

To: Lake Havasu City

From: Jason Watson, PE, PTOE
FOCUS Engineering & Surveying, LLC

File: Bahama Ave Resort

Date: July 10, 2024

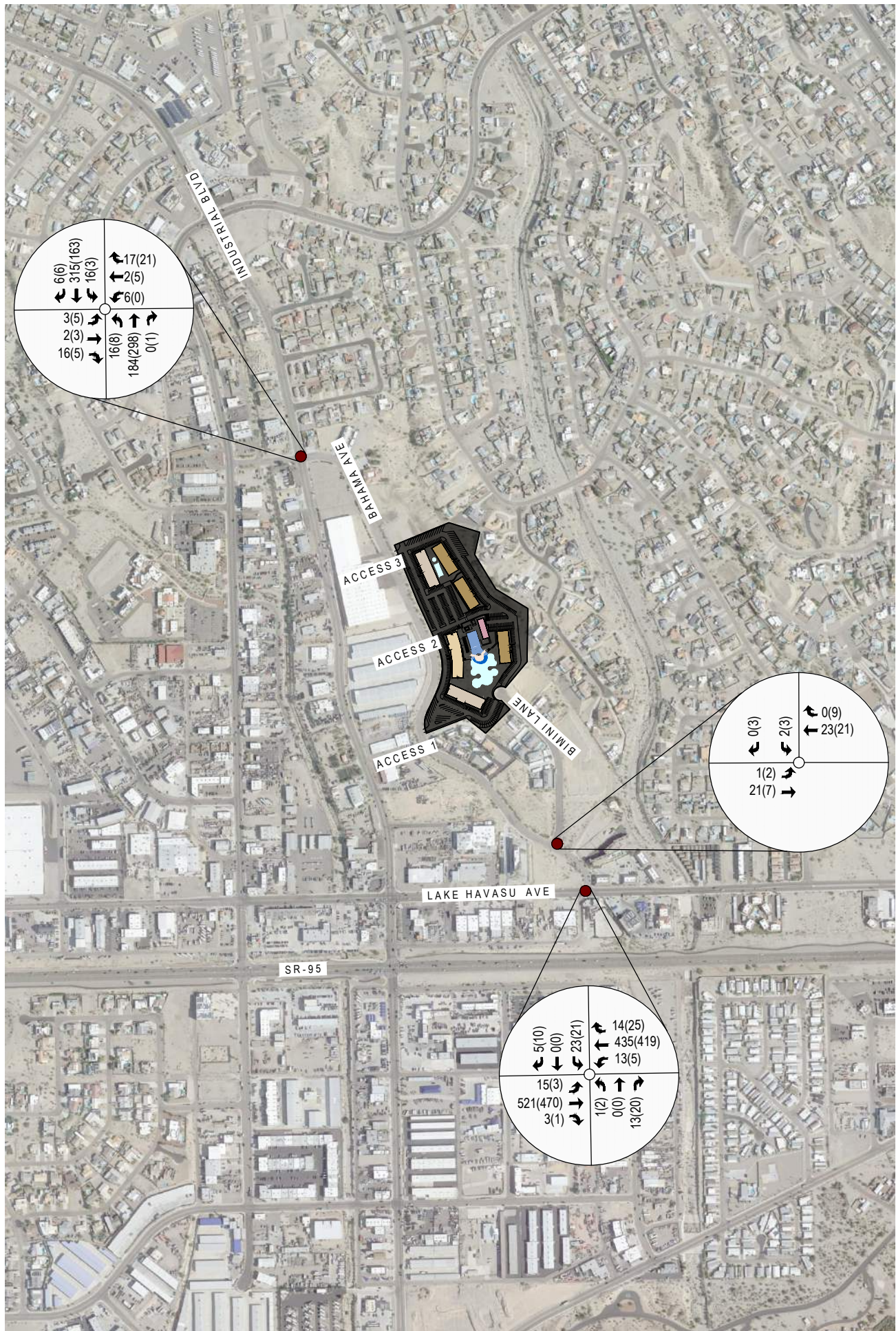
Reference: Bahama Avenue Resort Traffic Impact Study – Seasonal Growth

This traffic statement is to address the anticipated growth in traffic within the study area for the Bahama Avenue Resort located in Lake Havasu City. A previous traffic study dated September 26, 2023 was performed for the Bahama Ave Resort development. As Lake Havasu City experiences an increase in citizen during the winter months, and the traffic counts for the study were performed in the Fall, this memo addresses the influx in traffic between the two seasons. From discussions with city staff and also from the general public, it has been experienced that a 15% growth in traffic can occur for the winter months within the city limits. Therefore, as part of this memo, we applied a 15% growth to the existing traffic counts that were part of the original traffic study that were collected on September 7, 2023. Figure 3 in this memo illustrates the anticipated traffic volumes at the study area intersections with the 15% increase. The figure is labeled as Figure 3 to compare and correlate with the Existing traffic volumes Figure 3 in the original report.

It is anticipated Phase 1 of the Bahama Ave Resort will be built out by 2025. Figure 4 illustrates the projected traffic volumes (assuming a 15% increase to the existing traffic volumes). The traffic volumes in Figure 4 assume the same growth rate of 2% over the next couple of years as was applied in the original traffic study.

Phase 2, which will be the full build out of the Bahama Ave Resort, is projected to be completed by 2030. Figure 5 illustrates the forecasted traffic volumes under the 2030 Full build out year, again assuming the same 2% growth of the existing traffic volumes.

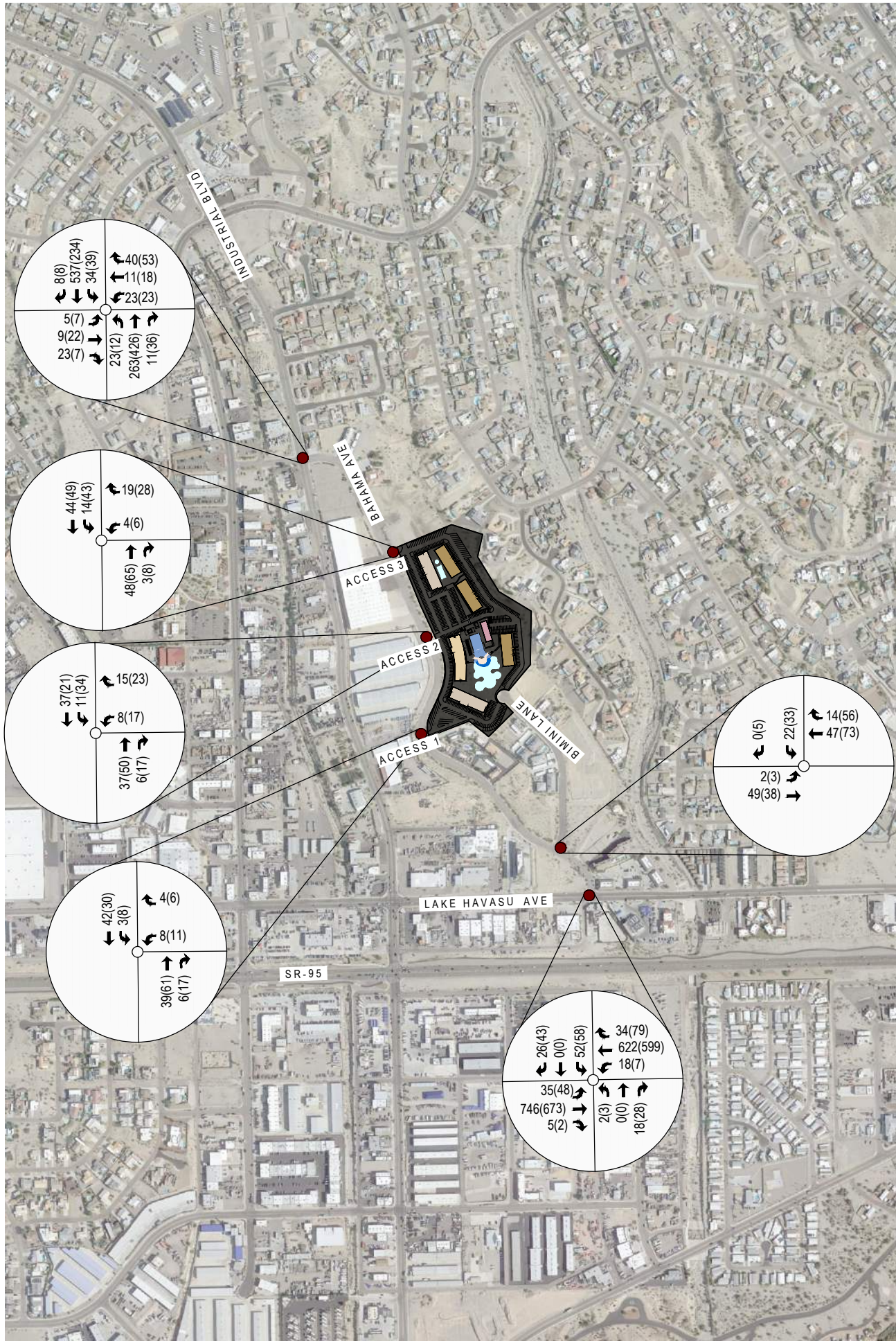
Using these background projected traffic volumes, along with the projected traffic generated by the Bahama Ave Resort development found in the original report, Figures 9 and 10 illustrate the anticipated traffic at the study area intersections under the 2025 Phase 1 Build out and the 2030 Full build out with the project traffic volumes.



BAHAMA AVE RESORT
FIGURE 3 - 2023 EXISTING YEAR TRAFFIC VOLUMES
 XX(XX) = AM(PM) PEAK HOUR TRAFFIC VOLUMES



BAHAMA AVE RESORT
 FIGURE 5 -2030 FULL BUILD-OUT YEAR TRAFFIC VOLUMES
 XX(XX) = AM(PM) PEAK HOUR TRAFFIC VOLUMES



BAHAMA AVE RESORT

FIGURE 10 - 2030 FULL BUILD-OUT YEAR WITH PROJECT TRAFFIC VOLUMES

XX(XX) = AM(PM) PEAK HOUR TRAFFIC VOLUMES

LEVEL OF SERVICE ANALYSIS

Following the same process as outlined in the original report for the intersection capacity analysis under Section 7.0, the updated traffic volumes found in the above referenced figures were analyzed. Note, similar to the Figure numbering, the Tables referenced below are numbered to reflect the same table numbers as in the original report for comparison.

The 2023 Existing traffic volumes at the study area intersections were analyzed using Synchro. These traffic volumes include the 15% increase to account for the influx in seasonal traffic. The levels of service at each of the turning movements can be seen in the following table.

Table 3 – 2023 Existing Traffic LOS

Intersection	2023 Existing Year Traffic LOS(Delay)				
	Overall LOS	Northbound	Southbound	Eastbound	Westbound
1: Bahama Ave & Lake Havasu Ave					
AM Peak Hour	-	a(0.3)	a(0.2)	b(10.9)	c(19.0)
PM Peak Hour	-	a(0.1)	a(0.1)	b(10.7)	c(15.8)
2: Bahama Ave & Bimini Ln					
AM Peak Hour	-	a(0.0)	a(0.3)	N/A	a(8.8)
PM Peak Hour	-	a(0.0)	a(1.6)	N/A	a(8.6)
3: Bahama Ave & Industrial Blvd					
AM Peak Hour	-	b(11.2)	b(11.4)	a(0.6)	a(0.4)
PM Peak Hour	-	b(10.9)	b(11.9)	a(0.2)	a(0.1)

With the 15% increase in traffic volumes at the study area intersections, each movement will continue to function at acceptable levels of service with very minimal increases in delay times as compared to the original report analysis of the traffic counts collected in September.

With the projected growth to the Phase 1 Build-Out Year of 2025, and to the Full Build-Out Year of 2030, the following tables illustrate the LOS for the study area intersections under these scenarios, which include the 15% growth from the original traffic counts.

Table 4 – 2025 Phase 1 Build-Out Year Traffic LOS

Intersection	2025 Phase 1 Build-Out Year Traffic LOS(Delay)				
	Overall LOS	Northbound	Southbound	Eastbound	Westbound
1: Bahama Ave & Lake Havasu Ave					
AM Peak Hour	-	a(0.3)	a(0.2)	b(11.4)	c(23.2)
PM Peak Hour	-	a(0.1)	a(0.1)	b(11.6)	c(18.2)
2: Bahama Ave & Bimini Ln					
AM Peak Hour	-	a(0.0)	a(0.3)	N/A	a(8.8)
PM Peak Hour	-	a(0.0)	a(1.5)	N/A	a(8.6)
3: Bahama Ave & Industrial Blvd					
AM Peak Hour	-	b(12.6)	b(13.0)	a(0.7)	a(0.3)
PM Peak Hour	-	b(11.3)	b(12.8)	a(0.2)	a(0.2)

As seen in Table 4, all traffic movements are anticipated to function at an acceptable level of service for the 2025 Phase 1 Build-Out Year scenario with minimal increases to the delay times compared to the original report.

Table 5 – 2030 Full Build-Out Year Traffic LOS

Intersection	2030 Full Build-Out Year Traffic LOS(Delay)				
	Overall LOS	Northbound	Southbound	Eastbound	Westbound
1: Bahama Ave & Lake Havasu Ave					
AM Peak Hour	-	a(0.4)	a(0.2)	b(13.8)	e(36.8)
PM Peak Hour	-	a(0.2)	a(0.1)	b(12.8)	d(25.9)
2: Bahama Ave & Bimini Ln					
AM Peak Hour	-	a(0.0)	a(0.5)	N/A	a(8.9)
PM Peak Hour	-	a(0.0)	a(1.7)	N/A	a(8.7)
3: Bahama Ave & Industrial Blvd					
AM Peak Hour	-	b(14.3)	c(15.5)	a(0.7)	a(0.3)
PM Peak Hour	-	b(12.5)	b(14.7)	a(0.2)	a(0.2)

With the projected 2% growth to 2030, it is anticipated the westbound movement of the Bahama Ave and Lake Havasu Ave intersection will start to see unacceptable levels of service in the AM Peak Hour. This is due to the increase in traffic in the northbound and southbound directions. All other intersections will continue to function with acceptable levels of service with minor increases in delay times compared to the original traffic volumes.

With the addition of the Bahama Ave Resort development within this study area, the following tables illustrate the projected levels of service under the 2025 Phase 1 Build-Out with Project, and 2030 Full Build-Out with Project scenarios.

Table 7 – 2025 Phase 1 Build-Out w/ Project LOS

Intersection	2025 Phase 1 Build-Out w/ Project LOS(Delay)				
	Overall LOS	Northbound	Southbound	Eastbound	Westbound
1: Bahama Ave & Lake Havasu Ave					
AM Peak Hour	-	a(0.3)	a(0.4)	b(11.7)	c(23.8)
PM Peak Hour	-	a(0.1)	a(0.6)	b(12.0)	c(22.5)
2: Bahama Ave & Bimini Ln					
AM Peak Hour	-	a(0.0)	a(0.2)	N/A	a(9.0)
PM Peak Hour	-	a(0.0)	a(0.5)	N/A	a(9.2)
3: Bahama Ave & Industrial Blvd					
AM Peak Hour	-	b(14.1)	b(13.9)	a(0.7)	a(0.5)
PM Peak Hour	-	b(14.1)	c(15.2)	a(0.2)	a(1.1)
4: Bahama Ave & Access 2					
AM Peak Hour	-	a(8.8)	N/A	a(0.0)	a(3.5)
PM Peak Hour	-	a(9.3)	N/A	a(0.0)	a(6.5)

With the addition of Phase 1 of the Bahama Ave Resort development, all traffic movements at the study area intersections and the proposed access will continue to function with acceptable levels of service under the 2025 Build out of Phase 1 scenario. There are very minimal increases in the delay times with the adjustment for seasonal increases in traffic compared to the original traffic counts.

Table 8 – 2030 Full Build-Out w/ Project LOS

Intersection	2030 Full Build-Out w/ Project LOS(Delay)				
	Overall LOS	Northbound	Southbound	Eastbound	Westbound
1: Bahama Ave & Lake Havasu Ave					
AM Peak Hour	-	a(0.4)	a(0.4)	b(14.2)	e(45.6)
PM Peak Hour	-	a(0.2)	a(0.6)	b(13.5)	e(43.7)
2: Bahama Ave & Bimini Ln					
AM Peak Hour	-	a(0.0)	a(0.3)	N/A	a(9.2)
PM Peak Hour	-	a(0.0)	a(0.5)	N/A	a(9.5)
3: Bahama Ave & Industrial Blvd					
AM Peak Hour	-	c(19.3)	c(17.4)	a(0.7)	a(0.5)
PM Peak Hour	-	c(18.1)	c(19.0)	a(0.2)	a(1.2)
4: Bahama Ave & Access 2					
AM Peak Hour	-	a(8.8)	N/A	a(0.0)	a(1.7)
PM Peak Hour	-	a(9.2)	N/A	a(0.0)	a(4.6)
5: Bahama Ave & Access 1					
AM Peak Hour	-	a(8.9)	N/A	a(0.0)	a(0.5)
PM Peak Hour	-	a(9.1)	N/A	a(0.0)	a(1.6)
6: Bahama Ave & Access 3					
AM Peak Hour	-	a(8.8)	N/A	a(0.0)	a(1.8)
PM Peak Hour	-	a(9.0)	N/A	a(0.0)	a(3.5)

With the addition of the full build out of the Bahama Ave Resort by 2030, all traffic movements at the study area intersections will continue to function with similar levels of service as under the 2030 Full Build out without the project. There are very minimal increases in delay times. The westbound leg of the Bahama Ave and Lake Havasu Ave intersection will continue to fall below an acceptable level of service.

CONCLUSION

The new proposed Bahama Ave Resort Development will consist of 211 townhome/condominium units, a 10,000 SF restaurant and 1,900 SF of retail space at full build out and it anticipated to be completed by 2030. It was discussed that the original traffic counts that were collected in September of 2023 needed to be adjusted to account for season travelers that frequent Lake Havasu during the Winter months. A 15% increase to the existing traffic counts was applied to account for this increase in vehicles. Using the adjusted traffic volumes and still maintaining a 2% growth from year to year, until the project is anticipated to be fully built out, the study area intersections were analyzed with the increased traffic numbers.

The level of service analysis concludes that even with the increase in the traffic volumes, by 2025, all the study area intersections will continue to function at acceptable levels of service. By 2030, under the Full Build out scenario (without the Bahama Ave Resort traffic volumes) the westbound leg of the Bahama Ave and Lake Havasu Ave intersection will fall below an acceptable level of service. It is recommended this intersection continue to be monitored for when traffic volumes may meet the warrant for a signal. Another possible mitigation to improve the level of service, could be limiting this access to right and left turning movements off Lake Havasu Ave, but limiting Bahama Ave to a right out only. Under the 2030 Full Build out with the addition of the Bahama Ave Resort traffic volumes, all the intersections will function with similar levels of service.

Please feel free to contact me with any questions or comments.

Sincerely,

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