

Figure 6.17
2050 Southbound Off-Ramp at US 192 Queue Comparisons

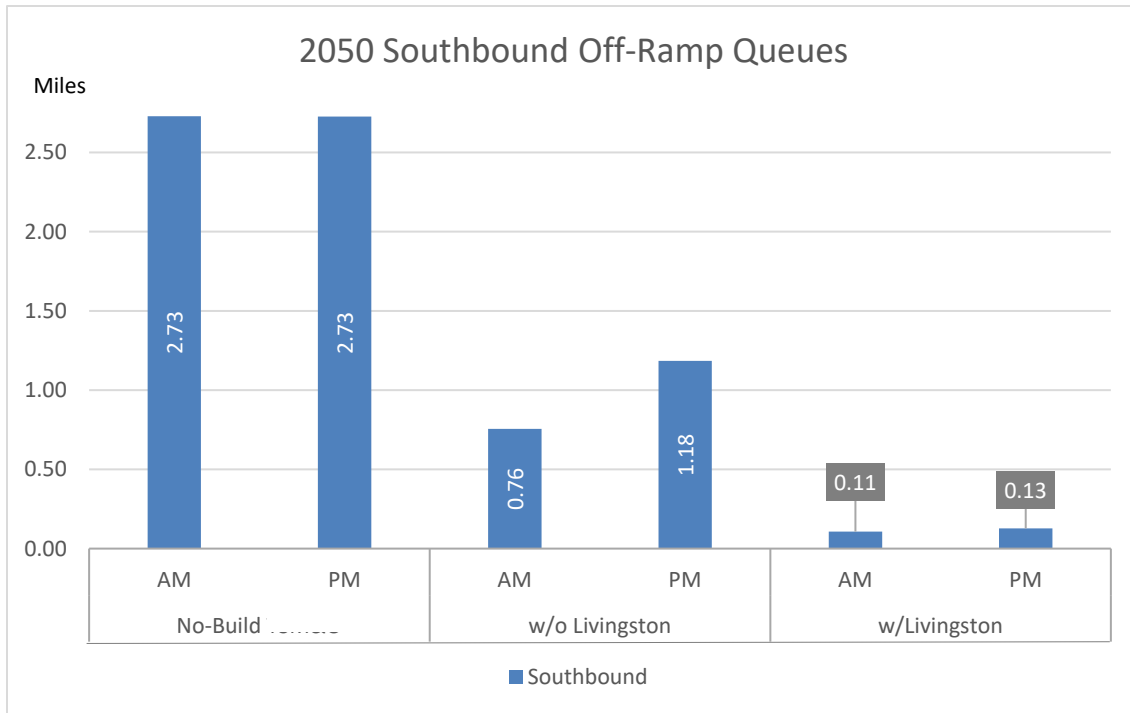


Table 6.16
2050 VISSIM Queue Comparison Results

Arterial / Intersection	Approach	Maximum Approach Queue (feet)					
		No-Build		without Livingston		with Livingston	
		AM	PM	AM	PM	AM	PM
US 192 / West Orange Lake Boulevard	Eastbound	15,259	15,259	15,259	2,165	14,890	1,531
US 192 / SR 429 SB Ramps	Southbound	14,414	14,414	4,013	6,230	581	686
US 192 / SR 429 NB Ramps	Northbound	1,003	2,851	686	686	581	475
US 192 / Formosa Garden Boulevard	Westbound	950	9,926	845	9,926	686	4,541

One of the main reasons for the increased queuing in eastbound traffic at 192/West Orange Lake is due to the Eastbound left (EBL) traffic at the SR 429 Northbound Ramp arterial. The EBL traffic blocks the through lanes resulting in heavy queues. For 2050 PM, firstly eastbound traffic at W Org Lake is close to 2030 AM. Further, the westbound traffic and northbound traffic at SR 429 Northbound Ramp intersection is too high to provide more green time for eastbound left movement. Hence, the 192/West Orange Lake would experience worst queues (2.89 miles) like 2030 AM. All the node MOEs are included in the **Appendix G**.

6.3.5 No-Build and Build Alternatives – Network Performance Analysis

For the mainline, interchange ramps and the intersections, VISSIM analysis results show that the Build Alternative with the Livingston Road interchange provides improved operational performance compared to the No-Build Alternative and the Build Alternative without the Livingston Road interchange. The enhanced operations under the Build Alternative with the Livingston Road interchange are also reflected within the study area using the network-wide performance results shown in **Tables 6.17** and **6.18** for years 2030 and 2050, respectively. Travel time comparisons are shown in **Figures 6.18** and **6.19** for years 2030 and 2050, respectively.

Table 6.17
2030 VISSIM Network Performance Comparisons

Performance Measure	2030 AM			2030 PM		
	No-Build	Build without Livingston Road Interchange	Build with Livingston Road Interchange	No-Build	Build without Livingston Road Interchange	Build with Livingston Road Interchange
Total Travel Time (hour)	5,631	4,906	4,859	5,581	5,385	5,299
Total Delay Time (hour)	2,104	1,079	990	1,691	1,250	1,167
Average Delay (seconds/vehicle)	179	89	80	125	91	84
Average Speed (mph)	37	45	46	41	44	45
Delay Latent (hour)	1	0	0	2	0	0
Demand Latent (vehicle)	3	0	1	3	1	1
Stops Total	118,502	58,863	57,685	98,613	74,267	68,853
Vehicles arrived	42,693	43,707	44,650	49,535	49,788	50,484
Percent Difference Compared with No-Build						
Total Travel Time (%)	-	-13%	-14%	-	-4%	-5%

Table 6.18
2050 VISSIM Network Performance Comparisons

Performance Measure	2050 AM			2050 PM		
	No-Build	Build without Livingston Road Interchange	Build with Livingston Road Interchange	No-Build	Build without Livingston Road Interchange	Build with Livingston Road Interchange
Total Travel Time (hour)	12,726	9,606	8,114	18,490	11,840	10,104
Total Delay Time (hour)	8,083	4,413	2,791	13,169	5,967	4,046
Average Delay (seconds/vehicle)	489	272	156	676	294	195
Average Speed (mph)	22	32	39	18	30	35
Delay Latent (hour)	9,659	965	1	12,046	4,787	1,433
Demand Latent (vehicle)	21,420	1,999	3	26,161	10,518	3,021
Stops Total	819,691	371,256	196,354	1,372,696	543,273	317,491
Vehicles arrived	55,171	62,440	64,884	63,988	73,824	75,037
Percent Difference Compared with No-Build						
Total Travel Time (%)	-	-25%	-36%	-	-36%	-45%

Figure 6.18
2030 VISSIM Travel Time Comparisons

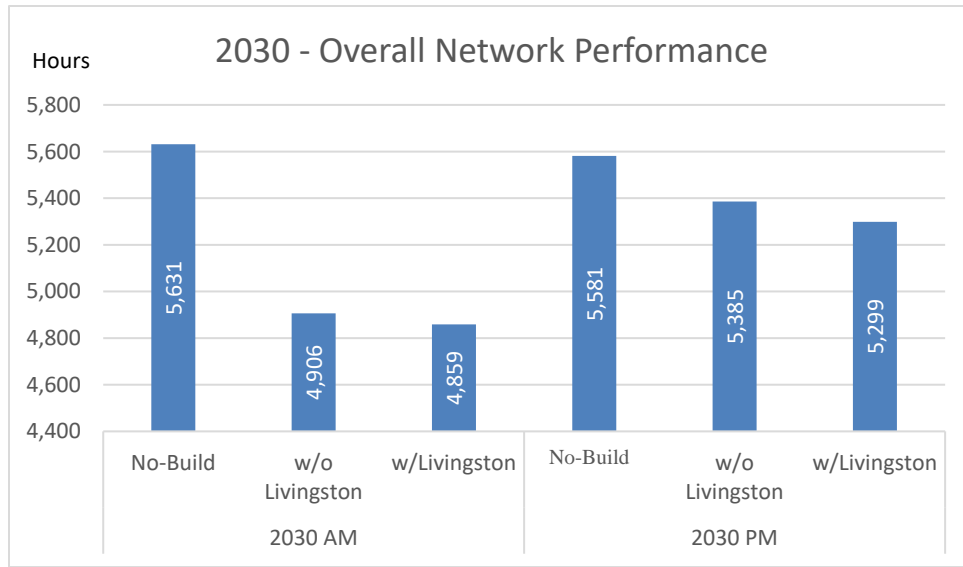
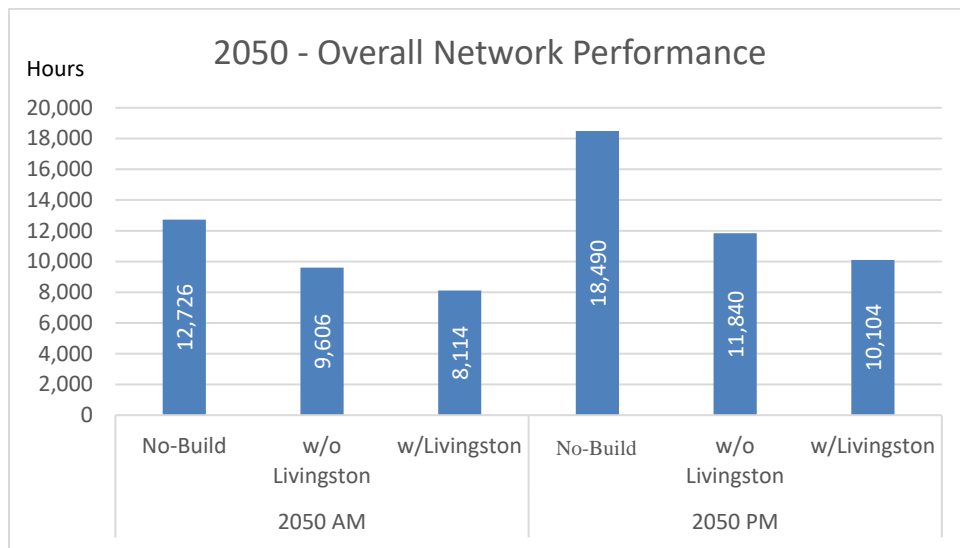


Figure 6.19
2050 VISSIM Travel Time Comparisons



Network wide performance measures for the Build Alternative with and without the Livingston Road interchange shows a minimal difference under 2030 opening year. For 2050, without the Livingston Road interchange, traffic demand on US 192 would be high enough to cause queues to back-up (approximately 1.2 miles) to the mainline from the southbound off-ramp terminal. While with the interchange, the queues would not affect the SR 429 mainline. Further, with the Livingston Road interchange a 15 percent to 18 percent reduction in the network’s total travel time and a reduction in average delay per vehicle of 40 percent is estimated when compared to without the Livingston Road interchange. Therefore, inclusion of the new full reliever interchange improves the operations at the US 192 interchange by rerouting traffic to the Livingston Road interchange.