



DAVID EVANS
AND ASSOCIATES INC.

June 8, 2023

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MEMORANDUM

To: Suzanne Moubayed, MS, EIT
David Evans and Associates, Inc.

From: James M. Daisa, TE

RE: PRELIMINARY TRAFFIC OPERATIONS ASSESMENT OF NARBONNE / PACIFIC COAST HIGHWAY INTERSECTION WITH PROPOSED IMPROVEMENTS



This memorandum summarizes a preliminary operations assessment of the intersection of Narbonne Avenue and Pacific Coast Highway in the City of Lomita with implementation of proposed lane reconfigurations.

Proposed Changes to Narbonne Avenue

Narbonne Avenue currently is a four-lane undivided street except at major signalized intersections where a left turn bay is provided. The proposed configuration—a “road diet”—of Narbonne Avenue is to provide one lane in each direction and a continuous center turn lane which transitions into left turn bays at select intersections to provide width to add Class II bicycle lanes in each direction. On-street parking remains as currently configured.

Intersection Capacity Analysis Methodology

With limited traffic volume data, a capacity analysis was performed to identify one of three possible operational conditions with implementation of the proposed road diet: intersection operates below capacity, intersection operates near capacity, intersection operates over capacity. The city’s level of service standard is LOS D.

Available traffic data was limited. The city provided an Engineering & Traffic Survey for establishing speed limits on Narbonne Avenue prepared in 2021 which included daily traffic counts divided into hourly volumes by direction. Bi-directional volumes on Narbonne Avenue for the PM peak hour were available north and south of the Pacific Coast Highway. Peak hour volumes for Pacific Coast Highway were derived from Caltrans’ Traffic Census Program bi-directional peak hour volume data for the year 2021. Caltrans count data was limited to Pacific Coast Highway at Route 231 and at Crenshaw Boulevard.

Intersection turn movements at Narbonne Avenue and Pacific Coast Highway were estimated based on an assumed percentage of directional traffic volumes turning left and right at the approaches of the intersection. The percentages were adjusted so that the departure volumes matched the contributing approach turning volumes as close as possible. The resulting intersection turning movements are rough approximations, but conservative.

Results of Analysis

Based on the assumptions described above, the PM peak hour capacity analysis results in an overall LOS C (see Attachment D) with the northbound and southbound approaches of Narbonne Avenue operating at a LOS D. This finding falls under the operational condition of “intersection operates below capacity”.

\ Attachments:

Attachment A – Peak Hour Traffic Data for Narbonne Avenue

Attachment B - Excerpt from Caltrans Peak Hour Volume Data (Year 2021)

Attachment C - Derivation of Turning Movements from Directional Link Volumes

Attachment D - PM Peak Hour Capacity Analysis of PCH and Narbonne Ave

ATTACHMENT A
PEAK HOUR TRAFFIC DATA FOR NARBONNE AVENUE



NARBONNE AVENUE

(Between Lomita Boulevard and the
Rolling Hills Estates City Boundary south of Pacific Coast Highway)

Engineering and Traffic Survey (E&TS)

Prepared by: Irena Guilmette, T.E. #2259
City of Lomita Traffic Advisor
Los Angeles County Public Works
September 2021



NARBONNE AVENUE

TRAFFIC VOLUMES

Los Angeles County Department of Public Works 24 Hour Traffic Count

Access Date: 9/7/21 3:07 PM

Report ID: HOME 587V

Count Date: 8/13/2021 Friday

Conditions: Clear

Location: NARBONNE AVENUE S/O 248TH STREET

Time	N/B		S/B		Total		Time	N/B		S/B		Total	
	15'	Hour	15'	Hour	15'	Hour		15'	Hour	15'	Hour	15'	Hour
12:00 AM	13	33	11	41	24	74	12:00 PM	108	434	122	452	230	886
12:15 AM	6	28	13	34	19	62	12:15 PM	113	414	120	434	233	848
12:30 AM	7	27	9	27	16	54	12:30 PM	102	411	103	422	205	833
12:45 AM	7	20	8	23	15	43	12:45 PM	111	413	107	417	218	830
1:00 AM	8	14	4	16	12	30	1:00 PM	88	398	104	411	192	809
1:15 AM	5	8	6	14	11	22	1:15 PM	110	414	108	443	218	857
1:30 AM	0	4	5	10	5	14	1:30 PM	104	393	98	433	202	826
1:45 AM	1	8	1	13	2	21	1:45 PM	96	411	101	454	197	865
2:00 AM	2	12	2	14	4	26	2:00 PM	104	430	136	454	240	884
2:15 AM	1	11	2	14	3	25	2:15 PM	89	441	98	436	187	877
2:30 AM	4	13	8	14	12	27	2:30 PM	122	448	119	454	241	902
2:45 AM	5	10	2	10	7	20	2:45 PM	115	433	101	471	216	904
3:00 AM	1	10	2	9	3	19	3:00 PM	115	428	118	502	233	930
3:15 AM	3	12	2	12	5	24	3:15 PM	96	425	116	499	212	924
3:30 AM	1	11	4	12	5	23	3:30 PM	107	446	136	526	243	972
3:45 AM	5	21	1	12	6	33	3:45 PM	110	445	132	516	242	961
4:00 AM	3	25	5	18	8	43	4:00 PM	112	413	115	501	227	914
4:15 AM	2	35	2	15	4	50	4:15 PM	117	404	143	505	260	909
4:30 AM	11	44	4	17	15	61	4:30 PM	106	383	126	512	232	895
4:45 AM	9	44	7	20	16	64	4:45 PM	78	395	117	525	195	920
5:00 AM	13	69	2	21	15	90	5:00 PM	103	412	119	508	222	920
5:15 AM	11	83	4	31	15	114	5:15 PM	96	381	150	506	246	887
5:30 AM	11	93	7	45	18	138	5:30 PM	118	389	139	470	257	859
5:45 AM	34	125	8	60	42	185	5:45 PM	95	363	100	426	195	789
6:00 AM	27	131	12	77	39	208	6:00 PM	72	339	117	419	189	758
6:15 AM	21	158	18	101	39	259	6:15 PM	104	348	114	386	218	734
6:30 AM	43	203	22	130	65	333	6:30 PM	92	322	95	365	187	687
6:45 AM	40	237	25	152	65	389	6:45 PM	71	304	93	351	164	655
7:00 AM	54	282	36	193	90	475	7:00 PM	81	302	84	340	165	642
7:15 AM	66	333	47	227	113	560	7:15 PM	78	280	93	339	171	619
7:30 AM	77	359	44	244	121	603	7:30 PM	74	262	81	318	155	580
7:45 AM	85	395	66	263	151	658	7:45 PM	69	240	82	296	151	536
8:00 AM	105	407	70	282	175	689	8:00 PM	59	222	83	277	142	499
8:15 AM	92	414	64	306	156	720	8:15 PM	60	201	72	253	132	454
8:30 AM	113	427	63	325	176	752	8:30 PM	52	190	59	228	111	418
8:45 AM	97	429	85	342	182	771	8:45 PM	51	171	63	219	114	390
9:00 AM	112	444	94	365	206	809	9:00 PM	38	146	59	205	97	351
9:15 AM	105	420	83	342	188	762	9:15 PM	49	137	47	177	96	314
9:30 AM	115	434	80	340	195	774	9:30 PM	33	106	50	169	83	275
9:45 AM	112	431	108	361	220	792	9:45 PM	26	93	49	147	75	240
10:00 AM	88	414	71	349	159	763	10:00 PM	29	86	31	129	60	215
10:15 AM	119	447	81	376	200	823	10:15 PM	18	81	39	123	57	204
10:30 AM	112	440	101	389	213	829	10:30 PM	20	73	28	114	48	187
10:45 AM	95	456	96	420	191	876	10:45 PM	19	70	31	99	50	169
11:00 AM	121	480	98	432	219	912	11:00 PM	24	62	25	93	49	155
11:15 AM	112	467	94	456	206	923	11:15 PM	10		30		40	
11:30 AM	128	468	132	482	260	950	11:30 PM	17		13		30	
11:45 AM	119	442	108	453	227	895	11:45 PM	11		25		36	

Direction	24 Hour	AM Peak Hour		PM Peak Hour	
	Volume	Time	Volume	Time	Volume
Total	12101	11:30 AM	950	3:30 PM	972
N/B	5993	11:00 AM	480	2:30 PM	448
S/B	6108	11:30 AM	482	3:30 PM	526

Los Angeles County Department of Public Works 24 Hour Traffic Count

Access Date: 9/7/21 3:04 PM

Report ID: HOME 588V

Count Date: 8/13/2021 Friday

Conditions: Clear

Location: NARBONNE AVENUE S/O 254TH STREET

Time	N/B		S/B		Total		Time	N/B		S/B		Total	
	15'	Hour	15'	Hour	15'	Hour		15'	Hour	15'	Hour	15'	Hour
12:00 AM	7	29	12	32	19	61	12:00 PM	110	416	122	455	232	871
12:15 AM	9	28	11	25	20	53	12:15 PM	96	407	114	445	210	852
12:30 AM	6	24	5	19	11	43	12:30 PM	103	411	125	418	228	829
12:45 AM	7	18	4	18	11	36	12:45 PM	107	411	94	397	201	808
1:00 AM	6	13	5	15	11	28	1:00 PM	101	410	112	407	213	817
1:15 AM	5	9	5	13	10	22	1:15 PM	100	414	87	428	187	842
1:30 AM	0	8	4	11	4	19	1:30 PM	103	420	104	449	207	869
1:45 AM	2	10	1	13	3	23	1:45 PM	106	419	104	449	210	868
2:00 AM	2	12	3	14	5	26	2:00 PM	105	403	133	448	238	851
2:15 AM	4	16	3	12	7	28	2:15 PM	106	420	108	443	214	863
2:30 AM	2	15	6	12	8	27	2:30 PM	102	415	104	450	206	865
2:45 AM	4	15	2	11	6	26	2:45 PM	90	406	103	475	193	881
3:00 AM	6	14	1	13	7	27	3:00 PM	122	437	128	510	250	947
3:15 AM	3	12	3	16	6	28	3:15 PM	101	416	115	515	216	931
3:30 AM	2	13	5	18	7	31	3:30 PM	93	432	129	538	222	970
3:45 AM	3	21	4	24	7	45	3:45 PM	121	448	138	533	259	981
4:00 AM	4	28	4	27	8	55	4:00 PM	101	421	133	530	234	951
4:15 AM	4	28	5	28	9	56	4:15 PM	117	422	138	553	255	975
4:30 AM	10	34	11	31	21	65	4:30 PM	109	401	124	550	233	951
4:45 AM	10	37	7	31	17	68	4:45 PM	94	392	135	563	229	955
5:00 AM	4	51	5	31	9	82	5:00 PM	102	391	156	524	258	915
5:15 AM	10	66	8	43	18	109	5:15 PM	96	367	135	495	231	862
5:30 AM	13	74	11	58	24	132	5:30 PM	100	353	137	457	237	810
5:45 AM	24	95	7	66	31	161	5:45 PM	93	327	96	420	189	747
6:00 AM	19	107	17	90	36	197	6:00 PM	78	316	127	408	205	724
6:15 AM	18	137	23	110	41	247	6:15 PM	82	321	97	366	179	687
6:30 AM	34	172	19	133	53	305	6:30 PM	74	317	100	355	174	672
6:45 AM	36	207	31	164	67	371	6:45 PM	82	322	84	321	166	643
7:00 AM	49	253	37	207	86	460	7:00 PM	83	301	85	298	168	599
7:15 AM	53	272	46	237	99	509	7:15 PM	78	280	86	283	164	563
7:30 AM	69	312	50	253	119	565	7:30 PM	79	260	66	272	145	532
7:45 AM	82	345	74	272	156	617	7:45 PM	61	240	61	272	122	512
8:00 AM	68	369	67	286	135	655	8:00 PM	62	223	70	260	132	483
8:15 AM	93	387	62	302	155	689	8:15 PM	58	197	75	235	133	432
8:30 AM	102	391	69	326	171	717	8:30 PM	59	185	66	213	125	398
8:45 AM	106	390	88	339	194	729	8:45 PM	44	152	49	184	93	336
9:00 AM	86	377	83	353	169	730	9:00 PM	36	130	45	172	81	302
9:15 AM	97	377	86	340	183	717	9:15 PM	46	121	53	157	99	278
9:30 AM	101	391	82	344	183	735	9:30 PM	26	95	37	140	63	235
9:45 AM	93	381	102	371	195	752	9:45 PM	22	96	37	132	59	228
10:00 AM	86	391	70	361	156	752	10:00 PM	27	94	30	113	57	207
10:15 AM	111	425	90	392	201	817	10:15 PM	20	86	36	107	56	193
10:30 AM	91	415	109	392	200	807	10:30 PM	27	79	29	87	56	166
10:45 AM	103	416	92	401	195	817	10:45 PM	20	63	18	72	38	135
11:00 AM	120	433	101	419	221	852	11:00 PM	19	52	24	69	43	121
11:15 AM	101	423	90	440	191	863	11:15 PM	13		16		29	
11:30 AM	92	418	118	464	210	882	11:30 PM	11		14		25	
11:45 AM	120	429	110	471	230	900	11:45 PM	9		15		24	

Direction	24 Hour Volume	AM Peak Hour		PM Peak Hour	
		Time	Volume	Time	Volume
Total	11713	11:45 AM	900	3:45 PM	981
N/B	5671	11:00 AM	433	3:45 PM	448
S/B	6042	11:45 AM	471	4:45 PM	563

Los Angeles County Department of Public Works

24 Hour Traffic Count

Report ID: HOME 589V

Access Date: 9/7/21 3:08 PM

Count Date: 8/13/2021 Friday

Conditions: Clear

Location: NARBONNE AVENUE N/O PACIFIC COAST HIGHWAY

Time	N/B		S/B		Total		Time	N/B		S/B		Total	
	15'	Hour	15'	Hour	15'	Hour		15'	Hour	15'	Hour	15'	Hour
12:00 AM	8	32	12	30	20	62	12:00 PM	44	172	94	382	138	554
12:15 AM	10	27	9	23	19	50	12:15 PM	41	169	80	396	121	565
12:30 AM	9	21	4	14	13	35	12:30 PM	39	162	91	397	130	559
12:45 AM	5	13	5	14	10	27	12:45 PM	48	171	117	419	165	590
1:00 AM	3	10	5	10	8	20	1:00 PM	41	177	108	391	149	568
1:15 AM	4	10	0	11	4	21	1:15 PM	34	181	81	367	115	548
1:30 AM	1	11	4	14	5	25	1:30 PM	48	207	113	366	161	573
1:45 AM	2	12	1	17	3	29	1:45 PM	54	248	89	366	143	614
2:00 AM	3	13	6	19	9	32	2:00 PM	45	280	84	359	129	639
2:15 AM	5	15	3	14	8	29	2:15 PM	60	306	80	378	140	684
2:30 AM	2	11	7	14	9	25	2:30 PM	89	317	113	393	202	710
2:45 AM	3	11	3	15	6	26	2:45 PM	86	294	82	373	168	667
3:00 AM	5	11	1	16	6	27	3:00 PM	71	264	103	378	174	642
3:15 AM	1	8	3	20	4	28	3:15 PM	71	261	95	374	166	635
3:30 AM	2	14	8	24	10	38	3:30 PM	66	264	93	384	159	648
3:45 AM	3	14	4	32	7	46	3:45 PM	56	278	87	408	143	686
4:00 AM	2	15	5	39	7	54	4:00 PM	68	292	99	411	167	703
4:15 AM	7	18	7	39	14	57	4:15 PM	74	303	105	408	179	711
4:30 AM	2	16	16	39	18	55	4:30 PM	80	295	117	404	197	699
4:45 AM	4	29	11	42	15	71	4:45 PM	70	293	90	391	160	684
5:00 AM	5	43	5	42	10	85	5:00 PM	79	272	96	376	175	648
5:15 AM	5	51	7	59	12	110	5:15 PM	66	247	101	383	167	630
5:30 AM	15	65	19	91	34	156	5:30 PM	78	218	104	348	182	566
5:45 AM	18	74	11	96	29	170	5:45 PM	49	194	75	327	124	521
6:00 AM	13	92	22	126	35	218	6:00 PM	54	201	103	328	157	529
6:15 AM	19	118	39	144	58	262	6:15 PM	37	201	66	319	103	520
6:30 AM	24	137	24	162	48	299	6:30 PM	54	222	83	348	137	570
6:45 AM	36	179	41	195	77	374	6:45 PM	56	230	76	330	132	560
7:00 AM	39	221	40	235	79	456	7:00 PM	54	231	94	334	148	565
7:15 AM	38	246	57	265	95	511	7:15 PM	58	232	95	323	153	555
7:30 AM	66	259	57	259	123	518	7:30 PM	62	223	65	306	127	529
7:45 AM	78	283	81	294	159	577	7:45 PM	57	216	80	303	137	519
8:00 AM	64	282	70	299	134	581	8:00 PM	55	205	83	278	138	483
8:15 AM	51	267	51	292	102	559	8:15 PM	49	180	78	235	127	415
8:30 AM	90	274	92	320	182	594	8:30 PM	55	172	62	210	117	382
8:45 AM	77	246	86	308	163	554	8:45 PM	46	139	55	185	101	324
9:00 AM	49	233	63	333	112	566	9:00 PM	30	116	40	169	70	285
9:15 AM	58	265	79	357	137	622	9:15 PM	41	106	53	165	94	271
9:30 AM	62	282	80	367	142	649	9:30 PM	22	86	37	149	59	235
9:45 AM	64	286	111	378	175	664	9:45 PM	23	91	39	134	62	225
10:00 AM	81	290	87	345	168	635	10:00 PM	20	85	36	121	56	206
10:15 AM	75	294	89	360	164	654	10:15 PM	21	75	37	100	58	175
10:30 AM	66	304	91	358	157	662	10:30 PM	27	70	22	83	49	153
10:45 AM	68	296	78	393	146	689	10:45 PM	17	54	26	78	43	132
11:00 AM	85	267	102	397	187	664	11:00 PM	10	43	15	66	25	109
11:15 AM	85	226	87	389	172	615	11:15 PM	16		20		36	
11:30 AM	58	182	126	382	184	564	11:30 PM	11		17		28	
11:45 AM	39	163	82	347	121	510	11:45 PM	6		14		20	

Direction	24 Hour	AM Peak Hour		PM Peak Hour	
	Volume	Time	Volume	Time	Volume
Total	9331	10:45 AM	689	4:15 PM	711
N/B	3847	10:30 AM	304	2:30 PM	317
S/B	5484	11:00 AM	397	12:45 PM	419

Los Angeles County Department of Public Works

24 Hour Traffic Count

Report ID: HOME 590V

Access Date: 9/7/21 3:09 PM

Count Date: 8/13/2021 Friday

Conditions: Clear

Location: NARBONNE AVENUE S/O PACIFIC COAST HIGHWAY

Time	N/B		S/B		Total		Time	N/B		S/B		Total	
	15'	Hour	15'	Hour	15'	Hour		15'	Hour	15'	Hour	15'	Hour
12:00 AM	8	31	11	39	19	70	12:00 PM	130	444	111	458	241	902
12:15 AM	8	28	14	32	22	60	12:15 PM	88	441	118	459	206	900
12:30 AM	10	25	11	24	21	49	12:30 PM	112	487	113	457	225	944
12:45 AM	5	18	3	17	8	35	12:45 PM	114	488	116	463	230	951
1:00 AM	5	17	4	18	9	35	1:00 PM	127	487	112	476	239	963
1:15 AM	5	17	6	21	11	38	1:15 PM	134	472	116	504	250	976
1:30 AM	3	15	4	18	7	33	1:30 PM	113	450	119	517	232	967
1:45 AM	4	14	4	19	8	33	1:45 PM	113	442	129	530	242	972
2:00 AM	5	17	7	18	12	35	2:00 PM	112	433	140	507	252	940
2:15 AM	3	16	3	15	6	31	2:15 PM	112	416	129	481	241	897
2:30 AM	2	14	5	16	7	30	2:30 PM	105	396	132	486	237	882
2:45 AM	7	14	3	14	10	28	2:45 PM	104	395	106	502	210	897
3:00 AM	4	14	4	15	8	29	3:00 PM	95	399	114	536	209	935
3:15 AM	1	15	4	15	5	30	3:15 PM	92	422	134	550	226	972
3:30 AM	2	18	3	15	5	33	3:30 PM	104	422	148	556	252	978
3:45 AM	7	25	4	21	11	46	3:45 PM	108	418	140	572	248	990
4:00 AM	5	30	4	23	9	53	4:00 PM	118	412	128	578	246	990
4:15 AM	4	42	4	22	8	64	4:15 PM	92	397	140	613	232	1010
4:30 AM	9	60	9	23	18	83	4:30 PM	100	402	164	647	264	1049
4:45 AM	12	68	6	32	18	100	4:45 PM	102	406	146	637	248	1043
5:00 AM	17	92	3	53	20	145	5:00 PM	103	420	163	623	266	1043
5:15 AM	22	104	5	70	27	174	5:15 PM	97	400	174	600	271	1000
5:30 AM	17	118	18	109	35	227	5:30 PM	104	383	154	526	258	909
5:45 AM	36	151	27	126	63	277	5:45 PM	116	357	132	494	248	851
6:00 AM	29	168	20	153	49	321	6:00 PM	83	315	140	466	223	781
6:15 AM	36	189	44	191	80	380	6:15 PM	80	302	100	407	180	709
6:30 AM	50	233	35	197	85	430	6:30 PM	78	274	122	414	200	688
6:45 AM	53	283	54	219	107	502	6:45 PM	74	264	104	372	178	636
7:00 AM	50	334	58	233	108	567	7:00 PM	70	243	81	346	151	589
7:15 AM	80	383	50	231	130	614	7:15 PM	52	222	107	345	159	567
7:30 AM	100	414	57	256	157	670	7:30 PM	68	211	80	316	148	527
7:45 AM	104	450	68	279	172	729	7:45 PM	53	197	78	312	131	509
8:00 AM	99	478	56	303	155	781	8:00 PM	49	190	80	303	129	493
8:15 AM	111	470	75	324	186	794	8:15 PM	41	168	78	287	119	455
8:30 AM	136	459	80	321	216	780	8:30 PM	54	177	76	277	130	454
8:45 AM	132	419	92	308	224	727	8:45 PM	46	145	69	245	115	390
9:00 AM	91	377	77	300	168	677	9:00 PM	27	129	64	226	91	355
9:15 AM	100	398	72	299	172	697	9:15 PM	50	129	68	202	118	331
9:30 AM	96	408	67	326	163	734	9:30 PM	22	107	44	180	66	287
9:45 AM	90	430	84	361	174	791	9:45 PM	30	108	50	168	80	276
10:00 AM	112	450	76	365	188	815	10:00 PM	27	96	40	152	67	248
10:15 AM	110	456	99	384	209	840	10:15 PM	28	87	46	138	74	225
10:30 AM	118	444	102	390	220	834	10:30 PM	23	75	32	116	55	191
10:45 AM	110	452	88	434	198	886	10:45 PM	18	60	34	109	52	169
11:00 AM	118	465	95	452	213	917	11:00 PM	18	50	26	106	44	156
11:15 AM	98	477	105	468	203	945	11:15 PM	16		24		40	
11:30 AM	126	467	146	481	272	948	11:30 PM	8		25		33	
11:45 AM	123	453	106	448	229	901	11:45 PM	8		31		39	

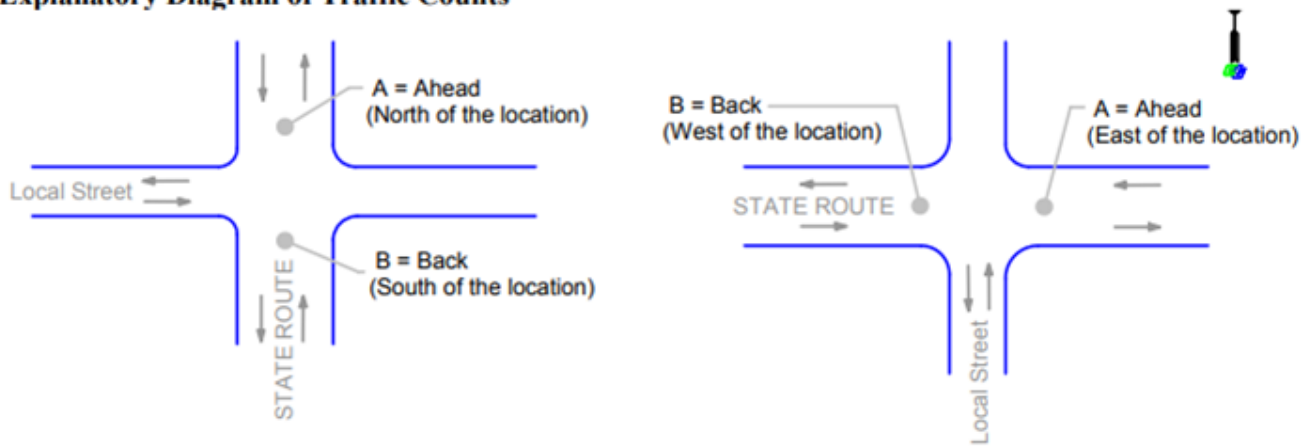
Direction	24 Hour	AM Peak Hour		PM Peak Hour	
	Volume	Time	Volume	Time	Volume
Total	12840	11:30 AM	948	4:30 PM	1049
N/B	6091	8:00 AM	478	12:45 PM	488
S/B	6749	11:30 AM	481	4:30 PM	647

ATTACHMENT B
EXCERPT FROM CALTRANS PEAK HOUR VOLUME DATA (YEAR 2021)

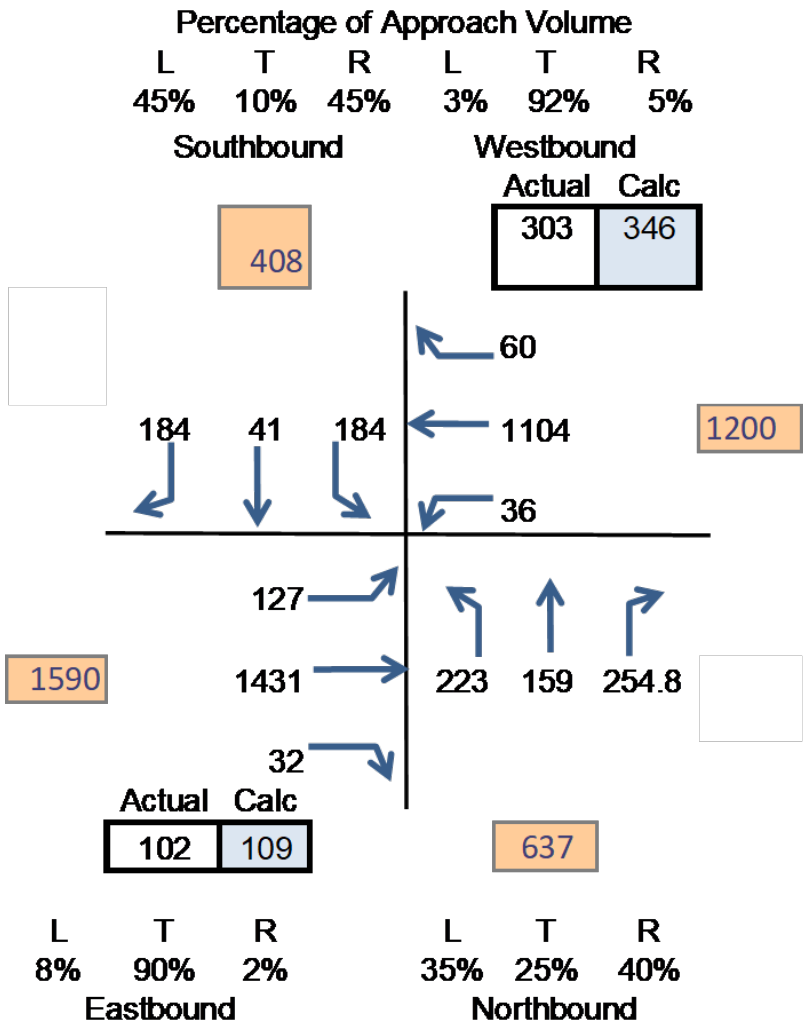
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	DISTRICT	ROUTE	ROUTE_SFX	COUNTY	PM_PFX	PM	PM_SFX	LOCATION DESCRIPTION	BACK_PEAK_HOUR	BACK_PEAK_MADT	BACK_AADT	AHEAD_PEAK_HOUR	AHEAD_PEAK_MADT	AHEAD_AADT
1														
35	07	001	LA		13.1			LOS ANGELES, JCT. RTE. 213	3000	49500	46000	3700	61000	57000
36	07	001	LA		14.634			TORRANCE, CRENSHAW BOULEVARD	3500	58000	54000	2650	44000	40500
37	07	001	LA		16.005			TORRANCE, JCT. RTE. 107	2350	39000	36000	2600	42500	39500
38	07	001	LA		18.09			TORRANCE, PALOS VERDES BOULEVARD	1950	32000	30000	1750	29500	27500

Source: Caltrans Traffic Census Program, Peak Hour Volume Data (Year 2021) <https://dot.ca.gov/programs/traffic-operations/census>

Explanatory Diagram of Traffic Counts



ATTACHMENT C
DERIVATION OF TURNING MOVEMENTS FROM DIRECTIONAL LINK VOLUMES



PCH 2021 Peak Hour Bi-Directional Traffic Counts

Rte 213	East of Narbonne	3000 vph	60% EB	1800
			40% WB	1200
Crenshaw	West of Narbonne	2650 vph	60% EB	1590
			40% WB	1060

Source: Caltrans Traffic Census Program, Peak Hour Volume Data (Year 2021)
<https://dot.ca.gov/programs/traffic-operations/census>

Narbonne Ave Peak Hour Directional Traffic Counts

	NB	SB
South of PCH	637	102
North of PCH	303	408

Source: Engineering and Traffic Survey (E&TS) for Narbonne Avenue (Between Lomita Boulevard and the Rolling Hills Estates City Boundary south of Pacific Coast Highway), 2021, ADT Report (4:15 PM N/O PCH, 4:45 PM S/O PCH).

Lane Geometrics

- EB L, 2TH, 1TR
- WB L, 2TH, 1TR
- NB L, T, R
- SB L, T, R

Signalized (8-Phase)

ATTACHMENT D

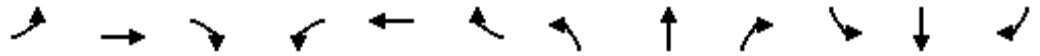
PM PEAK HOUR CAPACITY ANALYSIS OF PCH AND NARBONNE AVE

HCM 6th Signalized Intersection Summary

Synchro 11 Report

2: Pacific Coast Highway (HWY 1) & Narbonne Ave

06/05/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↖	↑↑↑		↖	↑	↗	↖	↑	↗
Traffic Volume (veh/h)	127	1431	32	36	1104	60	223	159	255	184	41	184
Future Volume (veh/h)	127	1431	32	36	1104	60	223	159	255	184	41	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	138	1555	35	39	1200	65	242	173	277	200	45	200
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	2224	50	52	1808	98	286	376	319	242	330	280
Arrive On Green	0.10	0.43	0.43	0.03	0.36	0.36	0.16	0.20	0.20	0.14	0.18	0.18
Sat Flow, veh/h	1781	5138	116	1781	4958	268	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	138	1030	560	39	824	441	242	173	277	200	45	200
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1781	1702	1822	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.0	19.6	19.6	1.7	16.1	16.1	10.5	6.5	13.5	8.7	1.6	9.5
Cycle Q Clear(g_c), s	6.0	19.6	19.6	1.7	16.1	16.1	10.5	6.5	13.5	8.7	1.6	9.5
Prop In Lane	1.00		0.06	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	1473	801	52	1241	664	286	376	319	242	330	280
V/C Ratio(X)	0.80	0.70	0.70	0.75	0.66	0.66	0.85	0.46	0.87	0.83	0.14	0.72
Avail Cap(c_a), veh/h	246	1473	801	134	1241	664	403	423	359	358	376	319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	18.3	18.3	38.3	21.2	21.2	32.4	28.0	30.8	33.4	27.6	30.9
Incr Delay (d2), s/veh	11.3	2.8	5.0	19.6	2.8	5.2	11.1	0.9	18.4	9.7	0.2	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	7.7	8.9	1.0	6.5	7.5	5.3	2.9	6.6	4.3	0.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	21.1	23.4	57.9	24.0	26.4	43.6	28.8	49.2	43.1	27.8	37.3
LnGrp LOS	D	C	C	E	C	C	D	C	D	D	C	D
Approach Vol, veh/h		1728			1304			692				445
Approach Delay, s/veh		23.9			25.8			42.1				38.9
Approach LOS		C			C			D				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	38.4	16.8	18.0	11.7	33.0	14.8	20.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	6.0	34.0	18.0	16.0	11.0	29.0	16.0	18.0				
Max Q Clear Time (g_c+I1), s	3.7	21.6	12.5	11.5	8.0	18.1	10.7	15.5				
Green Ext Time (p_c), s	0.0	8.2	0.3	0.4	0.1	6.1	0.2	0.5				
Intersection Summary												
HCM 6th Ctrl Delay				29.1								
HCM 6th LOS				C								