Boulevard/Allen Lane
- Lake Mead Boulevard/Simmons Street
- Simmons Street/Evans Avenue

Existing peak hour traffic counts are shown in Figures 2 and 3.

B. Mechanical Counts

Seven-day 24-hour directional mechanical counts in 15-minute increments were taken on the following street segments.

- Rancho Drive south of Cheyenne Avenue
- Rancho Drive north of Carey Avenue
- Cheyenne Avenue west of Simmons Street
- Simmons Street north of Carey Avenue
- Carey Avenue west of Simmons Street
- Lake Mead Boulevard west of Simmons Street

Mid-week, 24-Hour (Daily) traffic counts are shown in Figure 4.

IV. CURRENT (2024) TRAFFIC OPERATIONS IN THE STUDY AREA

Table 1 presents a summary of current (2024) peak hour level-of-service analyses at major signalized intersections within the study area. At present, all of the intersections in the study area are operating at level of service (LOS) D or better during both the AM peak hour and the PM peak hour. LOS D is considered an acceptable average delay in a suburban setting. Additionally, intersections are operating at volume-to-capacity (v/c) ratios less than 70 percent, with the exception of Decatur/Cheyenne which is operating at a v/c of 74 percent in the PM peak hour.

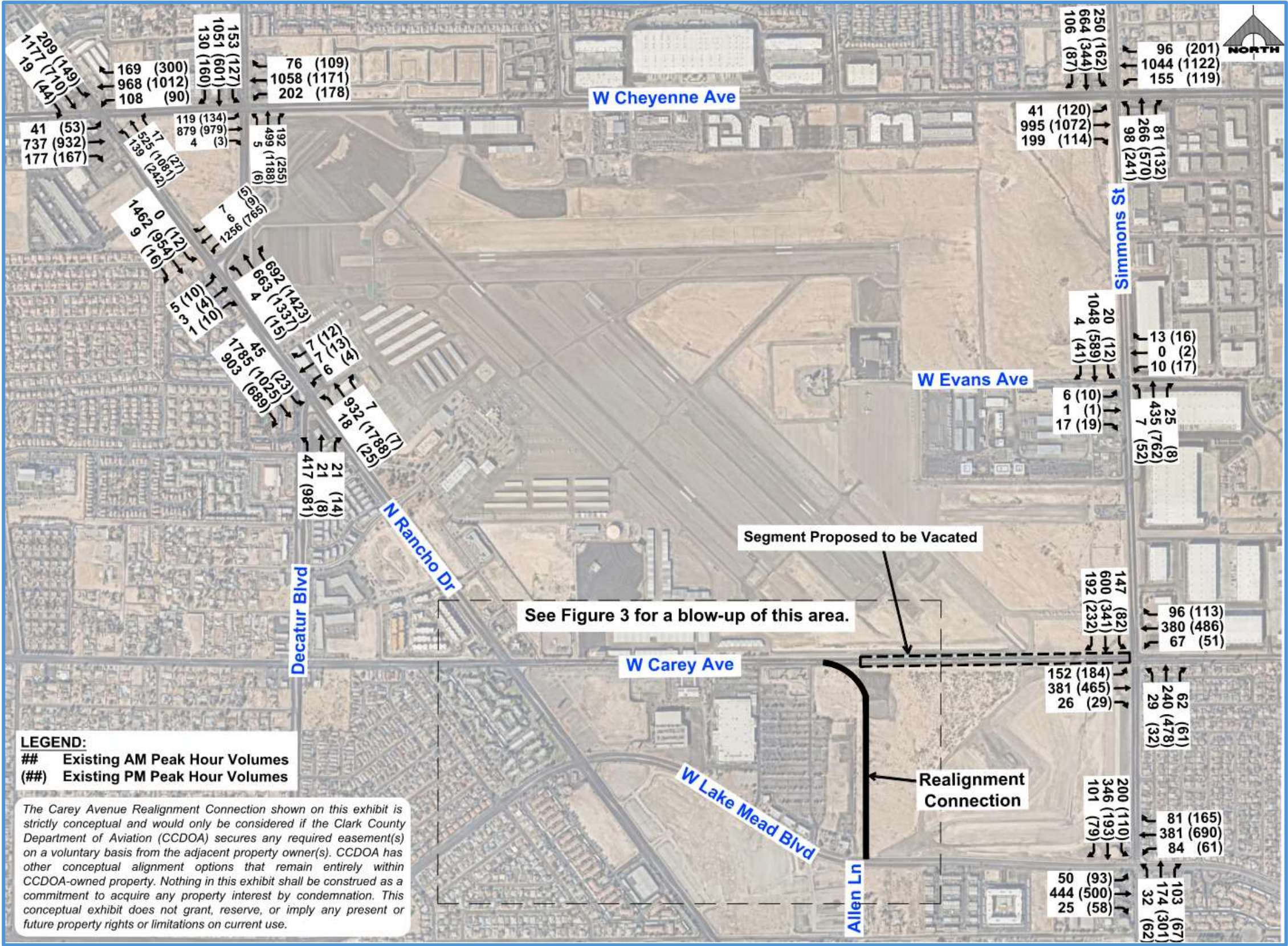


Figure 2. November 12, 2024 Peak Hour Traffic Counts

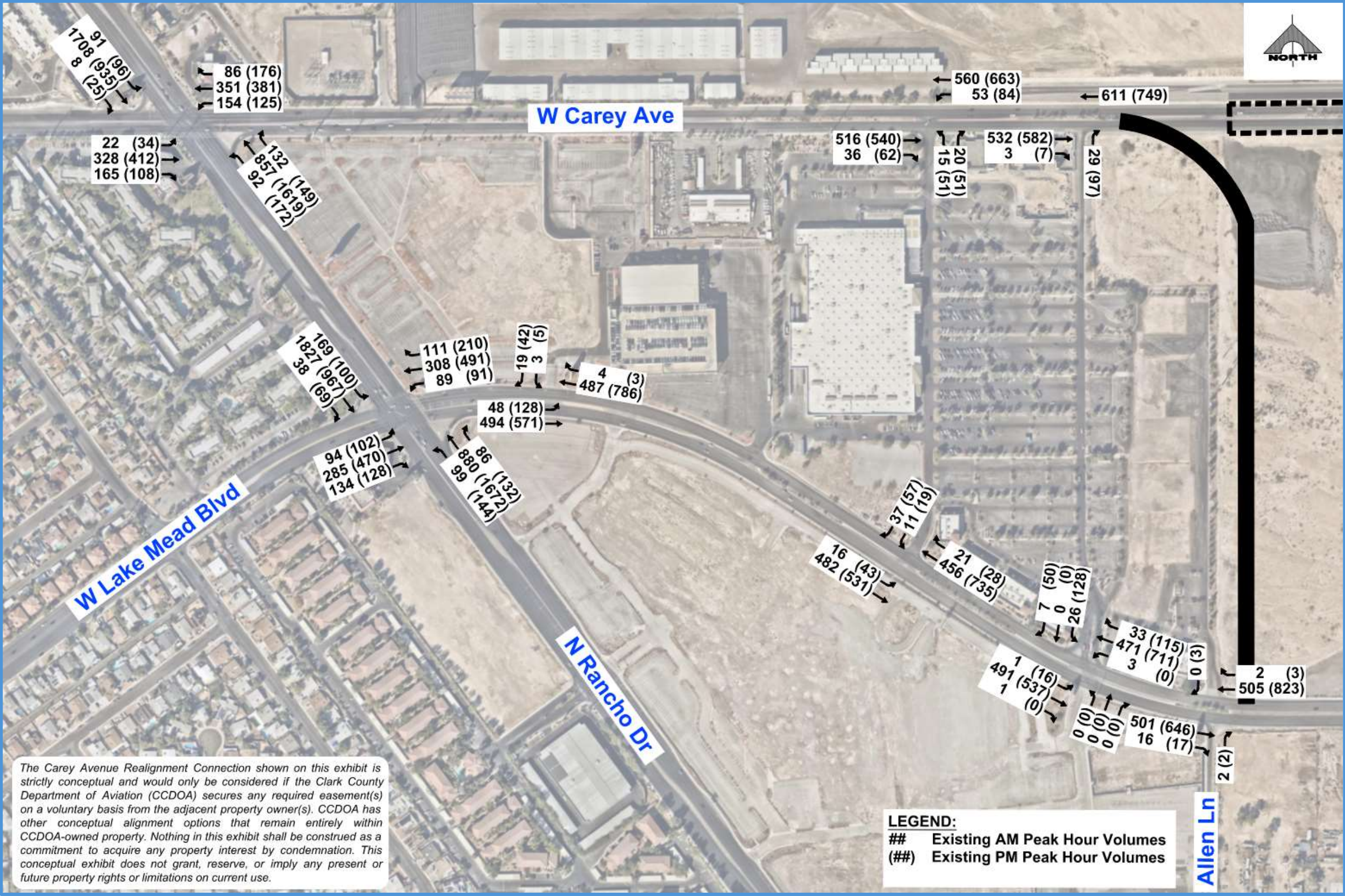


Figure 3. November 12, 2024 Peak Hour Traffic Counts

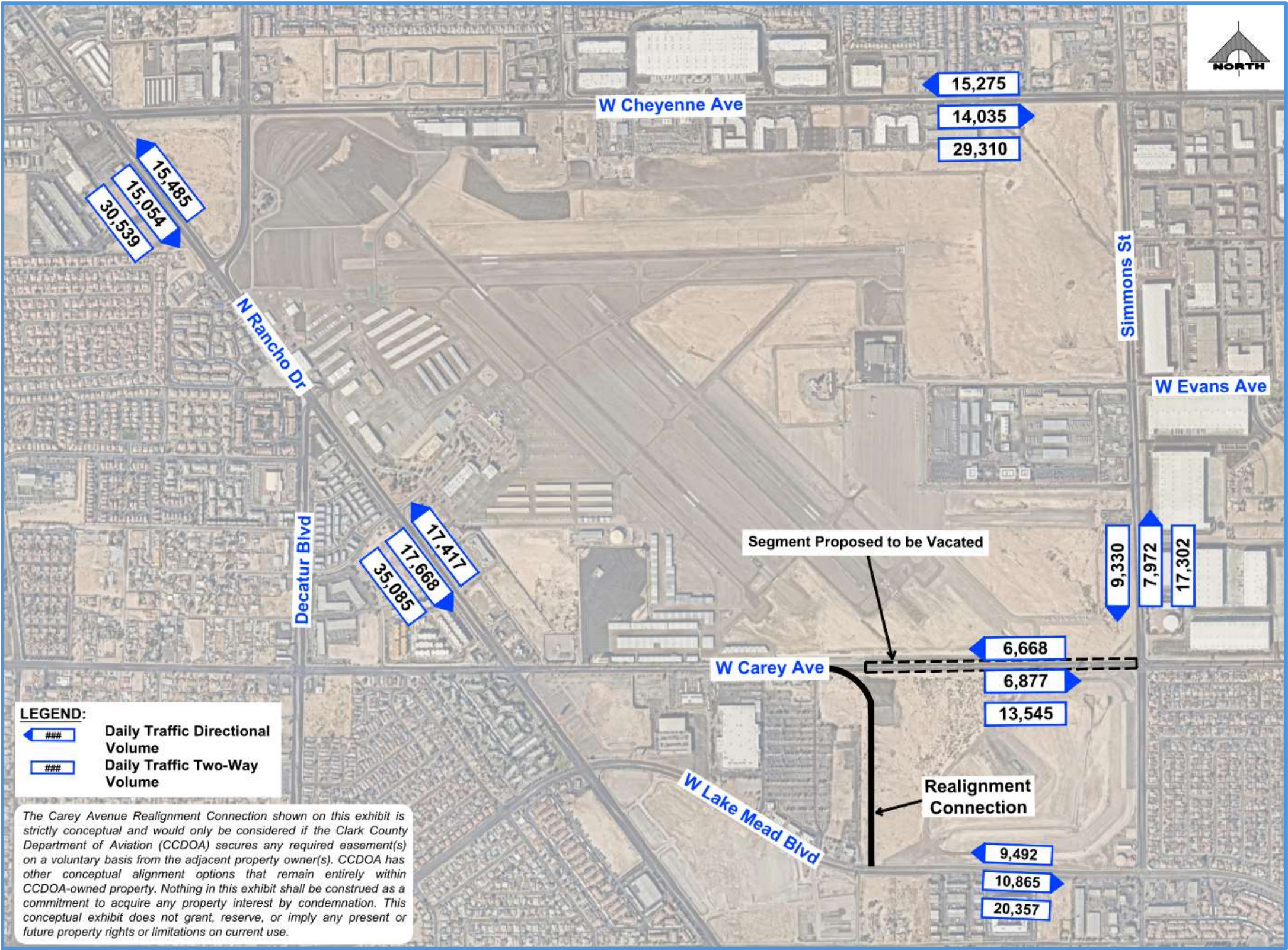


Figure 4. November 12-14, 2024 Mid-Week Daily Traffic Counts

Table 1. Summary of 2024 Peak Hour Level of Service (LOS) Analyses

ID #	Signalized Intersection	AM Peak			PM Peak		
		v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
1	Rancho/Cheyenne	0.58	45.8	D	0.62	46.0	D
2	Decatur/Cheyenne	0.62	49.0	D	0.74	50.3	D
3	Simmons/Cheyenne	0.66	44.0	D	0.63	46.4	D
4	Rancho/Decatur (N)	0.53	34.6	C	0.38	24.7	C
5	Rancho/Decatur (S)	0.51	25.5	C	0.55	38.9	D
6	Rancho/Carey	0.62	33.2	C	0.62	36.3	D
9	Carey/Simmons	0.39	36.1	D	0.43	38.6	D
10	Rancho/Lake Mead	0.63	36.2	D	0.68	41.5	D
14	Lake Mead/Simmons	0.37	32.9	C	0.40	33.6	C

V/C - Volume-to-capacity ratio

Delay - seconds/vehicle

The intersections on Cheyenne Avenue currently experience moderately higher delays during peak hours than the other intersections, but within an acceptable range.

As shown in Figure 4, at present Carey Avenue, west of Simmons Avenue, carries an average of 13,545 vehicles per day, mid-week (Tuesdays, Wednesdays, and Thursdays). This includes an average of 6,877 vehicles per day eastbound on Carey Avenue and 6,668 vehicles per day westbound on Carey Avenue.

At present, Lake Mead Boulevard and Cheyenne Avenue carry an average of 20,357 vehicles per day and 29,310 vehicles per day, mid-week, respectively.

Simmons Avenue, north of Carey Avenue, carries an average of 17,302 vehicles per day, mid-week.

Rancho Drive carries an average of 35,085 vehicles per day north of Carey Avenue and 30,539 vehicles per day south of Cheyenne Avenue, mid-week.

V. CHANGES TO THE STREET NETWORK WITH THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE WEST OF SIMMONS STREET

Proposed changes to the street network with the proposed vacation of a segment of Carey Avenue include the following:

- Closure and removal of the segment of Carey Avenue from Simmons Street to west of the Allen Street alignment.
- Conversion of the existing 4-legged intersection of Carey Avenue/Simmons Street to a 3-legged “T” intersection. The westbound approach would be converted from one left-turn lane, two thru lanes, and one right-turn lane to two left-turn lanes and one right-turn lane.
- Construction of a realignment connection west of the extended runways, from Carey Avenue to Lake Mead Boulevard just east of Allen Lane
- Reconfiguration of the EB approach to Lake Mead Boulevard/Simmons Street from three through lanes and one left-turn lane to two through lanes and two left-turn lanes.

Construction of the Carey Avenue realignment connection to Lake Mead Boulevard is proposed to provide an alternate route for some through traffic as well as access and circulation for the Walmart Supercenter and

other businesses on Carey Avenue between the vacated segment of Carey Avenue and Rancho Drive. The realignment connection has been modeled as a four-lane street.

VI. PREDICTED FUTURE TRAFFIC IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF CAREY AVENUE

The Regional Transportation Commission of Southern Nevada (RTC) maintains the TransCad traffic forecasting model for the Las Vegas Valley roadway network. The currently adopted model includes:

- A Year 2020 Baseline Model, and
- A Year 2050 Traffic Forecast Model.

The RTC's TransCad model was used to predict year 2050 traffic volumes in the study area without the vacation and realignment of a segment of Carey Avenue (the No-Build Alternative), and with the vacation and realignment of a segment of Carey Avenue (the Build Alternative).

Before running the 2050 TransCad Model, the model was reviewed to see if traffic generation in the model adequately represented planned development in the study area. In particular, two planned developments are proposed near the North Las Vegas Airport:

- Windsor Commerce Park is proposed for development on Simmons Avenue east of the Airport, and
- Hylo Park is proposed for development in two parts. Hylo Park North is proposed for development on Rancho Drive between Carey Avenue and Lake Mead Boulevard and Hylo Park South is proposed for development on Rancho Drive from Lake Mead Boulevard to Coran Lane.

Reviewing the traffic studies for these proposed developments, the traffic analysis zones in the 2050 TransCad model which include Windsor Commerce Park and Hylo Park North, adequately include the level of land use and traffic generation anticipated for these developments. However, the 2050 TransCad model does not include, in the traffic analysis zone which includes Hylo Park South, the density of development envisioned. Therefore, before running the 2050 TransCad model, the commercial and residential land use, and corresponding traffic generation, were increased to properly reflect the proposed development of Hylo Park South into the 2050 No-Build and Build models. In this way, the 2050 Build and No-Build TransCad forecasts include known, planned developments in the study area.

The area south of Carey Avenue proposed for runway expansion is currently the site of a detention basin. Accordingly, no change in traffic generation would be expected with or without the vacation and realignment of Carey Avenue.

It should be noted that the RTC 2050 TransCad model for the study area includes two planned improvements to the local roadway network as described below:

- Simmons Street is planned to be widened from four lanes to six lanes from Lake Mead Boulevard to Cheyenne Avenue. Accordingly, at the Simmons/Cheyenne and Simmons/Carey intersections, the right-turn lanes on both the northbound and southbound approaches are assumed to be converted to combined thru/right-turn lanes.
- Lake Mead Boulevard is planned to be widened from four lanes to six lanes west of Rancho Drive. Accordingly, at the Lake Mead/Rancho intersection, the right-turn lanes on both the eastbound and westbound approaches are assumed to be converted to combined thru/right-turn lanes.

The year 2050 TransCad No-Build Traffic Forecast does not include any changes to the roadway network.

To evaluate the possible effect of vacating and realigning a segment of Carey Avenue west of Simmons Street, the RTC's Year 2050 Traffic Forecast Model was run with the segment of Carey Avenue from Simmons Avenue to west of the Allen Lane excluded from the model. Model changes included:

- Elimination of the vacated segment of Carey Avenue from the 2050 TransCad model
- Adding a realigned connection of Carey Avenue to Lake Mead Boulevard near Allen Lane.

The 2050 TransCad traffic forecast incorporating these changes is designated as the 2050 Build TransCad Traffic Forecast.

It was assumed that for the Build Alternative, the eastbound approach to Simmons Street/Lake Mead Boulevard would be reconfigured to provide two left-turn lanes and two through lanes (vs. existing single left and three through lanes).

A. Predicted Future Daily Traffic in the Study Area With and Without the Vacation and Realignment of Carey Avenue

Figure 5 shows the year 2050 TransCad model forecast of daily traffic in the study area for the No-Build and the Build Alternatives. Existing 2024 and predicted 2050 daily traffic volumes are also summarized in Table 2:

Table 2. 2024 Existing Daily Traffic Volumes and Forecast 2050 No-Build and 2050 Build Daily Traffic Volumes in the Study Area

Location	Existing 2024 Daily Traffic Volume	No-Build Alternative 2050 Daily Traffic Volume	Build Alternative 2050 Daily Traffic Volume	Increase or (Decrease) in 2050 Daily Traffic Volume with Build Alternative
Carey Ave west of Simmons Street	13,545	16,598	0	(16,598)
Lake Mead Blvd west of Simmons Street	20,357	22,939	32,743	9,804
Cheyenne Avenue west of Simmons St	29,310	53,254	55,823	2,569
Simmons Street north of Carey Ave	17,302	33,200	33,511	311
Rancho Drive north of Carey Ave	35,085	57,089	55,236	(1,853)
Rancho Drive south of Cheyenne Avenue	30,539	35,823	34,203	(1,620)

Daily traffic volumes on Carey Avenue west of Simmons Street are projected to increase by 23%, from 13,545 in 2024, to 16,598 by the year 2050, without the proposed vacation and realignment of Carey Avenue (No-Build Alternative). However, with the proposed vacation and realignment (Build Alternative), the forecast year 2050 daily traffic volume of 16,598 vehicles on Carey Avenue west of Simmons Street would necessarily be diverted to other routes. Based on TransCad model forecasts, with the vacation and realignment of a segment of Carey Avenue, it would be expected that:

- 9,804 daily vehicles, or 59% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street would use Lake Mead Boulevard,
- 2,569 daily vehicles, or 15% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street would use Cheyenne Avenue,
- The remaining 3,129 daily vehicles, or 26% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street, would be distributed to alternate routes outside the study area, and
- 1,096 (or 11%) of the 9,804 daily vehicles diverting to Lake Mead Boulevard would use the Carey Avenue realignment connection.

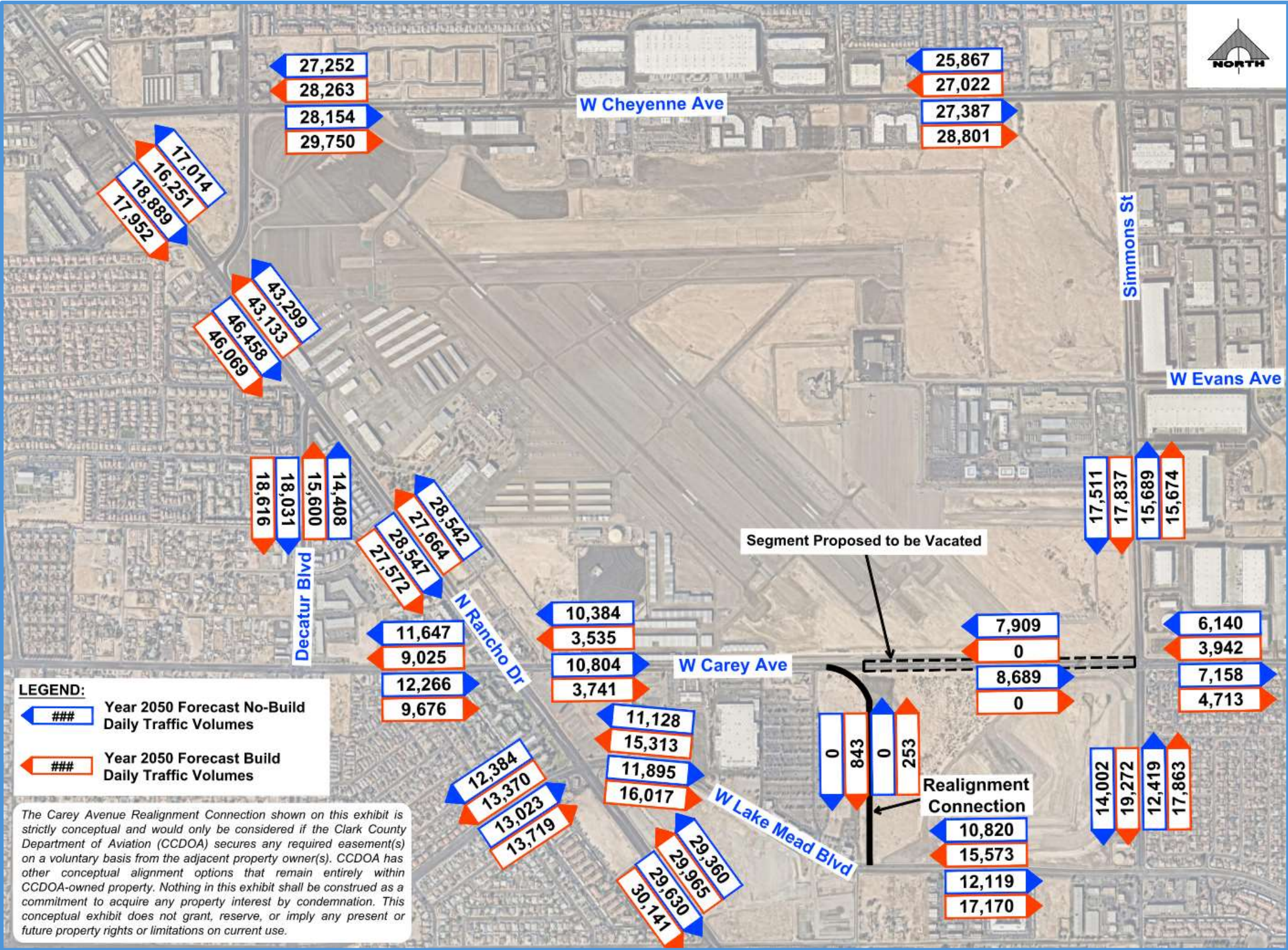


Figure 5. Estimated Year 2050 Daily Build and No-Build Traffic Volumes

Daily traffic volumes on Simmons Street are predicted to nearly double, from 17,302 daily vehicles in 2024 to 33,200 daily vehicles in 2050. The growth can be attributed to the planned widening of Simmons Avenue from 4 lanes to 6 lanes from Lake Mead Boulevard to Cheyenne Avenue that is incorporated into the RTC's 2050 TransCad model. However, there would be virtually no difference in the predicted 2050 daily traffic volumes on Simmons Street north of Carey Avenue with or without the vacation and realignment of a segment of Carey Avenue.

Daily traffic on Rancho Dive is predicted to increase by 63% north of Carey Avenue, from 35,085 in 2024 to 57,089 in 2050 without the vacation and realignment of Carey Avenue. However, the year 2050 daily traffic volume on Rancho Drive north of Carey Avenue is predicted to be slightly less in 2050, 55,236 daily vehicles, with the vacation and realignment of Carey Avenue.

Daily traffic on Rancho Dive is predicted to increase by 17% south of Cheyenne Avenue, from 30,539 in 2024 to 35,823 in 2050 without the vacation and realignment of Carey Avenue. However, the year 2050 daily traffic volume on Rancho Drive south of Cheyenne Avenue is predicted to be slightly less in 2050, 34,203 daily vehicles, with the vacation and realignment of Carey Avenue.

VII. FUTURE YEAR 2050 TRAFFIC OPERATIONS IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE

To forecast the levels-of-service (LOS) at major intersections in the Year 2050 without the vacation and realignment of a segment of Carey Avenue (No-Build Alternative), the growth rates of traffic developed from the RTC TransCad 2020 Baseline Model and 2050 No-Build Traffic Forecast were applied to the current (Year 2024) peak period traffic counts to develop projected Year 2050 traffic volumes at major intersections without the vacation and realignment of a segment of Carey Avenue.

The 2050 TransCad Traffic Forecast Model was run again, excluding the segment of Carey Avenue from Simmons Street to Allen Lane, and including the Carey Avenue realignment connection to Lake Mead Boulevard, to develop a 2050 Build Traffic Forecast. For the Build Alternative, the growth rates for traffic developed from the RTC TransCad 2020 Baseline Model and 2050 Build Traffic Forecast Model were applied to the current (Year 2024) peak period traffic counts to develop projected Year 2050 traffic volumes at major intersections with the vacation and realignment of a segment of Carey Avenue.

Figure 6 shows the predicted year 2050 peak hour traffic volumes at major intersections in the study area without the vacation and realignment of a segment of Carey Avenue (2050 No-Build Traffic Forecast).

Figure 7 shows the predicted year 2050 peak hour traffic volumes at major intersections in the study area with the vacation and realignment of a segment of Carey Avenue (2050 Build Traffic Forecast).

Figure 8 shows the predicted increase or decrease in year 2050 peak hour traffic volumes at major intersections in the study area with the vacation and realignment of a segment of Carey Avenue.

A. LOS Analyses

Table 3 presents a comparative summary of 2050 peak hour LOS analyses at major signalized intersections within the study area under the No-Build and Build scenarios. Two planned Hylo Park signalized driveways on Lake Mead Boulevard, one at the existing Walmart Driveway and one farther east, are included in the analysis.

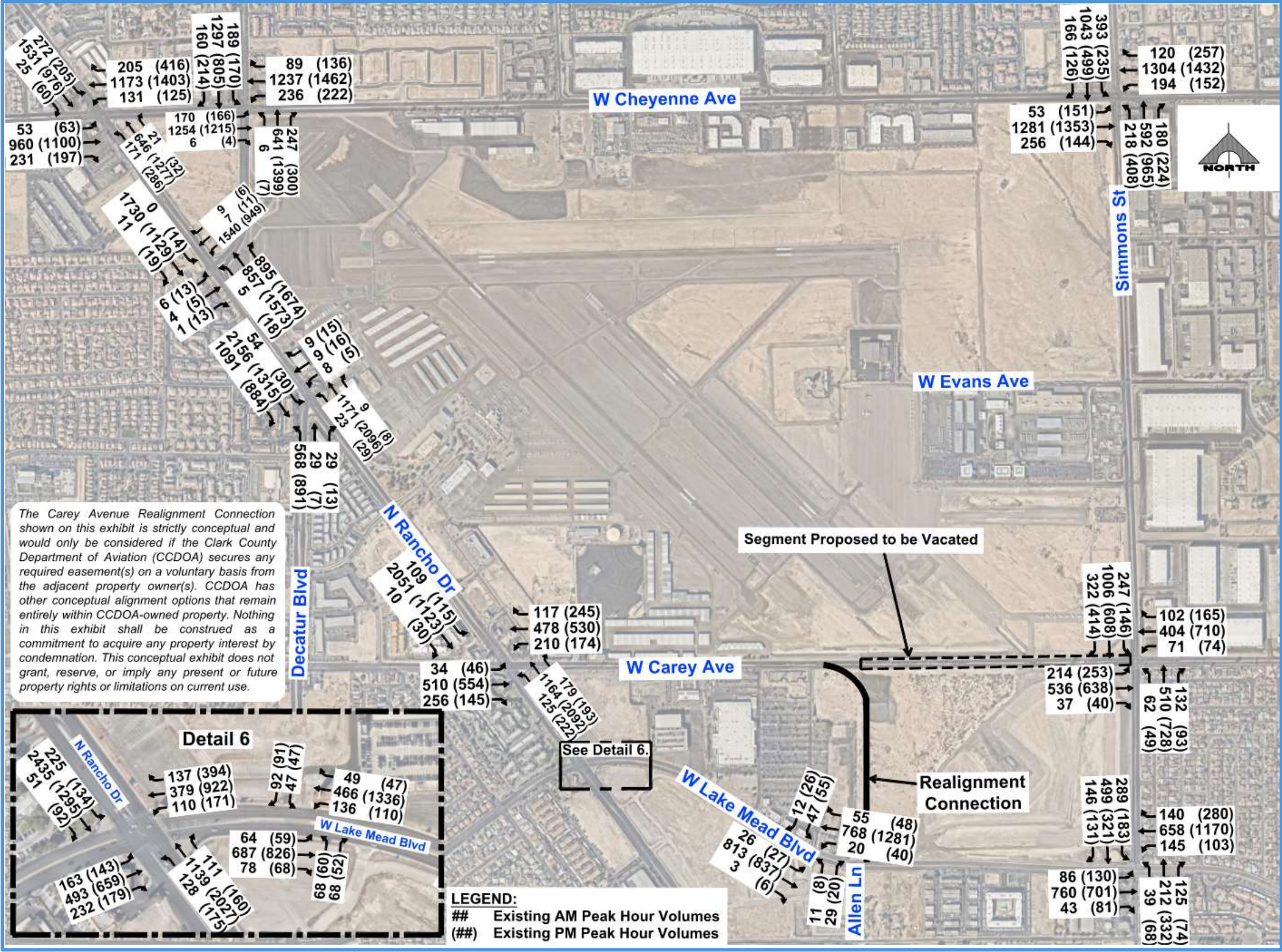


Figure 6. 2050 No-Build Peak Hour Traffic Volumes

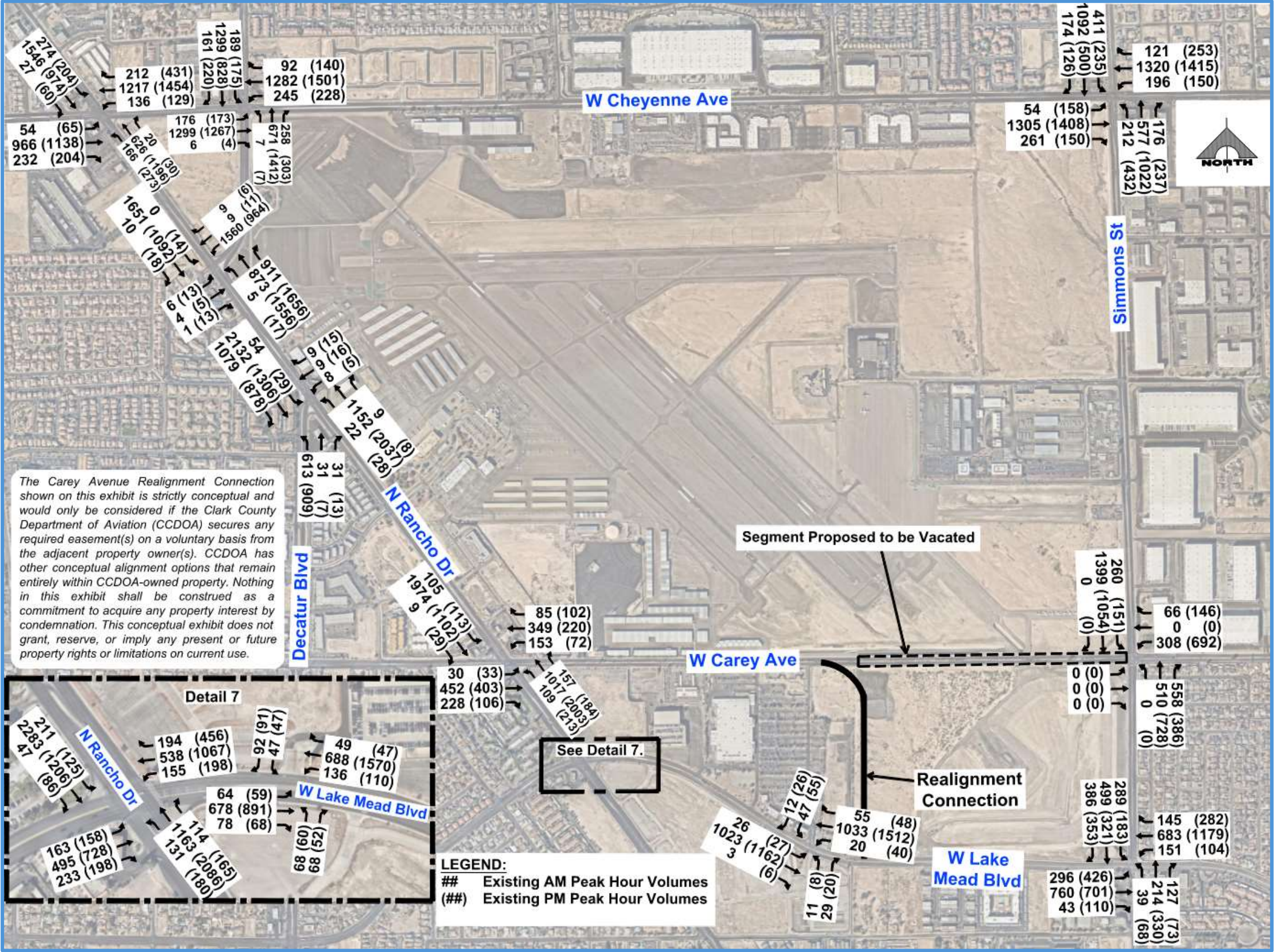


Figure 7. 2050 Build Peak Hour Traffic Volumes

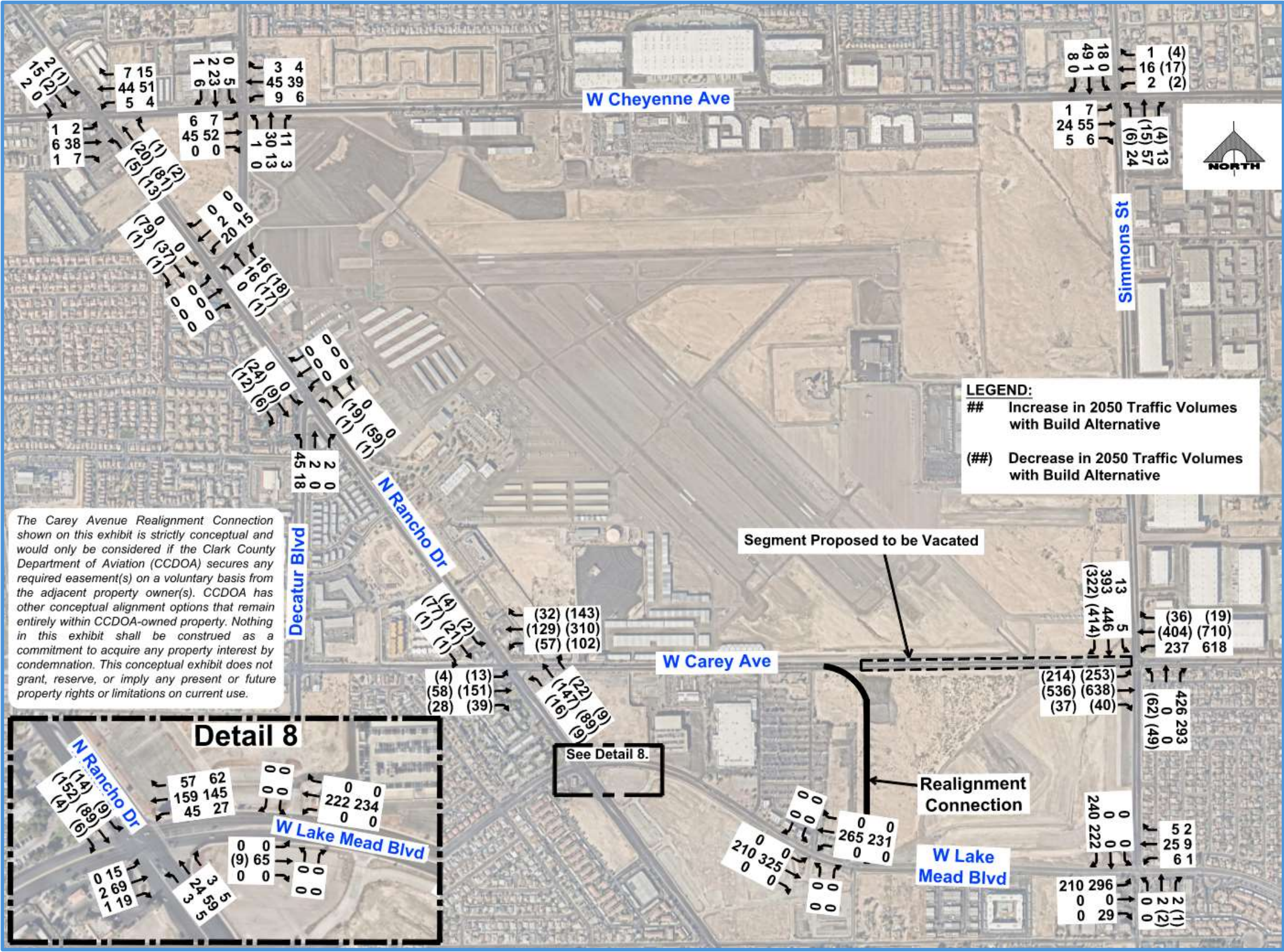


Figure 8. Increase/Decrease in Peak Hour Traffic Volumes with 2050 Build Alternative

Table 3. Summary of 2050 Level of Service (LOS) Analyses With and Without Vacation of Carey Avenue

ID #	Intersection	Control	Scenario	AM Peak			PM Peak		
				v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
1	Rancho/Cheyenne	Signalized	2050 No-Build	0.74	50.4	D	0.80	51.7	D
			2050 Build	0.74	51.0	D	0.80	51.3	D
			Build - No-Build Difference	0.01	0.6	-	0.00	-0.4	-
2	Decatur/Cheyenne	Signalized	2050 No-Build	0.79	55.8	E	0.91	61.1	E
			2050 Build	0.81	57.1	E	0.93	62.9	E
			2050 Build-Mitigation	0.81	56.2	E	0.87	56.2	E
			Build-Mit. - No Build Difference	0.02	0.4	-	-0.04	-4.9	-
3	Simmons/Cheyenne	Signalized	2050 No-Build	0.94	66.3	E	0.88	63.1	E
			2050 Build	0.96	67.5	E	0.90	65.0	E
			2050 Build-Mitigation	0.82	55.6	E	0.83	57.1	E
			Build-Mit. - No Build Difference	-0.13	-10.7	-	-0.06	-6.0	-
4	Rancho/Decatur (N)	Signalized	2050 No-Build	0.64	37.6	D	0.80	27.9	C
			2050 Build	0.63	37.5	D	0.79	28.1	C
			Build - No-Build Difference	-0.01	-0.1	-	0.00	0.2	-
5	Rancho/Decatur (S)	Signalized	2050 No-Build	0.63	29.8	C	0.59	37.2	D
			2050 Build	0.63	31.0	C	0.58	37.4	D
			Build - No-Build Difference	0.00	1.2	-	-0.01	0.2	-
6	Rancho/Carey	Signalized	2050 No-Build	0.80	40.3	D	0.81	42.1	D
			2050 Build	0.73	35.7	D	0.69	33.6	C
			Build - No-Build Difference	-0.07	-4.6	-	-0.12	-8.5	↑
9	Carey/Simmons	Signalized	2050 No-Build	0.57	45.7	D	0.67	46.5	D
			2050 Build	0.67	24.2	C	0.61	33.4	C
			Build - No-Build Difference	0.10	-21.5	↑	-0.07	-13.1	↑
10	Rancho/Lake Mead	Signalized	2050 No-Build	0.85	45.2	D	0.95	58.2	E
			2050 Build	0.86	48.5	D	1.02	69.6	E
			2050 Build-Mitigation	0.81	44.0	D	0.92	53.4	D
			Build-Mit. - No Build Difference	-0.04	-1.2	-	-0.03	-4.8	-
12	Lake Mead/Walmart Dwy	Signalized	2050 No-Build	0.25	15.2	B	0.34	14.9	B
			2050 Build	0.25	15.2	B	0.34	14.9	B
			Build - No-Build Difference	0.00	0.0	-	0.00	0.0	↑
14	Lake Mead/Simmons	Signalized	2050 No-Build	0.61	47.8	D	0.64	44.9	D
			2050 Build	0.65	48.3	D	0.70	45.6	D
			Build - No-Build Difference	0.05	0.5	-	0.06	0.7	-
15	Lake Mead/Hylo Park Dwy	Signalized	2050 No-Build	0.36	37.7	D	0.47	26.6	C
			2050 Build	0.36	37.7	D	0.47	26.6	C
			Build - No-Build Difference	0.00	0.00	-	0.00	0.0	-

v/c - Volume-to-capacity ratio

Delay - seconds/vehicle

Intersection #2 mitigation consists of addition of NB exclusive right-turn lane

Intersection #3 mitigation consists of addition of SB dual left-turn lanes and EB exclusive right-turn lane

Intersection #10 mitigation consists of addition of EB dual left-turn lanes and WB exclusive right-turn lane

As shown in Table 3, with the No-Build Alternative, without the vacation and realignment of Carey Avenue, the intersections of Decatur/Cheyenne, Simmons/Cheyenne and Rancho/Lake Mead are expected to deteriorate to LOS E by the year 2050. Additionally, those intersections are projected to operate at volume-to-capacity

(v/c) ratios over 90 percent in one of the two peak hours. The 2050 operations at these three intersections are projected to further deteriorate to varying degrees with the Build Alternative as noted below.

- At Decatur/Cheyenne, the Build Alternative is projected to slightly increase the PM peak hour v/c from 0.91 to 0.93, and the delay from 61.1 seconds per vehicle (s/veh) to 62.9 s/veh.
- At Simmons/Cheyenne, the Build Alternative is projected to slightly increase the AM peak hour v/c from 0.94 to 0.96, and the delay from 66.3 s/veh to 67.5 s/veh.
- At Rancho/Lake Mead, the Build Alternative is projected to increase the PM peak hour v/c more substantially from 0.95 to 1.02 (overcapacity), and the delay from 58.2 s/veh to 69.6 s/veh.

The other eight study area intersections are projected to operate at LOS D or better and at v/c ratios at or below 80 percent under both 2050 No-Build and 2050 Build Alternatives. It should be noted that this includes the planned driveways on Lake Mead Boulevard for the Hylo Park development that are expected to operate at level of service D or better in the year 2050.

It is recommended that the following improvement measures be considered to reduce intersection delays from forecast growth through the year 2050 with or without the vacation and realignment of Carey Avenue.

- At Decatur/Cheyenne, it is recommended that an exclusive NB right-turn lane be considered. This improvement is projected to result in a 2050 Build Alternative PM peak hour intersection v/c of 0.87, and delay of 56.2 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The NB right-turn lane would require right-of-way from the Airport site.
- At Simmons/Cheyenne, it is recommended that SB dual left-turn lanes and an exclusive EB right-turn lane be considered. These improvements are projected to result in a 2050 Build Alternative AM peak hour intersection v/c of 0.82, and delay of 55.6 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The SB dual lefts can be provided within existing right-of-way by narrowing lanes. The EB right-turn lane would require right-of-way from the Airport site.
- At Rancho/Lake Mead, it is recommended that EB dual left-turn lanes and an exclusive WB right-turn lane be considered. These improvements are projected to result in a 2050 Build Alternative PM peak hour intersection v/c of 0.92, and delay of 53.4 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The EB dual lefts can be provided within existing right-of-way by narrowing lanes. The WB right-turn lane would require right-of-way from the Hylo Park site.

While these recommended improvements should be considered to reduce delay for both the Build and No-Build Alternatives, the vacation and realignment of Carey Avenue is only a significant contributor to future congestion in the Rancho/Lake Mead Intersection. As mitigation for increasing traffic on Lake Mead Boulevard with the Build Alternative, the acquisition of right-of-way and construction of a WB right-turn Lane in the Rancho/Lake Mead Intersection is proposed. This recommended improvement could be coordinated with the planned development of Hylo North. While traffic volumes on Cheyenne Avenue are not expected to significantly increase with the vacation and realignment of a segment of Carey Avenue, dedication of Airport property for the construction of right-turn lanes on NB Decatur Boulevard at Cheyenne Avenue and on EB Cheyenne Avenue at Simmons Street is recommended, in the long term, to reduce future congestion with or without the vacation and realignment of Carey Avenue.

B. Left-turn Queue Storage Analyses

Table 4 presents a comparative summary of left-turn storage lanes analyses for existing, 2050 No-Build, and 2050 Build Alternatives.

Table 4. Left-Turn Queue Storage Analyses With and Without Vacation of Carey Avenue

ID #	Intersection	Approach	Peak Hour	Queuing Interval	Volume (vph)			Design Queue (ft) ¹			Existing Storage (ft)			Proposed 2050 Storage (ft)		
					2024 Existing	2050 No-Build	2050 Build	2024 Existing	2050 No-Build	2050 Build						
					Ln 1	Ln 2	Total	Ln 1	Ln 2	Total						
1	Rancho/ Cheyenne	NB	PM	160	242	288	273	404	467	447	350	400	750	Same		
		SB	AM	160	209	272	274	358	445	448	350	400	750	Same		
		EB	PM	160	53	63	65	122	139	142	300		300	Same		
		WB	AM	160	108	131	136	210	245	252	300 ²		300 ²	Same		
2	Decatur/ Cheyenne	NB	PM	160	6	7	7	28	31	31	200 ²		200 ²	Same		
		SB	AM	160	153	189	189	277	329	329	325 ²	325 ²	650 ²	Same		
		EB	AM	160	134	170	176	249	302	311	375 ²		375 ²	Same		
		WB	AM	160	202	236	245	348	395	408	225		225	500		500
3	Simmons/ Cheyenne	NB	PM	160	241	408	432	402	629	660	275	350	625	325	375	700
		SB	AM	160	250	393	411	415	609	633	300		300	300	350	650
		EB	PM	160	120	151	158	228	274	285	225 ²		225 ²	Same		
		WB	AM	160	155	194	196	280	336	339	200		200	200	250	450
4	Rancho/ Decatur (N)	NB	PM	160	15	18	17	50	57	55	250		250	Same		
		SB	PM	160	12	14	14	43	48	48	100		100	Same		
		EB	PM	160	10	13	13	39	46	46	50		50	Same		
		WB	AM	160	1262	1547	1569	1710	2060	2087	290 ²	580 ²	870 ²	Same		
5	Rancho/ Decatur (S)	NB	PM	160	25	29	28	71	79	77	250		250	Same		
		SB	AM	160	45	54	54	108	124	124	350		350	Same		
		EB	PM	160	989	891	909	1372	1249	1272	440 ²	880 ²	1320 ²	Same		
		WB	AM	160	6	8	8	28	33	33	75		75	Same		
6	Rancho/ Carey	NB	PM	160	172	222	213	305	376	363	250	300	550	Same		
		SB	PM	160	96	115	113	192	221	218	300		300	Same		
		EB	PM	160	34	46	33	88	110	86	225 ²		225 ²	Same		
		WB	AM	160	154	210	153	279	359	277	235		235	275		275
9	Carey/ Simmons	NB	AM	160	32	62	-	85	137	-	250 ²		250 ²	Same		
		SB	AM	160	147	247	260	269	411	429	350		350	450		450
		EB	PM	160	184	214	-	322	365	-	220		220	na		
		WB	PM	160	67	74	692	145	157	997	200		200	525	525	1050
10	Rancho/ Lake Mead	NB	PM	160	144	175	180	264	309	316	325	375	700	Same		
		SB	AM	160	169	225	211	301	380	360	200	250	450	Same		
		EB	PM	160	102	163	163	201	292	292	400		400	300	300	600
		WB	AM	160	91	171	198	184	303	342	150	200	350	Same		
12	Lake Mead/ Walmart Dwy	EB	PM	160	16	27	27	52	75	75	200		200	Same		
		WB	PM	160	3	40	40	18	99	99	200		200	Same		
14	Simmons/ Lake Mead	NB	PM	160	62	68	68	137	147	147	175		175	Same		
		SB	AM	160	200	289	289	345	469	469	115 ²		115 ²	250	250	500
		EB	PM	160	93	130	426	187	243	652	200 ²		200 ²	250	250 ²	500 ²
		WB	AM	160	84	145	151	173	266	274	200 ²		200 ²	Same		
15	Lake Mead/ Walmart Dwy	EB	AM	160		64	64	0	141	141	100		100	Same		
		WB	AM	160		136	136	0	252	252	na			350		350

¹ Signalized 95th % Queue = [(vehicle/interval)+Z(vehicle/interval)^{0.5}]*25 ft/veh
 where,
 (veh/interval) = VPH/3600 sec/hr x queuing interval (cycle length),
 Z = 1.645 for 95% confidence level (one-tailed test),
 25 feet = assumed vehicle length.

² Queue may extend into drop lane or two-way left-turn lane

Note: For multiple left-turn lanes, Lane 1 is left-most turn lane and Lane 2 is right-most turn lane. If a 3rd lane exists its storage included with Lane 2

It is recommended that the following intersection left-turn storage lane improvement measures be considered to accommodate forecast traffic through the year 2050 with and/or without the vacation and realignment of Carey Avenue.

- Decatur Boulevard/Cheyenne Avenue:
 - Lengthening of the WB left-turn storage lane. There is available raised median area to accommodate the lengthening.
- Simmons Street/Cheyenne Avenue:
 - Lengthening of NB dual left-turn lanes.
 - SB dual left-turn lanes.
 - Construction of WB dual left-turn lanes. This mitigation can be provided within existing right-of-way by narrowing lanes. Lengthening of the existing single-lane left-turn pocket would require prohibition of the east-to-north left-turn to Ernest Street.
- Rancho Drive/Carey Avenue:
 - Lengthening of the WB left-turn storage lane. This improvement is needed to accommodate projected traffic from the Hylo North project.
- Carey Avenue/Simmons Street:
 - Lengthening of the SB left-turn storage lane. There is available raised median area to accommodate the lengthening.
 - With the proposed vacation of Carey Avenue west of Simmons Street, the east leg median should be reconfigured to provide dual left-turn lanes that are each 525 feet in length.
- Rancho Drive/ Lake Mead Boulevard:
 - EB dual left-turn lanes.
- Simmons Street/Lake Mead Boulevard:
 - With the proposed vacation of Carey Avenue, the reconfiguration of the SB approach to provide dual left-turn lanes. This can be provided within existing right-of-way since SB Simmons Street reduces to a single lane south of Lake Mead Boulevard.
 - With the proposed vacation of Carey Avenue, the reconfiguration of the EB approach to include two left-turn lanes and two through lanes (vs. existing single left and three through lanes).

Proposed turn lane improvements for the near term, in conjunction with the vacation and realignment of Carey Avenue, and in the long-term to accommodate growth to the year 2050 are shown schematically in Figure 9.

C. Changes in Travel Time and Travel Distance with the Vacation and Realignment of Carey Avenue

Vehicle hours of travel (VHT) and vehicle miles of travel (VMT) were calculated for the 2050 TransCad No-Build Traffic Forecast and for the 2050 TransCad Build Traffic Forecast. The increase or decrease in VHT and VMT with the Build Alternative is shown in Table 5.

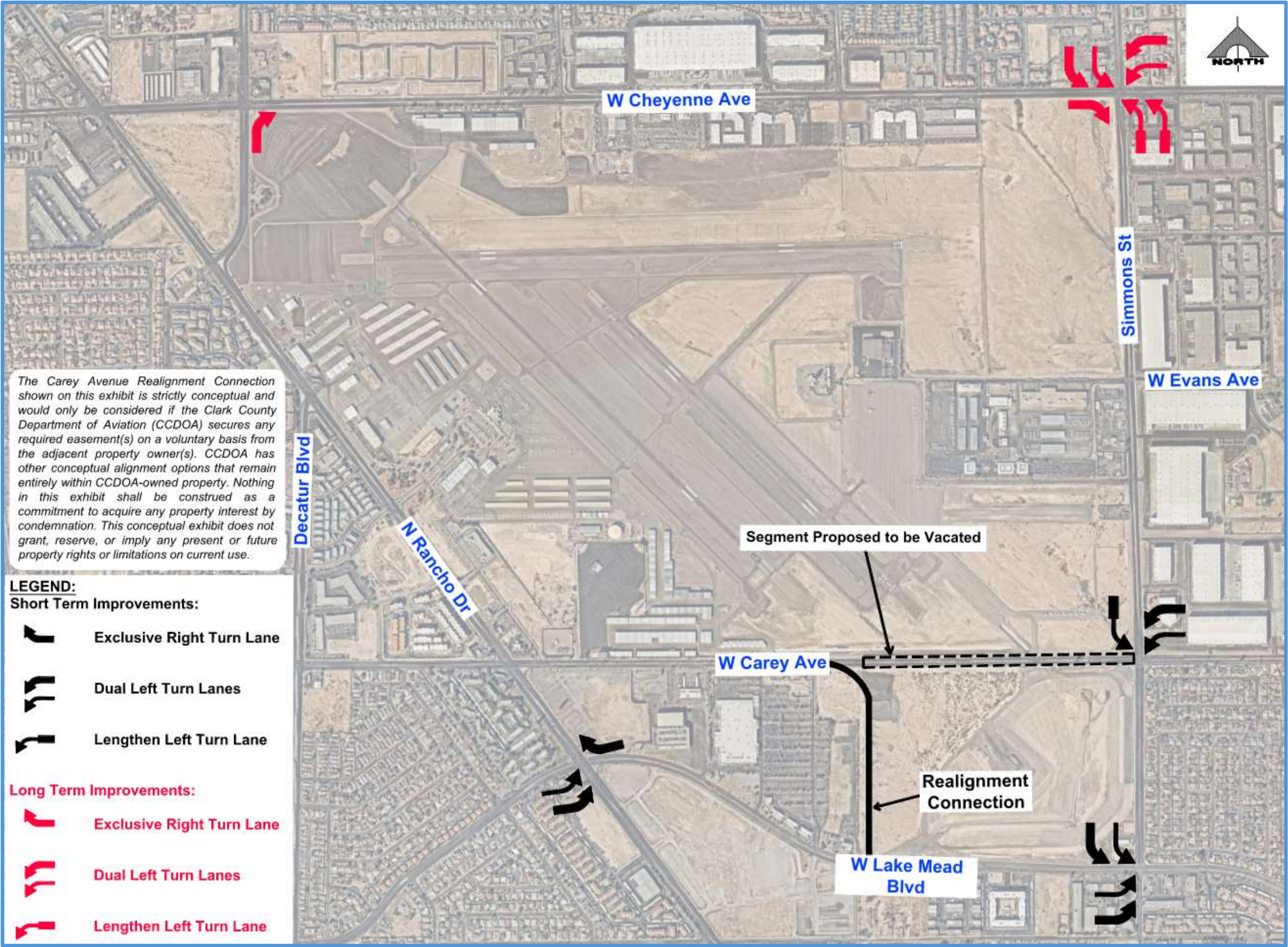


Figure 9. Recommended Turn Lane Improvements for the Build Alternative

Table 5. Increase or (Decrease) in year 2050 Vehicle Hours of Travel (VHT) and Vehicle Miles of Travel (VMT) with the Vacation and Realignment of Carey Avenue (with the Build Alternative) compared to the No-Build Alternative

Daily		AM Peak Period (7:00 – 9:00)		PM Peak Period (4:00 – 6:00)	
VHT	VMT	VHT	VMT	VHT	VMT
(18)	(2,104)	26	(142)	19	24

On a regional basis, during the PM peak period, from 4:00 to 6:00 PM, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in an additional 19 vehicle hours of travel and an additional 24 vehicle miles of travel for area motorists.

During the AM peak period, from 7:00 to 9:00 AM, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in an additional 19 vehicle hours of travel, but a decrease of 142 vehicle miles of travel.

However, regionally, on a daily basis, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in a decrease of 18 vehicle hours of travel and a decrease of 2,104 vehicle miles of travel for area motorists.

One way to interpret the data in Table 5 is that, in the year 2050, Carey Avenue may not offer the shortest route between origins and destinations but may provide fastest travel times as the arterial street network becomes congested during peak hours.

VIII. CONCLUSIONS AND PROPOSED MITIGATION

With the vacation and realignment of a segment of Carey Avenue west of Simmons Street, an estimated 59% of the traffic on Carey Avenue would be expected to use Lake Mead Boulevard as an alternate route. While this has an adverse impact on the Lake Mead Boulevard/Rancho Drive intersection, analyses indicate that the impact can be mitigated to maintain LOS D in the intersection through the year 2050. The recommended mitigation would consist of providing eastbound dual left-turn lanes and acquiring right-of-way to provide an exclusive westbound right-turn lane, as reflected in Figure 9.

With the intersection improvements shown in Figure 9, all study area intersections are projected to operate at LOS D or better under the 2050 Build Alternative with the exception of the Decatur Boulevard/Cheyenne Avenue and Simmons Street/Cheyenne Avenue intersections. However, with the recommended improvements, these two intersections are projected to operate very near the LOS D/E threshold of 55 s/veh and at v/c ratios less than 90 percent. Additionally, they are projected to operate with lower delays and v/c ratios than under the No-Build Alternative. Proposed mitigation, needed in the long-term, would include dedicating Airport right-of-way for dedicated right-turn lanes on NB Decatur Boulevard at Cheyenne Avenue and on EB Cheyenne Avenue at Simmons Street.

In the year 2050, on a regional basis, the vacation and realignment of Carey Avenue would not be expected to result in an overall collective increase in daily travel time or daily travel distance for area motorists. However, during peak periods, for many motorists, Carey Avenue would no longer be available to serve as a faster route to avoid more congested arterials.

Most existing and planned businesses located in the area bounded by Carey Avenue to the north, Rancho Drive to the west, Lake Mead Boulevard to the south and the Airport detention basin to the east, have access from

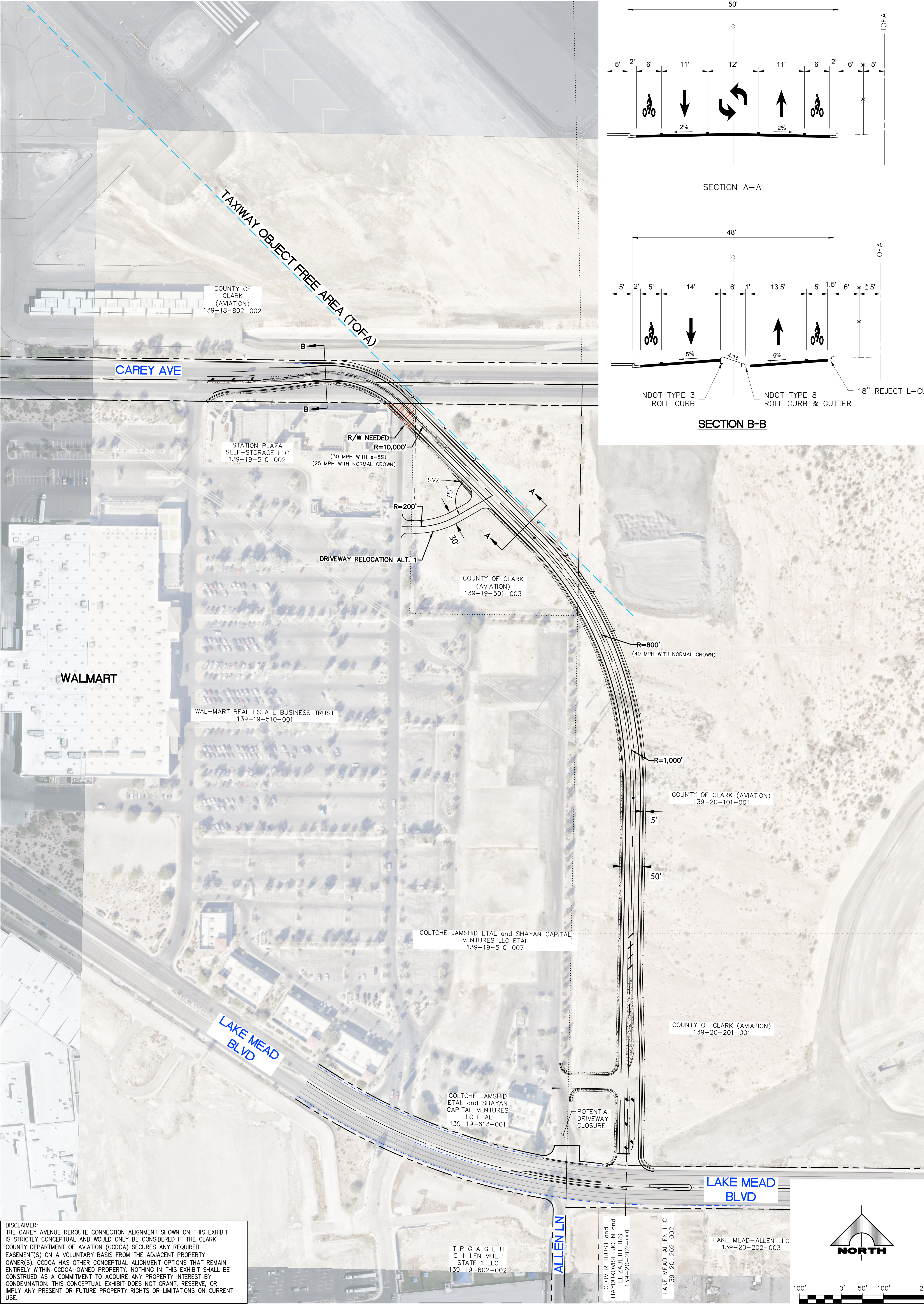
both Carey Avenue and Lake Mead Boulevard. Therefore, accessibility for the majority of the existing and planned businesses in this area will not be substantially changed.

The proposed Carey Avenue Realignment Connection from Carey Avenue to Lake Mead Boulevard near the Allen Lane alignment is recommended as mitigation to maintain access and circulation for the commercial properties located between Carey Avenue and Lake Mead Boulevard east of Rancho Drive.

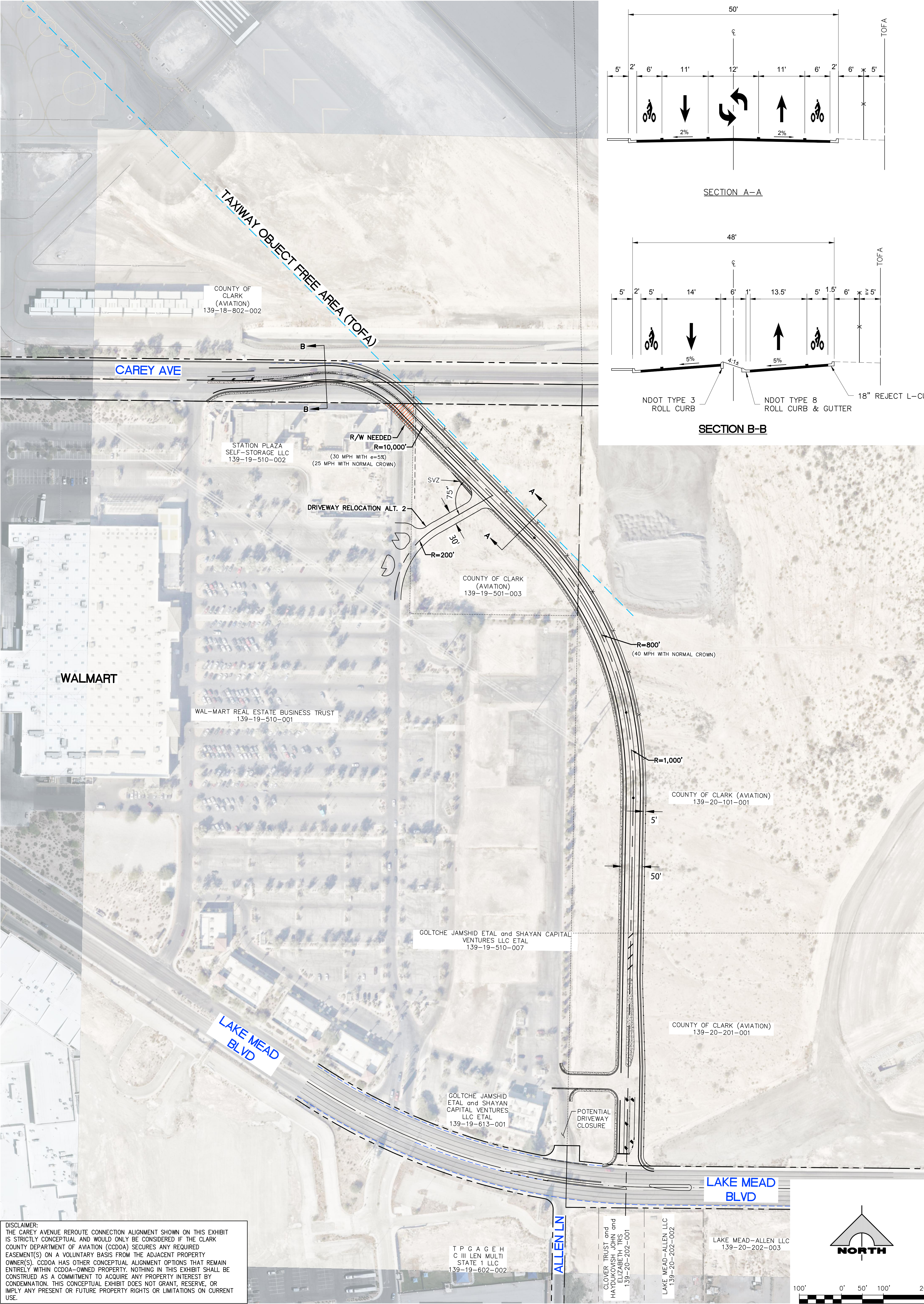
As previously noted, the Carey Avenue Realignment connection from Carey Avenue to Lake Mead Boulevard on the Allen Lane alignment was modeled for traffic analysis as a four-lane roadway. However, the network traffic volumes it is projected to attract are far below levels warranting a four-lane roadway, and it does not appear that its intersection with Lake Mead Boulevard would warrant traffic signal control. It is recommended that this connection be constructed as a two-lane street with left-turn lanes at access points. (i.e., 60-foot collector with 50-foot back-of-curb width).

It is recommended that the following features also be considered for the Carey Avenue Realignment Connection:

- Locating the Carey Avenue Realignment Connection intersection with Lake Mead Boulevard approximately 140 feet east of the Allen Lane alignment (center-to-center) so that an east-to-north left-turn lane can be provided that is 150 feet or more in length and separated from the Walmart Driveway on Lake Mead Boulevard. This turn pocket would be end-to-end with the west-to-south left-turn lane to the Lake Mead Boulevard/Walmart Driveway.
- Channelization that would keep the south leg of the Allen Lane intersection with Lake Mead Boulevard right-in right-out.
- Incorporation of underground improvements at the Carey Avenue Realignment Connection intersection with Lake Mead Boulevard to facilitate possible future traffic signal control.



CCDOA Project No. CBE-1217 Date: JULY 15, 2025 Drawing Number EXH 1		DEPARTMENT OF AVIATION CLARK COUNTY NEVADA CAREY AVENUE REALIGNMENT CONNECTION (DRIVEWAY RELOCATION ALTERNATIVE 1) Sheet Title CAREY AVENUE VACATION TRAFFIC STUDY Clark County Department of Aviation Project Title		DOA Approval	Consultant	A/E
Rev.	Date	Description				



CCDOA Project No. CBE-1217 Date: JULY 15, 2025 Drawing Number EXH 2		DEPARTMENT OF AVIATION CLARK COUNTY NEVADA CAREY AVENUE RELIGNMENT CONNECTION (DRIVEWAY RELOCATION ALTERNATIVE 2) Sheet Title CAREY AVENUE VACATION TRAFFIC STUDY Clark County Department of Aviation Project Title		DOA Approval		Consultant		A/E	
Rev.	Date	Description							