GAP STUDY - LAKE WASHINGTON BOULE[illegible]D NE (north of NE 52nd St) - NORTHBOUND

Data File:	0515601NB.JDF
Site Code:	'05-156-01 '
Start Date:	9/7/05
Start Time:	0:00
Sensor Layout:	'51'
Sensor Spacing:	'100'
'Location:':	'Lk Wa. Blvd n/o NE 52nd St'
'City:':	'Kirkland
'Counter:':	'500'

From HCS; Left turn in critical gap is estimated to be 5.5 sec; follow up time estimated to be 2.1 sec. However, for simplicity, we have used 6.0 sec for all veh's.

gap range	# of veh's (or # of critical gaps)	
0 to 5	0	
6 to 11	1	
12 to 17	2	
18 to 23	3	
24 to 29	4	
30 to 35	5	
>35	7	or more

Date	Start Time	Total	3- 5	6- 8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30-32	33-35	36-38	39-999
2-day avg	12:00 AM	52	3	1	3	0	1	1	2	1	2	2	1	3	33
2-day avg	1:00 AM	23	1	1	1	2	0	0	1	1	0	0	0	0	18
2-day avg	2:00 AM	18	1	1	0	1	0	0	0	1	1	1	0	0	14
2-day avg	3:00 AM	12	0	1	0	0	0	0	1	0	1	1	0	0	10
2-day avg	4:00 AM	26	1	1	1	1	0	1	1	0	0	0	2	1	20
2-day avg	5:00 AM	80	10	6	3	5	5	4	2	4	5	3	3	4	29
2-day avg	6:00 AM	174	44	22	14	12	9	6	12	8	7	5	4	5	28
2-day avg	7:00 AM	236	88	35	23	17	14	9	12	8	6	6	2	4	15
2-day avg	8:00 AM	243	121	35	18	14	9	8	6	6	4	3	3	3	17
2-day avg	9:00 AM	261	119	36	26	19	13	9	9	5	5	4	4	3	13
2-day avg	10:00 AM	299	142	48	31	16	13	15	9	8	2	4	2	3	10
2-day avg	11:00 AM	329	173	54	29	18	15	5	7	12	6	2	3	3	4
2-day avg	12:00 PM	341	198	58	26	16	12	7	6	6	4	4	2	2	3
2-day avg	1:00 PM	332	203	48	22	17	9	9	6	5	6	3	3	1	4
2-day avg	2:00 PM	331	199	49	21	14	12	8	8	7	3	4	4	2	3
2-day avg	3:00 PM	316	209	43	24	7	7	4	8	3	3	3	2	1	6
2-day avg	4:00 PM	340	247	36	18	11	10	5	6	2	3	1	2	0	2
2-day avg	5:00 PM	331	259	37	11	10	6	3	2	2	3	1	1	1	0
2-day avg	6:00 PM	334	244	38	17	8	7	4	5	7	2	3	0	1	1
2-day avg	7:00 PM	340	198	47	29	19	12	9	6	5	4	5	2	3	5
2-day avg	8:00 PM	281	126	45	26	16	10	14	7	9	6	7	2	4	13
2-day avg	9:00 PM	264	101	38	23	25	17	12	10	8	8	3	5	6	10
2-day avg	10:00 PM	191	47	30	11	13	13	14	9	10	8	10	4	5	20
2-day avg	11:00 PM	112	16	12	6	7	6	7	7	6	3	4	4	3	33
Daily Totals:		5259	2744	715	378	261	195	149	134	117	86	72	52	52	305
Percent of Total:			52%	14%	7.2%	5.0%	3.7%	2.8%	2.5%	2.2%	1.6%	1.4%	1.0%	1.0%	5.8%

Date	Start Time	Total Useable Gaps: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Gaps	# of critical gaps within defined ranges: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Total Critical G
2-day avg	12:00 AM	4	1	3	3	3	36	49	4	2	8	10	15	249	287
2-day avg	1:00 AM	2	2	1	1	0	18	23	2	4	2	2	0	126	135
2-day avg	2:00 AM	1	1	0	1	1	14	17	1	1	0	4	5	98	109
2-day avg	3:00 AM	1	0	1	1	1	10	12	1	0	2	2	5	67	76
2-day avg	4:00 AM	1	1	2	0	2	21	25	1	1	5	0	8	144	158
2-day avg	5:00 AM	9	10	6	9	6	32	71	9	19	17	34	30	224	333
2-day avg	6:00 AM	36	21	18	15	9	32	130	36	41	54	60	45	224	460
2-day avg	7:00 AM	58	30	21	14	8	18	148	58	60	62	56	38	126	399
2-day avg	8:00 AM	53	23	13	10	6	20	123	53	45	39	38	28	137	339
2-day avg	9:00 AM	62	32	17	10	7	15	142	62	63	51	38	35	105	354
2-day avg	10:00 AM	78	28	24	10	6	13	157	78	56	71	38	28	88	358
2-day avg	11:00 AM	83	33	12	18	4	7	156	83	66	36	72	20	46	322
2-day avg	12:00 PM	83	28	13	10	6	5	144	83	55	39	38	28	35	278
2-day avg	1:00 PM	69	26	15	10	6	5	129	69	51	44	40	28	32	263
2-day avg	2:00 PM	70	26	16	9	8	5	133	70	52	47	36	38	35	277
2-day avg	3:00 PM	66	14	11	6	5	6	107	66	27	33	22	23	42	213
2-day avg	4:00 PM	54	21	10	4	2	2	93	54	41	30	16	10	14	16[illegible]
2-day avg	5:00 PM	48	15	4	5	1	1	73	48	30	12	18	5	4	1[illegible]
2-day avg	6:00 PM	55	14	9	8	3	2	90	55	28	26	32	15	11	166
2-day avg	7:00 PM	75	31	14	9	7	8	142	75	61	42	34	33	53	297
2-day avg	8:00 PM	71	25	21	14	9	17	155	71	50	62	56	43	116	396
2-day avg	9:00 PM	61	42	22	16	8	16	163	61	84	66	62	38	109	419
2-day avg	10:00 PM	41	25	22	18	14	25	144	41	50	66	70	68	172	466
2-day avg	11:00 PM	18	13	13	9	8	36	96	18	25	39	34	40	249	405
Daily Totals:		1093	456	283	203	124	357	2515	1093	912	848	812	620	2499	6783

GAP STUDY - LAKE WASHINGTON BOULEVARD NE (north of NE 52nd St) - SOUTHBOUND

Data File:	0515601SB.JDF
Site Code:	'05-156-01 '
Start Date:	9/7/05
Start Time:	0:00
Sensor Layout:	'51'
Sensor Spacing:	'100'
'Location:':	'Lk WA Bv n/o Yarrow Bay Marina'
'City:':	'Kirkland
'Counter:':	'503'

From HCS; Left turn in critical gap is estimated to be 5.5 sec; follow up time estimated to be 2.1 sec. However, for simplicity, we have used 6.0 sec for all veh's.

gap range	# of veh's (or # of critical gaps)	
0 to 5	0	
6 to 11	1	
12 to 17	2	
18 to 23	3	
24 to 29	4	
30 to 35	5	
>35	7	or more

Direction SB

			0	1		2		3		4		5		7+		Total Useable							# of critical gaps within defined ranges						Total
Date	Start Time	Total	3- 5	6- 8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30-32	33-35	36-38	39-999	6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Gaps	6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Critical Gaps
9/7/05	12:00 AM	43	3	1	1	1	0	0	0	1	2	0	2	2	30	2	1	0	3	2	32	40	2	2	0	12	10	224	250
9/7/05	1:00 AM	18	0	0	0	0	2	0	1	0	0	1	1	0	13	0	2	1	0	2	13	18	0	4	3	0	10	91	108
9/7/05	2:00 AM	15	0	0	0	0	0	0	1	0	0	0	0	2	12	0	0	1	0	0	14	15	0	0	3	0	0	98	101
9/7/05	3:00 AM	7	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	1	0	6	7	0	0	0	4	0	42	46
9/7/05	4:00 AM	31	1	1	0	2	1	2	0	0	2	1	0	1	20	1	3	2	2	1	21	30	1	6	6	8	5	147	173
9/7/05	5:00 AM	109	15	10	13	6	6	3	7	7	1	5	4	0	32	23	12	10	8	9	32	94	23	24	30	32	45	224	378
9/7/05	6:00 AM	271	122	31	30	28	14	9	8	2	5	6	5	0	11	61	42	17	7	11	11	149	61	84	51	28	55	77	356
9/7/05	7:00 AM	312	228	32	14	9	11	5	9	2	0	1	0	0	1	46	20	14	2	1	1	84	46	40	42	8	5	7	148
9/7/05	8:00 AM	316	233	42	11	10	3	4	7	1	3	1	1	0	0	53	13	11	4	2	0	83	53	26	33	16	10	0	138
9/7/05	9:00 AM	335	194	51	34	16	15	6	3	4	3	1	1	3	4	85	31	9	7	2	7	141	85	62	27	28	10	49	261
9/7/05	10:00 AM	331	147	66	36	21	22	8	6	9	4	3	6	1	2	102	43	14	13	9	3	184	102	86	42	52	45	21	348
9/7/05	11:00 AM	352	174	60	38	23	14	12	11	9	6	3	0	0	2	98	37	23	15	3	2	178	98	74	69	60	15	14	330
9/7/05	12:00 PM	387	232	54	33	20	13	15	8	2	2	4	0	0	4	87	33	23	4	4	4	155	87	66	69	16	20	28	286
9/7/05	1:00 PM	392	232	62	34	26	10	12	6	2	3	1	2	1	1	96	36	18	5	3	2	160	96	72	54	20	15	14	271
9/7/05	2:00 PM	383	211	66	38	23	16	13	5	5	2	2	1	1	0	104	39	18	7	3	1	172	104	78	54	28	15	7	286
9/7/05	3:00 PM	393	220	70	27	26	20	15	7	4	0	2	0	0	2	97	46	22	4	2	2	173	97	92	66	16	10	14	295
9/7/05	4:00 PM	414	267	70	26	18	11	7	3	2	5	0	2	2	1	96	29	10	7	2	3	147	96	58	30	28	10	21	243
9/7/05	5:00 PM	425	284	65	27	16	14	11	4	0	1	0	2	0	1	92	30	15	1	2	1	141	92	60	45	4	10	7	218
9/7/05	6:00 PM	358	182	54	40	26	17	15	7	7	3	2	0	5	0	94	43	22	10	2	5	176	94	86	66	40	10	35	331
9/7/05	7:00 PM	317	137	59	30	25	17	10	12	4	8	4	1	3	7	89	42	22	12	5	10	180	89	84	66	48	25	70	382
9/7/05	8:00 PM	320	139	55	39	13	22	14	9	11	4	4	4	1	5	94	35	23	15	8	6	181	94	70	69	60	40	42	375
9/7/05	9:00 PM	279	89	45	40	32	14	15	15	12	3	2	1	3	8	85	46	30	15	3	11	190	85	92	90	60	15	77	419
9/7/05	10:00 PM	190	42	28	25	11	20	11	8	8	4	2	3	5	23	53	31	19	12	5	28	148	53	62	57	48	25	196	441
9/7/05	11:00 PM	90	9	9	5	7	4	5	4	4	5	1	2	0	35	14	11	9	9	3	35	81	14	22	27	36	15	245	359
Daily Totals:		6088	3161	931	541	359	266	192	141	96	67	46	38	30	220	1472	625	333	163	84	250	2927	1472	1250	999	652	420	1750	6543
Percent of Total:			52%	15%	8.9%	5.9%	4.4%	3.2%	2.3%	1.6%	1.1%	0.8%	0.6%	0.5%	3.6%														

GAP STUDY - LAKE WASHINGTON BOULEVARD NE (north of NE 52nd St) - SOUTHBOUND

Data File:	0515601SB.JDF
Site Code:	'05-156-01 '
Start Date:	9/7/05
Start Time:	0:00
Sensor Layout:	'51'
Sensor Spacing:	'100'
'Location:':	'Lk WA Bv n/o Yarrow Bay Marina'
'City:':	'Kirkland'
'Counter:':	'503'

From HCS; Left turn in critical gap is estimated to be 5.5 sec; follow up time estimated to be 2.1 sec. However, for simplicity, we have used 6.0 sec for all veh's.

gap range	# of veh's (or # of critical gaps)	
0 to 5	0	
6 to 11	1	
12 to 17	2	
18 to 23	3	
24 to 29	4	
30 to 35	5	
>35	7	or more

Date	Start Time	Total	3-5	6-8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30-32	33-35	36-38	39-999	Total Useable: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Gaps	# of critical gaps within defined ranges: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Total Critical Gaps
9/8/05	12:00 AM	50	3	4	4	3	5	2	1	4	0	1	1	0	22	8	8	3	4	2	22	47	8	16	9	16	10	154	213
9/8/05	1:00 AM	23	0	0	1	0	1	0	0	0	0	0	0	0	21	1	1	0	0	0	21	23	1	2	0	0	0	147	150
9/8/05	2:00 AM	26	1	1	2	1	0	0	0	0	1	2	0	0	18	3	1	0	1	2	18	25	3	2	0	4	10	126	145
9/8/05	3:00 AM	8	0	1	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0	7	8	1	0	0	0	0	49	50
9/8/05	4:00 AM	28	3	1	0	1	1	1	0	0	0	1	1	0	19	1	2	1	0	2	19	25	1	4	3	0	10	133	151
9/8/05	5:00 AM	115	19	12	9	6	4	2	6	5	4	7	6	3	32	21	10	8	9	13	35	96	21	20	24	36	65	245	411
9/8/05	6:00 AM	284	122	46	36	17	16	16	9	2	2	0	3	2	13	82	33	25	4	3	15	162	82	66	75	16	15	105	359
9/8/05	7:00 AM	323	236	30	22	11	6	0	6	4	4	1	0	2	1	52	17	6	8	1	3	87	52	34	18	32	5	21	162
9/8/05	8:00 AM	327	249	39	12	5	3	7	3	4	1	3	1	0	0	51	8	10	5	4	0	78	51	16	30	20	20	0	137
9/8/05	9:00 AM	352	199	53	26	25	12	8	11	9	4	2	1	0	2	79	37	19	13	3	2	153	79	74	57	52	15	14	291
9/8/05	10:00 AM	360	195	51	36	25	19	8	8	6	4	4	2	1	1	87	44	16	10	6	2	165	87	88	48	40	30	14	307
9/8/05	11:00 AM	375	210	48	45	28	12	11	6	5	4	2	2	1	1	93	40	17	9	4	2	165	93	80	51	36	20	14	294
9/8/05	12:00 PM	373	207	64	32	21	15	14	4	7	4	1	2	0	2	96	36	18	11	3	2	166	96	72	54	44	15	14	295
9/8/05	1:00 PM	413	246	78	34	17	16	9	5	5	2	0	0	0	1	112	33	14	7	0	1	167	112	66	42	28	0	7	255
9/8/05	2:00 PM	396	225	68	38	24	16	6	3	10	1	1	2	1	1	106	40	9	11	3	2	171	106	80	27	44	15	14	286
9/8/05	3:00 PM	407	225	86	34	21	18	7	7	2	5	1	1	0	0	120	39	14	7	2	0	182	120	78	42	28	10	0	278
9/8/05	4:00 PM	418	237	75	48	23	13	10	6	4	0	0	1	0	1	123	36	16	4	1	1	181	123	72	48	16	5	7	271
9/8/05	5:00 PM	424	280	65	31	20	13	6	3	3	1	1	1	0	0	96	33	9	4	2	0	144	96	66	27	16	10	0	215
9/8/05	6:00 PM	365	185	63	43	16	23	11	11	4	3	2	3	1	0	106	39	22	7	5	1	180	106	78	66	28	25	7	310
9/8/05	7:00 PM	329	137	56	47	34	15	9	8	8	4	4	2	2	3	103	49	17	12	6	5	192	103	98	51	48	30	35	365
9/8/05	8:00 PM	333	152	51	47	22	14	16	10	6	4	3	2	1	5	98	36	26	10	5	6	181	98	72	78	40	25	42	355
9/8/05	9:00 PM	290	119	42	32	23	15	12	12	7	8	4	5	2	9	74	38	24	15	9	11	171	74	76	72	60	45	77	404
9/8/05	10:00 PM	213	55	29	23	18	18	15	12	5	8	9	5	2	14	52	36	27	13	14	16	158	52	72	81	52	70	112	439
9/8/05	11:00 PM	115	20	12	9	6	1	6	7	5	4	2	2	4	37	21	7	13	9	4	41	95	21	14	39	36	20	287	417
Daily Totals:		6347	3325	975	611	367	256	176	138	105	68	51	43	22	210	1586	623	314	173	94	232	3022	1586	1246	942	692	470	1624	6560
Percent of Total:			52%	15%	9.6%	5.8%	4.0%	2.8%	2.2%	1.7%	1.1%	0.8%	0.7%	0.3%	3.3%														

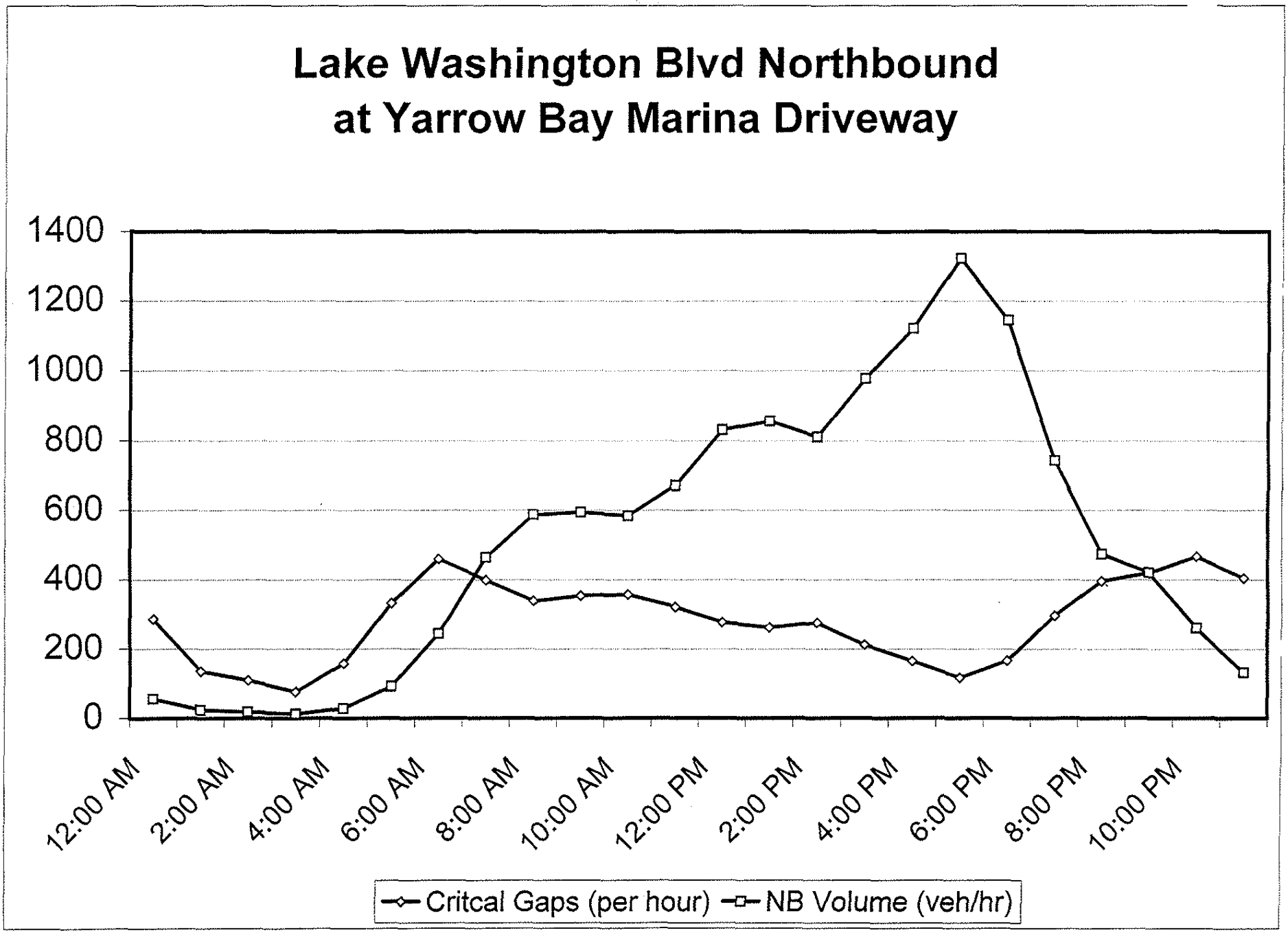
GAP STUDY - LAKE WASHINGTON BOULEVARD NE (north of NE 52nd St) - SOUTHBOUND

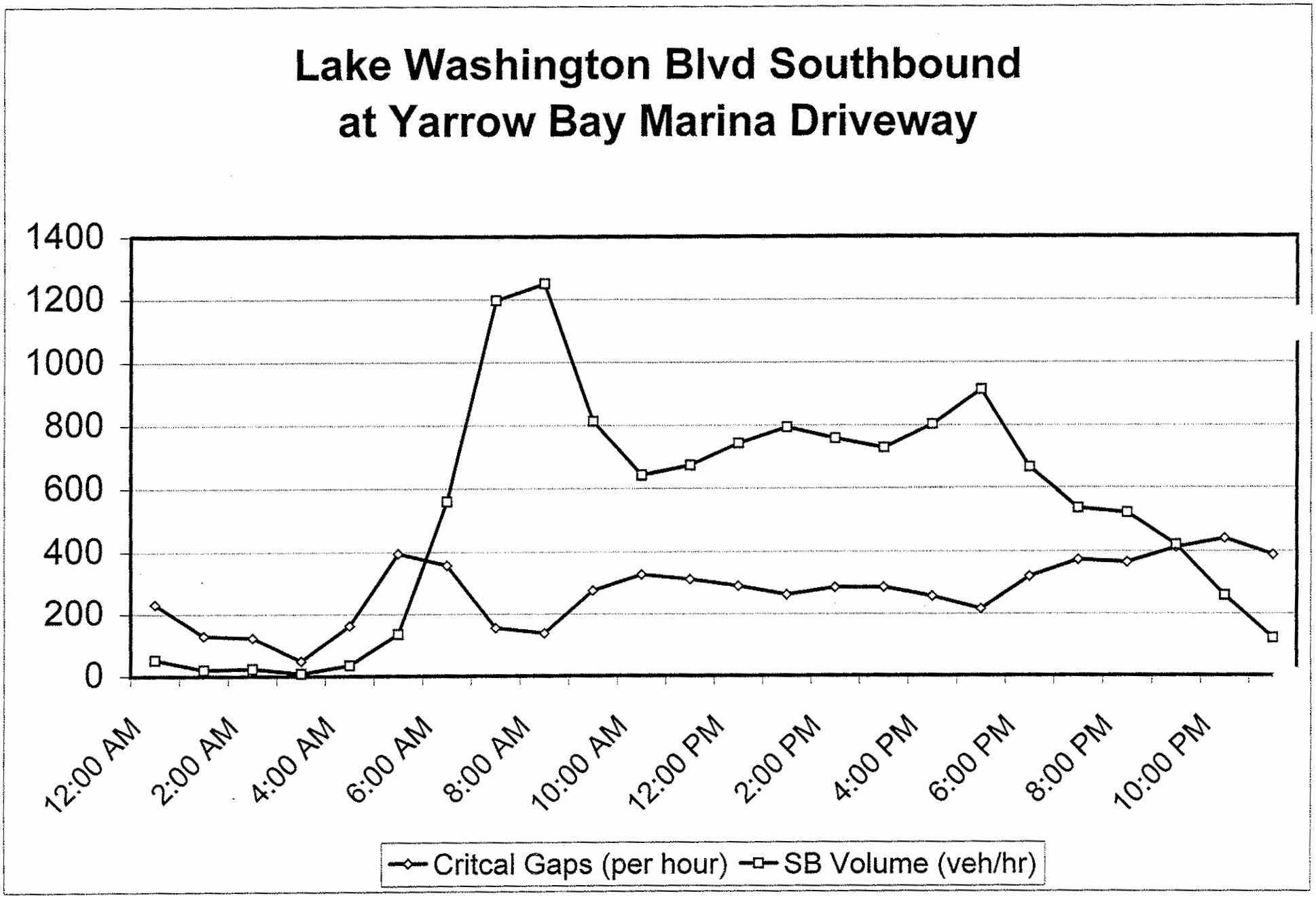
Data File:	0515601SB.JDF
Site Code:	'05-156-01 '
Start Date:	*9/7/05*
Start Time:	0:00
Sensor Layout:	'51'
Sensor Spacing:	'100'
'Location:':	'Lk WA Bv n/o Yarrow Bay Marina'
'City:':	'Kirkland
'Counter:':	'503'

From HCS; Left turn in critical gap is estimated to be 5.5 sec; follow up time estimated to be 2.1 sec. However, for simplicity, we have used 6.0 sec for all veh's.

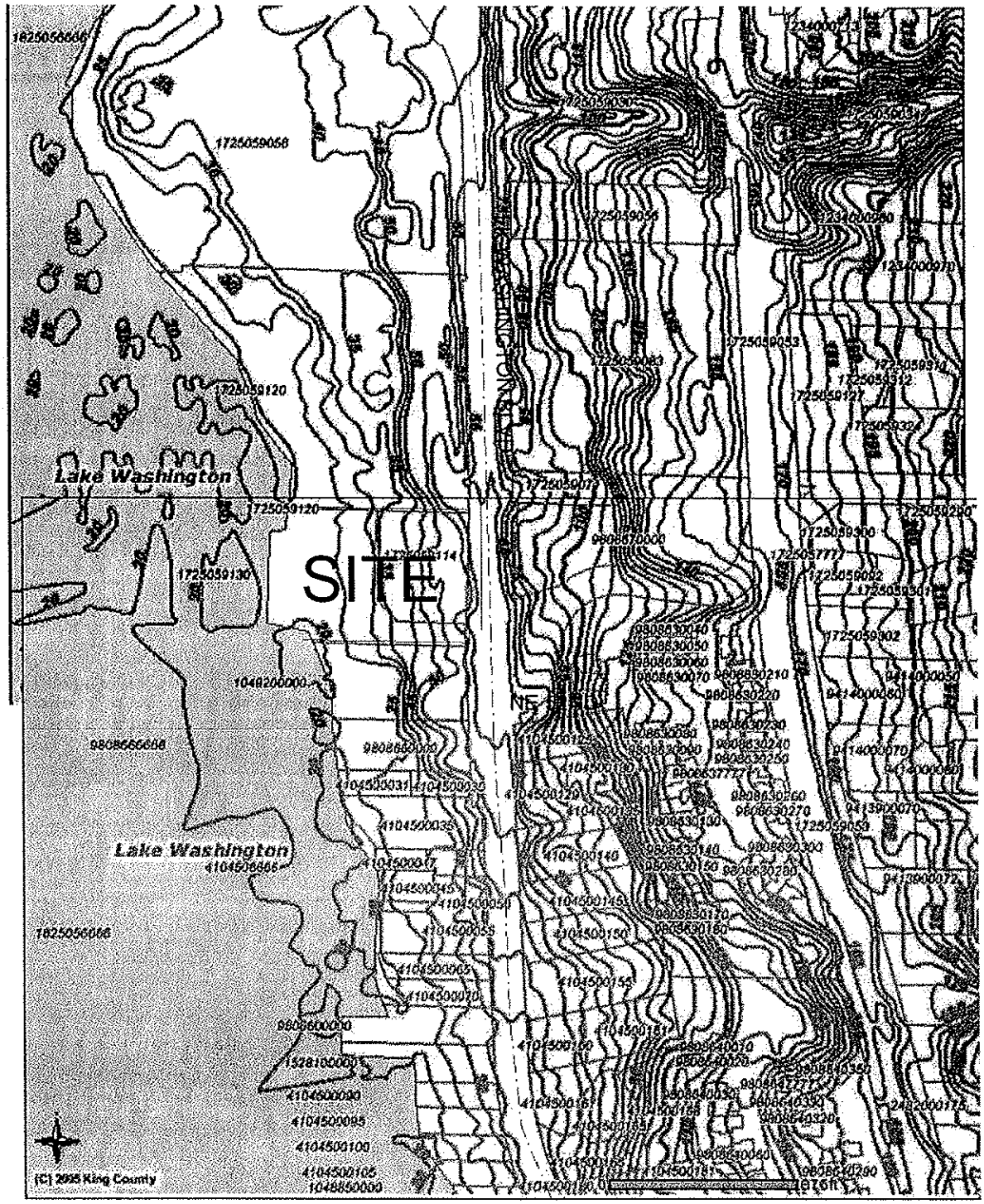
gap range	# of veh's (or # of critical gaps)	
0 to 5	0	
6 to 11	1	
12 to 17	2	
18 to 23	3	
24 to 29	4	
30 to 35	5	
>35	7	*or more*

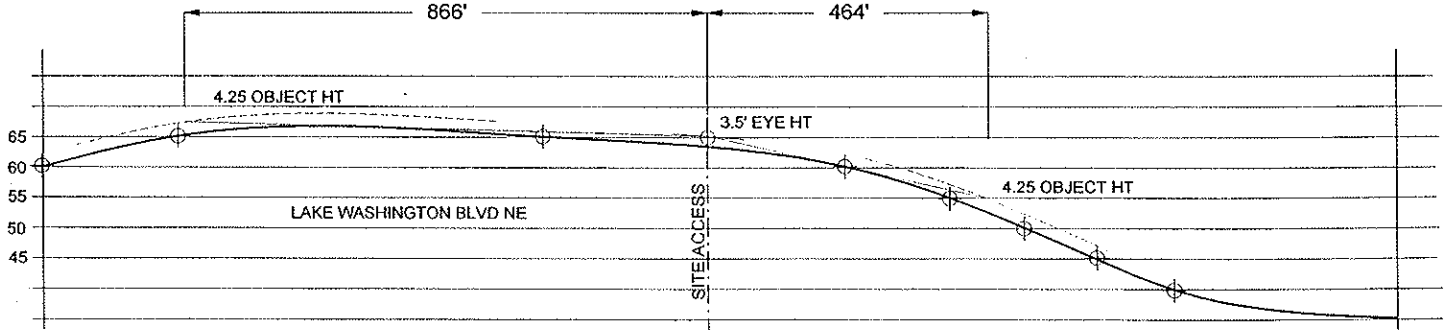
Date	Start Time	Total	3-5	6-8	9-11	12-14	15-17	18-20	21-23	24-26	27-29	30-32	33-35	36-38	39-999	Total Useable: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Gaps	# of critical gaps within defined ranges: 6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	>35	Total Critical Gaps
2-day av	12:00 AM	47	3	3	3	2	3	1	1	3	1	1	2	1	26	5	5	2	4	2	27	44	5	9	5	14	10	189	232
2-day av	1:00 AM	21	0	0	1	0	2	0	1	0	0	1	1	0	17	1	2	1	0	1	17	21	1	3	2	0	5	119	129
2-day av	2:00 AM	21	1	1	1	1	0	0	1	0	1	1	0	1	15	2	1	1	1	1	16	20	2	1	2	2	5	112	123
2-day av	3:00 AM	8	0	1	0	0	0	0	0	0	1	0	0	0	7	1	0	0	1	0	7	8	1	0	0	2	0	46	48
2-day av	4:00 AM	30	2	1	0	2	1	2	0	0	1	1	1	1	20	1	3	2	1	2	20	28	1	5	5	4	8	140	162
2-day av	5:00 AM	112	17	11	11	6	5	3	7	6	3	6	5	2	32	22	11	9	9	11	34	95	22	22	27	34	55	235	395
2-day av	6:00 AM	278	122	39	33	23	15	13	9	2	4	3	4	1	12	72	38	21	6	7	13	156	72	75	63	22	35	91	358
2-day av	7:00 AM	318	232	31	18	10	9	3	8	3	2	1	0	1	1	49	19	10	5	1	2	86	49	37	30	20	5	14	155
2-day av	8:00 AM	322	241	41	12	8	3	6	5	3	2	2	1	0	0	52	11	11	5	3	0	81	52	21	32	18	15	0	138
2-day av	9:00 AM	344	197	52	30	21	14	7	7	7	4	2	1	2	3	82	34	14	10	3	5	147	82	68	42	40	13	32	276
2-day av	10:00 AM	346	171	59	36	23	21	8	7	8	4	4	4	1	2	95	44	15	12	8	3	175	95	87	45	46	38	18	328
2-day av	11:00 AM	364	192	54	42	26	13	12	9	7	5	3	1	1	2	96	39	20	12	4	2	172	96	77	60	48	18	14	312
2-day av	12:00 PM	380	220	59	33	21	14	15	6	5	3	3	1	0	3	92	35	21	8	4	3	161	92	69	62	30	18	21	291
2-day av	1:00 PM	403	239	70	34	22	13	11	6	4	3	1	1	1	1	104	35	16	6	2	2	164	104	69	48	24	8	11	263
2-day av	2:00 PM	390	218	67	38	24	16	10	4	8	2	2	2	1	1	105	40	14	9	3	2	172	105	79	41	36	15	11	286
2-day av	3:00 PM	400	223	78	31	24	19	11	7	3	3	2	1	0	1	109	43	18	6	2	1	178	109	85	54	22	10	7	287
2-day av	4:00 PM	416	252	73	37	21	12	9	5	3	3	0	2	1	1	110	33	13	6	2	2	164	110	65	39	22	8	14	257
2-day av	5:00 PM	425	282	65	29	18	14	9	4	2	1	1	2	0	1	94	32	12	3	2	1	143	94	63	36	10	10	4	217
2-day av	6:00 PM	362	184	59	42	21	20	13	9	6	3	2	2	3	0	100	41	22	9	4	3	178	100	82	66	34	18	21	321
2-day av	7:00 PM	323	137	58	39	30	16	10	10	6	6	4	2	3	5	96	46	20	12	6	8	186	96	91	59	48	28	53	374
2-day av	8:00 PM	327	146	53	43	18	18	15	10	9	4	4	3	1	5	96	36	25	13	7	6	181	96	71	74	50	33	42	365
2-day av	9:00 PM	285	104	44	36	28	15	14	14	10	6	3	3	3	9	80	42	27	15	6	11	181	80	84	81	60	30	77	412
2-day av	10:00 PM	202	49	29	24	15	19	13	10	7	6	6	4	4	19	53	34	23	13	10	22	153	53	67	69	50	48	154	440
2-day av	11:00 PM	103	15	11	7	7	3	6	6	5	5	2	2	2	36	18	9	11	9	4	38	88	18	18	33	36	18	266	388
Daily Totals:		6218	3243	953	576	363	261	184	140	101	68	49	41	26	215	1529	624	324	168	89	241	2975	1529	1248	971	672	445	1687	6552
Percent of Total:			*52%*	*15%*	*9.3%*	*5.8%*	*4.2%*	*3.0%*	*2.2%*	*1.6%*	*1.1%*	*0.8%*	*0.7%*	*0.4%*	*3.5%*														


Lake Washington Blvd Northbound
at Yarrow Bay Marina Driveway
1400
1200
1000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
4:00 PM
6:00 PM
8:00 PM
10:00 PM
Critcal Gaps (per hour)
NB Volume (veh/hr)


Lake Washington Blvd Southbound
at Yarrow Bay Marina Driveway
1400
1200
1000
800
600
400
200
0
12:00 AM
2:00 AM
4:00 AM
6:00 AM
8:00 AM
10:00 AM
12:00 PM
2:00 PM
4:00 PM
6:00 PM
8:00 PM
10:00 PM
Critcal Gaps (per hour)
SB Volume (veh/hr)

Site Access Sight Distance Sketch





INTERSECTION SIGHT DISTANCE EVALUATION

City of Kirkland Concurrency

- ✓ Test Notice 8/2/05
- ✓ Concurrency Results Forms
- ✓ Proportional Results Share Impact Worksheets at Significant Intersections

CITY OF KIRKLAND
123 FIFTH AVENUE • KIRKLAND, WASHINGTON 98033-6189 • (425) 828-1243

DEPARTMENT OF PUBLIC WORKS MEMORANDUM

To: Stacy Clauson, Planner

From: Thang Nguyen, Transportation Engineer

Date: August 2, 2005

Subject: Marina Suite Traffic Concurrency Test Notice

This memo summarizes public works review of the traffic concurrency test result for the proposed redevelopment of Marina Suite located at 5001 Lake Washington Boulevard NE.

Project Description
The applicant proposes to construct replace a 4,000 square foot (sf) office building with a 60,000 sf building. It is anticipated that the project will be built and fully occupied by the end of 2007.

The proposed project passed traffic concurrency. Attached is the result of the concurrency test. This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC, this Concurrency Test Notice will expire in one year (August 2, 2006) unless a development permit and certificate of concurrency are issued or an extension is granted.

EXPIRATION
The concurrency test notice shall expire and a new concurrency test application is required unless:

1. A complete SEPA checklist, traffic impact analysis and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice.

2. A Certificate of Concurrency is issued or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3869.

cc: John Burkhalter, Senior Development Engineer
Bill Popp Jr., William Popp Associates

1) Project ID:	Marina Suite	4) Transportation Concurrency Status	6) Transportation Concurrency Certificate Date:
2) Project Description:	Replace the 4Ksf building with a 60Ksf office building	PASS	
		5) Transportation Concurrency Test Date	7) Certificate of Occupancy Date
3) Build-out Year:	2007	29-Jul-05	

SUMMARY OF TRAFFIC IMPACTS

8) Daily Trips	854	PM Peak Trips:	142	Impacted Subarea(s):	SW, NW, E	TAZ:	239

Signalized Intersection PM Peak Traffic Impact

		Project PM Peak Turning Volumes															
		Eastbound			Westbound			Northbound			Southbound						
Code	Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	PM Peak Trips	Daily Trips	Sum of Critical Vol*	Vol. Capacity Ratio*
101	Lake Wash/NE 38th Pl						2		10		6	45		63		1656	1.16
102	Lake Wash/Lakeview Dr				10				16	48		4		78		1200	0.87
103	State St/NE 68th St	17	31			8							2	58		872	0.63
104	108th Ave NE/NE 68th St	2	28	1		7							1	39		1581	1.15
105	Central Way/6th St		2						1	1				4		1168	0.85
106	Central Way/3rd St		2						13			1		16		904	0.66
107	Central Way/Lake St			3				9		2				14		625	0.44
108	Lake St/Kirkland Ave								11			3		14		996	0.66
109	NE 85th St/114th Ave NE		3											3		1353	0.98
110	6th St/4th Ave								2					2		1207	0.00
201	98th Ave NE/Juanita Dr			1				6	10	1		1		19		1186	0.83
202	100th Ave NE/NE 124th St							1	9					10		1295	0.94
203	100th Ave NE/NE 132nd St								8					8		1504	1.09
205	Market St/Forbes Creek								19			3		22		1303	0.91
	#N/A													0		#N/A	#N/A
402	NE 85th St/124th Ave NE		1											1		1352	0.98
403	NE 85th St/ 120th Ave NE	1	1											2		1360	0.99
	#N/A													0		#N/A	#N/A
	#N/A													0		#N/A	#N/A

Transportation Concurency Test

	LOS Standards		LOS with Project Impacts			
Subarea No	A= Max. Intersection LOS	B=Average 2009 V/C	a=No. exceeding 1.4	b=Average V/C	a <= A?	b<= B?
Southwest (1xx)	1.4	1.02	0	0.82	yes	yes
Northwest (2xx)	1.4	1.23	0	0.94	yes	yes
Northeast (3xx)	1.4	1.07	0	0.83	yes	yes
East(4xx)	1.4	1.11	0	1.00	yes	yes

TEST RESULTS

Result: PASS

* Based on Critical Movement, Planning Method TRC #212.

1. Number of intersection exceeding Average V/C LOS Standard (2012)

1. Sixth Year Target Average V/C ratio, see step 6, part 1 of the guidelines

City of Kirkland Traffic Concurrency Report

Projected Volumes & Impacts For year: 2007

	Northbound			Southbound			Eastbound			Westbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
101	22	1364	114	79	1056	6	10	1	25	212	3	158
102	96	770	728	9	429	39	65	109	201	312	39	12
103	1	13	8	167	9	137	420	490	5	13	264	250
104	144	503	331	192	241	135	236	501	121	246	406	271
105	262	377	471	95	143	37	54	707	92	342	1070	215
106	170	244	185	140	85	28	49	499	62	185	815	149
107	29	109	6	0	0	0	315	251	233	207	701	0
108	14	660	91	20	394	8	8	24	38	163	3	154
109	16	148	564	290	27	19	8	1253	11	299	1470	394
110	82	524	115	176	231	202	218	22	81	69	49	289
111	86	345	109	73	184	84	54	98	58	87	203	129
112	84	490	56	25	181	85	102	161	19	59	102	41
113	0	6	0	0	6	0	0	0	0	0	0	0
201	600	921	125	183	301	77	82	345	231	62	488	195
202	42	1060	301	352	497	38	23	65	30	348	164	808
203	313	1417	105	226	714	76	90	122	126	94	285	485
204	303	42	347	14	19	18	14	345	159	344	911	22
205	0	1725	90	20	617	3	5	0	1	40	0	22
206	50	1181	3	1	566	199	163	2	44	4	0	5
207	0	0	0	0	0	0	0	2	0	0	1	0
208	5	2	3	74	4	136	76	652	3	6	980	130
209	19	1173	15	60	490	0	9	5	13	11	1	164
211	0	13	0	0	22	0	0	0	0	0	0	2
301	257	8	407	5	3	5	6	406	118	151	454	5
302	30	480	169	46	215	17	53	55	44	230	9	89
303	63	716	109	11	605	35	54	27	98	212	44	31
304	30	218	136	76	71	136	362	329	28	72	436	210
305	0	0	0	0	0	0	0	0	0	0	0	0
306	201	520	164	123	27	189	127	580	126	189	1144	226
307	207	334	15	658	174	39	36	362	136	185	453	412
308	129	1	88	0	6	12	18	952	98	121	1843	17

City of Kirkland Traffic Concurrency Report

Projected Volumes & Impacts For year: 2008

	Northbound			Southbound			Eastbound			Westbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
101	23	1380	116	81	1076	6	10	1	26	214	3	160
102	98	776	738	10	433	40	66	112	205	322	43	12
103	1	13	5	165	10	139	425	496	5	12	273	250
104	147	515	319	212	273	149	244	496	123	247	403	251
105	258	403	563	97	129	36	54	684	83	354	1021	219
106	172	245	188	140	85	27	44	462	57	189	753	149
107	32	111	6	0	0	0	321	244	222	202	696	0
108	14	655	94	21	392	9	9	25	39	166	5	142
109	16	82	579	296	27	19	8	1325	11	307	1510	402
110	89	657	119	180	254	204	220	22	85	70	50	294
111	87	351	111	75	188	85	55	99	59	89	207	132
112	85	500	57	26	185	87	104	164	19	61	104	42
113	0	6	0	0	6	0	0	0	0	0	0	0
201	616	957	127	187	302	79	83	351	229	63	496	198
202	44	1086	307	359	503	39	24	66	30	355	167	824
203	318	1448	108	230	724	78	92	124	127	95	290	495
204	309	43	354	14	19	18	14	352	162	348	930	23
205	0	1772	91	20	617	3	5	0	1	41	0	22
206	51	1203	3	1	577	201	165	2	45	4	0	5
207	0	0	0	0	0	0	0	2	0	0	1	0
208	5	2	3	75	4	138	77	665	3	6	1000	132
209	19	1197	15	62	499	0	9	5	13	11	1	168
211	0	26	0	0	25	0	0	0	0	0	0	19
301	262	9	415	5	3	5	6	415	120	154	463	5
302	30	490	173	47	220	17	54	56	44	235	9	90
303	65	730	111	11	617	36	55	28	100	216	44	31
304	30	222	138	78	72	138	369	335	28	73	444	214
305	0	0	0	0	0	0	0	0	0	0	0	0
306	205	529	167	125	27	193	130	591	129	193	1167	230
307	211	340	15	671	177	40	37	369	139	188	462	420
308	132	1	90	0	6	12	18	971	100	123	1880	17

City of Kirkland Traffic Concurrency Report

Projected Volumes & Impacts For year: 2008

	Northbound			Southbound			Eastbound			Westbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
309	168	626	0	0	434	19	36	0	214	0	0	0
310	41	150	243	294	117	144	125	564	33	199	875	567
311	494	630	253	129	349	232	217	363	184	133	618	116
312	196	235	277	411	132	177	131	727	101	228	1286	453
313	219	27	135	102	18	64	35	641	51	76	1376	123
314	3	467	103	194	325	2	2	2	4	337	1	433
315	303	501	127	202	329	476	194	665	263	141	1292	351
316	461	224	108	2	67	142	117	427	178	45	691	24
317	0	0	0	556	0	511	0	799	558	0	1421	560
318	569	0	159	0	0	0	0	1033	392	0	1465	682
319	0	0	0	0	0	0	0	488	589	339	1569	0
320	694	0	265	0	0	0	0	479	0	0	1218	0
321	0	0	0	0	0	0	0	0	0	0	0	0
322	0	0	0	0	0	0	0	0	0	0	0	0
323	0	0	0	26	0	776	655	65	0	0	65	23
324	86	625	0	0	536	21	18	0	47	0	0	0
325	23	10	10	291	2	139	62	938	10	1	1580	41
401	86	345	62	160	135	86	195	1223	123	61	1560	698
402	144	435	73	239	94	187	343	1460	22	18	1357	313
403	286	154	75	109	38	280	234	1707	84	19	1637	79
404	21	1024	61	39	441	12	10	19	18	45	26	119
405	0	0	0	7	0	2	11	12	0	0	0	14
406	133	351	153	71	223	46	158	452	65	188	646	91
407	321	558	338	17	55	234	290	631	364	371	494	40
408	76	945	22	21	396	117	328	42	39	22	51	38
409	55	97	52	89	28	119	166	1665	72	43	1625	93
410	422	382	0	3	149	605	818	0	112	2	10	5
411	0	934	148	255	768	2	0	0	9	244	0	343
412	32	26	45	15	1	18	59	1471	60	31	1710	31
413	78	428	0	3	179	100	115	1	37	0	0	3
414	1	554	82	69	116	1	3	0	2	47	1	103

City of Kirkland Traffic Concurrency Report

Projected Volumes & Impacts For year: 2008

	Northbound			Southbound			Eastbound			Westbound		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
415	0	0	0	0	0	0	0	0	0	0	0	0
416	116	438	38	21	227	45	66	114	83	21	158	28
417	161	1001	19	3	254	27	26	8	37	12	2	1

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Lake Wash Blvd	# of Lanes*=	1
Minor Street[1]	NE 38th Pl	# of Lanes*=	1

101

DATE:
11/29/05

Daily Project Traffic Entering the Intersection		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	174	162	186	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	12	24	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	2.09%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.24%
$P_3=V_1/(15{,}000 \times f_3)$ =	1.39%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.48%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.16%
$S_2=(P_3+P_4)/2$=	0.94%

Intersection Proportional Share = Maximum of S1 and S2 = 1.16%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr
Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Lake Wash Blvd	# of Lanes*=	1
Minor Street[1]	Lake View Dr	# of Lanes*=	1

102

DATE:

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	146	232	60	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	86	172	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.75%
$P_2=V_2/(5{,}000 \times f_2)$ =	1.72%
$P_3=V_1/(15{,}000 \times f_3)$ =	1.17%
$P_4=V_2/(2{,}500 \times f_4)$ =	3.44%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.74%
$S_2=(P_3+P_4)/2$=	2.30%

Intersection Proportional Share = Maximum of S1 and S2 = 2.30%

Significant Intersection? **yes**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	NE 68th St	# of Lanes*=	1
Minor Street[1]	State St	# of Lanes*=	1

103

DATE:

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	143.5	172	115	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	28.5	57	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.72%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.57%
$P_3=V_1/(15{,}000 \times f_3)$ =	1.15%
$P_4=V_2/(2{,}500 \times f_4)$ =	1.14%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.15%
$S_2=(P_3+P_4)/2$=	1.14%

Intersection Proportional Share = Maximum of S1 and S2 = 1.15%

Significant Intersection? yes

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	108th Ave NE	# of Lanes*=	1
Minor Street[1]	NE 68th St	# of Lanes*=	1

104

DATE:

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	109	115	103	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	6	9	3	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.31%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.12%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.87%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.24%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.71%
$S_2=(P_3+P_4)/2$=	0.56%

Intersection Proportional Share = Maximum of S1 and S2 = 0.71%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Central Way	# of Lanes*=	2
Minor Street[1]	3rd St	# of Lanes*=	1

DATE: 106

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	6	6	6	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	42	42	42	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.06%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.84%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.04%
$P_4=V_2/(2{,}500 \times f_4)$ =	1.68%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.45%
$S_2=(P_3+P_4)/2$=	0.86%

Intersection Proportional Share = Maximum of S1 and S2 = 0.86%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Central Way	# of Lanes*=	2
Minor Street[1]	Lake St	# of Lanes*=	1

DATE: 107

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	21	36	6	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	21	42	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.21%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.42%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.14%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.84%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.32%
$S_2=(P_3+P_4)/2$=	0.49%

Intersection Proportional Share = Maximum of S1 and S2 = 0.49%

Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Lake St	# of Lanes*=	1
Minor Street[1]	Kirkland Ave	# of Lanes*=	1

108

DATE:
11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	42	42	42	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.50%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.34%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.25%
$S_2=(P_3+P_4)/2$=	0.17%

Intersection Proportional Share = Maximum of S1 and S2 = 0.25%

Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr
Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	98th Ave NE	# of Lanes*=	2
Minor Street[1]	Juanita Dr	# of Lanes*=	1

DATE: 201

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	45	57	33	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	12	21	3	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.45%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.24%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.30%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.48%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.35%
$S_2=(P_3+P_4)/2$=	0.39%

Intersection Proportional Share = Maximum of S1 and S2 = 0.39%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr

Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	100th Ave NE	# of Lanes*=	2
Minor Street[1]	NE 124th St	# of Lanes*=	1

DATE:
11/29/05

202

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	28.5	30	27	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	1.5	3	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.29%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.03%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.19%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.06%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.16%
$S_2=(P_3+P_4)/2$=	0.13%

Intersection Proportional Share = Maximum of S1 and S2 = 0.16%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr
Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	100th Ave NE	# of Lanes*=	2
Minor Street[1]	NE 132nd St	# of Lanes*=	1

203

DATE:

11/29/05

Daily Project Traffic Entering the Intersection		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	24	24	24	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	*1*	*1*	*1*

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.24%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.16%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.12%
$S_2=(P_3+P_4)/2$=	0.08%

Intersection Proportional Share = Maximum of S1 and S2 = 0.12%

Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr
Company: William Popp Associates

City of Kirkland
Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Marina Suites Office Bldg (55 ksf)		
Major Street[1]	Market St	# of Lanes*=	1
Minor Street[1]	Forbes Creek	# of Lanes*=	1

204

DATE:

11/29/05

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes**		
(Total of both approaches divided by two)	Major Street Volume V_1 =	66	66	66	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.79%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.53%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.40%
$S_2=(P_3+P_4)/2$=	0.26%

Intersection Proportional Share = Maximum of S1 and S2 = 0.40%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Bill Popp Jr
Company: William Popp Associates

PM Peak Hour Analysis

- ✓ Turn Movements (existing 2005 and future 2008)
- ✓ Level of Service Calculation Results (per HCM)

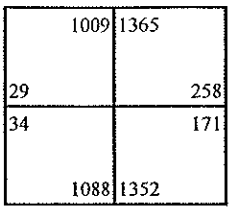
MARINA SUITES
PM PEAK HOUR TURN MOVEMENT ESTIMATES

101 Lake Wash Blvd/NE 38th Pl

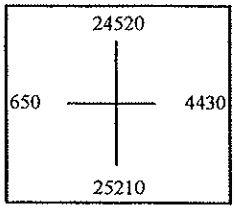
	2004 Actual Count	Existing 2005 PM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 PM PK
EBLT	9	9	1	10	0	10
EBT	1	1	0	1	0	1
EBRT	24	24	2	26	0	26
WBLT	127	127	87	214	0	214
WBT	3	3	0	3	0	3
WBRT	128	128	32	160	2	162
NBLT	21	21	2	23	0	23
NBT	1228	1228	152	1380	9	1389
NBRT	103	103	13	116	0	116
SBLT	67	67	14	81	6	87
SBT	937	937	139	1076	46	1122
SBRT	5	5	1	6	0	6
	2653	2653	443	3096	63	3159
				5.3%		

Existing 2005

PM PEAK HOUR

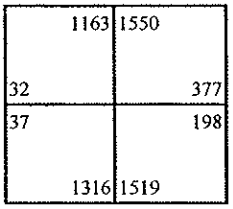


AWDT [c]

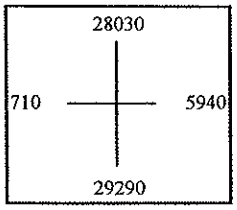


Background Traffic 2008

PM PEAK HOUR

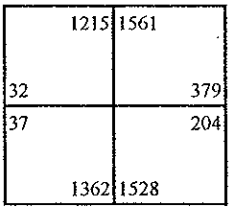


AWDT [c]

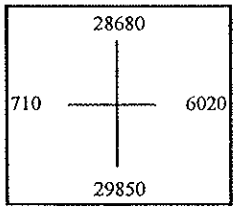


Horizon Yr 2008

PM PEAK HOUR



AWDT [c]



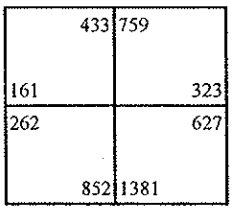
[a] Background growth determined by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

102 Lake Wash Blvd/Lakeview Dr

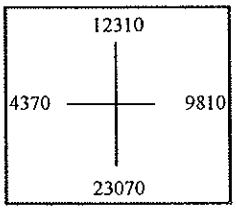
	2004 Actual Count	Existing 2005 PM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 PM PK
EBLT	61	61	5	66	0	66
EBT	12	12	100	112	0	112
EBRT	189	189	16	205	0	205
WBLT	275	275	47	322	9	331
WBT	37	37	6	43	0	43
WBRT	11	11	1	12	0	12
NBLT	87	87	11	98	0	98
NBT	687	687	89	776	16	792
NBRT	607	607	131	738	49	787
SBLT	8	8	2	10	0	10
SBT	388	388	45	433	4	437
SBRT	37	37	3	40	0	40
	2399	2399	456	2855	78	2933
				6.0%		

Existing 2005

PM PEAK HOUR

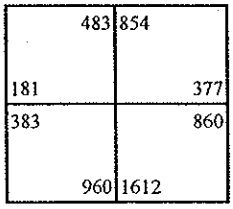


AWDT [c]

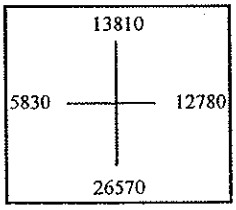


Background Traffic 2008

PM PEAK HOUR

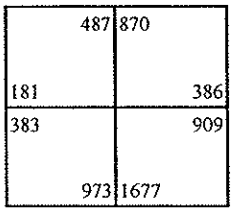


AWDT [c]

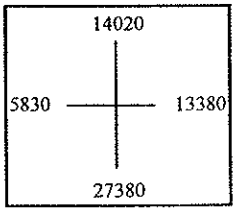


Horizon Yr 2008

PM PEAK HOUR



AWDT [c]



[a] Background growth determined by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

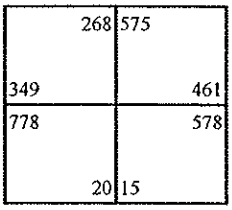
MARINA SUITES
PM PEAK HOUR TURN MOVEMENT ESTIMATES

103 State St/NE 68th St

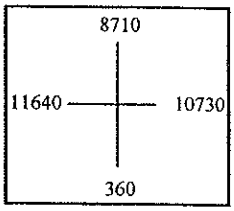
	2004 Actual Count	Existing 2005 PM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 PM PK
EBLT	347	347	78	425	17	442
EBT	427	427	69	496	32	528
EBRT	4	4	1	5	0	5
WBLT	9	9	3	12	0	12
WBT	233	233	40	273	7	280
WBRT	219	219	31	250	0	250
NBLT	1	1	0	1	0	1
NBT	9	9	4	13	0	13
NBRT	5	5	0	5	0	5
SBLT	146	146	19	165	0	165
SBT	7	7	3	10	0	10
SBRT	115	115	24	139	2	141
	1522	1522	272	1794	58	1852

Existing 2005

PM PEAK HOUR

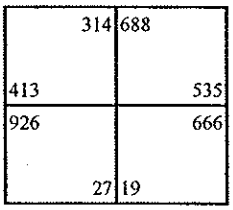


AWDT [c]

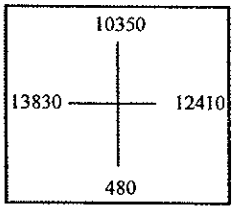


Background Traffic 2008

PM PEAK HOUR

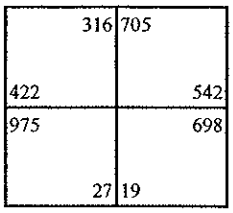


AWDT [c]

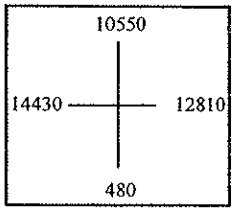


Horizon Yr 2008

PM PEAK HOUR



AWDT [c]



[a] Background growth determined by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

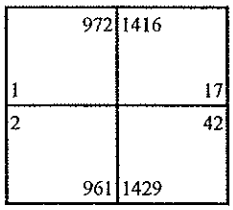
1001 Lake Wash Blvd/NE 52nd St

	Existing 2005 PM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 PM PK
EBLT	1	0	1	0	1
EBT	0	0	0	0	0
EBRT	1	0	1	0	1
WBLT	5	0	5	0	5
WBT	0	0	0	0	0
WBRT	12	1	13	0	13
NBLT	1	0	1	0	1
NBT	1403	150	1553	11	1564
NBRT	25	2	27	0	27
SBLT	17	1	18	0	18
SBT	955	88	1043	52	1095
SBRT	0	0	0	0	0
	2420	243	2663	63	2726

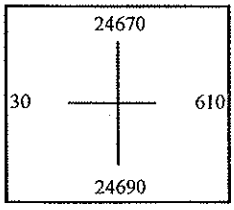
use 2% per year growth on side street (east leg)

Existing 2005

PM PEAK HOUR

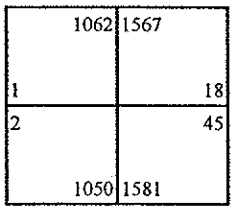


AWDT [c]

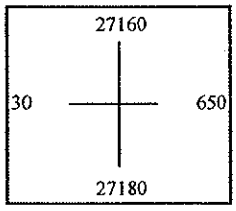


Background Traffic 2008

PM PEAK HOUR

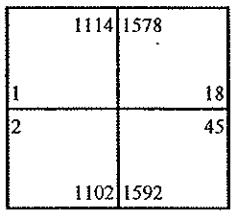


AWDT [c]

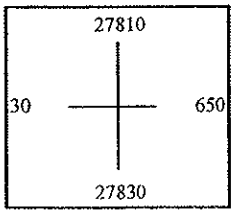


Horizon Yr 2008

PM PEAK HOUR



AWDT [c]



[a] Background growth estimated from counts provided by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

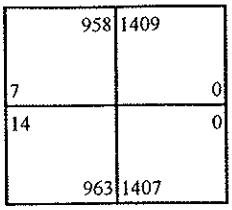
MARINA SUITES
PM PEAK HOUR TURN MOVEMENT ESTIMATES

1002 Lake Wash Blvd/Site Access

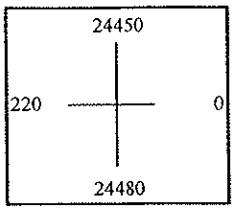
	Existing 2005 PM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 PM PK
EBLT	6	0	6	65	71
EBT	0	0	0	0	0
EBRT	8	0	8	52	60
WBLT	0	0	0	0	0
WBT	0	0	0	0	0
WBRT	0	0	0	0	0
NBLT	4	0	4	11	15
NBT	1403	160	1563	0	1563
NBRT	0	0	0	0	0
SBLT	0	0	0	0	0
SBT	955	107	1062	0	1062
SBRT	3	0	3	13	16
	2379	267	2646	141	2787

Existing 2005

PM PEAK HOUR

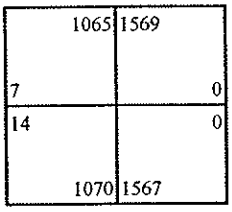


AWDT [c]

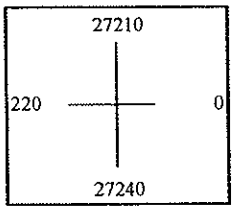


Background Traffic 2008

PM PEAK HOUR

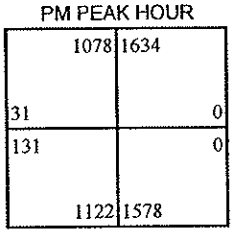


AWDT [c]

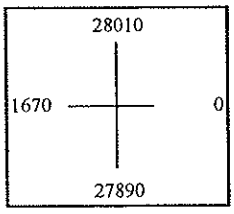


Horizon Yr 2008

PM PEAK HOUR



AWDT [c]



[a] Background growth estimated from counts provided by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/NE 38th Pl
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/29/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2005 existing
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	0	1	1	1	1	1	1	2	0
Lane group	L	TR			LT	R	L	T	R	L	TR	
Volume, V (vph)	9	1	24	127	3	128	21	1228	103	67	937	5
% Heavy vehicles, %HV	0	0	0	0	2	2	0	2	2	2	2	0
Peak-hour factor, PHF	0.77	0.77	0.77	0.81	0.81	0.81	0.90	0.90	0.90	0.83	0.83	0.83
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3			3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	10	2	5	10	2	20	20	5	10	20	5	0
Lane width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0			0	0	0	2	0	0	2	
Min. time for pedestrians, G_p	18.3			18.3			12.4			12.4		

Phasing	EW Perm	02	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 23.0	G =	G =	G =	G = 10.0	G = 100.0	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 145.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	12	26			161	133	23	1364	103	81	1135	
Lane group capacity, c	126	250			211	237	124	1274	1052	122	2434	
v/c ratio, X	0.10	0.10			0.76	0.56	0.19	1.07	0.10	0.66	0.47	
Total green ratio, g/C	0.16	0.16			0.16	0.16	0.07	0.69	0.69	0.07	0.69	
Uniform delay, d_1	52.1	52.2			58.4	56.3	63.7	22.5	7.5	65.9	10.3	
Progression factor, PF	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.11	0.11			0.32	0.16	0.11	0.50	0.11	0.24	0.11	
Incremental delay, d_2	0.3	0.2			15.2	3.0	0.7	46.4	0.0	12.8	0.1	
Initial queue delay, d_3												
Control delay	52.4	52.4			73.6	59.4	64.4	68.9	7.5	78.6	10.4	
Lane group LOS	D	D			E	E	E	E	A	E	B	
Approach delay	52.4			67.1			64.6			15.0		
Approach LOS	D			E			E			B		
Intersection delay	44.8			X_c = 0.99			Intersection LOS			D		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/NE 38th Pl
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/29/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 without project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	0	1	1	1	1	1	1	2	0
Lane group	L	TR			LT	R	L	T	R	L	TR	
Volume, V (vph)	10	1	26	214	3	160	23	1380	116	81	1076	6
% Heavy vehicles, %HV	0	0	0	0	2	2	0	2	2	2	2	0
Peak-hour factor, PHF	0.77	0.77	0.77	0.81	0.81	0.81	0.90	0.90	0.90	0.83	0.83	0.83
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3			3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	10	2	5	10	2	20	20	5	10	20	5	0
Lane width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0			0	0	0	2	0	0	2	
Min. time for pedestrians, G_p	18.3			18.3			12.4			12.4		

Phasing	EW Perm	02	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 28.0	G =	G =	G =	G = 10.0	G = 100.0	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	13	28			268	173	26	1533	118	98	1303	
Lane group capacity, c	79	295			248	281	120	1232	1016	118	2353	
v/c ratio, X	0.16	0.09			1.08	0.62	0.22	1.24	0.12	0.83	0.55	
Total green ratio, g/C	0.19	0.19			0.19	0.19	0.07	0.67	0.67	0.07	0.67	
Uniform delay, d_1	51.2	50.5			61.0	56.1	66.3	25.0	9.0	69.2	13.2	
Progression factor, PF	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.11	0.11			0.50	0.20	0.11	0.50	0.11	0.37	0.15	
Incremental delay, d_2	1.0	0.1			80.3	4.0	0.9	116.9	0.1	37.0	0.3	
Initial queue delay, d_3												
Control delay	52.2	50.6			141.3	60.1	67.2	141.9	9.1	106.2	13.5	
Lane group LOS	D	D			F	E	E	F	A	F	B	
Approach delay	51.1			109.4			131.4			20.0		
Approach LOS	D			F			F			B		
Intersection delay	83.9			X_c = 1.18			Intersection LOS			F		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/NE 38th Pl
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/29/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 with project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	0	1	1	1	1	1	1	2	0
Lane group	L	TR			LT	R	L	T	R	L	TR	
Volume, V (vph)	10	1	26	214	3	162	23	1389	116	87	1122	6
% Heavy vehicles, %HV	0	0	0	0	2	2	0	2	2	2	2	0
Peak-hour factor, PHF	0.77	0.77	0.77	0.81	0.81	0.81	0.90	0.90	0.90	0.83	0.83	0.83
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of effective green, e	2.0	2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type, AT	3	3			3	3	3	3	3	3	3	
Unit extension, UE	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/metering, I	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR volumes	10	2	5	10	2	20	20	5	10	20	5	0
Lane width	12.0	12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0			0	0	0	2	0	0	2	
Min. time for pedestrians, G_p	18.3			18.3			12.4			12.4		

Phasing	EW Perm	02	03	04	Excl. Left	Thru & RT	07	08
Timing	G = 28.0	G =	G =	G =	G = 10.0	G = 100.0	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 150.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	13	28			268	175	26	1543	118	105	1359	
Lane group capacity, c	79	295			248	281	120	1232	1016	118	2353	
v/c ratio, X	0.16	0.09			1.08	0.62	0.22	1.25	0.12	0.89	0.58	
Total green ratio, g/C	0.19	0.19			0.19	0.19	0.07	0.67	0.67	0.07	0.67	
Uniform delay, d_1	51.2	50.5			61.0	56.1	66.3	25.0	9.0	69.5	13.6	
Progression factor, PF	1.000	1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay calibration, k	0.11	0.11			0.50	0.21	0.11	0.50	0.11	0.41	0.17	
Incremental delay, d_2	1.0	0.1			80.3	4.2	0.9	120.4	0.1	50.5	0.4	
Initial queue delay, d_3												
Control delay	52.2	50.6			141.3	60.4	67.2	145.4	9.1	120.0	13.9	
Lane group LOS	D	D			F	E	E	F	A	F	B	
Approach delay	51.1			109.3			134.7			21.5		
Approach LOS	D			F			F			C		
Intersection delay	85.1			X_c = 1.19			Intersection LOS			F		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/Lk View DR
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2005 existing
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	0	1	1	1	1	1	1
Lane group	L	T	R	L	TR		L	T	R	L	T	R
Volume, V (vph)	61	12	189	275	37	11	87	687	607	8	388	37
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.79	0.79	0.79	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3		3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	10	2	50	10	2	5	20	5	0	20		10
Lane width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0		0	2	0	0	2	0
Min. time for pedestrians, G_p				15.8			12.4			15.9		

Phasing	Excl. Left	WB Only	EW Perm	04	Excl. Left	NB Only	NS Perm	08
Timing	G = 5.0	G = 5.0	G = 20.0	G =	G = 5.0	G = 5.0	G = 44.0	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 0	Y = 4	Y =

Duration of Analysis, T = 0.25 | Cycle Length, C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	77	15	176	320	50		94	739	653	9	446	31
Lane group capacity, c	347	369	298	453	458		492	914	838	240	805	690
v/c ratio, X	0.22	0.04	0.59	0.71	0.11		0.19	0.81	0.78	0.04	0.55	0.04
Total green ratio, g/C	0.25	0.20	0.20	0.34	0.25		0.58	0.49	0.67	0.49	0.44	0.44
Uniform delay, d_1	29.5	32.3	36.3	29.1	28.9		11.2	21.5	11.4	15.6	20.7	16.0
Progression factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.18	0.27	0.11		0.11	0.35	0.33	0.11	0.15	0.11
Incremental delay, d_2	0.3	0.0	3.1	5.0	0.1		0.2	5.5	4.7	0.1	0.8	0.0
Initial queue delay, d_3												
Control delay	29.8	32.3	39.4	34.1	29.0		11.4	27.0	16.1	15.7	21.6	16.0
Lane group LOS	C	C	D	C	C		B	C	B	B	C	B
Approach delay	36.2			33.4			21.2			21.1		
Approach LOS	D			C			C			C		
Intersection delay	24.5			X_c = 0.73			Intersection LOS			C		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/Lk View DR
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 without project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	0	1	1	1	1	1	1
Lane group	L	T	R	L	TR		L	T	R	L	T	R
Volume, V (vph)	66	112	205	322	43	12	98	776	738	10	433	40
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.79	0.79	0.79	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3		3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	10	2	50	10	2	5	20	5	0	20		10
Lane width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0		0	2	0	0	2	0
Min. time for pedestrians, G_p				15.8			12.4			15.9		

Phasing	Excl. Left	WB Only	EW Perm	04	Excl. Left	NB Only	NS Perm	08
Timing	G = 5.0	G = 5.0	G = 20.0	G =	G = 5.0	G = 5.0	G = 44.0	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 0	Y = 4	Y =

Duration of Analysis, T = 0.25 | Cycle Length, C = 100.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	84	142	196	374	58		105	834	794	11	498	34
Lane group capacity, c	345	369	298	392	458		454	914	838	172	805	690
v/c ratio, X	0.24	0.38	0.66	0.95	0.13		0.23	0.91	0.95	0.06	0.62	0.05
Total green ratio, g/C	0.25	0.20	0.20	0.34	0.25		0.58	0.49	0.67	0.49	0.44	0.44
Uniform delay, d_1	29.6	34.7	36.8	34.2	29.0		12.0	23.5	14.9	18.0	21.5	16.0
Progression factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.23	0.46	0.11		0.11	0.43	0.46	0.11	0.20	0.11
Incremental delay, d_2	0.4	0.7	5.2	33.7	0.1		0.3	13.3	19.5	0.2	1.5	0.0
Initial queue delay, d_3												
Control delay	29.9	35.3	42.1	67.9	29.2		12.2	36.8	34.4	18.1	23.0	16.1
Lane group LOS	C	D	D	E	C		B	D	C	B	C	B
Approach delay	37.4			62.7			34.2			22.5		
Approach LOS	D			E			C			C		
Intersection delay	36.5			X_c = 0.92			Intersection LOS			D		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/Lk View DR
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 with project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	1	1	1	0	1	1	1	1	1	1
Lane group	L	T	R	L	TR		L	T	R	L	T	R
Volume, V (vph)	66	112	205	331	43	12	98	792	787	10	437	40
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.79	0.79	0.79	0.86	0.86	0.86	0.93	0.93	0.93	0.87	0.87	0.87
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type, AT	3	3	3	3	3		3	3	3	3	3	3
Unit extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Filtering/metering, I	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Initial unmet demand, Q_b	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR volumes	10	2	50	10	2	5	20	5	0	20		10
Lane width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0	0	0	0		0	2	0	0	2	0
Min. time for pedestrians, G_p				15.8			12.4			15.9		

Phasing	Excl. Left	WB Only	EW Perm	04	Excl. Left	NB Only	NS Perm	08
Timing	G = 5.0	G = 5.0	G = 20.0	G =	G = 5.0	G = 5.0	G = 44.0	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 0	Y = 4	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 100.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	84	142	196	385	58		105	852	846	11	502	34
Lane group capacity, c	345	369	298	392	458		452	914	838	162	805	690
v/c ratio, X	0.24	0.38	0.66	0.98	0.13		0.23	0.93	1.01	0.07	0.62	0.05
Total green ratio, g/C	0.25	0.20	0.20	0.34	0.25		0.58	0.49	0.67	0.49	0.44	0.44
Uniform delay, d_1	29.6	34.7	36.8	34.8	29.0		12.0	23.9	16.5	18.6	21.6	16.0
Progression factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	1.000
Delay calibration, k	0.11	0.11	0.23	0.49	0.11		0.11	0.45	0.50	0.11	0.21	0.11
Incremental delay, d_2	0.4	0.7	5.2	40.6	0.1		0.3	15.9	33.5	0.2	1.5	0.0
Initial queue delay, d_3												
Control delay	29.9	35.3	42.1	75.4	29.2		12.3	39.8	50.0	18.7	23.1	16.1
Lane group LOS	C	D	D	E	C		B	D	D	B	C	B
Approach delay	37.4			69.4			43.0			22.6		
Approach LOS	D			E			D			C		
Intersection delay	42.4			X_c = 0.98			Intersection LOS			D		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	State St/NE 68th St
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2005 existing
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	1	0	1	0	1	1	0
Lane group	L	TR		L	T	R		LTR		L	TR	
Volume, V (vph)	347	427	4	9	233	219	1	9	5	146	7	115
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.97	0.97	0.97	0.90	0.90	0.90	0.75	0.75	0.75	0.84	0.84	0.84
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Arrival type, AT	3	3		3	3	3		3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Ped / Bike / RTOR volumes	10	2	0	10	2	0	20		0	20	5	40
Lane width	12.0	12.0		12.0	12.0	12.0		12.0		12.0	12.0	
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0	0		2		0	2	
Min. time for pedestrians, G_p	10.8			10.8			10.9			10.9		

Phasing	Excl. Left	EB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = 10.0	G = 25.0	G = 25.0	G =	G = 10.0	G = 34.0	G =	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	358	444		10	259	243		20		174	97	
Lane group capacity, c	569	767		149	392	751		148		496	422	
v/c ratio, X	0.63	0.58		0.07	0.66	0.32		0.14		0.35	0.23	
Total green ratio, g/C	0.32	0.42		0.08	0.21	0.49		0.08		0.28	0.28	
Uniform delay, d_1	34.4	26.9		50.7	43.6	18.4		51.0		34.2	33.0	
Progression factor, PF	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Delay calibration, k	0.21	0.17		0.11	0.24	0.11		0.11		0.11	0.11	
Incremental delay, d_2	2.2	1.1		0.2	4.1	0.3		0.4		0.4	0.3	
Initial queue delay, d_3												
Control delay	36.6	28.0		50.9	47.7	18.7		51.4		34.6	33.2	
Lane group LOS	D	C		D	D	B		D		C	C	
Approach delay	31.8			34.0			51.4			34.1		
Approach LOS	C			C			D			C		
Intersection delay	33.2			X_c = 0.50			Intersection LOS			C		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	State St/NE 68th St
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 without project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_l	1	1	0	1	1	1	0	1	0	1	1	0
Lane group	L	TR		L	T	R		LTR		L	TR	
Volume, V (vph)	425	496	5	12	273	250	1	13	5	165	10	139
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.97	0.97	0.97	0.90	0.90	0.90	0.75	0.75	0.75	0.84	0.84	0.84
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Arrival type, AT	3	3		3	3	3		3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Ped / Bike / RTOR volumes	10	2	0	10	2	0	20		0	20	5	40
Lane width	12.0	12.0		12.0	12.0	12.0		12.0		12.0	12.0	
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0	0		2		0	2	
Min. time for pedestrians, G_p	10.8			10.8			10.9			10.9		

Phasing	Excl. Left	EB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = 10.0	G = 25.0	G = 25.0	G =	G = 10.0	G = 34.0	G =	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	438	516		13	303	278		25		196	130	
Lane group capacity, c	569	767		149	392	751		149		496	423	
v/c ratio, X	0.77	0.67		0.09	0.77	0.37		0.17		0.40	0.31	
Total green ratio, g/C	0.32	0.42		0.08	0.21	0.49		0.08		0.28	0.28	
Uniform delay, d_1	36.5	28.4		50.8	44.8	19.0		51.1		34.7	33.8	
Progression factor, PF	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Delay calibration, k	0.32	0.24		0.11	0.32	0.11		0.11		0.11	0.11	
Incremental delay, d_2	6.4	2.3		0.3	9.3	0.3		0.5		0.5	0.4	
Initial queue delay, d_3												
Control delay	42.8	30.7		51.0	54.1	19.3		51.7		35.2	34.2	
Lane group LOS	D	C		D	D	B		D		D	C	
Approach delay	36.3			37.7			51.7			34.8		
Approach LOS	D			D			D			C		
Intersection delay	36.7			X_c = 0.60			Intersection LOS			D		

Copyright © 2000 University of Florida, All Rights Reserved

HCS2000™ DETAILED REPORT

General Information		Site Information	
Analyst	BPJ	Intersection	State St/NE 68th St
Agency or Co.	William Poppp Associates	Area Type	All other areas
Date Performed	11/8/05	Jurisdiction	City of Kirkland
Time Period	Weekday PM PK	Analysis Year	2008 with project
		Project ID	Marina Suites TIA

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	1	0	1	0	1	1	0
Lane group	L	TR		L	T	R		LTR		L	TR	
Volume, V (vph)	442	527	5	12	280	250	1	13	5	165	10	141
% Heavy vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.97	0.97	0.97	0.90	0.90	0.90	0.75	0.75	0.75	0.84	0.84	0.84
Pretimed (P) or actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up lost time, l_1	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0	2.0		2.0		2.0	2.0	
Arrival type, AT	3	3		3	3	3		3		3	3	
Unit extension, UE	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Ped / Bike / RTOR volumes	10	2	0	10	2	0	20		0	20	5	40
Lane width	12.0	12.0		12.0	12.0	12.0		12.0		12.0	12.0	
Parking / Grade / Parking	N	2	N	N	-2	N	N	-2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0	0		2		0	2	
Min. time for pedestrians, G_p	10.8			10.8			10.9			10.9		

Phasing	Excl. Left	EB Only	Thru & RT	04	NB Only	SB Only	07	08
Timing	G = 10.0	G = 25.0	G = 25.0	G =	G = 10.0	G = 34.0	G =	G =
	Y = 4	Y =	Y = 4	Y =	Y = 4	Y = 4	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	456	548		13	311	278		25		196	132	
Lane group capacity, c	569	767		149	392	751		149		496	423	
v/c ratio, X	0.80	0.71		0.09	0.79	0.37		0.17		0.40	0.31	
Total green ratio, g/C	0.32	0.42		0.08	0.21	0.49		0.08		0.28	0.28	
Uniform delay, d_1	37.0	29.1		50.8	45.1	19.0		51.1		34.7	33.8	
Progression factor, PF	1.000	1.000		1.000	1.000	1.000		1.000		1.000	1.000	
Delay calibration, k	0.35	0.28		0.11	0.34	0.11		0.11		0.11	0.11	
Incremental delay, d_2	8.1	3.2		0.3	10.7	0.3		0.5		0.5	0.4	
Initial queue delay, d_3												
Control delay	45.0	32.2		51.0	55.8	19.3		51.7		35.2	34.2	
Lane group LOS	D	C		D	E	B		D		D	C	
Approach delay	38.1			38.8			51.7			34.8		
Approach LOS	D			D			D			C		
Intersection delay	37.9			X_c = 0.61			Intersection LOS			D		

Copyright © 2000 University of Florida, All Rights Reserved

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/NE 52nd St
ency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
ate Performed	11/29/05	Analysis Year	2005 existing
Analysis Time Period	Weekday PM PK		
Project Description	Marina Suites		
East/West Street:	NE 52nd St	North/South Street:	Lk Wa Blvd
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	1403	25	17	955	0
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	1	1476	27	18	1005	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	0	12	1	0	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	0	13	1	0	1
ercent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		-3			3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	1	18		18			2	
C (m) (vph)	697	452		129			125	
v/c	0.00	0.04		0.14			0.02	
95% queue length	0.00	0.12		0.47			0.05	
Control Delay	10.2	13.3		37.4			34.3	
LOS	B	B		E			D	
Approach Delay	--	--	37.4			34.3		
Approach LOS	--	--	E			D		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/NE 52nd St*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2008 without project*
Analysis Time Period	*Weekday PM PK*		
Project Description	*Marina Suites*		
East/West Street:	*NE 52nd St*	North/South Street:	*Lk Wa Blvd*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	1553	27	18	1043	0
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	1	1634	30	20	1097	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	0	13	1	0	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	0	14	1	0	1
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		-3			3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	1	20		19			2	
C (m) (vph)	644	392		104			97	
v/c	0.00	0.05		0.18			0.02	
95% queue length	0.00	0.16		0.63			0.06	
Control Delay	10.6	14.7		47.2			42.9	
LOS	B	B		E			E	
Approach Delay	--	--	47.2			42.9		
Approach LOS	--	--	E			E		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/NE 52nd St*
ɟency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
ate Performed	*11/29/05*	Analysis Year	*2008 with project*
Analysis Time Period	*Weekday PM PK*		
Project Description	*Marina Suites*		
East/West Street:	*NE 52nd St*	North/South Street:	*Lk Wa Blvd*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*1*	*1564*	*27*	*18*	*1095*	*0*
Peak-Hour Factor, PHF	*0.90*	*0.95*	*0.90*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*1*	*1646*	*30*	*20*	*1152*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*13*	*1*	*0*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*5*	*0*	*14*	*1*	*0*	*1*
ercent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
ercent Grade (%)	*-3*			*3*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*		*LTR*			*LTR*	
v (vph)	*1*	*20*		*19*			*2*	
C (m) (vph)	*614*	*388*		*101*			*93*	
v/c	*0.00*	*0.05*		*0.19*			*0.02*	
95% queue length	*0.00*	*0.16*		*0.65*			*0.07*	
Control Delay	*10.9*	*14.8*		*48.7*			*44.6*	
LOS	*B*	*B*		*E*			*E*	
Approach Delay	--	--	*48.7*			*44.6*		
Approach LOS	--	--	*E*			*E*		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/site access*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2005 existing*
Analysis Time Period	*Weekday PM PK*		

Project Description *Marina Suites*	
East/West Street: *site access*	North/South Street: *Lk Wa Blvd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*4*	*1403*	*0*	*0*	*955*	*3*
Peak-Hour Factor, PHF	*0.90*	*0.95*	*0.90*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*4*	*1476*	*0*	*0*	*1005*	*3*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*6*	*0*	*8*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*6*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*5*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*4*						*14*	
C (m) (vph)	*691*						*186*	
v/c	*0.01*						*0.08*	
95% queue length	*0.02*						*0.24*	
Control Delay	*10.2*						*25.9*	
LOS	*B*						*D*	
Approach Delay	--	--				*25.9*		
Approach LOS	--	--				*D*		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version 4.1d
Version 4.1d

TWO-WAY STOP CONTROL SUMMAR.

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/site access*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
ate Performed	*11/29/05*	Analysis Year	*2008 without project*
Analysis Time Period	*Weekday PM PK*		
Project Description	*Marina Suites*		
East/West Street:	*site access*	North/South Street:	*Lk Wa Blvd*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*4*	*1563*	*0*	*0*	*1062*	*3*
Peak-Hour Factor, PHF	*0.90*	*0.95*	*0.90*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*4*	*1645*	*0*	*0*	*1117*	*3*
Percent Heavy Vehicles	*1*	--	--	*0*	--	--
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*6*	*0*	*8*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*6*	*0*	*8*
ercent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
ercent Grade (%)		*0*			*5*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*4*						*14*	
C (m) (vph)	*627*						*157*	
v/c	*0.01*						*0.09*	
95% queue length	*0.02*						*0.29*	
Control Delay	*10.8*						*30.2*	
LOS	*B*						*D*	
Approach Delay	--	--				*30.2*		
Approach LOS	--	--				*D*		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/site access*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2008 with project*
Analysis Time Period	*Weekday PM PK*		

Project Description *Marina Suites*	
East/West Street: *site access*	North/South Street: *Lk Wa Blvd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*15*	*1563*	*0*	*0*	*1062*	*16*
Peak-Hour Factor, PHF	*0.90*	*0.95*	*0.90*	*0.90*	*0.95*	*0.90*
Hourly Flow Rate, HFR	*16*	*1645*	*0*	*0*	*1117*	*17*
Percent Heavy Vehicles	*1*	–	–	*0*	–	–
Median Type	*Two Way Left Turn Lane*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*	*T*				*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*71*	*0*	*60*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*78*	*0*	*66*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*1*
Percent Grade (%)		*0*			*5*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*						*LR*	
v (vph)	*16*						*144*	
C (m) (vph)	*620*						*138*	
v/c	*0.03*						*1.04*	
95% queue length	*0.08*						*7.73*	
Control Delay	*11.0*						*152.0*	
LOS	*B*						*F*	
Approach Delay	–	–				*152.0*		
Approach LOS	–	–				*F*		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMAR.

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/site access
gency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
ate Performed	11/29/05	Analysis Year	2008 with project
Analysis Time Period	Weekday PM PK		

Project Description: Marina Suites (with 3 lane driveway)

East/West Street: site access | North/South Street: Lk Wa Blvd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	15	1563	0	0	1062	16
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	16	1645	0	0	1117	17
Percent Heavy Vehicles	1	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	71	0	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	78	0	66
ercent Heavy Vehicles	0	0	0	1	0	1
ercent Grade (%)		0			5	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	16					78		66
C (m) (vph)	620					102		239
v/c	0.03					0.76		0.28
95% queue length	0.08					4.11		1.09
Control Delay	11.0					109.6		25.7
LOS	B					F		D
Approach Delay	--	--				71.2		
Approach LOS	--	--				F		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

AM Peak Hour Analysis

- ✓ Turning Movements (existing 2005 and future 2008)
- ✓ Level of Service Calculation Results (per HCM)

MARINA SUITES (56 ksf net new

AM PEAK HOUR TURN MOVEMENTS and AWDT LEG VOLUMES

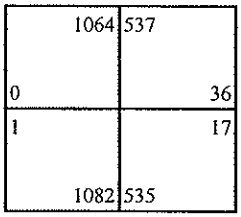
1001 Lake Wash Blvd/NE 52nd St

	Existing 2005 AM PK	2008 Future Growth [a]	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 AM PK
EBLT	1	0	1	0	1
EBT	0	0	0	0	0
EBRT	0	0	0	0	0
WBLT	24	1	25	0	25
WBT	0	0	0	0	0
WBRT	12	1	13	0	13
NBLT	0	0	0	0	0
NBT	524	56	580	46	626
NBRT	11	1	12	0	12
SBLT	6	0	6	0	6
SBT	1058	98	1156	6	1162
SBRT	0	0	0	0	0
	1636	157	1793	52	1845

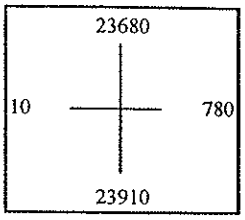
use 2% per year growth on side street (east leg)

Existing 2005

AM PEAK HOUR

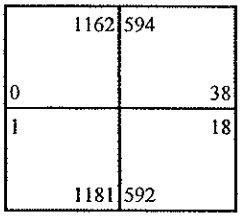


AWDT [c]

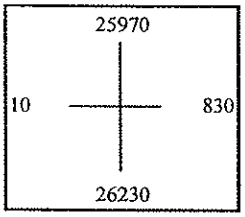


Background Traffic 2008

AM PEAK HOUR

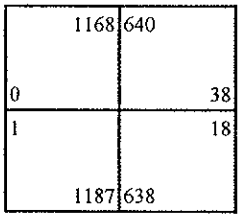


AWDT [c]

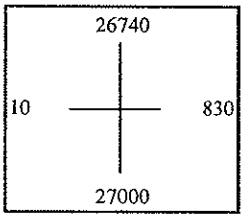


Horizon Yr 2008

AM PEAK HOUR



AWDT [c]



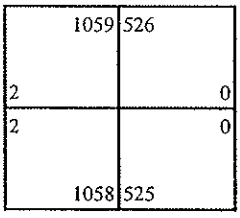
[a] Background growth determined by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

1002 Lake Wash Blvd/Site Access

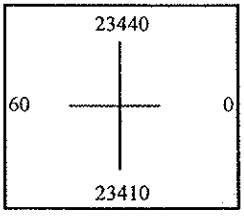
	Existing 2005 AM PK	2008 Future Growth	2008 Background Traffic	Project Trips [b]	Horizon Yr 2008 AM PK
EBLT	2	0	2	8	10
EBT	0	0	0	0	0
EBRT	0	0	0	6	6
WBLT	0	0	0	0	0
WBT	0	0	0	0	0
WBRT	0	0	0	0	0
NBLT	1	0	1	46	47
NBT	524	60	584	0	584
NBRT	0	0	0	0	0
SBLT	0	0	0	0	0
SBT	1058	118	1176	0	1176
SBRT	1	0	1	57	58
	1586	178	1764	117	1881

Existing 2005

AM PEAK HOUR

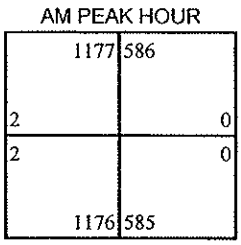


AWDT [c]

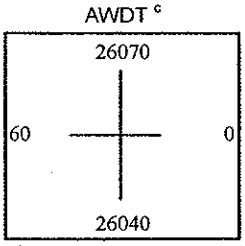


Background Traffic 2008

AM PEAK HOUR

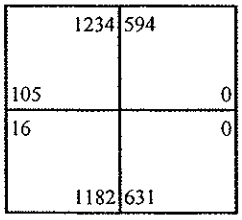


AWDT [c]

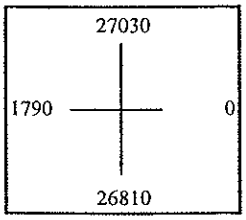


Horizon Yr 2008

AM PEAK HOUR



AWDT [c]



[a] Background growth determined by City
[b] Based on 55 ksf office (net new building space) (plus 1 trip for 10 new boat slips)
[c] AWDT; Average Weekday Daily Traffic (factored from PM peak volumes)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/NE 52nd St*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2005 existing*
Analysis Time Period	*Weekday AM PK*		
Project Description	*Marina Suites*		
East/West Street:	*NE 52nd St*	North/South Street:	*Lk Wa Blvd*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	524	11	6	1058	0
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	0	551	12	6	1113	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24	0	12	1	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	26	0	13	1	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		-3			3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	0	6		39			1	
C (m) (vph)	635	1019		226			177	
v/c	0.00	0.01		0.17			0.01	
95% queue length	0.00	0.02		0.61			0.02	
Control Delay	10.7	8.6		24.2			25.5	
LOS	B	A		C			D	
Approach Delay	--	--	24.2			25.5		
Approach LOS	--	--	C			D		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version 4.1d
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/NE 52nd St
Agency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
Date Performed	11/29/05	Analysis Year	2008 without project
Analysis Time Period	Weekday AM PK		

Project Description: Marina Suites

East/West Street: NE 52nd St	North/South Street: Lk Wa Blvd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	580	12	6	1156	0
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	0	610	13	6	1216	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25	0	13	1	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	27	0	14	1	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		-3			3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	0	6		41			1	
C (m) (vph)	581	968		200			154	
v/c	0.00	0.01		0.20			0.01	
95% queue length	0.00	0.02		0.75			0.02	
Control Delay	11.2	8.7		27.6			28.5	
LOS	B	A		D			D	
Approach Delay	--	--	27.6			28.5		
Approach LOS	--	--	D			D		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/NE 52nd St*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2008 with project*
Analysis Time Period	*Weekday AM PK*		
Project Description	*Marina Suites*		
East/West Street:	*NE 52nd St*	North/South Street:	*Lk Wa Blvd*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	626	12	6	1162	0
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	0	658	13	6	1223	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25	0	13	1	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	27	0	14	1	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		-3			3	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (vph)	0	6		41			1	
C (m) (vph)	577	929		194			149	
v/c	0.00	0.01		0.21			0.01	
95% queue length	0.00	0.02		0.77			0.02	
Control Delay	11.2	8.9		28.5			29.3	
LOS	B	A		D			D	
Approach Delay	--	--	28.5			29.3		
Approach LOS	--	--	D			D		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version 4.1d
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/site access
Agency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
Date Performed	11/29/05	Analysis Year	2005 existing
Analysis Time Period	Weekday AM PK		

Project Description *Marina Suites*

East/West Street: *site access*	North/South Street: *Lk Wa Blvd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	524	0	0	1058	1
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	1	551	0	0	1113	1
Percent Heavy Vehicles	1	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	2	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	2	0	0
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			5	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						2	
C (m) (vph)	631						225	
v/c	0.00						0.01	
95% queue length	0.00						0.03	
Control Delay	10.7						21.1	
LOS	B						C	
Approach Delay	--	--				21.1		
Approach LOS	--	--				C		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version 4.1d
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*BPJ*	Intersection	*Lk Wa Blvd/site access*
Agency/Co.	*William Popp Associates*	Jurisdiction	*City of Kirkland*
Date Performed	*11/29/05*	Analysis Year	*2008 without project*
Analysis Time Period	*Weekday AM PK*		

Project Description *Marina Suites*

East/West Street: *site access*	North/South Street: *Lk Wa Blvd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	584	0	0	1176	1
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	1	614	0	0	1237	1
Percent Heavy Vehicles	1	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	2	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	2	0	0
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			5	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	1						2	
C (m) (vph)	566						195	
v/c	0.00						0.01	
95% queue length	0.01						0.03	
Control Delay	11.4						23.7	
LOS	B						C	
Approach Delay	--	--				23.7		
Approach LOS	--	--				C		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/site access
Agency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
Date Performed	11/29/05	Analysis Year	2008 with project
Analysis Time Period	Weekday AM PK		

Project Description *Marina Suites*

East/West Street: *site access* | North/South Street: *Lk Wa Blvd*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	47	584	0	0	1176	58
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	52	614	0	0	1237	64
Percent Heavy Vehicles	1	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	10	0	6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	11	0	6
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			5	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (vph)	52						17	
C (m) (vph)	536						181	
v/c	0.10						0.09	
95% queue length	0.32						0.31	
Control Delay	12.4						26.9	
LOS	B						D	
Approach Delay	--	--				26.9		
Approach LOS	--	--				D		

Rights Reserved
HCS2000™ Copyright © 2003 University of Florida, All Rights Reserved Version 4.1d
Version 4.1d

TWO-WAY STOP CONTROL SUMMAR

General Information		Site Information	
Analyst	BPJ	Intersection	Lk Wa Blvd/site access
gency/Co.	William Popp Associates	Jurisdiction	City of Kirkland
ate Performed	11/29/05	Analysis Year	2008 with project
Analysis Time Period	Weekday AM PK		
Project Description	Marina Suites (with 3 lane driveway)		
East/West Street:	site access	North/South Street:	Lk Wa Blvd
Intersection Orientation:	North-South	Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	47	584	0	0	1176	58
Peak-Hour Factor, PHF	0.90	0.95	0.90	0.90	0.95	0.90
Hourly Flow Rate, HFR	52	614	0	0	1237	64
Percent Heavy Vehicles	1	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	10	0	6
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	0	0	11	0	6
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			5	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	1	0	1
Configuration				L		R

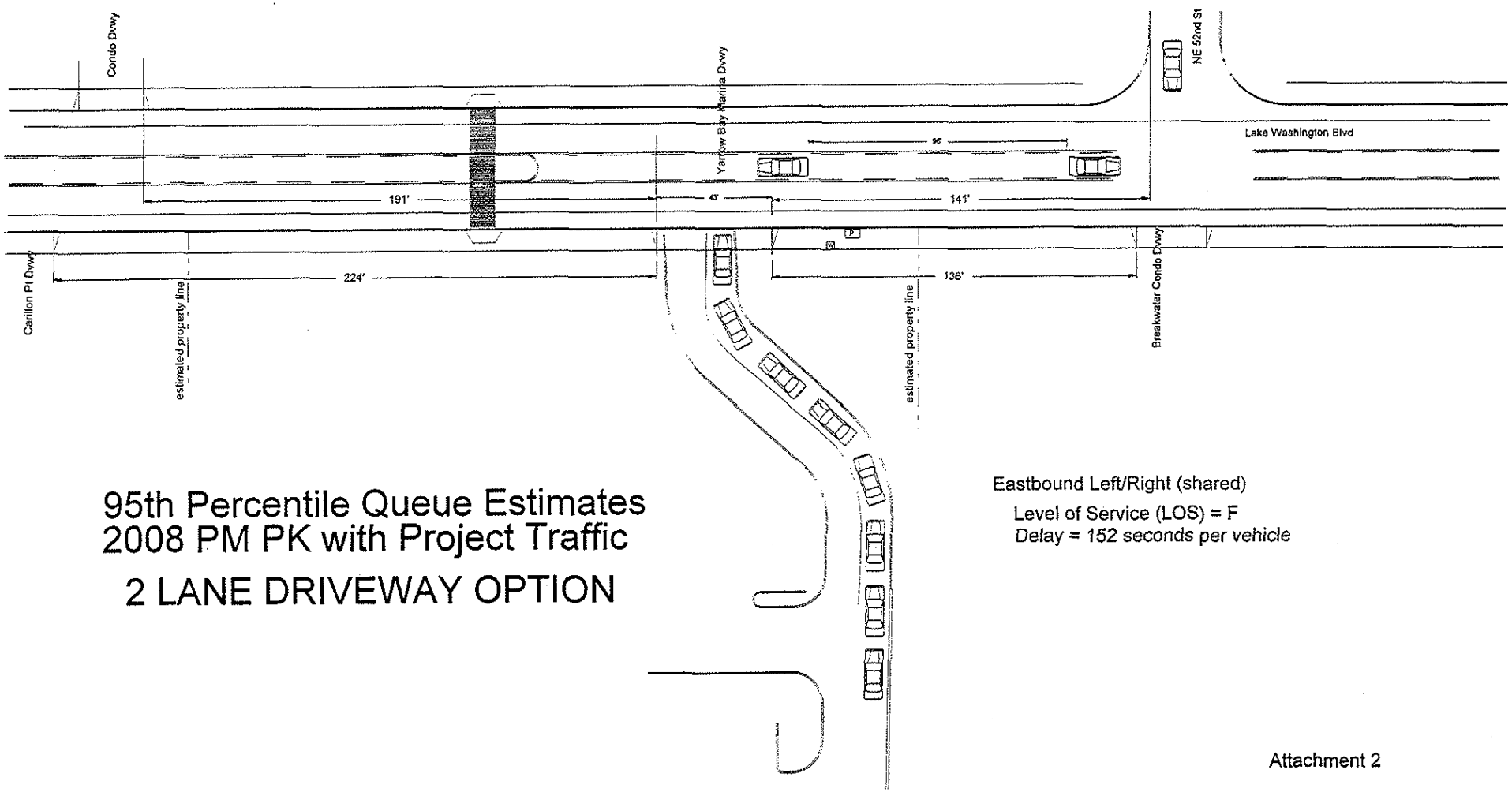
Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (vph)	52					11		6
C (m) (vph)	536					173		198
v/c	0.10					0.06		0.03
95% queue length	0.32					0.20		0.09
Control Delay	12.4					27.2		23.7
LOS	B					D		C
Approach Delay	--	--				26.0		
Approach LOS	--	--				D		

Rights Reserved
HCS2000™
Version 4.1d
Copyright © 2003 University of Florida, All Rights Reserved
Version 4.1d

Driveway Sketches

- ✓ 2008 PM Peak Q with 2 lane driveway
- ✓ 2008 PM Peak Q with 3 lane driveway



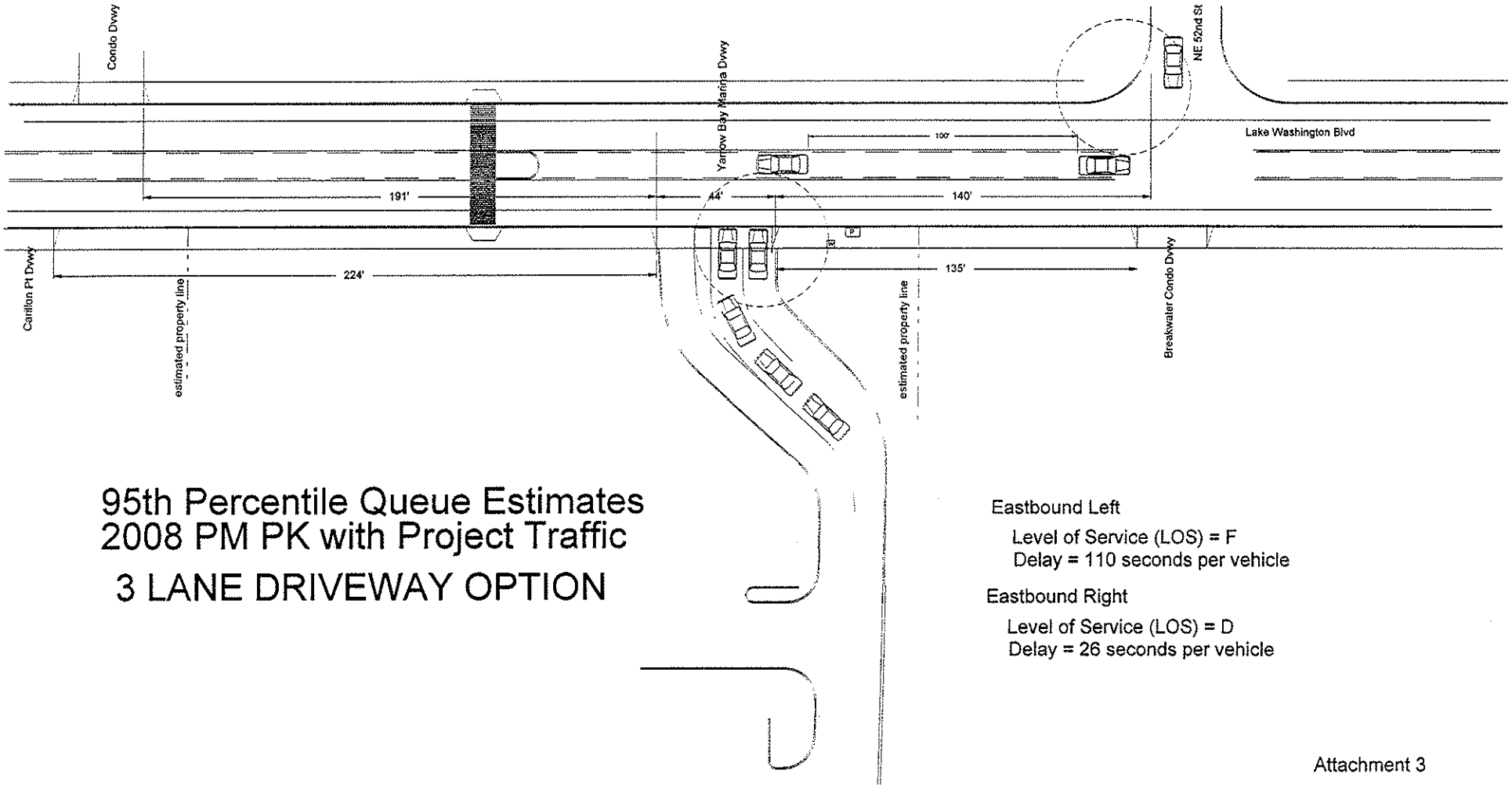
95th Percentile Queue Estimates
2008 PM PK with Project Traffic
2 LANE DRIVEWAY OPTION

Eastbound Left/Right (shared)

Level of Service (LOS) = F

Delay = 152 seconds per vehicle

Attachment 2



95th Percentile Queue Estimates
2008 PM PK with Project Traffic
3 LANE DRIVEWAY OPTION

Eastbound Left

Level of Service (LOS) = F
Delay = 110 seconds per vehicle

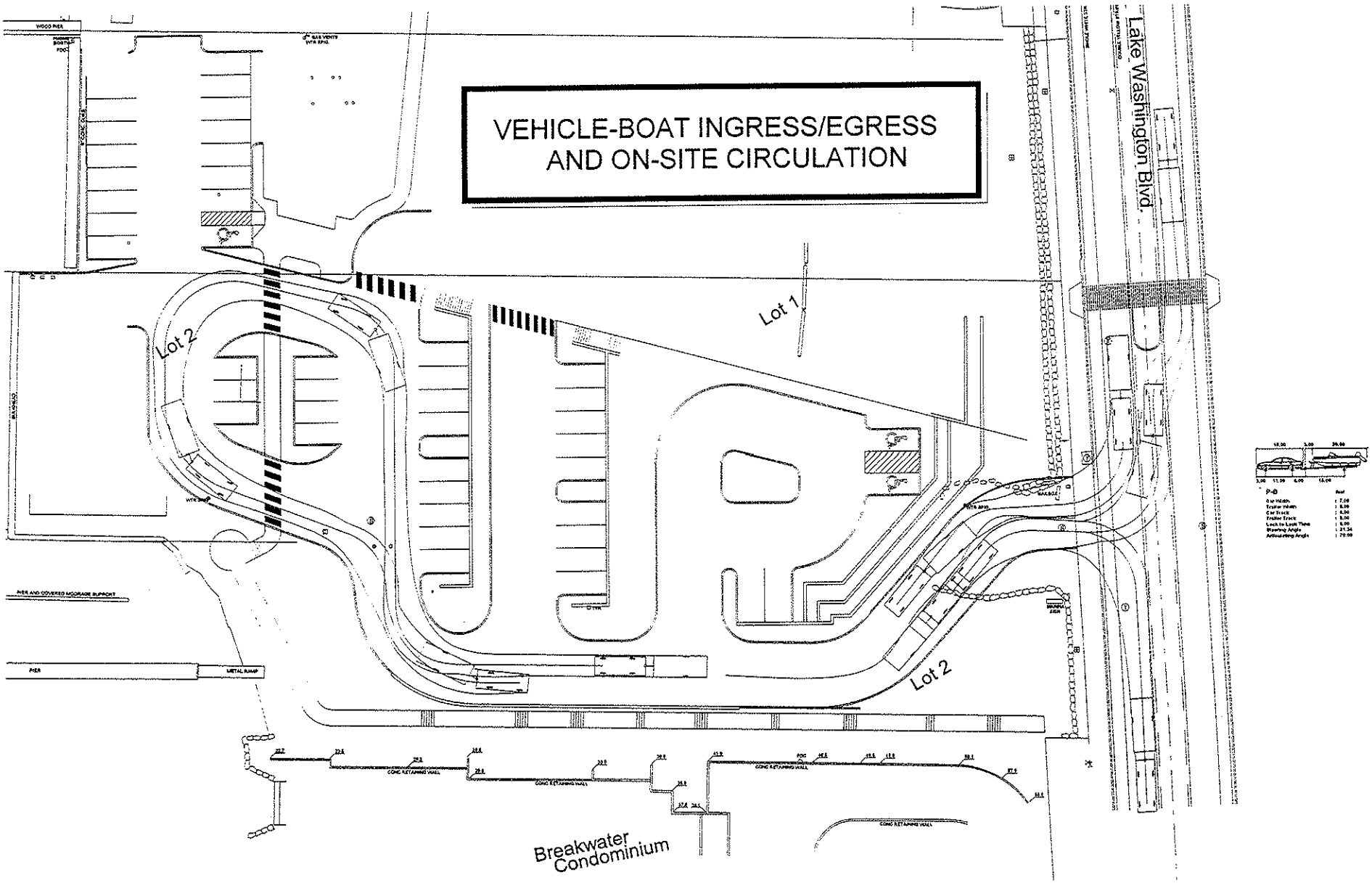
Eastbound Right

Level of Service (LOS) = D
Delay = 26 seconds per vehicle

Attachment 3

Vehicle-Boat Access and On-Site Circulation

VEHICLE-BOAT INGRESS/EGRESS AND ON-SITE CIRCULATION



Parking Supply and Demand

- ✓ Yarrow Bay Marina Count
- ✓ Parking Demand Estimate (average weekday)
- ✓ Parking Supply and Demand Chart

YARROW I MARINA
PARKING COUNT

NUMBER OF VEHICLES PARKED

		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM
	Monday, 8/29/05	5		9		3		7			9
	Tuesday, 8/30/05	10						16			
	Wednesday, 8/31/05	12		17		14		24		29	31
	Thursday, 9/1/05	18		20		24		19		16	21
	Friday, 9/2/05	18		22		27		21		26	29
8/29-9/2	Weekday Avg	13		17		17		17		24	23
		53%	63%	72%	72%	72%	73%	74%	87%	100%	95%

6:00 AM	35%	estimate
7:00 AM	40%	estimate
8:00 AM	45%	estimate
9:00 AM	50%	estimate
10:00 AM	53%	
11:00 AM	63%	interp
12:00 PM	72%	
1:00 PM	72%	interp
2:00 PM	72%	
3:00 PM	73%	interp
4:00 PM	74%	
5:00 PM	87%	interp
6:00 PM	100%	
7:00 PM	95%	
8:00 PM	90%	estimate
9:00 PM	85%	estimate
10:00 PM	80%	estimate
11:00 PM	70%	estimate
12:00 AM	50%	estimate

portion allocated to marina vs the extg office

30	pk estimate of parked vehicles
104	number of slips
100%	est % of veh parked using marina
30	est # of parked vehicles using marina
0.29	pkg rate (veh/slip)

30	pk estimate of parked vehicles
104	number of slips
50%	est % of veh parked using marina
15	est # of parked vehicles using marina
0.14	pkg rate (veh/slip)

30	pk estimate of parked vehicles
104	number of slips
70%	est % of veh parked using marina
21	est # of parked vehicles using marina
0.20	pkg rate (veh/slip)

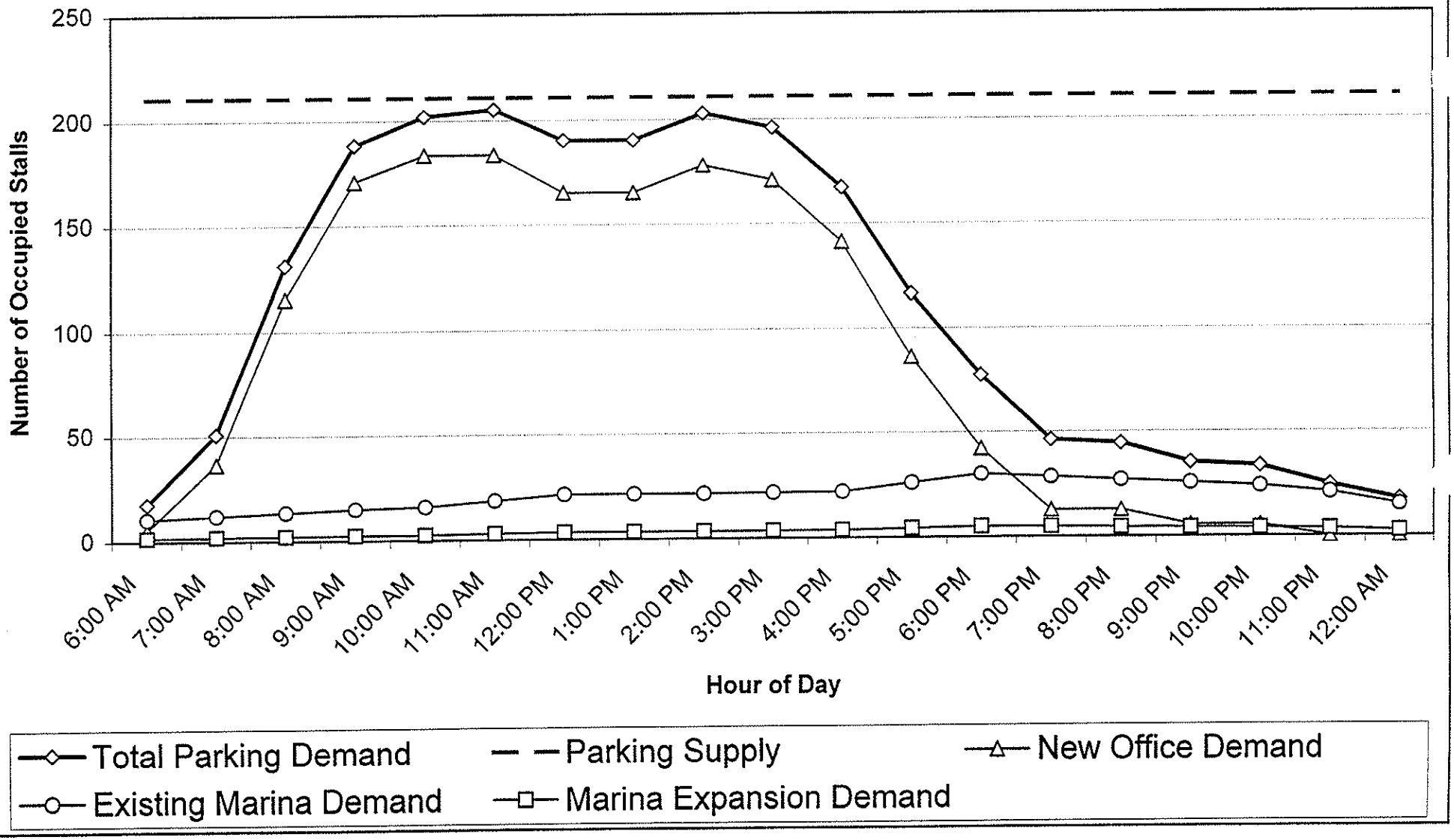
0.5	City Rate (veh/slip)
104	number of slips
52	est # of parked vehicles using marina

MARINA SUITES
PEAK PARKING DEMAND ESTIMATES WITH MARINA EXPANSION

	Proposed Office 55 ksf 300 gsf/stall 3.3 stalls/ksf		Existing Marina Pkg Dist Est	(Summer) Observed Peak Demand 30	CITY RATE Proposed Marina Expansion 10 slips (max) 0.5 veh/slip	Weekday Peak Parking Demand Estimate	Current Proposed Parking Supply
		veh		veh	veh	veh	stalls
6:00 AM	3%	6	35%	11	2	18	211
7:00 AM	20%	37	40%	12	2	51	211
8:00 AM	63%	116	45%	14	2	131	211
9:00 AM	93%	171	50%	15	3	188	211
10:00 AM	100%	183 pk	53%	16	3	202	211
11:00 AM	100%	183 pk	63%	19	3	205 pk	211
12:00 PM	90%	165	72%	22	4	190	211
1:00 PM	90%	165	72%	22	4	190	211
2:00 PM	97%	178	72%	22	4	203	211
3:00 PM	93%	171	73%	22	4	196	211
4:00 PM	77%	141	74%	22	4	167	211
5:00 PM	47%	86	87%	26	4	117	211
6:00 PM	23%	42	100%	30 pk	5 pk	77	211
7:00 PM	7%	13	95%	29	5 pk	46	211
8:00 PM	7%	13	90%	27	5 pk	44	211
9:00 PM	3%	6	85%	26	4	35	211
10:00 PM	3%	6	80%	24	4	34	211
11:00 PM	0%	0	70%	21	4	25	211
12:00 AM	0%	0	50%	15	3	18	211

[redacted]

Marina Suites
Weekday Parking Demand Estimates



YARROW BAY MARINA

Car Count

	10:00 a.m.	12:00 noon	2:00 p.m.	4:00 p.m.	6:00 p.m.	7:00 p.m.
Friday, 8/26/05	21	27	36	32	37	30
Saturday, 8/27/05	27	29	43	48	46	22
Sunday, 8/28/05	22	30	38	34	31	27
Monday, 8/29/05	5 (11:00 a.m.)	9 (1:00 p.m.)	6 (3:00 p.m.)	7 (5:00 p.m.)		9
Tuesday, 8/30/05	10 (11:00 a.m.)			16		
Wednesday, 8/31/05	12	17	14	24	29	31
Thursday, 9/1/05	18	20	24	19	16	21
Friday, 9/2/05	18	22	27	21	26	29