

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project consists of a gas station with fueling pumps for five (5) trucks and twenty (20) standard passenger vehicles with a 5,637 square foot convenience store. Site access is planned via one right in/out driveway off Oasis Road and two full access driveways off Buckthorne Road. The site is currently zoned as CG for General Commercial per the Public San Bernardino County Map. This project complies with the Public San Bernardino County Map. The project site is currently vacant. The proposed project is anticipated to be built and generating trips in 2026.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021)* trip generation rates were used to determine trip generation of for most of the proposed project land uses.

Table 8 summarizes the projected AM peak hour, PM peak hour, and daily trip generation of the proposed project. This trip generation includes the PCE adjustments made for 4-axle truck traffic. With the PCE trip adjustment, the truck stop included in the proposed project is expected to have 4-axle truck traffic equivalent to the 3,360 passenger cars. With the pass-by trip reduction, the truck stop is proposed to have 4-axle trucks equivalent to 840 passenger cars. The proposed project is projected to generate 2,569 net daily trips with 204 net AM and 192 net PM peak hour trips.

Exhibit 6 shows the truck turning exhibit for the proposed site plan.

Table 8
Proposed Project Trip Generation

Proposed Land Use ¹	ITE Code ²	Qty	Unit ³	Daily		AM Peak Hour					PM Peak Hour				
				Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Convenience Store/Gas Station GFA (>5.5k), VFP (>8) <i>Pass-By Trips (0.75 Daily, 0.76 AM, 0.75 PM)</i>	945(6)	20	VFP ³	345.75	6,915	31.6	50:50	316	316	632	26.9	50:50	269	269	538
					-5,186			-240	-240	-480			-202	-202	-404
Truck Stop <i>Pass-By Trips (0.75 Daily, 0.76 AM, 0.75 PM)</i> <i>4-Axle Trucks (100%)</i> <i>PCE Pass-By Trips</i>	950	5	VFP ³	224	1,120	13.97	49:51	34	36	70	15.42	53:47	41	36	77
					-840			-26	-27	-53			-31	-27	-58
		3.0	PCE ⁴		3,360			102	108	210			123	108	231
					-2,520			-77	-81	-158			-92	-81	-173
Results				Daily	Volume	AM Peak Hour		In	Out	Total	PM Peak Hour		In	Out	Total
PCE Subtotal					10,275			418	424	842			392	377	769
Pass-By Trips					-7,706			-317	-321	-638			-294	-283	-577
PCE and Pass-By Net Total					2,569			101	103	204			98	94	192

1: Trip generation and pass-by rates are from ITE Trip Generation Manual (11th Edition, 2021).

2: Parentheses reflect subcategory of land use code. For example, 945(6) is only convenience stores/gas stations with a general floor area (GFA) of >5.5k square feet and >8 VFPs.

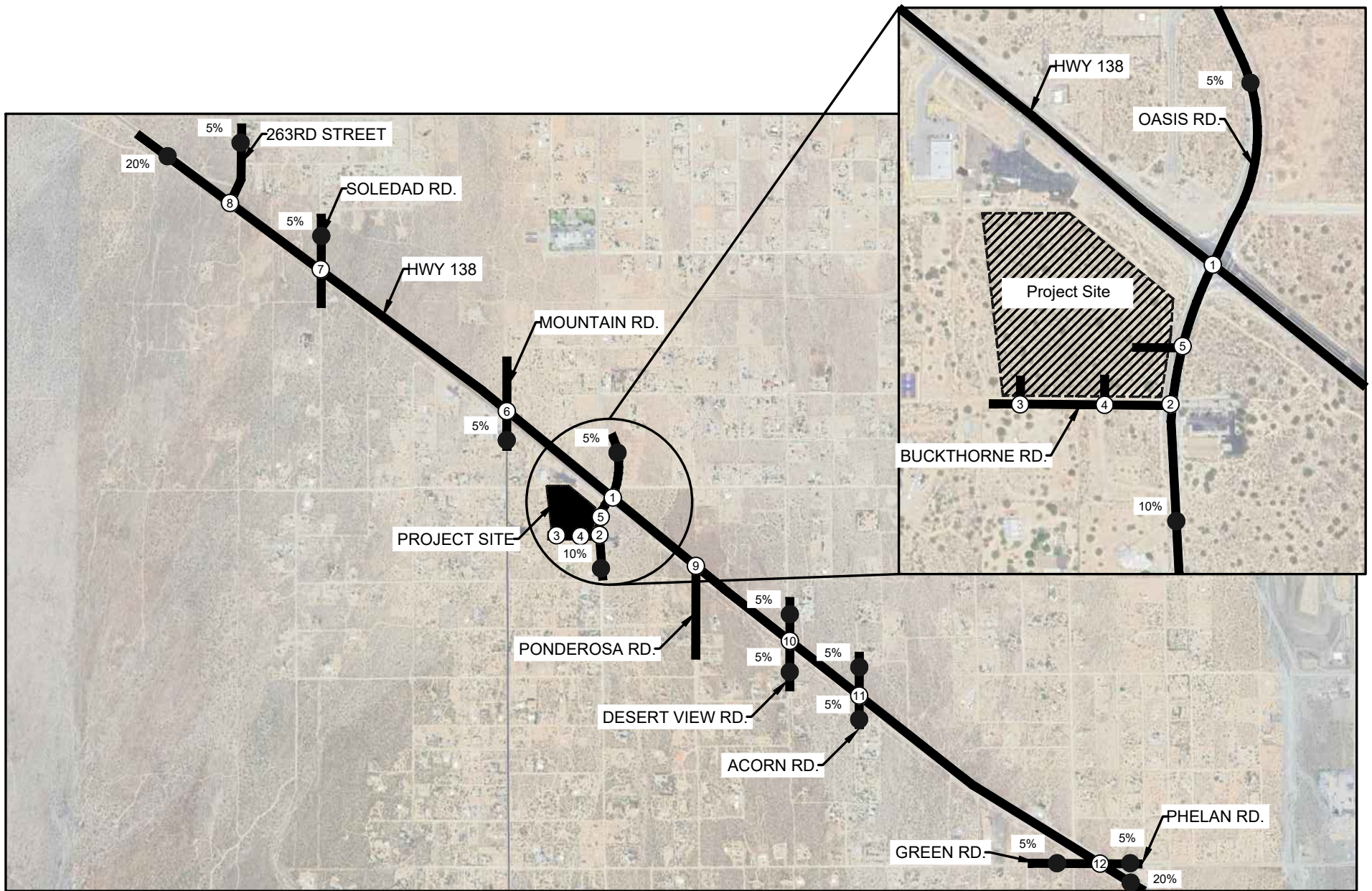
3: VFP = Vehicle Fueling Positions.

4: Passenger car equipment (PCE) factors from the San Bernardino County Transportation Authority Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (February 2020).

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves identifying probable destinations and traffic routes used by the proposed project's traffic. Potential interaction between proposed land use and surrounding regional access routes are considered to identify probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site.

Exhibit 7 shows the projected trip distribution of proposed project's generated trips.



Legend:

- Project Site
- # Study Intersection Location
- XX% Percent Trip Distribution

Exhibit 7: Proposed Trip Distribution

5.0 BACKGROUND TRAFFIC CONDITIONS (EAC)

Background Traffic Conditions (EAC) analysis is intended to identify existing conditions in the year 2026.

5.1 ROADWAY IMPROVEMENTS

Lane configuration and traffic control assumed to be in place for the EAC scenario is consistent with those previously shown in **Exhibit 3** with the addition of adding one through lane on the southbound side of Oasis Road. The improvements to intersection 2 and the addition of the project driveways are shown in **Exhibit 11**.

5.2 EAC TRAFFIC VOLUMES

Background traffic conditions volume include background traffic plus the addition of the traffic projected to be generated by cumulative developments in the vicinity of the proposed project. Cumulative developments are projects which are in various stages of planning, entitlement and construction that are provided by the city staff. Since the proposed project is expected to be built and generating trips in 2026, EAC volumes include an ambient growth rate of 2% per year for two year, applied to existing volumes. This ambient growth rate is found through the County guidelines and approved in the project's scoping agreement.

$$EAC\ Traffic\ Volumes = (Existing\ (2024)\ Counts * 1.02^2) + Cumulative\ projects$$

Exhibit 9 and **Exhibit 10** EAC AM and PM peak hour volumes at the study intersection.

5.3 CUMULATIVE PROJECTS

This analysis also accounts for other reasonably foreseeable development projects which are either approved or are currently being processed in the study area as part of a cumulative analysis scenario. A list of cumulative projects was developed for this analysis through consultation with City staff, and obtainment of current development status reports. A summary of cumulative projects land uses and its associated trip generation is shown on **Table 9**.

Exhibit 8 shows the location of the cumulative projects involved in the proposed project.

Table 9
Cumulative Project Trip Generation

ID	Land Use ¹	ITE Code ²	Qty	Unit ³	Daily		AM Peak Hour					PM Peak Hour				
					Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
									In	Out	Total			In	Out	Total
1	Convenience Store/Gas Station, GFA (2-4k), VFP (>8)	945(2)	12	VFP	265.12	3,181	16.1	50:50	97	96	193	18.4	50:50	111	110	221
2	General Office Building	710	10.0	TSF	10.84	108	1.52	88:12	13	2	15	1.44	17:83	2	12	14
3	Coffee/Donut Shop with Drive-Through Window	937	2.2	TSF	533.57	1,190	85.9	51:49	98	94	192	39	50:50	44	43	87
4	Tractor Supply Store	810	39.0	TSF	0	0	0	0	0	0	0	1.4	47:53	26	29	55
5	Warehousing	150	5.5	TSF	1.71	9	0.17	77:23	1	0	1	0.18	28:72	0	1	1
6	Automobile Parts and Service Center	943	7.2	TSF	16.6	120	1.91	72:28	10	4	14	2.06	39:61	6	9	15
Total						4,608			219	196	415			189	204	393

1: Trip generation and pass-by rates from ITE Trip Generation (11th Edition, 2021).

2. RM= Rooms; TSF= Thousand Square Feet; VFP= Vehicle Fueling Positions; DU= Dwelling Units.

3: Parentheses reflect subcategory of land use code. Example: 945(2) is only convenience stores/gas stations with a general floor area (GFA) of 2-4k square feet and >8 VFPs

5.4 EAC INTERSECTION LEVEL OF SERVICE ANALYSIS

The *Background* traffic conditions AM and PM peak hour intersection analysis is shown in **Table 10**. HCM analysis sheets are provided in **Appendix C**.

Table 10
Intersection Analysis – EAC Traffic Conditions

Intersection			Control Type	Peak Hour	EAC Conditions	
					Delay (s/veh)	LOS
1	Oasis Road	Route 138	Signal	AM	30.11	C
				PM	33.81	C
2	Oasis Road	Buckthorne Road	TWSC	AM	8.42	A
				PM	8.50	A
3	Project Driveway #1	Buckthorne Road	TWSC	AM	-	-
				PM	-	-
4	Project Driveway #2	Buckthorne Road	TWSC	AM	-	-
				PM	-	-
5	Oasis Road	Project Driveway #3	TWSC	AM	-	-
				PM	-	-
6	Mountain Road	Route 138	TWSC	AM	15.21	C
				PM	21.48	C
7	Soledad Road	Route 138	TWSC	AM	14.08	B
				PM	16.72	C
8	263 rd Street East	Route 138	TWSC	AM	13.83	B
				PM	14.77	B
9	Ponderosa Road	Route 138	TWSC	AM	15.40	C
				PM	16.71	C



Intersection			Control Type	Peak Hour	EAC Conditions	
					Delay (s/veh)	LOS
10	Desert View Road	Route 138	TWSC	AM	18.32	C
				PM	16.90	C
11	Acorn Road	Route 138	TWSC	AM	16.84	C
				PM	19.73	C
12	Green Road-Phelan Road	Route 138	Signal	AM	22.51	C
				PM	21.93	C

Note: TWSC = Two-Way Stop-Control; Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall average delay and LOS are shown. For intersections with one or two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown on **Table 10**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Background* traffic conditions.

5.5 EAC ROADWAY LEVEL OF SERVICE ANALYSIS

The roadway segment level of service analysis results for *Background* traffic conditions scenario are summarized in **Table 11**.

Table 11
Roadway Segment – EAC Traffic Conditions

Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	EAC ADT	V/C	LOS
Oasis Road	Between Route 138 and Buckthorne Road	Secondary Highway	2	13,650	1,140	0.08	A

As shown on **Table 11** the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Background* traffic conditions.



Legend:



Approximate Cumulative Project Locations

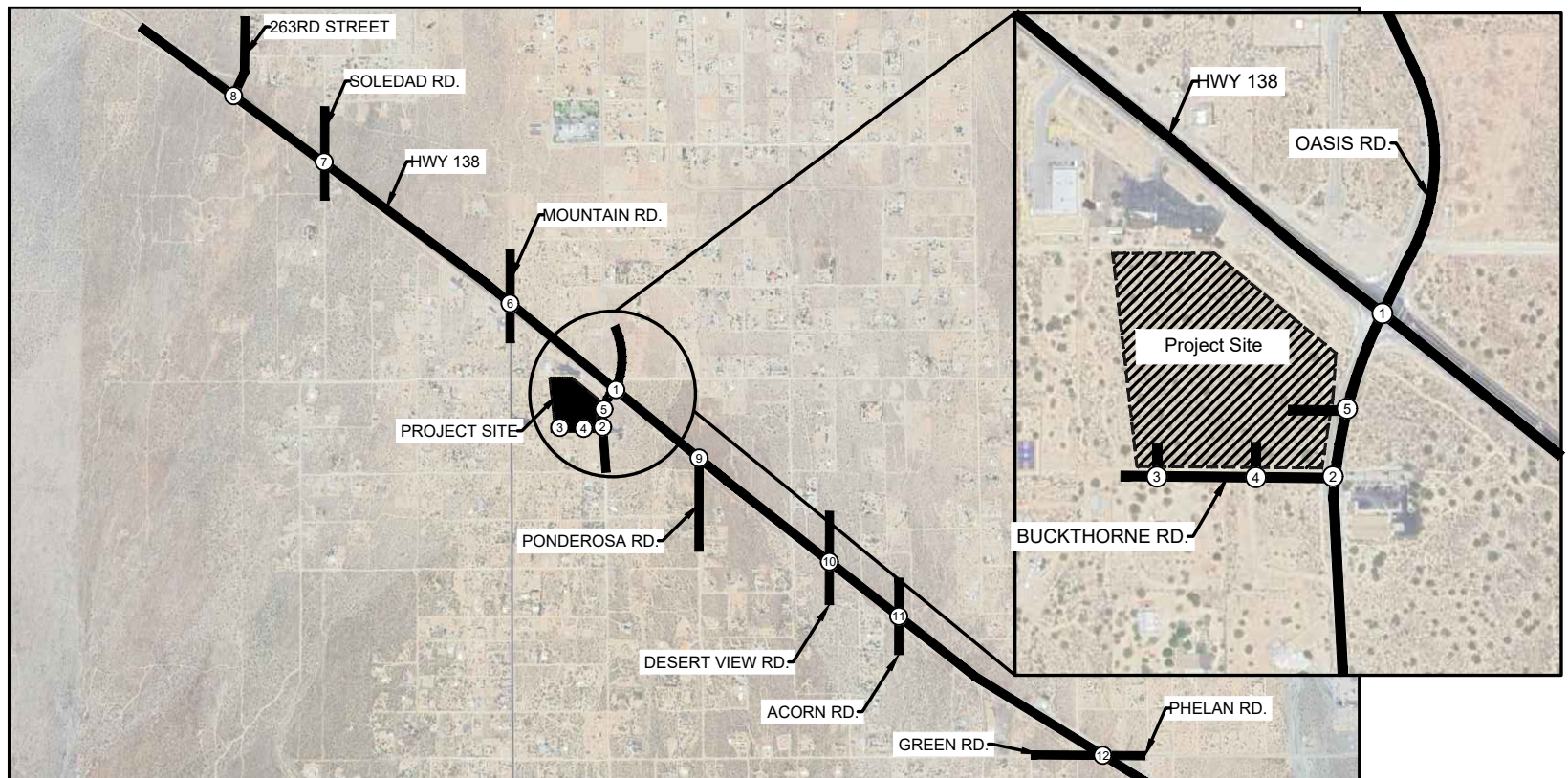


Study Intersection Location

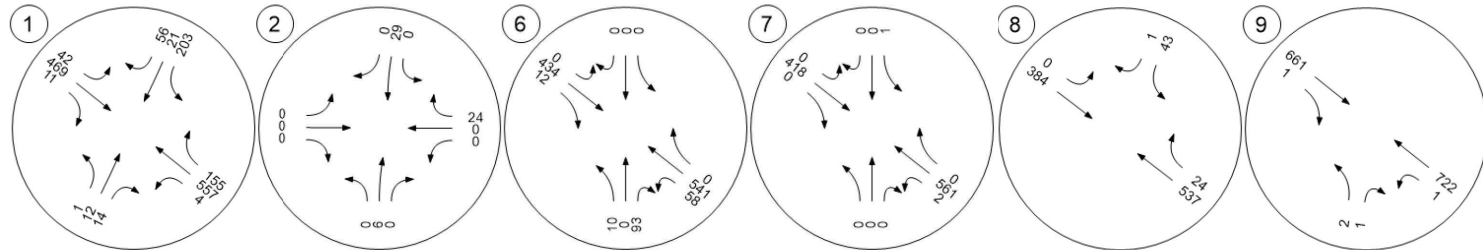
Exhibit 8: Cumulative Project Location



Pinon Hills Traffic Impact Analysis



Oasis Rd. / HWY 138 Oasis Rd. / Buckthorne Rd Mountain Rd. / HWY 138 Soledad Rd. / HWY 138 263rd St. E / HWY 138 Ponderosa Rd. / HWY 138



Desert View Rd. / HWY 138 Acorn Rd. / HWY 138 Green Rd.-Phelan Rd. / HWY 138

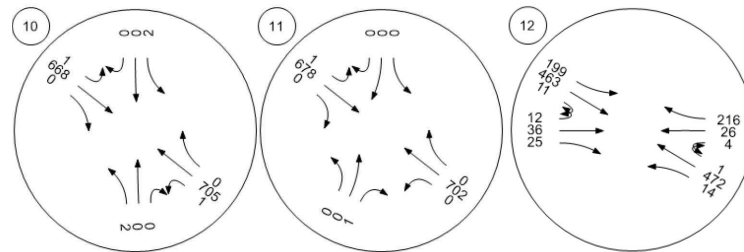
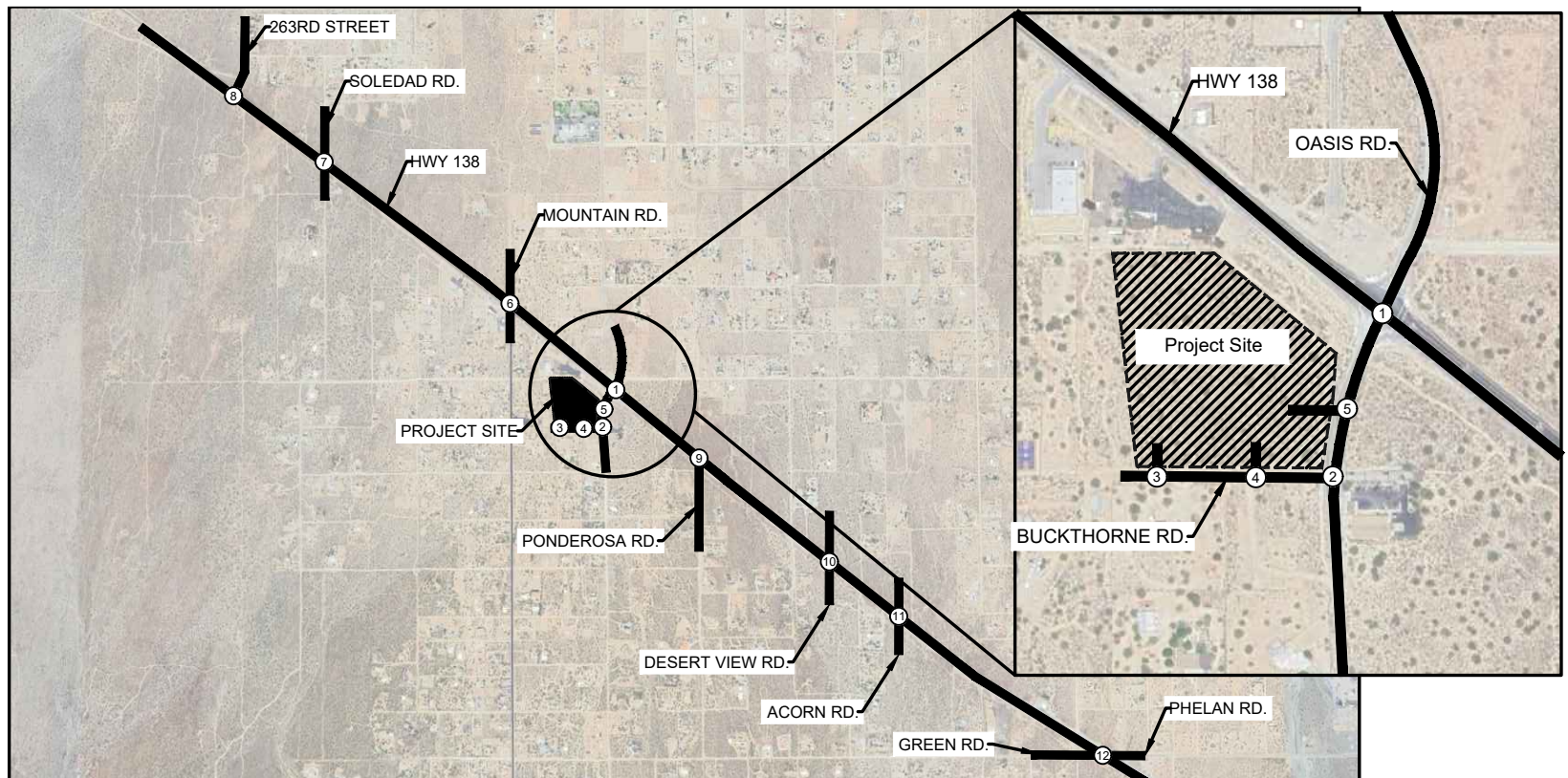


Exhibit 9: EAC Background AM Peak Hour Volumes



Oasis Rd. / HWY 138 Oasis Rd. / Buckthorne Rd Mountain Rd. / HWY 138 Soledad Rd. / HWY 138 263rd St. E / HWY 138 Ponderosa Rd. / HWY 138

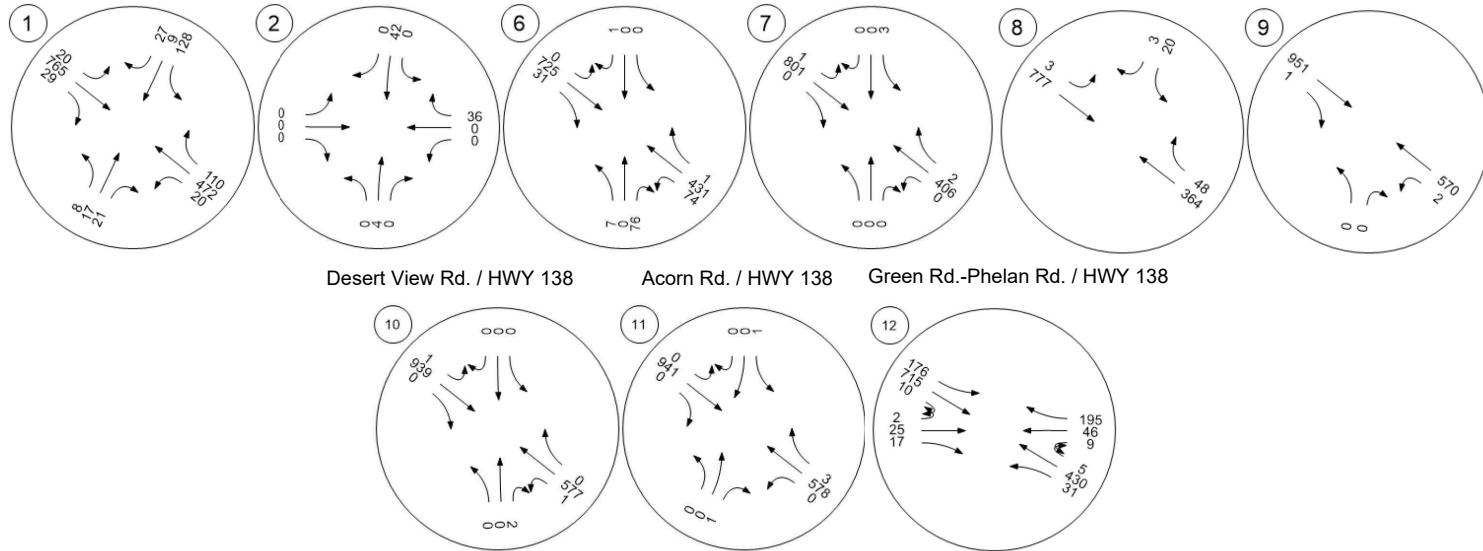


Exhibit 10: EAC Background PM Peak Hour Volumes

6.0 BACKGROUND PLUS PROJECT TRAFFIC CONDITIONS (EACP)

Background Plus Project Traffic Conditions (EACP) analysis is intended to identify existing conditions with the proposed project.

6.1 ROADWAY IMPROVEMENTS

Lane configuration and traffic control assumed to be in place for the EAC scenario is consistent with those previously shown in **Exhibit 3** with the addition of adding one through lane on the southbound side of Oasis Road. The improvements on intersection 2 and the addition of the project driveways are shown in **Exhibit 11**.

6.2 EACP TRAFFIC VOLUMES

Background Plus Project Traffic conditions volumes include the trips generated by the completion of the proposed project. Since the proposed project is expected to be fully completed and generating trips in 2026, EACP volumes include an ambient growth rate of 2% per year for two years, applied to existing volumes.

$$\text{EACP Traffic Volumes} = (\text{Existing (2024) Counts} * 1.02^2) + \text{Cumulative Projects} + \text{Proposed Project}$$

Exhibit 12 and **Exhibit 13** shows *Background Plus Project* AM and PM peak hour volumes at the study intersections.

6.3 EACP INTERSECTION LEVEL OF SERVICE ANALYSIS

Background Plus Project traffic conditions AM and PM peak hour intersection analysis is shown in **Table 12**. HCM analysis sheets are provided in **Appendix C**.

Table 12
Intersection Analysis – EACP Traffic Conditions

Intersection			Control Type	Peak Hour	EAC Conditions		EACP Conditions		Deficient?
					Delay (s/veh)	LOS	Delay (s/veh)	LOS	
1	Oasis Road	Route 138	Signal	AM	30.11	C	34.43	C	-
				PM	33.81	C	34.20	C	-
2	Oasis Road	Buckthorne Road	TWSC	AM	8.42	A	9.87	A	-
				PM	8.50	A	10.34	B	-
3	Project Driveway #1	Buckthorne Road	TWSC	AM	-	-	8.75	A	-
				PM	-	-	8.73	A	-
4	Project Driveway #2	Buckthorne Road	TWSC	AM	-	-	9.17	A	-
				PM	-	-	9.12	A	-
5	Oasis Road	Project Driveway #3	TWSC	AM	-	-	8.53	A	-
				PM	-	-	8.53	A	-
6	Mountain Road	Route 138	TWSC	AM	15.21	C	26.79	D	-
				PM	21.48	C	23.28	C	-



Intersection			Control Type	Peak Hour	EAC Conditions		EACP Conditions		Deficient?
					Delay (s/veh)	LOS	Delay (s/veh)	LOS	
7	Soledad Road	Route 138	TWSC	AM	14.08	B	14.63	B	-
				PM	16.72	C	17.44	C	-
8	263 rd Street East	Route 138	TWSC	AM	13.83	B	14.28	B	-
				PM	14.77	B	15.35	C	-
9	Ponderosa Road	Route 138	TWSC	AM	15.40	C	16.21	C	-
				PM	16.71	C	17.47	C	-
10	Desert View Road	Route 138	TWSC	AM	18.32	C	20.16	C	-
				PM	16.90	C	19.97	C	-
11	Acorn Road	Route 138	TWSC	AM	16.84	C	18.05	C	-
				PM	19.73	C	19.45	C	-
12	Green Road-Phelan Road	Route 138	Signal	AM	22.51	C	22.77	C	-
				PM	21.93	C	22.79	C	-

Note: TWSC = Two-Way Stop-Control; Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall average delay and LOS are shown. For intersections with one or two-way stop-control, the delay and LOS for the worst individual movement is shown.

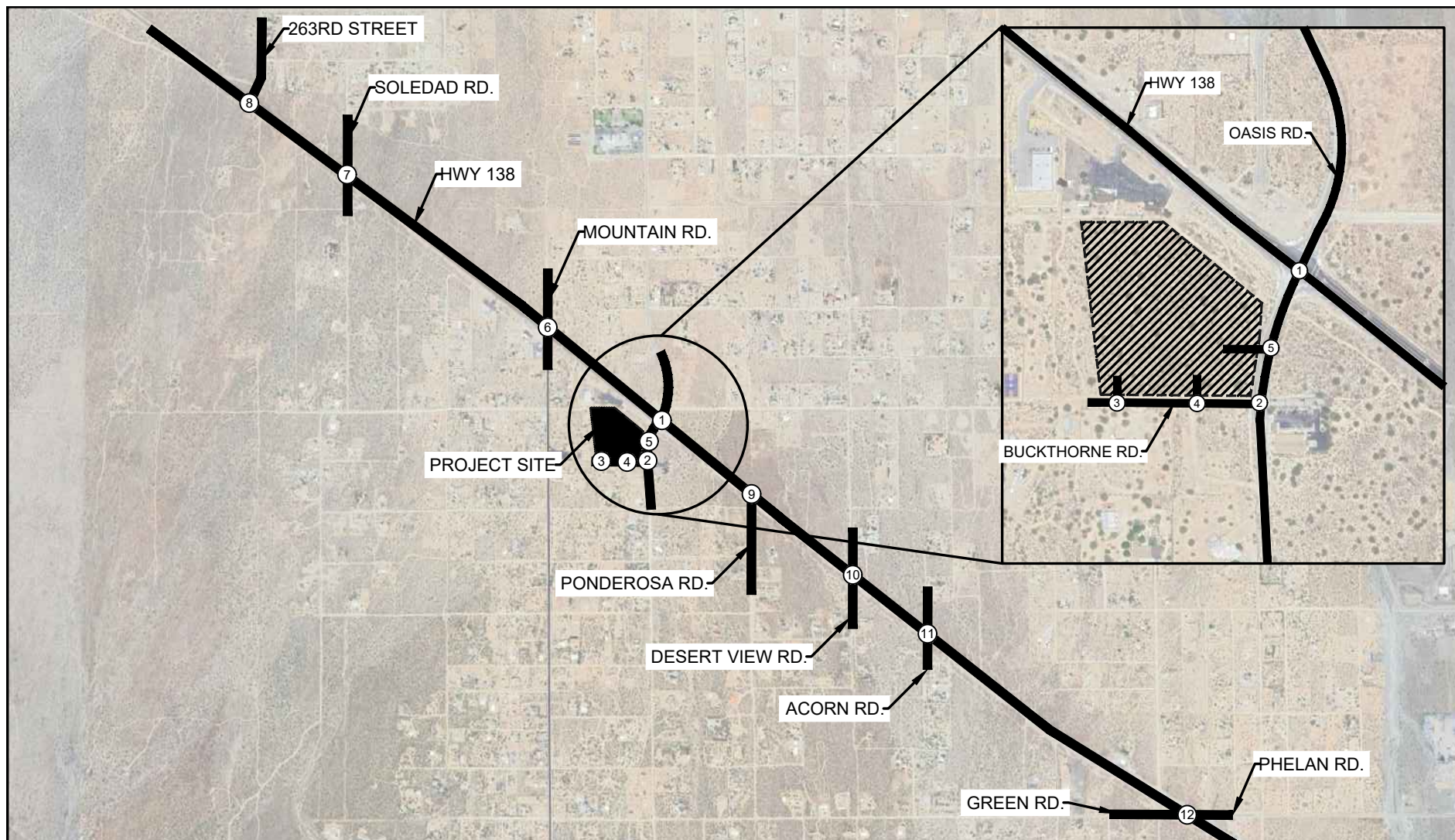
As shown in **Table 12**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Background Plus Project* traffic conditions.

6.4 EACP ROADWAY LEVEL OF SERVICE ANALYSIS

The roadway segment level of service analysis results for *Background Plus Project* traffic conditions scenario are summarized in **Table 13**.

Table 13
Roadway Segment – EACP Traffic Conditions

Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	EACP ADT	V/C	LOS
Oasis Road	Between Route 138 and Buckthorne Road	Secondary Highway	2	13,650	8,371	0.61	B



Oasis Rd. / Buckthorne Rd. Project Dwy #1 / Buckthorne Rd. Project Dwy #2 / Buckthorne Rd. Oasis Rd. / Project Dwy #3

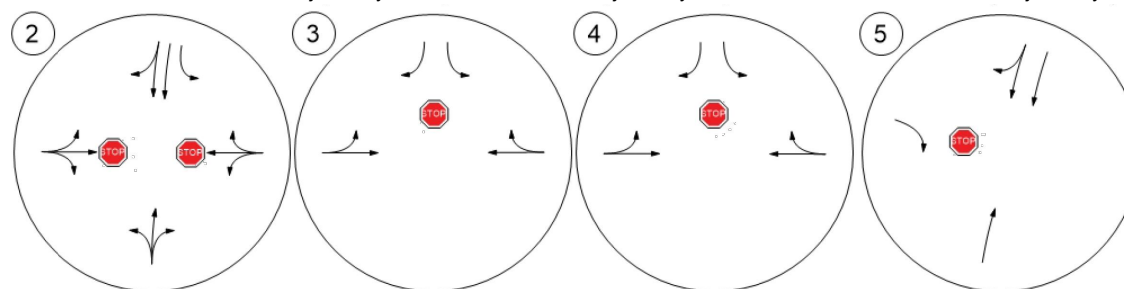


Exhibit 11: Project Lane Geometry and Intersection Controls

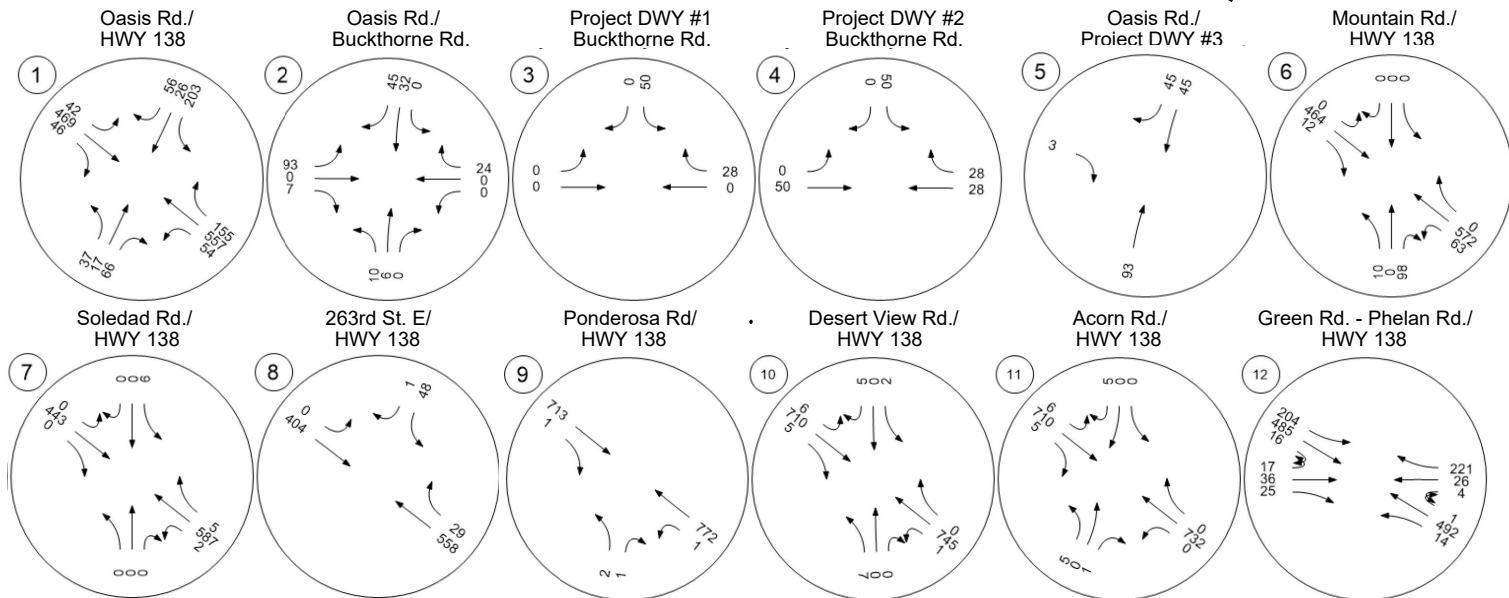
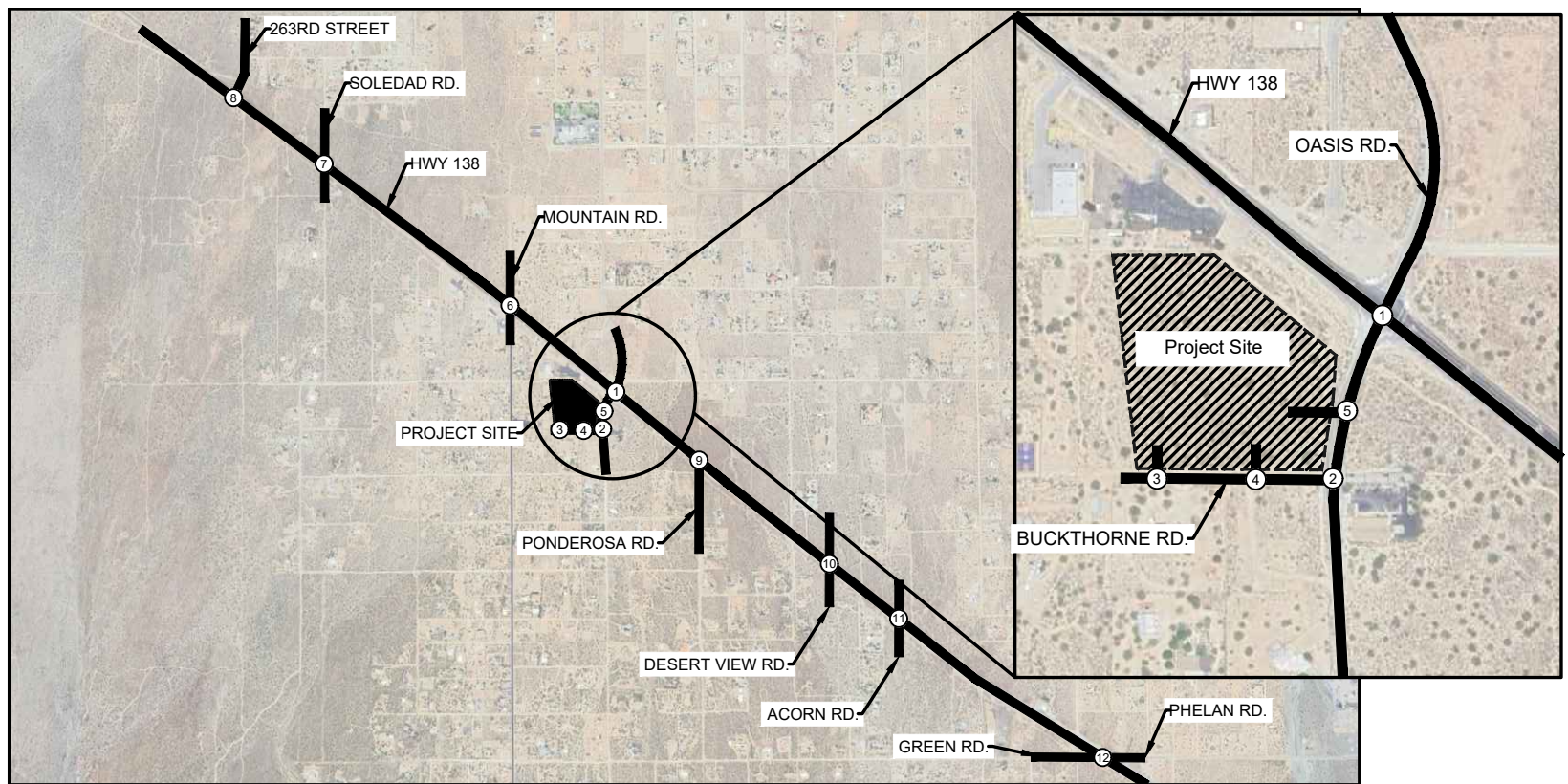


Exhibit 12: EACP Background Plus Project AM Peak Hour Volumes