APPENDIX P
TRAFFIC ANALYSES

Appendix P1
Existing Traffic Volumes

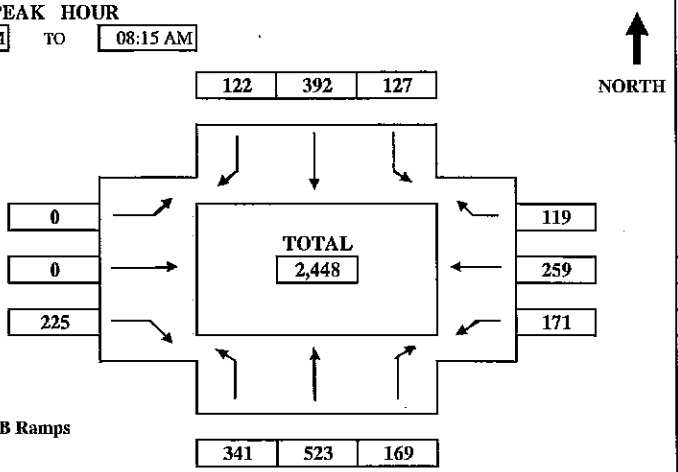
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

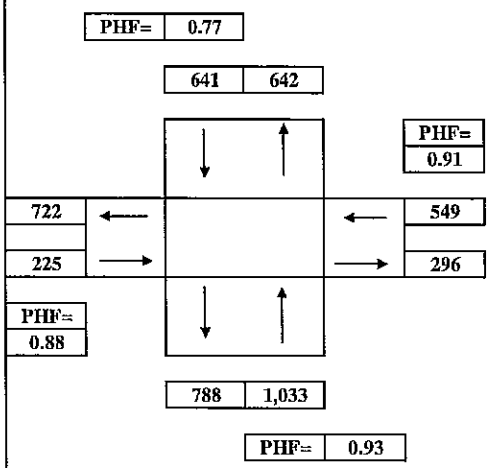
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	Route 4 WB Ramps	CITY: Pittsburg		FILE:	BRR4WB-AM

PEAK HOUR

07:15 AM TO 08:15 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	61	52	14	5	42	14	0	0	42	25	47	10	*312*
7:15 AM	---	7:30 AM	160	184	60	20	137	40	0	0	106	65	118	38	*928*
7:30 AM	---	7:45 AM	251	313	101	46	247	61	0	0	167	105	195	71	*1,557*
7:45 AM	---	8:00 AM	319	448	145	112	340	109	0	0	218	154	260	108	*2,213*
8:00 AM	---	8:15 AM	402	575	183	132	434	136	0	0	267	196	306	129	*2,760*
8:15 AM	---	8:30 AM	472	695	212	139	537	182	0	0	304	234	346	147	*3,268*
8:30 AM	---	8:45 AM	561	802	239	150	622	219	0	0	336	248	391	159	*3,727*
8:45 AM	---	9:00 AM	630	897	264	157	698	251	0	0	384	267	428	164	*4,140*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	61	52	14	5	42	14	0	0	42	25	47	10	*312*
7:15 AM	---	7:30 AM	99	132	46	15	95	26	0	0	64	40	71	28	*616*
7:30 AM	---	7:45 AM	91	129	41	26	110	21	0	0	61	40	77	33	*629*
7:45 AM	---	8:00 AM	68	135	44	66	93	48	0	0	51	49	65	37	*656*
8:00 AM	---	8:15 AM	83	127	38	20	94	27	0	0	49	42	46	21	*547*
8:15 AM	---	8:30 AM	70	120	29	7	103	46	0	0	37	38	40	18	*508*
8:30 AM	---	8:45 AM	89	107	27	11	85	37	0	0	32	14	45	12	*459*
8:45 AM	---	9:00 AM	69	95	25	7	76	32	0	0	48	19	37	5	*413*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	319	448	145	112	340	109	0	0	218	154	260	108	*2,213*
7:15 AM	---	8:15 AM	341	523	169	127	392	122	0	0	225	171	259	119	*2,448*
7:30 AM	---	8:30 AM	312	511	152	119	400	142	0	0	198	169	228	109	*2,340*
7:45 AM	---	8:45 AM	310	489	138	104	375	158	0	0	169	143	196	88	*2,170*
8:00 AM	---	9:00 AM	311	449	119	45	358	142	0	0	166	113	168	56	*1,927*

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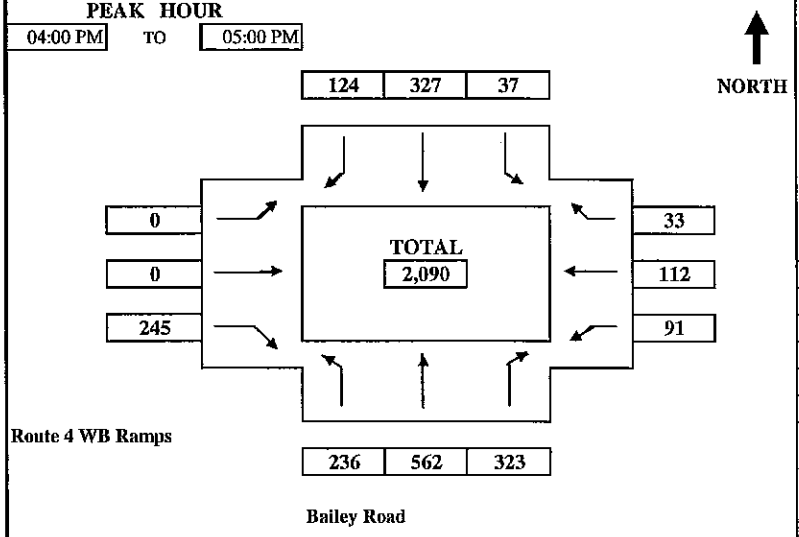
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

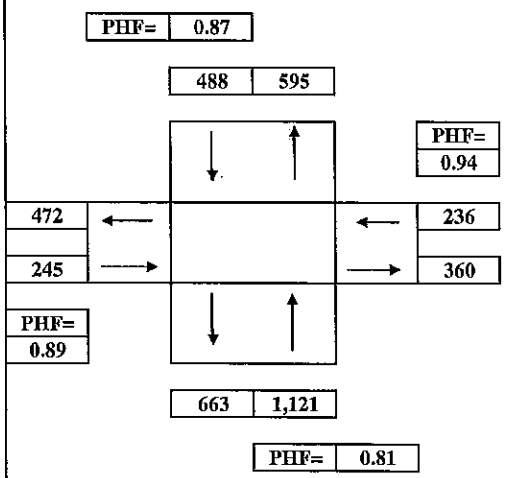
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	Route 4 WB Ramps	CITY:	Pittsburg	FILE:	BRR4WB-PM

PEAK HOUR

04:00 PM TO 05:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	66	177	101	15	84	33	0	0	53	12	41	10	*592*
4:15 PM	---	4:30 PM	131	317	172	23	154	63	0	0	119	33	71	17	*1,100*
4:30 PM	---	4:45 PM	178	431	251	29	229	89	0	0	176	64	90	29	*1,566*
4:45 PM	---	5:00 PM	236	562	323	37	327	124	0	0	245	91	112	33	*2,090*
5:00 PM	---	5:15 PM	287	667	383	49	434	143	0	0	311	119	136	36	*2,565*
5:15 PM	---	5:30 PM	317	798	450	56	543	165	0	0	384	151	162	47	*3,073*
5:30 PM	---	5:45 PM	520	944	348	72	628	189	0	0	464	181	176	54	*3,576*
5:45 PM	---	6:00 PM	397	1,075	597	81	710	209	0	0	529	211	192	60	*4,061*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	66	177	101	15	84	33	0	0	53	12	41	10	*592*
4:15 PM	---	4:30 PM	65	140	71	8	70	30	0	0	66	21	30	7	*508*
4:30 PM	---	4:45 PM	47	114	79	6	75	26	0	0	57	31	19	12	*466*
4:45 PM	---	5:00 PM	58	131	72	8	98	35	0	0	69	27	22	4	*524*
5:00 PM	---	5:15 PM	51	105	60	12	107	19	0	0	66	28	24	3	*475*
5:15 PM	---	5:30 PM	30	131	67	7	109	22	0	0	73	32	26	11	*508*
5:30 PM	---	5:45 PM	203	146	-102	16	85	24	0	0	80	30	14	7	*503*
5:45 PM	---	6:00 PM	-123	131	249	9	82	20	0	0	65	30	16	6	*485*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	236	562	323	37	327	124	0	0	245	91	112	33	*2,090*
4:15 PM	---	5:15 PM	221	490	282	34	350	110	0	0	258	107	95	26	*1,973*
4:30 PM	---	5:30 PM	186	481	278	33	389	102	0	0	265	118	91	30	*1,973*
4:45 PM	---	5:45 PM	342	513	97	43	399	100	0	0	288	117	86	25	*2,010*
5:00 PM	---	6:00 PM	161	513	274	44	383	85	0	0	284	120	80	27	*1,971*

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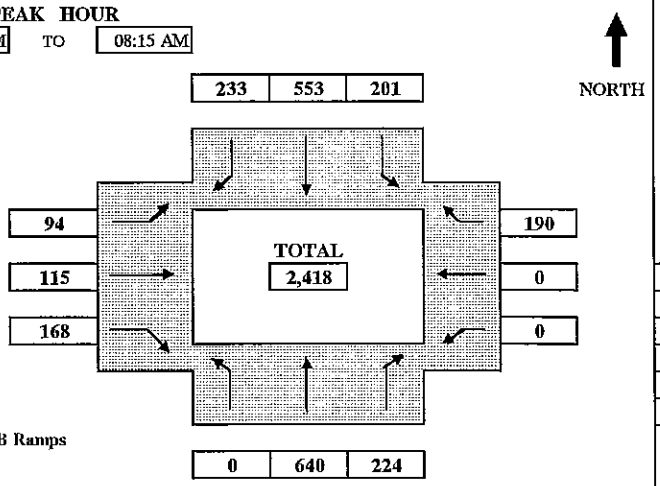
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

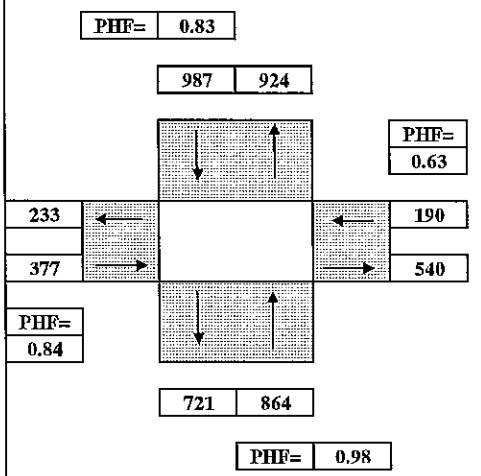
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	Route 4 EB Ramps	CITY: Pittsburg		FILE:	BRR4EB-AM

PEAK HOUR

07:15 AM TO 08:15 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From	To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA														
7:00 AM ---	7:15 AM	0	78	18	24	62	46	13	23	20	0	0	15	*299*
7:15 AM ---	7:30 AM	0	245	72	58	203	111	45	59	64	0	0	53	*910*
7:30 AM ---	7:45 AM	0	406	131	121	362	185	70	92	104	0	0	84	*1,555*
7:45 AM ---	8:00 AM	0	555	195	175	496	234	95	119	133	0	0	130	*2,132*
8:00 AM ---	8:15 AM	0	718	242	225	615	279	107	138	188	0	0	205	*2,717*
8:15 AM ---	8:30 AM	0	832	291	291	719	310	117	156	227	0	0	250	*3,193*
8:30 AM ---	8:45 AM	0	976	332	337	815	331	123	169	282	0	0	298	*3,663*
8:45 AM ---	9:00 AM	0	1,107	381	387	899	366	135	193	317	0	0	332	*4,117*
TOTAL BY PERIOD														
7:00 AM ---	7:15 AM	0	78	18	24	62	46	13	23	20	0	0	15	*299*
7:15 AM ---	7:30 AM	0	167	54	34	141	65	32	36	44	0	0	38	*611*
7:30 AM ---	7:45 AM	0	161	59	63	159	74	25	33	40	0	0	31	*645*
7:45 AM ---	8:00 AM	0	149	64	54	134	49	25	27	29	0	0	46	*577*
8:00 AM ---	8:15 AM	0	163	47	50	119	45	12	19	55	0	0	75	*585*
8:15 AM ---	8:30 AM	0	114	49	66	104	31	10	18	39	0	0	45	*476*
8:30 AM ---	8:45 AM	0	144	41	46	96	21	6	13	55	0	0	48	*470*
8:45 AM ---	9:00 AM	0	131	49	50	84	35	12	24	35	0	0	34	*454*
HOURLY TOTALS														
7:00 AM ---	8:00 AM	0	555	195	175	496	234	95	119	133	0	0	130	*2,132*
7:15 AM ---	8:15 AM	0	640	224	201	553	233	94	115	168	0	0	190	*2,418*
7:30 AM ---	8:30 AM	0	587	219	233	516	199	72	97	163	0	0	197	*2,283*
7:45 AM ---	8:45 AM	0	570	201	216	453	146	53	77	178	0	0	214	*2,108*
8:00 AM ---	9:00 AM	0	552	186	212	403	132	40	74	184	0	0	202	*1,985*

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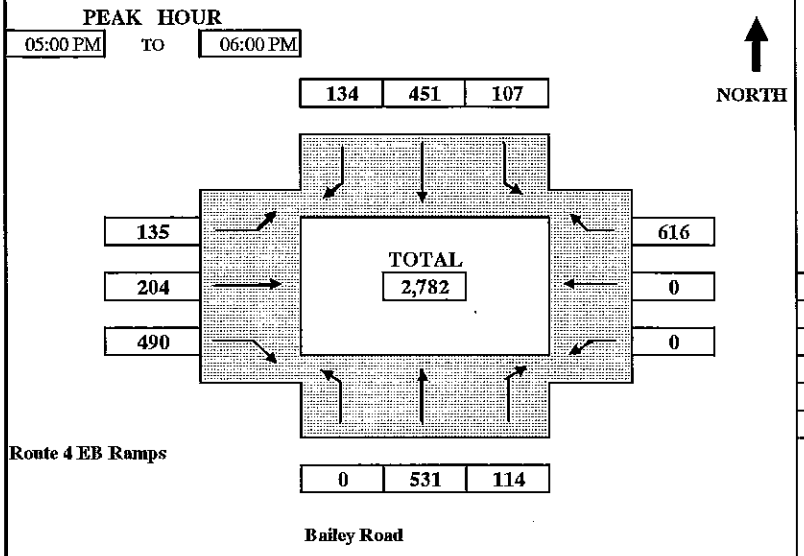
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

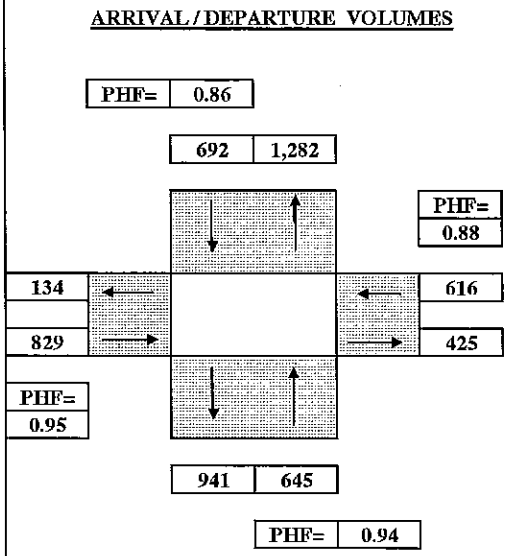
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	Route 4 EB Ramps	CITY:	Pittsburg	FILE:	BRR4EB-PM

PEAK HOUR

05:00 PM TO 06:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	0	109	36	19	102	28	17	38	110	0	0	132	*591*
4:15 PM	---	4:30 PM	0	228	62	37	209	59	41	68	210	0	0	278	*1,192*
4:30 PM	---	4:45 PM	0	329	82	59	328	89	57	109	376	0	0	433	*1,862*
4:45 PM	---	5:00 PM	0	445	99	83	435	116	70	140	456	0	0	578	*2,422*
5:00 PM	---	5:15 PM	0	562	135	113	553	148	97	200	588	0	0	730	*3,126*
5:15 PM	---	5:30 PM	0	710	155	139	647	183	131	225	734	0	0	883	*3,807*
5:30 PM	---	5:45 PM	0	840	178	172	782	217	158	281	857	0	0	1,059	*4,544*
5:45 PM	---	6:00 PM	0	976	213	190	886	250	205	344	946	0	0	1,194	*5,204*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	0	109	36	19	102	28	17	38	110	0	0	132	*591*
4:15 PM	---	4:30 PM	0	119	26	18	107	31	24	30	100	0	0	146	*601*
4:30 PM	---	4:45 PM	0	101	20	22	119	30	16	41	166	0	0	155	*670*
4:45 PM	---	5:00 PM	0	116	17	24	107	27	13	31	80	0	0	145	*560*
5:00 PM	---	5:15 PM	0	117	36	30	118	32	27	60	132	0	0	152	*704*
5:15 PM	---	5:30 PM	0	148	20	26	94	35	34	25	146	0	0	153	*681*
5:30 PM	---	5:45 PM	0	130	23	33	135	34	27	56	123	0	0	176	*737*
5:45 PM	---	6:00 PM	0	136	35	18	104	33	47	63	89	0	0	135	*660*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	0	445	99	83	435	116	70	140	456	0	0	578	*2,422*
4:15 PM	---	5:15 PM	0	453	99	94	451	120	80	162	478	0	0	598	*2,535*
4:30 PM	---	5:30 PM	0	482	93	102	438	124	90	157	524	0	0	605	*2,615*
4:45 PM	---	5:45 PM	0	511	96	113	454	128	101	172	481	0	0	626	*2,682*
5:00 PM	---	6:00 PM	0	531	114	107	451	134	135	204	490	0	0	616	*2,782*

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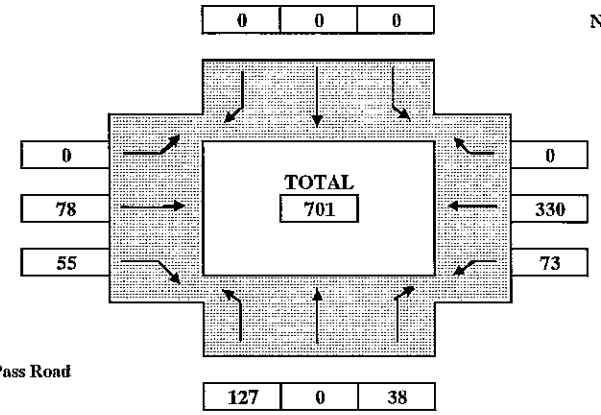
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

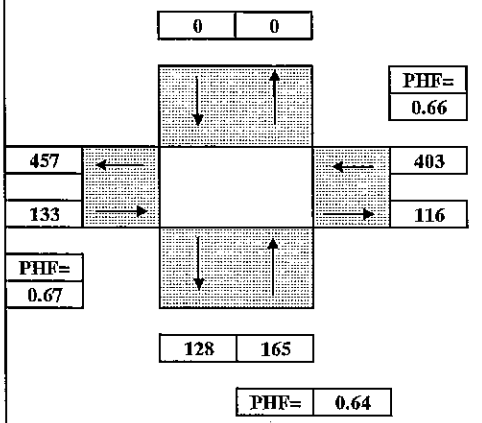
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	Willow Pass Road	CITY: Pittsburg		FILE:	BRWPR-AM

PEAK HOUR

07:00 AM TO 08:00 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	31	0	12	0	0	0	0	15	7	21	106	0	*192*
7:15 AM	---	7:30 AM	86	0	21	0	0	0	0	43	29	41	239	0	*459*
7:30 AM	---	7:45 AM	106	0	30	0	0	0	0	60	43	57	294	0	*590*
7:45 AM	---	8:00 AM	127	0	38	0	0	0	0	78	55	73	330	0	*701*
8:00 AM	---	8:15 AM	156	0	54	0	0	0	0	98	78	102	393	0	*881*
8:15 AM	---	8:30 AM	171	0	62	0	0	0	0	108	89	117	423	0	*970*
8:30 AM	---	8:45 AM	179	0	74	0	0	0	0	119	98	132	443	0	*1,045*
8:45 AM	---	9:00 AM	191	0	84	0	0	0	0	130	108	147	468	0	*1,128*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	31	0	12	0	0	0	0	15	7	21	106	0	*192*
7:15 AM	---	7:30 AM	55	0	9	0	0	0	0	28	22	20	133	0	*267*
7:30 AM	---	7:45 AM	20	0	9	0	0	0	0	17	14	16	55	0	*131*
7:45 AM	---	8:00 AM	21	0	8	0	0	0	0	18	12	16	36	0	*111*
8:00 AM	---	8:15 AM	29	0	16	0	0	0	0	20	23	29	63	0	*180*
8:15 AM	---	8:30 AM	15	0	8	0	0	0	0	10	11	15	30	0	*89*
8:30 AM	---	8:45 AM	8	0	12	0	0	0	0	11	9	15	20	0	*75*
8:45 AM	---	9:00 AM	12	0	10	0	0	0	0	11	10	15	25	0	*83*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	127	0	38	0	0	0	0	78	55	73	330	0	*701*
7:15 AM	---	8:15 AM	125	0	42	0	0	0	0	83	71	81	287	0	*689*
7:30 AM	---	8:30 AM	85	0	41	0	0	0	0	65	60	76	184	0	*511*
7:45 AM	---	8:45 AM	73	0	44	0	0	0	0	59	55	75	149	0	*455*
8:00 AM	---	9:00 AM	64	0	46	0	0	0	0	52	53	74	138	0	*427*

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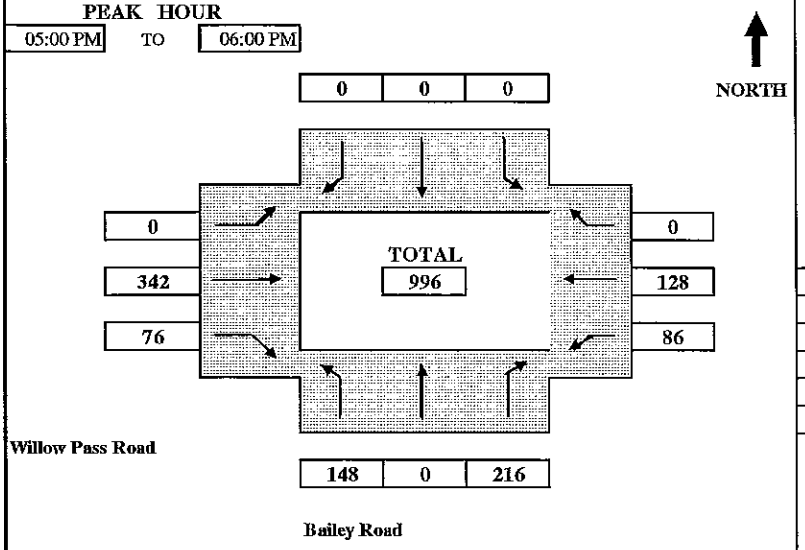
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

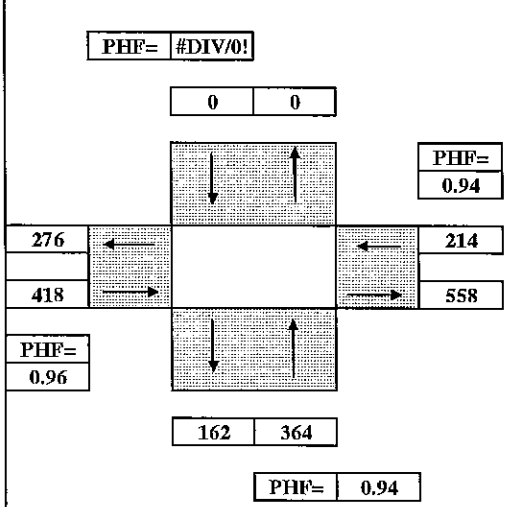
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Bailey Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	Willow Pass Road	CITY:	Pittsburg	FILE:	BRWPR-PM

PEAK HOUR

05:00 PM TO 06:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	40	0	82	0	0	0	0	164	62	37	71	0	*456*
4:15 PM	---	4:30 PM	57	0	113	0	0	0	0	213	82	52	92	0	*609*
4:30 PM	---	4:45 PM	75	0	146	0	0	0	0	268	106	68	115	0	*778*
4:45 PM	---	5:00 PM	94	0	186	0	0	0	0	332	136	86	144	0	*978*
5:00 PM	---	5:15 PM	131	0	238	0	0	0	0	412	156	109	175	0	*1,221*
5:15 PM	---	5:30 PM	168	0	294	0	0	0	0	503	174	129	208	0	*1,476*
5:30 PM	---	5:45 PM	201	0	346	0	0	0	0	593	193	149	238	0	*1,720*
5:45 PM	---	6:00 PM	242	0	402	0	0	0	0	674	212	172	272	0	*1,974*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	40	0	82	0	0	0	0	164	62	37	71	0	*456*
4:15 PM	---	4:30 PM	17	0	31	0	0	0	0	49	20	15	21	0	*153*
4:30 PM	---	4:45 PM	18	0	33	0	0	0	0	55	24	16	23	0	*169*
4:45 PM	---	5:00 PM	19	0	40	0	0	0	0	64	30	18	29	0	*200*
5:00 PM	---	5:15 PM	37	0	52	0	0	0	0	80	20	23	31	0	*243*
5:15 PM	---	5:30 PM	37	0	56	0	0	0	0	91	18	20	33	0	*255*
5:30 PM	---	5:45 PM	33	0	52	0	0	0	0	90	19	20	30	0	*244*
5:45 PM	---	6:00 PM	41	0	56	0	0	0	0	81	19	23	34	0	*254*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	94	0	186	0	0	0	0	332	136	86	144	0	*978*
4:15 PM	---	5:15 PM	91	0	156	0	0	0	0	248	94	72	104	0	*765*
4:30 PM	---	5:30 PM	111	0	181	0	0	0	0	290	92	77	116	0	*867*
4:45 PM	---	5:45 PM	126	0	200	0	0	0	0	325	87	81	123	0	*942*
5:00 PM	---	6:00 PM	148	0	216	0	0	0	0	342	76	86	128	0	*996*

Telephone: (510)232-1271 Fax: (510)232-1272

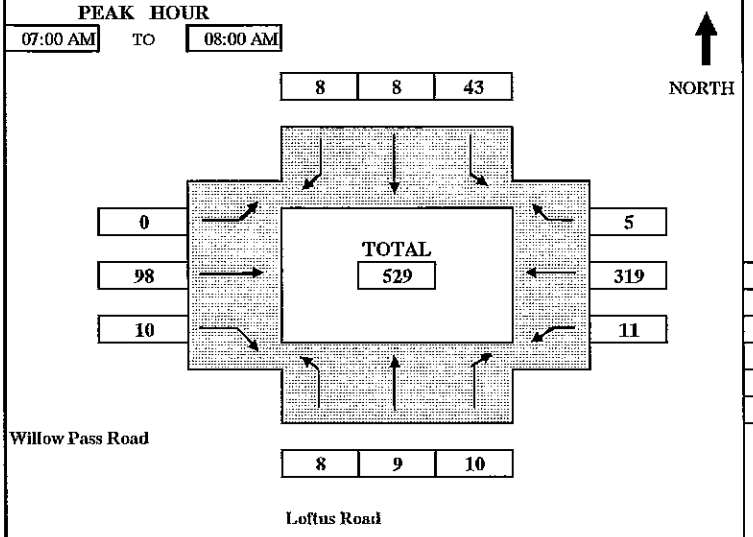
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

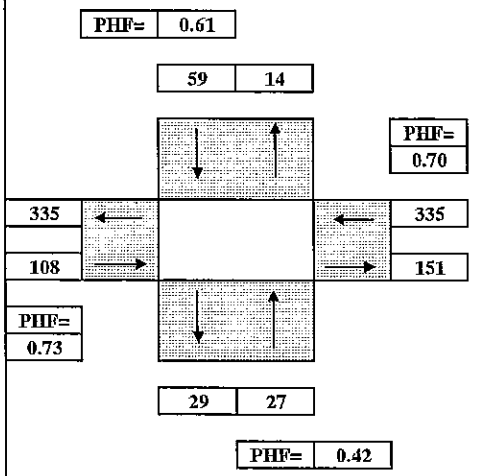
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Loftus Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	Willow Pass Road	CITY: Pittsburg		FILE:	LRWPR-AM

PEAK HOUR

07:00 AM TO 08:00 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	5	7	4	16	2	6	0	30	3	3	117	0	*193*
7:15 AM	---	7:30 AM	6	8	5	24	4	6	0	45	5	6	187	0	*296*
7:30 AM	---	7:45 AM	8	9	7	35	7	6	0	63	8	9	231	0	*383*
7:45 AM	---	8:00 AM	8	9	10	43	8	8	0	98	10	11	319	5	*529*
8:00 AM	---	8:15 AM	8	9	11	44	9	8	0	113	10	11	340	5	*568*
8:15 AM	---	8:30 AM	9	9	13	46	9	9	0	132	11	12	372	5	*627*
8:30 AM	---	8:45 AM	10	10	14	48	10	9	0	150	12	12	401	5	*681*
8:45 AM	---	9:00 AM	10	10	16	51	11	10	0	169	12	13	432	5	*739*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	5	7	4	16	2	6	0	30	3	3	117	0	*193*
7:15 AM	---	7:30 AM	1	1	1	8	2	0	0	15	2	3	70	0	*103*
7:30 AM	---	7:45 AM	2	1	2	11	3	0	0	18	3	3	44	0	*87*
7:45 AM	---	8:00 AM	0	0	3	8	1	2	0	35	2	2	88	5	*146*
8:00 AM	---	8:15 AM	0	0	1	1	1	0	0	15	0	0	21	0	*39*
8:15 AM	---	8:30 AM	1	0	2	2	0	1	0	19	1	1	32	0	*59*
8:30 AM	---	8:45 AM	1	1	1	2	1	0	0	18	1	0	29	0	*54*
8:45 AM	---	9:00 AM	0	0	2	3	1	1	0	19	0	1	31	0	*58*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	8	9	10	43	8	8	0	98	10	11	319	5	*529*
7:15 AM	---	8:15 AM	3	2	7	28	7	2	0	83	7	8	223	5	*375*
7:30 AM	---	8:30 AM	3	1	8	22	5	3	0	87	6	6	185	5	*331*
7:45 AM	---	8:45 AM	2	1	7	13	3	3	0	87	4	3	170	5	*298*
8:00 AM	---	9:00 AM	2	1	6	8	3	2	0	71	2	2	113	0	*210*

Telephone: (510)232-1271 Fax: (510)232-1272

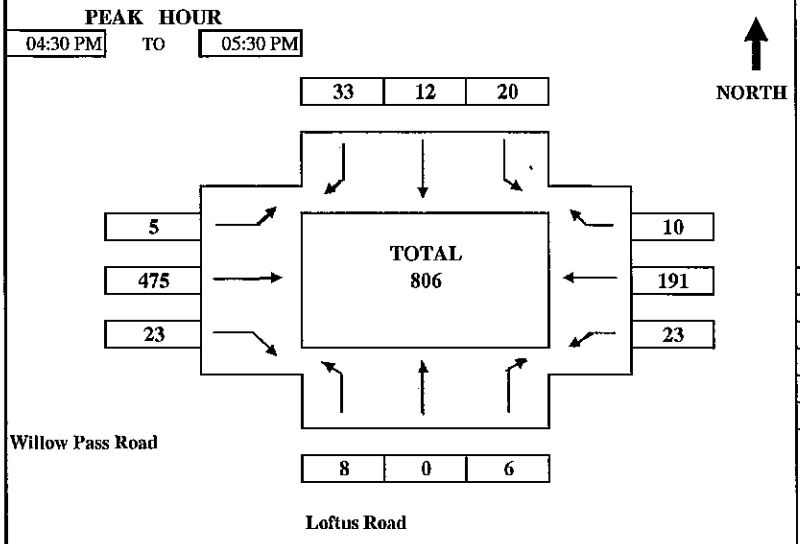
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

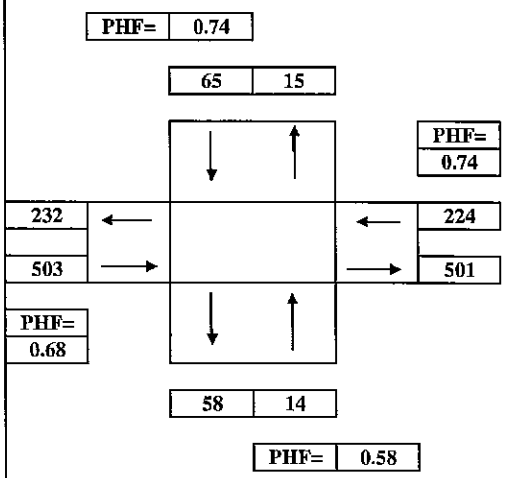
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Loftus Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	Willow Pass Road	CITY:	Pittsburg	FILE:	LRWPR-PM

PEAK HOUR

04:30 PM TO 05:30 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	2	1	1	7	5	10	2	158	10	3	83	2	*284*
4:15 PM	---	4:30 PM	4	1	1	10	6	14	2	248	13	6	123	5	*433*
4:30 PM	---	4:45 PM	8	1	3	15	8	21	5	354	16	15	186	9	*641*
4:45 PM	---	5:00 PM	9	1	4	21	10	32	5	444	24	20	218	10	*798*
5:00 PM	---	5:15 PM	10	1	5	26	15	44	7	543	32	26	254	13	*976*
5:15 PM	---	5:30 PM	12	1	7	30	18	47	7	723	36	29	314	15	*1,239*
5:30 PM	---	5:45 PM	14	2	9	32	19	52	7	782	41	33	373	16	*1,380*
5:45 PM	---	6:00 PM	16	2	12	35	22	59	8	872	43	35	436	18	*1,558*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	2	1	1	7	5	10	2	158	10	3	83	2	*284*
4:15 PM	---	4:30 PM	2	0	0	3	1	4	0	90	3	3	40	3	*149*
4:30 PM	---	4:45 PM	4	0	2	5	2	7	3	106	3	9	63	4	*208*
4:45 PM	---	5:00 PM	1	0	1	6	2	11	0	90	8	5	32	1	*157*
5:00 PM	---	5:15 PM	1	0	1	5	5	12	2	99	8	6	36	3	*178*
5:15 PM	---	5:30 PM	2	0	2	4	3	3	0	180	4	3	60	2	*263*
5:30 PM	---	5:45 PM	2	1	2	2	1	5	0	59	5	4	59	1	*141*
5:45 PM	---	6:00 PM	2	0	3	3	3	7	1	90	2	2	63	2	*178*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	9	1	4	21	10	32	5	444	24	20	218	10	*798*
4:15 PM	---	5:15 PM	8	0	4	19	10	34	5	385	22	23	171	11	*692*
4:30 PM	---	5:30 PM	8	0	6	20	12	33	5	475	23	23	191	10	*806*
4:45 PM	---	5:45 PM	6	1	6	17	11	31	2	428	25	18	187	7	*739*
5:00 PM	---	6:00 PM	7	1	8	14	12	27	3	428	19	15	218	8	*760*

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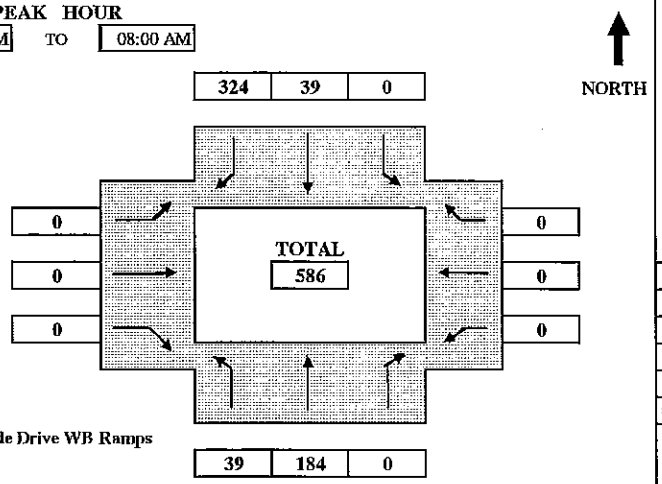
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

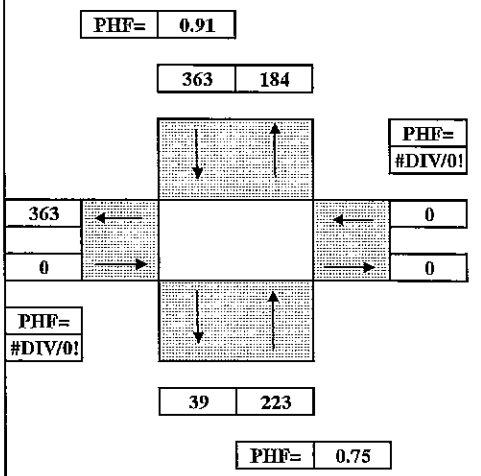
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Willow Pass Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	N. Parkside Drive WB Ramps	CITY:	Pittsburg	FILE:	WPNPDWBR-AM

PEAK HOUR

07:00 AM TO 08:00 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	9	23	0	0	13	65	0	0	0	0	0	0	*110*
7:15 AM	---	7:30 AM	18	59	0	0	25	152	0	0	0	0	0	0	*254*
7:30 AM	---	7:45 AM	29	120	0	0	33	244	0	0	0	0	0	0	*426*
7:45 AM	---	8:00 AM	39	184	0	0	39	324	0	0	0	0	0	0	*586*
8:00 AM	---	8:15 AM	43	207	0	0	49	390	0	0	0	0	0	0	*689*
8:15 AM	---	8:30 AM	55	231	0	0	53	430	0	0	0	0	0	0	*769*
8:30 AM	---	8:45 AM	57	264	0	0	56	471	0	0	0	0	0	0	*848*
8:45 AM	---	9:00 AM	59	297	0	0	59	512	0	0	0	0	0	0	*927*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	9	23	0	0	13	65	0	0	0	0	0	0	*110*
7:15 AM	---	7:30 AM	9	36	0	0	12	87	0	0	0	0	0	0	*144*
7:30 AM	---	7:45 AM	11	61	0	0	8	92	0	0	0	0	0	0	*172*
7:45 AM	---	8:00 AM	10	64	0	0	6	80	0	0	0	0	0	0	*160*
8:00 AM	---	8:15 AM	4	23	0	0	10	66	0	0	0	0	0	0	*103*
8:15 AM	---	8:30 AM	12	24	0	0	4	40	0	0	0	0	0	0	*80*
8:30 AM	---	8:45 AM	2	33	0	0	3	41	0	0	0	0	0	0	*79*
8:45 AM	---	9:00 AM	2	33	0	0	3	41	0	0	0	0	0	0	*79*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	39	184	0	0	39	324	0	0	0	0	0	0	*586*
7:15 AM	---	8:15 AM	34	184	0	0	36	325	0	0	0	0	0	0	*579*
7:30 AM	---	8:30 AM	37	172	0	0	28	278	0	0	0	0	0	0	*515*
7:45 AM	---	8:45 AM	28	144	0	0	23	227	0	0	0	0	0	0	*422*
8:00 AM	---	9:00 AM	20	113	0	0	20	188	0	0	0	0	0	0	*341*

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BAYMETRICS TRAFFIC RESOURCES

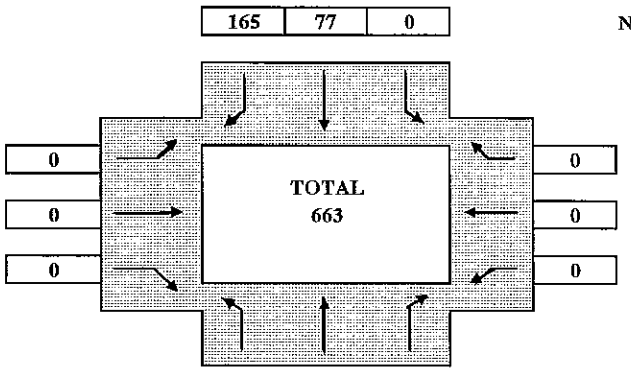
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Willow Pass Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	N. Parkside Drive WB Ramps	CITY:	Pittsburg	FILE:	WPNPDWBR-PM

PEAK HOUR

04:15 PM TO 05:15 PM

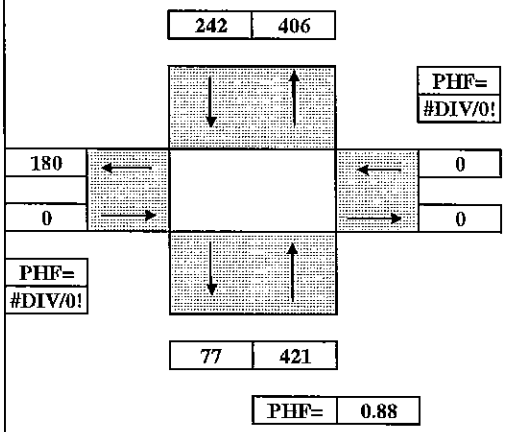
NORTH



N. Parkside Drive WB Ramps

Willow Pass Road

ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	5	99	0	0	13	36	0	0	0	0	0	0	*153*
4:15 PM	---	4:30 PM	9	208	0	0	34	70	0	0	0	0	0	0	*321*
4:30 PM	---	4:45 PM	14	293	0	0	53	111	0	0	0	0	0	0	*471*
4:45 PM	---	5:00 PM	18	387	0	0	64	151	0	0	0	0	0	0	*620*
5:00 PM	---	5:15 PM	20	505	0	0	90	201	0	0	0	0	0	0	*816*
5:15 PM	---	5:30 PM	26	594	0	0	108	240	0	0	0	0	0	0	*968*
5:30 PM	---	5:45 PM	35	689	0	0	127	268	0	0	0	0	0	0	*1,119*
5:45 PM	---	6:00 PM	44	751	0	0	147	290	0	0	0	0	0	0	*1,232*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	5	99	0	0	13	36	0	0	0	0	0	0	*153*
4:15 PM	---	4:30 PM	4	109	0	0	21	34	0	0	0	0	0	0	*168*
4:30 PM	---	4:45 PM	5	85	0	0	19	41	0	0	0	0	0	0	*150*
4:45 PM	---	5:00 PM	4	94	0	0	11	40	0	0	0	0	0	0	*149*
5:00 PM	---	5:15 PM	2	118	0	0	26	50	0	0	0	0	0	0	*196*
5:15 PM	---	5:30 PM	6	89	0	0	18	39	0	0	0	0	0	0	*152*
5:30 PM	---	5:45 PM	9	95	0	0	19	28	0	0	0	0	0	0	*151*
5:45 PM	---	6:00 PM	9	62	0	0	20	22	0	0	0	0	0	0	*113*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	18	387	0	0	64	151	0	0	0	0	0	0	*620*
4:15 PM	---	5:15 PM	15	406	0	0	77	165	0	0	0	0	0	0	*663*
4:30 PM	---	5:30 PM	17	386	0	0	74	170	0	0	0	0	0	0	*647*
4:45 PM	---	5:45 PM	21	396	0	0	74	157	0	0	0	0	0	0	*648*
5:00 PM	---	6:00 PM	26	364	0	0	83	139	0	0	0	0	0	0	*612*

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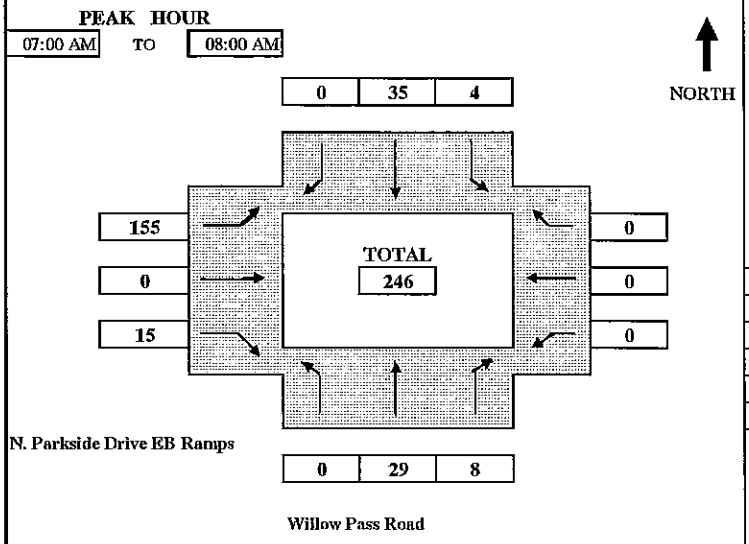
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

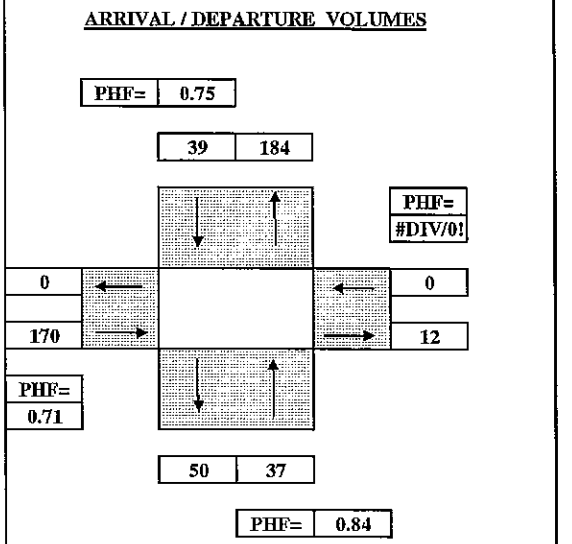
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Willow Pass Road	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	N. Parkside Drive EB Ramps	CITY:	Pittsburg	FILE:	WPNPDEBR-AM

PEAK HOUR

07:00 AM TO 08:00 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	0	7	2	0	13	0	16	0	4	0	0	0	*42*
7:15 AM	---	7:30 AM	0	13	4	2	23	0	46	0	6	0	0	0	*94*
7:30 AM	---	7:45 AM	0	21	7	3	30	0	99	0	11	0	0	0	*171*
7:45 AM	---	8:00 AM	0	29	8	4	35	0	155	0	15	0	0	0	*246*
8:00 AM	---	8:15 AM	0	33	9	6	43	0	174	0	15	0	0	0	*280*
8:15 AM	---	8:30 AM	0	35	11	8	45	0	196	0	17	0	0	0	*312*
8:30 AM	---	8:45 AM	0	40	11	8	48	0	224	0	21	0	0	0	*352*
8:45 AM	---	9:00 AM	0	45	11	8	51	0	252	0	25	0	0	0	*392*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	0	7	2	0	13	0	16	0	4	0	0	0	*42*
7:15 AM	---	7:30 AM	0	6	2	2	10	0	30	0	2	0	0	0	*52*
7:30 AM	---	7:45 AM	0	8	3	1	7	0	53	0	5	0	0	0	*77*
7:45 AM	---	8:00 AM	0	8	1	1	5	0	56	0	4	0	0	0	*75*
8:00 AM	---	8:15 AM	0	4	1	2	8	0	19	0	0	0	0	0	*34*
8:15 AM	---	8:30 AM	0	2	2	2	2	0	22	0	2	0	0	0	*32*
8:30 AM	---	8:45 AM	0	5	0	0	3	0	28	0	4	0	0	0	*40*
8:45 AM	---	9:00 AM	0	5	0	0	3	0	28	0	4	0	0	0	*40*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	0	29	8	4	35	0	155	0	15	0	0	0	*246*
7:15 AM	---	8:15 AM	0	26	7	6	30	0	158	0	11	0	0	0	*238*
7:30 AM	---	8:30 AM	0	22	7	6	22	0	150	0	11	0	0	0	*218*
7:45 AM	---	8:45 AM	0	19	4	5	18	0	125	0	10	0	0	0	*181*
8:00 AM	---	9:00 AM	0	16	3	4	16	0	97	0	10	0	0	0	*146*

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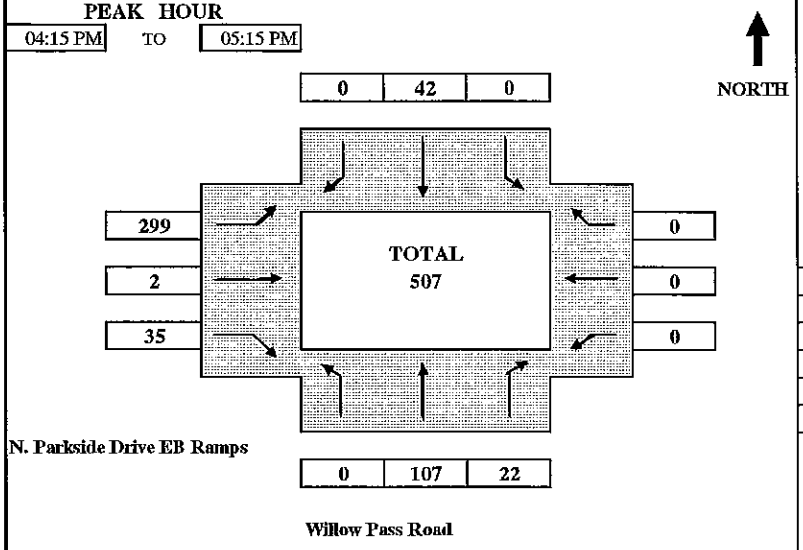
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

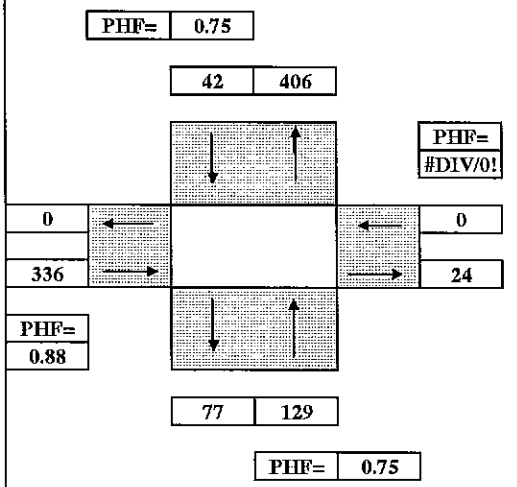
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Willow Pass Road	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	N. Parkside Drive EB Ramps	CITY:	Pittsburg	FILE:	WPNPDEBR-PM

PEAK HOUR

04:15 PM TO 05:15 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	0	20	5	0	5	0	79	1	8	0	0	0	*118*
4:15 PM	---	4:30 PM	0	45	8	0	16	0	163	2	18	0	0	0	*252*
4:30 PM	---	4:45 PM	0	62	15	0	26	0	231	2	27	0	0	0	*363*
4:45 PM	---	5:00 PM	0	91	20	0	33	0	296	3	31	0	0	0	*474*
5:00 PM	---	5:15 PM	0	127	27	0	47	0	378	3	43	0	0	0	*625*
5:15 PM	---	5:30 PM	0	151	28	0	54	0	443	3	54	0	0	0	*733*
5:30 PM	---	5:45 PM	0	176	33	0	58	0	513	3	69	0	0	0	*852*
5:45 PM	---	6:00 PM	0	178	36	0	63	0	573	4	84	0	0	0	*938*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	0	20	5	0	5	0	79	1	8	0	0	0	*118*
4:15 PM	---	4:30 PM	0	25	3	0	11	0	84	1	10	0	0	0	*134*
4:30 PM	---	4:45 PM	0	17	7	0	10	0	68	0	9	0	0	0	*111*
4:45 PM	---	5:00 PM	0	29	5	0	7	0	65	1	4	0	0	0	*111*
5:00 PM	---	5:15 PM	0	36	7	0	14	0	82	0	12	0	0	0	*151*
5:15 PM	---	5:30 PM	0	24	1	0	7	0	65	0	11	0	0	0	*108*
5:30 PM	---	5:45 PM	0	25	5	0	4	0	70	0	15	0	0	0	*119*
5:45 PM	---	6:00 PM	0	2	3	0	5	0	60	1	15	0	0	0	*86*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	0	91	20	0	33	0	296	3	31	0	0	0	*474*
4:15 PM	---	5:15 PM	0	107	22	0	42	0	299	2	35	0	0	0	*507*
4:30 PM	---	5:30 PM	0	106	20	0	38	0	280	1	36	0	0	0	*481*
4:45 PM	---	5:45 PM	0	114	18	0	32	0	282	1	42	0	0	0	*489*
5:00 PM	---	6:00 PM	0	87	16	0	30	0	277	1	53	0	0	0	*464*

Telephone: (510)232-1271 Fax: (510)232-1272

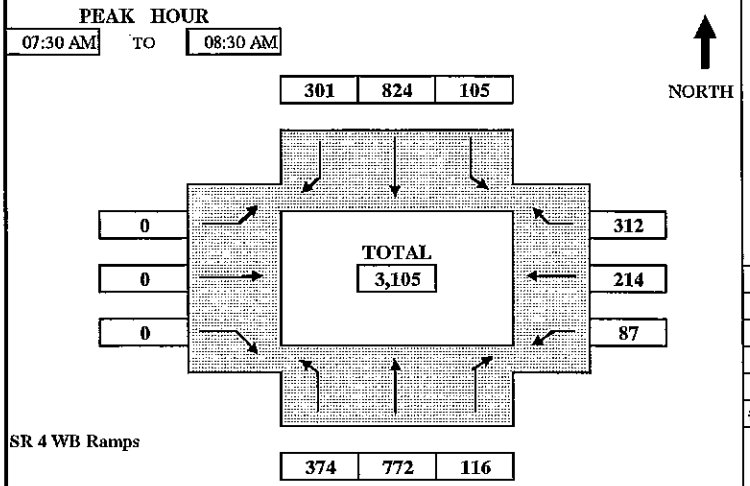
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

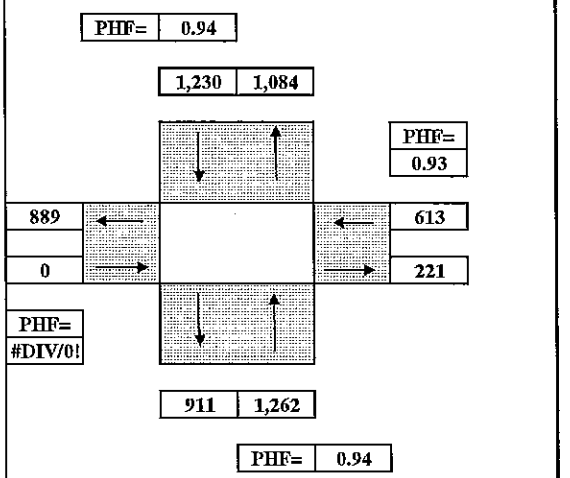
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	SR 4 WB Ramps	CITY:	Pittsburg	FILE:	RRAR4WBR-AM

PEAK HOUR

07:30 AM TO 08:30 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	129	149	11	12	108	95	0	0	0	8	68	42	*622*
7:15 AM	---	7:30 AM	241	317	25	34	260	202	0	0	0	20	137	88	*1,324*
7:30 AM	---	7:45 AM	354	522	43	66	446	290	0	0	0	38	197	156	*2,112*
7:45 AM	---	8:00 AM	432	736	81	102	657	369	0	0	0	64	249	241	*2,931*
8:00 AM	---	8:15 AM	528	919	113	124	878	435	0	0	0	88	290	316	*3,691*
8:15 AM	---	8:30 AM	615	1,089	141	139	1,084	503	0	0	0	107	351	400	*4,429*
8:30 AM	---	8:45 AM	713	1,244	166	153	1,256	564	0	0	0	125	400	464	*5,085*
8:45 AM	---	9:00 AM	818	1,376	186	164	1,394	618	0	0	0	139	460	522	*5,677*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	129	149	11	12	108	95	0	0	0	8	68	42	*622*
7:15 AM	---	7:30 AM	112	168	14	22	152	107	0	0	0	12	69	46	*702*
7:30 AM	---	7:45 AM	113	205	18	32	186	88	0	0	0	18	60	68	*788*
7:45 AM	---	8:00 AM	78	214	38	36	211	79	0	0	0	26	52	85	*819*
8:00 AM	---	8:15 AM	96	183	32	22	221	66	0	0	0	24	41	75	*760*
8:15 AM	---	8:30 AM	87	170	28	15	206	68	0	0	0	19	61	84	*738*
8:30 AM	---	8:45 AM	98	155	25	14	172	61	0	0	0	18	49	64	*656*
8:45 AM	---	9:00 AM	105	132	20	11	138	54	0	0	0	14	60	58	*592*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	432	736	81	102	657	369	0	0	0	64	249	241	*2,931*
7:15 AM	---	8:15 AM	399	770	102	112	770	340	0	0	0	80	222	274	*3,069*
7:30 AM	---	8:30 AM	374	772	116	105	824	301	0	0	0	87	214	312	*3,105*
7:45 AM	---	8:45 AM	359	722	123	87	810	274	0	0	0	87	203	308	*2,973*
8:00 AM	---	9:00 AM	386	640	105	62	737	249	0	0	0	75	211	281	*2,746*

Telephone: (510)232-1271 Fax: (510)232-1272

BAYMETRICS TRAFFIC RESOURCES

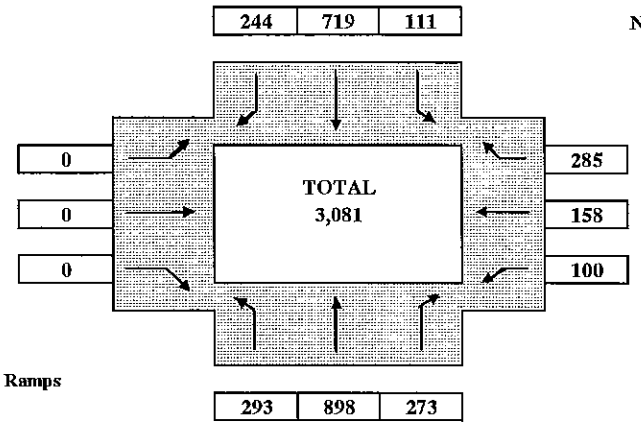
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	SR 4 WB Ramps	CITY:	Pittsburg	FILE:	RRAR4WBR-PM

PEAK HOUR

04:15 PM TO 05:15 PM

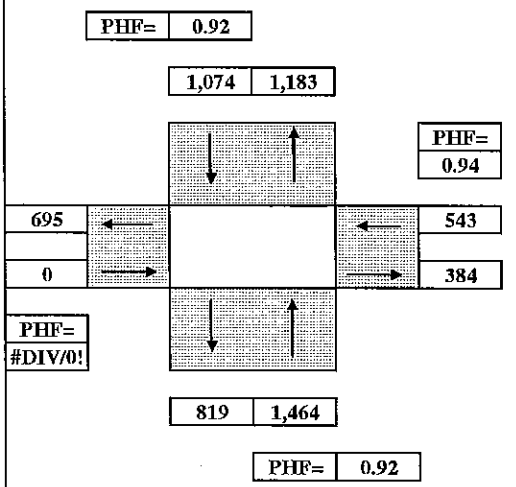
NORTH



SR 4 WB Ramps

Railroad Avenue

ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	78	219	74	31	169	61	0	0	0	26	37	77	*772*
4:15 PM	---	4:30 PM	156	461	154	60	344	113	0	0	0	50	77	158	*1,573*
4:30 PM	---	4:45 PM	219	688	226	85	540	185	0	0	0	81	113	224	*2,361*
4:45 PM	---	5:00 PM	288	887	284	118	720	243	0	0	0	107	145	287	*3,079*
5:00 PM	---	5:15 PM	371	1,117	347	142	888	305	0	0	0	126	195	362	*3,853*
5:15 PM	---	5:30 PM	449	1,301	399	168	1,066	356	0	0	0	146	233	447	*4,565*
5:30 PM	---	5:45 PM	535	1,480	459	190	1,236	420	0	0	0	164	262	529	*5,275*
5:45 PM	---	6:00 PM	606	1,680	510	215	1,418	480	0	0	0	180	293	607	*5,989*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	78	219	74	31	169	61	0	0	0	26	37	77	*772*
4:15 PM	---	4:30 PM	78	242	80	29	175	52	0	0	0	24	40	81	*801*
4:30 PM	---	4:45 PM	63	227	72	25	196	72	0	0	0	31	36	66	*788*
4:45 PM	---	5:00 PM	69	199	58	33	180	58	0	0	0	26	32	63	*718*
5:00 PM	---	5:15 PM	83	230	63	24	168	62	0	0	0	19	50	75	*774*
5:15 PM	---	5:30 PM	78	184	52	26	178	51	0	0	0	20	38	85	*712*
5:30 PM	---	5:45 PM	86	179	60	22	170	64	0	0	0	18	29	82	*710*
5:45 PM	---	6:00 PM	71	200	51	25	182	60	0	0	0	16	31	78	*714*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	288	887	284	118	720	243	0	0	0	107	145	287	*3,079*
4:15 PM	---	5:15 PM	293	898	273	111	719	244	0	0	0	100	158	285	*3,081*
4:30 PM	---	5:30 PM	293	840	245	108	722	243	0	0	0	96	156	289	*2,992*
4:45 PM	---	5:45 PM	316	792	233	105	696	235	0	0	0	83	149	305	*2,914*
5:00 PM	---	6:00 PM	318	793	226	97	698	237	0	0	0	73	148	320	*2,910*

Telephone: (510)232-1271 Fax: (510)232-1272

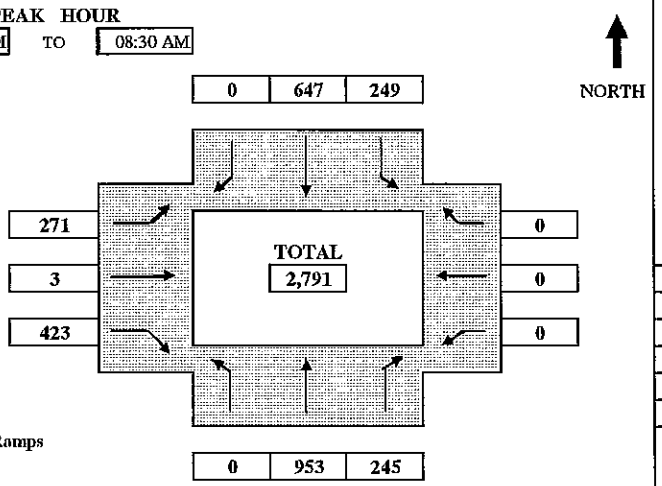
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

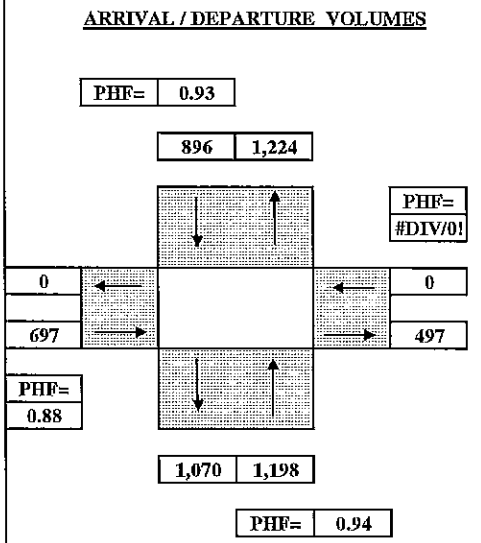
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	SR 4 EB Ramps	CITY:	Pittsburg	FILE:	RRAR4EBR-AM

PEAK HOUR

07:30 AM TO 08:30 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	0	254	48	41	78	0	55	0	82	0	0	0	*558*
7:15 AM	---	7:30 AM	0	503	104	87	203	0	117	0	185	0	0	0	*1,199*
7:30 AM	---	7:45 AM	0	728	178	142	345	0	192	1	307	0	0	0	*1,893*
7:45 AM	---	8:00 AM	0	989	234	208	511	0	266	2	411	0	0	0	*2,621*
8:00 AM	---	8:15 AM	0	1,245	286	273	688	0	334	2	508	0	0	0	*3,336*
8:15 AM	---	8:30 AM	0	1,456	349	336	850	0	388	3	608	0	0	0	*3,990*
8:30 AM	---	8:45 AM	0	1,695	394	390	991	0	433	3	689	0	0	0	*4,595*
8:45 AM	---	9:00 AM	0	1,907	441	431	1,111	0	475	3	792	0	0	0	*5,160*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	0	254	48	41	78	0	55	0	82	0	0	0	*558*
7:15 AM	---	7:30 AM	0	249	56	46	125	0	62	0	103	0	0	0	*641*
7:30 AM	---	7:45 AM	0	225	74	55	142	0	75	1	122	0	0	0	*694*
7:45 AM	---	8:00 AM	0	261	56	66	166	0	74	1	104	0	0	0	*728*
8:00 AM	---	8:15 AM	0	256	52	65	177	0	68	0	97	0	0	0	*715*
8:15 AM	---	8:30 AM	0	211	63	63	162	0	54	1	100	0	0	0	*654*
8:30 AM	---	8:45 AM	0	239	45	54	141	0	45	0	81	0	0	0	*605*
8:45 AM	---	9:00 AM	0	212	47	41	120	0	42	0	103	0	0	0	*565*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	0	989	234	208	511	0	266	2	411	0	0	0	*2,621*
7:15 AM	---	8:15 AM	0	991	238	232	610	0	279	2	426	0	0	0	*2,778*
7:30 AM	---	8:30 AM	0	953	245	249	647	0	271	3	423	0	0	0	*2,791*
7:45 AM	---	8:45 AM	0	967	216	248	646	0	241	2	382	0	0	0	*2,702*
8:00 AM	---	9:00 AM	0	918	207	223	600	0	209	1	381	0	0	0	*2,539*

Telephone: (510)232-1271 Fax: (510)232-1272

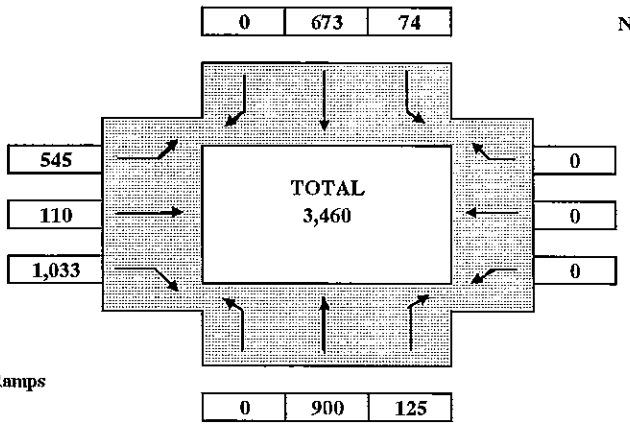
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

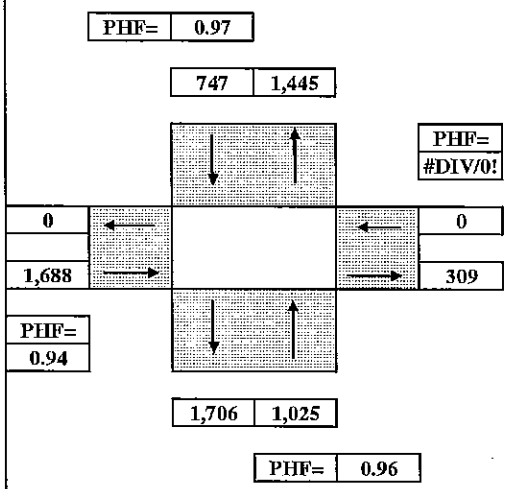
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	SR 4 EB Ramps	CITY:	Pittsburg	FILE:	RRAR4EBR-PM

PEAK HOUR

05:00 PM TO 06:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	0	187	17	20	203	0	154	24	241	0	0	0	*846*
4:15 PM	---	4:30 PM	0	392	52	44	398	0	278	54	469	0	0	0	*1,687*
4:30 PM	---	4:45 PM	0	598	85	73	577	0	420	85	711	0	0	0	*2,549*
4:45 PM	---	5:00 PM	0	768	108	87	747	0	552	113	954	0	0	0	*3,329*
5:00 PM	---	5:15 PM	0	995	137	118	906	0	690	144	1,218	0	0	0	*4,208*
5:15 PM	---	5:30 PM	0	1,198	181	126	1,077	0	839	170	1,493	0	0	0	*5,084*
5:30 PM	---	5:45 PM	0	1,436	209	144	1,251	0	969	195	1,740	0	0	0	*5,944*
5:45 PM	---	6:00 PM	0	1,668	233	161	1,420	0	1,097	223	1,987	0	0	0	*6,789*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	0	187	17	20	203	0	154	24	241	0	0	0	*846*
4:15 PM	---	4:30 PM	0	205	35	24	195	0	124	30	228	0	0	0	*841*
4:30 PM	---	4:45 PM	0	206	33	29	179	0	142	31	242	0	0	0	*862*
4:45 PM	---	5:00 PM	0	170	23	14	170	0	132	28	243	0	0	0	*780*
5:00 PM	---	5:15 PM	0	227	29	31	159	0	138	31	264	0	0	0	*879*
5:15 PM	---	5:30 PM	0	203	44	8	171	0	149	26	275	0	0	0	*876*
5:30 PM	---	5:45 PM	0	238	28	18	174	0	130	25	247	0	0	0	*860*
5:45 PM	---	6:00 PM	0	232	24	17	169	0	128	28	247	0	0	0	*845*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	0	768	108	87	747	0	552	113	954	0	0	0	*3,329*
4:15 PM	---	5:15 PM	0	808	120	98	703	0	536	120	977	0	0	0	*3,362*
4:30 PM	---	5:30 PM	0	806	129	82	679	0	561	116	1,024	0	0	0	*3,397*
4:45 PM	---	5:45 PM	0	838	124	71	674	0	549	110	1,029	0	0	0	*3,395*
5:00 PM	---	6:00 PM	0	900	125	74	673	0	545	110	1,033	0	0	0	*3,460*

Telephone: (510)232-1271 Fax: (510)232-1272

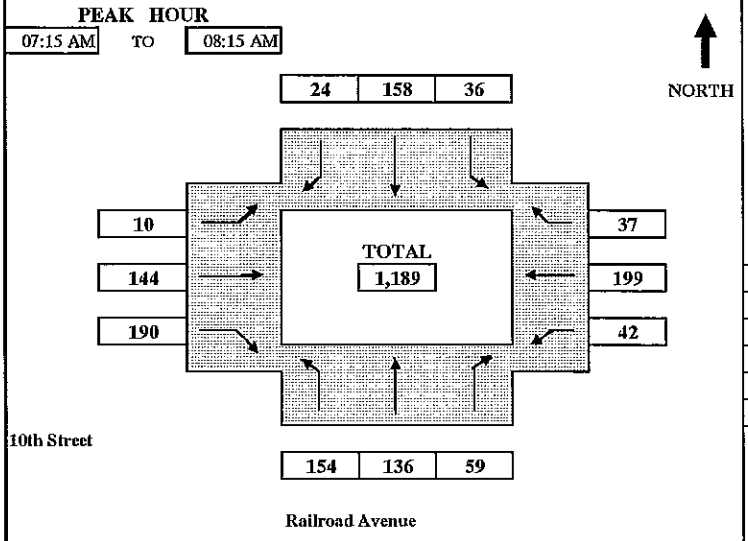
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

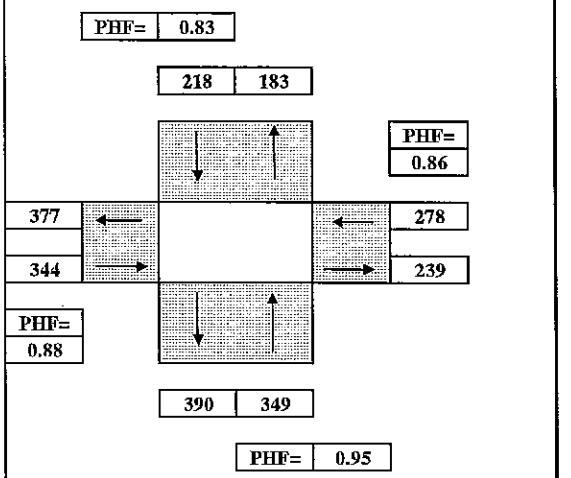
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	10th Street	CITY:	Pittsburg	FILE:	RRA10ST-AM

PEAK HOUR

07:15 AM TO 08:15 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 AM	32	24	11	3	34	9	2	21	40	8	77	5	*266*
7:15 AM	---	7:30 AM	70	56	31	10	60	15	4	49	95	21	128	14	*553*
7:30 AM	---	7:45 AM	102	88	43	21	95	21	7	92	131	51	173	20	*844*
7:45 AM	---	8:00 AM	144	124	56	24	141	33	11	131	186	42	221	29	*1,142*
8:00 AM	---	8:15 AM	186	160	70	39	192	33	12	165	230	50	276	42	*1,455*
8:15 AM	---	8:30 AM	218	199	79	47	226	38	13	198	260	59	311	49	*1,697*
8:30 AM	---	8:45 AM	239	246	86	56	265	39	16	233	284	73	346	62	*1,945*
8:45 AM	---	9:00 AM	261	281	95	61	292	42	21	266	321	83	378	73	*2,174*
TOTAL BY PERIOD															
7:00 AM	---	7:15 AM	32	24	11	3	34	9	2	21	40	8	77	5	*266*
7:15 AM	---	7:30 AM	38	32	20	7	26	6	2	28	55	13	51	9	*287*
7:30 AM	---	7:45 AM	32	32	12	11	35	6	3	43	36	30	45	6	*291*
7:45 AM	---	8:00 AM	42	36	13	3	46	12	4	39	55	-9	48	9	*298*
8:00 AM	---	8:15 AM	42	36	14	15	51	0	1	34	44	8	55	13	*313*
8:15 AM	---	8:30 AM	32	39	9	8	34	5	1	33	30	9	35	7	*242*
8:30 AM	---	8:45 AM	21	47	7	9	39	1	3	35	24	14	35	13	*248*
8:45 AM	---	9:00 AM	22	35	9	5	27	3	5	33	37	10	32	11	*229*
HOURLY TOTALS															
7:00 AM	---	8:00 AM	144	124	56	24	141	33	11	131	186	42	221	29	*1,142*
7:15 AM	---	8:15 AM	154	136	59	36	158	24	10	144	190	42	199	37	*1,189*
7:30 AM	---	8:30 AM	148	143	48	37	166	23	9	149	165	38	183	35	*1,144*
7:45 AM	---	8:45 AM	137	158	43	35	170	18	9	141	153	22	173	42	*1,101*
8:00 AM	---	9:00 AM	117	157	39	37	151	9	10	135	135	41	157	44	*1,032*

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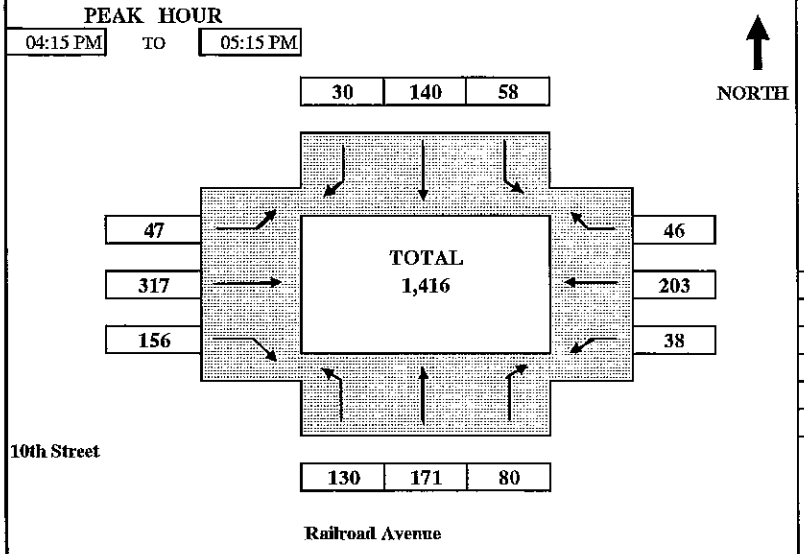
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

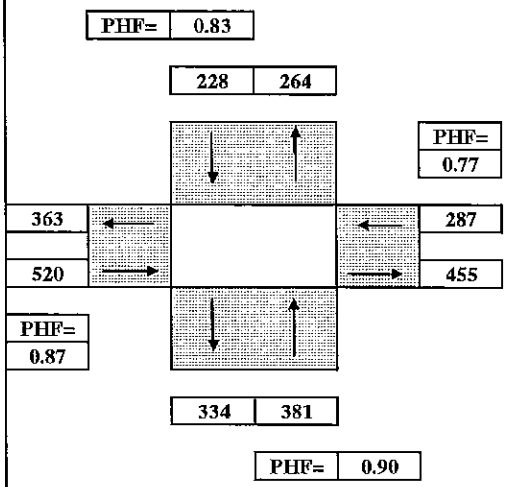
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Railroad Avenue	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	10th Street	CITY: Pittsburg		FILE:	RRA10ST-PM

PEAK HOUR

04:15 PM TO 05:15 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	45	39	15	5	46	2	11	67	36	16	42	16	*340*
4:15 PM	---	4:30 PM	83	87	35	21	92	9	16	124	75	26	87	32	*687*
4:30 PM	---	4:45 PM	123	137	51	37	133	12	29	199	119	38	119	46	*1,043*
4:45 PM	---	5:00 PM	149	164	75	52	164	21	40	304	152	45	166	57	*1,389*
5:00 PM	---	5:15 PM	175	210	95	63	186	32	58	384	192	54	245	62	*1,756*
5:15 PM	---	5:30 PM	187	254	108	74	207	52	72	452	210	67	276	72	*2,031*
5:30 PM	---	5:45 PM	215	296	120	86	239	75	83	545	233	84	326	80	*2,382*
5:45 PM	---	6:00 PM	252	322	139	106	279	87	94	615	260	95	372	95	*2,716*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	45	39	15	5	46	2	11	67	36	16	42	16	*340*
4:15 PM	---	4:30 PM	38	48	20	16	46	7	5	57	39	10	45	16	*347*
4:30 PM	---	4:45 PM	40	50	16	16	41	3	13	75	44	12	32	14	*356*
4:45 PM	---	5:00 PM	26	27	24	15	31	9	11	105	33	7	47	11	*346*
5:00 PM	---	5:15 PM	26	46	20	11	22	11	18	80	40	9	79	5	*367*
5:15 PM	---	5:30 PM	12	44	13	11	21	20	14	68	18	13	31	10	*275*
5:30 PM	---	5:45 PM	28	42	12	12	32	23	11	93	23	17	50	8	*351*
5:45 PM	---	6:00 PM	37	26	19	20	40	12	11	70	27	11	46	15	*334*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	149	164	75	52	164	21	40	304	152	45	166	57	*1,389*
4:15 PM	---	5:15 PM	130	171	80	58	140	30	47	317	156	38	203	46	*1,416*
4:30 PM	---	5:30 PM	104	167	73	53	115	43	56	328	135	41	189	40	*1,344*
4:45 PM	---	5:45 PM	92	159	69	49	106	63	54	346	114	46	207	34	*1,339*
5:00 PM	---	6:00 PM	103	158	64	54	115	66	54	311	108	50	206	38	*1,327*

Telephone: (510)232-1271 Fax: (510)232-1272

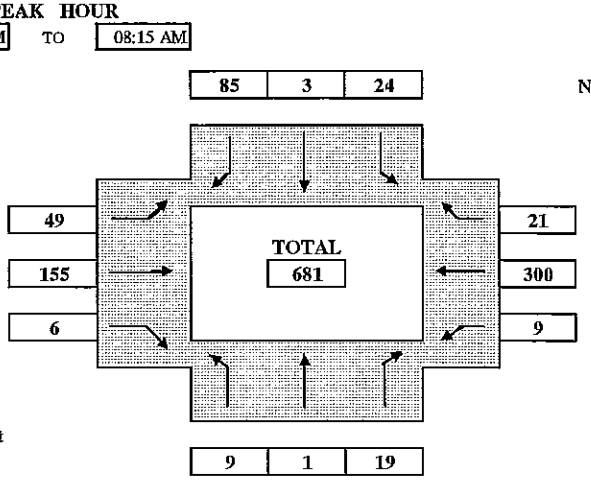
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

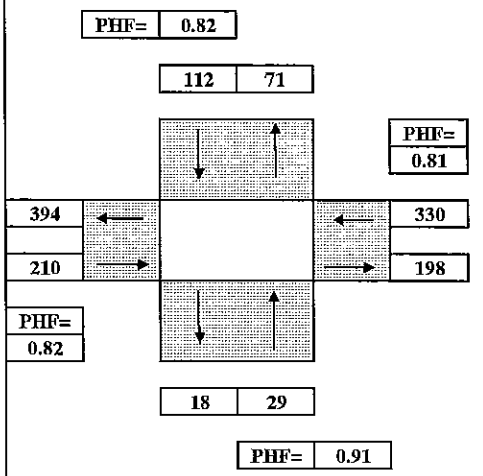
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Montezuma St-Herb White Way	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W Approach:	10th Street	CITY: Pittsburg		FILE:	MSHWW10S-AM

PEAK HOUR

07:15 AM TO 08:15 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From	To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA														
7:00 AM ---	7:15 AM	3	0	6	3	0	13	5	30	0	6	90	4	*160*
7:15 AM ---	7:30 AM	6	0	9	8	0	31	13	65	2	8	181	13	*336*
7:30 AM ---	7:45 AM	7	0	16	12	1	51	17	109	3	9	244	20	*489*
7:45 AM ---	8:00 AM	10	1	20	18	3	73	38	150	5	12	308	21	*659*
8:00 AM ---	8:15 AM	12	1	25	27	3	98	54	185	6	15	390	25	*841*
8:15 AM ---	8:30 AM	12	1	28	33	4	113	55	220	7	18	429	29	*949*
8:30 AM ---	8:45 AM	15	2	31	35	4	116	57	256	10	18	467	31	*1,042*
8:45 AM ---	9:00 AM	16	2	34	36	4	126	58	291	10	21	517	33	*1,148*
TOTAL BY PERIOD														
7:00 AM ---	7:15 AM	3	0	6	3	0	13	5	30	0	6	90	4	*160*
7:15 AM ---	7:30 AM	3	0	3	5	0	18	8	35	2	2	91	9	*176*
7:30 AM ---	7:45 AM	1	0	7	4	1	20	4	44	1	1	63	7	*153*
7:45 AM ---	8:00 AM	3	1	4	6	2	22	21	41	2	3	64	1	*170*
8:00 AM ---	8:15 AM	2	0	5	9	0	25	16	35	1	3	82	4	*182*
8:15 AM ---	8:30 AM	0	0	3	6	1	15	1	35	1	3	39	4	*108*
8:30 AM ---	8:45 AM	3	1	3	2	0	3	2	36	3	0	38	2	*93*
8:45 AM ---	9:00 AM	1	0	3	1	0	10	1	35	0	3	50	2	*106*
HOURLY TOTALS														
7:00 AM ---	8:00 AM	10	1	20	18	3	73	38	150	5	12	308	21	*659*
7:15 AM ---	8:15 AM	9	1	19	24	3	85	49	155	6	9	300	21	*681*
7:30 AM ---	8:30 AM	6	1	19	25	4	82	42	155	5	10	248	16	*613*
7:45 AM ---	8:45 AM	8	2	15	23	3	65	40	147	7	9	223	11	*553*
8:00 AM ---	9:00 AM	6	1	14	18	1	53	20	141	5	9	209	12	*489*

Telephone: (510)232-1271 Fax: (510)232-1272

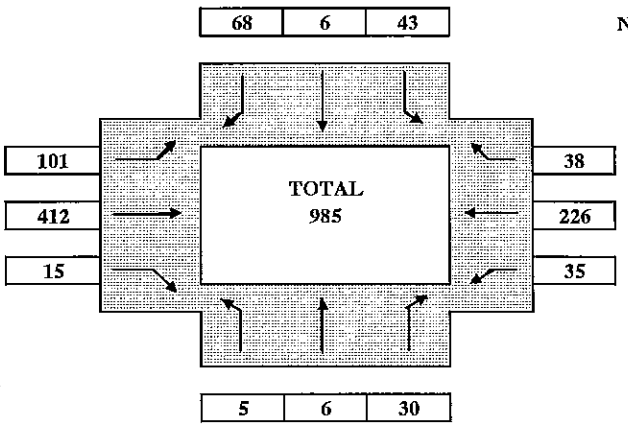
BAYMETRICS TRAFFIC RESOURCES

INTERSECTION TURNING MOVEMENT SUMMARY

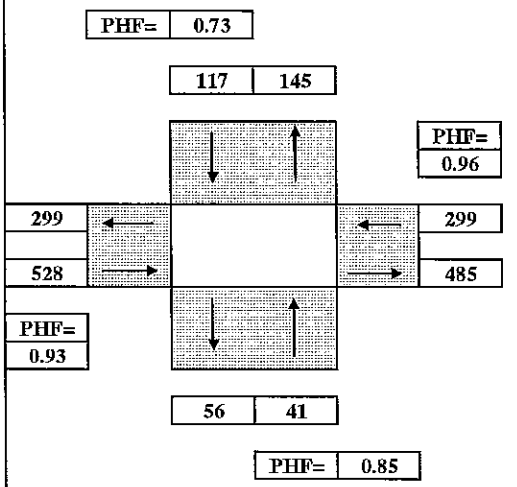
PROJECT:	Mirant Power Plant	SURVEY DATE:	11/13/2007	DAY:	Tuesday
N-S Approach:	Montezuma St-Herb White Way	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W Approach:	10th Street	CITY:	Pittsburg	FILE:	MSHWW10S-PM

PEAK HOUR

04:00 PM TO 05:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 PM	2	0	7	4	2	8	15	100	6	12	56	10	*222*
4:15 PM	---	4:30 PM	2	3	14	18	3	32	62	193	8	16	116	23	*490*
4:30 PM	---	4:45 PM	4	4	21	31	6	56	85	294	9	26	170	30	*736*
4:45 PM	---	5:00 PM	5	6	30	43	6	68	101	412	15	35	226	38	*985*
5:00 PM	---	5:15 PM	6	6	38	53	6	84	120	495	17	42	293	46	*1,206*
5:15 PM	---	5:30 PM	8	6	44	59	6	93	140	579	23	52	339	50	*1,399*
5:30 PM	---	5:45 PM	10	7	48	60	7	99	152	664	24	59	379	66	*1,575*
5:45 PM	---	6:00 PM	14	7	54	63	8	103	163	734	27	67	419	72	*1,731*
TOTAL BY PERIOD															
4:00 PM	---	4:15 PM	2	0	7	4	2	8	15	100	6	12	56	10	*222*
4:15 PM	---	4:30 PM	0	3	7	14	1	24	47	93	2	4	60	13	*268*
4:30 PM	---	4:45 PM	2	1	7	13	3	24	23	101	1	10	54	7	*246*
4:45 PM	---	5:00 PM	1	2	9	12	0	12	16	118	6	9	56	8	*249*
5:00 PM	---	5:15 PM	1	0	8	10	0	16	19	83	2	7	67	8	*221*
5:15 PM	---	5:30 PM	2	0	6	6	0	9	20	84	6	10	46	4	*193*
5:30 PM	---	5:45 PM	2	1	4	1	1	6	12	85	1	7	40	16	*176*
5:45 PM	---	6:00 PM	4	0	6	3	1	4	11	70	3	8	40	6	*156*
HOURLY TOTALS															
4:00 PM	---	5:00 PM	5	6	30	43	6	68	101	412	15	35	226	38	*985*
4:15 PM	---	5:15 PM	4	6	31	49	4	76	105	395	11	30	237	36	*984*
4:30 PM	---	5:30 PM	6	3	30	41	3	61	78	386	15	36	223	27	*909*
4:45 PM	---	5:45 PM	6	3	27	29	1	43	67	370	15	33	209	36	*839*
5:00 PM	---	6:00 PM	9	1	24	20	2	35	62	322	12	32	193	34	*746*

Telephone: (510)232-1271 Fax: (510)232-1272

Appendix P2
Existing Conditions – Level of Service Analysis

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_EX                                                  05/27/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            122  392  127
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---  119  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    2.2<---  259  THRU  Route 4 WB Ramps

RIGHT  225 ---  1.9    2.0  3.1  1.1   1.1 ---  171  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   341  523  169                          Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      169        169       1650      0.1024
    THRU (T)       523        523       4950      0.1057
    LEFT (L)       341        341       3000      0.1137      0.1137
    T + R                     692       4950      0.1398
--------------------------------------------------------------------------
SB  RIGHT (R)      122        122       1650      0.0739
    THRU (T)       392        392       3300      0.1188
    LEFT (L)       127        127       1650      0.0770
    T + R                     514       3300      0.1558      0.1558
--------------------------------------------------------------------------
EB  RIGHT (R)      225        225       1650      0.1364
--------------------------------------------------------------------------
WB  RIGHT (R)      119        119       1650      0.0721
    THRU (T)       259        259       3300      0.0785
    LEFT (L)       171        171       1650      0.1036
    T + R                     378       3300      0.1145
    T + L                     430       3300      0.1303
    T + R + L                 549       3300      0.1664      0.1664
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.44
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_EX                                                  05/27/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            124  327   37
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---   33  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  112  THRU  Route 4 WB Ramps

RIGHT  245 ---  1.9    2.0  3.1  1.1   1.1 ---   91  LEFT
             |         <---   ^   --->       |
             v           |    |    |         v
  N                      |    |    |                      SIG WARRANTS:
W + E                   236  562  323                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      323        323       1650      0.1958     0.1958
    THRU (T)       562        562       4950      0.1135
    LEFT (L)       236        236       3000      0.0787
    T + R                     885       4950      0.1788
--------------------------------------------------------------------------
SB  RIGHT (R)      124        124       1650      0.0752
    THRU (T)       327        327       3300      0.0991
    LEFT (L)        37         37       1650      0.0224     0.0224
    T + R                     451       3300      0.1367
--------------------------------------------------------------------------
EB  RIGHT (R)      245        245       1650      0.1485
--------------------------------------------------------------------------
WB  RIGHT (R)       33         33       1650      0.0200
    THRU (T)       112        112       3300      0.0339
    LEFT (L)        91         91       1650      0.0552
    T + R                     145       3300      0.0439
    T + L                     203       3300      0.0615
    T + R + L                 236       3300      0.0715     0.0715
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.29
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_EX                                                  05/27/08
==========================================================================
INTERSECTION     2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour AM
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            233  553  201
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     94 ---  1.1   1.9  2.0  2.0   1.9 ---  190  RIGHT
                                                          STREET NAME:
THRU    115 ---> 2.1  (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT   168 ---  1.8   0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    0  640  224                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     224        224       1720      0.1302
    THRU (T)      640        640       3440      0.1860     0.1860
--------------------------------------------------------------------------
SB  RIGHT (R)     233        233       1720      0.1355
    THRU (T)      553        553       3440      0.1608     0.1608
    LEFT (L)      201        201       3127      0.0643
--------------------------------------------------------------------------
EB  RIGHT (R)     168          0 *     1720      0.0000
    THRU (T)      115        115       3440      0.0334
    LEFT (L)       94         94       1720      0.0547
    T + L                    209       3440      0.0608     0.0608
--------------------------------------------------------------------------
WB  RIGHT (R)     190        190       1720      0.1105
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.41
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_EX                                                  05/27/08
==========================================================================
INTERSECTION     2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            134  451  107
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   135 ---  1.1   1.9  2.0  2.0   1.9 ---  616  RIGHT
                                                          STREET NAME:
THRU   204 ---> 2.1  (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  490 ---  1.8   0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    0  531  114                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     114        114       1720      0.0663
    THRU (T)      531        531       3440      0.1544      0.1544
--------------------------------------------------------------------------
SB  RIGHT (R)     134        134       1720      0.0779
    THRU (T)      451        451       3440      0.1311      0.1311
    LEFT (L)      107        107       3127      0.0342
--------------------------------------------------------------------------
EB  RIGHT (R)     490          0 *     1720      0.0000
    THRU (T)      204        204       3440      0.0593
    LEFT (L)      135        135       1720      0.0785
    T + L                    339       3440      0.0985      0.0985
--------------------------------------------------------------------------
WB  RIGHT (R)     616        616       1720      0.3581
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.38
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==============================================================================
Condition: AM_EX                                                     05/27/08
==============================================================================
INTERSECTION      3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                      Time                 Peak Hour
------------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                          3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      0 ---  0.0    0.0  0.0  0.0    0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU     78 ---> 1.0   (NO. OF LANES)    2.0<---   330  THRU  Willow Pass Rd.

RIGHT    55 ---  1.8    1.0  0.0  1.0    1.0 ---    73  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   127    0   38                          Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
==============================================================================
                 ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*    CAPACITY    RATIO       V/C
------------------------------------------------------------------------------
NB  RIGHT (R)       38          0 *      1720      0.0000
    LEFT (L)       127        127        1720      0.0738     0.0738
------------------------------------------------------------------------------
EB  RIGHT (R)       55          0 *      1720      0.0000
    THRU (T)        78         78        1720      0.0453
------------------------------------------------------------------------------
WB  THRU (T)       330        330        3440      0.0959     0.0959
    LEFT (L)        73         73        1720      0.0424
==============================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.17
     INTERSECTION LEVEL OF SERVICE:                                  A
==============================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=================================================================
Condition: PM_EX                                          05/27/08
=================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
-----------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                      STREET NAME:
THRU   342 ---> 1.0  (NO. OF LANES)   2.0<---  128  THRU  Willow Pass Rd.

RIGHT   76 ---  1.8   1.0  0.0  1.0   1.0 ---   86  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   148    0  216                       Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd.
=================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
-----------------------------------------------------------------
NB  RIGHT (R)     216        130 *     1720      0.0756
    LEFT (L)      148        148       1720      0.0860     0.0860
-----------------------------------------------------------------
EB  RIGHT (R)      76          0 *     1720      0.0000
    THRU (T)      342        342       1720      0.1988     0.1988
-----------------------------------------------------------------
WB  THRU (T)      128        128       3440      0.0372
    LEFT (L)       86         86       1720      0.0500     0.0500
=================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.33
     INTERSECTION LEVEL OF SERVICE:                              A
=================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_EX                                                 05/27/08
==========================================================================
INTERSECTION      4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------              8    8   43
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  1.0   1.1  1.1  1.1   1.1 ---    5  RIGHT
                                                          STREET NAME:
THRU    98 ---> 1.0  (NO. OF LANES)   1.1<---  319  THRU  Willow Pass Rd.

RIGHT   10 ---  1.0   1.1  1.1  1.1   1.0 ---   11  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    8    9   10                       Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      10          10       1650      0.0061
    THRU (T)        9           9       1650      0.0055
    LEFT (L)        8           8       1650      0.0048
    T + R                      19       1650      0.0115
    T + L                      17       1650      0.0103
    T + R + L                  27       1650      0.0164     0.0164
--------------------------------------------------------------------------
SB  RIGHT (R)       8           8       1650      0.0048
    THRU (T)        8           8       1650      0.0048
    LEFT (L)       43          43       1650      0.0261
    T + R                      16       1650      0.0097
    T + L                      51       1650      0.0309
    T + R + L                  59       1650      0.0358     0.0358
--------------------------------------------------------------------------
EB  RIGHT (R)      10           2 *     1650      0.0012
    THRU (T)       98          98       1650      0.0594
    LEFT (L)        0           0       1650      0.0000     0.0000
--------------------------------------------------------------------------
WB  RIGHT (R)       5           5       1650      0.0030
    THRU (T)      319         319       1650      0.1933
    LEFT (L)       11          11       1650      0.0067
    T + R                     324       1650      0.1964     0.1964
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.25
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_EX                                                  05/27/08
==========================================================================
INTERSECTION      4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------             33   12   20
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     5 ---  1.0   1.1  1.1  1.1   1.1 ---   10  RIGHT
                                                          STREET NAME:
THRU   475 ---> 1.0  (NO. OF LANES)   1.1<---  191  THRU  Willow Pass Rd.

RIGHT   23 ---  1.0   1.1  1.1  1.1   1.0 ---   23  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    8    0    6                       Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)       6          6        1650      0.0036
    THRU (T)        0          0        1650      0.0000
    LEFT (L)        8          8        1650      0.0048
    T + R                      6        1650      0.0036
    T + L                      8        1650      0.0048
    T + R + L                 14        1650      0.0085     0.0085
--------------------------------------------------------------------------
SB  RIGHT (R)      33         33        1650      0.0200
    THRU (T)       12         12        1650      0.0073
    LEFT (L)       20         20        1650      0.0121
    T + R                     45        1650      0.0273
    T + L                     32        1650      0.0194
    T + R + L                 65        1650      0.0394     0.0394
--------------------------------------------------------------------------
EB  RIGHT (R)      23         15 *      1650      0.0091
    THRU (T)      475        475        1650      0.2879     0.2879
    LEFT (L)        5          5        1650      0.0030
--------------------------------------------------------------------------
WB  RIGHT (R)      10         10        1650      0.0061
    THRU (T)      191        191        1650      0.1158
    LEFT (L)       23         23        1650      0.0139     0.0139
    T + R                    201        1650      0.1218
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.35
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 11.1 Worst Case Level Of Service: B[11.3]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	39	184	0	0	39	324	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	39	184	0	0	39	324	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	52	245	0	0	43	356	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	52	245	0	0	43	356	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	21	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	996	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	580	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.09	0.27	xxxx	xxxx	0.05	0.40	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.3	1.1	xxxxx	xxxx	0.1	1.9	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	11.8	10.5	xxxxx	xxxxx	9.2	11.6	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	B	*	*	A	B	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	10.7			11.3			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 11.8 Worst Case Level Of Service: B[13.0]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0	1 0	0	0 0	1 0	1	0 0	0 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	15	406	0	0	77	165	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	406	0	0	77	165	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.88	0.88	0.88	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	461	0	0	96	206	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	461	0	0	96	206	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	48	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	957	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	678	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.03	0.51	xxxx	xxxx	0.11	0.23	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1	3.0	xxxxx	xxxx	0.4	0.9	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	10.4	13.1	xxxxx	xxxxx	9.5	10.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	B	*	*	A	B	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		13.0			10.0			xxxxxx			xxxxxx	
ApproachLOS:		B			A			*			*	

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 7.3 Worst Case Level Of Service: B[10.1]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	29		8		4	35		0		155		0		15	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	29		8		4	35		0		155		0		15	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.84	0.84		0.84		0.75	0.75		0.75		0.71		0.71		0.71	1.00		1.00		1.00
PHF Volume:	0	35		10		5	47		0		218		0		21	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	0	35		10		5	47		0		218		0		21	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		44	xxxx		xxxxx		97		101		47	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		1577	xxxx		xxxxx		908		792		1028	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		1577	xxxx		xxxxx		905		790		1028	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		0.00	xxxx		xxxx		0.24		0.00		0.02	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx		xxxx		0.1	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		xxxxx		xxxx		8.6	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		A	*		*		*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		905		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		0.9		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		10.2		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		A	*		*		B		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					10.1					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 8.0 Worst Case Level Of Service: B[12.7]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0		107		22	0		42		0	299		2		35	0		0		0
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0		107		22	0		42		0	299		2		35	0		0		0
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.75		0.75		0.75	0.75		0.75		0.75	0.88		0.88		0.88	1.00		1.00		1.00
PHF Volume:	0		143		29	0		56		0	340		2		40	0		0		0
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		143		29	0		56		0	340		2		40	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4		6.5		6.2	xxxxx	xxxx		xxxxx	
FollowUpTim:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5		4.0		3.3	xxxxx	xxxx		xxxxx	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		213		228		56	xxxx	xxxx		xxxxx	
Potent Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		779		675		1016	xxxx	xxxx		xxxxx	
Move Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		779		675		1016	xxxx	xxxx		xxxxx	
Volume/Cap:	xxxx	xxxx		xxxx		xxxx	xxxx		xxxx		0.44		0.00		0.04	xxxx	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		xxxx		0.1	xxxx	xxxx		xxxxx	
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		xxxx		8.7	xxxxx	xxxx		xxxxx	
LOS by Move:	*	*		*		*	*		*		*		*		A	*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		779		xxxx		xxxxx	xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		2.3		xxxx		xxxxx	xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		13.2		xxxx		xxxxx	xxxxx	xxxx		xxxxx	
Shared LOS:	*	*		*		*	*		*		B		*		*	*	*		*	
ApproachDel:	xxxxxx					xxxxxx					12.7					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_EX                                                  05/27/08
==========================================================================
INTERSECTION      7 Railroad Ave./SR 4 WB Ramps        Contra Costa
Count Date                      Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            301  824  105
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.0  2.0  1.0   1.1 ---  312  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  214  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0    2.0  2.1  1.1   1.1 ---   87  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   374  772  116                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     116        116       1650      0.0703
    THRU (T)      772        772       3300      0.2339
    LEFT (L)      374        374       3000      0.1247     0.1247
    T + R                    888       3300      0.2691
--------------------------------------------------------------------------
SB  RIGHT (R)     301        301       1650      0.1824
    THRU (T)      824        824       3300      0.2497     0.2497
    LEFT (L)      105        105       1650      0.0636
--------------------------------------------------------------------------
WB  RIGHT (R)     312        312       1650      0.1891     0.1891
    THRU (T)      214        214       3300      0.0648
    LEFT (L)       87         87       1650      0.0527
    T + R                    526       3300      0.1594
    T + L                    301       3300      0.0912
    T + R + L                613       3300      0.1858
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.56
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_EX                                                  05/27/08
==========================================================================
INTERSECTION      7 Railroad Ave./SR 4 WB Ramps        Contra Costa
Count Date                      Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            244  719  111
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.0  2.0  1.0    1.1 ---  285  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    2.2<---  158  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0    2.0  2.1  1.1    1.1 ---  100  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   293  898  273                         Urb=Y, Rur=Y
  S                  · LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      273        273       1650      0.1655
    THRU (T)       898        898       3300      0.2721
    LEFT (L)       293        293       3000      0.0977
    T + R                    1171       3300      0.3548      0.3548
--------------------------------------------------------------------------
SB  RIGHT (R)      244        244       1650      0.1479
    THRU (T)       719        719       3300      0.2179
    LEFT (L)       111        111       1650      0.0673      0.0673
--------------------------------------------------------------------------
WB  RIGHT (R)      285        285       1650      0.1727      0.1727
    THRU (T)       158        158       3300      0.0479
    LEFT (L)       100        100       1650      0.0606
    T + R                     443       3300      0.1342
    T + L                     258       3300      0.0782
    T + R + L                 543       3300      0.1645
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.59
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_EX                                                  05/27/08
==========================================================================
INTERSECTION     8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  647  249
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   271 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU     3 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT  423 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                    0  953  245                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     245        245       1720      0.1424
    THRU (T)      953        953       5160      0.1847
    T + R                   1198       5160      0.2322      0.2322
--------------------------------------------------------------------------
SB  THRU (T)      647        647       3440      0.1881
    LEFT (L)      249        249       1720      0.1448      0.1448
--------------------------------------------------------------------------
EB  RIGHT (R)     423        423       3127      0.1353
    THRU (T)        3          3       1720      0.0017
    LEFT (L)      271        271       3127      0.0867
    T + R                    426       3127      0.1362
    T + L                    274       3127      0.0876
    T + R + L                697       4534      0.1537      0.1537
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.53
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=========================================================================
Condition: PM_EX                                                 05/27/08
=========================================================================
INTERSECTION      8 Railroad Ave./SR 4 EB Ramps        Contra Costa
Count Date                      Time                  Peak Hour
-------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  673   74
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? Y
LEFT   545 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU   110 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT 1033 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---  ^   --->        |
             v           |   |    |          v
  N                      |   |    |                        SIG WARRANTS:
W + E                    0  900  125                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
-------------------------------------------------------------------------
NB  RIGHT (R)     125        125       1720      0.0727
    THRU (T)      900        900       5160      0.1744
    T + R                   1025       5160      0.1986      0.1986
-------------------------------------------------------------------------
SB  THRU (T)      673        673       3440      0.1956
    LEFT (L)       74         74       1720      0.0430      0.0430
-------------------------------------------------------------------------
EB  RIGHT (R)    1033       1033       3127      0.3303
    THRU (T)      110        110       1720      0.0640
    LEFT (L)      545        545       3127      0.1743
    T + R                   1143       3127      0.3655
    T + L                    655       3127      0.2095
    T + R + L               1688       4534      0.3723      0.3723
-------------------------------------------------------------------------
=========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.61
     INTERSECTION LEVEL OF SERVICE:                                  B
=========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_EX                                                 05/27/08
=====================================================================
INTERSECTION      9 Railroad Ave./10th St.            Contra Costa
Count Date                     Time                 Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             24  158   36
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? N
LEFT    10 ---  1.0   1.1  2.1  1.0   1.1 ---   37  RIGHT
                                                          STREET NAME:
THRU   144 ---> 1.0  (NO. OF LANES)   1.1<---  199  THRU  10th St.

RIGHT  190 ---  1.9   1.0  1.0  1.8   1.0 ---   42  LEFT
             |       <---   ^   --->       |
             v          |   |    |          v
  N                     |   |    |                        SIG WARRANTS:
W + E                  154  136   59                         Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? N

               STREET NAME: Railroad Ave.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)      59          0 *     1650      0.0000
    THRU (T)      136        136       1650      0.0824
    LEFT (L)      154        154       1650      0.0933      0.0933
---------------------------------------------------------------------
SB  RIGHT (R)      24         24       1650      0.0145
    THRU (T)      158        158       3300      0.0479
    LEFT (L)       36         36       1650      0.0218
    T + R                    182       3300      0.0552      0.0552
---------------------------------------------------------------------
EB  RIGHT (R)     190        190       1650      0.1152
    THRU (T)      144        144       1650      0.0873
    LEFT (L)       10         10       1650      0.0061      0.0061
---------------------------------------------------------------------
WB  RIGHT (R)      37         37       1650      0.0224
    THRU (T)      199        199       1650      0.1206
    LEFT (L)       42         42       1650      0.0255
    T + R                    236       1650      0.1430      0.1430
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.30
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_EX                                                  05/27/08
==========================================================================
INTERSECTION     9 Railroad Ave./10th St.            Contra Costa
Count Date                      Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             30  140   58
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? N
LEFT    47 ---  1.0   1.1  2.1  1.0   1.1 ---   46  RIGHT
                                                          STREET NAME:
THRU   317 ---> 1.0  (NO. OF LANES)   1.1<---  203  THRU  10th St.

RIGHT  156 ---  1.9   1.0  1.0  1.8   1.0 ---   38  LEFT
             |        <---   ^   --->       |
             v           |   |    |          v
  N                      |   |    |                       SIG WARRANTS:
W + E                   130  171   80                        Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)       80          0 *     1650      0.0000
    THRU (T)       171        171      1650      0.1036      0.1036
    LEFT (L)       130        130      1650      0.0788
--------------------------------------------------------------------------
SB  RIGHT (R)       30         30      1650      0.0182
    THRU (T)       140        140      3300      0.0424
    LEFT (L)        58         58      1650      0.0352      0.0352
    T + R                     170      3300      0.0515
--------------------------------------------------------------------------
EB  RIGHT (R)      156        156      1650      0.0945
    THRU (T)       317        317      1650      0.1921      0.1921
    LEFT (L)        47         47      1650      0.0285
--------------------------------------------------------------------------
WB  RIGHT (R)       46         46      1650      0.0279
    THRU (T)       203        203      1650      0.1230
    LEFT (L)        38         38      1650      0.0230      0.0230
    T + R                     249      1650      0.1509
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.35
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=EX_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 Montezuma St-Herb White Way/10th Street

Average Delay (sec/veh): 3.5 Worst Case Level Of Service: B[14.2]

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	9	1	19	24	3	85	49	155	6	9	300	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	1	19	24	3	85	49	155	6	9	300	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.82	0.82	0.82	0.82	0.82	0.82	0.81	0.81	0.81
PHF Volume:	10	1	21	29	4	104	60	189	7	11	370	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	10	1	21	29	4	104	60	189	7	11	370	26
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	771	731	193	729	721	383	396	xxxx	xxxxx	196	xxxx	xxxxx
Potent Cap.:	319	351	854	341	356	669	1173	xxxx	xxxxx	1389	xxxx	xxxxx
Move Cap.:	256	331	854	317	335	669	1173	xxxx	xxxxx	1389	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.02	0.09	0.01	0.16	0.05	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	479	xxxxx	xxxx	529	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	1.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	13.0	xxxxx	xxxxx	14.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		13.0			14.2		xxxxxx			xxxxxx		
ApproachLOS:		B			B		*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 Montezuma St-Herb White Way/10th Street

Average Delay (sec/veh): 5.5 Worst Case Level Of Service: D[25.2]

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	5	6	30	43	6	68	101	412	15	35	226	38
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	6	30	43	6	68	101	412	15	35	226	38
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.85	0.85	0.85	0.73	0.73	0.73	0.93	0.93	0.93	0.96	0.96	0.96
PHF Volume:	6	7	35	59	8	93	109	443	16	36	235	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	6	7	35	59	8	93	109	443	16	36	235	40
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1047	1016	451	1018	1004	255	275	xxxx	xxxxx	459	xxxx	xxxxx
Potent Cap.:	208	240	612	218	244	788	1300	xxxx	xxxxx	1112	xxxx	xxxxx
Move Cap.:	163	213	612	183	216	788	1300	xxxx	xxxxx	1112	xxxx	xxxxx
Volume/Cap:	0.04	0.03	0.06	0.32	0.04	0.12	0.08	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx	8.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	380	xxxxx	xxxx	335	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	2.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.9	xxxxx	xxxxx	25.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:	15.9			25.2			xxxxxx			xxxxxx		
ApproachLOS:	C			D			*			*		

Note: Queue reported is the number of cars per lane.

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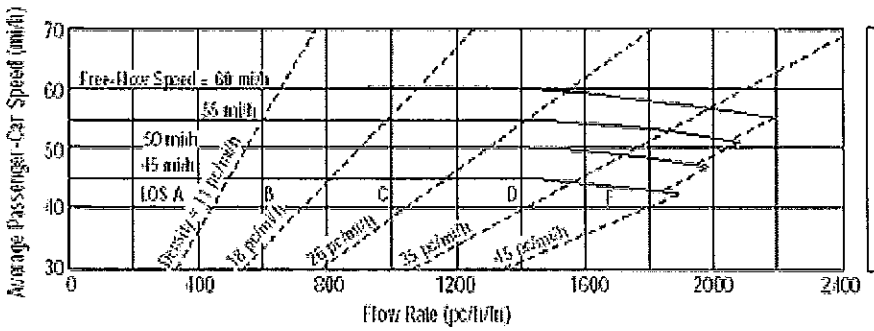
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	560	Peak-Hour Factor, PHF	0.91
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	310
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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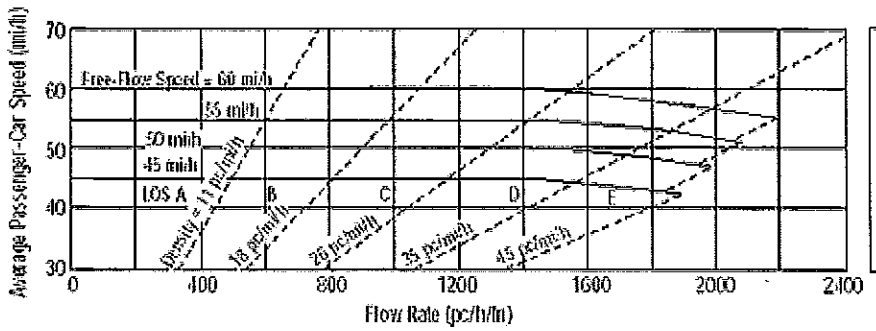
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	449	Peak-Hour Factor, PHF	0.97
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	233
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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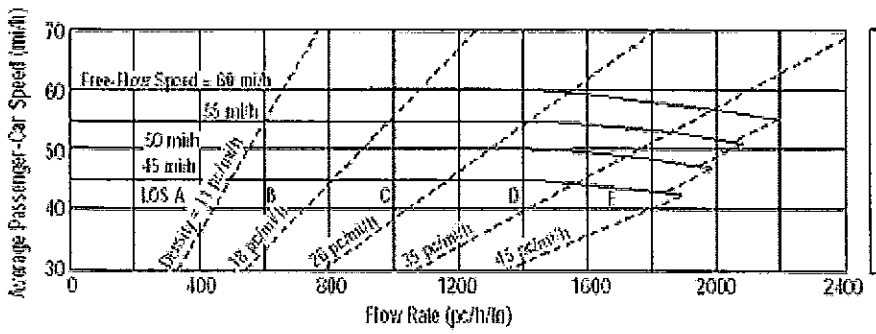
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	813	Peak-Hour Factor, PHF	0.98
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	418
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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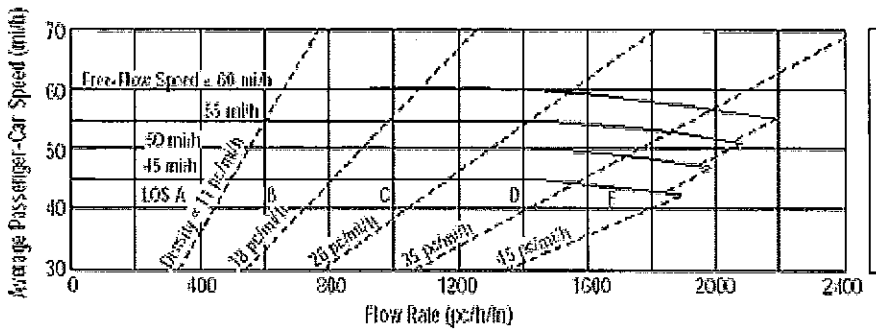
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	491	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	261
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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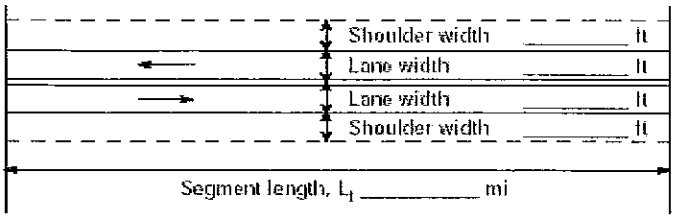
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Bailey Rd./Loftus Rd.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Existing Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1180 veh/h
Directional split	69 / 31
Peak-hour factor, PHF	0.96
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	13

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1232
v_p * highest directional split proportion[2] (pc/h)	850

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	3.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	46.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.0
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	35.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1229
v_p * highest directional split proportion[2] (pc/h)	848
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	66.1
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	10.1
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	76.1

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.38
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	461
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1770
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	13.1

Notes

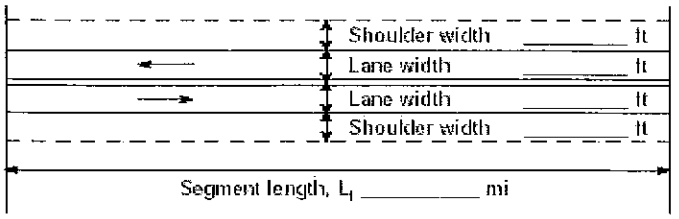
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Bailey Rd./Loftus Rd.*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*PM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1337* veh/h
Directional split	*67 / 33*
Peak-hour factor, PHF	*0.99*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*13*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1353*
v_p * highest directional split proportion[2] (pc/h)	*907*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*3.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.8*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*34.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1351*
v_p * highest directional split proportion[2] (pc/h)	*905*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*69.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*8.8*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*78.3*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.42*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*506*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	*2006*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*14.7*

Notes

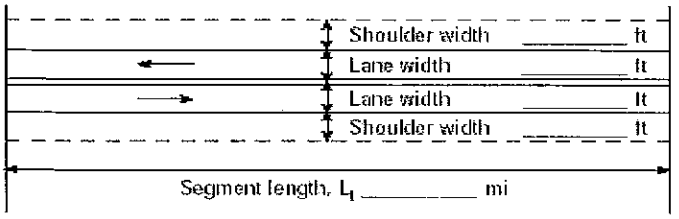
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Loftus Rd./N Parkside Dr. Ramp*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1549* veh/h
Directional split	*72 / 28*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*5*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1687*
v_p * highest directional split proportion[2] (pc/h)	*1215*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*48.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.4*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*34.2*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1684*
v_p * highest directional split proportion[2] (pc/h)	*1212*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*77.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*6.6*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*83.8*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.53*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*631*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*2324*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*18.4*

Notes

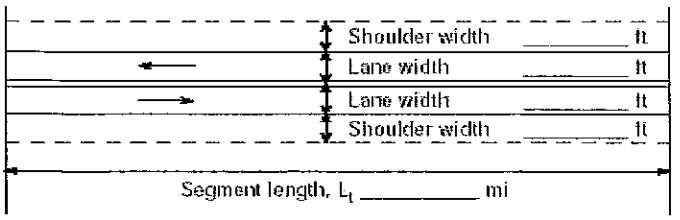
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

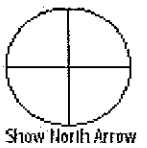
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Loftus Rd./N Parkside Dr. Ramp*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*PM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Willow Pass Generating Station*

Input Data





☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1410* veh/h
Directional split	*66 / 34*
Peak-hour factor, PHF	*0.97*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*5*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1457*
v_p * highest directional split proportion[2] (pc/h)	*962*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*48.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.6*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*35.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1454*
v_p * highest directional split proportion[2] (pc/h)	*960*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*72.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*7.9*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*80.0*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.46*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	*545*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	*2115*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*15.2*

Notes

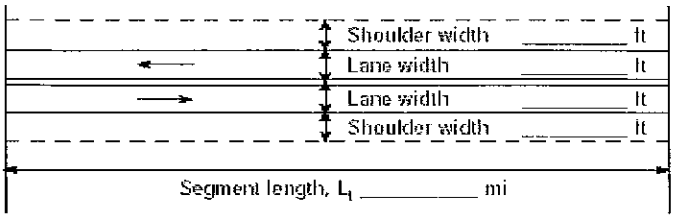
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Existing Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	769 veh/h
Directional split	74 / 26
Peak-hour factor, PHF	0.87
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	887
v_p * highest directional split proportion[2] (pc/h)	656

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	39.0

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	886
v_p * highest directional split proportion[2] (pc/h)	656
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	54.1
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.6
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	68.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.28
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	331
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1154
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	8.5

Notes

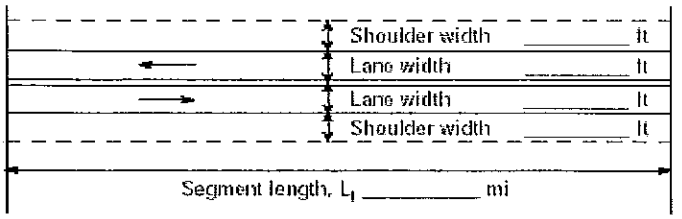
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Existing Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	706 veh/h
Directional split	62 / 38
Peak-hour factor, PHF	0.97
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	731
v_p * highest directional split proportion[2] (pc/h)	453

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	3.3
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	39.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	729
v_p * highest directional split proportion[2] (pc/h)	452
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	47.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	16.7
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	64.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.23
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	273
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1059
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	6.9

Notes

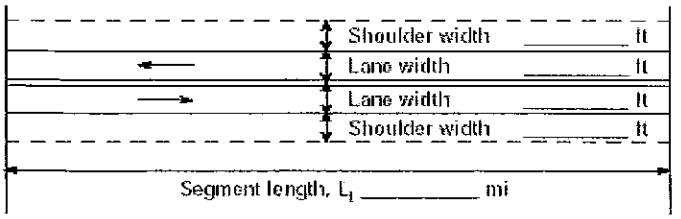
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Existing Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	772 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.91
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	852
v_p * highest directional split proportion[2] (pc/h)	571

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.9
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	38.7

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	850
v_p * highest directional split proportion[2] (pc/h)	570
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	52.6
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.0
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	66.6

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.27
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	361
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	1312
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	9.3

Notes

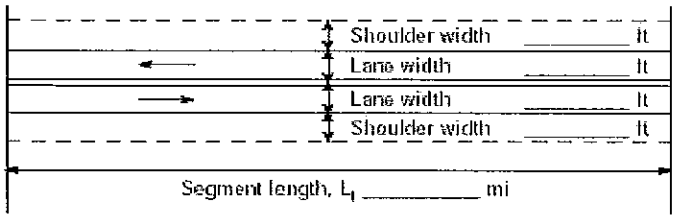
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Existing Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	806 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.98
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	826
v_p * highest directional split proportion[2] (pc/h)	603

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.9
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	38.9

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	824
v_p * highest directional split proportion[2] (pc/h)	602
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	51.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	15.1
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	66.6

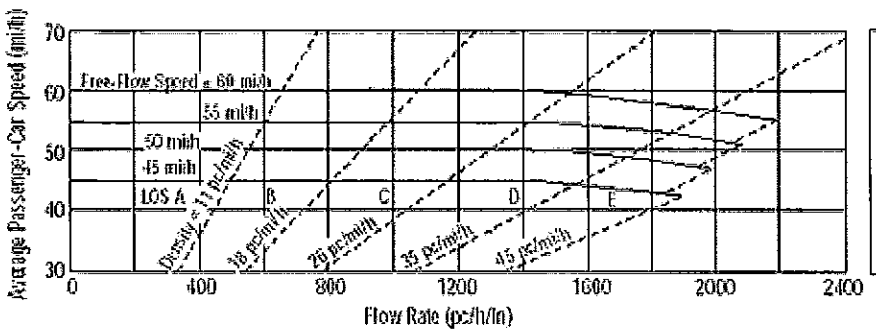
Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.26
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	350
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1370
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	9.0

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	862	Peak-Hour Factor, PHF	0.84
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	518
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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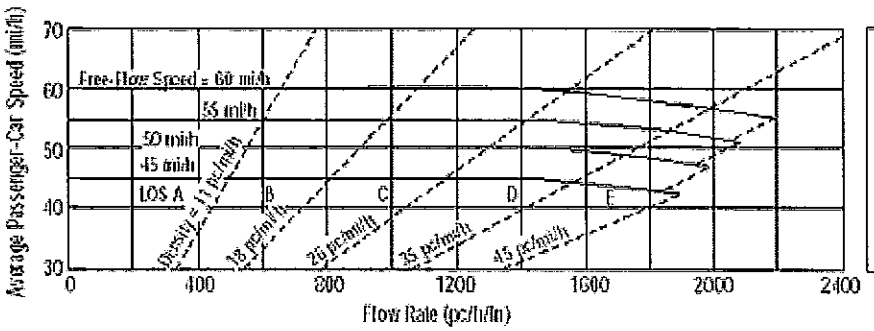
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	754	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	400
Speed, S (mi/h)	52.0
D (pc/mi/ln)	7.7
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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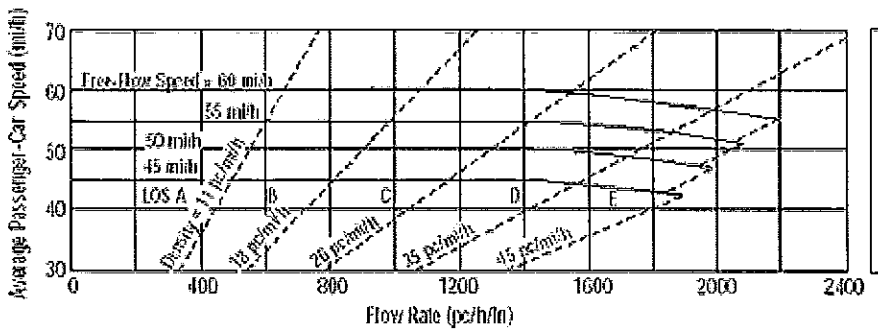
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	959	Peak-Hour Factor, PHF	0.91
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	532
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.2
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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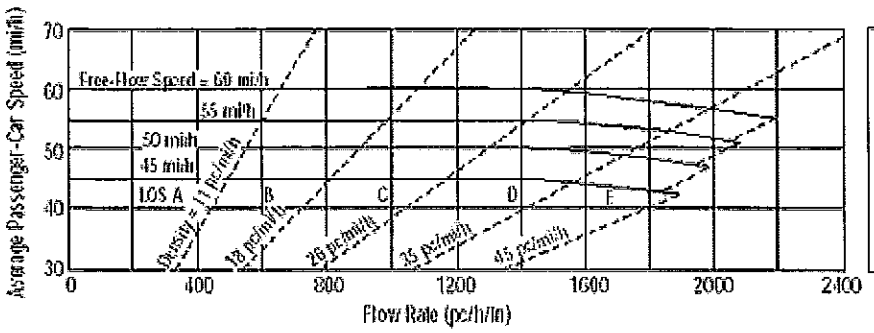
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1044	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	554
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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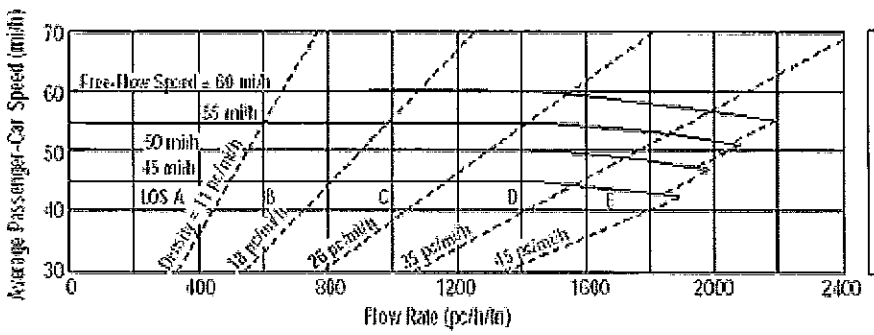
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	370	Peak-Hour Factor, PHF	0.89
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	209
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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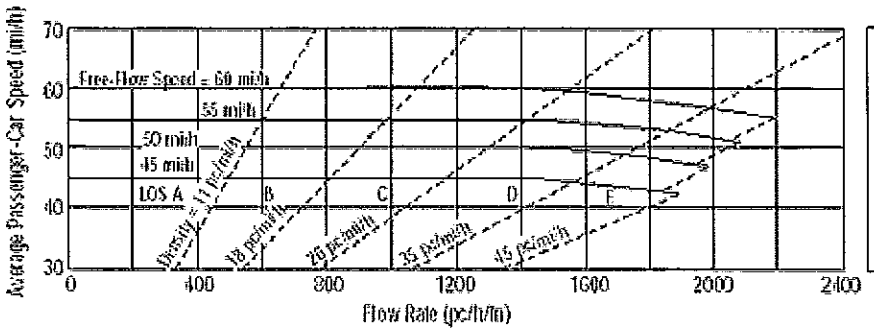
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	810	Peak-Hour Factor, PHF	0.94
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	435
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.7
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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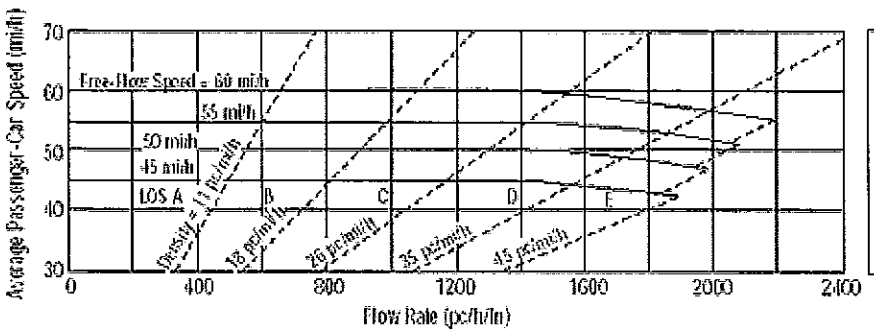
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	894	Peak-Hour Factor, PHF	0.96
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	470
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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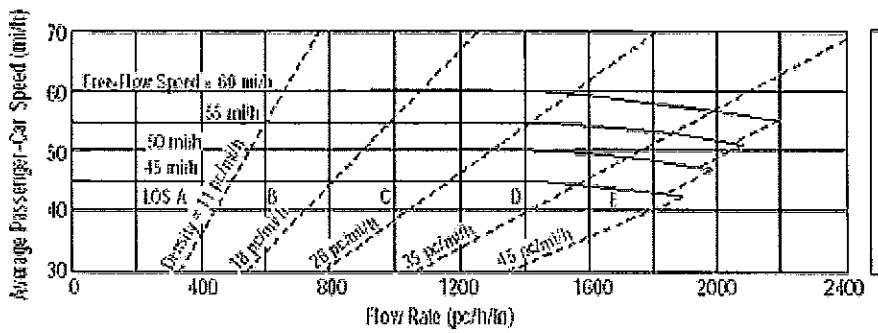
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	443	Peak-Hour Factor, PHF	0.94
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	237
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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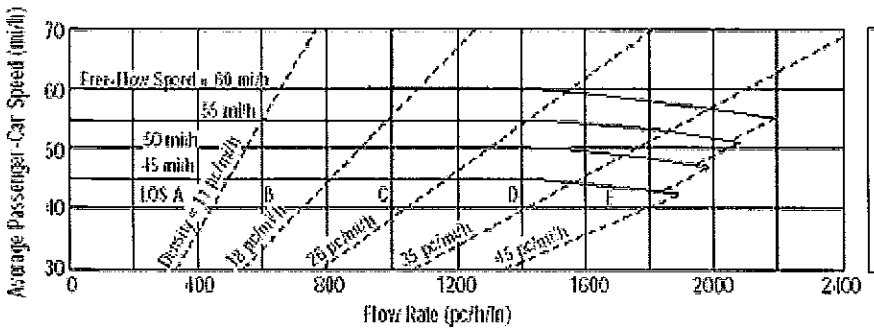
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Mlti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	436	Peak-Hour Factor, PHF	0.81
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	271
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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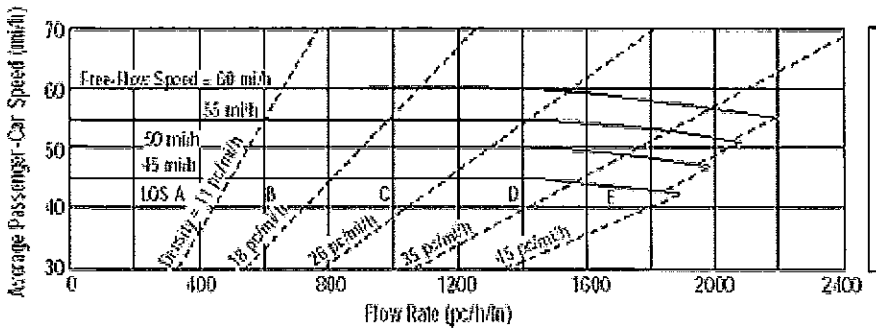
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Mlti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1113	Peak-Hour Factor, PHF	0.96
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	585
Speed, S (mi/h)	45.0
D (pc/mi/ln)	13.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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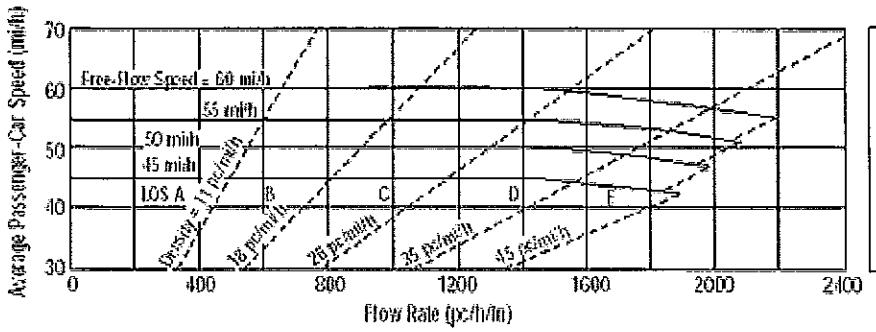
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	930	Peak-Hour Factor, PHF	0.96
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	489
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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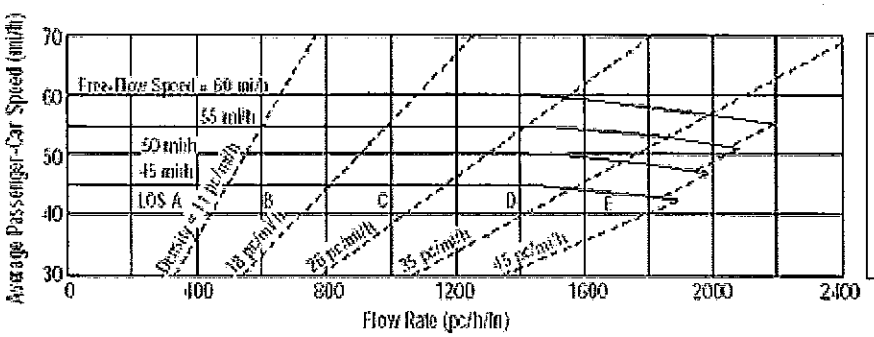
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	480	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	255
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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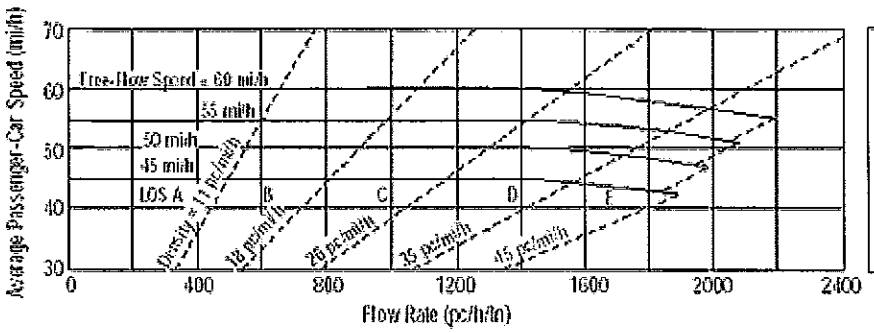
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	203	Peak-Hour Factor, PHF	0.71
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	144
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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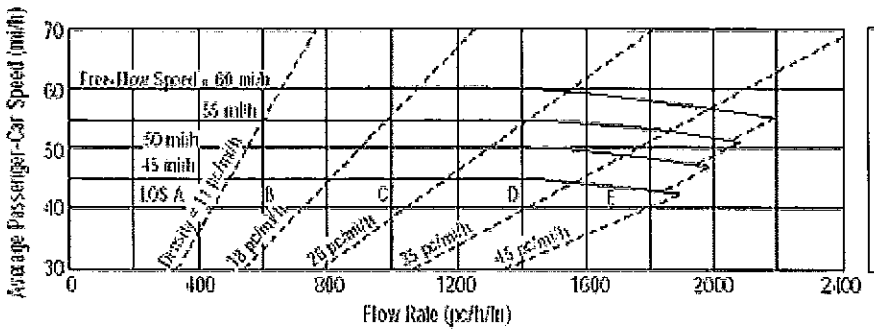
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	566	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	300
Speed, S (mi/h)	52.0
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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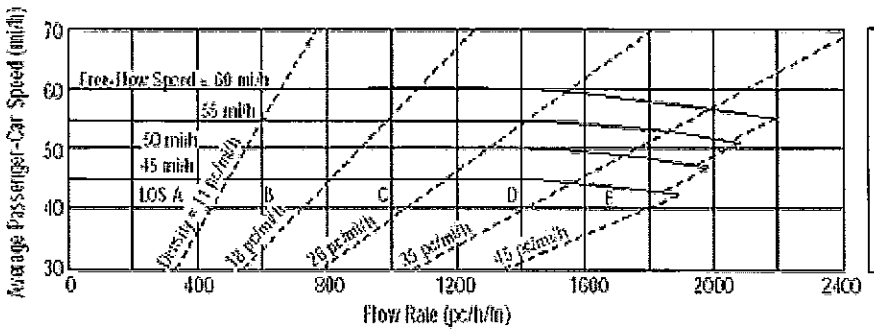
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	440	Peak-Hour Factor, PHF	0.98
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	226
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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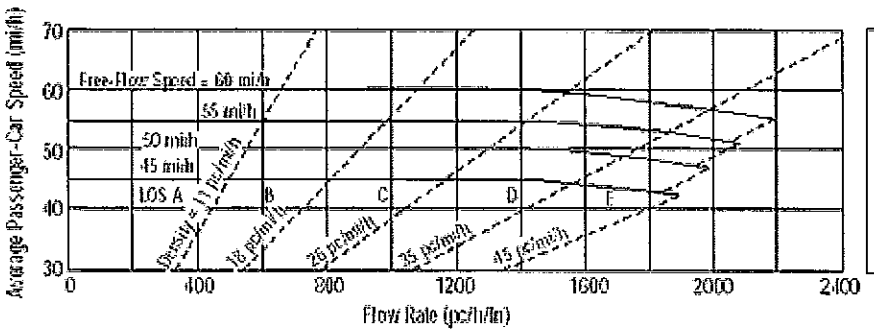
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	266	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	146
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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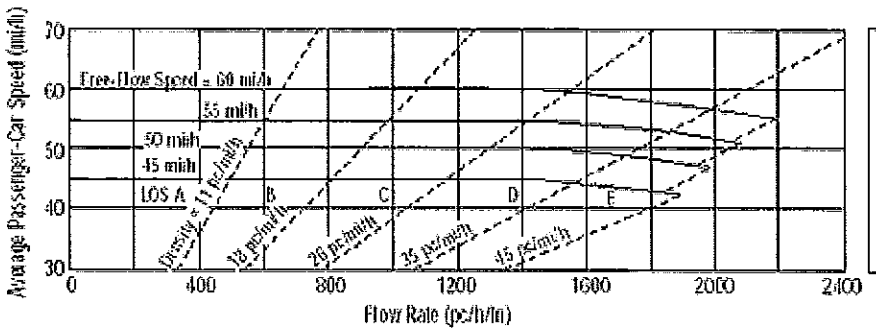
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	258	Peak-Hour Factor, PHF	0.84
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	155
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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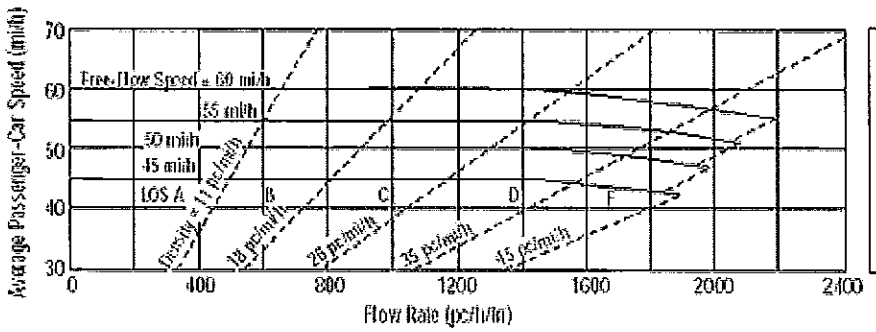
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	515	Peak-Hour Factor, PHF	0.96
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	270
Speed, S (mi/h)	52.0
D (pc/mi/ln)	5.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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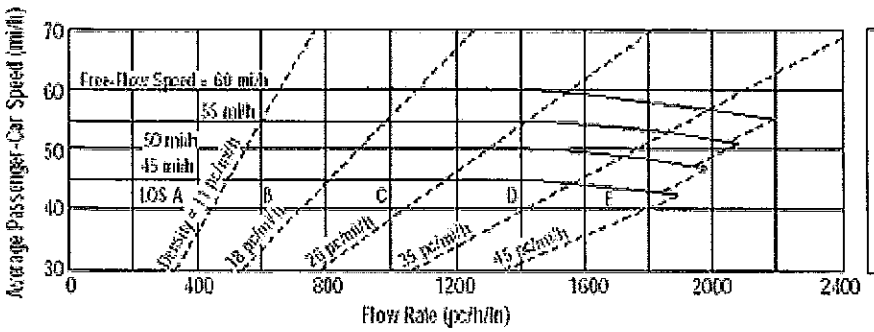
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	590	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	313
Speed, S (mi/h)	52.0
D (pc/mi/ln)	6.0
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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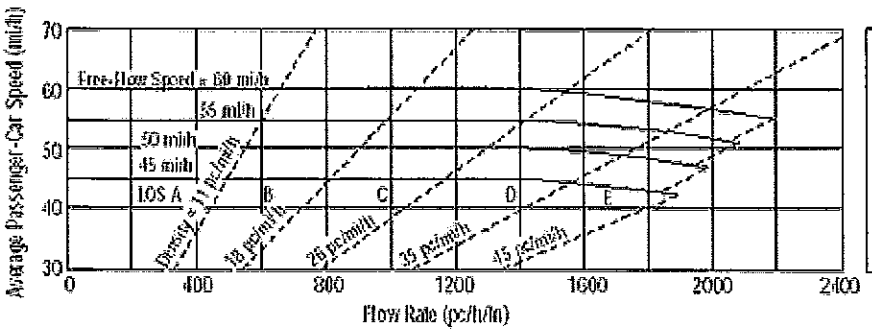
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Existing Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	216	Peak-Hour Factor, PHF	0.95
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	114
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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Appendix P3
Accident Data

#800738 Total Collisions and Victims at the Intersection of Bailey Road and State Route 4 (EB/WB) Contra Costa County 1997 through available 2007 06-JUN-08

Side Of Hwy	Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
E		36	0	11	25	0	15
E	1997	3	0	2	1	0	3
E	1998	1	0	1	0	0	2
E	1999	2	0	0	2	0	0
E	2000	2	0	1	1	0	2
E	2001	2	0	1	1	0	1
E	2002	1	0	0	1	0	0
E	2003	6	0	1	5	0	1
E	2004	3	0	0	3	0	0
E	2005	7	0	2	5	0	3
E	2006	5	0	0	5	0	0
E	2007	4	0	3	1	0	3
W		8	0	1	7	0	1
W	1999	1	0	0	1	0	0
W	2001	1	0	0	1	0	0
W	2002	1	0	0	1	0	0
W	2003	1	0	1	0	0	1
W	2005	1	0	0	1	0	0
W	2006	1	0	0	1	0	0
W	2007	2	0	0	2	0	0
		7	0	2	5	0	2
	2002	4	0	2	2	0	2
	2003	1	0	0	1	0	0
	2007	2	0	0	2	0	0
TOTALS		51	0	14	37	0	18

#800738 Total Collisions and Victims at the Intersection of Bailey Road and Willow Pass Road Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	1	0	1	0	0	1
1998	1	0	0	1	0	0
1999	3	0	1	2	0	1
2001	1	0	0	1	0	0
2003	4	0	1	3	0	1
2004	2	0	1	1	0	1
2005	5	0	1	4	0	1
2007	3	0	1	2	0	3
TOTALS	20	0	6	14	0	8

#800738 Total Collisions and Victims at the Intersection of Loftus Road and Willow Pass Road Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1999	1	0	0	1	0	0
2000	1	0	0	1	0	0
2001	1	0	0	1	0	0
2004	1	0	1	0	0	1
2005	1	0	1	0	0	1
2007	1	0	1	0	0	1
TOTALS	6	0	3	3	0	3

#800738 Total Collisions and Victims at the Intersection of Willow Pass Road and N. Parkside Drive Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	3	0	1	2	0	1
1998	2	1	0	1	1	1
1999	2	0	0	2	0	0
2000	3	0	2	1	0	3
2001	2	0	2	0	0	2
2002	1	0	0	1	0	0
2003	3	0	2	1	0	5
2004	3	0	2	1	0	3
2005	1	0	1	0	0	1
2006	1	0	1	0	0	2
2007	4	0	1	3	0	1
TOTALS	25	1	12	12	1	19

#800738 Total Collisions and Victims at the Intersection of Railroad Avenue and State Route 4 Contra Costa County 1997 through available 2007 06-JUN-08

Side Of Hw	Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
E		64	0	9	55	0	14
E	1997	1	0	0	1	0	0
E	1998	2	0	2	0	0	2
E	1999	5	0	1	4	0	1
E	2000	6	0	1	5	0	1
E	2001	12	0	2	10	0	4
E	2002	8	0	1	7	0	3
E	2003	6	0	0	6	0	0
E	2004	6	0	0	6	0	0
E	2005	5	0	1	4	0	2
E	2006	5	0	0	5	0	0
E	2007	8	0	1	7	0	1
W		22	0	4	18	0	5
W	1997	1	0	0	1	0	0
W	1998	1	0	1	0	0	1
W	1999	1	0	1	0	0	1
W	2000	3	0	1	2	0	2
W	2001	3	0	0	3	0	0
W	2003	2	0	1	1	0	1
W	2006	4	0	0	4	0	0
W	2007	7	0	0	7	0	0
		8	0	3	5	0	3
	2002	3	0	1	2	0	1
	2003	3	0	1	2	0	1
	2005	1	0	1	0	0	1
	2007	1	0	0	1	0	0
TOTALS		94	0	16	78	0	22

#800738 Total Collisions and Victims at the Intersection of Railroad Avenue and 10th Street Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1999	5	0	0	5	0	0
2000	7	0	0	7	0	0
2001	9	0	1	8	0	2
2002	4	0	1	3	0	1
2003	1	0	1	0	0	1
2004	1	0	0	1	0	0
2005	1	0	1	0	0	1
2006	1	0	0	1	0	0
2007	4	0	1	3	0	1
TOTALS	33	0	5	28	0	6

#800738 Total Collisions and Victims at the Intersection of Montezuma Street / Herb White Way and 10th Street Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1999	1	0	0	1	0	0
2000	2	0	0	2	0	0
2001	2	0	0	2	0	0
2002	1	0	0	1	0	0
2003	1	0	0	1	0	0
2004	3	0	0	3	0	0
TOTALS	10	0	0	10	0	0

#800738 Total Collisions and Victims on Bailey Road between State Route 4 and Willow Pass Road Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	22	0	6	16	0	8
1998	30	0	6	24	0	8
1999	29	0	6	23	0	8
2000	39	1	12	26	1	16
2001	40	0	17	23	0	26
2002	31	0	10	21	0	12
2003	41	1	8	32	1	11
2004	40	0	7	33	0	12
2005	37	0	8	29	0	14
2006	27	0	2	25	0	2
2007	29	0	12	17	0	18
TOTALS	365	2	94	269	2	135

#800738 Total Collisions and Victims on Willow Pass Road between Bailey Road and Loftus Road Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	19	0	10	9	0	14
1998	41	0	13	28	0	24
1999	40	1	13	26	1	17
2000	50	0	19	31	0	22
2001	35	0	10	25	0	11
2002	53	1	17	35	1	25
2003	48	0	15	33	0	20
2004	38	0	17	21	0	26
2005	46	1	16	29	1	17
2006	27	0	7	20	0	13
2007	40	0	16	24	0	23
TOTALS	437	3	153	281	3	212

#800738 Total Collisions and Victims on Willow Pass Road between Loftus Road and N. Parkside Drive Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	10	0	6	4	0	10
1998	9	2	2	5	2	3
1999	12	0	3	9	0	3
2000	20	0	7	13	0	8
2001	23	1	7	15	1	8
2002	14	0	3	11	0	4
2003	10	0	3	7	0	6
2004	15	0	6	9	0	7
2005	14	0	5	9	0	6
2006	15	0	5	10	0	6
2007	13	0	3	10	0	4
TOTALS	155	3	50	102	3	65

#800738 Total Collisions and Victims on Willow Pass Road between N. Parkside Drive and 10th Street Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	9	0	6	3	0	10
1998	6	2	1	3	2	2
1999	5	0	2	3	0	2
2000	15	0	6	9	0	7
2001	12	1	5	6	1	5
2002	12	0	2	10	0	3
2003	9	0	3	6	0	6
2004	10	0	4	6	0	5
2005	11	0	3	8	0	3
2006	12	0	3	9	0	7
2007	8	0	1	7	0	1
TOTALS	109	3	36	70	3	51

#800738 Total Collisions and Victims on N. Parkside Drive between Willow Pass Road and Railroad Avenue Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	8	0	2	6	0	2
1998	5	2	1	2	3	8
1999	18	0	4	14	0	7
2000	20	0	5	15	0	15
2001	25	0	6	19	0	11
2002	23	0	7	16	0	10
2003	12	0	7	5	0	13
2004	14	0	3	11	0	4
2005	18	0	7	11	0	10
2006	10	0	3	7	0	4
2007	13	0	6	7	0	8
TOTALS	166	2	51	113	3	92

#800738 Total Collisions and Victims on Railroad Avenue between N. Parkside Drive and State Route 4 Contra Costa County 1997 through available 2007 06-JUN-08

Collision Year	Total Collisions	Fatal Collisions	Injury Collisions	Property Damage Only	Victims Killed	Victims Injured
1997	10	0	3	7	0	4
1998	10	0	6	4	0	6
1999	42	1	8	33	1	16
2000	53	1	7	45	1	11
2001	65	0	6	59	0	11
2002	75	0	13	62	0	25
2003	43	0	9	34	0	9
2004	36	0	3	33	0	4
2005	39	0	7	32	0	12
2006	49	1	4	44	1	11
2007	47	1	6	40	1	7
TOTALS	469	4	72	393	4	116

Appendix P4
Near-Term Conditions – Level of Service Analysis

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_NT                                              05/27/08
=====================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------            127  408  132
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---  124  RIGHT
                                                        STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  269  THRU  Route 4 WB Ramps

RIGHT  234 ---  1.9    2.0  3.1  1.1   1.1 ---  178  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   355  544  176                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Bailey Road
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     176        176       1650      0.1067
    THRU (T)      544        544       4950      0.1099
    LEFT (L)      355        355       3000      0.1183     0.1183
    T + R                    720       4950      0.1455
---------------------------------------------------------------------
SB  RIGHT (R)     127        127       1650      0.0770
    THRU (T)      408        408       3300      0.1236
    LEFT (L)      132        132       1650      0.0800
    T + R                    535       3300      0.1621     0.1621
---------------------------------------------------------------------
EB  RIGHT (R)     234        234       1650      0.1418
---------------------------------------------------------------------
WB  RIGHT (R)     124        124       1650      0.0752
    THRU (T)      269        269       3300      0.0815
    LEFT (L)      178        178       1650      0.1079
    T + R                    393       3300      0.1191
    T + L                    447       3300      0.1355
    T + R + L                571       3300      0.1730     0.1730
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.45
     INTERSECTION LEVEL OF SERVICE:                             A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NT                                                  05/27/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                          4-PHASE SIGNAL
-----------            129  340   38
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT      0 ---  0.0    1.1  2.1  1.0    1.1 ---   34  RIGHT
                                                        STREET NAME:
THRU      0 ---> 0.0   (NO. OF LANES)    2.2<---  117  THRU  Route 4 WB Ramps

RIGHT   255 ---  1.9    2.0  3.1  1.1    1.1 ---   95  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   246  585  336                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      336        336       1650      0.2036     0.2036
    THRU (T)       585        585       4950      0.1182
    LEFT (L)       246        246       3000      0.0820
    T + R                     921       4950      0.1861
--------------------------------------------------------------------------
SB  RIGHT (R)      129        129       1650      0.0782
    THRU (T)       340        340       3300      0.1030
    LEFT (L)        38         38       1650      0.0230     0.0230
    T + R                     469       3300      0.1421
--------------------------------------------------------------------------
EB  RIGHT (R)      255        255       1650      0.1545
--------------------------------------------------------------------------
WB  RIGHT (R)       34         34       1650      0.0206
    THRU (T)       117        117       3300      0.0355
    LEFT (L)        95         95       1650      0.0576
    T + R                     151       3300      0.0458
    T + L                     212       3300      0.0642
    T + R + L                 246       3300      0.0745     0.0745
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.30
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NT                                                  05/27/08
==========================================================================
INTERSECTION      2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            242  575  209
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT    98 ---  1.1    1.9  2.0  2.0   1.9 ---  198  RIGHT
                                                          STREET NAME:
THRU   120 ---> 2.1   (NO. OF LANES)    0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  175 ---  1.8    0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    0  666  233                          Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      233        233       1720      0.1355
    THRU (T)       666        666       3440      0.1936     0.1936
--------------------------------------------------------------------------
SB  RIGHT (R)      242        242       1720      0.1407
    THRU (T)       575        575       3440      0.1672     0.1672
    LEFT (L)       209        209       3127      0.0668
--------------------------------------------------------------------------
EB  RIGHT (R)      175          0 *     1720      0.0000
    THRU (T)       120        120       3440      0.0349
    LEFT (L)        98         98       1720      0.0570
    T + L                     218       3440      0.0634     0.0634
--------------------------------------------------------------------------
WB  RIGHT (R)      198        198       1720      0.1151
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.42
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_NT                                                 05/27/08
=====================================================================
INTERSECTION      2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      3-PHASE SIGNAL
-----------            139  469  111
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   140 ---  1.1    1.9  2.0  2.0   1.9 ---  641  RIGHT
                                                        STREET NAME:
THRU   212 ---> 2.1   (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  510 ---  1.8    0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    0  552  119                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     119        119       1720      0.0692
    THRU (T)      552        552       3440      0.1605     0.1605
---------------------------------------------------------------------
SB  RIGHT (R)     139        139       1720      0.0808
    THRU (T)      469        469       3440      0.1363     0.1363
    LEFT (L)      111        111       3127      0.0355
---------------------------------------------------------------------
EB  RIGHT (R)     510          0 *     1720      0.0000
    THRU (T)      212        212       3440      0.0616
    LEFT (L)      140        140       1720      0.0814
    T + L                    352       3440      0.1023     0.1023
---------------------------------------------------------------------
WB  RIGHT (R)     641        641       1720      0.3727
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.40
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NT                                                  05/27/08
==========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU    81 ---> 1.0  (NO. OF LANES)   2.0<---  343  THRU  Willow Pass Rd.

RIGHT   57 ---  1.8   1.0  0.0  1.0   1.0 ---   76  LEFT
             |       <---   ^   --->       |
             v           |    |    |       v
  N                      |    |    |                     SIG WARRANTS:
W + E                   132    0   40                       Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      40          0 *     1720      0.0000
    LEFT (L)      132        132       1720      0.0767     0.0767
--------------------------------------------------------------------------
EB  RIGHT (R)      57          0 *     1720      0.0000
    THRU (T)       81         81       1720      0.0471
--------------------------------------------------------------------------
WB  THRU (T)      343        343       3440      0.0997     0.0997
    LEFT (L)       76         76       1720      0.0442
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.18
     INTERSECTION LEVEL OF SERVICE:                              A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NT                                                 05/27/08
==========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU   356 ---> 1.0  (NO. OF LANES)   2.0<---  133  THRU  Willow Pass Rd.

RIGHT   79 ---  1.8   1.0  0.0  1.0   1.0 ---   89  LEFT
             |       <---   ^   --->       |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                  154    0  225                       Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     225        136 *     1720      0.0791
    LEFT (L)      154        154       1720      0.0895     0.0895
--------------------------------------------------------------------------
EB  RIGHT (R)      79          0 *     1720      0.0000
    THRU (T)      356        356       1720      0.2070     0.2070
--------------------------------------------------------------------------
WB  THRU (T)      133        133       3440      0.0387
    LEFT (L)       89         89       1720      0.0517     0.0517
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.35
     INTERSECTION LEVEL OF SERVICE:                             A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: AM_NT 05/27/08

INTERSECTION 4 Loftus Rd./Willow Pass Rd. Contra Costa
Count Date Time Peak Hour

```
CCTA METHOD          RIGHT THRU LEFT                          5-PHASE SIGNAL
-----------              8    8   45
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  1.0   1.1  1.1  1.1   1.1 ---    5  RIGHT
                                                          STREET NAME:
THRU   102 ---> 1.0  (NO. OF LANES)   1.1<---  332  THRU  Willow Pass Rd.

RIGHT   10 ---  1.0   1.1  1.1  1.1   1.0 ---   11  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    8    9   10                       Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	9	9	1650	0.0055	
	LEFT (L)	8	8	1650	0.0048	
	T + R		19	1650	0.0115	
	T + L		17	1650	0.0103	
	T + R + L		27	1650	0.0164	0.0164
SB	RIGHT (R)	8	8	1650	0.0048	
	THRU (T)	8	8	1650	0.0048	
	LEFT (L)	45	45	1650	0.0273	
	T + R		16	1650	0.0097	
	T + L		53	1650	0.0321	
	T + R + L		61	1650	0.0370	0.0370
EB	RIGHT (R)	10	2 *	1650	0.0012	
	THRU (T)	102	102	1650	0.0618	
	LEFT (L)	0	0	1650	0.0000	0.0000
WB	RIGHT (R)	5	5	1650	0.0030	
	THRU (T)	332	332	1650	0.2012	
	LEFT (L)	11	11	1650	0.0067	
	T + R		337	1650	0.2042	0.2042

TOTAL VOLUME-TO-CAPACITY RATIO: 0.26
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=

CCTALOS Software ver. 2.35 by TJKM Transportation Consultants

Condition: PM_NT 05/27/08

INTERSECTION 4 Loftus Rd./Willow Pass Rd. Contra Costa
Count Date Time Peak Hour

```
CCTA METHOD          RIGHT THRU LEFT                          5-PHASE SIGNAL
-----------             34   12   21
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      5 ---  1.0    1.1  1.1  1.1   1.1 ---   10  RIGHT
                                                          STREET NAME:
THRU    494 ---> 1.0   (NO. OF LANES)   1.1<---  199  THRU  Willow Pass Rd.

RIGHT    24 ---  1.0    1.1  1.1  1.1   1.0 ---   24  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    8    0    6                          Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
```

MOVEMENT		ORIGINAL VOLUME	ADJUSTED VOLUME*	CAPACITY	V/C RATIO	CRITICAL V/C
NB	RIGHT (R)	6	6	1650	0.0036	
	THRU (T)	0	0	1650	0.0000	
	LEFT (L)	8	8	1650	0.0048	
	T + R		6	1650	0.0036	
	T + L		8	1650	0.0048	
	T + R + L		14	1650	0.0085	0.0085
SB	RIGHT (R)	34	34	1650	0.0206	
	THRU (T)	12	12	1650	0.0073	
	LEFT (L)	21	21	1650	0.0127	
	T + R		46	1650	0.0279	
	T + L		33	1650	0.0200	
	T + R + L		67	1650	0.0406	0.0406
EB	RIGHT (R)	24	16 *	1650	0.0097	
	THRU (T)	494	494	1650	0.2994	0.2994
	LEFT (L)	5	5	1650	0.0030	
WB	RIGHT (R)	10	10	1650	0.0061	
	THRU (T)	199	199	1650	0.1206	
	LEFT (L)	24	24	1650	0.0145	0.0145
	T + R		209	1650	0.1267	

TOTAL VOLUME-TO-CAPACITY RATIO: 0.36
INTERSECTION LEVEL OF SERVICE: A

* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 11.1 Worst Case Level Of Service: B[11.4]

Street Name:	Willow Pass Road									N. Parkside Drive WB Ramps					
Approach:	North Bound				South Bound					East Bound				West Bound	
Movement:	L - T - R				L - T - R					L - T - R				L - T - R	
Control:	Yield Sign				Yield Sign					Uncontrolled				Uncontrolled	
Rights:	Include				Include					Include				Include	
Lanes:	1 0 1 0 0				0 0 1 0 1					0 0 0 0 0				0 0 0 0 0	
Volume Module:															
Base Vol:	41	191	0	0	41	337	0	0	0	0	0	0			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	41	191	0	0	41	337	0	0	0	0	0	0			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
PHF Volume:	45	208	0	0	45	366	0	0	0	0	0	0			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	45	208	0	0	45	366	0	0	0	0	0	0			
Critical Gap Module:															
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Capacity Module:															
Cnflict Vol:	22	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Potent Cap.:	995	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Move Cap.:	568	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Volume/Cap:	0.08	0.23	xxxx	xxxx	0.05	0.41	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Level Of Service Module:															
2Way95thQ:	0.3	0.9	xxxxx	xxxx	0.2	2.0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Control Del:	11.9	10.2	xxxxx	xxxxx	9.2	11.7	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
LOS by Move:	B	B	*	*	A	B	*	*	*	*	*	*			
Movement:	LT - LTR - RT				LT - LTR - RT					LT - LTR - RT				LT - LTR - RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	10.5			11.4			xxxxxx			xxxxxx					
ApproachLOS:	B			B			*			*					

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 11.8 Worst Case Level Of Service: B[13.0]

Street Name:	Willow Pass Road									N. Parkside Drive WB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Yield Sign					Yield Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Volume Module:																				
Base Vol:	16	422		0		0	80		172		0		0		0	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	16	422		0		0	80		172		0		0		0	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	17	459		0		0	87		187		0		0		0	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	17	459		0		0	87		187		0		0		0	0		0		0
Critical Gap Module:																				
Critical Gp:	7.1	6.5	xxxxx	xxxxx		6.5		6.2		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx					
FollowUpTim:	3.5	4.0	xxxxx	xxxxx		4.0		3.3		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx					
Capacity Module:																				
Cnflict Vol:	43	0	xxxxx	xxxx		0		0		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					
Potent Cap.:	964	900	xxxxx	xxxx		900		900		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					
Move Cap.:	707	900	xxxxx	xxxx		900		900		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					
Volume/Cap:	0.02	0.51	xxxx	xxxx		0.10		0.21		xxxx	xxxx	xxxx	xxxx	xxxx	xxxx					
Level Of Service Module:																				
2Way95thQ:	0.1	3.0	xxxxx	xxxx		0.3		0.8		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					
Control Del:	10.2	13.1	xxxxx	xxxxx		9.4		10.0		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx					
LOS by Move:	B	B	*	*		A		B		*	*	*	*	*	*					
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx		xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx	xxxx		xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx		xxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx		xxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx		xxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx		xxxx	xxxx	xxxxx		
Shared LOS:	*	*	*	*		*		*			*	*	*	*		*	*	*		
ApproachDel:	13.0					9.8					xxxxxx					xxxxxx				
ApproachLOS:	B					A					*					*				

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 6.9 Worst Case Level Of Service: A[9.7]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	30		8		4	36		0		161		0	16		0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00		1.00		1.00
Initial Bse:	0	30		8		4	36		0		161		0	16		0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92	0.92		0.92		0.92		0.92
PHF Volume:	0	33		9		4	39		0		175		0	17		0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0	0		0		0		0
FinalVolume:	0	33		9		4	39		0		175		0	17		0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		6.4		6.5	6.2		xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		3.5		4.0	3.3		xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		41	xxxx		xxxxx		85		89	39		xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		1581	xxxx		xxxxx		922		805	1038		xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		1581	xxxx		xxxxx		920		803	1038		xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		0.00	xxxx		xxxx		0.19		0.00	0.02		xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx		xxxx	0.1		xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		xxxxx		xxxx	8.5		xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		A	*		*		*		*	A		*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		920		xxxx	xxxxx		xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		0.7		xxxx	xxxxx		xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		9.8		xxxx	xxxxx		xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		A	*		*		A		*	*		*		*		*
ApproachDel:	xxxxxx					xxxxxx					9.7					xxxxxx				
ApproachLOS:	*					*					A					*				

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 8.1 Worst Case Level Of Service: B[12.2]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	111		23		0	44		0		311		2		36	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	111		23		0	44		0		311		2		36	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	0	121		25		0	48		0		338		2		39	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	0	121		25		0	48		0		338		2		39	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		181		193		48	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		813		705		1027	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		813		705		1027	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		xxxx	xxxx		xxxx		0.42		0.00		0.04	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		xxxx		0.1	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		xxxx		8.6	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		*	*		*		*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		812		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		2.1		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		12.6		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		*	*		*		B		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					12.2					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NT                                                 05/27/08
==========================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            313  857  109
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0   1.0  2.0  1.0   1.1 ---  325  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   2.2<---  223  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0   2.0  2.1  1.1   1.1 ---   91  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   389  803  121                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      121        121       1650      0.0733
    THRU (T)       803        803       3300      0.2433
    LEFT (L)       389        389       3000      0.1297      0.1297
    T + R                     924       3300      0.2800
--------------------------------------------------------------------------
SB  RIGHT (R)      313        313       1650      0.1897
    THRU (T)       857        857       3300      0.2597      0.2597
    LEFT (L)       109        109       1650      0.0661
--------------------------------------------------------------------------
WB  RIGHT (R)      325        325       1650      0.1970      0.1970
    THRU (T)       223        223       3300      0.0676
    LEFT (L)        91         91       1650      0.0552
    T + R                     548       3300      0.1661
    T + L                     314       3300      0.0952
    T + R + L                 639       3300      0.1936
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.59
     INTERSECTION LEVEL OF SERVICE:                             A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NT                                                  05/27/08
==========================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            254  748  115
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.0  2.0  1.0   1.1 ---  297  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  164  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0    2.0  2.1  1.1   1.1 ---  104  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   305  934  284                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*    CAPACITY    RATIO      V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      284        284        1650      0.1721
    THRU (T)       934        934        3300      0.2830
    LEFT (L)       305        305        3000      0.1017
    T + R                    1218        3300      0.3691     0.3691
--------------------------------------------------------------------------
SB  RIGHT (R)      254        254        1650      0.1539
    THRU (T)       748        748        3300      0.2267
    LEFT (L)       115        115        1650      0.0697     0.0697
--------------------------------------------------------------------------
WB  RIGHT (R)      297        297        1650      0.1800     0.1800
    THRU (T)       164        164        3300      0.0497
    LEFT (L)       104        104        1650      0.0630
    T + R                     461        3300      0.1397
    T + L                     268        3300      0.0812
    T + R + L                 565        3300      0.1712
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.62
     INTERSECTION LEVEL OF SERVICE:                                 B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NT                                                  05/27/08
==========================================================================
INTERSECTION     8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  673  259
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   282 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU     3 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT  440 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0  992  255                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      255        255       1720      0.1483
    THRU (T)       992        992       5160      0.1922
    T + R                    1247       5160      0.2417     0.2417
--------------------------------------------------------------------------
SB  THRU (T)       673        673       3440      0.1956
    LEFT (L)       259        259       1720      0.1506     0.1506
--------------------------------------------------------------------------
EB  RIGHT (R)      440        440       3127      0.1407
    THRU (T)         3          3       1720      0.0017
    LEFT (L)       282        282       3127      0.0902
    T + R                     443       3127      0.1417
    T + L                     285       3127      0.0911
    T + R + L                 725       4534      0.1599     0.1599
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.55
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NT                                                  05/27/08
==========================================================================
INTERSECTION     8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  700   77
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? Y
LEFT   567 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU   114 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT 1075 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---  ^   --->       |
             v           |   |    |          v
  N                      |   |    |                        SIG WARRANTS:
W + E                    0  936  130                          Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     130        130       1720      0.0756
    THRU (T)      936        936       5160      0.1814
    T + R                   1066       5160      0.2066     0.2066
--------------------------------------------------------------------------
SB  THRU (T)      700        700       3440      0.2035
    LEFT (L)       77         77       1720      0.0448     0.0448
--------------------------------------------------------------------------
EB  RIGHT (R)    1075       1075       3127      0.3438
    THRU (T)      114        114       1720      0.0663
    LEFT (L)      567        567       3127      0.1813
    T + R                   1189       3127      0.3802
    T + L                    681       3127      0.2178
    T + R + L               1756       4534      0.3873     0.3873
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.64
     INTERSECTION LEVEL OF SERVICE:                                  B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NT                                                  05/27/08
==========================================================================
INTERSECTION      9 Railroad Ave./10th St.            Contra Costa
Count Date                     Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             25  164   37
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    10 ---  1.0   1.1  2.1  1.0   1.1 ---   38  RIGHT
                                                          STREET NAME:
THRU   150 ---> 1.0  (NO. OF LANES)   1.1<---  207  THRU  10th St.

RIGHT  198 ---  1.9   1.0  1.0  1.8   1.0 ---   44  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   160  141   61                       Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      61          0 *     1650      0.0000
    THRU (T)      141        141       1650      0.0855
    LEFT (L)      160        160       1650      0.0970      0.0970
--------------------------------------------------------------------------
SB  RIGHT (R)      25         25       1650      0.0152
    THRU (T)      164        164       3300      0.0497
    LEFT (L)       37         37       1650      0.0224
    T + R                    189       3300      0.0573      0.0573
--------------------------------------------------------------------------
EB  RIGHT (R)     198        198       1650      0.1200
    THRU (T)      150        150       1650      0.0909
    LEFT (L)       10         10       1650      0.0061      0.0061
--------------------------------------------------------------------------
WB  RIGHT (R)      38         38       1650      0.0230
    THRU (T)      207        207       1650      0.1255
    LEFT (L)       44         44       1650      0.0267
    T + R                    245       1650      0.1485      0.1485
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.31
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_NT                                              05/27/08
=====================================================================
INTERSECTION      9 Railroad Ave./10th St.          Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      6-PHASE SIGNAL
-----------             31  146   60
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? N
LEFT    49 ---  1.0   1.1  2.1  1.0   1.1 ---   48  RIGHT
                                                        STREET NAME:
THRU   330 ---> 1.0  (NO. OF LANES)   1.1<---  211  THRU  10th St.

RIGHT  162 ---  1.9   1.0  1.0  1.8   1.0 ---   40  LEFT
             |       <---   ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                   135  178   83                        Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO      V/C
---------------------------------------------------------------------
NB  RIGHT (R)      83          0 *     1650      0.0000
    THRU (T)      178        178      1650      0.1079     0.1079
    LEFT (L)      135        135      1650      0.0818
---------------------------------------------------------------------
SB  RIGHT (R)      31         31      1650      0.0188
    THRU (T)      146        146      3300      0.0442
    LEFT (L)       60         60      1650      0.0364     0.0364
    T + R                    177      3300      0.0536
---------------------------------------------------------------------
EB  RIGHT (R)     162        162      1650      0.0982
    THRU (T)      330        330      1650      0.2000     0.2000
    LEFT (L)       49         49      1650      0.0297
---------------------------------------------------------------------
WB  RIGHT (R)      48         48      1650      0.0291
    THRU (T)      211        211      1650      0.1279
    LEFT (L)       40         40      1650      0.0242     0.0242
    T + R                    259      1650      0.1570
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.37
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NT_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 Montezuma St-Herb White Way/10th Street

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[13.2]

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	9	1	20	25	3	88	51	161	6	9	312	22
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	1	20	25	3	88	51	161	6	9	312	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	10	1	22	27	3	96	55	175	7	10	339	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	10	1	22	27	3	96	55	175	7	10	339	24
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	709	672	178	671	663	351	363	xxxx	xxxxx	182	xxxx	xxxxx
Potent Cap.:	351	380	870	373	384	697	1207	xxxx	xxxxx	1406	xxxx	xxxxx
Move Cap.:	289	360	870	348	364	697	1207	xxxx	xxxxx	1406	xxxx	xxxxx
Volume/Cap:	0.03	0.00	0.02	0.08	0.01	0.14	0.05	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	527	xxxxx	xxxx	562	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	12.3	xxxxx	xxxxx	13.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	12.3			13.2			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 Montezuma St-Herb White Way/10th Street

Average Delay (sec/veh): 4.8 Worst Case Level Of Service: D[25.3]

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	5	6	31	45	6	71	105	429	16	36	235	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	6	31	45	6	71	105	429	16	36	235	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	5	7	34	49	7	77	114	466	17	39	255	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	7	34	49	7	77	114	466	17	39	255	43
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1101	1080	475	1079	1067	277	299	xxxx	xxxxx	484	xxxx	xxxxx
Potent Cap.:	191	220	594	198	224	766	1274	xxxx	xxxxx	1090	xxxx	xxxxx
Move Cap.:	152	193	594	165	196	766	1274	xxxx	xxxxx	1090	xxxx	xxxxx
Volume/Cap:	0.04	0.03	0.06	0.30	0.03	0.10	0.09	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	8.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	361	xxxxx	xxxx	308	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	2.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.4	xxxxx	xxxxx	25.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		16.4			25.3		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

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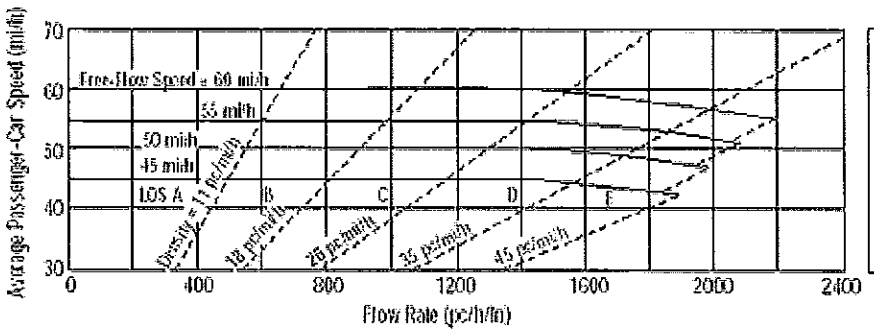
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	583	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	320
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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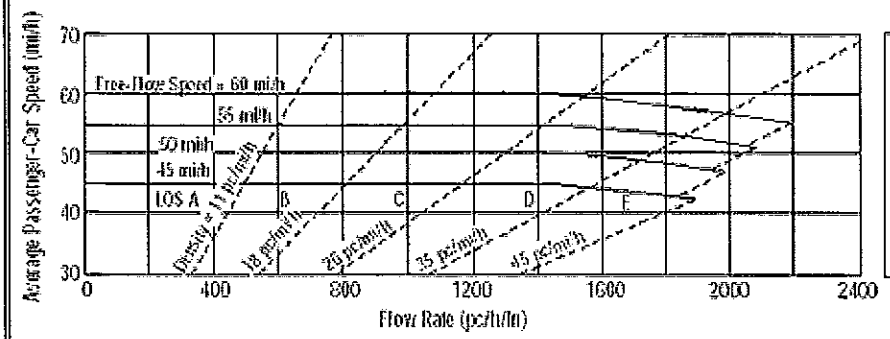
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	467	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	256
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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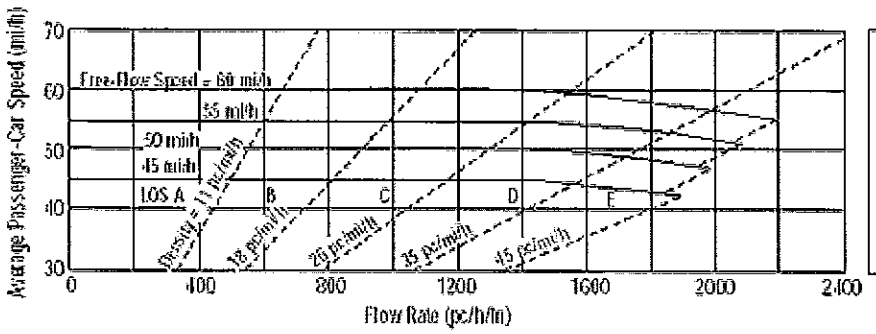
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	845	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	463
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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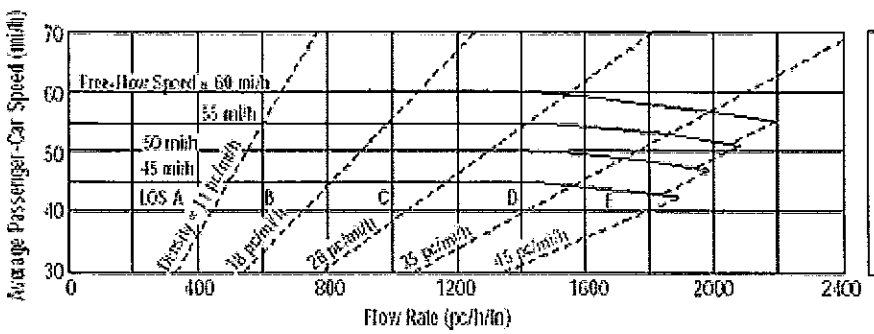
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	510	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	279
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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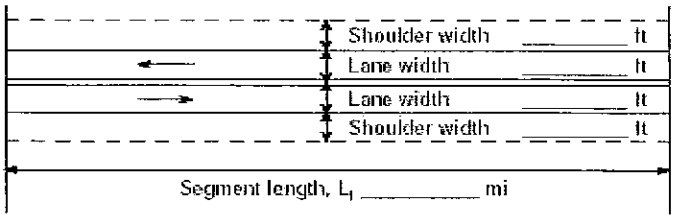
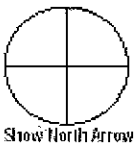
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Bailey Rd./Loftus Rd.*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*AM Peak*	Analysis Year	*Near-Term Conditions*

Project Description: *Willow Pass Generating Station*

Input Data





☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1228* veh/h
Directional split	*69 / 31*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*13*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1337*
v_p * highest directional split proportion[2] (pc/h)	*923*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*3.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.8*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*34.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1335*
v_p * highest directional split proportion[2] (pc/h)	*921*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*69.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*9.0*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*78.0*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.42*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	*501*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	*1842*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*14.5*

Notes

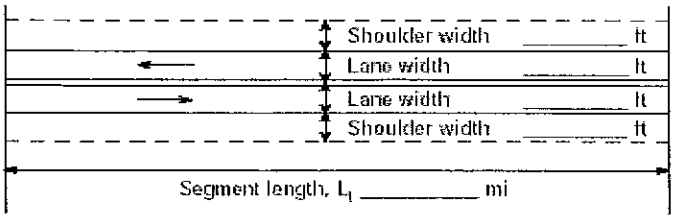
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Bailey Rd./Loftus Rd.*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*PM Peak*	Analysis Year	*Near-Term Conditions*

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1391* veh/h
Directional split	*67 / 33*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*13*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1515*
v_p * highest directional split proportion[2] (pc/h)	*1015*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*3.3 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*46.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.6*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*33.4*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1512*
v_p * highest directional split proportion[2] (pc/h)	*1013*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*73.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*7.5*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*81.0*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.47*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*567*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	*2087*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*17.0*

Notes

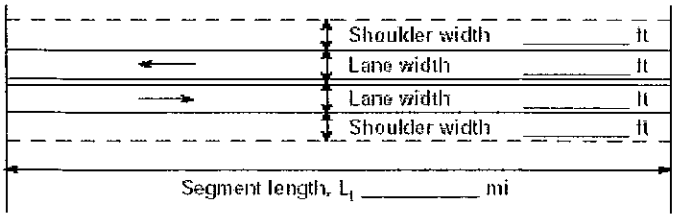
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

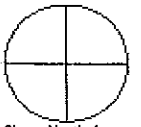
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*Loftus Rd./N Parkside Dr. Ramp*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*AM Peak*	Analysis Year	*Near-Term Conditions*

Project Description: *Willow Pass Generating Station*

Input Data





☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1612* veh/h
Directional split	*72 / 28*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*5*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1756*
v_p * highest directional split proportion[2] (pc/h)	*1264*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*48.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.3*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*33.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1752*
v_p * highest directional split proportion[2] (pc/h)	*1261*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*78.6*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*6.1*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*84.6*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.55*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*657*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	*2418*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*19.4*

Notes

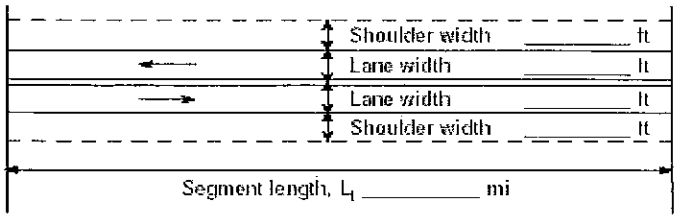
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Loftus Rd./N Parkside Dr. Ramp
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1467 veh/h
Directional split	66 / 34
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1598
v_p * highest directional split proportion[2] (pc/h)	1055

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.5
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	34.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1595
v_p * highest directional split proportion[2] (pc/h)	1053
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	75.4
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	6.9
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	82.3

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.50
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	598
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	2201
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	17.2

Notes

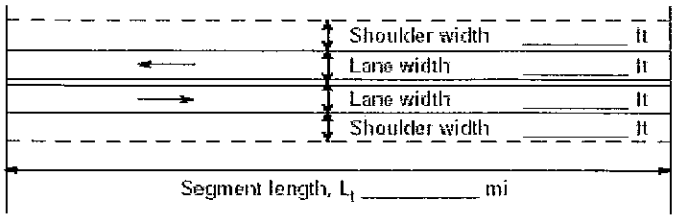
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	800 veh/h
Directional split	74 / 26
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	873
v_p * highest directional split proportion[2] (pc/h)	646

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.9
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	39.1

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	871
v_p * highest directional split proportion[2] (pc/h)	645
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	53.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.8
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	68.3

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.27
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	326
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1200
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	8.3

Notes

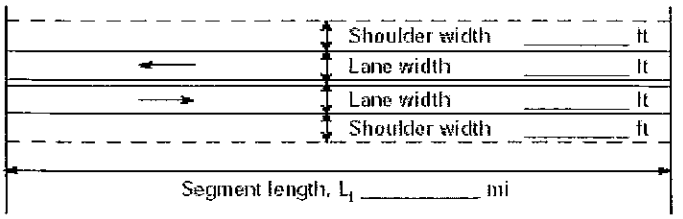
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	735 veh/h
Directional split	62 / 38
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	802
v_p * highest directional split proportion[2] (pc/h)	497

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	3.0
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	39.5

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	801
v_p * highest directional split proportion[2] (pc/h)	497
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	50.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.4
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	65.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.25
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	300
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1103
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	7.6

Notes

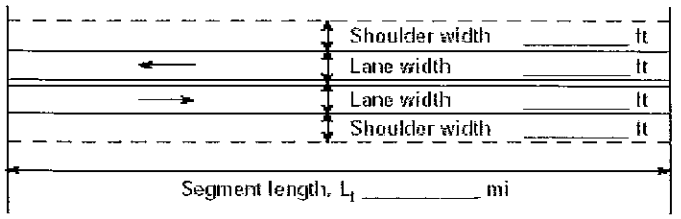
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	804 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	877
v_p * highest directional split proportion[2] (pc/h)	588

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	38.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	876
v_p * highest directional split proportion[2] (pc/h)	587
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	53.7
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	13.7
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	67.4

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.27
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	371
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1367
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	9.6

Notes

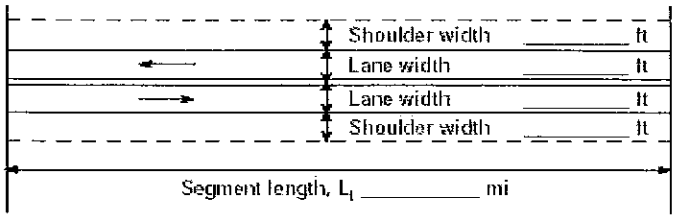
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	838 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	915
v_p * highest directional split proportion[2] (pc/h)	668

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	38.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	913
v_p * highest directional split proportion[2] (pc/h)	666
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	55.2
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.1
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	69.2

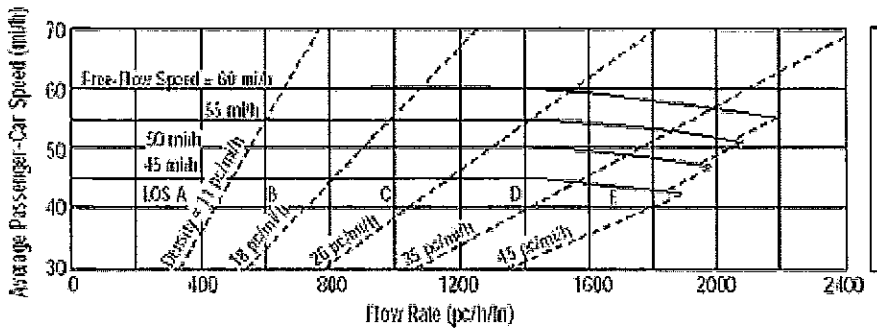
Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.29
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	387
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1425
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	10.1

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	897	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	492
Speed, S (mi/h)	52.0
D (pc/mi/ln)	9.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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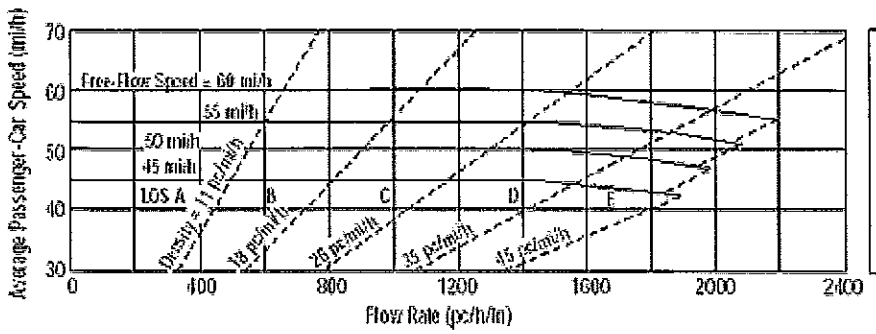
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	785	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	430
Speed, S (mi/h)	52.0
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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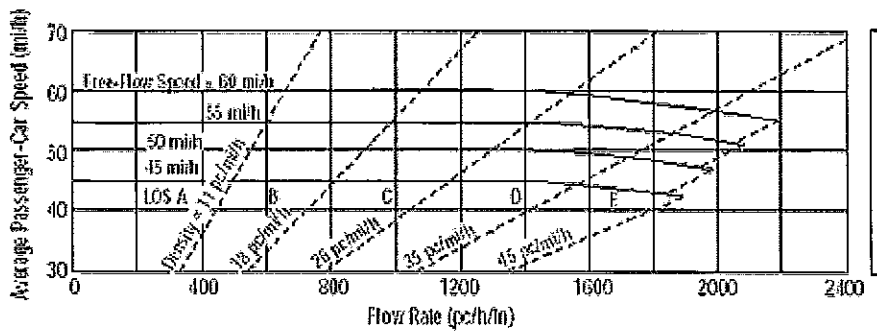
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	998	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	547
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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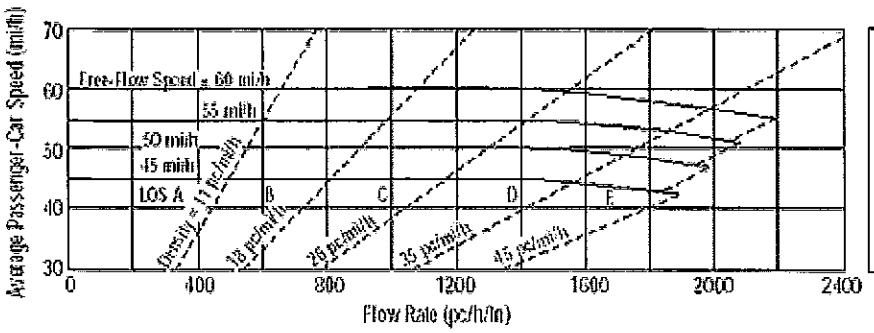
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1086	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	596
Speed, S (mi/h)	52.0
D (pc/mi/ln)	11.5
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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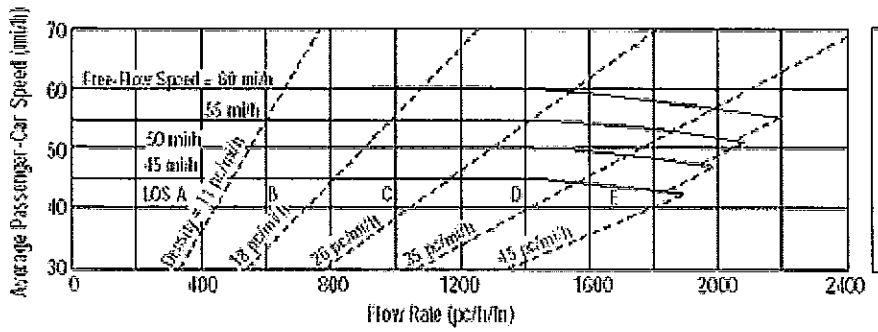
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	385	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	211
Speed, S (mi/h)	45.0
D (pc/mi/ln)	4.7
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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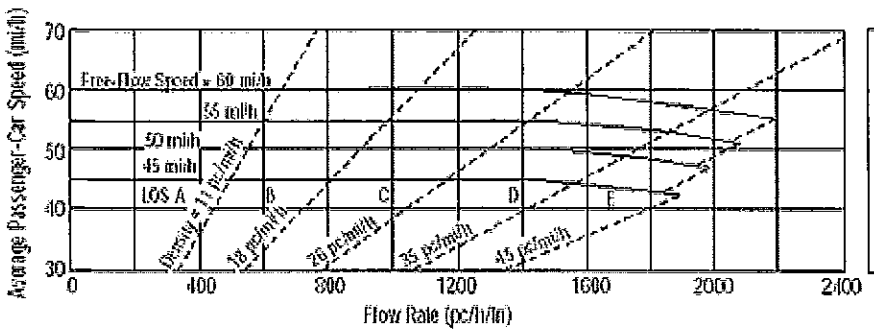
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	843	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	462
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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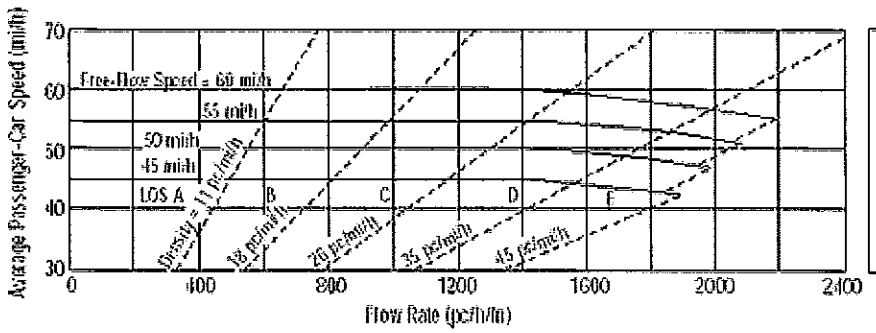
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	930	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	510
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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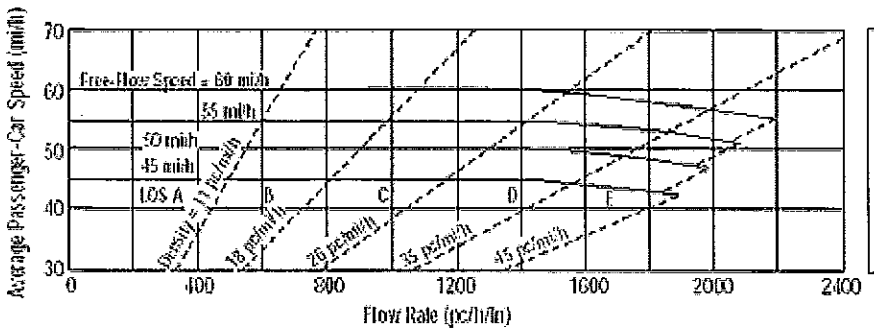
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	461	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	253
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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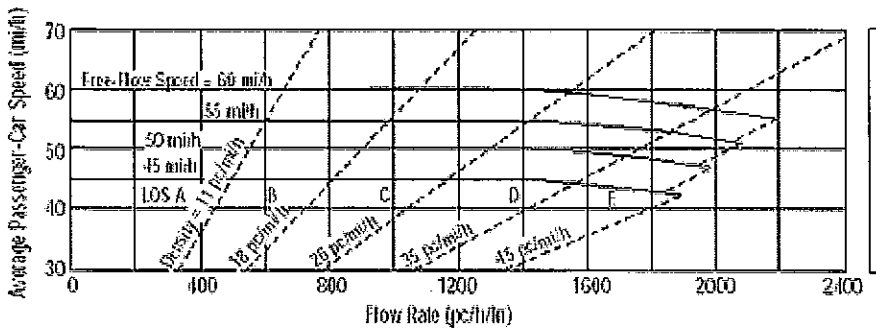
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	453	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	248
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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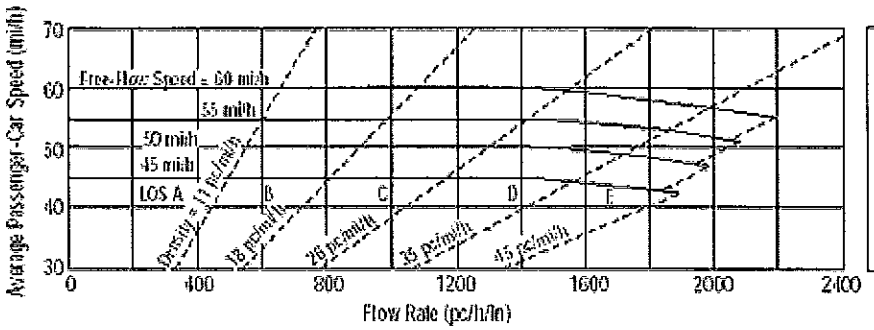
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1158	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	635
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.1
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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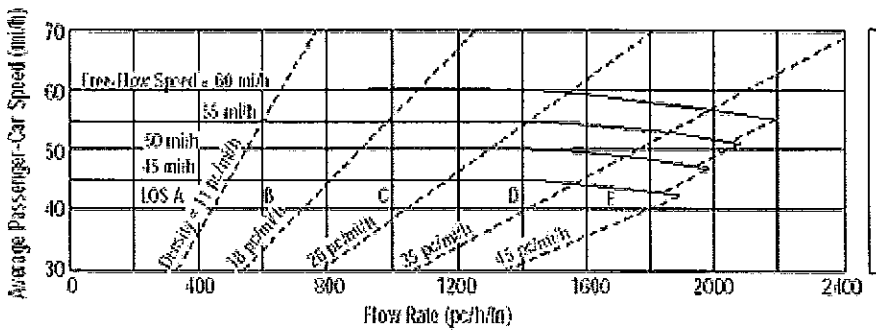
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	967	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	530
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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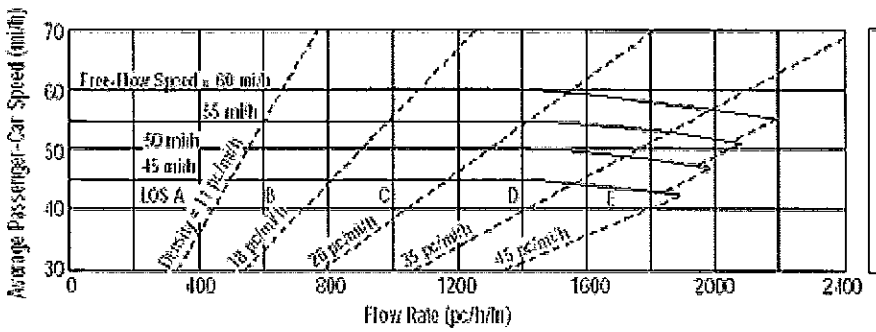
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	499	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	273
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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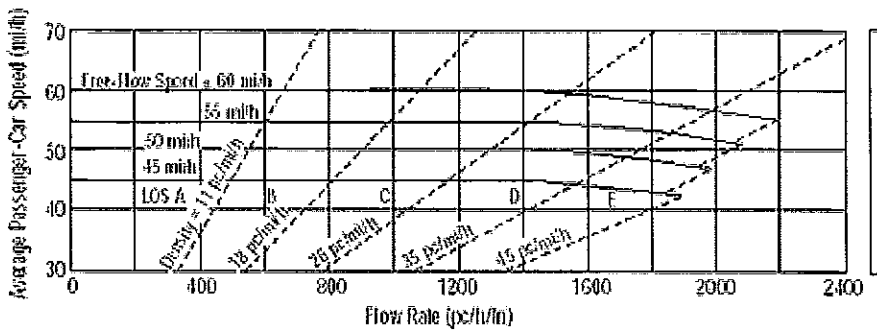
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	211	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	115
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.2
LOS	A

Design

Design (N)
Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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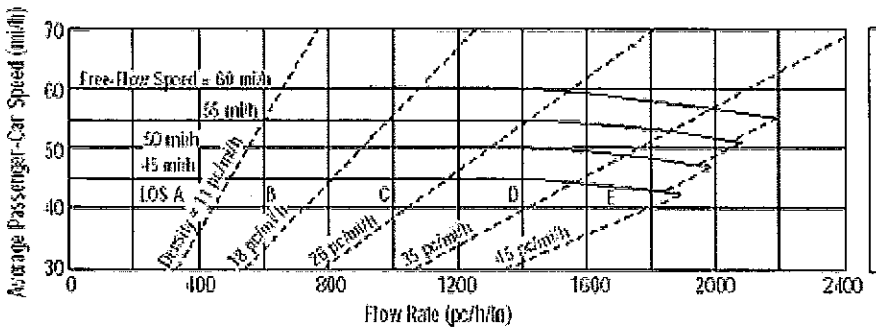
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	589	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	323
Speed, S (mi/h)	52.0
D (pc/mi/ln)	6.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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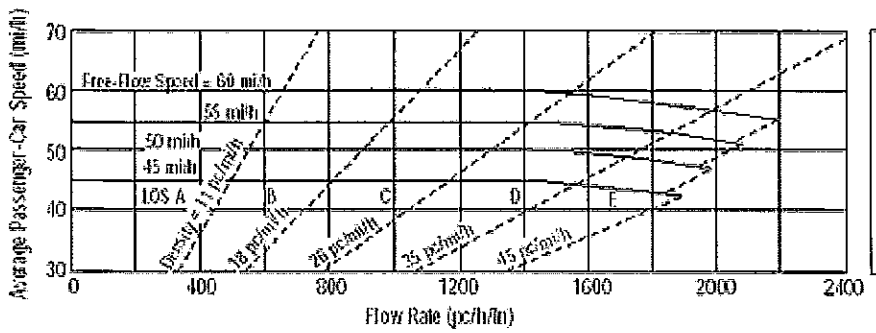
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	457	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)	
Flow Rate, v_p (pc/h/ln)	250
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.8
LOS	A

Design

Design (N)	
Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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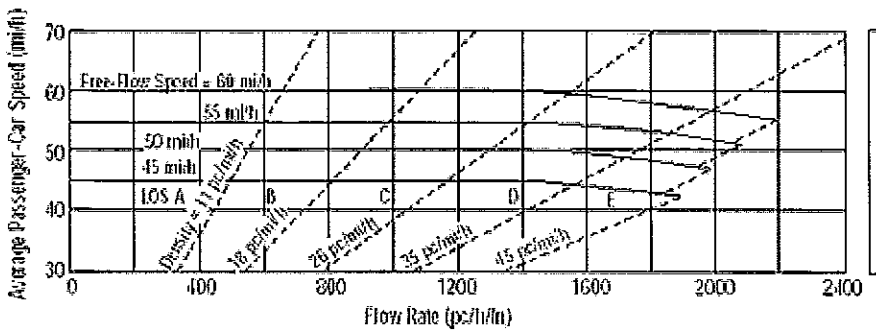
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	277	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	152
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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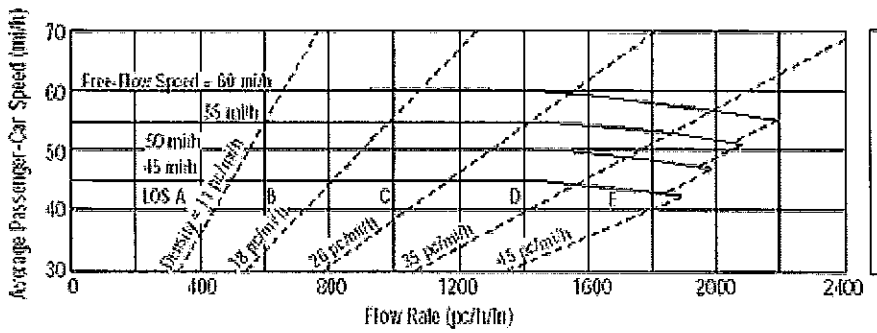
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	268	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	147
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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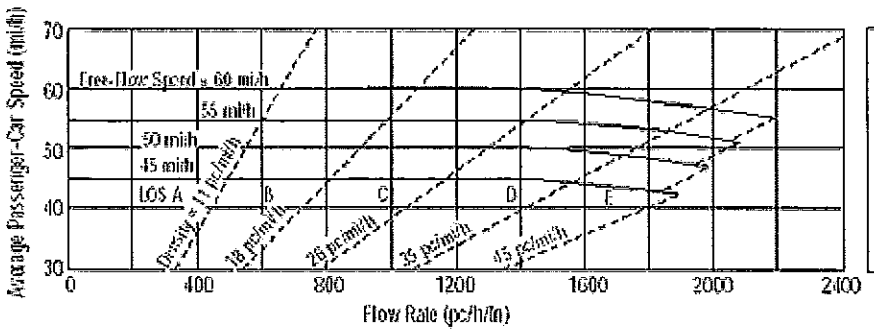
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	535	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	293
Speed, S (mi/h)	52.0
D (pc/mi/ln)	5.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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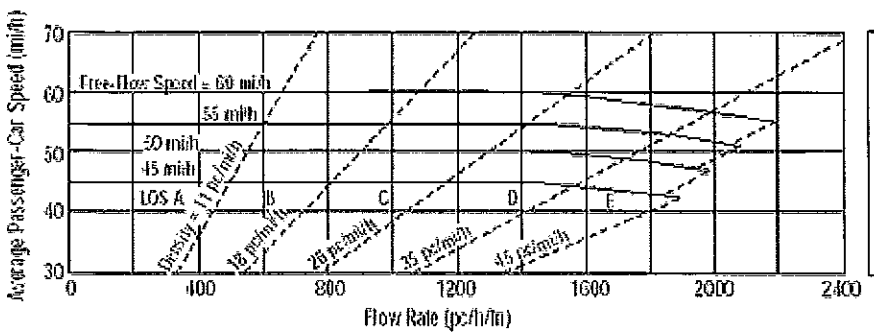
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	614	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	337
Speed, S (mi/h)	52.0
D (pc/mi/ln)	6.5
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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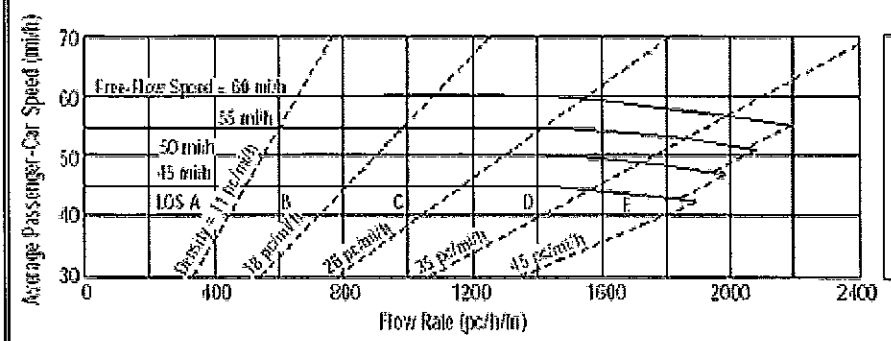
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	224	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	122
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.3
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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Appendix P5
Near-Term Plus Project Conditions – Level of Service Analysis

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                      Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            132  408  132
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---  124  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  269  THRU  Route 4 WB Ramps

RIGHT  234 ---  1.9    2.0  3.1  1.1   1.1 ---  178  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   355  640  176                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     176        176       1650      0.1067
    THRU (T)      640        640       4950      0.1293
    LEFT (L)      355        355       3000      0.1183      0.1183
    T + R                    816       4950      0.1648
--------------------------------------------------------------------------
SB  RIGHT (R)     132        132       1650      0.0800
    THRU (T)      408        408       3300      0.1236
    LEFT (L)      132        132       1650      0.0800
    T + R                    540       3300      0.1636      0.1636
--------------------------------------------------------------------------
EB  RIGHT (R)     234        234       1650      0.1418
--------------------------------------------------------------------------
WB  RIGHT (R)     124        124       1650      0.0752
    THRU (T)      269        269       3300      0.0815
    LEFT (L)      178        178       1650      0.1079
    T + R                    393       3300      0.1191
    T + L                    447       3300      0.1355
    T + R + L                571       3300      0.1730      0.1730
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.45
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NTP                                                  06/10/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            225  340   38
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---   34  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  117  THRU  Route 4 WB Ramps

RIGHT  255 ---  1.9    2.0  3.1  1.1   1.1 ---   95  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                  246  590  336                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      336        336       1650      0.2036
    THRU (T)       590        590       4950      0.1192
    LEFT (L)       246        246       3000      0.0820     0.0820
    T + R                     926       4950      0.1871
--------------------------------------------------------------------------
SB  RIGHT (R)      225        225       1650      0.1364
    THRU (T)       340        340       3300      0.1030
    LEFT (L)        38         38       1650      0.0230
    T + R                     565       3300      0.1712     0.1712
--------------------------------------------------------------------------
EB  RIGHT (R)      255        255       1650      0.1545
--------------------------------------------------------------------------
WB  RIGHT (R)       34         34       1650      0.0206
    THRU (T)       117        117       3300      0.0355
    LEFT (L)        95         95       1650      0.0576
    T + R                     151       3300      0.0458
    T + L                     212       3300      0.0642
    T + R + L                 246       3300      0.0745     0.0745
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.33
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION     2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            242  575  209
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT    98 ---  1.1    1.9  2.0  2.0   1.9 ---  198  RIGHT
                                                          STREET NAME:
THRU   120 ---> 2.1   (NO. OF LANES)    0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  175 ---  1.8    0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    0  666  233                          Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     233        233       1720      0.1355
    THRU (T)      666        666       3440      0.1936      0.1936
--------------------------------------------------------------------------
SB  RIGHT (R)     242        242       1720      0.1407
    THRU (T)      575        575       3440      0.1672      0.1672
    LEFT (L)      209        209       3127      0.0668
--------------------------------------------------------------------------
EB  RIGHT (R)     175          0 *     1720      0.0000
    THRU (T)      120        120       3440      0.0349
    LEFT (L)       98         98       1720      0.0570
    T + L                    218       3440      0.0634      0.0634
--------------------------------------------------------------------------
WB  RIGHT (R)     198        198       1720      0.1151
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.42
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NTP                                                 06/10/08
==========================================================================
INTERSECTION      2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            139  469  111
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   140 ---  1.1    1.9  2.0  2.0   1.9 ---  641  RIGHT
                                                          STREET NAME:
THRU   212 ---> 2.1   (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  510 ---  1.8    0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    0  552  119                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     119        119       1720      0.0692
    THRU (T)      552        552       3440      0.1605     0.1605
--------------------------------------------------------------------------
SB  RIGHT (R)     139        139       1720      0.0808
    THRU (T)      469        469       3440      0.1363     0.1363
    LEFT (L)      111        111       3127      0.0355
--------------------------------------------------------------------------
EB  RIGHT (R)     510          0 *     1720      0.0000
    THRU (T)      212        212       3440      0.0616
    LEFT (L)      140        140       1720      0.0814
    T + L                    352       3440      0.1023     0.1023
--------------------------------------------------------------------------
WB  RIGHT (R)     641        641       1720      0.3727
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.40
     INTERSECTION LEVEL OF SERVICE:                             A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION      3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      0 ---  0.0    0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                        STREET NAME:
THRU     93 ---> 1.0   (NO. OF LANES)   2.0<---   344  THRU  Willow Pass Rd.

RIGHT    57 ---  1.8    1.0  0.0  1.0   1.0 ---    81  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   132    0  136                         Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
==========================================================================
                 ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*    CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      136         55 *      1720      0.0320
    LEFT (L)       132        132        1720      0.0767     0.0767
--------------------------------------------------------------------------
EB  RIGHT (R)       57          0 *      1720      0.0000
    THRU (T)        93         93        1720      0.0541     0.0541
--------------------------------------------------------------------------
WB  THRU (T)       344        344        3440      0.1000
    LEFT (L)        81         81        1720      0.0471     0.0471
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.18
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NTP                                                 06/10/08
==========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                      Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU   356 ---> 1.0  (NO. OF LANES)   2.0<---  145  THRU  Willow Pass Rd.

RIGHT   79 ---  1.8   1.0  0.0  1.0   1.0 ---  186  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   154    0  230                       Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     230         44 *     1720      0.0256
    LEFT (L)      154        154       1720      0.0895     0.0895
--------------------------------------------------------------------------
EB  RIGHT (R)      79          0 *     1720      0.0000
    THRU (T)      356        356       1720      0.2070     0.2070
--------------------------------------------------------------------------
WB  THRU (T)      145        145       3440      0.0422
    LEFT (L)      186        186       1720      0.1081     0.1081
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.40
     INTERSECTION LEVEL OF SERVICE:                               A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION     4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------              8    8   45
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  1.0   1.1  1.1  1.1   1.1 ---    5  RIGHT
                                                          STREET NAME:
THRU   210 ---> 1.0  (NO. OF LANES)   1.1<---  338  THRU  Willow Pass Rd.

RIGHT   10 ---  1.0   1.1  1.1  1.1   1.0 ---   11  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    8    9   10                       Urb=N, Rur=N
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      10         10        1650      0.0061
    THRU (T)        9          9        1650      0.0055
    LEFT (L)        8          8        1650      0.0048
    T + R                     19        1650      0.0115
    T + L                     17        1650      0.0103
    T + R + L                 27        1650      0.0164     0.0164
--------------------------------------------------------------------------
SB  RIGHT (R)       8          8        1650      0.0048
    THRU (T)        8          8        1650      0.0048
    LEFT (L)       45         45        1650      0.0273
    T + R                     16        1650      0.0097
    T + L                     53        1650      0.0321
    T + R + L                 61        1650      0.0370     0.0370
--------------------------------------------------------------------------
EB  RIGHT (R)      10          2 *      1650      0.0012
    THRU (T)      210        210        1650      0.1273
    LEFT (L)        0          0        1650      0.0000     0.0000
--------------------------------------------------------------------------
WB  RIGHT (R)       5          5        1650      0.0030
    THRU (T)      338        338        1650      0.2048
    LEFT (L)       11         11        1650      0.0067
    T + R                    343        1650      0.2079     0.2079
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.26
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_NTP                                            06/10/08
=====================================================================
INTERSECTION     4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      5-PHASE SIGNAL
-----------             34   12   21
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     5 ---  1.0    1.1  1.1  1.1   1.1 ---   10  RIGHT
                                                       STREET NAME:
THRU   500 ---> 1.0   (NO. OF LANES)   1.1<---  307  THRU  Willow Pass Rd.

RIGHT   24 ---  1.0    1.1  1.1  1.1   1.0 ---   24  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    8    0    6                        Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Loftus Rd.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)       6          6        1650      0.0036
    THRU (T)        0          0        1650      0.0000
    LEFT (L)        8          8        1650      0.0048
    T + R                      6        1650      0.0036
    T + L                      8        1650      0.0048
    T + R + L                 14        1650      0.0085     0.0085
---------------------------------------------------------------------
SB  RIGHT (R)      34         34        1650      0.0206
    THRU (T)       12         12        1650      0.0073
    LEFT (L)       21         21        1650      0.0127
    T + R                     46        1650      0.0279
    T + L                     33        1650      0.0200
    T + R + L                 67        1650      0.0406     0.0406
---------------------------------------------------------------------
EB  RIGHT (R)      24         16 *      1650      0.0097
    THRU (T)      500        500        1650      0.3030     0.3030
    LEFT (L)        5          5        1650      0.0030
---------------------------------------------------------------------
WB  RIGHT (R)      10         10        1650      0.0061
    THRU (T)      307        307        1650      0.1861
    LEFT (L)       24         24        1650      0.0145     0.0145
    T + R                    317        1650      0.1921
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.37
     INTERSECTION LEVEL OF SERVICE:                             A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 11.4 Worst Case Level Of Service: B[11.5]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	41	300	0	0	41	343	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	41	300	0	0	41	343	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	45	326	0	0	45	373	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	45	326	0	0	45	373	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	22	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	995	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	561	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.08	0.36	xxxx	xxxx	0.05	0.41	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.3	1.7	xxxxx	xxxx	0.2	2.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	12.0	11.3	xxxxx	xxxxx	9.2	11.8	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	B	*	*	A	B	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	11.3			11.5			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 12.0 Worst Case Level Of Service: B[13.1]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	16	428	0	0	80	280	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	16	428	0	0	80	280	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	17	465	0	0	87	304	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	465	0	0	87	304	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	43	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	964	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	591	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.03	0.52	xxxx	xxxx	0.10	0.34	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1	3.0	xxxxx	xxxx	0.3	1.5	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	11.3	13.2	xxxxx	xxxxx	9.4	11.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	B	*	*	A	B	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	13.1			10.7			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 8.4 Worst Case Level Of Service: B[10.6]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0		30		8	4		36		0	269		0		16	0		0		0
Growth Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0		30		8	4		36		0	269		0		16	0		0		0
User Adj:	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92		0.92		0.92	0.92		0.92		0.92	0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	0		33		9	4		39		0	292		0		17	0		0		0
Reduct Vol:	0		0		0	0		0		0	0		0		0	0		0		0
FinalVolume:	0		33		9	4		39		0	292		0		17	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx		xxxx		xxxxx	4.1		xxxx		xxxxx	6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx		xxxx		xxxxx	2.2		xxxx		xxxxx	3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx		xxxx		xxxxx	41		xxxx		xxxxx	85		89		39	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx		xxxx		xxxxx	1581		xxxx		xxxxx	922		805		1038	xxxx		xxxx		xxxxx
Move Cap.:	xxxx		xxxx		xxxxx	1581		xxxx		xxxxx	920		803		1038	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx		xxxx		xxxx	0.00		xxxx		xxxx	0.32		0.00		0.02	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx		xxxx		xxxxx	0.0		xxxx		xxxxx	xxxx		xxxx		0.1	xxxx		xxxx		xxxxx
Control Del:	xxxxx		xxxx		xxxxx	7.3		xxxx		xxxxx	xxxxx		xxxx		8.5	xxxxx		xxxx		xxxxx
LOS by Move:	*		*		*	A		*		*	*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx		xxxx		xxxxx	xxxx		xxxx		xxxxx	920		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx		xxxx		xxxxx	0.0		xxxx		xxxxx	1.4		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx		xxxx		xxxxx	7.3		xxxx		xxxxx	10.7		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*		*		*	A		*		*	B		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					10.6					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 8.2 Worst Case Level Of Service: B[12.3]

Street Name:	Willow Pass Road						N. Parkside Drive EB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1 0 1			0 0 1 0 0			0 1 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	111	23	0	44	0	317	2	36	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	111	23	0	44	0	317	2	36	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	121	25	0	48	0	345	2	39	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	121	25	0	48	0	345	2	39	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	181	193	48	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	813	705	1027	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	813	705	1027	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.42	0.00	0.04	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.6	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	A	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	812	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	B	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			12.3			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URS SAN JOSE, CA

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            314  863  109
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.0  2.0  1.0   1.1 ---  421  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  223  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0    2.0  2.1  1.1   1.1 ---   91  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   389  839  121                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     121        121       1650      0.0733
    THRU (T)      839        839       3300      0.2542
    LEFT (L)      389        389       3000      0.1297     0.1297
    T + R                    960       3300      0.2909
--------------------------------------------------------------------------
SB  RIGHT (R)     314        314       1650      0.1903
    THRU (T)      863        863       3300      0.2615     0.2615
    LEFT (L)      109        109       1650      0.0661
--------------------------------------------------------------------------
WB  RIGHT (R)     421        421       1650      0.2552     0.2552
    THRU (T)      223        223       3300      0.0676
    LEFT (L)       91         91       1650      0.0552
    T + R                    644       3300      0.1952
    T + L                    314       3300      0.0952
    T + R + L                735       3300      0.2227
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.65
     INTERSECTION LEVEL OF SERVICE:                                  B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_NTP                                              06/10/08
=====================================================================
INTERSECTION      7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                  Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                       4-PHASE SIGNAL
-----------            278  856  115
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.0  2.0  1.0   1.1 ---  302  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  164  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0    2.0  2.1  1.1   1.1 ---  104  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   305  936  284                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
=====================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)      284        284       1650      0.1721
    THRU (T)       936        936       3300      0.2836
    LEFT (L)       305        305       3000      0.1017
    T + R                    1220       3300      0.3697     0.3697
---------------------------------------------------------------------
SB  RIGHT (R)      278        278       1650      0.1685
    THRU (T)       856        856       3300      0.2594
    LEFT (L)       115        115       1650      0.0697     0.0697
---------------------------------------------------------------------
WB  RIGHT (R)      302        302       1650      0.1830     0.1830
    THRU (T)       164        164       3300      0.0497
    LEFT (L)       104        104       1650      0.0630
    T + R                     466       3300      0.1412
    T + L                     268       3300      0.0812
    T + R + L                 570       3300      0.1727
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.62
     INTERSECTION LEVEL OF SERVICE:                              B
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=========================================================================
Condition: AM_NTP                                                 06/10/08
=========================================================================
INTERSECTION      8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                      Time                 Peak Hour
-------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  674  264
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   306 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU     3 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT  440 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    0 1004  255                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
-------------------------------------------------------------------------
NB  RIGHT (R)     255        255       1720      0.1483
    THRU (T)     1004       1004       5160      0.1946
    T + R                   1259       5160      0.2440     0.2440
-------------------------------------------------------------------------
SB  THRU (T)      674        674       3440      0.1959
    LEFT (L)      264        264       1720      0.1535     0.1535
-------------------------------------------------------------------------
EB  RIGHT (R)     440        440       3127      0.1407
    THRU (T)        3          3       1720      0.0017
    LEFT (L)      306        306       3127      0.0979
    T + R                    443       3127      0.1417
    T + L                    309       3127      0.0988
    T + R + L                749       4534      0.1652     0.1652
-------------------------------------------------------------------------
=========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.56
     INTERSECTION LEVEL OF SERVICE:                             A
=========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NTP                                                 06/10/08
==========================================================================
INTERSECTION      8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0  712  173
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   568 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU   114 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT 1075 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0  937  130                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     130        130       1720      0.0756
    THRU (T)      937        937       5160      0.1816
    T + R                   1067       5160      0.2068     0.2068
--------------------------------------------------------------------------
SB  THRU (T)      712        712       3440      0.2070
    LEFT (L)      173        173       1720      0.1006     0.1006
--------------------------------------------------------------------------
EB  RIGHT (R)    1075       1075       3127      0.3438
    THRU (T)      114        114       1720      0.0663
    LEFT (L)      568        568       3127      0.1816
    T + R                   1189       3127      0.3802
    T + L                    682       3127      0.2181
    T + R + L               1757       4534      0.3875     0.3875
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.69
     INTERSECTION LEVEL OF SERVICE:                              B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_NTP                                                 06/10/08
==========================================================================
INTERSECTION      9 Railroad Ave./10th St.            Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             25  164   37
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? N
LEFT    10 ---  1.0   1.1  2.1  1.0   1.1 ---   38  RIGHT
                                                          STREET NAME:
THRU   150 ---> 1.0  (NO. OF LANES)   1.1<---  207  THRU  10th St.

RIGHT  205 ---  1.9   1.0  1.0  1.8   1.0 ---   44  LEFT
             |       <---   ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                   292  141   61                       Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      61          0 *     1650      0.0000
    THRU (T)      141        141       1650      0.0855
    LEFT (L)      292        292       1650      0.1770      0.1770
--------------------------------------------------------------------------
SB  RIGHT (R)      25         25       1650      0.0152
    THRU (T)      164        164       3300      0.0497
    LEFT (L)       37         37       1650      0.0224
    T + R                    189       3300      0.0573      0.0573
--------------------------------------------------------------------------
EB  RIGHT (R)     205        205       1650      0.1242
    THRU (T)      150        150       1650      0.0909
    LEFT (L)       10         10       1650      0.0061      0.0061
--------------------------------------------------------------------------
WB  RIGHT (R)      38         38       1650      0.0230
    THRU (T)      207        207       1650      0.1255
    LEFT (L)       44         44       1650      0.0267
    T + R                    245       1650      0.1485      0.1485
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.39
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_NTP                                                 06/10/08
==========================================================================
INTERSECTION      9 Railroad Ave./10th St.            Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             31  146   60
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? N
LEFT    49 ---  1.0   1.1  2.1  1.0   1.1 ---   48  RIGHT
                                                          STREET NAME:
THRU   330 ---> 1.0  (NO. OF LANES)   1.1<---  211  THRU  10th St.

RIGHT  294 ---  1.9   1.0  1.0  1.8   1.0 ---   40  LEFT
             |        <---   ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                   142  178   83                        Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      83          0 *     1650      0.0000
    THRU (T)      178        178       1650      0.1079     0.1079
    LEFT (L)      142        142       1650      0.0861
--------------------------------------------------------------------------
SB  RIGHT (R)      31         31       1650      0.0188
    THRU (T)      146        146       3300      0.0442
    LEFT (L)       60         60       1650      0.0364     0.0364
    T + R                    177       3300      0.0536
--------------------------------------------------------------------------
EB  RIGHT (R)     294        294       1650      0.1782
    THRU (T)      330        330       1650      0.2000     0.2000
    LEFT (L)       49         49       1650      0.0297
--------------------------------------------------------------------------
WB  RIGHT (R)      48         48       1650      0.0291
    THRU (T)      211        211       1650      0.1279
    LEFT (L)       40         40       1650      0.0242     0.0242
    T + R                    259       1650      0.1570
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.37
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=EX1.INT,VOL=NTP_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

****

Intersection #10 Montezuma St-Herb White Way/10th Street

****

Average Delay (sec/veh): 3.3 Worst Case Level Of Service: C[15.8]

****

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	9	1	20	25	3	88	51	168	6	9	444	22
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	1	20	25	3	88	51	168	6	9	444	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	10	1	22	27	3	96	55	183	7	10	483	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	10	1	22	27	3	96	55	183	7	10	483	24
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	860	823	186	822	814	495	507	xxxx	xxxxx	189	xxxx	xxxxx
Potent Cap.:	278	311	861	295	314	579	1069	xxxx	xxxxx	1397	xxxx	xxxxx
Move Cap.:	220	293	861	274	296	579	1069	xxxx	xxxxx	1397	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	0.10	0.01	0.17	0.05	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	444	xxxxx	xxxx	458	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	1.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	13.7	xxxxx	xxxxx	15.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	C	*	*	*	*	*	*	*
ApproachDel:		13.7			15.8		xxxxxx			xxxxxx		
ApproachLOS:		B			C		*			*		

****

Note: Queue reported is the number of cars per lane.

****

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 Montezuma St-Herb White Way/10th Street

Average Delay (sec/veh): 5.3 Worst Case Level Of Service: D[34.3]

Street Name:	Montezuma St-Herb White Way						10th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module:												
Base Vol:	5	6	31	45	6	71	105	561	16	36	242	40
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	6	31	45	6	71	105	561	16	36	242	40
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	5	7	34	49	7	77	114	610	17	39	263	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	7	34	49	7	77	114	610	17	39	263	43
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1252	1232	618	1230	1218	285	307	xxxx	xxxxx	627	xxxx	xxxxx
Potent Cap.:	151	179	493	156	182	759	1266	xxxx	xxxxx	964	xxxx	xxxxx
Move Cap.:	118	156	493	127	159	759	1266	xxxx	xxxxx	964	xxxx	xxxxx
Volume/Cap:	0.05	0.04	0.07	0.39	0.04	0.10	0.09	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	8.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	292	xxxxx	xxxx	251	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.5	xxxxx	xxxxx	2.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	19.6	xxxxx	xxxxx	34.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:	19.6			34.3			xxxxxx			xxxxxx		
ApproachLOS:	C			D			*			*		

Note: Queue reported is the number of cars per lane.

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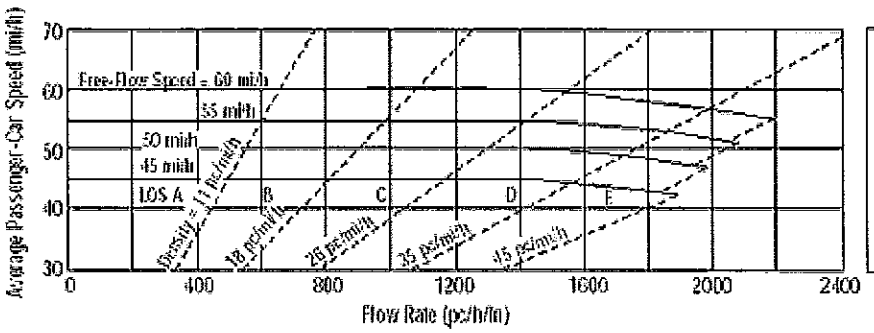
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	679	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	372
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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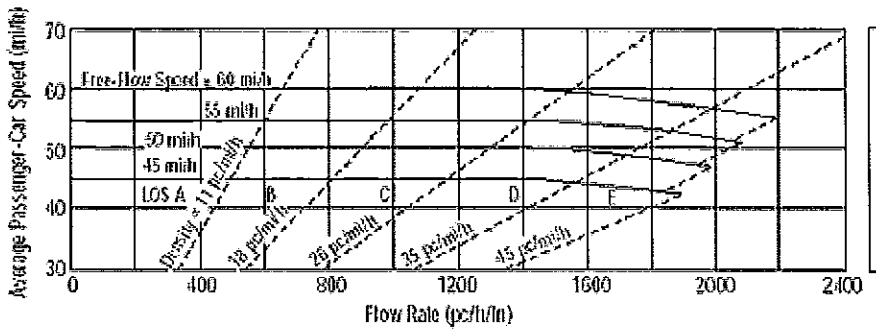
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	472	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	259
Speed, S (mi/h)	45.0
D (pc/mi/ln)	5.8
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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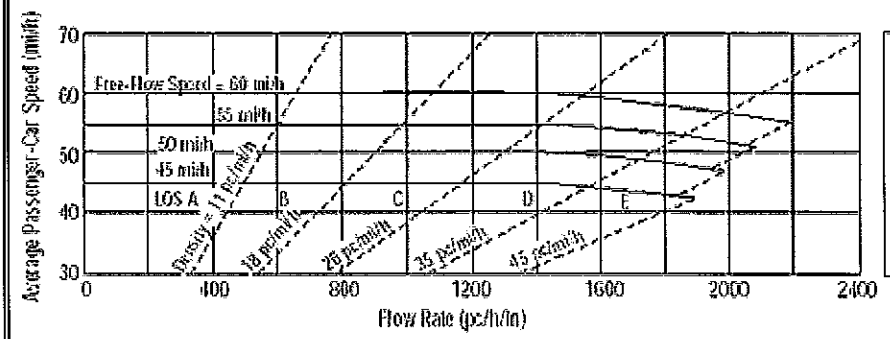
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	851	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	467
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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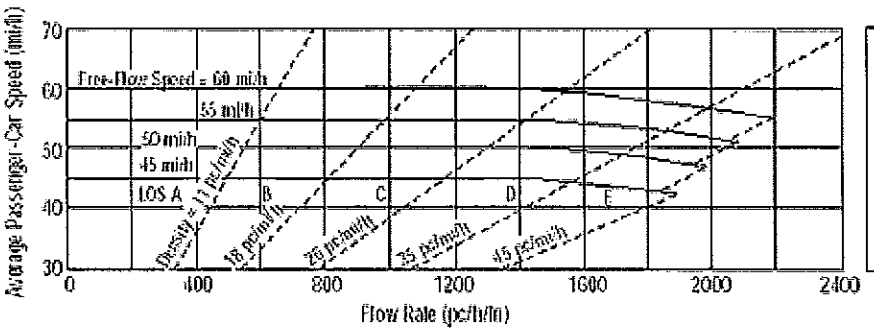
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	606	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	332
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.4
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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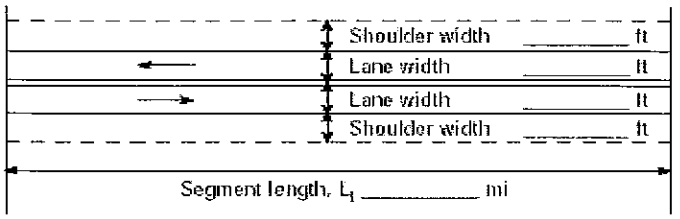
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Bailey Rd./Loftus Rd.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1342 veh/h
Directional split	63 / 37
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	13

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1462
v_p * highest directional split proportion[2] (pc/h)	921

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	3.3 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	46.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	33.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1459
v_p * highest directional split proportion[2] (pc/h)	919
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	72.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.8
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	80.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	547
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	2013
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	16.2

Notes

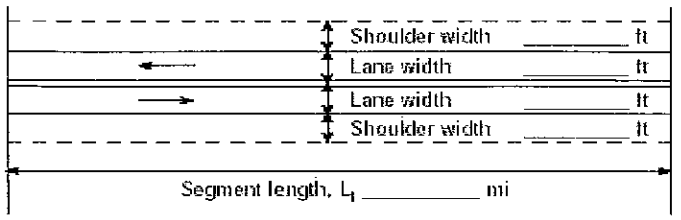
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Bailey Rd./Loftus Rd.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1505 veh/h
Directional split	62 / 38
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	13

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1639
v_p * highest directional split proportion[2] (pc/h)	1016

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	3.3 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	46.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.5
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	32.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1636
v_p * highest directional split proportion[2] (pc/h)	1014
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	76.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	6.6
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	82.9

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.51
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	613
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	2258
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	18.8

Notes

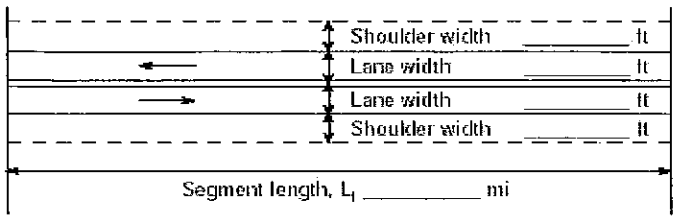
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Loftus Rd./N Parkside Dr. Ramp
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1725 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1879
v_p * highest directional split proportion[2] (pc/h)	1259

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.2
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	32.9

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1875
v_p * highest directional split proportion[2] (pc/h)	1256
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	80.8
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	5.1
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	85.8

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.59
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	703
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	2588
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	21.3

Notes

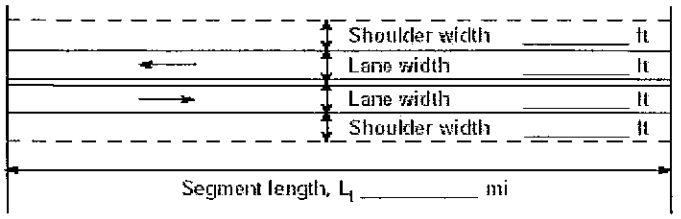
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	Loftus Rd./N Parkside Dr. Ramp
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1580 veh/h
Directional split	62 / 38
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1721
v_p * highest directional split proportion[2] (pc/h)	1067

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.4
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	34.0

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1717
v_p * highest directional split proportion[2] (pc/h)	1065
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	77.9
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	6.1
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	84.0

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.54
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	644
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	2370
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	18.9

Notes

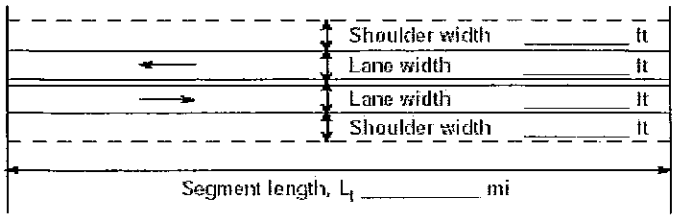
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	914 veh/h
Directional split	65 / 35
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	997
v_p * highest directional split proportion[2] (pc/h)	648

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.6
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	38.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	995
v_p * highest directional split proportion[2] (pc/h)	647
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	58.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	12.5
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	70.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.31
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	373
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1371
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	9.7

Notes

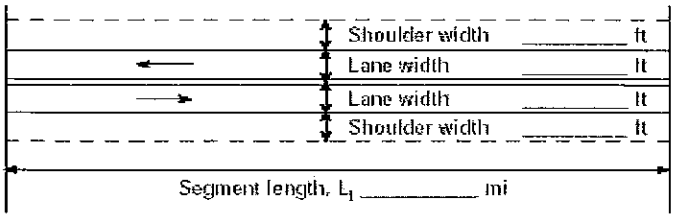
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	848 veh/h
Directional split	55 / 45
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	925
v_p * highest directional split proportion[2] (pc/h)	509

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	38.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	924
v_p * highest directional split proportion[2] (pc/h)	508
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	55.6
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	13.5
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	69.1

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.29
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	346
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1272
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	8.9

Notes

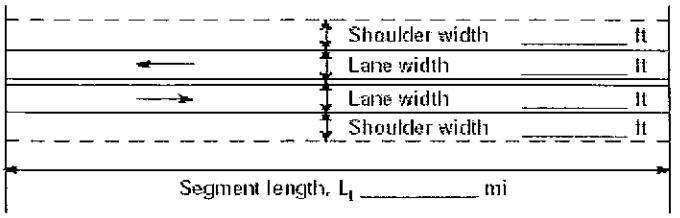
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	804 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	877
v_p * highest directional split proportion[2] (pc/h)	588

Free-Flow Speed from Field Measurement		Estimated Free-Free Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	38.6

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	876
v_p * highest directional split proportion[2] (pc/h)	587
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	53.7
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	13.7
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	67.4

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.27
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	371
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	1367
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	9.6

Notes

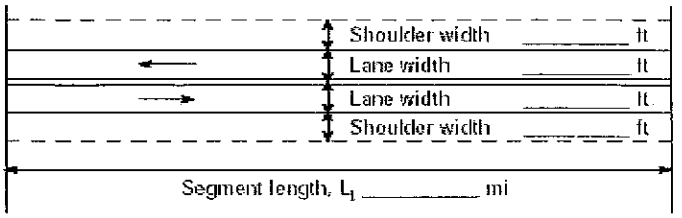
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Near-Term plus Proj Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	838 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.2
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.996
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	915
v_p * highest directional split proportion[2] (pc/h)	668

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	2.8
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	38.4

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	913
v_p * highest directional split proportion[2] (pc/h)	666
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	55.2
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	14.1
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	69.2

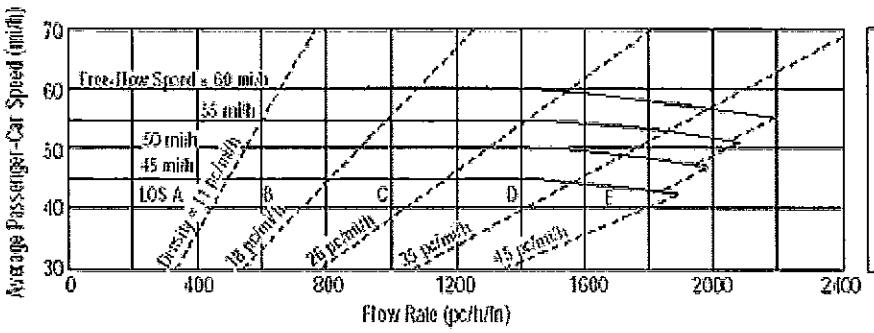
Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.29
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t$(V/PHF)	387
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	1425
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	10.1

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1029	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	564
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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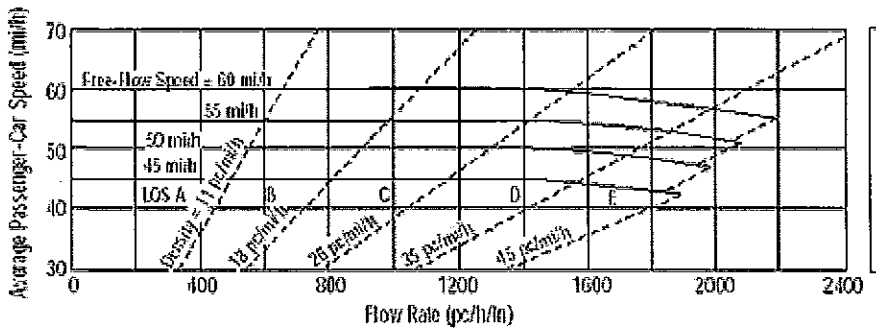
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	792	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	434
Speed, S (mi/h)	52.0
D (pc/mi/ln)	8.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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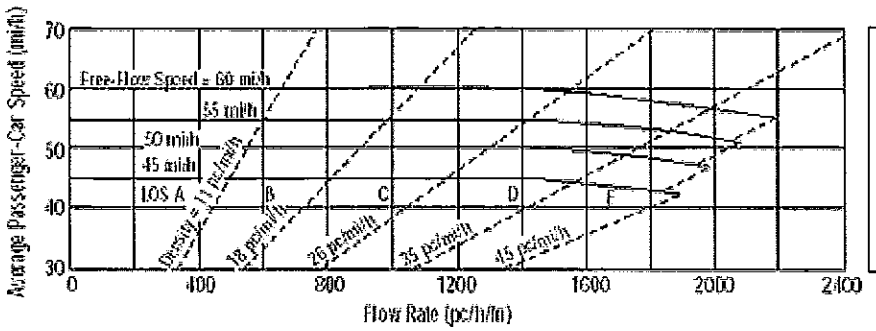
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1005	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	551
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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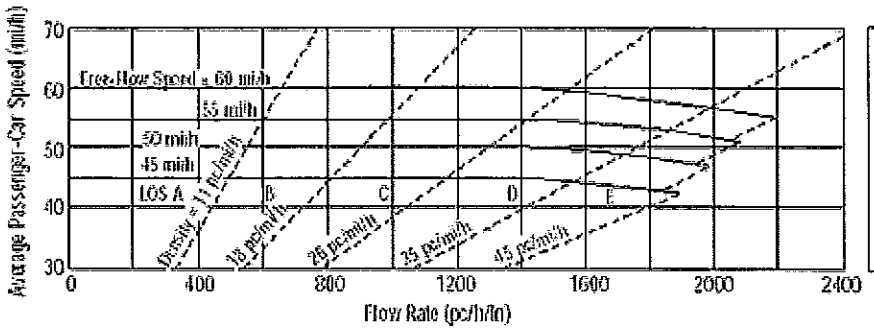
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Proj Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1218	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	668
Speed, S (mi/h)	52.0
D (pc/mi/ln)	12.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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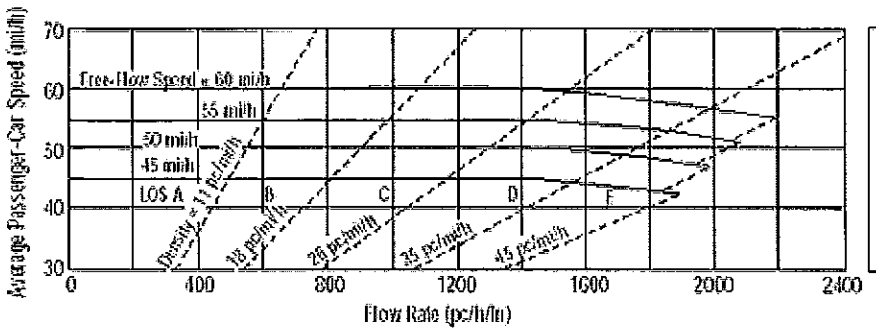
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	493	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	270
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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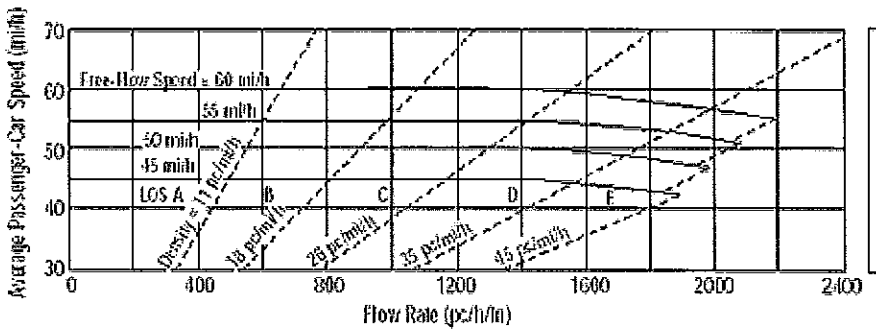
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	849	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	466
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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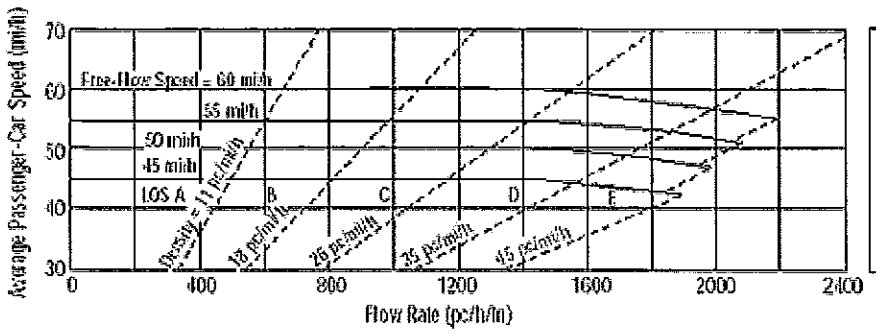
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	936	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	513
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.4
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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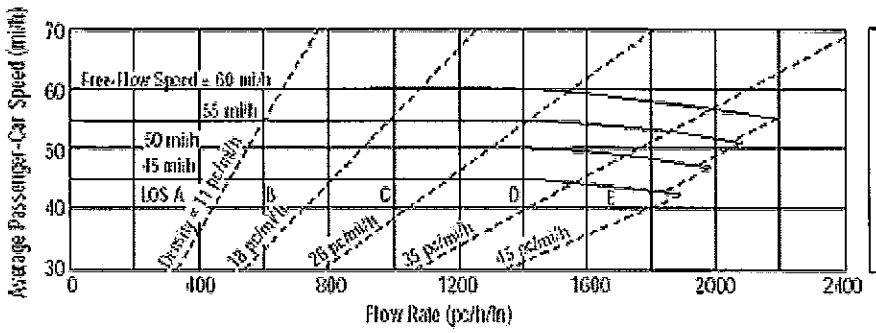
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	569	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	312
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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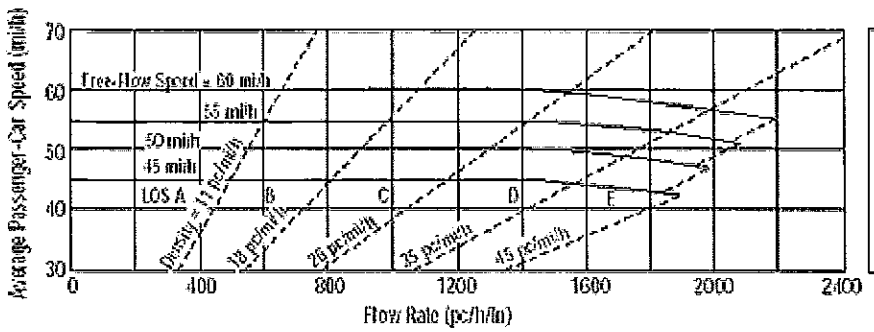
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	561	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	307
Speed, S (mi/h)	45.0
D (pc/mi/ln)	6.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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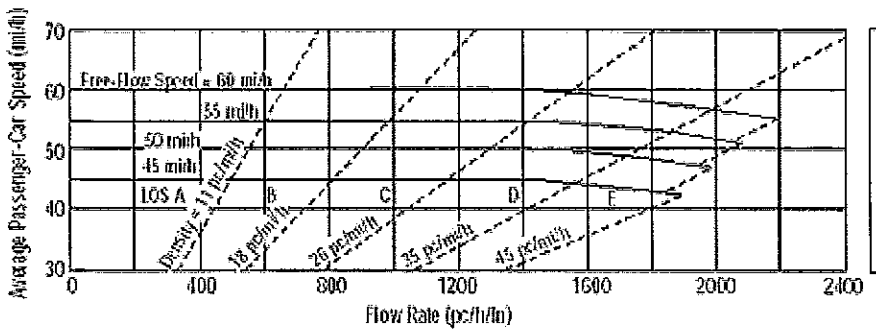
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1164	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	638
Speed, S (mi/h)	45.0
D (pc/mi/ln)	14.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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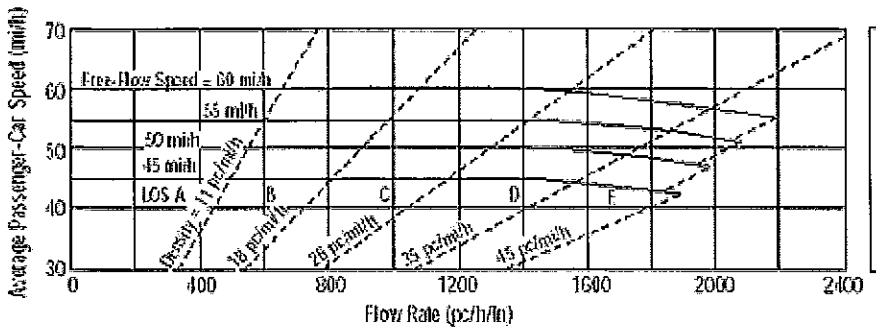
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	973	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	534
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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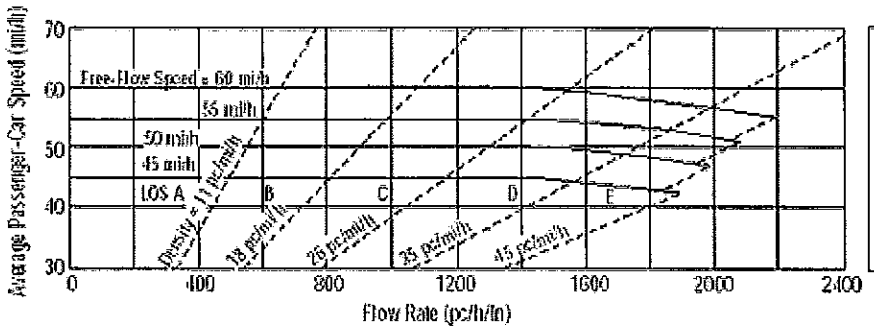
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	607	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	333
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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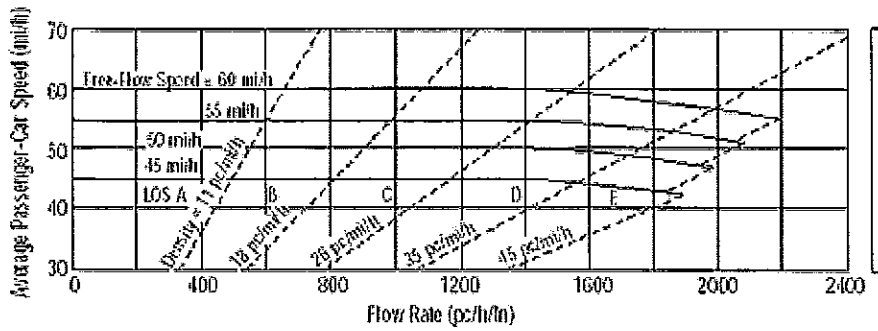
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	319	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	175
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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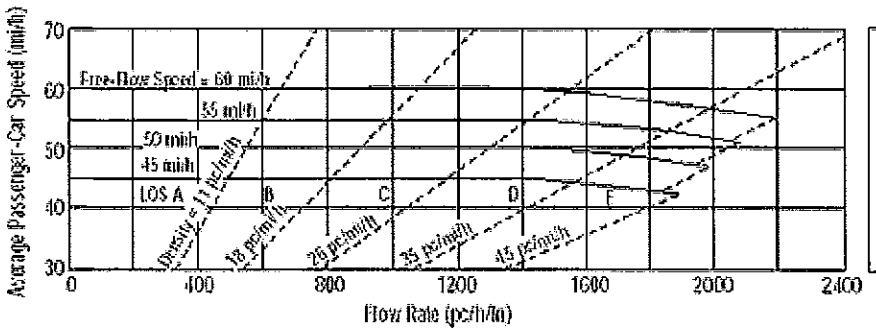
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	595	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	326
Speed, S (mi/h)	52.0
D (pc/mi/ln)	6.3
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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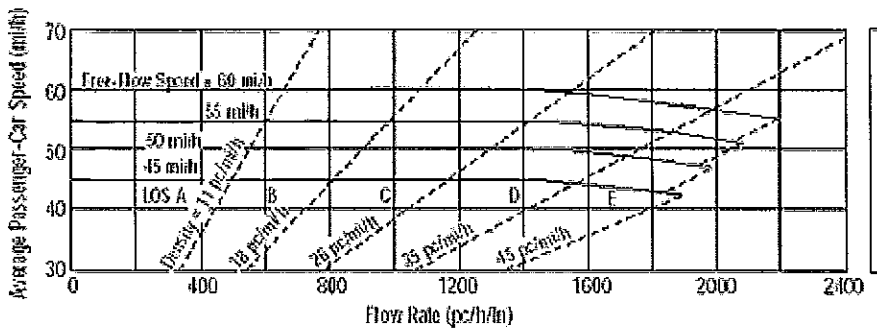
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	463	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	254
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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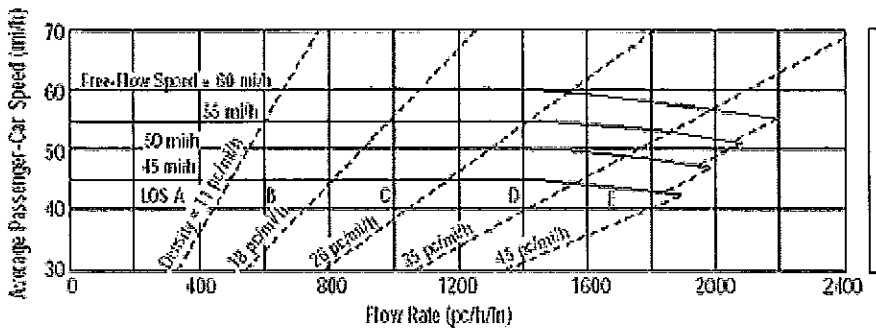
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	385	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	211
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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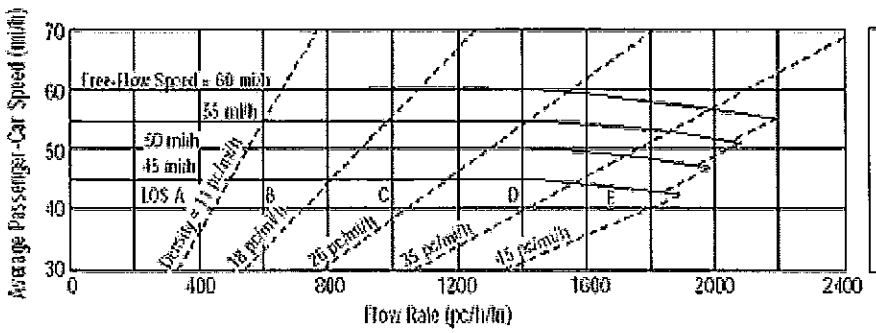
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	268	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	147
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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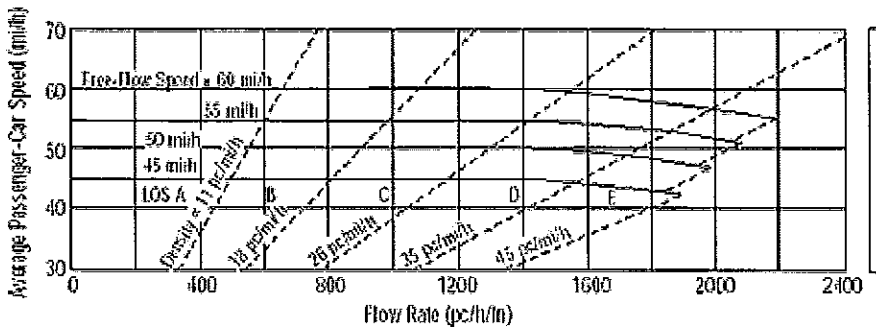
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	535	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	293
Speed, S (mi/h)	52.0
D (pc/mi/ln)	5.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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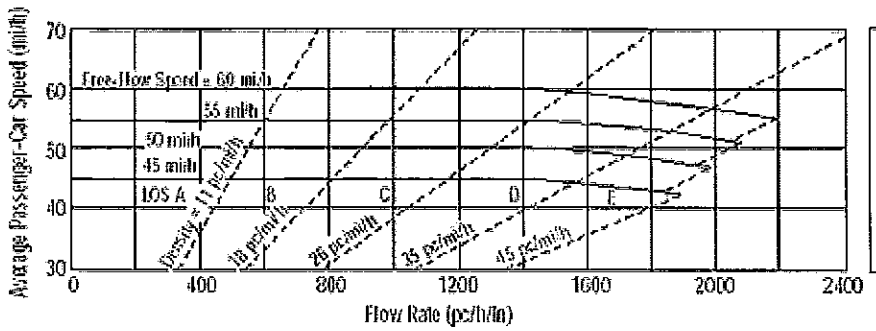
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	614	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	337
Speed, S (mi/h)	52.0
D (pc/mi/ln)	6.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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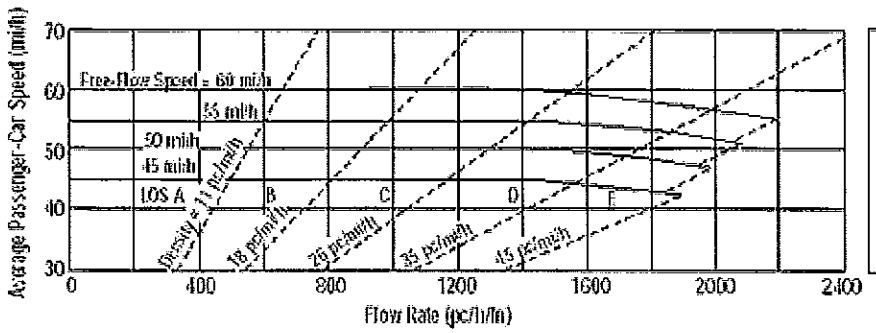
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Near-Term plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	224	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	122
Speed, S (mi/h)	52.0
D (pc/mi/ln)	2.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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Appendix P6
Projected Future Conditions – Level of Service Analysis

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FT                                                 05/30/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            212  682  221
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---  207  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    2.2<---  451  THRU  Route 4 WB Ramps

RIGHT  392 ---  1.9    2.0  3.1  1.1   1.1 ---  298  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   594  911  294                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO      V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      294        294       1650      0.1782
    THRU (T)       911        911       4950      0.1840
    LEFT (L)       594        594       3000      0.1980     0.1980
    T + R                    1205       4950      0.2434
--------------------------------------------------------------------------
SB  RIGHT (R)      212        212       1650      0.1285
    THRU (T)       682        682       3300      0.2067
    LEFT (L)       221        221       1650      0.1339
    T + R                     894       3300      0.2709     0.2709
--------------------------------------------------------------------------
EB  RIGHT (R)      392        392       1650      0.2376
--------------------------------------------------------------------------
WB  RIGHT (R)      207        207       1650      0.1255
    THRU (T)       451        451       3300      0.1367
    LEFT (L)       298        298       1650      0.1806
    T + R                     658       3300      0.1994
    T + L                     749       3300      0.2270
    T + R + L                 956       3300      0.2897     0.2897
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.76
     INTERSECTION LEVEL OF SERVICE:                                 C
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==================================================================
Condition: PM_FT                                          05/30/08
==================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                    Time                 Peak Hour
------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------            216  569   64
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---   57  RIGHT
                                                      STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  195  THRU  Route 4 WB Ramps

RIGHT  427 ---  1.9    2.0  3.1  1.1   1.1 ---  158  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |
W + E                   411  978  562                      SIG WARRANTS:
  S                   LEFT THRU RIGHT Split? N              Urb=Y, Rur=Y

                STREET NAME: Bailey Road
==================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
------------------------------------------------------------------
NB  RIGHT (R)     562        562       1650      0.3406     0.3406
    THRU (T)      978        978       4950      0.1976
    LEFT (L)      411        411       3000      0.1370
    T + R                   1540       4950      0.3111
------------------------------------------------------------------
SB  RIGHT (R)     216        216       1650      0.1309
    THRU (T)      569        569       3300      0.1724
    LEFT (L)       64         64       1650      0.0388     0.0388
    T + R                    785       3300      0.2379
------------------------------------------------------------------
EB  RIGHT (R)     427        427       1650      0.2588
------------------------------------------------------------------
WB  RIGHT (R)      57         57       1650      0.0345
    THRU (T)      195        195       3300      0.0591
    LEFT (L)      158        158       1650      0.0958
    T + R                    252       3300      0.0764
    T + L                    353       3300      0.1070
    T + R + L                410       3300      0.1242     0.1242
==================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.50
     INTERSECTION LEVEL OF SERVICE:                             A
==================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_FT                                              05/30/08
=====================================================================
INTERSECTION     2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      3-PHASE SIGNAL
-----------            406  963  350
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   164 ---  1.1   1.9  2.0  2.0   1.9 ---  331  RIGHT
                                                        STREET NAME:
THRU   200 ---> 2.1  (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  292 ---  1.8   0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    0 1114  390                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     390        390       1720      0.2267
    THRU (T)     1114       1114       3440      0.3238     0.3238
---------------------------------------------------------------------
SB  RIGHT (R)     406        406       1720      0.2360
    THRU (T)     963        963       3440      0.2799     0.2799
    LEFT (L)     350        350       3127      0.1119
---------------------------------------------------------------------
EB  RIGHT (R)     292          0 *     1720      0.0000
    THRU (T)     200        200       3440      0.0581
    LEFT (L)     164        164       1720      0.0953
    T + L                   364       3440      0.1058     0.1058
---------------------------------------------------------------------
WB  RIGHT (R)     331        331       1720      0.1924
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.71
     INTERSECTION LEVEL OF SERVICE:                              C
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FT                                                  05/30/08
==========================================================================
INTERSECTION     2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            233  785  186
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   235 ---  1.1   1.9  2.0  2.0   1.9 --- 1072  RIGHT
                                                          STREET NAME:
THRU   355 ---> 2.1  (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  853 ---  1.8   0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->       |
             v           |    |    |         v
  N                      |    |    |                     SIG WARRANTS:
W + E                    0  924  198                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     198        198       1720      0.1151
    THRU (T)      924        924       3440      0.2686     0.2686
--------------------------------------------------------------------------
SB  RIGHT (R)     233        233       1720      0.1355
    THRU (T)      785        785       3440      0.2282     0.2282
    LEFT (L)      186        186       3127      0.0595
--------------------------------------------------------------------------
EB  RIGHT (R)     853        362 *     1720      0.2105     0.2105
    THRU (T)      355        355       3440      0.1032
    LEFT (L)      235        235       1720      0.1366
    T + L                    590       3440      0.1715
--------------------------------------------------------------------------
WB  RIGHT (R)    1072       1072       1720      0.6233
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.71
     INTERSECTION LEVEL OF SERVICE:                              C
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FT                                                 05/30/08
==========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0    0.0  0.0  0.0    0.0 ---    0  RIGHT
                                                        STREET NAME:
THRU   136 ---> 1.0   (NO. OF LANES)    2.0<---  575  THRU  Willow Pass Rd.

RIGHT   96 ---  1.8    1.0  0.0  1.0    1.0 ---  127  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   221    0   66                          Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
==========================================================================
                 ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)       66          0 *     1720      0.0000
    LEFT (L)       221        221       1720      0.1285      0.1285
--------------------------------------------------------------------------
EB  RIGHT (R)       96          0 *     1720      0.0000
    THRU (T)       136        136       1720      0.0791
--------------------------------------------------------------------------
WB  THRU (T)       575        575       3440      0.1672      0.1672
    LEFT (L)       127        127       1720      0.0738
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.30
     INTERSECTION LEVEL OF SERVICE:                               A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FT                                                  05/30/08
==========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |        <---   v   --->         | Split? N
LEFT     0 ---  0.0   0.0  0.0  0.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU   595 ---> 1.0  (NO. OF LANES)   2.0<---  223  THRU  Willow Pass Rd.

RIGHT  132 ---  1.8   1.0  0.0  1.0   1.0 ---  150  LEFT
             |        <---   ^   --->         |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   258    0  376                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      376        226 *     1720      0.1314
    LEFT (L)       258        258       1720      0.1500     0.1500
--------------------------------------------------------------------------
EB  RIGHT (R)      132          0 *     1720      0.0000
    THRU (T)       595        595       1720      0.3459     0.3459
--------------------------------------------------------------------------
WB  THRU (T)       223        223       3440      0.0648
    LEFT (L)       150        150       1720      0.0872     0.0872
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.58
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FT                                                  05/30/08
==========================================================================
INTERSECTION      4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------             14   14   75
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  1.0    1.1  1.1  1.1   1.1 ---     9  RIGHT
                                                        STREET NAME:
THRU   171 ---> 1.0   (NO. OF LANES)   1.1<---   555  THRU  Willow Pass Rd.

RIGHT   17 ---  1.0    1.1  1.1  1.1   1.0 ---    19  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   14   16   17                         Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      17         17        1650      0.0103
    THRU (T)       16         16        1650      0.0097
    LEFT (L)       14         14        1650      0.0085
    T + R                     33        1650      0.0200
    T + L                     30        1650      0.0182
    T + R + L                 47        1650      0.0285     0.0285
--------------------------------------------------------------------------
SB  RIGHT (R)      14         14        1650      0.0085
    THRU (T)       14         14        1650      0.0085
    LEFT (L)       75         75        1650      0.0455
    T + R                     28        1650      0.0170
    T + L                     89        1650      0.0539
    T + R + L                103        1650      0.0624     0.0624
--------------------------------------------------------------------------
EB  RIGHT (R)      17          3 *      1650      0.0018
    THRU (T)      171        171        1650      0.1036
    LEFT (L)        0          0        1650      0.0000     0.0000
--------------------------------------------------------------------------
WB  RIGHT (R)       9          9        1650      0.0055
    THRU (T)      555        555        1650      0.3364
    LEFT (L)       19         19        1650      0.0115
    T + R                    564        1650      0.3418     0.3418
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.43
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_FT                                              05/30/08
=====================================================================
INTERSECTION      4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                  Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      5-PHASE SIGNAL
-----------             57   21   35
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      9 ---  1.0    1.1  1.1  1.1    1.1 ---   17  RIGHT
                                                       STREET NAME:
THRU    827 ---> 1.0   (NO. OF LANES)    1.1<---  333  THRU  Willow Pass Rd.

RIGHT    40 ---  1.0    1.1  1.1  1.1    1.0 ---   40  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                       SIG WARRANTS:
W + E                   14    0   10                         Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)      10         10       1650      0.0061
    THRU (T)        0          0       1650      0.0000
    LEFT (L)       14         14       1650      0.0085
    T + R                     10       1650      0.0061
    T + L                     14       1650      0.0085
    T + R + L                 24       1650      0.0145     0.0145
---------------------------------------------------------------------
SB  RIGHT (R)      57         57       1650      0.0345
    THRU (T)       21         21       1650      0.0127
    LEFT (L)       35         35       1650      0.0212
    T + R                     78       1650      0.0473
    T + L                     56       1650      0.0339
    T + R + L                113       1650      0.0685     0.0685
---------------------------------------------------------------------
EB  RIGHT (R)      40         26 *     1650      0.0158
    THRU (T)      827        827       1650      0.5012     0.5012
    LEFT (L)        9          9       1650      0.0055
---------------------------------------------------------------------
WB  RIGHT (R)      17         17       1650      0.0103
    THRU (T)      333        333       1650      0.2018
    LEFT (L)       40         40       1650      0.0242     0.0242
    T + R                    350       1650      0.2121
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.61
     INTERSECTION LEVEL OF SERVICE:                            B
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 15.1 Worst Case Level Of Service: C[16.3]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1	0 0		0 0 1	0 1		0 0 0	0 0		0 0 0	0 0	
Volume Module:												
Base Vol:	68	320	0	0	68	564	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	68	320	0	0	68	564	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	74	348	0	0	74	613	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	74	348	0	0	74	613	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	37	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	974	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	291	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.25	0.39	xxxx	xxxx	0.08	0.68	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	1.0	1.8	xxxxx	xxxx	0.3	5.6	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	21.5	11.5	xxxxx	xxxxx	9.4	17.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	B	*	*	A	C	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	13.3			16.3			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 20.9 Worst Case Level Of Service: D[26.8]

Street Name:	Willow Pass Road									N. Parkside Drive WB Ramps					
Approach:	North Bound				South Bound					East Bound				West Bound	
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled					
Rights:	Include			Include			Include			Include					
Lanes:	1 0 1	0 0		0 0 1	0 1		0 0 0	0 0		0 0 0	0 0				
Volume Module:															
Base Vol:	26	707	0	0	134	287	0	0	0	0	0	0			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	26	707	0	0	134	287	0	0	0	0	0	0			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
PHF Volume:	28	768	0	0	146	312	0	0	0	0	0	0			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	28	768	0	0	146	312	0	0	0	0	0	0			
Critical Gap Module:															
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Capacity Module:															
Cnflict Vol:	73	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Potent Cap.:	923	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Move Cap.:	528	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Volume/Cap:	0.05	0.85	xxxx	xxxx	0.16	0.35	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Level Of Service Module:															
2Way95thQ:	0.2	10.6	xxxxx	xxxx	0.6	1.6	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Control Del:	12.2	27.3	xxxxx	xxxxx	9.8	11.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
LOS by Move:	B	D	*	*	A	B	*	*	*	*	*	*			
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT			
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	26.8			10.7			xxxxxx			xxxxxx					
ApproachLOS:	D			B			*			*					

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 7.9 Worst Case Level Of Service: B[11.2]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	50		14		7	61		0		270		0		26	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	50		14		7	61		0		270		0		26	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	0	54		15		8	66		0		293		0		28	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	0	54		15		8	66		0		293		0		28	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		70	xxxx		xxxxx		143		151		66	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		1544	xxxx		xxxxx		854		744		1003	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		1544	xxxx		xxxxx		851		741		1003	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		0.00	xxxx		xxxx		0.35		0.00		0.03	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx		xxxx		0.1	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		xxxxx		xxxx		8.7	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		A	*		*		*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		851		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		1.5		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		11.4		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		A	*		*		B		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					11.2					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 18.1 Worst Case Level Of Service: D[27.4]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	186		38		0	73		0		521		3		61	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	186		38		0	73		0		521		3		61	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	0	202		41		0	79		0		566		3		66	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	0	202		41		0	79		0		566		3		66	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		302		323		79	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		694		598		987	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		694		598		987	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		xxxx	xxxx		xxxx		0.82		0.01		0.07	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		xxxx		0.2	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		xxxx		8.9	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		*	*		*		*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		693		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		8.8		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		29.5		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		*	*		*		D		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					27.4					xxxxxx				
ApproachLOS:	*					*					D					*				

Note: Queue reported is the number of cars per lane.

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URS SAN JOSE, CA

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=================================================================
Condition: AM_FT                                          05/30/08
=================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                    Time                 Peak Hour
-----------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                    4-PHASE SIGNAL
-----------            524 1435  183
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT     0 ---  0.0   1.0  2.0  1.0   1.1 ---  543  RIGHT
                                                      STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   2.2<---  373  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0   2.0  2.1  1.1   1.1 ---  151  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                  651 1344  202                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
-----------------------------------------------------------------
NB  RIGHT (R)     202        202       1650      0.1224
    THRU (T)     1344       1344       3300      0.4073
    LEFT (L)      651        651       3000      0.2170     0.2170
    T + R                   1546       3300      0.4685
-----------------------------------------------------------------
SB  RIGHT (R)     524        524       1650      0.3176
    THRU (T)     1435       1435       3300      0.4348     0.4348
    LEFT (L)      183        183       1650      0.1109
-----------------------------------------------------------------
WB  RIGHT (R)     543        543       1650      0.3291     0.3291
    THRU (T)      373        373       3300      0.1130
    LEFT (L)      151        151       1650      0.0915
    T + R                    916       3300      0.2776
    T + L                    524       3300      0.1588
    T + R + L               1067       3300      0.3233
=================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                        0.98
     INTERSECTION LEVEL OF SERVICE:                            E
=================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FT                                                  05/30/08
==========================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            425 1252  193
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT     0 ---  0.0   1.0  2.0  1.0   1.1 ---  496  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   2.2<---  275  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0   2.0  2.1  1.1   1.1 ---  174  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                   510 1563  475                      Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     475        475       1650      0.2879
    THRU (T)     1563       1563       3300      0.4736
    LEFT (L)      510        510       3000      0.1700
    T + R                   2038       3300      0.6176     0.6176
--------------------------------------------------------------------------
SB  RIGHT (R)     425        425       1650      0.2576
    THRU (T)     1252       1252       3300      0.3794
    LEFT (L)      193        193       1650      0.1170     0.1170
--------------------------------------------------------------------------
WB  RIGHT (R)     496        496       1650      0.3006     0.3006
    THRU (T)      275        275       3300      0.0833
    LEFT (L)      174        174       1650      0.1055
    T + R                    771       3300      0.2336
    T + L                    449       3300      0.1361
    T + R + L                945       3300      0.2864
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              1.04
     INTERSECTION LEVEL OF SERVICE:                                  F
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FT                                                 05/30/08
==========================================================================
INTERSECTION      8 Railroad Ave./SR 4 EB Ramps        Contra Costa
Count Date                      Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0 1126  434
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   472 ---  2.1   0.0  2.0  1.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU     5 ---> 1.1  (NO. OF LANES)   0.0<---    0  THRU  SR 4 EB Ramps

RIGHT  736 ---  2.1   0.0  3.1  1.1   0.0 ---    0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0 1659  427                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     427        427       1720      0.2483
    THRU (T)     1659       1659       5160      0.3215
    T + R                   2086       5160      0.4043      0.4043
--------------------------------------------------------------------------
SB  THRU (T)     1126       1126       3440      0.3273
    LEFT (L)      434        434       1720      0.2523      0.2523
--------------------------------------------------------------------------
EB  RIGHT (R)     736        736       3127      0.2354
    THRU (T)        5          5       1720      0.0029
    LEFT (L)      472        472       3127      0.1509
    T + R                    741       3127      0.2370
    T + L                    477       3127      0.1525
    T + R + L               1213       4534      0.2675      0.2675
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.92
     INTERSECTION LEVEL OF SERVICE:                                  E
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_FT                                              05/30/08
=====================================================================
INTERSECTION     8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                    Time                 Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      3-PHASE SIGNAL
-----------              0 1172  129
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   949 ---  2.1   0.0  2.0  1.0   0.0 ---    0  RIGHT
                                                        STREET NAME:
THRU   192 ---> 1.1  (NO. OF LANES)   0.0<---    0  THRU  SR 4 EB Ramps

RIGHT 1798 ---  2.1   0.0  3.1  1.1   0.0 ---    0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0 1567  218                         Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     218        218       1720      0.1267
    THRU (T)     1567       1567       5160      0.3037
    T + R                   1785       5160      0.3459     0.3459
---------------------------------------------------------------------
SB  THRU (T)     1172       1172       3440      0.3407
    LEFT (L)      129        129       1720      0.0750     0.0750
---------------------------------------------------------------------
EB  RIGHT (R)    1798       1798       3127      0.5750
    THRU (T)      192        192       1720      0.1116
    LEFT (L)      949        949       3127      0.3035
    T + R                   1990       3127      0.6364
    T + L                   1141       3127      0.3649
    T + R + L               2939       4534      0.6482     0.6482
---------------------------------------------------------------------
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          1.07
     INTERSECTION LEVEL OF SERVICE:                              F
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

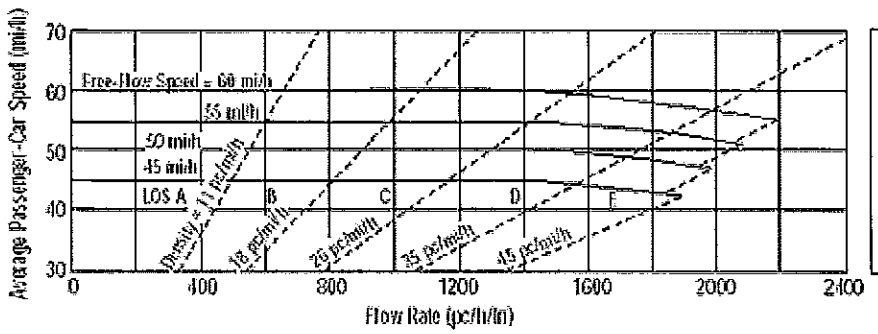
```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_FT                                              05/30/08
=====================================================================
INTERSECTION     9 Railroad Ave./10th St.          Contra Costa
Count Date                    Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      6-PHASE SIGNAL
-----------             42  275   63
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? N
LEFT    17 ---  1.0   1.1  2.1  1.0   1.1 ---   64  RIGHT
                                                        STREET NAME:
THRU   251 ---> 1.0  (NO. OF LANES)   1.1<---  346  THRU  10th St.

RIGHT  331 ---  1.9   1.0  1.0  1.8   1.0 ---   73  LEFT
             |         <---  ^   --->       |
             v           |   |    |          v
  N                      |   |    |                      SIG WARRANTS:
W + E                   268  237  103                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     103          0 *     1650      0.0000
    THRU (T)      237        237       1650      0.1436
    LEFT (L)      268        268       1650      0.1624      0.1624
---------------------------------------------------------------------
SB  RIGHT (R)      42         42       1650      0.0255
    THRU (T)      275        275       3300      0.0833
    LEFT (L)       63         63       1650      0.0382
    T + R                    317       3300      0.0961      0.0961
---------------------------------------------------------------------
EB  RIGHT (R)     331        331       1650      0.2006
    THRU (T)      251        251       1650      0.1521
    LEFT (L)       17         17       1650      0.0103      0.0103
---------------------------------------------------------------------
WB  RIGHT (R)      64         64       1650      0.0388
    THRU (T)      346        346       1650      0.2097
    LEFT (L)       73         73       1650      0.0442
    T + R                    410       1650      0.2485      0.2485
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.52
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FT                                                  05/30/08
==========================================================================
INTERSECTION     9 Railroad Ave./10th St.            Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             52  244  101
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    82 ---  1.0   1.1  2.1  1.0   1.1 ---   80  RIGHT
                                                          STREET NAME:
THRU   552 ---> 1.0  (NO. OF LANES)   1.1<---  353  THRU  10th St.

RIGHT  272 ---  1.9   1.0  1.0  1.8   1.0 ---   66  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                   226  298  139                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     139          0 *     1650      0.0000
    THRU (T)      298        298       1650      0.1806     0.1806
    LEFT (L)      226        226       1650      0.1370
--------------------------------------------------------------------------
SB  RIGHT (R)      52         52       1650      0.0315
    THRU (T)      244        244       3300      0.0739
    LEFT (L)      101        101       1650      0.0612     0.0612
    T + R                    296       3300      0.0897
--------------------------------------------------------------------------
EB  RIGHT (R)     272        272       1650      0.1648
    THRU (T)      552        552       1650      0.3345     0.3345
    LEFT (L)       82         82       1650      0.0497
--------------------------------------------------------------------------
WB  RIGHT (R)      80         80       1650      0.0485
    THRU (T)      353        353       1650      0.2139
    LEFT (L)       66         66       1650      0.0400     0.0400
    T + R                    433       1650      0.2624
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.62
     INTERSECTION LEVEL OF SERVICE:                                  B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=========================================================================
Condition: AM_FT                                                 05/30/08
=========================================================================
INTERSECTION     10 Montezuma Street/10th Street      Contra Costa
Count Date                     Time                 Peak Hour
-------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------            148    5   42
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    85 ---  1.0    1.1  1.1  1.0    1.1 ---    37  RIGHT
                                                        STREET NAME:
THRU   270 ---> 1.1   (NO. OF LANES)    1.1<---   522  THRU  10th Street

RIGHT   10 ---  1.1    1.0  1.1  1.1    1.1 ---    16  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   16    2   33                          Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Montezuma Street
=========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
-------------------------------------------------------------------------
NB  RIGHT (R)       33         33        1650      0.0200
    THRU (T)         2          2        1650      0.0012
    LEFT (L)        16         16        1650      0.0097     0.0097
    T + R                      35        1650      0.0212
-------------------------------------------------------------------------
SB  RIGHT (R)      148        148        1650      0.0897
    THRU (T)         5          5        1650      0.0030
    LEFT (L)        42         42        1650      0.0255
    T + R                     153        1650      0.0927     0.0927
-------------------------------------------------------------------------
EB  RIGHT (R)       10         10        1650      0.0061
    THRU (T)       270        270        1650      0.1636
    LEFT (L)        85         85        1650      0.0515     0.0515
    T + R                     280        1650      0.1697
-------------------------------------------------------------------------
WB  RIGHT (R)       37         37        1650      0.0224
    THRU (T)       522        522        1650      0.3164
    LEFT (L)        16         16        1650      0.0097
    T + R                     559        1650      0.3388
    T + L                     538        1650      0.3261
    T + R + L                 575        1650      0.3485     0.3485
=========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.50
     INTERSECTION LEVEL OF SERVICE:                                 A
=========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_FT                                              05/30/08
=====================================================================
INTERSECTION    10 Montezuma Street/10th Street      Contra Costa
Count Date                     Time                 Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      6-PHASE SIGNAL
-----------            118   10   75
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT   176 ---  1.0    1.1  1.1  1.0   1.1 ---   66  RIGHT
                                                        STREET NAME:
THRU   717 ---> 1.1   (NO. OF LANES)   1.1<---  393  THRU  10th Street

RIGHT   26 ---  1.1    1.0  1.1  1.1   1.1 ---   61  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                    9   10   52                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Montezuma Street
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)      52         52       1650      0.0315
    THRU (T)       10         10       1650      0.0061
    LEFT (L)        9          9       1650      0.0055
    T + R                     62       1650      0.0376     0.0376
---------------------------------------------------------------------
SB  RIGHT (R)     118        118       1650      0.0715
    THRU (T)       10         10       1650      0.0061
    LEFT (L)       75         75       1650      0.0455     0.0455
    T + R                    128       1650      0.0776
---------------------------------------------------------------------
EB  RIGHT (R)      26         26       1650      0.0158
    THRU (T)      717        717       1650      0.4345
    LEFT (L)      176        176       1650      0.1067
    T + R                    743       1650      0.4503     0.4503
---------------------------------------------------------------------
WB  RIGHT (R)      66         66       1650      0.0400
    THRU (T)      393        393       1650      0.2382
    LEFT (L)       61         61       1650      0.0370     0.0370
    T + R                    459       1650      0.2782
    T + L                    454       1650      0.2752
    T + R + L                520       1650      0.3152
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.57
     INTERSECTION LEVEL OF SERVICE:                             A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FT1_PM.AMV,CAP=
```

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	976	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	535
Speed, S (mi/h)	45.0
D (pc/mi/ln)	11.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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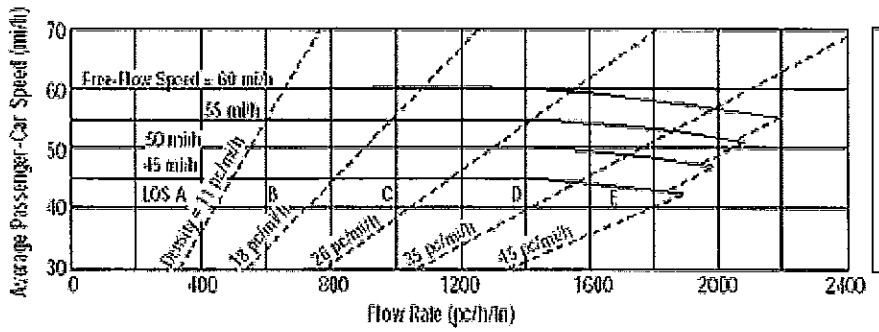
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	782	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	429
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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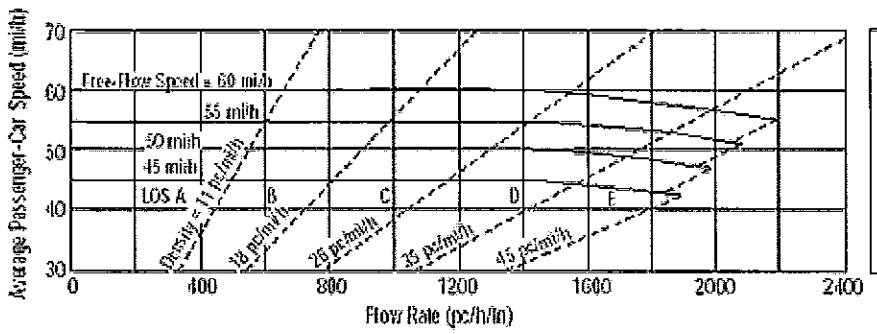
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1415	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	776
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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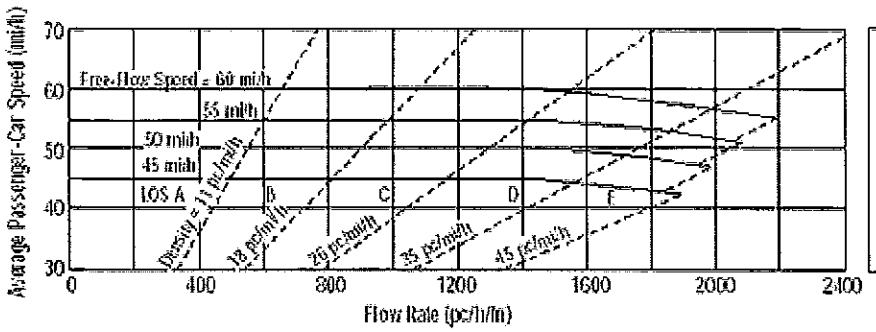
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	854	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	468
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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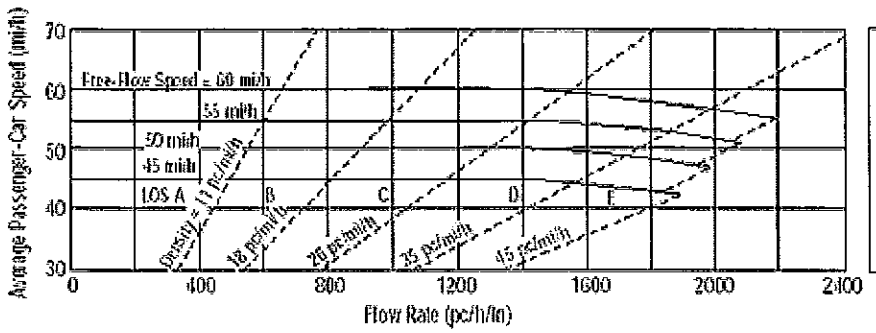
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	644	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	353
Speed, S (mi/h)	45.0
D (pc/mi/ln)	7.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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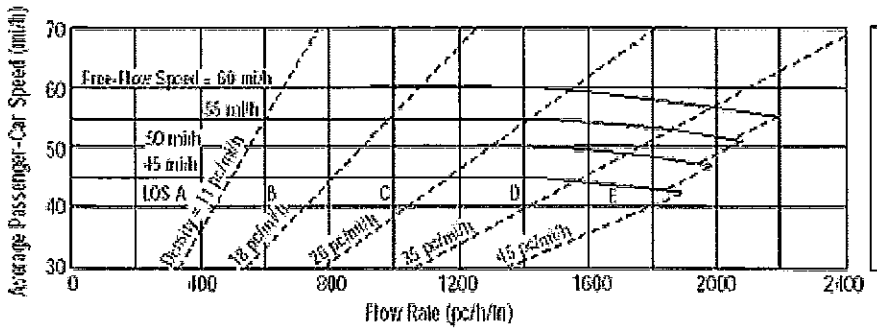
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1411	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	774
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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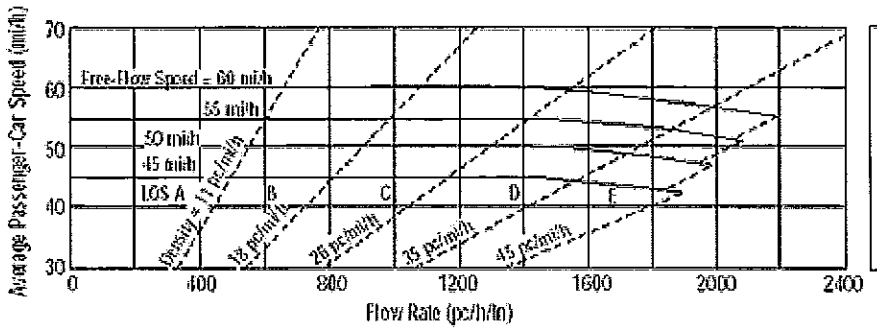
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1556	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	854
Speed, S (mi/h)	45.0
D (pc/mi/ln)	19.0
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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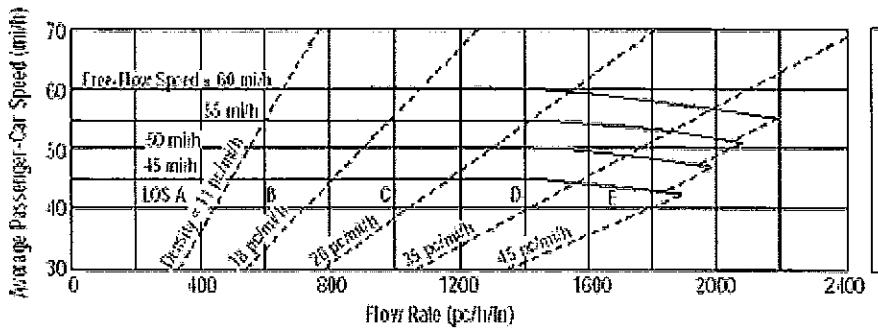
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	771	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	423
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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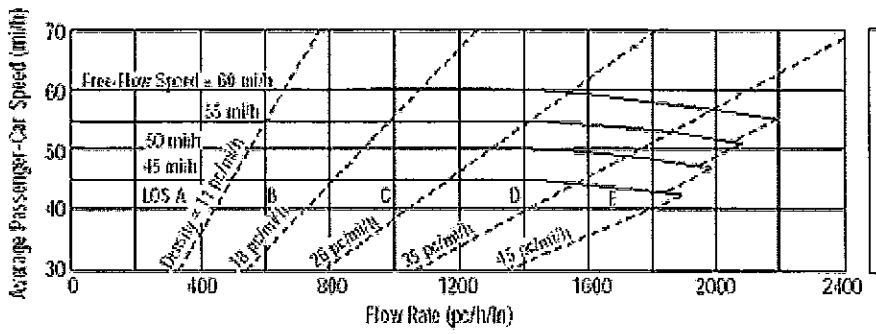
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	759	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	416
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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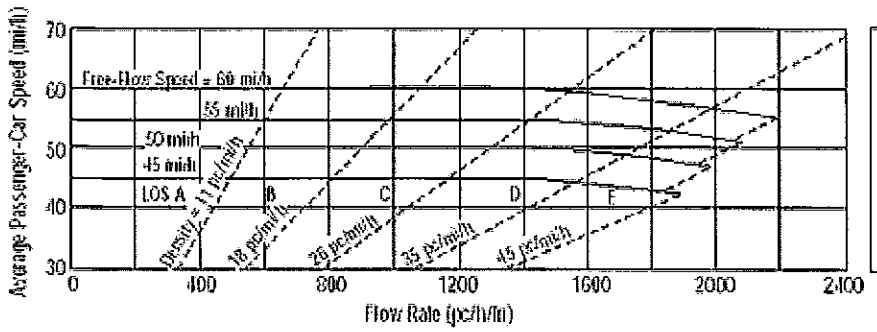
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1938	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1063
Speed, S (mi/h)	45.0
D (pc/mi/ln)	23.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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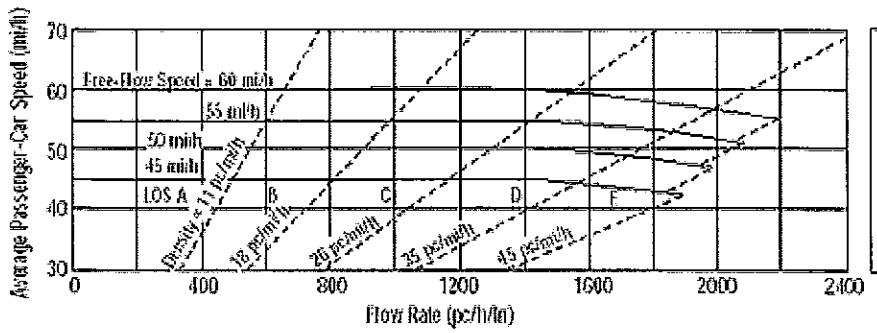
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1619	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	888
Speed, S (mi/h)	45.0
D (pc/mi/ln)	19.7
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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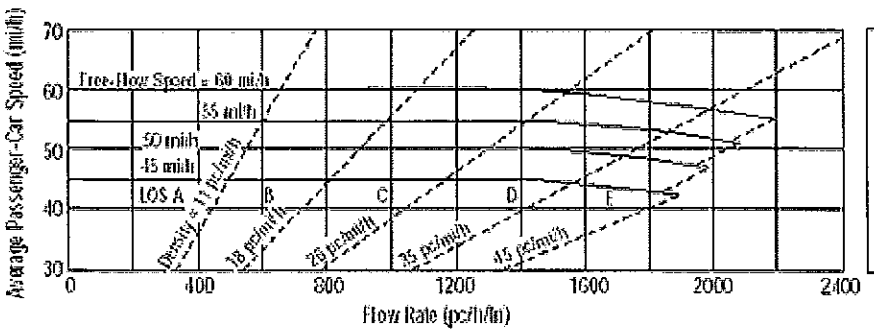
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	836	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	458
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.2
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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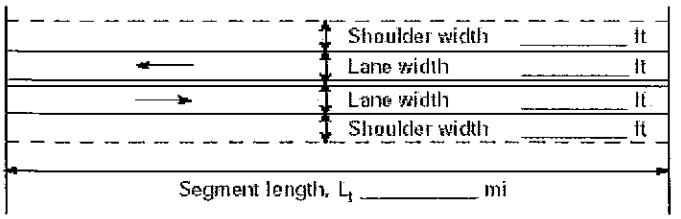
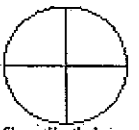
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*N Parkside Dr. Ramps/W 10th St*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*AM Peak*	Analysis Year	*Future Conditions*

Project Description: *Willow Pass Generating Station*

Input Data





☑ Class I highway ☐ Class II highway

Terrain	☑ Level ☐ Rolling
Two-way hourly volume	*1339* veh/h
Directional split	*74 / 26*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*5*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1458*
v_p * highest directional split proportion[2] (pc/h)	*1079*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*48.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.6*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*35.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1455*
v_p * highest directional split proportion[2] (pc/h)	*1077*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*72.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*8.4*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*80.6*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.46*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*546*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V^*L_t	*2009*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*15.3*

Notes

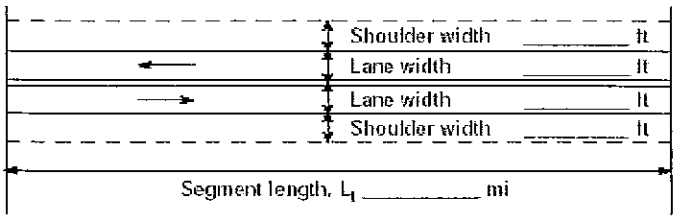
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*Willow Pass Rd.*
Agency or Company	*URS Corporation*	From/To	*N Parkside Dr. Ramps/W 10th St*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*PM Peak*	Analysis Year	*Future Conditions*

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1229* veh/h
Directional split	*62 / 38*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*5*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1339*
v_p * highest directional split proportion[2] (pc/h)	*830*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.3 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*48.8 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.8*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*36.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1336*
v_p * highest directional split proportion[2] (pc/h)	*828*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*69.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*8.8*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*77.9*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.42*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*501*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	*1844*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*13.7*

Notes

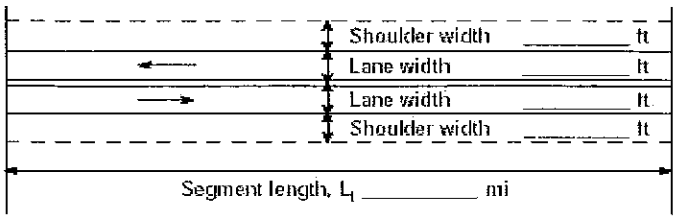
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Future Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1345 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1465
v_p * highest directional split proportion[2] (pc/h)	982

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	35.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1462
v_p * highest directional split proportion[2] (pc/h)	980
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	72.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.8
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	80.2

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	621
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	2287
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	17.6

Notes

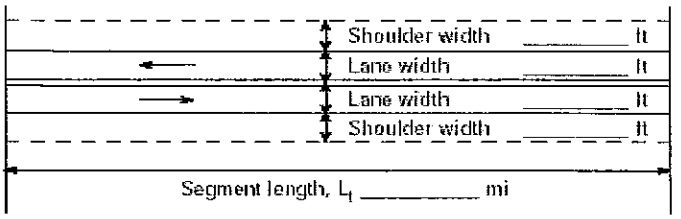
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Future Conditions

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1403 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1528
v_p * highest directional split proportion[2] (pc/h)	1115

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	34.8

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1525
v_p * highest directional split proportion[2] (pc/h)	1113
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	73.8
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.8
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	81.6

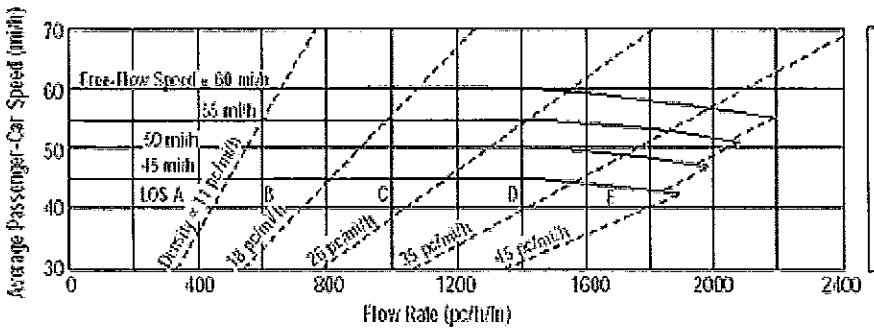
Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, $v/c=V_p/3{,}200$	0.48
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	648
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	2385
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	18.6

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1501	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	823
Speed, S (mi/h)	52.0
D (pc/mi/ln)	15.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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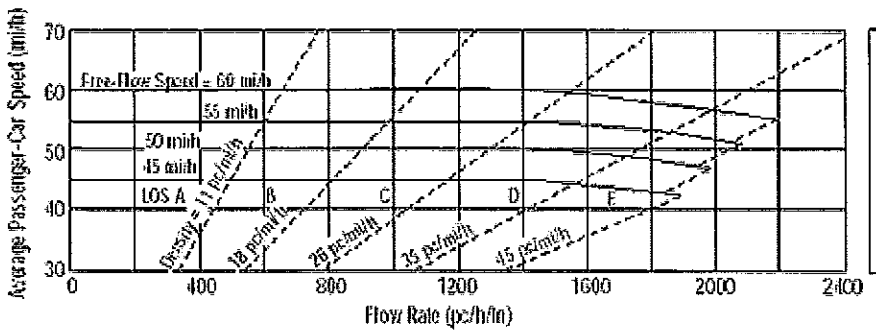
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1313	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	720
Speed, S (mi/h)	52.0
D (pc/mi/ln)	13.8
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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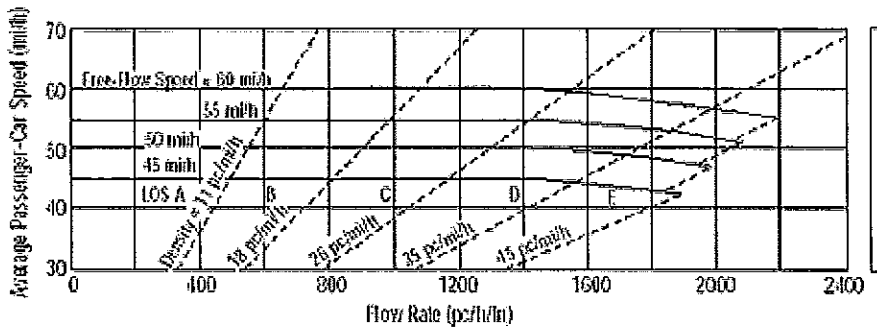
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1670	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	916
Speed, S (mi/h)	52.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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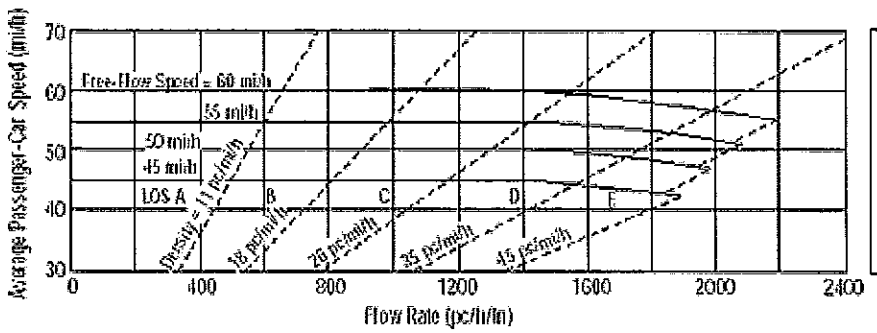
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1818	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	997
Speed, S (mi/h)	52.0
D (pc/mi/ln)	19.2
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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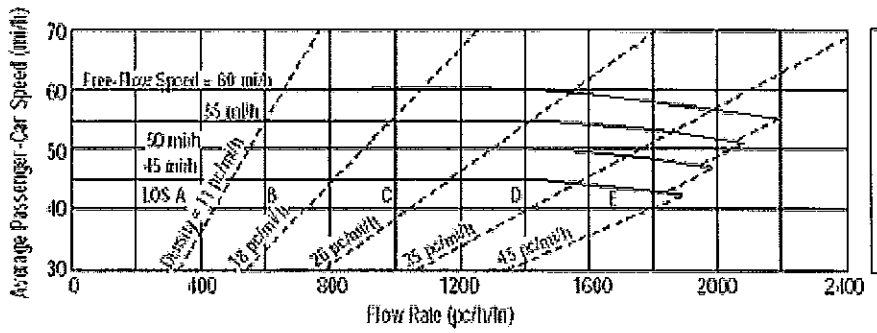
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	353	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	193
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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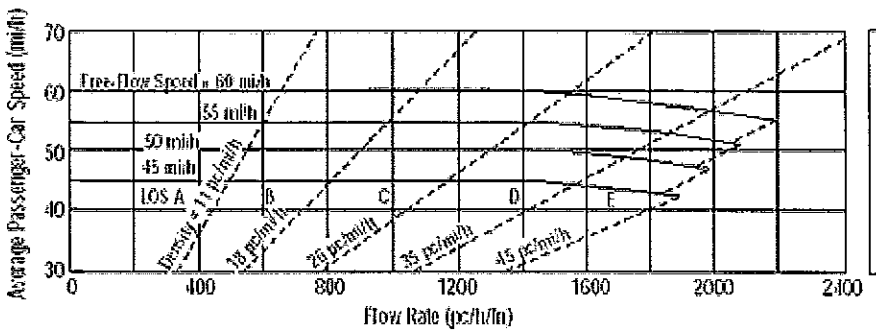
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	985	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	540
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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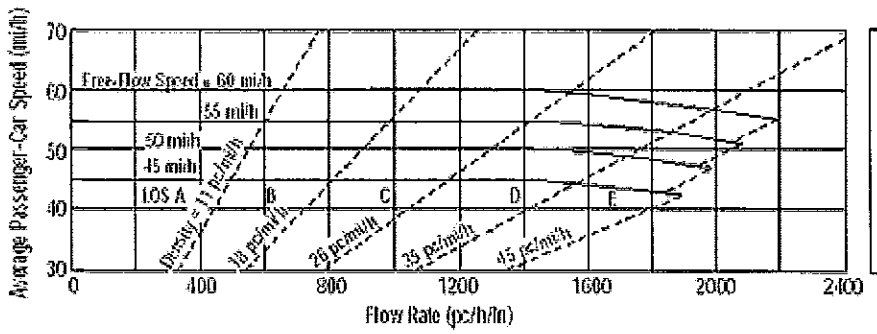
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	765	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	419
Speed, S (mi/h)	52.0
D (pc/mi/ln)	8.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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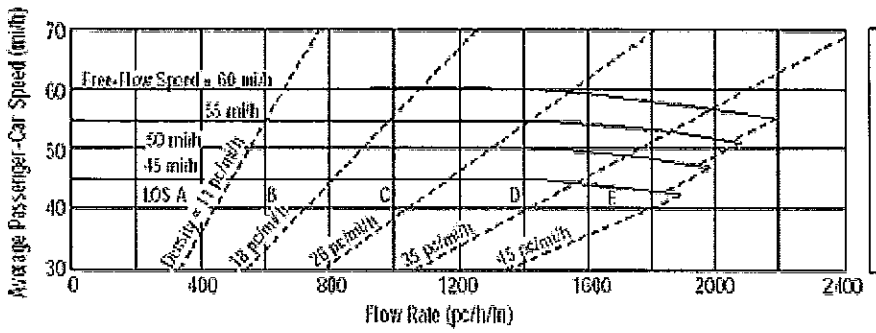
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	464	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	254
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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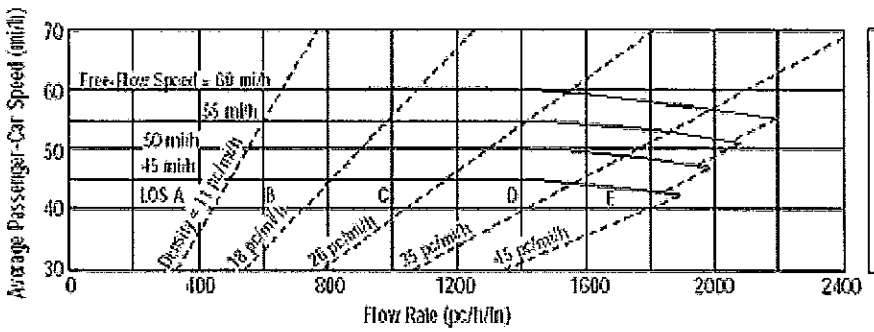
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	449	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	246
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.7
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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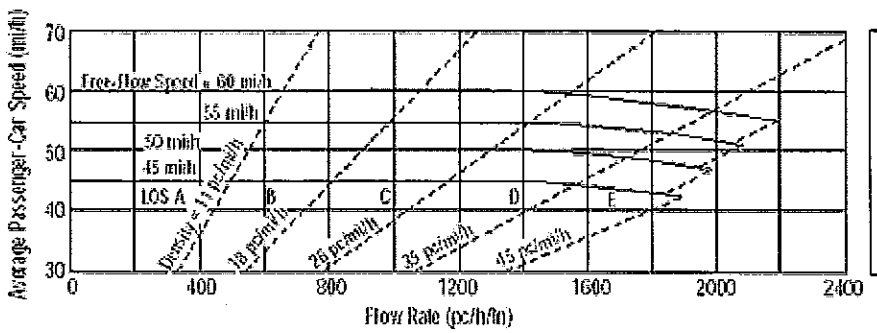
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	896	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	491
Speed, S (mi/h)	52.0
D (pc/mi/ln)	9.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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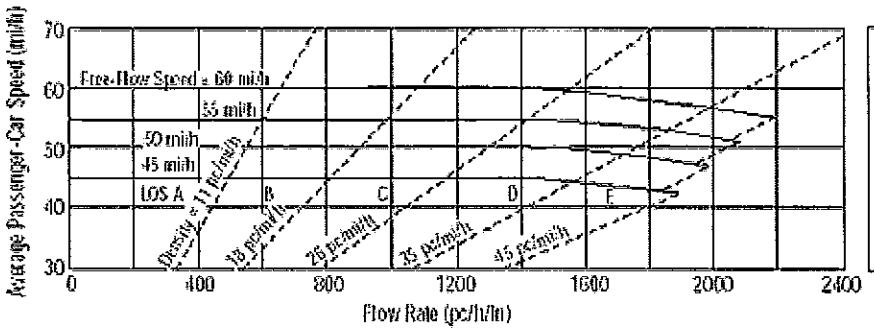
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1027	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	563
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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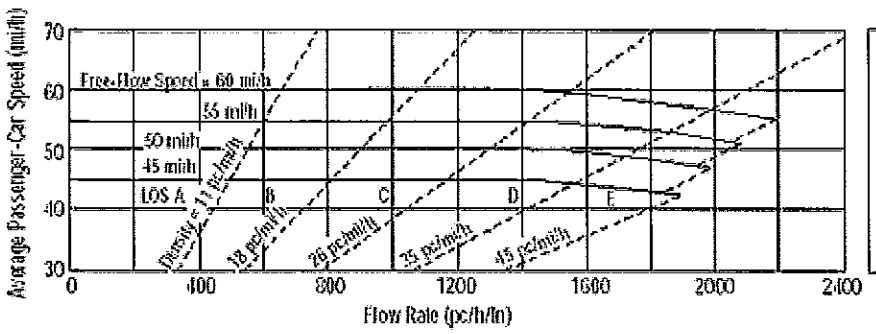
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future Conditions_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	375	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	205
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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Appendix P7
Projected Future Plus Project Conditions – Level of Service Analysis

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            213  682  221
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---  207  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)   2.2<---  451  THRU  Route 4 WB Ramps

RIGHT  392 ---  1.9    2.0  3.1  1.1   1.1 ---  298  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   594  922  294                        Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      294        294       1650      0.1782
    THRU (T)       922        922       4950      0.1863
    LEFT (L)       594        594       3000      0.1980      0.1980
    T + R                    1216       4950      0.2457
--------------------------------------------------------------------------
SB  RIGHT (R)      213        213       1650      0.1291
    THRU (T)       682        682       3300      0.2067
    LEFT (L)       221        221       1650      0.1339
    T + R                     895       3300      0.2712      0.2712
--------------------------------------------------------------------------
EB  RIGHT (R)      392        392       1650      0.2376
--------------------------------------------------------------------------
WB  RIGHT (R)      207        207       1650      0.1255
    THRU (T)       451        451       3300      0.1367
    LEFT (L)       298        298       1650      0.1806
    T + R                     658       3300      0.1994
    T + L                     749       3300      0.2270
    T + R + L                 956       3300      0.2897      0.2897
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.76
     INTERSECTION LEVEL OF SERVICE:                                  C
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     1 Bailey Road/Route 4 WB Ramps      Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            227  569   64
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT     0 ---  0.0    1.1  2.1  1.0   1.1 ---   57  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0   (NO. OF LANES)    2.2<---  195  THRU  Route 4 WB Ramps

RIGHT  427 ---  1.9    2.0  3.1  1.1   1.1 ---  158  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   411  979  562                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Bailey Road
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      562        562       1650      0.3406     0.3406
    THRU (T)       979        979       4950      0.1978
    LEFT (L)       411        411       3000      0.1370
    T + R                    1541       4950      0.3113
--------------------------------------------------------------------------
SB  RIGHT (R)      227        227       1650      0.1376
    THRU (T)       569        569       3300      0.1724
    LEFT (L)        64         64       1650      0.0388     0.0388
    T + R                     796       3300      0.2412
--------------------------------------------------------------------------
EB  RIGHT (R)      427        427       1650      0.2588
--------------------------------------------------------------------------
WB  RIGHT (R)       57         57       1650      0.0345
    THRU (T)       195        195       3300      0.0591
    LEFT (L)       158        158       1650      0.0958
    T + R                     252       3300      0.0764
    T + L                     353       3300      0.1070
    T + R + L                 410       3300      0.1242     0.1242
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.50
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_FTP                                            05/30/08
=====================================================================
INTERSECTION      2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                     3-PHASE SIGNAL
-----------            406  963  350
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? Y
LEFT   164 ---  1.1   1.9  2.0  2.0   1.9 ---  331  RIGHT
                                                        STREET NAME:
THRU   200 ---> 2.1  (NO. OF LANES)   0.0<---    0  THRU  Rt 4 EB Ramps

RIGHT  292 ---  1.8   0.0  2.0  1.0   0.0 ---    0  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                     SIG WARRANTS:
W + E                    0 1114  390                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                STREET NAME: Bailey Rd
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     390        390       1720      0.2267
    THRU (T)     1114       1114       3440      0.3238     0.3238
---------------------------------------------------------------------
SB  RIGHT (R)     406        406       1720      0.2360
    THRU (T)     963        963       3440      0.2799     0.2799
    LEFT (L)     350        350       3127      0.1119
---------------------------------------------------------------------
EB  RIGHT (R)     292          0 *     1720      0.0000
    THRU (T)     200        200       3440      0.0581
    LEFT (L)     164        164       1720      0.0953
    T + L                   364       3440      0.1058     0.1058
---------------------------------------------------------------------
WB  RIGHT (R)     331        331       1720      0.1924
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          0.71
     INTERSECTION LEVEL OF SERVICE:                              C
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                 05/30/08
==========================================================================
INTERSECTION      2 Bailey Rd/Rt 4 EB Ramps          Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------            233  785  186
                         |    |    |
              ^          |    |    |          ^
              |        <---   v   --->        | Split? Y
LEFT   235 ---  1.1   1.9  2.0  2.0   1.9 --- 1072  RIGHT
                                                        STREET NAME:
THRU   355 ---> 2.1  (NO. OF LANES)   0.0<---     0  THRU  Rt 4 EB Ramps

RIGHT  853 ---  1.8   0.0  2.0  1.0   0.0 ---     0  LEFT
              |        <---   ^   --->        |
              v          |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    0  924  198                          Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      198        198       1720      0.1151
    THRU (T)       924        924       3440      0.2686     0.2686
--------------------------------------------------------------------------
SB  RIGHT (R)      233        233       1720      0.1355
    THRU (T)       785        785       3440      0.2282     0.2282
    LEFT (L)       186        186       3127      0.0595
--------------------------------------------------------------------------
EB  RIGHT (R)      853        362 *     1720      0.2105     0.2105
    THRU (T)       355        355       3440      0.1032
    LEFT (L)       235        235       1720      0.1366
    T + L                     590       3440      0.1715
--------------------------------------------------------------------------
WB  RIGHT (R)     1072       1072       1720      0.6233
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.71
     INTERSECTION LEVEL OF SERVICE:                                  C
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=========================================================================
Condition: AM_FTP                                                 05/30/08
=========================================================================
INTERSECTION     3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
-------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  0.0    0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU   137 ---> 1.0   (NO. OF LANES)   2.0<---   575  THRU  Willow Pass Rd.

RIGHT   96 ---  1.8    1.0  0.0  1.0   1.0 ---   128  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   221    0   77                         Urb=N, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
=========================================================================
                 ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY     RATIO       V/C
-------------------------------------------------------------------------
NB  RIGHT (R)       77          0 *     1720      0.0000
    LEFT (L)       221        221       1720      0.1285      0.1285
-------------------------------------------------------------------------
EB  RIGHT (R)       96          0 *     1720      0.0000
    THRU (T)       137        137       1720      0.0797
-------------------------------------------------------------------------
WB  THRU (T)       575        575       3440      0.1672      0.1672
    LEFT (L)       128        128       1720      0.0744
=========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.30
     INTERSECTION LEVEL OF SERVICE:                               A
=========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                 05/30/08
==========================================================================
INTERSECTION      3 Bailey Rd./Willow Pass Rd.        Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0    0    0
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      0 ---  0.0    0.0  0.0  0.0   0.0 ---     0  RIGHT
                                                        STREET NAME:
THRU    596 ---> 1.0   (NO. OF LANES)   2.0<---   224  THRU  Willow Pass Rd.

RIGHT   132 ---  1.8    1.0  0.0  1.0   1.0 ---   161  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   258    0  377                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? Y

                 STREET NAME: Bailey Rd.
==========================================================================
                 ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*    CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      377        216 *      1720      0.1256
    LEFT (L)       258        258        1720      0.1500     0.1500
--------------------------------------------------------------------------
EB  RIGHT (R)      132          0 *      1720      0.0000
    THRU (T)       596        596        1720      0.3465     0.3465
--------------------------------------------------------------------------
WB  THRU (T)       224        224        3440      0.0651
    LEFT (L)       161        161        1720      0.0936     0.0936
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.59
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FTP                                                 05/30/08
==========================================================================
INTERSECTION      4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------             14   14   75
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT     0 ---  1.0    1.1  1.1  1.1   1.1 ---     9  RIGHT
                                                        STREET NAME:
THRU   183 ---> 1.0   (NO. OF LANES)   1.1<---   556  THRU  Willow Pass Rd.

RIGHT   17 ---  1.0    1.1  1.1  1.1   1.0 ---    19  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   14   16   17                          Urb=N, Rur=N
  S                   LEFT THRU RIGHT Split? Y

                 STREET NAME: Loftus Rd.
==========================================================================
                ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*    CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      17         17        1650      0.0103
    THRU (T)       16         16        1650      0.0097
    LEFT (L)       14         14        1650      0.0085
    T + R                     33        1650      0.0200
    T + L                     30        1650      0.0182
    T + R + L                 47        1650      0.0285     0.0285
--------------------------------------------------------------------------
SB  RIGHT (R)      14         14        1650      0.0085
    THRU (T)       14         14        1650      0.0085
    LEFT (L)       75         75        1650      0.0455
    T + R                     28        1650      0.0170
    T + L                     89        1650      0.0539
    T + R + L                103        1650      0.0624     0.0624
--------------------------------------------------------------------------
EB  RIGHT (R)      17          3 *      1650      0.0018
    THRU (T)      183        183        1650      0.1109
    LEFT (L)        0          0        1650      0.0000     0.0000
--------------------------------------------------------------------------
WB  RIGHT (R)       9          9        1650      0.0055
    THRU (T)      556        556        1650      0.3370
    LEFT (L)       19         19        1650      0.0115
    T + R                    565        1650      0.3424     0.3424
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.43
     INTERSECTION LEVEL OF SERVICE:                                  A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=========================================================================
Condition: PM_FTP                                                 05/30/08
=========================================================================
INTERSECTION     4 Loftus Rd./Willow Pass Rd.        Contra Costa
Count Date                     Time                 Peak Hour
-------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        5-PHASE SIGNAL
-----------             57   21   35
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT      9 ---  1.0    1.1  1.1  1.1   1.1 ---   17  RIGHT
                                                        STREET NAME:
THRU    828 ---> 1.0  (NO. OF LANES)   1.1<---  345  THRU  Willow Pass Rd.

RIGHT    40 ---  1.0    1.1  1.1  1.1   1.0 ---   40  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                      SIG WARRANTS:
W + E                   14    0   10                        Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? Y

                STREET NAME: Loftus Rd.
=========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
-------------------------------------------------------------------------
NB  RIGHT (R)      10         10       1650      0.0061
    THRU (T)        0          0       1650      0.0000
    LEFT (L)       14         14       1650      0.0085
    T + R                     10       1650      0.0061
    T + L                     14       1650      0.0085
    T + R + L                 24       1650      0.0145     0.0145
-------------------------------------------------------------------------
SB  RIGHT (R)      57         57       1650      0.0345
    THRU (T)       21         21       1650      0.0127
    LEFT (L)       35         35       1650      0.0212
    T + R                     78       1650      0.0473
    T + L                     56       1650      0.0339
    T + R + L                113       1650      0.0685     0.0685
-------------------------------------------------------------------------
EB  RIGHT (R)      40         26 *     1650      0.0158
    THRU (T)      828        828       1650      0.5018     0.5018
    LEFT (L)        9          9       1650      0.0055
-------------------------------------------------------------------------
WB  RIGHT (R)      17         17       1650      0.0103
    THRU (T)      345        345       1650      0.2091
    LEFT (L)       40         40       1650      0.0242     0.0242
    T + R                    362       1650      0.2194
=========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.61
     INTERSECTION LEVEL OF SERVICE:                                 B
=========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 15.2 Worst Case Level Of Service: C[16.3]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	68	333	0	0	68	565	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	68	333	0	0	68	565	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	74	362	0	0	74	614	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	74	362	0	0	74	614	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	37	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	974	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	290	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.26	0.40	xxxx	xxxx	0.08	0.68	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	1.0	2.0	xxxxx	xxxx	0.3	5.6	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	21.6	11.7	xxxxx	xxxxx	9.4	17.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	B	*	*	A	C	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	13.4			16.3			xxxxxx			xxxxxx		
ApproachLOS:	B			C			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #5 Willow Pass Road/N. Parkside Drive WB Ramps

Average Delay (sec/veh): 20.9 Worst Case Level Of Service: D[26.9]

Street Name:	Willow Pass Road						N. Parkside Drive WB Ramps					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Yield Sign			Yield Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			0 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	26	708	0	0	134	300	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	708	0	0	134	300	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	28	770	0	0	146	326	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	28	770	0	0	146	326	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	7.1	6.5	xxxxx	xxxxx	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	xxxxx	xxxxx	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	73	0	xxxxx	xxxx	0	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	923	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	515	900	xxxxx	xxxx	900	900	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.05	0.86	xxxx	xxxx	0.16	0.36	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.2	10.7	xxxxx	xxxx	0.6	1.7	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	12.4	27.4	xxxxx	xxxxx	9.8	11.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	D	*	*	A	B	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	26.9			10.8			xxxxxx			xxxxxx		
ApproachLOS:	D			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps

Average Delay (sec/veh): 8.1 Worst Case Level Of Service: B[11.4]

Street Name:	Willow Pass Road									N. Parkside Drive EB Ramps								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Volume Module:																				
Base Vol:	0	50		14		7	61		0		282		0		26	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	0	50		14		7	61		0		282		0		26	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.92	0.92		0.92		0.92	0.92		0.92		0.92		0.92		0.92	0.92		0.92		0.92
PHF Volume:	0	54		15		8	66		0		307		0		28	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	0	54		15		8	66		0		307		0		28	0		0		0
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx		xxxxx		4.1	xxxx		xxxxx		6.4		6.5		6.2	xxxxx		xxxx		xxxxx
FollowUpTim:	xxxxx	xxxx		xxxxx		2.2	xxxx		xxxxx		3.5		4.0		3.3	xxxxx		xxxx		xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx		xxxxx		70	xxxx		xxxxx		143		151		66	xxxx		xxxx		xxxxx
Potent Cap.:	xxxx	xxxx		xxxxx		1544	xxxx		xxxxx		854		744		1003	xxxx		xxxx		xxxxx
Move Cap.:	xxxx	xxxx		xxxxx		1544	xxxx		xxxxx		851		741		1003	xxxx		xxxx		xxxxx
Volume/Cap:	xxxx	xxxx		xxxx		0.00	xxxx		xxxx		0.36		0.00		0.03	xxxx		xxxx		xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		xxxx		xxxx		0.1	xxxx		xxxx		xxxxx
Control Del:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		xxxxx		xxxx		8.7	xxxxx		xxxx		xxxxx
LOS by Move:	*	*		*		A	*		*		*		*		A	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		851		xxxx		xxxxx	xxxx		xxxx		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		0.0	xxxx		xxxxx		1.6		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		7.3	xxxx		xxxxx		11.6		xxxx		xxxxx	xxxxx		xxxx		xxxxx
Shared LOS:	*	*		*		A	*		*		B		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					11.4					xxxxxx				
ApproachLOS:	*					*					B					*				

Note: Queue reported is the number of cars per lane.

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```
----------------------------------------------------------------------------
----------------------------------------------------------------------------
                    Level Of Service Computation Report
          2000 HCM Unsignalized Method (Base Volume Alternative)
****************************************************************************
Intersection #6 Willow Pass Road/N. Parkside Drive EB Ramps
****************************************************************************
Average Delay (sec/veh):     18.1       Worst Case Level Of Service: D[ 27.4]
****************************************************************************
Street Name:          Willow Pass Road              N. Parkside Drive EB Ramps
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:      L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:            Include          Include          Include          Include
Lanes:         0  0  1  0  1    0  0  1  0  0    0  1  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:        0  186    38     0   73     0   521    3   61     0    0     0
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:     0  186    38     0   73     0   521    3   61     0    0     0
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:      0  202    41     0   79     0   566    3   66     0    0     0
Reduct Vol:      0    0     0     0    0     0     0    0    0     0    0     0
FinalVolume:     0  202    41     0   79     0   566    3   66     0    0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx   302  323    79  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx   694  598   987  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx   694  598   987  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.82 0.01  0.07  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.2  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.9 xxxxx xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     A     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx   693 xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.8 xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx  29.5 xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     *    *     *     D    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx              27.4           xxxxxx
ApproachLOS:       *                *                  D                *
****************************************************************************
Note: Queue reported is the number of cars per lane.
****************************************************************************
```

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URS SAN JOSE, CA

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                     Time                Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        4-PHASE SIGNAL
-----------            524 1435  183
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT     0 ---  0.0   1.0  2.0  1.0   1.1 ---  554  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   2.2<---  373  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0   2.0  2.1  1.1   1.1 ---  151  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                  651 1348  202                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      202        202       1650      0.1224
    THRU (T)      1348       1348       3300      0.4085
    LEFT (L)       651        651       3000      0.2170      0.2170
    T + R                    1550       3300      0.4697
--------------------------------------------------------------------------
SB  RIGHT (R)      524        524       1650      0.3176
    THRU (T)      1435       1435       3300      0.4348      0.4348
    LEFT (L)       183        183       1650      0.1109
--------------------------------------------------------------------------
WB  RIGHT (R)      554        554       1650      0.3358      0.3358
    THRU (T)       373        373       3300      0.1130
    LEFT (L)       151        151       1650      0.0915
    T + R                     927       3300      0.2809
    T + L                     524       3300      0.1588
    T + R + L                1078       3300      0.3267
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.99
     INTERSECTION LEVEL OF SERVICE:                                  E
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: PM_FTP                                            05/30/08
=====================================================================
INTERSECTION     7 Railroad Ave./SR 4 WB Ramps       Contra Costa
Count Date                    Time                 Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      4-PHASE SIGNAL
-----------            428 1264  193
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT     0 ---  0.0   1.0  2.0  1.0   1.1 ---  497  RIGHT
                                                          STREET NAME:
THRU     0 ---> 0.0  (NO. OF LANES)   2.2<---  275  THRU  SR 4 WB Ramps

RIGHT    0 ---  0.0   2.0  2.1  1.1   1.1 ---  174  LEFT
             |       <---   ^   --->       |
             v           |   |   |          v
  N                      |   |   |                       SIG WARRANTS:
W + E                   510 1564  475                      Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
=====================================================================
                 ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT       VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)      475        475       1650      0.2879
    THRU (T)      1564       1564       3300      0.4739
    LEFT (L)       510        510       3000      0.1700
    T + R                    2039       3300      0.6179     0.6179
---------------------------------------------------------------------
SB  RIGHT (R)      428        428       1650      0.2594
    THRU (T)      1264       1264       3300      0.3830
    LEFT (L)       193        193       1650      0.1170     0.1170
---------------------------------------------------------------------
WB  RIGHT (R)      497        497       1650      0.3012     0.3012
    THRU (T)       275        275       3300      0.0833
    LEFT (L)       174        174       1650      0.1055
    T + R                     772       3300      0.2339
    T + L                     449       3300      0.1361
    T + R + L                 946       3300      0.2867
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                          1.04
     INTERSECTION LEVEL OF SERVICE:                             F
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     8 Railroad Ave./SR 4 EB Ramps       Contra Costa
Count Date                     Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0 1127  434
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   475 ---  2.1   0.0  2.0  1.0   0.0 ---    0  RIGHT
                                                          STREET NAME:
THRU     5 ---> 1.1  (NO. OF LANES)   0.0<---    0  THRU  SR 4 EB Ramps

RIGHT  736 ---  2.1   0.0  3.1  1.1   0.0 ---    0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0 1661  427                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     427        427       1720      0.2483
    THRU (T)     1661       1661       5160      0.3219
    T + R                   2088       5160      0.4047      0.4047
--------------------------------------------------------------------------
SB  THRU (T)     1127       1127       3440      0.3276
    LEFT (L)      434        434       1720      0.2523      0.2523
--------------------------------------------------------------------------
EB  RIGHT (R)     736        736       3127      0.2354
    THRU (T)        5          5       1720      0.0029
    LEFT (L)      475        475       3127      0.1519
    T + R                    741       3127      0.2370
    T + L                    480       3127      0.1535
    T + R + L               1216       4534      0.2682      0.2682
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.93
     INTERSECTION LEVEL OF SERVICE:                                  E
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                  05/30/08
==========================================================================
INTERSECTION      8 Railroad Ave./SR 4 EB Ramps        Contra Costa
Count Date                      Time                  Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        3-PHASE SIGNAL
-----------              0 1173  140
                         |   |   |
             ^           |   |   |          ^
             |         <---  v   --->       | Split? Y
LEFT   949 ---  2.1   0.0  2.0  1.0   0.0 ---     0  RIGHT
                                                          STREET NAME:
THRU   192 ---> 1.1  (NO. OF LANES)   0.0<---     0  THRU  SR 4 EB Ramps

RIGHT 1798 ---  2.1   0.0  3.1  1.1   0.0 ---     0  LEFT
             |         <---  ^   --->       |
             v           |   |   |          v
  N                      |   |   |                        SIG WARRANTS:
W + E                    0 1567  218                         Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     218        218       1720      0.1267
    THRU (T)     1567       1567       5160      0.3037
    T + R                   1785       5160      0.3459     0.3459
--------------------------------------------------------------------------
SB  THRU (T)     1173       1173       3440      0.3410
    LEFT (L)      140        140       1720      0.0814     0.0814
--------------------------------------------------------------------------
EB  RIGHT (R)    1798       1798       3127      0.5750
    THRU (T)      192        192       1720      0.1116
    LEFT (L)      949        949       3127      0.3035
    T + R                   1990       3127      0.6364
    T + L                   1141       3127      0.3649
    T + R + L               2939       4534      0.6482     0.6482
--------------------------------------------------------------------------
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              1.08
     INTERSECTION LEVEL OF SERVICE:                                  F
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

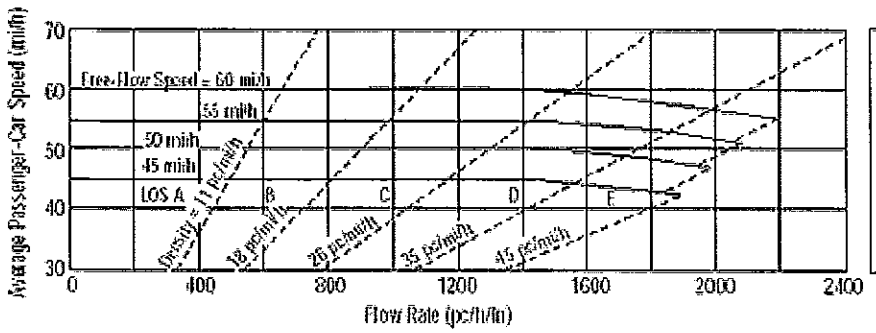
```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
=====================================================================
Condition: AM_FTP                                              05/30/08
=====================================================================
INTERSECTION      9 Railroad Ave./10th St.          Contra Costa
Count Date                     Time                Peak Hour
---------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                      6-PHASE SIGNAL
-----------             42  275   63
                         |   |    |
             ^           |   |    |          ^
             |         <---  v   --->        | Split? N
LEFT    17 ---  1.0   1.1  2.1  1.0   1.1 ---   64  RIGHT
                                                        STREET NAME:
THRU   251 ---> 1.0  (NO. OF LANES)   1.1<---  346  THRU  10th St.

RIGHT  332 ---  1.9   1.0  1.0  1.8   1.0 ---   73  LEFT
             |        <---   ^   --->       |
             v           |   |    |          v
  N                      |   |    |                      SIG WARRANTS:
W + E                   284  237  103                       Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
=====================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY    RATIO       V/C
---------------------------------------------------------------------
NB  RIGHT (R)     103          0 *     1650      0.0000
    THRU (T)      237        237       1650      0.1436
    LEFT (L)      284        284       1650      0.1721      0.1721
---------------------------------------------------------------------
SB  RIGHT (R)      42         42       1650      0.0255
    THRU (T)      275        275       3300      0.0833
    LEFT (L)       63         63       1650      0.0382
    T + R                    317       3300      0.0961      0.0961
---------------------------------------------------------------------
EB  RIGHT (R)     332        332       1650      0.2012
    THRU (T)      251        251       1650      0.1521
    LEFT (L)       17         17       1650      0.0103      0.0103
---------------------------------------------------------------------
WB  RIGHT (R)      64         64       1650      0.0388
    THRU (T)      346        346       1650      0.2097
    LEFT (L)       73         73       1650      0.0442
    T + R                    410       1650      0.2485      0.2485
=====================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                            0.53
     INTERSECTION LEVEL OF SERVICE:                              A
=====================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                 05/30/08
==========================================================================
INTERSECTION      9 Railroad Ave./10th St.            Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------             52  244  101
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    82 ---  1.0   1.1  2.1  1.0   1.1 ---   80  RIGHT
                                                          STREET NAME:
THRU   552 ---> 1.0  (NO. OF LANES)   1.1<---  353  THRU  10th St.

RIGHT  287 ---  1.9   1.0  1.0  1.8   1.0 ---   66  LEFT
             |       <---   ^   --->       |
             v          |    |    |         v
  N                     |    |    |                      SIG WARRANTS:
W + E                  227  298  139                        Urb=Y, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                STREET NAME: Railroad Ave.
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
  MOVEMENT      VOLUME     VOLUME*    CAPACITY    RATIO      V/C
--------------------------------------------------------------------------
NB  RIGHT (R)     139          0 *     1650      0.0000
    THRU (T)      298        298       1650      0.1806     0.1806
    LEFT (L)      227        227       1650      0.1376
--------------------------------------------------------------------------
SB  RIGHT (R)      52         52       1650      0.0315
    THRU (T)      244        244       3300      0.0739
    LEFT (L)      101        101       1650      0.0612     0.0612
    T + R                    296       3300      0.0897
--------------------------------------------------------------------------
EB  RIGHT (R)     287        287       1650      0.1739
    THRU (T)      552        552       1650      0.3345     0.3345
    LEFT (L)       82         82       1650      0.0497
--------------------------------------------------------------------------
WB  RIGHT (R)      80         80       1650      0.0485
    THRU (T)      353        353       1650      0.2139
    LEFT (L)       66         66       1650      0.0400     0.0400
    T + R                    433       1650      0.2624
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.62
     INTERSECTION LEVEL OF SERVICE:                                  B
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: AM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     10 Montezuma Street/10th Street      Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------            148    5   42
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT    85 ---  1.0    1.1  1.1  1.0    1.1 ---    37  RIGHT
                                                        STREET NAME:
THRU   271 ---> 1.1   (NO. OF LANES)    1.1<---   538  THRU  10th Street

RIGHT   10 ---  1.1    1.0  1.1  1.1    1.1 ---    16  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                   16    2   33                          Urb=N, Rur=Y
  S                   LEFT THRU RIGHT Split? N

                 STREET NAME: Montezuma Street
==========================================================================
                ORIGINAL   ADJUSTED                V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      33         33       1650      0.0200
    THRU (T)        2          2       1650      0.0012
    LEFT (L)       16         16       1650      0.0097      0.0097
    T + R                     35       1650      0.0212
--------------------------------------------------------------------------
SB  RIGHT (R)     148        148       1650      0.0897
    THRU (T)        5          5       1650      0.0030
    LEFT (L)       42         42       1650      0.0255
    T + R                    153       1650      0.0927      0.0927
--------------------------------------------------------------------------
EB  RIGHT (R)      10         10       1650      0.0061
    THRU (T)      271        271       1650      0.1642
    LEFT (L)       85         85       1650      0.0515      0.0515
    T + R                    281       1650      0.1703
--------------------------------------------------------------------------
WB  RIGHT (R)      37         37       1650      0.0224
    THRU (T)      538        538       1650      0.3261
    LEFT (L)       16         16       1650      0.0097
    T + R                    575       1650      0.3485
    T + L                    554       1650      0.3358
    T + R + L                591       1650      0.3582      0.3582
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.51
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_AM.AMV,CAP=
```

```
CCTALOS Software ver. 2.35 by TJKM Transportation Consultants
==========================================================================
Condition: PM_FTP                                                 05/30/08
==========================================================================
INTERSECTION     10 Montezuma Street/10th Street      Contra Costa
Count Date                      Time                 Peak Hour
--------------------------------------------------------------------------
CCTA METHOD          RIGHT THRU LEFT                        6-PHASE SIGNAL
-----------            118   10   75
                         |    |    |
             ^           |    |    |          ^
             |         <---   v   --->        | Split? N
LEFT   176 ---  1.0    1.1  1.1  1.0    1.1 ---   66  RIGHT
                                                        STREET NAME:
THRU   733 ---> 1.1   (NO. OF LANES)    1.1<---  394  THRU  10th Street

RIGHT   26 ---  1.1    1.0  1.1  1.1    1.1 ---   61  LEFT
             |         <---   ^   --->        |
             v           |    |    |          v
  N                      |    |    |                        SIG WARRANTS:
W + E                    9   10   52                          Urb=Y, Rur=Y
  S                    LEFT THRU RIGHT Split? N

                 STREET NAME: Montezuma Street
==========================================================================
                ORIGINAL   ADJUSTED                 V/C     CRITICAL
   MOVEMENT      VOLUME     VOLUME*   CAPACITY     RATIO       V/C
--------------------------------------------------------------------------
NB  RIGHT (R)      52         52        1650      0.0315
    THRU (T)       10         10        1650      0.0061
    LEFT (L)        9          9        1650      0.0055
    T + R                     62        1650      0.0376      0.0376
--------------------------------------------------------------------------
SB  RIGHT (R)     118        118        1650      0.0715
    THRU (T)       10         10        1650      0.0061
    LEFT (L)       75         75        1650      0.0455      0.0455
    T + R                    128        1650      0.0776
--------------------------------------------------------------------------
EB  RIGHT (R)      26         26        1650      0.0158
    THRU (T)      733        733        1650      0.4442
    LEFT (L)      176        176        1650      0.1067
    T + R                    759        1650      0.4600      0.4600
--------------------------------------------------------------------------
WB  RIGHT (R)      66         66        1650      0.0400
    THRU (T)      394        394        1650      0.2388
    LEFT (L)       61         61        1650      0.0370      0.0370
    T + R                    460        1650      0.2788
    T + L                    455        1650      0.2758
    T + R + L                521        1650      0.3158
==========================================================================
     TOTAL VOLUME-TO-CAPACITY RATIO:                              0.58
     INTERSECTION LEVEL OF SERVICE:                                 A
==========================================================================
* ADJUSTED FOR RIGHT TURN ON RED
INT=FT.INT,VOL=FTP1_PM.AMV,CAP=
```

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	987	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	541
Speed, S (mi/h)	45.0
D (pc/mi/ln)	12.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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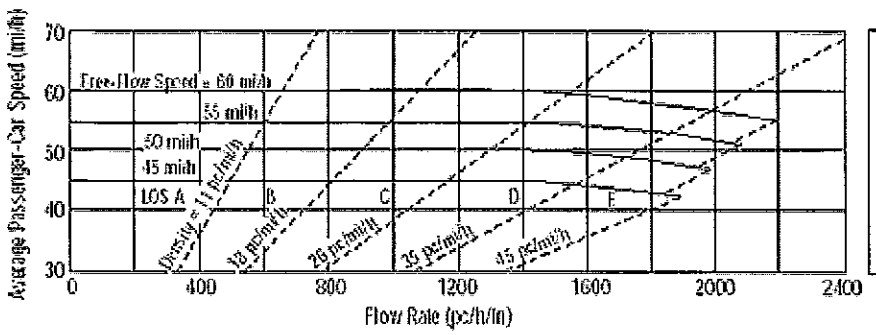
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	783	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	429
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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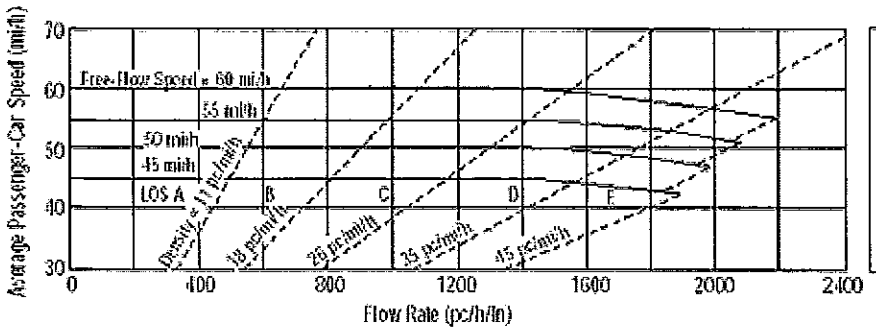
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1416	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	777
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.3
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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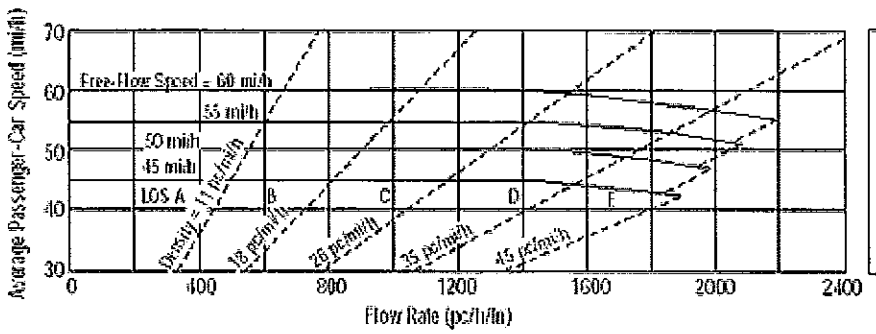
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Bailey Rd.
From/To	Route 4 WB Ramp/Willow Pass Rd
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	865	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	474
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.5
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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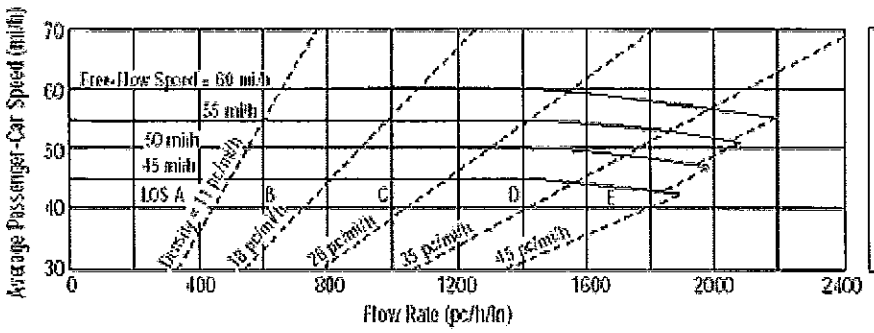
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	656	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	360
Speed, S (mi/h)	45.0
D (pc/mi/ln)	8.0
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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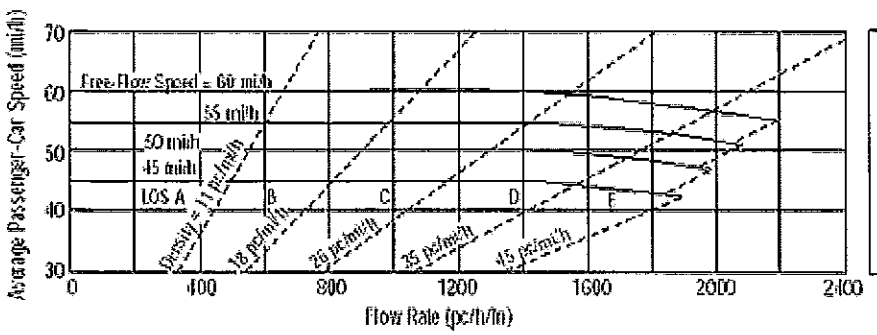
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1412	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	775
Speed, S (mi/h)	45.0
D (pc/mi/ln)	17.2
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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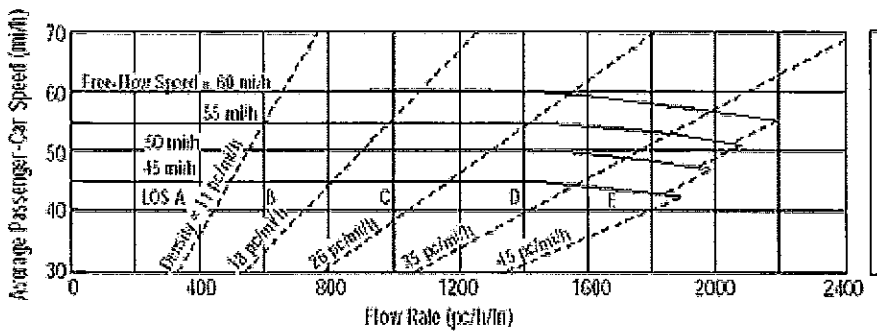
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1557	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	854
Speed, S (mi/h)	45.0
D (pc/mi/ln)	19.0
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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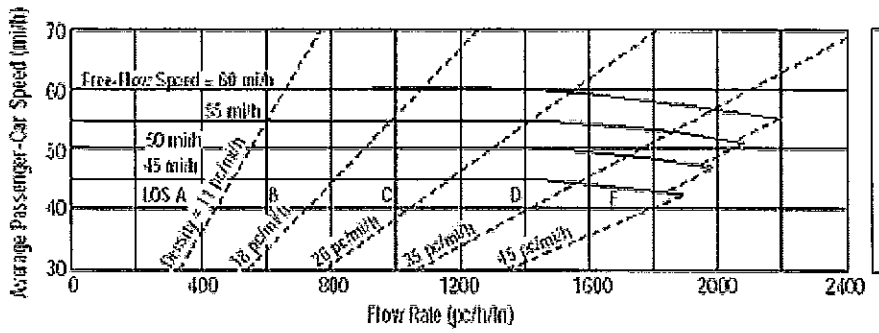
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Bailey Rd./Loftus Rd.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	784	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	430
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.6
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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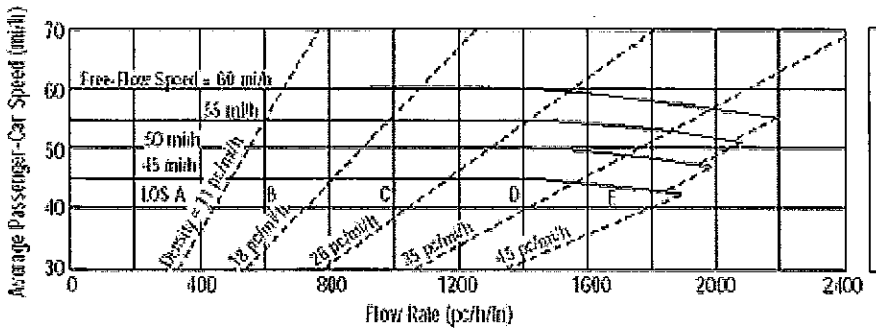
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	771	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	423
Speed, S (mi/h)	45.0
D (pc/mi/ln)	9.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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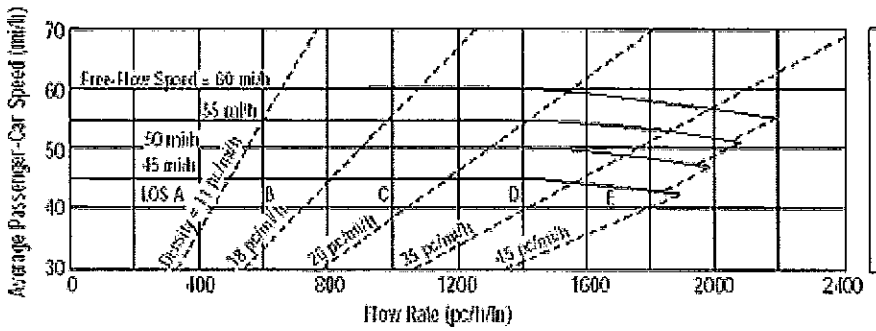
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1939	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1064
Speed, S (mi/h)	45.0
D (pc/mi/ln)	23.6
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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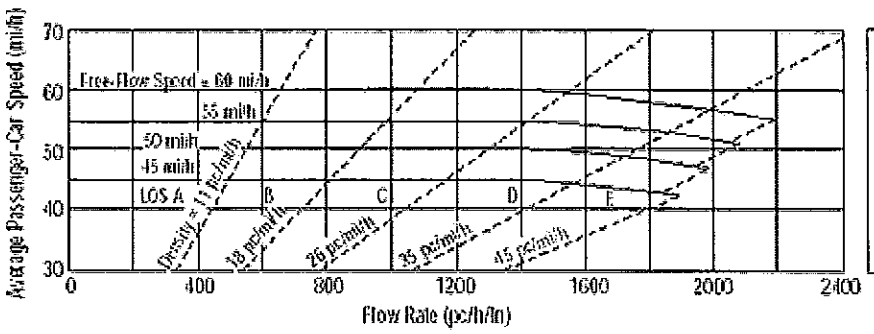
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1619	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	888
Speed, S (mi/h)	45.0
D (pc/mi/ln)	19.7
LOS	C

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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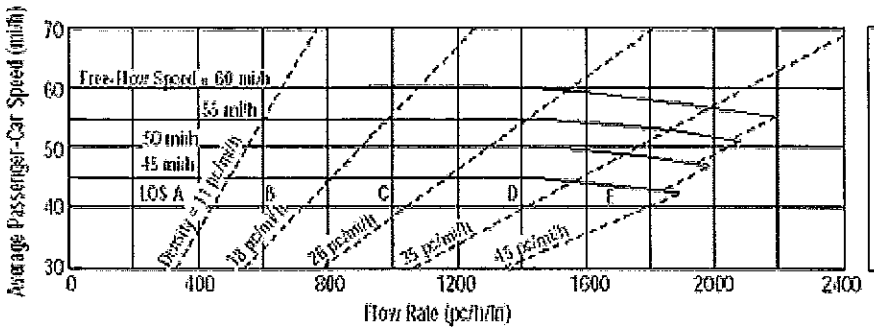
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	Loftus Rd./N. Parkside Dr. Rmp
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	848	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	45.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	45.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	465
Speed, S (mi/h)	45.0
D (pc/mi/ln)	10.3
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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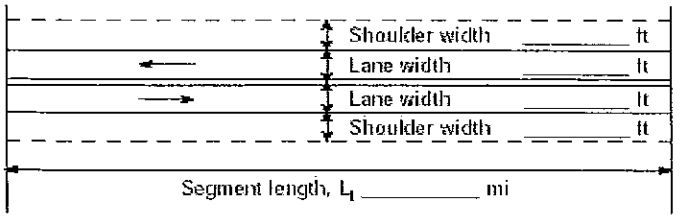
TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Future plus Proj Condition

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1352 veh/h
Directional split	73 / 27
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1473
v_p * highest directional split proportion[2] (pc/h)	1075

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	35.7

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1470
v_p * highest directional split proportion[2] (pc/h)	1073
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	72.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	8.2
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	80.7

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	551
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	2028
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	15.4

Notes

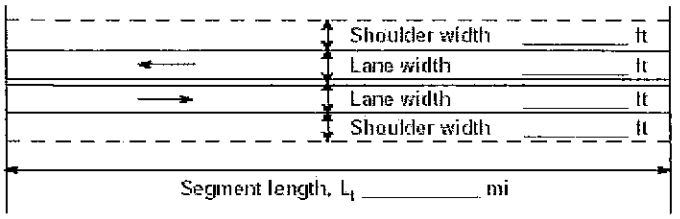
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	Willow Pass Rd.
Agency or Company	URS Corporation	From/To	N Parkside Dr. Ramps/W 10th St
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	PM Peak	Analysis Year	Future plus Proj Condition

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1243 veh/h
Directional split	62 / 38
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	5

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1354
v_p * highest directional split proportion[2] (pc/h)	839

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.3 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.8 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.8
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	36.5

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T-1)+P_R(E_R-1)$)	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1351
v_p * highest directional split proportion[2] (pc/h)	838
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	69.5
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	8.7
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	78.2

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.42
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	507
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	1865
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	13.9

Notes

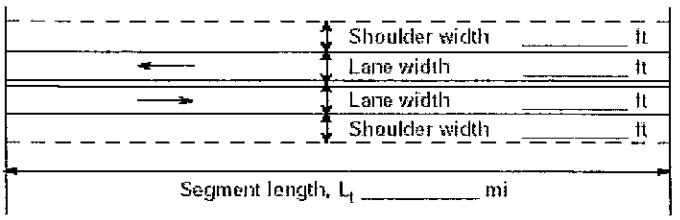
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	AC	Highway	N. Parkside Dr.
Agency or Company	URS Corporation	From/To	Willow Pass Rd./Railroad Ave.
Date Performed	5/21/2008	Jurisdiction	Contra Costa County
Analysis Time Period	AM Peak	Analysis Year	Future plus Proj Condition

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	1345 veh/h
Directional split	67 / 33
Peak-hour factor, PHF	0.92
No-passing zone	100
% Trucks and Buses , P_T	2 %
% Recreational vehicles, P_R	2%
Access points/ *mi*	7

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	1.1
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	0.998
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1465
v_p * highest directional split proportion[2] (pc/h)	982

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	50.0 *mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	0.0 *mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	1.8 *mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	48.3 *mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	1.6
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	35.2

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	1.00
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	1.0
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	1.0
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	1.000
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	1462
v_p * highest directional split proportion[2] (pc/h)	980
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	72.3
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	7.8
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	80.2

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	E
Volume to capacity ratio, v/c=V_p/ 3,200	0.46
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	621
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=V*L_t	2287
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	17.6

Notes

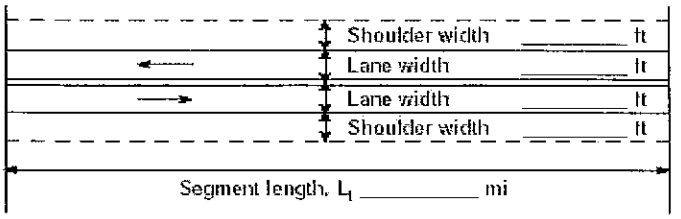
1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		Site Information	
Analyst	*AC*	Highway	*N. Parkside Dr.*
Agency or Company	*URS Corporation*	From/To	*Willow Pass Rd./Railroad Ave.*
Date Performed	*5/21/2008*	Jurisdiction	*Contra Costa County*
Analysis Time Period	*PM Peak*	Analysis Year	*Future plus Proj Condition*

Project Description: *Willow Pass Generating Station*

Input Data



☑ Class I highway ☐ Class II highway

Terrain ☑ Level ☐ Rolling

Two-way hourly volume	*1403* veh/h
Directional split	*73 / 27*
Peak-hour factor, PHF	*0.92*
No-passing zone	*100*
% Trucks and Buses , P_T	*2 %*
% Recreational vehicles, P_R	*2%*
Access points/ *mi*	*7*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.998*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1528*
v_p * highest directional split proportion[2] (pc/h)	*1115*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*0.0 mi/h*
Free-flow speed, FFS $FFS=S_{FM}+0.00776(V_f/f_{HV})$	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*1.8 mi/h*
		Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*48.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.6*
Average travel speed, ATS (*mi/h*) $ATS=FFS-0.00776v_p-f_{np}$	*34.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.0*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*1.000*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*1525*
v_p * highest directional split proportion[2] (pc/h)	*1113*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*73.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*7.8*
Percent time-spent-following, $PTSF(\%)=BPTSF+f_{d/np}$	*81.6*

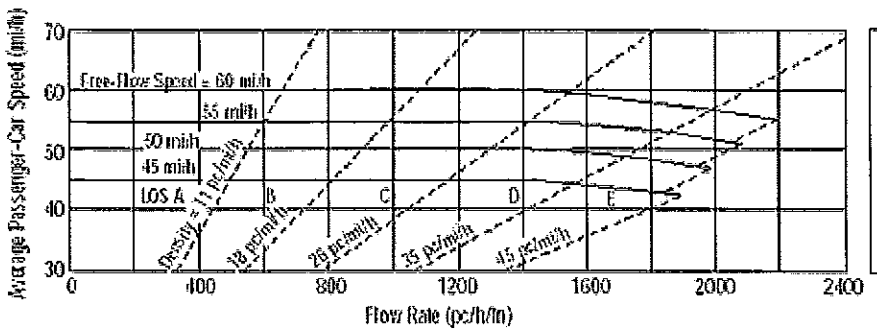
Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*E*
Volume to capacity ratio, $v/c=V_p/3{,}200$	*0.48*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= $0.25L_t(V/PHF)$	*648*
Peak-hour vehicle-miles of travel, VMT_{60}(veh- *mi*)=$V*L_t$	*2385*
Peak 15-min total travel time, TT_{15}(veh-h)= VMT_{15}/ATS	*18.6*

Notes

1. If Vp >= 3,200 pc/h, terminate analysis-the LOS is F.

MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1517	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	832
Speed, S (mi/h)	52.0
D (pc/mi/ln)	16.0
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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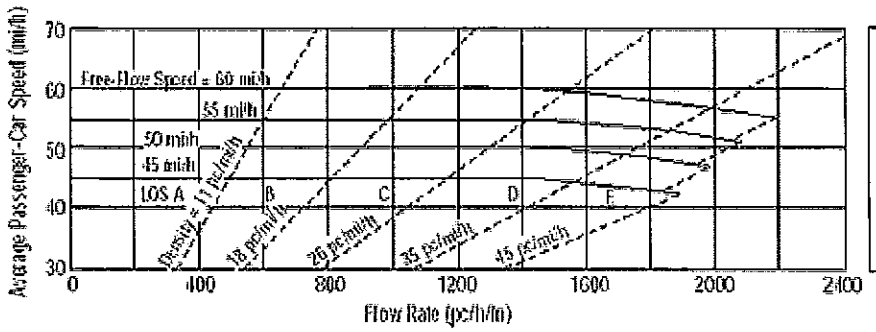
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1314	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	721
Speed, S (mi/h)	52.0
D (pc/mi/ln)	13.9
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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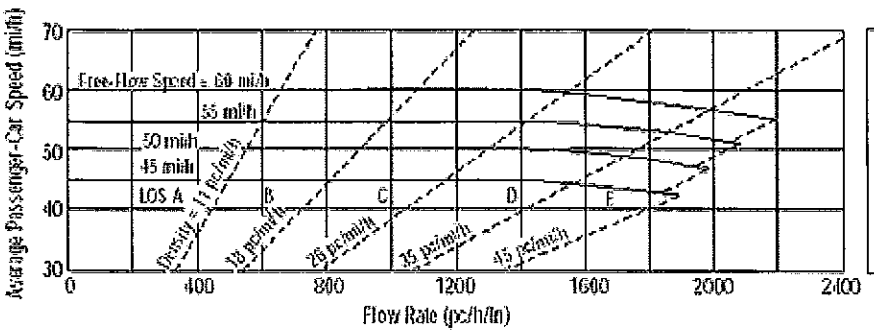
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1671	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	917
Speed, S (mi/h)	52.0
D (pc/mi/ln)	17.6
LOS	B

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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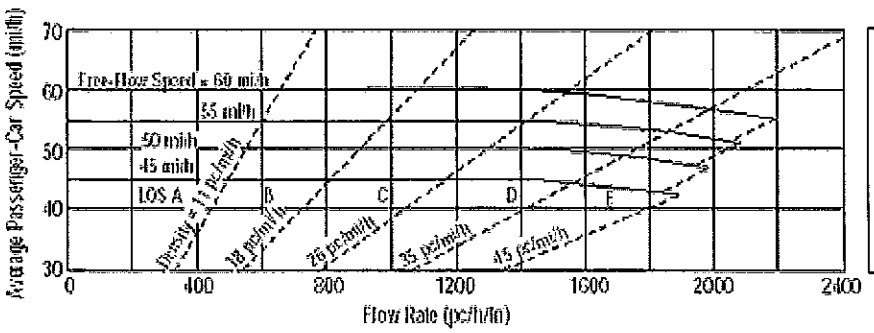
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Railroad Ave.
From/To	N. Parkside Dr./Rt 4 WB Ramps
Jurisdiction	Contra Costa County
Analysis Year	Future plus Proj Condition

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1833	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	1006
Speed, S (mi/h)	52.0
D (pc/mi/ln)	19.3
LOS	C

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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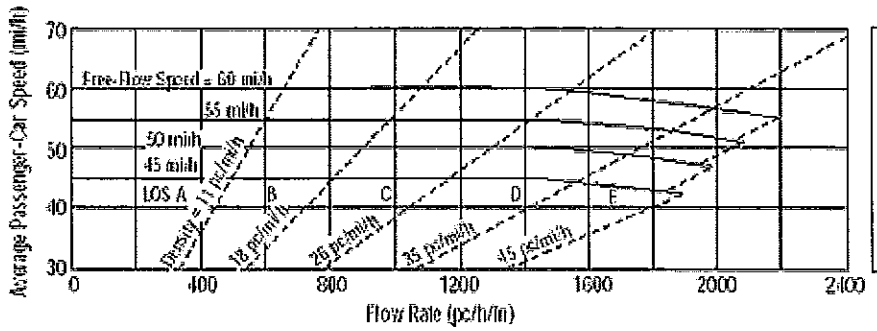
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	366	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	200
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.8
LOS	A

Design

Design (N)

Required Number of Lanes, N
Flow Rate, v_p (pc/h)
Max Service Flow Rate (pc/h/ln)
Design LOS

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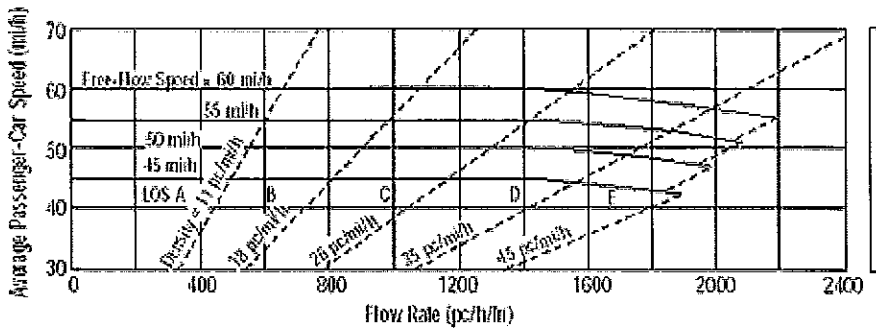
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	986	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	541
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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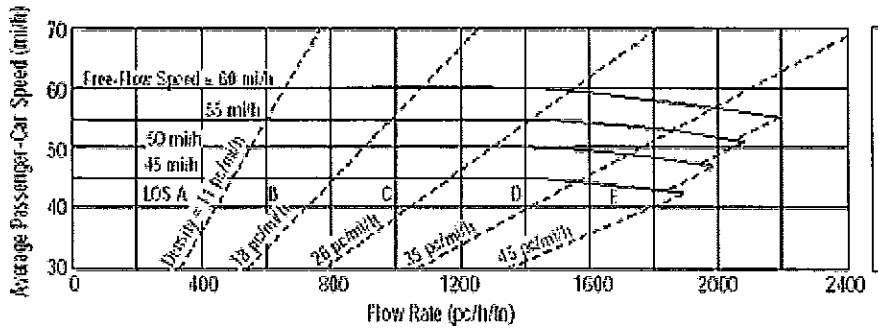
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	766	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	420
Speed, S (mi/h)	52.0
D (pc/mi/ln)	8.1
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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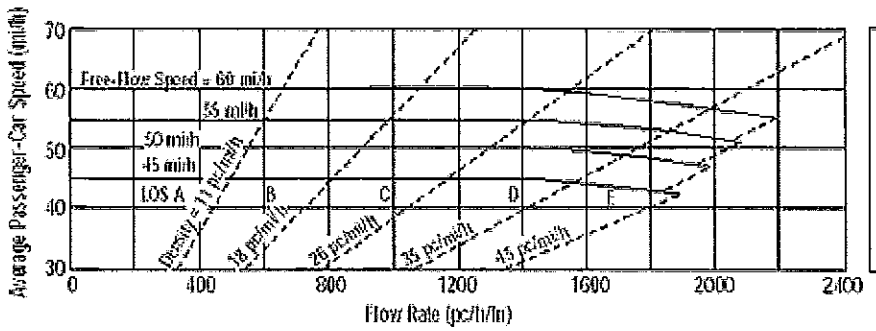
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	Willow Pass Rd.
From/To	N Parkside Dr. Ramps/W 10th St
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	465	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	255
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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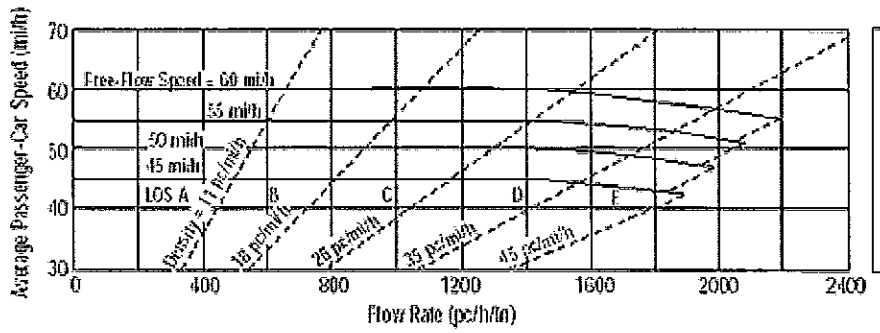
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	449	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	246
Speed, S (mi/h)	52.0
D (pc/mi/ln)	4.7
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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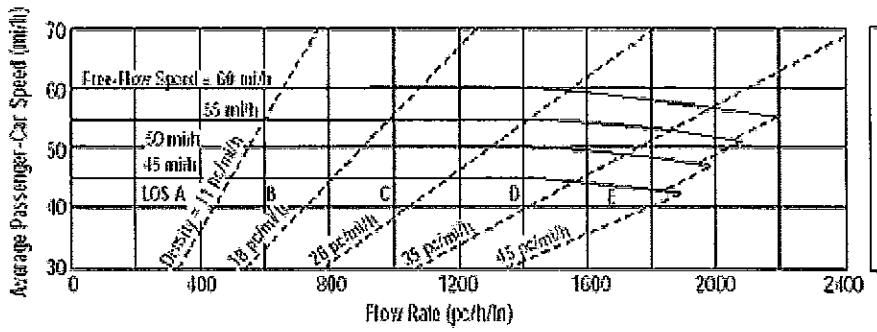
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	AM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	896	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	491
Speed, S (mi/h)	52.0
D (pc/mi/ln)	9.4
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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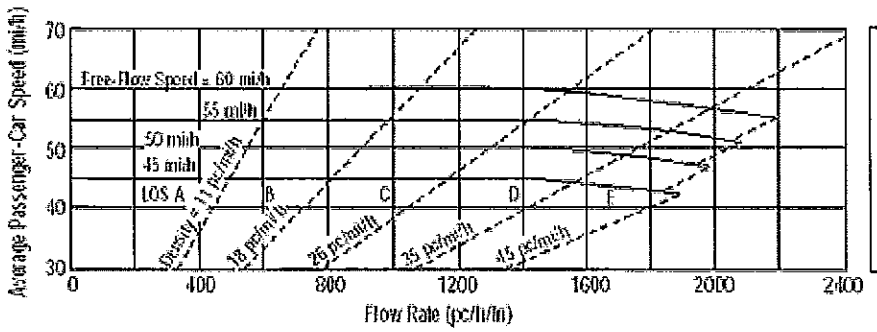
MULTILANE HIGHWAYS WORKSHEET(Direction 1)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	1027	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	563
Speed, S (mi/h)	52.0
D (pc/mi/ln)	10.8
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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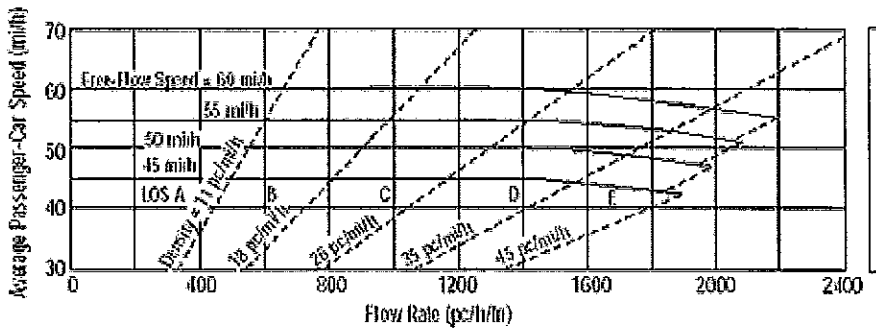
MULTILANE HIGHWAYS WORKSHEET(Direction 2)



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information

Analyst	AC
Agency or Company	URS Corporation
Date Performed	5/21/2008
Analysis Time Period	PM Peak

Site Information

Highway/Direction to Travel	N. Parkside Dr.
From/To	Willow Pass Rd./Railroad Ave.
Jurisdiction	Contra Costa County
Analysis Year	Future plus Project_Miti

Project Description Willow Pass Generating Station

☑ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

Flow Inputs

Volume, V (veh/h)	375	Peak-Hour Factor, PHF	0.92
AADT(veh/h)		%Trucks and Buses, P_T	2
Peak-Hour Prop of AADT (veh/d)		%RVs, P_R	0
Peak-Hour Direction Prop, D		General Terrain:	Level
DDHV (veh/h)		Grade Length (mi)	0.00
Driver Type Adjustment	1.00	Up/Down %	0.00
		Number of Lanes	2

Calculate Flow Adjustments

f_p	1.00	E_R	1.2
E_T	1.5	f_{HV}	0.990

Speed Inputs

Lane Width, LW (ft)	12.0
Total Lateral Clearance, LC (ft)	12.0
Access Points, A (A/mi)	0
Median Type, M	
FFS (measured)	52.0
Base Free-Flow Speed, BFFS	

Calc Speed Adj and FFS

f_{LW} (mi/h)	
f_{LC} (mi/h)	
f_A (mi/h)	
f_M (mi/h)	
FFS (mi/h)	52.0

Operations

Operational (LOS)

Flow Rate, v_p (pc/h/ln)	205
Speed, S (mi/h)	52.0
D (pc/mi/ln)	3.9
LOS	A

Design

Design (N)

Required Number of Lanes, N	
Flow Rate, v_p (pc/h)	
Max Service Flow Rate (pc/h/ln)	
Design LOS	

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