

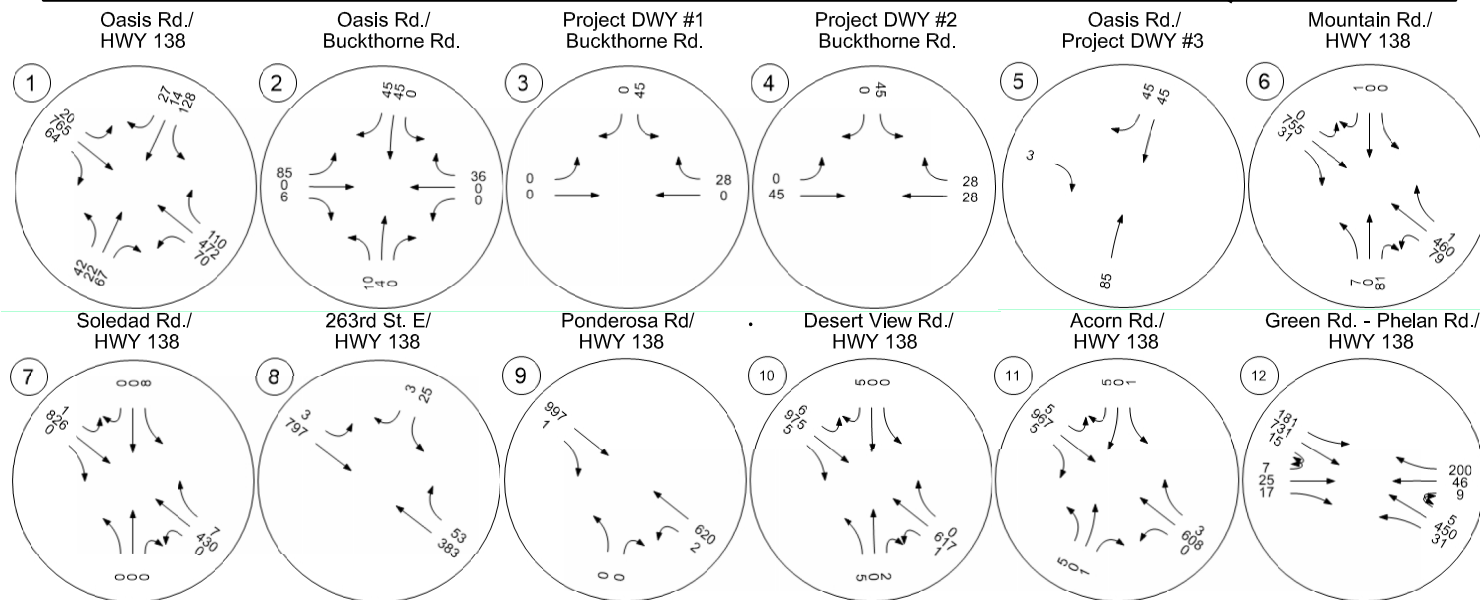
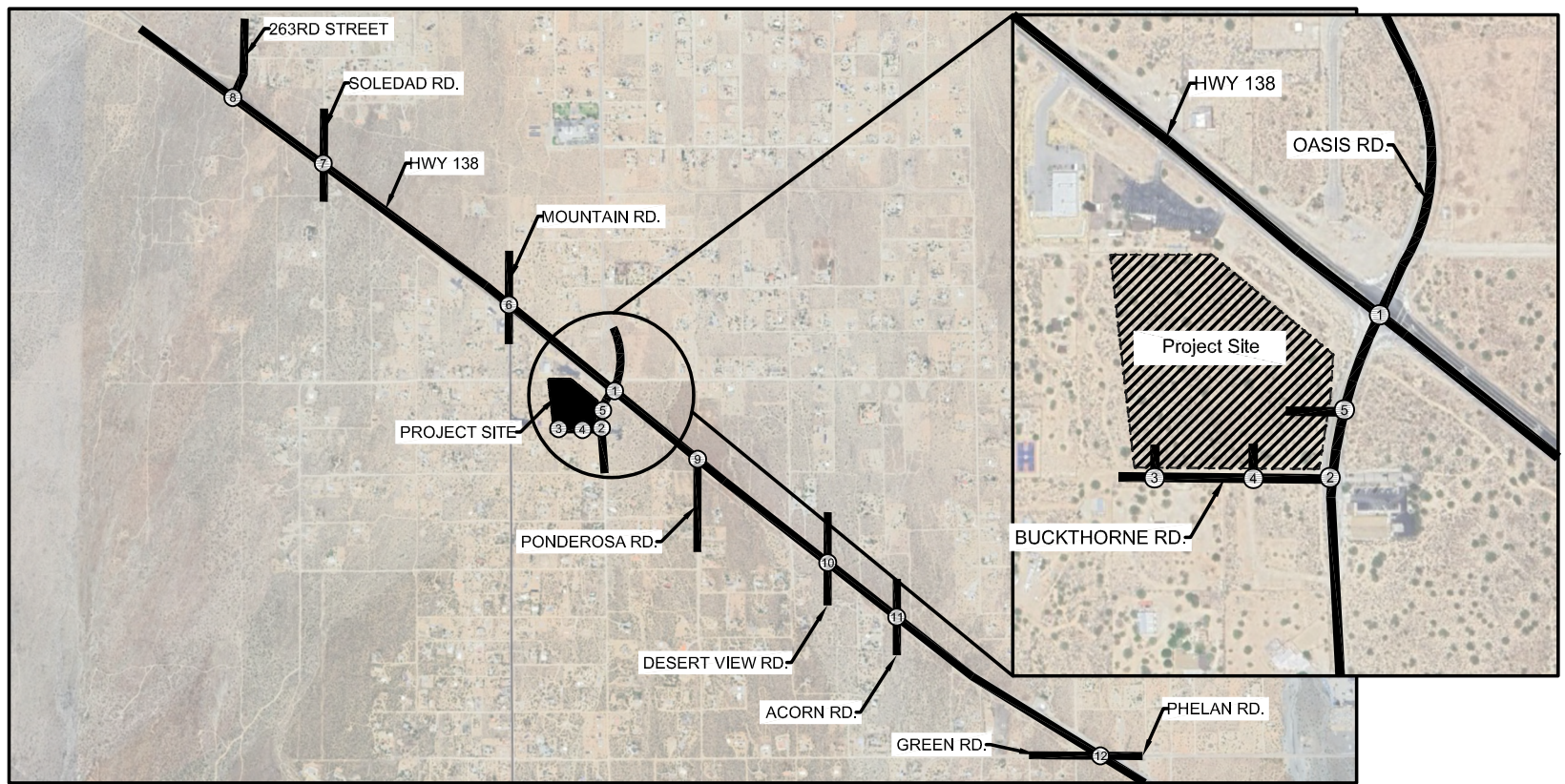


Exhibit 13: EACP Background Plus Project PM Peak Hour Volumes

6.5 BACKGROUND PLUS PROJECT QUEUING ANALYSIS

The queuing analysis is for the following examined movements;

Oasis Road and Highway 138 (Intersection 1)

- Eastbound (EB) right turn movement
- Westbound (WB) left turn movement

Oasis Road and Project Driveway #3 (Intersection 5)

- Southbound (SB) right turn movement

95th percentile queue lengths at this intersection were calculated to determine whether vehicles would have sufficient storage space at each movement.

The analysis utilized the traffic software program PTV Vistro to determine 95th percentile queue lengths for the movements at the study intersections. PTV Vistro uses the proposed project trip generation volumes and trip distribution to calculate the 95th percentile queue lengths in feet for the selected intersection movements. These were then compared to the existing storage lengths of each movement. **Table 14** compares these to the existing storage lengths. Synchro Queuing Reports are in **Appendix E**.

Table 14:
Intersection Queuing Analysis – Background Plus Project Conditions

Intersection			Leg ¹	Movement ²	Storage Length (ft)	95th Percentile Queue Length	
						AM Peak Hour	PM Peak
1	Oasis Road	Highway 138	EB	L	520	63	30
				R	520	37	44
			WB	L	520	75	103
				R	520	112	62
5	Oasis Road	Project Driveway #3	SB	R	-	<5	<5

1: NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound.

2: L = Left-Turn; R = Right-Turn; T/R = Through/Right-Turn.

As shown in **Table 14**, the storage lengths for the AM and PM peak hours will be sufficient for the 95th percentile queue lengths during *EACP* traffic conditions.

Regarding the eastbound right-turn movement of Oasis Road and Highway 138, the right-turn pocket is painted 520-feet long. This provides sufficient storage space for the AM peak hour 95th percentile queue length of 37-feet and the PM peak hour 95th percentile queue length of 44-feet.



Regarding the westbound left-turn movement of Oasis Road and Highway 138, the 520-foot westbound left-turn pocket will provide sufficient storage for the AM peak hour 95th percentile queue length of 75-feet and the PM peak hour 95th percentile queue length of 103-feet.

Additionally, the eastbound right-turn 95th percentile queue length of 37-feet and 44-feet will not block the existing property driveways for Smoketree Junction Antiques, 815 State Highway 138, CA 92372.

Lastly, the southbound right-turn movement on Oasis Road into the project driveway #3 has a 95th percentile queue length of less than 5 feet in both AM and PM peak hour.

7.0 HORIZON YEAR CONDITIONS (HY)

Horizon Year (HY) conditions analysis is intended to identify traffic conditions during planned long-term circulation system for the year 2045.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the HY scenario are based on the existing lane configurations. The lane configurations are shown in **Exhibit 14**.

7.2 HY TRAFFIC VOLUMES

HY volumes were developed based on SANDAG model volumes for base year and future year for the study area. The resulting ambient growth rate was then applied to existing counts. Due to the significant difference between the north-south volumes and the main corridor, Highway 138, two different growth rates generated by the SANDAG model data will be applied. The resulting growth rates were determined to be:

- N/S direction AM peak hour – 1.77%
- Main corridor AM peak hour – 2.81%
- N/S direction PM peak hour – 1.42%
- Main corridor PM peak hour – 2.74%

Horizon Year (2040) = (Existing (2024) Counts * (1+ annual growth rate) ^21)

Exhibit 15 and **Exhibit 16** show HY AM and PM peak hour volumes at the study intersections.

7.3 HY INTERSECTION LEVEL OF SERVICE ANALYSIS

HY conditions AM and PM peak hour intersection analysis are shown in **Table 15** . HCM analysis sheets are provided in **Appendix C**.

Table 15 Intersection Analysis - HY Traffic Conditions

Intersection			Control Type	Peak Hour	HY Conditions	
					Delay (s/veh)	LOS
1	Oasis Road	Route 138	Signal	AM	31.97	C
				PM	47.52	D
2	Oasis Road	Buckthorne Road	TWSC	AM	8.43	A
				PM	8.97	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	35.16	E
				PM	90.09	F
7	Soledad Road	Route 138	TWSC	AM	19.10	C
				PM	26.58	D
8	263 rd Street East	Route 138	TWSC	AM	18.54	C
				PM	21.69	C
9	Ponderosa Road	Route 138	TWSC	AM	18.71	C
				PM	29.25	D
10	Desert View Road	Route 138	TWSC	AM	23.81	C
				PM	31.05	D
11	Acorn Road	Route 138	TWSC	AM	19.23	C
				PM	30.82	D
12	Green Road-Phelan Road	Route 138	Signal	AM	19.09	B
				PM	20.27	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 15**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Horizon Year* traffic conditions with the exception of:

- Intersection 6: Mountain Road/Route 138

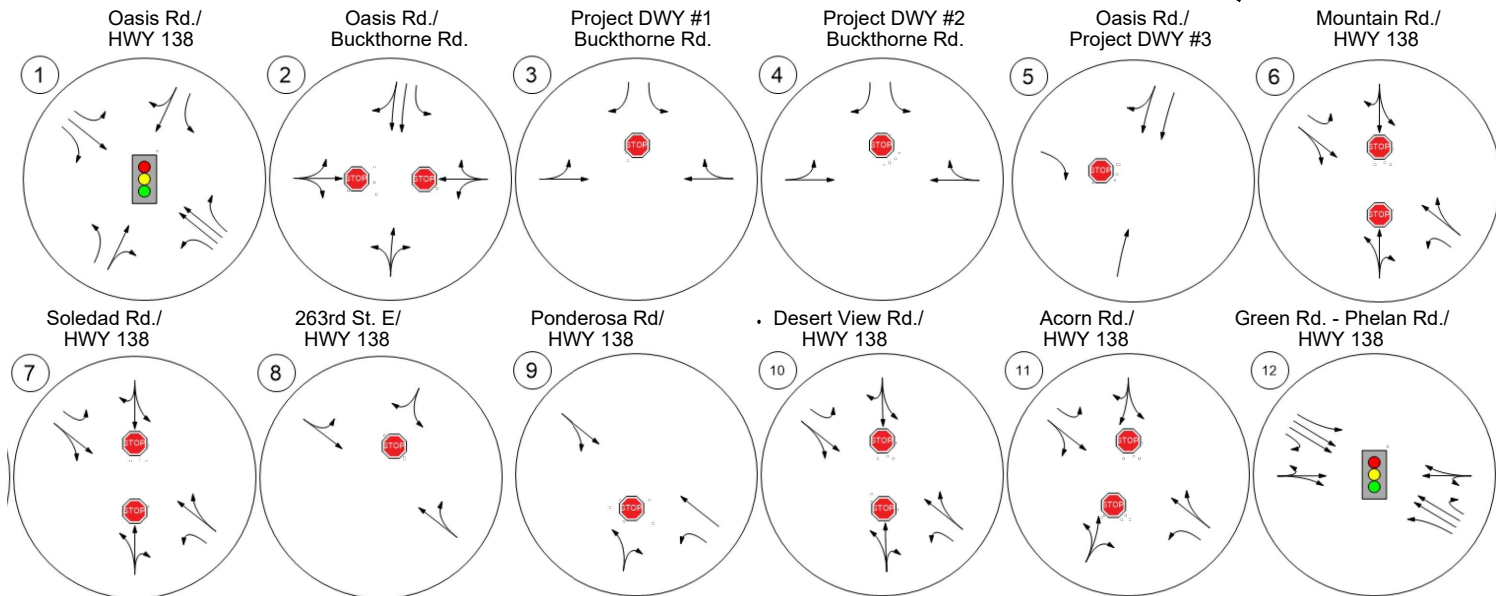
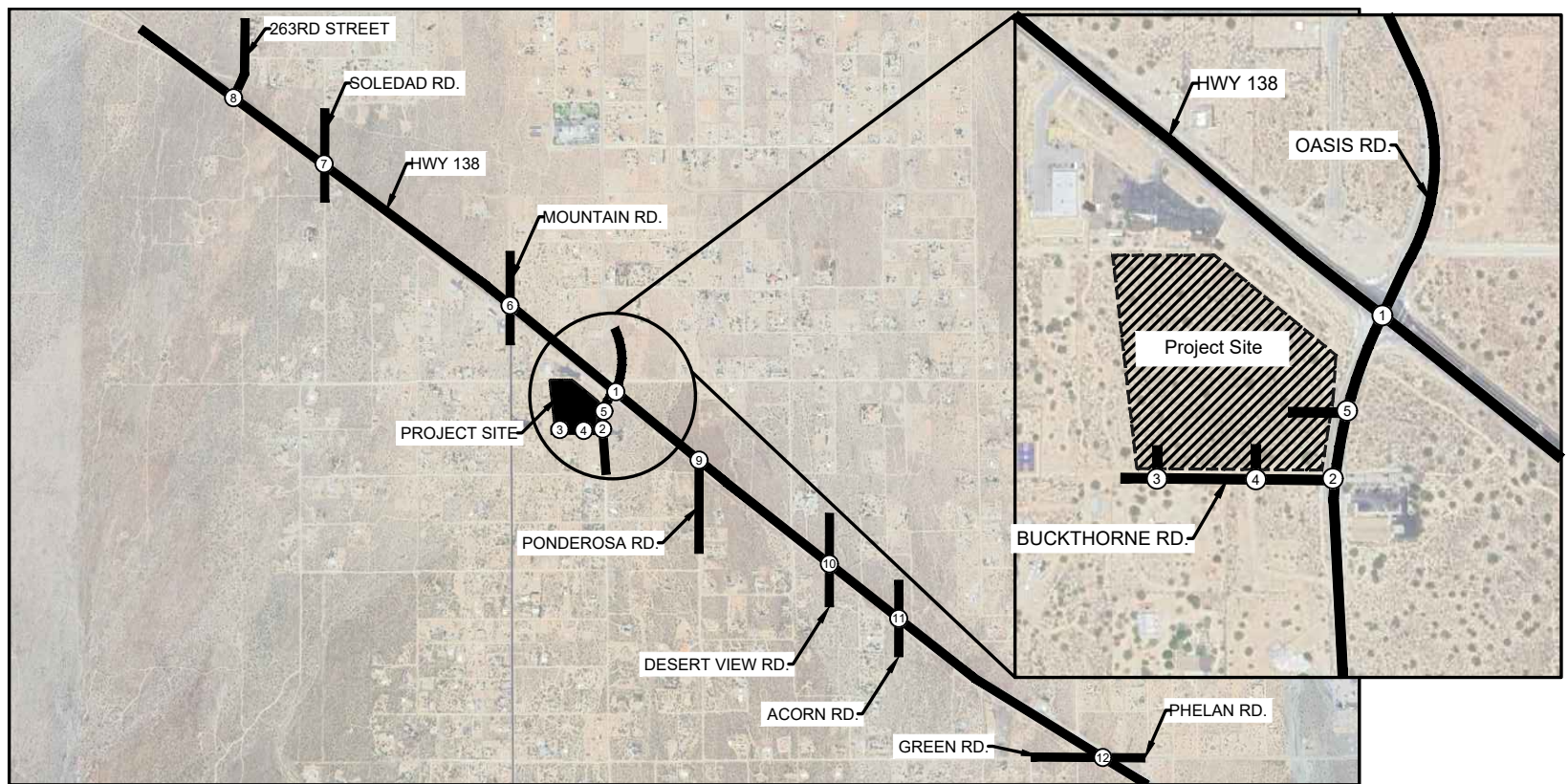


Exhibit 14: Horizon Year Lane Geometry and Intersection Controls

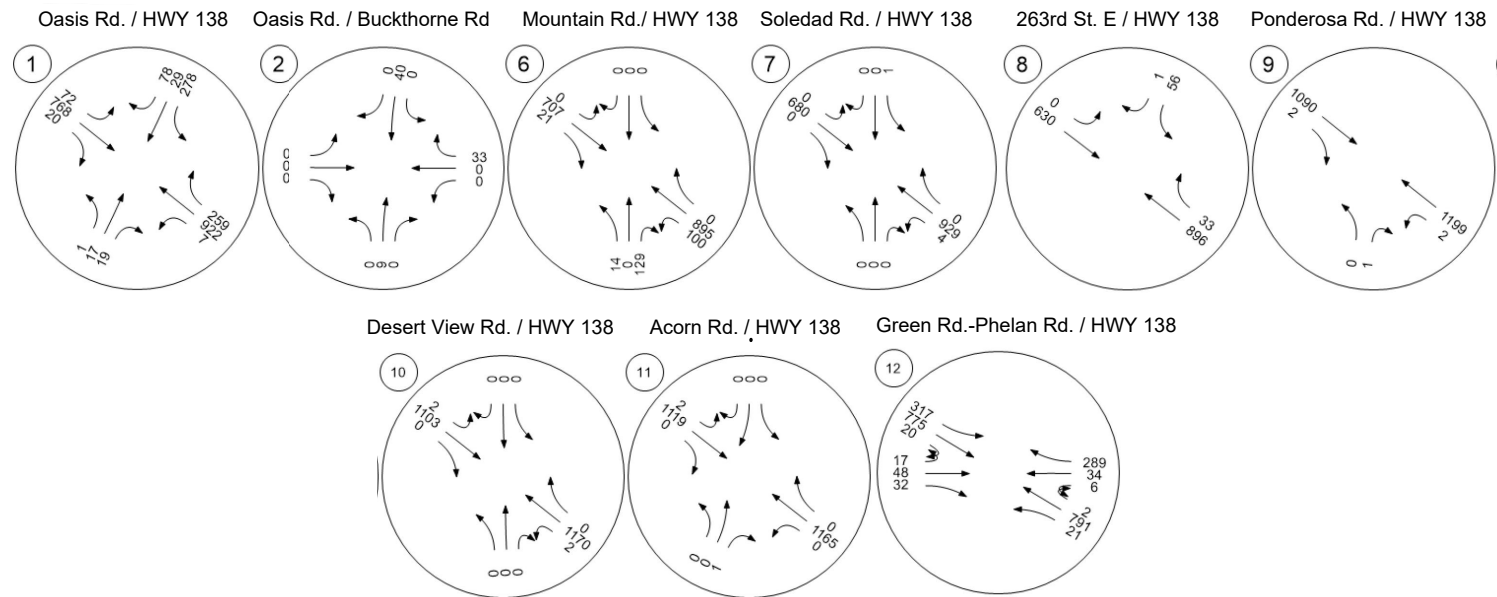
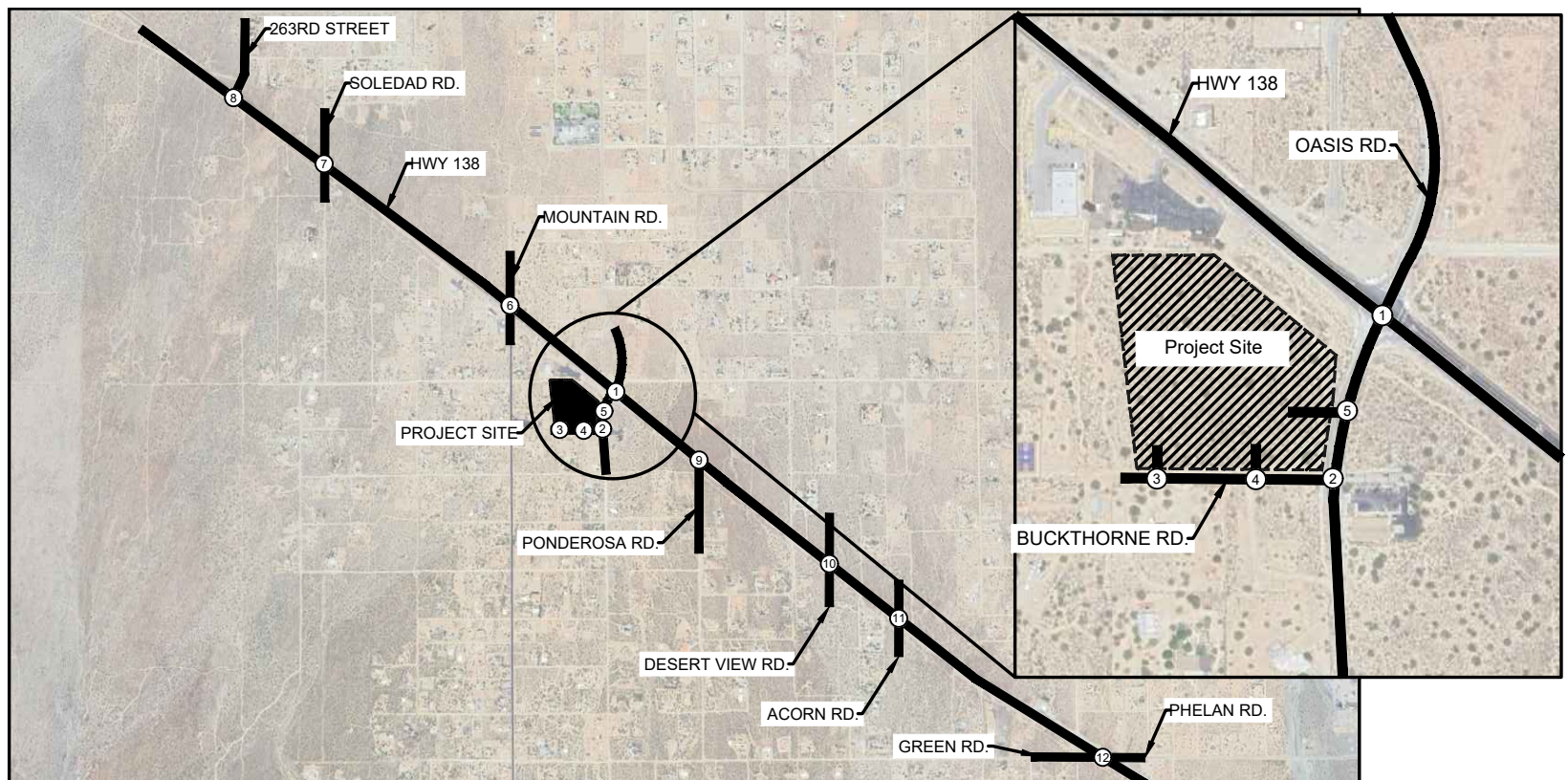
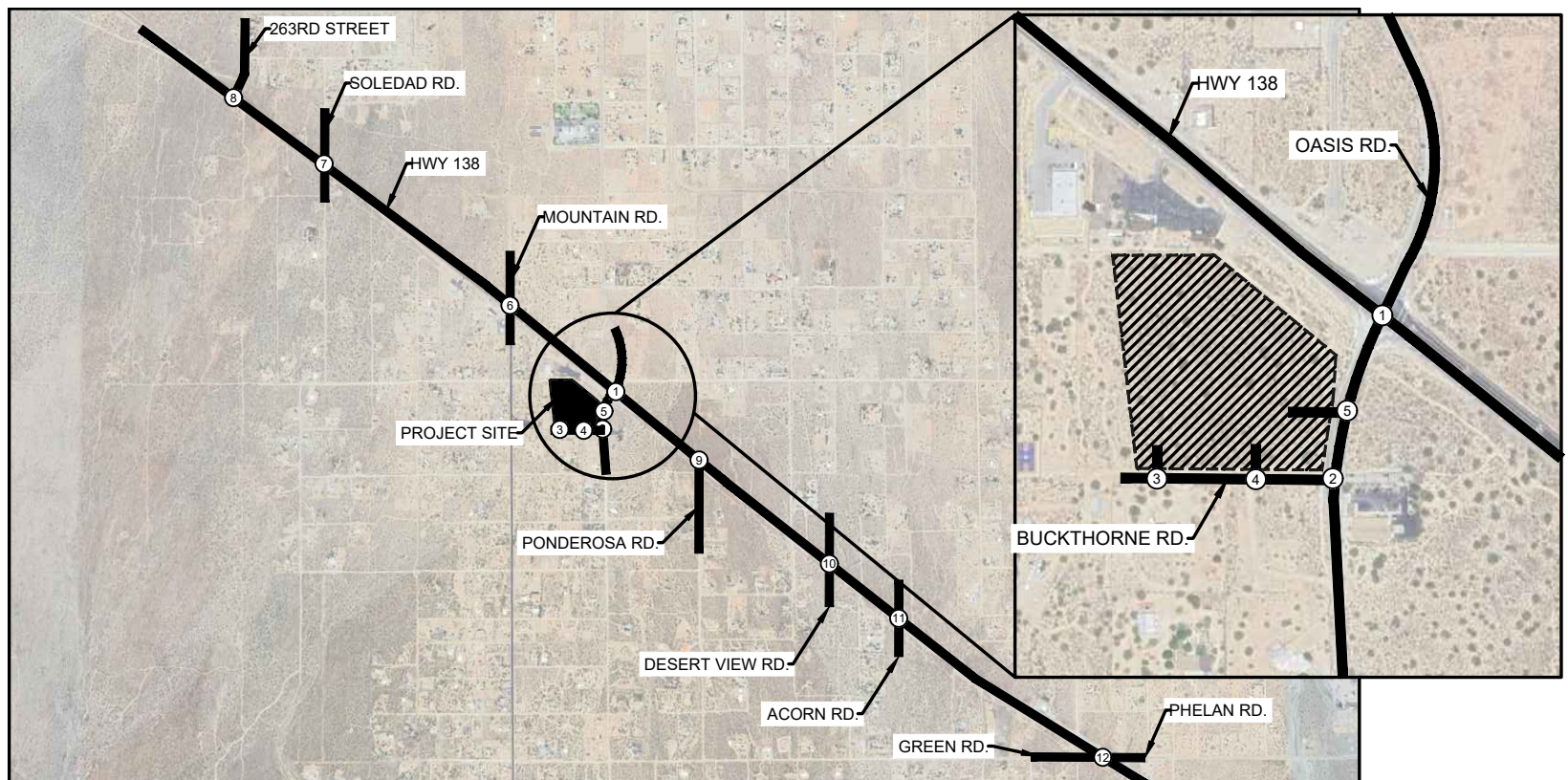


Exhibit 15: Horizon Year AM Peak Hour Volumes



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

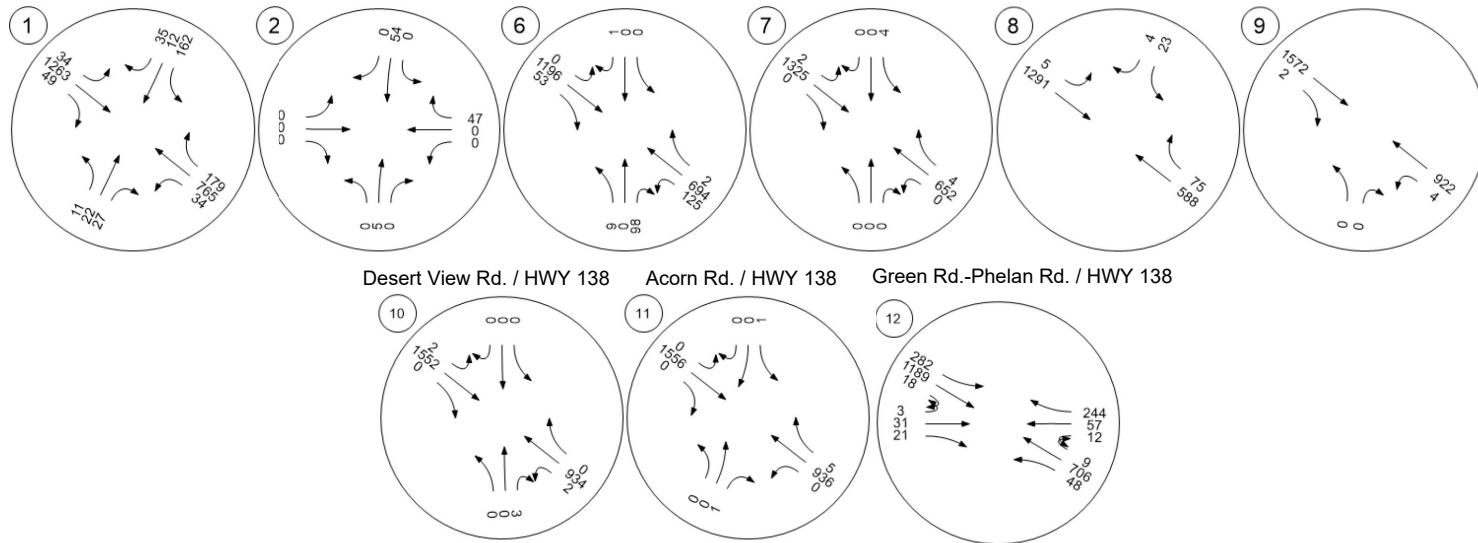


Exhibit 16: Horizon Year PM Peak Hour Volumes

8.0 HORIZON YEAR PLUS PROJECT CONDITIONS (HYP)

Horizon Year Plus Project (HYP) conditions analysis is intended to identify the traffic conditions during the planned horizon year of 2045 and the proposed project impacts on the horizon year of 2045.

8.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the HY scenario are based on existing lane geometry. The lane configuration for *Horizon Year Plus Project* scenario is shown in **Exhibit 14**.

8.2 HYP TRAFFIC VOLUMES

HYP volumes were developed based on SANDAG model volumes for base year and future year for the study area. The resulting ambient growth rate was then applied to existing counts. Due to the significant difference between the north-south volumes and the main corridor, Highway 138, two different growth rates generated by the SANDAG model data will be applied. The resulting growth rates were determined to be:

- N/S direction AM peak hour – 1.77%
- Main corridor AM peak hour – 2.81%
- N/S direction PM peak hour – 1.42%
- Main corridor PM peak hour – 2.74%

Horizon Year (2040) = (Existing (2024) Counts * (1+ annual growth rate)²¹) + Proposed Project

Exhibit 17 and **Exhibit 18** shows HYP AM and PM peak hour volumes at the study intersections.

8.3 HYP INTERSECTION LEVEL OF SERVICE ANALYSIS

Horizon year plus project conditions AM and PM peak hour intersection analysis is shown in **Table 16**. HCM analysis sheets are provided in **Appendix E**.

Table 16
Intersection Analysis – HYP Traffic Conditions

Intersection			Control Type	Peak Hour	HY Conditions		HYP Conditions	
					Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Oasis Road	Route 138	Signal	AM	31.97	C	43.84	D
				PM	47.52	D	48.56	D
2	Oasis Road	Buckthorne Road	TWSC	AM	8.43	A	9.82	A
				PM	8.97	A	10.00	B
3	Project Driveway #1	Buckthorne Road	TWSC	AM	-	-	8.75	A
				PM	-	-	8.73	A

Intersection			Control Type	Peak Hour	HY Conditions		HYP Conditions	
					Delay (s/veh)	LOS	Delay (s/veh)	LOS
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	35.16	E	41.10	E
				PM	90.09	F	112.68	F
7	Soledad Road	Route 138	TWSC	AM	19.10	C	19.98	C
				PM	26.58	D	28.09	D
8	263 rd Street East	Route 138	TWSC	AM	18.54	C	19.29	C
				PM	21.69	C	22.87	C
9	Ponderosa Road	Route 138	TWSC	AM	18.71	C	19.70	C
				PM	29.25	D	30.75	D
10	Desert View Road	Route 138	TWSC	AM	23.81	C	30.62	D
				PM	31.05	D	35.46	E
11	Acorn Road	Route 138	TWSC	AM	19.23	C	21.05	C
				PM	30.82	D	34.84	D
12	Green Road-Phelan Road	Route 138	Signal	AM	19.09	B	22.49	C
				PM	20.27	C	22.43	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 16**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Horizon Year Plus Project* traffic conditions with the exception of:

- Intersection 6: Mountain Road / Route 138
- Intersection 10: Desert View Road / Route 138

Although intersection 10, Desert View Road and Route 138, is projected to operate at an unacceptable LOS, the trips generated by the project do not surpass the 5.0 second delay threshold. Therefore, per county guidelines, improvements are not required.