

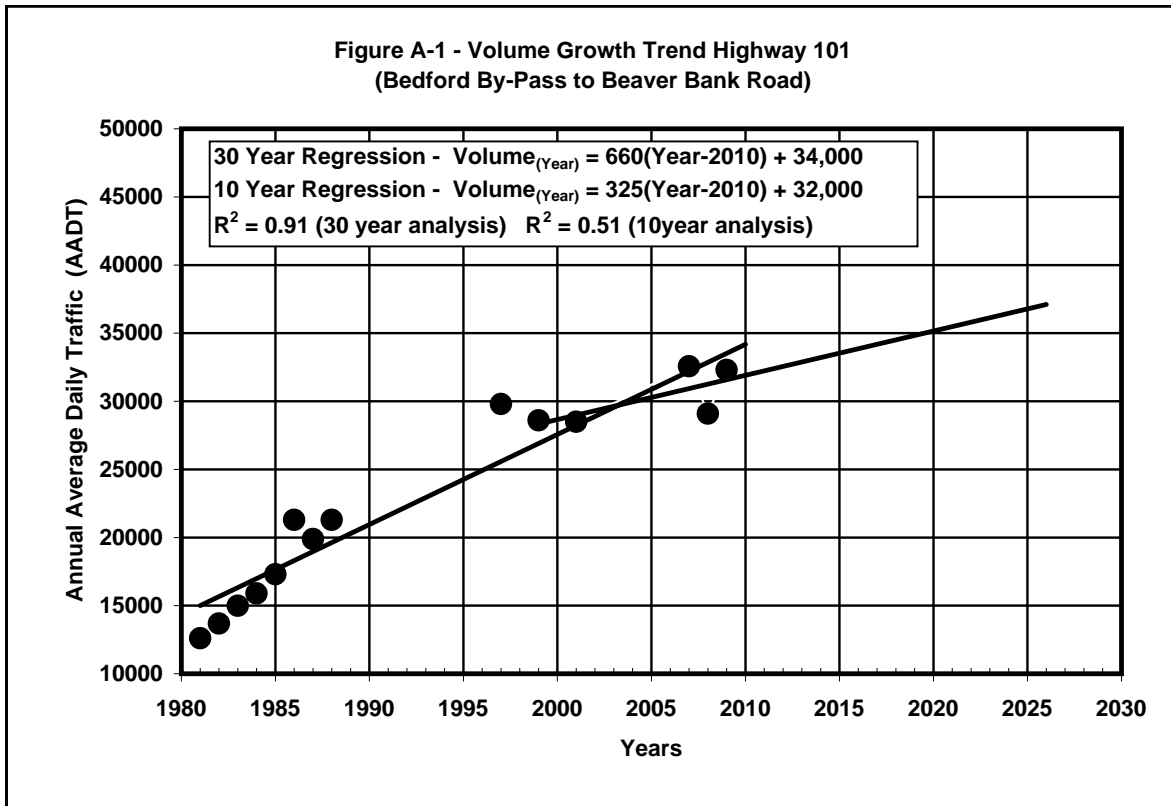
***Appendix A***  
***Historical Machine Counts***

**Table A-1 - Traffic Growth Trend on Highway 101  
Bedford By-Pass to Beaver Bank Road**

Year	AAWT
1981	12610
1982	13690
1983	14990
1984	15890
1985	17300
1986	21300
1987	19890
1988	21300
1997	29800
1999	28600
2001	28500
2005	25400
2007	32570
2008	29100
2009	32300

Source: Nova Scotia Department of Transportation & Infrastructure Renewal  
Numbers in the shaded area have not been included in the analysis

Annual Growth Rate is 1.9% based on 2010 AADT from 30 year analysis  
Annual Growth Rate is 1.0% based on 2010 AADT from 10 year analysis

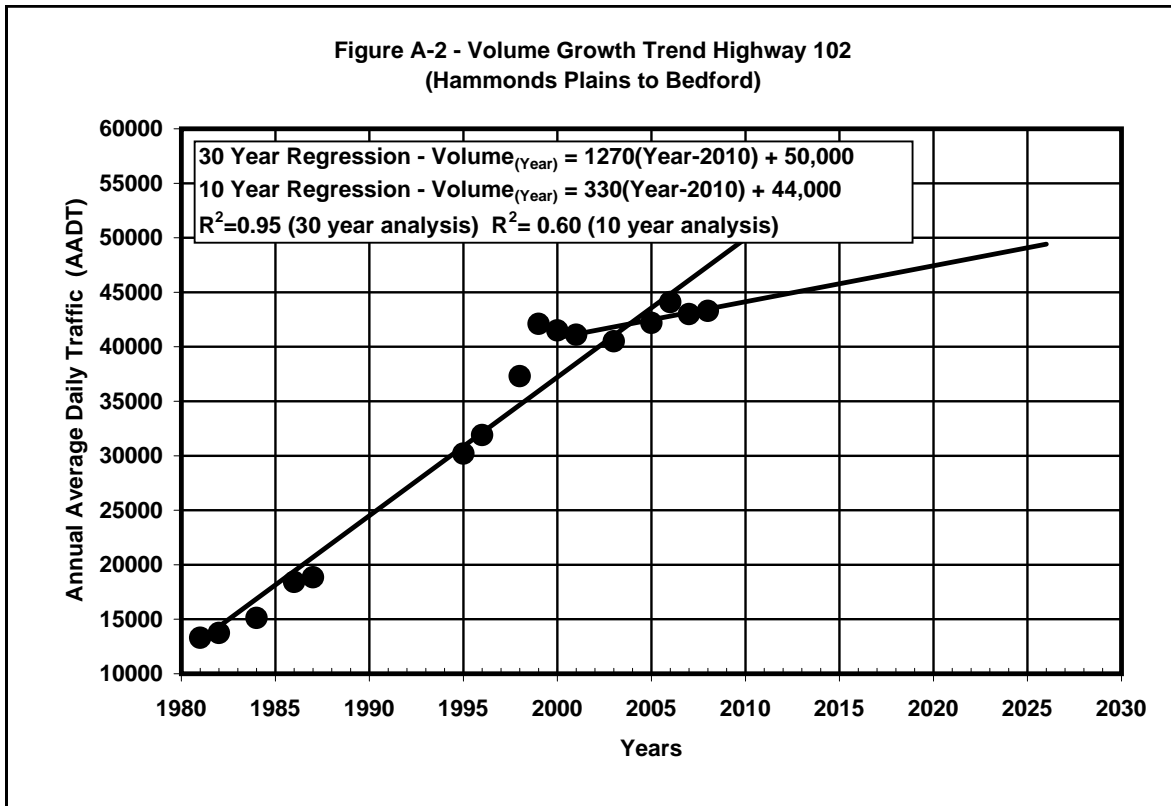


**Table A-2 - Traffic Growth Trend on Highway 102  
Hammonds Plains (Route 213) to Bedford (Highway 101)**

Year	AAWT
1981	13310
1982	13750
1984	15130
1986	18430
1987	18850
1995	30200
1996	31900
1998	37300
1999	42100
2000	41500
2001	41100
2003	40500
2005	42200
2006	44100
2007	43000
2008	43300

Source: Nova Scotia Department of Transportation & Infrastructure Renewal

Annual Growth Rate is 2.5% based on 2010 AADT from 30 year analysis  
 Annual Growth Rate is 0.8% based on 2010 AADT from 10 year analysis

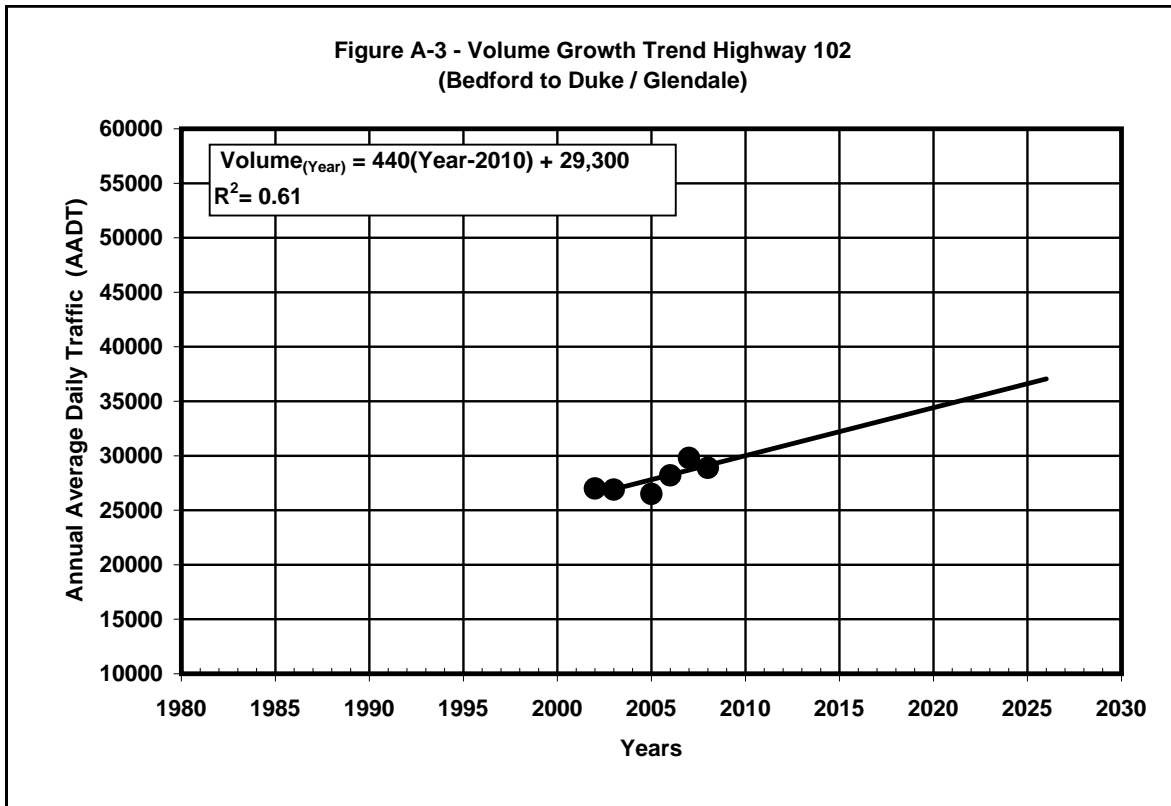


**Table A-3 - Traffic Growth Trend on Highway 102  
Bedford (Highway 101) to Duke / Glendale Interchange**

Year	AAWT
2002	27000
2003	26900
2005	26500
2006	28200
2007	29800
2008	28900

Source: Nova Scotia Department of Transportation & Infrastructure Renewal

Annual Growth Rate is 1.5% based on 2010 AADT





**Table A-4 - Traffic Growth Trend on Highway 102  
Duke / Glendale Interchange to Waverley (Trunk 2)**

Year	AAWT
1980	8860
1981	8780
1982	8690
1984	9060
1986	11200
1987	12590
1988	12720
1995	17780
1996	18900
1998	20830
2002	22900
2003	22600
2005	23700
2006	23000
2007	24300

Source: Nova Scotia Department of Transportation & Infrastructure Renewal

Annual Growth Rate is 2.3% based on 2010 AADT from 30 year analysis  
 Annual Growth Rate is 1.3% based on 2010 AADT from 10 year analysis

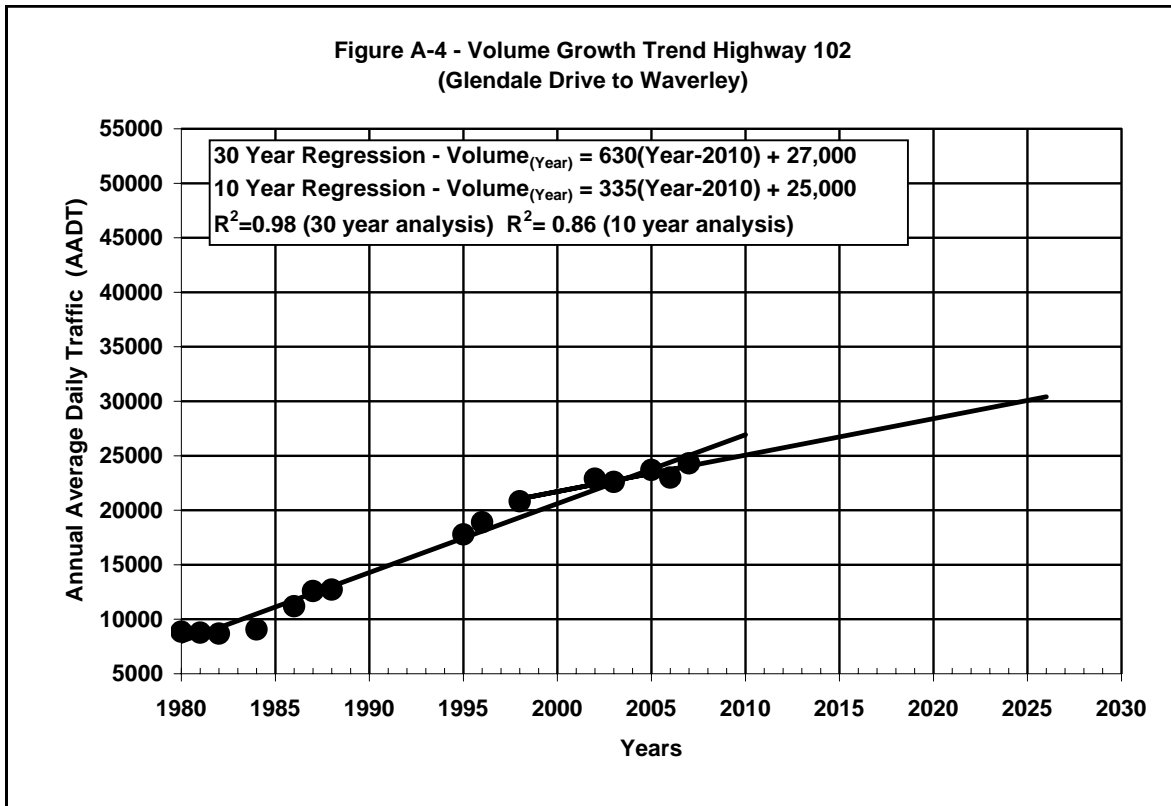
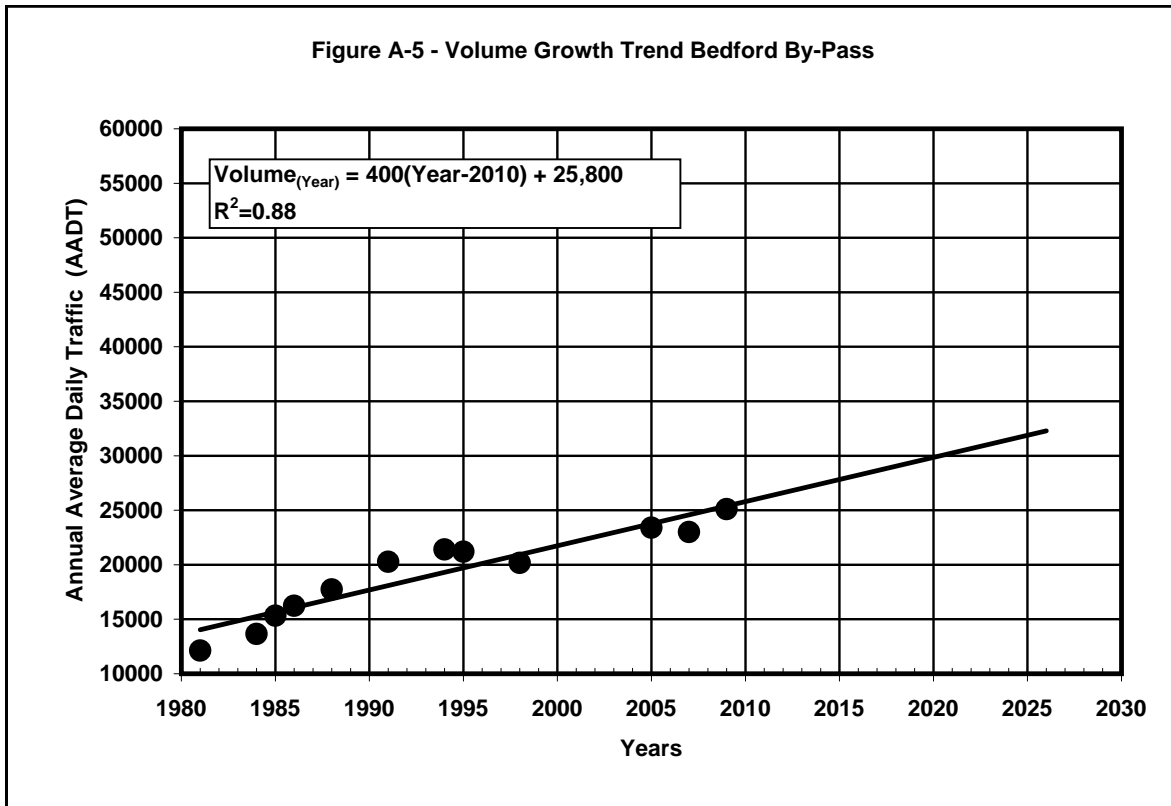


Table A-5 - Traffic Growth Trend on Bedford By-Pass

Year	AAWT
1981	12130
1984	13660
1985	15330
1986	16240
1988	17730
1991	20270
1994	21400
1995	21200
1998	20180
2005	23400
2007	23000
2009	25100

Source: Nova Scotia Department of Transportation & Infrastructure Renewal

Annual Growth Rate is 1.6% based on 2010 AADT



**Table A-6 - Traffic Growth Trend on Trunk 7 Magazine Hill**

Year	AAWT
1984	24600
1985	25800
1988	30900
1990	29300
1992	31100
1993	30800
1995	28500
2008	37000

Source: Nova Scotia Department of Transportation & Infrastructure Renewal

Annual Growth Rate is 1.1% based on 2010 AADT

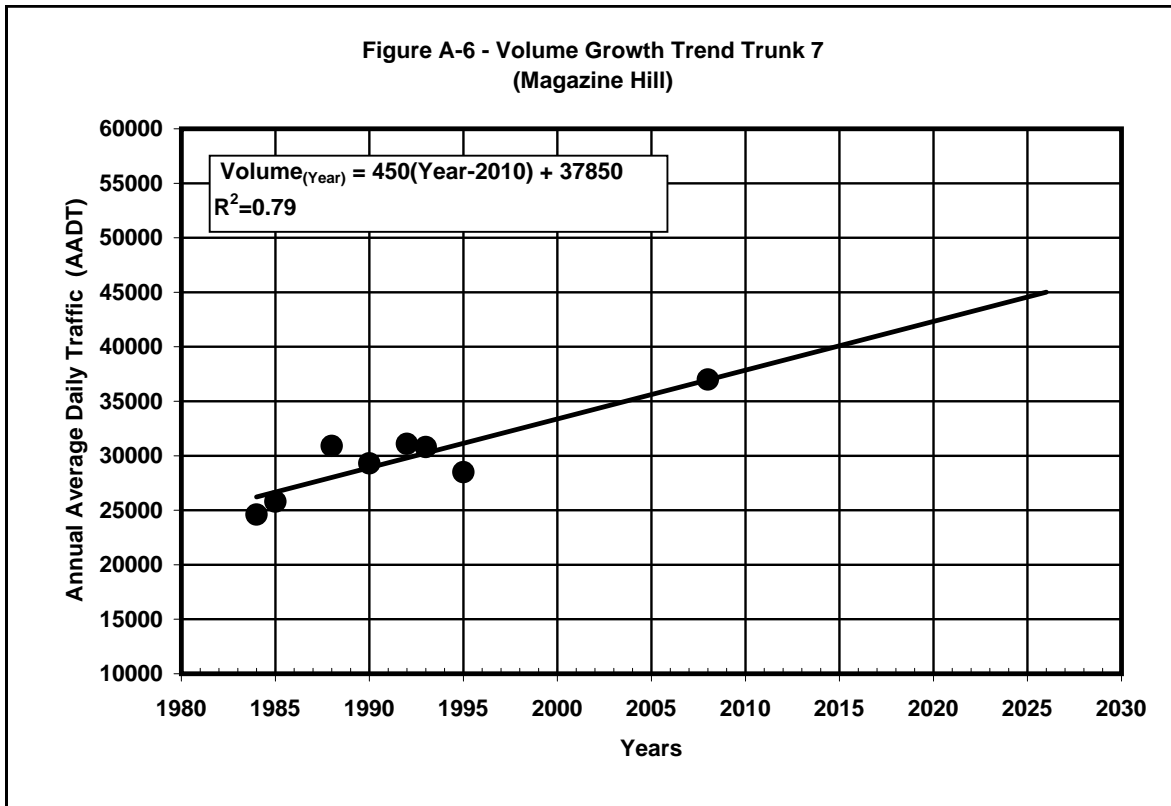


Table A-7 - Hourly Volumes - Highway 101 - November 9 to 16, 2009  
(Between Bedford By-Pass and Beaver Bank Road)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16/09	Tue-10	Wed-11	Thu-12	Fri-13	Sat-14	Sun-15		
0	150	205	310	159	247	348	355	253	189
1	92	113	152	69	131	180	197	133	99
2	72	76	82	63	96	107	136	90	75
3	96	94	74	97	109	100	90	94	98
4	178	155	117	156	160	128	96	141	161
5	600	562	279	604	519	264	133	423	574
6	2531	2368	747	2368	2195	595	381	1601	2373
7	3643	3646	761	3516	3362	461	2336	3550	3550
8	2751	2785	915	2787	2604	1370	656	1977	2734
9	1885	1907	1074	1963	2027	1780	1033	1667	1943
10	1750	1680	1186	1760	1808	2113	1445	1677	1744
11	1757	1794	1491	1884	1916	2291	1711	1780	1833
12	1789	1844	1491	1884	2045	2411	2036	1929	1885
13	1787	1853	1534	1952	2140	2396	2224	1984	1927
14	1975	2118	1498	1925	2391	2406	2038	2050	2086
15	2528	2764	1703	2742	3087	2373	2061	2465	2775
16	3578	3575	1625	3666	3823	2500	2008	2854	3623
17	3388	3538	1515	3253	3482	2252	1719	2735	3411
18	2073	2525	1447	2069	2416	1882	1396	1964	2264
19	1325	1719	1027	1596	1686	1374	1187	1416	1597
20	1015	1352	754	1267	1299	1067	856	1087	1249
21	907	1118	630	1010	1103	1002	1002	905	1040
22	542	706	425	645	799	797	417	619	674
23	282	425	228	370	539	504	255	372	403
24									
TOTALS	36634	38914	20699	37687	39984	31206	23458	32655	38307

Source: NSTIR - Estimated 2009 Annual Average Daily Traffic Volume was 33,300 vpd.

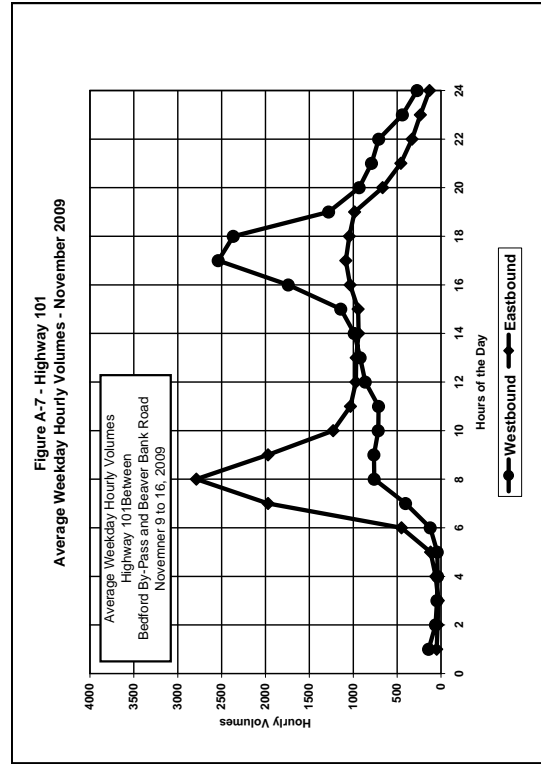


Table A-7W - Westbound Hourly Volumes - Highway 101 - November 9 to 16, 2009  
(Between Bedford By-Pass and Beaver Bank Road)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16/09	Tue-10	Wed-11	Thu-12	Fri-13	Sat-14	Sun-15		
0	103	154	238	117	189	226	243	181	140
1	54	71	101	42	84	121	132	86	62
2	36	49	53	32	66	69	90	56	45
3	41	36	37	36	43	51	46	41	38
4	42	46	42	41	38	39	42	41	42
5	136	115	92	129	115	96	49	105	123
6	418	405	229	416	365	156	97	298	403
7	757	798	302	798	713	343	204	554	761
8	757	805	397	764	702	485	274	598	763
9	715	714	561	708	724	643	419	641	714
10	716	704	585	682	761	913	624	712	711
11	784	858	594	888	911	1038	740	830	863
12	819	923	806	906	1035	1261	860	944	920
13	921	922	812	1024	1100	1178	1004	994	988
14	1089	1165	767	1015	1346	1266	1031	1097	1141
15	1612	1758	853	1695	1905	1301	1115	1463	1739
16	2604	2485	808	2531	2594	1339	1123	1923	2538
17	2464	2464	719	2223	2342	1192	994	1771	2367
18	1158	1465	663	1162	1297	972	686	1058	1279
19	755	991	531	996	920	733	597	789	931
20	663	849	379	802	817	613	470	656	791
21	608	746	363	706	765	669	302	594	710
22	343	460	252	416	536	530	223	394	439
23	184	300	131	246	354	273	146	233	271
24									
TOTALS	17779	19283	10315	18337	19722	15507	11511	16062	18779

November 11 was a Holiday, average volumes for November 10 and 12 have been used to calculate Weekday Average Volumes

Table A-7E - Eastbound Hourly Volumes - Highway 101 - November 9 to 16, 2009  
(Between Bedford By-Pass and Beaver Bank Road)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16/09	Tue-10	Wed-11	Thu-12	Fri-13	Sat-14	Sun-15		
0	47	51	72	42	58	122	112	72	49
1	38	42	27	27	47	59	65	47	38
2	36	27	29	31	30	38	46	34	31
3	55	58	37	61	66	49	44	53	60
4	136	109	75	115	122	89	54	100	119
5	464	447	187	475	404	168	84	318	450
6	2113	1985	518	1952	1830	439	284	1303	1970
7	2866	2848	459	2756	2649	623	257	1783	2766
8	1994	1950	518	2023	1902	885	382	1379	1971
9	1170	1193	513	1255	1303	1137	614	1026	1229
10	1034	976	601	1078	1047	1200	821	965	1032
11	973	936	531	978	1005	1253	971	950	970
12	970	921	685	978	1010	1150	1176	984	966
13	866	931	722	928	1040	1218	1220	989	939
14	886	953	731	910	1045	1140	1007	953	945
15	916	1006	850	1047	1182	1072	946	1033	1036
16	974	1110	817	1035	1229	1161	885	1030	1084
17	924	1074	796	1030	1140	1060	725	964	1044
18	855	1060	784	907	1119	910	710	906	985
19	570	728	496	600	766	641	590	627	666
20	352	503	375	465	482	454	386	431	457
21	299	372	267	304	338	333	265	311	330
22	199	246	173	229	283	267	194	224	235
23	98	125	97	124	185	231	109	138	131
24									
TOTALS	18855	19651	10384	19350	20262	15699	11947	16593	19525

November 11 was a Holiday, average volumes for November 10 and 12 have been used to calculate Weekday Average Volumes

Table A-6 - Hourly Volumes - Highway 102 - September / October 2008  
(Between Hammonds Plains Road (Route 213) and Bedford (Highway 101))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
0									
1	283	258	268	279	311	429	448	325	280
2	105	97	118	116	126	142	155	144	112
3	96	108	94	108	110	142	155	116	103
4	87	78	96	112	95	117	112	100	94
5	194	192	188	197	204	187	152	188	195
6	616	529	537	552	523	295	224	468	551
7	2041	1993	1904	1887	1861	679	469	1546	1935
8	3865	3955	3948	3943	3671	1130	647	3023	3876
9	3514	3710	3577	3580	3361	1713	822	2897	3548
10	2380	2423	2480	2574	2456	2258	1393	2281	2463
11	2272	2188	2272	2341	2506	2640	2072	2327	2316
12	2268	2359	2369	2427	2588	2843	2370	2461	2402
13	2451	2419	2527	2574	2876	3046	2917	2687	2569
14	2558	2482	2456	2535	2923	3126	3214	2756	2591
15	2717	2660	2681	2782	3217	3020	3044	2874	2811
16	3518	3515	3539	3631	4017	3091	3117	3490	3644
17	4427	4539	4499	4517	5040	3204	3137	4195	4604
18	4392	4469	4478	4508	4753	2965	2829	4056	4520
19	2710	2914	2989	3015	3288	2709	2453	2868	2983
20	1854	2023	2133	2158	2435	2007	2068	2097	2121
21	1403	1553	1746	1725	1752	1521	1430	1590	1636
22	1096	1252	1258	1454	1552	1286	1028	1275	1322
23	714	718	798	814	943	1140	626	822	797
24	371	415	411	472	762	797	520	535	486
TOTALS	45932	46839	47366	48301	51370	40560	35476	45121	47959

Source: NSTIR - Estimated 2008 Annual Average Daily Traffic Volume was 43,300 vpd.

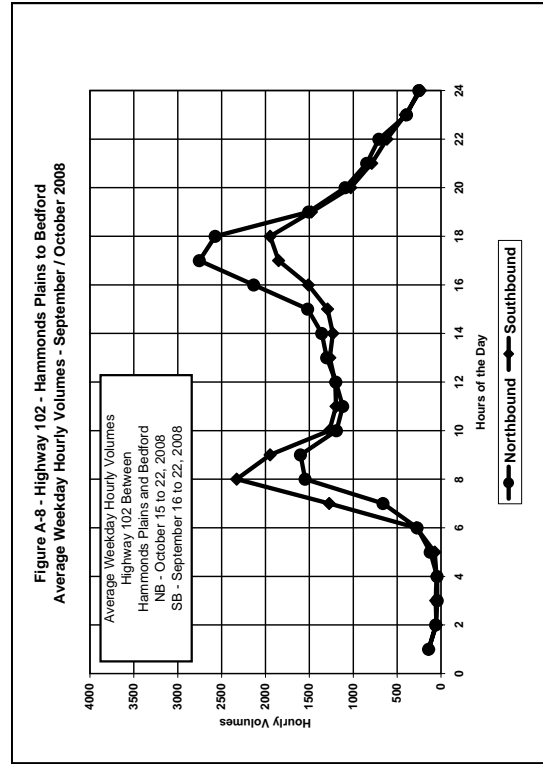


Table A-8N - Northbound Hourly Volumes - Highway 102 - October 15 to 22, 2008  
(Between Hammonds Plains Road (Route 213) and Bedford (Highway 101))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-20	Tue-21	Wed-22/Fri	Thu-16	Fri-17	Sat-18	Sun-19		
0									
1	161	99	130	144	167	244	208	165	140
2	58	48	70	66	60	111	136	78	60
3	31	44	45	38	51	77	76	52	42
4	47	32	43	52	39	62	62	48	43
5	108	125	133	123	128	128	106	122	123
6	300	252	268	275	264	172	137	238	272
7	732	662	608	659	640	341	257	557	660
8	1543	1546	1598	1561	1488	580	341	1237	1547
9	1611	1645	1618	1628	1503	913	468	1341	1601
10	1160	1195	1196	1240	1159	1235	844	1147	1190
11	1070	1023	1120	1149	1238	1400	1144	1163	1120
12	1157	1150	1198	1203	1280	1489	1206	1240	1198
13	1216	1218	1299	1312	1462	1570	1494	1367	1301
14	1329	1249	1308	1329	1574	1665	1671	1446	1358
15	1454	1437	1430	1539	1735	1597	1564	1537	1519
16	2070	2052	2057	2166	2322	1689	1594	1993	2133
17	2634	2716	2719	2700	2987	1670	1505	2420	2753
18	2446	2606	2540	2591	2684	1506	1294	2238	2573
19	1369	1502	1562	1499	1601	1319	999	1407	1507
20	981	1054	1077	1115	1235	956	807	1032	1092
21	718	804	879	903	928	761	557	793	846
22	583	684	645	777	845	696	424	665	707
23	320	369	388	383	498	741	237	419	392
24	212	199	182	239	427	450	294	286	252
TOTALS	23310	23711	24113	24691	26325	21372	17425	22992	24429

Table A-8S - Southbound Hourly Volumes - Highway 102 - September 16 to 22, 2008  
(Between Hammonds Plains Road (Route 213) and Bedford (Highway 101))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-22	Tue-16	Wed-17	Thu-18	Fri-18	Sat-21	Sun-22		
0									
1	122	159	138	135	144	185	240	160	140
2	47	49	48	50	66	104	93	65	52
3	65	64	49	70	59	65	79	64	61
4	40	40	46	53	60	56	50	51	51
5	86	67	55	74	76	59	46	66	72
6	316	277	269	277	259	123	87	230	280
7	1309	1321	1296	1228	1221	338	212	989	1275
8	2322	2409	2350	2382	2183	550	306	1786	2329
9	1903	2065	1959	1952	1858	800	354	1556	1947
10	1220	1228	1284	1334	1297	1023	549	1134	1273
11	1202	1165	1152	1192	1268	1240	928	1164	1196
12	1111	1209	1171	1224	1308	1354	1164	1220	1205
13	1235	1201	1228	1262	1414	1476	1423	1320	1268
14	1229	1233	1148	1206	1349	1461	1543	1310	1233
15	1263	1223	1251	1243	1482	1423	1480	1338	1292
16	1448	1463	1482	1465	1695	1402	1523	1497	1511
17	1793	1823	1780	1817	2043	1534	1632	1775	1851
18	1946	1863	1938	1917	2069	1459	1535	1818	1947
19	1341	1412	1427	1516	1687	1390	1454	1461	1477
20	873	969	1056	1043	1200	1051	1261	1065	1028
21	685	749	867	822	824	760	873	797	789
22	513	568	613	677	707	590	604	610	616
23	394	349	410	431	445	399	389	402	406
24	159	216	229	233	335	347	226	249	234
TOTALS	22622	23128	23253	23610	25045	19188	18051	22128	23533

Table A-9 - Hourly Volumes - Highway 102 - September 16 to 22, 2008  
(Between Bedford (Highway 101) and Duke / Glendale Interchange)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-22	Tue-16	Wed-17	Thu-18	Fri-18	Sat-21	Sun-22		
0									
1	169	234	181	221	211	252	338	229	203
2	101	103	98	107	91	148	148	114	100
3	91	86	66	85	79	95	96	85	81
4	57	87	93	80	83	84	53	78	82
5	221	188	167	202	199	176	136	184	195
6	627	500	518	546	498	295	241	461	538
7	1434	1353	1403	1413	1317	638	410	1138	1384
8	2520	2381	2383	2691	2484	1034	563	2008	2492
9	2338	2399	2345	2371	2358	1288	670	1964	2362
10	1764	1765	1765	1813	1888	1586	1008	1656	1799
11	1548	1430	1681	1650	1859	1903	1500	1653	1634
12	1695	1715	1727	1571	1885	1735	1720	1684	1817
13	1728	1659	1741	1869	2087	1989	2061	1876	1817
14	1768	1718	1746	1776	2150	2020	2221	1914	1832
15	1905	1702	1938	1904	2358	1994	2145	1992	1961
16	2205	1783	2424	2492	2880	2065	2049	2271	2357
17	2946	2179	2774	2811	3406	2028	2197	2634	2843
18	2635	2508	2620	2832	2635	1578	1957	2395	2646
19	1611	1906	1574	1987	1930	1606	1776	1770	1802
20	1234	1220	1257	1522	1647	1206	1559	1378	1376
21	1055	1152	1143	1279	1335	1004	1113	1154	1193
22	821	899	930	997	1097	859	749	907	949
23	604	562	600	630	720	582	515	602	623
24	254	337	357	350	439	525	307	367	347
TOTALS	31331	29866	31515	33455	35332	26821	25547	30552	32300

Source: NSTIR - Estimated 2008 Annual Average Daily Traffic Volume was 28,900 vpd.

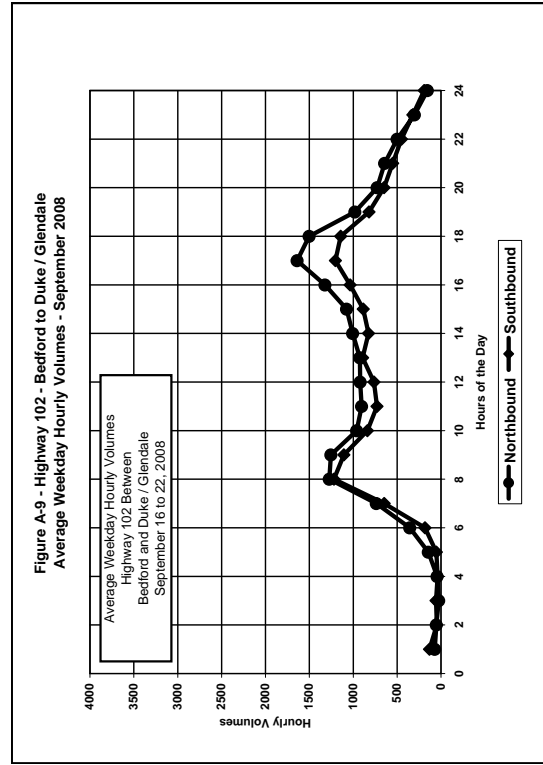


Table A-9N - Northbound Hourly Volumes - Highway 102 - September 16 to 22, 2008  
(Between Bedford (Highway 101) and Duke / Glendale Interchange)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-22	Tue-16	Wed-17	Thu-18	Fri-18	Sat-21	Sun-22		
0									
1	47	75	68	95	76	108	158	90	72
2	53	51	56	57	50	70	93	61	53
3	27	26	16	23	31	39	39	29	25
4	28	51	49	40	54	52	36	44	44
5	162	136	127	148	146	139	110	138	144
6	401	346	336	370	328	204	178	309	356
7	750	725	733	762	708	427	272	625	726
8	1309	1219	1214	1347	1272	645	305	1044	1272
9	1218	1275	1237	1286	1258	737	405	1059	1255
10	935	947	937	946	1034	863	619	897	960
11	802	856	823	904	1037	1055	805	912	904
12	879	852	890	912	1070	917	917	942	921
13	886	874	840	918	1102	1123	1045	970	924
14	944	921	945	977	1241	1009	1135	1025	1006
15	1055	979	1050	1023	1271	1063	1191	1090	1076
16	1144	1300	1260	1380	1524	1098	1085	1256	1322
17	1584	1587	1599	1574	1853	1059	1124	1483	1639
18	1440	1457	1480	1512	1625	850	1012	1339	1503
19	867	935	978	1050	1072	745	765	916	980
20	654	702	693	776	808	614	625	696	727
21	554	630	630	703	692	522	476	601	642
22	422	489	473	521	591	425	292	459	499
23	279	289	296	284	366	305	193	287	303
24	116	147	181	132	200	276	118	167	155
TOTALS	16556	16869	17011	17740	19409	14505	12998	16441	17518

Table A-9S - Southbound Hourly Volumes - Highway 102 - September 16 to 22, 2008  
(Between Bedford (Highway 101) and Duke / Glendale Interchange)

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-22	Tue-16	Wed-17	Thu-18	Fri-18	Sat-21	Sun-22		
0									
1	122	159	113	126	135	144	180	140	131
2	48	52	42	41	41	79	55	52	47
3	64	60	50	62	48	56	57	57	57
4	29	36	44	40	39	32	17	34	38
5	59	52	40	54	53	37	26	46	52
6	226	154	182	176	170	91	63	152	182
7	684	628	670	651	609	211	138	513	648
8	1211	1162	1169	1344	1212	389	258	964	1220
9	1120	1124	1108	1085	1100	531	265	905	1107
10	829	818	828	867	854	723	389	758	839
11	746	574	758	746	822	848	695	741	729
12	816	863	821	815	501	808	818	777	763
13	842	785	901	951	985	866	1016	907	893
14	824	797	801	799	909	1011	1086	890	826
15	850	723	888	881	1087	931	954	902	886
16	1061	483	1164	1112	1356	967	964	1015	1035
17	1362	592	1175	1337	1553	969	1073	1152	1204
18	1195	1051	1140	1320	1010	728	945	1056	1143
19	744	971	596	937	858	861	1011	854	821
20	580	518	564	746	839	582	934	682	649
21	501	522	513	576	643	482	637	553	551
22	399	410	457	476	506	434	457	448	450
23	325	273	304	346	354	277	322	314	320
24	138	190	176	218	239	249	189	200	192
TOTALS	14775	12997	14504	15715	15923	12316	12549	14111	14783

Table A-10 - Hourly Volumes - Highway 102 - September 10 to 17, 2007  
(Between Duke / Glendale Interchange and Waverley (Trunk 2))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-17/10	Tue-11	Wed-12	Thu-13	Fri-14	Sat-15	Sun-16		
0	216	214	168	162	262	304	241	224	204
1	89	90	73	94	121	183	119	110	93
2	71	78	63	84	87	102	90	82	77
3	70	78	84	75	90	78	61	77	79
4	223	182	208	180	252	181	162	199	210
5	559	445	479	440	462	308	268	423	477
6	1137	1074	918	1101	965	441	379	859	1039
7	2013	1824	1832	1954	1924	663	515	1532	1909
8	1786	1786	1783	2067	1892	818	583	1586	1940
9	1563	1329	1444	1508	1545	1144	886	1344	1476
10	1386	1341	1407	1480	1510	1397	1247	1395	1425
11	1432	1480	1514	1524	1692	1633	1589	1553	1530
12	1489	1282	1381	1436	1574	1520	1762	1492	1432
13	1446	1381	1464	1395	1911	1586	1975	1594	1519
14	1440	1471	1599	1619	1943	1612	1972	1665	1614
15	1739	1687	1892	1863	2380	1585	2031	1882	1912
16	2289	2213	2465	2526	2892	1445	2013	2263	2477
17	2107	1855	2183	2355	2458	1299	1831	2013	2192
18	1366	1306	1511	1686	1836	1207	1659	1510	1541
19	954	980	1206	1331	1659	925	1542	1228	1226
20	978	803	1062	1155	1295	722	1132	1021	1059
21	633	667	776	789	946	621	777	744	762
22	378	381	486	561	678	434	495	488	497
23	365	284	261	393	423	382	316	346	345
24									
TOTALS	26106	24241	26259	27785	30797	20590	23845	25632	27035

Source: NSTIR - Estimated 2007 Annual Average Daily Traffic Volume was 24,300 vpd.

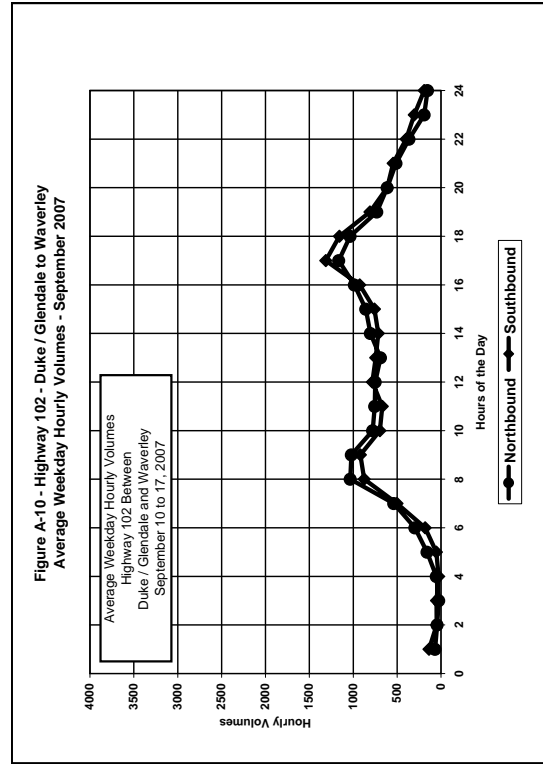


Figure A-10 - Highway 102 - Duke / Glendale to Waverley  
Average Weekday Hourly Volumes  
Duke / Glendale and Waverley  
September 10 to 17, 2007

Table A-10N - Northbound Hourly Volumes - Highway 102 - September 10 to 17, 2007  
(Between Duke / Glendale Interchange and Waverley (Trunk 2))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-17/10	Tue-11	Wed-12	Thu-13	Fri-14	Sat-15	Sun-16		
0	50	82	55	52	101	118	94	79	68
1	37	51	37	32	61	65	59	49	44
2	16	27	24	24	35	39	28	28	25
3	46	54	54	44	60	50	37	49	52
4	168	129	154	142	195	144	127	151	158
5	344	293	296	276	284	213	183	268	297
6	611	586	426	586	477	276	242	458	537
7	1105	986	902	1106	1068	372	309	835	1033
8	1059	952	914	1114	1066	428	325	737	1021
9	780	677	765	824	846	621	557	724	778
10	716	669	741	821	828	717	686	741	755
11	650	673	779	770	871	785	764	749	749
12	746	552	693	711	746	739	874	723	690
13	726	793	791	741	1001	763	975	823	804
14	743	793	830	835	1082	820	1020	875	857
15	877	862	988	933	1273	816	987	962	987
16	1080	995	1102	1133	1517	737	902	1067	1165
17	945	821	1051	1128	1230	623	757	936	1035
18	588	658	743	804	884	573	622	693	731
19	444	515	564	635	907	491	560	588	613
20	455	438	524	574	574	359	361	469	513
21	298	334	358	380	452	291	281	342	364
22	153	142	207	207	249	185	155	185	192
23	227	94	85	175	184	133	127	146	153
24									
TOTALS	12844	12136	13083	14047	15991	10358	11099	12794	13621

Table A-10S - Southbound Hourly Volumes - Highway 102 - September 10 to 17, 2007  
(Between Duke / Glendale Interchange and Waverley (Trunk 2))

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-17/10	Tue-11	Wed-12	Thu-13	Fri-14	Sat-15	Sun-16		
0	166	132	113	110	161	186	147	145	136
1	52	39	36	62	60	118	61	61	50
2	55	51	39	60	52	63	61	54	51
3	24	24	30	31	30	28	24	27	28
4	55	53	54	45	57	37	35	48	53
5	215	162	183	164	178	95	85	155	180
6	526	488	492	515	488	165	137	402	502
7	908	838	930	848	856	291	206	697	876
8	1114	834	869	953	826	390	258	749	919
9	773	652	679	684	699	523	329	620	697
10	670	672	666	659	682	680	551	654	670
11	782	817	735	754	821	848	768	789	782
12	743	730	688	725	828	781	888	769	743
13	720	618	673	654	910	823	1000	771	715
14	697	678	784	861	792	769	952	790	758
15	862	825	904	930	1107	769	1044	926	926
16	1209	1218	1363	1393	1375	708	1111	1197	1312
17	1162	1034	1132	1227	1228	676	1074	1076	1157
18	798	648	768	882	952	634	1037	817	810
19	510	465	642	696	752	434	982	640	613
20	523	365	538	581	721	363	771	552	546
21	335	333	418	409	494	330	496	402	398
22	225	239	279	354	429	249	340	305	305
23	138	190	176	218	239	249	189	200	192
24									
TOTALS	13262	12105	13176	13738	14806	10232	12546	12838	13419

Table A-11 - Hourly Volumes - Bedford ByPass - October / November 2009

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
0									
1	166	220	232	268	280	362	348	268	233
2	62	94	100	85	91	151	180	109	86
3	38	93	84	74	96	107	154	92	77
4	62	85	90	93	101	91	98	89	86
5	138	163	149	154	158	96	80	134	152
6	486	457	447	455	420	151	108	361	453
7	1966	1827	1932	1897	1777	393	227	1431	1880
8	3054	3090	3030	3023	2967	640	309	2302	3033
9	2316	2289	2151	2262	2177	986	449	1804	2239
10	1461	1466	1389	1407	1567	1140	619	1293	1458
11	1288	1319	1359	1324	1343	1366	863	1266	1327
12	1279	1386	1273	1412	1570	1447	1064	1347	1384
13	1419	1467	1464	1483	1661	1527	1310	1476	1499
14	1468	1447	1448	1517	1745	1426	1462	1502	1525
15	1474	1638	1607	1616	1903	1390	1301	1561	1648
16	2095	2119	2064	2217	2439	1449	1312	1956	2187
17	2880	2761	2877	2857	2849	1465	1301	2427	2845
18	2558	2609	2568	2713	2688	1137	1140	2205	2631
19	1449	1519	1604	1615	1575	970	1000	1390	1552
20	1024	980	1072	1106	1122	721	838	980	1061
21	679	769	771	884	967	657	600	761	814
22	579	612	696	760	843	679	426	656	698
23	382	411	462	504	496	503	291	436	451
24	281	271	331	334	412	362	218	318	326
TOTALS	28604	29092	29220	30060	31247	19236	15698	26165	29645

Source: NSTR - Estimated 2009 Annual Average Daily Traffic Volume was 25,100 vpd.

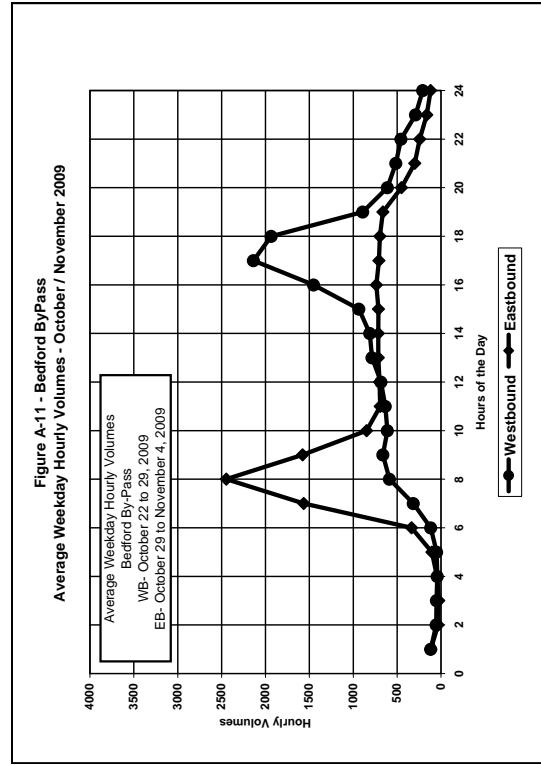


Table A-11W - Westbound Hourly Volumes - Bedford ByPass - October 22 to 29, 2009

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-26	Tue-27	Wed-28	Thu-29/22	Fri-23	Sat-24	Sun-25		
0									
1	83	110	116	134	140	181	174	134	117
2	40	52	69	52	56	66	100	67	54
3	22	24	53	48	69	66	100	60	51
4	33	39	40	48	48	44	58	44	42
5	36	54	50	54	54	53	35	47	49
6	127	116	118	119	107	53	35	96	117
7	311	297	311	333	329	118	64	252	316
8	608	575	596	577	580	249	118	472	587
9	653	690	679	685	602	395	175	554	662
10	634	613	601	609	649	519	235	544	611
11	641	627	643	632	631	644	341	594	635
12	634	689	633	712	754	715	475	659	684
13	736	760	764	769	874	784	581	755	785
14	792	745	757	800	960	799	747	800	811
15	848	942	885	919	1085	824	715	888	936
16	1377	1433	1377	1423	1646	846	736	1263	1451
17	2143	2128	2169	2119	2127	901	726	1759	2137
18	1921	1979	1891	1939	1942	734	649	1579	1934
19	889	916	943	874	835	621	526	801	891
20	627	564	622	616	627	450	465	567	611
21	453	490	472	580	582	347	339	466	515
22	367	410	453	481	565	460	249	426	455
23	240	272	300	325	309	323	159	275	289
24	185	177	212	208	253	247	124	201	207
TOTALS	14400	14762	14754	15003	15824	10457	7939	13306	14947

Table A-11E - Eastbound Hourly Volumes - Bedford ByPass - October 29 to November 4, 2009

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-02	Tue-03	Wed-04	Thu-29	Fri-30	Sat-31	Sun-01		
0									
1	83	110	116	134	140	181	174	134	117
2	22	42	31	33	35	67	66	42	33
3	16	29	31	26	27	41	54	32	26
4	29	46	50	45	53	47	40	44	45
5	102	109	99	104	104	43	46	87	104
6	359	341	329	336	313	98	73	264	336
7	1655	1530	1621	1564	1448	275	163	1179	1564
8	2446	2515	2434	2446	2387	391	191	1830	2446
9	1663	1599	1472	1577	1575	591	274	1250	1577
10	827	853	788	847	918	621	384	748	847
11	647	692	716	692	712	722	522	692	692
12	645	697	640	700	816	732	589	688	700
13	683	687	700	714	787	743	729	720	714
14	676	702	691	717	785	627	715	702	714
15	626	696	722	697	818	566	586	673	712
16	718	686	687	794	793	603	576	694	736
17	737	633	708	738	722	564	575	668	708
18	637	630	697	774	746	403	491	625	697
19	560	603	661	741	740	349	474	590	661
20	397	416	450	490	485	271	373	413	450
21	226	279	299	304	385	310	261	295	299
22	212	202	243	279	278	219	177	230	243
23	142	139	162	179	187	180	132	160	162
24	96	94	119	126	159	135	94	118	119
TOTALS	14204	14330	14466	15057	15423	8779	7759	12860	14702



Table A-12 - Hourly Volumes - Magazine Hill - June 16 to 22, 2008  
Between Akerley Boulevard and Dartmouth Road

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16	Tue-17	Wed-18	Thu-19	Fri-20	Sat-21	Sun-22		
0									
1	150	240	232	256	298	404	391	282	235
2	98	133	130	149	163	222	255	164	135
3	82	116	103	121	147	159	187	131	114
4	113	138	115	122	135	130	139	127	125
5	170	212	192	194	167	142	103	169	187
6	639	589	624	648	628	218	179	505	628
7	2540	2617	2454	2553	2471	604	352	1942	2527
8	4234	4313	4170	4331	4193	1072	578	3270	4248
9	3969	3759	3879	3722	3617	1385	798	3018	3789
10	2374	2466	2312	2466	2543	1734	1068	2137	2432
11	2195	2236	2248	2299	2439	1863	1359	2091	2283
12	2294	2373	2414	2455	2795	2212	1731	2325	2466
13	2518	2455	2553	2569	2866	2276	2110	2478	2592
14	2553	2499	2541	2611	3001	2280	2164	2520	2639
15	2479	2528	2671	2713	2990	2265	2109	2536	2676
16	3260	3335	3318	3354	3507	2301	2104	3026	3355
17	3985	4134	4231	4175	4141	2281	2012	3666	4133
18	3924	3968	3908	3922	3804	1863	1854	3320	3905
19	2274	2415	2261	2523	2404	1731	1602	2173	2375
20	1531	1666	1741	1932	1842	1220	1383	1616	1742
21	1273	1376	1355	1673	1615	1003	1223	1360	1458
22	1033	1155	1081	1289	1312	922	891	1098	1174
23	602	670	749	754	928	726	618	721	741
24	338	382	412	510	626	652	349	468	456
TOTALS	44628	45794	45694	47331	48632	29665	25559	41043	46415

Source: HRM - Estimated 2008 Annual Average Daily Traffic Volume was 37,000 vpd.

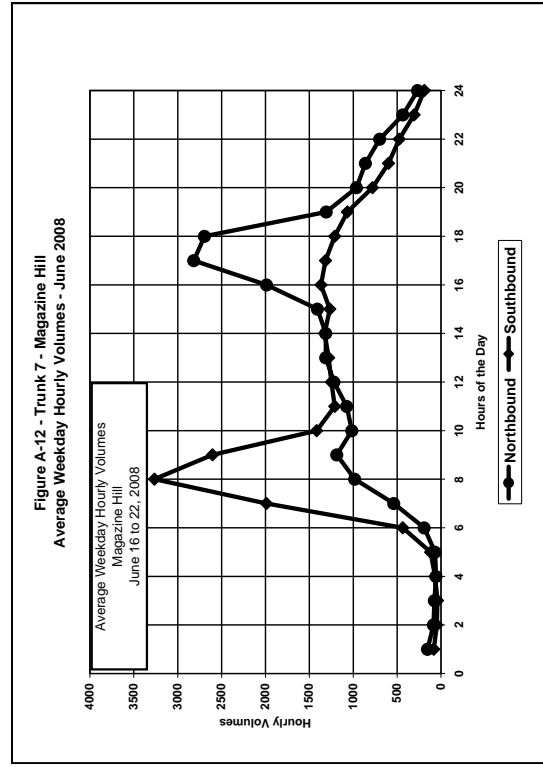


Table A-12N - Northbound Hourly Volumes - Magazine Hill - June 16 to 22, 2008  
Between Akerley Boulevard and Dartmouth Road

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16	Tue-17	Wed-18	Thu-19	Fri-20	Sat-21	Sun-22		
0									
1	86	150	160	169	200	247	242	179	153
2	60	88	85	96	103	139	139	105	86
3	42	77	73	83	94	105	115	84	74
4	59	44	57	57	65	73	81	62	56
5	60	70	69	77	64	74	63	68	68
6	189	179	184	203	204	73	92	161	192
7	502	596	486	576	519	194	149	433	538
8	1018	965	931	1017	986	401	250	795	983
9	1158	1194	1210	1185	1183	594	379	986	1186
10	978	1017	971	1046	1070	842	555	926	1016
11	1073	1034	1049	1046	1162	835	687	984	1073
12	1132	1156	1164	1235	1406	1079	822	1142	1219
13	1206	1267	1300	1306	1484	1154	985	1243	1313
14	1298	1253	1203	1274	1539	1142	1014	1246	1313
15	1307	1266	1432	1434	1601	1138	999	1311	1408
16	1928	1943	1951	2005	2111	1216	1027	1740	1988
17	2792	2844	2889	2816	2739	1226	1048	2336	2816
18	2724	2742	2765	2896	2543	934	931	2191	2694
19	1294	1323	1257	1345	1321	856	735	1162	1308
20	842	974	967	1057	972	613	668	870	962
21	747	829	844	998	886	522	570	771	861
22	622	685	669	767	754	494	384	625	699
23	336	397	463	454	516	388	316	410	433
24	209	227	239	307	351	396	198	275	267
TOTALS	21662	22320	22428	23249	23873	14735	12474	20106	22706

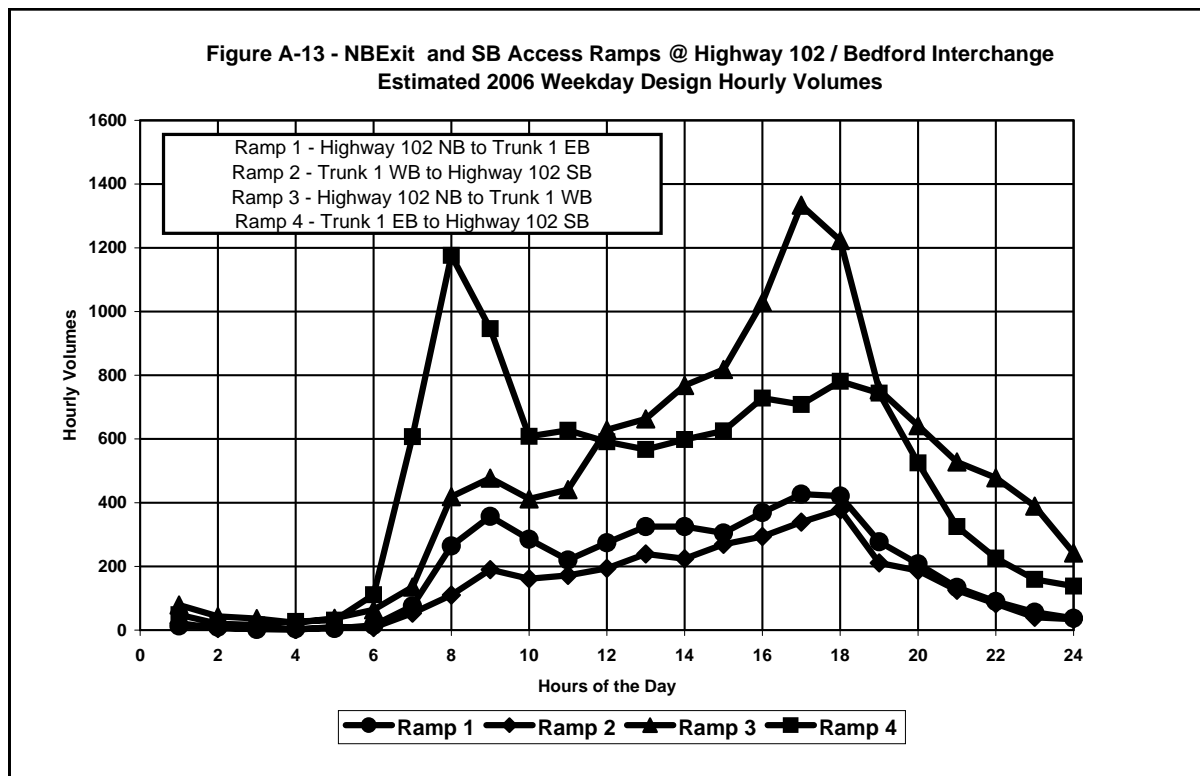
Table A-12S - Southbound Hourly Volumes - Magazine Hill - June 16 to 22, 2008  
Between Akerley Boulevard and Dartmouth Road

Hour	Days of the Week							Hourly Averages Week	Hourly Averages Weekday
	Mon-16	Tue-17	Wed-18	Thu-19	Fri-20	Sat-21	Sun-22		
0									
1	64	90	72	87	98	157	149	102	82
2	38	45	45	53	60	83	91	59	48
3	40	39	30	38	53	54	72	47	40
4	54	94	58	65	70	57	58	65	68
5	110	142	123	117	103	68	40	100	119
6	450	420	440	445	424	145	87	344	436
7	2038	2021	1958	1977	1952	410	203	1508	1989
8	3216	3348	3239	3314	3207	671	328	2475	3265
9	2811	2565	2669	2537	2434	791	419	2032	2603
10	1396	1448	1341	1420	1473	892	513	1212	1416
11	1122	1202	1199	1253	1277	1028	672	1108	1211
12	1162	1217	1250	1220	1389	1133	909	1183	1248
13	1312	1188	1253	1263	1382	1122	1125	1235	1280
14	1255	1246	1338	1327	1462	1136	1150	1274	1326
15	1172	1262	1269	1279	1389	1127	1110	1225	1268
16	1332	1392	1367	1349	1396	1085	1077	1285	1367
17	1193	1290	1342	1359	1402	1055	964	1229	1317
18	1200	1226	1143	1226	1261	929	923	1130	1211
19	980	1092	1004	1178	1083	875	867	1011	1067
20	689	692	774	875	870	607	715	746	780
21	526	547	511	675	729	481	653	589	598
22	411	470	412	522	558	428	475	507	598
23	266	273	286	300	412	338	302	311	307
24	129	165	173	203	275	256	151	193	189
TOTALS	22966	23474	23266	24082	24759	14930	13085	20937	23710

**Table A-13 - Estimated 2006 Weekday Design Hourly Volumes  
Northbound Exit Ramps and Southbound Access Ramps @ Highway 102 / Bedford Interchange**

Hour	Estimated 2006 Design Hourly Volumes			
	Ramp 1 - Highway 102 NB to Trunk 1 EB	Ramp 2 - Trunk 1 WB to Highway 102 SB	Ramp 3 - Highway 102 NB to Trunk 1 WB	Ramp 4 - Trunk 1 EB to Highway 102 SB
0				
1	13	22	79	48
2	9	5	43	20
3	2	5	36	16
4	4	1	23	27
5	5	10	37	31
6	15	8	64	111
7	76	53	135	607
8	264	110	419	1176
9	357	190	477	946
10	285	161	412	608
11	220	172	441	627
12	274	194	629	591
13	325	239	663	567
14	325	224	768	598
15	305	269	818	625
16	369	294	1029	728
17	427	339	1334	708
18	421	377	1223	781
19	277	211	754	744
20	208	187	642	525
21	134	125	528	325
22	90	83	478	226
23	56	40	389	159
24	37	34	242	138
<b>TOTALS</b>	<b>4498</b>	<b>3353</b>	<b>11663</b>	<b>10932</b>

Source: Peak daily volumes from machine counts obtained by NSTIR October 2 to 10, 2006.



**Table A-14 - Estimated 2006 Weekday Design Hourly Volumes  
Southbound Exit Ramps and Northbound Access Ramps @ Highway 102 / Bedford Interchange**

Hour	Estimated 2006 Design Hourly Volumes			
	Ramp 5 - Highway 102 SB to Trunk 1 WB	Ramp 6 - Trunk 1 EB to Highway 102 NB	Ramp 7 - Highway 102 SB to Trunk 1 EB	Ramp 8 - Trunk 1 WB to Highway 102 NB
0				
1	45	39	12	19
2	32	18	3	6
3	28	7	2	4
4	25	20	2	0
5	29	65	13	12
6	42	114	23	23
7	78	200	81	37
8	120	229	113	80
9	141	250	138	120
10	115	196	135	121
11	153	228	164	138
12	155	177	177	176
13	164	199	139	194
14	154	206	137	235
15	217	216	171	251
16	258	237	204	246
17	411	187	140	291
18	320	203	138	241
19	240	150	138	213
20	188	95	79	176
21	133	127	62	157
22	105	63	32	77
23	108	39	31	52
24	63	33	19	40
<b>TOTALS</b>	<b>3324</b>	<b>3298</b>	<b>2153</b>	<b>2909</b>

Source: Peak daily volumes from machine counts obtained by NSTIR October 2 to 10, 2006.

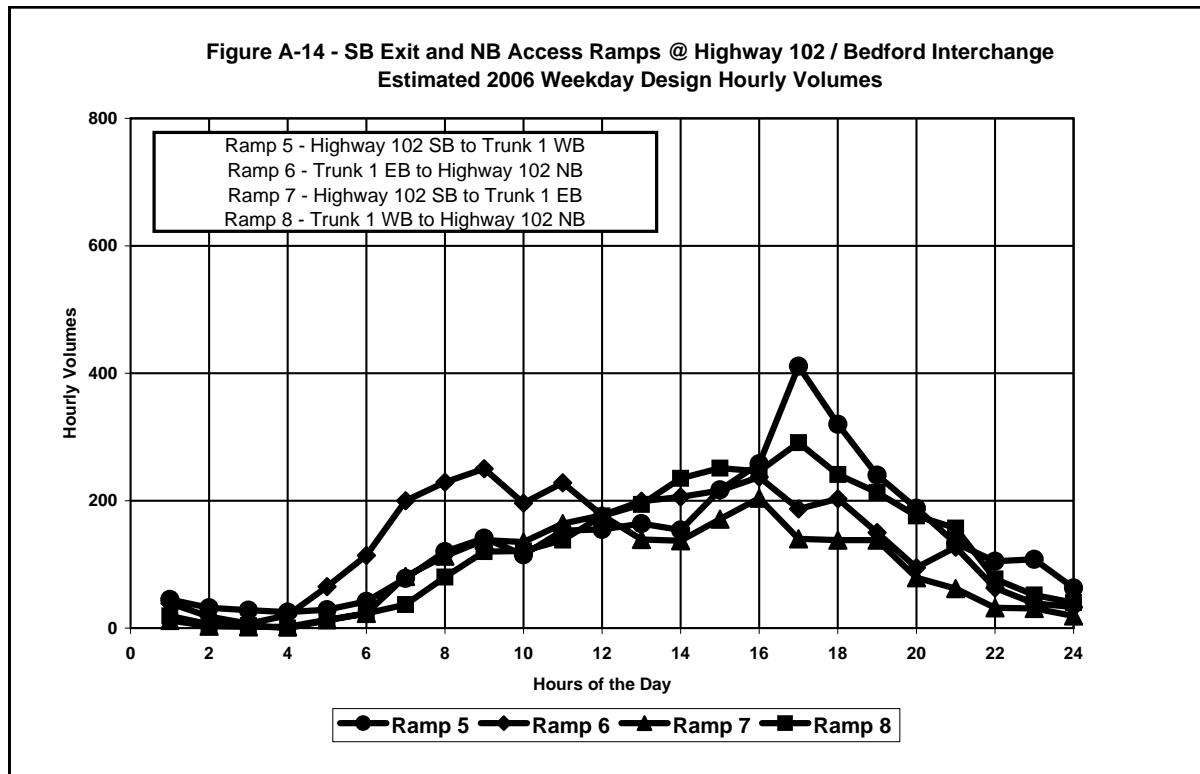
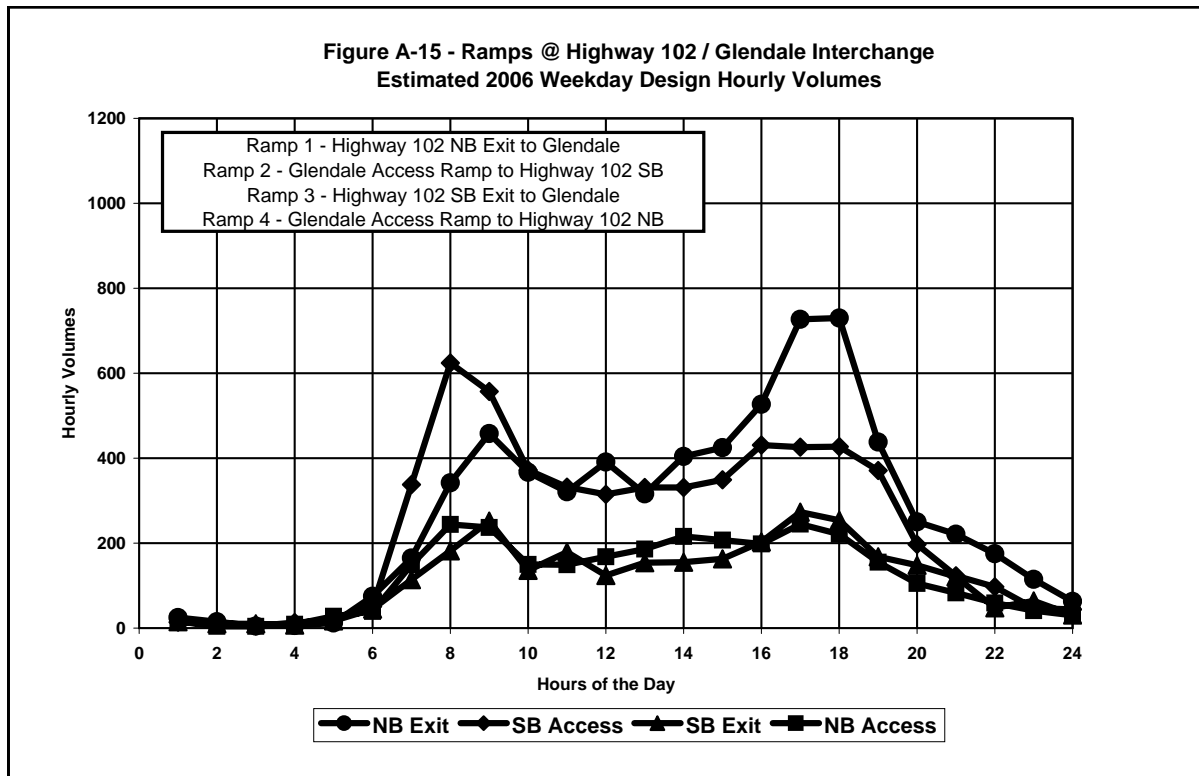


Table A-15 - Estimated 2006 Weekday Design Hourly Volumes  
Ramps @ Highway 102 / Glendale Interchange

Hour	Estimated 2006 Design Hourly Volumes			
	Ramp 1 - Highway 102 NB Exit to Glendale	Ramp 2 - Glendale Access Ramp to Highway 102 SB	Ramp 3 - Highway 102 SB Exit to Glendale	Ramp 4 - Glendale Access Ramp to Highway 102 NB
0				
1	25	14	15	16
2	15	9	10	4
3	5	5	10	4
4	6	13	7	9
5	12	18	17	28
6	75	51	45	39
7	165	338	114	149
8	342	624	182	244
9	458	557	252	237
10	367	372	136	150
11	321	332	179	149
12	391	315	124	168
13	316	331	154	186
14	404	331	155	216
15	425	349	163	207
16	527	431	203	198
17	727	426	273	245
18	730	427	254	221
19	438	371	168	155
20	250	197	148	105
21	221	123	121	83
22	175	97	48	59
23	115	47	64	41
24	63	44	31	30
TOTALS	6573	5822	2873	2943

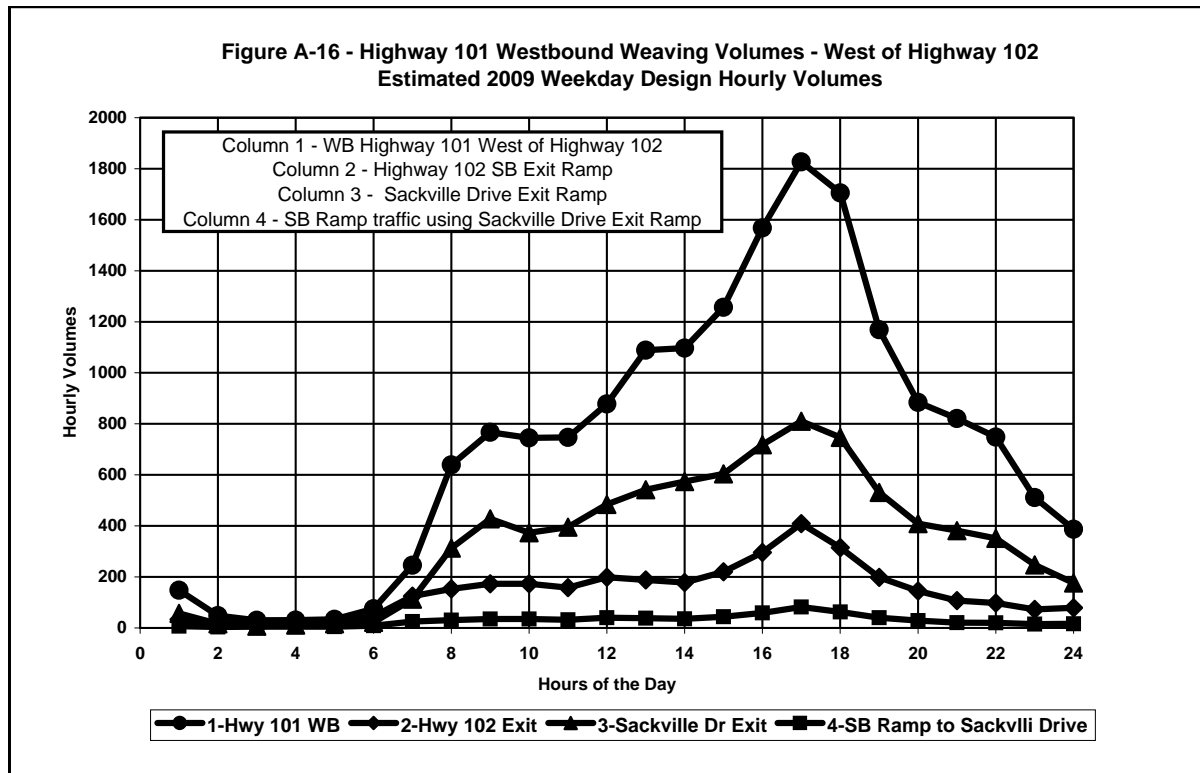
Source: Peak daily volumes from machine counts obtained by NSTIR September 26 to October 3, 2006.



**Table A-16 - Estimated 2009 Weekday Design Hourly Volumes  
Highway 101 Westbound Weaving Volumes - West of Highway 102**

Hour	Estimated 2009 Design Hourly Volumes			
	1 - WB Highway 101 West of Highway 102	2 - Highway 102 SB Exit Ramp to Highway 101 WB & Sackville Drive	3 - Sackville Drive Ramp	4 - Highway 102 SB Ramp Volume using Sackville Drive Exit Ramp
0				
1	148	33	57	7
2	48	18	16	4
3	30	23	7	5
4	31	25	11	5
5	34	25	16	5
6	75	45	22	9
7	246	125	113	25
8	639	153	313	31
9	767	173	428	35
10	745	173	373	35
11	747	158	395	32
12	878	199	484	40
13	1089	188	542	38
14	1097	178	574	36
15	1257	220	604	44
16	1568	296	718	59
17	1827	409	810	82
18	1705	315	747	63
19	1169	198	531	40
20	884	145	409	29
21	821	107	381	21
22	748	98	351	20
23	511	73	247	15
24	387	79	176	16
<b>TOTALS</b>	<b>17451</b>	<b>3456</b>	<b>8325</b>	<b>696</b>

Source: NSTIR machine counts obtained November 17 to 24, 2009  
 Note: Observations indicate that approximately 20% of the Highway 102 SB ramp volume exits to Sackville Drive



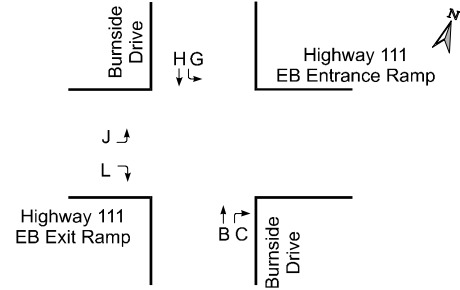
***Appendix B***  
***Manual Turning Movement Counts***

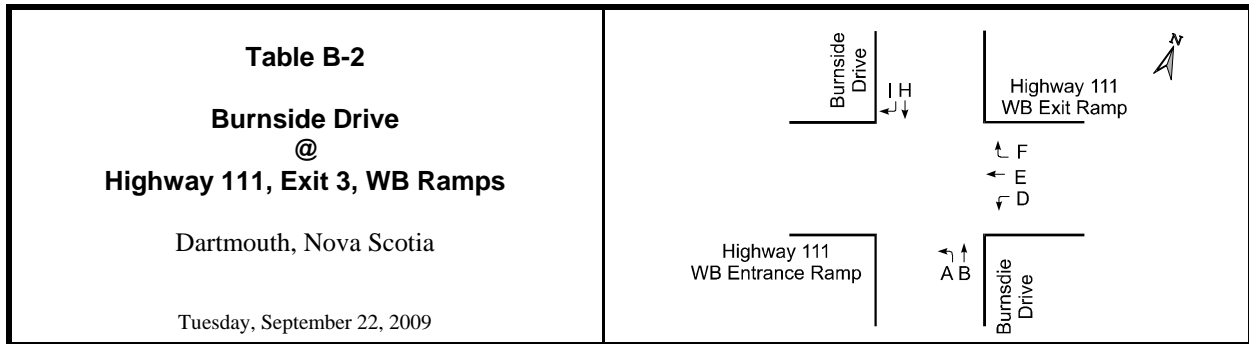
Time		Burnside Drive Northbound Approach		Burnside Drive Southbound Approach		Highway 111, EB Ramp Eastbound Approach		Total Vehicle
		B	C	G	H	J	L	
07:00-07:15		62	19	43	32	154	19	329
07:15-07:30		56	26	56	47	212	16	413
07:30-07:45		77	30	64	71	192	13	447
07:45-08:00		74	27	83	70	275	10	539
08:00-08:15		68	38	81	68	187	9	451
08:15-08:30		62	18	95	90	211	8	484
08:30-08:45		60	19	97	64	192	22	454
08:45-09:00		51	26	90	64	190	8	429
AM Peak Hour		264	102	356	292	865	49	1928
16:00-16:15		53	36	210	98	106	11	514
16:15-16:30		48	34	190	80	113	11	476
16:30-16:45		62	66	202	103	108	2	543
16:45-17:00		31	45	196	107	106	4	489
17:00-17:15		43	41	270	112	74	2	542
17:15-17:30		28	54	170	83	80	7	422
17:30-17:45		44	50	142	83	64	3	386
17:45-18:00		32	33	98	64	63	6	296
PM Peak Hour		184	186	858	402	401	19	2050

**Table B-1**  
**Burnside Drive**  
**@**  
**Highway 111, Exit 3, EB Ramps**

Dartmouth, Nova Scotia

Tuesday, September 22, 2009

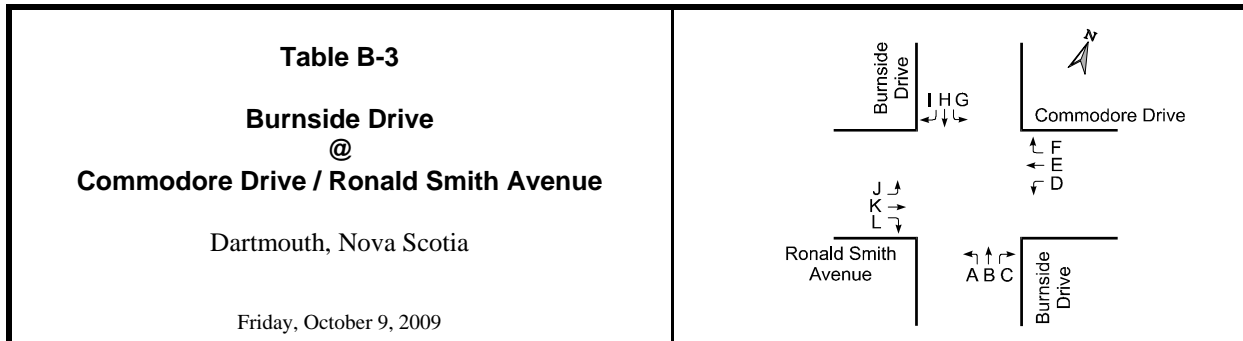




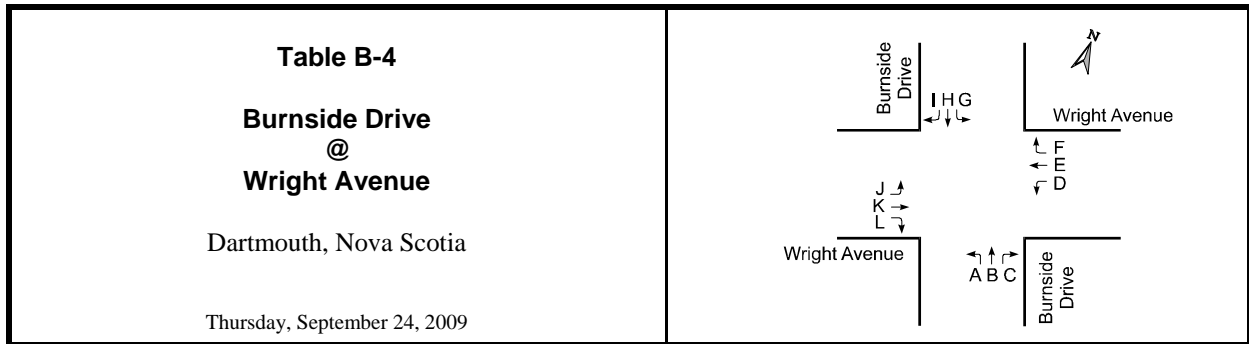
Time	Burnside Drive Northbound Approach		Highway 111, WB Ramp Westbound Approach			Burnside Drive Southbound Approach		Total Vehicles
	A	B*	D	E	F	H*	I	
07:00-07:15	9		23	0	215		53	300
07:15-07:30	5		18	0	230		44	297
07:30-07:45	9		34	0	253		76	372
07:45-08:00	5		39	9	301		58	412
08:00-08:15	5		38	25	220		67	355
08:15-08:30	7		52	16	202		76	353
08:30-08:45	9		27	5	193		68	302
08:45-09:00	18		30	0	194		78	320
AM Peak Hour	26	0	156	55	916	0	269	1422
16:00-16:15	5		22	0	116		219	362
16:15-16:30	8		28	0	113		155	304
16:30-16:45	14		27	0	113		243	397
16:45-17:00	5		35	0	106		175	321
17:00-17:15	7		34	0	106		213	360
17:15-17:30	7		23	0	87		139	256
17:30-17:45	15		26	0	66		141	248
17:45-18:00	27		27	2	61		90	207
PM Peak Hour	34	0	124	0	438	0	786	1382

\* Movement Not Counted, Calculated from Adjacent Intersection

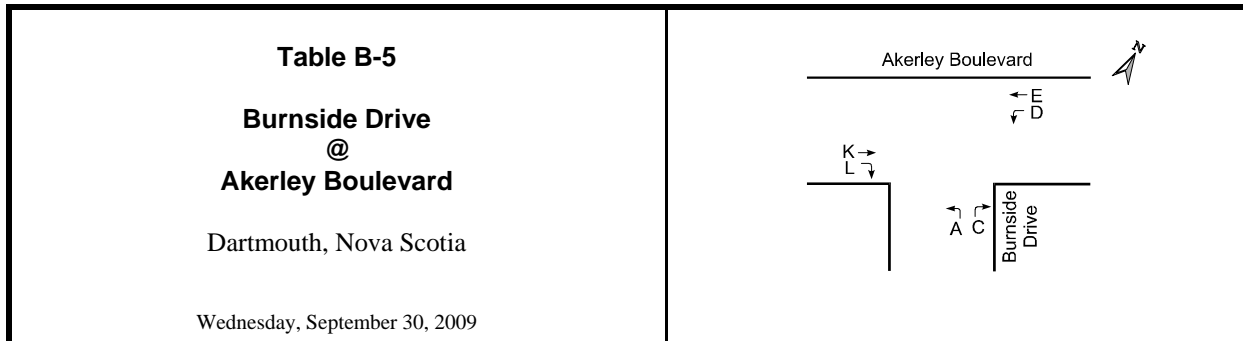




Time	Burnside Drive Northbound Approach			Commodore Drive Westbound Approach			Burnside Drive Southbound Approach			Ronald Smith Avenue Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	170	170	61	7	12	9	18	47	20	7	14	35	570
07:15-07:30	183	177	105	31	20	15	26	60	33	11	19	49	729
07:30-07:45	202	180	131	32	26	20	60	84	40	13	19	80	887
07:45-08:00	230	208	182	36	32	20	60	72	39	17	29	88	1013
08:00-08:15	154	139	148	46	21	29	65	70	28	8	37	70	815
08:15-08:30	157	141	198	45	32	24	63	105	29	20	42	85	941
08:30-08:45	158	115	146	48	23	44	67	95	23	15	37	68	839
08:45-09:00	117	118	173	44	34	37	71	95	29	18	24	85	845
AM Peak Hour	743	668	659	159	111	93	248	331	136	58	127	323	3656
16:00-16:15	106	112	81	128	36	92	59	159	17	23	46	236	1095
16:15-16:30	81	133	77	126	46	67	41	147	13	24	45	164	964
16:30-16:45	84	140	84	152	31	78	44	201	15	26	41	234	1130
16:45-17:00	73	86	68	100	24	61	35	111	15	22	31	167	793
17:00-17:15	56	69	66	122	29	68	51	202	17	27	52	234	993
17:15-17:30	57	83	67	83	23	53	31	159	5	17	24	137	739
17:30-17:45	42	44	60	113	21	58	11	73	15	11	31	104	583
17:45-18:00	38	39	54	65	22	59	24	86	12	7	23	109	538
PM Peak Hour	344	471	310	506	137	298	179	618	60	95	163	801	3982



Time	Burnside Drive Northbound Approach			Wright Avenue Westbound Approach			Burnside Drive Southbound Approach			Wright Avenue Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	33	59	30	19	18	5	7	58	17	9	17	14	286
07:15-07:30	51	64	40	17	39	6	5	70	43	8	32	23	398
07:30-07:45	67	99	71	18	60	9	8	92	40	7	38	10	519
07:45-08:00	67	90	88	22	58	18	10	108	79	10	43	8	601
08:00-08:15	72	75	71	37	108	24	22	106	53	14	36	17	635
08:15-08:30	53	87	53	23	73	11	23	99	38	2	46	24	532
08:30-08:45	51	74	62	37	67	12	23	118	41	5	42	18	550
08:45-09:00	70	71	43	44	41	7	16	102	36	8	41	35	514
AM Peak Hour	243	326	274	119	306	65	78	431	211	31	167	67	2318
16:00-16:15	58	115	23	88	46	19	10	88	4	74	84	43	652
16:15-16:30	56	104	20	79	41	21	17	88	15	43	74	34	592
16:30-16:45	69	135	22	82	61	32	14	101	13	70	84	27	710
16:45-17:00	60	113	60	67	47	19	24	103	5	36	66	39	639
17:00-17:15	34	117	15	98	62	19	17	86	6	70	75	50	649
17:15-17:30	38	123	14	47	30	19	17	77	4	37	64	46	516
17:30-17:45	27	88	18	18	13	15	10	53	4	31	37	30	344
17:45-18:00	25	84	22	25	16	16	18	39	7	20	32	19	323
PM Peak Hour	243	467	125	316	195	91	65	380	37	223	308	143	2593



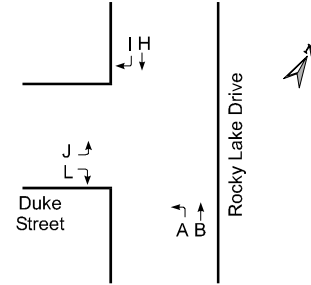
Time	Burnside Drive Northbound Approach		Akerley Boulevard Westbound Approach		Akerley Boulevard Eastbound Approach		Total Vehicles
	A	C	D	E	K	L	
07:00-07:15	56	18	51	134	69	31	359
07:15-07:30	79	34	85	197	90	48	533
07:30-07:45	102	15	121	254	87	47	626
07:45-08:00	70	25	103	241	86	102	627
08:00-08:15	94	30	119	229	101	98	671
08:15-08:30	89	32	91	177	113	97	599
08:30-08:45	101	29	70	182	134	118	634
08:45-09:00	66	29	58	139	113	89	494
AM Peak Hour	354	116	383	829	434	415	2531
16:00-16:15	118	114	39	113	169	61	614
16:15-16:30	118	61	41	105	152	61	538
16:30-16:45	162	125	51	115	270	86	809
16:45-17:00	130	75	33	85	190	62	575
17:00-17:15	121	102	36	91	244	79	673
17:15-17:30	115	77	24	68	176	56	516
17:30-17:45	88	54	18	77	125	52	414
17:45-18:00	75	34	18	71	95	49	342
PM Peak Hour	531	363	161	396	856	288	2595

Time		Rocky Lake Drive Northbound Approach		Rocky Lake Drive Southbound Approach		Duke Street Eastbound Approach		Total Vehicles
		A	B	H	I	J	L	
07:00-07:15		10	10	8	12	21	18	79
07:15-07:30		22	7	11	33	20	31	124
07:30-07:45		28	10	20	30	30	23	141
07:45-08:00		39	16	22	34	35	37	183
08:00-08:15		22	9	10	37	41	42	161
08:15-08:30		39	8	21	31	38	56	193
08:30-08:45		29	12	20	25	34	63	183
08:45-09:00		40	14	17	28	43	61	203
07:00 to 08:00		99	43	61	109	106	109	527
08:00 to 09:00		130	43	68	121	156	222	740
AM Peak Hour		130	43	68	121	156	222	740
11:00-11:15		34	20	22	28	37	53	194
11:15-11:30		35	19	10	33	28	37	162
11:30-11:45		33	21	28	26	26	42	176
11:45-12:00		46	22	24	30	37	53	212
12:00-12:15		43	18	24	38	40	40	203
12:15-12:30		51	27	21	32	48	53	232
12:30-12:45		30	23	22	39	25	35	174
12:45-13:00		47	21	22	34	27	50	201
11:00 to 12:00		148	82	84	117	128	185	744
12:00 to 13:00		171	89	89	143	140	178	810
Noon Peak Hour		173	88	97	126	151	188	823
16:00-16:15		60	44	31	37	50	42	264
16:15-16:30		45	23	14	39	35	57	213
16:30-16:45		46	23	14	44	28	37	192
16:45-17:00		57	24	27	38	32	34	212
17:00-17:15		53	11	26	63	19	44	216
17:15-17:30		37	22	22	35	20	48	184
17:30-17:45		51	18	22	25	19	38	173
17:45-18:00		37	14	21	16	15	34	137
16:00 to 17:00		208	114	86	158	145	170	881
17:00 to 18:00		178	65	91	139	73	164	710
PM Peak Hour		208	114	86	158	145	170	881

**Table B-6**  
**Rocky Lake Drive (Trunk 2)**  
**@**  
**Duke Street**

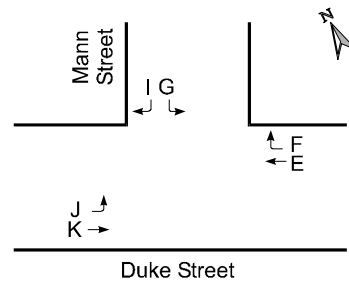
Bedford, Nova Scotia

Friday, September 18, 2009



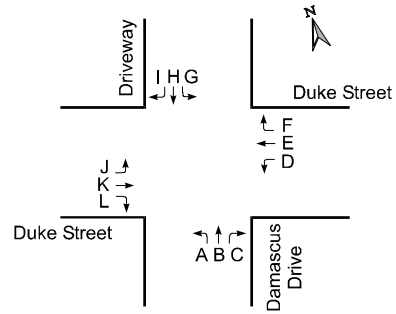
Time		Duke Street		Mann Street		Duke Street		Total Vehicles
		Westbound Approach		Southbound Approach		Eastbound Approach		
		E*	F	G	I	J	K*	
07:00-07:15			1	1	3	9		14
07:15-07:30			0	0	6	10		16
07:30-07:45			3	0	7	10		20
07:45-08:00			6	4	8	19		37
08:00-08:15			2	4	15	22		43
08:15-08:30			0	5	14	7		26
08:30-08:45			0	1	1	14		16
08:45-09:00			1	1	13	7		22
07:00 to 08:00		198	10	5	24	48	210	495
08:00 to 09:00		248	3	11	43	50	367	722
AM Peak Hour**		248	3	11	43	50	367	722
11:00-11:15			1	5	4	9		19
11:15-11:30			2	3	8	2		15
11:30-11:45			2	2	7	10		21
11:45-12:00			1	1	9	3		14
12:00-12:15			6	3	9	7		25
12:15-12:30			0	1	7	11		19
12:30-12:45			4	3	1	10		18
12:45-13:00			3	4	7	7		21
11:00 to 12:00		259	6	11	28	24	302	630
12:00 to 13:00		301	13	11	24	35	307	691
Noon Peak Hour**		290	9	7	32	31	332	701
16:00-16:15			4	3	14	6		27
16:15-16:30			0	4	7	1		12
16:30-16:45			0	3	5	5		13
16:45-17:00			3	1	8	3		15
17:00-17:15			1	0	5	2		8
17:15-17:30			0	0	2	3		5
17:30-17:45			1	1	2	3		7
17:45-18:00			0	0	3	0		3
16:00 to 17:00		359	7	11	34	15	304	730
17:00 to 18:00		315	2	1	12	8	236	574
PM Peak Hour**		359	7	11	34	15	304	730

\* Volume Estimated from Adjacent Intersection  
 \*\* Peak Hour of Adjacent Intersection



Time		Damascus Drive			Duke Street			Driveway			Duke Street			Total Vehicles
		Northbound Approach			Westbound Approach			Southbound Approach			Eastbound Approach			
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	17	1	22	10	25	0	1	0	0	4	38	38	156	
07:15-07:30	24	0	16	10	44	0	0	0	3	2	55	50	204	
07:30-07:45	28	0	20	21	43	0	0	0	1	5	54	44	216	
07:45-08:00	38	1	22	16	51	0	0	1	1	1	72	65	268	
08:00-08:15	52	1	32	24	51	0	0	1	1	4	85	71	322	
08:15-08:30	51	0	21	27	66	0	0	0	2	3	88	77	335	
08:30-08:45	38	0	32	19	43	0	0	0	1	0	80	100	313	
08:45-09:00	49	1	24	23	69	0	0	1	3	1	101	90	362	
AM Peak Hour	190	2	109	93	229	0	0	2	7	8	354	338	1332	
16:00-16:15	96	0	10	28	94	0	1	1	7	1	63	77	378	
16:15-16:30	108	0	18	17	81	0	0	1	5	2	64	73	369	
16:30-16:45	111	0	10	18	80	0	0	0	2	0	51	71	343	
16:45-17:00	90	0	20	26	93	0	0	0	5	3	54	83	374	
17:00-17:15	110	0	13	32	81	0	0	0	1	0	44	98	379	
17:15-17:30	105	0	22	19	47	0	1	1	2	0	41	85	323	
17:30-17:45	84	1	20	20	57	0	2	3	6	1	47	70	311	
17:45-18:00	68	0	11	19	45	0	0	0	0	0	28	65	236	
PM Peak Hour	419	0	61	93	335	0	0	1	13	5	213	325	1465	

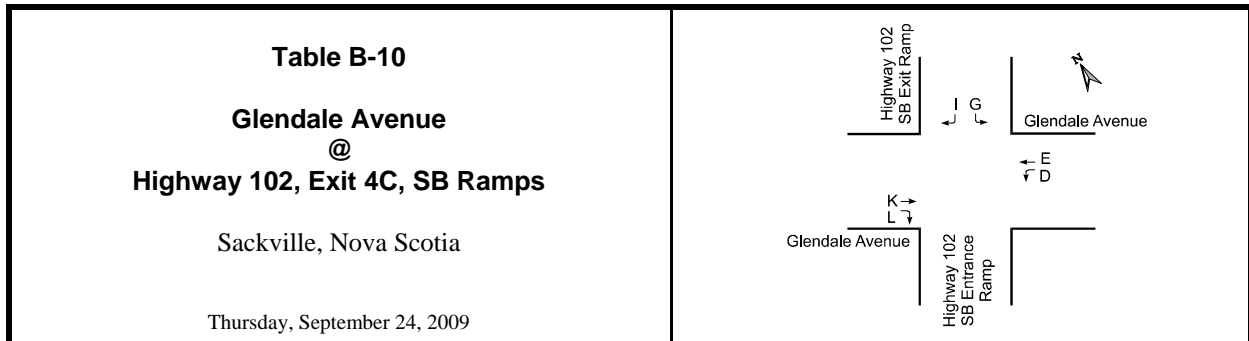
**Table B-8**  
**Duke Street**  
**@**  
**Damascus Drive**  
 Bedford, Nova Scotia  
 Friday, September 18, 2009



<p><b>Table B-9</b></p> <p><b>Duke Street</b></p> <p><b>@</b></p> <p><b>Highway 102, Exit 4C, NB Ramps</b></p> <p>Bedford, Nova Scotia</p> <p>Thursday, September 24, 2009</p>	
--	--

Time	Highway 102 NB Ramp Northbound Approach		Duke Street Westbound Approach		Duke Street Eastbound Approach		Total Vehicles
	A	C	E	F	J	K*	
07:00-07:15	30	20	35	12	53		150
07:15-07:30	51	34	42	17	48		192
07:30-07:45	54	45	45	5	62		211
07:45-08:00	76	57	51	11	70		265
08:00-08:15	63	55	60	15	44		237
08:15-08:30	56	74	74	27	43		274
08:30-08:45	50	53	61	20	33		217
08:45-09:00	54	66	73	7	32		232
<b>AM Peak Hour</b>	<b>249</b>	<b>231</b>	<b>230</b>	<b>58</b>	<b>219</b>	<b>335</b>	<b>1322</b>
16:00-16:15	88	35	139	23	46		331
16:15-16:30	129	56	133	22	26		366
16:30-16:45	140	44	161	15	43		403
16:45-17:00	120	48	151	20	38		377
17:00-17:15	134	52	188	27	50		451
17:15-17:30	150	47	154	27	33		411
17:30-17:45	99	42	145	17	28		331
17:45-18:00	118	33	107	12	22		292
<b>PM Peak Hour</b>	<b>544</b>	<b>191</b>	<b>654</b>	<b>89</b>	<b>164</b>	<b>313</b>	<b>1955</b>

\* Volume Estimated from Adjacent Intersection

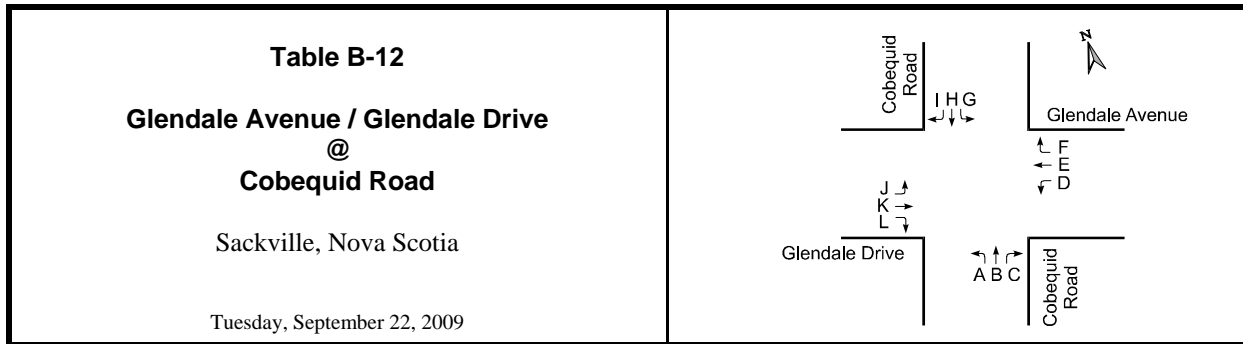


Time	Glendale Avenue Westbound Approach		Highway 102 SB Ramp Southbound Approach		Glendale Avenue Eastbound Approach		Total Vehicles
	D	E*	G	I	K	L	
07:00-07:15	21		10	15	79	101	226
07:15-07:30	31		7	37	89	115	279
07:30-07:45	28		19	48	109	117	321
07:45-08:00	32		26	32	133	128	351
08:00-08:15	42		16	36	109	111	314
08:15-08:30	33		18	38	124	115	328
08:30-08:45	32		17	34	95	79	257
08:45-09:00	36		18	33	102	68	257
AM Peak Hour	135	344	79	154	475	471	1658
16:00-16:15	54		12	28	110	59	263
16:15-16:30	51		19	53	88	53	264
16:30-16:45	66		22	58	110	78	334
16:45-17:00	70		15	86	93	72	336
17:00-17:15	105		18	79	112	95	409
17:15-17:30	76		12	66	95	20	269
17:30-17:45	80		16	54	83	61	294
17:45-18:00	33		7	51	73	41	205
PM Peak Hour	317	881	67	289	410	265	2229

\* Volume Estimated from Adjacent Intersection

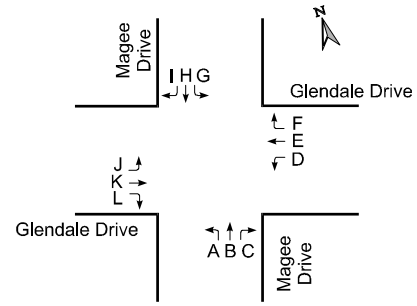


<p align="center"><b>Table B-11</b></p> <p align="center"><b>Glendale Avenue</b></p> <p align="center"><b>@</b></p> <p align="center"><b>Estates Boulevard / Temple Terrace</b></p> <p align="center">Sackville, Nova Scotia</p> <p align="center">Tuesday, September 22, 2009</p>													
Time	Estates Boulevard Northbound Approach			Glendale Avenue Westbound Approach			Temple Terrace Southbound Approach			Glendale Avenue Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	0	0	4	5	61	2	1	0	2	0	188	15	278
07:15-07:30	1	0	2	17	73	1	0	0	0	0	227	22	343
07:30-07:45	4	0	4	11	92	3	0	0	1	3	258	14	390
07:45-08:00	4	0	11	16	129	0	2	0	1	2	245	16	426
08:00-08:15	10	0	19	6	107	4	1	0	1	2	220	21	391
08:15-08:30	5	0	18	18	121	8	0	1	1	2	245	17	436
08:30-08:45	4	0	9	11	119	5	1	0	0	7	208	9	373
08:45-09:00	6	0	10	8	134	6	1	0	1	4	176	10	356
AM Peak Hour	25	0	56	43	481	23	3	1	3	15	849	57	1556
16:00-16:15	22	2	27	7	207	3	3	0	9	3	125	8	416
16:15-16:30	8	0	15	12	242	0	1	0	3	0	135	8	424
16:30-16:45	13	0	17	9	229	0	5	0	7	3	160	7	450
16:45-17:00	21	0	13	7	267	1	2	0	5	1	137	2	456
17:00-17:15	18	0	21	3	285	1	4	0	8	2	152	5	499
17:15-17:30	8	0	10	6	292	0	2	0	3	0	133	5	459
17:30-17:45	7	0	8	4	229	0	1	0	1	3	149	4	406
17:45-18:00	7	0	12	4	224	1	0	0	0	0	157	6	411
PM Peak Hour	60	0	61	25	1073	2	13	0	23	6	582	19	1864



Time	Cobequid Road Northbound Approach			Glendale Avenue Westbound Approach			Cobequid Road Southbound Approach			Glendale Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	12	26	27	20	15	19	77	107	9	9	88	54	463
07:15-07:30	19	43	46	15	16	11	83	122	13	12	116	99	595
07:30-07:45	26	35	46	21	32	28	96	119	14	14	125	66	622
07:45-08:00	17	40	43	29	59	21	96	85	16	26	121	58	611
08:00-08:15	24	35	46	44	41	25	89	87	18	19	116	54	598
08:15-08:30	50	48	48	41	52	25	100	92	14	24	102	55	651
08:30-08:45	23	42	44	44	46	18	69	58	11	13	93	55	516
08:45-09:00	42	39	42	29	63	32	51	63	21	14	85	49	530
AM Peak Hour	117	158	183	135	184	99	381	383	62	83	464	233	2482
16:00-16:15	89	60	28	67	126	48	38	54	43	20	37	30	640
16:15-16:30	88	88	25	39	130	54	45	44	30	32	65	21	661
16:30-16:45	104	70	17	54	135	62	37	39	26	16	62	23	645
16:45-17:00	84	80	31	44	154	62	46	70	31	31	51	16	700
17:00-17:15	66	117	35	57	159	102	37	53	35	28	64	42	795
17:15-17:30	79	65	19	30	113	66	33	54	20	19	48	27	573
17:30-17:45	102	69	22	33	133	63	56	62	21	18	56	29	664
17:45-18:00	66	70	18	27	60	52	60	53	19	26	63	22	536
PM Peak Hour	342	355	108	194	578	280	165	206	122	107	242	102	2801

<p><b>Table B-13</b></p> <p><b>Glendale Drive @ Magee Drive</b></p> <p>Sackville, Nova Scotia</p> <p>Tuesday, September 22, 2009</p>													
Time	Magee Drive Northbound Approach			Glendale Drive Westbound Approach			Magee Drive Southbound Approach			Glendale Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	1	0	12	2	49	5	1	0	1	3	221	2	297
07:15-07:30	0	3	12	4	63	2	1	0	1	1	256	1	344
07:30-07:45	2	1	12	8	63	3	5	3	9	2	242	3	353
07:45-08:00	1	2	12	3	87	7	2	0	8	2	250	2	376
08:00-08:15	8	4	3	8	91	14	5	1	7	4	203	2	350
08:15-08:30	0	4	9	5	83	7	8	2	6	4	184	7	319
08:30-08:45	0	2	7	3	113	3	2	1	8	4	192	5	340
08:45-09:00	1	0	4	5	123	3	3	0	3	4	145	3	294
07:00 to 08:00	4	6	48	17	262	17	9	3	19	8	969	8	1370
08:00 to 09:00	9	10	23	21	410	27	18	4	24	16	724	17	1303
AM Peak Hour	11	11	36	24	324	31	20	6	30	12	879	14	1398
11:00-11:15	1	0	3	7	103	6	0	1	0	2	110	3	236
11:15-11:30	1	1	1	9	103	6	1	0	8	6	99	2	237
11:30-11:45	0	1	1	1	99	0	5	1	4	4	111	4	231
11:45-12:00	1	0	2	2	121	0	3	1	5	0	91	1	227
12:00-12:15	2	3	2	3	142	8	0	0	0	2	86	6	254
12:15-12:30	5	4	4	4	104	8	4	2	1	6	85	1	228
12:30-12:45	5	1	7	4	95	3	2	1	3	3	116	2	242
12:45-13:00	2	1	1	3	97	5	2	0	2	3	122	3	241
11:00 to 12:00	3	2	7	19	426	12	9	3	17	12	411	10	931
12:00 to 13:00	14	9	14	14	438	24	8	3	6	14	409	12	965
Noon Peak Hour	14	9	14	14	438	24	8	3	6	14	409	12	965
16:00-16:15	6	1	6	13	244	7	3	1	3	6	93	7	390
16:15-16:30	1	0	7	6	200	10	1	2	4	4	94	3	332
16:30-16:45	4	2	5	9	251	11	0	1	4	7	91	4	389
16:45-17:00	3	0	8	20	253	15	1	1	3	7	91	4	406
17:00-17:15	2	1	3	18	288	10	2	0	7	12	153	4	500
17:15-17:30	0	0	0	19	200	21	0	0	4	9	76	6	335
17:30-17:45	1	1	3	21	195	7	3	0	4	8	90	5	338
17:45-18:00	1	0	4	4	209	5	1	1	7	9	118	5	364
16:00 to 17:00	14	3	26	48	948	43	5	5	14	24	369	18	1517
17:00 to 18:00	4	2	10	62	892	43	6	1	22	38	437	20	1537
PM Peak Hour	9	3	16	66	992	57	3	2	18	35	411	18	1630



**Table B-14**

**Glendale Drive  
@  
Chandler Drive**

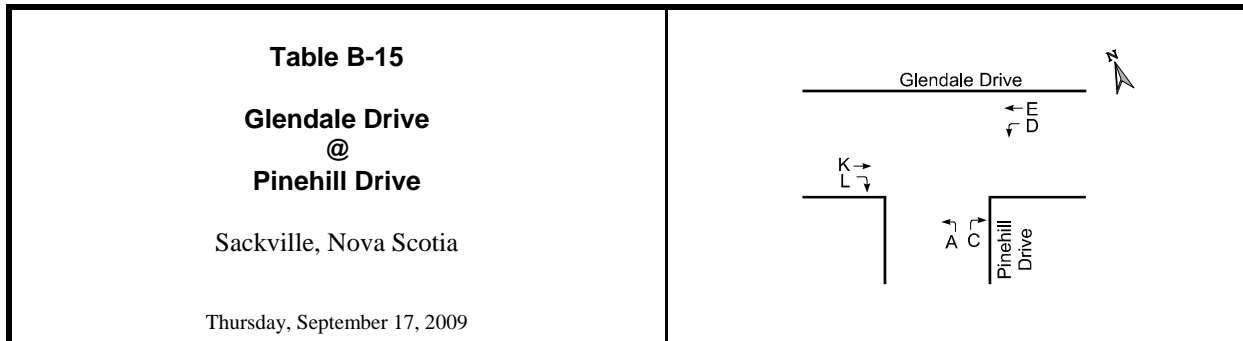
Sackville, Nova Scotia

Tuesday, September 22, 2009

The diagram shows Chandler Drive running vertically and Glendale Drive running horizontally. Chandler Drive has two lanes with arrows pointing down, labeled 'I' and 'G'. Glendale Drive has two lanes with arrows pointing right, labeled 'J' and 'K'. At the intersection, there are arrows for left-turning movements: 'E' and 'F' for vehicles on Glendale Drive turning left onto Chandler Drive, and 'G' and 'H' for vehicles on Chandler Drive turning left onto Glendale Drive. A north arrow is also present.

Time	Glendale Drive Westbound Approach		Chandler Drive Southbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
	E*	F	G	I	J	K*	
07:00-07:15		0	4	1	3		8
07:15-07:30		1	5	2	2		10
07:30-07:45		0	2	8	3		13
07:45-08:00		1	8	5	1		15
08:00-08:15		2	5	13	6		26
08:15-08:30		4	4	14	7		29
08:30-08:45		3	7	4	4		18
08:45-09:00		6	4	5	3		18
07:00 to 08:00	283	2	19	16	9	966	1295
08:00 to 09:00	428	15	20	36	20	737	1256
AM Peak Hour**	358	7	19	40	17	886	1327
11:00-11:15		0	3	5	7		15
11:15-11:30		1	4	4	3		12
11:30-11:45		2	2	6	3		13
11:45-12:00		3	2	2	8		15
12:00-12:15		6	2	8	9		25
12:15-12:30		3	4	10	7		24
12:30-12:45		1	3	10	2		16
12:45-13:00		2	6	10	5		23
11:00 to 12:00	440	6	11	17	21	422	917
12:00 to 13:00	446	12	15	38	23	420	954
Noon Peak Hour**	446	12	15	38	23	420	954
16:00-16:15		8	4	6	8		26
16:15-16:30		4	1	5	6		16
16:30-16:45		5	0	2	7		14
16:45-17:00		3	2	8	11		24
17:00-17:15		9	4	5	8		26
17:15-17:30		1	2	6	6		15
17:30-17:45		1	1	5	7		14
17:45-18:00		2	3	5	9		19
16:00 to 17:00	956	20	7	21	32	404	1440
17:00 to 18:00	905	13	10	21	30	485	1464
PM Peak Hour**	1001	18	8	21	32	456	1536

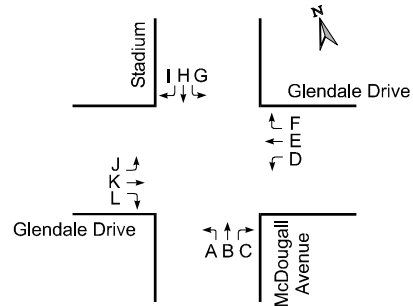
\* Volume Estimated from Adjacent Intersection  
 \*\* Peak Hour of Adjacent Intersection



Time	Pinehill Drive Northbound Approach		Glendale Drive Westbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
	A	C	D	E*	K*	L	
07:00-07:15	0	5	5			4	14
07:15-07:30	1	4	8			10	23
07:30-07:45	1	15	14			16	46
07:45-08:00	6	5	12			12	35
08:00-08:15	4	12	6			10	32
08:15-08:30	10	10	10			17	47
08:30-08:45	4	13	12			20	49
08:45-09:00	2	6	10			11	29
07:00 to 08:00	8	29	39	271	976	42	1365
08:00 to 09:00	20	41	38	448	711	58	1316
AM Peak Hour**	21	42	42	387	919	55	1466
11:00-11:15	8	12	9	93	85	12	219
11:15-11:30	7	7	12	91	100	11	228
11:30-11:45	7	18	12	106	105	10	258
11:45-12:00	3	6	8	115	91	11	234
12:00-12:15	7	17	10	104	91	9	238
12:15-12:30	16	7	10	93	92	12	230
12:30-12:45	9	6	5	103	107	8	238
12:45-13:00	6	6	10	102	113	11	248
11:00 to 12:00	25	43	41	405	381	44	939
12:00 to 13:00	38	36	35	402	403	40	954
Noon Peak Hour	24	48	42	416	387	41	958
16:00-16:15	4	12	12			8	36
16:15-16:30	5	7	14			10	36
16:30-16:45	2	13	17			9	41
16:45-17:00	4	14	14			8	40
17:00-17:15	4	12	17			16	49
17:15-17:30	6	13	20			8	47
17:30-17:45	8	9	12			8	37
17:45-18:00	5	12	9			16	42
16:00 to 17:00	15	46	57	1057	459	35	1669
17:00 to 18:00	23	46	58	1111	511	48	1797
PM Peak Hour**	23	46	58	1111	511	48	1797

\* Volume Estimated from Adjacent Intersection for AM and PM count Periods  
 \*\* Peak Hour of Adjacent Intersection

<p style="text-align: center;"><b>Table B-16</b> <b>Glendale Drive</b> <b>@</b> <b>McDougall Avenue / Stadium</b>  Sackville, Nova Scotia</p> <p style="text-align: center;">Thursday, September 17, 2009</p>													
Time	McDougall Avenue Northbound Approach			Glendale Drive Westbound Approach			Stadium Southbound Approach			Glendale Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	3	2	23	5	35	1	2	0	2	1	202	4	280
07:15-07:30	5	1	14	6	53	8	5	0	1	5	235	6	339
07:30-07:45	14	4	18	5	58	6	5	0	5	4	258	2	379
07:45-08:00	8	1	21	6	72	24	12	3	1	4	223	5	380
08:00-08:15	20	5	12	6	87	26	17	5	10	10	190	7	395
08:15-08:30	8	27	13	4	79	35	43	10	14	14	162	6	415
08:30-08:45	3	2	10	5	94	16	20	5	4	6	152	5	322
08:45-09:00	5	2	9	7	89	20	1	2	3	9	139	5	291
AM Peak Hour	50	37	64	21	296	91	77	18	30	32	833	20	1569
16:00-16:15	19	3	5	13	238	8	6	4	10	10	89	7	412
16:15-16:30	8	3	8	11	262	20	13	2	2	10	100	6	445
16:30-16:45	3	0	9	11	251	17	18	2	6	9	125	6	457
16:45-17:00	12	3	6	12	215	14	12	3	10	12	103	4	406
17:00-17:15	10	2	17	20	269	31	20	8	14	11	127	5	534
17:15-17:30	11	1	8	12	239	17	14	3	6	14	98	7	430
17:30-17:45	14	2	7	13	275	16	8	1	7	9	123	6	481
17:45-18:00	7	3	5	17	202	23	16	1	8	18	116	7	423
PM Peak Hour	42	8	37	62	985	87	58	13	35	52	464	25	1868



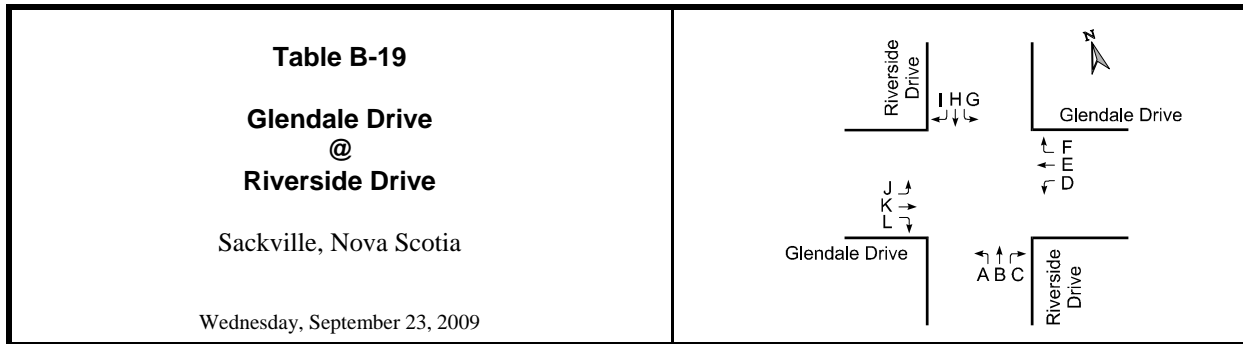
Time		Raymond Drive Northbound Approach		Glendale Drive Westbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
		A	C	D	E*	K*	L	
07:00-07:15		2	3	2			11	18
07:15-07:30		2	1	1			19	23
07:30-07:45		5	5	3			28	41
07:45-08:00		6	4	3			26	39
08:00-08:15		5	6	5			24	40
08:15-08:30		9	5	6			5	25
08:30-08:45		3	2	5			13	23
08:45-09:00		3	2	1			14	20
07:00 to 08:00		15	13	9	240	840	84	1201
08:00 to 09:00		20	15	17	371	675	56	1154
AM Peak Hour**		23	17	19	356	701	68	1184
11:00-11:15		3	2	3	84	82	9	183
11:15-11:30		9	4	4	105	87	16	225
11:30-11:45		12	5	2	116	94	14	243
11:45-12:00		12	0	5	98	103	9	227
12:00-12:15		12	4	5	103	83	14	221
12:15-12:30		5	2	1	78	82	10	178
12:30-12:45		6	1	3	102	95	7	214
12:45-13:00		8	1	4	103	110	6	232
11:00 to 12:00		36	11	14	403	366	48	878
12:00 to 13:00		31	8	13	386	370	37	845
Noon Peak Hour		45	13	16	422	367	53	916
16:00-16:15		8	1	5			9	23
16:15-16:30		4	1	7			13	25
16:30-16:45		7	3	6			13	29
16:45-17:00		8	3	2			12	25
17:00-17:15		5	3	4			10	22
17:15-17:30		8	1	1			7	17
17:30-17:45		5	7	4			20	36
17:45-18:00		1	4	6			15	26
16:00 to 17:00		27	8	20	790	338	47	1230
17:00 to 18:00		19	15	15	906	436	52	1443
PM Peak Hour**		19	15	15	906	436	52	1443

\* Volume Estimated from Adjacent Intersection for AM and PM count Periods  
 \*\* Peak Hour of Adjacent Intersection

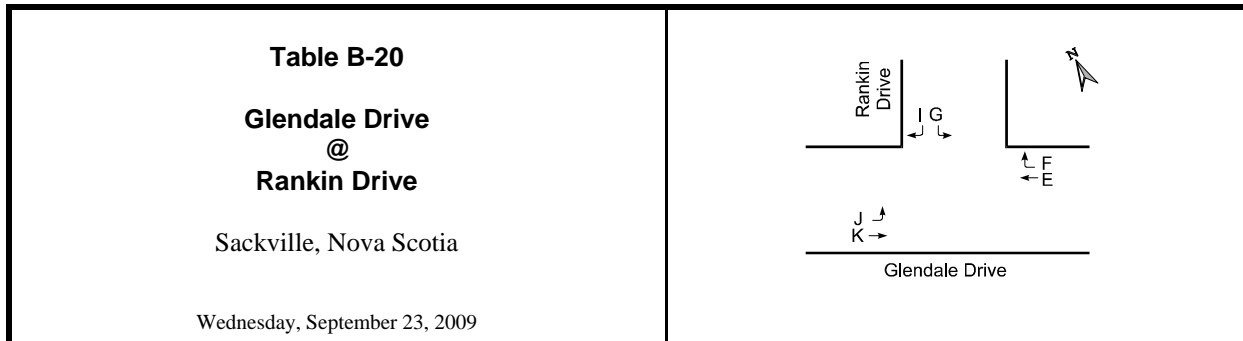
Time		Glendale Drive Westbound Approach		Metropolitan Avenue Southbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
		E	F	G	I	J	K*	
07:00-07:15		34	13	80	20	14		161
07:15-07:30		36	16	76	17	17		162
07:30-07:45		47	27	76	22	29		201
07:45-08:00		38	44	75	39	58		254
08:00-08:15		52	39	74	58	91		314
08:15-08:30		59	49	57	39	81		285
08:30-08:45		57	41	53	45	55		251
08:45-09:00		40	54	50	33	35		212
AM Peak Hour**		206	173	259	181	285	510	1614
16:00-16:15		129	56	36	31	35		287
16:15-16:30		157	63	30	27	45		322
16:30-16:45		152	49	53	57	45		356
16:45-17:00		143	68	34	49	48		342
17:00-17:15		148	74	36	58	49		365
17:15-17:30		160	64	44	49	47		364
17:30-17:45		165	66	74	66	44		415
17:45-18:00		164	84	49	39	71		407
PM Peak Hour**		637	288	203	212	211	285	1836

\* Volume Estimated from Adjacent Intersection  
 \*\* Peak Hour of Adjacent Intersection





Time	Riverside Drive Northbound Approach			Glendale Drive Westbound Approach			Riverside Drive Southbound Approach			Glendale Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:00-07:15	7	1	14	12	38	0	8	1	4	4	129	6	224
07:15-07:30	4	1	17	23	43	2	7	2	2	2	167	22	292
07:30-07:45	9	3	21	33	51	1	6	5	8	2	175	19	333
07:45-08:00	19	5	29	26	67	2	7	3	7	2	155	20	342
08:00-08:15	11	3	37	27	72	1	5	4	8	4	177	11	360
08:15-08:30	9	6	22	23	80	1	7	5	6	4	167	7	337
08:30-08:45	10	2	27	24	94	1	4	2	4	6	158	18	350
08:45-09:00	5	0	28	23	57	2	3	3	1	3	124	7	256
AM Peak Hour	49	16	115	100	313	5	23	14	25	16	657	56	1389
16:00-16:15	15	6	23	50	125	8	2	5	5	3	83	7	332
16:15-16:30	24	4	28	29	142	10	1	7	3	2	72	8	330
16:30-16:45	31	1	29	36	139	16	1	4	4	4	75	18	358
16:45-17:00	18	0	26	33	158	11	2	4	3	7	69	14	345
17:00-17:15	26	5	23	40	205	19	4	9	7	8	87	8	441
17:15-17:30	31	15	30	27	183	10	4	7	3	6	73	7	396
17:30-17:45	31	6	22	40	181	7	4	8	7	5	100	15	426
17:45-18:00	33	7	37	36	158	10	4	6	7	7	108	17	430
PM Peak Hour	121	33	112	143	727	46	16	30	24	26	368	47	1693



Time	Glendale Drive Westbound Approach		Rankin Drive Southbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
	E*	F	G	I	J*	K	
07:00-07:15		4	15	5	3		27
07:15-07:30		2	21	3	2		28
07:30-07:45		6	12	4	2		24
07:45-08:00		4	11	3	5		23
08:00-08:15		11	14	8	1		34
08:15-08:30		3	9	1	0		13
08:30-08:45		7	7	5	3		22
08:45-09:00		4	6	6	2		18
07:00 to 08:00	243	16	59	15	12	644	989
08:00 to 09:00	332	25	36	20	6	650	1069
AM Peak Hour**	362	25	41	17	9	688	1142
11:00-11:15	77	6	4	1	2	76	166
11:15-11:30	80	3	7	6	4	87	187
11:30-11:45	78	2	3	0	0	94	177
11:45-12:00	70	4	5	2	5	92	178
12:00-12:15	74	6	7	6	4	87	184
12:15-12:30	68	9	11	2	3	67	160
12:30-12:45	85	4	5	1	2	84	181
12:45-13:00	85	1	4	3	2	99	194
11:00 to 12:00	305	15	19	9	11	349	708
12:00 to 13:00	312	20	27	12	11	337	719
Noon Peak Hour	302	15	22	14	13	360	726
16:00-16:15		4	1	2	4		11
16:15-16:30		18	3	1	4		26
16:30-16:45		20	7	5	7		39
16:45-17:00		3	4	4	6		17
17:00-17:15		16	3	7	3		29
17:15-17:30		10	1	4	6		21
17:30-17:45		16	15	10	7		48
17:45-18:00		13	11	5	2		31
16:00 to 17:00	622	45	15	12	21	347	1062
17:00 to 18:00	817	55	30	26	18	411	1357
PM Peak Hour**	817	55	30	26	18	411	1357

\* Volume Estimated from Adjacent Intersection for AM and PM count Periods  
 \*\* Peak Hour of Adjacent Intersection

Time		Glendale Drive Westbound Approach		Smokey Drive Southbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
		E*	F	G	I	J	K*	
07:00-07:15			4	24	19	7		54
07:15-07:30			8	55	21	5		89
07:30-07:45			4	51	16	7		78
07:45-08:00			13	44	14	3		74
08:00-08:15			27	45	29	10		111
08:15-08:30			18	33	26	9		86
08:30-08:45			14	37	23	14		88
08:45-09:00			4	18	14	8		44
07:00 to 08:00		163	29	174	70	22	594	1052
08:00 to 09:00		318	63	133	92	41	576	1223
AM Peak Hour**		342	72	159	92	36	615	1316
11:00-11:15		70	7	19	9	19	91	215
11:15-11:30		105	10	11	6	11	66	209
11:30-11:45		79	5	13	15	16	80	208
11:45-12:00		59	14	13	14	12	71	183
12:00-12:15		84	12	13	5	13	61	188
12:15-12:30		64	16	10	9	20	88	207
12:30-12:45		72	13	16	15	13	102	231
12:45-13:00		78	13	18	17	11	73	210
11:00 to 12:00		313	36	56	44	58	308	815
12:00 to 13:00		298	54	57	46	57	324	836
Noon Peak Hour		298	54	57	46	57	324	836
16:00-16:15			28	7	10	35		80
16:15-16:30			29	10	4	29		72
16:30-16:45			35	15	18	41		109
16:45-17:00			56	15	12	40		123
17:00-17:15			49	19	12	53		133
17:15-17:30			42	8	24	45		119
17:30-17:45			35	15	19	32		101
17:45-18:00			37	14	27	43		121
16:00 to 17:00		633	148	47	44	145	362	1379
17:00 to 18:00		633	163	56	82	173	322	1429
PM Peak Hour**		633	163	56	82	173	322	1429

\* Volume Estimated from Adjacent Intersection for AM and PM count Periods  
 \*\* Peak Hour of Adjacent Intersection

Time		Old Beaver Bank Road Northbound Approach		Glendale Drive Westbound Approach		Glendale Drive Eastbound Approach		Total Vehicles
		A	C	D	E*	K*	L	
07:00-07:15		2	5	17		10		34
07:15-07:30		2	8	14		8		32
07:30-07:45		2	4	17		10		33
07:45-08:00		5	4	25		9		43
08:00-08:15		3	16	41		11		71
08:15-08:30		2	9	36		12		59
08:30-08:45		2	20	39		11		72
08:45-09:00		4	11	25		8		48
07:00 to 08:00		11	21	73	163	595	37	900
08:00 to 09:00		11	56	141	269	561	42	1080
AM Peak Hour**		12	49	141	293	602	43	1140
11:00-11:15		4	19	13	70	91	5	202
11:15-11:30		14	22	25	105	66	8	240
11:30-11:45		13	17	28	79	80	6	223
11:45-12:00		19	11	24	59	71	13	197
12:00-12:15		3	13	21	84	61	6	188
12:15-12:30		11	19	11	64	88	4	197
12:30-12:45		9	18	16	72	102	8	225
12:45-13:00		14	13	17	78	73	5	200
11:00 to 12:00		50	69	90	313	308	32	862
12:00 to 13:00		37	63	65	298	324	23	810
Noon Peak Hour		50	69	90	313	308	32	862
16:00-16:15		17	26	31		11		85
16:15-16:30		13	33	27		10		83
16:30-16:45		10	20	28		8		66
16:45-17:00		18	30	19		4		71
17:00-17:15		14	35	25		9		83
17:15-17:30		23	36	24		10		93
17:30-17:45		19	29	30		4		82
17:45-18:00		15	32	39		12		98
16:00 to 17:00		58	109	105	572	398	33	1275
17:00 to 18:00		71	132	118	597	363	35	1316
PM Peak Hour**		71	132	118	597	363	35	1316

\* Volume Estimated from Adjacent Intersection for AM and PM count Periods  
 \*\* Peak Hour of Adjacent Intersection

<p><b>Table B-23</b></p> <p><b>Glendale Drive</b> @ <b>Beaver Bank Road</b></p> <p>Sackville, Nova Scotia</p> <p>Wednesday, September 16, 2009</p>	
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Time	Beaver Bank Road Northbound Approach		Glendale Drive Westbound Approach		Beaver Bank Road Southbound Approach		Total Vehicles
	B	C	D	F	G	H	
	07:00-07:15	39	38	37	3	106	
07:15-07:30	84	48	17	2	92	210	453
07:30-07:45	60	55	26	15	117	204	477
07:45-08:00	70	66	38	33	111	203	521
08:00-08:15	74	45	39	43	106	178	485
08:15-08:30	75	52	40	42	105	212	526
08:30-08:45	50	46	39	31	114	231	511
08:45-09:00	73	35	37	9	100	122	376
AM Peak Hour	269	209	156	149	436	824	2043
16:00-16:15	249	38	54	103	72	96	612
16:15-16:30	163	31	43	92	56	65	450
16:30-16:45	227	44	50	106	72	75	574
16:45-17:00	201	48	59	123	70	70	571
17:00-17:15	295	52	61	132	71	110	721
17:15-17:30	183	30	42	133	50	88	526
17:30-17:45	208	26	44	116	62	127	583
17:45-18:00	210	31	54	86	76	125	582
PM Peak Hour	896	139	201	467	259	450	2412

<p style="text-align: center;"><b>Table B-24</b></p> <p style="text-align: center;"><b>Windmill Road</b></p> <p style="text-align: center;"><b>@</b></p> <p style="text-align: center;"><b>Wright Avenue / Bancroft Drive</b></p> <p style="text-align: center;">Dartmouth, Nova Scotia</p> <p style="text-align: center;">Wednesday Nov. 4, 2009 AM &amp; Monday Oct. 26, 2009 PM</p>													
Time	Windmill Road Northbound Approach			Wright Avenue Westbound Approach			Windmill Road Southbound Approach			Bancroft Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:30-07:45	7	294	129	89	5	27	87	379	6	8	4	7	1042
07:45-08:00	14	300	136	83	2	21	79	385	8	6	10	9	1053
08:00-08:15	9	276	144	84	6	38	51	388	12	10	11	10	1039
08:15-08:30	11	279	134	81	9	24	62	398	7	5	3	14	1027
AM Peak Hour	41	1149	543	337	22	110	279	1550	33	29	28	40	4161
16:30-16:45	3	382	50	110	2	105	31	309	11	5	2	9	1019
16:45-17:00	5	406	47	117	1	124	47	367	17	6	3	7	1147
17:00-17:15	6	392	51	123	3	134	52	350	14	8	5	6	1144
17:15-17:30	3	379	38	103	1	109	35	378	2	4	1	9	1062
PM Peak Hour	17	1559	186	453	7	472	165	1404	44	23	11	31	4372

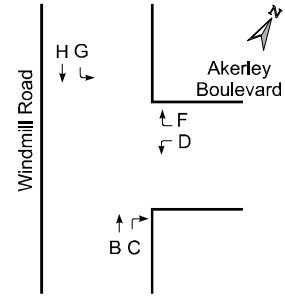
Source: HRM Traffic & Right of Way Services

Time		Windmill Road Northbound Approach		Akerley Boulevard Westbound Approach		Windmill Road Southbound Approach		Total Vehicles
		B	C	D	F	G	H	
07:30-07:45		184	76	57	87	254	585	1243
07:45-08:00		174	94	44	76	290	599	1277
08:00-08:15		197	52	51	100	223	551	1174
08:15-08:30		195	82	84	105	332	594	1392
AM Peak Hour		750	304	236	368	1099	2329	5086
12:00-12:15		215	75	78	129	111	246	854
12:15-12:30		211	94	74	117	101	217	814
12:30-12:45		242	80	79	89	117	237	844
12:45-13:00		219	76	81	100	101	221	798
Noon Peak Hour		887	325	312	435	430	921	3310
16:30-16:45		410	37	82	320	111	237	1197
16:45-17:00		556	63	83	313	129	251	1395
17:00-17:15		485	27	79	333	108	246	1278
17:15-17:30		487	54	57	347	87	244	1276
PM Peak Hour		1938	181	301	1313	435	978	5146

Source: HRM Traffic & Right of Way Services

**Table B-25**  
**Windmill Road**  
**@**  
**Akerley Boulevard**  
  
Dartmouth, Nova Scotia

AM - Wed. Oct. 28/09; Noon - Tue. Oct. 27/09; PM - Wed. Oct. 8/09



<p><b>Table B-26</b></p> <p><b>Trunk 7 / Bedford By-Pass</b></p> <p><b>@</b></p> <p><b>Dartmouth Road</b></p> <p>Bedford, Nova Scotia</p> <p>Wednesday, October 14, 2009</p>	
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Time	Trunk 7 Northbound Approach			Trunk 7 Southbound Approach		
	A - to Dartmouth Road	B - to Bedford Bypass WB	Total Northbound	C - from Dartmouth Road	D - from Bedford Bypass EB	Total Southbound
07:00-07:15	78	121	199	262	662	924
07:15-07:30	87	149	236	238	606	844
07:30-07:45	114	141	255	158	591	749
07:45-08:00	141	155	296	194	594	788
08:00-08:15	144	156	300	192	466	658
08:15-08:30	150	168	318	177	435	612
08:30-08:45	157	152	309	250	386	636
08:45-09:00	152	200	352	260	283	543
AM Peak Hour	420	566	986	852	2453	3305
15:30-15:45	239	523	762	157	188	345
15:45-16:00	238	506	744	160	178	338
16:00-16:15	246	476	722	192	207	399
16:15-16:30	259	607	866	183	148	331
16:30-16:45	263	575	838	188	172	360
16:45-17:00	287	533	820	185	150	335
17:00-17:15	252	532	784	149	187	336
17:15-17:30	198	362	560	128	170	298
PM Peak Hour	1061	2247	3308	705	657	1362

Two-Way Volumes on Magazine Hill			
Peak Hour	Northbound	Southbound	Two-Way
AM	986	3305	4291
PM	3308	1362	4670

Two-Way Volumes on Dartmouth Road			
Peak Hour	Westbound	Eastbound	Two-Way
AM	420	852	1272
PM	1061	705	1766

Two-Way Volumes on Bedford By-Pass			
Peak Hour	Westbound	Eastbound	Two-Way
AM	566	2453	3019
PM	2247	657	2904



<p><b>Table B-27</b></p> <p><b>Bedford Bypass</b></p> <p><b>@</b></p> <p><b>Highway 101</b></p> <p>Bedford, Nova Scotia</p> <p>Thursday, October 15, 2009</p>	
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Time	Bedford Bypass Westbound Approach			Bedford Bypass Eastbound Approach		
	A - to Highway 101	B - to Cobequid Road	Total Westbound	C - from Highway 101	D - from Sackville Drive	Total Eastbound
07:00-07:15	68	49	117	367	306	673
07:15-07:30	72	47	119	307	299	606
07:30-07:45	79	67	146	324	309	633
07:45-08:00	60	86	146	308	239	547
08:00-08:15	61	75	136	333	181	514
08:15-08:30	91	73	164	221	152	373
08:30-08:45	94	85	179	222	129	351
08:45-09:00	95	78	173	178	92	270
AM Peak Hour	279	249	528	1306	1153	2459
15:30-15:45	249	236	485	101	83	184
15:45-16:00	336	241	577	114	55	169
16:00-16:15	324	216	540	110	81	191
16:15-16:30	345	224	569	97	57	154
16:30-16:45	334	226	560	94	85	179
16:45-17:00	333	254	587	106	74	180
17:00-17:15	294	195	489	109	79	188
17:15-17:30	198	159	357	95	71	166
PM Peak Hour	1336	920	2256	407	297	704

Two-Way Volumes on Bedford By-pass			
Peak Hour	Westbound	Eastbound	Two-Way
AM	528	2459	2987
PM	2256	704	2960
Two-Way Volumes on Highway 101 Ramps			
Peak Hour	Westbound	Eastbound	Two-Way
AM	279	1306	1585
PM	1336	407	1743
Two-Way Volumes on Sackville Ramps			
Peak Hour	Westbound	Eastbound	Two-Way
AM	249	1153	1402
PM	920	297	1217

<p align="center"><b>Table B-28</b>  <b>Cobequid Road</b>  <b>@</b>  <b>Memory Lane / Legacy Court</b>    Lower Sackville, Nova Scotia</p> <p align="center">Thursday July 6, 2006 AM &amp; Wednesday July 5, 2006 PM</p>													
Time	Cobequid Road Northbound Approach			Memory Lane Westbound Approach			Cobequid Road Southbound Approach			Legacy Lane Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:30-07:45	11	56	0	21	0	37	1	171	18	6	0	1	322
07:45-08:00	2	65	0	20	1	38	2	141	7	6	0	4	286
08:00-08:15	5	58	1	38	3	34	1	153	7	2	0	4	306
08:15-08:30	3	64	2	37	3	32	3	148	4	1	0	4	301
AM Peak Hour	21	243	3	116	7	141	7	613	36	15	0	13	1215
16:30-16:45	7	109	0	92	2	100	1	144	8	10	0	11	484
16:45-17:00	8	82	1	87	3	105	1	115	5	25	1	7	440
17:00-17:15	7	90	0	93	11	119	1	128	6	15	0	11	481
17:15-17:30	7	94	1	102	12	127	1	112	11	17	0	10	494
PM Peak Hour	29	375	2	374	28	451	4	499	30	67	1	39	1899

Source: HRM Traffic & Right of Way Services

<p style="text-align: center;"><b>Table B-29</b> <b>Sackville Drive @ Cobequid Road</b> Lower Sackville, Nova Scotia</p> <p style="text-align: center;">Wednesday May 27, 2009 AM &amp; Tuesday May 26, 2009 PM</p>													
Time	Old Sackville Road Northbound Approach			Sackville Drive Westbound Approach			Cobequid Road Southbound Approach			Sackville Drive Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:30-07:45	3	32	55	5	46	31	183	13	42	37	197	0	644
07:45-08:00	0	24	45	7	56	28	167	17	66	35	112	0	557
08:00-08:15	1	26	45	2	47	40	159	6	49	40	138	0	553
08:15-08:30	0	20	22	3	75	43	124	9	44	38	124	0	502
AM Peak Hour	4	102	167	17	224	142	633	45	201	150	571	0	2256
16:30-16:45	1	16	17	29	143	49	111	27	113	48	117	1	672
16:45-17:00	1	31	19	26	114	47	99	28	112	44	83	0	604
17:00-17:15	0	23	11	35	92	58	82	32	94	44	92	1	564
17:15-17:30	5	14	24	28	103	49	111	35	125	41	77	0	612
PM Peak Hour	7	84	71	118	452	203	403	122	444	177	369	2	2452

Source: HRM Traffic & Right of Way Services

<p align="center"><b>Table B-30</b>  <b>Bedford Highway</b>  <b>@</b>  <b>Dartmouth Road</b>                        Bedford, Nova Scotia</p> <p align="center">Friday November 28, 2008 AM &amp; Monday November 17, 2008 PM</p>													
Time	Bedford Highway Northbound Approach			Dartmouth Road Westbound Approach			Bedford Highway Southbound Approach			Mall Driveway Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:30-07:45	4	72	125	75	9	64	84	78	3	0	1	0	515
07:45-08:00	7	83	158	94	11	58	88	84	6	2	4	0	595
08:00-08:15	3	86	143	96	13	72	106	86	4	4	1	0	614
08:15-08:30	5	64	108	64	8	75	99	72	2	1	0	3	501
AM Peak Hour	19	305	534	329	41	269	377	320	15	7	6	3	2225
16:30-16:45	7	142	72	104	8	132	95	101	2	15	8	2	688
16:45-17:00	4	148	68	94	14	115	106	115	3	8	11	0	686
17:00-17:15	3	132	82	99	16	121	84	135	1	19	13	3	708
17:15-17:30	5	129	79	103	9	105	93	109	0	11	9	0	652
PM Peak Hour	19	551	301	400	47	473	378	460	6	53	41	5	2734

Source: HRM Traffic & Right of Way Services

<p align="center"><b>Table B-31</b>  <b>Bedford Highway</b>  <b>@</b>  <b>Hammonds Plains Road</b>                        Bedford, Nova Scotia</p> <p align="center">Friday, May 29, 2009 AM; Thursday, May 28, 2009 PM</p>													
Time	Bedford Highway Northbound Approach			Mall Driveway Westbound Approach			Bedford Highway Southbound Approach			Hammonds Plains Road Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
07:45-08:00	76	101	1	19	7	3	14	84	50	85	16	80	536
08:00-08:15	110	137	2	4	14	8	10	101	46	86	17	78	613
08:15-08:30	104	133	1	13	8	9	18	80	73	103	17	63	622
08:30-08:45	88	134	1	12	14	19	10	65	70	95	24	57	589
AM Peak Hour	378	505	5	48	43	39	52	330	239	369	74	278	2360
16:30-16:45	83	112	1	59	67	23	24	132	67	73	63	71	775
16:45-17:00	95	130	0	66	63	20	28	139	61	95	72	66	835
17:00-17:15	104	113	2	67	61	17	26	145	51	52	29	63	730
17:15-17:30	85	101	1	67	62	27	28	160	33	60	48	63	735
PM Peak Hour	367	456	4	259	253	87	106	576	212	280	212	263	3075

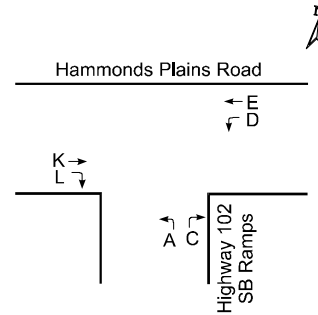
Source: HRM Traffic & Right of Way Services

<p align="center"><b>Table B-32</b></p> <p align="center"><b>Hammonds Plains Road</b></p> <p align="center"><b>@</b></p> <p align="center"><b>Highway 102, NB Ramps</b></p> <p align="center"><b>Bedford, Nova Scotia</b></p> <p align="center">Friday, November 27, 2009</p>							
Time	Highway 102, NB Ramp Northbound Approach	Hammonds Plains Road Westbound Approach		Highway 102, NB Ramps Southbound Approach	Hammonds Plains Road Eastbound Approach		Total Vehicles
	C	E	F	I	J	K	
07:00-07:15	15	95	50	9	79	94	342
07:15-07:30	24	120	39	6	81	124	394
07:30-07:45	27	136	69	11	92	140	475
07:45-08:00	30	164	76	24	95	155	544
08:00-08:15	55	165	78	9	111	161	579
08:15-08:30	43	116	60	13	74	131	437
08:30-08:45	49	127	65	16	91	142	490
08:45-08:00	42	111	66	17	131	116	483
<b>AM Peak Hour</b>	<b>177</b>	<b>572</b>	<b>279</b>	<b>62</b>	<b>371</b>	<b>589</b>	<b>2050</b>
15:30-15:45	83	159	64	8	78	130	522
15:45-16:00	99	141	57	10	92	135	534
16:00-16:15	79	149	97	6	88	131	550
16:15-16:30	85	109	64	5	95	165	523
16:30-16:45	84	152	82	14	96	147	575
16:45-17:00	82	125	69	10	82	147	515
17:00-17:15	103	165	80	11	87	157	603
17:15-17:30	112	128	57	7	75	141	520
<b>PM Peak Hour</b>	<b>354</b>	<b>551</b>	<b>295</b>	<b>40</b>	<b>360</b>	<b>616</b>	<b>2216</b>

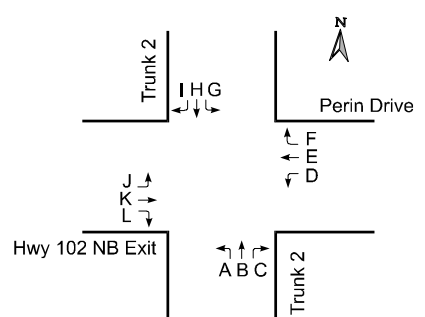
Time		Highway 102, SB Ramps Northbound Approach		Hammonds Plains Road Westbound Approach		Hammonds Plains Road Eastbound Approach		Total Vehicles
		A	C	D	E	K	L	
07:00-07:15		36	31	57	44	139	8	315
07:15-07:30		51	26	58	63	179	14	391
07:30-07:45		66	35	80	57	168	22	428
07:45-08:00		59	57	105	96	172	28	517
08:00-08:15		78	60	72	90	168	40	508
08:15-08:30		60	50	92	76	159	49	486
08:30-08:45		43	57	100	83	149	59	491
08:45-08:00		53	33	79	61	202	63	491
AM Peak Hour		240	224	369	345	648	176	2002
15:30-15:45		95	56	57	105	132	2	447
15:45-16:00		90	73	66	120	152	34	535
16:00-16:15		91	52	44	113	173	52	525
16:15-16:30		105	72	48	99	169	62	555
16:30-16:45		80	55	44	84	153	78	494
16:45-17:00		108	81	58	92	144	99	582
17:00-17:15		71	82	48	106	179	119	605
17:15-17:30		87	76	52	92	124	142	573
PM Peak Hour		364	290	198	381	645	358	2236

**Table B-33**  
**Hammonds Plains Road**  
**@**  
**Highway 102, SB Ramps**  
  
Bedford, Nova Scotia

Friday, November 27, 2009

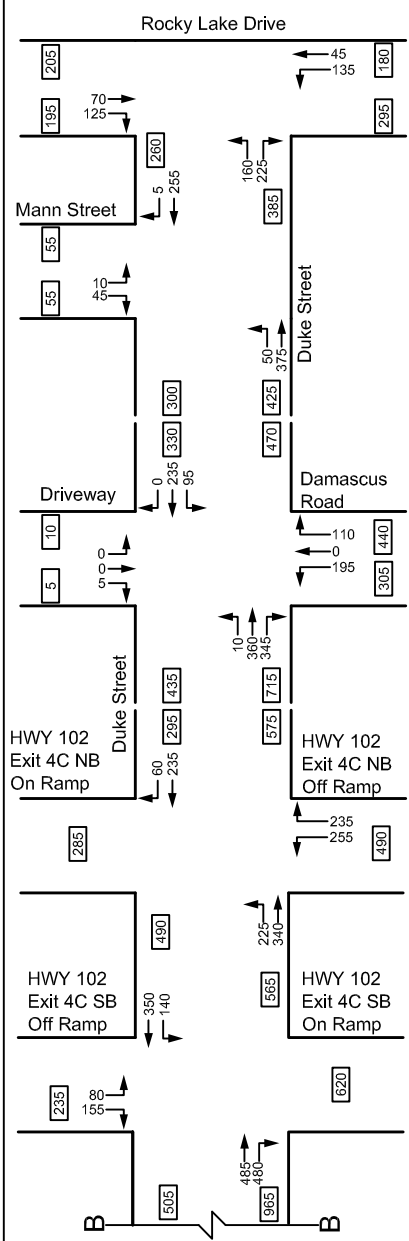
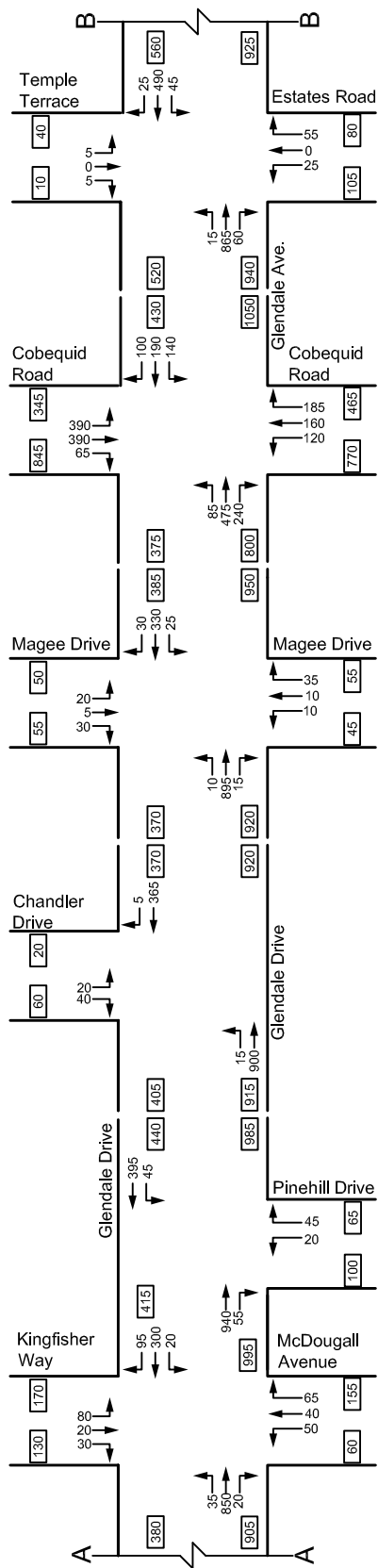
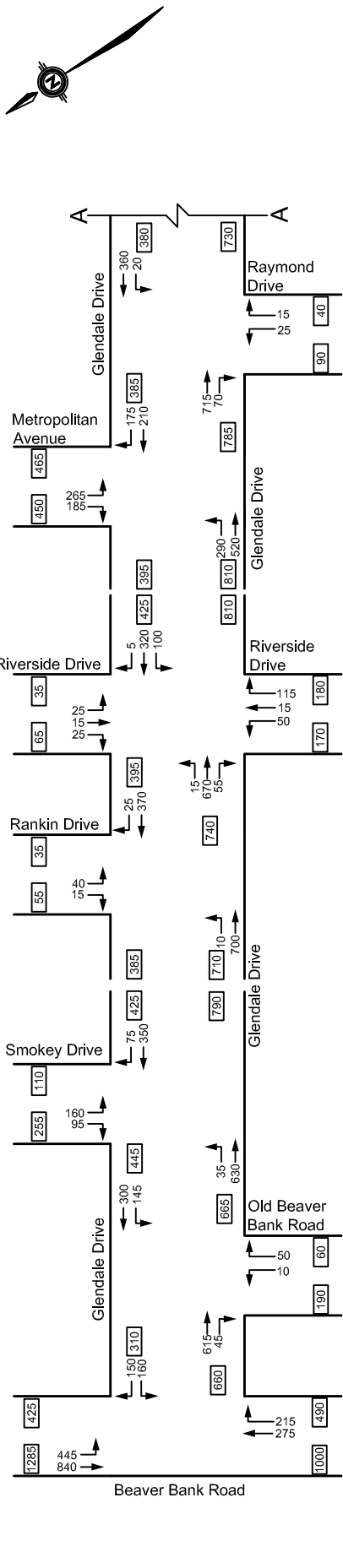


<p style="text-align: center;"><b>Table B-34</b></p> <p style="text-align: center;"><b>Trunk 2</b></p> <p style="text-align: center;"><b>@</b></p> <p style="text-align: center;"><b>Hwy 102 NB Ramps / Perrin Drive</b></p> <p style="text-align: center;">Waverley, Nova Scotia</p> <p style="text-align: center;">2008 Peak Hour Volumes</p>													
Time	Trunk 2 Northbound Approach			Perrin Drive Westbound Approach			Trunk 2 Southbound Approach			Hwy 102 NB Ramps Eastbound Approach			Total Vehicles
	A	B	C	D	E	F	G	H	I	J	K	L	
AM Peak Hour	27	92	154	29	6	216	704	75	30	138	468	9	1948
PM Peak Hour	20	192	43	70	10	915	183	129	30	339	88	13	2032





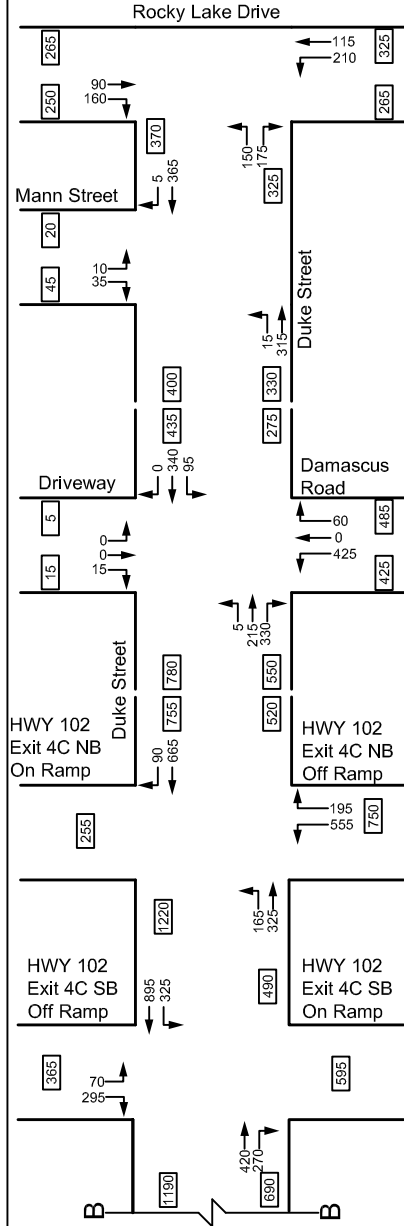
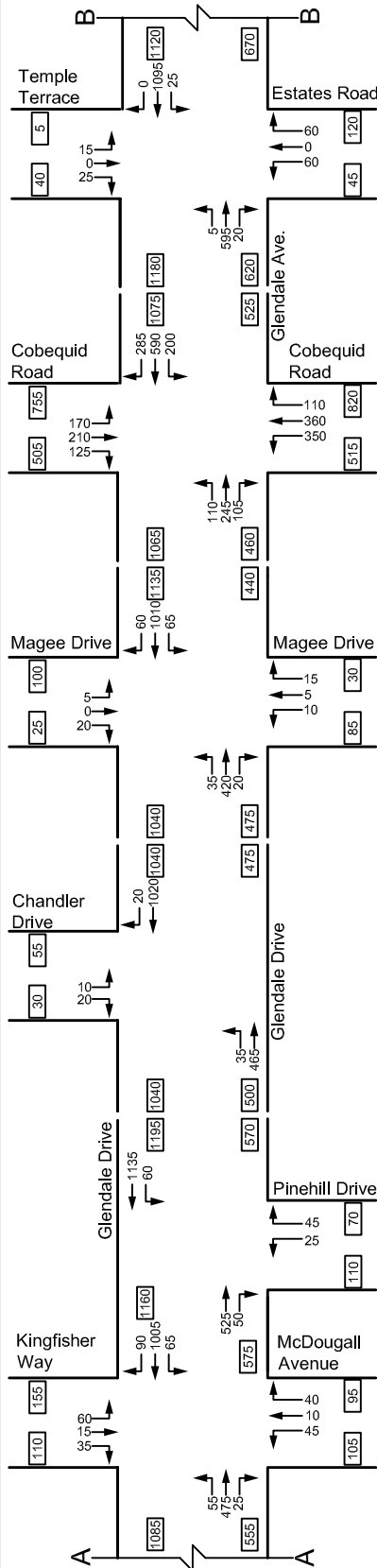
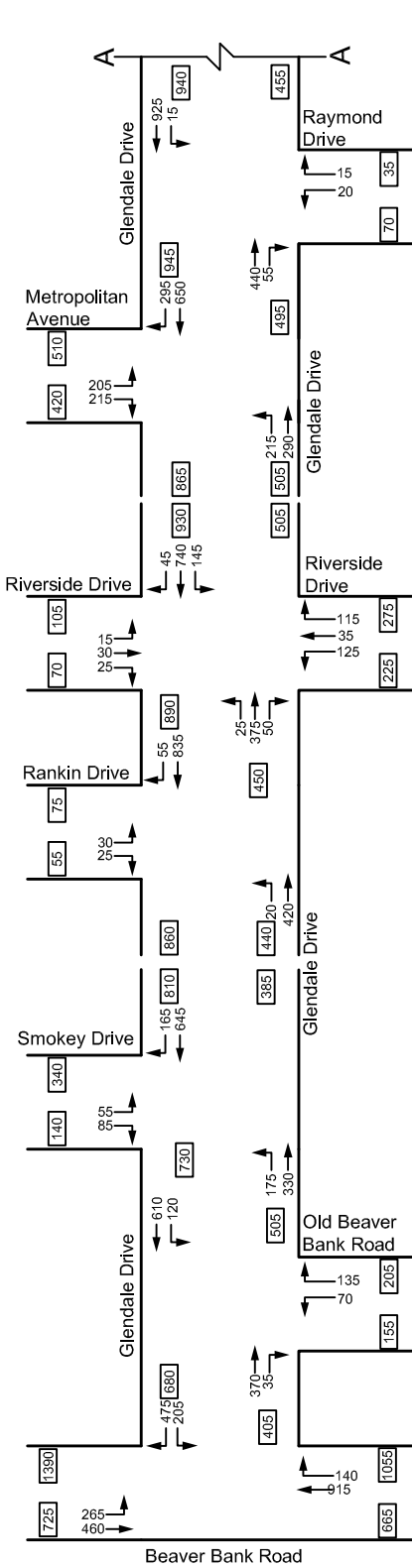
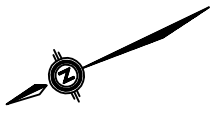
***Appendix C***  
***Traffic Volume Figures***



NOT TO SCALE

Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2010 AM Peak Hour Volumes without  
 Highway 107 Extension





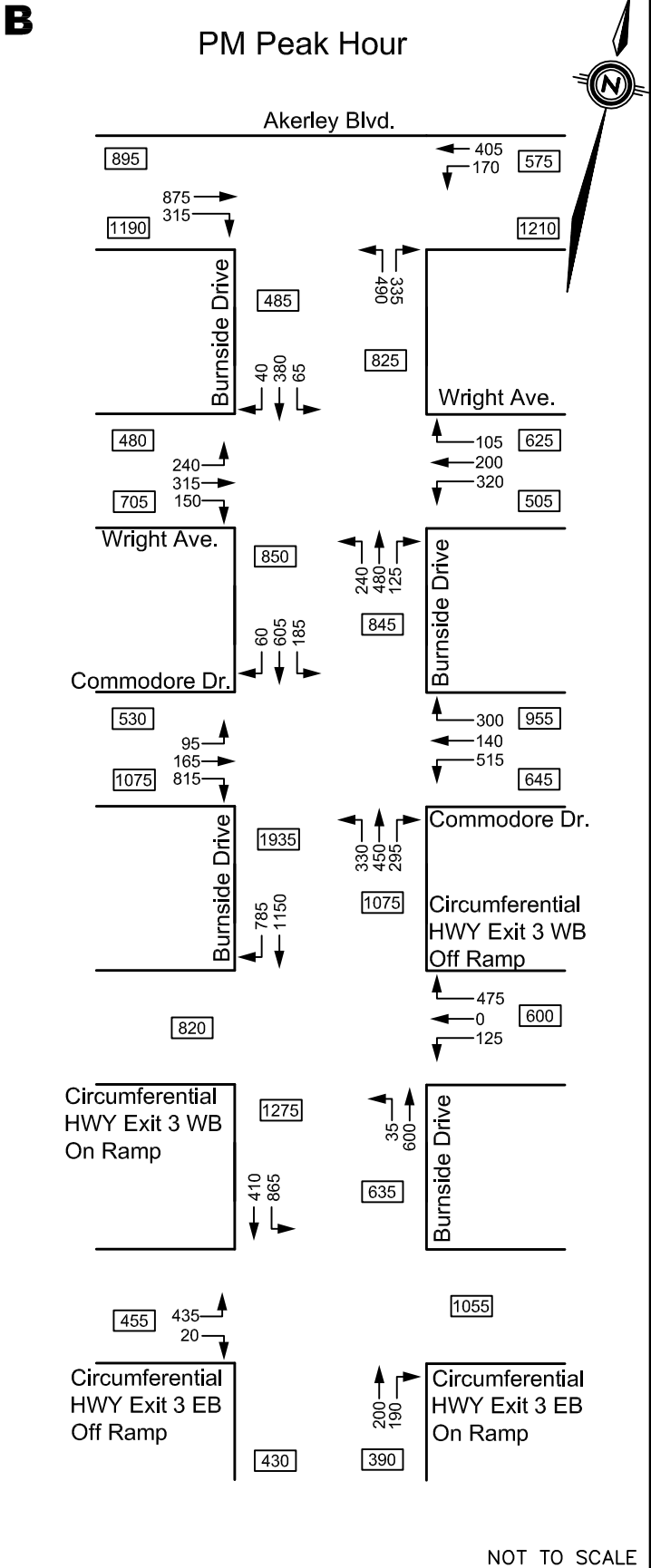
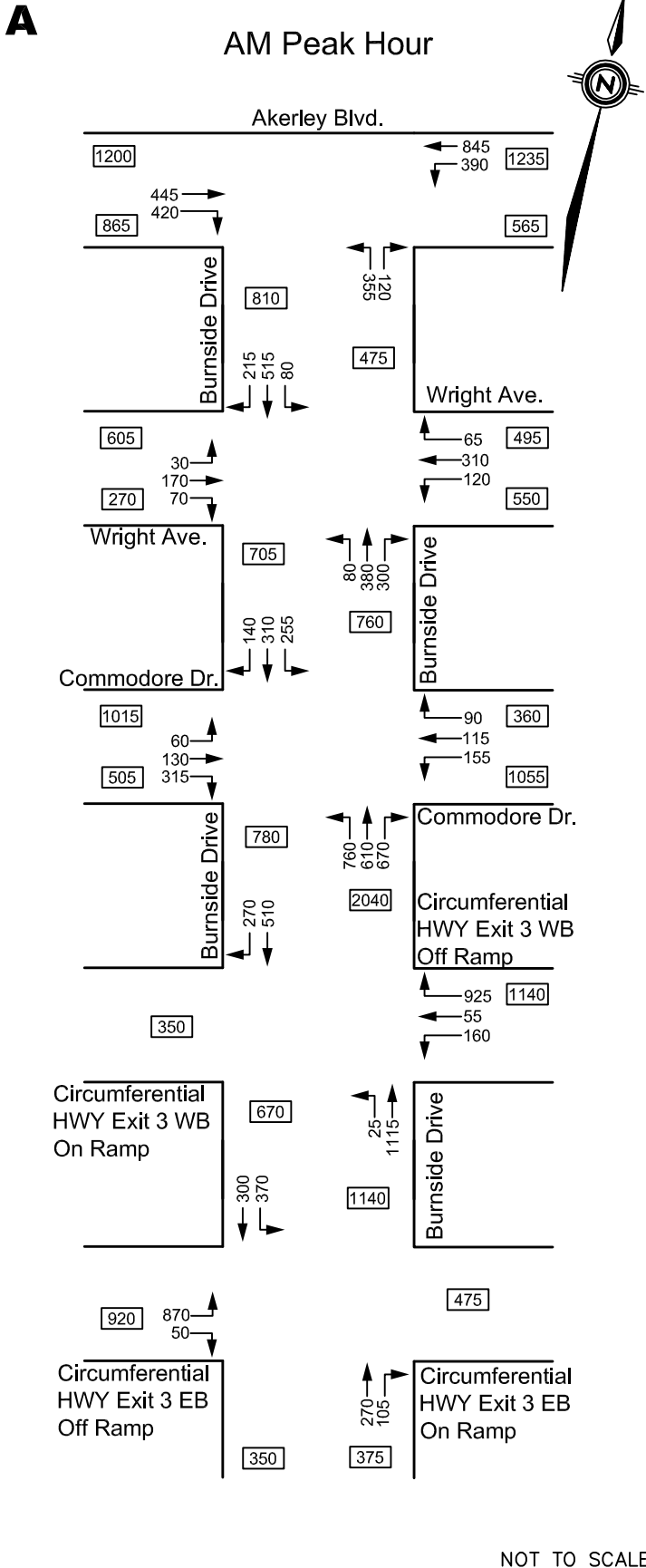
**B**

Figure C-1B

Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2010 PM Peak Hour Volumes without  
Highway 107 Extension



August 2010



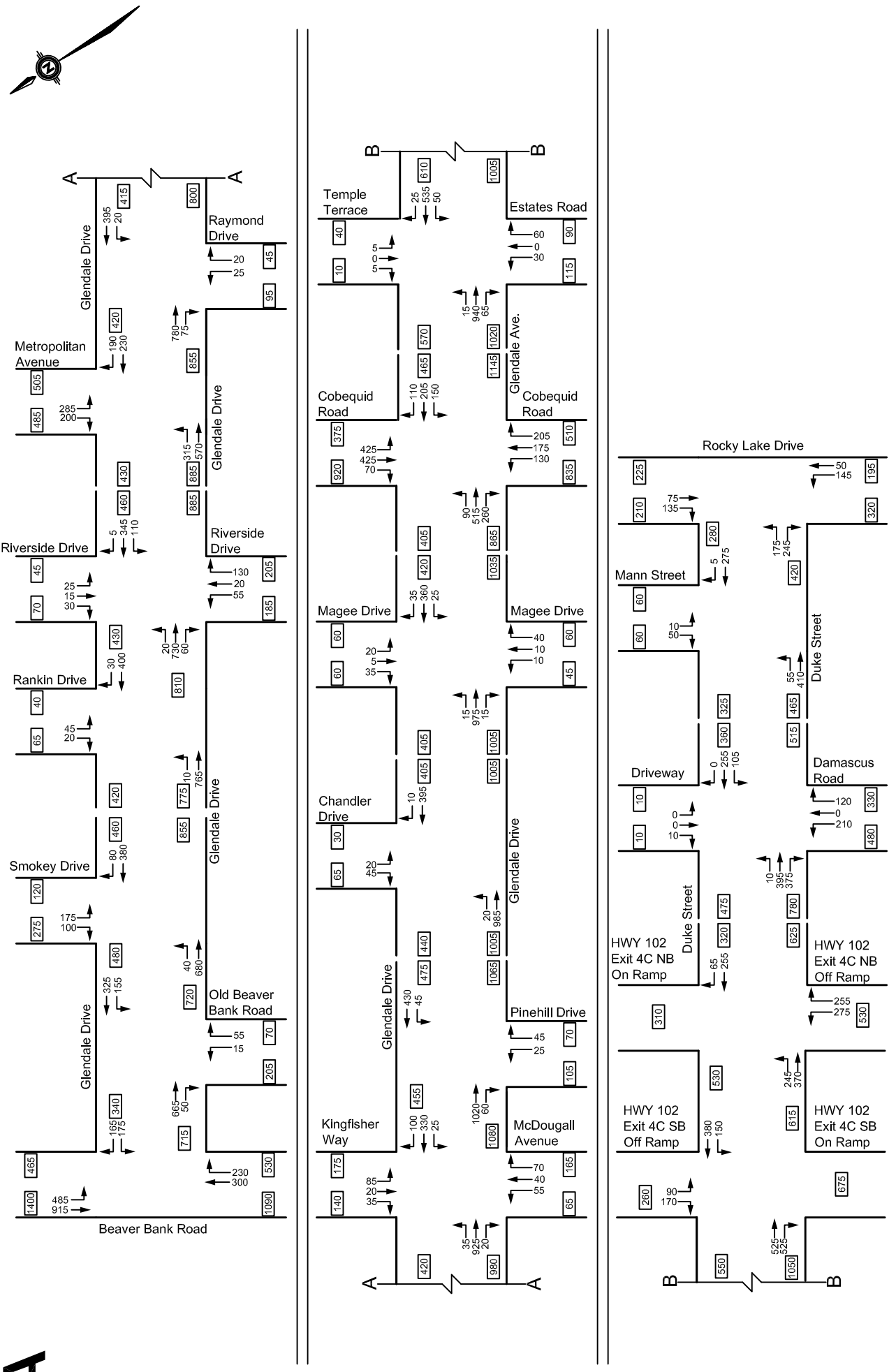
NOT TO SCALE

NOT TO SCALE



Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2010 Peak Hour Volumes without  
 Highway 107 Extension - Burnside Drive Corridor

Figure C-2  
 August 2010



NOT TO SCALE

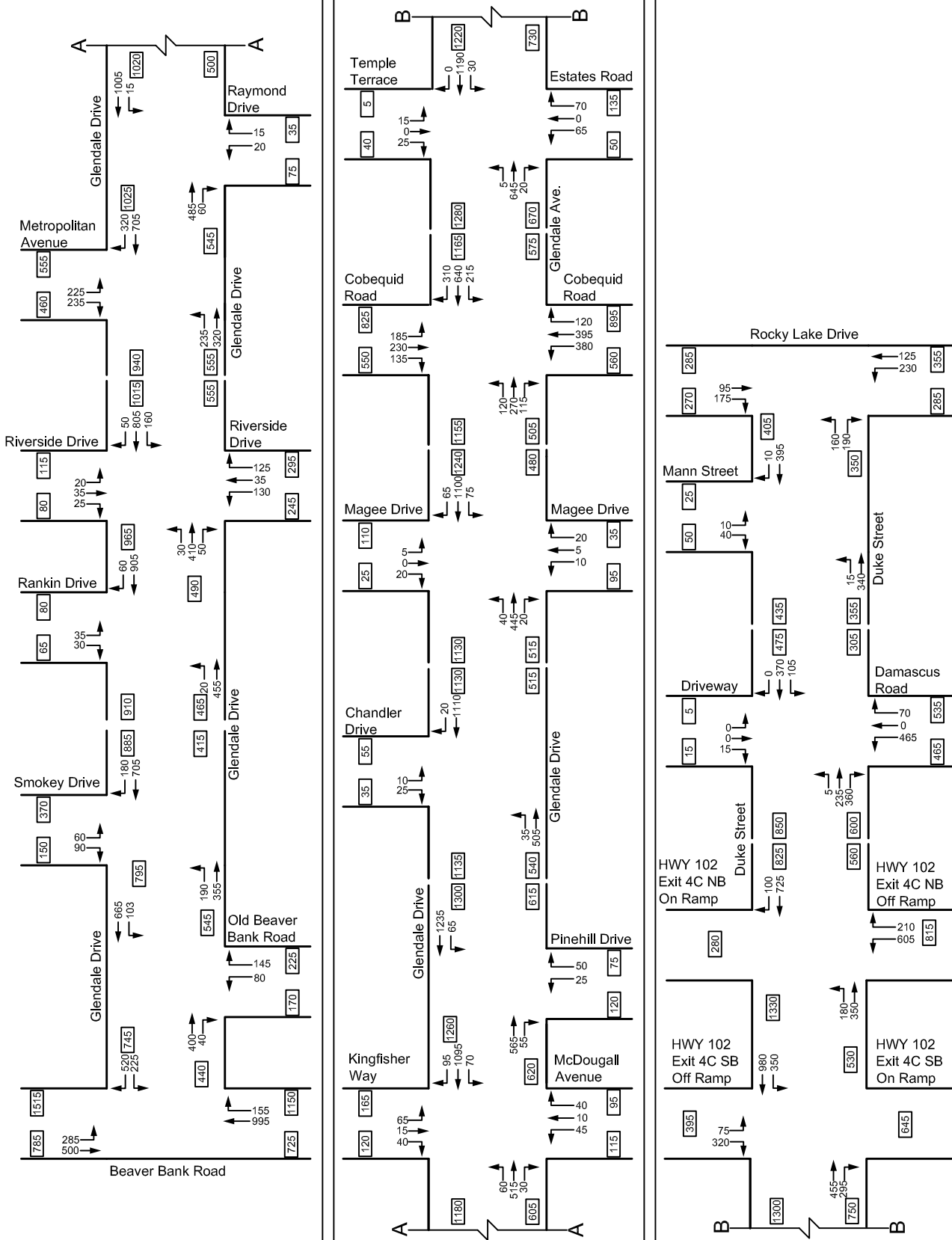
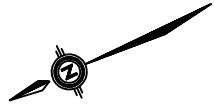
Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2016 AM Peak Hour Volumes without  
Highway 107 Extension



Figure C-3A

August 2010

A



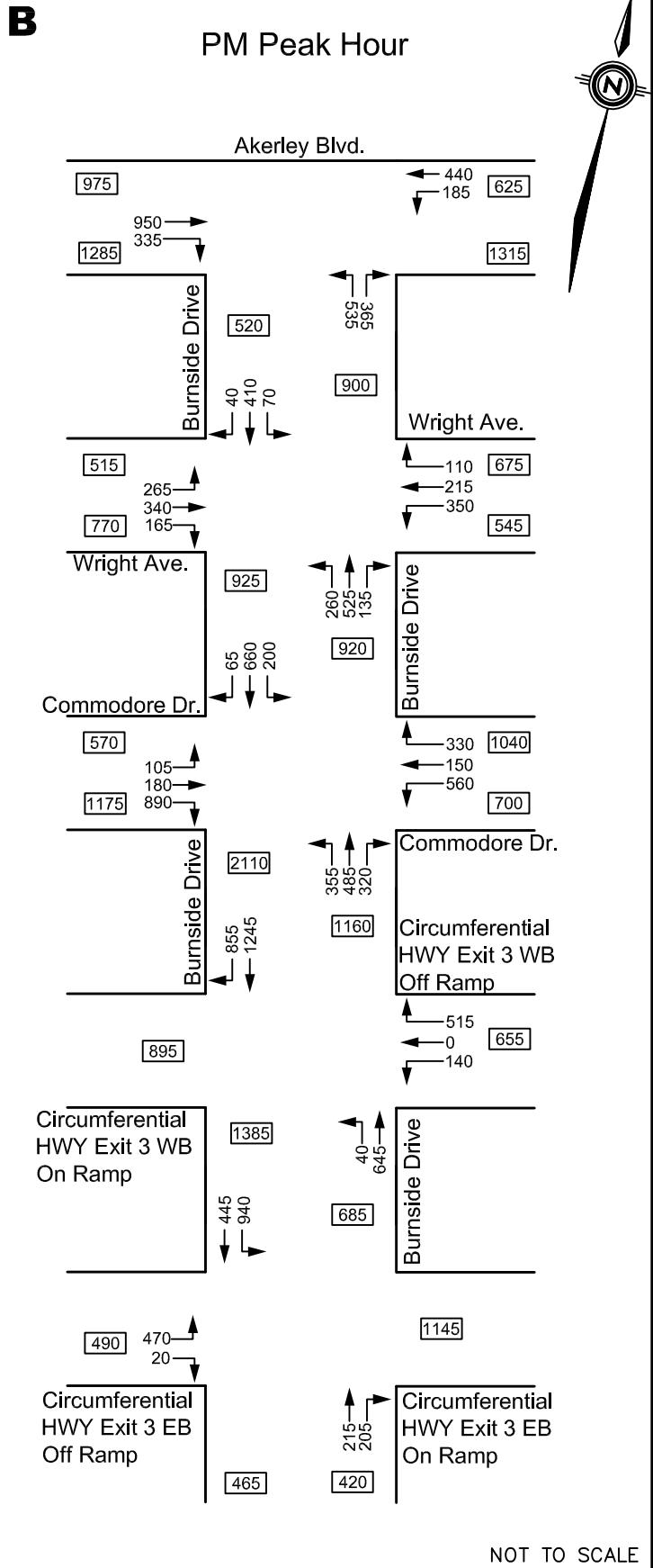
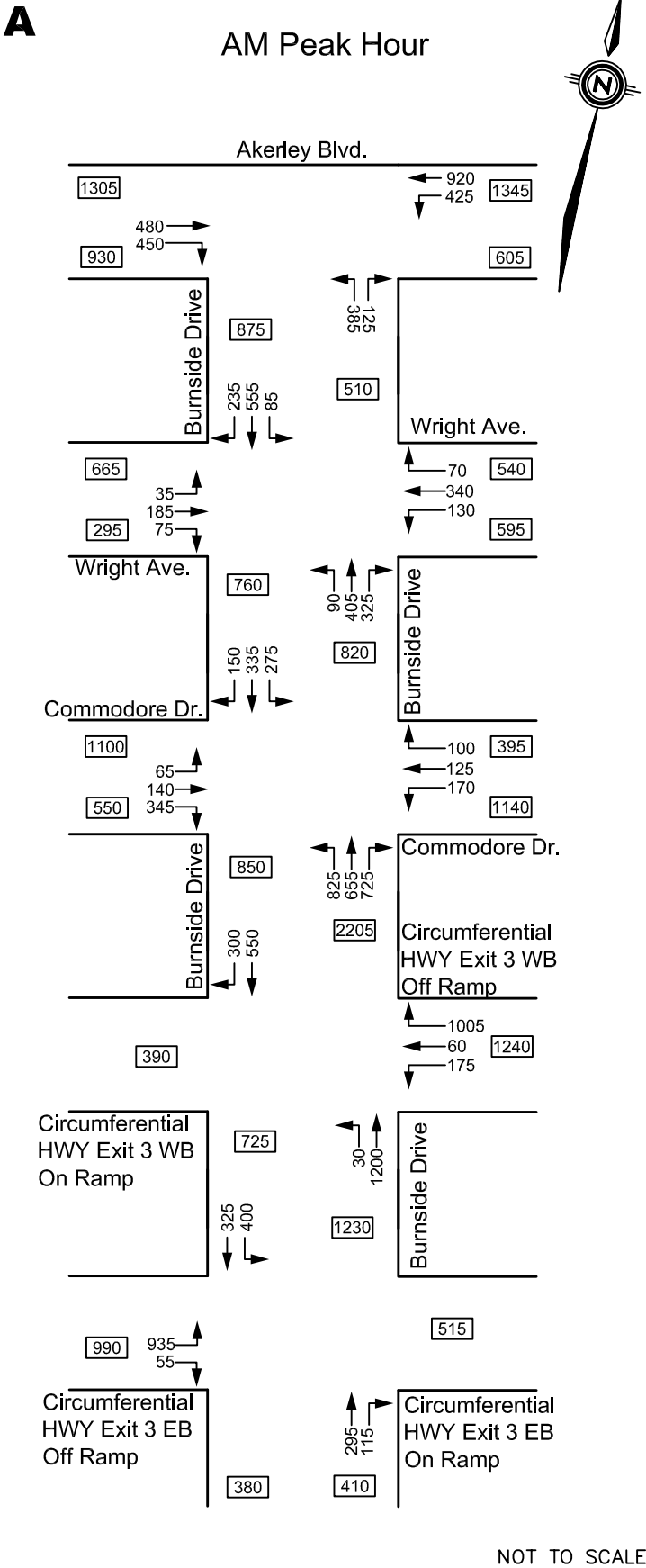
Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2016 PM Peak Hour Volumes without  
Highway 107 Extension



Figure C-3B

August 2010

B



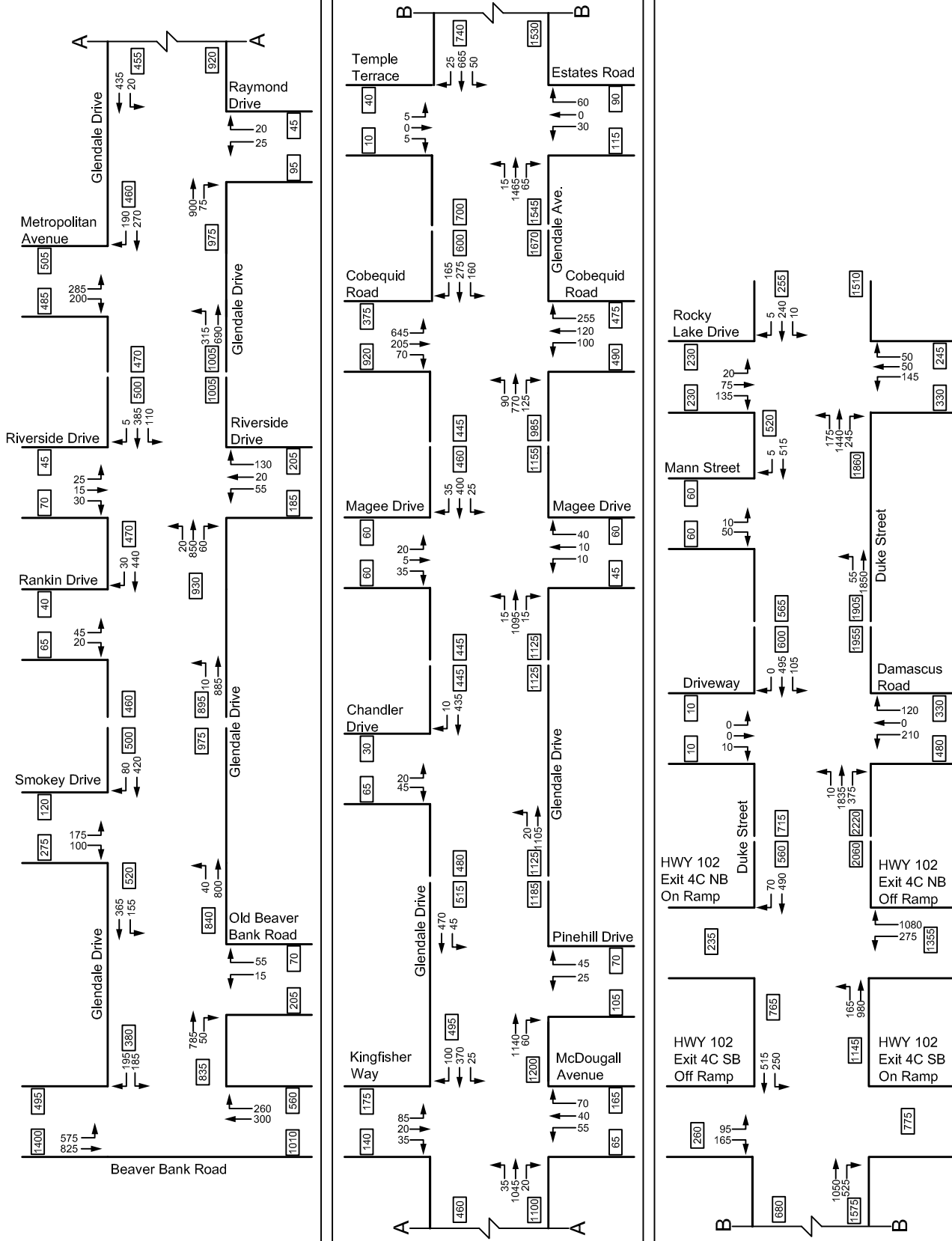
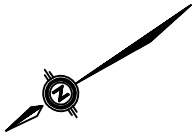
NOT TO SCALE

NOT TO SCALE



Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2016 Peak Hour Volumes without  
Highway 107 Extension - Burnside Drive Corridor

Figure C-4  
August 2010



NOT TO SCALE

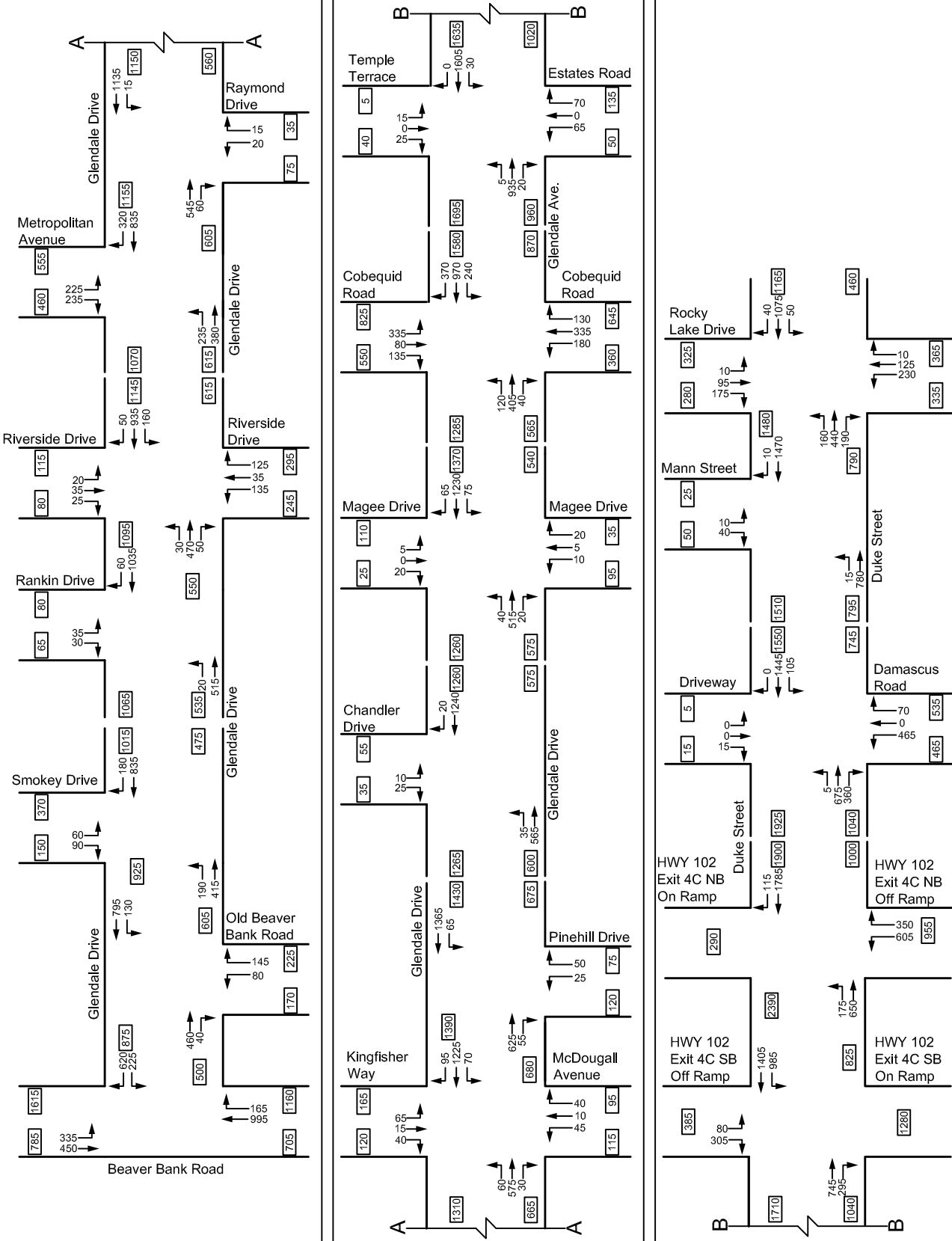
Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2016 AM Peak Hour Volumes with  
 Highway 107 Extension



Figure C-5A

August 2010



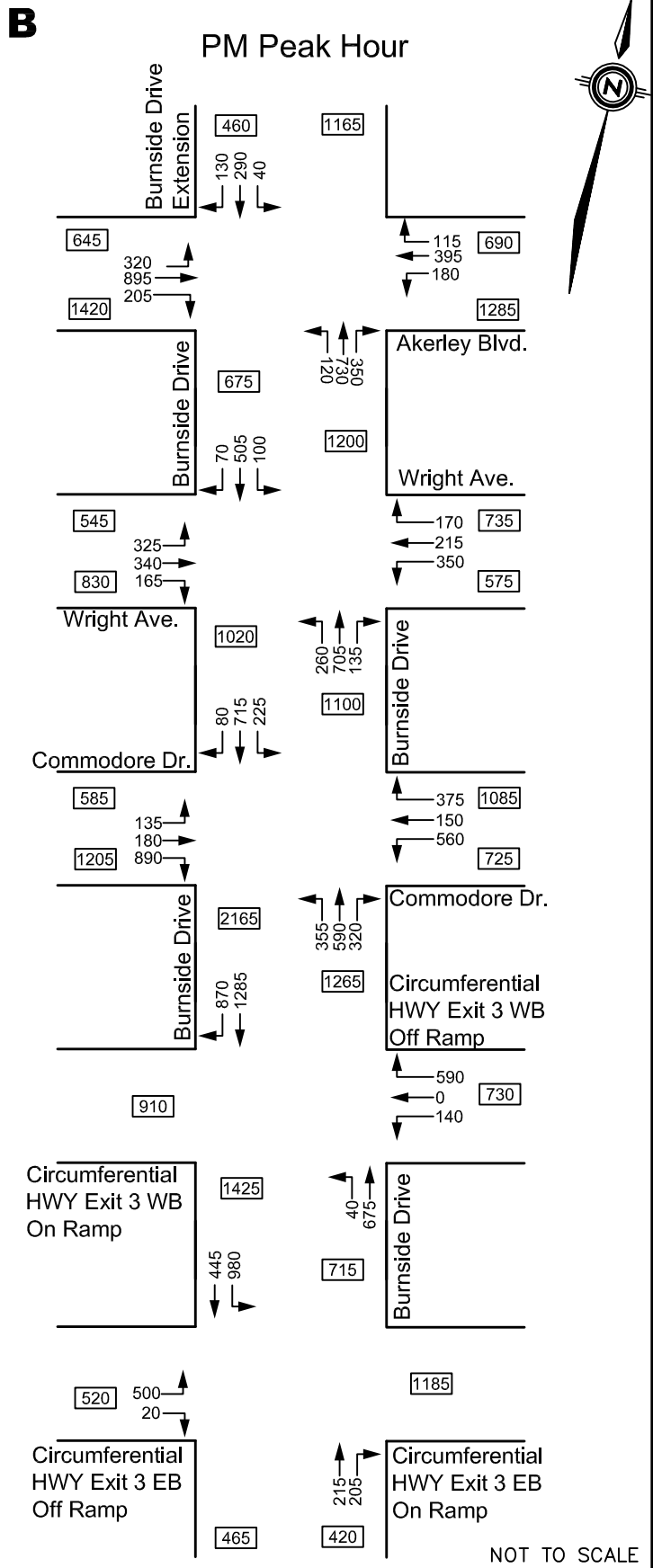
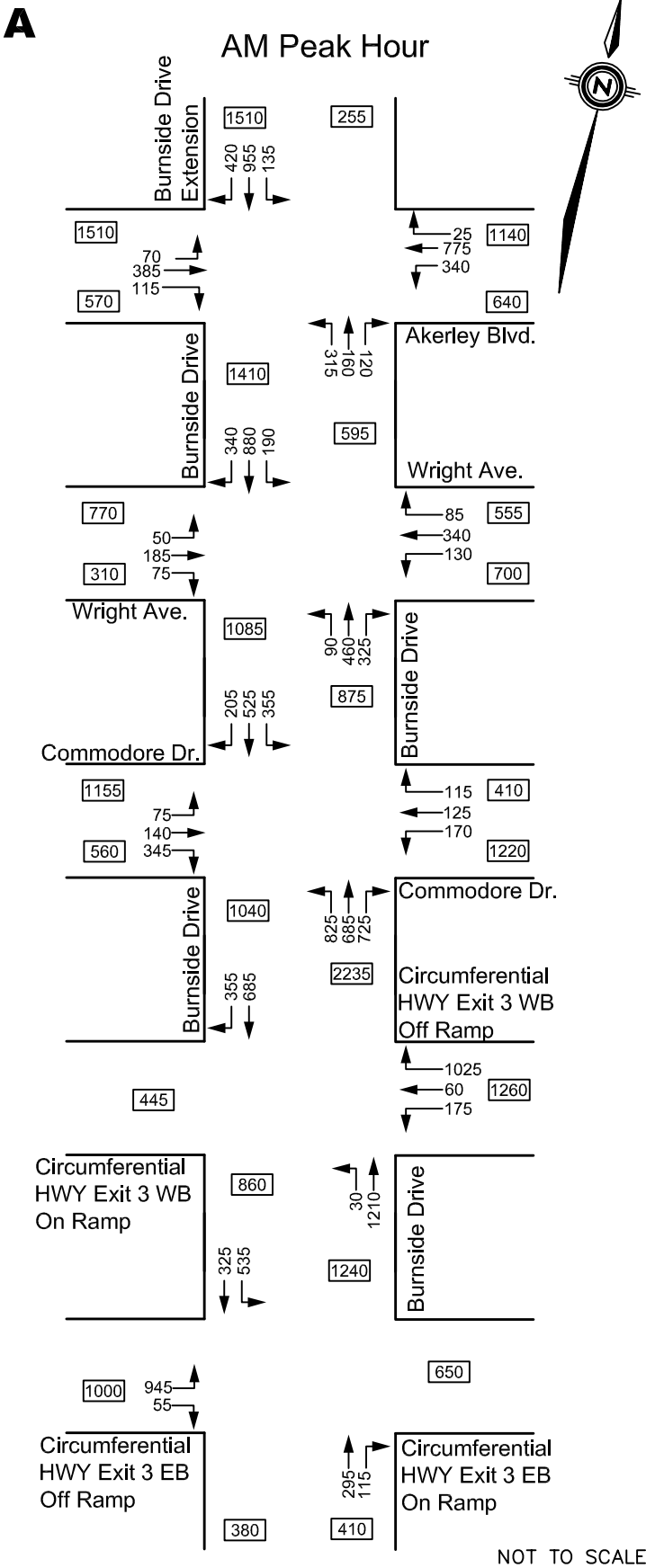


**B**

Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2016 PM Peak Hour Volumes with  
Highway 107 Extension

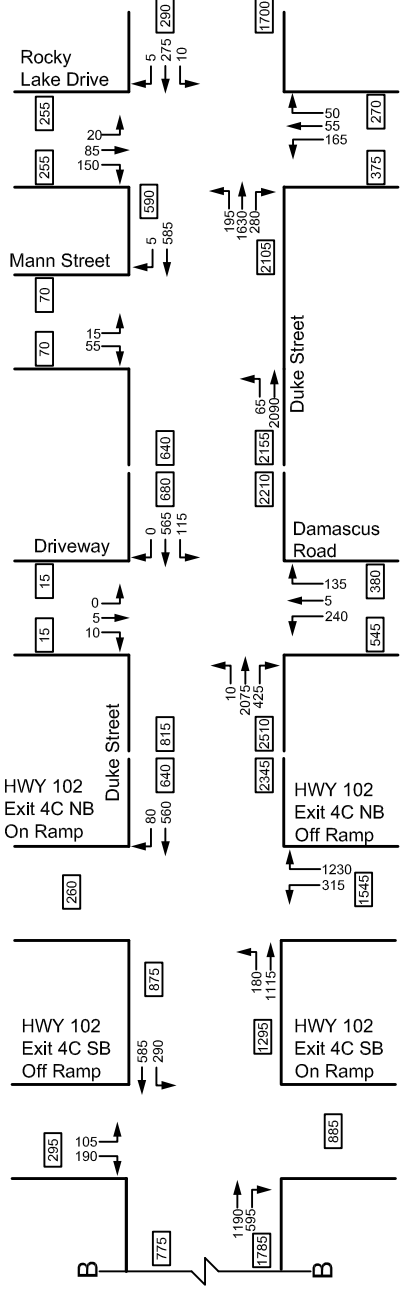
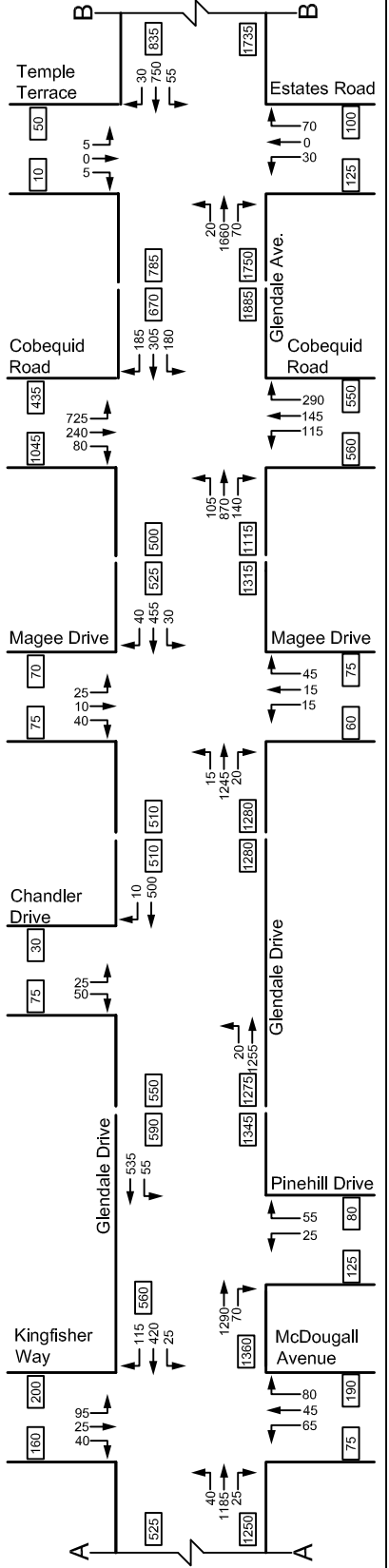
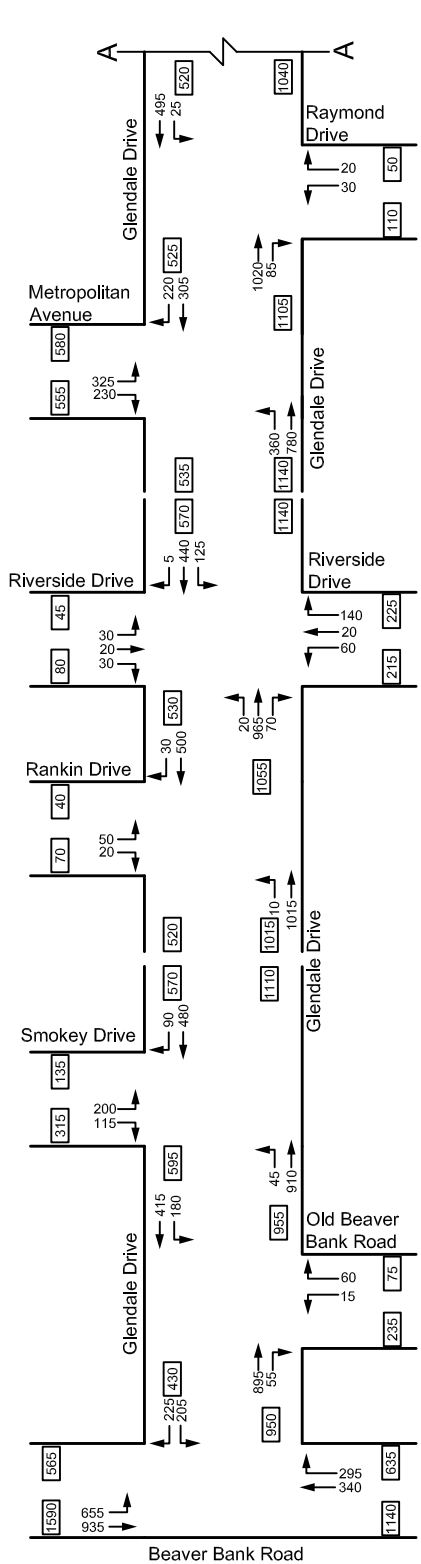
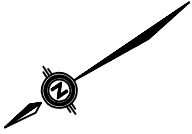


Figure C-5B  
August 2010



Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2016 Peak Hour Volumes with  
 Highway 107 Extension - Burnside Drive Corridor

Figure C-6  
 August 2010



NOT TO SCALE

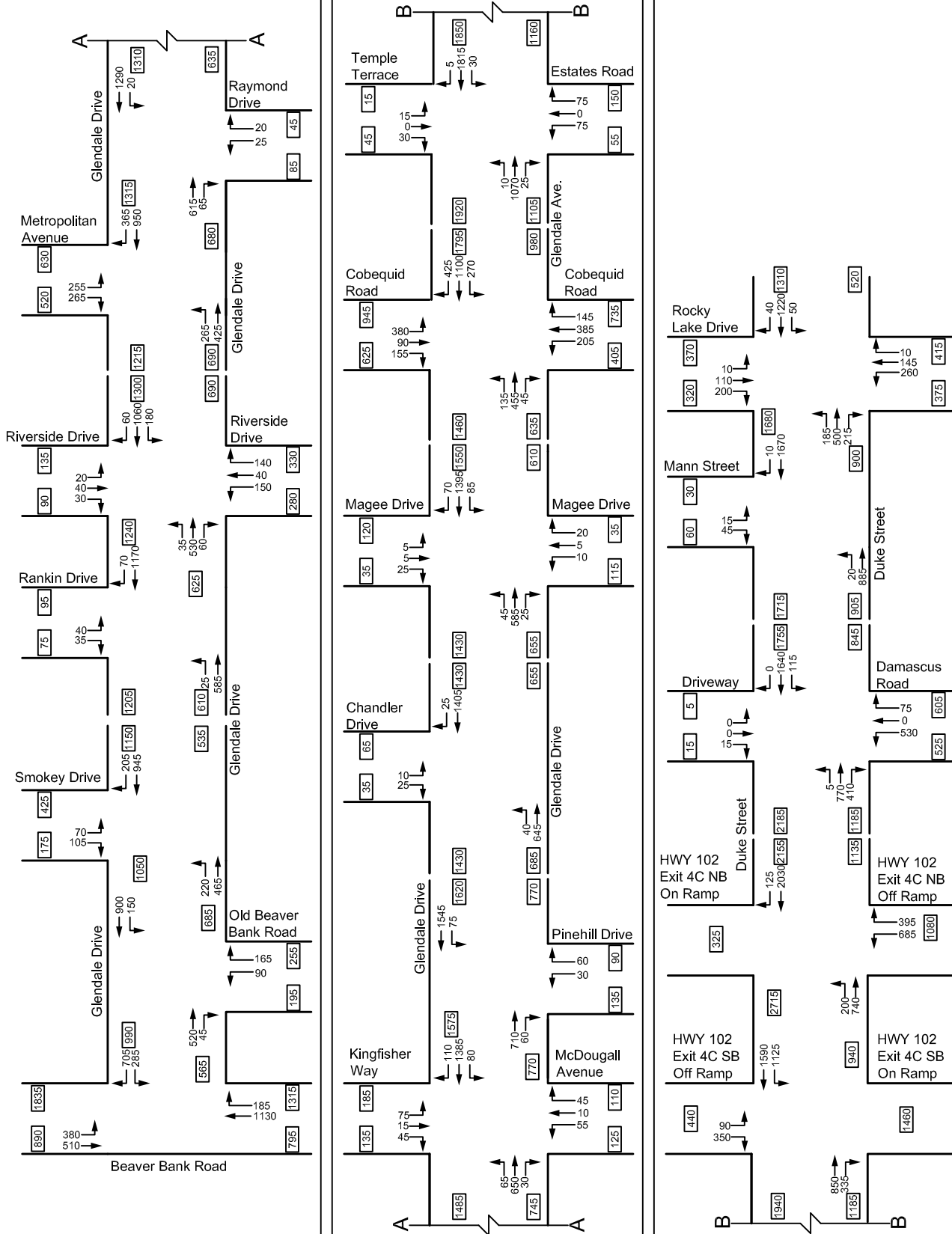
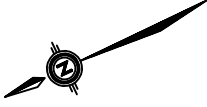
Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2026 AM Peak Hour Volumes with  
 Highway 107 Extension



Figure C-7A

August 2010

A



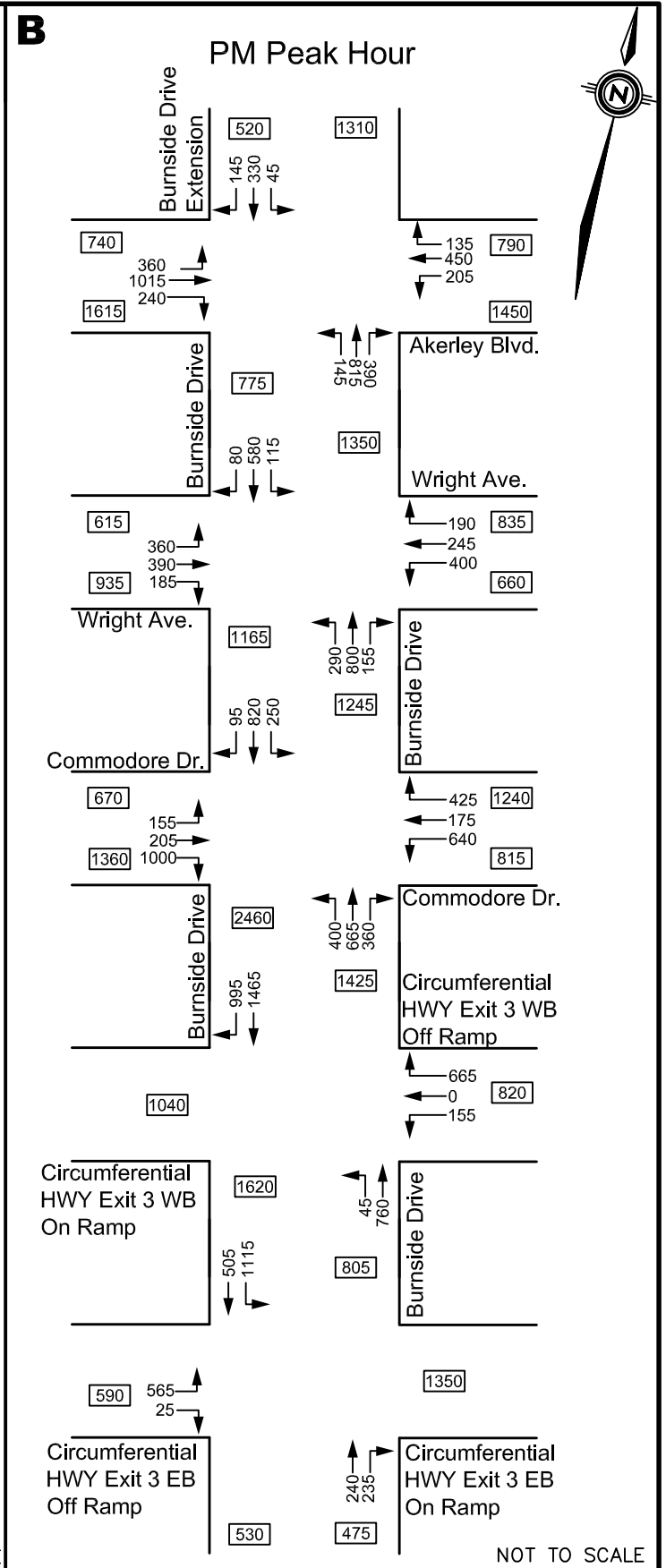
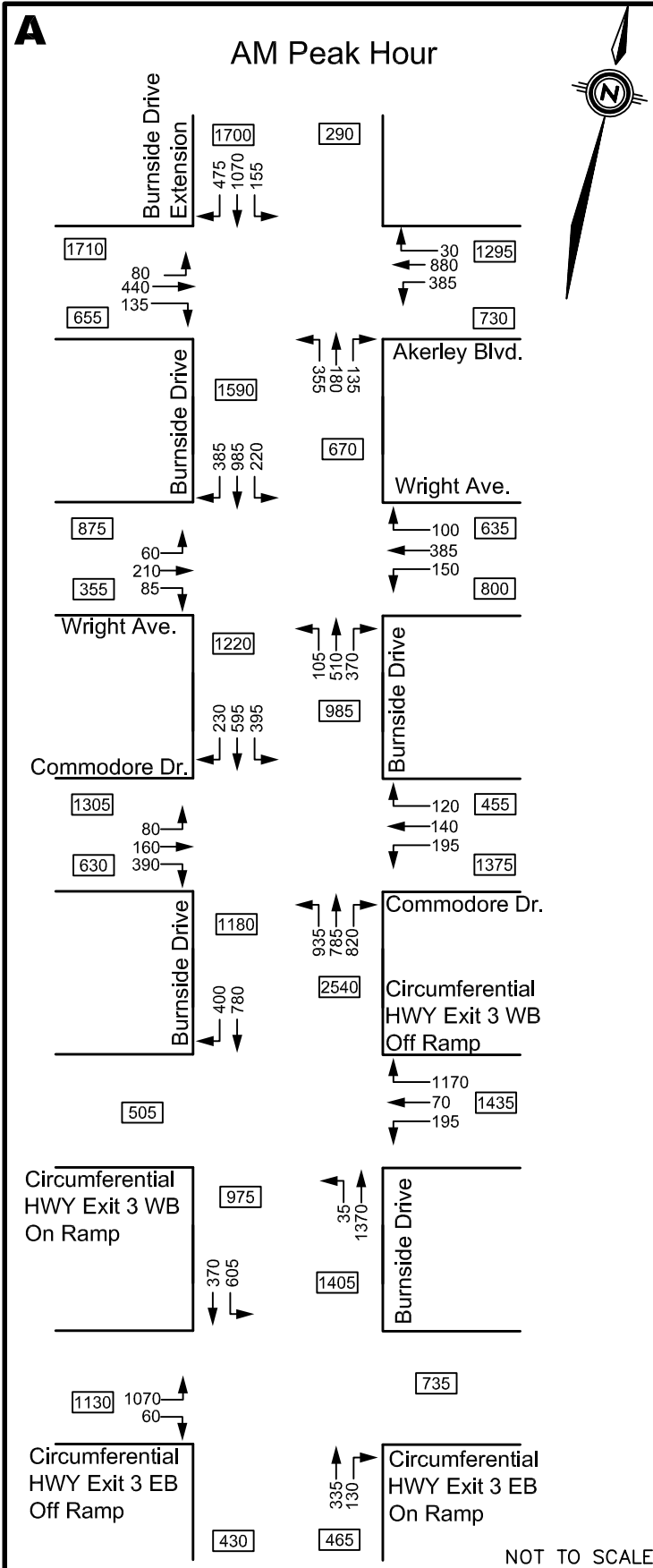
B

Figure C-7B

Traffic Study for Highway 107  
Phase 1 - Burnside to Sackville  
2026 PM Peak Hour Volumes with  
Highway 107 Extension



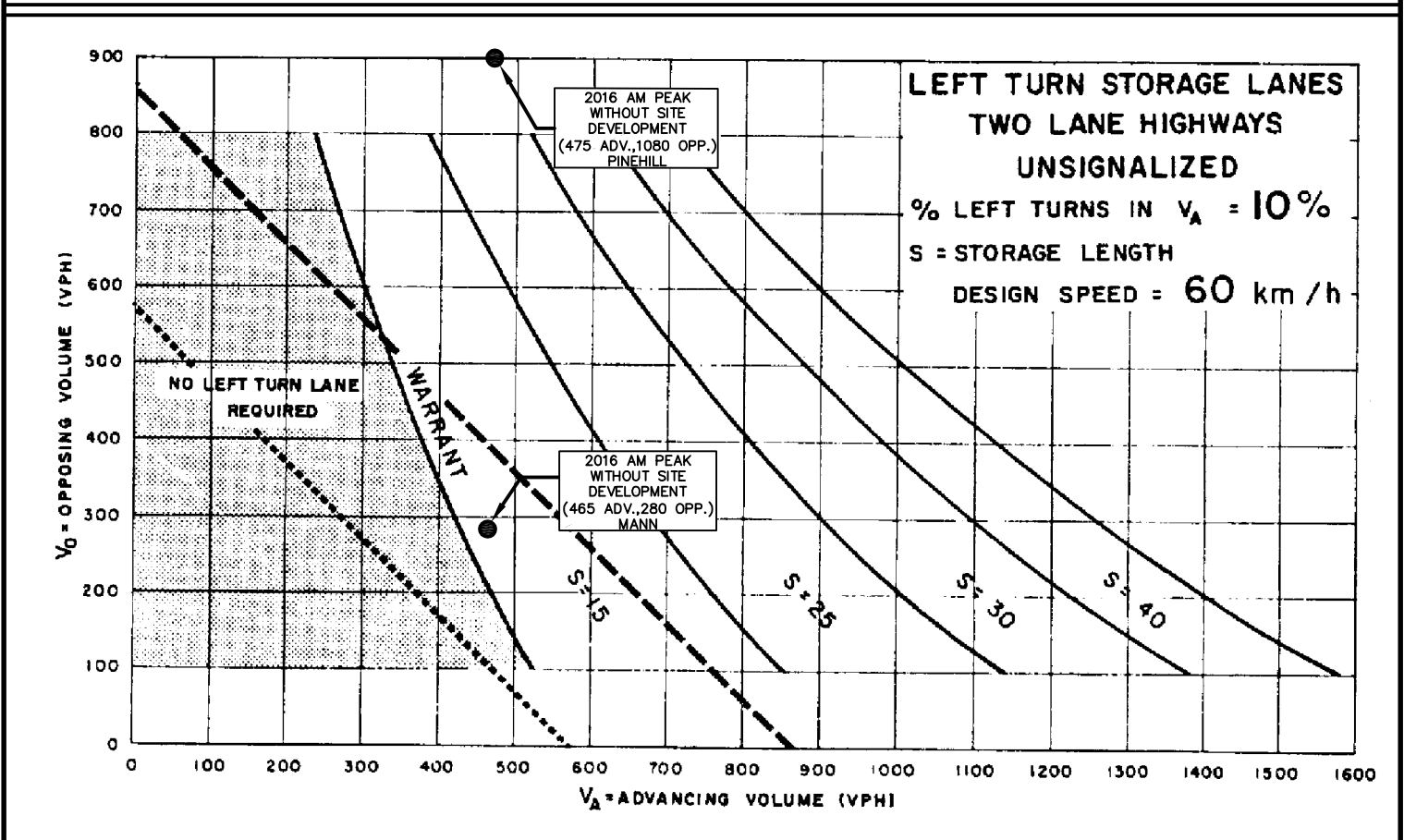
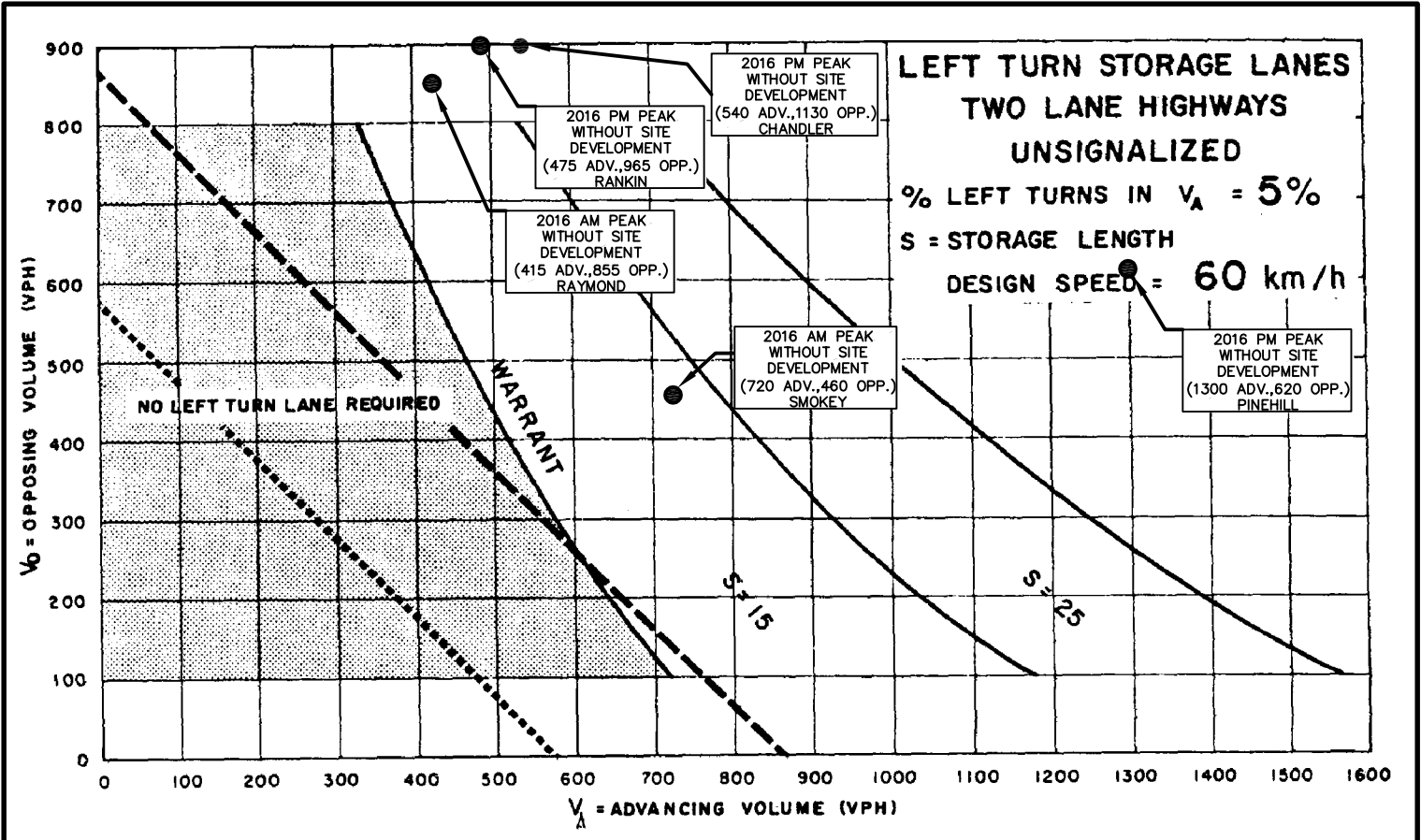
August 2010



Traffic Study for Highway 107  
 Phase 1 - Burnside to Sackville  
 2026 Peak Hour Volumes with  
 Highway 107 Extension - Burnside Drive Corridor

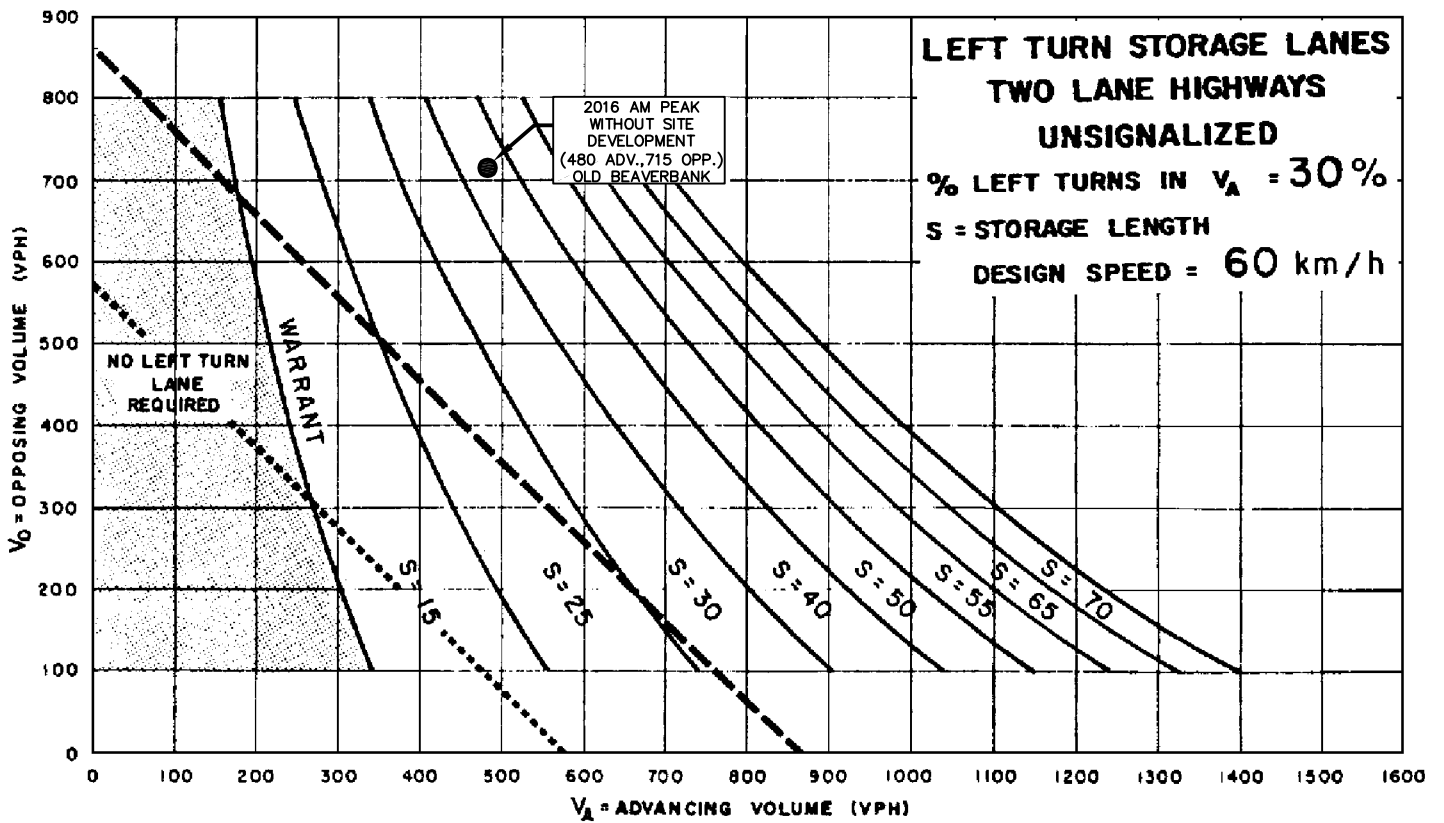
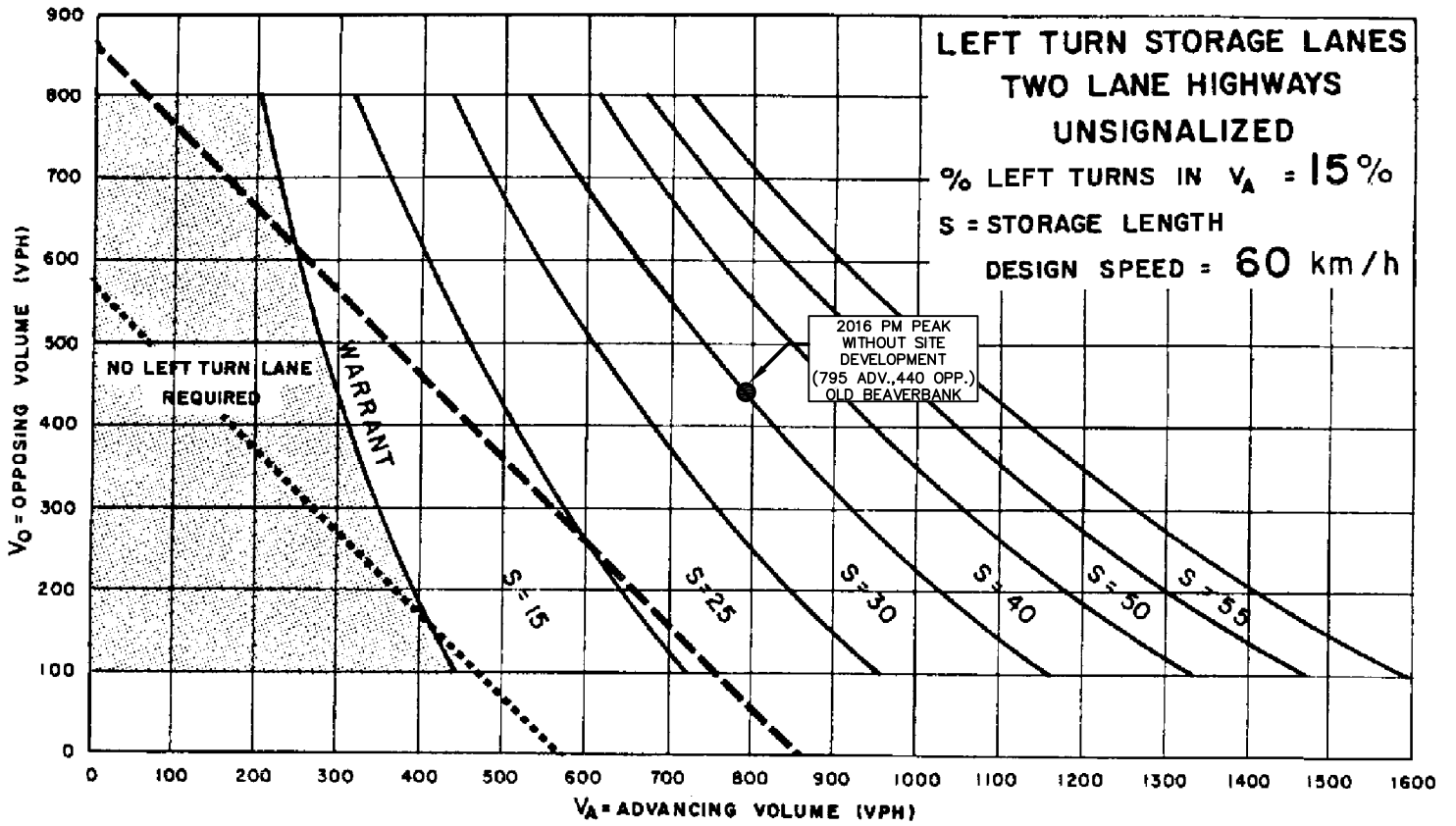
Figure C-8  
 August 2010

***Appendix D***  
***Warrant Evaluations***



Traffic Study for Highway 107 Phase 1  
Burnside to Sackville  
Left Turn Lane Warrants  
5% & 10% Left Turn

Figure D-1  
August 2010



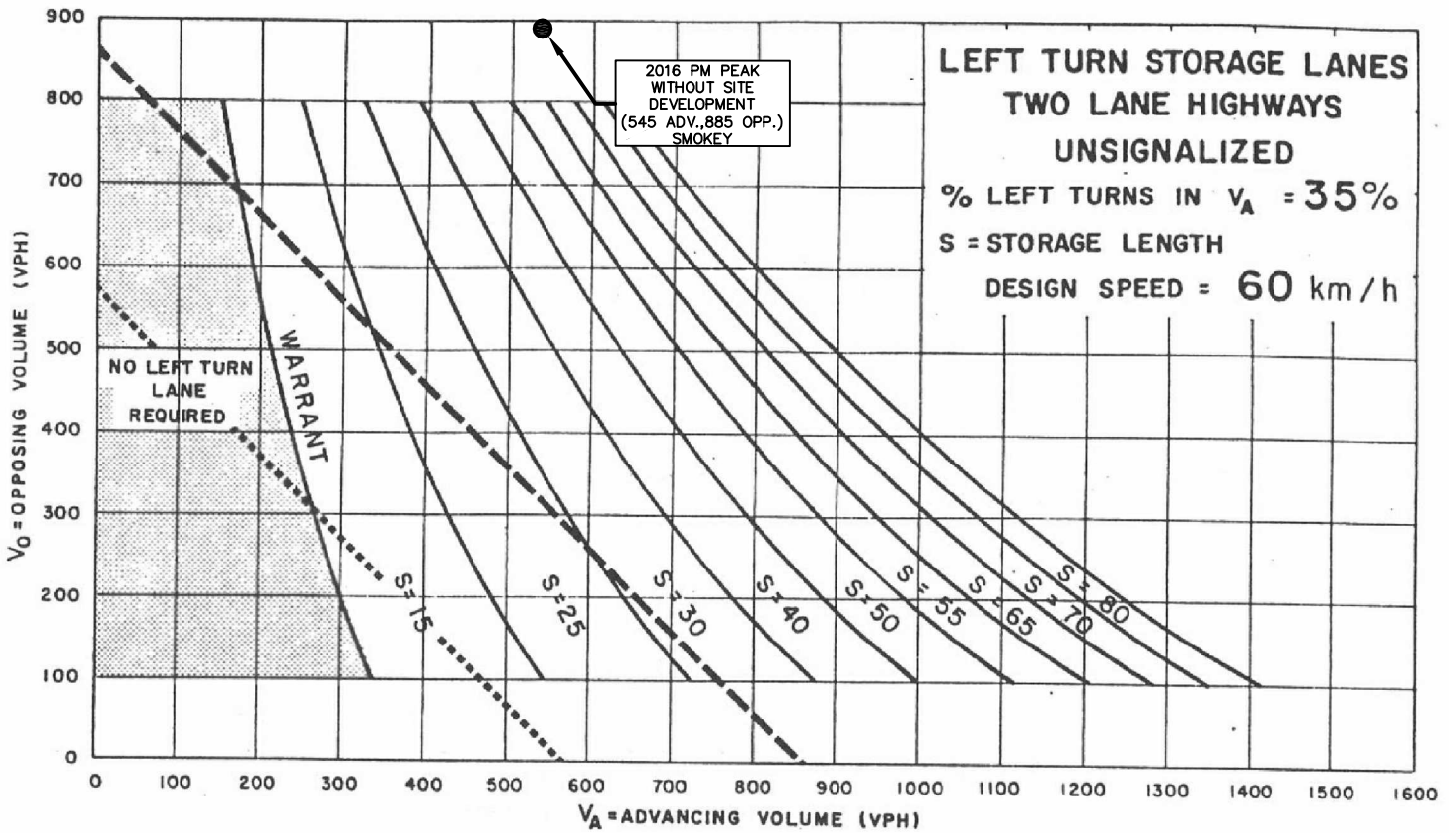
Traffic Study for Highway 107 Phase 1  
Burnside to Sackville

Left Turn Lane Warrants  
15% & 30% Left Turn

Figure D-2

August 2010





Traffic Study for Highway 107 Phase 1  
 Burnside to Sackville

Left Turn Lane Warrants  
 35% Left Turn

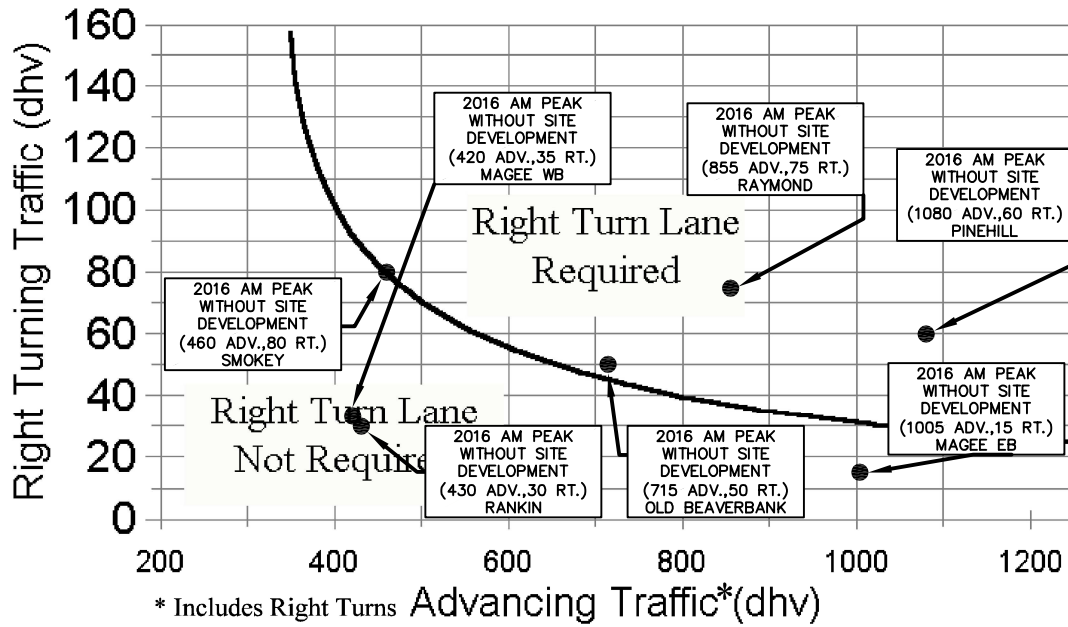
Figure D-3

August 2010

AM

### 2-Lane Highway Right Turn Lane Warrant

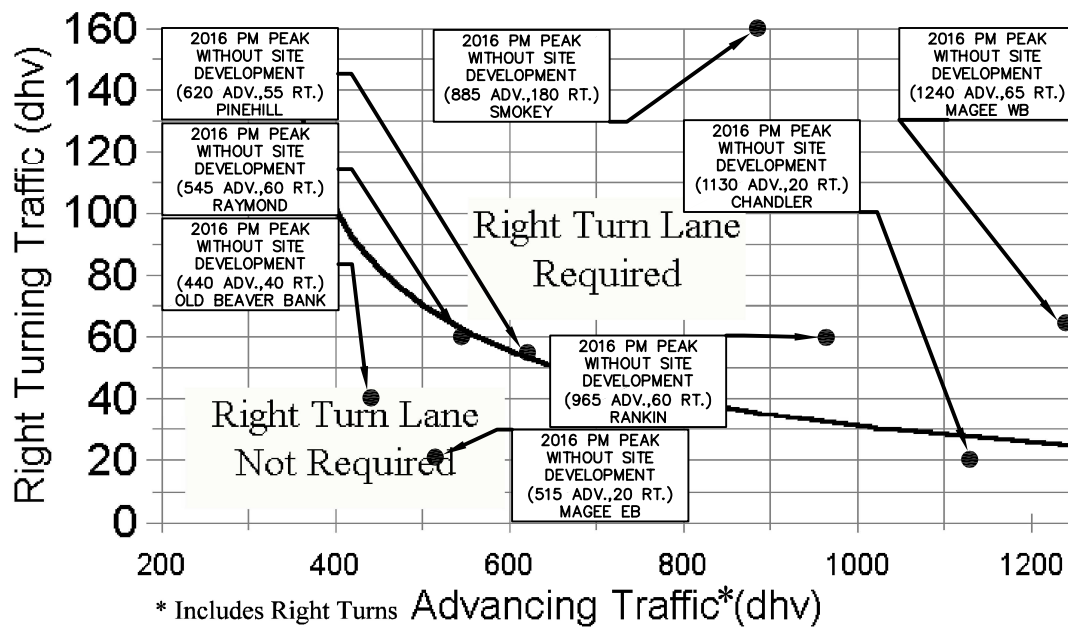
= < 40 mph or 70 kph Posted Speed



PM

### 2-Lane Highway Right Turn Lane Warrant

= < 40 mph or 70 kph Posted Speed

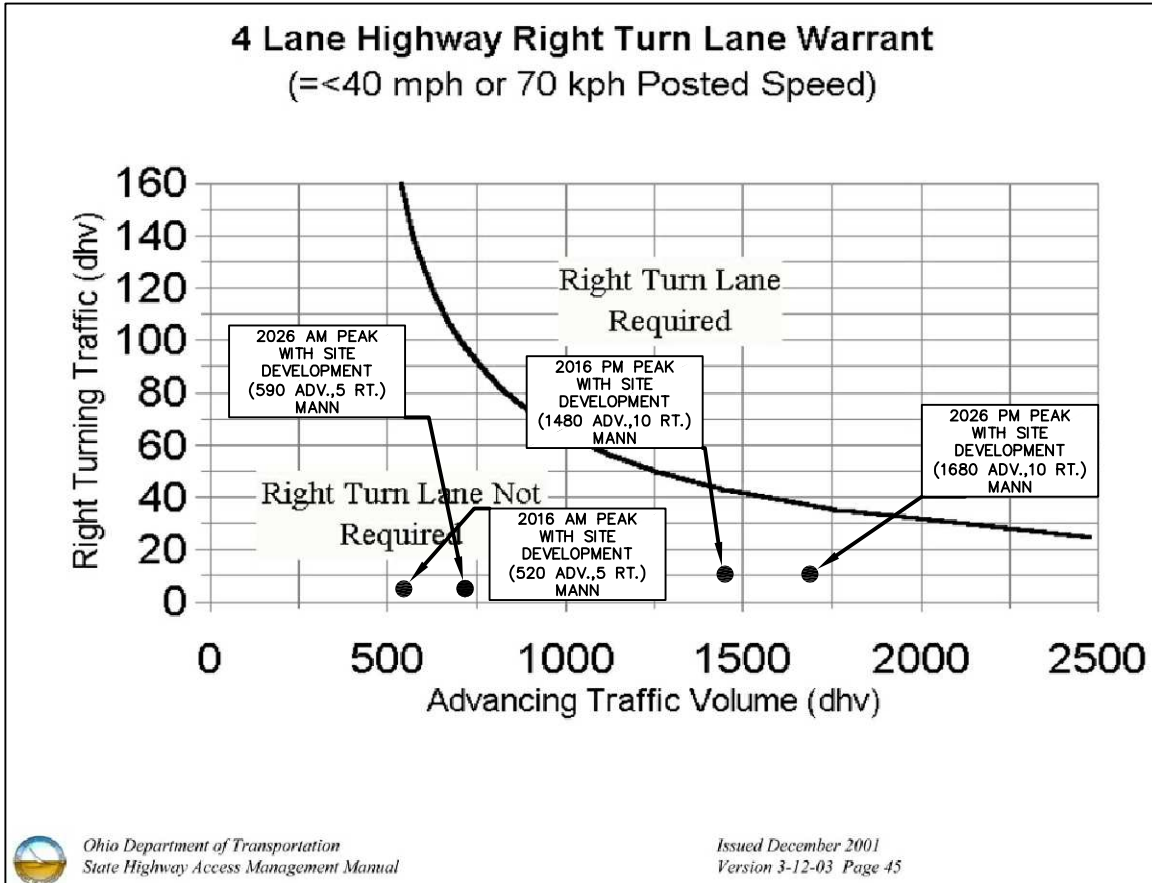


Traffic Study for Highway 107 Phase 1 - Burnside to Sackville

Figure D-4

Right Turn Lane Warrants

August 2010



Traffic Study for Highway 107 Phase 1 -  
Burnside to Sackville

Figure D-5

Right Turn Lane Warrants

August 2010



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-1 Glendale Dr. @ Old Beaver Bank Rd. - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Old Beaver Bank Road		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			770	1
Glendale Drive	EB			1			110	1
Old Beaver Bank Road	NB			1				
Old Beaver Bank Road								

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Old Beaver Bank Road	NS		5.0%	n	

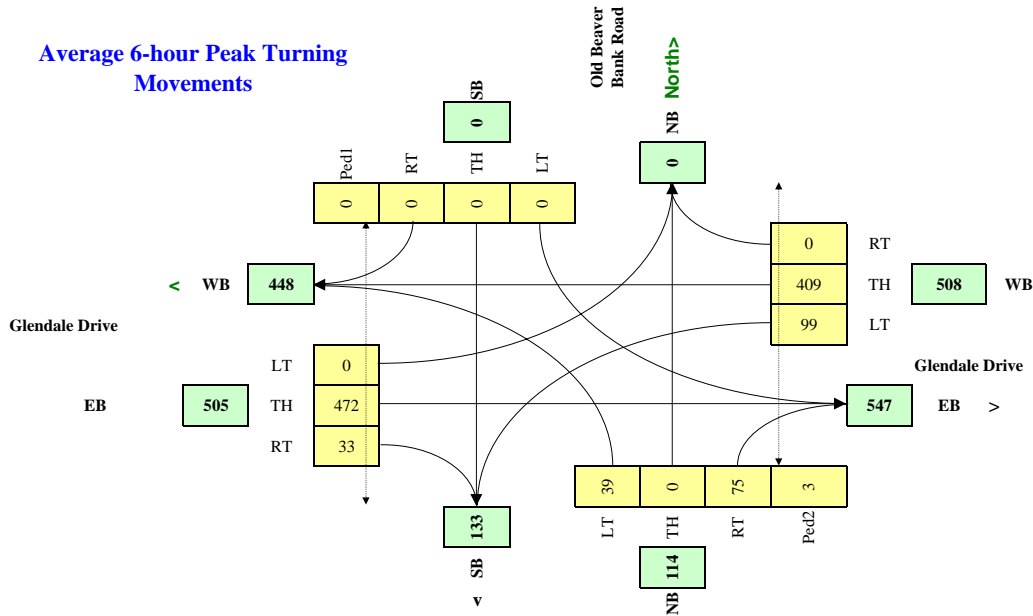
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		6		
8:00 - 9:00		2		
11:00 - 12:00		0		
12:00 - 13:00		10		
16:00 - 17:00		0		
17:00 - 18:00		0		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	20	0	0	0	75	180	0	0	660	35
8:00 - 9:00	10	0	55	0	0	0	140	300	0	0	625	40
11:00 - 12:00	50	0	70	0	0	0	90	345	0	0	340	30
12:00 - 13:00	35	0	65	0	0	0	65	330	0	0	360	25
16:00 - 17:00	60	0	110	0	0	0	105	635	0	0	440	35
17:00 - 18:00	70	0	130	0	0	0	120	665	0	0	405	35
<b>Total (6-hour peak)</b>	<b>235</b>	<b>0</b>	<b>450</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>595</b>	<b>2,455</b>	<b>0</b>	<b>0</b>	<b>2,830</b>	<b>200</b>
<b>Average (6-hour peak)</b>	<b>39</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>99</b>	<b>409</b>	<b>0</b>	<b>0</b>	<b>472</b>	<b>33</b>

Volumes are from Table B-22 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	55	52	3
		Veh	Ped
<b>NOT Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-2 Glendale Drive @ Smokey Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Smokey Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			620	1
Glendale Drive	EB			1			260	1
Smokey Drive	NB							
Smokey Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Smokey Drive	NS		5.0%	n	

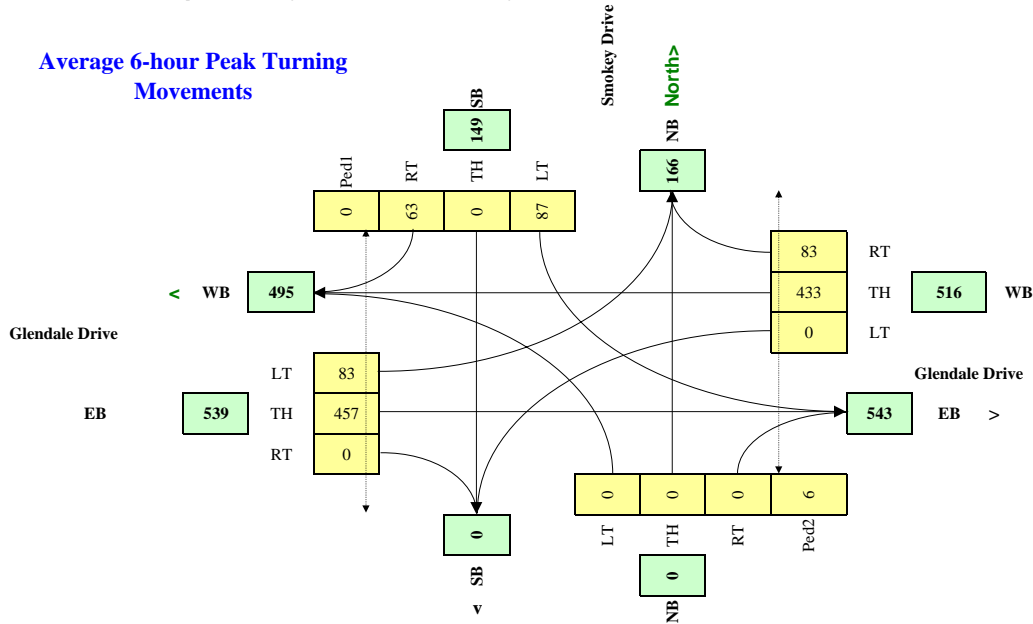
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S Side
7:00 - 8:00		14		
8:00 - 9:00		7		
11:00 - 12:00		5		
12:00 - 13:00		1		
16:00 - 17:00		1		
17:00 - 18:00		5		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	175	0	70	0	180	30	20	655	0
8:00 - 9:00	0	0	0	135	0	90	0	350	65	40	635	0
11:00 - 12:00	0	0	0	55	0	45	0	345	35	60	340	0
12:00 - 13:00	0	0	0	55	0	45	0	330	55	55	355	0
16:00 - 17:00	0	0	0	45	0	45	0	695	150	145	400	0
17:00 - 18:00	0	0	0	55	0	80	0	695	165	175	355	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>520</b>	<b>0</b>	<b>375</b>	<b>0</b>	<b>2,595</b>	<b>500</b>	<b>495</b>	<b>2,740</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>87</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>433</b>	<b>83</b>	<b>83</b>	<b>457</b>	<b>0</b>

Volumes are from Table B-21 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	78	73	5
		Veh	Ped
<b>NOT Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-3 Glendale Drive @ Rankin Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Rankin Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			220	1
Glendale Drive	EB			1			660	1
Rankin Drive	NB							
Rankin Drive	SB			1				

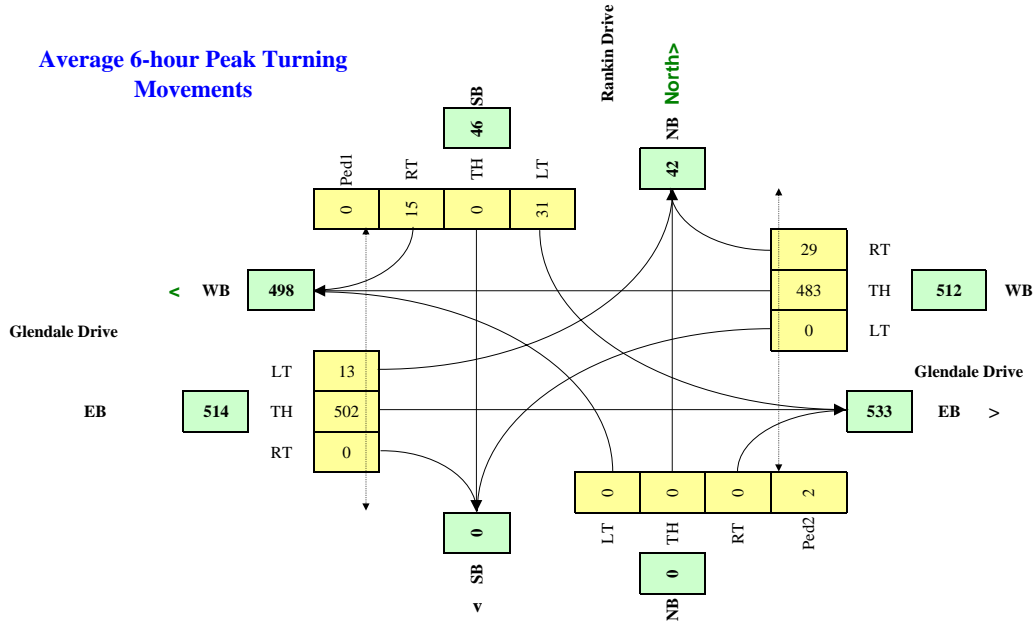
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Rankin Drive	NS		5.0%	n	

	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		5		0
8:00 - 9:00		2		0
11:00 - 12:00		1		0
12:00 - 13:00		1		0
16:00 - 17:00		3		0
17:00 - 18:00		2		0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	60	0	15	0	265	15	10	710	0
8:00 - 9:00	0	0	0	35	0	20	0	365	25	5	715	0
11:00 - 12:00	0	0	0	20	0	10	0	335	15	10	385	0
12:00 - 13:00	0	0	0	25	0	10	0	345	20	10	370	0
16:00 - 17:00	0	0	0	15	0	10	0	685	45	20	380	0
17:00 - 18:00	0	0	0	30	0	25	0	900	55	20	450	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>185</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>2,895</b>	<b>175</b>	<b>75</b>	<b>3,010</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>483</b>	<b>29</b>	<b>13</b>	<b>502</b>	<b>0</b>

Volumes are from Table B-20 plus 1.5% annual growth rate for Glendale Drive through traffic.



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

<b>W =</b>	<b>23</b>	<b>20</b>	<b>3</b>
		<i>Veh</i>	<i>Ped</i>
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-4 Glendale Drive @ Raymond Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Raymond Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			300	1
Glendale Drive	EB			1			160	1
Raymond Drive	NB			1				
Raymond Drive	SB							

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Raymond Drive	NS		5.0%	n	

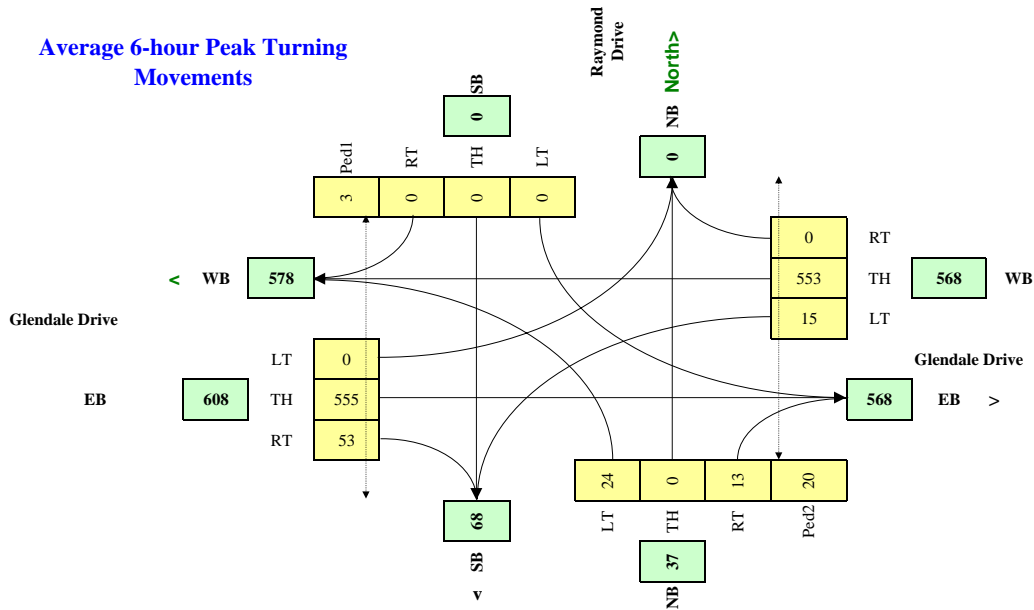
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S side
7:00 - 8:00	2	10		
8:00 - 9:00	1	39		
11:00 - 12:00	4	39		
12:00 - 13:00	9	16		
16:00 - 17:00		4		
17:00 - 18:00	1	13		
<b>Total (6-hour peak)</b>	<b>17</b>	<b>121</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>3</b>	<b>20</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	15	0	15	0	0	0	10	265	0	0	925	85
8:00 - 9:00	20	0	15	0	0	0	15	410	0	0	745	55
11:00 - 12:00	35	0	10	0	0	0	15	445	0	0	405	50
12:00 - 13:00	30	0	10	0	0	0	15	425	0	0	405	35
16:00 - 17:00	25	0	10	0	0	0	20	780	0	0	370	45
17:00 - 18:00	20	0	15	0	0	0	15	995	0	0	480	50
<b>Total (6-hour peak)</b>	<b>145</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>3,320</b>	<b>0</b>	<b>0</b>	<b>3,330</b>	<b>320</b>
<b>Average (6-hour peak)</b>	<b>24</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>553</b>	<b>0</b>	<b>0</b>	<b>555</b>	<b>53</b>

Volumes are from Table B-17 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	46	20	26
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-5 Glendale Drive @ Pinehill Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Pinehill Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			1,650	1
Glendale Drive	EB			1			350	1
Pinehill Drive	NB			1				
Pinehill Drive	SB							

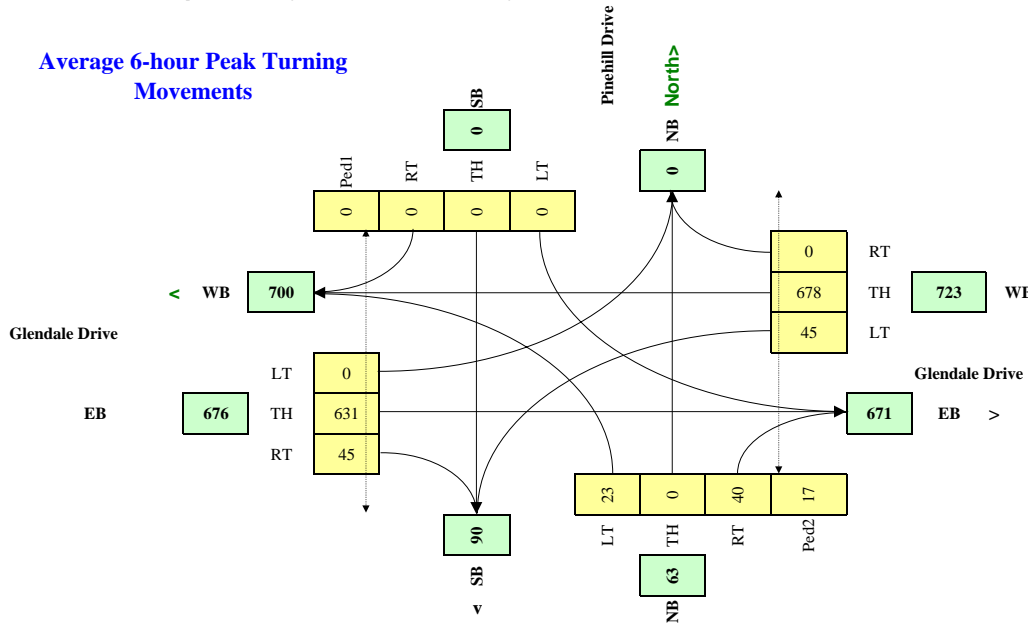
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Pinehill Drive	NS		5.0%	n	

	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		10		
8:00 - 9:00	1	25		
11:00 - 12:00		14		
12:00 - 13:00	1	17		
16:00 - 17:00		11		
17:00 - 18:00		25		
<b>Total (6-hour peak)</b>	<b>2</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	30	0	0	0	40	300	0	0	1075	40
8:00 - 9:00	20	0	40	0	0	0	40	495	0	0	780	60
11:00 - 12:00	25	0	45	0	0	0	40	445	0	0	420	45
12:00 - 13:00	40	0	35	0	0	0	35	440	0	0	445	40
16:00 - 17:00	15	0	45	0	0	0	55	1165	0	0	505	35
17:00 - 18:00	25	0	45	0	0	0	60	1220	0	0	560	50
<b>Total (6-hour peak)</b>	<b>135</b>	<b>0</b>	<b>240</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>4,065</b>	<b>0</b>	<b>0</b>	<b>3,785</b>	<b>270</b>
<b>Average (6-hour peak)</b>	<b>23</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>678</b>	<b>0</b>	<b>0</b>	<b>631</b>	<b>45</b>

Volumes are from Table B-15 plus 1.5% annual growth rate for Glendale Drive through traffic.



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	65	40	25
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			





## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-6 Glendale Drive @ Chandler Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive	Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Chandler Drive	Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			1,100	1
Glendale Drive	EB			1			900	1
Chandler Drive	NB							
Chandler Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Chandler Drive	NS		5.0%	n	

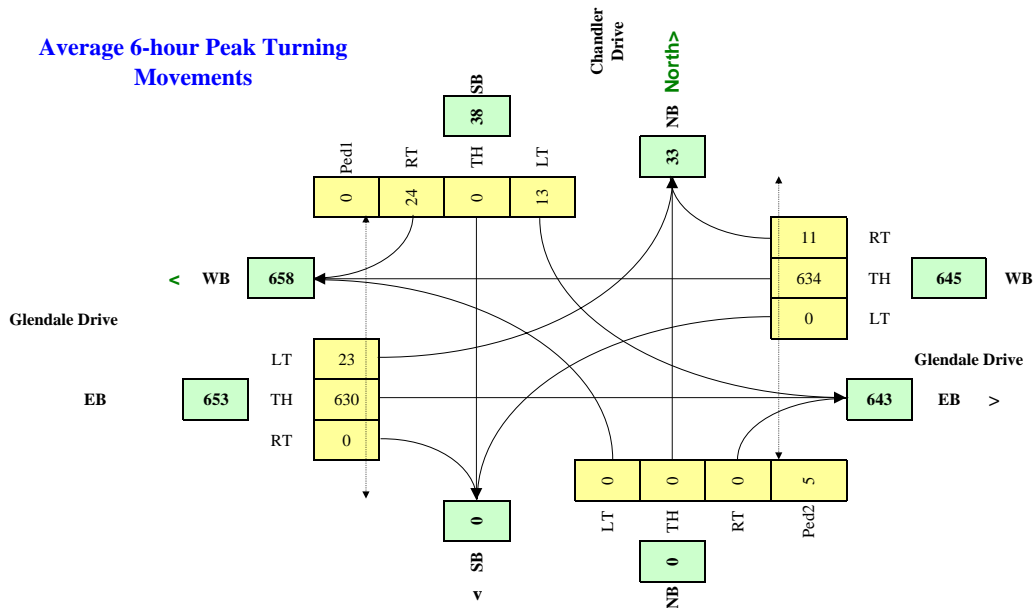
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		8		
8:00 - 9:00		2		
11:00 - 12:00		3		
12:00 - 13:00		6		
16:00 - 17:00		7		
17:00 - 18:00		2		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	20	0	15	0	310	0	10	1065	0
8:00 - 9:00	0	0	0	20	0	35	0	470	15	20	810	0
11:00 - 12:00	0	0	0	10	0	15	0	485	5	20	465	0
12:00 - 13:00	0	0	0	15	0	40	0	490	10	25	460	0
16:00 - 17:00	0	0	0	5	0	20	0	1055	20	30	445	0
17:00 - 18:00	0	0	0	10	0	20	0	995	15	30	535	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>0</b>	<b>145</b>	<b>0</b>	<b>3,805</b>	<b>65</b>	<b>135</b>	<b>3,780</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>634</b>	<b>11</b>	<b>23</b>	<b>630</b>	<b>0</b>

Volumes are from Table B-14 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p})L) / K_2] \times C_i$$

W =	31	24	7
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-7 Glendale Drive @ Magee Drive - 2016 Volumes - Without

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Magee Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
	Glendale Drive	WB	1		1		700	1
	Glendale Drive	EB	1		1		1,300	1
	Magee Drive	NB			1			
	Magee Drive	SB			1			

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Magee Drive	NS		5.0%	n	

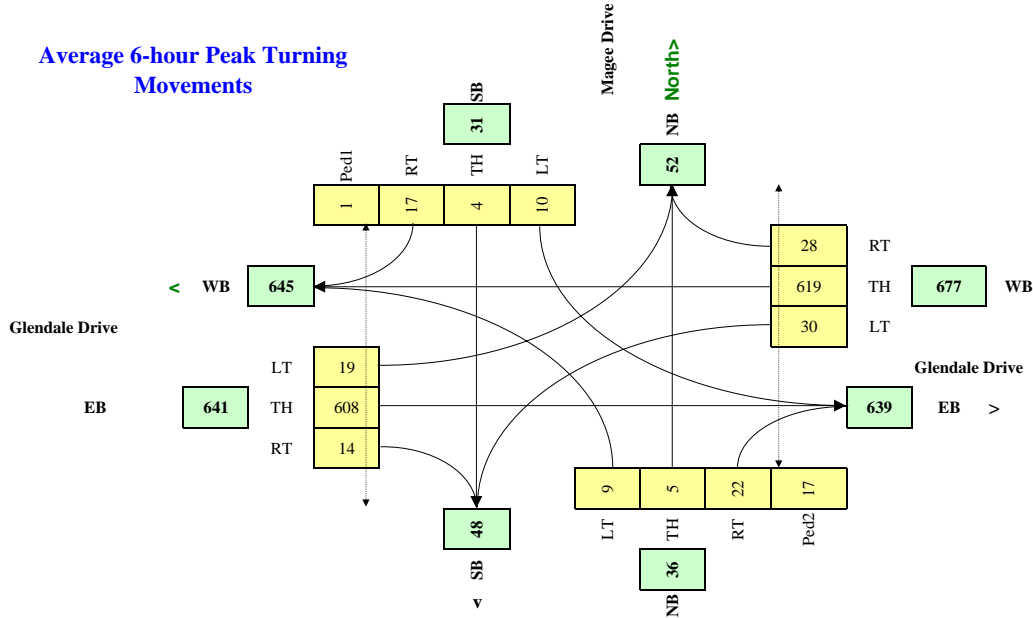
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		27		
8:00 - 9:00		36		
11:00 - 12:00	1	6		
12:00 - 13:00		5		
16:00 - 17:00		15		
17:00 - 18:00	2	13		
<b>Total (6-hour peak)</b>	<b>3</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>1</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	5	5	50	10	5	20	15	290	15	10	1065	10
8:00 - 9:00	10	10	25	20	5	25	20	450	25	15	795	15
11:00 - 12:00	5	0	5	10	5	15	20	470	10	10	450	10
12:00 - 13:00	15	10	15	10	5	5	15	480	25	15	450	10
16:00 - 17:00	15	5	25	5	5	15	50	1045	45	25	405	20
17:00 - 18:00	5	0	10	5	0	20	60	980	45	40	480	20
<b>Total (6-hour peak)</b>	<b>55</b>	<b>30</b>	<b>130</b>	<b>60</b>	<b>25</b>	<b>100</b>	<b>180</b>	<b>3,715</b>	<b>165</b>	<b>115</b>	<b>3,645</b>	<b>85</b>
<b>Average (6-hour peak)</b>	<b>9</b>	<b>5</b>	<b>22</b>	<b>10</b>	<b>4</b>	<b>17</b>	<b>30</b>	<b>619</b>	<b>28</b>	<b>19</b>	<b>608</b>	<b>14</b>

Volumes are from Table B-13 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	71	43	28
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-8 Duke Street @ Mann Street - 2016 Volumes - Without

Main Street (name)	Duke Street	Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Mann Street	Direction (EW or NS)	NS	City:	Bedford

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Duke Street	WB			1				1
Duke Street	EB			1			300	1
Mann Street	NB							
Mann Street	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Duke Street	EW	60	10.0%	n	0.0
Mann Street	NS		10.0%	n	

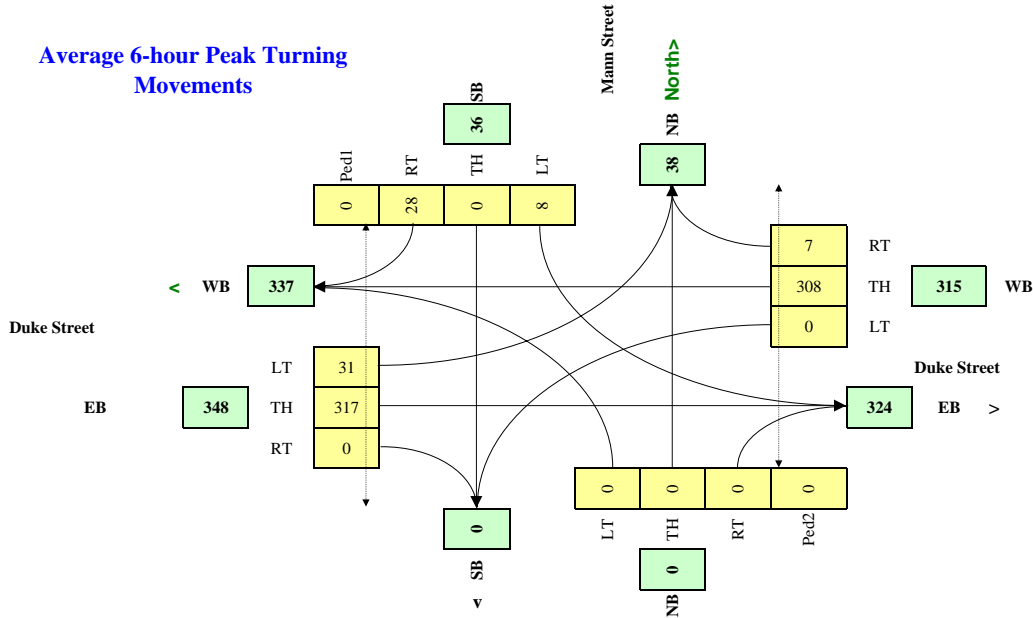
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00				
8:00 - 9:00		1		
11:00 - 12:00				
12:00 - 13:00				
16:00 - 17:00				
17:00 - 18:00				
<b>Total (6-hour peak)</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	5	0	25	0	220	10	50	230	0
8:00 - 9:00	0	0	0	10	0	45	0	275	5	50	405	0
11:00 - 12:00	0	0	0	10	0	30	0	285	5	25	330	0
12:00 - 13:00	0	0	0	10	0	25	0	330	15	35	340	0
16:00 - 17:00	0	0	0	10	0	35	0	395	5	15	335	0
17:00 - 18:00	0	0	0	0	0	10	0	345	0	10	260	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>170</b>	<b>0</b>	<b>1,850</b>	<b>40</b>	<b>185</b>	<b>1,900</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>308</b>	<b>7</b>	<b>31</b>	<b>317</b>	<b>0</b>

Volumes are from Table B-7 plus 1.5% annual growth rate for Glendale Drive through traffic.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	10	10	0
		Veh	Ped
<b>Not Warranted - Vs&lt;75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-9 Glendale Dr. @ Old Beaver Bank Rd. - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Old Beaver Bank Road		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			770	1
Glendale Drive	EB			1			110	1
Old Beaver Bank Road	NB			1				
Old Beaver Bank Road								

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Old Beaver Bank Road	NS		5.0%	n	

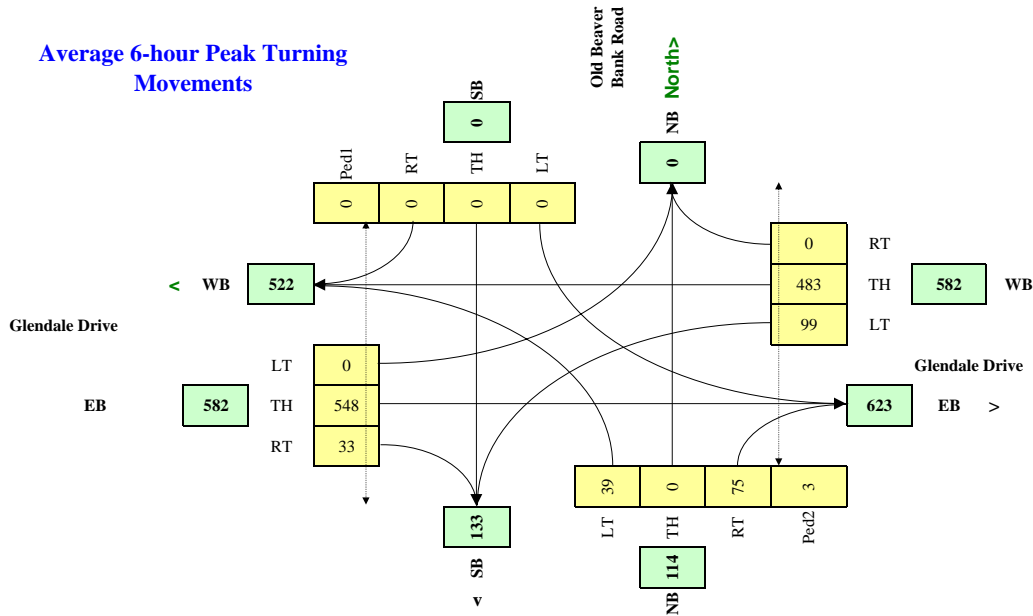
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		6		
8:00 - 9:00		2		
11:00 - 12:00		0		
12:00 - 13:00		10		
16:00 - 17:00		0		
17:00 - 18:00		0		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	20	0	0	0	75	220	0	0	780	35
8:00 - 9:00	10	0	55	0	0	0	140	340	0	0	745	40
11:00 - 12:00	50	0	70	0	0	0	90	395	0	0	390	30
12:00 - 13:00	35	0	65	0	0	0	65	380	0	0	410	25
16:00 - 17:00	60	0	110	0	0	0	105	765	0	0	500	35
17:00 - 18:00	70	0	130	0	0	0	120	795	0	0	465	35
<b>Total (6-hour peak)</b>	<b>235</b>	<b>0</b>	<b>450</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>595</b>	<b>2,895</b>	<b>0</b>	<b>0</b>	<b>3,290</b>	<b>200</b>
<b>Average (6-hour peak)</b>	<b>39</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>99</b>	<b>483</b>	<b>0</b>	<b>0</b>	<b>548</b>	<b>33</b>

Volumes are from Table B-22 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	64	61	3
		Veh	Ped
<b>NOT Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-10 Glendale Drive @ Smokey Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Smokey Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			620	1
Glendale Drive	EB			1			260	1
Smokey Drive	NB							
Smokey Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Smokey Drive	NS		5.0%	n	

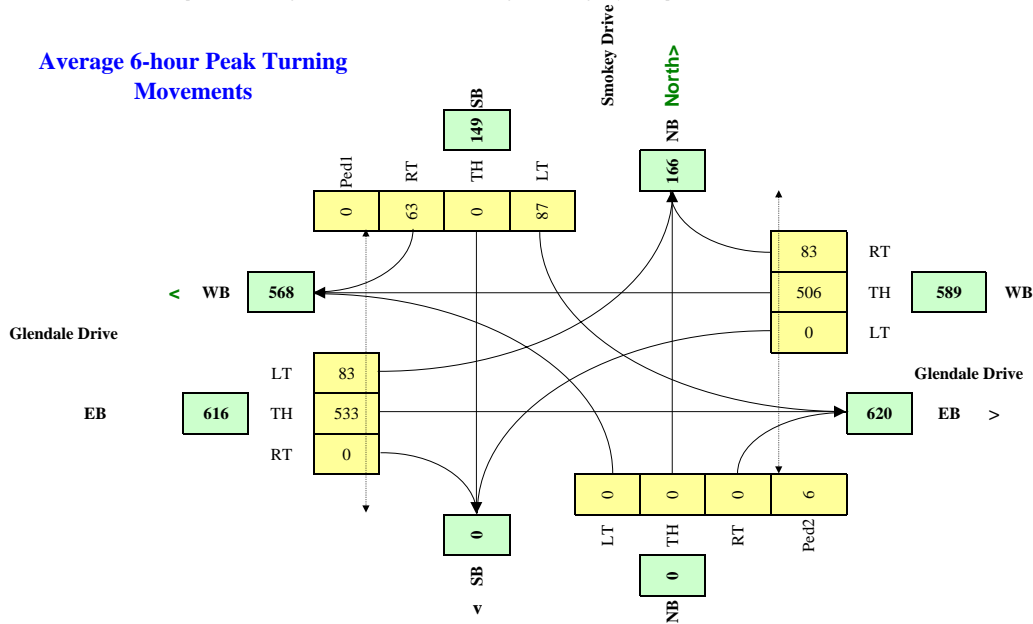
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		14		
8:00 - 9:00		7		
11:00 - 12:00		5		
12:00 - 13:00		1		
16:00 - 17:00		1		
17:00 - 18:00		5		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	175	0	70	0	220	30	20	775	0
8:00 - 9:00	0	0	0	135	0	90	0	390	65	40	755	0
11:00 - 12:00	0	0	0	55	0	45	0	395	35	60	390	0
12:00 - 13:00	0	0	0	55	0	45	0	380	55	55	405	0
16:00 - 17:00	0	0	0	45	0	45	0	825	150	145	460	0
17:00 - 18:00	0	0	0	55	0	80	0	825	165	175	415	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>520</b>	<b>0</b>	<b>375</b>	<b>0</b>	<b>3,035</b>	<b>500</b>	<b>495</b>	<b>3,200</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>87</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>506</b>	<b>83</b>	<b>83</b>	<b>533</b>	<b>0</b>

Volumes are from Table B-21 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	91	85	6
		Veh	Ped
<b>NOT Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-11 Glendale Drive @ Rankin Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Rankin Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			220	1
Glendale Drive	EB			1			660	1
Rankin Drive	NB							
Rankin Drive	SB			1				

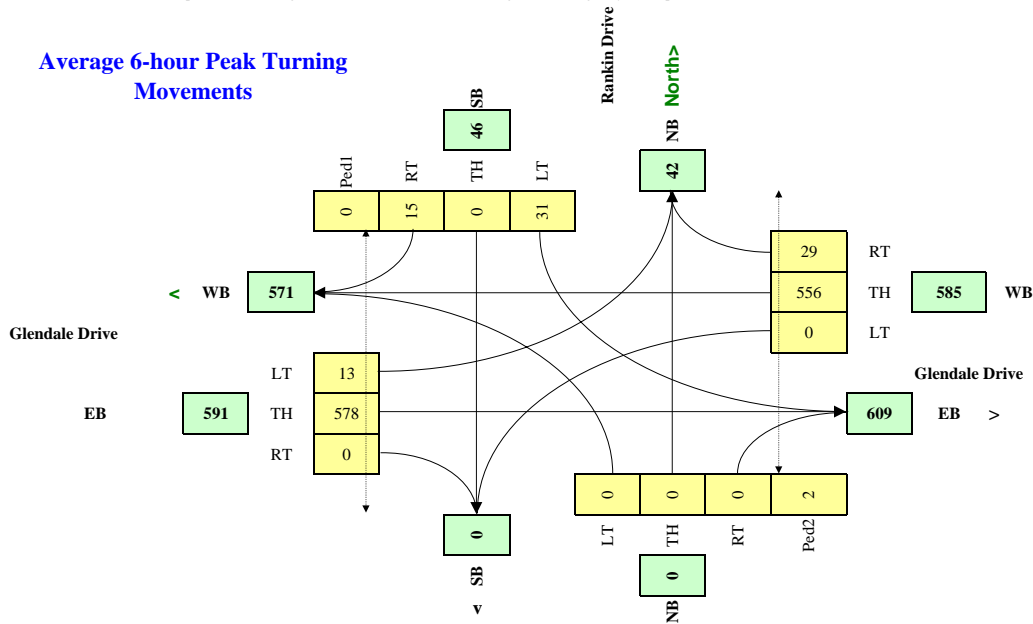
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Rankin Drive	NS		5.0%	n	

	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		5		0
8:00 - 9:00		2		0
11:00 - 12:00		1		0
12:00 - 13:00		1		0
16:00 - 17:00		3		0
17:00 - 18:00		2		0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	60	0	15	0	305	15	10	830	0
8:00 - 9:00	0	0	0	35	0	20	0	405	25	5	835	0
11:00 - 12:00	0	0	0	20	0	10	0	385	15	10	435	0
12:00 - 13:00	0	0	0	25	0	10	0	395	20	10	420	0
16:00 - 17:00	0	0	0	15	0	10	0	815	45	20	440	0
17:00 - 18:00	0	0	0	30	0	25	0	1030	55	20	510	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>185</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>3,335</b>	<b>175</b>	<b>75</b>	<b>3,470</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>556</b>	<b>29</b>	<b>13</b>	<b>578</b>	<b>0</b>

Volumes are from Table B-20 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p})L) / K_2] \times C_i$$

W = 26 Veh, 24 Veh, 2 Ped  
**Not Warranted - Vs < 75**



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-12 Glendale Drive @ Raymond Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Raymond Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			300	1
Glendale Drive	EB			1			160	1
Raymond Drive	NB			1				
Raymond Drive	SB							

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Raymond Drive	NS		5.0%	n	

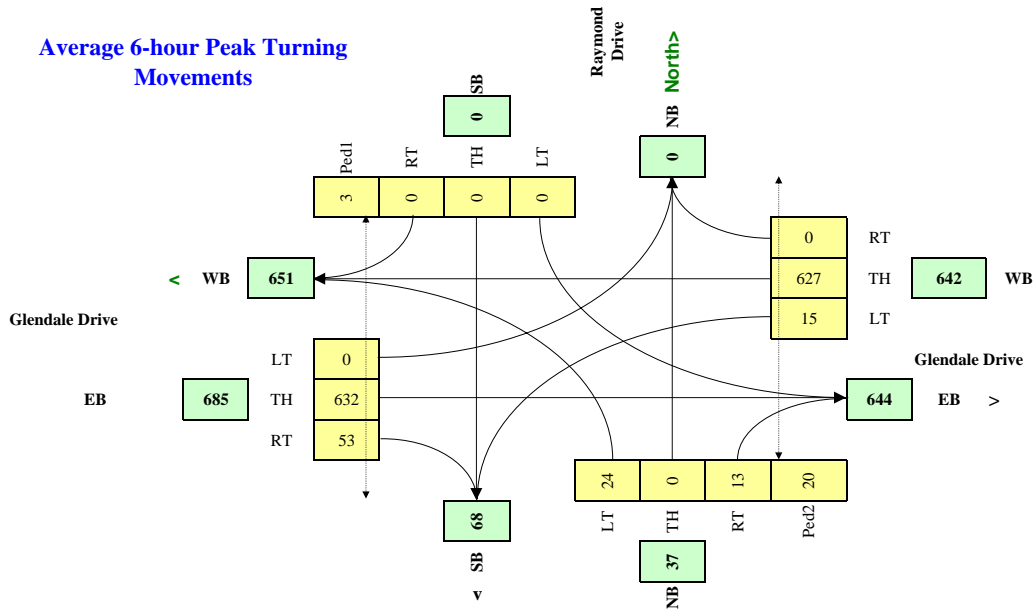
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S side
7:00 - 8:00	2	10		
8:00 - 9:00	1	39		
11:00 - 12:00	4	39		
12:00 - 13:00	9	16		
16:00 - 17:00		4		
17:00 - 18:00	1	13		
<b>Total (6-hour peak)</b>	<b>17</b>	<b>121</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>3</b>	<b>20</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	15	0	15	0	0	0	10	305	0	0	1045	85
8:00 - 9:00	20	0	15	0	0	0	15	450	0	0	865	55
11:00 - 12:00	35	0	10	0	0	0	15	495	0	0	455	50
12:00 - 13:00	30	0	10	0	0	0	15	475	0	0	455	35
16:00 - 17:00	25	0	10	0	0	0	20	910	0	0	430	45
17:00 - 18:00	20	0	15	0	0	0	15	1125	0	0	540	50
<b>Total (6-hour peak)</b>	<b>145</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>3,760</b>	<b>0</b>	<b>0</b>	<b>3,790</b>	<b>320</b>
<b>Average (6-hour peak)</b>	<b>24</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>627</b>	<b>0</b>	<b>0</b>	<b>632</b>	<b>53</b>

Volumes are from Table B-17 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

<b>W =</b>	<b>52</b>	<b>23</b>	<b>29</b>
		<i>Veh</i>	<i>Ped</i>
<b>Not Warranted - Vs&lt;75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-13 Glendale Drive @ Pinehill Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Pinehill Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
	Glendale Drive	WB		1			1,650	1
	Glendale Drive	EB		1			350	1
	Pinehill Drive	NB		1				
Pinehill Drive	SB							

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Pinehill Drive	NS		5.0%	n	

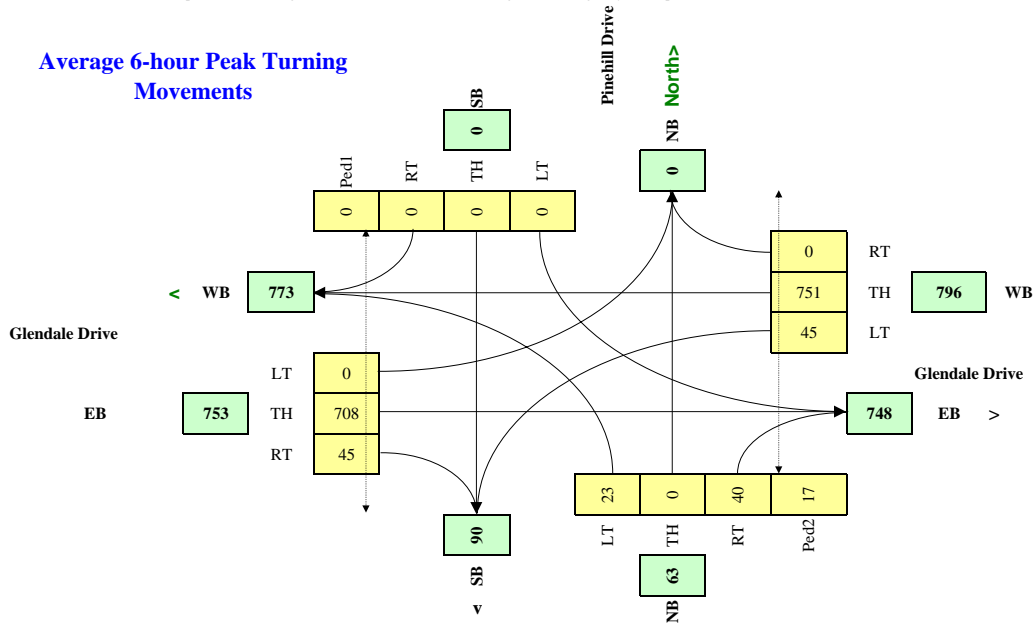
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		10		
8:00 - 9:00	1	25		
11:00 - 12:00		14		
12:00 - 13:00	1	17		
16:00 - 17:00		11		
17:00 - 18:00		25		
<b>Total (6-hour peak)</b>	<b>2</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	30	0	0	0	40	340	0	0	1195	40
8:00 - 9:00	20	0	40	0	0	0	40	535	0	0	900	60
11:00 - 12:00	25	0	45	0	0	0	40	495	0	0	470	45
12:00 - 13:00	40	0	35	0	0	0	35	490	0	0	495	40
16:00 - 17:00	15	0	45	0	0	0	55	1295	0	0	565	35
17:00 - 18:00	25	0	45	0	0	0	60	1350	0	0	620	50
<b>Total (6-hour peak)</b>	<b>135</b>	<b>0</b>	<b>240</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>4,505</b>	<b>0</b>	<b>0</b>	<b>4,245</b>	<b>270</b>
<b>Average (6-hour peak)</b>	<b>23</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>751</b>	<b>0</b>	<b>0</b>	<b>708</b>	<b>45</b>

Volumes are from Table B-15 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_i$$

W =	73	45	28
		Veh	Ped
<b>Not Warranted - Vs&lt;75</b>			





## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-14 Glendale Drive @ Chandler Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Chandler Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			1,100	1
Glendale Drive	EB			1			900	1
Chandler Drive	NB							
Chandler Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Chandler Drive	NS		5.0%	n	

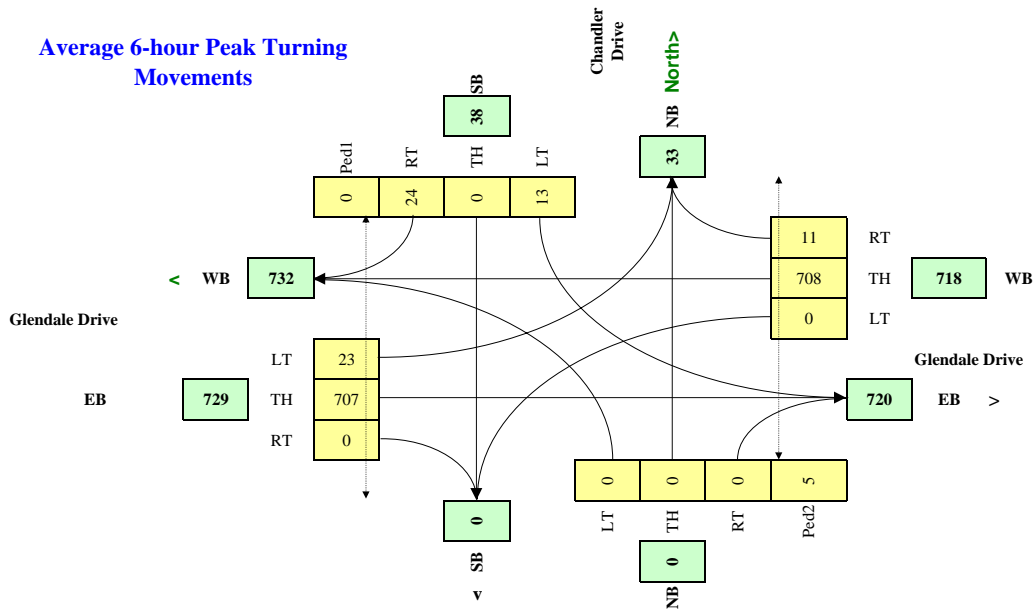
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		8		
8:00 - 9:00		2		
11:00 - 12:00		3		
12:00 - 13:00		6		
16:00 - 17:00		7		
17:00 - 18:00		2		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population (#)		380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	20	0	15	0	350	0	10	1185	0
8:00 - 9:00	0	0	0	20	0	35	0	510	15	20	930	0
11:00 - 12:00	0	0	0	10	0	15	0	535	5	20	515	0
12:00 - 13:00	0	0	0	15	0	40	0	540	10	25	510	0
16:00 - 17:00	0	0	0	5	0	20	0	1185	20	30	505	0
17:00 - 18:00	0	0	0	10	0	20	0	1125	15	30	595	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>0</b>	<b>145</b>	<b>0</b>	<b>4,245</b>	<b>65</b>	<b>135</b>	<b>4,240</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>708</b>	<b>11</b>	<b>23</b>	<b>707</b>	<b>0</b>

Volumes are from Table B-14 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	36	28	8
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-15 Glendale Drive @ Magee Drive - 2016 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Magee Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
	Glendale Drive	WB	1		1		700	1
	Glendale Drive	EB	1		1		1,300	1
	Magee Drive	NB			1			
	Magee Drive	SB			1			

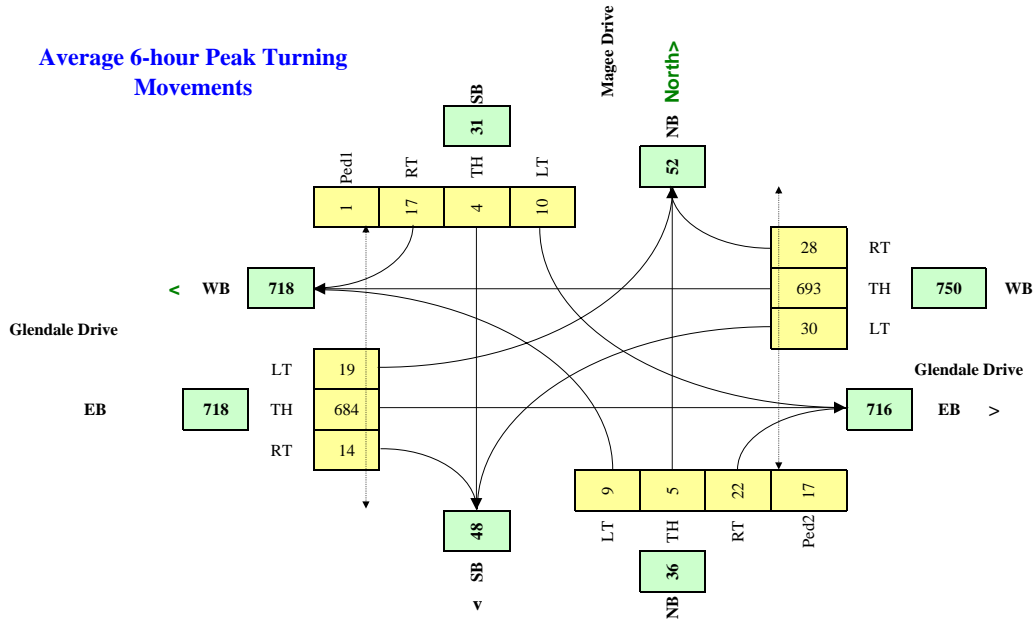
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Magee Drive	NS		5.0%	n	

	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S Side
7:00 - 8:00		27		
8:00 - 9:00		36		
11:00 - 12:00	1	6		
12:00 - 13:00		5		
16:00 - 17:00		15		
17:00 - 18:00	2	13		
<b>Total (6-hour peak)</b>	<b>3</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>1</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	5	5	50	10	5	20	15	330	15	10	1185	10
8:00 - 9:00	10	10	25	20	5	25	20	490	25	15	915	15
11:00 - 12:00	5	0	5	10	5	15	20	520	10	10	500	10
12:00 - 13:00	15	10	15	10	5	5	15	530	25	15	500	10
16:00 - 17:00	15	5	25	5	5	15	50	1175	45	25	465	20
17:00 - 18:00	5	0	10	5	0	20	60	1110	45	40	540	20
<b>Total (6-hour peak)</b>	<b>55</b>	<b>30</b>	<b>130</b>	<b>60</b>	<b>25</b>	<b>100</b>	<b>180</b>	<b>4,155</b>	<b>165</b>	<b>115</b>	<b>4,105</b>	<b>85</b>
<b>Average (6-hour peak)</b>	<b>9</b>	<b>5</b>	<b>22</b>	<b>10</b>	<b>4</b>	<b>17</b>	<b>30</b>	<b>693</b>	<b>28</b>	<b>19</b>	<b>684</b>	<b>14</b>

Volumes are from Table B-13 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p})L) / K_2] \times C_i$$

W =	81	49	32
		Veh	Ped
<b>Not Warranted - Vs&lt;75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-16 Duke Street @ Mann Street - 2016 Volumes - With

Main Street (name)	Duke Street	Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Mann Street	Direction (EW or NS)	NS	City:	Bedford

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Duke Street	WB			1				1
Duke Street	EB			1			300	1
Mann Street	NB							
Mann Street	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Duke Street	EW	60	10.0%	n	0.0
Mann Street	NS		10.0%	n	

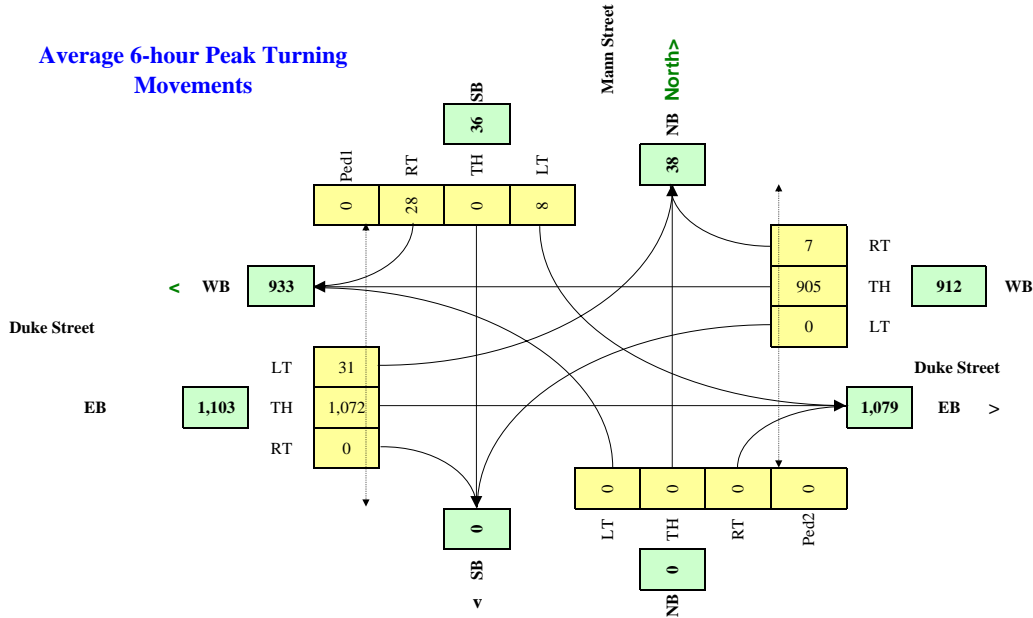
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00				
8:00 - 9:00		1		
11:00 - 12:00				
12:00 - 13:00				
16:00 - 17:00				
17:00 - 18:00				
<b>Total (6-hour peak)</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	5	0	25	0	550	10	50	1670	0
8:00 - 9:00	0	0	0	10	0	45	0	605	5	50	1845	0
11:00 - 12:00	0	0	0	10	0	30	0	670	5	25	715	0
12:00 - 13:00	0	0	0	10	0	25	0	715	15	35	725	0
16:00 - 17:00	0	0	0	10	0	35	0	1470	5	15	775	0
17:00 - 18:00	0	0	0	0	0	10	0	1420	0	10	700	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>170</b>	<b>0</b>	<b>5,430</b>	<b>40</b>	<b>185</b>	<b>6,430</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>905</b>	<b>7</b>	<b>31</b>	<b>1,072</b>	<b>0</b>

Volumes are from Table B-7 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	39	38	1
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-17 Glendale Dr. @ Old Beaver Bank Rd. - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Old Beaver Bank Road		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
	Glendale Drive	WB		1			770	1
	Glendale Drive	EB		1			110	1
	Old Beaver Bank Road	NB		1				
	Old Beaver Bank Road							

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Old Beaver Bank Road	NS		5.0%	n	

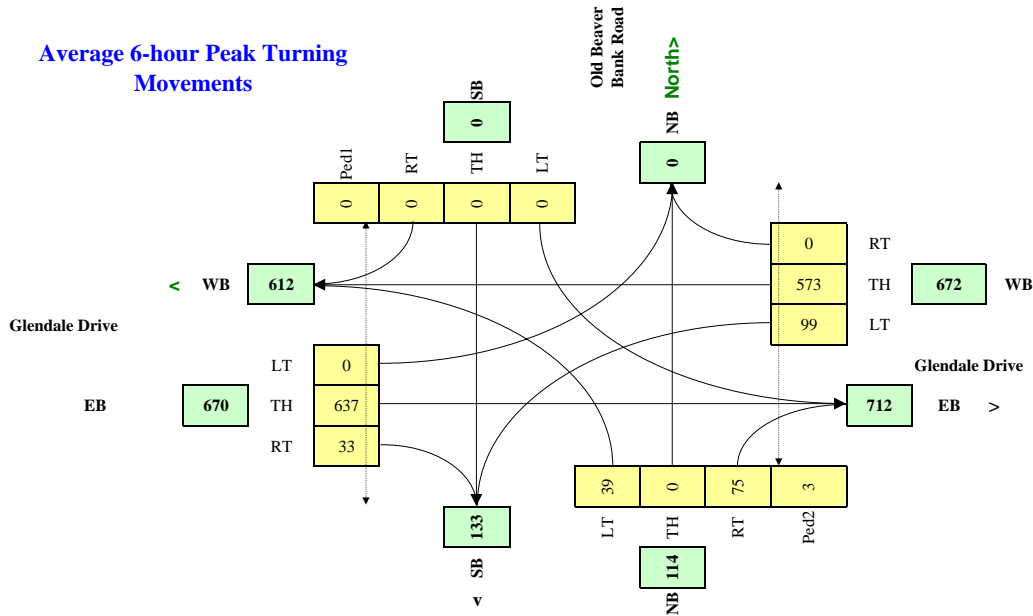
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		6		
8:00 - 9:00		2		
11:00 - 12:00		0		
12:00 - 13:00		10		
16:00 - 17:00		0		
17:00 - 18:00		0		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	20	0	0	0	75	280	0	0	910	35
8:00 - 9:00	10	0	55	0	0	0	140	400	0	0	875	40
11:00 - 12:00	50	0	70	0	0	0	90	460	0	0	455	30
12:00 - 13:00	35	0	65	0	0	0	65	445	0	0	475	25
16:00 - 17:00	60	0	110	0	0	0	105	910	0	0	570	35
17:00 - 18:00	70	0	130	0	0	0	120	940	0	0	535	35
<b>Total (6-hour peak)</b>	<b>235</b>	<b>0</b>	<b>450</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>595</b>	<b>3,435</b>	<b>0</b>	<b>0</b>	<b>3,820</b>	<b>200</b>
<b>Average (6-hour peak)</b>	<b>39</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>99</b>	<b>573</b>	<b>0</b>	<b>0</b>	<b>637</b>	<b>33</b>

Volumes are from Table B-22 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	76	72	4
		Veh	Ped
<b>NOT Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-18 Glendale Drive @ Smokey Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Smokey Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			620	1
Glendale Drive	EB			1			260	1
Smokey Drive	NB							
Smokey Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Smokey Drive	NS		5.0%	n	

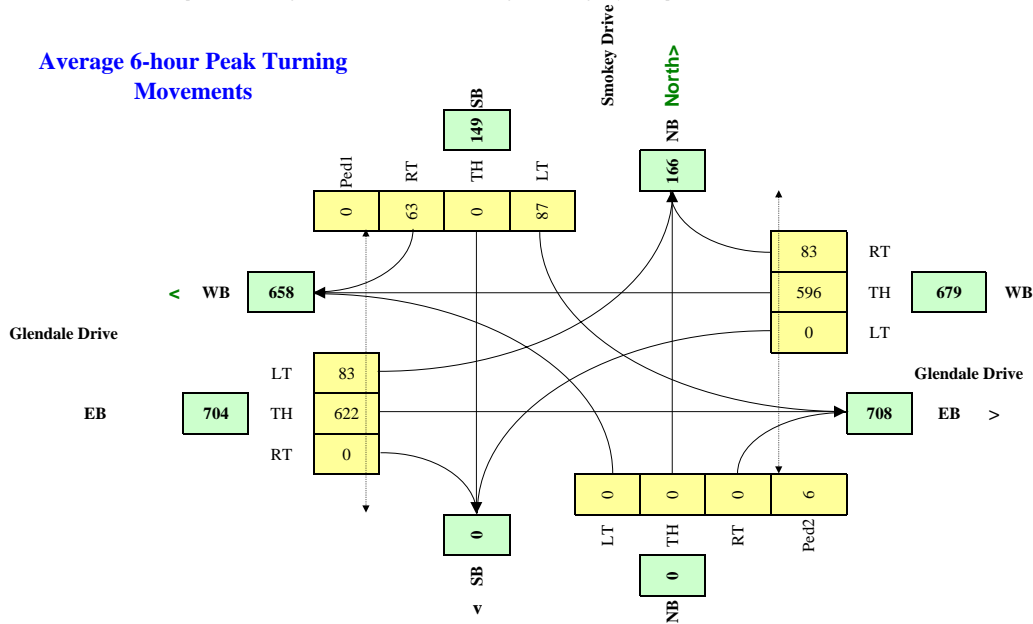
	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		14		
8:00 - 9:00		7		
11:00 - 12:00		5		
12:00 - 13:00		1		
16:00 - 17:00		1		
17:00 - 18:00		5		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	175	0	70	0	280	30	20	905	0
8:00 - 9:00	0	0	0	135	0	90	0	450	65	40	885	0
11:00 - 12:00	0	0	0	55	0	45	0	460	35	60	455	0
12:00 - 13:00	0	0	0	55	0	45	0	445	55	55	470	0
16:00 - 17:00	0	0	0	45	0	45	0	970	150	145	530	0
17:00 - 18:00	0	0	0	55	0	80	0	970	165	175	485	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>520</b>	<b>0</b>	<b>375</b>	<b>0</b>	<b>3,575</b>	<b>500</b>	<b>495</b>	<b>3,730</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>87</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>596</b>	<b>83</b>	<b>83</b>	<b>622</b>	<b>0</b>

Volumes are from Table B-21 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	106	99	7
		Veh	Ped
<b>Warranted</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-19 Glendale Drive @ Rankin Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Rankin Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			220	1
Glendale Drive	EB			1			660	1
Rankin Drive	NB							
Rankin Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Rankin Drive	NS		5.0%	n	

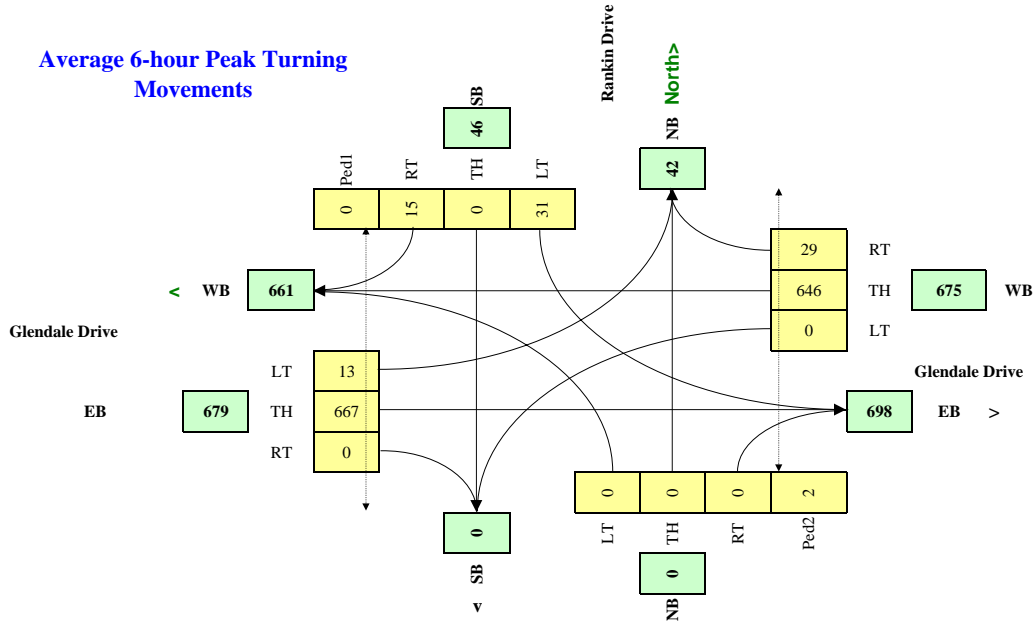
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		5		0
8:00 - 9:00		2		0
11:00 - 12:00		1		0
12:00 - 13:00		1		0
16:00 - 17:00		3		0
17:00 - 18:00		2		0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	60	0	15	0	365	15	10	960	0
8:00 - 9:00	0	0	0	35	0	20	0	465	25	5	965	0
11:00 - 12:00	0	0	0	20	0	10	0	450	15	10	500	0
12:00 - 13:00	0	0	0	25	0	10	0	460	20	10	485	0
16:00 - 17:00	0	0	0	15	0	10	0	960	45	20	510	0
17:00 - 18:00	0	0	0	30	0	25	0	1175	55	20	580	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>185</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>3,875</b>	<b>175</b>	<b>75</b>	<b>4,000</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>646</b>	<b>29</b>	<b>13</b>	<b>667</b>	<b>0</b>

Volumes are from Table B-20 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p})L) / K_2] \times C_i$$

W =	31	28	3
		Veh	Ped
<b>Not Warranted - Vs&lt;75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-20 Glendale Drive @ Raymond Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Raymond Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			300	1
Glendale Drive	EB			1			160	1
Raymond Drive	NB			1				
Raymond Drive	SB							

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Raymond Drive	NS		5.0%	n	

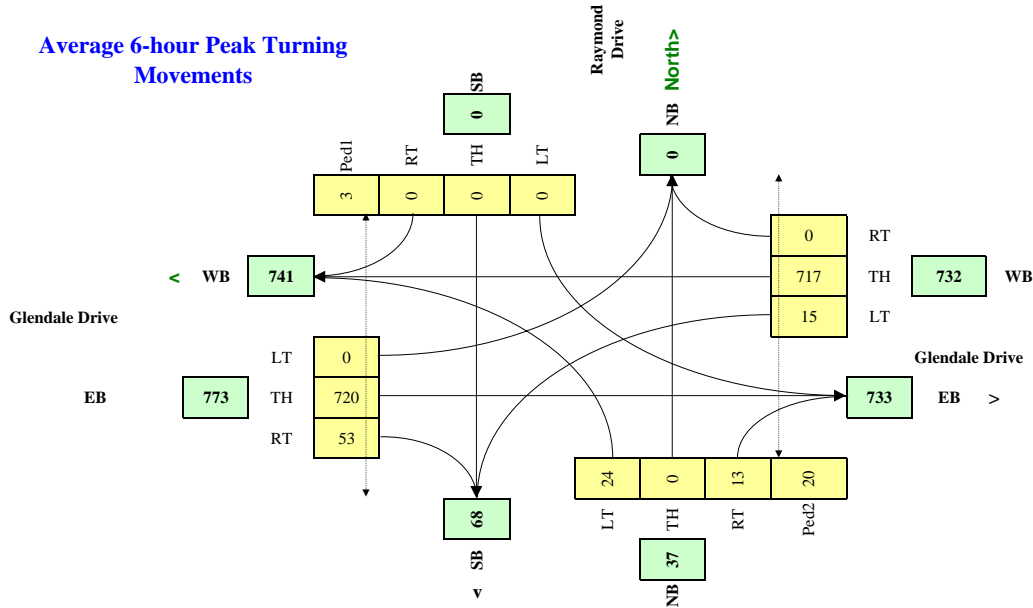
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S side
7:00 - 8:00	2	10		
8:00 - 9:00	1	39		
11:00 - 12:00	4	39		
12:00 - 13:00	9	16		
16:00 - 17:00		4		
17:00 - 18:00	1	13		
<b>Total (6-hour peak)</b>	<b>17</b>	<b>121</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>3</b>	<b>20</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	15	0	15	0	0	0	10	365	0	0	1175	85
8:00 - 9:00	20	0	15	0	0	0	15	510	0	0	995	55
11:00 - 12:00	35	0	10	0	0	0	15	560	0	0	520	50
12:00 - 13:00	30	0	10	0	0	0	15	540	0	0	520	35
16:00 - 17:00	25	0	10	0	0	0	20	1055	0	0	500	45
17:00 - 18:00	20	0	15	0	0	0	15	1270	0	0	610	50
<b>Total (6-hour peak)</b>	<b>145</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>4,300</b>	<b>0</b>	<b>0</b>	<b>4,320</b>	<b>320</b>
<b>Average (6-hour peak)</b>	<b>24</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>717</b>	<b>0</b>	<b>0</b>	<b>720</b>	<b>53</b>

Volumes are from Table B-17 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	59	26	33
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-21 Glendale Drive @ Pinehill Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010		
Side Street (name)	Pinehill Drive		Direction (EW or NS)	NS	City:	Sackville		
Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
	Glendale Drive	WB		1			1,650	1
	Glendale Drive	EB		1			350	1
	Pinehill Drive	NB		1				
Pinehill Drive	SB							

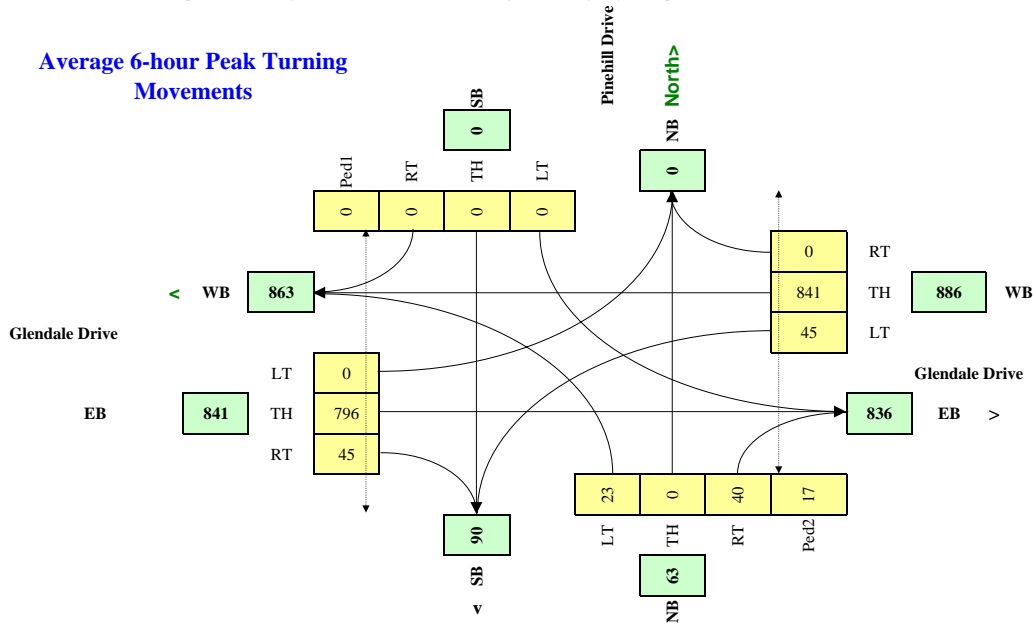
Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Pinehill Drive	NS		5.0%	n	

	Ped1	Ped2	Ped3	Ped4
	NS	NS	EW	EW
	W Side	E Side	N Side	S side
7:00 - 8:00		10		
8:00 - 9:00	1	25		
11:00 - 12:00		14		
12:00 - 13:00	1	17		
16:00 - 17:00		11		
17:00 - 18:00		25		
<b>Total (6-hour peak)</b>	<b>2</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	10	0	30	0	0	0	40	400	0	0	1325	40
8:00 - 9:00	20	0	40	0	0	0	40	595	0	0	1030	60
11:00 - 12:00	25	0	45	0	0	0	40	560	0	0	535	45
12:00 - 13:00	40	0	35	0	0	0	35	555	0	0	560	40
16:00 - 17:00	15	0	45	0	0	0	55	1440	0	0	635	35
17:00 - 18:00	25	0	45	0	0	0	60	1495	0	0	690	50
<b>Total (6-hour peak)</b>	<b>135</b>	<b>0</b>	<b>240</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>5,045</b>	<b>0</b>	<b>0</b>	<b>4,775</b>	<b>270</b>
<b>Average (6-hour peak)</b>	<b>23</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>841</b>	<b>0</b>	<b>0</b>	<b>796</b>	<b>45</b>

Volumes are from Table B-15 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_i$$

<b>W =</b>	<b>83</b>	<b>52</b>	<b>31</b>
		<i>Veh</i>	<i>Ped</i>
<b>Not Warranted - Vs&lt;75</b>			





## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-22 Glendale Drive @ Chandler Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive	Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Chandler Drive	Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB			1			1,100	1
Glendale Drive	EB			1			900	1
Chandler Drive	NB							
Chandler Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Chandler Drive	NS		5.0%	n	

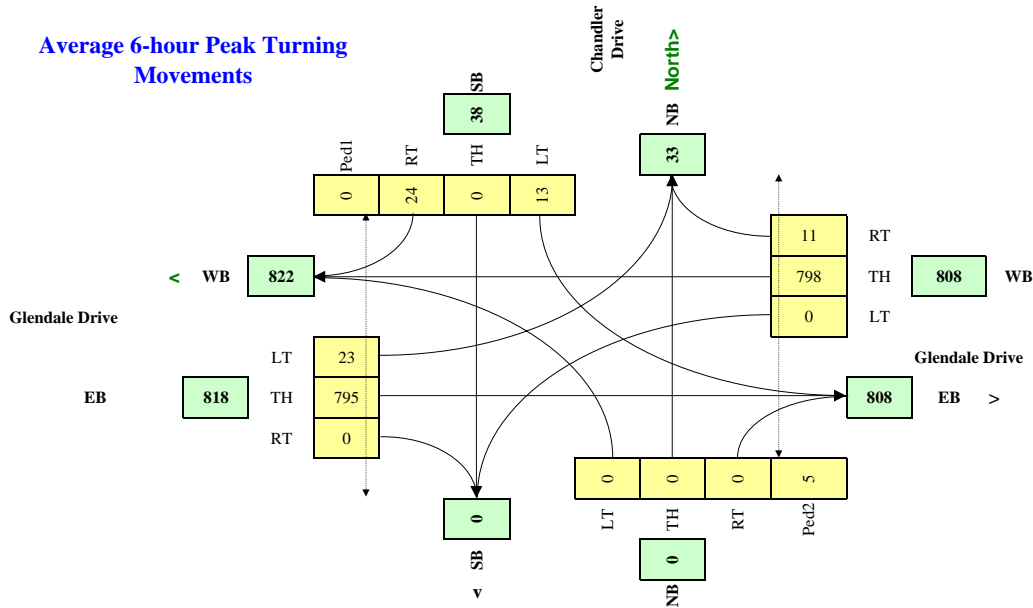
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		8		
8:00 - 9:00		2		
11:00 - 12:00		3		
12:00 - 13:00		6		
16:00 - 17:00		7		
17:00 - 18:00		2		
<b>Total (6-hour peak)</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	20	0	15	0	410	0	10	1315	0
8:00 - 9:00	0	0	0	20	0	35	0	570	15	20	1060	0
11:00 - 12:00	0	0	0	10	0	15	0	600	5	20	580	0
12:00 - 13:00	0	0	0	15	0	40	0	605	10	25	575	0
16:00 - 17:00	0	0	0	5	0	20	0	1330	20	30	575	0
17:00 - 18:00	0	0	0	10	0	20	0	1270	15	30	665	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>0</b>	<b>145</b>	<b>0</b>	<b>4,785</b>	<b>65</b>	<b>135</b>	<b>4,770</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>798</b>	<b>11</b>	<b>23</b>	<b>795</b>	<b>0</b>

Volumes are from Table B-14 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p})L) / K_2] \times C_i$$

W =	41	32	9
		Veh	Ped
<b>Not Warranted - Vs&lt;75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-23 Glendale Drive @ Magee Drive - 2026 Volumes - With

Main Street (name)	Glendale Drive		Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Magee Drive		Direction (EW or NS)	NS	City:	Sackville

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Glendale Drive	WB	1		1			700	1
Glendale Drive	EB	1		1			1,300	1
Magee Drive	NB			1				
Magee Drive	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Glendale Drive	EW	60	5.0%	y	0.0
Magee Drive	NS		5.0%	n	

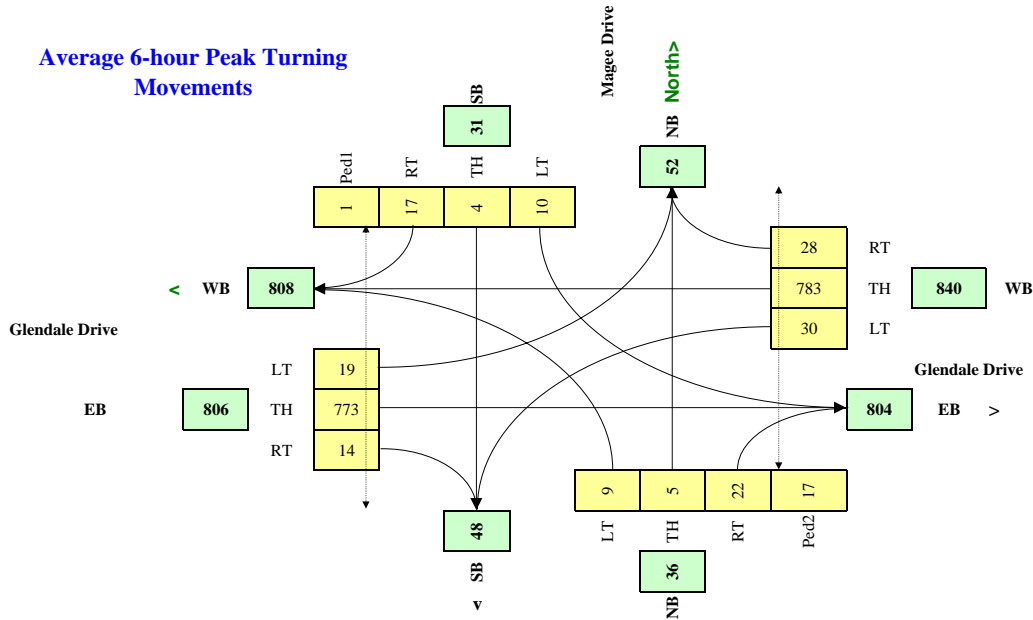
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00		27		
8:00 - 9:00		36		
11:00 - 12:00	1	6		
12:00 - 13:00		5		
16:00 - 17:00		15		
17:00 - 18:00	2	13		
<b>Total (6-hour peak)</b>	<b>3</b>	<b>102</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>1</b>	<b>17</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	5	5	50	10	5	20	15	390	15	10	1315	10
8:00 - 9:00	10	10	25	20	5	25	20	550	25	15	1045	15
11:00 - 12:00	5	0	5	10	5	15	20	585	10	10	565	10
12:00 - 13:00	15	10	15	10	5	5	15	595	25	15	565	10
16:00 - 17:00	15	5	25	5	5	15	50	1320	45	25	535	20
17:00 - 18:00	5	0	10	5	0	20	60	1255	45	40	610	20
<b>Total (6-hour peak)</b>	<b>55</b>	<b>30</b>	<b>130</b>	<b>60</b>	<b>25</b>	<b>100</b>	<b>180</b>	<b>4,695</b>	<b>165</b>	<b>115</b>	<b>4,635</b>	<b>85</b>
<b>Average (6-hour peak)</b>	<b>9</b>	<b>5</b>	<b>22</b>	<b>10</b>	<b>4</b>	<b>17</b>	<b>30</b>	<b>783</b>	<b>28</b>	<b>19</b>	<b>773</b>	<b>14</b>

Volumes are from Table B-13 plus 1.5% annual growth rate for Glendale Drive through traffic+ Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p}) L) / K_2] \times C_i$$

W =	92	57	35
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			



## 2005 Canadian Traffic Signal Warrant Matrix Analysis

Scenario: Table D-24 Duke Street @ Mann Street - 2026 Volumes - With

Main Street (name)	Duke Street	Direction (EW or NS)	EW	Date:	August 2010
Side Street (name)	Mann Street	Direction (EW or NS)	NS	City:	Bedford

Lane Configuration		Excl LT	Th & LT	Through or Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Duke Street	WB			1				1
Duke Street	EB			1			300	1
Mann Street	NB							
Mann Street	SB			1				

Other input		Speed (Km/h)	Trucks %	Bus Rt (y/n)	Median (m)
Duke Street	EW	60	10.0%	n	0.0
Mann Street	NS		10.0%	n	

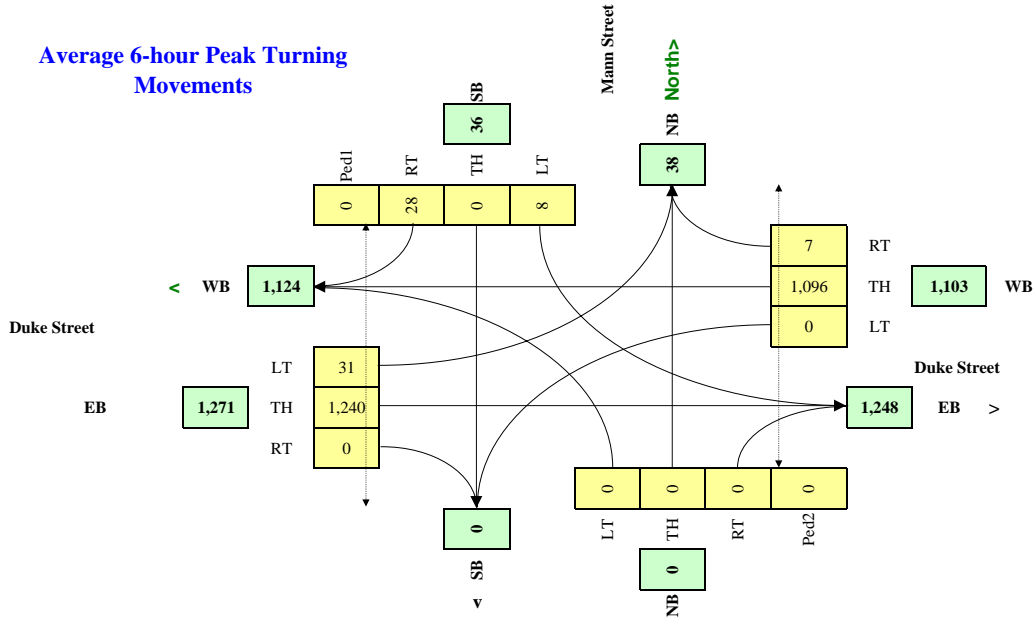
	Ped1 NS W Side	Ped2 NS E Side	Ped3 EW N Side	Ped4 EW S Side
7:00 - 8:00				
8:00 - 9:00		1		
11:00 - 12:00				
12:00 - 13:00				
16:00 - 17:00				
17:00 - 18:00				
<b>Total (6-hour peak)</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Demographics		
Elementary School	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	380,000
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB		
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT
7:00 - 8:00	0	0	0	5	0	25	0	735	10	50	1920	0
8:00 - 9:00	0	0	0	10	0	45	0	790	5	50	2095	0
11:00 - 12:00	0	0	0	10	0	30	0	815	5	25	860	0
12:00 - 13:00	0	0	0	10	0	25	0	860	15	35	870	0
16:00 - 17:00	0	0	0	10	0	35	0	1710	5	15	885	0
17:00 - 18:00	0	0	0	0	0	10	0	1665	0	10	810	0
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>170</b>	<b>0</b>	<b>6,575</b>	<b>40</b>	<b>185</b>	<b>7,440</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>1,096</b>	<b>7</b>	<b>31</b>	<b>1,240</b>	<b>0</b>

Volumes are from Table B-7 plus 1.5% annual growth rate for Glendale Drive through traffic + Highway 107 trips.

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_i$$

W =	49	49	0
		Veh	Ped
<b>Not Warranted - Vs &lt; 75</b>			

## Warrants for Pedestrian Crosswalks

The *Transportation Association of Canada (TAC)* has prepared the *Pedestrian Crossing Control Manual* (March 1998). The *Manual* provides operational guidelines for selecting the appropriate level of crosswalk protection in hierarchical form based on road width, pedestrian crossing volumes, and vehicle volumes.

Four types of pedestrian crossing control devices are considered:

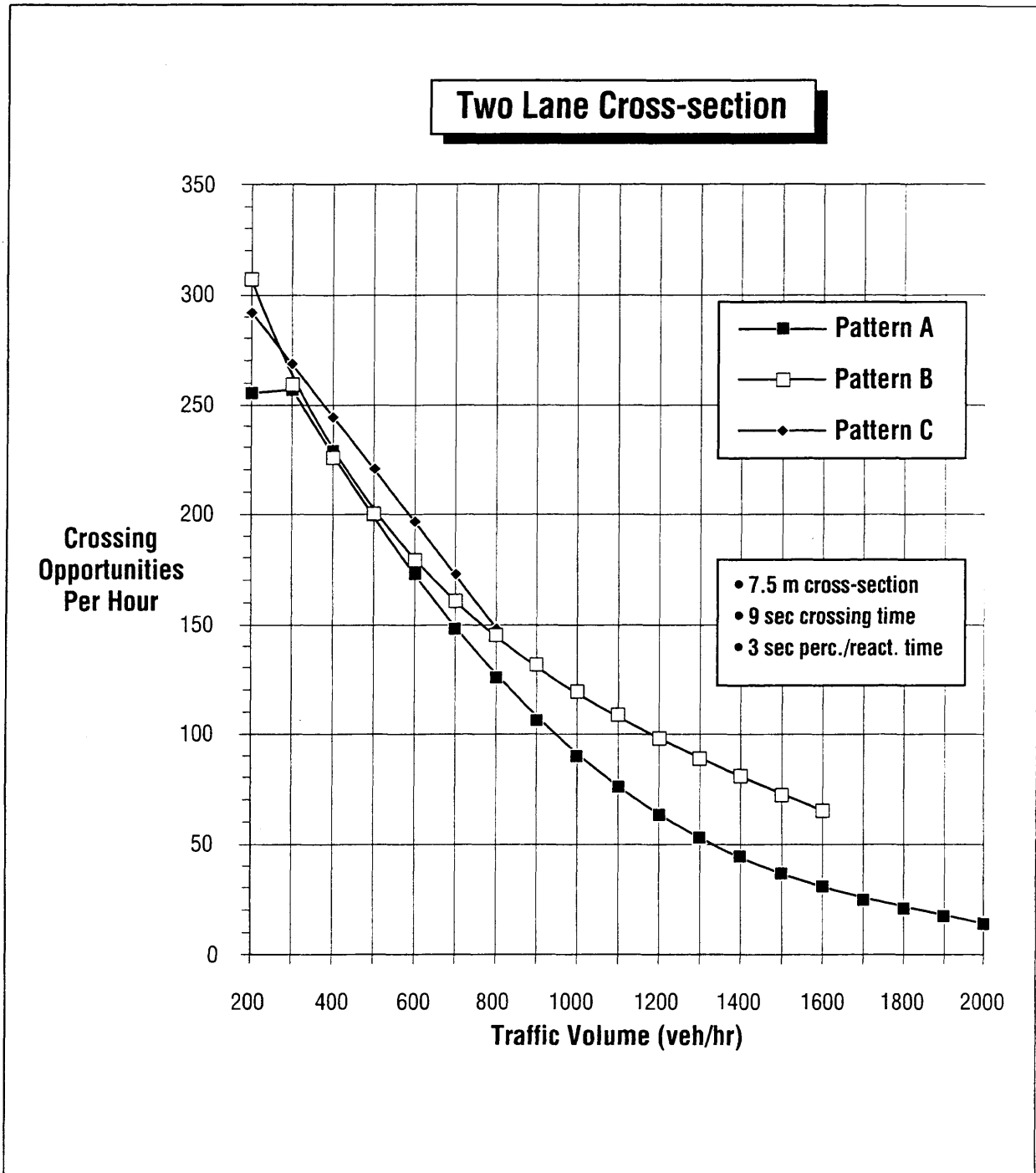
1. **Unmarked crosswalks** - Pedestrians have the right-of-way at all intersections, thus marked crosswalks are not required at low volume intersections.
2. **Signed and marked crosswalks** are installed to draw a driver's attention to a crossing location and to indicate to pedestrians that the location is a preferred place to cross the road.
3. **Special crosswalks** are pushbutton operated and are reserved where higher volumes and complex locations make it more difficult for drivers to realize that a pedestrian wishes to cross the road.
4. **Pedestrian signals** are pushbutton actuated half-signals that stop traffic to allow pedestrians to cross very busy arterial streets where normal crossing opportunities are infrequent.

Pedestrian volumes must be converted to equivalent adult units (EAUs) where higher values are given for children, seniors, and disabled persons. Pedestrian counts obtained by pedestrian class for a one-hour assessment period are adjusted using factors shown in following table to determine the EAU for a crosswalk location.

Table - Determination of Equivalent Adult Unit (EAU) Crossing Volumes			
Pedestrian Class	Number in Each Class	Factor	Equivalent Adult Unit
Children - 12 and under	?	X 2.0	= ?
Seniors - 65 and older	?	X 1.5	= ?
Disabled	?	X 2.0	= ?
Adults	?	X 1.0	= ?
			<b>Total EAU</b>

The number of crossing opportunities at a location depends on the number of lanes to be crossed, vehicle traffic volume on the road during the one-hour assessment period, and the proximity to traffic signals at other locations along the road. The estimated crossing opportunities for a two-lane road are shown in graphical form in Figure 9 of the *Pedestrian Crossing Control Manual* which is included on Page D-31 of this Report. The traffic 'Pattern A' line on the chart is for areas where traffic signals are far enough away that there is no impact, such as queues of vehicles, on traffic patterns at the crossing location. Using Figure 9, it can be determined that a volume of 1000 vph would provide about 90 crossing opportunities in the one-hour assessment period.

The appropriate traffic control device for a crosswalk on a two-lane road can be selected from the Warrant Chart (Figure 13, *Pedestrian Crossing Control Manual*) on Page D-32 of this Report. Equivalent Adult Units (EAUs) of pedestrian crossing volume calculated using factors in the above table and Crossing Opportunities (COs) estimated from Figure 9 of the *Pedestrian Crossing Control Manual* are used in the Warrant Chart to select an appropriate crosswalk design.



**Figure 9: Estimated Crossing Opportunities for a 2 Lane Cross-Section**

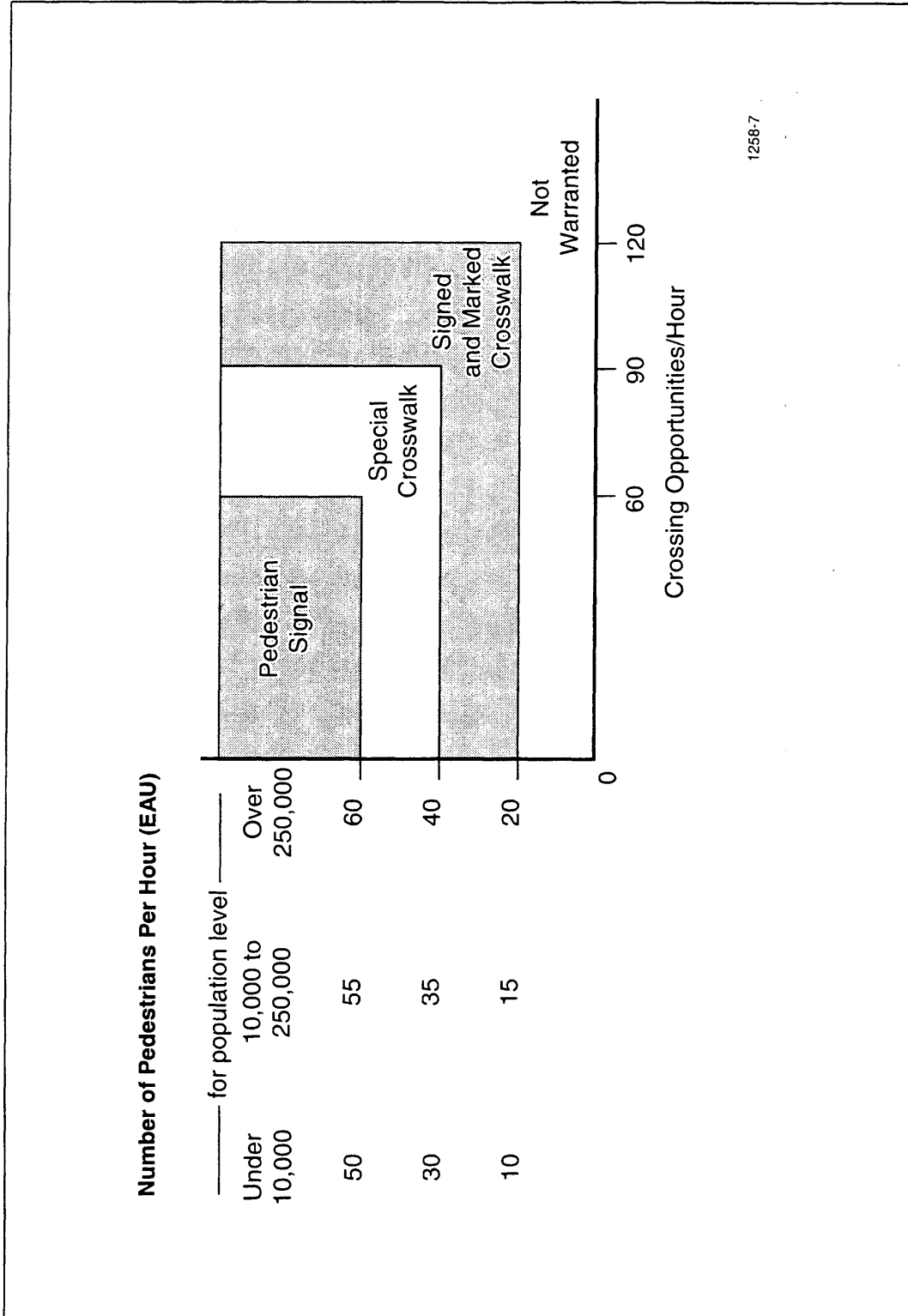


Figure 13: Pedestrian Crossing Control Warrant Chart

***Appendix E***  
***Intersection Level of Performance Analyses***

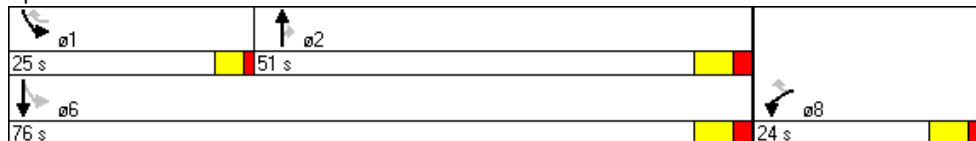
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	1883	1601	1789	1883
Flt Permitted	0.950				0.434	
Satd. Flow (perm)	1789	1601	1883	1601	817	1883
Satd. Flow (RTOR)		179		250		
Volume (vph)	175	165	300	230	485	915
Lane Group Flow (vph)	190	179	326	250	527	995
Turn Type	custom			Perm	pm+pt	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2	6	
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	8.0	22.0
Total Split (s)	24.0	49.0	51.0	51.0	25.0	76.0
Total Split (%)	24.0%	49.0%	51.0%	51.0%	25.0%	76.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	1.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	14.1	33.4	22.6	22.6	42.9	45.2
Actuated g/C Ratio	0.22	0.50	0.37	0.37	0.69	0.73
v/c Ratio	0.48	0.20	0.47	0.34	0.66	0.72
Control Delay	31.7	3.0	19.2	3.6	9.5	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	3.0	19.2	3.6	9.5	11.5
LOS	C	A	B	A	A	B
Approach Delay	17.8		12.5			10.8
Approach LOS	B		B			B
Queue Length 50th (m)	18.6	0.0	29.4	0.0	24.6	69.9
Queue Length 95th (m)	54.7	11.2	59.4	12.3	51.0	145.2
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	45.0	
Base Capacity (vph)	547	1030	1071	1018	833	1514
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.17	0.30	0.25	0.63	0.66

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 61.9  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 12.2  
 Intersection Capacity Utilization 64.5%  
 Analysis Period (min) 15










Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 1: Glendale & Beaver Bank Road














	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	665	50	155	325	15	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	723	54	168	353	16	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			777		1440	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			777		1440	750
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			80		86	85
cM capacity (veh/h)			839		117	411
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	777	522	76			
Volume Left	0	168	16			
Volume Right	54	0	60			
cSH	1700	839	267			
Volume to Capacity	0.46	0.20	0.28			
Queue Length 95th (m)	0.0	5.7	8.7			
Control Delay (s)	0.0	5.1	23.8			
Lane LOS		A	C			
Approach Delay (s)	0.0	5.1	23.8			
Approach LOS			C			
<b>Intersection Summary</b>						
Average Delay			3.3			
Intersection Capacity Utilization			77.9%		ICU Level of Service	D
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	680	380	80	175	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	739	413	87	190	109
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	500				1283	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500				1283	457
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				0	82
cM capacity (veh/h)	1064				175	604
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	783	500	299			
Volume Left	43	0	190			
Volume Right	0	87	109			
cSH	1064	1700	236			
Volume to Capacity	0.04	0.29	1.27			
Queue Length 95th (m)	1.0	0.0	115.9			
Control Delay (s)	1.1	0.0	191.7			
Lane LOS	A		F			
Approach Delay (s)	1.1	0.0	191.7			
Approach LOS			F			
<b>Intersection Summary</b>						
Average Delay			36.8			
Intersection Capacity Utilization			88.7%		ICU Level of Service	E
Analysis Period (min)			15			

4: Glendale & Rankin Drive

2016 AM Peak without Hwy 107 (Fig C3-A Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	765	400	30	45	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	832	435	33	49	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)			221			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	467				1304	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441				1319	424
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				70	96
cM capacity (veh/h)	1066				163	600
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	842	467	71			
Volume Left	11	0	49			
Volume Right	0	33	22			
cSH	1066	1700	210			
Volume to Capacity	0.01	0.27	0.34			
Queue Length 95th (m)	0.2	0.0	10.7			
Control Delay (s)	0.3	0.0	30.5			
Lane LOS	A		D			
Approach Delay (s)	0.3	0.0	30.5			
Approach LOS			D			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			58.6%		ICU Level of Service	B
Analysis Period (min)			15			

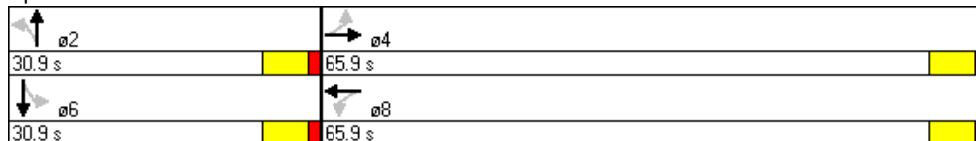
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1863	0	1789	1880	0	0	1701	0	0	1742	0
Flt Permitted	0.490			0.190				0.900			0.873	
Satd. Flow (perm)	923	1863	0	358	1880	0	0	1551	0	0	1547	0
Satd. Flow (RTOR)		8			1			89			33	
Volume (vph)	20	730	60	110	345	5	55	20	130	25	15	30
Lane Group Flow (vph)	22	858	0	120	380	0	0	223	0	0	76	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	65.9	65.9	0.0	65.9	65.9	0.0	30.9	30.9	0.0	30.9	30.9	0.0
Total Split (%)	68.1%	68.1%	0.0%	68.1%	68.1%	0.0%	31.9%	31.9%	0.0%	31.9%	31.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	38.0	38.0		38.0	38.0			13.4			13.4	
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.22			0.22	
v/c Ratio	0.04	0.73		0.53	0.32			0.54			0.21	
Control Delay	5.0	12.1		17.2	6.2			18.7			15.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.0	12.1		17.2	6.2			18.7			15.6	
LOS	A	B		B	A			B			B	
Approach Delay		11.9			8.8			18.7			15.6	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	0.7	45.6		5.2	13.7			9.9			3.0	
Queue Length 95th (m)	3.6	122.5		26.5	37.7			40.8			16.5	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	688	1390		267	1401			641			605	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.62		0.45	0.27			0.35			0.13	













Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 60  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 12.1  
 Intersection Capacity Utilization 72.6%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 5: Glendale & Riverside



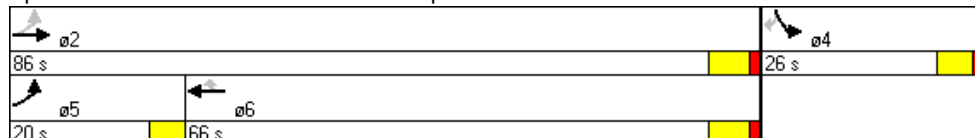
						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.530				0.950	
Satd. Flow (perm)	998	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				207		87
Volume (vph)	315	570	230	190	285	200
Lane Group Flow (vph)	342	620	250	207	310	217
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	5.0	5.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	20.0	86.0	66.0	66.0	26.0	26.0
Total Split (%)	17.9%	76.8%	58.9%	58.9%	23.2%	23.2%
Yellow Time (s)	4.0	4.5	4.5	4.5	4.1	4.1
All-Red Time (s)	0.0	1.5	1.5	1.5	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	40.2	40.2	22.4	22.4	19.2	19.2
Actuated g/C Ratio	0.60	0.60	0.33	0.33	0.28	0.28
v/c Ratio	0.45	0.55	0.40	0.31	0.61	0.42
Control Delay	9.4	11.0	21.3	4.6	27.1	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	11.0	21.3	4.6	27.1	14.8
LOS	A	B	C	A	C	B
Approach Delay		10.4	13.7		22.0	
Approach LOS		B	B		C	
Queue Length 50th (m)	20.8	45.5	26.4	0.0	34.9	13.1
Queue Length 95th (m)	35.2	73.1	45.7	13.0	59.1	30.2
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	759	1414	1092	1015	562	563
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.44	0.23	0.20	0.55	0.39











Intersection Summary

Cycle Length: 112  
 Actuated Cycle Length: 67.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 14.3  
 Intersection Capacity Utilization 59.9%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 6: Glendale & Metropolitan



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	780	75	20	395	25	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	848	82	22	429	27	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			929		1361	889
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			909		1463	857
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		74	92
cM capacity (veh/h)			584		106	278
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	929	451	49			
Volume Left	0	22	27			
Volume Right	82	0	22			
cSH	1700	584	147			
Volume to Capacity	0.55	0.04	0.33			
Queue Length 95th (m)	0.0	0.9	10.3			
Control Delay (s)	0.0	1.1	41.4			
Lane LOS		A	E			
Approach Delay (s)	0.0	1.1	41.4			
Approach LOS			E			
<b>Intersection Summary</b>						
Average Delay			1.8			
Intersection Capacity Utilization			55.6%		ICU Level of Service	B
Analysis Period (min)			15			

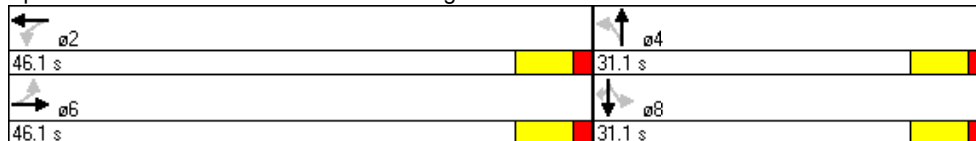
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1874	0	0	1821	0	0	1748	0	0	1810	1601
Flt Permitted		0.971			0.925			0.873			0.712	
Satd. Flow (perm)	0	1823	0	0	1690	0	0	1551	0	0	1341	1601
Satd. Flow (RTOR)		2			29			53				38
Volume (vph)	35	925	20	25	330	100	55	40	70	85	20	35
Lane Group Flow (vph)	0	1065	0	0	495	0	0	179	0	0	114	38
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phases	6	6		2	2		4	4		8	8	8
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	32.1	32.1		32.1	32.1		22.1	22.1		22.1	22.1	22.1
Total Split (s)	46.1	46.1	0.0	46.1	46.1	0.0	31.1	31.1	0.0	31.1	31.1	31.1
Total Split (%)	59.7%	59.7%	0.0%	59.7%	59.7%	0.0%	40.3%	40.3%	0.0%	40.3%	40.3%	40.3%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.6	1.6		1.6	1.6		1.6	1.6		1.6	1.6	1.6
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)		45.1			45.1			13.2			13.2	13.2
Actuated g/C Ratio		0.68			0.68			0.20			0.20	0.20
v/c Ratio		0.86			0.43			0.51			0.43	0.11
Control Delay		19.3			6.5			20.6			26.7	8.1
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		19.3			6.5			20.6			26.7	8.1
LOS		B			A			C			C	A
Approach Delay		19.3			6.5			20.6			22.0	
Approach LOS		B			A			C			C	
Queue Length 50th (m)		79.0			19.9			12.8			11.6	0.0
Queue Length 95th (m)		#206.5			47.3			28.3			24.1	6.0
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)												20.0
Base Capacity (vph)		1239			1158			561			455	568
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.86			0.43			0.32			0.25	0.07

Intersection Summary

Cycle Length: 77.2  
 Actuated Cycle Length: 66.4  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 16.3  
 Intersection Capacity Utilization 83.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.











Intersection LOS: B  
 ICU Level of Service E

Splits and Phases: 8: Glendale & McDougall



	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↗
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1020	60	45	430	25	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1109	65	49	467	27	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	337					
pX, platoon unblocked			0.41		0.41	0.41
vC, conflicting volume			1174		1707	1141
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1427		2736	1347
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			75		0	35
cM capacity (veh/h)			194		7	75
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1174	516	76			
Volume Left	0	49	27			
Volume Right	65	0	49			
cSH	1700	194	16			
Volume to Capacity	0.69	0.25	4.64			
Queue Length 95th (m)	0.0	7.3	Err			
Control Delay (s)	0.0	12.2	Err			
Lane LOS		B	F			
Approach Delay (s)	0.0	12.2	Err			
Approach LOS			F			
<b>Intersection Summary</b>						
Average Delay			434.3			
Intersection Capacity Utilization			70.9%	ICU Level of Service		C
Analysis Period (min)			15			



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	965	395	10	20	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1049	429	11	22	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	440				1527	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				1527	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				83	92
cM capacity (veh/h)	1120				127	621
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	1071	440	71			
Volume Left	22	0	22			
Volume Right	0	11	49			
cSH	1120	1700	282			
Volume to Capacity	0.02	0.26	0.25			
Queue Length 95th (m)	0.5	0.0	7.3			
Control Delay (s)	0.6	0.0	21.9			
Lane LOS	A		C			
Approach Delay (s)	0.6	0.0	21.9			
Approach LOS			C			
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization			77.4%		ICU Level of Service	D
Analysis Period (min)			15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	975	15	25	360	35	10	10	40	20	5	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	1060	16	27	391	38	11	11	43	22	5	38
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	429			1076			1587	1584	1068	1606	1573	410
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	429			1076			1587	1584	1068	1606	1573	410
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			86	89	84	65	95	94
cM capacity (veh/h)	1130			648			76	102	269	62	104	641
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	16	1076	27	429	65	65						
Volume Left	16	0	27	0	11	22						
Volume Right	0	16	0	38	43	38						
cSH	1130	1700	648	1700	158	142						
Volume to Capacity	0.01	0.63	0.04	0.25	0.41	0.46						
Queue Length 95th (m)	0.3	0.0	1.0	0.0	13.8	15.9						
Control Delay (s)	8.2	0.0	10.8	0.0	42.8	50.3						
Lane LOS	A		B		E	F						
Approach Delay (s)	0.1		0.6		42.8	50.3						
Approach LOS					E	F						
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			65.3%		ICU Level of Service				C			
Analysis Period (min)			15									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3400	0	1789	3392	0	1789	3289	0	1789	3503	0
Flt Permitted	0.456			0.175			0.452			0.328		
Satd. Flow (perm)	859	3400	0	330	3392	0	851	3289	0	618	3503	0
Satd. Flow (RTOR)		91			102			223			22	
Volume (vph)	90	515	260	150	205	110	130	175	205	425	425	70
Lane Group Flow (vph)	98	843	0	163	343	0	141	413	0	462	538	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		5	2		1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9		11.4	12.9		11.4	12.9	
Total Split (s)	14.4	26.9	0.0	14.4	26.9	0.0	14.4	26.9	0.0	24.4	36.9	0.0
Total Split (%)	15.6%	29.0%	0.0%	15.6%	29.0%	0.0%	15.6%	29.0%	0.0%	26.3%	39.8%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5		3.4	4.5		3.4	4.5	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	
Act Effct Green (s)	30.6	21.9		32.1	22.7		21.6	12.4		34.9	21.6	
Actuated g/C Ratio	0.39	0.28		0.41	0.29		0.28	0.16		0.45	0.28	
v/c Ratio	0.22	0.83		0.53	0.33		0.41	0.58		0.84	0.55	
Control Delay	15.4	33.0		20.8	17.0		18.5	17.8		32.0	25.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.4	33.0		20.8	17.0		18.5	17.8		32.0	25.7	
LOS	B	C		C	B		B	B		C	C	
Approach Delay		31.2			18.2			18.0			28.6	
Approach LOS		C			B			B			C	
Queue Length 50th (m)	8.5	57.9		14.6	14.7		12.7	14.2		51.6	35.6	
Queue Length 95th (m)	18.7	#95.8		29.0	28.0		23.0	27.4		#90.3	50.8	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0			40.0			35.0		
Base Capacity (vph)	469	1052		331	1090		369	1018		568	1305	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.80		0.49	0.31		0.38	0.41		0.81	0.41	

Intersection Summary

Cycle Length: 92.6  
 Actuated Cycle Length: 78.4  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 25.7  
 Intersection Capacity Utilization 79.2%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 12: Glendale & Cobequid

24.4 s	26.9 s	14.4 s	26.9 s
14.4 s	36.9 s	14.4 s	26.9 s

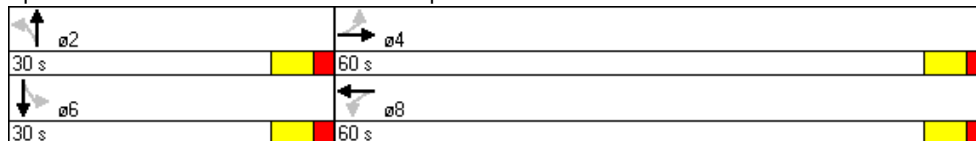
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3543	0	1789	3553	0	1789	1601	0	0	1713	0
Flt Permitted	0.396			0.205			0.751				0.919	
Satd. Flow (perm)	746	3543	0	386	3553	0	1414	1601	0	0	1613	0
Satd. Flow (RTOR)		15			10			125			5	
Volume (vph)	15	940	65	50	535	25	30	0	60	5	0	5
Lane Group Flow (vph)	16	1093	0	54	609	0	33	65	0	0	10	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	48.8	48.8		48.8	48.8		10.8	10.8			10.8	
Actuated g/C Ratio	0.73	0.73		0.73	0.73		0.16	0.16			0.16	
v/c Ratio	0.03	0.42		0.19	0.23		0.15	0.18			0.04	
Control Delay	3.7	4.4		6.0	3.5		15.1	2.3			11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	3.7	4.4		6.0	3.5		15.1	2.3			11.6	
LOS	A	A		A	A		B	A			B	
Approach Delay		4.4			3.7			6.6			11.6	
Approach LOS		A			A			A			B	
Queue Length 50th (m)	0.4	18.1		1.4	8.4		2.4	0.0			0.4	
Queue Length 95th (m)	1.9	32.3		6.0	15.7		7.5	2.5			3.1	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	608	2889		314	2896		480	626			551	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.03	0.38		0.17	0.21		0.07	0.10			0.02	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 66.8  
 Natural Cycle: 50  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.42  
 Intersection Signal Delay: 4.3  
 Intersection Capacity Utilization 46.5%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 13: Glendale & Temple Terrace



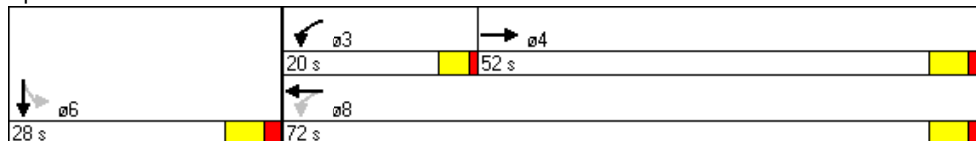
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3310	0	1789	3579	0	0	0	0	1789	1601	0
Flt Permitted				0.124						0.950		
Satd. Flow (perm)	0	3310	0	234	3579	0	0	0	0	1789	1601	0
Satd. Flow (RTOR)		347									500	
Volume (vph)	0	525	525	150	380	0	0	0	0	90	0	170
Lane Group Flow (vph)	0	1142	0	163	413	0	0	0	0	98	185	0
Turn Type				pm+pt						Perm		
Protected Phases		4		3	8						6	
Permitted Phases				8						6		
Detector Phases		4		3	8					6	6	
Minimum Initial (s)		4.0		4.0	4.0					4.0	4.0	
Minimum Split (s)		22.0		9.0	22.0					22.0	22.0	
Total Split (s)	0.0	52.0	0.0	20.0	72.0	0.0	0.0	0.0	0.0	28.0	28.0	0.0
Total Split (%)	0.0%	52.0%	0.0%	20.0%	72.0%	0.0%	0.0%	0.0%	0.0%	28.0%	28.0%	0.0%
Yellow Time (s)		4.0		3.0	4.0					4.0	4.0	
All-Red Time (s)		2.0		1.0	2.0					2.0	2.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		Min		None	Min					None	None	
Act Effct Green (s)		32.7		41.5	42.6					10.8	10.8	
Actuated g/C Ratio		0.56		0.69	0.73					0.18	0.18	
v/c Ratio		0.57		0.45	0.16					0.31	0.27	
Control Delay		8.9		9.0	3.5					24.7	0.9	
Queue Delay		0.0		0.0	0.0					0.0	0.0	
Total Delay		8.9		9.0	3.5					24.7	0.9	
LOS		A		A	A					C	A	
Approach Delay		8.9			5.1						9.2	
Approach LOS		A			A						A	
Queue Length 50th (m)		28.2		4.6	6.3					8.0	0.0	
Queue Length 95th (m)		58.1		16.2	13.0					24.8	0.0	
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)				90.0						300.0		
Base Capacity (vph)		2371		512	2944					592	864	
Starvation Cap Reductn		0		0	0					0	0	
Spillback Cap Reductn		0		0	0					0	0	
Storage Cap Reductn		0		0	0					0	0	
Reduced v/c Ratio		0.48		0.32	0.14					0.17	0.21	

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 58.2  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 7.8  
 Intersection Capacity Utilization 60.2%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 14: Glendale & HWY 102 SB Off



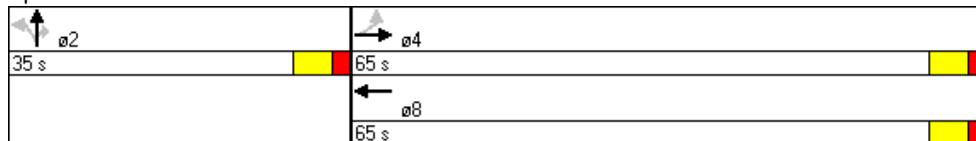
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3468	0	1700	1700	1601	0	0	0
Flt Permitted	0.539						0.950	0.950				
Satd. Flow (perm)	1015	3579	0	0	3468	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					59				277			
Volume (vph)	245	370	0	0	255	65	275	0	255	0	0	0
Lane Group Flow (vph)	266	402	0	0	348	0	150	149	277	0	0	0
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phases	4	4			8		2	2	2			
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0	4.0			
Minimum Split (s)	22.0	22.0			22.0		22.0	22.0	22.0			
Total Split (s)	65.0	65.0	0.0	0.0	65.0	0.0	35.0	35.0	35.0	0.0	0.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	0.0%	65.0%	0.0%	35.0%	35.0%	35.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min			Min		None	None	None			
Act Effct Green (s)	24.7	24.7			24.7		11.9	11.9	11.9			
Actuated g/C Ratio	0.59	0.59			0.59		0.27	0.27	0.27			
v/c Ratio	0.44	0.19			0.17		0.33	0.32	0.44			
Control Delay	9.9	5.8			4.8		14.6	14.5	4.8			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	9.9	5.8			4.8		14.6	14.5	4.8			
LOS	A	A			A		B	B	A			
Approach Delay		7.4			4.8			9.9				
Approach LOS		A			A			A				
Queue Length 50th (m)	9.4	6.2			4.3		6.7	6.7	0.0			
Queue Length 95th (m)	31.7	16.0			12.1		25.7	25.6	13.6			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		40.0			
Base Capacity (vph)	810	2858			2781		852	852	940			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.33	0.14			0.13		0.18	0.17	0.29			

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 41.6  
 Natural Cycle: 50  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.44  
 Intersection Signal Delay: 7.7  
 Intersection Capacity Utilization 60.2%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 15: Duke & HWY 102 NB On



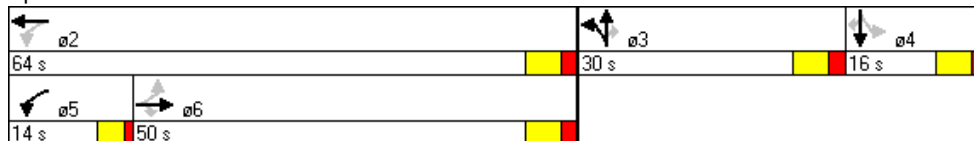
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1700	1601	0	1883	1601
Flt Permitted	0.581			0.410			0.950	0.950				
Satd. Flow (perm)	1094	3579	1601	772	3579	0	1700	1700	1601	0	1883	1601
Satd. Flow (RTOR)			408						130			490
Volume (vph)	10	395	375	105	255	0	210	0	120	0	0	10
Lane Group Flow (vph)	11	429	408	114	277	0	114	114	130	0	0	11
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	0.0	30.0	30.0	30.0	16.0	16.0	16.0
Total Split (%)	45.5%	45.5%	45.5%	12.7%	58.2%	0.0%	27.3%	27.3%	27.3%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	None	Min		None	None	None	None	None	None
Act Effct Green (s)	29.8	29.8	29.8	38.5	38.9		13.9	13.9	13.9			8.8
Actuated g/C Ratio	0.47	0.47	0.47	0.58	0.62		0.21	0.21	0.21			0.12
v/c Ratio	0.02	0.25	0.42	0.19	0.13		0.31	0.31	0.29			0.02
Control Delay	14.8	12.5	3.7	7.4	5.9		19.3	19.3	6.4			0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			0.0
Total Delay	14.8	12.5	3.7	7.4	5.9		19.3	19.3	6.4			0.1
LOS	B	B	A	A	A		B	B	A			A
Approach Delay		8.3			6.3			14.6				
Approach LOS		A			A			B				
Queue Length 50th (m)	0.6	13.0	0.0	3.1	4.1		7.5	7.5	0.0			0.0
Queue Length 95th (m)	4.3	35.6	17.8	15.6	16.2		27.2	27.2	12.0			0.0
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	744	2433	1219	606	2809		649	649	692			690
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.01	0.18	0.33	0.19	0.10		0.18	0.18	0.19			0.02










Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 63  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.42  
 Intersection Signal Delay: 9.2  
 Intersection Capacity Utilization 35.7%  
 Analysis Period (min) 15













Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	410	275	5	10	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	446	299	5	11	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	304				867	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	304				867	302
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				96	93
cM capacity (veh/h)	1256				308	738
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	505	304	65			
Volume Left	60	0	11			
Volume Right	0	5	54			
cSH	1256	1700	599			
Volume to Capacity	0.05	0.18	0.11			
Queue Length 95th (m)	1.1	0.0	2.8			
Control Delay (s)	1.4	0.0	11.7			
Lane LOS	A		B			
Approach Delay (s)	1.4	0.0	11.7			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			53.0%		ICU Level of Service	A
Analysis Period (min)			15			



						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	175	245	145	50	75	135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	190	266	158	54	82	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	524	155	82			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	524	155	82			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	70	90			
cM capacity (veh/h)	460	891	1516			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	457	158	54	228		
Volume Left	190	158	0	0		
Volume Right	266	0	0	147		
cSH	1104	1516	1700	1700		
Volume to Capacity	0.41	0.10	0.03	0.13		
Queue Length 95th (m)	15.7	2.6	0.0	0.0		
Control Delay (s)	13.9	7.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.9	5.7		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			8.4			
Intersection Capacity Utilization			40.0%		ICU Level of Service	A
Analysis Period (min)			15			

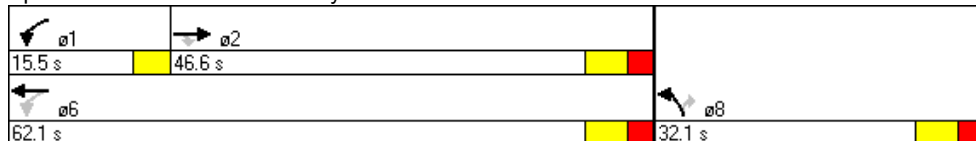
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↘	↑↑	↘↗	↗
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	3579	1601	1789	3579	3471	1601
Flt Permitted			0.367		0.950	
Satd. Flow (perm)	3579	1601	691	3579	3471	1601
Satd. Flow (RTOR)		489				136
Volume (vph)	480	450	425	920	385	125
Lane Group Flow (vph)	522	489	462	1000	418	136
Turn Type		Perm	pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phases	2	2	1	6	8	8
Minimum Initial (s)	25.0	25.0	7.0	25.0	12.0	12.0
Minimum Split (s)	31.6	31.6	10.5	31.6	19.1	19.1
Total Split (s)	46.6	46.6	15.5	62.1	32.1	32.1
Total Split (%)	49.5%	49.5%	16.5%	65.9%	34.1%	34.1%
Yellow Time (s)	4.1	4.1	3.5	4.1	4.1	4.1
All-Red Time (s)	2.5	2.5	0.0	2.5	3.0	3.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	Min	Min	Min
Act Effct Green (s)	27.7	27.7	42.8	42.8	17.3	17.3
Actuated g/C Ratio	0.41	0.41	0.63	0.63	0.25	0.25
v/c Ratio	0.36	0.52	0.75	0.44	0.47	0.27
Control Delay	15.5	3.9	17.0	7.6	23.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	3.9	17.0	7.6	23.5	5.6
LOS	B	A	B	A	C	A
Approach Delay	9.9			10.6	19.1	
Approach LOS	A			B	B	
Queue Length 50th (m)	22.9	0.0	24.1	28.2	23.2	0.0
Queue Length 95th (m)	38.2	16.9	#60.1	48.9	34.8	11.0
Internal Link Dist (m)	387.5			407.9	804.6	
Turn Bay Length (m)		60.0	100.0			170.0
Base Capacity (vph)	1835	1059	617	2493	1237	658
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.46	0.75	0.40	0.34	0.21

Intersection Summary

Cycle Length: 94.2  
 Actuated Cycle Length: 68.2  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 11.9  
 Intersection Capacity Utilization 65.4%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 19: Akerley & Burnside Drive



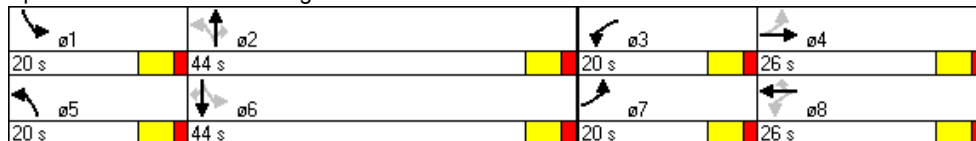
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3425	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.370			0.475			0.307			0.418		
Satd. Flow (perm)	697	3425	0	895	3579	1601	578	3579	1601	787	3579	1601
Satd. Flow (RTOR)		50				76			353			255
Volume (vph)	35	185	75	130	340	70	90	405	325	85	555	235
Lane Group Flow (vph)	38	283	0	141	370	76	98	440	353	92	603	255
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	20.0	26.0	0.0	20.0	26.0	26.0	20.0	44.0	44.0	20.0	44.0	44.0
Total Split (%)	18.2%	23.6%	0.0%	18.2%	23.6%	23.6%	18.2%	40.0%	40.0%	18.2%	40.0%	40.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	18.5	13.2		23.7	20.1	20.1	26.8	20.3	20.3	26.1	20.0	20.0
Actuated g/c Ratio	0.26	0.21		0.36	0.32	0.32	0.41	0.32	0.32	0.40	0.31	0.31
v/c Ratio	0.12	0.38		0.30	0.33	0.14	0.24	0.38	0.47	0.20	0.54	0.38
Control Delay	17.5	23.7		17.2	21.4	7.6	11.9	20.3	4.9	11.7	22.5	4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	23.7		17.2	21.4	7.6	11.9	20.3	4.9	11.7	22.5	4.9
LOS	B	C		B	C	A	B	C	A	B	C	A
Approach Delay		22.9			18.6			13.3			16.7	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	2.8	13.5		11.1	15.6	0.0	6.2	22.9	0.0	5.8	33.4	0.0
Queue Length 95th (m)	9.9	30.4		27.9	41.2	10.2	16.2	42.4	17.4	15.5	60.1	15.6
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	467	1157		540	1330	643	533	1781	974	571	1774	922
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24		0.26	0.28	0.12	0.18	0.25	0.36	0.16	0.34	0.28

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 63.6  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.54  
 Intersection Signal Delay: 16.7  
 Intersection Capacity Utilization 48.4%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 20: Wright & Burnside Drive



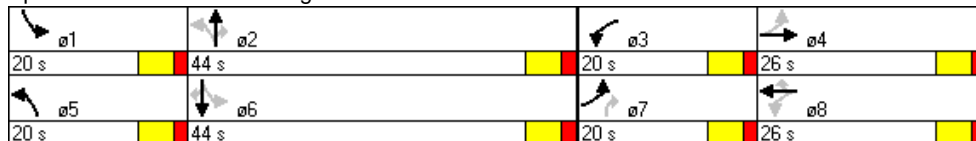
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3425	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.370			0.475			0.307			0.418		
Satd. Flow (perm)	697	3425	0	895	3579	1601	578	3579	1601	787	3579	1601
Satd. Flow (RTOR)		50				76			353			255
Volume (vph)	35	185	75	170	340	70	90	405	325	85	555	235
Lane Group Flow (vph)	38	283	0	185	370	76	98	440	353	92	603	255
Turn Type	pm+pt			pm+pt		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2.7	6		6
Detector Phases	7	4		3	8	8	5	2	2.7	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0		9.5	22.0	22.0
Total Split (s)	20.0	26.0	0.0	20.0	26.0	26.0	20.0	44.0	64.0	20.0	44.0	44.0
Total Split (%)	18.2%	23.6%	0.0%	18.2%	23.6%	23.6%	18.2%	40.0%	58.2%	18.2%	40.0%	40.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0		1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Min		None	Min	Min
Act Effct Green (s)	22.6	16.6		26.7	15.9	15.9	27.4	20.0	32.9	26.6	19.6	19.6
Actuated g/C Ratio	0.34	0.25		0.38	0.24	0.24	0.39	0.30	0.49	0.38	0.29	0.29
v/c Ratio	0.10	0.32		0.38	0.44	0.17	0.25	0.41	0.37	0.21	0.58	0.39
Control Delay	16.0	23.8		17.9	25.9	7.8	12.6	21.6	2.8	12.2	24.2	5.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	23.8		17.9	25.9	7.8	12.6	21.6	2.8	12.2	24.2	5.2
LOS	B	C		B	C	A	B	C	A	B	C	A
Approach Delay		22.8			21.3			13.1			18.0	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	2.9	13.9		15.1	21.2	0.0	6.5	23.6	0.0	6.1	34.6	0.0
Queue Length 95th (m)	10.0	30.8		36.0	41.3	10.1	16.6	43.1	13.2	15.8	61.2	15.7
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	500	1138		535	1120	554	502	1676	1152	539	1667	882
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.25		0.35	0.33	0.14	0.20	0.26	0.31	0.17	0.36	0.29

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 67.4  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 17.7  
 Intersection Capacity Utilization 50.6%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 20: Wright & Burnside Drive



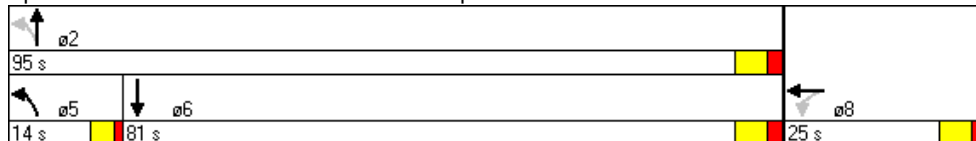
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1816	1601	0	3575	0	0	3579	1601
Flt Permitted					0.964			0.927				
Satd. Flow (perm)	0	0	0	0	1816	1601	0	3317	0	0	3579	1601
Satd. Flow (RTOR)						291						326
Volume (vph)	0	0	0	175	60	1005	30	1200	0	0	550	300
Lane Group Flow (vph)	0	0	0	0	255	1092	0	1337	0	0	598	326
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Max			Max	
Act Effct Green (s)					20.3	120.0		91.7			91.7	120.0
Actuated g/C Ratio					0.17	1.00		0.76			0.76	1.00
v/c Ratio					0.83	0.68		0.53			0.22	0.20
Control Delay					70.5	2.4		6.6			4.3	0.3
Queue Delay					7.4	0.0		13.1			0.0	0.0
Total Delay					77.9	2.4		19.6			4.3	0.3
LOS					E	A		B			A	A
Approach Delay					16.7			19.6			2.9	
Approach LOS					B			B			A	
Queue Length 50th (m)					58.2	0.0		57.2			18.3	0.0
Queue Length 95th (m)					#98.0	0.0		70.0			23.7	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					316	1601		2534			2735	1601
Starvation Cap Reductn					0	0		1196			0	0
Spillback Cap Reductn					35	0		0			387	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					0.91	0.68		1.00			0.25	0.20

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 14.3  
 Intersection Capacity Utilization 72.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1683	0	0	0	0	0	3428	0	1700	1779	0
Flt Permitted	0.950	0.958								0.950	0.994	
Satd. Flow (perm)	1700	1683	0	0	0	0	0	3428	0	1700	1779	0
Satd. Flow (RTOR)		7						41				
Volume (vph)	935	0	55	0	0	0	0	295	115	400	325	0
Lane Group Flow (vph)	567	509	0	0	0	0	0	446	0	384	404	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	55.0	55.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	40.0	40.0	0.0
Total Split (%)	45.8%	45.8%	0.0%	0.0%	0.0%	0.0%	0.0%	20.8%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						None		None	None	
Act Effct Green (s)	37.9	37.9						17.7		27.5	27.5	
Actuated g/C Ratio	0.39	0.39						0.18		0.29	0.29	
v/c Ratio	0.85	0.77						0.67		0.79	0.80	
Control Delay	40.9	34.6						42.1		47.2	46.8	
Queue Delay	2.5	1.4						0.0		17.9	23.0	
Total Delay	43.4	36.0						42.1		65.1	69.9	
LOS	D	D						D		E	E	
Approach Delay		39.9						42.1			67.6	
Approach LOS		D						D			E	
Queue Length 50th (m)	111.6	94.4						42.9		78.4	82.6	
Queue Length 95th (m)	168.3	143.2						65.5		124.5	129.7	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	812	807						798		606	634	
Starvation Cap Reductn	0	0						0		212	230	
Spillback Cap Reductn	139	138						3		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.84	0.76						0.56		0.97	1.00	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 96.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 49.8  
 Intersection Capacity Utilization 69.0%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service C

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive

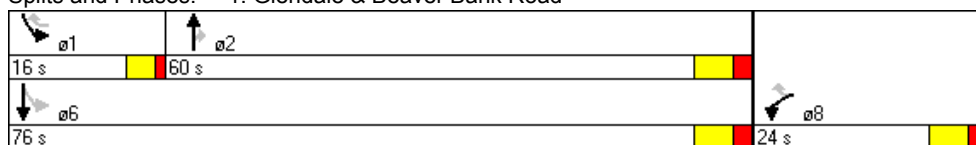


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑	↗	↘	↑
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	1883	1601	1789	1883
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1789	1601	1883	1601	126	1883
Satd. Flow (RTOR)		83		71		
Volume (vph)	225	520	995	155	285	500
Lane Group Flow (vph)	245	565	1082	168	310	543
Turn Type	custom			Perm	pm+pt	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2	6	
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	22.0		22.0	22.0	11.0	22.0
Total Split (s)	24.0	40.0	60.0	60.0	16.0	76.0
Total Split (%)	24.0%	40.0%	60.0%	60.0%	16.0%	76.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	1.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	20.0	36.0	56.0	56.0	72.0	72.0
Actuated g/C Ratio	0.20	0.36	0.56	0.56	0.72	0.72
v/c Ratio	0.68	0.90	1.03	0.18	1.07	0.40
Control Delay	48.1	45.1	58.1	6.6	101.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	45.1	58.1	6.6	101.0	6.6
LOS	D	D	E	A	F	A
Approach Delay	46.0		51.2			40.9
Approach LOS	D		D			D
Queue Length 50th (m)	44.4	89.7	~225.0	8.3	~51.1	35.5
Queue Length 95th (m)	#70.5	#153.9	#299.6	17.9	#103.2	51.4
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	45.0	
Base Capacity (vph)	358	629	1054	928	290	1356
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.90	1.03	0.18	1.07	0.40

Intersection Summary










Cycle Length: 100  
 Actuated Cycle Length: 100  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 46.7  
 Intersection Capacity Utilization 91.2%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.










Splits and Phases: 1: Glendale & Beaver Bank Road



	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	400	40	130	665	80	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	435	43	141	723	87	158
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			478		1462	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			478		1462	457
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		29	74
cM capacity (veh/h)			1084		123	604
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	478	864	245			
Volume Left	0	141	87			
Volume Right	43	0	158			
cSH	1700	1084	253			
Volume to Capacity	0.28	0.13	0.97			
Queue Length 95th (m)	0.0	3.4	68.8			
Control Delay (s)	0.0	3.1	90.6			
Lane LOS		A	F			
Approach Delay (s)	0.0	3.1	90.6			
Approach LOS			F			
<b>Intersection Summary</b>						
Average Delay			15.7			
Intersection Capacity Utilization			89.0%	ICU Level of Service		E
Analysis Period (min)			15			



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	190	355	705	180	60	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	386	766	196	65	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	962				1663	864
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	962				1663	864
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				14	72
cM capacity (veh/h)	715				76	354
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	592	962	163			
Volume Left	207	0	65			
Volume Right	0	196	98			
cSH	715	1700	144			
Volume to Capacity	0.29	0.57	1.14			
Queue Length 95th (m)	9.1	0.0	69.4			
Control Delay (s)	7.1	0.0	178.0			
Lane LOS	A		F			
Approach Delay (s)	7.1	0.0	178.0			
Approach LOS			F			
Intersection Summary						
Average Delay			19.4			
Intersection Capacity Utilization			96.1%	ICU Level of Service		F
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	455	905	60	35	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	495	984	65	38	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.53				0.53	0.53
vC, conflicting volume	1049				1554	1016
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092				2038	1031
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				0	78
cM capacity (veh/h)	341				31	151
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	516	1049	71			
Volume Left	22	0	38			
Volume Right	0	65	33			
cSH	341	1700	49			
Volume to Capacity	0.06	0.62	1.44			
Queue Length 95th (m)	1.5	0.0	50.6			
Control Delay (s)	2.1	0.0	414.9			
Lane LOS	A		F			
Approach Delay (s)	2.1	0.0	414.9			
Approach LOS			F			
Intersection Summary						
Average Delay			18.6			
Intersection Capacity Utilization			61.7%	ICU Level of Service		B
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1853	0	1789	1866	0	0	1737	0	0	1783	0
Flt Permitted	0.149			0.407				0.818			0.886	
Satd. Flow (perm)	281	1853	0	767	1866	0	0	1453	0	0	1599	0
Satd. Flow (RTOR)		12			6			38			23	
Volume (vph)	30	410	50	160	805	50	135	35	125	20	35	25
Lane Group Flow (vph)	33	500	0	174	929	0	0	321	0	0	87	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	65.9	65.9	0.0	65.9	65.9	0.0	30.9	30.9	0.0	30.9	30.9	0.0
Total Split (%)	68.1%	68.1%	0.0%	68.1%	68.1%	0.0%	31.9%	31.9%	0.0%	31.9%	31.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	43.8	43.8		43.8	43.8			20.0			20.0	
Actuated g/C Ratio	0.60	0.60		0.60	0.60			0.28			0.28	
v/c Ratio	0.20	0.45		0.38	0.82			0.75			0.19	
Control Delay	10.5	9.4		10.8	19.2			35.7			19.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.5	9.4		10.8	19.2			35.7			19.7	
LOS	B	A		B	B			D			B	
Approach Delay		9.4			17.9			35.7			19.7	
Approach LOS		A			B			D			B	
Queue Length 50th (m)	1.9	34.4		11.7	95.0			35.8			6.7	
Queue Length 95th (m)	7.1	60.0		26.2	166.8			#86.8			20.7	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	194	1282		529	1289			536			578	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.39		0.33	0.72			0.60			0.15	

Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 72.6  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 18.6  
 Intersection Capacity Utilization 84.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Glendale & Riverside

30.9 s			65.9 s								
30.9 s			65.9 s								

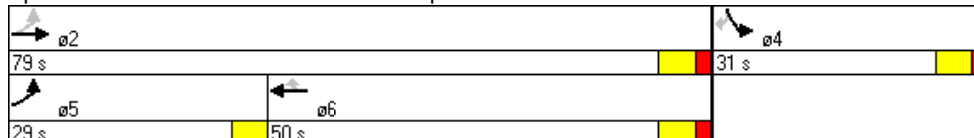
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.080				0.950	
Satd. Flow (perm)	151	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				194		140
Volume (vph)	235	320	705	320	225	235
Lane Group Flow (vph)	255	348	766	348	245	255
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	7.0	7.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	29.0	79.0	50.0	50.0	31.0	31.0
Total Split (%)	26.4%	71.8%	45.5%	45.5%	28.2%	28.2%
Yellow Time (s)	4.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	1.9	1.9	1.9	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	64.6	64.6	43.4	43.4	19.4	19.4
Actuated g/C Ratio	0.70	0.70	0.47	0.47	0.21	0.21
v/c Ratio	0.62	0.26	0.87	0.41	0.65	0.57
Control Delay	26.3	6.2	36.4	9.9	44.0	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	6.2	36.4	9.9	44.0	21.5
LOS	C	A	D	A	D	C
Approach Delay		14.7	28.1		32.5	
Approach LOS		B	C		C	
Queue Length 50th (m)	26.8	20.1	121.5	16.1	42.2	18.4
Queue Length 95th (m)	56.5	38.6	#237.0	44.8	71.5	45.2
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	514	1378	923	884	493	543
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.25	0.83	0.39	0.50	0.47











Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 92.3  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 25.5  
 Intersection Capacity Utilization 72.6%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 6: Glendale & Metropolitan



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	485	60	15	1005	20	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	527	65	16	1092	22	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.94		0.32	0.94
vC, conflicting volume			592		1685	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			566		2876	532
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		0	97
cM capacity (veh/h)			945		6	515
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	592	1109	38			
Volume Left	0	16	22			
Volume Right	65	0	16			
cSH	1700	945	10			
Volume to Capacity	0.35	0.02	3.88			
Queue Length 95th (m)	0.0	0.4	Err			
Control Delay (s)	0.0	0.6	Err			
Lane LOS		A	F			
Approach Delay (s)	0.0	0.6	Err			
Approach LOS			F			
<b>Intersection Summary</b>						
Average Delay			219.1			
Intersection Capacity Utilization			74.9%	ICU Level of Service		D
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	1861	0	0	1859	0	0	1737	0	0	1810	1601
Flt Permitted		0.766			0.929			0.827			0.700	
Satd. Flow (perm)	0	1433	0	0	1732	0	0	1470	0	0	1318	1601
Satd. Flow (RTOR)		6			10			29				43
Volume (vph)	60	515	30	70	1095	95	45	10	40	65	15	40
Lane Group Flow (vph)	0	658	0	0	1369	0	0	103	0	0	87	43
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phases	6	6		2	2		4	4		8	8	8
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	32.1	32.1		32.1	32.1		22.1	22.1		22.1	22.1	22.1
Total Split (s)	86.1	86.1	0.0	86.1	86.1	0.0	26.1	26.1	0.0	26.1	26.1	26.1
Total Split (%)	76.7%	76.7%	0.0%	76.7%	76.7%	0.0%	23.3%	23.3%	0.0%	23.3%	23.3%	23.3%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.6	1.6		1.6	1.6		1.6	1.6		1.6	1.6	1.6
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)		86.2			86.2			14.5			14.5	14.5
Actuated g/C Ratio		0.79			0.79			0.13			0.13	0.13
v/c Ratio		0.58			1.00			0.47			0.49	0.17
Control Delay		7.3			36.6			36.4			51.3	13.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		7.3			36.6			36.4			51.3	13.2
LOS		A			D			D			D	B
Approach Delay		7.3			36.6			36.4			38.7	
Approach LOS		A			D			D			D	
Queue Length 50th (m)		41.2			~226.2			13.9			16.5	0.0
Queue Length 95th (m)		86.3			#405.3			29.7			31.9	9.6
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)												20.0
Base Capacity (vph)		1137			1375			304			252	340
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.58			1.00			0.34			0.35	0.13

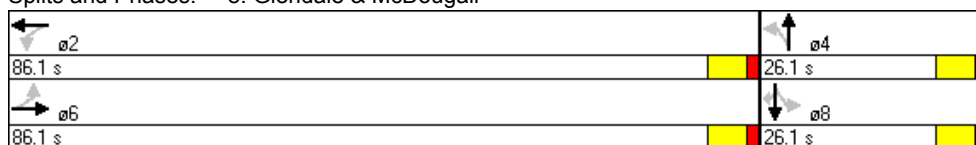
Intersection Summary

Cycle Length: 112.2  
 Actuated Cycle Length: 108.7  
 Natural Cycle: 120  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 28.2  
 Intersection Capacity Utilization 97.4%  
 Analysis Period (min) 15










Intersection LOS: C  
 ICU Level of Service F

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



















Splits and Phases: 8: Glendale & McDougall



	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	565	55	65	1235	25	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	614	60	71	1342	27	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			674		2128	644
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			647		2221	615
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		33	88
cM capacity (veh/h)			867		41	454
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	674	1413	82			
Volume Left	0	71	27			
Volume Right	60	0	54			
cSH	1700	867	103			
Volume to Capacity	0.40	0.08	0.79			
Queue Length 95th (m)	0.0	2.0	33.0			
Control Delay (s)	0.0	4.0	113.7			
Lane LOS		A	F			
Approach Delay (s)	0.0	4.0	113.7			
Approach LOS			F			
<b>Intersection Summary</b>						
Average Delay			6.9			
Intersection Capacity Utilization			116.1%	ICU Level of Service		H
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	35	505	1110	20	10	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	549	1207	22	11	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1228				1842	1217
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1228				1842	1217
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				86	88
cM capacity (veh/h)	567				77	220
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	587	1228	38			
Volume Left	38	0	11			
Volume Right	0	22	27			
cSH	567	1700	144			
Volume to Capacity	0.07	0.72	0.26			
Queue Length 95th (m)	1.6	0.0	7.6			
Control Delay (s)	1.9	0.0	38.8			
Lane LOS	A		E			
Approach Delay (s)	1.9	0.0	38.8			
Approach LOS			E			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			69.6%		ICU Level of Service	C
Analysis Period (min)			15			



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	40	455	20	75	1100	65	10	5	20	5	0	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	495	22	82	1196	71	11	5	22	5	0	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1266			516			1973	2022	505	2000	1997	1231
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1266			516			1973	2022	505	2000	1997	1231
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			92			71	89	96	84	100	90
cM capacity (veh/h)	549			1049			37	49	567	35	51	216
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	43	516	82	1266	38	27						
Volume Left	43	0	82	0	11	5						
Volume Right	0	22	0	71	22	22						
cSH	549	1700	1049	1700	86	106						
Volume to Capacity	0.08	0.30	0.08	0.74	0.44	0.26						
Queue Length 95th (m)	2.0	0.0	1.9	0.0	13.8	7.2						
Control Delay (s)	12.1	0.0	8.7	0.0	76.4	50.3						
Lane LOS	B		A		F	F						
Approach Delay (s)	0.9		0.5		76.4	50.3						
Approach LOS					F	F						
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			72.3%		ICU Level of Service					C		
Analysis Period (min)			15									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3418	0	1789	3403	0	1789	3453	0	1789	3378	0
Flt Permitted	0.143			0.404			0.329			0.442		
Satd. Flow (perm)	269	3418	0	761	3403	0	620	3453	0	832	3378	0
Satd. Flow (RTOR)		68			84			44			114	
Volume (vph)	120	270	115	215	640	310	380	395	120	185	230	135
Lane Group Flow (vph)	130	418	0	234	1033	0	413	559	0	201	397	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		5	2		1	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9		11.4	12.9		11.4	12.9	
Total Split (s)	14.4	31.9	0.0	14.4	31.9	0.0	24.4	36.9	0.0	14.4	26.9	0.0
Total Split (%)	14.8%	32.7%	0.0%	14.8%	32.7%	0.0%	25.0%	37.8%	0.0%	14.8%	27.6%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5		3.4	4.5		3.4	4.5	
All-Red Time (s)	1.0	1.4		1.0	1.4		1.0	1.4		1.0	1.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		Min	Min		Min	Min	
Act Effct Green (s)	37.1	27.7		38.0	28.1		37.3	23.4		24.5	14.6	
Actuated g/C Ratio	0.43	0.32		0.44	0.32		0.43	0.27		0.28	0.17	
v/c Ratio	0.46	0.37		0.52	0.89		0.80	0.58		0.59	0.60	
Control Delay	20.1	21.1		19.8	38.4		31.4	27.8		24.6	27.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	21.1		19.8	38.4		31.4	27.8		24.6	27.8	
LOS	C	C		B	D		C	C		C	C	
Approach Delay		20.9			35.0			29.3			26.7	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	12.2	24.1		23.5	83.5		50.2	39.7		21.2	23.6	
Queue Length 95th (m)	24.6	39.3		42.4	#133.2		#79.4	55.2		35.2	37.6	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0			40.0			35.0		
Base Capacity (vph)	297	1145		458	1156		531	1210		353	902	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.37		0.51	0.89		0.78	0.46		0.57	0.44	

Intersection Summary

Cycle Length: 97.6  
 Actuated Cycle Length: 86.9  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 29.6  
 Intersection Capacity Utilization 79.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 12: Glendale & Cobequid

ø1	ø2	ø3	ø4
14.4 s	36.9 s	14.4 s	31.9 s
ø5	ø6	ø7	ø8
24.4 s	26.9 s	14.4 s	31.9 s

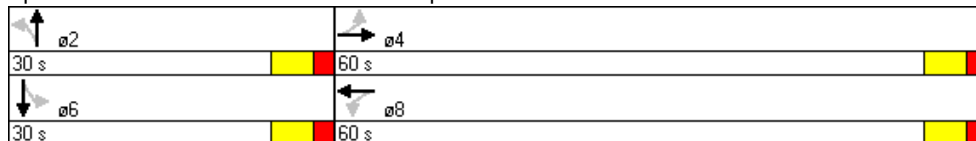
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3561	0	1789	3579	0	1789	1601	0	0	1692	0
Flt Permitted	0.150			0.342			0.729				0.910	
Satd. Flow (perm)	283	3561	0	644	3579	0	1373	1601	0	0	1568	0
Satd. Flow (RTOR)		6						252			27	
Volume (vph)	5	645	20	30	1190	0	65	0	70	15	0	25
Lane Group Flow (vph)	5	723	0	33	1293	0	71	76	0	0	43	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	46.6	46.6		46.6	46.6		12.1	12.1			12.1	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.18	0.18			0.18	
v/c Ratio	0.02	0.29		0.07	0.51		0.29	0.15			0.14	
Control Delay	4.4	4.2		4.5	5.7		19.8	0.7			11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.4	4.2		4.5	5.7		19.8	0.7			11.3	
LOS	A	A		A	A		B	A			B	
Approach Delay		4.2			5.6			9.9			11.3	
Approach LOS		A			A			A			B	
Queue Length 50th (m)	0.1	11.5		0.9	26.2		4.6	0.0			1.0	
Queue Length 95th (m)	1.1	22.9		3.8	49.6		15.8	0.0			8.0	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	226	2847		515	2860		474	718			559	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.02	0.25		0.06	0.45		0.15	0.11			0.08	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 65.7  
 Natural Cycle: 50  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 5.5  
 Intersection Capacity Utilization 48.6%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 13: Glendale & Temple Terrace

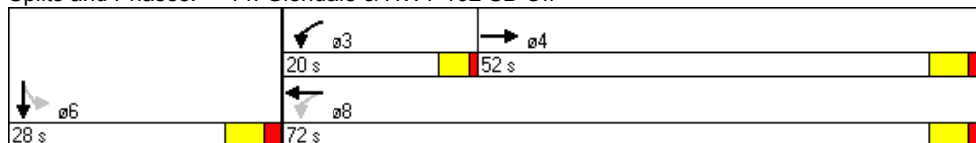


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3367	0	1789	3579	0	0	0	0	1789	1601	0
Flt Permitted				0.236						0.950		
Satd. Flow (perm)	0	3367	0	444	3579	0	0	0	0	1789	1601	0
Satd. Flow (RTOR)		206									139	
Volume (vph)	0	455	295	350	980	0	0	0	0	75	0	320
Lane Group Flow (vph)	0	816	0	380	1065	0	0	0	0	82	348	0
Turn Type				pm+pt						Perm		
Protected Phases		4		3	8						6	
Permitted Phases				8						6		
Detector Phases		4		3	8					6	6	
Minimum Initial (s)		4.0		4.0	4.0					4.0	4.0	
Minimum Split (s)		22.0		9.0	22.0					22.0	22.0	
Total Split (s)	0.0	52.0	0.0	20.0	72.0	0.0	0.0	0.0	0.0	28.0	28.0	0.0
Total Split (%)	0.0%	52.0%	0.0%	20.0%	72.0%	0.0%	0.0%	0.0%	0.0%	28.0%	28.0%	0.0%
Yellow Time (s)		4.0		3.0	4.0					4.0	4.0	
All-Red Time (s)		2.0		1.0	2.0					2.0	2.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Recall Mode		Min		None	Min					None	None	
Act Effct Green (s)		19.6		36.0	36.0					15.3	15.3	
Actuated g/C Ratio		0.33		0.60	0.60					0.26	0.26	
v/c Ratio		0.66		0.71	0.50					0.18	0.68	
Control Delay		16.1		16.4	8.1					20.8	20.7	
Queue Delay		0.0		0.0	0.0					0.0	0.0	
Total Delay		16.1		16.4	8.1					20.8	20.7	
LOS		B		B	A					C	C	
Approach Delay		16.1			10.3						20.7	
Approach LOS		B			B						C	
Queue Length 50th (m)		28.1		17.8	29.4					6.7	18.8	
Queue Length 95th (m)		57.0		#51.0	57.3					20.1	55.5	
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)				90.0						300.0		
Base Capacity (vph)		1954		598	2662					646	667	
Starvation Cap Reductn		0		0	0					0	0	
Spillback Cap Reductn		0		0	0					0	0	
Storage Cap Reductn		0		0	0					0	0	
Reduced v/c Ratio		0.42		0.64	0.40					0.13	0.52	

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 60  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 13.7  
 Intersection Capacity Utilization 71.2%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 14: Glendale & HWY 102 SB Off



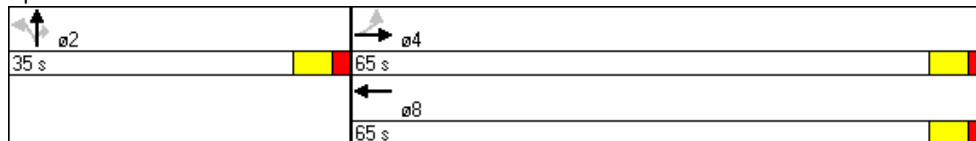
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3514	0	1700	1700	1601	0	0	0
Flt Permitted	0.266						0.950	0.950				
Satd. Flow (perm)	501	3579	0	0	3514	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					28				226			
Volume (vph)	180	350	0	0	725	100	605	0	210	0	0	0
Lane Group Flow (vph)	196	380	0	0	897	0	329	329	228	0	0	0
Turn Type	Perm						Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phases	4	4			8		2	2	2			
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0	4.0			
Minimum Split (s)	22.0	22.0			22.0		22.0	22.0	22.0			
Total Split (s)	65.0	65.0	0.0	0.0	65.0	0.0	35.0	35.0	35.0	0.0	0.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	0.0%	65.0%	0.0%	35.0%	35.0%	35.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min			Min		None	None	None			
Act Effct Green (s)	30.6	30.6			30.6		20.4	20.4	20.4			
Actuated g/C Ratio	0.50	0.50			0.50		0.33	0.33	0.33			
v/c Ratio	0.78	0.21			0.50		0.58	0.58	0.33			
Control Delay	35.4	8.2			10.1		25.4	25.4	5.2			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	35.4	8.2			10.1		25.4	25.4	5.2			
LOS	D	A			B		C	C	A			
Approach Delay		17.5			10.1			20.2				
Approach LOS		B			B			C				
Queue Length 50th (m)	14.5	10.0			27.4		27.1	27.1	0.1			
Queue Length 95th (m)	52.6	22.0			55.0		87.4	87.4	16.2			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		40.0			
Base Capacity (vph)	346	2469			2433		786	786	862			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.57	0.15			0.37		0.42	0.42	0.26			

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 61  
 Natural Cycle: 55  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 15.7  
 Intersection Capacity Utilization 71.2%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 15: Duke & HWY 102 NB On



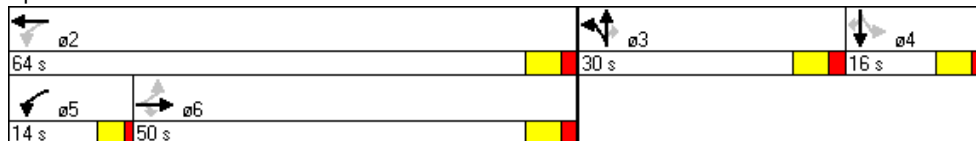
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1700	1601	0	1883	1601
Flt Permitted	0.515			0.533			0.950	0.950				
Satd. Flow (perm)	970	3579	1601	1004	3579	0	1700	1700	1601	0	1883	1601
Satd. Flow (RTOR)			391						64			311
Volume (vph)	5	235	360	105	370	0	465	0	70	0	0	15
Lane Group Flow (vph)	5	255	391	114	402	0	253	252	76	0	0	16
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	0.0	30.0	30.0	30.0	16.0	16.0	16.0
Total Split (%)	45.5%	45.5%	45.5%	12.7%	58.2%	0.0%	27.3%	27.3%	27.3%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	Min		Min	Min	Min	None	None	None
Act Effct Green (s)	13.2	13.2	13.2	19.3	19.5		15.3	15.3	15.3			8.2
Actuated g/C Ratio	0.29	0.29	0.29	0.39	0.43		0.33	0.33	0.33			0.15
v/c Ratio	0.02	0.25	0.53	0.22	0.26		0.45	0.44	0.13			0.03
Control Delay	19.0	17.0	5.8	11.0	9.6		17.7	17.7	6.8			0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			0.0
Total Delay	19.0	17.0	5.8	11.0	9.6		17.7	17.7	6.8			0.1
LOS	B	B	A	B	A		B	B	A			A
Approach Delay		10.3			9.9			16.3				
Approach LOS		B			A			B				
Queue Length 50th (m)	0.3	8.4	0.0	4.0	7.9		16.7	16.6	0.7			0.0
Queue Length 95th (m)	3.1	25.9	19.8	19.7	29.2		52.8	52.6	9.7			0.0
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	584	2157	1120	547	2548		824	824	809			592
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.01	0.12	0.35	0.21	0.16		0.31	0.31	0.09			0.03







Intersection Summary













Cycle Length: 110  
 Actuated Cycle Length: 45.7  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.53  
 Intersection Signal Delay: 12.1  
 Intersection Capacity Utilization 36.4%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
<b>Lane Configurations</b>						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	15	340	395	10	10	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	370	429	11	11	43
<b>Pedestrians</b>						
<b>Lane Width (m)</b>						
<b>Walking Speed (m/s)</b>						
<b>Percent Blockage</b>						
<b>Right turn flare (veh)</b>						
<b>Median type</b>						
Median storage veh					None	
<b>Upstream signal (m)</b>						
pX, platoon unblocked						
vC, conflicting volume	440				837	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				837	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	93
cM capacity (veh/h)	1120				332	621
<b>Direction, Lane #</b>						
	EB 1	WB 1	SB 1			
Volume Total	386	440	54			
Volume Left	16	0	11			
Volume Right	0	11	43			
cSH	1120	1700	529			
Volume to Capacity	0.01	0.26	0.10			
Queue Length 95th (m)	0.3	0.0	2.6			
Control Delay (s)	0.5	0.0	12.6			
Lane LOS	A		B			
Approach Delay (s)	0.5	0.0	12.6			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			40.1%	ICU Level of Service		A
Analysis Period (min)			15			

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	160	190	230	125	95	175
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	207	250	136	103	190
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type	None					
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	834	198	103			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	198	103			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	38	75	83			
cM capacity (veh/h)	281	843	1489			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	380	250	136	293		
Volume Left	174	250	0	0		
Volume Right	207	0	0	190		
cSH	557	1489	1700	1700		
Volume to Capacity	0.68	0.17	0.08	0.17		
Queue Length 95th (m)	39.7	4.6	0.0	0.0		
Control Delay (s)	24.2	7.9	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	24.2	5.1		0.0		
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			10.6			
Intersection Capacity Utilization			47.3%		ICU Level of Service	A
Analysis Period (min)			15			



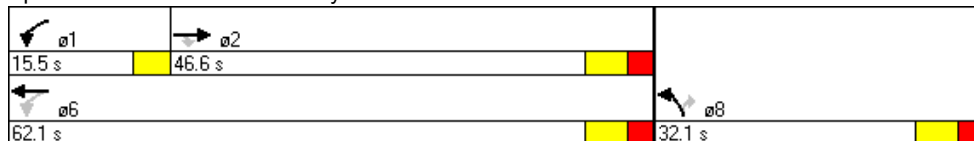
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	3579	1601	1789	3579	3471	1601
Flt Permitted			0.144		0.950	
Satd. Flow (perm)	3579	1601	271	3579	3471	1601
Satd. Flow (RTOR)		364				291
Volume (vph)	950	335	185	440	535	365
Lane Group Flow (vph)	1033	364	201	478	582	397
Turn Type		Perm	pm+pt			Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phases	2	2	1	6	8	8
Minimum Initial (s)	25.0	25.0	7.0	25.0	12.0	12.0
Minimum Split (s)	31.6	31.6	10.5	31.6	19.1	19.1
Total Split (s)	46.6	46.6	15.5	62.1	32.1	32.1
Total Split (%)	49.5%	49.5%	16.5%	65.9%	34.1%	34.1%
Yellow Time (s)	4.1	4.1	3.5	4.1	4.1	4.1
All-Red Time (s)	2.5	2.5	0.0	2.5	3.0	3.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	Min	Min	Min
Act Effct Green (s)	34.1	34.1	47.1	47.1	21.9	21.9
Actuated g/C Ratio	0.44	0.44	0.61	0.61	0.28	0.28
v/c Ratio	0.65	0.40	0.59	0.22	0.59	0.60
Control Delay	19.9	3.2	16.1	7.4	27.4	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	3.2	16.1	7.4	27.4	11.6
LOS	B	A	B	A	C	B
Approach Delay	15.5			10.0	21.0	
Approach LOS	B			B	C	
Queue Length 50th (m)	60.4	0.0	11.8	15.1	36.1	11.4
Queue Length 95th (m)	94.3	14.6	28.7	25.5	61.9	42.2
Internal Link Dist (m)	387.5			407.9	804.6	
Turn Bay Length (m)		60.0	100.0			170.0
Base Capacity (vph)	1791	983	382	2363	1182	737
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.37	0.53	0.20	0.49	0.54

Intersection Summary

Cycle Length: 94.2  
 Actuated Cycle Length: 77.3  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 16.0  
 Intersection Capacity Utilization 61.8%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 19: Akerley & Burnside Drive



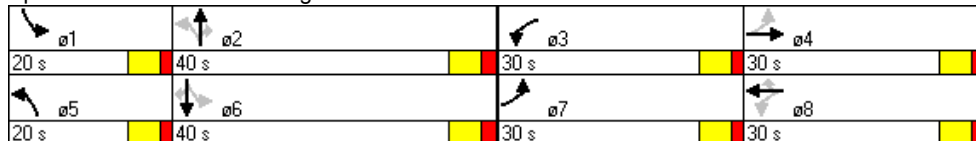
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3403	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.538			0.207			0.376			0.281		
Satd. Flow (perm)	1013	3403	0	390	3579	1601	708	3579	1601	529	3579	1601
Satd. Flow (RTOR)		62				120			147			43
Volume (vph)	265	340	165	350	215	110	260	525	135	70	410	40
Lane Group Flow (vph)	288	549	0	380	234	120	283	571	147	76	446	43
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	25.0%	16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	41.6	22.5		48.8	26.5	26.5	55.5	44.5	44.5	45.7	36.2	36.2
Actuated g/C Ratio	0.37	0.20		0.43	0.23	0.23	0.49	0.39	0.39	0.40	0.32	0.32
v/c Ratio	0.57	0.76		0.84	0.28	0.26	0.57	0.41	0.20	0.24	0.39	0.08
Control Delay	26.3	45.4		42.7	37.3	8.2	23.8	28.3	5.3	19.6	32.4	9.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	45.4		42.7	37.3	8.2	23.8	28.3	5.3	19.6	32.4	9.3
LOS	C	D		D	D	A	C	C	A	B	C	A
Approach Delay		38.9			35.3			23.7			28.9	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	42.0	55.9		59.1	22.6	0.0	39.5	52.4	0.0	9.3	42.8	0.0
Queue Length 95th (m)	62.5	75.6		#107.8	36.0	15.0	61.5	72.7	13.7	18.6	59.0	8.3
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	569	809		479	870	480	498	1408	719	392	1145	541
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.68		0.79	0.27	0.25	0.57	0.41	0.20	0.19	0.39	0.08

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.2  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 31.4  
 Intersection Capacity Utilization 73.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 20: Wright & Burnside Drive



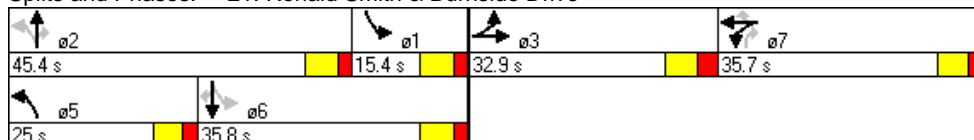
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1601	1628	3318	1601	3471	1601	1789	1789	3579	1601
Flt Permitted	0.950			0.950	0.968		0.196			0.456		
Satd. Flow (perm)	1789	1883	1601	1628	3318	1601	716	3579	1601	859	3579	1601
Satd. Flow (RTOR)			522			359			310			71
Volume (vph)	105	180	890	560	150	330	355	485	320	200	660	65
Lane Group Flow (vph)	114	196	967	305	467	359	386	527	348	217	717	71
Turn Type	custom		Free	custom		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	3	3		7	7		5	2		1	6	
Permitted Phases	3		Free	7		7	2		2.7	6		6
Detector Phases	3	3		7	7	7	5	2	2.7	1	6	6
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.9	13.9		13.7	13.7	13.7	13.0	13.4		13.5	13.4	13.4
Total Split (s)	32.9	32.9	0.0	35.7	35.7	35.7	25.0	45.4	81.1	15.4	35.8	35.8
Total Split (%)	25.4%	25.4%	0.0%	27.6%	27.6%	27.6%	19.3%	35.1%	62.7%	11.9%	27.7%	27.7%
Yellow Time (s)	4.1	4.1		4.1	4.1	4.1	4.0	4.5		4.5	4.5	4.5
All-Red Time (s)	2.8	2.8		2.6	2.6	2.6	2.0	1.9		1.9	1.9	1.9
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Max		None	Max	Max
Act Effct Green (s)	20.2	20.2	117.4	28.8	28.8	28.8	41.7	41.7	74.6	35.5	35.5	35.5
Actuated g/C Ratio	0.17	0.17	1.00	0.25	0.25	0.25	0.36	0.36	0.64	0.30	0.30	0.30
v/c Ratio	0.37	0.60	0.60	0.76	0.57	0.54	0.60	0.41	0.31	0.63	0.66	0.13
Control Delay	47.0	53.6	1.7	55.4	42.5	7.2	33.2	31.3	2.5	50.7	41.5	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	53.6	1.7	55.4	42.5	7.2	33.2	31.3	2.5	50.7	41.5	9.0
LOS	D	D	A	E	D	A	C	C	A	D	D	A
Approach Delay		13.7			34.8			24.0			41.2	
Approach LOS		B			C			C			D	
Queue Length 50th (m)	24.2	43.5	0.0	72.3	52.3	0.0	34.7	50.4	3.1	41.6	79.4	0.0
Queue Length 95th (m)	41.4	67.2	0.0	#120.8	75.3	24.2	51.4	71.8	15.8	#76.6	112.7	11.7
Internal Link Dist (m)		123.2			343.7			718.3			923.3	
Turn Bay Length (m)	40.0			100.0		60.0	113.0			150.0		150.0
Base Capacity (vph)	412	434	1601	431	878	688	723	1271	1141	354	1081	533
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.45	0.60	0.71	0.53	0.52	0.53	0.41	0.30	0.61	0.66	0.13

Intersection Summary

Cycle Length: 129.4  
 Actuated Cycle Length: 117.4  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 27.5  
 Intersection Capacity Utilization 66.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 21: Ronald Smith & Burnside Drive



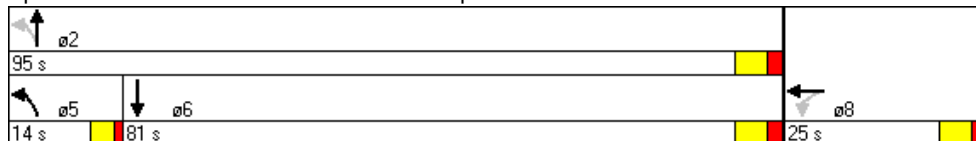
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1789	1601	0	3568	0	0	3579	1601
Flt Permitted					0.950			0.784				
Satd. Flow (perm)	0	0	0	0	1789	1601	0	2806	0	0	3579	1601
Satd. Flow (RTOR)						469						431
Volume (vph)	0	0	0	140	0	515	40	645	0	0	1245	855
Lane Group Flow (vph)	0	0	0	0	152	560	0	744	0	0	1353	929
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Min			Min	
Act Effct Green (s)					12.7	61.4		40.5			40.5	61.4
Actuated g/C Ratio					0.21	1.00		0.66			0.66	1.00
v/c Ratio					0.41	0.35		0.40			0.57	0.58
Control Delay					20.0	0.6		6.0			7.3	1.5
Queue Delay					0.2	0.0		0.1			0.2	0.0
Total Delay					20.2	0.6		6.1			7.5	1.5
LOS					C	A		A			A	A
Approach Delay					4.8			6.1			5.1	
Approach LOS					A			A			A	
Queue Length 50th (m)					11.9	0.0		15.3			33.0	0.0
Queue Length 95th (m)					28.7	0.0		31.1			62.4	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					549	1601		2296			2836	1601
Starvation Cap Reductn					0	0		576			0	0
Spillback Cap Reductn					87	0		0			576	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					0.33	0.35		0.43			0.60	0.58

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 61.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 5.2  
 Intersection Capacity Utilization 62.3%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



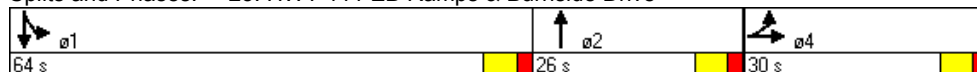
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1688	0	0	0	0	0	3317	0	1700	1757	0
Flt Permitted	0.950	0.956								0.950	0.982	
Satd. Flow (perm)	1700	1688	0	0	0	0	0	3317	0	1700	1757	0
Satd. Flow (RTOR)		4						178				
Volume (vph)	470	0	20	0	0	0	0	215	205	940	445	0
Lane Group Flow (vph)	280	253	0	0	0	0	0	457	0	734	772	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	30.0	30.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0	64.0	64.0	0.0
Total Split (%)	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.7%	0.0%	53.3%	53.3%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						Min		Min	Min	
Act Effct Green (s)	21.7	21.7						16.0		49.8	49.8	
Actuated g/C Ratio	0.22	0.22						0.16		0.50	0.50	
v/c Ratio	0.76	0.69						0.67		0.87	0.89	
Control Delay	54.7	49.6						31.0		36.1	37.2	
Queue Delay	2.6	1.6						0.0		116.9	124.2	
Total Delay	57.3	51.2						31.1		153.0	161.4	
LOS	E	D						C		F	F	
Approach Delay		54.4						31.1			157.3	
Approach LOS		D						C			F	
Queue Length 50th (m)	62.1	54.3						31.7		141.7	151.2	
Queue Length 95th (m)	#105.1	87.1						49.0		#234.7	#248.0	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	438	438						854		935	967	
Starvation Cap Reductn	0	0						0		350	360	
Spillback Cap Reductn	75	74						11		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.77	0.70						0.54		1.25	1.27	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 100.4  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 112.2  
 Intersection Capacity Utilization 73.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: F  
 ICU Level of Service D

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive



1: Glendale & Beaver Bank Road

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

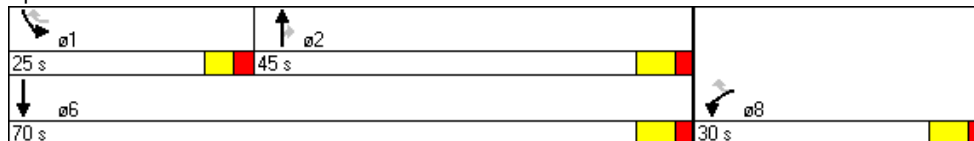
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		179		250		
Volume (vph)	175	165	300	230	485	915
Lane Group Flow (vph)	190	179	326	250	527	995
Turn Type	custom			Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	9.0	22.0
Total Split (s)	30.0	55.0	45.0	45.0	25.0	70.0
Total Split (%)	30.0%	55.0%	45.0%	45.0%	25.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	14.4	34.0	21.2	21.2	16.4	44.8
Actuated g/C Ratio	0.22	0.51	0.34	0.34	0.26	0.72
v/c Ratio	0.47	0.20	0.27	0.35	0.57	0.73
Control Delay	30.1	2.7	16.6	4.0	26.8	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	2.7	16.6	4.0	26.8	12.5
LOS	C	A	B	A	C	B
Approach Delay	16.8		11.1			17.4
Approach LOS	B		B			B
Queue Length 50th (m)	18.3	0.0	14.2	0.0	25.9	69.9
Queue Length 95th (m)	50.7	10.0	29.0	13.4	64.5	167.8
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	646	1077	1881	960	1205	1481
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.17	0.17	0.26	0.44	0.67

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 62  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 15.9  
 Intersection Capacity Utilization 64.5%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 1: Glendale & Beaver Bank Road



1: Glendale & Beaver Bank Road

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

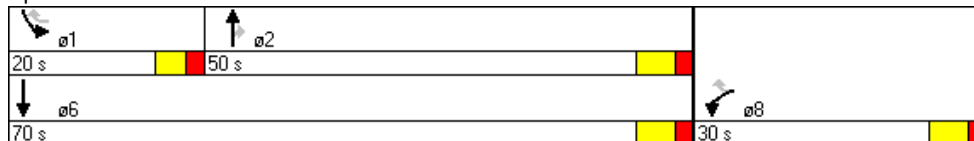
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		46		110		
Volume (vph)	225	520	995	155	285	500
Lane Group Flow (vph)	245	565	1082	168	310	543
Turn Type	custom			Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	22.0		22.0	22.0	12.0	22.0
Total Split (s)	30.0	50.0	50.0	50.0	20.0	70.0
Total Split (%)	30.0%	50.0%	50.0%	50.0%	20.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	22.7	40.6	33.9	33.9	13.7	51.8
Actuated g/C Ratio	0.27	0.49	0.41	0.41	0.17	0.62
v/c Ratio	0.50	0.70	0.74	0.23	0.54	0.46
Control Delay	32.0	22.2	24.6	7.5	38.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	22.2	24.6	7.5	38.2	9.8
LOS	C	C	C	A	D	A
Approach Delay	25.2		22.3			20.1
Approach LOS	C		C			C
Queue Length 50th (m)	35.3	64.9	82.6	6.1	25.4	45.1
Queue Length 95th (m)	64.5	123.1	104.5	17.5	42.3	65.3
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	553	865	1756	842	676	1288
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.65	0.62	0.20	0.46	0.42

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 83  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 22.5  
 Intersection Capacity Utilization 66.4%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 1: Glendale & Beaver Bank Road



2: Glendale & Old Beaverbank

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘↗	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	665	50	155	325	15	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	723	54	168	353	16	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			777		1440	389
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			777		1440	389
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			80		83	90
cM capacity (veh/h)			835		99	610
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	482	295	168	353	76	
Volume Left	0	0	168	0	16	
Volume Right	0	54	0	0	60	
cSH	1700	1700	835	1700	289	
Volume to Capacity	0.28	0.17	0.20	0.21	0.26	
Queue Length 95th (m)	0.0	0.0	5.7	0.0	7.8	
Control Delay (s)	0.0	0.0	10.4	0.0	21.9	
Lane LOS			B		C	
Approach Delay (s)	0.0		3.4		21.9	
Approach LOS					C	
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			42.8%		ICU Level of Service	A
Analysis Period (min)			15			














2: Glendale & Old Beaverbank

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘↗	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	400	40	130	665	80	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	435	43	141	723	87	158
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			478		1462	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			478		1462	239
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		16	79
cM capacity (veh/h)			1080		104	762
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	290	188	141	723	245	
Volume Left	0	0	141	0	87	
Volume Right	0	43	0	0	158	
cSH	1700	1700	1080	1700	234	
Volume to Capacity	0.17	0.11	0.13	0.43	1.04	
Queue Length 95th (m)	0.0	0.0	3.4	0.0	77.8	
Control Delay (s)	0.0	0.0	8.8	0.0	115.8	
Lane LOS			A		F	
Approach Delay (s)	0.0		1.4		115.8	
Approach LOS					F	
<b>Intersection Summary</b>						
Average Delay			18.6			
Intersection Capacity Utilization			55.0%		ICU Level of Service	B
Analysis Period (min)			15			












3: Glendale & Smokey Drive

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	680	380	80	175	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	739	413	87	190	109
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	500				1283	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500				1283	457
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				0	82
cM capacity (veh/h)	1064				175	604
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	43	739	500	299		
Volume Left	43	0	0	190		
Volume Right	0	0	87	109		
cSH	1064	1700	1700	236		
Volume to Capacity	0.04	0.43	0.29	1.27		
Queue Length 95th (m)	1.0	0.0	0.0	115.9		
Control Delay (s)	8.5	0.0	0.0	191.7		
Lane LOS	A			F		
Approach Delay (s)	0.5		0.0	191.7		
Approach LOS				F		
Intersection Summary						
Average Delay			36.5			
Intersection Capacity Utilization			58.3%		ICU Level of Service	B
Analysis Period (min)			15			












3: Glendale & Smokey Drive

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	190	355	705	180	60	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	386	766	196	65	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	962				1663	864
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	962				1663	864
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				14	72
cM capacity (veh/h)	715				76	354
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	207	386	962	163		
Volume Left	207	0	0	65		
Volume Right	0	0	196	98		
cSH	715	1700	1700	144		
Volume to Capacity	0.29	0.23	0.57	1.14		
Queue Length 95th (m)	9.1	0.0	0.0	69.4		
Control Delay (s)	12.1	0.0	0.0	178.0		
Lane LOS	B			F		
Approach Delay (s)	4.2		0.0	178.0		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			18.3			
Intersection Capacity Utilization			77.4%		ICU Level of Service	D
Analysis Period (min)			15			












4: Glendale & Rankin Drive

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	765	400	30	45	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	832	435	33	49	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	467				1304	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441				1319	424
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				70	96
cM capacity (veh/h)	1066				163	600
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	11	832	467	71		
Volume Left	11	0	0	49		
Volume Right	0	0	33	22		
cSH	1066	1700	1700	210		
Volume to Capacity	0.01	0.49	0.27	0.34		
Queue Length 95th (m)	0.2	0.0	0.0	10.7		
Control Delay (s)	8.4	0.0	0.0	30.5		
Lane LOS	A			D		
Approach Delay (s)	0.1		0.0	30.5		
Approach LOS				D		
<b>Intersection Summary</b>						
Average Delay			1.6			
Intersection Capacity Utilization			50.6%		ICU Level of Service	A
Analysis Period (min)			15			

4: Glendale & Rankin Drive

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	455	905	60	35	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	495	984	65	38	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.53				0.53	0.53
vC, conflicting volume	1049				1554	1016
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092				2038	1031
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				0	78
cM capacity (veh/h)	341				31	151
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	495	1049	71		
Volume Left	22	0	0	38		
Volume Right	0	0	65	33		
cSH	341	1700	1700	49		
Volume to Capacity	0.06	0.29	0.62	1.44		
Queue Length 95th (m)	1.5	0.0	0.0	50.6		
Control Delay (s)	16.3	0.0	0.0	414.9		
Lane LOS	C			F		
Approach Delay (s)	0.7		0.0	414.9		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			18.1			
Intersection Capacity Utilization			61.7%		ICU Level of Service	B
Analysis Period (min)			15			

7: Glendale & Raymond

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↘
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	780	75	20	395	25	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	848	82	22	429	27	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			929		1361	889
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			909		1463	857
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		74	92
cM capacity (veh/h)			584		106	278
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	929	22	429	49		
Volume Left	0	22	0	27		
Volume Right	82	0	0	22		
cSH	1700	584	1700	147		
Volume to Capacity	0.55	0.04	0.25	0.33		
Queue Length 95th (m)	0.0	0.9	0.0	10.3		
Control Delay (s)	0.0	11.4	0.0	41.4		
Lane LOS		B		E		
Approach Delay (s)	0.0	0.5		41.4		
Approach LOS				E		
<b>Intersection Summary</b>						
Average Delay			1.6			
Intersection Capacity Utilization			55.6%		ICU Level of Service	B
Analysis Period (min)			15			

7: Glendale & Raymond

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↘
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	485	60	15	1005	20	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	527	65	16	1092	22	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.94		0.31	0.94
vC, conflicting volume			592		1685	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			566		2906	532
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		0	97
cM capacity (veh/h)			945		5	515
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	592	16	1092	38		
Volume Left	0	16	0	22		
Volume Right	65	0	0	16		
cSH	1700	945	1700	9		
Volume to Capacity	0.35	0.02	0.64	4.13		
Queue Length 95th (m)	0.0	0.4	0.0	Err		
Control Delay (s)	0.0	8.9	0.0	Err		
Lane LOS		A		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			218.8			
Intersection Capacity Utilization			62.9%	ICU Level of Service		B
Analysis Period (min)			15			

8: Glendale & McDougall

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

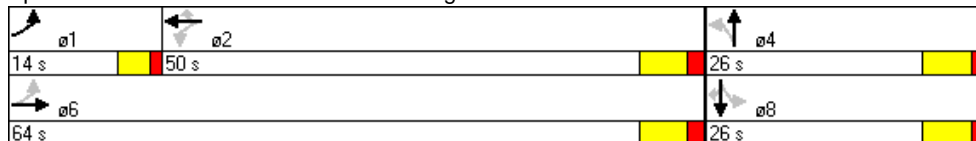
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1878	0	1789	1883	1601	0	1748	0	0	1810	1601
Flt Permitted	0.427			0.154				0.862			0.615	
Satd. Flow (perm)	804	1878	0	290	1883	1601	0	1531	0	0	1158	1601
Satd. Flow (RTOR)		3				109		39				38
Volume (vph)	35	925	20	25	330	100	55	40	70	85	20	35
Lane Group Flow (vph)	38	1027	0	27	359	109	0	179	0	0	114	38
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	64.0	0.0	50.0	50.0	50.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	15.6%	71.1%	0.0%	55.6%	55.6%	55.6%	28.9%	28.9%	0.0%	28.9%	28.9%	28.9%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	49.7	51.2		47.8	47.8	47.8		14.6			14.6	14.6
Actuated g/C Ratio	0.65	0.73		0.68	0.68	0.68		0.20			0.20	0.20
v/c Ratio	0.06	0.75		0.14	0.28	0.10		0.53			0.49	0.11
Control Delay	5.5	12.9		11.0	8.3	2.4		26.3			33.7	10.3
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	5.5	12.9		11.0	8.3	2.4		26.3			33.7	10.3
LOS	A	B		B	A	A		C			C	B
Approach Delay		12.7			7.2			26.3			27.9	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	1.3	73.9		1.0	14.5	0.0		14.3			11.8	0.0
Queue Length 95th (m)	4.9	178.0		7.2	50.4	6.8		39.1			32.2	7.3
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	625	1453		204	1323	1157		459			326	477
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.06	0.71		0.13	0.27	0.09		0.39			0.35	0.08

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 70.2  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 13.7  
 Intersection Capacity Utilization 72.7%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 8: Glendale & McDougall





8: Glendale & McDougall

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

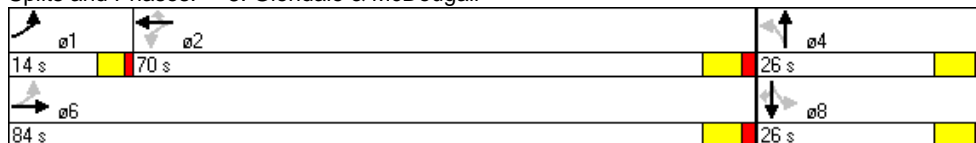
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1868	0	1789	1883	1601	0	1737	0	0	1810	1601
Flt Permitted	0.057			0.441				0.828			0.704	
Satd. Flow (perm)	107	1868	0	831	1883	1601	0	1472	0	0	1326	1601
Satd. Flow (RTOR)		7				40		29				43
Volume (vph)	60	515	30	70	1095	95	45	10	40	65	15	40
Lane Group Flow (vph)	65	593	0	76	1190	103	0	103	0	0	87	43
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	84.0	0.0	70.0	70.0	70.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	12.7%	76.4%	0.0%	63.6%	63.6%	63.6%	23.6%	23.6%	0.0%	23.6%	23.6%	23.6%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	80.4	80.3		71.4	71.4	71.4		14.1			14.1	14.1
Actuated g/C Ratio	0.77	0.78		0.70	0.70	0.70		0.14			0.14	0.14
v/c Ratio	0.34	0.40		0.13	0.91	0.09		0.45			0.48	0.17
Control Delay	10.4	4.8		7.5	26.7	4.5		34.1			47.5	12.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	10.4	4.8		7.5	26.7	4.5		34.1			47.5	12.8
LOS	B	A		A	C	A		C			D	B
Approach Delay		5.4			24.0			34.1			36.1	
Approach LOS		A			C			C			D	
Queue Length 50th (m)	2.3	28.6		4.6	178.5	3.6		12.9			15.4	0.0
Queue Length 95th (m)	9.7	56.2		12.6	#337.9	11.1		28.8			30.4	9.1
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	237	1476		580	1314	1129		318			265	355
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.27	0.40		0.13	0.91	0.09		0.32			0.33	0.12

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 102.4  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 19.7  
 Intersection Capacity Utilization 79.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 8: Glendale & McDougall



9: Glendale & Pinehill

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↘
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1020	60	45	430	25	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1109	65	49	467	27	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.40		0.40	0.40
vC, conflicting volume			1174		1707	1141
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1431		2752	1350
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			74		0	34
cM capacity (veh/h)			191		7	74
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	1174	49	467	76		
Volume Left	0	49	0	27		
Volume Right	65	0	0	49		
cSH	1700	191	1700	16		
Volume to Capacity	0.69	0.26	0.27	4.81		
Queue Length 95th (m)	0.0	7.4	0.0	Err		
Control Delay (s)	0.0	30.1	0.0	Err		
Lane LOS		D		F		
Approach Delay (s)	0.0	2.9		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			431.6			
Intersection Capacity Utilization			68.1%	ICU Level of Service		C
Analysis Period (min)			15			












9: Glendale & Pinehill

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↘
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	565	55	65	1235	25	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	614	60	71	1342	27	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			674		2128	644
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			647		2220	615
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		33	88
cM capacity (veh/h)			868		41	454
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	674	71	1342	82		
Volume Left	0	71	0	27		
Volume Right	60	0	0	54		
cSH	1700	868	1700	103		
Volume to Capacity	0.40	0.08	0.79	0.79		
Queue Length 95th (m)	0.0	2.0	0.0	32.9		
Control Delay (s)	0.0	9.5	0.0	113.1		
Lane LOS		A		F		
Approach Delay (s)	0.0	0.5		113.1		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			4.6			
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			












10: Glendale & Chandler

2016 AM Peak without Hwy 107, Modified Intersection (Fig C3-A Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	965	395	10	20	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1049	429	11	22	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	440				1527	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				1527	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				83	92
cM capacity (veh/h)	1120				127	621
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	1049	440	71		
Volume Left	22	0	0	22		
Volume Right	0	0	11	49		
cSH	1120	1700	1700	282		
Volume to Capacity	0.02	0.62	0.26	0.25		
Queue Length 95th (m)	0.5	0.0	0.0	7.3		
Control Delay (s)	8.3	0.0	0.0	21.9		
Lane LOS	A			C		
Approach Delay (s)	0.2		0.0	21.9		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			61.3%		ICU Level of Service	B
Analysis Period (min)			15			

10: Glendale & Chandler

2016 PM Peak without Hwy 107, Modified Intersection (Fig C3-B Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	35	505	1110	20	10	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	549	1207	22	11	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1228				1842	1217
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1228				1842	1217
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				86	88
cM capacity (veh/h)	567				77	220
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	38	549	1228	38		
Volume Left	38	0	0	11		
Volume Right	0	0	22	27		
cSH	567	1700	1700	144		
Volume to Capacity	0.07	0.32	0.72	0.26		
Queue Length 95th (m)	1.6	0.0	0.0	7.6		
Control Delay (s)	11.8	0.0	0.0	38.8		
Lane LOS	B			E		
Approach Delay (s)	0.8		0.0	38.8		
Approach LOS				E		
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			69.6%		ICU Level of Service	C
Analysis Period (min)			15			

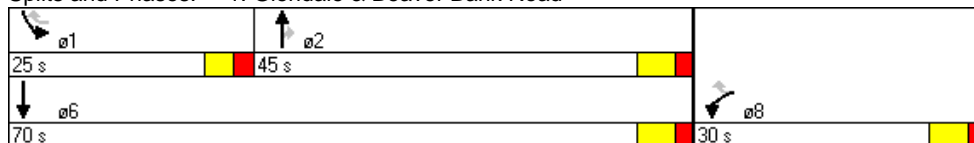
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		212		283		
Volume (vph)	185	195	300	260	575	825
Lane Group Flow (vph)	201	212	326	283	625	897
Turn Type	custom		Perm		Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	9.0	22.0
Total Split (s)	30.0	55.0	45.0	45.0	25.0	70.0
Total Split (%)	30.0%	55.0%	45.0%	45.0%	25.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	14.4	35.7	17.3	17.3	18.0	42.0
Actuated g/C Ratio	0.23	0.56	0.29	0.29	0.30	0.71
v/c Ratio	0.48	0.21	0.31	0.42	0.59	0.67
Control Delay	28.0	2.3	18.7	4.7	24.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.3	18.7	4.7	24.6	11.1
LOS	C	A	B	A	C	B
Approach Delay	14.8		12.2			16.7
Approach LOS	B		B			B
Queue Length 50th (m)	18.2	0.0	15.3	0.0	27.4	56.9
Queue Length 95th (m)	53.0	10.5	29.6	14.5	#83.6	138.1
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	662	1131	1844	962	1267	1480
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.19	0.18	0.29	0.49	0.61







Intersection Summary












Cycle Length: 100  
 Actuated Cycle Length: 59.3  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 15.3  
 Intersection Capacity Utilization 60.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 1: Glendale & Beaver Bank Road














						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	785	50	155	365	15	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	853	54	168	397	16	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			908		1614	454
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			908		1614	454
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			77		78	89
cM capacity (veh/h)			746		73	553
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	569	339	168	397	76	
Volume Left	0	0	168	0	16	
Volume Right	0	54	0	0	60	
cSH	1700	1700	746	1700	230	
Volume to Capacity	0.33	0.20	0.23	0.23	0.33	
Queue Length 95th (m)	0.0	0.0	6.6	0.0	10.5	
Control Delay (s)	0.0	0.0	11.2	0.0	28.2	
Lane LOS			B		D	
Approach Delay (s)	0.0		3.3		28.2	
Approach LOS					D	
<b>Intersection Summary</b>						
Average Delay			2.6			
Intersection Capacity Utilization			46.1%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	800	420	80	175	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	870	457	87	190	109
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	543				1457	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				1457	500
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				0	81
cM capacity (veh/h)	1025				137	571
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	43	870	543	299		
Volume Left	43	0	0	190		
Volume Right	0	0	87	109		
cSH	1025	1700	1700	189		
Volume to Capacity	0.04	0.51	0.32	1.58		
Queue Length 95th (m)	1.0	0.0	0.0	148.1		
Control Delay (s)	8.7	0.0	0.0	329.7		
Lane LOS	A			F		
Approach Delay (s)	0.4		0.0	329.7		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			56.4			
Intersection Capacity Utilization			64.6%		ICU Level of Service	C
Analysis Period (min)			15			



4: Glendale & Rankin Drive

2016 AM Peak with Hwy 107 (Fig C5-A Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	885	440	30	45	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	962	478	33	49	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	511				1478	495
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	478				1511	460
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				60	96
cM capacity (veh/h)	1016				123	563
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	11	962	511	71		
Volume Left	11	0	0	49		
Volume Right	0	0	33	22		
cSH	1016	1700	1700	161		
Volume to Capacity	0.01	0.57	0.30	0.44		
Queue Length 95th (m)	0.2	0.0	0.0	15.1		
Control Delay (s)	8.6	0.0	0.0	43.6		
Lane LOS	A			E		
Approach Delay (s)	0.1		0.0	43.6		
Approach LOS				E		
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			57.0%		ICU Level of Service	B
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1865	0	1789	1880	0	0	1701	0	0	1742	0
Flt Permitted	0.460			0.115				0.900			0.873	
Satd. Flow (perm)	866	1865	0	217	1880	0	0	1551	0	0	1547	0
Satd. Flow (RTOR)		7			1			89			33	
Volume (vph)	20	850	60	110	385	5	55	20	130	25	15	30
Lane Group Flow (vph)	22	989	0	120	423	0	0	223	0	0	76	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	65.9	65.9	0.0	65.9	65.9	0.0	30.9	30.9	0.0	30.9	30.9	0.0
Total Split (%)	68.1%	68.1%	0.0%	68.1%	68.1%	0.0%	31.9%	31.9%	0.0%	31.9%	31.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	54.1	54.1		54.1	54.1			14.6			14.6	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.19			0.19	
v/c Ratio	0.04	0.75		0.78	0.32			0.61			0.24	
Control Delay	4.7	12.7		48.7	5.7			25.7			20.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.7	12.7		48.7	5.7			25.7			20.1	
LOS	A	B		D	A			C			C	
Approach Delay		12.5			15.2			25.7			20.1	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	0.8	74.1		9.5	19.4			19.8			6.0	
Queue Length 95th (m)	3.6	168.1		#51.3	43.0			41.6			16.9	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	634	1367		159	1376			536			497	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.03	0.72		0.75	0.31			0.42			0.15	













Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 77  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 15.2  
 Intersection Capacity Utilization 78.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 5: Glendale & Riverside

30.9 s	65.9 s	65.9 s	65.9 s
30.9 s	65.9 s	65.9 s	65.9 s

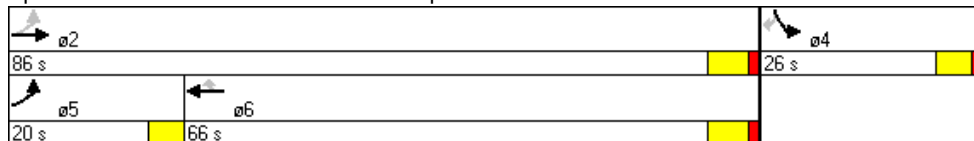
						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.495				0.950	
Satd. Flow (perm)	932	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				207		87
Volume (vph)	315	690	270	190	285	200
Lane Group Flow (vph)	342	750	293	207	310	217
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	5.0	5.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	20.0	86.0	66.0	66.0	26.0	26.0
Total Split (%)	17.9%	76.8%	58.9%	58.9%	23.2%	23.2%
Yellow Time (s)	4.0	4.5	4.5	4.5	4.1	4.1
All-Red Time (s)	0.0	1.5	1.5	1.5	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	40.8	40.8	23.3	23.3	19.2	19.2
Actuated g/C Ratio	0.60	0.60	0.34	0.34	0.28	0.28
v/c Ratio	0.47	0.66	0.45	0.30	0.62	0.42
Control Delay	9.5	13.0	21.4	4.2	28.0	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	13.0	21.4	4.2	28.0	15.4
LOS	A	B	C	A	C	B
Approach Delay		11.9	14.3		22.8	
Approach LOS		B	B		C	
Queue Length 50th (m)	20.8	61.2	30.8	0.0	33.9	12.8
Queue Length 95th (m)	34.6	97.4	52.6	12.5	64.7	33.2
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	733	1414	1096	1018	558	559
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.53	0.27	0.20	0.56	0.39












Intersection Summary

Cycle Length: 112  
 Actuated Cycle Length: 68.1  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 15.2  
 Intersection Capacity Utilization 59.9%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 6: Glendale & Metropolitan



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	900	75	20	435	25	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	978	82	22	473	27	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.70		0.70	0.70
vC, conflicting volume			1060		1535	1019
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1086		1770	1027
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		55	89
cM capacity (veh/h)			446		61	198
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	1060	22	473	49		
Volume Left	0	22	0	27		
Volume Right	82	0	0	22		
cSH	1700	446	1700	88		
Volume to Capacity	0.62	0.05	0.28	0.56		
Queue Length 95th (m)	0.0	1.2	0.0	19.0		
Control Delay (s)	0.0	13.5	0.0	89.0		
Lane LOS		B		F		
Approach Delay (s)	0.0	0.6		89.0		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			2.9			
Intersection Capacity Utilization			61.9%		ICU Level of Service	B
Analysis Period (min)			15			

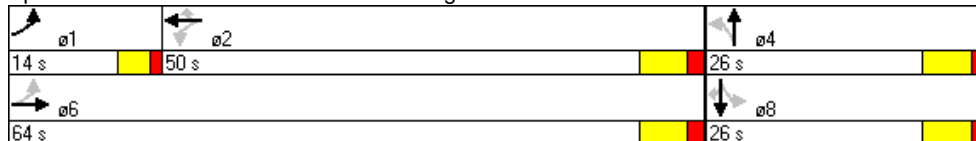
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1878	0	1789	1883	1601	0	1748	0	0	1810	1601
Flt Permitted	0.393			0.087				0.862			0.615	
Satd. Flow (perm)	740	1878	0	164	1883	1601	0	1531	0	0	1158	1601
Satd. Flow (RTOR)		2				109		39				38
Volume (vph)	35	1045	20	25	370	100	55	40	70	85	20	35
Lane Group Flow (vph)	38	1158	0	27	402	109	0	179	0	0	114	38
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	64.0	0.0	50.0	50.0	50.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	15.6%	71.1%	0.0%	55.6%	55.6%	55.6%	28.9%	28.9%	0.0%	28.9%	28.9%	28.9%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	55.5	55.8		50.1	50.1	50.1		15.0			15.0	15.0
Actuated g/C Ratio	0.67	0.71		0.63	0.63	0.63		0.19			0.19	0.19
v/c Ratio	0.07	0.87		0.26	0.34	0.10		0.56			0.52	0.11
Control Delay	4.8	19.4		18.4	9.6	2.3		29.5			38.0	10.2
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	4.8	19.4		18.4	9.6	2.3		29.5			38.0	10.2
LOS	A	B		B	A	A		C			D	B
Approach Delay		19.0			8.6			29.5			31.0	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	1.5	111.5		1.9	29.7	0.0		20.2			16.6	0.0
Queue Length 95th (m)	4.9	#267.7		9.7	57.5	6.8		39.1			32.2	7.3
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	595	1358		104	1196	1057		424			299	441
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.06	0.85		0.26	0.34	0.10		0.42			0.38	0.09












Intersection Summary












Cycle Length: 90  
 Actuated Cycle Length: 78.9  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 18.1  
 Intersection Capacity Utilization 79.0%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.




















Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 8: Glendale & McDougall



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1140	60	45	470	25	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1239	65	49	511	27	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.38		0.38	0.38
vC, conflicting volume			1304		1880	1272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1801		3317	1715
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			62		0	0
cM capacity (veh/h)			130		2	42
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	1304	49	511	76		
Volume Left	0	49	0	27		
Volume Right	65	0	0	49		
cSH	1700	130	1700	6		
Volume to Capacity	0.77	0.38	0.30	13.47		
Queue Length 95th (m)	0.0	11.9	0.0	Err		
Control Delay (s)	0.0	48.5	0.0	Err		
Lane LOS		E		F		
Approach Delay (s)	0.0	4.2		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			393.3			
Intersection Capacity Utilization			74.5%		ICU Level of Service	D
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	1105	435	10	20	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1201	473	11	22	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	484				1723	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	484				1723	478
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				77	92
cM capacity (veh/h)	1079				96	587
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	1201	484	71		
Volume Left	22	0	0	22		
Volume Right	0	0	11	49		
cSH	1079	1700	1700	228		
Volume to Capacity	0.02	0.71	0.28	0.31		
Queue Length 95th (m)	0.5	0.0	0.0	9.6		
Control Delay (s)	8.4	0.0	0.0	27.7		
Lane LOS	A			D		
Approach Delay (s)	0.1		0.0	27.7		
Approach LOS				D		
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			68.7%		ICU Level of Service	C
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	1095	15	25	400	35	10	10	40	20	5	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	1190	16	27	435	38	11	11	43	22	5	38
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	473			1207			1761	1758	1198	1780	1747	454
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	473			1207			1761	1758	1198	1780	1747	454
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			81	86	81	51	93	94
cM capacity (veh/h)	1089			578			56	80	226	44	81	606
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	16	1207	27	473	65	65						
Volume Left	16	0	27	0	11	22						
Volume Right	0	16	0	38	43	38						
cSH	1089	1700	578	1700	125	105						
Volume to Capacity	0.01	0.71	0.05	0.28	0.52	0.62						
Queue Length 95th (m)	0.3	0.0	1.1	0.0	18.8	23.3						
Control Delay (s)	8.4	0.0	11.5	0.0	62.0	84.4						
Lane LOS	A		B		F	F						
Approach Delay (s)	0.1		0.6		62.0	84.4						
Approach LOS					F	F						
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			71.6%		ICU Level of Service					C		
Analysis Period (min)			15									



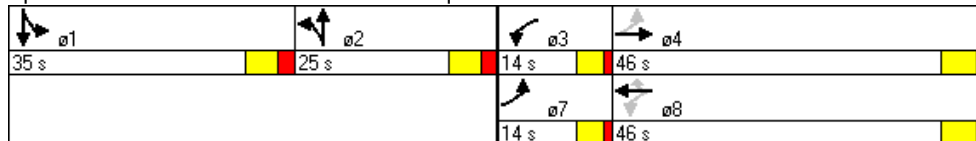
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3503	0	1789	3579	1601	1789	3214	0	1628	3279	0
Flt Permitted	0.522			0.105			0.950			0.950	0.974	
Satd. Flow (perm)	983	3503	0	198	3579	1601	1789	3214	0	1628	3279	0
Satd. Flow (RTOR)		17				179		166			11	
Volume (vph)	90	770	125	160	275	165	100	120	255	645	205	70
Lane Group Flow (vph)	98	973	0	174	299	179	109	407	0	351	649	0
Turn Type	pm+pt			pm+pt		Perm	custom			custom		
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		8	2			1		
Detector Phases	7	4		3	8	8	2	2		1	1	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9	12.9	13.0	13.0		13.0	13.0	
Total Split (s)	14.0	46.0	0.0	14.0	46.0	46.0	25.0	25.0	0.0	35.0	35.0	0.0
Total Split (%)	11.7%	38.3%	0.0%	11.7%	38.3%	38.3%	20.8%	20.8%	0.0%	29.2%	29.2%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5	4.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min	Min	Min	Min		Min	Min	
Act Effct Green (s)	43.8	35.0		46.5	39.1	39.1	15.3	15.3		27.1	27.1	
Actuated g/C Ratio	0.41	0.34		0.45	0.38	0.38	0.15	0.15		0.26	0.26	
v/c Ratio	0.21	0.82		0.73	0.22	0.25	0.41	0.66		0.83	0.75	
Control Delay	18.3	38.1		40.9	25.2	4.9	48.3	31.2		55.2	42.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.3	38.1		40.9	25.2	4.9	48.3	31.2		55.2	42.1	
LOS	B	D		D	C	A	D	C		E	D	
Approach Delay		36.3			23.8			34.8			46.7	
Approach LOS		D			C			C			D	
Queue Length 50th (m)	11.6	98.5		21.6	24.0	0.0	22.0	26.2		77.6	68.9	
Queue Length 95th (m)	22.7	131.2		#58.7	37.0	14.7	40.0	43.7		#138.7	98.9	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0		60.0	40.0			35.0		
Base Capacity (vph)	489	1355		246	1431	747	351	764		477	968	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.72		0.71	0.21	0.24	0.31	0.53		0.74	0.67	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 103.8  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 36.8  
 Intersection Capacity Utilization 76.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service D

Splits and Phases: 12: Glendale & Cobequid

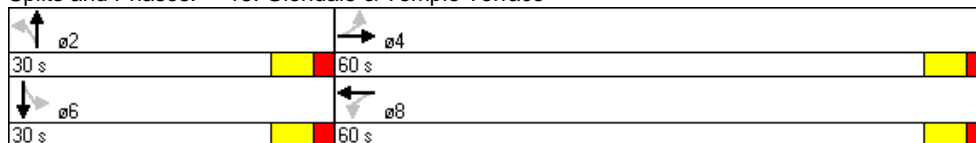


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3557	0	1789	3561	0	1789	1601	0	0	1713	0
Flt Permitted	0.331			0.073			0.751				0.919	
Satd. Flow (perm)	623	3557	0	137	3561	0	1414	1601	0	0	1613	0
Satd. Flow (RTOR)		9			8			34			5	
Volume (vph)	15	1465	65	50	665	25	30	0	60	5	0	5
Lane Group Flow (vph)	16	1663	0	54	750	0	33	65	0	0	10	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	69.8	69.8		69.8	69.8		10.2	10.2			10.2	
Actuated g/C Ratio	0.81	0.81		0.81	0.81		0.12	0.12			0.12	
v/c Ratio	0.03	0.58		0.49	0.26		0.20	0.30			0.05	
Control Delay	2.7	4.5		24.2	2.6		28.7	18.8			21.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	2.7	4.5		24.2	2.6		28.7	18.8			21.1	
LOS	A	A		C	A		C	B			C	
Approach Delay		4.5			4.1			22.1			21.1	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	37.6		2.0	11.3		3.5	3.2			0.5	
Queue Length 95th (m)	1.8	64.9		#22.2	20.3		11.5	13.9			4.5	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	510	2914		112	2917		368	442			423	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.03	0.57		0.48	0.26		0.09	0.15			0.02	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 86  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 5.1  
 Intersection Capacity Utilization 54.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 13: Glendale & Temple Terrace



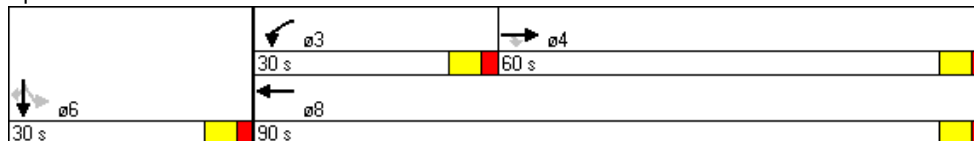
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Satd. Flow (RTOR)			546									179
Volume (vph)	0	1050	525	250	515	0	0	0	0	95	0	165
Lane Group Flow (vph)	0	1141	571	272	560	0	0	0	0	52	51	179
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Detector Phases		4	4	3	8					6	6	6
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Minimum Split (s)		22.0	22.0	10.0	22.0					22.0	22.0	22.0
Total Split (s)	0.0	60.0	60.0	30.0	90.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
Total Split (%)	0.0%	50.0%	50.0%	25.0%	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%	25.0%	25.0%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode		Min	Min	None	Min					None	None	None
Act Effct Green (s)		37.2	37.2	13.0	55.8					10.1	10.1	10.1
Actuated g/C Ratio		0.53	0.53	0.19	0.80					0.14	0.14	0.14
v/c Ratio		0.60	0.51	0.42	0.20					0.22	0.21	0.47
Control Delay		13.9	3.2	29.9	2.7					34.5	34.4	10.6
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		13.9	3.2	29.9	2.7					34.5	34.4	10.6
LOS		B	A	C	A					C	C	B
Approach Delay		10.3			11.6						19.3	
Approach LOS		B			B						B	
Queue Length 50th (m)		52.3	1.5	15.7	8.5					6.2	6.1	0.0
Queue Length 95th (m)		91.8	16.8	36.0	16.4					20.8	20.7	18.0
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)			70.0	70.0						90.0		90.0
Base Capacity (vph)		2284	1219	1127	3067					513	513	608
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.50	0.47	0.24	0.18					0.10	0.10	0.29

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 69.8  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 11.6  
 Intersection Capacity Utilization 53.0%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 14: Glendale & HWY 102 SB Off



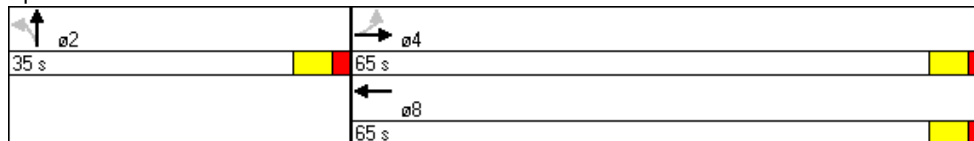
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3511	0	1700	1700	1601	0	0	0
Flt Permitted	0.391						0.950	0.950				
Satd. Flow (perm)	736	3579	0	0	3511	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					29				432			
Volume (vph)	165	980	0	0	490	70	275	0	1080	0	0	0
Lane Group Flow (vph)	179	1065	0	0	609	0	150	149	1174	0	0	0
Turn Type	Perm						Perm		Free			
Protected Phases		4			8			2				
Permitted Phases	4						2		Free			
Detector Phases	4	4			8		2	2				
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0				
Minimum Split (s)	22.0	22.0			22.0		22.0	22.0				
Total Split (s)	65.0	65.0	0.0	0.0	65.0	0.0	35.0	35.0	0.0	0.0	0.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	0.0%	65.0%	0.0%	35.0%	35.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)	34.4	34.4			34.4		12.8	12.8	53.3			
Actuated g/C Ratio	0.65	0.65			0.65		0.23	0.23	1.00			
v/c Ratio	0.38	0.46			0.27		0.38	0.38	0.73			
Control Delay	8.8	6.5			5.0		17.5	17.5	3.0			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	8.8	6.5			5.0		17.5	17.5	3.0			
LOS	A	A			A		B	B	A			
Approach Delay		6.8			5.0			6.0				
Approach LOS		A			A			A				
Queue Length 50th (m)	6.4	21.6			9.8		8.5	8.5	0.0			
Queue Length 95th (m)	21.6	44.2			21.5		28.2	28.1	0.0			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		90.0			
Base Capacity (vph)	589	2864			2815		745	745	1601			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.30	0.37			0.22		0.20	0.20	0.73			

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 53.3  
 Natural Cycle: 45  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 6.1  
 Intersection Capacity Utilization 66.6%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 15: Duke & HWY 102 NB On



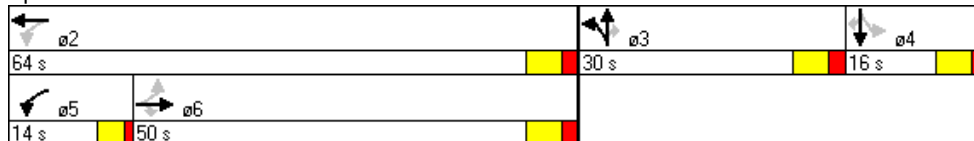
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1700	1601	0	1883	1601
Flt Permitted	0.452			0.080			0.950	0.950				
Satd. Flow (perm)	851	3579	1601	151	3579	0	1700	1700	1601	0	1883	1601
Satd. Flow (RTOR)			194						130			306
Volume (vph)	10	1835	375	105	495	0	210	0	120	0	0	10
Lane Group Flow (vph)	11	1995	408	114	538	0	114	114	130	0	0	11
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	0.0	30.0	30.0	30.0	16.0	16.0	16.0
Total Split (%)	45.5%	45.5%	45.5%	12.7%	58.2%	0.0%	27.3%	27.3%	27.3%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	None	Min		None	None	None	None	None	None
Act Effct Green (s)	50.3	50.3	50.3	61.1	61.1		13.0	13.0	13.0			7.5
Actuated g/C Ratio	0.60	0.60	0.60	0.71	0.73		0.15	0.15	0.15			0.08
v/c Ratio	0.02	0.93	0.39	0.41	0.21		0.44	0.44	0.36			0.03
Control Delay	11.7	28.3	7.5	12.3	4.9		37.4	37.4	9.3			0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			0.0
Total Delay	11.7	28.3	7.5	12.3	4.9		37.4	37.4	9.3			0.1
LOS	B	C	A	B	A		D	D	A			A
Approach Delay		24.7			6.2			27.2				
Approach LOS		C			A			C				
Queue Length 50th (m)	0.7	144.0	15.0	3.8	10.3		16.8	16.8	0.0			0.0
Queue Length 95th (m)	4.2	#287.7	49.5	21.1	31.4		36.6	36.6	14.6			0.0
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	508	2140	1035	295	2605		457	457	525			465
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.02	0.93	0.39	0.39	0.21		0.25	0.25	0.25			0.02











Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 84.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 21.4  
 Intersection Capacity Utilization 72.4%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	1850	515	5	10	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	2011	560	5	11	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			308			
pX, platoon unblocked						
vC, conflicting volume	565				1688	283
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	565				1688	283
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				86	92
cM capacity (veh/h)	1003				80	714
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	60	1005	1005	373	192	65
Volume Left	60	0	0	0	0	11
Volume Right	0	0	0	0	5	54
cSH	1003	1700	1700	1700	1700	307
Volume to Capacity	0.06	0.59	0.59	0.22	0.11	0.21
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	6.0
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	19.9
Lane LOS	A					C
Approach Delay (s)	0.3			0.0		19.9
Approach LOS						C
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			61.4%		ICU Level of Service	B
Analysis Period (min)			15			

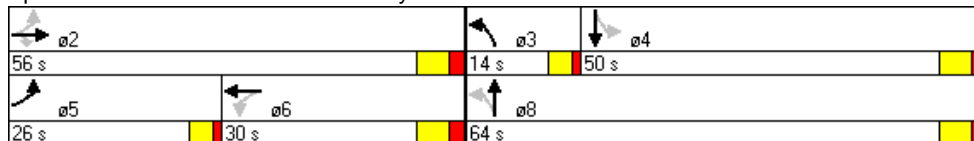
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3568	0	1789	1742	0	1789	1703	0
Flt Permitted	0.432			0.154			0.483			0.687		
Satd. Flow (perm)	814	3579	1601	290	3568	0	910	1742	0	1294	1703	0
Satd. Flow (RTOR)			58		1			7			87	
Volume (vph)	175	1440	245	10	240	5	145	50	50	20	75	135
Lane Group Flow (vph)	190	1565	266	11	266	0	158	108	0	22	229	0
Turn Type	pm+pt		Perm	Perm			pm+pt			Perm		
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phases	5	2	2	6	6		3	8		4	4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0	22.0	22.0	22.0		8.0	22.0		22.0	22.0	
Total Split (s)	26.0	56.0	56.0	30.0	30.0	0.0	14.0	64.0	0.0	50.0	50.0	0.0
Total Split (%)	21.7%	46.7%	46.7%	25.0%	25.0%	0.0%	11.7%	53.3%	0.0%	41.7%	41.7%	0.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		1.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)	50.9	50.9	50.9	36.9	36.9		28.0	28.0		14.7	14.7	
Actuated g/C Ratio	0.59	0.59	0.59	0.42	0.42		0.32	0.32		0.17	0.17	
v/c Ratio	0.32	0.75	0.28	0.09	0.18		0.41	0.19		0.10	0.63	
Control Delay	11.1	17.2	8.7	21.9	17.8		25.1	20.5		31.2	28.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.1	17.2	8.7	21.9	17.8		25.1	20.5		31.2	28.9	
LOS	B	B	A	C	B		C	C		C	C	
Approach Delay		15.5			17.9			23.2			29.1	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	13.9	95.8	15.7	1.1	14.2		19.8	12.2		3.2	22.3	
Queue Length 95th (m)	28.8	149.6	34.4	5.6	27.3		34.1	23.5		9.4	44.7	
Internal Link Dist (m)		284.0			177.9			410.9			153.3	
Turn Bay Length (m)	75.0		18.0	75.0			60.0			60.0		
Base Capacity (vph)	635	2117	971	123	1515		392	885		505	718	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.30	0.74	0.27	0.09	0.18		0.40	0.12		0.04	0.32	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 87  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 17.7  
 Intersection Capacity Utilization 76.7%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 18: Duke & Rocky Lake



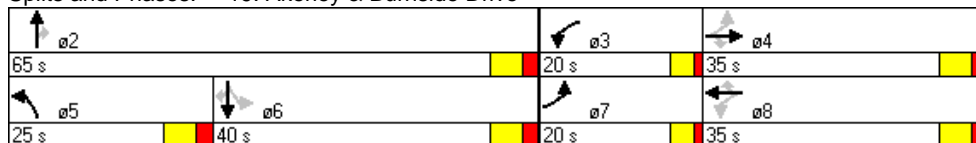
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.129			0.370			0.950			0.642		
Satd. Flow (perm)	243	3579	1601	697	3579	1601	3471	3579	1601	1209	3579	1601
Satd. Flow (RTOR)			125			22			130			302
Volume (vph)	70	385	115	340	775	25	315	160	120	135	955	420
Lane Group Flow (vph)	76	418	125	370	842	27	342	174	130	147	1038	457
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8			2	6		6
Detector Phases	7	4	4	3	8	8	5	2	2	6	6	6
Minimum Initial (s)	4.0	25.0	25.0	7.0	25.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	8.0	31.6	31.6	11.0	31.6	31.6	19.1	31.6	31.6	31.6	31.6	31.6
Total Split (s)	20.0	35.0	35.0	20.0	35.0	35.0	25.0	65.0	65.0	40.0	40.0	40.0
Total Split (%)	16.7%	29.2%	29.2%	16.7%	29.2%	29.2%	20.8%	54.2%	54.2%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	35.5	27.0	27.0	47.0	36.6	36.6	18.0	58.0	58.0	36.0	36.0	36.0
Actuated g/C Ratio	0.31	0.24	0.24	0.42	0.32	0.32	0.16	0.51	0.51	0.32	0.32	0.32
v/c Ratio	0.40	0.49	0.26	0.83	0.73	0.05	0.62	0.09	0.15	0.38	0.91	0.64
Control Delay	28.3	39.7	7.8	43.4	39.6	14.4	49.6	14.2	2.8	34.1	50.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	39.7	7.8	43.4	39.6	14.4	49.6	14.2	2.8	34.1	50.0	15.5
LOS	C	D	A	D	D	B	D	B	A	C	D	B
Approach Delay		31.9			40.2			30.6			38.9	
Approach LOS		C			D			C			D	
Queue Length 50th (m)	10.1	42.2	0.0	59.4	89.0	0.8	36.7	10.0	0.0	25.2	115.8	27.3
Queue Length 95th (m)	20.2	59.2	14.6	#107.9	#122.8	7.8	51.3	15.6	8.8	44.8	#160.5	64.6
Internal Link Dist (m)		387.5			407.9			804.6			419.0	
Turn Bay Length (m)	100.0		60.0	100.0		60.0	100.0		170.0	75.0		75.0
Base Capacity (vph)	287	949	516	445	1160	534	628	1882	904	385	1141	716
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.44	0.24	0.83	0.73	0.05	0.54	0.09	0.14	0.38	0.91	0.64

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113  
 Natural Cycle: 95  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 37.0  
 Intersection Capacity Utilization 94.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service F

Splits and Phases: 19: Akerley & Burnside Drive





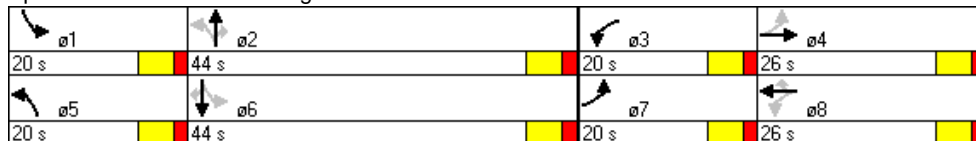
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3425	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.370			0.475			0.126			0.375		
Satd. Flow (perm)	697	3425	0	895	3579	1601	237	3579	1601	706	3579	1601
Satd. Flow (RTOR)		50				92			353			286
Volume (vph)	50	185	75	130	340	85	90	460	325	190	880	340
Lane Group Flow (vph)	54	283	0	141	370	92	98	500	353	207	957	370
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	20.0	26.0	0.0	20.0	26.0	26.0	20.0	44.0	44.0	20.0	44.0	44.0
Total Split (%)	18.2%	23.6%	0.0%	18.2%	23.6%	23.6%	18.2%	40.0%	40.0%	18.2%	40.0%	40.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	20.0	14.2		25.1	19.0	19.0	34.8	28.2	28.2	37.9	29.7	29.7
Actuated g/C Ratio	0.25	0.19		0.32	0.25	0.25	0.45	0.37	0.37	0.49	0.39	0.39
v/c Ratio	0.18	0.41		0.33	0.41	0.19	0.31	0.37	0.43	0.41	0.68	0.46
Control Delay	22.3	29.3		23.1	30.1	8.6	13.0	20.9	4.4	12.9	24.1	7.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	29.3		23.1	30.1	8.6	13.0	20.9	4.4	12.9	24.1	7.4
LOS	C	C		C	C	A	B	C	A	B	C	A
Approach Delay		28.1			25.2			14.0			18.5	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	5.6	17.4		15.3	27.5	0.0	6.7	29.7	0.0	15.0	64.1	8.3
Queue Length 95th (m)	15.1	34.5		33.0	48.0	12.3	16.5	52.6	17.9	32.0	105.3	32.6
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	432	1031		488	1121	564	430	1709	949	571	1737	924
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.27		0.29	0.33	0.16	0.23	0.29	0.37	0.36	0.55	0.40

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 75.6  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 19.4  
 Intersection Capacity Utilization 57.4%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 20: Wright & Burnside Drive



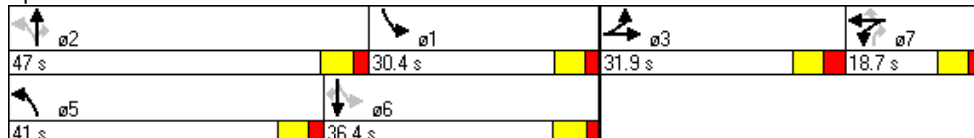
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1601	1628	3366	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.950			0.950	0.982		0.667			0.667		
Satd. Flow (perm)	1789	1883	1601	1628	3366	1601	2437	3579	1601	1256	3579	1601
Satd. Flow (RTOR)			375			125			290			223
Volume (vph)	75	140	345	170	125	115	825	685	725	355	525	205
Lane Group Flow (vph)	82	152	375	103	218	125	897	745	788	386	571	223
Turn Type	custom		Free	custom		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	3	3		7	7		5	2		1	6	
Permitted Phases	3		Free	7		7	2		2.7	6		6
Detector Phases	3	3		7	7	7	5	2	2.7	1	6	6
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	35.0	40.6		7.0	7.0	7.0
Minimum Split (s)	13.9	13.9		13.7	13.7	13.7	41.0	47.0		13.5	13.4	13.4
Total Split (s)	31.9	31.9	0.0	18.7	18.7	18.7	41.0	47.0	65.7	30.4	36.4	36.4
Total Split (%)	24.9%	24.9%	0.0%	14.6%	14.6%	14.6%	32.0%	36.7%	51.3%	23.8%	28.4%	28.4%
Yellow Time (s)	4.1	4.1		4.1	4.1	4.1	4.0	4.5		4.0	4.5	4.5
All-Red Time (s)	2.8	2.8		2.6	2.6	2.6	2.0	1.9		2.0	1.9	1.9
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Max	Max		None	None	None
Act Effct Green (s)	17.4	17.4	115.9	14.8	14.8	14.8	43.2	43.2	61.9	30.6	30.6	30.6
Actuated g/C Ratio	0.15	0.15	1.00	0.13	0.13	0.13	0.37	0.37	0.53	0.26	0.26	0.26
v/c Ratio	0.31	0.54	0.23	0.50	0.51	0.40	0.72	0.56	0.80	0.87	0.60	0.38
Control Delay	47.1	53.1	0.3	58.0	53.1	12.5	35.8	31.7	21.5	62.8	40.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	53.1	0.3	58.0	53.1	12.5	35.8	31.7	21.5	62.8	40.9	6.5
LOS	D	D	A	E	D	B	D	C	C	E	D	A
Approach Delay		19.8			42.8			29.9			41.6	
Approach LOS		B			D			C			D	
Queue Length 50th (m)	17.1	32.8	0.0	24.7	26.2	0.0	90.4	71.7	96.6	82.4	59.8	0.0
Queue Length 95th (m)	31.6	53.4	0.0	46.4	41.3	17.6	121.8	97.8	173.2	#142.7	83.1	18.6
Internal Link Dist (m)		123.2			343.7			718.3			923.3	
Turn Bay Length (m)	40.0			100.0		60.0	113.0			150.0		150.0
Base Capacity (vph)	396	416	1601	207	428	313	1239	1333	990	466	987	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.37	0.23	0.50	0.51	0.40	0.72	0.56	0.80	0.83	0.58	0.37

Intersection Summary

Cycle Length: 128  
 Actuated Cycle Length: 115.9  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 32.8  
 Intersection Capacity Utilization 81.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 21: Ronald Smith & Burnside Drive



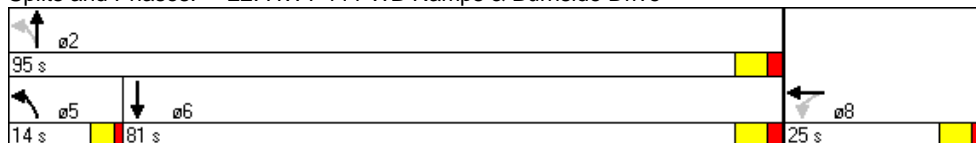
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1816	1601	0	3575	0	0	3579	1601
Flt Permitted					0.964			0.920				
Satd. Flow (perm)	0	0	0	0	1816	1601	0	3292	0	0	3579	1601
Satd. Flow (RTOR)						289						325
Volume (vph)	0	0	0	175	60	1025	30	1210	0	0	685	355
Lane Group Flow (vph)	0	0	0	0	255	1114	0	1348	0	0	745	386
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Max			Max	
Act Effct Green (s)					20.3	120.0		91.7			91.7	120.0
Actuated g/C Ratio					0.17	1.00		0.76			0.76	1.00
v/c Ratio					0.83	0.70		0.54			0.27	0.24
Control Delay					70.5	2.5		6.7			4.6	0.4
Queue Delay					15.1	0.0		14.1			0.0	0.0
Total Delay					85.6	2.5		20.8			4.6	0.4
LOS					F	A		C			A	A
Approach Delay					18.0			20.8			3.2	
Approach LOS					B			C			A	
Queue Length 50th (m)					58.2	0.0		58.4			24.0	0.0
Queue Length 95th (m)					#98.0	0.0		71.6			30.3	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					316	1601		2515			2735	1601
Starvation Cap Reductn					0	0		1172			0	0
Spillback Cap Reductn					50	0		0			509	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					0.96	0.70		1.00			0.33	0.24

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 14.6  
 Intersection Capacity Utilization 74.5%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



23: HWY 111 EB Ramps & Burnside Drive

2016 AM Peak with Hwy 107 (Fig C6-A Vol.)

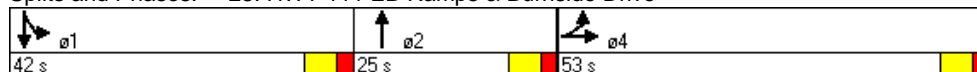
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1685	0	0	0	0	0	3428	0	1700	1766	0
Flt Permitted	0.950	0.958								0.950	0.987	
Satd. Flow (perm)	1700	1685	0	0	0	0	0	3428	0	1700	1766	0
Satd. Flow (RTOR)		7						41				
Volume (vph)	945	0	55	0	0	0	0	295	115	535	325	0
Lane Group Flow (vph)	572	515	0	0	0	0	0	446	0	455	480	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	53.0	53.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	42.0	42.0	0.0
Total Split (%)	44.2%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	20.8%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						None		None	None	
Act Effct Green (s)	40.3	40.3						18.3		32.6	32.6	
Actuated g/C Ratio	0.39	0.39						0.18		0.31	0.31	
v/c Ratio	0.87	0.78						0.70		0.86	0.87	
Control Delay	45.4	38.1						45.5		52.2	53.1	
Queue Delay	5.6	2.4						0.0		102.3	116.4	
Total Delay	51.0	40.5						45.5		154.6	169.5	
LOS	D	D						D		F	F	
Approach Delay		46.0						45.5			162.2	
Approach LOS		D						D			F	
Queue Length 50th (m)	124.6	105.5						47.7		104.9	111.3	
Queue Length 95th (m)	#186.1	149.8						65.5		#161.3	#169.8	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	753	750						735		605	628	
Starvation Cap Reductn	0	0						0		231	244	
Spillback Cap Reductn	129	128						3		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.92	0.83						0.61		1.22	1.25	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 104  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 90.0  
 Intersection Capacity Utilization 73.0%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: F  
 ICU Level of Service D

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive



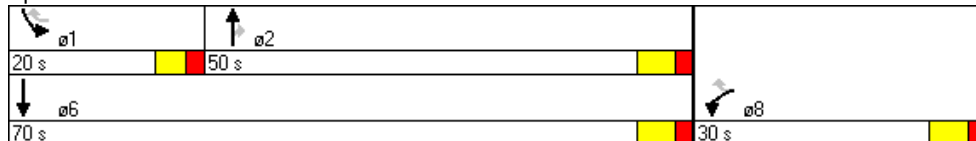
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		46		118		
Volume (vph)	225	620	995	165	355	450
Lane Group Flow (vph)	245	674	1082	179	386	489
Turn Type	custom			Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	22.0		22.0	22.0	12.0	22.0
Total Split (s)	30.0	50.0	50.0	50.0	20.0	70.0
Total Split (%)	30.0%	50.0%	50.0%	50.0%	20.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	25.2	44.4	35.5	35.5	15.2	54.8
Actuated g/C Ratio	0.29	0.50	0.40	0.40	0.17	0.62
v/c Ratio	0.48	0.81	0.75	0.25	0.64	0.42
Control Delay	31.8	28.3	26.1	7.4	41.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	28.3	26.1	7.4	41.1	9.6
LOS	C	C	C	A	D	A
Approach Delay	29.3		23.4			23.5
Approach LOS	C		C			C
Queue Length 50th (m)	35.3	87.9	82.6	6.4	32.5	39.1
Queue Length 95th (m)	64.5	#180.5	104.5	18.3	52.1	56.9
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	528	848	1680	814	633	1256
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.79	0.64	0.22	0.61	0.39







Intersection Summary












Cycle Length: 100  
 Actuated Cycle Length: 88.1  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 25.2  
 Intersection Capacity Utilization 72.6%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 1: Glendale & Beaver Bank Road














						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	460	40	130	795	80	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	500	43	141	864	87	158
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			543		1668	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		1668	272
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			86		0	78
cM capacity (veh/h)			1022		75	726
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	333	210	141	864	245	
Volume Left	0	0	141	0	87	
Volume Right	0	43	0	0	158	
cSH	1700	1700	1022	1700	178	
Volume to Capacity	0.20	0.12	0.14	0.51	1.38	
Queue Length 95th (m)	0.0	0.0	3.6	0.0	111.1	
Control Delay (s)	0.0	0.0	9.1	0.0	250.0	
Lane LOS			A		F	
Approach Delay (s)	0.0		1.3		250.0	
Approach LOS					F	
<b>Intersection Summary</b>						
Average Delay			34.8			
Intersection Capacity Utilization			61.9%		ICU Level of Service	B
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	190	415	835	180	60	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	207	451	908	196	65	98
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	1103				1870	1005
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1103				1870	1005
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	67				0	67
cM capacity (veh/h)	633				54	293
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	207	451	1103	163		
Volume Left	207	0	0	65		
Volume Right	0	0	196	98		
cSH	633	1700	1700	105		
Volume to Capacity	0.33	0.27	0.65	1.55		
Queue Length 95th (m)	10.8	0.0	0.0	93.1		
Control Delay (s)	13.4	0.0	0.0	362.3		
Lane LOS	B			F		
Approach Delay (s)	4.2		0.0	362.3		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			32.1			
Intersection Capacity Utilization			84.3%		ICU Level of Service	E
Analysis Period (min)			15			

4: Glendale & Rankin Drive

2016 PM Peak with Hwy 107 (Fig C5-B Vol.)

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	515	1035	60	35	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	560	1125	65	38	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.41				0.41	0.41
vC, conflicting volume	1190				1761	1158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1466				2864	1386
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				0	54
cM capacity (veh/h)	188				7	72
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	560	1190	71		
Volume Left	22	0	0	38		
Volume Right	0	0	65	33		
cSH	188	1700	1700	11		
Volume to Capacity	0.12	0.33	0.70	6.17		
Queue Length 95th (m)	2.9	0.0	0.0	Err		
Control Delay (s)	26.6	0.0	0.0	Err		
Lane LOS	D			F		
Approach Delay (s)	1.0		0.0	Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			383.8			
Intersection Capacity Utilization			68.6%		ICU Level of Service	C
Analysis Period (min)			15			



5: Glendale & Riverside

2016 PM Peak with Hwy 107 (Fig C5-B Vol.)

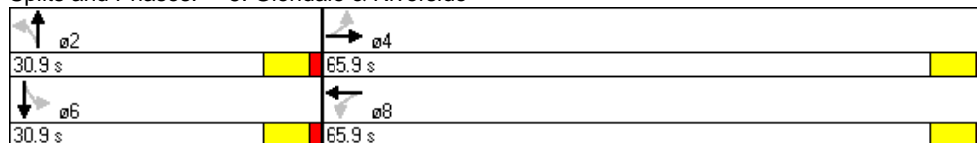
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1857	0	1789	1868	0	0	1737	0	0	1783	0
Flt Permitted	0.067			0.365				0.818			0.886	
Satd. Flow (perm)	126	1857	0	687	1868	0	0	1453	0	0	1599	0
Satd. Flow (RTOR)		11			5			38			23	
Volume (vph)	30	470	50	160	935	50	135	35	125	20	35	25
Lane Group Flow (vph)	33	565	0	174	1070	0	0	321	0	0	87	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	65.9	65.9	0.0	65.9	65.9	0.0	30.9	30.9	0.0	30.9	30.9	0.0
Total Split (%)	68.1%	68.1%	0.0%	68.1%	68.1%	0.0%	31.9%	31.9%	0.0%	31.9%	31.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	52.4	52.4		52.4	52.4			21.6			21.6	
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.26			0.26	
v/c Ratio	0.41	0.48		0.40	0.90			0.79			0.20	
Control Delay	27.3	9.8		11.5	25.8			41.5			21.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	27.3	9.8		11.5	25.8			41.5			21.6	
LOS	C	A		B	C			D			C	
Approach Delay		10.7			23.8			41.5			21.6	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	2.7	47.9		14.1	150.7			48.4			9.0	
Queue Length 95th (m)	#15.1	71.0		28.0	#258.8			#86.8			20.7	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	86	1260		465	1266			483			519	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.38	0.45		0.37	0.85			0.66			0.17	













Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 82.6  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 22.8  
 Intersection Capacity Utilization 91.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service F

Splits and Phases: 5: Glendale & Riverside



						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.080				0.950	
Satd. Flow (perm)	151	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				163		140
Volume (vph)	235	380	835	320	225	235
Lane Group Flow (vph)	255	413	908	348	245	255
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	7.0	7.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	29.0	79.0	50.0	50.0	31.0	31.0
Total Split (%)	26.4%	71.8%	45.5%	45.5%	28.2%	28.2%
Yellow Time (s)	4.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	1.9	1.9	1.9	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	68.2	68.2	46.6	46.6	19.8	19.8
Actuated g/C Ratio	0.71	0.71	0.48	0.48	0.21	0.21
v/c Ratio	0.63	0.31	0.99	0.40	0.67	0.58
Control Delay	26.1	6.5	56.6	11.3	45.2	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	6.5	56.6	11.3	45.2	21.5
LOS	C	A	E	B	D	C
Approach Delay		14.0	44.0		33.1	
Approach LOS		B	D		C	
Queue Length 50th (m)	26.8	24.9	~169.3	19.7	42.2	18.4
Queue Length 95th (m)	56.5	46.9	#304.2	50.8	71.5	45.2
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	497	1373	913	860	470	524
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.30	0.99	0.40	0.52	0.49

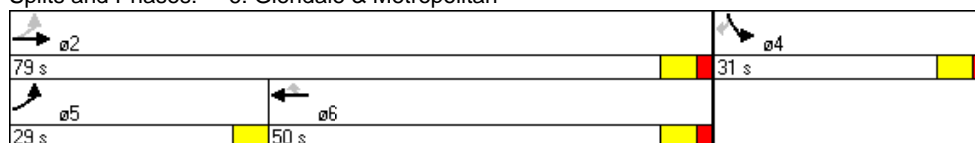
Intersection Summary












Cycle Length: 110  
 Actuated Cycle Length: 96.1  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 33.5  
 Intersection Capacity Utilization 79.4%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service D

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

Splits and Phases: 6: Glendale & Metropolitan



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	545	60	15	1135	20	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	592	65	16	1234	22	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.92		0.31	0.92
vC, conflicting volume			658		1891	625
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			628		3519	592
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		0	96
cM capacity (veh/h)			877		2	465
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	658	16	1234	38		
Volume Left	0	16	0	22		
Volume Right	65	0	0	16		
cSH	1700	877	1700	4		
Volume to Capacity	0.39	0.02	0.73	10.62		
Queue Length 95th (m)	0.0	0.4	0.0	Err		
Control Delay (s)	0.0	9.2	0.0	Err		
Lane LOS		A		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			195.6			
Intersection Capacity Utilization			69.7%		ICU Level of Service	C
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1868	0	1789	1883	1601	0	1737	0	0	1810	1601
Flt Permitted	0.050			0.415				0.824			0.683	
Satd. Flow (perm)	94	1868	0	782	1883	1601	0	1465	0	0	1286	1601
Satd. Flow (RTOR)		6				35		26				43
Volume (vph)	60	575	30	70	1225	95	45	10	40	65	15	40
Lane Group Flow (vph)	65	658	0	76	1332	103	0	103	0	0	87	43
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	94.0	0.0	80.0	80.0	80.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	11.7%	78.3%	0.0%	66.7%	66.7%	66.7%	21.7%	21.7%	0.0%	21.7%	21.7%	21.7%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	89.9	89.8		80.9	80.9	80.9		15.0			15.0	15.0
Actuated g/C Ratio	0.78	0.80		0.72	0.72	0.72		0.13			0.13	0.13
v/c Ratio	0.38	0.44		0.14	0.99	0.09		0.47			0.51	0.17
Control Delay	13.4	5.1		7.4	39.7	4.6		39.8			54.4	13.8
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	13.4	5.1		7.4	39.7	4.6		39.8			54.4	13.8
LOS	B	A		A	D	A		D			D	B
Approach Delay		5.9			35.7			39.8			41.0	
Approach LOS		A			D			D			D	
Queue Length 50th (m)	2.4	35.5		4.8	~273.4	4.0		15.2			17.4	0.0
Queue Length 95th (m)	12.0	68.5		13.1	#430.8	11.8		32.4			33.9	9.9
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	216	1496		561	1351	1158		291			237	330
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.30	0.44		0.14	0.99	0.09		0.35			0.37	0.13

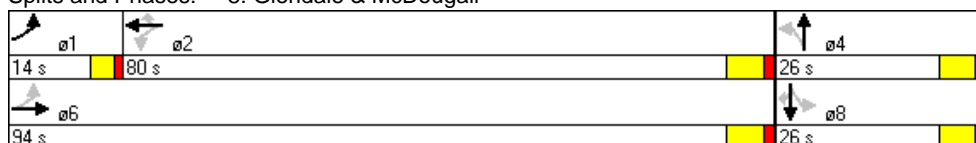
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 112.8  
 Natural Cycle: 110  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 27.4  
 Intersection Capacity Utilization 86.1%  
 Analysis Period (min) 15












Intersection LOS: C  
 ICU Level of Service E

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

Splits and Phases: 8: Glendale & McDougall



	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↘
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	625	55	65	1365	25	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	679	60	71	1484	27	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			739		2334	709
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			708		2494	674
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		0	87
cM capacity (veh/h)			796		26	406
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	739	71	1484	82		
Volume Left	0	71	0	27		
Volume Right	60	0	0	54		
cSH	1700	796	1700	69		
Volume to Capacity	0.43	0.09	0.87	1.18		
Queue Length 95th (m)	0.0	2.2	0.0	48.2		
Control Delay (s)	0.0	10.0	0.0	267.5		
Lane LOS		A		F		
Approach Delay (s)	0.0	0.5		267.5		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			9.5			
Intersection Capacity Utilization			83.0%		ICU Level of Service	E
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	35	565	1240	20	10	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	614	1348	22	11	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1370				2049	1359
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1370				2049	1359
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				81	85
cM capacity (veh/h)	501				57	182
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	38	614	1370	38		
Volume Left	38	0	0	11		
Volume Right	0	0	22	27		
cSH	501	1700	1700	112		
Volume to Capacity	0.08	0.36	0.81	0.34		
Queue Length 95th (m)	1.9	0.0	0.0	10.3		
Control Delay (s)	12.8	0.0	0.0	53.2		
Lane LOS	B			F		
Approach Delay (s)	0.7		0.0	53.2		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			76.5%		ICU Level of Service	D
Analysis Period (min)			15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	40	515	20	75	1230	65	10	5	20	5	0	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	560	22	82	1337	71	11	5	22	5	0	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1408			582			2179	2228	571	2207	2204	1372
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1408			582			2179	2228	571	2207	2204	1372
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			92			57	85	96	77	100	88
cM capacity (veh/h)	485			993			25	36	521	24	37	179
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	43	582	82	1408	38	27						
Volume Left	43	0	82	0	11	5						
Volume Right	0	22	0	71	22	22						
cSH	485	1700	993	1700	61	77						
Volume to Capacity	0.09	0.34	0.08	0.83	0.62	0.35						
Queue Length 95th (m)	2.2	0.0	2.0	0.0	19.7	10.2						
Control Delay (s)	13.2	0.0	9.0	0.0	131.9	75.1						
Lane LOS	B		A		F	F						
Approach Delay (s)	0.9		0.5		131.9	75.1						
Approach LOS					F	F						
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			78.7%		ICU Level of Service					D		
Analysis Period (min)			15									

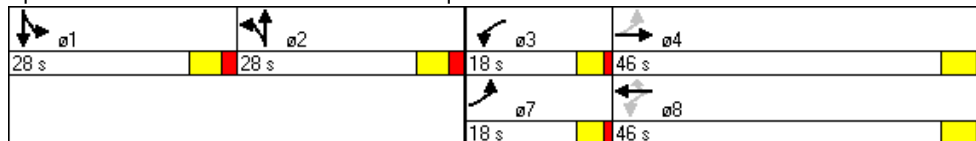
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3532	0	1789	3579	1601	1789	3428	0	1628	3171	0
Flt Permitted	0.095			0.376			0.950			0.950	0.979	
Satd. Flow (perm)	179	3532	0	708	3579	1601	1789	3428	0	1628	3171	0
Satd. Flow (RTOR)		9				297		42			74	
Volume (vph)	120	405	40	240	970	370	180	335	130	335	80	135
Lane Group Flow (vph)	130	483	0	261	1054	402	196	505	0	194	404	0
Turn Type	pm+pt			pm+pt		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		8						
Detector Phases	7	4		3	8	8	2	2		1	1	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9	12.9	13.0	13.0		13.0	13.0	
Total Split (s)	18.0	46.0	0.0	18.0	46.0	46.0	28.0	28.0	0.0	28.0	28.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	15.0%	38.3%	38.3%	23.3%	23.3%	0.0%	23.3%	23.3%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5	4.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min		Min	Min	
Act Effct Green (s)	46.8	35.6		49.2	36.8	36.8	20.3	20.3		18.7	18.7	
Actuated g/C Ratio	0.45	0.34		0.47	0.35	0.35	0.20	0.20		0.18	0.18	
v/c Ratio	0.51	0.40		0.56	0.83	0.53	0.56	0.72		0.66	0.64	
Control Delay	25.6	27.5		21.4	38.5	10.7	47.2	43.7		53.5	38.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	25.6	27.5		21.4	38.5	10.7	47.2	43.7		53.5	38.3	
LOS	C	C		C	D	B	D	D		D	D	
Approach Delay		27.1			29.4			44.7			43.2	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	14.9	41.6		32.5	110.2	15.8	39.4	50.8		44.7	37.8	
Queue Length 95th (m)	32.3	58.4		52.5	146.7	46.0	65.8	72.5		72.7	56.0	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0		60.0	40.0			35.0		
Base Capacity (vph)	301	1373		486	1401	807	409	817		367	772	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.43	0.35		0.54	0.75	0.50	0.48	0.62		0.53	0.52	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 103.7  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 34.2  
 Intersection Capacity Utilization 71.1%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 12: Glendale & Cobequid





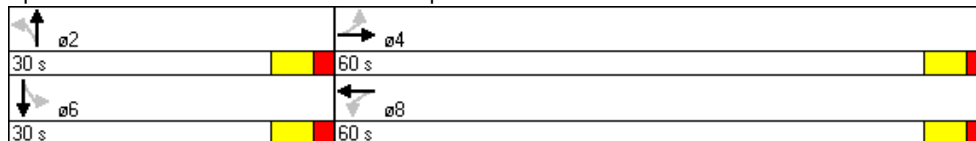
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3568	0	1789	3579	0	1789	1601	0	0	1692	0
Flt Permitted	0.071			0.223			0.729				0.910	
Satd. Flow (perm)	134	3568	0	420	3579	0	1373	1601	0	0	1568	0
Satd. Flow (RTOR)		4						126			24	
Volume (vph)	5	935	20	30	1605	0	65	0	70	15	0	25
Lane Group Flow (vph)	5	1038	0	33	1745	0	71	76	0	0	43	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	59.9	59.9		59.9	59.9		12.1	12.1			12.1	
Actuated g/C Ratio	0.77	0.77		0.77	0.77		0.15	0.15			0.15	
v/c Ratio	0.05	0.38		0.10	0.64		0.34	0.22			0.17	
Control Delay	4.6	4.1		4.4	6.4		29.0	3.1			16.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	4.6	4.1		4.4	6.4		29.0	3.1			16.6	
LOS	A	A		A	A		C	A			B	
Approach Delay		4.1			6.4			15.6			16.6	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	0.1	20.1		0.9	47.2		6.8	0.0			1.8	
Queue Length 95th (m)	1.3	37.6		4.1	86.8		20.3	3.8			10.3	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	106	2825		332	2833		398	553			472	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.05	0.37		0.10	0.62		0.18	0.14			0.09	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 78.2  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 6.2  
 Intersection Capacity Utilization 60.1%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 13: Glendale & Temple Terrace



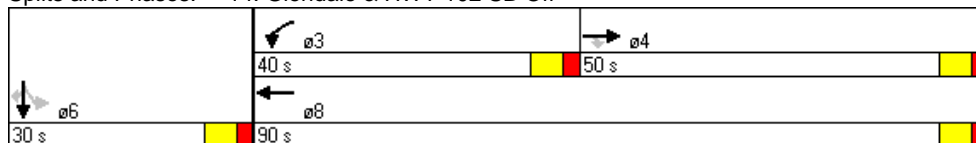
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Satd. Flow (RTOR)			321									63
Volume (vph)	0	745	295	985	1405	0	0	0	0	80	0	305
Lane Group Flow (vph)	0	810	321	1071	1527	0	0	0	0	44	43	332
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Detector Phases		4	4	3	8					6	6	6
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Minimum Split (s)		22.0	22.0	10.0	10.0					22.0	22.0	22.0
Total Split (s)	0.0	50.0	50.0	40.0	90.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
Total Split (%)	0.0%	41.7%	41.7%	33.3%	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%	25.0%	25.0%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode		Min	Min	None	None					None	None	None
Act Effct Green (s)		32.5	32.5	36.5	73.1					22.8	22.8	22.8
Actuated g/C Ratio		0.31	0.31	0.35	0.70					0.22	0.22	0.22
v/c Ratio		0.72	0.45	0.88	0.61					0.12	0.12	0.83
Control Delay		35.8	4.9	43.3	9.5					35.5	35.4	50.5
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		35.8	4.9	43.3	9.5					35.5	35.4	50.5
LOS		D	A	D	A					D	D	D
Approach Delay		27.0			23.5						47.4	
Approach LOS		C			C						D	
Queue Length 50th (m)		79.1	0.0	110.3	83.0					7.5	7.3	53.0
Queue Length 95th (m)		99.2	17.8	#175.2	100.0					19.1	18.7	#107.3
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)			70.0	70.0						90.0		90.0
Base Capacity (vph)		1409	825	1218	2634					415	415	439
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.57	0.39	0.88	0.58					0.11	0.10	0.76

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 104  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 26.8  
 Intersection Capacity Utilization 89.5%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 14: Glendale & HWY 102 SB Off



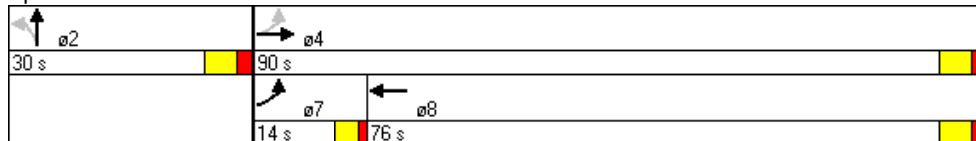
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3546	0	1700	1700	1601	0	0	0
Flt Permitted	0.053						0.950	0.950				
Satd. Flow (perm)	100	3579	0	0	3546	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					10				380			
Volume (vph)	175	650	0	0	1785	115	605	0	350	0	0	0
Lane Group Flow (vph)	190	707	0	0	2065	0	329	329	380	0	0	0
Turn Type	pm+pt						Perm		Free			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		Free			
Detector Phases	7	4			8		2	2				
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0				
Minimum Split (s)	8.0	22.0			22.0		22.0	22.0				
Total Split (s)	14.0	90.0	0.0	0.0	76.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Total Split (%)	11.7%	75.0%	0.0%	0.0%	63.3%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	3.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	2.0			2.0		2.0	2.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	Min			Min		None	None				
Act Effct Green (s)	86.0	86.0			72.0		25.5	25.5	119.5			
Actuated g/C Ratio	0.72	0.72			0.60		0.21	0.21	1.00			
v/c Ratio	0.89	0.27			0.96		0.91	0.91	0.24			
Control Delay	68.5	6.2			35.7		75.5	75.5	0.3			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	68.5	6.2			35.7		75.5	75.5	0.3			
LOS	E	A			D		E	E	A			
Approach Delay		19.4			35.7			48.0				
Approach LOS		B			D			D				
Queue Length 50th (m)	28.7	27.4			229.7		79.7	79.7	0.0			
Queue Length 95th (m)	#71.2	34.7			#299.3		#133.4	#133.4	0.0			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		90.0			
Base Capacity (vph)	213	2577			2142		368	368	1601			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.89	0.27			0.96		0.89	0.89	0.24			

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 119.5  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 35.3  
 Intersection Capacity Utilization 104.0%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service G

Splits and Phases: 15: Duke & HWY 102 NB On



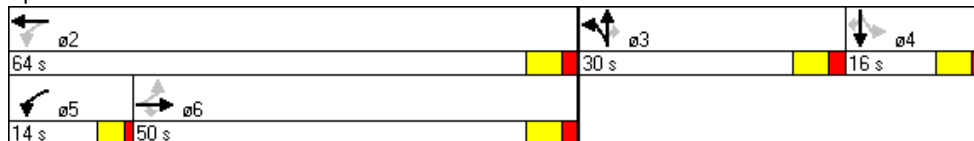
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1700	1601	0	1883	1601
Flt Permitted	0.087			0.242			0.950	0.950				
Satd. Flow (perm)	164	3579	1601	456	3579	0	1700	1700	1601	0	1883	1601
Satd. Flow (RTOR)			391						64			34
Volume (vph)	5	675	360	105	1445	0	465	0	70	0	0	15
Lane Group Flow (vph)	5	734	391	114	1571	0	253	252	76	0	0	16
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	0.0	30.0	30.0	30.0	16.0	16.0	16.0
Total Split (%)	45.5%	45.5%	45.5%	12.7%	58.2%	0.0%	27.3%	27.3%	27.3%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	Min		Min	Min	Min	None	None	None
Act Effct Green (s)	31.7	31.7	31.7	40.5	41.1		17.9	17.9	17.9			8.4
Actuated g/C Ratio	0.44	0.44	0.44	0.55	0.57		0.25	0.25	0.25			0.11
v/c Ratio	0.07	0.46	0.42	0.29	0.77		0.60	0.59	0.17			0.08
Control Delay	19.8	17.3	3.6	10.7	15.9		35.0	34.9	11.6			6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			0.0
Total Delay	19.8	17.3	3.6	10.7	15.9		35.0	34.9	11.6			6.9
LOS	B	B	A	B	B		D	C	B			A
Approach Delay		12.6			15.5			31.9				
Approach LOS		B			B			C				
Queue Length 50th (m)	0.3	30.1	0.0	4.7	56.8		26.0	25.7	1.0			0.0
Queue Length 95th (m)	3.1	71.7	16.3	18.5	154.0		76.7	76.4	13.0			2.9
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	91	1986	1062	436	2416		597	597	604			281
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.05	0.37	0.37	0.26	0.65		0.42	0.42	0.13			0.06











Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 71.7  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 17.3  
 Intersection Capacity Utilization 66.2%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	15	780	1470	10	10	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	848	1598	11	11	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			308			
pX, platoon unblocked	0.72				0.72	0.72
vC, conflicting volume	1609				2060	804
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1453				2084	330
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				65	91
cM capacity (veh/h)	330				31	477
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	16	424	424	1065	543	54
Volume Left	16	0	0	0	0	11
Volume Right	0	0	0	0	11	43
cSH	330	1700	1700	1700	1700	123
Volume to Capacity	0.05	0.25	0.25	0.63	0.32	0.44
Queue Length 95th (m)	1.2	0.0	0.0	0.0	0.0	14.7
Control Delay (s)	16.5	0.0	0.0	0.0	0.0	55.4
Lane LOS	C					F
Approach Delay (s)	0.3			0.0		55.4
Approach LOS						F
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			51.0%		ICU Level of Service	A
Analysis Period (min)			15			

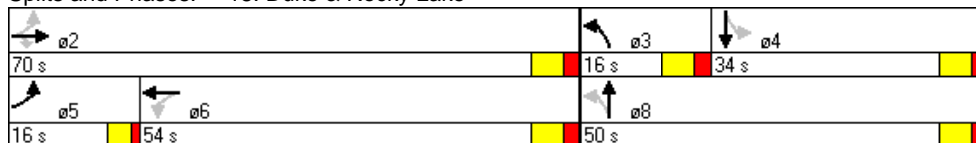
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3561	0	1789	1863	0	1789	1701	0
Flt Permitted	0.074			0.479			0.282			0.663		
Satd. Flow (perm)	139	3579	1601	902	3561	0	531	1863	0	1249	1701	0
Satd. Flow (RTOR)			184		4			4			74	
Volume (vph)	160	440	190	50	1075	40	230	125	10	10	95	175
Lane Group Flow (vph)	174	478	207	54	1211	0	250	147	0	11	293	0
Turn Type	pm+pt		Perm	Perm			pm+pt			Perm		
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phases	5	2	2	6	6		3	8		4	4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	16.0	70.0	70.0	54.0	54.0	0.0	16.0	50.0	0.0	34.0	34.0	0.0
Total Split (%)	13.3%	58.3%	58.3%	45.0%	45.0%	0.0%	13.3%	41.7%	0.0%	28.3%	28.3%	0.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Recall Mode	None	Max	Max	None	None		None	None		None	None	
Act Effct Green (s)	66.2	66.2	66.2	51.6	51.6		37.7	37.7		21.7	21.7	
Actuated g/C Ratio	0.59	0.59	0.59	0.46	0.46		0.34	0.34		0.19	0.19	
v/c Ratio	0.73	0.23	0.20	0.13	0.74		0.80	0.23		0.05	0.75	
Control Delay	40.9	11.9	3.0	21.1	29.2		48.5	26.5		35.6	44.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.9	11.9	3.0	21.1	29.2		48.5	26.5		35.6	44.0	
LOS	D	B	A	C	C		D	C		D	D	
Approach Delay		15.6			28.8			40.3			43.7	
Approach LOS		B			C			D			D	
Queue Length 50th (m)	20.8	24.6	2.0	6.8	114.0		41.8	22.2		2.0	45.8	
Queue Length 95th (m)	#54.6	39.1	13.0	16.6	158.4		#70.0	37.0		6.8	74.9	
Internal Link Dist (m)		284.0			259.3			410.9			153.3	
Turn Bay Length (m)	75.0		18.0	75.0			60.0			60.0		
Base Capacity (vph)	256	2116	1022	416	1646		314	717		312	481	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.68	0.23	0.20	0.13	0.74		0.80	0.21		0.04	0.61	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111.9  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 28.0  
 Intersection Capacity Utilization 81.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 18: Duke & Rocky Lake



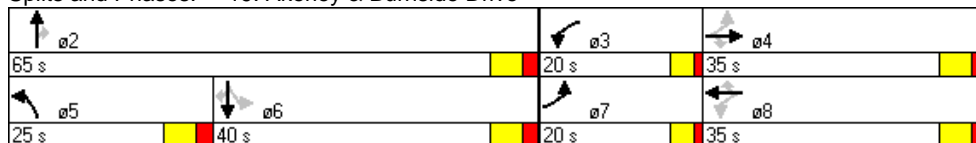
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.360			0.129			0.950			0.352		
Satd. Flow (perm)	678	3579	1601	243	3579	1601	3471	3579	1601	663	3579	1601
Satd. Flow (RTOR)			157			125			380			141
Volume (vph)	320	895	205	185	395	115	120	730	350	40	290	130
Lane Group Flow (vph)	348	973	223	201	429	125	130	793	380	43	315	141
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8			2	6		6
Detector Phases	7	4	4	3	8	8	5	2	2	6	6	6
Minimum Initial (s)	7.0	25.0	25.0	7.0	25.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	11.0	31.6	31.6	11.0	31.6	31.6	19.1	31.6	31.6	31.6	31.6	31.6
Total Split (s)	20.0	35.0	35.0	20.0	35.0	35.0	25.0	65.0	65.0	40.0	40.0	40.0
Total Split (%)	16.7%	29.2%	29.2%	16.7%	29.2%	29.2%	20.8%	54.2%	54.2%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	46.6	31.6	31.6	41.0	28.5	28.5	14.0	45.0	45.0	27.0	27.0	27.0
Actuated g/C Ratio	0.46	0.31	0.31	0.41	0.28	0.28	0.14	0.45	0.45	0.27	0.27	0.27
v/c Ratio	0.72	0.87	0.37	0.70	0.42	0.23	0.27	0.50	0.41	0.24	0.33	0.27
Control Delay	27.4	43.1	11.1	33.4	31.1	6.1	41.2	21.6	3.4	34.3	31.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	43.1	11.1	33.4	31.1	6.1	41.2	21.6	3.4	34.3	31.3	6.6
LOS	C	D	B	C	C	A	D	C	A	C	C	A
Approach Delay		34.9			27.6			18.3			24.6	
Approach LOS		C			C			B			C	
Queue Length 50th (m)	42.9	94.6	9.3	23.1	36.3	0.0	11.8	56.2	0.0	6.6	26.0	0.0
Queue Length 95th (m)	64.5	#136.6	28.6	44.3	50.1	12.7	21.0	77.1	16.1	16.6	39.4	14.1
Internal Link Dist (m)		387.5			407.9			804.6			527.4	
Turn Bay Length (m)	100.0		60.0	100.0		60.0	100.0		170.0	75.0		75.0
Base Capacity (vph)	486	1119	609	340	1072	567	675	1865	1016	217	1170	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.87	0.37	0.59	0.40	0.22	0.19	0.43	0.37	0.20	0.27	0.23

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 101.1  
 Natural Cycle: 95  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 27.0  
 Intersection Capacity Utilization 93.6%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service F

Splits and Phases: 19: Akerley & Burnside Drive



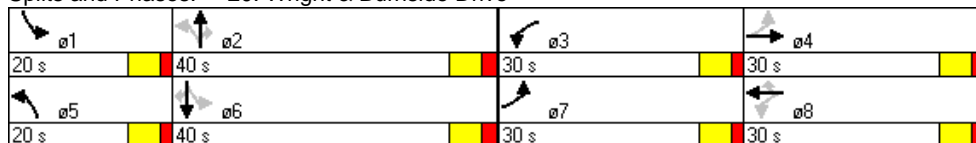
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3403	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.538			0.207			0.297			0.158		
Satd. Flow (perm)	1013	3403	0	390	3579	1601	559	3579	1601	298	3579	1601
Satd. Flow (RTOR)		62				185			118			76
Volume (vph)	325	340	165	350	215	170	260	705	135	100	505	70
Lane Group Flow (vph)	353	549	0	380	234	185	283	766	147	109	549	76
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	25.0%	16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	44.1	22.5		47.3	24.1	24.1	55.1	43.4	43.4	46.9	36.2	36.2
Actuated g/C Ratio	0.39	0.20		0.42	0.21	0.21	0.49	0.38	0.38	0.41	0.32	0.32
v/c Ratio	0.65	0.76		0.84	0.31	0.38	0.65	0.56	0.21	0.42	0.48	0.13
Control Delay	28.4	45.6		44.1	39.4	8.0	26.6	32.1	9.0	23.0	34.0	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	45.6		44.1	39.4	8.0	26.6	32.1	9.0	23.0	34.0	7.5
LOS	C	D		D	D	A	C	C	A	C	C	A
Approach Delay		38.9			34.4			28.0			29.6	
Approach LOS		D			C			C			C	
Queue Length 50th (m)	53.9	56.3		59.1	23.5	0.0	40.0	77.2	4.5	13.8	55.0	0.0
Queue Length 95th (m)	78.1	75.6		#108.2	36.1	18.2	61.5	103.9	19.4	25.0	73.3	11.0
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	580	808		476	819	509	443	1371	686	326	1144	564
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.68		0.80	0.29	0.36	0.64	0.56	0.21	0.33	0.48	0.13

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.3  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 32.4  
 Intersection Capacity Utilization 75.8%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 20: Wright & Burnside Drive





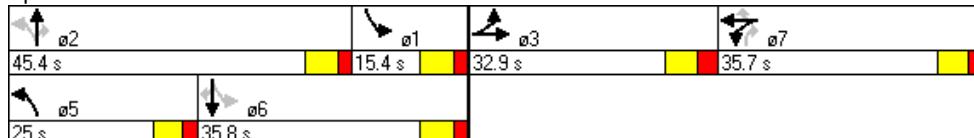
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1601	1628	3318	1601	3471	1601	1789	1789	3579	1601
Flt Permitted	0.950			0.950	0.968		0.196			0.408		
Satd. Flow (perm)	1789	1883	1601	1628	3318	1601	716	3579	1601	768	3579	1601
Satd. Flow (RTOR)			521			360			296			87
Volume (vph)	135	180	890	560	150	375	355	590	320	225	715	80
Lane Group Flow (vph)	147	196	967	305	467	408	386	641	348	245	777	87
Turn Type	custom		Free	custom		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	3	3		7	7		5	2		1	6	
Permitted Phases	3		Free	7		7	2		2.7	6		6
Detector Phases	3	3		7	7	7	5	2	2.7	1	6	6
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.9	13.9		13.7	13.7	13.7	13.0	13.4		13.5	13.4	13.4
Total Split (s)	32.9	32.9	0.0	35.7	35.7	35.7	25.0	45.4	81.1	15.4	35.8	35.8
Total Split (%)	25.4%	25.4%	0.0%	27.6%	27.6%	27.6%	19.3%	35.1%	62.7%	11.9%	27.7%	27.7%
Yellow Time (s)	4.1	4.1		4.1	4.1	4.1	4.0	4.5		4.5	4.5	4.5
All-Red Time (s)	2.8	2.8		2.6	2.6	2.6	2.0	1.9		1.9	1.9	1.9
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Max		None	Max	Max
Act Effct Green (s)	20.3	20.3	118.0	29.0	29.0	29.0	41.7	41.7	74.7	35.8	35.8	35.8
Actuated g/C Ratio	0.17	0.17	1.00	0.25	0.25	0.25	0.35	0.35	0.63	0.30	0.30	0.30
v/c Ratio	0.48	0.61	0.60	0.76	0.57	0.61	0.60	0.51	0.31	0.75	0.72	0.16
Control Delay	49.9	53.9	1.7	55.6	42.7	10.9	33.5	33.2	2.8	58.3	43.1	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	53.9	1.7	55.6	42.7	10.9	33.5	33.2	2.8	58.3	43.1	8.3
LOS	D	D	A	E	D	B	C	C	A	E	D	A
Approach Delay		14.9			35.0			25.6			43.7	
Approach LOS		B			D			C			D	
Queue Length 50th (m)	32.0	43.6	0.0	72.7	52.6	8.7	34.8	64.0	4.3	47.9	88.0	0.0
Queue Length 95th (m)	52.1	67.2	0.0	#120.8	75.3	40.5	51.4	89.0	17.4	#100.5	#130.8	12.7
Internal Link Dist (m)		123.2			343.7			718.3			923.3	
Turn Bay Length (m)	40.0			100.0		60.0	113.0			150.0		150.0
Base Capacity (vph)	410	432	1601	429	874	687	719	1264	1132	334	1086	547
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.45	0.60	0.71	0.53	0.59	0.54	0.51	0.31	0.73	0.72	0.16

Intersection Summary

Cycle Length: 129.4  
 Actuated Cycle Length: 118  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 29.1  
 Intersection Capacity Utilization 68.2%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 21: Ronald Smith & Burnside Drive



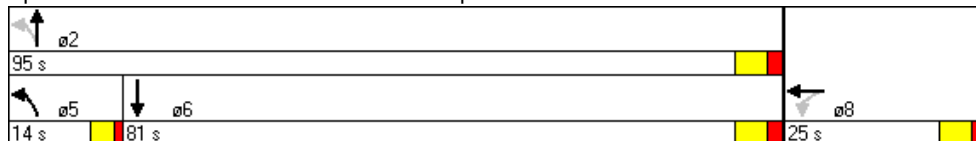
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1789	1601	0	3568	0	0	3579	1601
Flt Permitted					0.950			0.777				
Satd. Flow (perm)	0	0	0	0	1789	1601	0	2781	0	0	3579	1601
Satd. Flow (RTOR)						454						425
Volume (vph)	0	0	0	140	0	590	40	675	0	0	1285	870
Lane Group Flow (vph)	0	0	0	0	152	641	0	777	0	0	1397	946
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Min			Min	
Act Effct Green (s)					12.8	62.4		41.4			41.4	62.4
Actuated g/C Ratio					0.21	1.00		0.66			0.66	1.00
v/c Ratio					0.42	0.40		0.42			0.59	0.59
Control Delay					20.8	0.7		6.1			7.4	1.6
Queue Delay					0.2	0.0		0.1			0.2	0.0
Total Delay					21.0	0.7		6.2			7.6	1.6
LOS					C	A		A			A	A
Approach Delay					4.6			6.2			5.2	
Approach LOS					A			A			A	
Queue Length 50th (m)					12.2	0.0		16.4			35.0	0.0
Queue Length 95th (m)					30.1	0.0		33.1			66.0	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					541	1601		2273			2832	1601
Starvation Cap Reductn					0	0		584			0	0
Spillback Cap Reductn					80	0		0			559	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					0.33	0.40		0.46			0.61	0.59

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 62.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 5.3  
 Intersection Capacity Utilization 63.0%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1690	0	0	0	0	0	3317	0	1700	1755	0
Flt Permitted	0.950	0.956								0.950	0.981	
Satd. Flow (perm)	1700	1690	0	0	0	0	0	3317	0	1700	1755	0
Satd. Flow (RTOR)		3						176				
Volume (vph)	500	0	20	0	0	0	0	215	205	980	445	0
Lane Group Flow (vph)	297	268	0	0	0	0	0	457	0	755	794	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	28.0	28.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	67.0	67.0	0.0
Total Split (%)	23.3%	23.3%	0.0%	0.0%	0.0%	0.0%	0.0%	20.8%	0.0%	55.8%	55.8%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						Min		Min	Min	
Act Effct Green (s)	22.1	22.1						16.1		52.6	52.6	
Actuated g/C Ratio	0.21	0.21						0.16		0.51	0.51	
v/c Ratio	0.82	0.74						0.69		0.87	0.89	
Control Delay	61.3	54.5						32.4		35.6	37.0	
Queue Delay	8.8	4.3						0.0		126.8	135.3	
Total Delay	70.1	58.8						32.4		162.4	172.2	
LOS	E	E						C		F	F	
Approach Delay		64.7						32.4			167.4	
Approach LOS		E						C			F	
Queue Length 50th (m)	69.0	60.4						32.2		143.8	153.4	
Queue Length 95th (m)	#122.2	#104.7						49.8		#224.0	#248.7	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	400	399						805		951	981	
Starvation Cap Reductn	0	0						0		360	369	
Spillback Cap Reductn	73	73						13		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	0.91	0.82						0.58		1.28	1.30	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 103.6  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 120.9  
 Intersection Capacity Utilization 75.8%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: F  
 ICU Level of Service D

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive



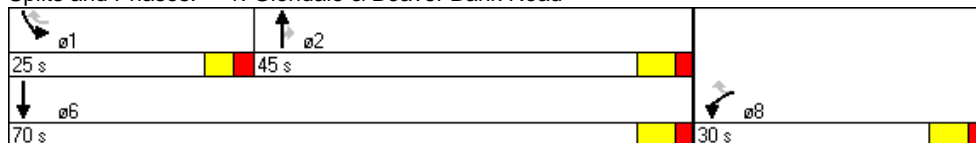
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		245		321		
Volume (vph)	205	225	340	295	655	935
Lane Group Flow (vph)	223	245	370	321	712	1016
Turn Type		custom		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	22.0		22.0	22.0	9.0	22.0
Total Split (s)	30.0	55.0	45.0	45.0	25.0	70.0
Total Split (%)	30.0%	55.0%	45.0%	45.0%	25.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	16.2	41.4	21.4	21.4	20.8	46.6
Actuated g/C Ratio	0.23	0.58	0.30	0.30	0.29	0.65
v/c Ratio	0.55	0.24	0.34	0.46	0.70	0.83
Control Delay	32.8	2.4	19.9	4.5	31.6	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	2.4	19.9	4.5	31.6	17.3
LOS	C	A	B	A	C	B
Approach Delay	16.9		12.7			23.2
Approach LOS	B		B			C
Queue Length 50th (m)	24.2	0.0	19.4	0.0	38.2	81.2
Queue Length 95th (m)	58.8	11.1	34.5	15.4	#107.3	194.9
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	594	1106	1657	914	1069	1378
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.22	0.35	0.67	0.74







Intersection Summary












Cycle Length: 100  
 Actuated Cycle Length: 71.5  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 19.7  
 Intersection Capacity Utilization 67.2%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.












Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 1: Glendale & Beaver Bank Road



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	895	55	180	415	15	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	973	60	196	451	16	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			1033		1845	516
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1033		1845	516
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			71		65	87
cM capacity (veh/h)			669		47	504
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	649	384	196	451	82	
Volume Left	0	0	196	0	16	
Volume Right	0	60	0	0	65	
cSH	1700	1700	669	1700	171	
Volume to Capacity	0.38	0.23	0.29	0.27	0.48	
Queue Length 95th (m)	0.0	0.0	9.2	0.0	17.3	
Control Delay (s)	0.0	0.0	12.6	0.0	43.9	
Lane LOS			B		E	
Approach Delay (s)	0.0		3.8		43.9	
Approach LOS					E	
<b>Intersection Summary</b>						
Average Delay			3.4			
Intersection Capacity Utilization			51.0%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	45	910	480	90	200	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	989	522	98	217	125
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	620				1658	571
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620				1658	571
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				0	76
cM capacity (veh/h)	961				102	521
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	49	989	620	342		
Volume Left	49	0	0	217		
Volume Right	0	0	98	125		
cSH	961	1700	1700	144		
Volume to Capacity	0.05	0.58	0.36	2.37		
Queue Length 95th (m)	1.2	0.0	0.0	221.5		
Control Delay (s)	8.9	0.0	0.0	687.1		
Lane LOS	A			F		
Approach Delay (s)	0.4		0.0	687.1		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			117.9			
Intersection Capacity Utilization			72.7%		ICU Level of Service	C
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	1015	500	30	50	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	1103	543	33	54	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	576				1685	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535				1751	517
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				36	96
cM capacity (veh/h)	941				85	509
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	11	1103	576	76		
Volume Left	11	0	0	54		
Volume Right	0	0	33	22		
cSH	941	1700	1700	111		
Volume to Capacity	0.01	0.65	0.34	0.68		
Queue Length 95th (m)	0.3	0.0	0.0	27.2		
Control Delay (s)	8.9	0.0	0.0	88.8		
Lane LOS	A			F		
Approach Delay (s)	0.1		0.0	88.8		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			3.9			
Intersection Capacity Utilization			64.1%		ICU Level of Service	C
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1865	0	1789	1880	0	0	1699	0	0	1755	0
Flt Permitted	0.418			0.065				0.893			0.846	
Satd. Flow (perm)	787	1865	0	122	1880	0	0	1537	0	0	1512	0
Satd. Flow (RTOR)		7			1			90			31	
Volume (vph)	20	965	70	125	440	5	60	20	140	30	20	30
Lane Group Flow (vph)	22	1125	0	136	483	0	0	239	0	0	88	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	65.9	65.9	0.0	65.9	65.9	0.0	30.9	30.9	0.0	30.9	30.9	0.0
Total Split (%)	68.1%	68.1%	0.0%	68.1%	68.1%	0.0%	31.9%	31.9%	0.0%	31.9%	31.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	63.4	63.4		63.4	63.4			16.1			16.1	
Actuated g/C Ratio	0.72	0.72		0.72	0.72			0.18			0.18	
v/c Ratio	0.04	0.83		1.53	0.35			0.67			0.29	
Control Delay	5.0	17.2		310.5	6.1			29.5			22.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.0	17.2		310.5	6.1			29.5			22.4	
LOS	A	B		F	A			C			C	
Approach Delay		17.0			73.0			29.5			22.4	
Approach LOS		B			E			C			C	
Queue Length 50th (m)	0.9	106.7		~17.3	24.6			22.5			8.0	
Queue Length 95th (m)	3.8	#270.0		#58.5	53.6			45.2			19.9	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	570	1354		89	1363			487			437	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.83		1.53	0.35			0.49			0.20	

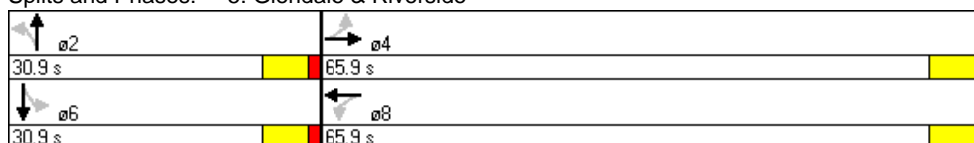
Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 87.5  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.53  
 Intersection Signal Delay: 35.2  
 Intersection Capacity Utilization 87.3%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service E

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

Splits and Phases: 5: Glendale & Riverside





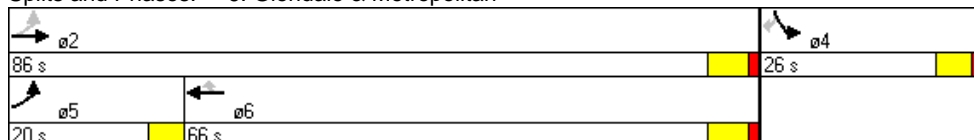
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.464				0.950	
Satd. Flow (perm)	874	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				239		88
Volume (vph)	360	780	305	220	325	230
Lane Group Flow (vph)	391	848	332	239	353	250
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	5.0	5.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	20.0	86.0	66.0	66.0	26.0	26.0
Total Split (%)	17.9%	76.8%	58.9%	58.9%	23.2%	23.2%
Yellow Time (s)	4.0	4.5	4.5	4.5	4.1	4.1
All-Red Time (s)	0.0	1.5	1.5	1.5	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	44.1	44.1	25.6	25.6	22.2	22.2
Actuated g/C Ratio	0.59	0.59	0.34	0.34	0.30	0.30
v/c Ratio	0.56	0.76	0.51	0.34	0.66	0.46
Control Delay	11.0	16.2	22.4	3.8	32.0	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	16.2	22.4	3.8	32.0	18.2
LOS	B	B	C	A	C	B
Approach Delay		14.6	14.6		26.3	
Approach LOS		B	B		C	
Queue Length 50th (m)	25.4	78.1	36.8	0.0	40.2	16.5
Queue Length 95th (m)	39.1	117.7	58.3	12.3	#96.7	46.0
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	702	1379	1057	1004	534	540
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.61	0.31	0.24	0.66	0.46












Intersection Summary

Cycle Length: 112  
 Actuated Cycle Length: 74.4  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 17.5  
 Intersection Capacity Utilization 65.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 6: Glendale & Metropolitan



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1020	85	25	495	30	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1109	92	27	538	33	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.61		0.62	0.61
vC, conflicting volume			1201		1747	1155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1330		2151	1254
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		0	83
cM capacity (veh/h)			316		30	128
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	1201	27	538	54		
Volume Left	0	27	0	33		
Volume Right	92	0	0	22		
cSH	1700	316	1700	43		
Volume to Capacity	0.71	0.09	0.32	1.26		
Queue Length 95th (m)	0.0	2.1	0.0	40.0		
Control Delay (s)	0.0	17.5	0.0	371.9		
Lane LOS		C		F		
Approach Delay (s)	0.0	0.8		371.9		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			11.4			
Intersection Capacity Utilization			68.8%		ICU Level of Service	C
Analysis Period (min)			15			

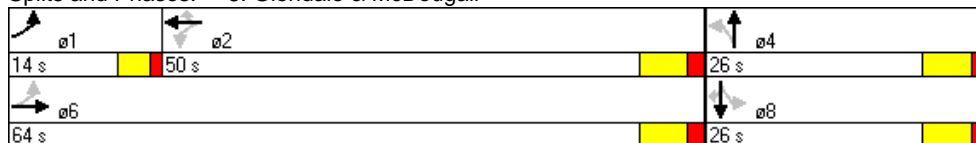
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1878	0	1789	1883	1601	0	1746	0	0	1812	1601
Flt Permitted	0.350			0.087				0.848			0.575	
Satd. Flow (perm)	659	1878	0	164	1883	1601	0	1506	0	0	1083	1601
Satd. Flow (RTOR)		3				125		38				43
Volume (vph)	40	1185	25	25	420	115	65	45	80	95	25	40
Lane Group Flow (vph)	43	1315	0	27	457	125	0	207	0	0	130	43
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	64.0	0.0	50.0	50.0	50.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	15.6%	71.1%	0.0%	55.6%	55.6%	55.6%	28.9%	28.9%	0.0%	28.9%	28.9%	28.9%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	60.9	60.9		54.8	54.8	54.8		16.8			16.8	16.8
Actuated g/C Ratio	0.68	0.71		0.64	0.64	0.64		0.20			0.20	0.20
v/c Ratio	0.08	0.98		0.26	0.38	0.12		0.64			0.61	0.12
Control Delay	5.2	36.2		18.7	10.5	2.2		34.5			43.8	9.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	5.2	36.2		18.7	10.5	2.2		34.5			43.8	9.6
LOS	A	D		B	B	A		C			D	A
Approach Delay		35.3			9.2			34.5			35.3	
Approach LOS		D			A			C			D	
Queue Length 50th (m)	1.8	180.7		2.0	37.8	0.0		25.1			19.4	0.0
Queue Length 95th (m)	5.4	#327.8		9.8	67.2	7.3		46.5			37.0	7.7
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	551	1336		105	1203	1068		394			263	421
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.08	0.98		0.26	0.38	0.12		0.53			0.49	0.10












Intersection Summary












Cycle Length: 90  
 Actuated Cycle Length: 85.7  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 28.4  
 Intersection Capacity Utilization 88.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.




















Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 8: Glendale & McDougall



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1290	70	55	535	25	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1402	76	60	582	27	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.35		0.35	0.35
vC, conflicting volume			1478		2141	1440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2356		4237	2248
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			18		0	0
cM capacity (veh/h)			73		0	19
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	1478	60	582	87		
Volume Left	0	60	0	27		
Volume Right	76	0	0	60		
cSH	1700	73	1700	0		
Volume to Capacity	0.87	0.82	0.34	190.27		
Queue Length 95th (m)	0.0	30.2	0.0	Err		
Control Delay (s)	0.0	153.7	0.0	Err		
Lane LOS		F		F		
Approach Delay (s)	0.0	14.3		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			398.2			
Intersection Capacity Utilization			83.6%		ICU Level of Service	E
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	1265	500	10	25	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	1375	543	11	27	54
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	554				1967	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	554				1967	549
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				60	90
cM capacity (veh/h)	1016				68	536
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	22	1375	554	82		
Volume Left	22	0	0	27		
Volume Right	0	0	11	54		
cSH	1016	1700	1700	162		
Volume to Capacity	0.02	0.81	0.33	0.50		
Queue Length 95th (m)	0.5	0.0	0.0	18.6		
Control Delay (s)	8.6	0.0	0.0	47.9		
Lane LOS	A			E		
Approach Delay (s)	0.1		0.0	47.9		
Approach LOS				E		
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization			77.7%		ICU Level of Service	D
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	1245	20	30	455	40	15	15	45	25	10	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	1353	22	33	495	43	16	16	49	27	11	43
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	538			1375			2005	2000	1364	2024	1989	516
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	538			1375			2005	2000	1364	2024	1989	516
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			50	70	73	0	81	92
cM capacity (veh/h)	1030			499			33	55	181	23	56	559
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	16	1375	33	538	82	82						
Volume Left	16	0	33	0	16	27						
Volume Right	0	22	0	43	49	43						
cSH	1030	1700	499	1700	76	55						
Volume to Capacity	0.02	0.81	0.07	0.32	1.07	1.47						
Queue Length 95th (m)	0.4	0.0	1.6	0.0	44.5	56.2						
Control Delay (s)	8.6	0.0	12.7	0.0	218.2	408.1						
Lane LOS	A		B		F	F						
Approach Delay (s)	0.1		0.7		218.2	408.1						
Approach LOS					F	F						
Intersection Summary												
Average Delay			24.3									
Intersection Capacity Utilization			80.7%		ICU Level of Service					D		
Analysis Period (min)			15									

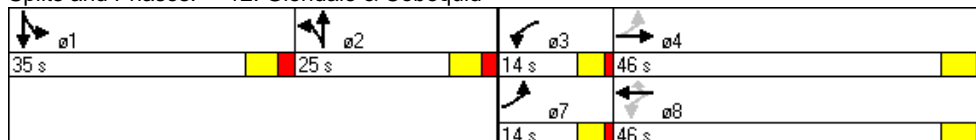
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3503	0	1789	3579	1601	1789	3221	0	1628	3279	0
Flt Permitted	0.494			0.095			0.950			0.950	0.974	
Satd. Flow (perm)	930	3503	0	179	3579	1601	1789	3221	0	1628	3279	0
Satd. Flow (RTOR)		16				201		154			11	
Volume (vph)	105	870	140	180	305	185	115	145	290	725	240	80
Lane Group Flow (vph)	114	1098	0	196	332	201	125	473	0	394	742	0
Turn Type	pm+pt			pm+pt		Perm	custom			custom		
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		8	2			1		
Detector Phases	7	4		3	8	8	2	2		1	1	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9	12.9	13.0	13.0		13.0	13.0	
Total Split (s)	14.0	46.0	0.0	14.0	46.0	46.0	25.0	25.0	0.0	35.0	35.0	0.0
Total Split (%)	11.7%	38.3%	0.0%	11.7%	38.3%	38.3%	20.8%	20.8%	0.0%	29.2%	29.2%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5	4.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	Min		None	Min	Min	Min	Min		Min	Min	
Act Effct Green (s)	48.9	39.7		50.6	40.6	40.6	17.9	17.9		30.1	30.1	
Actuated g/C Ratio	0.43	0.35		0.44	0.36	0.36	0.16	0.16		0.26	0.26	
v/c Ratio	0.24	0.89		0.88	0.26	0.29	0.44	0.74		0.92	0.85	
Control Delay	19.2	45.2		64.4	27.4	4.9	49.7	38.7		69.1	50.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.2	45.2		64.4	27.4	4.9	49.7	38.7		69.1	50.4	
LOS	B	D		E	C	A	D	D		E	D	
Approach Delay		42.8			31.1			41.0			56.8	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	14.5	123.3		29.8	28.6	0.0	26.4	37.4		98.3	89.2	
Queue Length 95th (m)	25.9	#159.1		#75.0	40.7	15.4	44.9	55.6		#164.6	#122.9	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0		60.0	40.0			35.0		
Base Capacity (vph)	479	1280		222	1309	713	322	707		441	897	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.86		0.88	0.25	0.28	0.39	0.67		0.89	0.83	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.9  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 44.5  
 Intersection Capacity Utilization 85.4%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service E

Splits and Phases: 12: Glendale & Cobequid



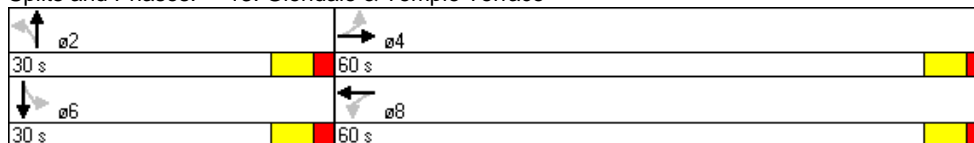
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3557	0	1789	3557	0	1789	1601	0	0	1713	0
Flt Permitted	0.290			0.071			0.751				0.917	
Satd. Flow (perm)	546	3557	0	134	3557	0	1414	1601	0	0	1610	0
Satd. Flow (RTOR)		9			8			21			5	
Volume (vph)	20	1660	70	55	750	30	30	0	70	5	0	5
Lane Group Flow (vph)	22	1880	0	60	848	0	33	76	0	0	10	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	72.7	72.7		72.7	72.7		11.1	11.1			11.1	
Actuated g/C Ratio	0.81	0.81		0.81	0.81		0.12	0.12			0.12	
v/c Ratio	0.05	0.65		0.55	0.29		0.19	0.36			0.05	
Control Delay	3.1	5.7		30.7	3.0		29.6	25.3			21.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	3.1	5.7		30.7	3.0		29.6	25.3			21.3	
LOS	A	A		C	A		C	C			C	
Approach Delay		5.7			4.8			26.6			21.3	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.6	52.5		2.8	14.6		4.1	6.9			0.6	
Queue Length 95th (m)	2.6	91.4		#26.0	25.8		11.3	18.2			4.5	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	444	2891		109	2891		356	418			409	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.05	0.65		0.55	0.29		0.09	0.18			0.02	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 89.6  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 6.2  
 Intersection Capacity Utilization 59.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 13: Glendale & Temple Terrace





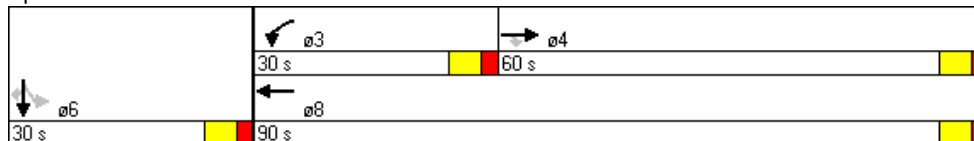
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Satd. Flow (RTOR)			546									207
Volume (vph)	0	1190	595	290	585	0	0	0	0	105	0	190
Lane Group Flow (vph)	0	1293	647	315	636	0	0	0	0	57	57	207
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Detector Phases		4	4	3	8					6	6	6
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Minimum Split (s)		22.0	22.0	10.0	22.0					22.0	22.0	22.0
Total Split (s)	0.0	60.0	60.0	30.0	90.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
Total Split (%)	0.0%	50.0%	50.0%	25.0%	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%	25.0%	25.0%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode		Min	Min	None	Min					None	None	None
Act Effct Green (s)		40.5	40.5	14.5	59.3					10.6	10.6	10.6
Actuated g/C Ratio		0.52	0.52	0.18	0.76					0.14	0.14	0.14
v/c Ratio		0.70	0.59	0.49	0.24					0.25	0.25	0.52
Control Delay		16.8	4.7	34.0	3.0					38.5	38.5	11.2
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		16.8	4.7	34.0	3.0					38.5	38.5	11.2
LOS		B	A	C	A					D	D	B
Approach Delay		12.8			13.2						20.9	
Approach LOS		B			B						C	
Queue Length 50th (m)		68.3	6.9	21.7	10.2					8.1	8.1	0.0
Queue Length 95th (m)		116.9	31.9	42.2	19.6					23.0	23.0	19.4
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)			70.0	70.0						90.0		90.0
Base Capacity (vph)		2160	1183	1034	2943					486	486	606
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.60	0.55	0.30	0.22					0.12	0.12	0.34

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 78.4  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 13.7  
 Intersection Capacity Utilization 58.4%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 14: Glendale & HWY 102 SB Off



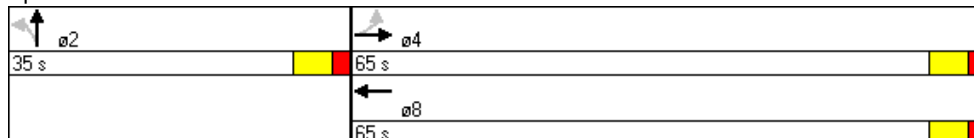
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3511	0	1700	1700	1601	0	0	0
Flt Permitted	0.349						0.950	0.950				
Satd. Flow (perm)	657	3579	0	0	3511	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					29				411			
Volume (vph)	180	1115	0	0	560	80	315	0	1230	0	0	0
Lane Group Flow (vph)	196	1212	0	0	696	0	171	171	1337	0	0	0
Turn Type	Perm						Perm		Free			
Protected Phases		4			8			2				
Permitted Phases	4						2		Free			
Detector Phases	4	4			8		2	2				
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0				
Minimum Split (s)	22.0	22.0			22.0		22.0	22.0				
Total Split (s)	65.0	65.0	0.0	0.0	65.0	0.0	35.0	35.0	0.0	0.0	0.0	0.0
Total Split (%)	65.0%	65.0%	0.0%	0.0%	65.0%	0.0%	35.0%	35.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)	33.8	33.8			33.8		12.9	12.9	55.2			
Actuated g/C Ratio	0.61	0.61			0.61		0.23	0.23	1.00			
v/c Ratio	0.49	0.55			0.32		0.43	0.43	0.84			
Control Delay	11.6	7.6			5.6		21.2	21.2	5.8			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	11.6	7.6			5.6		21.2	21.2	5.8			
LOS	B	A			A		C	C	A			
Approach Delay		8.2			5.6			9.0				
Approach LOS		A			A			A				
Queue Length 50th (m)	8.1	27.9			12.5		11.3	11.3	0.0			
Queue Length 95th (m)	28.6	58.8			27.8		38.9	38.9	0.0			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		90.0			
Base Capacity (vph)	491	2677			2634		735	735	1601			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.40	0.45			0.26		0.23	0.23	0.84			

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 55.2  
 Natural Cycle: 55  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 8.1  
 Intersection Capacity Utilization 74.7%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service D

Splits and Phases: 15: Duke & HWY 102 NB On



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1707	1601	0	1883	1601
Flt Permitted	0.419			0.074			0.950	0.954				
Satd. Flow (perm)	789	3579	1601	139	3579	0	1700	1707	1601	0	1883	1601
Satd. Flow (RTOR)			208						147			11
Volume (vph)	10	2075	425	115	565	0	240	5	135	0	5	10
Lane Group Flow (vph)	11	2255	462	125	614	0	131	135	147	0	5	11
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	54.0	54.0	54.0	14.0	68.0	0.0	26.0	26.0	26.0	16.0	16.0	16.0
Total Split (%)	49.1%	49.1%	49.1%	12.7%	61.8%	0.0%	23.6%	23.6%	23.6%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	None	Min		None	None	None	None	None	None
Act Effct Green (s)	53.1	53.1	53.1	63.6	63.8		14.4	14.4	14.4		8.0	8.0
Actuated g/C Ratio	0.58	0.58	0.58	0.68	0.70		0.16	0.16	0.16		0.08	0.08
v/c Ratio	0.02	1.08	0.45	0.49	0.24		0.48	0.50	0.39		0.03	0.08
Control Delay	13.9	66.9	9.4	18.5	6.5		42.0	42.3	9.4		44.6	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Delay	13.9	66.9	9.4	18.5	6.5		42.0	42.3	9.4		44.6	24.1
LOS	B	E	A	B	A		D	D	A		D	C
Approach Delay		56.9			8.6			30.5			30.5	
Approach LOS		E			A			C			C	
Queue Length 50th (m)	0.7	~221.4	19.2	4.6	13.2		20.8	21.4	0.0		0.8	0.0
Queue Length 95th (m)	4.4	#366.0	63.1	27.5	39.9		43.4	44.6	16.0		4.5	5.5
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	462	2094	1023	272	2526		383	385	475		223	199
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	0
Reduced v/c Ratio	0.02	1.08	0.45	0.46	0.24		0.34	0.35	0.31		0.02	0.06

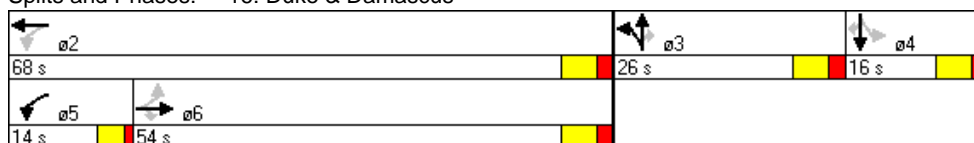
Intersection Summary











Cycle Length: 110  
 Actuated Cycle Length: 90.8  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 44.9  
 Intersection Capacity Utilization 87.2%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service E

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

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	65	2090	585	5	15	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	2272	636	5	16	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			308			
pX, platoon unblocked						
vC, conflicting volume	641				1916	321
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	641				1916	321
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				70	91
cM capacity (veh/h)	939				55	675
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	71	1136	1136	424	217	76
Volume Left	71	0	0	0	0	16
Volume Right	0	0	0	0	5	60
cSH	939	1700	1700	1700	1700	198
Volume to Capacity	0.08	0.67	0.67	0.25	0.13	0.39
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0	12.9
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	34.2
Lane LOS	A					D
Approach Delay (s)	0.3			0.0		34.2
Approach LOS						D
<b>Intersection Summary</b>						
Average Delay			1.1			
Intersection Capacity Utilization			68.7%		ICU Level of Service	C
Analysis Period (min)			15			

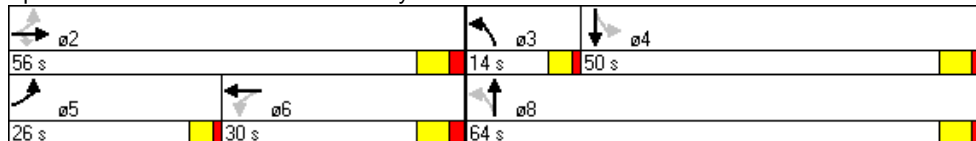
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3571	0	1789	1750	0	1789	1703	0
Flt Permitted	0.393			0.154			0.454			0.684		
Satd. Flow (perm)	740	3579	1601	290	3571	0	855	1750	0	1288	1703	0
Satd. Flow (RTOR)			58		1			4			86	
Volume (vph)	195	1630	280	10	275	5	165	55	50	20	85	150
Lane Group Flow (vph)	212	1772	304	11	304	0	179	114	0	22	255	0
Turn Type	pm+pt		Perm	Perm			pm+pt			Perm		
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phases	5	2	2	6	6		3	8		4	4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	22.0	22.0	22.0	22.0		8.0	22.0		22.0	22.0	
Total Split (s)	26.0	56.0	56.0	30.0	30.0		14.0	64.0	0.0	50.0	50.0	0.0
Total Split (%)	21.7%	46.7%	46.7%	25.0%	25.0%	0.0%	11.7%	53.3%	0.0%	41.7%	41.7%	0.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		1.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)	52.2	52.2	52.2	37.4	37.4		30.0	30.0		16.5	16.5	
Actuated g/C Ratio	0.58	0.58	0.58	0.41	0.41		0.33	0.33		0.18	0.18	
v/c Ratio	0.38	0.86	0.32	0.09	0.21		0.47	0.19		0.09	0.67	
Control Delay	12.5	22.6	9.9	23.8	19.4		26.1	20.9		30.5	31.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.5	22.6	9.9	23.8	19.4		26.1	20.9		30.5	31.2	
LOS	B	C	A	C	B		C	C		C	C	
Approach Delay		20.0			19.5			24.1			31.2	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	16.5	127.2	20.0	1.2	17.4		22.7	13.4		3.2	27.3	
Queue Length 95th (m)	33.7	#216.9	42.7	5.9	32.6		38.1	24.9		9.4	51.3	
Internal Link Dist (m)		284.0			177.9			410.9			153.3	
Turn Bay Length (m)	75.0		18.0	75.0			60.0			60.0		
Base Capacity (vph)	608	2071	951	120	1481		386	877		496	708	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.86	0.32	0.09	0.21		0.46	0.13		0.04	0.36	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 90.3  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 21.3  
 Intersection Capacity Utilization 84.5%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 18: Duke & Rocky Lake



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.133			0.309			0.950			0.629		
Satd. Flow (perm)	250	3579	1601	582	3579	1601	3471	3579	1601	1185	3579	1601
Satd. Flow (RTOR)			147			23			147			298
Volume (vph)	80	440	135	385	880	30	355	180	135	155	1070	475
Lane Group Flow (vph)	87	478	147	418	957	33	386	196	147	168	1163	516
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8			2	6		6
Detector Phases	7	4	4	3	8	8	5	2	2	6	6	6
Minimum Initial (s)	4.0	25.0	25.0	7.0	25.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	8.0	31.6	31.6	11.0	31.6	31.6	19.1	31.6	31.6	31.6	31.6	31.6
Total Split (s)	20.0	34.0	34.0	20.0	34.0	34.0	24.0	66.0	66.0	42.0	42.0	42.0
Total Split (%)	16.7%	28.3%	28.3%	16.7%	28.3%	28.3%	20.0%	55.0%	55.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	36.6	27.5	27.5	47.6	36.7	36.7	18.6	60.6	60.6	38.0	38.0	38.0
Actuated g/C Ratio	0.31	0.24	0.24	0.41	0.32	0.32	0.16	0.52	0.52	0.33	0.33	0.33
v/c Ratio	0.45	0.56	0.30	1.03	0.85	0.06	0.70	0.10	0.16	0.43	0.99	0.71
Control Delay	30.1	42.2	7.4	83.5	46.8	16.1	53.4	14.3	2.7	35.5	64.2	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	42.2	7.4	83.5	46.8	16.1	53.4	14.3	2.7	35.5	64.2	20.3
LOS	C	D	A	F	D	B	D	B	A	D	E	C
Approach Delay		33.5			57.0			32.7			49.3	
Approach LOS		C			E			C			D	
Queue Length 50th (m)	12.4	51.4	0.0	~79.4	111.7	1.6	43.0	11.3	0.0	30.2	~139.9	44.0
Queue Length 95th (m)	22.8	68.4	15.5	#151.2	#156.4	9.4	60.5	18.1	9.6	52.5	#194.4	88.0
Internal Link Dist (m)		387.5			407.9			804.6			419.0	
Turn Bay Length (m)	100.0		60.0	100.0		60.0	100.0		170.0	75.0		75.0
Base Capacity (vph)	284	906	515	405	1129	521	590	1888	914	388	1171	725
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.53	0.29	1.03	0.85	0.06	0.65	0.10	0.16	0.43	0.99	0.71

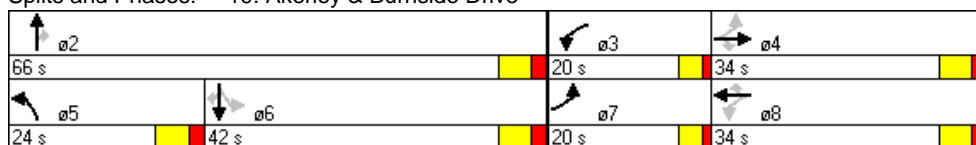
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 116.2  
 Natural Cycle: 115  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 46.6  
 Intersection Capacity Utilization 97.2%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service F

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

Splits and Phases: 19: Akerley & Burnside Drive



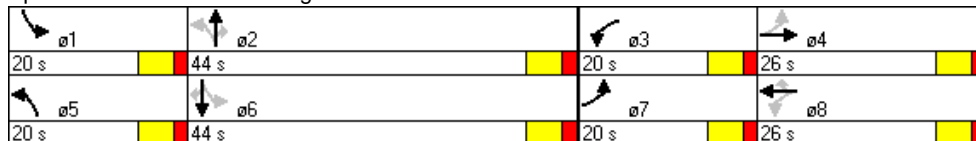
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3425	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.317			0.429			0.100			0.339		
Satd. Flow (perm)	597	3425	0	808	3579	1601	188	3579	1601	638	3579	1601
Satd. Flow (RTOR)		50				109			402			289
Volume (vph)	60	210	85	150	385	100	105	510	370	220	985	385
Lane Group Flow (vph)	65	320	0	163	418	109	114	554	402	239	1071	418
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	20.0	26.0	0.0	20.0	26.0	26.0	20.0	44.0	44.0	20.0	44.0	44.0
Total Split (%)	18.2%	23.6%	0.0%	18.2%	23.6%	23.6%	18.2%	40.0%	40.0%	18.2%	40.0%	40.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)	21.8	15.6		26.9	18.2	18.2	38.5	31.3	31.3	41.5	32.8	32.8
Actuated g/C Ratio	0.26	0.19		0.32	0.22	0.22	0.46	0.38	0.38	0.50	0.40	0.40
v/c Ratio	0.22	0.46		0.40	0.52	0.25	0.38	0.40	0.47	0.49	0.74	0.51
Control Delay	23.4	31.9		25.3	34.7	8.6	16.4	22.2	4.4	14.6	27.2	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	31.9		25.3	34.7	8.6	16.4	22.2	4.4	14.6	27.2	9.7
LOS	C	C		C	C	A	B	C	A	B	C	A
Approach Delay		30.4			28.4			14.9			21.2	
Approach LOS		C			C			B			C	
Queue Length 50th (m)	7.8	23.3		20.6	35.5	0.0	8.6	36.8	0.0	19.6	82.0	14.3
Queue Length 95th (m)	17.8	40.1		38.7	55.8	13.5	22.1	59.9	18.8	38.3	129.4	46.1
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	417	987		468	1028	537	401	1662	959	542	1687	907
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32		0.35	0.41	0.20	0.28	0.33	0.42	0.44	0.63	0.46

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 81.4  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 21.7  
 Intersection Capacity Utilization 63.2%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service B

Splits and Phases: 20: Wright & Burnside Drive



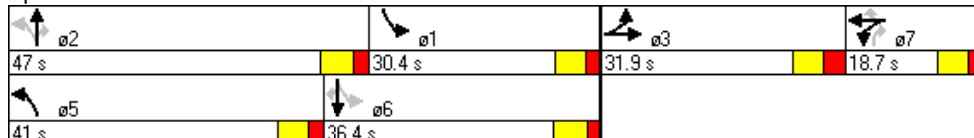
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1601	1628	3363	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.950			0.950	0.981		0.667			0.667		
Satd. Flow (perm)	1789	1883	1601	1628	3363	1601	2437	3579	1601	1256	3579	1601
Satd. Flow (RTOR)			424			130			248			250
Volume (vph)	80	160	390	195	140	120	935	785	820	395	595	230
Lane Group Flow (vph)	87	174	424	117	247	130	1016	853	891	429	647	250
Turn Type	custom		Free	custom		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	3	3		7	7		5	2		1	6	
Permitted Phases	3		Free	7		7	2		2.7	6		6
Detector Phases	3	3		7	7	7	5	2	2.7	1	6	6
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	35.0	40.6		7.0	7.0	7.0
Minimum Split (s)	13.9	13.9		13.7	13.7	13.7	41.0	47.0		13.5	13.4	13.4
Total Split (s)	31.9	31.9	0.0	18.7	18.7	18.7	41.0	47.0	65.7	30.4	36.4	36.4
Total Split (%)	24.9%	24.9%	0.0%	14.6%	14.6%	14.6%	32.0%	36.7%	51.3%	23.8%	28.4%	28.4%
Yellow Time (s)	4.1	4.1		4.1	4.1	4.1	4.0	4.5		4.0	4.5	4.5
All-Red Time (s)	2.8	2.8		2.6	2.6	2.6	2.0	1.9		2.0	1.9	1.9
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	Max	Max		None	None	None
Act Effct Green (s)	19.1	19.1	119.3	14.7	14.7	14.7	43.1	43.1	61.8	32.4	32.4	32.4
Actuated g/C Ratio	0.16	0.16	1.00	0.12	0.12	0.12	0.36	0.36	0.52	0.27	0.27	0.27
v/c Ratio	0.30	0.58	0.26	0.58	0.60	0.42	0.85	0.66	0.94	0.93	0.66	0.41
Control Delay	46.7	54.2	0.4	63.1	56.8	12.8	42.9	35.6	38.5	72.6	43.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	54.2	0.4	63.1	56.8	12.8	42.9	35.6	38.5	72.6	43.1	6.5
LOS	D	D	A	E	E	B	D	D	D	E	D	A
Approach Delay		19.9			46.7			39.2			45.7	
Approach LOS		B			D			D			D	
Queue Length 50th (m)	18.2	38.1	0.0	28.7	30.4	0.0	109.8	87.3	150.8	96.2	70.8	0.0
Queue Length 95th (m)	33.0	60.2	0.0	#52.9	47.1	17.9	#152.4	118.1	#267.2	#170.8	97.3	19.7
Internal Link Dist (m)		123.2			343.7			718.3			923.3	
Turn Bay Length (m)	40.0			100.0		60.0	113.0			150.0		150.0
Base Capacity (vph)	390	410	1601	201	415	311	1201	1292	948	460	973	617
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.42	0.26	0.58	0.60	0.42	0.85	0.66	0.94	0.93	0.66	0.41

Intersection Summary

Cycle Length: 128  
 Actuated Cycle Length: 119.3  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 39.0  
 Intersection Capacity Utilization 91.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service F

Splits and Phases: 21: Ronald Smith & Burnside Drive





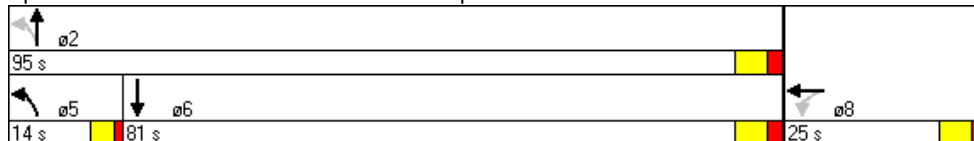
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1818	1601	0	3575	0	0	3579	1601
Flt Permitted					0.965			0.909				
Satd. Flow (perm)	0	0	0	0	1818	1601	0	3253	0	0	3579	1601
Satd. Flow (RTOR)						265						322
Volume (vph)	0	0	0	195	70	1170	35	1370	0	0	780	400
Lane Group Flow (vph)	0	0	0	0	288	1272	0	1527	0	0	848	435
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Max			Max	
Act Effct Green (s)					21.0	120.0		91.0			91.0	120.0
Actuated g/C Ratio					0.18	1.00		0.76			0.76	1.00
v/c Ratio					0.91	0.79		0.62			0.31	0.27
Control Delay					80.5	4.2		7.9			4.9	0.4
Queue Delay					50.3	0.0		32.3			0.1	0.0
Total Delay					130.8	4.2		40.2			5.0	0.4
LOS					F	A		D			A	A
Approach Delay					27.5			40.2			3.5	
Approach LOS					C			D			A	
Queue Length 50th (m)					67.2	0.0		73.7			28.5	0.0
Queue Length 95th (m)					#116.6	0.0		90.1			35.4	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					318	1601		2468			2715	1601
Starvation Cap Reductn					0	0		1028			0	0
Spillback Cap Reductn					57	0		0			577	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					1.10	0.79		1.06			0.40	0.27

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 24.9  
 Intersection Capacity Utilization 84.1%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



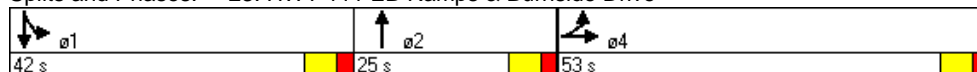
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1683	0	0	0	0	0	3428	0	1700	1766	0
Flt Permitted	0.950	0.957								0.950	0.987	
Satd. Flow (perm)	1700	1683	0	0	0	0	0	3428	0	1700	1766	0
Satd. Flow (RTOR)		6						41				
Volume (vph)	1070	0	60	0	0	0	0	335	130	605	370	0
Lane Group Flow (vph)	646	582	0	0	0	0	0	505	0	516	544	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	53.0	53.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	42.0	42.0	0.0
Total Split (%)	44.2%	44.2%	0.0%	0.0%	0.0%	0.0%	0.0%	20.8%	0.0%	35.0%	35.0%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						None		None	None	
Act Effct Green (s)	47.0	47.0						20.1		37.8	37.8	
Actuated g/C Ratio	0.40	0.40						0.17		0.32	0.32	
v/c Ratio	0.95	0.86						0.81		0.94	0.95	
Control Delay	58.0	45.5						54.3		65.8	67.7	
Queue Delay	71.8	32.0						0.1		239.3	256.4	
Total Delay	129.8	77.5						54.4		305.1	324.1	
LOS	F	E						D		F	F	
Approach Delay		105.0						54.4			314.9	
Approach LOS		F						D			F	
Queue Length 50th (m)	150.6	127.1						55.9		125.1	132.8	
Queue Length 95th (m)	#227.4	#192.0						#75.5		#195.8	#206.0	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	701	698						646		552	574	
Starvation Cap Reductn	0	0						0		218	231	
Spillback Cap Reductn	145	144						4		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	1.16	1.05						0.79		1.54	1.59	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 175.5  
 Intersection Capacity Utilization 81.4%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: F  
 ICU Level of Service D

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive



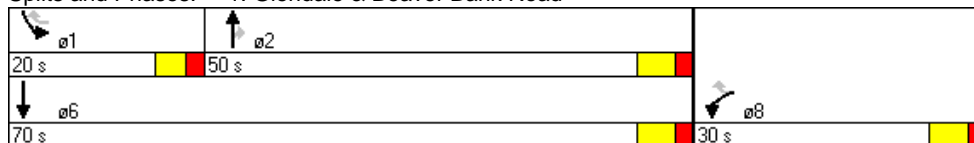
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1601	3579	1601	3471	1883
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1789	1601	3579	1601	3471	1883
Satd. Flow (RTOR)		29		116		
Volume (vph)	285	705	1130	185	380	510
Lane Group Flow (vph)	310	766	1228	201	413	554
Turn Type		custom		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8 1		2		
Detector Phases	8	8 1	2	2	1	6
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	22.0		22.0	22.0	12.0	22.0
Total Split (s)	30.0	50.0	50.0	50.0	20.0	70.0
Total Split (%)	30.0%	50.0%	50.0%	50.0%	20.0%	70.0%
Yellow Time (s)	4.0		4.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	26.1	46.2	40.4	40.4	16.1	60.5
Actuated g/C Ratio	0.28	0.49	0.43	0.43	0.17	0.64
v/c Ratio	0.63	0.96	0.80	0.27	0.70	0.46
Control Delay	37.9	49.1	28.2	8.2	45.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	49.1	28.2	8.2	45.2	10.0
LOS	D	D	C	A	D	B
Approach Delay	45.9		25.4			25.1
Approach LOS	D		C			C
Queue Length 50th (m)	51.5	133.8	99.7	9.1	38.2	46.4
Queue Length 95th (m)	82.8	#224.9	125.1	22.1	55.8	66.9
Internal Link Dist (m)	79.5		191.8			313.8
Turn Bay Length (m)				35.0	60.0	
Base Capacity (vph)	494	797	1646	799	589	1243
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.96	0.75	0.25	0.70	0.45







Intersection Summary












Cycle Length: 100  
 Actuated Cycle Length: 94.6  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 31.6  
 Intersection Capacity Utilization 81.6%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.












Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 1: Glendale & Beaver Bank Road



						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑↑	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	520	45	150	900	90	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	565	49	163	978	98	179
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)	103					
pX, platoon unblocked						
vC, conflicting volume			614		1894	307
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			614		1894	307
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		0	74
cM capacity (veh/h)			961		51	689
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	377	237	163	978	277	
Volume Left	0	0	163	0	98	
Volume Right	0	49	0	0	179	
cSH	1700	1700	961	1700	127	
Volume to Capacity	0.22	0.14	0.17	0.58	2.18	
Queue Length 95th (m)	0.0	0.0	4.6	0.0	176.4	
Control Delay (s)	0.0	0.0	9.5	0.0	610.8	
Lane LOS			A		F	
Approach Delay (s)	0.0		1.4		610.8	
Approach LOS					F	
<b>Intersection Summary</b>						
Average Delay			84.1			
Intersection Capacity Utilization			69.2%		ICU Level of Service	C
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	220	465	945	205	70	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	239	505	1027	223	76	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)		263				
pX, platoon unblocked						
vC, conflicting volume	1250				2122	1139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1250				2122	1139
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)					3.5	3.3
p0 queue free %					0	53
cM capacity (veh/h)					31	245
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	239	505	1250	190		
Volume Left	239	0	0	76		
Volume Right	0	0	223	114		
cSH	557	1700	1700	66		
Volume to Capacity	0.43	0.30	0.74	2.88		
Queue Length 95th (m)	16.3	0.0	0.0	146.2		
Control Delay (s)	16.2	0.0	0.0	984.4		
Lane LOS	C			F		
Approach Delay (s)	5.2		0.0	984.4		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			87.5			
Intersection Capacity Utilization			94.7%		ICU Level of Service	F
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	25	585	1170	70	40	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	636	1272	76	43	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			221			
pX, platoon unblocked	0.36				0.36	0.36
vC, conflicting volume	1348				2000	1310
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1958				3755	1853
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				0	0
cM capacity (veh/h)	108				1	33
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	27	636	1348	82		
Volume Left	27	0	0	43		
Volume Right	0	0	76	38		
cSH	108	1700	1700	2		
Volume to Capacity	0.25	0.37	0.79	34.76		
Queue Length 95th (m)	7.0	0.0	0.0	Err		
Control Delay (s)	49.3	0.0	0.0	Err		
Lane LOS	E			F		
Approach Delay (s)	2.0		0.0	Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			390.2			
Intersection Capacity Utilization			76.8%		ICU Level of Service	D
Analysis Period (min)			15			

5: Glendale & Riverside

2026 PM Peak with Hwy 107 (Fig C7-B Vol.)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1855	0	1789	1868	0	0	1737	0	0	1779	0
Flt Permitted	0.062			0.332				0.801			0.875	
Satd. Flow (perm)	117	1855	0	625	1868	0	0	1423	0	0	1574	0
Satd. Flow (RTOR)		13			6			36			25	
Volume (vph)	35	530	60	180	1060	60	150	40	140	20	40	30
Lane Group Flow (vph)	38	641	0	196	1217	0	0	358	0	0	98	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.9	20.9		20.9	20.9		20.9	20.9		20.9	20.9	
Total Split (s)	68.8	68.8	0.0	68.8	68.8	0.0	28.0	28.0	0.0	28.0	28.0	0.0
Total Split (%)	71.1%	71.1%	0.0%	71.1%	71.1%	0.0%	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%
Yellow Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	1.4	1.4		1.4	1.4		1.4	1.4		1.4	1.4	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	63.8	63.8		63.8	63.8			23.8			23.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.25			0.25	
v/c Ratio	0.49	0.52		0.47	0.98			0.94			0.24	
Control Delay	34.0	9.7		12.3	36.9			66.3			23.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	34.0	9.7		12.3	36.9			66.3			23.7	
LOS	C	A		B	D			E			C	
Approach Delay		11.1			33.5			66.3			23.7	
Approach LOS		B			C			E			C	
Queue Length 50th (m)	3.1	52.5		15.7	190.9			60.1			10.8	
Queue Length 95th (m)	#19.9	76.8		32.2	#308.2			#114.2			23.8	
Internal Link Dist (m)		196.6			424.2			60.0			75.4	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	78	1248		419	1254			384			413	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.49	0.51		0.47	0.97			0.93			0.24	

Intersection Summary

Cycle Length: 96.8  
 Actuated Cycle Length: 95.6  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 31.8  
 Intersection Capacity Utilization 100.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Glendale & Riverside

28 s	68.8 s		
28 s	68.8 s		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601
Flt Permitted	0.062				0.950	
Satd. Flow (perm)	117	1883	1883	1601	1789	1601
Satd. Flow (RTOR)				210		132
Volume (vph)	265	425	950	365	255	265
Lane Group Flow (vph)	288	462	1033	397	277	288
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phases	5	2	6	6	4	4
Minimum Initial (s)	7.0	20.0	20.0	20.0	7.0	7.0
Minimum Split (s)	11.0	26.0	26.0	26.0	26.0	26.0
Total Split (s)	20.0	84.0	64.0	64.0	26.0	26.0
Total Split (%)	18.2%	76.4%	58.2%	58.2%	23.6%	23.6%
Yellow Time (s)	4.0	4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	0.0	1.9	1.9	1.9	1.9	1.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Recall Mode	None	Min	Min	Min	None	None
Act Effct Green (s)	80.1	80.1	60.0	60.0	20.8	20.8
Actuated g/C Ratio	0.74	0.74	0.55	0.55	0.19	0.19
v/c Ratio	0.87	0.33	1.00	0.41	0.81	0.70
Control Delay	55.4	6.0	52.3	7.7	61.1	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	6.0	52.3	7.7	61.1	31.5
LOS	E	A	D	A	E	C
Approach Delay		25.0	39.9		46.1	
Approach LOS		C	D		D	
Queue Length 50th (m)	45.0	31.1	~215.5	19.7	56.8	30.9
Queue Length 95th (m)	#91.8	44.4	#308.3	40.0	#95.0	60.5
Internal Link Dist (m)		424.2	129.6		283.2	
Turn Bay Length (m)	80.0			50.0		16.0
Base Capacity (vph)	332	1384	1038	977	358	426
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.33	1.00	0.41	0.77	0.68

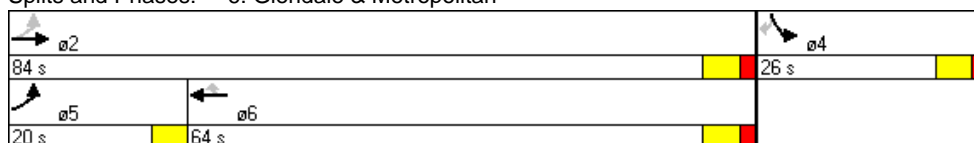
Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 108.9  
 Natural Cycle: 100  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 37.1  
 Intersection Capacity Utilization 88.8%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service E

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

Splits and Phases: 6: Glendale & Metropolitan





	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	615	65	20	1290	25	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	668	71	22	1402	27	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	154			310		
pX, platoon unblocked			0.91		0.29	0.91
vC, conflicting volume			739		2149	704
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			713		4532	675
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		0	95
cM capacity (veh/h)			807		0	414
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	739	22	1402	49		
Volume Left	0	22	0	27		
Volume Right	71	0	0	22		
cSH	1700	807	1700	1		
Volume to Capacity	0.43	0.03	0.82	68.62		
Queue Length 95th (m)	0.0	0.6	0.0	Err		
Control Delay (s)	0.0	9.6	0.0	Err		
Lane LOS		A		F		
Approach Delay (s)	0.0	0.1		Err		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			221.2			
Intersection Capacity Utilization			77.9%		ICU Level of Service	D
Analysis Period (min)			15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1870	0	1789	1883	1601	0	1737	0	0	1808	1601
Flt Permitted	0.050			0.369				0.790			0.648	
Satd. Flow (perm)	94	1870	0	695	1883	1601	0	1406	0	0	1220	1601
Satd. Flow (RTOR)		6				37		25				49
Volume (vph)	65	650	30	80	1385	110	55	10	45	75	15	45
Lane Group Flow (vph)	71	740	0	87	1505	120	0	120	0	0	98	49
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	1	6			2			4			8	
Permitted Phases	6			2		2	4			8		8
Detector Phases	1	6		2	2	2	4	4		8	8	8
Minimum Initial (s)	4.0	10.0		10.0	10.0	10.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	8.0	32.1		32.1	32.1	32.1	22.1	22.1		22.1	22.1	22.1
Total Split (s)	14.0	94.0	0.0	80.0	80.0	80.0	26.0	26.0	0.0	26.0	26.0	26.0
Total Split (%)	11.7%	78.3%	0.0%	66.7%	66.7%	66.7%	21.7%	21.7%	0.0%	21.7%	21.7%	21.7%
Yellow Time (s)	3.0	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	1.0	1.6		1.6	1.6	1.6	1.6	1.6		1.6	1.6	1.6
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min	Min	None	None		None	None	None
Act Effct Green (s)	88.6	88.6		79.6	79.6	79.6		16.0			16.0	16.0
Actuated g/C Ratio	0.77	0.79		0.71	0.71	0.71		0.14			0.14	0.14
v/c Ratio	0.41	0.50		0.18	1.13	0.10		0.54			0.57	0.18
Control Delay	15.4	6.1		8.4	88.7	5.1		44.0			57.2	13.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	15.4	6.1		8.4	88.7	5.1		44.0			57.2	13.1
LOS	B	A		A	F	A		D			E	B
Approach Delay		6.9			78.8			44.0			42.5	
Approach LOS		A			E			D			D	
Queue Length 50th (m)	2.9	46.7		6.0	~387.0	5.3		19.1			19.9	0.0
Queue Length 95th (m)	14.2	84.9		15.7	#523.3	14.1		38.3			37.7	10.4
Internal Link Dist (m)		286.1			312.9			72.4			143.9	
Turn Bay Length (m)	35.0			35.0		35.0						20.0
Base Capacity (vph)	215	1481		492	1332	1143		281			226	337
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.33	0.50		0.18	1.13	0.10		0.43			0.43	0.15

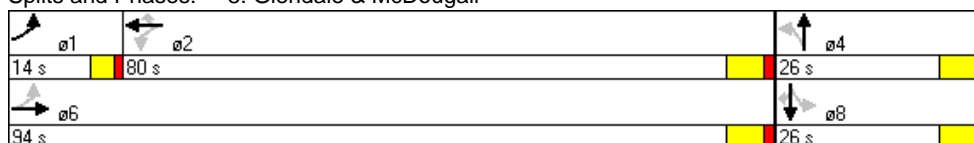
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 112.6  
 Natural Cycle: 150  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 54.5  
 Intersection Capacity Utilization 95.1%  
 Analysis Period (min) 15












Intersection LOS: D  
 ICU Level of Service F




















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

Splits and Phases: 8: Glendale & McDougall



	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	710	60	75	1545	30	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	772	65	82	1679	33	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)	337					
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			837		2647	804
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			807		2952	768
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		0	81
cM capacity (veh/h)			690		12	339
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	837	82	1679	98		
Volume Left	0	82	0	33		
Volume Right	65	0	0	65		
cSH	1700	690	1700	34		
Volume to Capacity	0.49	0.12	0.99	2.90		
Queue Length 95th (m)	0.0	3.0	0.0	85.7		
Control Delay (s)	0.0	10.9	0.0	1108.6		
Lane LOS		B		F		
Approach Delay (s)	0.0	0.5		1108.6		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			40.6			
Intersection Capacity Utilization			93.3%		ICU Level of Service	F
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	645	1405	25	10	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	701	1527	27	11	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1554				2329	1541
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554				2329	1541
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				70	81
cM capacity (veh/h)	426				37	142
Direction, Lane #	EB 1	EB 2	WB 1	SB 1		
Volume Total	43	701	1554	38		
Volume Left	43	0	0	11		
Volume Right	0	0	27	27		
cSH	426	1700	1700	78		
Volume to Capacity	0.10	0.41	0.91	0.49		
Queue Length 95th (m)	2.6	0.0	0.0	15.5		
Control Delay (s)	14.4	0.0	0.0	89.1		
Lane LOS	B			F		
Approach Delay (s)	0.8		0.0	89.1		
Approach LOS				F		
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			85.5%		ICU Level of Service	E
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	45	585	25	85	1395	70	10	5	20	5	5	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	636	27	92	1516	76	11	5	22	5	5	27
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1592			663			2478	2524	649	2497	2500	1554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1592			663			2478	2524	649	2497	2500	1554
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			90			3	75	95	58	76	80
cM capacity (veh/h)	412			926			11	22	469	13	23	139
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	49	663	92	1592	38	38						
Volume Left	49	0	92	0	11	5						
Volume Right	0	27	0	76	22	27						
cSH	412	1700	926	1700	30	44						
Volume to Capacity	0.12	0.39	0.10	0.94	1.26	0.86						
Queue Length 95th (m)	3.0	0.0	2.5	0.0	32.7	25.9						
Control Delay (s)	14.9	0.0	9.3	0.0	448.5	233.8						
Lane LOS	B		A		F	F						
Approach Delay (s)	1.0		0.5		448.5	233.8						
Approach LOS					F	F						
Intersection Summary												
Average Delay			11.1									
Intersection Capacity Utilization			88.0%		ICU Level of Service				E			
Analysis Period (min)			15									

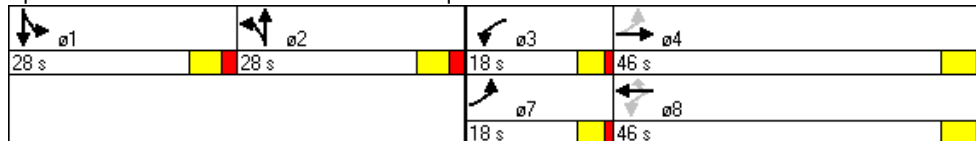
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3528	0	1789	3579	1601	1789	3432	0	1628	3171	0
Flt Permitted	0.095			0.334			0.950			0.950	0.979	
Satd. Flow (perm)	179	3528	0	629	3579	1601	1789	3432	0	1628	3171	0
Satd. Flow (RTOR)		10				302		41			75	
Volume (vph)	135	455	45	270	1100	425	205	385	145	380	90	155
Lane Group Flow (vph)	147	544	0	293	1196	462	223	576	0	220	459	0
Turn Type	pm+pt			pm+pt		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		8						
Detector Phases	7	4		3	8	8	2	2		1	1	
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	11.4	12.9		11.4	12.9	12.9	13.0	13.0		13.0	13.0	
Total Split (s)	18.0	46.0	0.0	18.0	46.0	46.0	28.0	28.0	0.0	28.0	28.0	0.0
Total Split (%)	15.0%	38.3%	0.0%	15.0%	38.3%	38.3%	23.3%	23.3%	0.0%	23.3%	23.3%	0.0%
Yellow Time (s)	3.4	4.5		3.4	4.5	4.5	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.4		1.0	1.4	1.4	2.0	2.0		2.0	2.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min	Min	Min	Min		Min	Min	
Act Effct Green (s)	51.2	39.5		53.9	40.8	40.8	22.3	22.3		20.6	20.6	
Actuated g/C Ratio	0.46	0.35		0.48	0.37	0.37	0.20	0.20		0.18	0.18	
v/c Ratio	0.59	0.43		0.67	0.91	0.59	0.62	0.80		0.73	0.71	
Control Delay	30.4	29.2		26.0	46.7	13.8	51.0	50.0		59.0	42.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	30.4	29.2		26.0	46.7	13.8	51.0	50.0		59.0	42.7	
LOS	C	C		C	D	B	D	D		E	D	
Approach Delay		29.5			35.8			50.3			48.0	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	18.3	50.4		39.9	142.1	28.5	48.0	63.4		52.6	45.8	
Queue Length 95th (m)	37.5	66.2		59.1	#188.4	63.3	74.6	84.4		82.8	64.9	
Internal Link Dist (m)		120.2			572.1			253.3			119.9	
Turn Bay Length (m)	50.0			40.0		60.0	40.0			35.0		
Base Capacity (vph)	283	1310		449	1340	788	381	764		342	725	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.52	0.42		0.65	0.89	0.59	0.59	0.75		0.64	0.63	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 111.7  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 39.6  
 Intersection Capacity Utilization 78.8%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service D

Splits and Phases: 12: Glendale & Cobequid



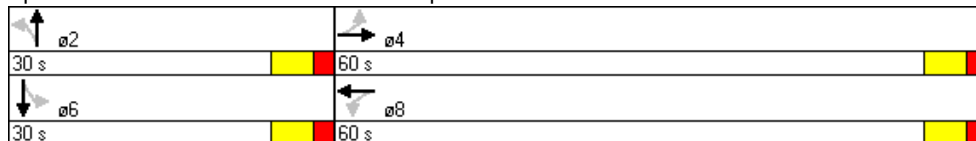
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3568	0	1789	3579	0	1789	1601	0	0	1685	0
Flt Permitted	0.071			0.177			0.788				0.918	
Satd. Flow (perm)	134	3568	0	333	3579	0	1484	1601	0	0	1572	0
Satd. Flow (RTOR)		5			1			91			14	
Volume (vph)	10	1070	25	30	1815	5	75	0	75	15	0	30
Lane Group Flow (vph)	11	1190	0	33	1978	0	82	82	0	0	49	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Total Split (%)	66.7%	66.7%	0.0%	66.7%	66.7%	0.0%	33.3%	33.3%	0.0%	33.3%	33.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	65.3	65.3		65.3	65.3		12.4	12.4		12.4	12.4	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.14	0.14		0.14	0.14	
v/c Ratio	0.10	0.43		0.13	0.71		0.38	0.27		0.21	0.21	
Control Delay	6.2	4.3		4.8	7.5		32.4	7.9		22.7	22.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.2	4.3		4.8	7.5		32.4	7.9		22.7	22.7	
LOS	A	A		A	A		C	A		C	C	
Approach Delay		4.3			7.5			20.2			22.7	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.3	26.0		1.0	64.9		9.9	0.0			4.1	
Queue Length 95th (m)	2.4	46.0		4.4	115.6		22.6	9.4			13.0	
Internal Link Dist (m)		572.1			531.6			183.9			139.9	
Turn Bay Length (m)	70.0			70.0			30.0					
Base Capacity (vph)	105	2808		262	2816		402	500			436	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.10	0.42		0.13	0.70		0.20	0.16			0.11	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 83.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 7.2  
 Intersection Capacity Utilization 67.4%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 13: Glendale & Temple Terrace



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Flt Permitted				0.950						0.950	0.950	
Satd. Flow (perm)	0	3579	1601	3471	3579	0	0	0	0	1700	1700	1601
Satd. Flow (RTOR)			344									43
Volume (vph)	0	850	335	1125	1590	0	0	0	0	90	0	350
Lane Group Flow (vph)	0	924	364	1223	1728	0	0	0	0	49	49	380
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Detector Phases		4	4	3	8					6	6	6
Minimum Initial (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Minimum Split (s)		22.0	22.0	10.0	22.0					22.0	22.0	22.0
Total Split (s)	0.0	44.0	44.0	46.0	90.0	0.0	0.0	0.0	0.0	30.0	30.0	30.0
Total Split (%)	0.0%	36.7%	36.7%	38.3%	75.0%	0.0%	0.0%	0.0%	0.0%	25.0%	25.0%	25.0%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?												
Recall Mode		Min	Min	None	Min					None	None	None
Act Effct Green (s)		37.1	37.1	42.0	83.2					26.0	26.0	26.0
Actuated g/C Ratio		0.32	0.32	0.36	0.71					0.22	0.22	0.22
v/c Ratio		0.81	0.49	0.98	0.68					0.13	0.13	0.98
Control Delay		43.5	6.4	59.6	11.2					38.9	38.9	81.3
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		43.5	6.4	59.6	11.2					38.9	38.9	81.3
LOS		D	A	E	B					D	D	F
Approach Delay		33.0			31.2						72.6	
Approach LOS		C			C						E	
Queue Length 50th (m)		102.4	3.2	~149.5	104.1					9.8	9.8	81.4
Queue Length 95th (m)		126.7	24.7	#196.1	125.2					20.9	20.9	#144.2
Internal Link Dist (m)		531.6			310.0			470.7			506.7	
Turn Bay Length (m)			70.0	70.0						90.0		90.0
Base Capacity (vph)		1193	763	1245	2565					377	377	389
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.77	0.48	0.98	0.67					0.13	0.13	0.98

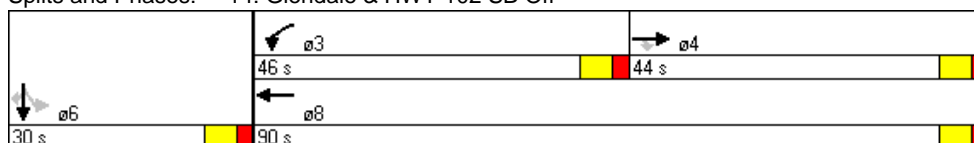
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117.2  
 Natural Cycle: 80  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 35.9  
 Intersection Capacity Utilization 100.1%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service G

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

Splits and Phases: 14: Glendale & HWY 102 SB Off





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	0	0	3546	0	1700	1700	1601	0	0	0
Flt Permitted	0.053						0.950	0.950				
Satd. Flow (perm)	100	3579	0	0	3546	0	1700	1700	1601	0	0	0
Satd. Flow (RTOR)					9				429			
Volume (vph)	200	740	0	0	2030	125	685	0	395	0	0	0
Lane Group Flow (vph)	217	804	0	0	2343	0	373	372	429	0	0	0
Turn Type	pm+pt						Perm		Free			
Protected Phases	7	4			8			2				
Permitted Phases	4						2		Free			
Detector Phases	7	4			8		2	2				
Minimum Initial (s)	4.0	4.0			4.0		4.0	4.0				
Minimum Split (s)	8.0	22.0			22.0		22.0	22.0				
Total Split (s)	14.0	90.0	0.0	0.0	76.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Total Split (%)	11.7%	75.0%	0.0%	0.0%	63.3%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	3.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	2.0			2.0		2.0	2.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min			Min		None	None				
Act Effct Green (s)	86.0	86.0			72.0		26.0	26.0	120.0			
Actuated g/C Ratio	0.72	0.72			0.60		0.22	0.22	1.00			
v/c Ratio	1.02	0.31			1.10		1.01	1.01	0.27			
Control Delay	100.3	6.6			77.4		97.3	96.7	0.4			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	100.3	6.6			77.4		97.3	96.7	0.4			
LOS	F	A			E		F	F	A			
Approach Delay		26.5			77.4			61.7				
Approach LOS		C			E			E				
Queue Length 50th (m)	~38.3	32.3			~329.8		~95.0	~94.4	0.0			
Queue Length 95th (m)	#87.1	40.5			#371.3		#158.7	#158.3	0.0			
Internal Link Dist (m)		310.0			375.7			468.1			548.7	
Turn Bay Length (m)	75.0						150.0		90.0			
Base Capacity (vph)	212	2565			2131		368	368	1601			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	1.02	0.31			1.10		1.01	1.01	0.27			

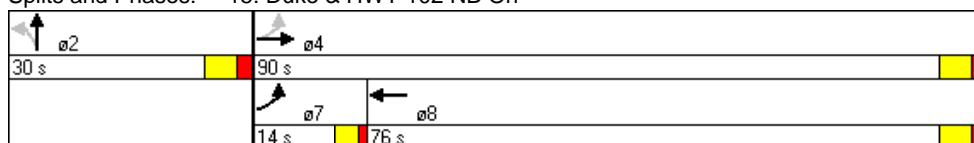
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 130  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 61.9  
 Intersection Capacity Utilization 117.5%  
 Analysis Period (min) 15

Intersection LOS: E  
 ICU Level of Service H

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

Splits and Phases: 15: Duke & HWY 102 NB On



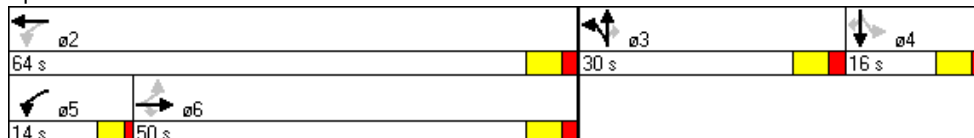
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	0	1700	1700	1601	0	1883	1601
Flt Permitted	0.087			0.197			0.950	0.950				
Satd. Flow (perm)	164	3579	1601	371	3579	0	1700	1700	1601	0	1883	1601
Satd. Flow (RTOR)			446						60			21
Volume (vph)	5	770	410	115	1640	0	530	0	75	0	0	15
Lane Group Flow (vph)	5	837	446	125	1783	0	288	288	82	0	0	16
Turn Type	Perm		Perm	pm+pt			custom		Perm	Perm		Perm
Protected Phases		6		5	2		3	3			4	
Permitted Phases	6		6	2			3		3	4		4
Detector Phases	6	6	6	5	2		3	3	3	4	4	4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		22.0	22.0	22.0	10.0	10.0	10.0
Total Split (s)	50.0	50.0	50.0	14.0	64.0	0.0	30.0	30.0	30.0	16.0	16.0	16.0
Total Split (%)	45.5%	45.5%	45.5%	12.7%	58.2%	0.0%	27.3%	27.3%	27.3%	14.5%	14.5%	14.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	Min		Min	Min	Min	None	None	None
Act Effct Green (s)	39.0	39.0	39.0	47.6	48.2		19.8	19.8	19.8			8.3
Actuated g/C Ratio	0.48	0.48	0.48	0.58	0.60		0.25	0.25	0.25			0.09
v/c Ratio	0.06	0.48	0.44	0.36	0.83		0.69	0.69	0.19			0.09
Control Delay	19.8	18.1	3.5	12.0	19.3		41.0	41.0	13.7			17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0			0.0
Total Delay	19.8	18.1	3.5	12.0	19.3		41.0	41.0	13.7			17.1
LOS	B	B	A	B	B		D	D	B			B
Approach Delay		13.0			18.8			37.6				
Approach LOS		B			B			D				
Queue Length 50th (m)	0.4	43.5	0.0	6.9	95.2		42.5	42.5	2.6			0.0
Queue Length 95th (m)	3.1	85.2	17.3	20.5	199.4		88.8	88.8	15.3			5.5
Internal Link Dist (m)		375.7			127.2			372.1			339.5	
Turn Bay Length (m)	50.0		60.0	50.0					30.0			30.0
Base Capacity (vph)	88	1919	1065	385	2348		534	534	544			239
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.06	0.44	0.42	0.32	0.76		0.54	0.54	0.15			0.07











Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 80.7  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 20.1  
 Intersection Capacity Utilization 73.3%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 16: Duke & Damascus



						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	20	885	1670	10	15	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	962	1815	11	16	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)			308			
pX, platoon unblocked	0.63				0.63	0.63
vC, conflicting volume	1826				2345	913
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1723				2549	272
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				0	89
cM capacity (veh/h)	228				12	457
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	22	481	481	1210	616	65
Volume Left	22	0	0	0	0	16
Volume Right	0	0	0	0	11	49
cSH	228	1700	1700	1700	1700	46
Volume to Capacity	0.10	0.28	0.28	0.71	0.36	1.41
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	47.7
Control Delay (s)	22.4	0.0	0.0	0.0	0.0	418.0
Lane LOS	C					F
Approach Delay (s)	0.5			0.0		418.0
Approach LOS						F
<b>Intersection Summary</b>						
Average Delay			9.7			
Intersection Capacity Utilization			56.8%		ICU Level of Service	B
Analysis Period (min)			15			

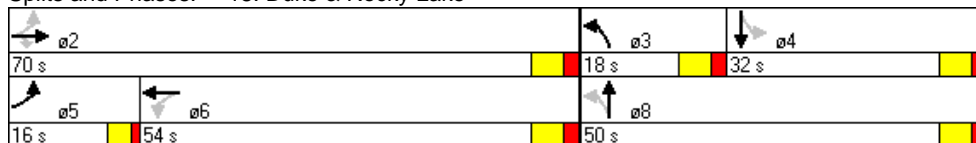
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3561	0	1789	1865	0	1789	1701	0
Flt Permitted	0.074			0.449			0.188			0.650		
Satd. Flow (perm)	139	3579	1601	846	3561	0	354	1865	0	1224	1701	0
Satd. Flow (RTOR)			184		3			3			71	
Volume (vph)	185	500	215	50	1220	40	260	145	10	10	110	200
Lane Group Flow (vph)	201	543	234	54	1369	0	283	169	0	11	337	0
Turn Type	pm+pt		Perm	Perm			pm+pt			Perm		
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phases	5	2	2	6	6		3	8		4	4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0		10.0	22.0		22.0	22.0	
Total Split (s)	16.0	70.0	70.0	54.0	54.0	0.0	18.0	50.0	0.0	32.0	32.0	0.0
Total Split (%)	13.3%	58.3%	58.3%	45.0%	45.0%	0.0%	15.0%	41.7%	0.0%	26.7%	26.7%	0.0%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	Max	Max	None	None		None	None		None	None	
Act Effct Green (s)	66.1	66.1	66.1	50.7	50.7		42.1	42.1		24.1	24.1	
Actuated g/C Ratio	0.57	0.57	0.57	0.44	0.44		0.36	0.36		0.21	0.21	
v/c Ratio	0.83	0.27	0.24	0.15	0.88		0.94	0.25		0.04	0.83	
Control Delay	54.5	13.6	4.0	22.9	38.7		68.9	26.3		36.4	51.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.5	13.6	4.0	22.9	38.7		68.9	26.3		36.4	51.8	
LOS	D	B	A	C	D		E	C		D	D	
Approach Delay		19.7			38.1			53.0			51.3	
Approach LOS		B			D			D			D	
Queue Length 50th (m)	30.3	33.1	5.1	7.6	154.3		48.3	26.2		2.0	59.1	
Queue Length 95th (m)	#70.5	44.6	16.9	16.7	#203.5		#94.7	42.3		6.9	#93.3	
Internal Link Dist (m)		284.0			259.3			410.9			153.3	
Turn Bay Length (m)	75.0		18.0	75.0			60.0			60.0		
Base Capacity (vph)	248	2036	990	369	1554		302	717		286	451	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.81	0.27	0.24	0.15	0.88		0.94	0.24		0.04	0.75	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 116.2  
 Natural Cycle: 90  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 36.0  
 Intersection Capacity Utilization 91.0%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service F

Splits and Phases: 18: Duke & Rocky Lake



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.308			0.129			0.950			0.321		
Satd. Flow (perm)	580	3579	1601	243	3579	1601	3471	3579	1601	605	3579	1601
Satd. Flow (RTOR)			162			107			390			158
Volume (vph)	360	1015	240	205	450	135	145	815	390	45	330	145
Lane Group Flow (vph)	391	1103	261	223	489	147	158	886	424	49	359	158
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8			2	6		6
Detector Phases	7	4	4	3	8	8	5	2	2	6	6	6
Minimum Initial (s)	7.0	25.0	25.0	7.0	25.0	25.0	12.0	25.0	25.0	25.0	25.0	25.0
Minimum Split (s)	11.0	31.6	31.6	11.0	31.6	31.6	19.1	31.6	31.6	31.6	31.6	31.6
Total Split (s)	20.0	35.0	35.0	20.0	35.0	35.0	25.0	65.0	65.0	40.0	40.0	40.0
Total Split (%)	16.7%	29.2%	29.2%	16.7%	29.2%	29.2%	20.8%	54.2%	54.2%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	Min	Min	None	Min	Min	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	47.0	31.6	31.6	42.5	29.0	29.0	14.2	45.2	45.2	27.0	27.0	27.0
Actuated g/C Ratio	0.46	0.31	0.31	0.42	0.28	0.28	0.14	0.44	0.44	0.26	0.26	0.26
v/c Ratio	0.86	1.00	0.43	0.73	0.48	0.28	0.33	0.56	0.46	0.31	0.38	0.29
Control Delay	39.0	62.8	13.6	36.0	32.1	10.8	42.2	23.1	4.5	37.3	32.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	62.8	13.6	36.0	32.1	10.8	42.2	23.1	4.5	37.3	32.5	6.5
LOS	D	E	B	D	C	B	D	C	A	D	C	A
Approach Delay		50.2			29.5			19.8			25.7	
Approach LOS		D			C			B			C	
Queue Length 50th (m)	49.7	~118.9	14.6	26.7	42.2	5.8	14.8	67.3	3.8	7.8	30.7	0.0
Queue Length 95th (m)	#90.1	#168.4	37.2	51.3	57.8	20.4	24.7	88.1	22.0	19.1	45.1	15.0
Internal Link Dist (m)		387.5			407.9			804.6			527.4	
Turn Bay Length (m)	100.0		60.0	100.0		60.0	100.0		170.0	75.0		75.0
Base Capacity (vph)	456	1106	607	341	1065	551	668	1849	1016	196	1159	625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	1.00	0.43	0.65	0.46	0.27	0.24	0.48	0.42	0.25	0.31	0.25

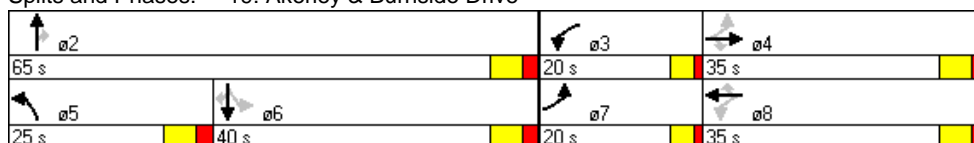
Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 102.2  
 Natural Cycle: 95  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 33.8  
 Intersection Capacity Utilization 97.5%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service F

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

Splits and Phases: 19: Akerley & Burnside Drive



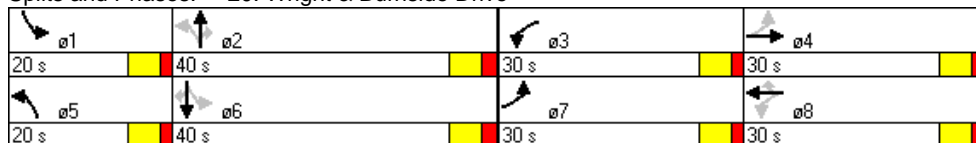
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	3407	0	1789	3579	1601	1789	3579	1601	1789	3579	1601
Flt Permitted	0.499			0.154			0.241			0.111		
Satd. Flow (perm)	940	3407	0	290	3579	1601	454	3579	1601	209	3579	1601
Satd. Flow (RTOR)		60				207			119			85
Volume (vph)	360	390	185	400	245	190	290	800	155	115	580	80
Lane Group Flow (vph)	391	625	0	435	266	207	315	870	168	125	630	87
Turn Type	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	22.0		9.5	22.0	22.0	9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	25.0%	16.7%	33.3%	33.3%	16.7%	33.3%	33.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	47.7	24.6		52.4	27.5	27.5	55.0	40.1	40.1	47.9	36.0	36.0
Actuated g/C Ratio	0.40	0.21		0.44	0.23	0.23	0.46	0.34	0.34	0.40	0.30	0.30
v/c Ratio	0.72	0.83		0.95	0.32	0.39	0.81	0.72	0.27	0.51	0.58	0.16
Control Delay	30.8	51.0		65.1	39.8	7.6	38.5	39.2	11.4	27.4	37.7	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	51.0		65.1	39.8	7.6	38.5	39.2	11.4	27.4	37.7	7.5
LOS	C	D		E	D	A	D	D	B	C	D	A
Approach Delay		43.3			44.5			35.6			33.1	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	61.3	67.1		84.8	27.7	0.0	46.8	94.3	7.9	16.5	66.2	0.4
Queue Length 95th (m)	87.8	88.3		#149.5	40.6	19.0	#83.1	123.9	25.3	29.3	85.1	11.9
Internal Link Dist (m)		243.0			323.1			923.3			804.6	
Turn Bay Length (m)	90.0			80.0		50.0	80.0		50.0	90.0		50.0
Base Capacity (vph)	573	785		457	829	530	391	1210	620	295	1087	545
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.80		0.95	0.32	0.39	0.81	0.72	0.27	0.42	0.58	0.16

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 118.6  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 38.9  
 Intersection Capacity Utilization 84.3%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: D  
 ICU Level of Service E

Splits and Phases: 20: Wright & Burnside Drive



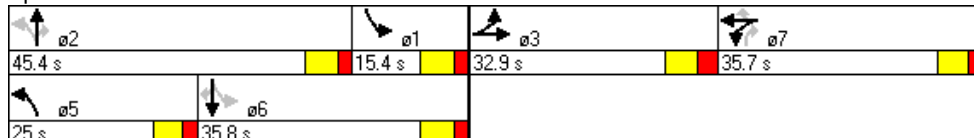
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1789	1883	1601	1628	3322	1601	3471	3579	1601	1789	3579	1601
Flt Permitted	0.950			0.950	0.969		0.196			0.377		
Satd. Flow (perm)	1789	1883	1601	1628	3322	1601	716	3579	1601	710	3579	1601
Satd. Flow (RTOR)			515			328			248			103
Volume (vph)	155	205	1000	640	175	425	400	665	360	250	820	95
Lane Group Flow (vph)	168	223	1087	348	538	462	435	723	391	272	891	103
Turn Type	custom		Free	custom		Perm	pm+pt		custom	pm+pt		Perm
Protected Phases	3	3		7	7		5	2		1	6	
Permitted Phases	3		Free	7		7	2		2.7	6		6
Detector Phases	3	3		7	7	7	5	2	2.7	1	6	6
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	13.9	13.9		13.7	13.7	13.7	13.0	13.4		13.5	13.4	13.4
Total Split (s)	32.9	32.9	0.0	35.7	35.7	35.7	25.0	45.4	81.1	15.4	35.8	35.8
Total Split (%)	25.4%	25.4%	0.0%	27.6%	27.6%	27.6%	19.3%	35.1%	62.7%	11.9%	27.7%	27.7%
Yellow Time (s)	4.1	4.1		4.1	4.1	4.1	4.0	4.5		4.5	4.5	4.5
All-Red Time (s)	2.8	2.8		2.6	2.6	2.6	2.0	1.9		1.9	1.9	1.9
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	Max		None	Max	Max
Act Effct Green (s)	22.1	22.1	121.8	30.7	30.7	30.7	41.5	41.5	76.2	34.7	34.7	34.7
Actuated g/C Ratio	0.18	0.18	1.00	0.25	0.25	0.25	0.34	0.34	0.63	0.28	0.28	0.28
v/c Ratio	0.52	0.65	0.68	0.85	0.64	0.71	0.66	0.59	0.36	0.90	0.87	0.19
Control Delay	50.9	55.8	2.3	63.8	45.3	19.1	36.7	36.5	5.0	78.5	53.4	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	55.8	2.3	63.8	45.3	19.1	36.7	36.5	5.0	78.5	53.4	8.0
LOS	D	E	A	E	D	B	D	D	A	E	D	A
Approach Delay		15.9			41.1			28.6			55.1	
Approach LOS		B			D			C			E	
Queue Length 50th (m)	37.0	50.5	0.0	87.6	63.6	28.2	41.0	76.2	13.3	56.5	110.0	0.0
Queue Length 95th (m)	58.5	76.4	0.0	#151.0	88.4	71.1	58.8	103.1	32.5	#126.7	#165.9	14.0
Internal Link Dist (m)		123.2			343.7			718.3			923.3	
Turn Bay Length (m)	40.0			100.0		60.0	113.0			150.0		150.0
Base Capacity (vph)	403	424	1601	421	859	657	704	1220	1099	303	1019	529
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.53	0.68	0.83	0.63	0.70	0.62	0.59	0.36	0.90	0.87	0.19

Intersection Summary

Cycle Length: 129.4  
 Actuated Cycle Length: 121.8  
 Natural Cycle: 75  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 34.2  
 Intersection Capacity Utilization 75.9%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 21: Ronald Smith & Burnside Drive



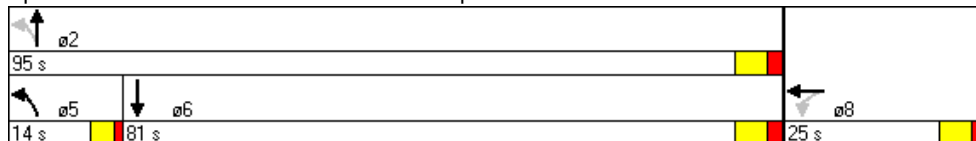
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	0	0	0	1789	1601	0	3568	0	0	3579	1601
Flt Permitted					0.950			0.709				
Satd. Flow (perm)	0	0	0	0	1789	1601	0	2537	0	0	3579	1601
Satd. Flow (RTOR)						417						426
Volume (vph)	0	0	0	155	0	665	45	760	0	0	1465	995
Lane Group Flow (vph)	0	0	0	0	168	723	0	875	0	0	1592	1082
Turn Type				Perm		Free	pm+pt					Free
Protected Phases					8		5	2			6	
Permitted Phases				8		Free	2					Free
Detector Phases				8	8		5	2			6	
Minimum Initial (s)				4.0	4.0		4.0	4.0			4.0	
Minimum Split (s)				22.0	22.0		8.0	22.0			22.0	
Total Split (s)	0.0	0.0	0.0	25.0	25.0	0.0	14.0	95.0	0.0	0.0	81.0	0.0
Total Split (%)	0.0%	0.0%	0.0%	20.8%	20.8%	0.0%	11.7%	79.2%	0.0%	0.0%	67.5%	0.0%
Yellow Time (s)				4.0	4.0		3.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?												
Recall Mode				None	None		None	Min			Min	
Act Effct Green (s)					13.6	67.4		45.6			45.6	67.4
Actuated g/C Ratio					0.20	1.00		0.68			0.68	1.00
v/c Ratio					0.47	0.45		0.51			0.66	0.68
Control Delay					25.5	0.9		7.0			8.4	2.3
Queue Delay					0.3	0.0		0.3			0.5	0.0
Total Delay					25.8	0.9		7.3			8.8	2.3
LOS					C	A		A			A	A
Approach Delay					5.6			7.3			6.2	
Approach LOS					A			A			A	
Queue Length 50th (m)					15.1	0.0		21.7			46.7	0.0
Queue Length 95th (m)					39.4	0.0		45.0			89.4	0.0
Internal Link Dist (m)		190.3			191.1			59.7			718.3	
Turn Bay Length (m)												
Base Capacity (vph)					509	1601		2054			2800	1601
Starvation Cap Reductn					0	0		523			0	0
Spillback Cap Reductn					84	0		0			645	0
Storage Cap Reductn					0	0		0			0	0
Reduced v/c Ratio					0.40	0.45		0.57			0.74	0.68

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 67.4  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 6.3  
 Intersection Capacity Utilization 69.9%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 22: HWY 111 WB Ramps & Burnside Drive



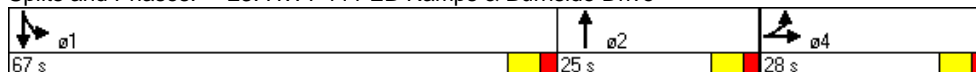


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1700	1688	0	0	0	0	0	3314	0	1700	1755	0
Flt Permitted	0.950	0.956								0.950	0.981	
Satd. Flow (perm)	1700	1688	0	0	0	0	0	3314	0	1700	1755	0
Satd. Flow (RTOR)		4						178				
Volume (vph)	565	0	25	0	0	0	0	240	235	1115	505	0
Lane Group Flow (vph)	337	304	0	0	0	0	0	516	0	858	903	0
Turn Type	custom						custom					
Protected Phases	4	4						2		1	1	
Permitted Phases	4									1		
Detector Phases	4	4						2		1	1	
Minimum Initial (s)	4.0	4.0						4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0						22.0		22.0	22.0	
Total Split (s)	28.0	28.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	67.0	67.0	0.0
Total Split (%)	23.3%	23.3%	0.0%	0.0%	0.0%	0.0%	0.0%	20.8%	0.0%	55.8%	55.8%	0.0%
Yellow Time (s)	4.0	4.0						4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0						2.0		2.0	2.0	
Lead/Lag								Lag		Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None						Min		Min	Min	
Act Effct Green (s)	24.0	24.0						18.5		62.7	62.7	
Actuated g/C Ratio	0.20	0.20						0.16		0.53	0.53	
v/c Ratio	0.97	0.87						0.77		0.94	0.96	
Control Delay	87.9	70.2						38.9		45.9	48.9	
Queue Delay	91.3	52.4						0.2		189.1	195.9	
Total Delay	179.3	122.6						39.1		234.9	244.8	
LOS	F	F						D		F	F	
Approach Delay		152.4						39.1			240.0	
Approach LOS		F						D			F	
Queue Length 50th (m)	83.0	72.3						39.9		192.5	206.7	
Queue Length 95th (m)	#145.4	#126.0						59.0		#290.7	#307.5	
Internal Link Dist (m)		211.6			206.6			113.8			59.7	
Turn Bay Length (m)												
Base Capacity (vph)	348	349						728		912	941	
Starvation Cap Reductn	0	0						0		312	318	
Spillback Cap Reductn	73	73						19		0	0	
Storage Cap Reductn	0	0						0		0	0	
Reduced v/c Ratio	1.23	1.10						0.73		1.43	1.45	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 117.2  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 185.2  
 Intersection Capacity Utilization 84.7%  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 23: HWY 111 EB Ramps & Burnside Drive



***Appendix F***  
***Level of Service Summary Tables***

Table F-1 - LOS Results for Glendale Drive / Beaver Bank Road Drive Intersection							
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement						Intersection LOS
	WB-L	WB-R	NB-T	NB-R	SB-L	SB-T	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-1)</b>							
Delay	31.7	3.0	19.2	3.6	9.5	11.5	12.2
LOS	C	A	B	A	A	B	B
v/c	0.48	0.20	0.47	0.34	0.66	0.72	-
Queue	54.7	11.2	59.4	12.3	51.0	145.2	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-47) - Improved intersection Two NB lanes and dual LT SB</b>							
Delay	30.1	2.7	16.6	4.0	26.8	12.5	15.9
LOS	C	A	B	A	C	B	B
v/c	0.47	0.20	0.27	0.35	0.57	0.73	-
Queue	50.7	10.0	29.0	13.4	64.5	167.8	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-63)- Improved intersection Two NB lanes and dual LT SB</b>							
Delay	28.0	2.3	18.7	4.7	24.6	11.1	15.3
LOS	C	A	B	A	C	B	B
v/c	0.48	0.21	0.31	0.42	0.59	0.67	-
Queue	53.0	10.5	29.6	14.5	83.6	138.1	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-109) - Improved intersection Two NB lanes and dual LT SB</b>							
Delay	32.8	2.4	19.9	4.5	31.6	17.3	19.7
LOS	C	A	B	A	C	B	B
v/c	0.55	0.24	0.34	0.46	0.70	0.83	-
Queue	58.8	11.1	34.5	15.4	107.3	194.9	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-24)</b>							
Delay	48.1	45.1	58.1	6.6	101.0	6.6	46.7
LOS	D	D	E	A	F	A	D
v/c	0.68	0.90	1.03	0.18	1.07	0.40	-
Queue	70.5	153.9	299.6	17.9	103.2	51.4	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-48) - Improved intersection Two NB lanes and dual LT SB</b>							
Delay	32.0	22.2	24.6	7.5	38.2	9.8	22.5
LOS	C	C	C	A	D	A	C
v/c	0.50	0.70	0.74	0.23	0.54	0.46	-
Queue	64.5	123.1	104.5	17.5	42.3	65.3	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-86) - Improved intersection Two NB lanes and dual LT SB</b>							
Delay	31.8	28.3	26.1	7.4	41.1	9.6	25.2
LOS	C	C	C	A	D	A	C
v/c	0.48	0.81	0.75	0.25	0.64	0.42	-
Queue	64.5	180.5	104.5	18.3	52.1	56.9	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-132) - Improved intersection Two NB lanes and dual LT SB</b>							
Delay	37.9	49.1	28.2	8.2	45.2	10.0	31.6
LOS	D	D	C	A	D	B	C
v/c	0.63	0.96	0.80	0.27	0.70	0.46	-
Queue	82.8	224.9	125.1	22.1	55.8	66.9	-
NOTE: Glendale Drive is considered as an East - West street in these analyses							

Table F-2 - LOS Results for Glendale Drive / Old Beaver Bank Road Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-TR	WB-L	WB-T	NB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-2)</b>					
Delay	0.0	5.1		23.8	3.3
LOS	A	A		C	A
v/c	0.46	0.62		0.28	-
Queue	0.0	5.7		8.7	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-49) - Added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	10.4	0.0	21.9	2.5
LOS	A	B	A	C	A
v/c	0.23	0.20	0.21	0.26	-
Queue	0.0	5.7	0.0	7.8	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-64) - With added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	11.2	0.0	28.2	2.6
LOS	A	B	A	D	A
v/c	0.27	0.23	0.23	0.33	-
Queue	0.0	6.6	0.0	10.5	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-110) - With added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	12.6	0.0	43.9	3.4
LOS	A	B	A	E	A
v/c	0.30	0.29	0.27	0.48	-
Queue	0.0	9.2	0.0	17.3	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-25)</b>					
Delay	0.0	3.1		90.6	15.7
LOS	A	A		F	C
v/c	0.28	0.80		0.97	-
Queue	0.0	3.4		68.8	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-50) - Added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	8.8	0.0	115.8	18.6
LOS	A	A	A	F	C
v/c	0.14	0.13	0.43	1.04	-
Queue	0.0	3.4	0.0	77.8	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-87) - With added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	9.1	0.0	250.0	34.8
LOS	A	A	A	F	D
v/c	0.16	0.14	0.51	1.38	-
Queue	0.0	3.6	0.0	111.1	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-133) - With added EB through lane and WB Left Turn Lane</b>					
Delay	0.0	9.5	0.0	610.8	84.1
LOS	A	A	A	F	F
v/c	0.18	0.17	0.58	2.18	-
Queue	0.0	4.6	0.0	176.4	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-3 - LOS Results for Glendale Drive / Smokey Drive Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-L	EB-T	WB-TR	SB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-3)</b>					
Delay	1.1		0.0	191.7	36.8
LOS	A		A	F	E
v/c	0.74		0.29	1.27	-
Queue	1.0		0.0	115.9	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-51) - Added EB Left Turn Lane</b>					
Delay	8.5	0.0	0.0	191.7	36.5
LOS	A	A	A	F	E
v/c	0.04	0.43	0.29	1.27	-
Queue	1.0	0.0	0.0	115.9	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-65) - With EB Left Turn Lane</b>					
Delay	8.7	0.0	0.0	329.7	56.4
LOS	A	A	A	F	F
v/c	0.04	0.51	0.32	1.58	-
Queue	1.0	0.0	0.0	148.1	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-111) - With EB Left Turn Lane</b>					
Delay	8.9	0.0	0.0	687.1	117.9
LOS	A	A	A	F	F
v/c	0.05	0.58	0.36	2.37	-
Queue	1.2	0.0	0.0	221.5	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-26)</b>					
Delay	7.1		0.0	178.0	19.4
LOS	A		A	F	C
v/c	0.83		0.57	1.14	-
Queue	9.1		0.0	69.4	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-52)- Added EB Left Turn Lane</b>					
Delay	12.1	0.0	0.0	178.0	18.3
LOS	B	A	A	F	C
v/c	0.29	0.23	0.57	1.14	-
Queue	9.1	0.0	0.0	69.4	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-88) - With EB Left Turn Lane</b>					
Delay	13.4	0.0	0.0	362.3	32.1
LOS	B	A	A	F	D
v/c	0.33	0.27	0.65	1.55	-
Queue	10.8	0.0	0.0	93.1	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-134) - With EB Left Turn Lane</b>					
Delay	16.2	0.0	0.0	984.4	87.5
LOS	C	A	A	F	F
v/c	0.43	0.30	0.74	2.88	-
Queue	16.3	0.0	0.0	146.2	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-4 - LOS Results for Glendale Drive / Rankin Drive Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-L	EB-T	WB-TR	SB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-4)</b>					
Delay	0.3		0.0	30.5	1.7
LOS	A		A	D	A
v/c	0.79		0.27	0.34	-
Queue	0.2		0.0	10.7	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-53) - Added EB Left Turn Lane</b>					
Delay	8.4	0.0	0.0	30.5	1.6
LOS	A	A	A	D	A
v/c	0.01	0.49	0.27	0.34	-
Queue	0.2	0.0	0.0	10.7	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-66) - With EB Left Turn Lane</b>					
Delay	8.6	0.0	0.0	43.6	2.0
LOS	A	A	A	E	A
v/c	0.01	0.57	0.30	0.44	-
Queue	0.2	0.0	0.0	15.1	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-112) - With EB Left Turn Lane</b>					
Delay	8.9	0.0	0.0	88.8	3.9
LOS	A	A	A	F	A
v/c	0.01	0.65	0.34	0.68	-
Queue	0.3	0.0	0.0	27.2	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-27)</b>					
Delay	2.1		0.0	414.9	18.6
LOS	A		A	F	C
v/c	1.51		0.62	1.44	-
Queue	1.5		0.0	50.6	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-54) - Added EB Left Turn Lane</b>					
Delay	16.3	0.0	0.0	414.9	18.1
LOS	C	A	A	F	C
v/c	0.06	0.29	0.62	1.44	-
Queue	1.5	0.0	0.0	50.6	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-89) - With EB Left Turn Lane</b>					
Delay	26.6	0.0	0.0	Err	Err
LOS	D	A	A	N/A	N/A
v/c	0.12	0.33	0.70	N/A	-
Queue	2.9	0.0	0.0	Err	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-135) - With EB Left Turn Lane</b>					
Delay	49.3	0.0	0.0	Err	Err
LOS	E	A	A	N/A	N/A
v/c	0.25	0.37	0.79	N/A	-
Queue	7.0	0.0	0.0	Err	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-5 - LOS Results for Glendale Drive / Riverside Drive Intersection							
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement						Intersection LOS
	EB-L	EB-TR	WB-L	WB-TR	NB-LTR	SB-LTR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-5)</b>							
Delay	5.0	12.1	17.2	6.2	18.7	15.6	12.1
LOS	A	B	B	A	B	B	B
v/c	0.04	0.73	0.53	0.32	0.54	0.21	-
Queue	3.6	122.5	26.5	37.7	40.8	16.5	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-67)</b>							
Delay	4.7	12.7	48.7	5.7	25.7	20.1	15.2
LOS	A	A	D	A	C	C	B
v/c	0.04	0.75	0.78	0.32	0.61	0.24	-
Queue	3.6	168.1	51.3	43.0	41.6	16.9	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-113)</b>							
Delay	5.0	17.2	310.5	6.1	29.5	22.4	35.2
LOS	A	B	F	A	C	C	D
v/c	0.04	0.83	1.53	0.35	0.67	0.29	-
Queue	3.8	270.0	58.5	53.6	45.2	19.9	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-28)</b>							
Delay	10.5	9.4	10.8	19.2	35.7	19.7	18.6
LOS	B	A	B	B	D	B	B
v/c	0.20	0.45	0.38	0.82	0.75	0.19	-
Queue	7.1	60.0	26.2	166.8	86.8	20.7	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-90)</b>							
Delay	27.3	9.8	11.5	25.8	41.5	21.6	22.8
LOS	C	A	A	C	D	C	C
v/c	0.41	0.48	0.40	0.90	0.79	0.20	-
Queue	15.1	71.0	28.0	258.8	86.8	20.7	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-136)</b>							
Delay	34.0	9.7	12.3	36.9	66.3	23.7	31.8
LOS	C	A	B	D	E	C	C
v/c	0.49	0.52	0.47	0.98	0.94	0.24	-
Queue	19.9	76.8	32.2	308.2	114.2	23.8	-
NOTE: Glendale Drive is considered as an East - West street in these analyses							

Table F-6 - LOS Results for Glendale Drive / Metropolitan Avenue Intersection							
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement						Intersection LOS
	EB-L	EB-T	WB-T	WB-R	SB-L	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-6)</b>							
Delay	9.4	11.0	21.3	4.6	27.1	14.8	14.3
LOS	A	B	C	A	C	B	B
v/c	0.45	0.55	0.40	0.31	0.61	0.42	-
Queue	35.2	73.1	45.7	13.0	59.1	30.2	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-68)</b>							
Delay	9.5	13.0	21.4	4.2	28.0	15.4	15.2
LOS	A	B	C	A	C	B	B
v/c	0.47	0.66	0.45	0.30	0.62	0.42	-
Queue	34.6	97.4	52.6	12.5	64.7	33.2	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-114)</b>							
Delay	11.0	16.2	22.4	3.8	32.0	18.2	17.5
LOS	B	B	C	A	C	B	B
v/c	0.56	0.76	0.51	0.34	0.66	0.46	-
Queue	39.1	117.7	58.3	12.3	96.7	46.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-29)</b>							
Delay	26.3	6.2	36.4	9.9	44.0	21.5	25.5
LOS	C	A	D	A	D	C	C
v/c	0.62	0.26	0.87	0.41	0.65	0.57	-
Queue	56.5	38.6	237.0	44.8	71.5	45.2	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-91)</b>							
Delay	26.1	6.5	56.6	11.3	45.2	21.5	33.5
LOS	C	A	E	B	D	C	C
v/c	0.63	0.31	0.99	0.40	0.67	0.58	-
Queue	56.5	46.9	304.2	50.8	71.5	45.2	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-137)</b>							
Delay	55.4	6.0	52.3	7.7	61.1	31.5	37.1
LOS	E	A	D	A	E	C	D
v/c	0.87	0.33	1.00	0.41	0.81	0.70	-
Queue	91.8	44.4	308.3	40.0	95.0	60.5	-
NOTE: Glendale Drive is considered as an East - West street in these analyses							



Table F-7 - LOS Results for Glendale Drive / Raymond Drive Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-TR	WB-L	WB-T	NB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-7)</b>					
Delay	0.0	1.1		41.4	1.8
LOS	A	A		E	A
v/c	0.55	0.77		0.33	-
Queue	0.0	0.9		10.3	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-55) - Added WB Left Turn Lane</b>					
Delay	0.0	11.4	0.0	41.4	1.6
LOS	A	B	A	E	A
v/c	0.55	0.04	0.25	0.33	-
Queue	0.0	0.9	0.0	10.3	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-69) - With WB Left Turn Lane</b>					
Delay	0.0	13.5	0.0	89.0	2.9
LOS	A	B	A	F	A
v/c	0.62	0.05	0.28	0.56	-
Queue	0.0	1.2	0.0	19.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-115) - With WB Left Turn Lane</b>					
Delay	0.0	17.5	0.0	371.9	11.4
LOS	A	B	A	F	B
v/c	0.71	0.09	0.32	1.26	-
Queue	0.0	2.1	0.0	40.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-30)</b>					
Delay	0.0	0.6		Err	Err
LOS	A	A		N/A	N/A
v/c	0.35	1.17		N/A	-
Queue	0.0	0.4		Err	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-56) - Added WB Left Turn Lane</b>					
Delay	0.0	8.9	0.0	Err	Err
LOS	A	A	A	N/A	N/A
v/c	0.35	0.02	0.64	N/A	-
Queue	0.0	0.4	0.0	Err	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-92) - With WB Left Turn Lane</b>					
Delay	0.0	9.2	0.0	Err	Err
LOS	A	A	A	N/A	N/A
v/c	0.39	0.02	0.73	N/A	-
Queue	0.0	0.4	0.0	Err	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-138) - With WB Left Turn Lane</b>					
Delay	0.0	9.6	0.0	Err	Err
LOS	A	A	A	N/A	N/A
v/c	0.43	0.03	0.82	N/A	-
Queue	0.0	0.6	0.0	Err	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-8 - LOS Results for Glendale Drive / McDougall Avenue / Stadium Intersection									
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement								Intersection LOS
	EB-L	EB-TR	WB-L	WB-T	WB-R	NB-LTR	SB-LT	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-8)</b>									
Delay	19.3		6.5			20.6	26.7	8.1	16.3
LOS	B		A			C	C	A	B
v/c	0.86		0.43			0.51	0.43	0.11	-
Queue	206.5		47.3			28.3	24.1	6.0	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-57) - Added WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	5.5	12.9	11.0	8.3	2.4	26.3	33.7	10.3	13.7
LOS	A	B	B	A	A	C	C	A	B
v/c	0.06	0.75	0.14	0.28	0.10	0.53	0.49	0.11	-
Queue	4.9	178.0	7.2	50.4	6.8	39.1	32.2	7.3	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-70) - With WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	4.8	19.4	18.4	9.6	2.3	29.5	38.0	10.2	18.1
LOS	A	B	B	A	A	C	D	B	B
v/c	0.07	0.87	0.26	0.34	0.10	0.56	0.52	0.11	-
Queue	4.9	267.7	9.7	57.5	6.8	39.1	32.2	7.3	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-116) - With WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	5.2	36.2	18.7	10.5	2.2	34.5	43.8	9.6	28.4
LOS	A	D	B	B	A	C	D	A	C
v/c	0.08	0.98	0.26	0.38	0.12	0.64	0.61	0.12	-
Queue	5.4	327.8	9.8	67.2	7.3	46.5	37.0	7.7	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-31)</b>									
Delay	7.3		36.6			36.4	51.3	13.2	28.2
LOS	A		D			D	D	B	C
v/c	0.58		1.00			0.47	0.49	0.17	-
Queue	86.3		405.3			29.7	31.9	9.6	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-58) - Added WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	10.4	4.8	7.5	26.7	4.5	34.1	47.5	12.8	19.7
LOS	B	A	A	C	A	C	D	B	B
v/c	0.34	0.40	0.13	0.91	0.09	0.45	0.48	0.17	-
Queue	9.7	56.2	12.6	337.9	11.1	28.8	30.4	9.1	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-93) - With WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	13.4	5.1	7.4	39.7	4.6	39.8	54.4	13.8	27.4
LOS	B	A	A	D	A	D	D	B	C
v/c	0.38	0.44	0.14	0.99	0.09	0.47	0.51	0.17	-
Queue	12.0	68.5	13.1	430.8	11.8	32.4	33.9	9.9	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-139) - With WB RT Lane, Left Turn Lanes and LT Phases</b>									
Delay	15.4	6.1	8.4	88.7	5.1	44.0	57.2	13.1	54.5
LOS	B	A	A	F	A	D	E	B	D
v/c	0.41	0.5	0.18	1.13	0.10	0.54	0.57	0.18	-
Queue	14.2	84.9	15.7	523.3	14.1	38.3	37.7	10.4	-
NOTE: Glendale Drive is considered as an East - West street in these analyses									

Table F-9 - LOS Results for Glendale Drive / Pinehill Drive Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-TR	WB-L	WB-T	NB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-9)</b>					
Delay	0.0	7.3		Err	N/A
LOS	A	A		N/A	N/A
v/c	0.69	2.66		N/A	-
Queue	0.0	7.3		N/A	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-59) - Added WB Left Turn Lane</b>					
Delay	0.0	30.1	0.0	Err	N/A
LOS	A	D	A	N/A	N/A
v/c	0.69	0.26	0.27	N/A	-
Queue	0.0	7.4	0.0	N/A	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-71) - With WB Left Turn Lane</b>					
Delay	0.0	48.5	0.0	Err	N/A
LOS	A	E	A	N/A	N/A
v/c	0.77	0.38	0.30	N/A	-
Queue	0.0	11.9	0.0	N/A	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-117) - With WB Left Turn Lane</b>					
Delay	0.0	153.7	0.0	Err	N/A
LOS	A	F	A	N/A	N/A
v/c	0.87	0.82	0.34	N/A	-
Queue	0.0	30.2	0.0	N/A	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-32)</b>					
Delay	0.0	4.0		113.7	6.9
LOS	A	A		F	A
v/c	0.40	1.63		0.79	-
Queue	0.0	2.0		33.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-60) - Added WB Left Turn Lane</b>					
Delay	0.0	9.5	0.0	113.1	4.6
LOS	A	A	A	F	A
v/c	0.40	0.08	0.79	0.79	-
Queue	0.0	2.0	0.0	32.9	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-94) - With WB Left Turn Lane</b>					
Delay	0.0	10.0	0.0	267.5	9.5
LOS	A	A	A	F	A
v/c	0.43	0.09	0.87	1.18	-
Queue	0.0	2.2	0.0	48.2	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-140) - With WB Left Turn Lane</b>					
Delay	0.0	10.9	0.0	1108.6	40.6
LOS	A	B	A	F	E
v/c	0.49	0.12	0.99	2.90	-
Queue	0.0	3.0	0.0	85.7	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-10 - LOS Results for Glendale Drive / Chandler Drive Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-L	EB-T	WB-TR	SB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-10)</b>					
Delay	0.6		0.0	21.9	1.4
LOS	A		A	C	A
v/c	0.96		0.26	0.25	-
Queue	0.5		0.0	7.3	-
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-61) - Added EB Left Turn Lane</b>					
Delay	8.3	0.0	0.0	21.9	1.1
LOS	A	A	A	C	A
v/c	0.02	0.62	0.26	0.25	-
Queue	0.5	0.0	0.0	7.3	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-72) - With EB Left Turn Lane</b>					
Delay	8.4	0.0	0.0	27.7	1.2
LOS	A	A	A	D	A
v/c	0.02	0.71	0.28	0.31	-
Queue	0.5	0.0	0.0	9.6	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E118) - With EB Left Turn Lane</b>					
Delay	8.6	0.0	0.0	47.9	2.0
LOS	A	A	A	E	A
v/c	0.02	0.81	0.33	0.50	-
Queue	0.5	0.0	0.0	18.6	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-33)</b>					
Delay	1.9		0.0	38.8	1.4
LOS	A		A	E	A
v/c	1.04		0.72	0.26	-
Queue	1.6		0.0	7.6	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-62) - Added EB Left Turn Lane</b>					
Delay	11.8	0.0	0.0	38.8	1.0
LOS	B	A	A	E	A
v/c	0.07	0.32	0.72	0.26	-
Queue	1.6	0.0	0.0	7.6	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-95) - With EB Left Turn Lane</b>					
Delay	12.8	0.0	0.0	53.2	1.2
LOS	B	A	A	F	A
v/c	0.08	0.36	0.81	0.34	-
Queue	1.9	0.0	0.0	10.3	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-141) - With EB Left Turn Lane</b>					
Delay	14.4	0.0	0.0	89.1	1.7
LOS	B	A	A	F	A
v/c	0.10	0.41	0.91	0.49	-
Queue	2.6	0.0	0.0	15.5	-
NOTE: Glendale Drive is considered as an East - West street in these analyses					

Table F-11 - LOS Results for Glendale Drive / McGee Drive Intersection							
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement						Intersection LOS
	EB-L	EB-TR	WB-L	WB-TR	NB-LTR	SB-LTR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-11)</b>							
Delay	8.2	0.0	10.8	0.0	42.8	50.3	3.9
LOS	A	A	B	A	E	F	A
v/c	0.01	0.63	0.04	0.25	0.41	0.46	-
Queue	0.3	0.0	1.0	0.0	13.8	15.9	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-73)</b>							
Delay	8.4	0.0	11.5	0.0	62.0	84.4	5.4
LOS	A	A	B	A	F	F	A
v/c	0.01	0.71	0.05	0.28	0.52	0.62	-
Queue	0.3	0.0	1.1	0.0	18.8	23.3	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-119)</b>							
Delay	8.6	0.0	12.7	0.0	218.2	408.1	24.3
LOS	A	A	B	A	F	F	C
v/c	0.02	0.81	0.07	0.32	1.07	1.47	-
Queue	0.4	0.0	1.6	0.0	44.5	56.2	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-34)</b>							
Delay	12.1	0.0	8.7	0.0	76.4	50.3	2.8
LOS	B	A	A	A	F	F	A
v/c	0.08	0.30	0.08	0.74	0.44	0.26	-
Queue	2.0	0.0	1.9	0.0	13.8	7.2	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-96)</b>							
Delay	13.2	0.0	9.0	0.0	131.9	75.1	3.8
LOS	B	A	A	A	F	F	A
v/c	0.09	0.34	0.08	0.83	0.62	0.35	-
Queue	2.2	0.0	2.0	0.0	19.7	10.2	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-142)</b>							
Delay	14.9	0.0	9.3	0.0	448.5	233.8	11.1
LOS	B	A	A	A	F	F	B
v/c	0.12	0.39	0.10	0.94	1.26	0.86	-
Queue	3.0	0.0	2.5	0.0	32.7	25.9	-
NOTE: Glendale Drive is considered as an East - West street in these analyses							

Table F-12 - LOS Results for Cobequid Road / Glendale Drive / Glendale Avenue Intersection										
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement									Intersection LOS
	EB-L	EB-TR	WB-L	WB-T	WB-R	NB-L	NB-TR	SB-L	SB-TR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-12)</b>										
Delay	15.4	33.0	20.8	17.0		18.5	17.8	32.0	25.7	25.7
LOS	B	C	C	B		B	B	C	C	C
v/c	0.22	0.83	0.53	0.33		0.41	0.58	0.84	0.55	-
Queue	18.7	95.8	29.0	28.0		23.0	27.4	90.3	50.8	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-74) Add WB right turn lane; Split Phase on Cobequid Road</b>										
Delay	18.3	38.1	40.9	25.2	4.9	48.3	31.2	55.2	42.1	36.8
LOS	B	D	D	C	A	D	C	E	D	D
v/c	0.21	0.82	0.73	0.22	0.25	0.41	0.66	0.83	0.75	-
Queue	22.7	131.2	58.7	37.0	14.7	40.0	43.7	138.7	98.9	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-120) Add WB right turn lane; Split Phase on Cobequid Road</b>										
Delay	19.2	45.2	64.4	27.4	4.9	49.7	38.7	69.1	50.4	44.5
LOS	B	D	E	C	A	D	D	E	D	D
v/c	0.24	0.89	0.88	0.26	0.29	0.44	0.74	0.92	0.85	-
Queue	25.9	159.1	75.0	40.7	15.4	44.9	55.6	164.6	122.9	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-35)</b>										
Delay	20.1	21.1	19.8	38.4		31.4	27.8	24.6	27.8	29.6
LOS	C	C	B	D		C	C	C	C	C
v/c	0.46	0.37	0.52	0.89		0.80	0.58	0.59	0.60	-
Queue	24.6	39.3	42.4	133.2		79.4	55.2	35.2	37.6	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-97) Add WB right turn lane; Split Phase on Cobequid Road</b>										
Delay	25.8	27.3	23.0	38.5	10.7	47.1	43.6	53.4	38.2	34.1
LOS	C	C	C	D	B	D	D	D	D	C
v/c	0.51	0.47	0.61	0.83	0.53	0.56	0.72	0.66	0.64	-
Queue										-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-143) Add WB right turn lane; Split Phase on Cobequid Road</b>										
Delay	30.4	29.2	26.0	46.7	13.8	51.0	50.0	59.0	42.7	39.6
LOS	C	C	C	D	B	D	D	E	D	D
v/c	0.59	0.43	0.67	0.91	0.59	0.62	0.80	0.73	0.71	-
Queue	37.5	66.2	59.1	188.4	63.3	74.6	84.4	82.8	64.9	-
NOTE: Glendale Drive is considered as an East - West street in these analyses										

Table F-13 - LOS Results for Glendale Drive / Estates Boulevard / Temple Terrace Intersection								
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement							Intersection LOS
	EB-L	EB-TR	WB-L	WB-TR	NB-L	NB-TR	SB-LTR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-13)</b>								
Delay	3.7	4.4	6.0	3.5	15.1	2.3	11.6	4.3
LOS	A	A	A	A	B	A	B	A
v/c	0.03	0.42	0.19	0.23	0.15	0.18	0.04	-
Queue	1.9	32.3	6.0	15.7	7.5	2.5	3.1	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-75)</b>								
Delay	2.7	4.5	24.2	2.6	28.7	18.8	21.2	5.1
LOS	A	A	C	A	C	B	B	A
v/c	0.03	0.58	0.49	0.26	0.20	0.30	0.05	-
Queue	1.8	64.9	22.2	20.3	11.5	13.9	4.5	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-121)</b>								
Delay	3.1	5.7	30.7	3.0	29.6	25.3	21.3	6.2
LOS	A	A	C	A	C	C	C	A
v/c	0.05	0.65	0.55	0.29	0.19	0.36	0.05	-
Queue	2.6	91.4	26.0	25.8	11.3	18.2	4.5	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-36)</b>								
Delay	4.4	4.2	4.5	5.7	19.8	0.7	11.3	5.5
LOS	A	A	A	A	B	A	B	A
v/c	0.02	0.29	0.07	0.51	0.29	0.15	0.14	-
Queue	1.1	22.9	3.8	49.6	15.8	0.0	8.0	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-98)</b>								
Delay	4.6	4.1	4.4	6.4	29.0	3.1	16.6	6.2
LOS	A	A	A	A	C	A	B	A
v/c	0.05	0.38	0.10	0.64	0.34	0.22	0.17	-
Queue	1.3	37.6	4.1	86.8	20.3	3.8	10.3	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-144)</b>								
Delay	6.2	4.3	4.8	7.5	32.4	7.9	22.7	7.2
LOS	A	A	A	A	C	A	C	A
v/c	0.10	0.43	0.13	0.71	0.38	0.27	0.21	-
Queue	2.4	46.0	4.4	115.6	22.6	9.4	13.0	-
NOTE: Glendale Avenue is considered as an East - West street in these analyses								

Table F-14 - LOS Results for Highway 102 SB Ramps / Glendale Avenue Intersection							
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement						Intersection LOS
	EB-T	EB-R	WB-L	WB-T	SB-LT	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-14)</b>							
Delay	8.9		9.0	3.5	24.7	0.9	7.8
LOS	A		A	A	C	A	A
v/c	0.57		0.45	0.16	0.31	0.27	-
Queue	58.1		16.2	13.0	24.8	0.0	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-76) - Added EB right turn lane and WB and SB dual left</b>							
Delay	13.9	3.2	29.9	2.7	34.5	10.6	11.6
LOS	B	A	C	A	C	C	B
v/c	0.60	0.51	0.42	0.20	0.22	0.47	-
Queue	91.8	16.8	36.0	16.4	20.8	18.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-122) - With EB right turn lane and WB and SB dual left</b>							
Delay	16.8	4.7	34.0	3.0	38.5	11.2	13.7
LOS	B	A	C	A	D	B	B
v/c	0.70	0.59	0.49	0.24	0.25	0.52	-
Queue	116.9	31.9	42.2	19.6	23.0	19.4	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-37)</b>							
Delay	16.1		16.4	8.1	20.8	20.7	13.7
LOS	B		B	A	C	C	B
v/c	0.66		0.71	0.50	0.18	0.68	-
Queue	57.0		51.0	57.3	20.1	55.5	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-99) - Added EB right turn lane and WB and SB dual left</b>							
Delay	35.8	4.9	43.3	9.5	35.5	50.5	26.8
LOS	D	A	D	A	D	D	C
v/c	0.72	0.45	0.88	0.61	0.12	0.83	-
Queue	99.2	17.8	175.2	100.0	19.1	107.3	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-145) - With EB right turn lane and WB and SB dual left</b>							
Delay	43.5	6.4	59.6	11.2	38.9	81.3	35.9
LOS	D	A	E	B	D	F	D
v/c	0.81	0.49	0.98	0.68	0.13	0.98	-
Queue	126.7	24.7	196.1	125.2	20.9	144.2	-
NOTE:	Glendale Avenue is considered as an East - West street in these analyses This intersection has also been evaluated as a roundabout. The Concept Plan is shown on Figure 6-3 and analysis results are summarized in Table 6-10.						



Table F-15 - LOS Results for Highway 102 NB Ramps / Duke Street Intersection						
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement					Intersection LOS
	EB-L	EB-T	WB-TR	NB-LT	NB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-15)</b>						
Delay	9.9	5.8	4.8	14.6	4.8	7.7
LOS	A	A	A	B	A	A
v/c	0.44	0.19	0.17	0.33	0.44	-
Queue	31.7	16.0	12.1	25.7	13.6	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-77) Add NB right turn lane and right turn channel</b>						
Delay	8.8	6.5	5.0	17.5	3.0	6.1
LOS	A	A	A	B	A	A
v/c	0.38	0.46	0.27	0.38	0.73	-
Queue	21.6	44.2	21.5	28.2	0.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-123) Add NB right turn lane and right turn channel</b>						
Delay	11.6	7.6	5.6	21.2	5.8	8.1
LOS	B	A	A	C	A	A
v/c	0.49	0.55	0.32	0.43	0.84	-
Queue	28.6	58.8	27.8	38.9	0.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-38)</b>						
Delay	35.4	8.2	10.1	25.4	5.2	15.7
LOS	D	A	B	C	A	B
v/c	0.78	0.21	0.50	0.58	0.33	-
Queue	52.6	22.0	55.0	87.4	16.2	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-100) Add NB right turn lane and right turn channel</b>						
Delay	68.5	6.2	35.7	75.7	0.0	35.3
LOS	E	A	D	E	A	D
v/c	0.89	0.27	0.96	0.91	0.24	-
Queue	71.2	34.7	299.3	133.4	0.0	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-146) Add NB right turn lane and right turn channel</b>						
Delay	100.3	6.6	77.4	97.3	0.4	61.9
LOS	F	A	E	F	A	E
v/c	1.02	0.31	1.10	1.01	0.27	-
Queue	87.1	40.5	371.3	158.7	0.0	-
NOTE:	Duke Street is considered as an East - West street in these analyses This intersection has also been evaluated as a roundabout. The Concept Plan is shown on Figure 6-3 and analysis results are summarized in Table 6-9.					

Table F-16 - LOS Results for Duke Street / Damascus Drive Intersection										
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement									Intersection LOS
	EB-L	EB-T	EB-R	WB-L	WB-TR	NB-LT	NB-R	SB-LT	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-16)</b>										
Delay	14.8	12.5	3.7	7.4	5.9	19.3	6.4	0.0	0.1	9.2
LOS	B	B	A	A	A	B	A	A	A	A
v/c	0.02	0.25	0.42	0.19	0.13	0.31	0.29	0.00	0.02	-
Queue	4.3	35.6	17.8	15.6	16.2	27.2	12.0	0.0	0.0	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-78)</b>										
Delay	11.7	28.3	7.5	12.3	4.9	37.4	9.3	0.0	0.1	21.4
LOS	B	C	A	B	A	D	A	A	A	C
v/c	0.02	0.93	0.39	0.41	0.21	0.44	0.36	0.00	0.03	-
Queue	4.2	287.7	49.5	21.1	31.4	36.6	14.6	0.0	0.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-124)</b>										
Delay	13.9	66.9	9.4	18.5	6.5	42.3	9.4	44.6	24.1	44.9
LOS	B	E	A	B	A	D	A	D	C	D
v/c	0.02	1.08	0.45	0.49	0.24	0.50	0.39	0.03	0.08	-
Queue	4.4	366.0	63.1	27.5	39.9	44.6	16.0	4.5	5.5	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-39)</b>										
Delay	19.0	17.0	5.8	11.0	9.5	17.7	6.8	0.0	0.1	12.1
LOS	B	B	A	B	A	B	A	A	A	B
v/c	0.02	0.25	0.53	0.22	0.26	0.45	0.13	0.00	0.03	-
Queue	3.1	25.9	19.8	19.7	29.2	52.8	9.7	0.0	0.0	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-101)</b>										
Delay	19.8	17.3	3.6	10.7	15.9	35.0	11.6	0.0	6.9	17.3
LOS	B	B	A	B	B	D	B	A	A	B
v/c	0.07	0.46	0.42	0.29	0.77	0.60	0.17	0.00	0.08	-
Queue	3.1	71.7	16.3	18.5	154.0	76.7	13.0	0.0	2.9	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-147)</b>										
Delay	19.8	18.1	3.5	12.0	19.3	41.0	13.7	0.0	17.1	20.1
LOS	B	B	A	B	B	D	B	A	B	C
v/c	0.06	0.48	0.44	0.36	0.83	0.69	0.19	0.00	0.09	-
Queue	3.1	85.2	17.3	20.5	199.4	88.8	15.3	0.0	5.5	-
NOTE: Duke Street is considered as an East - West street in these analyses										

Table F-17 - LOS Results for Duke Street / Mann Street Intersection					
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement				Intersection LOS
	EB-L	EB-T	WB-TR	SB-LR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-17)</b>					
Delay	1.4		0.0	11.7	1.7
LOS	A		A	B	A
v/c	0.40		0.18	0.11	-
Queue	1.1		0.0	2.8	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-79) - Additional EB and WB through lanes plus EB LT lane</b>					
Delay	8.8	0.0	0.0	19.9	0.7
LOS	A	A	A	C	A
v/c	0.06	0.59	0.17	0.21	-
Queue	1.4	0.0	0.0	6.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-125) - Additional EB and WB through lanes plus EB LT lane</b>					
Delay	9.1	0.0	0.0	34.2	1.1
LOS	A	A	A	C	A
v/c	0.08	0.67	0.19	0.39	-
Queue	1.9	0.0	0.0	12.9	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-40)</b>					
Delay	0.5		0.0	12.6	1.0
LOS	A		A	B	A
v/c	0.34		0.26	0.10	-
Queue	0.3		0.0	2.6	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-102) - Additional EB and WB through lanes plus EB LT lane</b>					
Delay	16.5	0.0	0.0	55.4	1.3
LOS	C	A	A	F	A
v/c	0.05	0.25	0.47	0.44	-
Queue	1.2	0.0	0.0	14.7	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-148) - Additional EB and WB through lanes plus EB LT lane</b>					
Delay	22.4	0.0	0.0	418.0	9.7
LOS	C	A	A	F	A
v/c	0.10	0.28	0.54	1.41	-
Queue	2.4	0.0	0.0	47.7	-
NOTE: Duke Street is considered as an East - West street in these analyses					

Table F-18 - LOS Results for Duke Street / Rocky Lake Drive Intersection										
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement									Intersection LOS
	EB-L	EB-T	EB-R	WB-L	WB-TR	NB-L	NB-TR	SB-L	SB-TR	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-18)</b>										
Delay	13.9					7.7	0.0	0.0		8.4
LOS	B					A	A	A		A
v/c	0.41					0.10	0.03	0.13		-
Queue	15.7					2.6	0.0	0.0		-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-80)</b>										
Delay	11.1	17.2	8.7	21.9	17.8	25.1	20.5	31.2	28.9	17.7
LOS	B	B	A	C	B	C	C	C	C	B
v/c	0.32	0.75	0.28	0.09	0.18	0.41	0.19	0.10	0.63	-
Queue	28.8	149.6	34.4	5.6	27.3	34.1	23.5	9.4	44.7	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-126)</b>										
Delay	12.5	22.6	9.9	23.8	19.4	26.1	20.9	30.5	31.2	21.3
LOS	B	C	A	C	B	C	C	C	C	C
v/c	0.38	0.86	0.32	0.09	0.21	0.47	0.19	0.09	0.67	-
Queue	33.7	216.9	42.7	5.9	32.6	38.1	24.9	9.4	51.3	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-41)</b>										
Delay	24.2					7.9	0.0	0.0		10.6
LOS	C					A	A	A		B
v/c	0.68					0.17	0.08	0.17		-
Queue	39.7					4.6	0.0	0.0		-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-103)</b>										
Delay	40.9	11.9	3.0	21.1	29.2	48.5	26.5	35.6	44.0	28.0
LOS	D	B	A	C	C	D	C	D	D	C
v/c	0.73	0.23	0.20	0.13	0.74	0.80	0.23	0.05	0.75	-
Queue	54.6	39.1	13.0	16.6	158.4	70.0	37.0	6.8	74.9	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-149)</b>										
Delay	54.5	13.6	4.0	22.9	38.7	68.9	26.3	36.4	51.8	36.0
LOS	D	B	A	C	D	E	C	D	D	D
v/c	0.83	0.27	0.24	0.15	0.88	0.94	0.25	0.04	0.83	-
Queue	70.5	44.6	16.9	16.7	203.5	94.7	42.3	6.9	93.3	-
NOTE:	Duke Street and Highway 107 are considered as an East - West roads in these analyses. This intersection has also been evaluated as a roundabout. The Concept Plan is shown on Figure 6-2 and analysis results are summarized in Table 6-8.									

Table F-19 - LOS Results for Burnside Drive / Highway 107 / Akerley Boulevard Intersection													
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement												Intersection LOS
	EB-L	EB-T	EB-R	WB-L	WB-T	WB-R	NB-L	NB-T	NB-R	SB-L	SB-T	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-19)</b>													
Delay		15.5	3.9	17.0	7.6		23.5		5.6				11.9
LOS		B	A	B	A		C		A				B
v/c		0.36	0.52	0.75	0.44		0.47		0.27				-
Queue		38.2	16.9	60.1	48.9		34.8		11.0				-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-81)</b>													
Delay	28.3	39.7	7.8	43.4	39.6	14.4	49.6	14.2	2.8	34.1	50.0	15.5	37.0
LOS	C	D	A	D	D	B	D	B	A	C	D	B	D
v/c	0.40	0.49	0.26	0.83	0.73	0.05	0.62	0.09	0.15	0.38	0.91	0.64	-
Queue	20.2	59.2	14.6	107.9	122.8	7.8	51.3	15.6	8.8	44.8	160.5	64.6	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-127)</b>													
Delay	30.1	42.2	7.4	83.5	46.8	16.1	53.4	14.3	2.7	35.5	64.2	20.3	46.6
LOS	C	D	A	F	D	B	D	B	A	D	E	C	D
v/c	0.45	0.56	0.30	1.03	0.85	0.06	0.70	0.10	0.16	0.43	0.99	0.71	-
Queue	22.8	68.4	15.5	151.2	156.4	9.4	60.5	18.1	9.6	52.5	194.4	88.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-42)</b>													
Delay		19.9	3.2	16.1	7.4		27.4		11.6				16.0
LOS		B	A	B	A		C		B				B
v/c		0.65	0.40	0.59	0.22		0.59		0.60				-
Queue		94.3	14.6	28.7	25.5		61.9		42.2				-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-104)</b>													
Delay	27.4	43.1	11.1	33.4	31.1	6.1	41.2	21.6	3.4	34.3	31.3	6.6	27.0
LOS	C	D	B	C	C	A	D	C	A	C	C	A	C
v/c	0.72	0.87	0.37	0.70	0.42	0.23	0.27	0.50	0.41	0.24	0.33	0.27	-
Queue	64.5	136.6	28.6	44.3	50.1	12.7	21.0	77.1	16.1	16.6	39.4	14.1	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-150)</b>													
Delay	39.0	62.8	13.6	36.0	32.1	10.8	42.2	23.1	4.5	37.3	32.5	6.5	33.8
LOS	D	E	B	D	C	B	D	C	A	D	C	A	C
v/c	0.86	1.00	0.43	0.73	0.48	0.28	0.33	0.56	0.46	0.31	0.38	0.29	-
Queue	90.1	168.4	37.4	51.3	57.8	20.4	24.7	88.1	22.0	19.1	45.1	15.0	-
NOTE: Burnside Drive is considered as an North - South street in these analyses This intersection has also been evaluated as a roundabout. The Concept Plan is shown on Figure 6-2 and analysis results are summarized in Table 6-7.													

Table F-20 - LOS Results for Burnside Drive / Wright Avenue Intersection												
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement											Intersection LOS
	EB-L	EB-TR	WB-L	WB-T	WB-R	NB-L	NB-T	NB-R	SB-L	SB-T	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-20)</b>												
Delay	17.5	23.7	17.2	21.4	7.6	11.9	20.3	4.9	11.7	22.5	4.9	16.7
LOS	B	C	B	C	A	B	C	A	B	C	A	B
v/c	0.12	0.38	0.30	0.33	0.14	0.24	0.38	0.47	0.20	0.54	0.38	-
Queue	9.9	30.4	27.9	41.2	10.2	16.2	42.4	17.4	15.5	60.1	15.6	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-82)</b>												
Delay	22.3	29.3	23.1	30.1	8.6	13.0	20.9	4.4	12.9	24.1	7.4	19.4
LOS	C	C	C	C	A	B	C	A	B	C	A	B
v/c	0.18	0.41	0.33	0.41	0.19	0.31	0.37	0.43	0.41	0.68	0.46	-
Queue	15.1	34.5	33.0	48.0	12.3	16.5	52.5	17.9	32.0	105.3	32.6	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-128)</b>												
Delay	23.4	31.9	25.3	34.7	8.6	16.4	22.2	4.4	14.6	27.2	9.7	21.7
LOS	C	C	C	C	A	B	C	A	B	C	A	C
v/c	0.22	0.46	0.40	0.52	0.25	0.38	0.40	0.47	0.49	0.74	0.51	-
Queue	17.8	40.1	38.7	55.8	13.5	22.1	59.9	18.8	38.3	129.4	46.1	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-43)</b>												
Delay	26.3	45.4	42.7	37.3	8.2	23.8	28.3	5.3	19.6	32.4	9.3	31.4
LOS	C	B	D	D	A	C	C	A	B	C	A	C
v/c	0.57	0.76	0.84	0.28	0.26	0.57	0.41	0.20	0.24	0.39	0.08	-
Queue	62.5	75.6	107.8	36.0	15.0	61.5	72.7	13.7	18.6	59.0	8.3	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-105)</b>												
Delay	28.4	45.6	44.1	39.4	8.0	26.6	32.1	9.0	23.0	34.0	7.5	32.4
LOS	C	D	D	D	A	C	C	A	C	C	A	C
v/c	0.65	0.76	0.84	0.31	0.38	0.65	0.56	0.21	0.42	0.48	0.13	-
Queue	78.1	75.6	108.2	36.1	18.2	61.5	103.9	19.4	25.0	73.3	11.0	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-151)</b>												
Delay	30.8	51.0	65.1	39.8	7.6	38.5	39.2	11.4	27.4	37.7	7.5	38.9
LOS	C	D	E	D	A	D	D	B	C	D	A	D
v/c	0.72	0.83	0.95	0.32	0.39	0.81	0.72	0.27	0.51	0.58	0.16	-
Queue	87.8	88.3	149.3	40.6	19.0	83.1	123.9	25.3	29.3	85.1	11.9	-
NOTE: Burnside Drive is considered as an North - South street in these analyses												

Table F-21 - LOS Results for Burnside Drive / Commodore Drive / Ronald Smith Avenue Intersection													
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement												Intersection LOS
	EB-L	EB-T	EB-R	WB-L	WB-T	WB-R	NB-L	NB-T	NB-R	SB-L	SB-T	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-21)</b>													
Delay	44.6	50.4	0.3	55.3	50.5	13.2	31.7	28.1	22.8	54.8	37.8	7.2	29.6
LOS	D	D	A	E	D	B	C	C	C	D	D	A	C
v/c	0.26	0.52	0.23	0.45	0.46	0.38	0.68	0.50	0.85	0.77	0.44	0.33	-
Queue	28.1	53.4	0.0	41.2	36.3	16.6	121.8	92.9	170.4	95.1	52.5	16.2	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-83)</b>													
Delay	46.8	52.6	0.3	57.4	52.6	13.1	34.9	31.0	28.7	61.9	40.4	6.5	33.3
LOS	D	D	A	E	D	B	C	C	C	E	D	A	C
v/c	0.30	0.53	0.23	0.47	0.47	0.42	0.71	0.55	0.89	0.87	0.60	0.38	-
Queue	31.6	53.4	0.0	41.2	36.3	17.6	121.8	97.8	181.3	142.7	83.1	18.6	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-129)</b>													
Delay	46.7	54.2	0.4	63.1	56.8	12.8	42.9	35.6	39.5	72.6	43.1	6.5	39.0
LOS	D	D	A	E	E	B	D	D	D	E	D	A	D
v/c	0.30	0.58	0.26	0.58	0.60	0.42	0.85	0.66	0.94	0.93	0.66	0.41	-
Queue	33.0	60.2	0.0	52.9	47.1	17.9	152.4	118.1	267.2	170.8	97.3	19.7	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-44)</b>													
Delay	46.8	53.4	1.7	56.5	42.8	7.2	32.9	31.0	5.0	50.2	41.1	9.0	27.6
LOS	D	D	A	E	D	A	C	C	A	D	D	A	C
v/c	0.37	0.60	0.60	0.78	0.58	0.54	0.59	0.41	0.44	0.63	0.66	0.13	-
Queue	41.4	67.2	0.0	120.8	75.3	24.2	51.4	71.8	20.7	76.6	112.7	11.7	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-106)</b>													
Delay	49.6	53.6	1.7	56.7	43.0	11.0	33.1	32.8	5.0	57.7	42.6	8.3	29.1
LOS	D	D	A	E	D	B	C	C	A	E	D	A	C
v/c	0.48	0.60	0.60	0.78	0.58	0.62	0.59	0.50	0.44	0.74	0.71	0.16	-
Queue	52.1	67.2	0.0	120.8	75.3	40.5	51.4	89.0	20.7	100.5	130.8	12.7	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-152)</b>													
Delay	50.9	55.8	2.3	63.8	45.3	19.1	36.7	36.5	5.0	78.5	53.4	8.0	34.2
LOS	D	E	A	E	D	B	D	D	A	E	D	A	C
v/c	0.52	0.65	0.68	0.85	0.64	0.71	0.66	0.59	0.36	0.90	0.87	0.19	-
Queue	58.5	76.4	0.0	151.0	88.4	71.1	58.8	103.1	32.5	126.7	165.9	14.0	-
NOTE: Burnside Drive is considered as an North - South street in these analyses													

Table F-22 - LOS Results for Highway 111 WB Ramps / Burnside Drive Intersection						
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement					Intersection LOS
	WB-L	WB-TR	NB-LT	SB-T	SB-R	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-22)</b>						
Delay	77.9	2.4	19.6	4.3	0.3	14.3
LOS	E	A	B	A	A	B
v/c	0.83	0.68	0.53	0.22	0.20	-
Queue	98.0	0.0	70.0	23.7	0.0	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-84)</b>						
Delay	85.6	2.5	20.8	4.6	0.4	14.6
LOS	F	A	C	A	A	B
v/c	0.83	0.70	0.54	0.27	0.24	-
Queue	98.0	0.0	71.6	30.3	0.0	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-130)</b>						
Delay	130.8	4.2	40.2	5.0	0.4	24.9
LOS	F	A	D	A	A	C
v/c	0.91	0.79	0.62	0.31	0.27	-
Queue	116.6	0.0	90.1	35.4	0.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-45)</b>						
Delay	20.2	0.6	6.1	7.5	1.5	5.2
LOS	C	A	A	A	A	A
v/c	0.41	0.35	0.40	0.57	0.58	-
Queue	28.7	0.0	31.1	62.4	0.0	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-107)</b>						
Delay	21.0	0.7	6.2	7.6	1.6	5.3
LOS	C	A	A	A	A	A
v/c	0.42	0.40	0.42	0.59	0.59	-
Queue	0.1	0.0	33.1	66.0	0.0	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-153)</b>						
Delay	25.8	0.9	7.3	8.8	2.3	6.3
LOS	C	A	A	A	A	A
v/c	0.47	0.45	0.51	0.66	0.68	-
Queue	39.4	0.0	45.0	89.4	0.0	-
NOTE: Burnside Drive is considered as an North - South street in these analyses						



Table F-23 - LOS Results for Highway 111 EB / Burnside Drive Intersection						
LOS Criteria	Control Delay (sec/veh), LOS, v/c Ratio, and 95% Queue (m) by Intersection Movement					Intersection LOS
	EB-L	EB-LTR	NB-TR	SB-L	SB-LT	
<b>AM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-23)</b>						
Delay	43.4	36.0	42.1	65.1	69.9	49.8
LOS	D	D	D	E	E	D
v/c	0.85	0.77	0.67	0.79	0.80	-
Queue	168.3	143.2	65.5	124.5	129.7	-
<b>AM Peak Hour - 2016 Projected Volumes - With 107 (Page E-85)</b>						
Delay	51.0	40.5	45.5	154.6	169.5	90.0
LOS	D	D	D	F	F	F
v/c	0.87	0.78	0.70	0.86	0.87	-
Queue	186.1	149.8	65.5	161.3	169.8	-
<b>AM Peak Hour - 2026 Projected Volumes - With 107 (Page E-131)</b>						
Delay	129.8	77.5	54.4	305.1	324.1	175.5
LOS	F	E	D	F	F	F
v/c	0.95	0.86	0.81	0.94	0.95	-
Queue	227.4	192.0	75.5	195.8	206.0	-
<b>PM Peak Hour - 2016 Projected Volumes - Without 107 (Page E-46)</b>						
Delay	57.3	51.2	31.1	153.0	161.4	112.2
LOS	E	D	C	F	F	F
v/c	0.76	0.69	0.67	0.87	0.89	-
Queue	105.1	87.1	49.0	234.7	248.0	-
<b>PM Peak Hour - 2016 Projected Volumes - With 107 (Page E-108)</b>						
Delay	70.1	58.8	32.4	162.4	172.2	120.9
LOS	E	E	C	F	F	F
v/c	0.82	0.74	0.69	0.87	0.89	-
Queue	122.2	104.7	49.8	224.0	248.7	-
<b>PM Peak Hour - 2026 Projected Volumes - With 107 (Page E-154)</b>						
Delay	179.3	122.6	39.1	234.9	244.8	185.2
LOS	F	F	D	F	F	F
v/c	0.97	0.87	0.77	0.94	0.96	-
Queue	145.4	126.0	59.0	290.7	307.5	-
NOTE: Burnside Drive is considered as an North - South street in these analyses						

***Appendix G***

***Weave Analyses and Roundabout Analyses***

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2010 AM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.50	
Weaving ratio, R	0.35	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V A-C	V B-D	V A-D	V B-C	
Volume, v	775	0	500	265	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	215	0	139	74	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	869	0	561	297	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.68	0.88
Weaving and non-weaving speeds, si	59.03	73.92
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.20
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Unconstrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	65.69	km/h
Weaving segment density, D	8.76	pc/km/ln
Level of service, LOS	B	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
weaving flow rate, vw	858	2800	a
Average flow rate (pc/h/ln)	575	2350	b
Volume ratio, VR	0.50	0.45	c
Weaving ratio, R	0.35	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2010 PM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.61	
Weaving ratio, R	0.16	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1035	0	1350	250	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	288	0	375	69	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1161	0	1515	280	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	7.74	1.35
Weaving and non-weaving speeds, si	34.76	64.01
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.50
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	42.36	km/h
Weaving segment density, D	23.26	pc/km/ln
Level of service, LOS	E	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	1795	2800	a
Average flow rate (pc/h/ln)	985	2350	b
Volume ratio, VR	0.61	0.45	c
Weaving ratio, R	0.16	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2016 AM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.50	
Weaving ratio, R	0.35	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	845	0	545	290	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	235	0	151	81	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	948	0	611	325	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.83	0.99
Weaving and non-weaving speeds, si	57.20	71.26
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.22
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Unconstrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	63.50	km/h
Weaving segment density, D	9.89	pc/km/ln
Level of service, LOS	B	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	936	2800	a
Average flow rate (pc/h/ln)	628	2350	b
Volume ratio, VR	0.50	0.45	c
Weaving ratio, R	0.35	N/A	d
weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2016 PM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.58	
Weaving ratio, R	0.16	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1200	0	1400	275	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	333	0	389	76	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1346	0	1571	308	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	8.14	1.42
Weaving and non-weaving speeds, si	34.29	62.83
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.48
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	42.31	km/h
Weaving segment density, D	25.41	pc/km/ln
Level of service, LOS	F	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	1879	2800	a
Average flow rate (pc/h/ln)	1075	2350	b
Volume ratio, VR	0.58	0.45	c
Weaving ratio, R	0.16	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2016 AM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.61	
Weaving ratio, R	0.42	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	845	0	545	755	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	235	0	151	210	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	948	0	611	847	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	6.32	1.03
Weaving and non-weaving speeds, si	36.83	70.32
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.45
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	45.34	km/h
Weaving segment density, D	17.69	pc/km/ln
Level of service, LOS	C	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	1458	2800	a
Average flow rate (pc/h/ln)	802	2350	b
Volume ratio, VR	0.61	0.45	c
Weaving ratio, R	0.42	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2016 PM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.60	
Weaving ratio, R	0.21	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V A-C	V B-D	V A-D	V B-C	
Volume, v	1200	0	1400	380	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	333	0	389	106	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1346	0	1571	426	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	8.60	1.54
Weaving and non-weaving speeds, si	33.79	60.94
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.51
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	41.18	km/h
Weaving segment density, D	27.06	pc/km/ln
Level of service, LOS	F	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
weaving flow rate, vw	1997	Maximum 2800	a
Average flow rate (pc/h/ln)	1114	2350	b
Volume ratio, VR	0.60	0.45	c
Weaving ratio, R	0.21	N/A	d
Weaving length (m)	100	750	e



## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2026 AM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.61	
Weaving ratio, R	0.42	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	960	0	620	865	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	267	0	172	240	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1077	0	695	970	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	7.19	1.22
Weaving and non-weaving speeds, si	35.47	66.27
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.48
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	43.40	km/h
Weaving segment density, D	21.06	pc/km/ln
Level of service, LOS	D	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	1665	2800	a
Average flow rate (pc/h/ln)	914	2350	b
Volume ratio, VR	0.61	0.45	c
Weaving ratio, R	0.42	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 7/29/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 101 EB Exit to Hwy 102 NB  
 Jurisdiction:  
 Analysis Year: 2026 PM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	110	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	100	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.60	
Weaving ratio, R	0.21	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V A-C	V B-D	V A-D	V B-C	
Volume, v	1360	0	1585	430	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	378	0	440	119	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1526	0	1778	482	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	9.70	1.81
Weaving and non-weaving speeds, si	32.79	57.40
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.54
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	39.64	km/h
Weaving segment density, D	31.84	pc/km/ln
Level of service, LOS	F	
Capacity of base condition, cb	3990	pc/h
Capacity as a 15-minute flow rate, c	3950	pc/h
Capacity as a full-hour volume, ch	3555	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, vw	2260	Maximum 2800	a
Average flow rate (pc/h/ln)	1262	2350	b
Volume ratio, VR	0.60	0.45	c
Weaving ratio, R	0.21	N/A	d
Weaving length (m)	100	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2010 AM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.57	
Weaving ratio, R	0.24	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	375	30	405	125	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	104	8	113	35	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	420	33	454	140	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.19	0.15
Weaving and non-weaving speeds, si	53.21	79.74
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.56
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	62.16	km/h
Weaving segment density, D	5.61	pc/km/ln
Level of service, LOS	A	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	594	2800	a
Average flow rate (pc/h/ln)	349		b
Volume ratio, VR	0.57	0.45	c
Weaving ratio, R	0.24	N/A	d
Weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2010 PM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.47	
Weaving ratio, R	0.28	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1110	70	755	290	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	308	19	210	81	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1245	78	847	325	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	2.40	0.35
Weaving and non-weaving speeds, si	42.82	71.25
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.51
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.32	km/h
Weaving segment density, D	15.31	pc/km/ln
Level of service, LOS	C	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	1172	2800	a
Average flow rate (pc/h/ln)	831		b
Volume ratio, VR	0.47	0.45	c
Weaving ratio, R	0.28	N/A	d
Weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2016 AM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.56	
Weaving ratio, R	0.23	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	410	35	440	135	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	114	10	122	38	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	460	39	493	151	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.29	0.16
Weaving and non-weaving speeds, si	51.96	78.96
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.56
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	61.07	km/h
Weaving segment density, D	6.24	pc/km/ln
Level of service, LOS	A	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	644	2800	a
Average flow rate (pc/h/ln)	381		b
Volume ratio, VR	0.56	0.45	c
Weaving ratio, R	0.23	N/A	d
Weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2016 PM - without  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.47	
Weaving ratio, R	0.27	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1215	80	820	310	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	338	22	228	86	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1363	89	920	347	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	2.59	0.39
Weaving and non-weaving speeds, si	41.81	69.97
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.52
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.25	km/h
Weaving segment density, D	17.02	pc/km/ln
Level of service, LOS	C	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	1267	2800	a
Average flow rate (pc/h/ln)	906		b
Volume ratio, VR	0.47	0.45	c
Weaving ratio, R	0.27	N/A	d
Weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2016 AM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.57	
Weaving ratio, R	0.31	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	425	50	425	195	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	118	14	118	54	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	476	56	476	218	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.39	0.18
Weaving and non-weaving speeds, si	50.83	78.17
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.58
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	59.93	km/h
Weaving segment density, D	6.82	pc/km/ln
Level of service, LOS	A	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	694	2800	a
Average flow rate (pc/h/ln)	408		b
Volume ratio, VR	0.57	0.45	c
Weaving ratio, R	0.31	N/A	d
Weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2016 PM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.49	
Weaving ratio, R	0.49	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1320	185	715	740	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	367	51	199	206	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1481	207	802	830	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	3.27	0.55
Weaving and non-weaving speeds, si	38.99	65.42
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.61
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	49.07	km/h
Weaving segment density, D	22.55	pc/km/ln
Level of service, LOS	D	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
Weaving flow rate, vw	1632	2800	a
Average flow rate (pc/h/ln)	1106		b
Volume ratio, VR	0.49	0.45	c
Weaving ratio, R	0.49	N/A	d
Weaving length (m)	275	750	e



## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: AM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2026 AM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.57	
Weaving ratio, R	0.32	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		veh/h
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	480	55	485	225	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	133	15	135	63	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	538	61	544	252	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	1.58	0.22
Weaving and non-weaving speeds, si	48.81	76.59
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.61
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	57.81	km/h
Weaving segment density, D	8.04	pc/km/ln
Level of service, LOS	B	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	796	2800	a
Average flow rate (pc/h/ln)	465		b
Volume ratio, VR	0.57	0.45	c
Weaving ratio, R	0.32	N/A	d
weaving length (m)	275	750	e

## Operational Analysis

Analyst: David Blades  
 Agency/Co.: Terrain Group Inc.  
 Date Performed: 08/06/2010  
 Analysis Time Period: PM Peak Hour  
 Freeway/Dir of Travel:  
 Weaving Location: Hwy 102 SB Exit to Hwy 101 WB  
 Jurisdiction:  
 Analysis Year: 2026 PM - with  
 Description: Highway 107

## Inputs

Freeway free-flow speed, SFF	80	km/h
Weaving number of lanes, N	3	
Weaving segment length, L	275	m
Terrain type	Level	
Grade		%
Length		km
Weaving type	A	Multilane or C-D
Volume ratio, VR	0.49	
Weaving ratio, R	0.49	

## Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, v	1500	210	815	845	veh/h
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	417	58	226	235	v
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1683	235	914	948	pc/h

## Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.15	0.00
b (Exhibit 24-6)	2.20	4.00
c (Exhibit 24-6)	0.97	1.30
d (Exhibit 24-6)	0.80	0.75
Weaving intensity factor, wi	3.71	0.65
Weaving and non-weaving speeds, si	37.57	62.86
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.64
Maximum number of lanes, Nw (max) (Exhibit 24-7)		1.40
Type of operation is		Constrained

## Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	47.21	km/h
Weaving segment density, D	26.69	pc/km/ln
Level of service, LOS	F	
Capacity of base condition, cb	4690	pc/h
Capacity as a 15-minute flow rate, c	4644	pc/h
Capacity as a full-hour volume, ch	4180	pc/h

## Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
		Maximum	Note
weaving flow rate, vw	1862	2800	a
Average flow rate (pc/h/ln)	1260		b
Volume ratio, VR	0.49	0.45	c
Weaving ratio, R	0.49	N/A	d
Weaving length (m)	275	750	e

**Notes:**

- a. Weaving segments longer than 750 m. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

## Summary of Roundabout Performance Burnside Drive / Highway 107 at Akerley Boulevard

### ARCADY 7

Version: 7.0.1.130 [12 March 2010]

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### Standard Geometry

Arm	V Approach road half- width (m)	E Entry width (m)	I' Effective flare length (m)	R Entry radius (m)	D Inscribed circle diameter (m)	PHI Conflict (entry) angle (deg)	Exit Only
Akerley Westbound	8.00	8.00	0.00	20.00	60.00	25.00	
Highway 107 Extension SB	8.00	8.00	0.00	20.00	60.00	25.00	
Akerley Eastbound	8.00	8.00	0.00	20.00	60.00	25.00	
Burnside Drive NB	8.00	8.00	0.00	20.00	60.00	25.00	

### Summary of Roundabout Performance

ARM	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>2016 with Highway 107</b>								
Akerley Westbound	1.22	3.87	0.55	A	0.73	3.81	0.42	A
Highway 107 Extension SB	2.98	9.84	0.75	A	0.21	2.23	0.17	A
Akerley Eastbound	0.47	3.64	0.32	A	1.41	4.14	0.58	A
Burnside Drive NB	0.31	2.34	0.24	A	1.19	5.00	0.54	A
<b>2026 with Highway 107</b>								
Akerley Westbound	1.77	4.93	0.64	A	1.06	4.83	0.51	A
Highway 107 Extension SB	10.69	32.72	0.92	D	0.26	2.41	0.20	A
Akerley Eastbound	0.66	4.48	0.39	A	2.07	5.41	0.67	A
Burnside Drive NB	0.38	2.53	0.27	A	1.93	7.20	0.66	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

AM Peak runs from 07:30:00 to 08:30:00

PM Peak runs from 16:30:00 to 17:30:00

### Turning Counts – Burnside Drive / Highway 107 at Akerley Boulevard

#### Projected 2016 Volumes with Highway 107

AM		To			
		Akerley Westbound	Highway 107 Extension SB	Akerley Eastbound	Burnside Drive NB
From	Akerley Westbound	0.00	25.00	775.00	340.00
	Highway 107	135.00	0.00	Bypass	955.00
	Akerley Eastbound	385.00	70.00	0.00	Bypass
	Burnside Drive NB	Bypass	160.00	315.00	0.00
PM		To			
		Akerley Westbound	Highway 107 Extension SB	Akerley Eastbound	Burnside Drive NB
From	Akerley Westbound	0.00	115.00	395.00	180.00
	Highway 107	40.00	0.00	Bypass	290.00
	Akerley Eastbound	895.00	320.00	0.00	Bypass
	Burnside Drive NB	Bypass	730.00	120.00	0.00

#### Projected 2026 Volumes with Highway 107

AM		To			
		Akerley Westbound	Highway 107 Extension SB	Akerley Eastbound	Burnside Drive NB
From	Akerley Westbound	0.00	30.00	880.00	385.00
	Highway 107 Extension SB	155.00	0.00	Bypass	1070.00
	Akerley Eastbound	440.00	80.00	0.00	Bypass
	Burnside Drive NB	Bypass	180.00	355.00	0.00
PM		To			
		Akerley Westbound	Highway 107 Extension SB	Akerley Eastbound	Burnside Drive NB
From	Akerley Westbound	0.00	135.00	450.00	205.00
	Highway 107 Extension SB	45.00	0.00	Bypass	330.00
	Akerley Eastbound	1015.00	360.00	0.00	Bypass
	Burnside Drive NB	Bypass	815.00	145.00	0.00

**Results - Burnside Drive / Highway 107 at Akerley Boulevard****Projected 2016 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Akerley Westbound	0.55	3.87	1.22	A	1140.00	1140.00	72.58	3.82	1.21
Highway 107 Extension SB	0.75	9.84	2.98	A	1100.42	1100.42	171.88	9.37	2.86
Akerley Eastbound	0.32	3.64	0.47	A	465.12	465.12	27.88	3.60	0.46
Burnside Drive NB	0.24	2.34	0.31	A	485.12	485.12	18.77	2.32	0.31
<b>PM</b>									
Akerley Westbound	0.42	3.81	0.73	A	690.00	690.00	43.26	3.76	0.72
Highway 107 Extension SB	0.17	2.23	0.21	A	340.13	340.13	12.59	2.22	0.21
Akerley Eastbound	0.58	4.14	1.41	A	1225.21	1225.21	83.22	4.08	1.39
Burnside Drive NB	0.54	5.00	1.19	A	860.35	860.35	70.36	4.91	1.17

**Projected 2026 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Akerley Westbound	0.64	4.93	1.77	A	1295.00	1295.00	104.33	4.83	1.74
Highway 107 Extension SB	0.92	32.72	10.69	D	1235.48	1235.48	547.04	26.57	9.12
Akerley Eastbound	0.39	4.48	0.66	A	530.14	530.14	38.71	4.38	0.65
Burnside Drive NB	0.27	2.53	0.38	A	545.14	545.14	22.79	2.51	0.38
<b>PM</b>									
Akerley Westbound	0.51	4.83	1.06	A	790.00	790.00	62.46	4.74	1.04
Highway 107 Extension SB	0.20	2.41	0.26	A	385.15	385.15	15.35	2.39	0.26
Akerley Eastbound	0.67	5.41	2.07	A	1385.24	1385.24	122.02	5.29	2.03
Burnside Drive NB	0.66	7.20	1.93	A	970.39	970.39	112.77	6.97	1.88

## Summary of Roundabout Performance Duke Street / Highway 107 at Rocky Lake Drive

### ARCADY 7

Version: 7.0.1.130 [12 March 2010]

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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

### Standard Geometry

Arm	V Approach road half- width (m)	E Entry width (m)	I' Effective flare length (m)	R Entry radius (m)	D Inscribed circle diameter (m)	PHI Conflict (entry) angle (deg)	Exit Only
Highway 107 WB	8.00	8.00	0.00	20.00	60.00	25.00	
Rocky Lake Drive SB	4.00	8.00	25.00	20.00	60.00	25.00	
Duke Street EB	8.00	8.00	0.00	20.00	60.00	25.00	
Rocky Lake Drive NB	4.00	8.00	25.00	20.00	60.00	25.00	

### Summary of Roundabout Performance

ARM	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>2016 with Highway 107</b>								
Highway 107 WB	0.13	1.88	0.12	A	1.26	3.89	0.55	A
Rocky Lake Drive SB	0.15	2.33	0.13	A	0.31	3.97	0.23	A
Duke Street EB	2.15	4.78	0.68	A	0.36	2.10	0.26	A
Rocky Lake Drive NB	0.32	4.67	0.24	A	0.29	2.81	0.22	A
<b>2026 with Highway 107</b>								
Highway 107 WB	0.16	1.94	0.13	A	1.78	4.92	0.64	A
Rocky Lake Drive SB	0.17	2.43	0.14	A	0.42	4.73	0.29	A
Duke Street EB	3.37	6.66	0.77	A	0.43	2.22	0.30	A
Rocky Lake Drive NB	0.44	5.82	0.30	A	0.35	3.06	0.26	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

AM Peak runs from 07:30:00 to 08:30:00

PM Peak runs from 16:30:00 to 17:30:00

**Turning Counts – Duke Street / Highway 107 at Rocky Lake Drive**  
**Projected 2016 Volumes with Highway 107**

<b>AM</b>		<b>To</b>			
		<b>Highway 107 WB</b>	<b>Rocky Lake Drive SB</b>	<b>Duke Street EB</b>	<b>Rocky Lake Drive NB</b>
<b>From</b>	<b>Highway 107 WB</b>	0.00	5.00	240.00	10.00
	<b>Rocky Lake Drive SB</b>	20.00	0.00	135.00	75.00
	<b>Duke Street EB</b>	1440.00	175.00	0.00	Bypass
	<b>Rocky Lake Drive NB</b>	50.00	50.00	145.00	0.00
<b>PM</b>		<b>To</b>			
		<b>Highway 107 WB</b>	<b>Rocky Lake Drive SB</b>	<b>Duke Street EB</b>	<b>Rocky Lake Drive NB</b>
<b>From</b>	<b>Highway 107 WB</b>	0.00	40.00	1075.00	50.00
	<b>Rocky Lake Drive SB</b>	10.00	0.00	175.00	95.00
	<b>Duke Street EB</b>	440.00	160.00	0.00	Bypass
	<b>Rocky Lake Drive NB</b>	10.00	125.00	230.00	0.00

**Projected 2026 Volumes with Highway 107**

<b>AM</b>		<b>To</b>			
		<b>Highway 107 WB</b>	<b>Rocky Lake Drive SB</b>	<b>Duke Street EB</b>	<b>Rocky Lake Drive NB</b>
<b>From</b>	<b>Highway 107 WB</b>	0.00	5.00	275.00	10.00
	<b>Rocky Lake Drive SB</b>	20.00	0.00	150.00	85.00
	<b>Duke Street EB</b>	1630.00	195.00	0.00	Bypass
	<b>Rocky Lake Drive NB</b>	50.00	55.00	165.00	0.00
<b>PM</b>		<b>To</b>			
		<b>Highway 107 WB</b>	<b>Rocky Lake Drive SB</b>	<b>Duke Street EB</b>	<b>Rocky Lake Drive NB</b>
<b>From</b>	<b>Highway 107 WB</b>	0.00	40.00	1220.00	50.00
	<b>Rocky Lake Drive SB</b>	10.00	0.00	200.00	110.00
	<b>Duke Street EB</b>	500.00	185.00	0.00	Bypass
	<b>Rocky Lake Drive NB</b>	10.00	145.00	260.00	0.00



**Results - Duke Street / Highway 107 at Rocky Lake Drive****Projected 2016 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Highway 107 WB	0.12	1.88	0.13	A	255.00	255.00	7.95	1.87	0.13
Rocky Lake Drive SB	0.13	2.33	0.15	A	230.00	230.00	8.90	2.32	0.15
Duke Street EB	0.68	4.78	2.15	A	1625.25	1625.25	126.75	4.68	2.11
Rocky Lake Drive NB	0.24	4.67	0.32	A	245.00	245.00	18.81	4.61	0.31
<b>PM</b>									
Highway 107 WB	0.55	3.89	1.26	A	1165.00	1165.00	74.49	3.84	1.24
Rocky Lake Drive SB	0.23	3.97	0.31	A	280.00	280.00	18.31	3.92	0.31
Duke Street EB	0.26	2.10	0.36	A	610.19	610.19	21.24	2.09	0.35
Rocky Lake Drive NB	0.22	2.81	0.29	A	365.00	365.00	17.01	2.80	0.28

**Projected 2026 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Highway 107 WB	0.13	1.94	0.16	A	290.00	290.00	9.35	1.94	0.16
Rocky Lake Drive SB	0.14	2.43	0.17	A	255.00	255.00	10.25	2.41	0.17
Duke Street EB	0.77	6.66	3.37	A	1835.28	1835.28	196.56	6.43	3.28
Rocky Lake Drive NB	0.30	5.82	0.44	A	270.00	270.00	25.71	5.71	0.43
<b>PM</b>									
Highway 107 WB	0.64	4.92	1.78	A	1310.00	1310.00	105.21	4.82	1.75
Rocky Lake Drive SB	0.29	4.73	0.42	A	320.00	320.00	24.86	4.66	0.41
Duke Street EB	0.30	2.22	0.43	A	695.22	695.22	25.58	2.21	0.43
Rocky Lake Drive NB	0.26	3.06	0.35	A	415.00	415.00	20.97	3.03	0.35

## Summary of Roundabout Performance Duke Street at Highway 102 Northbound Ramps

### ARCADY 7

Version: 7.0.1.130 [12 March 2010]

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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

### Standard Geometry

Arm	V Approach road half- width (m)	E Entry width (m)	I' Effective flare length (m)	R Entry radius (m)	D Inscribed circle diameter (m)	PHI Conflict (entry) angle (deg)	Exit Only
Duke St. WB	8.00	8.00	0.00	20.00	60.00	25.00	
Hwy 102 NB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes
Duke St. EB	8.00	8.00	0.00	20.00	60.00	25.00	
Hwy 102 NB Exit Ramp	8.00	8.00	0.00	20.00	60.00	25.00	

### Summary of Roundabout Performance

ARM	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>2016 with Highway 107</b>								
Duke St. WB	0.31	2.21	0.23	A	12.78	26.85	0.93	D
Duke St. EB	0.88	2.78	0.46	A	0.51	2.24	0.33	A
Hwy 102 NB Exit Ramp	0.21	2.65	0.17	A	0.49	2.87	0.33	A
<b>2026 with Highway 107</b>								
Duke St. WB	0.37	2.37	0.27	A	197.61	342.67	1.10	F
Duke St. EB	1.11	3.11	0.52	A	0.63	2.41	0.38	A
Hwy 102 NB Exit Ramp	0.27	2.94	0.21	A	0.63	3.28	0.38	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

AM Peak runs from 07:30:00 to 08:30:00

PM Peak runs from 16:30:00 to 17:30:00

### Turning Counts – Duke Street at Highway 102 Northbound Ramps

#### Projected 2016 Volumes with Highway 107

AM		To			
		Duke St. WB	Hwy 102 NB Enter Ramp	Duke St. EB	Hwy 102 NB Exit Ramp
From	Duke St. WB	0.00	Bypass	490.00	0.00
	Hwy 102 NB Enter Ramp	0.00	0.00	0.00	0.00
	Duke St. EB	980.00	165.00	0.00	0.00
	Hwy 102 NB Exit Ramp	Bypass	0.00	275.00	0.00
PM		To			
		Duke St. WB	Hwy 102 NB Enter Ramp	Duke St. EB	Hwy 102 NB Exit Ramp
From	Duke St. WB	0.00	Bypass	1785.00	0.00
	Hwy 102 NB Enter Ramp	0.00	0.00	0.00	0.00
	Duke St. EB	650.00	175.00	0.00	0.00
	Hwy 102 NB Exit Ramp	Bypass	0.00	605.00	0.00

#### Projected 2026 Volumes with Highway 107

AM		To			
		Duke St. WB	Hwy 102 NB Enter Ramp	Duke St. EB	Hwy 102 NB Exit Ramp
From	Duke St. WB	0.00	Bypass	560.00	0.00
	Hwy 102 NB Enter Ramp	0.00	0.00	0.00	0.00
	Duke St. EB	1105.00	180.00	0.00	0.00
	Hwy 102 NB Exit Ramp	Bypass	0.00	315.00	0.00
PM		To			
		Duke St. WB	Hwy 102 NB Enter Ramp	Duke St. EB	Hwy 102 NB Exit Ramp
From	Duke St. WB	0.00	Bypass	2030.00	0.00
	Hwy 102 NB Enter Ramp	0.00	0.00	0.00	0.00
	Duke St. EB	740.00	200.00	0.00	0.00
	Hwy 102 NB Exit Ramp	Bypass	0.00	685.00	0.00

**Results - Duke Street at Highway 102 Northbound Ramps****Projected 2016 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Duke St. WB	0.23	2.21	0.31	A	500.70	500.70	18.35	2.20	0.31
Hwy 102 NB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
Duke St. EB	0.46	2.78	0.88	A	1145.00	1145.00	52.56	2.75	0.88
Hwy 102 NB Exit Ramp	0.17	2.65	0.21	A	285.11	285.11	12.50	2.63	0.21
<b>PM</b>									
Duke St. WB	0.93	26.85	12.78	D	1795.12	1795.12	660.37	22.07	11.01
Hwy 102 NB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
Duke St. EB	0.33	2.24	0.51	A	825.00	825.00	30.57	2.22	0.51
Hwy 102 NB Exit Ramp	0.33	2.87	0.49	A	615.35	615.35	29.23	2.85	0.49

**Projected 2026 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Duke St. WB	0.27	2.37	0.37	A	570.80	570.80	22.37	2.35	0.37
Hwy 102 NB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
Duke St. EB	0.52	3.11	1.11	A	1285.00	1285.00	65.86	3.08	1.10
Hwy 102 NB Exit Ramp	0.21	2.94	0.27	A	325.12	325.12	15.81	2.92	0.26
<b>PM</b>									
Duke St. WB	1.10	342.67	197.61	F	2040.13	2040.13	6147.18	180.79	102.45
Hwy 102 NB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
Duke St. EB	0.38	2.41	0.63	A	940.00	940.00	37.43	2.39	0.62
Hwy 102 NB Exit Ramp	0.38	3.28	0.63	A	695.40	695.40	37.69	3.25	0.63

## Summary of Roundabout Performance Duke Street at Highway 102 Southbound Ramps

### ARCADY 7

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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

### Standard Geometry

Arm	V Approach road half- width (m)	E Entry width (m)	I' Effective flare length (m)	R Entry radius (m)	D Inscribed circle diameter (m)	PHI Conflict (entry) angle (deg)	Exit Only
Duke St. WB	8.00	12.00	25.00	20.00	60.00	25.00	
Hwy 102 SB Exit Ramp	8.00	8.00	0.00	20.00	60.00	25.00	
Glendale EB	8.00	8.00	0.00	20.00	60.00	25.00	
Hwy 102 SB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	Yes

### Summary of Roundabout Performance

ARM	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>2016 with Highway 107</b>								
Duke St. WB	0.31	1.46	0.23	A	2.72	4.12	0.73	A
Hwy 102 SB Exit Ramp	0.16	2.19	0.13	A	0.93	8.71	0.48	A
Glendale EB	0.93	3.15	0.48	A	0.79	3.78	0.44	A
<b>2026 with Highway 107</b>								
Duke St. WB	0.37	1.52	0.27	A	4.84	6.47	0.83	A
Hwy 102 SB Exit Ramp	0.19	2.34	0.16	A	3.08	25.88	0.76	D
Glendale EB	1.23	3.70	0.55	A	1.15	4.82	0.53	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

AM Peak runs from 07:30:00 to 08:30:00

PM Peak runs from 16:30:00 to 17:30:00

### Turning Counts – Duke Street at Highway 102 Southbound Ramps

#### Projected 2016 Volumes with Highway 107

AM		To			
		Duke St. WB	Hwy 102 SB Exit Ramp	Glendale EB	Hwy 102 SB Enter Ramp
From	Duke St. WB	0.00	0.00	515.00	250.00
	Hwy 102 SB Exit Ramp	95.00	0.00	165.00	0.00
	Glendale EB	1050.00	0.00	0.00	Bypass
	Hwy 102 SB Enter Ramp	0.00	0.00	0.00	0.00
PM		To			
		Duke St. WB	Hwy 102 SB Exit Ramp	Glendale EB	Hwy 102 SB Enter Ramp
From	Duke St. WB	0.00	0.00	1405.00	985.00
	Hwy 102 SB Exit Ramp	80.00	0.00	305.00	0.00
	Glendale EB	745.00	0.00	0.00	Bypass
	Hwy 102 SB Enter Ramp	0.00	0.00	0.00	0.00

#### Projected 2026 Volumes with Highway 107

AM		To			
		Duke St. WB	Hwy 102 SB Exit Ramp	Glendale EB	Hwy 102 SB Enter Ramp
From	Duke St. WB	0.00	0.00	585.00	290.00
	Hwy 102 SB Exit Ramp	105.00	0.00	185.00	0.00
	Glendale EB	1190.00	0.00	0.00	Bypass
	Hwy 102 SB Enter Ramp	0.00	0.00	0.00	0.00
PM		To			
		Duke St. WB	Hwy 102 SB Exit Ramp	Glendale EB	Hwy 102 SB Enter Ramp
From	Duke St. WB	0.00	0.00	1590.00	1125.00
	Hwy 102 SB Exit Ramp	90.00	0.00	350.00	0.00
	Glendale EB	850.00	0.00	0.00	Bypass
	Hwy 102 SB Enter Ramp	0.00	0.00	0.00	0.00

**Results - Duke Street at Highway 102 Southbound Ramps****Projected 2016 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Duke St. WB	0.23	1.46	0.31	A	765.00	765.00	18.53	1.45	0.31
Hwy 102 SB Exit Ramp	0.13	2.19	0.16	A	260.00	260.00	9.45	2.18	0.16
Glendale EB	0.48	3.15	0.93	A	1060.53	1060.53	55.08	3.12	0.92
Hwy 102 SB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
<b>PM</b>									
Duke St. WB	0.73	4.12	2.72	A	2390.00	2390.00	160.53	4.03	2.68
Hwy 102 SB Exit Ramp	0.48	8.71	0.93	A	385.00	385.00	54.21	8.45	0.90
Glendale EB	0.44	3.78	0.79	A	755.30	755.30	46.98	3.73	0.78
Hwy 102 SB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)

**Projected 2026 Volumes with Highway 107**

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Total Demand (Veh/hr)	Total Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)
<b>AM</b>									
Duke St. WB	0.27	1.52	0.37	A	875.00	875.00	22.16	1.52	0.37
Hwy 102 SB Exit Ramp	0.16	2.34	0.19	A	290.00	290.00	11.25	2.33	0.19
Glendale EB	0.55	3.70	1.23	A	1200.60	1200.60	73.13	3.65	1.22
Hwy 102 SB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)
<b>PM</b>									
Duke St. WB	0.83	6.47	4.84	A	2715.00	2715.00	280.53	6.20	4.68
Hwy 102 SB Exit Ramp	0.76	25.88	3.08	D	440.00	440.00	168.36	22.96	2.81
Glendale EB	0.53	4.82	1.15	A	860.34	860.34	67.75	4.72	1.13
Hwy 102 SB Enter Ramp	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)	(Exit-only)

***Appendix H***  
***Terms of Reference***





## **Highway 107 Burnside to Sackville Traffic Study Scope of Work - July 2009**

### **1.0 Background**

The extension of Highway 107 from the Burnside Drive/Akerley Boulevard intersection to Highway 102 is warranted due to the existing traffic volumes on Trunk 7 (Magazine Hill) and the Bedford Bypass (over 30,000 vehicles per day).

Nova Scotia Transportation and Infrastructure Renewal and Halifax Regional Municipality recently hired Stantec to undertake a study of the Bayers Road/Highway 102 corridor and the future extension of Highway 107 to Highway 102. The study investigated options for the future Highway 107 extension and a three phased approach was developed for implementation. Three horizon years; 2016, 2026 and 2036 were considered in the analysis.

The three phase approach considered is as follows and shown on the attached plan:

Phase 1: Direct connector from Burnside Drive to Duke Street using the existing Glendale Drive interchange.

Phase 2: Construction of an interchange to access lands between Anderson Lake and Trunk 2. (option contingent on the needs of adjacent landowner).

Phase 3: Construction of an interchange at top of Akerley, extension of Highway 107 to top of Akerley, and directional ramps to Highway 102.

Phase 1 of the Highway 107 extension is expected to be built as a four lane narrow median arterial with a posted speed of 100 km/hr (same cross section as the existing Burnside Drive).

### **2.0 Objective**

The primary objectives of this study are:

a) to investigate the traffic impacts on the existing road network associated with the completion of a new four lane controlled access connection between the Burnside Drive/Akerley Boulevard intersection and the Duke Street/Rocky Lake Road intersection (Phase 1), and

b) identify road network improvements required to mitigate any identified deficiencies.

### **3.0 Study Scope**

The focus of the study will be on the future extension of Burnside Drive to the Duke Street/Rocky Lake intersection and the surrounding road network including all intersections on Burnside Drive, Duke Street, and Glendale Drive, from Highway 111 to Beaver Bank Road and the weaving and merging movements for travel between Highway 101 and Highway 102 Exit 4C. The study will focus on the traffic analysis for years 2009 (existing), 2016, and 2026. Phase 1 is expected to open for traffic in 2013.

## 4.0 Duties of the Consultant

The following are the duties of the consultant:

- 1 Meet with the project management team as per the schedule specified in Section 7.0 (Meetings and Reports).
- 2 Become familiar with the study area including, but not necessarily limited to, existing highway infrastructure, existing development, zoning, land ownership, approved and proposed developments, proposed highway alignments.
- 3 Review all past transportation and land use studies for the study area. The consultant is to consider and incorporate HRM's regional plan, Active Transportation Plan and Transportation Demand Management Functional Plan as they apply to the potential Highway 107 corridor.
- 4 Perform traffic movement counts during the AM (7am to 9am) and PM (4pm to 6pm). Counts are to be done after the 2<sup>nd</sup> week in September on all public street intersections on Burnside Drive, Duke Street and Glendale Drive, from Highway 111 to Beaver Bank Road. Noon counts (11 a.m. to 1 pm.) are required at un-signalized intersections.
- 5 Estimate future traffic volumes after completion of Phase 1 at each intersection and the connections between Highway 101 and 102 for each study time horizon using HRM's QRSII model (macro) and existing traffic patterns/engineering judgement.
- 6 Perform a traffic/operational analysis using Synchro Sim Traffic software on all at grade intersections to determine expected service levels and travel times along the corridor for each study horizon. Traffic Analysis is to include Level of Service for each movement, V/C (volume capacity ratio), expected delay and queue lengths. Minimum level of service for each movement at intersections is "D" and the minimum v/c ratio is 0.9.
- 7 Intersections at Akerley Boulevard/Burnside Drive, Burnside Drive Ext./Rocky Lake and the Highway 102 (Exit 4C), southbound and northbound ramp terminals are to be analysed as both signalised and roundabout intersections. Roundabout analysis shall be performed using Arcady software.
- 8 All analysis shall be based on existing and projected 2016, and 2026 year volumes.
- 9 Left and right turn storage/deceleration lane warrant analysis along with signal warrant analysis is required at all un-signalised intersections.
- 10 Weaving/Merging and ramp capacity analysis is required on road links

Phase 1 →

connecting Highway 101 and Highway 102, Exit 4C.

- 11 Analysis shall consider pedestrian crossing requirements at all intersections.
- 12 Prepare an interim report to include a summary of all work completed to this point. The report shall be presented to the project management team.
- 13 The consultant is required to investigate and advise on mitigation measures to address any deficiencies and provide recommendations for improvements.
- 14 The study will identify time frames for any required road improvements. Mitigation measures could include, but are not limited to additional through/turning lanes, signal phasing/timing changes, signalization, lengthening of turning lanes, pedestrian and bicycles infrastructure, and replacing signals or an at grade intersection with a roundabout.
- 15 When considering upgrading the consultant is to assume that any existing structures are not to be replaced or widened.
- 16 Prepare conceptual plans for all recommended upgrading options. The plans shall be to a scale and level of detail required to provide a good indication of what the future road network will be like. All designs are to be in Metric.
- 17 Prepare a draft final report summarizing data collection, analysis, and proposed recommendations including conceptual designs. A second draft may be required if edits to the report based on steering committee comments are significant.
- 18 Consider feedback from the Steering Committee on the draft report, make any required edits and provide a final report.
- 19 Present the final report to the Steering Committee and TIR officials.

## **5.0 Duties of TIR and the Steering Committee**

- Meet with the consultant on an arranged schedule.
- Provide the consultant with the Highway 102 corridor study by Stantec.
- Provide the consultant with a copy of all available plans for existing and future highways.
- Provide the consultant with any available mapping, relevant reports and studies.
- Provide the consultant with traffic count analysis including any available historic traffic and collision data within the study corridor.

- Provide the consultant with HRM QRSII model.
- Provide the consultant with Regional Municipal Planning Strategy.
- Provide review comments and respond to questions in a timely manner.

## 6.0 Guidance

A project management team will administer the technical and analytical work of the consultant. The team will consist of representatives from TIR and HRM. The consultant will report to the project management team chair who will be responsible for overall administration of the study. The steering chair for this study will be:

Michael Croft, P. Eng. (Project Management Team Chair)  
Access Management Engineer  
Telephone: 902-424-3548  
Fax: 902-424-0571  
Email: croftmi@gov.ns.ca

Acceptance and approval of the work will take place after the project management team has been satisfied that the requirements, as specified in the contract, have been met.

## 7.0 Meetings and Reports

The Consultant shall meet with the project management team for the project initiation, the interim report, the draft final report, and to present the study findings. All meetings will be held in Halifax, Nova Scotia. The initial meeting with the consultant will be to finalize the study requirements, data requirements and the methodologies to be used.

The consultant shall provide 6 copies of the interim report and **10** bound copies and one unbound copy of the final report. The consultant shall provide one electronic copy of the final report in PDF format. All conceptual plans shall also be provided in AutoCAD and PDF format. Copies of the interim and final report shall be on letter size paper and appropriately titled. Six (**6**) copies of a draft final report for the study must be submitted for comment and possible amendments before the final version is submitted. Required copies of the interim and draft final report shall be submitted **5 working days** prior to the interim and draft final meetings respectively. The final report shall include an executive summary and a list of references. All reports shall contain copies of conceptual design plans. The Terms of Reference shall be attached as an appendix to the final report.

Written, biweekly progress updates are to be submitted to the Steering Committee Chair. The reports will review progress of the previous reporting period, forecast the work of the upcoming period, identify any changes to the schedule and highlight any issues that may have arisen.

## **8.0 Study Schedule**

The consultant shall meet with the Project Steering Committee within two (2) weeks of notification of award of contract. The study shall be completed and the required copies of the final report presented within **four** months of award of contract.

## **9.0 Ownership of Information**

The consultant agrees that all information collected, materials gathered and reports produced shall be the property of the Province of Nova Scotia and the Halifax Regional Municipality (HRM). The consultant shall not be permitted to publish or in any way use said information without the expression or prior approval of Transportation and Infrastructure Renewal and HRM.

All documents, including proposals, submitted to the Province are subject to disclosure under the Nova Scotia Freedom of Information and Protection of Privacy Act. By submitting a proposal the proponent thereby agrees to public disclosure of its contents. Any information the proponent considers 'personal information' because of its proprietary nature should be marked as "confidential", and will be subject to appropriate consideration as defined within the Nova Scotia Freedom of Information and Protection of Privacy Act.

Information pertaining to this competition or any Department obtained by the proponent as a result of participation in this project is confidential and must not be disclosed without written authorization from the Province.

## **10.0 Consultant Expertise/Eligibility**

Project teams should have considerable expertise in land use and transportation planning as well as traffic engineering, highway design, roundabout design, micro simulation using Synchro Sim Traffic, QRSII modelling and roundabout modelling using Arcady software. The engineering principal shall be a registered member of the Association of Professional Engineers of Nova Scotia (APENS).

Prospective proponents are not eligible to submit a proposal if current or past corporate or other interests may, in the Province's opinion, give rise to a conflict of interest in connection with this project.

The successful proponent may be required to demonstrate financial stability and may be required to register to conduct business in Nova Scotia.

The Consultant must hold a Letter of Good Standing from an occupational health and safety organization which meets the requirements of the Nova Scotia Department of Labour and Workforce Development or the Workers Compensation Board of Nova Scotia (WCB).

## 11.0 Proposal Requirements

Proposals and their envelopes should be clearly marked with the name and address of the proponent, the project or program title. Late proposals will not be accepted and will be returned to the proponent.

Proponents are solely responsible for their own expenses in preparing, delivering or presenting a proposal and for subsequent negotiations with the Province, if any. Proposals must be open for acceptance for at least **90** days after the closing date. Upon acceptance, prices will be firm for the entire contract period unless otherwise specified.

Project proposals shall contain the following information as a minimum:

- a description of the project team organization, proposed roles and qualifications
- a description of the proposed methodology
- a brief summary of five (5) similar projects completed by the consultant and client contact information
- a description of the proposed deliverables
- a project schedule
- number of person-days for each team member by task assigned to the project. For consistency, the basis of remuneration will be per **8 hour day** for all team members.
- a cost proposal (one copy) separately sealed in an envelope

Six (6) copies of the proposal (fax copies are not acceptable) are to be delivered to the main reception area, first floor, Johnston Building, 1672 Granville Street, Halifax, NS on or before 3:00 PM Atlantic Time, July 17, 2009.

By submitting a proposal, the proponent warrants that all components required to deliver the services requested have been identified in the proposal or will be provided by the Consultant at no additional charge. The proposal must be signed by the person(s) authorized to sign on behalf of the proponent and to bind the proponent to statements made in response to this Request for Proposal.

## 12.0 Extra Work

The consultant may be required to undertake additional work not specified in the contract. Prior to starting this additional work the consultant shall submit a detailed breakdown of the costs, including all expenses, to complete the extra work and obtain written approval from the project management team/steering committee.

### **13.0 Request for Proposal Amendments**

All proponents will be notified in writing regarding any changes made to the Request for Proposal or any appendices or any change in the closing date or time. When these changes occur within **five** government business days of the close of the proposal, the proposal closing date may be extended to allow for a suitable number of bid preparation days between the issuance of the change and the closing date.

### **14.0 Payment Schedule**

Payment for professional services rendered will be made in two equal lump sum payments, the first after completion and acceptance of the interim report by the Steering Committee and the second upon completion of all tasks set forth in this Scope of Work and acceptance of the Final Report by the Steering Committee.

### **15.0 Evaluation of Proposals**

Proposals shall be evaluated based on the “Government Procurement Process: Architects and Professional Services”.

The criteria for evaluating proposals will be made based on the following categories and weights.

Project Team	30 points
Proposed Methodology	35 points
Project Schedule	10 points
Proposal Quality	10 points

Accepted proposals will first be evaluated on the basis of their technical and managerial merit and then on the basis of price. The technical submission shall be rated as shown above, out of 85 points, and the remaining 15 points shall be allotted based on price. Only those proposals achieving an aggregate score of 68/85 (80%) or greater will have their sealed cost envelopes opened. The lowest price shall be awarded 15 points (all prices within 5% will receive the same price points). The next lowest price (beyond 5%) will receive 12 points. Points for other submissions will be assigned with 3 fewer points for each successively higher priced price proposal. But again, each time the same score will be awarded if successive prices are within 5% of the last highest price. The proposal with the highest total points will be awarded the contract. Proposals not meeting the required 68/85 will have their unopened cost envelopes returned.

Notwithstanding the technical/managerial and price scores, TIR reserves the right to reject any proposal where prices are deemed unreasonable relative to other prices bid,

typically a 25% variance from the average qualified bid (excluding the bid in question).

The Department reserves the right to negotiate any or all conditions of the Consultant's proposed work plan and reject all submitted proposals. Unsuccessful proponents may request a debriefing meeting following execution of a contract with the successful proponent.

## **16.0 Contract Procedures**

Notice in writing to a proponent of the acceptance of its proposal by the Province will constitute a contract for the goods or services.

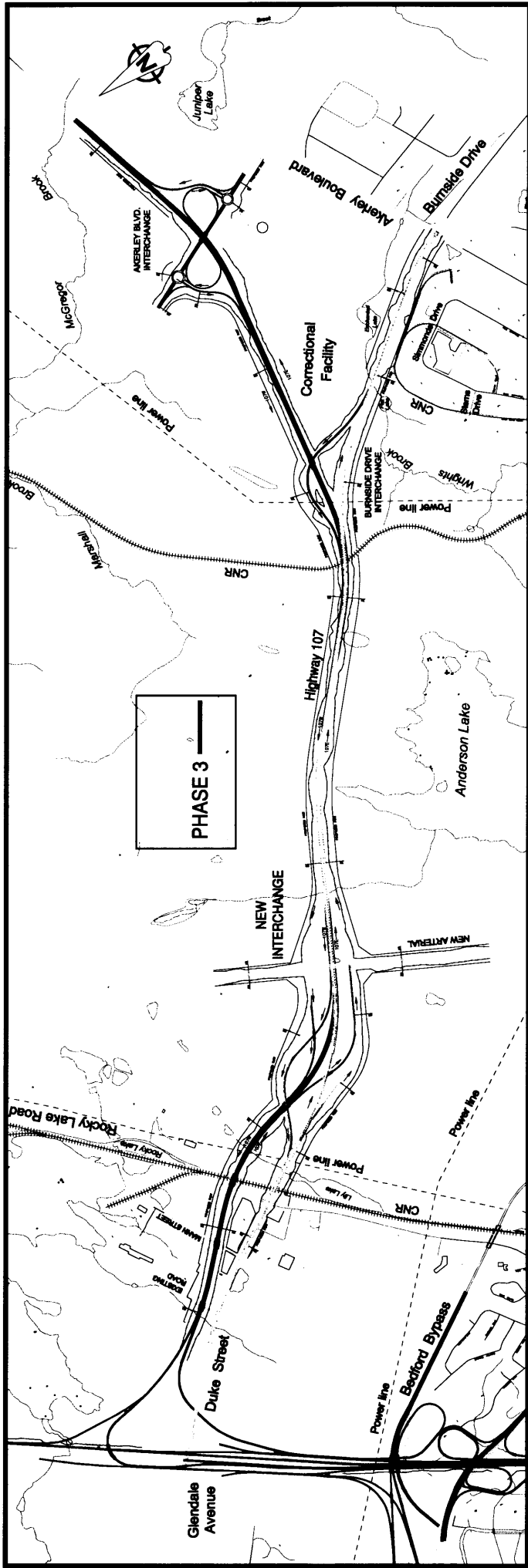
## **17.0 Inquiries**

All enquiries related to this Request for Proposal are to be directed to the following person. Information obtained from any other source is not official and may be inaccurate. Enquiries and responses may be recorded and may be distributed to all proponents at the Province's option.

Department and RFP Contact;

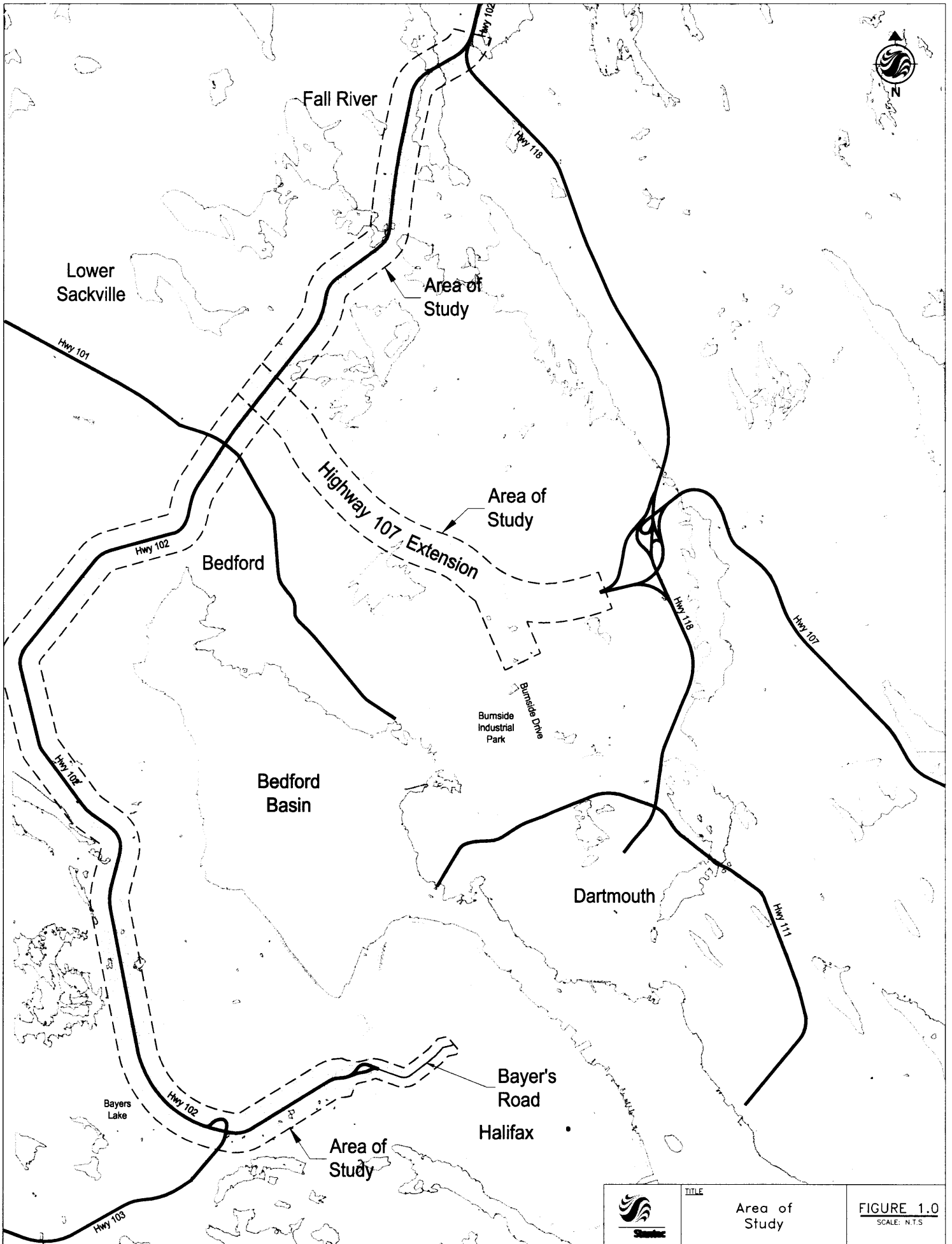
Michael Croft, P.Eng. (Project Management Team Chair)  
Access Management Engineer  
Telephone: 902-424-3548 Fax: 902-424-0571  
Email: croftmi@gov.ns.ca






HIGHWAY 107 - PHASING

SCALE 1:4000



	<p>TITLE</p> <p>Area of Study</p>	<p>FIGURE 1.0</p> <p>SCALE: N.T.S.</p>
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