

Attachment 1

Excerpts from

2017 North Bayshore Precise Plan

Environmental Impact Report Traffic Analysis Data

July 2017

- Int. 16. Rengstorff Avenue and Leghorn Street (Mountain View): The addition of project traffic would degrade intersection operations from acceptable LOS C to unacceptable LOS F during the PM peak hour.
- Int. 17. Rengstorff Avenue and Old Middlefield Way (Mountain View): The addition of project traffic would degrade intersection operations from acceptable LOS D to unacceptable LOS F during the PM peak hour.
- Int. 20. Rengstorff Avenue and Central Expressway (Santa Clara County): The addition of project traffic would exacerbate unacceptable intersection operations during the PM peak hour.
- Int. 24. Springer Road-Magdalena Avenue and Foothill Expressway (Santa Clara County): The addition of project traffic would exacerbate unacceptable intersection operations during the AM peak hour.
- Int. 32. Shoreline Boulevard and Space Park Way (Mountain View): The addition of project traffic would exacerbate unacceptable intersection operations during the AM peak hour, and would degrade intersection operations from acceptable LOS D to unacceptable LOS F during the PM peak hour.
- Int. 33. Shoreline Boulevard and Plymouth Street (Mountain View): The addition of project traffic would exacerbate unacceptable intersection operations during the AM and PM peak hours.
- Int. 34. Shoreline Boulevard and Pear Avenue (Mountain View): The addition of project traffic would degrade intersection operations from acceptable LOS D to unacceptable LOS F during the AM and PM peak hours.
- Int. 35. Shoreline Boulevard and La Avenida-US 101 Northbound Ramps (Mountain View): The addition of project traffic would exacerbate unacceptable intersection operations during the AM and PM peak hours.
- Int. 38. Shoreline Boulevard and Middlefield Road (Mountain View): The addition of project traffic would degrade intersection operations from acceptable LOS D to unacceptable LOS F during the AM peak hour, and would exacerbate unacceptable intersection operations during the PM peak hour.
- Int. 49. Moffett Boulevard-Castro Street and Central Expressway (Santa Clara County): The addition of project traffic would degrade intersection operations from acceptable LOS D to unacceptable LOS F during the AM peak hour, and would degrade intersection operations from acceptable LOS E to unacceptable LOS F during the PM peak hour.
- Int. 57. Bayfront Expressway and University Avenue (Menlo Park): The addition of project traffic would exacerbate unacceptable intersection operations during the PM peak hour.
- Int. 59. Donohoe Street and University Avenue (East Palo Alto): The addition of project traffic would exacerbate unacceptable intersection operations during the AM peak hour.

TABLE 13: EXISTING WITH PROJECT MITIGATION SUMMARY

Impacted Intersection ¹	Mitigation Measure	Peak Hour	Existing with Project Conditions				Summary of Draft CEQA Determination
			Without Mitigation		With Mitigation		
			Delay	LOS	Delay	LOS	
34 Shoreline Blvd and Pear Ave (MV)	Partial Mitigation – Limited Access from Shoreline Boulevard at Pear Avenue: Modify the northbound approach with three northbound through lanes and a separate right-turn lane with 300 foot storage pocket. Restripe the eastbound approach as a left turn, through lane, and two right turn lanes with a no-right-turn on red condition and the westbound approach as a left turn lane and one shared through-right lane with east/west split phasing.	AM PM	>120 >120	F F	32.2 109.9	C F	SU
35 Shoreline Blvd and La Avenida-US 101 NB Ramps (MV)	Partial Mitigation – Realign US 101 off-ramp with La Avenida to create a T-intersection.	AM PM	>120 >120	F F	23.2 112.9	C F	SU
38 Shoreline Blvd and Middlefield Rd (MV)	Partial Mitigation – Add an additional left turn lane for eastbound and westbound movements.	AM PM	72.5 104.5	E F	50.3 104.5	D F	SU
North Bayshore Precise Plan Intersections							
12 Salado Dr and Garcia Ave (MV)	Signalize intersection.	AM PM	20.9 72.7	C A	18.2 21.5	B- C+	LTS
72 New North-South Local Street / Shorebird Wy (MV)	Signalize the intersection. Each approach would have a left turn lane with protected left-turn phasing and a shared through-right turn lane.	AM PM	32.0 >120	D F	22.1 23.7	C C	LTS
73 New North-South Local Street / Space Park Wy (MV)	Signalize the intersection. Each approach would have a left turn lane with protected left-turn phasing and a shared through-right turn lane.	AM PM	19.7 >120	C F	21.9 28.4	C C	LTS
75 Inigo Wy / La Avenida (MV)	Signalize the intersection with east/west split phasing.	AM PM	23.6 40.1	C E	18.5 30.8	B C	LTS

The realignment of the US 101 northbound off-ramp would increase traffic on the new north/south street; this increase in traffic would require signalization of the new north/south local street intersections at Shorebird Way and Space Park Way. The new north/south local street and Charleston Road would also operate unacceptably during the evening peak hour (see **Appendix L**). Although the peak hour signal warrant is not currently met, it would be possible to improve the intersection operations either by signalizing the intersection or by constructing a single-lane roundabout. The determination of which type of improvement would be most appropriate depends in part on the decision about whether to construct a new crossing of Stevens Creek at the end of Charleston Road.

Realignment of the US 101 northbound off-ramp would require coordination with Caltrans. Since it cannot be assumed Caltrans would approve this mitigation measure and the City cannot solely guarantee its implementation, this impact is designated as **significant and unavoidable**. However, the City should diligently pursue measures to fully mitigate this impact.

Shoreline Boulevard and Middlefield Road (Int. #38, Mountain View): Converting the westbound and eastbound approaches to include two left turn lanes, a through lane, and a shared through-right turn lane and signal timing modifications would reduce the project impact. These additional left-turn lanes may require relocation of existing utilities and removal of trees within the median of Middlefield Road. However, these mitigation measures do not improve intersection operation to an acceptable LOS in the PM peak hour. Therefore the impact is considered **significant and unavoidable** under Existing with Project Conditions. This improvement is designed with reversible bus lane project. No other improvements are possible due to right-of-way constraints.

On-Site Intersections and Streets

























The NBPP includes the priority transportation infrastructure described in **Chapter 1** and other new local streets, multi-use paths, modifications to existing streets to include wider sidewalks, landscape areas within the median or along the curb, and cycle tracks on one or both sides of the street (see the NBPP for more details). These street improvements may cause secondary impacts often associated with constructing new infrastructure or modifying existing facilities, such as the removal of trees, relocation of utilities, lengthening of crosswalks, and/or modification of signal phasing that could increase the crossing distance/time for pedestrians and bicyclists.

Salado Drive and Garcia Avenue (Int. #12, Mountain View): Signalizing this intersection would reduce the impact to a **less-than-significant** level.

New North-South Local Street and Shorebird Way (Int. #72, Mountain View): With most of the residential development focused east of Shoreline Boulevard, the intersection of the new north-south local street at

HCM Signalized Intersection Capacity Analysis
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	114	229	101	124	322	240	148	845	92	106	480	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3327		1770	3239		1770	3475		1770	3501	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3327		1770	3239		1770	3475		1770	3501	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	116	234	103	127	329	245	151	862	94	108	490	32
RTOR Reduction (vph)	0	36	0	0	97	0	0	5	0	0	3	0
Lane Group Flow (vph)	116	301	0	127	477	0	151	951	0	108	519	0
Confl. Peds. (#/hr)			8			6			7			11
Confl. Bikes (#/hr)			19			25			39			4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.7	25.8		14.2	26.3		15.1	75.6		13.4	73.9	
Effective Green, g (s)	13.7	25.8		14.2	26.3		15.1	75.6		13.4	73.9	
Actuated g/C Ratio	0.09	0.18		0.10	0.18		0.10	0.52		0.09	0.51	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	591		173	587		184	1811		163	1784	
v/s Ratio Prot	0.07	0.09		c0.07	c0.15		c0.09	c0.27		0.06	0.15	
v/s Ratio Perm												
v/c Ratio	0.69	0.51		0.73	0.81		0.82	0.53		0.66	0.29	
Uniform Delay, d1	63.6	53.9		63.6	57.0		63.6	22.9		63.6	20.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.8	0.7		14.9	8.4		24.5	1.1		9.7	0.4	
Delay (s)	75.5	54.6		78.4	65.4		88.1	24.0		73.3	20.9	
Level of Service	E	D		E	E		F	C		E	C	
Approach Delay (s)		59.9			67.7			32.7			29.9	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			44.8				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			82.3%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan
Existing AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	116	337	127	574	151	956	108	522
v/c Ratio	0.69	0.54	0.73	0.84	0.82	0.53	0.66	0.29
Control Delay	84.7	49.4	87.2	56.3	95.0	25.5	82.5	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.7	49.4	87.2	56.3	95.0	25.5	82.5	22.0
Queue Length 50th (ft)	107	133	117	222	141	314	100	150
Queue Length 95th (ft)	175	177	#191	284	#253	418	165	206
Internal Link Dist (ft)		836		508		796		722
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	195	746	195	787	195	1815	195	1786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.45	0.65	0.73	0.77	0.53	0.55	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Arterial Level of Service: NB Shoreline Boulevard

























Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Middlefield Road	III	35	21.2	25.5	46.7	0.17	12.8	E
Terra Bella Avenue	III	35	19.4	15.1	34.5	0.15	15.8	D
	III	35	19.5	2.6	22.1	0.15	24.9	B
US-101 NB Ramps	III	35	23.6	35.7	59.3	0.20	11.9	E
Pear Avenue	III	35	18.0	51.4	69.4	0.14	7.3	F
Shorebird Way	III	35	24.5	24.1	48.6	0.20	15.1	D
Total	III		126.2	154.4	280.6	1.01	13.0	E

Arterial Level of Service: SB Shoreline Boulevard

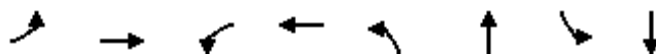
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Joaquin Road	III	35	24.5	8.1	32.6	0.20	22.6	C
US-101 NB Ramps	III	35	18.0	23.9	41.9	0.14	12.1	E
US-101 SB Ramps	III	35	23.6	5.8	29.4	0.20	24.1	B
Terra Bella Avenue	III	35	19.5	14.4	33.9	0.15	16.2	D
Middlefield Road	III	35	19.4	22.0	41.4	0.15	13.2	E
Total	III		105.0	74.2	179.2	0.85	17.0	D

HCM Signalized Intersection Capacity Analysis
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Volume (vph)	106	480	251	270	386	73	139	547	178	263	1163	76	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95		
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.99		1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Fr _t	1.00	0.95		1.00	0.98		1.00	0.96		1.00	0.99		
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3293		1770	3435		1770	3388		1770	3500		
Fl _t Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1770	3293		1770	3435		1770	3388		1770	3500		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	112	505	264	284	406	77	146	576	187	277	1224	80	
RTOR Reduction (vph)	0	48	0	0	11	0	0	22	0	0	4	0	
Lane Group Flow (vph)	112	721	0	284	472	0	146	741	0	277	1300	0	
Confl. Peds. (#/hr)			10			4			14			6	
Confl. Bikes (#/hr)			28			22			1			27	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases													
Actuated Green, G (s)	13.4	31.0		21.0	38.6		14.8	51.0		21.0	57.2		
Effective Green, g (s)	13.4	31.0		21.0	38.6		14.8	51.0		21.0	57.2		
Actuated g/C Ratio	0.10	0.22		0.15	0.28		0.11	0.36		0.15	0.41		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	169	729		265	947		187	1234		265	1430		
v/s Ratio Prot	0.06	c0.22		c0.16	0.14		c0.08	0.22		c0.16	c0.37		
v/s Ratio Perm													
v/c Ratio	0.66	0.99		1.07	0.50		0.78	0.60		1.05	0.91		
Uniform Delay, d ₁	61.1	54.3		59.5	42.6		61.0	36.2		59.5	39.0		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d ₂	9.4	30.2		75.6	0.4		18.8	2.2		67.6	10.1		
Delay (s)	70.5	84.5		135.1	43.0		79.8	38.4		127.1	49.1		
Level of Service	E	F		F	D		E	D		F	D		
Approach Delay (s)		82.7			77.1			45.0			62.8		
Approach LOS		F			E			D			E		
Intersection Summary													
HCM 2000 Control Delay			65.8									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.95										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			101.2%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

Queues
38: Shoreline Boulevard & Middlefield Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	112	769	284	483	146	763	277	1304
v/c Ratio	0.66	0.99	1.07	0.50	0.78	0.61	1.05	0.91
Control Delay	79.5	79.5	130.6	43.9	88.3	37.0	124.0	49.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	79.5	130.6	43.9	88.3	37.0	124.0	49.4
Queue Length 50th (ft)	100	345	~286	191	130	284	~273	590
Queue Length 95th (ft)	164	#485	#473	253	#228	353	#456	#737
Internal Link Dist (ft)		836		508		796		722
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	202	777	265	958	202	1256	265	1434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.99	1.07	0.50	0.72	0.61	1.05	0.91

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Arterial Level of Service: NB Shoreline Boulevard

























Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Middlefield Road	III	35	21.2	37.0	58.2	0.17	10.3	E
Terra Bella Avenue	III	35	19.4	13.0	32.4	0.15	16.9	D
	III	35	19.5	1.4	20.9	0.15	26.3	B
US-101 NB Ramps	III	35	23.6	13.0	36.6	0.20	19.4	C
Pear Avenue	III	35	18.0	11.6	29.6	0.14	17.1	D
Total	III		101.7	76.0	177.7	0.81	16.4	D

Arterial Level of Service: SB Shoreline Boulevard

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Joaquin Road	III	35	24.5	42.1	66.6	0.20	11.0	E
US-101 NB Ramps	III	35	18.0	128.4	146.4	0.14	3.5	F
US-101 SB Ramps	III	35	23.6	8.6	32.2	0.20	22.0	C
Terra Bella Avenue	III	35	19.5	13.6	33.1	0.15	16.6	D
Middlefield Road	III	35	19.4	49.4	68.8	0.15	7.9	F
Total	III		105.0	242.1	347.1	0.85	8.8	F

HCM Signalized Intersection Capacity Analysis
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing + Project AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Volume (vph)	120	320	110	150	410	250	230	850	100	250	410	40	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95		
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Frt	1.00	0.96		1.00	0.94		1.00	0.98		1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3364		1770	3277		1770	3470		1770	3484		
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1770	3364		1770	3277		1770	3470		1770	3484		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	122	327	112	153	418	255	235	867	102	255	418	41	
RTOR Reduction (vph)	0	24	0	0	64	0	0	6	0	0	5	0	
Lane Group Flow (vph)	122	415	0	153	609	0	235	963	0	255	454	0	
Confl. Peds. (#/hr)			8			6			7			11	
Confl. Bikes (#/hr)			19			25			39			4	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases													
Actuated Green, G (s)	13.9	28.6		15.2	29.9		16.0	69.2		16.0	69.2		
Effective Green, g (s)	13.9	28.6		15.2	29.9		16.0	69.2		16.0	69.2		
Actuated g/C Ratio	0.10	0.20		0.10	0.21		0.11	0.48		0.11	0.48		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	169	663		185	675		195	1656		195	1662		
v/s Ratio Prot	0.07	0.12		c0.09	c0.19		0.13	c0.28		c0.14	0.13		
v/s Ratio Perm													
v/c Ratio	0.72	0.63		0.83	0.90		1.21	0.58		1.31	0.27		
Uniform Delay, d1	63.7	53.3		63.6	56.1		64.5	27.4		64.5	22.8		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	14.1	1.9		25.1	15.3		130.6	1.5		170.3	0.4		
Delay (s)	77.8	55.2		88.7	71.4		195.1	28.9		234.8	23.2		
Level of Service	E	E		F	E		F	C		F	C		
Approach Delay (s)		60.1			74.6			61.4			98.8		
Approach LOS		E			E			E			F		
Intersection Summary													
HCM 2000 Control Delay			72.5									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			145.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			90.5%									ICU Level of Service	E
Analysis Period (min)			15										
c	Critical Lane Group												

Queues
38: Shoreline Boulevard & Middlefield Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	276	663	408	1153	153	918	367	326
v/c Ratio	1.42	0.89	2.09	1.46	0.83	0.59	1.88	0.20
Control Delay	258.8	69.3	538.3	249.2	95.7	29.6	448.9	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	258.8	69.3	538.3	249.2	95.7	29.6	448.9	23.4
Queue Length 50th (ft)	~349	316	~608	~733	143	318	~528	94
Queue Length 95th (ft)	#536	#422	#822	#874	#257	386	#733	127
Internal Link Dist (ft)		836		508		796		722
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	195	744	195	790	195	1556	195	1616
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.89	2.09	1.46	0.78	0.59	1.88	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing + Project PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	280	490	260	280	550	90	140	660	190	350	1400	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3291		1770	3446		1770	3401		1770	3505	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3291		1770	3446		1770	3401		1770	3505	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	516	274	295	579	95	147	695	200	368	1474	84
RTOR Reduction (vph)	0	50	0	0	10	0	0	19	0	0	3	0
Lane Group Flow (vph)	295	740	0	295	664	0	147	876	0	368	1555	0
Confl. Peds. (#/hr)			10			4			14			6
Confl. Bikes (#/hr)			28			22			1			27
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	31.0		21.0	36.0		14.8	51.0		21.0	57.2	
Effective Green, g (s)	16.0	31.0		21.0	36.0		14.8	51.0		21.0	57.2	
Actuated g/C Ratio	0.11	0.22		0.15	0.26		0.11	0.36		0.15	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	728		265	886		187	1238		265	1432	
v/s Ratio Prot	c0.17	c0.22		c0.17	0.19		c0.08	0.26		c0.21	c0.44	
v/s Ratio Perm												
v/c Ratio	1.46	1.02		1.11	0.75		0.79	0.71		1.39	1.09	
Uniform Delay, d1	62.0	54.5		59.5	47.9		61.1	38.1		59.5	41.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	232.4	37.6		89.1	3.5		19.2	3.4		196.5	50.8	
Delay (s)	294.4	92.1		148.6	51.4		80.3	41.5		256.0	92.2	
Level of Service	F	F		F	D		F	D		F	F	
Approach Delay (s)		147.1			81.0			47.0			123.5	
Approach LOS		F			F			D			F	

Intersection Summary

HCM 2000 Control Delay	104.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
38: Shoreline Boulevard & Middlefield Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	295	790	295	674	147	895	368	1558
v/c Ratio	1.46	1.02	1.11	0.75	0.79	0.71	1.39	1.09
Control Delay	274.3	85.2	142.2	53.1	88.5	40.6	239.4	89.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	274.3	85.2	142.2	53.1	88.5	40.6	239.4	89.9
Queue Length 50th (ft)	~366	~373	~307	294	131	355	~445	~851
Queue Length 95th (ft)	#553	#506	#494	367	#230	435	#647	#992
Internal Link Dist (ft)		836		508		796		722
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	202	778	265	896	202	1257	265	1435
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.46	1.02	1.11	0.75	0.73	0.71	1.39	1.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

TABLE H-1: EXISTING WITH PROJECT INTERSECTION LEVEL OF SERVICE

Intersection	Peak Hour ²	Existing Conditions		Existing with Project Conditions			
		Delay ³	LOS ⁴	Delay ³	LOS ⁴	Δ in Crit. V/C	Δ in Crit. Delay
33 Shoreline Blvd / Plymouth St (MV)	AM	>120	F	>120	F	N/A ⁵	N/A ⁵
	PM	>120	F	>120	F	N/A ⁵	N/A ⁵
34 Shoreline Blvd / Pear Ave (MV) ⁶	AM	45.7	D	>120	F	N/A ⁵	N/A ⁵
	PM	46.6	D	>120	F	N/A ⁵	N/A ⁵
35 Shoreline Blvd / La Avenida - US 101 Northbound Ramps (MV)	AM	88.3	F	>120	F	N/A ⁵	N/A ⁵
	PM	98.2	F	>120	F	N/A ⁵	N/A ⁵
36 Shoreline Blvd / US 101 Southbound Ramps (MV)	AM	14.3	B	17.4	B	N/A ⁵	N/A ⁵
	PM	12.8	B	14.7	B	N/A ⁵	N/A ⁵
37 Shoreline Blvd / Terra Bella Ave (MV)	AM	19.9	B	20.5	C	N/A ⁵	N/A ⁵
	PM	22.6	C	31.0	C	N/A ⁵	N/A ⁵
38 Shoreline Blvd / Middlefield Rd (MV)	AM	44.8	D	72.5	E	N/A ⁵	N/A ⁵
	PM	65.8	E	104.5	F	N/A ⁵	N/A ⁵
39 Shoreline Blvd / Montecito Ave-Stierlin Rd (MV)	AM	22.9	C+	24.2	C	+0.043	+1.4
	PM	25.7	C	27.8	C	+0.012	+1.0
40 Shoreline Blvd / Wright Ave (MV)	AM	11.5	B+	11.7	B+	+0.039	+0.3
	PM	13.8	B	14.2	B	+0.011	+0.7
41 Shoreline Blvd / Central Expwy (West)* (SCC)	AM	6.5	A	6.8	A	+0.003	+0.1
	PM	5.5	A	5.8	A	+0.046	-0.3
42 Shoreline Blvd / Central Expwy (East)* (SCC)	AM	13.1	B	14.4	B	+0.006	+0.8
	PM	7.5	A	7.9	A	+0.045	+0.6
43 Shoreline Blvd / California St (MV)	AM	30.4	C	31.1	C	+0.033	+1.4
	PM	33.9	C-	35.3	D+	+0.055	+2.2
44 Shoreline Blvd-Miramonte Ave / El Camino Real* (MV)	AM	38.5	D+	43.4	D	+0.131	+5.5
	PM	38.3	D+	38.9	D+	+0.013	+0.4
45 Miramonte Ave / Castro St-Marilyn Dr (MV)	AM	15.0	B	16.3	B	+0.031	+1.6
	PM	12.1	B	12.3	B	+0.025	+0.2
46 Miramonte Ave / Cuesta Dr (MV)	AM	33.3	C-	33.8	C-	+0.042	+0.7
	PM	31.7	C	32.0	C	+0.022	+0.3
47 Moffett Blvd / US 101 Southbound Ramps (MV)	AM	12.5	B	12.9	B	+0.032	+0.5
	PM	9.3	A	10.5	B+	-0.027	+5.8

HCM Signalized Intersection Capacity Analysis

38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing + Project AM Peak Hour - Mitigated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	320	110	150	410	250	230	850	100	250	410	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3365		3433	3279		1770	3469		1770	3484	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3365		3433	3279		1770	3469		1770	3484	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	122	327	112	153	418	255	235	867	102	255	418	41
RTOR Reduction (vph)	0	25	0	0	66	0	0	6	0	0	4	0
Lane Group Flow (vph)	122	414	0	153	607	0	235	963	0	255	455	0
Confl. Peds. (#/hr)			8			6			7			11
Confl. Bikes (#/hr)			19			25			39			4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.7	30.2		10.4	31.9		23.9	62.8		25.6	64.5	
Effective Green, g (s)	8.7	30.2		10.4	31.9		23.9	62.8		25.6	64.5	
Actuated g/C Ratio	0.06	0.21		0.07	0.22		0.16	0.43		0.18	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	700		246	721		291	1502		312	1549	
v/s Ratio Prot	0.04	0.12		c0.04	c0.19		0.13	c0.28		c0.14	0.13	
v/s Ratio Perm												
v/c Ratio	0.60	0.59		0.62	0.84		0.81	0.64		0.82	0.29	
Uniform Delay, d1	66.4	51.8		65.4	54.1		58.3	32.3		57.4	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	1.3		4.8	8.8		15.0	2.1		15.2	0.5	
Delay (s)	71.0	53.2		70.2	62.9		73.4	34.4		72.6	26.2	
Level of Service	E	D		E	E		E	C		E	C	
Approach Delay (s)		57.1			64.3			42.0			42.8	
Approach LOS		E			E			D			D	

Intersection Summary

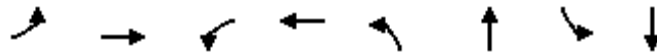
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR

Existing + Project AM Peak Hour - Mitigated
























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	122	439	153	673	235	969	255	459
v/c Ratio	0.59	0.60	0.62	0.85	0.80	0.64	0.82	0.30
Control Delay	78.5	51.5	76.8	58.4	78.4	36.2	77.4	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	51.5	76.8	58.4	78.4	36.2	77.4	27.6
Queue Length 50th (ft)	58	185	73	285	216	377	234	144
Queue Length 95th (ft)	94	237	112	351	301	508	321	209
Internal Link Dist (ft)		836		508		796		722
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	213	813	260	878	366	1506	390	1553
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.54	0.59	0.77	0.64	0.64	0.65	0.30

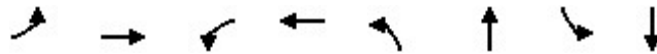
Intersection Summary

HCM Signalized Intersection Capacity Analysis
38: Shoreline Boulevard & Middlefield Road

North Bayshore Precise Plan EIR
Existing + Project PM Peak Hour - Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	295	490	260	295	550	90	140	660	190	350	1400	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3291		1770	3446		1770	3401		1770	3505	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3291		1770	3446		1770	3401		1770	3505	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	516	274	295	579	95	147	695	200	368	1474	84
RTOR Reduction (vph)	0	50	0	0	10	0	0	19	0	0	3	0
Lane Group Flow (vph)	295	740	0	295	664	0	147	876	0	368	1555	0
Confl. Peds. (#/hr)			10			4			14			6
Confl. Bikes (#/hr)			28			22			1			27
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	31.0		21.0	36.0		14.8	51.0		21.0	57.2	
Effective Green, g (s)	16.0	31.0		21.0	36.0		14.8	51.0		21.0	57.2	
Actuated g/C Ratio	0.11	0.22		0.15	0.26		0.11	0.36		0.15	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	728		265	886		187	1238		265	1432	
v/s Ratio Prot	c0.17	c0.22		c0.17	0.19		c0.08	0.26		c0.21	c0.44	
v/s Ratio Perm												
v/c Ratio	1.46	1.02		1.11	0.75		0.79	0.71		1.39	1.09	
Uniform Delay, d1	62.0	54.5		59.5	47.9		61.1	38.1		59.5	41.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	232.4	37.6		89.1	3.5		19.2	3.4		196.5	50.8	
Delay (s)	294.4	92.1		148.6	51.4		80.3	41.5		256.0	92.2	
Level of Service	F	F		F	D		F	D		F	F	
Approach Delay (s)		147.1			81.0			47.0			123.5	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay		104.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.10										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		107.1%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
38: Shoreline Boulevard & Middlefield Road



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	337	874	221	1032	168	747	200	1484
v/c Ratio	1.07	0.88	0.84	1.10	1.03	0.62	0.76	1.05
Control Delay	124.4	55.3	85.2	103.9	135.7	36.9	64.0	70.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Total Delay	124.4	55.3	85.2	103.9	135.7	36.9	64.0	72.7
Queue Length 50th (ft)	~161	366	96	~514	~151	265	176	~689
Queue Length 95th (ft)	#259	#476	#164	#652	#298	351	238	#870
Internal Link Dist (ft)		836		468		763		642
Turn Bay Length (ft)	220		230		160		145	
Base Capacity (vph)	316	991	264	939	163	1214	326	1417
Starvation Cap Reductn	0	0	0	0	0	0	0	9
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.88	0.84	1.10	1.03	0.62	0.61	1.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.