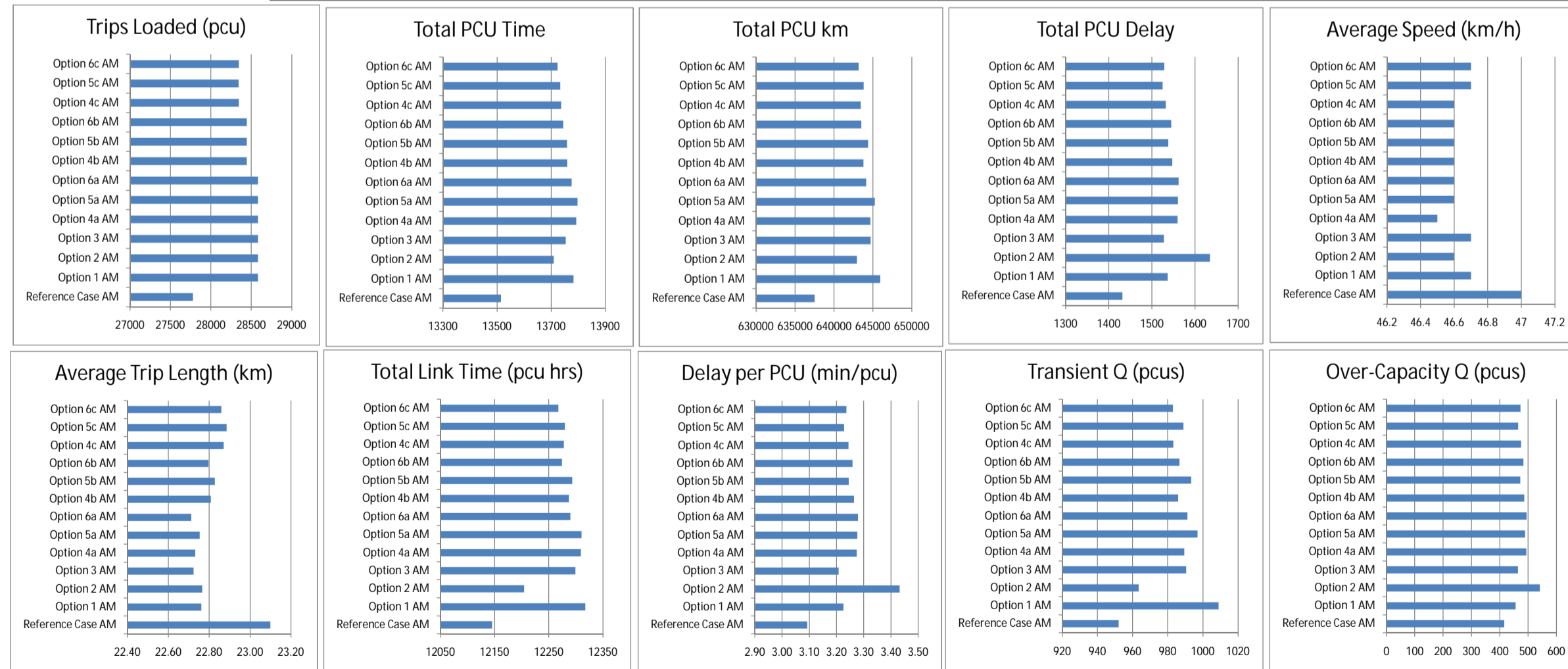
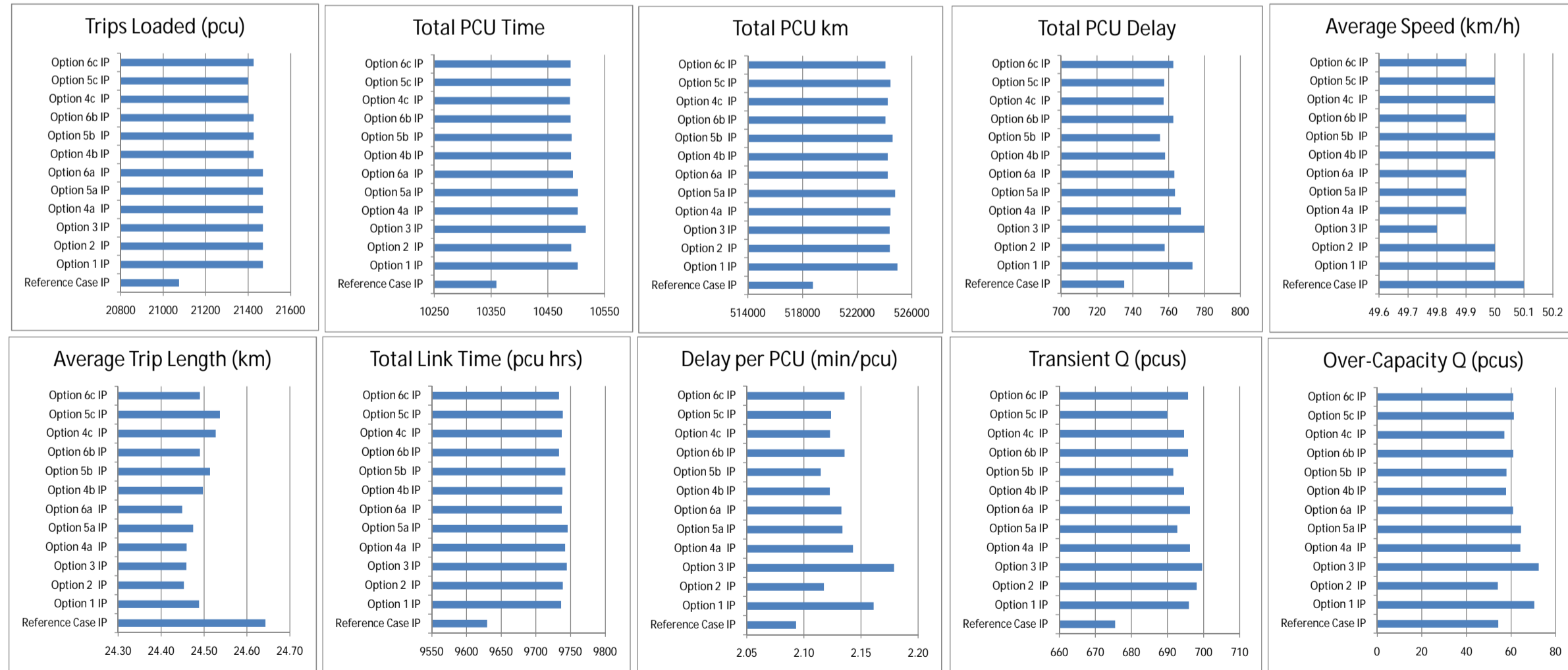


## **Appendix 4    SATSTAT Outputs For All Options**

	BASE_AM_FINAL	1_AM_FINAL	2_AM_FINAL	3_AM_FINAL	4A_AM_FINAL	5A_AM_FINAL	6A_AM_FINAL	4B_AM_FINAL	5B_AM_FINAL	6B_AM_FINAL	4C_AM_FINAL	5C_AM_FINAL	6C_AM_FINAL
<b>Enter Column for Comparison ==&gt;</b>													
<b>Scenario Label</b>	Reference Case AM	Option 1 AM	Option 2 AM	Option 3 AM	Option 4a AM	Option 5a AM	Option 6a AM	Option 4b AM	Option 5b AM	Option 6b AM	Option 4c AM	Option 5c AM	Option 6c AM
<b>Convergence Summary</b>	BASE_AM_FINAL.CON	1_AM_FINAL.CON	2_AM_FINAL.CON	3_AM_FINAL.CON	4A_AM_FINAL.CON	5A_AM_FINAL.CON	6A_AM_FINAL.CON	4B_AM_FINAL.CON	5B_AM_FINAL.CON	6B_AM_FINAL.CON	4C_AM_FINAL.CON	5C_AM_FINAL.CON	6C_AM_FINAL.CON
Loops (N) =	19	21	21	20	24	25	24	22	23	21	23	18	24
Assignment =	0.039/ 8	0.046/10	0.050/ 9	0.031/11	0.030/10	0.043/10	0.040/10	0.032/ 9	0.039/ 5	0.061/ 8	0.030/11	0.052/10	0.039/11
Simulation =	0.006/ 7	0.005/ 7	0.001/ 7	0.005/ 7	0.003/ 7	0.005/ 7	0.002/ 7	0.005/ 7	0.005/ 7	0.004/ 7	0.004/ 7	0.005/ 7	0.001/ 7
%Flows =	99.3	99.3	99.3	98.9	99.1	99.1	99.5	99.1	99.4	99	99.4	98.9	99.5
%Delays =	98.7	98.7	98.8	98.9	99.2	99	98.8	99.1	99	99.1	98.9	98.7	99.2
%V.I./%D.D =	0.004	0.004	0	0.003	0.002	0.001	0.001	0.003	0.002	0.001	0.003	0.005	0
%GAP =	0.089	0.075	0.068	0.05	0.102	0.104	0.034	0.079	0.067	0.069	0.065	0.078	0.041
<PCNEAR(%> =	5	5	5	5	5	5	5	5	5	5	5	5	5
<b>Statistics Summary Results</b>	BASE_AM_FINAL.STA	1_AM_FINAL.STA	2_AM_FINAL.STA	3_AM_FINAL.STA	4A_AM_FINAL.STA	5A_AM_FINAL.STA	6A_AM_FINAL.STA	4B_AM_FINAL.STA	5B_AM_FINAL.STA	6B_AM_FINAL.STA	4C_AM_FINAL.STA	5C_AM_FINAL.STA	6C_AM_FINAL.STA
Matrix totals (pcus/hr)	27779.4	28582.4	28582.4	28582.45	28582.5	28582.4	28582.45	28444.8	28444.8	28444.8	28344.6	28344.4	28344.5
Transient Queues (Total - pcus)	982	1043.4	1024.2	1024.6	1024.6	1022.9	1022.5	1022.3	1022.5	1022.3	1017.9	1023	1017.5
<This Time period>	952.1	1008.9	963.4	990.5	989.4	996.9	991.2	985.9	993.3	986.7	983.2	988.9	982.9
<Next Time period>	29.8	34.5	40.8	34	36	36.1	36.3	35.4	35.1	35.7	34.7	34.1	34.6
<Proportion carried-over>	3%	3%	4%	3%	4%	3%	4%	3%	3%	3%	3%	3%	3%
Over-Capacity Queues (pcus)	449.7	493.2	630.6	503.5	534.4	527.9	534.3	526.4	510	522.5	514.6	502	511.4
<This Time period>	416.3	456.4	541.7	464.3	494	486.6	494.5	486.4	472	483.3	475.5	464.8	473
<Next Time period>	33.4	36.7	88.9	39.2	40.5	38.4	39.8	40	38	39.2	39.1	37.2	38.4
<Proportion carried-over>	7%	7%	14%	8%	8%	7%	8%	7%	7%	8%	8%	7%	8%
Link Cruise Times (Total - pcu.hrs)	12222.1	12403.2	12333.2	12388.2	12403	12405.3	12384	12379.3	12384.5	12365.8	12367.1	12369.3	12356.2
<This Time period>	12145.5	12317.6	12204.4	12299.4	12309.2	12310.7	12289.9	12287.2	12293.3	12274.2	12277.9	12280	12267.7
<Next Time period>	76.6	85.6	128.8	88.8	93.8	94.5	94.1	92.1	91.2	91.5	89.2	88.5	88.5
<Proportion carried-over>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Total Travel Times (Total - pcu.hrs)	13653.8	13939.8	13967.9	13916.3	13962.8	13966.1	13945.9	13926.9	13922.8	13910.8	13899.6	13894.2	13885.1
<This Time period>	13514	13782.9	13709.4	13754.2	13792.6	13797.1	13775.6	13759.5	13758.6	13744.3	13736.6	13733.7	13723.6
<Next Time period>	139.8	156.8	258.5	162	170.3	169	170.3	167.5	164.3	166.5	163	160.5	161.5
<Proportion carried-over>	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Travel Distance (Total pcu-kms)	641692.6	650597.9	650699.6	649507.4	649725.1	650363.5	649187.8	648765.5	649339.1	648461.8	648271	648666.1	647945.1
<This Time period>	637509.7	645941.1	642964.4	644700.2	644692.8	645249.3	644134.1	643799	64389.4	643527.5	643449.5	643808.1	643163.3
<Next Time period>	4182.8	4656.7	7735.3	4807.2	5032.3	5114.2	5053.7	4966.5	4949.8	4934.2	4857.9	4781.9	4781.9
<Proportion carried-over>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Average Speed (Overall- km/h)	47	46.7	46.6	46.7	46.5	46.6	46.6	46.6	46.6	46.6	46.6	46.7	46.7
<Ratio>	64%	64%	64%	64%	64%	64%	64%	64%	64%	64%	64%	65%	63%
Delay (Total - pcu.hrs)	1431.7	1536.6	1634.7	1528.1	1559.8	1560.8	1561.9	1547.6	1538.3	1545	1532.5	1524.9	1528.9
Delay / Vehicle (mins/veh)	3.09	3.23	3.43	3.21	3.27	3.28	3.28	3.26	3.26	3.26	3.24	3.23	3.24
Congestion Index (mins/veh.km)	0.36	0.38	0.40	0.37	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Average Trip Length (km)	23.10	22.76	22.77	22.72	22.73	22.75	22.71	22.81	22.83	22.80	22.87	22.89	22.86
Simulation Queues (pcu/h):													
Ave. Queue (DA1433) =	981.34	1057.73	1100.05	1048.26	1073.09	1079.87	1074.64	1065.1	1062.05	1062.37	1053.21	1052.69	1049.46
Queue at End (DA1483) =	832.64	912.88	1083.3	928.56	987.91	979.12	988.97	972.79	944.07	966.65	951	929.51	945.97
Turn Penalties (pcu-hrs/hr) =	2.782	2.902	2.905	2.781	2.867	2.864	2.873	2.807	2.849	2.792	2.792	2.909	2.856
Turn Penalties (number) =	129	129	129	129	129	129	129	129	129	129	129	129	129



	BASE_IP_FINAL	1_IP_FINAL	2_IP_FINAL	3_IP_FINAL	4A_IP_FINAL	5A_IP_FINAL	6A_IP_FINAL	4B_IP_FINAL	5B_IP_FINAL	6B_IP_FINAL	4C_IP_FINAL	5C_IP_FINAL	6B_IP_FINAL
<b>Enter Column for Comparison ==&gt;</b>													
<b>Scenario Label</b>	Reference Case IP	Option 1 IP	Option 2 IP	Option 3 IP	Option 4a IP	Option 5a IP	Option 6a IP	Option 4b IP	Option 5b IP	Option 6b IP	Option 4c IP	Option 5c IP	Option 6c IP
<b>Convergence Summary</b>	BASE_IP_FINAL.CON	1_IP_FINAL.CON	2_IP_FINAL.CON	3_IP_FINAL.CON	4A_IP_FINAL.CON	5A_IP_FINAL.CON	6A_IP_FINAL.CON	4B_IP_FINAL.CON	5B_IP_FINAL.CON	6B_IP_FINAL.CON	4C_IP_FINAL.CON	5C_IP_FINAL.CON	6B_IP_FINAL.CON
Loops (N) =	12	13	12	12	12	12	12	11	11	12	10	11	12
Assignment =	0.017/ 9	0.025/ 6	0.027/ 7	0.046/ 6	0.011/12	0.021/ 8	0.045/ 8	0.019/ 9	0.033/ 8	0.040/ 7	0.033/11	0.026/ 9	0.040/ 7
Simulation =	0.003/ 7	0.004/ 7	0.003/ 7	0.004/ 7	0.002/ 7	0.003/ 7	0.002/ 7	0.002/ 7	0.002/ 7	0.003/ 7	0.003/ 7	0.003/ 7	0.003/ 7
%Flows =	99.8	99.7	99.7	99.7	99.8	99.7	99.4	99.4	99.5	99.3	99.5	99.7	99.3
%Delays =	99.6	99.8	99.9	99.8	99.9	99.8	99.8	99.6	99.6	99.5	99.8	99.8	99.5
%V.I./%D.D =	0.002	0.002	0.002	0.003	0.001	0.002	0.002	0.003	0.004	0.004	0.004	0.003	0.004
%GAP =	0.024	0.043	0.037	0.035	0.015	0.025	0.03	0.037	0.034	0.028	0.017	0.027	0.028
<PCNEAR(%> =	5	5	5	5	5	5	5	5	5	5	5	5	5
<b>Statistics Summary Results</b>	BASE_IP_FINAL.STA	1_IP_FINAL.STA	2_IP_FINAL.STA	3_IP_FINAL.STA	4A_IP_FINAL.STA	5A_IP_FINAL.STA	6A_IP_FINAL.STA	4B_IP_FINAL.STA	5B_IP_FINAL.STA	6B_IP_FINAL.STA	4C_IP_FINAL.STA	5C_IP_FINAL.STA	6B_IP_FINAL.STA
Matrix totals (pcus/hr)	21074.4	21469.6	21469.7	21469.7	21469.7	21469.7	21469.7	21425.9	21425.9	21425.9	21400.5	21400.4	21425.9
Transient Queues (Total - pcus)	679.3	700.9	702	704.8	702	697.3	700.8	698.7	698.7	700	698.7	694.4	700
<This Time period>	675.5	695.9	698.1	699.6	696.2	692.7	696.2	694.6	691.6	695.7	694.6	690	695.7
<Next Time period>	3.9	4.9	4	5.2	4.6	4.6	4.4	4.1	4.1	4.4	4.2	4.5	4.4
<Proportion carried-over>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Over-Capacity Queues (pcus)	55.9	72.5	55.7	74.9	66	66.3	62.5	59.3	59.5	62.6	58.5	63	62.6
<This Time period>	54.3	70.4	54.1	72.4	64.2	64.5	60.9	57.8	58	61	57	61.3	61
<Next Time period>	1.5	2.1	1.6	2.6	1.8	1.8	1.6	1.5	1.5	1.6	1.5	1.7	1.6
<Proportion carried-over>	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Link Cruise Times (Total - pcu.hrs)	9639.5	9749.7	9748.9	9757.2	9754.2	9757.5	9748.6	9748.8	9752.9	9744.7	9748.3	9749.9	9744.7
<This Time period>	9629.7	9736.4	9738.7	9744.5	9742.2	9745.8	9737.1	9738.2	9742.3	9733.4	9737.3	9738.6	9733.4
<Next Time period>	9.8	13.3	10.2	12.7	11.9	11.7	11.5	10.6	10.7	11.3	11	11.3	11.3
<Proportion carried-over>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Travel Times (Total - pcu.hrs)	10374.7	10523	10506.6	10536.9	10521	10521	10511.8	10506.8	10508.1	10507.3	10505.5	10507.4	10507.3
<This Time period>	10359.5	10502.7	10490.9	10516.5	10502.6	10503	10494.2	10490.6	10491.9	10490	10489.9	10489.8	10490
<Next Time period>	15.2	20.4	15.7	20.5	18.4	18	17.5	16.2	16.3	17.3	16.7	17.5	17.3
<Proportion carried-over>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Travel Distance (Total pcu.kms)	519339.4	525756.3	524997.8	525126.2	525138.7	525461.4	524917.4	524879.3	525228.6	524732.3	524891	525107.3	524732.3
<This Time period>	518763.8	524950.9	524403.4	524389.1	524404.4	524781.4	524250.3	524781.4	524605.6	524071.2	524243.1	524444.4	524071.2
<Next Time period>	575.5	805.4	594.4	737.1	698.2	680	673.3	628.9	623.1	661.1	648	662.9	661.1
<Proportion carried-over>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Average Speed (Overall- km/h)	50.1	50	50	49.8	49.9	49.9	49.9	50	50	49.9	50	50	49.9
<Ratio>	79%	79%	76%	76%	76%	77%	77%	78%	77%	77%	78%	77%	77%
Delay (Total - pcu.hrs)	735.2	773.3	757.7	779.7	766.8	763.5	763.2	758	755.2	762.6	757.2	757.5	762.6
Delay / Vehicle (mins/veh)	2.09	2.16	2.12	2.18	2.14	2.13	2.13	2.12	2.11	2.14	2.12	2.12	2.14
Congestion Index (mins/veh.km)	0.26	0.26	0.26	0.27	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Average Trip Length (km)	24.64	24.49	24.45	24.46	24.46	24.47	24.45	24.50	24.51	24.49	24.53	24.54	24.49
Simulation Queues (pcu/h):													
Ave. Queue (DA1433) =	439.22	464.75	446.28	468.35	457.66	457.97	454.2	450.31	451.2	454.61	450.45	453.26	454.61
Queue at End (DA1483) =	108.65	140.77	108.23	144.73	128.42	129.02	121.76	115.69	116.01	122.01	113.94	122.55	122.01
Turn Penalties (pcu-hrs/hr) =	3.028	3.188	3.204	3.164	3.18	3.202	3.194	3.172	3.228	3.191	3.183	3.214	3.191
Turn Penalties (number) =	129	129	129	129	129	129	129	129	129	129	129	129	129



Enter Column for Comparison ==>	BASE_PM_FINAL	1_PM_FINAL	2_PM_FINAL	3_PM_FINAL	4A_PM_FINAL	5A_PM_FINAL	6A_PM_FINAL	4B_PM_FINAL	5B_PM_FINAL	6B_PM_FINAL	4C_PM_FINAL	5C_PM_FINAL	6C_PM_FINAL
Scenario Label	Reference Case PM	Option 1 PM	Option 2 PM	Option 3 PM	Option 4a PM	Option 5a PM	Option 6a PM	Option 4b PM	Option 5b PM	Option 6b PM	Option 4c PM	Option 5c PM	Option 6c PM
Convergence Summary	BASE_PM_FINAL.CON	1_PM_FINAL.CON	2_PM_FINAL.CON	3_PM_FINAL.CON	4A_PM_FINAL.CON	5A_PM_FINAL.CON	6A_PM_FINAL.CON	4B_PM_FINAL.CON	5B_PM_FINAL.CON	6B_PM_FINAL.CON	4C_PM_FINAL.CON	5C_PM_FINAL.CON	6C_PM_FINAL.CON
Loops (N) =	12	14	13	13	13	15	21	13	16	14	13	14	18
Assignment =	0.024/11	0.041/10	0.024/12	0.024/11	0.024/11	0.025/12	0.012/13	0.027/13	0.022/11	0.021/11	0.033/12	0.017/14	0.021/12
Simulation =	0.003/7	0.005/7	0.001/7	0.003/7	0.002/7	0.002/7	0.001/7	0.001/7	0.003/7	0.002/7	0.002/7	0.002/7	0.001/7
%Flows =	99.2	99.2	99.3	99.4	99.5	99.2	99.4	99.4	99.2	99.6	99.6	99	99.5
%Delays =	99.5	99.3	99.5	99.6	99.6	99.5	99.6	99.9	99.7	99.6	99.8	99.6	99.9
%V.I./%D.D =	0.004	0.002	0.003	0.003	0.002	0.002	0.001	0.003	0.002	0.003	0.003	0.003	0.001
%GAP =	0.031	0.046	0.033	0.037	0.027	0.028	0.012	0.021	0.028	0.03	0.023	0.026	0.015
<PCNEAR(%> =	5	5	5	5	5	5	5	5	5	5	5	5	5
Statistics Summary Results	BASE_PM_FINAL.STA	1_PM_FINAL.STA	2_PM_FINAL.STA	3_PM_FINAL.STA	4A_PM_FINAL.STA	5A_PM_FINAL.STA	6A_PM_FINAL.STA	4B_PM_FINAL.STA	5B_PM_FINAL.STA	6B_PM_FINAL.STA	4C_PM_FINAL.STA	5C_PM_FINAL.STA	6C_PM_FINAL.STA
Matrix totals (pcus/hr)	27800.7	28410.4	28410.5	28410.5	28410.5	28410.5	28410.5	28294.1	28294.1	28294.1	28242	28241.7	28241.8
Transient Queues (Total - pcus)	872	916.3	899.9	904.3	898.8	903.4	901.7	897.9	898.1	897.9	895.9	894.2	894.9
<This Time period>	851.7	898.6	884.7	882	887.8	887.5	886.4	881.7	882.2	882.1	879.7	877.9	879.5
<Next Time period>	20.3	17.7	16.3	16.8	16.5	15.9	15.3	16.2	15.9	15.8	16.2	16.3	15.4
<Proportion carried-over>	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Over-Capacity Queues (pcus)	302.5	267.1	241.8	264.1	254.5	246.1	242.7	250.3	246.7	246.2	249.9	250.6	241.3
<This Time period>	269.9	249.2	227.6	247.1	239.7	231.4	229.3	235.5	231.4	232.1	235.1	234.5	227.7
<Next Time period>	32.7	17.9	14.2	17.1	14.9	14.7	13.4	14.8	15.3	14.1	14.7	16.1	13.7
<Proportion carried-over>	11%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Link Cruise Times (Total - pcu.hrs)	11405.6	11588.2	11566.3	11569.5	11575.4	11563.3	11561.5	11558.4	11568.4	11547.4	11555.9	11566.5	11547.3
<This Time period>	11351	11537.4	11520.8	11519.2	11526	11519.2	11514.4	11509.3	11521.4	11499.5	11507.8	11518.5	11500.5
<Next Time period>	54.5	50.9	45.6	50.3	49.4	47.2	47.1	48.7	47	47.9	48.1	48	46.8
<Proportion carried-over>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Travel Times (Total - pcu.hrs)	12580	12771.6	12708	12732.5	12734.3	12735.8	12705.9	12706.2	12713.2	12691.5	12701.7	12711.3	12683.5
<This Time period>	12472.6	12685.2	12633.1	12648.3	12653.5	12658	12626.5	12626.5	12635.1	12637.7	12622.6	12630.8	12607.6
<Next Time period>	107.5	86.5	74.9	84.1	80.8	77.8	75.9	79.7	78.2	77.8	79	80.4	75.8
<Proportion carried-over>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Travel Distance (Total pcu.kms)	606464.5	615957.6	614327.2	614237.9	614350.5	615363	613998.3	613719.4	614593.8	613448.3	613752.5	614538.2	613544.5
<This Time period>	603486.7	613105.8	611780.2	611476.6	611595.3	612737.8	611004.8	612737.8	611979.4	610764.9	611071.3	611869.1	610926.7
<Next Time period>	2977.8	2851.8	2547	2761.3	2755.2	2625.2	2645.7	2714.6	2614.4	2683.4	2681.3	2669	2617.8
<Proportion carried-over>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Average Speed (Overall- km/h)	48.2	48.2	48.3	48.2	48.2	48.3	48.3	48.3	48.3	48.3	48.3	48.3	48.4
<Ratio>	57%	68%	70%	68%	71%	69%	72%	71%	69%	71%	70%	69%	71%
Delay (Total - pcu.hrs)	1174.4	1183.4	1141.7	1163	1158.9	1149.5	1144.4	1148.2	1144.8	1144.1	1145.8	1144.8	1136.2
Delay / Vehicle (mins/veh)	2.53	2.50	2.41	2.46	2.45	2.42	2.43	2.43	2.43	2.43	2.43	2.43	2.41
Congestion Index (mins/veh.km)	0.33	0.32	0.31	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Average Trip Length (km)	21.81	21.68	21.62	21.62	21.62	21.66	21.61	21.69	21.72	21.68	21.73	21.76	21.72
Simulation Queues (pcu/h):													
Ave. Queue (DA1433) =	766.23	771.81	736.28	754.72	753.67	747.6	740.8	744.88	744.36	741.52	743.11	744.27	735.4
Queue at End (DA1483) =	539.7	498.44	455.15	494.18	479.3	462.72	458.58	471.07	462.85	464.22	470.3	468.94	455.3
Turn Penalties (pcu-hrs/hr) =	1.159	1.284	1.232	1.275	1.25	1.268	1.272	1.265	1.271	1.271	1.27	1.267	1.266
Turn Penalties (number) =	129	129	129	129	129	129	129	129	129	129	129	129	129

