SHRP 2 C04:
Improving Our Understanding of How Highway Congestion and Pricing Affect Travel Demand

APPENDIX A

MODEL ESTIMATION RESULTS – DETAILED TECHNICAL DCOUMENTATION

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Revealed Preference Data – New York Survey and NYBPM Model Level of Service (LOS) and Cost Skims

Table A1-1: New York RP Data –Tour Mode Choice Models – Work - Base Run

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0137	(-14.49)				
COST				-0.1430	(-11.04)				
WAIT					-0.0273				
WALK					-0.0205				
DIST					0.0246 (7.78)				
DACC						-0.0137		-0.0137	
LOW/A=0	-99.000		-1.8615 (-4.71)	-1.8615 (-4.71)	4.2733 (5.22)	1.1342 (1.86)	3.3836 (13.79)	-0.7285 (-0.95)	
LOW/A<W	1.1691 (9.07)		-1.8636 (-19.5)	-1.8636 (-19.5)	1.000	-0.4006 (-0.58)	1.2326 (4.46)	-1.9651 (-1.86)	-2.8413 (-6.82)
LOW/A=W	2.2874 (8.56)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.500	-0.4006 (-0.58)	1.2326 (4.46)	-1.9041 (-2.49)	-2.8413 (-6.82)
LOW/A>W	3.473 (12.85)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.200	-0.4006 (-0.58)	0.226	-1.9041 (-2.49)	-3.5327 (-3.41)
MED/A=0	-99.000		-1.8615 (-4.71)	-1.8615 (-4.71)	3.6156 (6.55)	1.1342 (1.86)	3.3836 (13.79)	0.6662 (1.69)	
MED/A<W	1.1691 (9.07)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.9849 (2.36)	-0.474 (-1.36)	1.0406 (5.95)	-1.4405 (-4.51)	-2.8413 (-6.82)
MED/A=W	2.9424 (13.45)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.2602 (0.74)	-0.0933 (-0.42)	0.5651 (3.39)	-1.189 (-4.69)	-2.8413 (-6.82)
MED/A>W	3.473 (12.85)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.2111 (0.53)	-0.0933 (-0.42)	0.2255 (0.92)	-1.189 (-4.69)	-3.5327 (-3.41)
HIGH/A=0	-99.000		-1.8615 (-4.71)	-1.8615 (-4.71)	3.6156 (6.55)	-0.8869 (0)	2.7555 (6.59)	-1.2457 (-1.12)	
HIGH/A<W	1.5222 (5.74)		-1.8636 (-19.5)	-1.8636 (-19.5)	-0.242 (-0.38)	-0.474 (-1.36)	0.226 (0.74)	-1.9348 (-4.05)	-1.2585 (-2.57)
HIGH/A=W	2.9424 (13.45)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.1473 (0.33)	-0.0933 (-0.42)	-0.3018 (-1.17)	-1.4612 (-4.65)	-1.9768 (-3.75)
HIGHA>W	3.473 (12.85)		-1.8636 (-19.5)	-1.8636 (-19.5)	0.2111 (0.53)	-0.0933 (-0.42)	-0.4984 (-1.45)	-1.4612 (-4.65)	-2.8286 (-2.73)
INMANH		0.9193 (1.51)	1.3951 (1.93)	1.3951 (1.93)			4.4057 (8.98)	2.9063 (4.73)	5.3596 (10.52)
TOMANH		0.4541 (1.65)	-0.0825 (-0.22)	-0.0825 (-0.22)	2.7025 (7.24)	2.8895 (9.29)	2.2939 (9.16)	2.8924 (9.08)	2.42 (4.34)
TOLLB	-0.3608 (-4.56)	-0.5971 (-4.59)	-0.7049 (-3.52)	-0.7049 (-3.52)					
NEST 1	0.8081								
NEST 3	0.9000								
NOBS	9002								
LL	-6901.3								
RHO	0.6051								

VOT	5.7
WAIT/IVT	2
WALK/IVT	1.5
DIVT/IVT	1

Table A1-2: New York RP Data –Tour Mode Choice Models – Non-Work - Base Run

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0126	(-12.1)				
COST				-0.1254	(-13.7)				
WAIT					-0.0252				
WALK					-0.0378				
DIST					0.0031 (0.3)				
DACC						-0.0126		-0.0126	
INFL							-2.3049	(-6.05)	
A=0	-99.000		-0.6439 (-3.02)	-0.9654 (-4.1)			2.6516 (9.2)		-0.3504 (-0.77)
A<W	-3.2917 (-12)		-0.9436 (-10.33)	-1.4278 (-7.8)			0.7312 (2.37)		-2.6286 (-4.92)
A=W	-3.0727 (-12.06)		-0.9436 (-10.33)	-1.5435 (-14.47)	-0.0957 (-0.1)		-0.0131 (-0.05)		-3.7659 (-7.67)
A>W	-2.5385 (-10.01)		-0.9436 (-10.33)	-1.5435 (-14.47)	-0.0957 (-0.1)		-0.5977 (-2.08)		-4.7089 (-8.4)
LOW					1.1294 (0.96)	-0.1097 (-0.09)	0.8313 (4.64)		
MED									
HIGH			-0.1531 (-2.26)	-0.1531 (-2.26)	-1.3347 (-1.25)		-0.1964 (-0.97)	-1.0664 (-2.23)	
WORK	4.5689 (17.99)		-0.9101 (-9.89)	-1.1654 (-10.95)	-3.1193 (-2.46)	-2.909 (-3.59)	-0.8426 (-3.51)		-0.5841 (-1.4)
NWRK	4.1014 (16.1)		-0.897 (-9.31)	-1.1462 (-10.3)	-2.7791 (-2.18)	-2.2003 (-2.71)	0.2574 (1.12)		-0.2771 (-0.65)
2*AD/M	-0.923 (-14.86)		-0.3579 (-4.53)	-0.1955 (-2.14)	-0.2565 (-0.25)	-2.0466 (-2.53)	-1.4608 (-8.69)	-1.9109 (-6.06)	-0.8555 (-2.8)
A+KID/M	-1.2539 (-14.83)		1.2425 (15.42)	1.4205 (14.94)	-3.6649 (-2.2)	-2.5814 (-2.04)	0.0879 (0.43)	-2.0746 (-2.8)	0.7137 (1.92)
2*AD/D	-0.7784 (-9.06)			0.3967 (3.28)	0.0447 (0.03)	-1.6563 (-1.33)	-0.6754 (-2.49)	-1.0319 (-1.83)	-0.6183 (-1.1)
A+KID/D	-0.8913 (-6.85)		0.8477 (8.82)	0.9303 (8.39)			0.1072 (0.36)	-1.7514 (-1.64)	-2.5341 (-1.98)
INMANH		0.6151 (1.77)	0.6974 (1.63)	0.6974 (1.63)			3.7489 (11.12)	2.8039 (3.74)	5.7546 (13.81)
TOMANH		-0.3384 (-1.29)	-0.3384 (-1.29)	-0.3384 (-1.29)	5.7035 (5.47)	4.6183 (5.5)	1.4746 (5.7)	1.1895 (3.57)	3.6764 (7.77)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
TOLLB	-0.6495 (-5.01)	-0.5367 (-5.08)	-0.8494 (-6.51)	-0.8494 (-6.51)					
NEST 2	0.9000								
NEST 3	0.9000								
NOBS	11,800								
LL	-12957.1								
RHO	0.3967								
VOT	6.0								
WAIT/IVT	2.0								
WALK/IVT	3.0								
DIVT/IVT	1								

Table A1- 3: New York RP Data –Tour Mode Choice Models –Work – Travel Time Segmentation

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT /FFTIME				-0.0152 (-8.03)					
DELAY				-0.0278 (-7.64)					
COST				-0.1047 (-15.66)					
XWAIT					-0.0143 (-5.85)				
FWAIT <= 7 min					0.0041 (0.21)		-0.068 (-5.13)		
FWAIT > 7 min					-0.0244 (-1.98)		-0.0293 (-4.18)		
WALK					-0.0146 (-3.99)				
DIST					0.0175 (6.33)				
DACC						-0.0115 (-4.11)		-0.0115 (-4.11)	
LOW/A=0	-99.000		-2.9543 (-2.88)	-2.3003 (-3.1)	3.082 (4.27)	0.6556	3.2889 (10.03)	-0.8583 (-1.09)	-0.6493 (-1.14)
LOW/A<W	0.8006 (2.54)		-2.7421 (-2.66)	-4.7297	-2.3519	-0.3896	1.1768 (2.73)	-1.9402 (-1.79)	-1.6637 (-1.84)
LOW/A=W	1.7791 (8.95)		-1.8902 (-3.92)	-2.164 (-4.07)	-6.2523	-0.79 (-1.09)	1.6296 (4.77)	-1.9206 (-1.82)	-2.3803 (-2.19)
LOW/A>W	3.6171 (5.02)		-0.7624 (-0.62)	-8.1186	-8.4754	-7.7078	1.8003 (1.85)	0.0009 (0)	0.353 (0.26)
MED/A=0	-99.000		-0.7996 (-1.68)	-1.0777	3.2352 (5.33)	1.4302 (2.19)	3.8505 (11.5)	1.1235 (2.51)	0.6315 (1.56)
MED/A<W	0.8935 (9.05)		-1.9679 (-9.05)	-3.055 (-8.87)	0.1484 (0.33)	-1.3056 (-3.05)	1.3105 (6.38)	-1.2502 (-3.73)	-1.558 (-4.52)
MED/A=W	2.2219 (34.73)		-1.5115 (-11.55)	-2.4926 (-13.01)	-0.4716 (-1.12)	-0.7481 (-2.39)	0.9451 (4.5)	-0.9308 (-3.21)	-2.9874 (-5.91)
MED/A>W	2.5265 (27.92)		-1.7605 (-8.45)	-3.3782 (-8.08)	-1.0588 (-1.71)	-0.5879 (-1.64)	0.6697 (2.38)	-0.8016 (-2.17)	-3.3327 (-3.25)
HIGH/A=0	-99.000		-0.0089 (-0.01)	-2.2375	4.2402 (2.82)	-0.8869	3.6515 (3.49)	-0.3672 (-0.25)	0.9554 (0.87)
HIGH/A<W	1.1371 (5.65)		-2.0768 (-4.31)	-3.0651 (-4.2)	-0.6692 (-1)	-0.7585 (-1.5)	0.6707 (2.11)	-1.519 (-3.14)	-1.1039 (-2.57)
HIGH/A=W	2.2649 (22.37)		-1.5825 (-7.42)	-2.5153 (-8.22)	-0.612 (-1.22)	-0.7339 (-2.06)	0.2412 (0.85)	-1.3346 (-3.45)	-1.5821 (-3.68)
HIGHA>W	2.7321 (21.07)		-1.389 (-5.32)	-2.4686 (-6.19)	-0.0091 (-0.02)	-0.5627 (-1.46)	0.2485 (0.67)	-0.7075 (-1.67)	-1.9945 (-2.61)
INMANH		0.2468 (0.58)	0.5679 (1)	0.5679 (1)			3.1396 (11.04)	1.7185 (3.58)	4.2138 (11.41)
TOMANH		0.0268 (0.17)	-0.418 (-1.48)	-0.418 (-1.48)	2.0171 (6.56)	2.2367 (9.68)	1.4539 (9.15)	1.9159 (7.47)	1.7974 (4.09)
TOLLB	-0.4073 (-5.71)	-0.7651 (-6.68)	-0.8212 (-4.43)	-0.8212 (-4.43)					
NOBS	9002								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LL Constants Only	-9682.4								
LL	-6860.6								
VOT/FREE FLOW	8.7								
VOT/DELAY	15.9								

Table A1- 4: New York RP Data –Tour Mode Choice Models –Non-Work – Travel Time Segmentation

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT /FFTIME				-0.0082	(-3.26)				
DELAY				-0.0290	(-4.65)				
COST				-0.0913	(-11.81)				
XWAIT						-0.0092	(-2.35)		
FWAIT <= 7 min					-0.0389	(-0.46)	-0.114	(-5.39)	
FWAIT > 7 min					0.017	(0.31)	-0.0044	(-0.74)	
WALK						-0.0257	(-4.59)		
DIST					0.0039 (0.44)				
DACC						0.0038 (0.72)		0.0038 (0.72)	
INFL							-0.6921	(-1.57)	
A=0	-99.000		-0.3938 (-1.93)	-0.8252 (-3.62)	-0.2748 (-0.16)	-15.9133 (-0.04)	2.9151 (8.75)	-14.1638 (-0.03)	-0.8922 (-2.16)
A<W	-2.6865 (-11.99)		-0.9778 (-6.38)	-1.3528 (-7.95)		-16.9673 (-0.04)	1.2754 (3.7)	-14.9684 (-0.03)	-2.6513 (-5.63)
A=W	-2.4906 (-12)		-0.7998 (-8.65)	-1.5134 (-13.88)	-1.0279 (-0.94)	-18.3886 (-0.04)	0.6387 (2.01)	-15.6221 (-0.03)	-3.4614 (-8.2)
A>W	-2.0548 (-9.94)		-0.8828 (-9.6)	-1.3356 (-12.65)	-0.8603 (-0.69)	-16.3381 (-0.04)	0.1398 (0.41)	-16.1687 (-0.03)	-4.2606 (-8.88)
LOW	-0.0113 (-0.13)		-0.3508 (-2.42)	0.0468 (0.3)	1.0719 (1)	0.2763 (0.2)	0.799 (4.83)	-0.1015 (-0.2)	1.1492 (3.97)
MED									
HIGH	0.0535 (0.98)		-0.1563 (-2.1)	-0.0776 (-0.92)	-1.2301 (-1.25)	0.4971 (0.57)	-0.047 (-0.26)	-0.4683 (-0.92)	0.5144 (1.86)
WORK	3.6732 (17.82)		-0.8171 (-9.55)	-0.9913 (-10.13)	-1.9743 (-1.8)	-0.2681 (-0.23)	-0.6794 (-3.31)	13.4643 (0.03)	-0.4757 (-1.38)
NWRK	3.2967 (15.92)		-0.7531 (-8.39)	-1.048 (-10.2)	-1.43 (-1.15)	-0.144 (-0.11)	0.2449 (1.23)	14.2831 (0.03)	-0.3706 (-1.05)
2*AD/M	-0.7306 (-14.37)		-0.3001 (-4.2)	-0.1849 (-2.24)	-0.2534 (-0.29)	-1.8818 (-2.04)	-1.0368 (-7.31)	-0.5802 (-1.51)	-0.6961 (-2.77)
A+KID/M	-0.9628 (-13.88)		1.1171 (15.19)	1.2934 (15.09)	-2.4064 (-1.71)	0.4977 (0.34)	0.2278 (1.32)	-0.6947 (-0.92)	0.7093 (2.3)
2*AD/D	-0.6318 (-8.75)		-0.0564 (-0.53)	0.3359 (2.93)	0.0419 (0.04)	-0.9478 (-0.72)	-0.5098 (-2.22)	-0.2153 (-0.35)	-0.6218 (-1.33)
A+KID/D	-0.681 (-6.39)		0.7789 (8.5)	0.8311 (8.26)			0.2139 (0.85)	-0.957 (-0.82)	-2.2737 (-2.15)
INMANH		0.5131 (1.8)	0.6244 (1.73)	0.6244 (1.73)			2.7477 (9.28)	1.6875 (2.21)	4.9314 (14.14)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
TOMANH		-0.345 (-1.88)	-0.0749 (-0.31)	-0.476 (-1.59)	3.8128 (3.98)	17.7414 (0.04)	0.6384 (2.66)	1.3283 (3.07)	2.8888 (7.35)
TOLLB	-0.6588 (-5.58)	-0.609 (-5.76)	-0.8287 (-6.44)	-0.8287 (-6.44)					
NOBS	11,800								
LL Constants Only	-16782.0								
LL	-12852.512								
VOT/FREE FLOW	5.4								
VOT/DELAY	19.1								

Table A1- 5: New York RP Data –Tour Mode Choice Models –Work – Reliability Measures

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0171	(-9.2)				
STD/D				-0.0241	(-0.11)				
COST				-0.1102	(-16.99)				
XWAIT						-0.0141	(-5.77)		
FWAIT <= 7 min					-0.0024	(-0.12)	-0.0675	(-5.08)	
FWAIT > 7 min					-0.0218	(-1.77)	-0.0288	(-4.12)	
WALK						-0.0131	(-3.61)		
DIST					0.0194 (7.07)				
DACC						-0.0118 (-4.17)		-0.0118 (-4.17)	
LOW/A=0	-99.000		-2.9685 (-2.9)	-2.3176 (-3.13)	3.0999 (4.29)	0.6556	3.2988 (10.06)	-0.8145 (-1.04)	-0.5968 (-1.04)
LOW/A<W	0.804 (2.55)		-2.7491 (-2.66)	-4.7297	-2.3519	-0.3896	1.2041 (2.79)	-1.8795 (-1.74)	-1.6089 (-1.78)
LOW/A=W	1.7881 (8.99)		-1.8947 (-3.93)	-2.1727 (-4.08)	-6.2523	-0.6614 (-0.9)	1.6624 (4.84)	-1.8426 (-1.75)	-2.3112 (-2.13)
LOW/A>W	3.6258 (5.03)		-0.7665 (-0.63)	-8.1186	-8.4754	-7.7078	1.8697 (1.93)	0.1108 (0.08)	0.4156 (0.31)
MED/A=0	-99.000		-0.804 (-1.69)	-1.0777	3.3014 (5.45)	1.5486 (2.37)	3.8934 (11.56)	1.2038 (2.68)	0.7 (1.72)
MED/A<W	0.9029 (9.15)		-1.9726 (-9.07)	-3.0642 (-8.89)	0.2344 (0.52)	-1.162 (-2.72)	1.3564 (6.54)	-1.1624 (-3.45)	-1.489 (-4.33)
MED/A=W	2.2309 (34.88)		-1.5165 (-11.59)	-2.5023 (-13.06)	-0.3497 (-0.83)	-0.5678 (-1.82)	1.0111 (4.76)	-0.8309 (-2.85)	-2.9154 (-5.77)
MED/A>W	2.5377 (28.04)		-1.7667 (-8.48)	-3.3897 (-8.11)	-0.9155 (-1.48)	-0.3823 (-1.08)	0.7469 (2.65)	-0.6788 (-1.84)	-3.2503 (-3.17)
HIGH/A=0	-99.000		-0.0259 (-0.02)	-2.2375	4.2644 (2.83)	-0.8869	3.6301 (3.47)	-0.3457 (-0.24)	0.9634 (0.88)
HIGH/A<W	1.1471 (5.7)		-2.0808 (-4.32)	-3.0737 (-4.21)	-0.6104 (-0.92)	-0.6322 (-1.25)	0.7014 (2.2)	-1.4531 (-3)	-1.0505 (-2.44)
HIGH/A=W	2.2759 (22.48)		-1.5887 (-7.45)	-2.5275 (-8.26)	-0.4704 (-0.94)	-0.5218 (-1.49)	0.3165 (1.1)	-1.2156 (-3.14)	-1.4992 (-3.5)
HIGHA>W	2.7431 (21.16)		-1.3947 (-5.34)	-2.4796 (-6.22)	0.122 (0.23)	-0.3558 (-0.94)	0.3405 (0.92)	-0.5854 (-1.38)	-1.904 (-2.49)
INMANH		0.2204 (0.52)	0.5335 (0.94)	0.5335 (0.94)			3.0643 (10.81)	1.6125 (3.37)	4.1605 (11.26)
TOMANH		0.0191 (0.12)	-0.4367 (-1.55)	-0.4367 (-1.55)	2.1243 (6.94)	2.3153 (10.04)	1.5918 (10.25)	2.0388 (8)	1.932 (4.4)
TOLLB	-0.393 (-5.49)	-0.7569 (-6.61)	-0.829 (-4.48)	-0.829 (-4.48)					
NOBS	9002								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LL Constants Only	-9682.4								
LL	-6866.4								
VOT	9.3								
VOR/10 miles	1.3								

Table A1- 6: New York RP Data –Tour Mode Choice Models –Non-Work – Reliability Measures (1st Form)

Variable	Mode								
	SOV	HOV2	HOV3	HOV4+	WCR	DCR	WT	DT	TX
IVT				-0.0095 (-3.72)					
STD				-0.0251 (-0.56)					
COST				-0.0945 (-12.25)					
XWAIT					-0.0065 (-1.73)				
FWAIT <= 7 min					-0.0436 (-0.53)		-0.1196 (-5.65)		
FWAIT > 7 min					0.0196 (0.38)		-0.006 (-1)		
WALK					-0.0229 (-4.13)				
DIST					0.0042 (0.49)				
DACC						0.0037 (0.69)		0.0037 (0.69)	
INFL							-0.7518 (-1.7)		
A=0	-99.000		-0.3975 (-1.95)	-0.8313 (-3.65)	-0.3905 (-0.23)	-16.0639 (-0.04)	3.0117 (9.05)	-14.0197 (-0.03)	-0.8625 (-2.09)
A<W	-2.6828 (-11.97)		-0.9783 (-6.38)	-1.3553 (-7.96)		-17.0371 (-0.04)	1.3614 (3.95)	-14.8383 (-0.03)	-2.644 (-5.6)
A=W	-2.4882 (-11.99)		-0.8012 (-8.67)	-1.5162 (-13.91)	-1.0029 (-0.93)	-18.4264 (-0.04)	0.7394 (2.33)	-15.4541 (-0.03)	-3.4345 (-8.14)
A>W	-2.052 (-9.93)		-0.8843 (-9.62)	-1.3387 (-12.68)	-0.7538 (-0.62)	-16.2452 (-0.04)	0.2426 (0.71)	-15.9882 (-0.03)	-4.238 (-8.83)
LOW	-0.0104 (-0.12)		-0.3508 (-2.42)	0.0471 (0.31)	1.1061 (1.03)	0.3065 (0.22)	0.7951 (4.8)	-0.1192 (-0.23)	1.1528 (3.99)
MED									
HIGH	0.0533 (0.98)		-0.1567 (-2.11)	-0.0781 (-0.93)	-1.1746 (-1.2)	0.6101 (0.71)	-0.0337 (-0.18)	-0.4738 (-0.93)	0.5258 (1.9)
WORK	3.6732 (17.82)		-0.8175 (-9.56)	-0.9918 (-10.13)	-1.9526 (-1.8)	-0.2337 (-0.2)	-0.6739 (-3.28)	13.4864 (0.03)	-0.4716 (-1.36)
NWRK	3.2966 (15.92)		-0.7534 (-8.39)	-1.0482 (-10.21)	-1.5168 (-1.22)	-0.1398 (-0.1)	0.2524 (1.27)	14.3058 (0.03)	-0.3603 (-1.02)
2*AD/M	-0.731 (-14.38)		-0.3002 (-4.2)	-0.1846 (-2.24)	-0.2716 (-0.31)	-1.9164 (-2.08)	-1.0427 (-7.35)	-0.5846 (-1.52)	-0.695 (-2.76)
A+KID/M	-0.9636 (-13.89)		1.1176 (15.19)	1.2941 (15.09)	-2.4104 (-1.73)	0.4145 (0.29)	0.2151 (1.25)	-0.7099 (-0.94)	0.7107 (2.31)
2*AD/D	-0.6313 (-8.74)		-0.0565 (-0.53)	0.3357 (2.93)	-0.0029 (0)	-0.9489 (-0.73)	-0.5335 (-2.32)	-0.238 (-0.39)	-0.6341 (-1.36)
A+KID/D	-0.682 (-6.4)		0.7792 (8.5)	0.8319 (8.27)			0.232 (0.92)	-0.8784 (-0.76)	-2.2158 (-2.1)
INMANH		0.5038 (1.77)	0.614 (1.7)	0.614 (1.7)			2.7115 (9.17)	1.6558 (2.17)	4.9195 (14.1)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
TOMANH		-0.3338 (-1.83)	-0.0663 (-0.27)	-0.4688 (-1.57)	4.1026 (4.33)	18.1777 (0.04)	0.8934 (3.83)	1.5606 (3.63)	3.0522 (7.8)
TOLLB	-0.6137 (-5.24)	-0.5637 (-5.38)	-0.791 (-6.18)	-0.791 (-6.18)					
NOBS	11,800								
LL Constants Only	-16782.0								
LL	-12858.2317								
VOT	6.0								
VOR	15.9								

Table A1- 7: New York RP Data –Tour Mode Choice Models –Non-Work – Reliability Measures (2nd Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0094 (-3.66)					
STD/D				-0.1399 (-0.51)					
COST				-0.0949 (-12.39)					
XWAIT					-0.0063 (-1.7)				
FWAIT <= 7 min					-0.0447 (-0.55)		-0.1195 (-5.65)		
FWAIT > 7 min					0.02 (0.39)		-0.006 (-1.01)		
WALK					-0.0225 (-4.1)				
DIST					0.0043 (0.5)				
DACC						0.0042 (0.78)		0.0042 (0.78)	
INFL							-0.756 (-1.71)		
A=0	-99.000		-0.3978 (-1.95)	-0.8321 (-3.65)	-0.4146 (-0.25)	-16.0989 (-0.04)	2.9955 (8.96)	-14.0414 (-0.03)	-0.8588 (-2.09)
A<W	-2.6823 (-11.97)		-0.9783 (-6.38)	-1.3554 (-7.96)		-17.0618 (-0.04)	1.3445 (3.88)	-14.8622 (-0.03)	-2.643 (-5.6)
A=W	-2.4877 (-11.99)		-0.8013 (-8.67)	-1.5165 (-13.91)	-1.0043 (-0.93)	-18.4419 (-0.04)	0.7256 (2.28)	-15.4718 (-0.03)	-3.431 (-8.13)
A>W	-2.0518 (-9.92)		-0.8845 (-9.62)	-1.339 (-12.68)	-0.7456 (-0.61)	-16.246 (-0.04)	0.2294 (0.67)	-15.9994 (-0.03)	-4.2332 (-8.82)
LOW	-0.0104 (-0.12)		-0.3512 (-2.42)	0.0469 (0.3)	1.1036 (1.03)	0.3141 (0.23)	0.7948 (4.8)	-0.1219 (-0.24)	1.1525 (3.99)
MED									
HIGH	0.0534 (0.98)		-0.1568 (-2.11)	-0.0782 (-0.93)	-1.1692 (-1.2)	0.6394 (0.74)	-0.0313 (-0.17)	-0.4709 (-0.93)	0.5269 (1.91)
WORK	3.6733 (17.82)		-0.8175 (-9.56)	-0.9918 (-10.13)	-1.9551 (-1.81)	-0.2395 (-0.2)	-0.6721 (-3.27)	13.4943 (0.03)	-0.4706 (-1.36)
NWRK	3.2968 (15.92)		-0.7534 (-8.39)	-1.0483 (-10.21)	-1.533 (-1.24)	-0.1569 (-0.12)	0.2541 (1.28)	14.313 (0.03)	-0.3598 (-1.02)
2*AD/M	-0.7312 (-14.38)		-0.3002 (-4.2)	-0.1845 (-2.24)	-0.2629 (-0.3)	-1.9039 (-2.07)	-1.0426 (-7.35)	-0.5847 (-1.52)	-0.6952 (-2.76)
A+KID/M	-0.9638 (-13.89)		1.1176 (15.19)	1.2942 (15.09)	-2.4295 (-1.74)	0.3898 (0.27)	0.2144 (1.24)	-0.7141 (-0.95)	0.7099 (2.3)
2*AD/D	-0.6314 (-8.74)		-0.0566 (-0.53)	0.3356 (2.93)	-0.0083 (-0.01)	-0.957 (-0.74)	-0.534 (-2.32)	-0.2418 (-0.4)	-0.6344 (-1.36)
A+KID/D	-0.6819 (-6.4)		0.7793 (8.5)	0.832 (8.27)			0.2321 (0.92)	-0.8694 (-0.75)	-2.213 (-2.1)
INMANH		0.5027 (1.77)	0.6122 (1.69)	0.6122 (1.69)			2.7055 (9.15)	1.6479 (2.16)	4.9174 (14.09)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
TOMANH		-0.333 (-1.82)	-0.0653 (-0.27)	-0.4682 (-1.56)	4.1386 (4.39)	18.2263 (0.04)	0.9109 (3.99)	1.5789 (3.69)	3.0683 (7.88)
TOLLB	-0.6111 (-5.22)	-0.5613 (-5.36)	-0.7901 (-6.17)	-0.7901 (-6.17)					
NOBS	11,800								
LL Constants Only	-16782.0								
LL	-12858.255								
VOT	5.9								
VOR/ 10 miles	8.8								

Table A1- 8: New York RP Data –Tour Mode Choice Models –Work – Income Impact (2nd Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT	-0.0172 (-9.36)								
STD/D	-0.0642 (-0.29)								
COST BY INC	-4462.4582 (-14.54)								
XWAIT					-0.0145 (-5.93)				
FWAIT <= 7 min					-0.007 (-0.36)		-0.0578 (-4.33)		
FWAIT > 7 min					-0.0167 (-1.38)		-0.0309 (-4.35)		
WALK					-0.0106 (-2.96)				
DIST					0.0204 (7.6)				
DACC						-0.0104 (-3.76)		-0.0104 (-3.76)	
LOW/A=0	-99.000		-3.172 (-3.1)	-2.612 (-3.52)	3.7026 (4.39)	0.6556	3.2273 (9.59)	-0.6608 (-0.83)	1.135 (1.85)
LOW/A<W	1.1175 (3.48)		-2.9681 (-2.87)	-4.7297	-2.3519	-0.3896	0.9172 (1.92)	-2.0679 (-1.86)	-0.0253 (-0.02)
LOW/A=W	2.2463 (10.75)		-2.2237 (-4.58)	-2.7208 (-5.04)	-6.2523	-0.2675 (-0.33)	1.4058 (3.54)	-1.9055 (-1.77)	-0.4983 (-0.42)
LOW/A>W	4.4887 (6.01)		-1.3512 (-1.1)	-8.1186	-8.4754	-7.7078	0.9396 (0.81)	-0.5508 (-0.37)	1.9605 (0.95)
MED/A=0	-99.000		-0.8072 (-1.7)	-1.0777	3.0907 (5.15)	1.3915 (2.13)	3.7743 (11.14)	1.0198 (2.26)	0.4513 (1.09)
MED/A<W	0.8751 (8.87)		-1.9666 (-9.03)	-3.0447 (-8.83)	-0.0288 (-0.06)	-1.4132 (-3.28)	1.1968 (5.77)	-1.4038 (-4.15)	-1.8801 (-5.4)
MED/A=W	2.1804 (34.23)		-1.4965 (-11.41)	-2.4624 (-12.85)	-0.6147 (-1.46)	-0.8267 (-2.63)	0.8132 (3.85)	-1.0828 (-3.71)	-3.3286 (-6.63)
MED/A>W	2.4648 (27.42)		-1.7358 (-8.33)	-3.333 (-7.98)	-1.1707 (-1.9)	-0.6199 (-1.74)	0.5147 (1.83)	-0.9624 (-2.61)	-3.7472 (-3.65)
HIGH/A=0	-99.000		0.0627 (0.04)	-2.2375	3.7348 (2.49)	-0.8869	3.5562 (3.41)	-0.5332 (-0.37)	0.2186 (0.2)
HIGH/A<W	0.9883 (4.93)		-2.0108 (-4.17)	-2.9496 (-4.04)	-0.9684 (-1.46)	-0.939 (-1.88)	0.6862 (2.2)	-1.5506 (-3.25)	-1.9172 (-4.71)
HIGH/A=W	2.0598 (20.78)		-1.4937 (-7.03)	-2.3657 (-7.77)	-0.7183 (-1.46)	-0.748 (-2.16)	0.2615 (0.93)	-1.3424 (-3.55)	-2.5051 (-6.19)
HIGHA>W	2.5282 (19.76)		-1.3007 (-4.99)	-2.3213 (-5.84)	-0.067 (-0.13)	-0.5068 (-1.36)	0.3238 (0.9)	-0.6281 (-1.53)	-3.0431 (-4.08)
INMANH		0.3792 (0.9)	0.7512 (1.33)	0.7512 (1.33)			3.3593 (12.01)	1.9533 (4.11)	4.5662 (12.5)
TOMANH		0.1911 (1.22)	-0.2049 (-0.73)	-0.2049 (-0.73)	2.3908 (7.84)	2.6128 (11.48)	1.8927 (12.43)	2.412 (9.62)	1.5251 (3.43)
TOLLB	-0.5365 (-7.64)	-0.7354 (-6.41)	-0.7143 (-3.87)	-0.7143 (-3.87)					
NOBS	9002								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LL Constants Only	-9682.4								
LL	-6894.9								
VOT/$12.5K, $/hour	2.9								
VOT/$37.5K, $/hour	8.7								
VOT/$62.5K, $/hour	14.5								
VOT/$87.5K, $/hour	20.2								
VOT/$125K, $/hour	28.9								
VOT/$175K, $/hour	40.5								
VOR/10 miles/62.5K, $/hour	5.4								

Table A1- 9: New York RP Data –Tour Mode Choice Models –Work – Income Impact (3rd Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0172	(-9.31)				
STD/D				-0.0340	(-0.15)				
COST BY INC$^{0.6}$				-75.5045	(-16.93)				
XWAIT					-0.0139	(-5.72)			
FWAIT <= 7 min					-0.0049	(-0.25)	-0.0627	(-4.7)	
FWAIT > 7 min					-0.0195	(-1.6)	-0.0297	(-4.22)	
WALK					-0.0117	(-3.26)			
DIST					0.0199 (7.36)				
DACC						-0.011 (-3.97)		-0.011 (-3.97)	
LOW/A=0	-99.000		-3.1058 (-3.03)	-2.512 (-3.39)	3.4705 (4.35)	0.6556	3.2591 (9.82)	-0.698 (-0.88)	0.5736 (0.97)
LOW/A<W	1.0166 (3.18)		-2.8882 (-2.8)	-4.7297	-2.3519	-0.3896	1.0884 (2.39)	-1.932 (-1.76)	-0.4575 (-0.47)
LOW/A=W	2.0861 (10.22)		-2.0854 (-4.31)	-2.4861 (-4.64)	-6.2523	-0.3902 (-0.51)	1.5624 (4.18)	-1.8199 (-1.71)	-1.0599 (-0.93)
LOW/A>W	4.2 (5.69)		-1.0404 (-0.85)	-8.1186	-8.4754	-7.7078	1.448 (1.34)	-0.1753 (-0.12)	1.6033 (0.94)
MED/A=0	-99.000		-0.816 (-1.71)	-1.0777	3.2529 (5.39)	1.5312 (2.34)	3.8612 (11.41)	1.1487 (2.55)	0.7241 (1.76)
MED/A<W	0.9166 (9.26)		-1.9829 (-9.11)	-3.0711 (-8.91)	0.1273 (0.28)	-1.2562 (-2.92)	1.2982 (6.25)	-1.2564 (-3.72)	-1.5395 (-4.43)
MED/A=W	2.2357 (34.82)		-1.5203 (-11.59)	-2.5005 (-13.04)	-0.4655 (-1.11)	-0.6781 (-2.16)	0.9329 (4.39)	-0.9414 (-3.22)	-2.9707 (-5.88)
MED/A>W	2.5333 (27.96)		-1.7657 (-8.47)	-3.38 (-8.09)	-1.0209 (-1.65)	-0.487 (-1.36)	0.6505 (2.3)	-0.8075 (-2.18)	-3.3388 (-3.25)
HIGH/A=0	-99.000		0.0282 (0.02)	-2.2375	3.9267 (2.61)	-0.8869	3.6317 (3.48)	-0.4124 (-0.28)	0.5715 (0.52)
HIGH/A<W	1.0314 (5.14)		-2.0366 (-4.23)	-2.9935 (-4.1)	-0.8219 (-1.24)	-0.8134 (-1.63)	0.7566 (2.41)	-1.4538 (-3.03)	-1.5191 (-3.66)
HIGH/A=W	2.1332 (21.42)		-1.5286 (-7.2)	-2.4209 (-7.94)	-0.5827 (-1.18)	-0.6222 (-1.79)	0.3764 (1.33)	-1.2038 (-3.16)	-2.0102 (-4.85)
HIGHA>W	2.602 (20.28)		-1.3343 (-5.12)	-2.3743 (-5.97)	0.0559 (0.11)	-0.4012 (-1.07)	0.4276 (1.18)	-0.5109 (-1.23)	-2.4961 (-3.32)
INMANH		0.2958 (0.7)	0.6329 (1.12)	0.6329 (1.12)			3.1615 (11.24)	1.7309 (3.63)	4.3023 (11.72)
TOMANH		0.0884 (0.56)	-0.3461 (-1.23)	-0.3461 (-1.23)	2.241 (7.33)	2.4528 (10.71)	1.6708 (10.84)	2.1715 (8.6)	1.7666 (3.97)
TOLLB	-0.4252 (-6)	-0.8737 (-7.49)	-0.8554 (-4.61)	-0.8554 (-4.61)					
NOBS	9002								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LL Constants Only	-9682.4								
LL	-6860.7								
VOT/$12.5K, $/hour	3.9								
VOT/$37.5K, $/hour	7.6								
VOT/$62.5K, $/hour	10.3								
VOT/$87.5K, $/hour	12.6								
VOT/$125K, $/hour	15.6								
VOT/$175K, $/hour	19.1								
VOR/10 miles/62.5K, $/hour	2.0								

Table A1- 10: New York RP Data –Tour Mode Choice Models –Work – Income Impact (4th Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT	-0.0172 (-9.32)								
STD/D	-0.0497 (-0.22)								
COST BY INC$^{0.8}$	-589.9664 (-15.89)								
XWAIT					-0.0142 (-5.83)				
FWAIT <= 7 min					-0.0063 (-0.32)		-0.0601 (-4.5)		
FWAIT > 7 min					-0.018 (-1.48)		-0.0303 (-4.29)		
WALK					-0.011 (-3.07)				
DIST					0.0201 (7.48)				
DACC						-0.0106 (-3.83)		-0.0106 (-3.83)	
LOW/A=0	-99.000		-3.1433 (-3.07)	-2.5671 (-3.46)	3.5894 (4.37)	0.6556	3.2368 (9.69)	-0.6837 (-0.86)	0.8741 (1.45)
LOW/A<W	1.0757 (3.35)		-2.9318 (-2.84)	-4.7297	-2.3519	-0.3896	1.0167 (2.19)	-1.9873 (-1.8)	-0.208 (-0.21)
LOW/A=W	2.1774 (10.53)		-2.1548 (-4.45)	-2.6024 (-4.84)	-6.2523	-0.2907 (-0.37)	1.4902 (3.87)	-1.8538 (-1.73)	-0.7502 (-0.64)
LOW/A>W	4.4468 (5.89)		-1.1677 (-0.95)	-8.1186	-8.4754	-7.7078	1.2866 (1.14)	-0.2699 (-0.19)	1.9004 (1.01)
MED/A=0	-99.000		-0.8134 (-1.71)	-1.0777	3.1653 (5.26)	1.4579 (2.23)	3.8103 (11.26)	1.0768 (2.38)	0.5988 (1.45)
MED/A<W	0.8982 (9.08)		-1.9755 (-9.08)	-3.0567 (-8.87)	0.0465 (0.1)	-1.3347 (-3.1)	1.2423 (5.99)	-1.3347 (-3.95)	-1.6972 (-4.88)
MED/A=W	2.2102 (34.54)		-1.5091 (-11.5)	-2.4806 (-12.95)	-0.5439 (-1.29)	-0.7545 (-2.4)	0.8678 (4.1)	-1.018 (-3.49)	-3.1356 (-6.23)
MED/A>W	2.501 (27.7)		-1.7514 (-8.4)	-3.3557 (-8.03)	-1.0986 (-1.78)	-0.5555 (-1.56)	0.5776 (2.05)	-0.8904 (-2.41)	-3.5295 (-3.44)
HIGH/A=0	-99.000		0.0465 (0.03)	-2.2375	3.8095 (2.54)	-0.8869	3.5865 (3.43)	-0.4827 (-0.33)	0.3867 (0.35)
HIGH/A<W	1.0001 (4.99)		-2.0239 (-4.2)	-2.97 (-4.07)	-0.9123 (-1.37)	-0.8907 (-1.79)	0.7144 (2.28)	-1.5111 (-3.16)	-1.7313 (-4.21)
HIGH/A=W	2.0871 (21.03)		-1.5105 (-7.11)	-2.3903 (-7.85)	-0.6606 (-1.34)	-0.6935 (-2)	0.315 (1.12)	-1.2786 (-3.37)	-2.2652 (-5.53)
HIGHA>W	2.5569 (19.96)		-1.3164 (-5.05)	-2.3446 (-5.89)	-0.0123 (-0.02)	-0.4588 (-1.23)	0.374 (1.04)	-0.5711 (-1.39)	-2.7775 (-3.71)
INMANH		0.3371 (0.8)	0.692 (1.22)	0.692 (1.22)			3.2609 (11.63)	1.8422 (3.87)	4.4282 (12.09)
TOMANH		0.1413 (0.9)	-0.277 (-0.98)	-0.277 (-0.98)	2.3188 (7.6)	2.5363 (11.11)	1.7808 (11.64)	2.2936 (9.12)	1.6421 (3.69)
TOLLB	-0.4747 (-6.73)	-0.8514 (-7.32)	-0.8099 (-4.37)	-0.8099 (-4.37)					
NOBS	9002								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LL Constants Only	-9682.4								
LL	-6866.4								
VOT/$12.5K, $/hour	3.3								
VOT/$37.5K, $/hour	8.0								
VOT/$62.5K, $/hour	12.0								
VOT/$87.5K, $/hour	15.7								
VOT/$125K, $/hour	20.9								
VOT/$175K, $/hour	27.4								
VOR/10 miles/62.5K, $/hour	3.5								

Table A1- 11: New York RP Data –Tour Mode Choice Models –Non-Work – Income Impact (2nd Form)

Variable	Mode								
	SOV	HOV2	HOV3	HOV4+	WCR	DCR	WT	DT	TX
IVT	-0.0088 (-3.53)								
STD/D	-0.1674 (-0.61)								
COST BY INC	-2277.5078 (-9.37)								
XWAIT					-0.0061 (-1.67)				
FWAIT <= 7 min					-0.0535 (-0.67)		-0.1231 (-5.76)		
FWAIT > 7 min					0.0239 (0.47)		-0.0058 (-0.97)		
WALK					-0.0214 (-3.87)				
DIST					0.0032 (0.37)				
DACC						0.0057 (1.11)		0.0057 (1.11)	
INFL							-0.7169 (-1.63)		
A=0	-99.000		-0.3725 (-1.82)	-0.7917 (-3.47)	-0.474 (-0.29)	-16.3208 (-0.04)	2.9626 (8.8)	-14.212 (-0.03)	-1.4319 (-3.46)
A<W	-2.7296 (-12.19)		-0.9568 (-6.24)	-1.3184 (-7.75)		-17.542 (-0.04)	1.296 (3.73)	-15.1016 (-0.03)	-3.2451 (-6.93)
A=W	-2.5434 (-12.27)		-0.7756 (-8.4)	-1.4727 (-13.54)	-0.9376 (-0.9)	-18.5543 (-0.04)	0.6333 (1.98)	-15.642 (-0.03)	-4.0966 (-9.71)
A>W	-2.1218 (-10.27)		-0.8563 (-9.32)	-1.2909 (-12.26)	-0.741 (-0.62)	-16.3573 (-0.04)	0.1346 (0.39)	-16.2466 (-0.03)	-4.9973 (-10.33)
LOW	0.182 (2.01)		-0.4486 (-3.08)	-0.1037 (-0.67)	1.5532 (1.47)	0.9371 (0.67)	0.8922 (5.26)	0.0576 (0.11)	2.4767 (7.95)
MED									
HIGH	0.0103 (0.19)		-0.139 (-1.87)	-0.0514 (-0.61)	-1.1671 (-1.21)	0.7082 (0.84)	-0.0276 (-0.15)	-0.3738 (-0.75)	0.3141 (1.17)
WORK	3.6639 (17.79)		-0.8154 (-9.54)	-0.9868 (-10.09)	-2.1031 (-1.98)	-0.2562 (-0.22)	-0.6981 (-3.4)	13.5123 (0.03)	-0.5279 (-1.52)
NWRK	3.2956 (15.92)		-0.7516 (-8.37)	-1.0453 (-10.18)	-1.6165 (-1.33)	-0.3932 (-0.3)	0.2603 (1.31)	14.3614 (0.03)	-0.3665 (-1.04)
2*AD/M	-0.7254 (-14.3)		-0.304 (-4.26)	-0.1932 (-2.35)	-0.3173 (-0.37)	-1.7757 (-1.95)	-1.0604 (-7.46)	-0.618 (-1.62)	-0.6961 (-2.77)
A+KID/M	-0.948 (-13.69)		1.1136 (15.14)	1.2884 (15.04)	-2.4834 (-1.81)	0.279 (0.2)	0.2082 (1.21)	-0.7347 (-0.98)	0.7391 (2.4)
2*AD/D	-0.6282 (-8.72)		-0.0574 (-0.54)	0.3322 (2.9)	-0.1624 (-0.14)	-1.1072 (-0.86)	-0.495 (-2.17)	-0.2444 (-0.41)	-0.6612 (-1.48)
A+KID/D	-0.6666 (-6.27)		0.7755 (8.47)	0.8269 (8.22)			0.2282 (0.9)	-0.7864 (-0.7)	-2.0423 (-1.95)
INMANH		0.6392 (2.25)	0.8174 (2.27)	0.8174 (2.27)			3.0021 (10.25)	1.9524 (2.57)	5.3703 (15.41)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
TOMANH		-0.2257 (-1.24)	0.0815 (0.34)	-0.2705 (-0.91)	4.2192 (4.54)	18.5069 (0.04)	1.0881 (4.74)	1.8241 (4.3)	2.9226 (7.54)
TOLLB	-0.8872 (-7.81)	-0.5486 (-5.29)	-0.654 (-5.22)	-0.654 (-5.22)					
NOBS	11,800								
LL Constants Only	-16782.0								
LL	-12887.5282								
VOT/$12.5K, $/hour	2.9								
VOT/$37.5K, $/hour	8.7								
VOT/$62.5K, $/hour	14.5								
VOT/$87.5K, $/hour	20.3								
VOT/$125K, $/hour	29.0								
VOT/$175K, $/hour	40.6								
VOR/10 miles/62.5K, $/hour	27.6								

Table A1- 12: New York RP Data –Tour Mode Choice Models –Work – Occupancy Impact (1st Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT	-0.0176 (-9.42)								
STD/D	-0.0204 (-0.09)								
COST BY $INC^{0.6}$ $OCC^{0.8}$	-82.4799 (-17.65)								
XWAIT					-0.0137 (-5.6)				
FWAIT <= 7 min					-0.0041 (-0.21)		-0.0635 (-4.74)		
FWAIT > 7 min					-0.0208 (-1.69)		-0.0296 (-4.19)		
WALK					-0.0122 (-3.37)				
DIST					0.0196 (7.2)				
DACC						-0.0116 (-4.15)		-0.0116 (-4.15)	
LOW/A=0	-99.000		-3.1012 (-3.03)	-2.5123 (-3.39)	3.4578 (4.29)	0.6556	3.2153 (9.6)	-0.7168 (-0.9)	0.67 (1.13)
LOW/A<W	0.9778 (3.07)		-2.882 (-2.79)	-4.7297	-2.3519	-0.3896	1.0513 (2.28)	-1.9513 (-1.77)	-0.3652 (-0.37)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
LOW/A=W	2.0374 (10.04)		-2.0818 (-4.31)	-2.492 (-4.66)	-6.2523	-0.4403 (-0.56)	1.4835 (3.9)	-1.8839 (-1.76)	-0.948 (-0.83)
LOW/A>W	4.1603 (5.63)		-1.0468 (-0.85)	-8.1186	-8.4754	-7.7078	1.3655 (1.24)	-0.2152 (-0.15)	1.656 (0.95)
MED/A=0	-99.000		-0.8147 (-1.71)	-1.0777	3.2753 (5.41)	1.5516 (2.37)	3.8571 (11.37)	1.1581 (2.56)	0.781 (1.89)
MED/A<W	0.8995 (9.11)		-1.9845 (-9.12)	-3.0797 (-8.94)	0.1383 (0.3)	-1.2445 (-2.89)	1.3023 (6.24)	-1.2436 (-3.67)	-1.4674 (-4.22)
MED/A=W	2.2169 (34.76)		-1.5222 (-11.6)	-2.5097 (-13.09)	-0.4578 (-1.09)	-0.6705 (-2.13)	0.9363 (4.39)	-0.9362 (-3.2)	-2.8977 (-5.72)
MED/A>W	2.513 (27.86)		-1.7681 (-8.48)	-3.3903 (-8.11)	-1.0134 (-1.64)	-0.4867 (-1.36)	0.6527 (2.3)	-0.8052 (-2.17)	-3.2572 (-3.17)
HIGH/A=0	-99.000		0.029 (0.02)	-2.2375	3.9528 (2.63)	-0.8869	3.6647 (3.51)	-0.3722 (-0.25)	0.6357 (0.58)
HIGH/A<W	1.0259 (5.12)		-2.0377 (-4.23)	-2.9989 (-4.11)	-0.7833 (-1.18)	-0.7798 (-1.56)	0.7984 (2.53)	-1.4105 (-2.94)	-1.4454 (-3.47)
HIGH/A=W	2.1229 (21.33)		-1.5301 (-7.2)	-2.4276 (-7.96)	-0.549 (-1.1)	-0.5904 (-1.69)	0.4176 (1.47)	-1.1603 (-3.04)	-1.9347 (-4.67)
HIGHA>W	2.5909 (20.2)		-1.3358 (-5.12)	-2.3805 (-5.98)	0.087 (0.17)	-0.3741 (-1)	0.4652 (1.28)	-0.4687 (-1.13)	-2.4205 (-3.22)
INMANH		0.3202 (0.76)	0.6597 (1.16)	0.6597 (1.16)			3.1014 (11.02)	1.6691 (3.5)	4.2352 (11.52)
TOMANH		0.1303 (0.83)	-0.2974 (-1.06)	-0.2974 (-1.06)	2.2104 (7.21)	2.4191 (10.52)	1.5958 (10.3)	2.0998 (8.3)	1.7972 (4.03)
TOLLB	-0.4022 (-5.67)	-0.8339 (-7.16)	-0.8256 (-4.46)	-0.8256 (-4.46)					
NOBS	9002								
LL Constants Only	-9682.4								
LL	-6842.7								
VOT/$12.5K, $/hour	3.7								
VOT/$37.5K, $/hour	7.1								
VOT/$62.5K, $/hour	9.7								
VOT/$87.5K, $/hour	11.8								
VOT/$125K, $/hour	14.6								
VOT/$175K, $/hour	17.9								
VOR/10 miles/62.5K, $/hour	1.1								

Table A1- 13: New York RP Data –Tour Mode Choice Models –Work – Occupancy Impact (2nd Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0175	(-9.42)				
STD/D				-0.0369	(-0.17)				
COST BY $INC^{0.8}$ $OCC^{0.8}$				-644.7535	(-16.55)				
XWAIT						-0.0139	(-5.71)		
FWAIT <= 7 min					-0.0056	(-0.29)	-0.0605	(-4.52)	
FWAIT > 7 min					-0.0191	(-1.56)	-0.0303	(-4.27)	
WALK						-0.0114	(-3.16)		
DIST					0.0198 (7.34)				
DACC						-0.0111 (-4)		-0.0111 (-4)	
LOW/A=0	-99.000		-3.1351 (-3.06)	-2.5629 (-3.46)	3.5726 (4.29)	0.6556	3.1795 (9.41)	-0.7145 (-0.9)	0.9831 (1.63)
LOW/A<W	1.0292 (3.22)		-2.9214 (-2.83)	-4.7297	-2.3519	-0.3896	0.9502 (2.01)	-2.0351 (-1.84)	-0.1247 (-0.12)
LOW/A=W	2.1194 (10.33)		-2.1483 (-4.44)	-2.6056 (-4.85)	-6.2523	-0.3634 (-0.46)	1.3738 (3.48)	-1.9537 (-1.82)	-0.6327 (-0.55)
LOW/A>W	4.3983 (5.8)		-1.1775 (-0.96)	-8.1186	-8.4754	-7.7078	1.1575 (1)	-0.3481 (-0.24)	1.9398 (1)
MED/A=0	-99.000		-0.8125 (-1.71)	-1.0777	3.1832 (5.28)	1.476 (2.25)	3.8037 (11.21)	1.0828 (2.39)	0.6521 (1.57)
MED/A<W	0.8829 (8.95)		-1.9773 (-9.09)	-3.0648 (-8.89)	0.0549 (0.12)	-1.3246 (-3.07)	1.2445 (5.98)	-1.3248 (-3.91)	-1.6293 (-4.68)
MED/A=W	2.1939 (34.48)		-1.511 (-11.52)	-2.4889 (-12.99)	-0.5373 (-1.27)	-0.7472 (-2.37)	0.87 (4.09)	-1.014 (-3.47)	-3.0654 (-6.08)
MED/A>W	2.4835 (27.61)		-1.7537 (-8.41)	-3.3648 (-8.05)	-1.0908 (-1.77)	-0.5536 (-1.55)	0.5791 (2.05)	-0.8886 (-2.4)	-3.4521 (-3.36)
HIGH/A=0	-99.000		0.0459 (0.03)	-2.2375	3.8307 (2.55)	-0.8869	3.6222 (3.47)	-0.441 (-0.3)	0.4481 (0.41)
HIGH/A<W	0.9979 (4.98)		-2.0251 (-4.2)	-2.9747 (-4.08)	-0.874 (-1.32)	-0.8554 (-1.71)	0.7588 (2.42)	-1.4653 (-3.06)	-1.6636 (-4.04)
HIGH/A=W	2.0805 (20.96)		-1.5116 (-7.12)	-2.3953 (-7.86)	-0.6238 (-1.26)	-0.6579 (-1.89)	0.3593 (1.27)	-1.2321 (-3.25)	-2.1938 (-5.36)
HIGHA>W	2.5495 (19.91)		-1.3176 (-5.05)	-2.3492 (-5.91)	0.0221 (0.04)	-0.4271 (-1.14)	0.415 (1.15)	-0.5249 (-1.27)	-2.7071 (-3.62)
INMANH		0.3567 (0.85)	0.7148 (1.26)	0.7148 (1.26)			3.2083 (11.44)	1.7877 (3.76)	4.3665 (11.91)
TOMANH		0.1782 (1.14)	-0.2309 (-0.82)	-0.2309 (-0.82)	2.2931 (7.5)	2.5075 (10.95)	1.7152 (11.15)	2.2317 (8.86)	1.6643 (3.73)
TOLLB	-0.4548 (-6.44)	-0.8162 (-7.02)	-0.7838 (-4.23)	-0.7838 (-4.23)					

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
NOBS	9002								
LL Constants Only	-9682.4								
LL	-6860.0								
VOT/$12.5K, $/hour	3.1								
VOT/$37.5K, $/hour	7.4								
VOT/$62.5K, $/hour	11.2								
VOT/$87.5K, $/hour	14.6								
VOT/$125K, $/hour	19.5								
VOT/$175K, $/hour	25.5								
VOR/10 miles/62.5K, $/hour	2.4								

Table A1- 14: New York RP Data –Tour Mode Choice Models –Non-Work – Occupancy Impact (1st Form)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT	-0.0095 (-3.69)								
STD/D	-0.1403 (-0.51)								
COST BY $INC^{0.6}$ $OCC^{0.8}$	-52.9424 (-11.37)								
XWAIT					-0.0062 (-1.68)				
FWAIT <= 7 min					-0.0491 (-0.61)		-0.1211 (-5.67)		
FWAIT > 7 min					0.0213 (0.41)		-0.0054 (-0.91)		
WALK					-0.0225 (-4.06)				
DIST					0.003 (0.35)				
DACC						0.0049 (0.93)		0.0049 (0.93)	
INFL							-0.7684 (-1.74)		
A=0	-99.000		-0.3916 (-1.92)	-0.8246 (-3.61)	-0.4026 (-0.24)	-16.1771 (-0.04)	2.9787 (8.84)	-14.0867 (-0.03)	-1.0904 (-2.63)
A<W	-2.7091 (-12.1)		-0.9719 (-6.34)	-1.3439 (-7.89)		-17.3133 (-0.04)	1.3385 (3.84)	-14.9404 (-0.03)	-2.8955 (-6.15)
A=W	-2.5175 (-12.14)		-0.7915 (-8.57)	-1.4988 (-13.77)	-0.8793 (-0.83)	-18.4187 (-0.04)	0.6824 (2.13)	-15.5277 (-0.03)	-3.6943 (-8.71)
A>W	-2.0903 (-10.12)		-0.8728 (-9.5)	-1.3176 (-12.5)	-0.665 (-0.55)	-16.2868 (-0.04)	0.1859 (0.54)	-16.1068 (-0.03)	-4.5566 (-9.4)
LOW	0.1182 (1.32)		-0.4173 (-2.87)	-0.0589 (-0.38)	1.3672 (1.28)	0.7518 (0.54)	0.8231 (4.85)	-0.0339 (-0.07)	2.0618 (6.82)
MED									
HIGH	0.0088 (0.16)		-0.1386 (-1.86)	-0.0503 (-0.6)	-1.1932 (-1.24)	0.6663 (0.78)	-0.0181 (-0.1)	-0.3828 (-0.77)	0.2658 (0.98)
WORK	3.6677 (17.8)		-0.8157 (-9.54)	-0.9874 (-10.09)	-2.0556 (-1.91)	-0.2791 (-0.24)	-0.6779 (-3.29)	13.5126 (0.03)	-0.4748 (-1.36)
NWRK	3.2981 (15.93)		-0.7524 (-8.38)	-1.0462 (-10.19)	-1.6327 (-1.33)	-0.315 (-0.24)	0.2705 (1.36)	14.3455 (0.03)	-0.3282 (-0.92)
2*AD/M	-0.7294 (-14.35)		-0.3022 (-4.23)	-0.1897 (-2.3)	-0.2793 (-0.32)	-1.7841 (-1.95)	-1.0428 (-7.31)	-0.6036 (-1.57)	-0.7007 (-2.76)
A+KID/M	-0.9536 (-13.76)		1.116 (15.17)	1.2917 (15.07)	-2.4305 (-1.76)	0.3093 (0.22)	0.2152 (1.25)	-0.7144 (-0.95)	0.7174 (2.32)
2*AD/D	-0.6293 (-8.72)		-0.0567 (-0.54)	0.3328 (2.9)	-0.0866 (-0.07)	-1.0453 (-0.82)	-0.4998 (-2.18)	-0.2413 (-0.4)	-0.6443 (-1.42)
A+KID/D	-0.6749 (-6.34)		0.7761 (8.47)	0.8279 (8.23)			0.2315 (0.92)	-0.8253 (-0.72)	-2.1861 (-2.07)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
INMANH		0.5967 (2.1)	0.7474 (2.07)	0.7474 (2.07)			2.8257 (9.59)	1.771 (2.32)	5.1293 (14.67)
TOMANH		-0.242 (-1.33)	0.0332 (0.14)	-0.3396 (-1.14)	4.2208 (4.5)	18.4164 (0.04)	0.9519 (4.12)	1.6587 (3.9)	3.1092 (7.91)
TOLLB	-0.693 (-6.01)	-0.5845 (-5.55)	-0.6955 (-5.52)	-0.6955 (-5.52)					
NOBS	11,800								
LL Constants Only	-16782.0								
LL	-12861.5								
VOT/$12.5K, $/hour	3.1								
VOT/$37.5K, $/hour	6.0								
VOT/$62.5K, $/hour	8.1								
VOT/$87.5K, $/hour	9.9								
VOT/$125K, $/hour	12.3								
VOT/$175K, $/hour	15.1								
VOR/10 miles/62.5K, $/hour	12.0								

Table A1- 15: New York RP Data –Tour Mode Choice Models –Work – Tour Length Impact

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0119	(-12.01)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-804.0888	(-11.12)				
TIME×DIST				-0.00032	(-6)				
TIME×$DIST^2$				0.00000205	(5.35)				
STD/D				-0.2096	(-0.77)				
WAIT					-0.0238				
WALK					-0.0179				
DIST					0.0229 (7.13)				
DACC						-0.0119		-0.0119	
LOW/A=0	-99.000		-1.9799 (-5.01)	-1.9799 (-5.01)	4.599 (4.91)	1.0729 (1.77)	3.1754 (12.65)	-0.7409 (-0.96)	
LOW/A<W	1.1721 (8.9)		-1.8471 (-19.33)	-1.8471 (-19.33)	1.000	-0.1302 (-0.18)	0.8723 (2.71)	-2.1485 (-1.99)	-3.0654 (-7.07)
LOW/A=W	2.8143 (9.03)		-1.8471 (-19.33)	-1.8471 (-19.33)	0.500	-0.1302 (-0.18)	0.8723 (2.71)	-2.1264 (-2.71)	-3.0654 (-7.07)
LOW/A>W	3.4219 (12.91)		-1.8471 (-19.33)	-1.8471 (-19.33)	0.200	-0.1302 (-0.18)	-0.119	-2.1264 (-2.71)	-3.9637 (-3.7)
MED/A=0	-99.000		-1.9799 (-5.01)	-1.9799 (-5.01)	3.3358 (6.07)	1.0729 (1.77)	3.1754 (12.65)	0.4406 (1.1)	
MED/A<W	1.1721 (8.9)		-1.8471 (-19.33)	-1.8471 (-19.33)	0.5755 (1.36)	-0.878 (-2.47)	0.8481 (4.67)	-1.7286 (-5.29)	-3.0654 (-7.07)
MED/A=W	2.895 (13.53)		-1.8471 (-19.33)	-1.8471 (-19.33)	-0.1653 (-0.46)	-0.435 (-1.88)	0.3066 (1.75)	-1.5376 (-5.9)	-3.0654 (-7.07)
MED/A>W	3.4219 (12.91)		-1.8471 (-19.33)	-1.8471 (-19.33)	-0.1686 (-0.41)	-0.435 (-1.88)	-0.1194 (-0.47)	-1.5376 (-5.9)	-3.9637 (-3.7)
HIGH/A=0	-99.000		-1.9799 (-5.01)	-1.9799 (-5.01)	3.3358 (6.07)	-0.8869 (0)	3.2445 (7.39)	-0.8516 (-0.76)	
HIGH/A<W	1.3527 (5.12)		-1.8471 (-19.33)	-1.8471 (-19.33)	-0.7666 (-1.2)	-0.878 (-2.47)	0.2186 (0.72)	-2.0592 (-4.34)	-2.0766 (-4.32)
HIGH/A=W	2.895 (13.53)		-1.8471 (-19.33)	-1.8471 (-19.33)	-0.2277 (-0.51)	-0.435 (-1.88)	-0.2818 (-1.07)	-1.625 (-5.1)	-2.9251 (-5.39)
HIGHA>W	3.4219 (12.91)		-1.8471 (-19.33)	-1.8471 (-19.33)	-0.1686 (-0.41)	-0.435 (-1.88)	-0.4589 (-1.32)	-1.625 (-5.1)	-3.9725 (-3.71)
INMANH		1.2845 (2.04)	1.865 (2.52)	1.865 (2.52)			4.8189 (9.37)	3.3749 (5.32)	5.7315 (10.83)
TOMANH		0.7773 (2.63)	0.3302 (0.85)	0.3302 (0.85)	3.0398 (7.69)	3.2476 (9.86)	2.5957 (9.52)	3.1877 (9.51)	2.0318 (3.49)
TOLLB	-0.5372 (-6.71)	-0.754 (-5.72)	-0.7305 (-3.6)	-0.7305 (-3.6)					
NEST 1	0.7849								

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
NEST 3	0.9000								
NOBS	9002								
LL Constants Only	-9682.4								
LL	-6892.4								
VOT (62.5K, 10 mile)	7.6								

Table A1- 16: New York RP Data –Joint Tour Mode & TOD Choice Models – Work - Base Run

NOBS	8803
LL with Constants only	-43202.1
LL	-42332.8035
VOT (62.5K, 10 mile)	4.6

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT	-0.0069 (-9.05)								
COST [$Inc^{0.8}$,$Occ^{0.8}$]	-799.3067 (-17.72)								
TIME×DIST	-0.00022 (-4.14)								
TIME×$DIST^2$	0.00000113 (3.14)								
STD/D	-0.2452 (-2.41)								
WAIT					-0.0138				
WALK					-0.0104				
DIST					0.0074 (5.93)				
DACC						-0.0069		-0.0069	
LOW/A=0	-99.000		-1.042 (-2.95)	-1.042 (-2.95)	5.6553 (5.74)	1.8834 (2.85)	3.7877 (17.43)	1.3624 (1.25)	
LOW/A<W	0.9037 (9.83)		-1.6775 (-19.48)	-1.6775 (-19.48)	1.000	0.6135 (0.93)	0.8464 (2.97)	-2.126 (0)	-3.7464 (-14.75)
LOW/A=W	2.2592 (12.06)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.500	0.6135 (0.93)	0.8464 (2.97)	-2.126 (0)	-3.7464 (-14.75)
LOW/A>W	2.3884 (32.46)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.200	0.6135 (0.93)	-0.282	-2.126 (0)	-4.5816 (-6.36)
MED/A=0	-99.000		-1.042 (-2.95)	-1.042 (-2.95)	4.557 (7.99)	1.8834 (2.85)	3.7877 (17.43)	1.1765 (1.53)	
MED/A<W	0.9037 (9.83)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.6467 (1.55)	-0.7525 (-2.11)	0.6833 (4.25)	-1.494 (-2.69)	-3.7464 (-14.75)
MED/A=W	2.0287 (34.7)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.1445 (0.42)	-0.0587 (-0.26)	0.1748 (1.09)	-0.8406 (-2.48)	-3.7464 (-14.75)
MED/A>W	2.3884 (32.46)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.0586 (0.15)	-0.0587 (-0.26)	-0.2817 (-1.15)	-0.8406 (-2.48)	-4.5816 (-6.36)
HIGH/A=0	-99.000		-1.042 (-2.95)	-1.042 (-2.95)	4.557 (7.99)	-0.8869 (0)	2.9197 (8.67)	1.9149 (1.54)	
HIGH/A<W	0.9128 (4.91)		-1.6775 (-19.48)	-1.6775 (-19.48)	-0.4906 (-0.79)	-0.7525 (-2.11)	0.0532 (0.2)	-2.2586 (-2.02)	-2.0161 (-5.69)
HIGH/A=W	2.0287 (34.7)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.0532 (0.12)	-0.0587 (-0.26)	-0.2836 (-1.2)	-0.8304 (-1.86)	-3.0492 (-7.81)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3884 (32.46)		-1.6775 (-19.48)	-1.6775 (-19.48)	0.0586 (0.15)	-0.0587 (-0.26)	-0.3729 (-1.14)	-0.8304 (-1.86)	-3.6745 (-5.08)
INMANH		0.2355 (0.56)	0.6842 (1.23)	0.6842 (1.23)			3.5812 (12.86)		4.0609 (12.54)
TOMANH		0.1631 (1.03)	-0.2793 (-0.99)	-0.2793 (-0.99)	3.3377 (10.42)	3.9615 (16.22)	2.0166 (13.36)	2.6868 (7.12)	0.4926 (0.97)
TOLLB	0.0648 (0.67)	-0.5165 (-4.39)	-0.608 (-3.24)	-1.1062 (-8.01)					

Variable	**Departure**		**Arrival**		**Duration**	
CONSTANTS						
Before 5 am	-3.2412	(-21.55)	-9.0000			
5 am to 6 am	-2.1889	(-23.16)	-2.3415	(-2.18)		
6 am to 7 am	-0.7375	(-14.91)	-1.8037	(-3.46)		
7 am to 8 am	0.0000		-2.4794	(-5.3)		
8 am to 9 am	0.0783	(1.73)	-2.0640	(-5.59)		
9 am to 10 am	-0.9164	(-11.37)	-1.6733	(-5.36)		
10 am to 11 am	-1.7589	(-14.54)	-2.0793	(-7.29)		
11 am to 12 pm	-2.0088	(-12.91)	-1.4836	(-6.5)		
12 pm to 1 pm	-2.3517	(-12.2)	-0.9598	(-5.1)		
1 pm to 2 pm	-2.3343	(-10.28)	-1.0782	(-6.87)		
2 pm to 3 pm	-1.8251	(-7.23)	-0.7432	(-6.12)		
3 pm to 4 pm	-1.6309	(-5.65)	-0.2462	(-2.99)		
4 pm to 5 pm	-1.4105	(-4.38)	-0.2276	(-4.55)		
5 pm to 6 pm	-1.5248	(-4.23)	0.0000			
6 pm to 7 pm	-1.7114	(-4.29)	-0.3988	(-7.87)		
7 pm to 8 pm	-1.8170	(-3.95)	-0.9005	(-10.64)		
8 pm to 9 pm	-2.1166	(-4.08)	-1.3047	(-10.94)		
9 pm to 10 pm	-2.7958	(-3.72)	-1.4657	(-9.67)		
10 pm to 11 pm	-2.4052	(-3.15)	-1.7459	(-9.2)		
After 11 pm	-3.0560	(-2.72)	-1.1749	(-5.62)		
0 to 2 hours					-2.5397	(-9.06)
3 to 4 hours					-1.6236	(-8.29)
5 to 6 hours					-1.3216	(-10.2)
7 hours					-1.2620	(-14.44)
8 hours					-0.7961	(-14.82)
9 hours					0.0000	
10 hours					-0.0925	(-1.91)
11 hours					-0.4351	(-5.31)
12 to 13 hours					-0.9018	(-7.05)
14 to 19 hours					-2.2407	(-10.03)

Table A1- 17: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Travel Time Shifts for Tour Departure and Arrival Time

NOBS	8803
LL with Constants only	-43202.1
LL	-41980.1794
VOT (62.5K, 10 mile)	4.8

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0061	(-7.82)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-804.4096	(-17.76)				
TIME×DIST				-0.00035	(-6.54)				
TIME×$DIST^2$				0.00000164	(4.54)				
STD/D				-0.2544	(-2.48)				
WAIT					-0.0122				
WALK					-0.0092				
DIST					0.0085 (6.66)				
DACC						-0.0061		-0.0061	
LOW/A=0	-99.000		-1.0333 (-2.92)	-1.0333 (-2.92)	5.7192 (5.92)	1.9534 (2.95)	3.936 (18.16)	1.4553 (1.32)	
LOW/A<W	0.8877 (9.66)		-1.6763 (-19.46)	-1.6763 (-19.46)	1.000	0.619 (0.93)	1.012 (3.57)	-2.126	-3.7574 (-14.78)
LOW/A=W	2.247 (11.99)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.500	0.619 (0.93)	1.012 (3.57)	-2.126	-3.7574 (-14.78)
LOW/A>W	2.3656 (32.17)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.200	0.619 (0.93)	-0.160	-2.126	-4.5949 (-6.37)
MED/A=0	-99.000		-1.0333 (-2.92)	-1.0333 (-2.92)	4.6144 (8.08)	1.9534 (2.95)	3.936 (18.16)	1.2248 (1.58)	
MED/A<W	0.8877 (9.66)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.7091 (1.7)	-0.6719 (-1.88)	0.8165 (5.09)	-1.4224 (-2.54)	-3.7574 (-14.78)
MED/A=W	2.0064 (34.36)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.1536 (0.44)	-0.0238 (-0.1)	0.2932 (1.83)	-0.7583 (-2.22)	-3.7574 (-14.78)
MED/A>W	2.3656 (32.17)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0433 (0.11)	-0.0238 (-0.1)	-0.1597 (-0.65)	-0.7583 (-2.22)	-4.5949 (-6.37)
HIGH/A=0	-99.000		-1.0333 (-2.92)	-1.0333 (-2.92)	4.6144 (8.08)	-0.8869	3.0622 (9.09)	2.0689 (1.66)	
HIGH/A<W	0.8956 (4.81)		-1.6763 (-19.46)	-1.6763 (-19.46)	-0.4399 (-0.71)	-0.6719 (-1.88)	0.1838 (0.69)	-2.2329 (-1.96)	-2.0278 (-5.71)
HIGH/A=W	2.0064 (34.36)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0543 (0.13)	-0.0238 (-0.1)	-0.1613 (-0.68)	-0.7906 (-1.75)	-3.0582 (-7.82)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3656 (32.17)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0433 (0.11)	-0.0238 (-0.1)	-0.262 (-0.8)	-0.7906 (-1.75)	-3.682 (-5.09)
INMANH		0.2234 (0.53)	0.6708 (1.21)	0.6708 (1.21)			3.5405 (12.72)		4.0625 (12.54)
TOMANH		0.1683 (1.07)	-0.2703 (-0.96)	-0.2703 (-0.96)	3.1817 (9.9)	3.8082 (15.56)	1.931 (12.77)	2.4978 (6.52)	0.4899 (0.97)
TOLLB	0.0345 (0.36)	-0.5842 (-4.96)	-0.6859 (-3.66)	-1.1063 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-3.2757 (-18.3)	-9.0000	
5 am to 6 am	-2.2643 (-21.34)	-1.3765 (-1.28)	
6 am to 7 am	-0.8051 (-15.4)	-0.8098 (-1.55)	
7 am to 8 am	0.0000	-1.4496 (-3.08)	
8 am to 9 am	0.2201 (4.2)	-1.0319 (-2.78)	
9 am to 10 am	-0.5991 (-7.12)	-0.6953 (-2.21)	
10 am to 11 am	-1.2725 (-10.23)	-1.1226 (-3.89)	
11 am to 12 pm	-1.3571 (-8.5)	-0.5548 (-2.39)	
12 pm to 1 pm	-1.5453 (-7.82)	-0.0546 (-0.28)	
1 pm to 2 pm	-1.5145 (-6.56)	-0.1976 (-1.21)	
2 pm to 3 pm	-0.9880 (-3.86)	-0.0511 (-0.41)	
3 pm to 4 pm	-0.7664 (-2.63)	0.2423 (2.71)	
4 pm to 5 pm	-0.5167 (-1.59)	0.0347 (0.6)	
5 pm to 6 pm	-0.6137 (-1.69)	0.0000	
6 pm to 7 pm	-0.8115 (-2.02)	-0.4176 (-7.98)	
7 pm to 8 pm	-0.9257 (-2)	-0.9391 (-10.67)	
8 pm to 9 pm	-1.2665 (-2.43)	-1.3635 (-11.01)	
9 pm to 10 pm	-1.9200 (-2.55)	-1.5402 (-9.78)	
10 pm to 11 pm	-1.5285 (-2)	-1.8185 (-9.38)	
After 11 pm	-2.1765 (-1.94)	-1.2552 (-5.91)	
0 to 2 hours			-2.6760 (-9.54)
3 to 4 hours			-1.7085 (-8.73)
5 to 6 hours			-1.3593 (-10.5)
7 hours			-1.2701 (-14.55)
8 hours			-0.7925 (-14.77)
9 hours			0.0000
10 hours			-0.1148 (-2.37)
11 hours			-0.4880 (-5.97)
12 to 13 hours			-0.9952 (-7.78)
14 to 19 hours			-2.3902 (-10.68)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0052 (-4.64)		
Squared Shift for Departure before 8 am	0.0009 (2.17)		

Variable	Departure	Arrival	Duration
Linear Shift for Departure after 9 am	-0.0063 (-12.72)		
Linear Shift for Arrival before 5 pm		0.0077 (6.64)	
Squared Shift for Arrival before 5 pm		0.0002 (0.44)	
Linear Shift for Arrival after 6 pm		0.0009 (2.89)	

Table A1- 18: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Income Effects on Tour Departure and Duration

NOBS	8803
LL with Constants only	-43202.1
LL	-41935.3727
VOT (62.5K, 10 mile)	4.9

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0061	(-7.81)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-803.9491	(-17.76)				
TIME×DIST				-0.00036	(-6.63)				
TIME×$DIST^2$				0.00000167	(4.63)				
STD/D				-0.2569	(-2.49)				
WAIT					-0.0122				
WALK					-0.0092				
DIST					0.0085 (6.65)				
DACC						-0.0061		-0.0061	
LOW/A=0	-99.000		-1.0343 (-2.93)	-1.0343 (-2.93)	5.7416 (5.94)	1.967 (2.97)	3.9522 (18.21)	1.4612 (1.32)	
LOW/A<W	0.8874 (9.66)		-1.6763 (-19.46)	-1.6763 (-19.46)	1.000	0.6561 (0.99)	1.0495 (3.69)	-2.126 (0)	-3.7593 (-14.79)
LOW/A=W	2.2475 (11.99)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.500	0.6561 (0.99)	1.0495 (3.69)	-2.126 (0)	-3.7593 (-14.79)
LOW/A>W	2.366 (32.18)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.200	0.6561 (0.99)	-0.154	-2.126 (0)	-4.5961 (-6.37)
MED/A=0	-99.000		-1.0343 (-2.93)	-1.0343 (-2.93)	4.6247 (8.09)	1.967 (2.97)	3.9522 (18.21)	1.2339 (1.59)	
MED/A<W	0.8874 (9.66)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.7099 (1.7)	-0.6761 (-1.89)	0.8195 (5.11)	-1.4214 (-2.54)	-3.7593 (-14.79)
MED/A=W	2.0063 (34.36)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.1519 (0.43)	-0.029 (-0.13)	0.2964 (1.85)	-0.7571 (-2.22)	-3.7593 (-14.79)
MED/A>W	2.366 (32.18)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0334 (0.08)	-0.029 (-0.13)	-0.1535 (-0.62)	-0.7571 (-2.22)	-4.5961 (-6.37)
HIGH/A=0	-99.000		-1.0343 (-2.93)	-1.0343 (-2.93)	4.6247 (8.09)	-0.8869 (0)	3.0574 (9.07)	2.0671 (1.66)	
HIGH/A<W	0.897 (4.82)		-1.6763 (-19.46)	-1.6763 (-19.46)	-0.4542 (-0.73)	-0.6761 (-1.89)	0.171 (0.64)	-2.2429 (-1.97)	-2.0331 (-5.72)
HIGH/A=W	2.0063 (34.36)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0382 (0.09)	-0.029 (-0.13)	-0.1763 (-0.74)	-0.8034 (-1.78)	-3.0606 (-7.82)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.366 (32.18)		-1.6763 (-19.46)	-1.6763 (-19.46)	0.0334 (0.08)	-0.029 (-0.13)	-0.2782 (-0.85)	-0.8034 (-1.78)	-3.6818 (-5.08)
INMANH		0.2247 (0.53)	0.673 (1.21)	0.673 (1.21)			3.5412 (12.72)		4.0708 (12.56)
TOMANH		0.1674 (1.06)	-0.2718 (-0.97)	-0.2718 (-0.97)	3.1771 (9.87)	3.8013 (15.53)	1.9296 (12.76)	2.4898 (6.5)	0.4911 (0.97)
TOLLB	0.0324 (0.34)	-0.5865 (-4.98)	-0.6885 (-3.67)	-1.1063 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-3.1774 (-16.96)	-9.0000	
5 am to 6 am	-2.1768 (-20.34)	-1.3698 (-1.27)	
6 am to 7 am	-0.7593 (-14.36)	-0.8050 (-1.54)	
7 am to 8 am	0.0000	-1.4471 (-3.07)	
8 am to 9 am	0.1696 (3.18)	-1.0313 (-2.77)	
9 am to 10 am	-0.6448 (-7.61)	-0.6940 (-2.2)	
10 am to 11 am	-1.3129 (-10.5)	-1.1215 (-3.88)	
11 am to 12 pm	-1.3950 (-8.68)	-0.5548 (-2.38)	
12 pm to 1 pm	-1.5865 (-7.97)	-0.0544 (-0.28)	
1 pm to 2 pm	-1.5565 (-6.7)	-0.1979 (-1.21)	
2 pm to 3 pm	-1.0340 (-4.02)	-0.0525 (-0.42)	
3 pm to 4 pm	-0.8064 (-2.75)	0.2404 (2.68)	
4 pm to 5 pm	-0.5533 (-1.7)	0.0335 (0.58)	
5 pm to 6 pm	-0.6474 (-1.78)	0.0000	
6 pm to 7 pm	-0.8425 (-2.1)	-0.4209 (-8.03)	
7 pm to 8 pm	-0.9506 (-2.05)	-0.9485 (-10.75)	
8 pm to 9 pm	-1.2886 (-2.47)	-1.3823 (-11.13)	
9 pm to 10 pm	-1.9337 (-2.56)	-1.5689 (-9.93)	
10 pm to 11 pm	-1.5432 (-2.02)	-1.8484 (-9.5)	
After 11 pm	-2.1925 (-1.95)	-1.1335 (-5.27)	
0 to 2 hours			-2.7080 (-9.63)
3 to 4 hours			-1.7291 (-8.81)
5 to 6 hours			-1.3723 (-10.58)
7 hours			-1.2779 (-14.62)
8 hours			-0.7963 (-14.83)
9 hours			0.0000
10 hours			-0.1374 (-2.8)
11 hours			-0.5334 (-6.43)
12 to 13 hours			-1.0739 (-8.23)
14 to 19 hours			-2.4884 (-11.01)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0052 (-4.68)		
Squared Shift for Departure before 8 am	0.0009 (2.17)		

Variable	Departure	Arrival	Duration
Linear Shift for Departure after 9 am	-0.0062 (-12.58)		
Linear Shift for Arrival before 5 pm		0.0076 (6.59)	
Squared Shift for Arrival before 5 pm		0.0002 (0.49)	
Linear Shift for Arrival after 6 pm		0.0009 (2.81)	
INCOME			
Low Income Group			
Linear Shift for Departure after 9 am	0.1659 (4.34)		
Linear Shift for Duration less than 9 hours			0.0567 (2.04)
Linear Shift for Duration more than 9 hours			-0.0638 (-1.48)
High Income Group			
Linear Shift for Departure before 8 am	0.1908 (5.89)		
Linear Shift for Departure after 9 am	-0.0457 (-1.73)		
Linear Shift for Duration less than 9 hours			-0.0240 (-1.6)
Linear Shift for Duration more than 9 hours			0.1071 (4.95)
Extreme Periods - Dummy Variables			
High Income - Departure Before 5 am	0.1264 (0.44)		
High Income - Arrival after 11pm		-0.6249 (-3.75)	

Table A1- 19: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Joint Travel Effect on Tour Departure and Arrival Time

NOBS	8803
LL with Constants only	-43202.1
LL	-41909.9478
VOT (62.5K, 10 mile)	4.9

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0061	(-7.74)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-804.8104	(-17.77)				
TIME×DIST				-0.00036	(-6.75)				
TIME×$DIST^2$				0.00000171	(4.73)				
STD/D				-0.2601	(-2.51)				
WAIT					-0.0122				
WALK					-0.0092				
DIST					0.0085 (6.67)				
DACC						-0.0061		-0.0061	
LOW/A=0	-99.000		-1.0351 (-2.93)	-1.0351 (-2.93)	5.7381 (5.93)	1.9635 (2.97)	3.9521 (18.2)	1.4574 (1.32)	
LOW/A<W	0.8871 (9.65)		-1.6764 (-19.46)	-1.6764 (-19.46)	1.000	0.644 (0.97)	1.0495 (3.69)	-2.126 (0)	-3.7586 (-14.78)
LOW/A=W	2.2483 (11.99)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.500	0.644 (0.97)	1.0495 (3.69)	-2.126 (0)	-3.7586 (-14.78)
LOW/A>W	2.3657 (32.17)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.200	0.644 (0.97)	-0.156	-2.126 (0)	-4.5961 (-6.37)
MED/A=0	-99.000		-1.0351 (-2.93)	-1.0351 (-2.93)	4.6204 (8.09)	1.9635 (2.97)	3.9521 (18.2)	1.2308 (1.59)	
MED/A<W	0.8871 (9.65)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.7062 (1.69)	-0.6774 (-1.89)	0.8203 (5.11)	-1.4209 (-2.54)	-3.7586 (-14.78)
MED/A=W	2.006 (34.35)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.1456 (0.42)	-0.0332 (-0.14)	0.2942 (1.84)	-0.7594 (-2.22)	-3.7586 (-14.78)
MED/A>W	2.3657 (32.17)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.0268 (0.07)	-0.0332 (-0.14)	-0.1558 (-0.63)	-0.7594 (-2.22)	-4.5961 (-6.37)
HIGH/A=0	-99.000		-1.0351 (-2.93)	-1.0351 (-2.93)	4.6204 (8.09)	-0.8869 (0)	3.0557 (9.06)	2.0679 (1.67)	
HIGH/A<W	0.8964 (4.82)		-1.6764 (-19.46)	-1.6764 (-19.46)	-0.4564 (-0.73)	-0.6774 (-1.89)	0.17 (0.64)	-2.243 (-1.97)	-2.0327 (-5.72)
HIGH/A=W	2.006 (34.35)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.0332 (0.08)	-0.0332 (-0.14)	-0.1778 (-0.75)	-0.8062 (-1.78)	-3.0595 (-7.82)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3657 (32.17)		-1.6764 (-19.46)	-1.6764 (-19.46)	0.0268 (0.07)	-0.0332 (-0.14)	-0.2805 (-0.86)	-0.8062 (-1.78)	-3.6808 (-5.08)
INMANH		0.2246 (0.53)	0.6729 (1.21)	0.6729 (1.21)			3.5384 (12.71)		4.0711 (12.56)
TOMANH		0.1679 (1.06)	-0.2711 (-0.96)	-0.2711 (-0.96)	3.1721 (9.86)	3.7952 (15.5)	1.9286 (12.75)	2.4811 (6.47)	0.4941 (0.97)
TOLLB	0.0311 (0.32)	-0.5898 (-5)	-0.6928 (-3.69)	-1.1065 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-3.0379 (-16.04)	-9.0000	
5 am to 6 am	-2.0884 (-19.25)	-1.3778 (-1.28)	
6 am to 7 am	-0.7216 (-13.53)	-0.8182 (-1.56)	
7 am to 8 am	0.0000	-1.4646 (-3.11)	
8 am to 9 am	0.1561 (2.88)	-1.0508 (-2.82)	
9 am to 10 am	-0.6565 (-7.7)	-0.7143 (-2.26)	
10 am to 11 am	-1.3226 (-10.55)	-1.1439 (-3.95)	
11 am to 12 pm	-1.4024 (-8.71)	-0.5794 (-2.48)	
12 pm to 1 pm	-1.5918 (-7.99)	-0.0808 (-0.42)	
1 pm to 2 pm	-1.5603 (-6.72)	-0.2260 (-1.38)	
2 pm to 3 pm	-1.0365 (-4.03)	-0.0728 (-0.57)	
3 pm to 4 pm	-0.8068 (-2.75)	0.2268 (2.52)	
4 pm to 5 pm	-0.5520 (-1.69)	0.0268 (0.46)	
5 pm to 6 pm	-0.6447 (-1.77)	0.0000	
6 pm to 7 pm	-0.8391 (-2.09)	-0.4039 (-7.68)	
7 pm to 8 pm	-0.9456 (-2.04)	-0.9156 (-10.34)	
8 pm to 9 pm	-1.2831 (-2.46)	-1.3345 (-10.71)	
9 pm to 10 pm	-1.9263 (-2.56)	-1.5074 (-9.51)	
10 pm to 11 pm	-1.5351 (-2.01)	-1.7878 (-9.17)	
After 11 pm	-2.1837 (-1.94)	-1.0738 (-4.99)	
0 to 2 hours			-2.7232 (-9.69)
3 to 4 hours			-1.7401 (-8.88)
5 to 6 hours			-1.3794 (-10.64)
7 hours			-1.2816 (-14.67)
8 hours			-0.7979 (-14.86)
9 hours			0.0000
10 hours			-0.1365 (-2.78)
11 hours			-0.5325 (-6.42)
12 to 13 hours			-1.0742 (-8.24)
14 to 19 hours			-2.4914 (-11.02)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0052 (-4.65)		
Squared Shift for Departure before 8 am	0.0009 (2.24)		

Variable	Departure	Arrival	Duration
CONSTANTS			
Linear Shift for Departure after 9 am	-0.0062 (-12.62)		
Linear Shift for Arrival before 5 pm		0.0076 (6.58)	
Squared Shift for Arrival before 5 pm		0.0002 (0.47)	
Linear Shift for Arrival after 6 pm		0.0009 (2.65)	
INCOME			
Low Income Group			
Linear Shift for Departure after 9 am	0.1673 (4.38)		
Linear Shift for Duration less than 9 hours			0.0579 (2.08)
Linear Shift for Duration more than 9 hours			-0.0632 (-1.47)
High Income Group			
Linear Shift for Departure before 8 am	0.1933 (5.96)		
Linear Shift for Departure after 9 am	-0.0478 (-1.81)		
Linear Shift for Duration less than 9 hours			-0.0251 (-1.67)
Linear Shift for Duration more than 9 hours			0.1061 (4.9)
Extreme Periods - Dummy Variables			
High Income - Departure Before 5 am	0.1180 (0.41)		
High Income - Arrival after 11pm		-0.6258 (-3.75)	
JOINT TRAVEL (HOV)			
Linear Shift for Departure before 8 am	-0.0056 (-0.06)		
Squared Shift for Departure before 8 am	0.0896 (2.29)		
Linear Shift for Arrival before 5 pm		-0.0473 (-1.8)	
Linear Shift for Arrival after 6 pm		-0.1155 (-3.85)	

Table A1- 20: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Person Effect on Tour Departure and Duration

NOBS	8803
LL with Constants only	-43202.1
LL	-41374.6818
VOT (62.5K, 10 mile)	4.8

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0060	(-7.6)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-807.4338	(-17.82)				
TIME×DIST				-0.00036	(-6.68)				
TIME×$DIST^2$				0.00000170	(4.69)				
STD/D				-0.2703	(-2.57)				
WAIT					-0.0120				
WALK					-0.0090				
DIST					0.0085 (6.69)				
DACC						-0.0060		-0.0060	
LOW/A=0	-99.000		-1.0409 (-2.94)	-1.0409 (-2.94)	5.6935 (5.91)	1.9489 (2.95)	3.9363 (18.07)	1.4406 (1.3)	
LOW/A<W	0.8878 (9.66)		-1.677 (-19.47)	-1.677 (-19.47)	1.000	0.6377 (0.96)	1.0265 (3.61)	-2.126 (0)	-3.7553 (-14.77)
LOW/A=W	2.2505 (12)		-1.677 (-19.47)	-1.677 (-19.47)	0.500	0.6377 (0.96)	1.0265 (3.61)	-2.126 (0)	-3.7553 (-14.77)
LOW/A>W	2.3664 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	0.200	0.6377 (0.96)	-0.163	-2.126 (0)	-4.6008 (-6.37)
MED/A=0	-99.000		-1.0409 (-2.94)	-1.0409 (-2.94)	4.6047 (8.08)	1.9489 (2.95)	3.9363 (18.07)	1.2279 (1.59)	
MED/A<W	0.8878 (9.66)		-1.677 (-19.47)	-1.677 (-19.47)	0.6897 (1.65)	-0.6903 (-1.93)	0.8004 (4.98)	-1.4446 (-2.58)	-3.7553 (-14.77)
MED/A=W	2.0055 (34.34)		-1.677 (-19.47)	-1.677 (-19.47)	0.1198 (0.34)	-0.0539 (-0.23)	0.2638 (1.65)	-0.7928 (-2.32)	-3.7553 (-14.77)
MED/A>W	2.3664 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	-0.0019 (0)	-0.0539 (-0.23)	-0.1632 (-0.67)	-0.7928 (-2.32)	-4.6008 (-6.37)
HIGH/A=0	-99.000		-1.0409 (-2.94)	-1.0409 (-2.94)	4.6047 (8.08)	-0.8869 (0)	3.0306 (8.98)	2.0393 (1.64)	
HIGH/A<W	0.8952 (4.81)		-1.677 (-19.47)	-1.677 (-19.47)	-0.4714 (-0.76)	-0.6903 (-1.93)	0.1297 (0.49)	-2.2819 (-2)	-2.033 (-5.71)
HIGH/A=W	2.0055 (34.34)		-1.677 (-19.47)	-1.677 (-19.47)	0.0142 (0.03)	-0.0539 (-0.23)	-0.2083 (-0.88)	-0.8276 (-1.84)	-3.0546 (-7.81)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3664 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	-0.0019 (0)	-0.0539 (-0.23)	-0.2996 (-0.92)	-0.8276 (-1.84)	-3.6694 (-5.07)
INMANH		0.223 (0.53)	0.673 (1.22)	0.673 (1.22)			3.5372 (12.71)		4.0739 (12.57)
TOMANH		0.1672 (1.06)	-0.2725 (-0.97)	-0.2725 (-0.97)	3.1781 (9.89)	3.7996 (15.52)	1.9268 (12.74)	2.4961 (6.52)	0.51 (1)
TOLLB	0.0426 (0.44)	-0.581 (-4.93)	-0.685 (-3.65)	-1.1069 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-2.9316 (-15.39)	-9.0000	
5 am to 6 am	-2.0217 (-18.51)	-0.7914 (-0.73)	
6 am to 7 am	-0.6951 (-12.95)	-0.2484 (-0.47)	
7 am to 8 am	0.0000	-0.9232 (-1.94)	
8 am to 9 am	0.1236 (2.25)	-0.5327 (-1.4)	
9 am to 10 am	-0.7582 (-8.84)	-0.1948 (-0.6)	
10 am to 11 am	-1.5036 (-11.93)	-0.6303 (-2.12)	
11 am to 12 pm	-1.6756 (-10.33)	-0.0813 (-0.33)	
12 pm to 1 pm	-1.9661 (-9.75)	0.4028 (1.96)	
1 pm to 2 pm	-1.9429 (-8.29)	0.2410 (1.36)	
2 pm to 3 pm	-1.4314 (-5.53)	0.4070 (2.83)	
3 pm to 4 pm	-1.2411 (-4.21)	0.2151 (2.39)	
4 pm to 5 pm	-0.9822 (-3)	0.0191 (0.33)	
5 pm to 6 pm	-1.0762 (-2.94)	0.0000	
6 pm to 7 pm	-1.2825 (-3.18)	-0.3811 (-7.25)	
7 pm to 8 pm	-1.3850 (-2.99)	-0.8690 (-9.81)	
8 pm to 9 pm	-1.7304 (-3.32)	-1.2636 (-10.14)	
9 pm to 10 pm	-2.3704 (-3.14)	-1.4124 (-8.91)	
10 pm to 11 pm	-1.9910 (-2.6)	-1.6757 (-8.6)	
After 11 pm	-2.6495 (-2.36)	-0.9471 (-4.4)	
0 to 2 hours			-1.7857 ()
3 to 4 hours			-0.7819 (-3.69)
5 to 6 hours			-0.3881 (-2.55)
7 hours			-0.2615 (-2.2)
8 hours			0.2318 (2.36)
9 hours			0.0000
10 hours			-0.1454 (-2.96)
11 hours			-0.5525 (-6.64)
12 to 13 hours			-1.1139 (-8.52)
14 to 19 hours			-2.5763 (-11.36)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0051 (-4.51)		
Squared Shift for Departure before 8 am	0.0009 (2.28)		

Variable	Departure	Arrival	Duration
Linear Shift for Departure after 9 am	-0.0055 (-11.05)		
Linear Shift for Arrival before 5 pm		0.0078 (6.75)	
Squared Shift for Arrival before 5 pm		-0.0001 (-0.17)	
Linear Shift for Arrival after 6 pm		0.0008 (2.33)	
INCOME			
Low Income Group			
Linear Shift for Departure after 9 am	0.1343 (3.47)		
Linear Shift for Duration less than 9 hours			0.0974 (3.34)
Linear Shift for Duration more than 9 hours			-0.0395 (-0.92)
High Income Group			
Linear Shift for Departure before 8 am	0.1946 (6)		
Linear Shift for Departure after 9 am	-0.0457 (-1.73)		
Linear Shift for Duration less than 9 hours			-0.0252 (-1.64)
Linear Shift for Duration more than 9 hours			0.1048 (4.83)
Extreme Periods - Dummy Variables			
High Income - Departure Before 5 am	0.1169 (0.41)		
High Income - Arrival after 11pm		-0.6215 (-3.73)	
JOINT TRAVEL (HOV)			
Linear Shift for Departure before 8 am	-0.0716 (-0.74)		
Squared Shift for Departure before 8 am	0.1002 (2.55)		
Linear Shift for Arrival before 5 pm		-0.0143 (-0.53)	
Linear Shift for Arrival after 6 pm		-0.1200 (-4)	
PERSON CHARACTERISTICS			
Dummy Variables			
Full Time Worker, Duration less than 9 hrs			-1.1783 (-12.3)
Full Time Worker, Arrival before 3 pm		-0.6420 (-6.78)	
Part-Time Worker			
Linear Shift for Departure before 8 am	0.2757 (5.07)		
Linear Shift for Departure after 9 am	0.2494 (9.44)		
Linear Shift for Duration more than 9 hours			-0.1708 (-3.14)
Non-Worker			
Linear Shift for Departure before 8 am	0.1260 (1.18)		
Linear Shift for Departure after 9 am	0.2625 (4.89)		
Linear Shift for Duration less than 9 hours			-0.0954 (-3.04)

Table A1- 21: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Urban Density on Tour Departure and Duration

NOBS	8803
LL with Constants only	-43202.1
LL	-41366.7813
VOT (62.5K, 10 mile)	4.7

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0058	(-7.36)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-808.1878	(-17.83)				
TIME×DIST				-0.00036	(-6.67)				
TIME×$DIST^2$				0.00000171	(4.66)				
STD/D				-0.2730	(-2.59)				
WAIT					-0.0116				
WALK					-0.0087				
DIST					0.0085 (6.7)				
DACC						-0.0058		-0.0058	
LOW/A=0	-99.000		-1.0421 (-2.95)	-1.0421 (-2.95)	5.6775 (5.89)	1.9365 (2.93)	3.9247 (18.02)	1.4301 (1.29)	
LOW/A<W	0.888 (9.66)		-1.677 (-19.47)	-1.677 (-19.47)	1.000	0.6306 (0.95)	1.0194 (3.59)	-2.126 (0)	-3.7539 (-14.76)
LOW/A=W	2.2516 (12.01)		-1.677 (-19.47)	-1.677 (-19.47)	0.500	0.6306 (0.95)	1.0194 (3.59)	-2.126 (0)	-3.7539 (-14.76)
LOW/A>W	2.3663 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	0.200	0.6306 (0.95)	-0.180	-2.126 (0)	-4.5997 (-6.37)
MED/A=0	-99.000		-1.0421 (-2.95)	-1.0421 (-2.95)	4.5949 (8.07)	1.9365 (2.93)	3.9247 (18.02)	1.2175 (1.57)	
MED/A<W	0.888 (9.66)		-1.677 (-19.47)	-1.677 (-19.47)	0.679 (1.62)	-0.6997 (-1.96)	0.7904 (4.92)	-1.4484 (-2.59)	-3.7539 (-14.76)
MED/A=W	2.0055 (34.34)		-1.677 (-19.47)	-1.677 (-19.47)	0.1079 (0.31)	-0.0636 (-0.28)	0.253 (1.58)	-0.7975 (-2.34)	-3.7539 (-14.76)
MED/A>W	2.3663 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	-0.013 (-0.03)	-0.0636 (-0.28)	-0.1797 (-0.73)	-0.7975 (-2.34)	-4.5997 (-6.37)
HIGH/A=0	-99.000		-1.0421 (-2.95)	-1.0421 (-2.95)	4.5949 (8.07)	-0.8869 (0)	3.0195 (8.95)	2.0303 (1.63)	
HIGH/A<W	0.8946 (4.81)		-1.677 (-19.47)	-1.677 (-19.47)	-0.478 (-0.77)	-0.6997 (-1.96)	0.1213 (0.46)	-2.2865 (-2.01)	-2.0311 (-5.71)
HIGH/A=W	2.0055 (34.34)		-1.677 (-19.47)	-1.677 (-19.47)	0.0045 (0.01)	-0.0636 (-0.28)	-0.2203 (-0.93)	-0.8325 (-1.85)	-3.0537 (-7.8)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3663 (32.17)		-1.677 (-19.47)	-1.677 (-19.47)	-0.013 (-0.03)	-0.0636 (-0.28)	-0.3142 (-0.96)	-0.8325 (-1.85)	-3.6689 (-5.07)
INMANH		0.2233 (0.53)	0.6733 (1.22)	0.6733 (1.22)			3.5394 (12.71)		4.0736 (12.57)
TOMANH		0.1671 (1.06)	-0.2725 (-0.97)	-0.2725 (-0.97)	3.1469 (9.79)	3.7748 (15.41)	1.9024 (12.55)	2.4716 (6.45)	0.5037 (0.99)
TOLLB	0.0434 (0.45)	-0.5808 (-4.93)	-0.6861 (-3.66)	-1.1071 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-2.9146 (-15.28)	-9.0000	
5 am to 6 am	-2.0119 (-18.39)	-0.8007 (-0.74)	
6 am to 7 am	-0.6908 (-12.86)	-0.2572 (-0.49)	
7 am to 8 am	0.0000	-0.9360 (-1.96)	
8 am to 9 am	0.1196 (2.18)	-0.5481 (-1.44)	
9 am to 10 am	-0.7832 (-9.05)	-0.2132 (-0.66)	
10 am to 11 am	-1.7484 (-7.68)	-0.6482 (-2.18)	
11 am to 12 pm	-1.9397 (-7.56)	-0.0992 (-0.41)	
12 pm to 1 pm	-2.2591 (-7.62)	0.3831 (1.86)	
1 pm to 2 pm	-2.2352 (-6.99)	0.2218 (1.25)	
2 pm to 3 pm	-1.7230 (-5.09)	0.3937 (2.73)	
3 pm to 4 pm	-1.5332 (-4.18)	0.2048 (2.27)	
4 pm to 5 pm	-1.2715 (-3.23)	0.0149 (0.26)	
5 pm to 6 pm	-1.3636 (-3.19)	0.0000	
6 pm to 7 pm	-1.5675 (-3.42)	-0.3728 (-7.08)	
7 pm to 8 pm	-1.6676 (-3.25)	-0.8557 (-9.64)	
8 pm to 9 pm	-2.0089 (-3.55)	-1.2472 (-9.99)	
9 pm to 10 pm	-2.6478 (-3.37)	-1.3908 (-8.76)	
10 pm to 11 pm	-2.2664 (-2.84)	-1.6557 (-8.48)	
After 11 pm	-2.9229 (-2.55)	-0.9282 (-4.31)	
0 to 2 hours			-1.7715 (-6.05)
3 to 4 hours			-0.7712 (-3.64)
5 to 6 hours			-0.3821 (-2.51)
7 hours			-0.2585 (-2.17)
8 hours			0.2323 (2.36)
9 hours			0.0000
10 hours			-0.1495 (-3.04)
11 hours			-0.5609 (-6.73)
12 to 13 hours			-1.1281 (-8.6)
14 to 19 hours			-2.5927 (-11.41)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0048 (-4.24)		
Squared Shift for Departure before 8 am	0.0009 (2.31)		

Linear Shift for Departure after 9 am	-0.0051 (-9.99)		
Linear Shift for Arrival before 5 pm		0.0075 (6.51)	
Squared Shift for Arrival before 5 pm		-0.0001 (-0.23)	
Linear Shift for Arrival after 6 pm		0.0004 (1.2)	
INCOME			
Low Income Group			
Linear Shift for Departure after 9 am	0.1346 (3.48)		
Linear Shift for Duration less than 9 hours			0.0955 (3.27)
Linear Shift for Duration more than 9 hours			-0.0440 (-1.02)
High Income Group			
Linear Shift for Departure before 8 am	0.1946 (6)		
Linear Shift for Departure after 9 am	-0.0459 (-1.74)		
Linear Shift for Duration less than 9 hours			-0.0250 (-1.62)
Linear Shift for Duration more than 9 hours			0.1057 (4.87)
Extreme Periods - Dummy Variables			
High Income - Departure Before 5 am	0.1163 (0.41)		
High Income - Arrival after 11pm		-0.6230 (-3.74)	
JOINT TRAVEL (HOV)			
Linear Shift for Departure before 8 am	-0.0773 (-0.8)		
Squared Shift for Departure before 8 am	0.1012 (2.57)		
Linear Shift for Arrival before 5 pm		-0.0129 (-0.48)	
Linear Shift for Arrival after 6 pm		-0.1181 (-3.94)	
PERSON CHARACTERISTICS			
Dummy Variables			
Full Time Worker, Duration less than 9 hrs			-1.1759 (-12.27)
Full Time Worker, Arrival before 3 pm		-0.6463 (-6.82)	
Part-Time Worker			
Linear Shift for Departure before 8 am	0.2723 (5)		
Linear Shift for Departure after 9 am	0.3183 (5.03)		
Linear Shift for Duration more than 9 hours			-0.1682 (-3.1)
Non-Worker			
Linear Shift for Departure before 8 am	0.1229 (1.15)		
Linear Shift for Departure after 9 am	0.3314 (4.21)		
Linear Shift for Duration less than 9 hours			-0.0938 (-2.98)
URBAN DENSITY			
To Manhattan			
Linear Shift for Duration less than 9 hours			0.0675 (2.21)
Linear Shift for Duration more than 9 hours			0.0694 (2.35)

Table A1-22: New York RP Data –Joint Tour Mode & TOD Choice Models – Work – Reliability of Travel Time on Tour Departure and Arrival

NOBS	8803
LL with Constants only	-43202.1
LL	-41360.4143
VOT (62.5K, 10 mile)	4.7

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
IVT				-0.0058	(-7.35)				
COST [$Inc^{0.8}$,$Occ^{0.8}$]				-806.1826	(-17.81)				
TIME×DIST				-0.00036	(-6.52)				
TIME×$DIST^2$				0.00000167	(4.56)				
STD/D				-0.4923	(-3.29)				
WAIT					-0.0116				
WALK					-0.0087				
DIST					0.0085 (6.68)				
DACC						-0.0058		-0.0058	
LOW/A=0	-99.000		-1.0522 (-2.98)	-1.0522 (-2.98)	5.6427 (5.87)	1.9154 (2.9)	3.8945 (17.88)	1.4045 (1.27)	
LOW/A<W	0.8878 (9.66)		-1.6767 (-19.46)	-1.6767 (-19.46)	1.000	0.6347 (0.96)	1.0008 (3.53)	-2.126 (0)	-3.7498 (-14.67)
LOW/A=W	2.251 (12.01)		-1.6767 (-19.46)	-1.6767 (-19.46)	0.500	0.6347 (0.96)	1.0008 (3.53)	-2.126 (0)	-3.7498 (-14.67)
LOW/A>W	2.3666 (32.17)		-1.6767 (-19.46)	-1.6767 (-19.46)	0.200	0.6347 (0.96)	-0.195	-2.126 (0)	-4.5994 (-6.36)
MED/A=0	-99.000		-1.0522 (-2.98)	-1.0522 (-2.98)	4.5717 (8.03)	1.9154 (2.9)	3.8945 (17.88)	1.1935 (1.54)	
MED/A<W	0.8878 (9.66)		-1.6767 (-19.46)	-1.6767 (-19.46)	0.6641 (1.59)	-0.7122 (-1.99)	0.7729 (4.81)	-1.4656 (-2.62)	-3.7498 (-14.67)
MED/A=W	2.0059 (34.35)		-1.6767 (-19.46)	-1.6767 (-19.46)	0.0933 (0.27)	-0.0767 (-0.33)	0.2356 (1.47)	-0.8158 (-2.39)	-3.7498 (-14.67)
MED/A>W	2.3666 (32.17)		-1.6767 (-19.46)	-1.6767 (-19.46)	-0.0279 (-0.07)	-0.0767 (-0.33)	-0.1954 (-0.8)	-0.8158 (-2.39)	-4.5994 (-6.36)
HIGH/A=0	-99.000		-1.0522 (-2.98)	-1.0522 (-2.98)	4.5717 (8.03)	-0.8869 (0)	2.9936 (8.88)	2.0013 (1.61)	
HIGH/A<W	0.8952 (4.81)		-1.6767 (-19.46)	-1.6767 (-19.46)	-0.4909 (-0.79)	-0.7122 (-1.99)	0.1051 (0.4)	-2.2979 (-2.02)	-2.0188 (-5.67)
HIGH/A=W	2.0059 (34.35)		-1.6767 (-19.46)	-1.6767 (-19.46)	-0.0118 (-0.03)	-0.0767 (-0.33)	-0.2406 (-1.02)	-0.8491 (-1.88)	-3.0458 (-7.77)

Variable	Mode								
	SOV	**HOV2**	**HOV3**	**HOV4+**	**WCR**	**DCR**	**WT**	**DT**	**TX**
HIGHA>W	2.3666 (32.17)		-1.6767 (-19.46)	-1.6767 (-19.46)	-0.0279 (-0.07)	-0.0767 (-0.33)	-0.332 (-1.01)	-0.8491 (-1.88)	-3.6607 (-5.05)
INMANH		0.2238 (0.53)	0.6731 (1.22)	0.6731 (1.22)			3.5445 (12.73)		4.078 (12.58)
TOMANH		0.1677 (1.06)	-0.2699 (-0.96)	-0.2699 (-0.96)	3.1571 (9.82)	3.7841 (15.46)	1.9132 (12.64)	2.4935 (6.52)	0.3575 (0.69)
TOLLB	0.0465 (0.48)	-0.5747 (-4.88)	-0.6785 (-3.62)	-1.1066 (-8.02)					

Variable	**Departure**	**Arrival**	**Duration**
CONSTANTS			
Before 5 am	-2.9232 (-15.32)	-9.0000	
5 am to 6 am	-2.0143 (-18.42)	-0.8000 (-0.74)	
6 am to 7 am	-0.7006 (-12.99)	-0.2448 (-0.46)	
7 am to 8 am	0.0000	-0.9182 (-1.92)	
8 am to 9 am	0.1328 (2.41)	-0.5293 (-1.39)	
9 am to 10 am	-0.7717 (-8.9)	-0.2016 (-0.62)	
10 am to 11 am	-1.7369 (-7.63)	-0.6364 (-2.14)	
11 am to 12 pm	-1.9274 (-7.51)	-0.0883 (-0.36)	
12 pm to 1 pm	-2.2463 (-7.58)	0.3933 (1.91)	
1 pm to 2 pm	-2.2217 (-6.95)	0.2315 (1.31)	
2 pm to 3 pm	-1.7086 (-5.05)	0.4012 (2.78)	
3 pm to 4 pm	-1.5165 (-4.13)	0.2127 (2.35)	
4 pm to 5 pm	-1.2538 (-3.18)	0.0186 (0.32)	
5 pm to 6 pm	-1.3450 (-3.15)	0.0000	
6 pm to 7 pm	-1.5495 (-3.38)	-0.3910 (-7.36)	
7 pm to 8 pm	-1.6506 (-3.22)	-0.8863 (-9.91)	
8 pm to 9 pm	-1.9958 (-3.53)	-1.2694 (-10.15)	
9 pm to 10 pm	-2.6334 (-3.35)	-1.4183 (-8.91)	
10 pm to 11 pm	-2.2516 (-2.83)	-1.6836 (-8.61)	
After 11 pm	-2.9079 (-2.54)	-0.9569 (-4.44)	
0 to 2 hours			-1.7787 (-6.07)
3 to 4 hours			-0.7760 (-3.66)
5 to 6 hours			-0.3854 (-2.53)
7 hours			-0.2608 (-2.19)
8 hours			0.2307 (2.35)
9 hours			0.0000
10 hours			-0.1479 (-3)
11 hours			-0.5581 (-6.7)
12 to 13 hours			-1.1261 (-8.59)
14 to 19 hours			-2.5918 (-11.41)
TRAVEL TIME			
Linear Shift for Departure before 8 am	-0.0048 (-4.23)		
Squared Shift for Departure before 8 am	0.0009 (2.29)		

Linear Shift for Departure after 9 am	-0.0051 (-10)		
Linear Shift for Arrival before 5 pm		0.0075 (6.47)	
Squared Shift for Arrival before 5 pm		-0.0001 (-0.21)	
Linear Shift for Arrival after 6 pm		0.0005 (1.33)	
INCOME			
Low Income Group			
Linear Shift for Departure after 9 am	0.1326 (3.43)		
Linear Shift for Duration less than 9 hours			0.0949 (3.25)
Linear Shift for Duration more than 9 hours			-0.0460 (-1.07)
High Income Group			
Linear Shift for Departure before 8 am	0.1955 (6.02)		
Linear Shift for Departure after 9 am	-0.0468 (-1.77)		
Linear Shift for Duration less than 9 hours			-0.0253 (-1.64)
Linear Shift for Duration more than 9 hours			0.1045 (4.81)
Extreme Periods - Dummy Variables			
High Income - Departure Before 5 am	0.1189 (0.42)		
High Income - Arrival after 11pm		-0.6220 (-3.74)	
JOINT TRAVEL (HOV)			
Linear Shift for Departure before 8 am	-0.0750 (-0.77)		
Squared Shift for Departure before 8 am	0.1006 (2.56)		
Linear Shift for Arrival before 5 pm		-0.0134 (-0.5)	
Linear Shift for Arrival after 6 pm		-0.1185 (-3.95)	
PERSON CHARACTERISTICS			
Dummy Variables			
Full Time Worker, Duration less than 9 hrs			-1.1749 (-12.26)
Full Time Worker, Arrival before 3 pm		-0.6453 (-6.81)	
Part-Time Worker			
Linear Shift for Departure before 8 am	0.2706 (4.97)		
Linear Shift for Departure after 9 am	0.3191 (5.04)		
Linear Shift for Duration more than 9 hours			-0.1677 (-3.09)
Non-Worker			
Linear Shift for Departure before 8 am	0.1215 (1.14)		
Linear Shift for Departure after 9 am	0.3322 (4.22)		
Linear Shift for Duration less than 9 hours			-0.0936 (-2.98)
URBAN DENSITY			
To Manhattan			
Linear Shift for Duration less than 9 hours			0.0667 (2.18)
Linear Shift for Duration more than 9 hours			0.0684 (2.32)
RELIABILITY MEASURE (STANDARD DEVIATION OF TRAVEL TIME PER MILE)			
Linear Shift for Departure before 8 am	-0.2932 (-2.32)		
Linear Shift for Departure after 9 am	0.0047 (0.04)		
Linear Shift for Arrival before 5 pm		0.1383 (0.95)	
Linear Shift for Arrival after 6 pm		0.4054 (2.65)	

APPENDIX A2

Revealed Preference Data – Seattle Survey and PSRG Model Level of Service (LOS) and Cost Skims

Table A2-1: Seattle RP Data – Trip TOD Choice Models – HB Work

Model label	**tonlyw**		**tonlywb**		**tonlywc**		**tonlywd**		**tonlywde**		**tonlywf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Observations	9876		9876		9876		9876		9876		9876	
Final log-likelihood	-21230.8		-21227		-21224.3		-21228.7		-21217.3		-21220.9	
Degrees of freedom	43		44		44		44		44		45	
Rho-squared w.r.t. 0	0.241		0.241		0.241		0.241		0.242		0.242	
Rho-squared w.r.t. cons	0.186		0.187		0.187		0.187		0.187		0.187	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Auto travel time (min)	-0.0158	-5.4	-0.0252	-5.6	-0.0208	-6.4	-0.0279	-4.2	-0.0243	-7.2	0.0136	1.5
Auto travel time st. deviation (min)			0.0844	2.8								
Auto travel time st. dev./distance (min/mile)					1.37	3.6						
Auto travel time 90th percentile (min)							0.0133	2.1				
Auto travel time 90th pctile / distance (min/mile)									0.317	5.2		
Auto travel time * distance (min-mile)											-0.0012	-2.5
Auto travel time * dist. Squared (min-mile2)											8.60E-06	1.3
Outbound trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	-0.006	-4.5	-0.0054	-4.1	-0.0056	-4.3	-0.0059	-4.4	-0.0059	-4.4	-0.0057	-4.3
Household income ($/yr)	-5.00E-04	-5.2	-4.90E-04	-5.2	-4.90E-04	-5.2	-4.90E-04	-5.2	-4.80E-04	-5.1	-4.90E-04	-5.2
Age (years)	-5.10E-04	-1.7	-5.10E-04	-1.7	-5.10E-04	-1.7	-5.10E-04	-1.7	-5.20E-04	-1.7	-5.20E-04	-1.7
HOV trip	-0.0028	-0.2	-0.0033	-0.3	-0.0033	-0.3	-0.0057	-0.4	-0.0081	-0.6	-0.0034	-0.3
Part time worker	0.0392	1.7	0.0394	1.7	0.0392	1.7	0.0392	1.7	0.0387	1.7	0.0389	1.7

Model label	**tonlyw**		**tonlywb**		**tonlywc**		**tonlywd**		**tonlywde**		**tonlywf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Female	0.0026	0.3	0.0028	0.4	0.0026	0.3	0.0023	0.3	0.002	0.3	0.0024	0.3
Return trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	4.20E-04	1.5	4.90E-04	1.7	4.40E-04	1.5	4.80E-04	1.7	3.80E-04	1.4	3.50E-04	1.2
Household income ($/yr)	8.00E-04	4.9	7.90E-04	4.9	8.00E-04	4.9	7.90E-04	4.9	8.00E-04	4.9	8.10E-04	5
Age (years)	-0.0051	-9.3	-0.0051	-9.3	-0.0051	-9.3	-0.0051	-9.3	-0.0051	-9.3	-0.0051	-9.4
HOV trip	0.0472	2	0.0465	2	0.0469	2	0.042	1.8	0.0355	1.6	0.0456	2
Part time worker	-0.0886	-2.3	-0.0886	-2.3	-0.0882	-2.3	-0.0879	-2.3	-0.0872	-2.3	-0.0882	-2.3
Female	-0.0087	-0.7	-0.0085	-0.6	-0.0083	-0.6	-0.0084	-0.6	-0.0081	-0.6	-0.0086	-0.6
Outbound trip period-specific constants												
Leave home 5-6	-1.17	-19.6	-1.16	-19.5	-1.13	-18.6	-1.15	-19.2	-1.05	-16.7	-1.11	-18.1
Leave home 6-7	-0.325	-7.6	-0.321	-7.5	-0.323	-7.6	-0.324	-7.6	-0.324	-7.6	-0.323	-7.6
Leave home 7-8	0		0		0		0		0		0	
Leave home 8-9	-0.427	-9.3	-0.43	-9.4	-0.429	-9.4	-0.427	-9.3	-0.427	-9.3	-0.428	-9.4
Leave home 9-10	-1.29	-19.1	-1.29	-19.2	-1.28	-19	-1.27	-18.6	-1.23	-18	-1.28	-18.9
Leave home 10-11	-1.92	-20.7	-1.92	-20.7	-1.91	-20.6	-1.9	-20.3	-1.86	-19.9	-1.9	-20.5
Leave home 11-12	-2.32	-19.8	-2.32	-19.9	-2.31	-19.8	-2.29	-19.6	-2.26	-19.3	-2.3	-19.7
Leave home 12-13	-2.06	-17.6	-2.07	-17.7	-2.06	-17.6	-2.04	-17.4	-2.01	-17.1	-2.05	-17.5
Leave home 13-14	-2.37	-18.8	-2.36	-18.8	-2.35	-18.7	-2.35	-18.6	-2.3	-18.2	-2.35	-18.6
Leave home 14-15	-2.26	-17.2	-2.26	-17.1	-2.24	-17	-2.24	-16.9	-2.19	-16.6	-2.23	-17
Leave home 15-16	-2.68	-17	-2.69	-17	-2.69	-17	-2.68	-16.9	-2.67	-16.9	-2.68	-16.9
Leave home 16-17	-2.98	-16.3	-2.99	-16.4	-2.99	-16.4	-2.97	-16.3	-2.96	-16.3	-2.97	-16.3

Model label	**tonlyw**		**tonlywb**		**tonlywc**		**tonlywd**		**tonlywde**		**tonlywf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Leave home 17-18	-3.1	-15.6	-3.11	-15.6	-3.11	-15.6	-3.1	-15.6	-3.08	-15.5	-3.1	-15.6
Leave home 18-19	-3.39	-15.2	-3.4	-15.2	-3.37	-15.1	-3.38	-15.1	-3.3	-14.7	-3.34	-14.9
Leave home 19-20	-3.95	-14.1	-3.96	-14.1	-3.93	-14	-3.94	-14.1	-3.86	-13.8	-3.9	-13.9
Leave home 20-23	-4.39	-12.8	-4.41	-12.9	-4.38	-12.8	-4.39	-12.8	-4.3	-12.6	-4.34	-12.7
Leave home 23-5	-1.38	-7.4	-1.38	-7.4	-1.34	-7.2	-1.37	-7.3	-1.26	-6.7	-1.3	-7
Return trip period-specific constants												
Return home 5-6	-10		-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10		-10	
Return home 7-8	-6.23	-13.2	-6.22	-13.1	-6.19	-13.1	-6.24	-13.2	-6.19	-13.1	-6.19	-13.1
Return home 8-9	-5.04	-15.5	-5.03	-15.5	-5	-15.4	-5.05	-15.5	-4.99	-15.4	-5	-15.4
Return home 9-10	-4.58	-16.2	-4.57	-16.1	-4.53	-16	-4.57	-16.1	-4.51	-15.9	-4.54	-16
Return home 10-11	-4.36	-16.6	-4.34	-16.6	-4.31	-16.4	-4.35	-16.6	-4.28	-16.3	-4.32	-16.5
Return home 11-12	-3.24	-16.9	-3.23	-16.8	-3.19	-16.6	-3.23	-16.8	-3.16	-16.5	-3.19	-16.7
Return home 12-13	-2.43	-15.8	-2.42	-15.7	-2.39	-15.5	-2.42	-15.7	-2.36	-15.2	-2.39	-15.5
Return home 13-14	-2.66	-19.9	-2.64	-19.8	-2.61	-19.5	-2.65	-19.9	-2.58	-19.2	-2.61	-19.4
Return home 14-15	-1.97	-19.4	-1.96	-19.2	-1.93	-18.7	-1.97	-19.3	-1.89	-18.4	-1.92	-18.7
Return home 15-16	-1.02	-14.4	-1.02	-14.3	-1.02	-14.3	-1.02	-14.4	-1.02	-14.4	-1.02	-14.4
Return home 16-17	-0.463	-8.8	-0.462	-8.8	-0.462	-8.8	-0.463	-8.8	-0.464	-8.9	-0.464	-8.8
Return home 17-18	0		0		0		0		0		0	
Return home 18-19	-0.341	-6.2	-0.325	-5.9	-0.283	-4.9	-0.333	-6	-0.235	-4	-0.272	-4.7
Return home 19-20	-1.13	-14.4	-1.11	-14.2	-1.07	-13.4	-1.12	-14.3	-1.02	-12.6	-1.06	-13.3

Model label	**tonlyw**		**tonlywb**		**tonlywc**		**tonlywd**		**tonlywde**		**tonlywf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Return home 20-23	-0.97	-10.8	-0.956	-10.6	-0.912	-10	-0.962	-10.7	-0.861	-9.3	-0.899	-9.8
Return home 23-5	-1.99	-15.5	-1.98	-15.5	-1.92	-14.8	-1.99	-15.5	-1.86	-14.2	-1.89	-14.5

Table A2-2: Seattle RP Data – Trip TOD Choice Models – HB Other

Model label	**tonlyn**		**tonlynb**		**tonlync**		**tonlynd**		**tonlyne**		**tonlynf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Observations	18958		18958		18958		18958		18958		18958	
Final log-likelihood	-47963.3		-47960.8		-47963.2		-47962.9		-47960.5		-47962.5	
Degrees of freedom	49		50		50		50		50		51	
Rho-squared w.r.t. 0	0.107		0.107		0.107		0.107		0.107		0.107	
Rho-squared w.r.t. cons	0.044		0.044		0.044		0.044		0.044		0.044	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Auto travel time (min)	-0.0195	-4.5	-0.009	-1.4	-0.0185	-3.8	-0.0243	-3.6	-0.0244	-5	-0.0176	-2
Auto travel time st. deviation (min)			-0.0906	-2.2								
Auto travel time st. dev./distance (min/mile)					-0.154	-0.5						
Auto travel time 90th percentile (min)							0.0074	1				
Auto travel time 90th pctile / distance (min/mile)									0.136	2.4		
Auto travel time * distance (min-mile)											-1.70E-04	-0.4
Auto travel time * dist. Squared (min-mile2)											2.80E-06	0.8
Outbound trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	0.0024	2.5	0.0022	2.2	0.0024	2.5	0.0025	2.6	0.0025	2.6	0.0024	2.5
Household income ($/yr)	-3.80E-05	-0.6	-3.90E-05	-0.6	-3.80E-05	-0.6	-3.70E-05	-0.6	-3.60E-05	-0.6	-3.80E-05	-0.6
Age (years)	-0.0015	-8.2	-0.0015	-8.1	-0.0015	-8.1	-0.0015	-8.2	-0.0015	-8.2	-0.0015	-8.2
HOV trip	0.0965	16	0.097	16.1	0.0966	16	0.096	15.9	0.0954	15.8	0.0966	16
Part time worker	-0.0561	-8.3	-0.0562	-8.3	-0.0561	-8.3	-0.056	-8.3	-0.056	-8.3	-0.056	-8.3

Model label	**tonlyn**		**tonlynb**		**tonlync**		**tonlynd**		**tonlyne**		**tonlynf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Female	-0.0286	-5.2	-0.0286	-5.2	-0.0286	-5.2	-0.0286	-5.2	-0.0286	-5.2	-0.0285	-5.2
Shopping trip	0.0381	5.2	0.0382	5.2	0.0381	5.2	0.0381	5.2	0.0379	5.2	0.0381	5.2
Restaurant trip	0.0272	3.1	0.0273	3.1	0.0272	3.1	0.0272	3.1	0.0274	3.1	0.0272	3.1
Social / recreation trip	0.0484	7.1	0.0484	7.1	0.0485	7.1	0.0485	7.1	0.0485	7.1	0.0484	7.1
Return trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	1.00E-03	3.9	9.70E-04	3.8	1.00E-03	3.9	0.001	4	0.001	3.9	9.90E-04	3.8
Household income ($/yr)	-2.50E-04	-3.3	-2.50E-04	-3.3	-2.50E-04	-3.3	-2.50E-04	-3.3	-2.50E-04	-3.4	-2.50E-04	-3.3
Age (years)	-0.0023	-10.9	-0.0023	-10.9	-0.0023	-10.9	-0.0023	-10.9	-0.0023	-10.9	-0.0023	-10.9
HOV trip	0.0676	9.9	0.0679	10	0.0676	9.9	0.0669	9.8	0.0659	9.6	0.0677	9.9
Part time worker	-0.125	-16.3	-0.125	-16.3	-0.125	-16.3	-0.125	-16.3	-0.125	-16.3	-0.125	-16.3
Female	-0.0549	-8.7	-0.0548	-8.7	-0.0548	-8.7	-0.0549	-8.7	-0.0548	-8.7	-0.0548	-8.7
Shopping trip	-0.0251	-3.3	-0.0251	-3.3	-0.0251	-3.3	-0.0252	-3.3	-0.0251	-3.3	-0.0251	-3.3
Restaurant trip	0.0837	7.9	0.0838	7.9	0.0837	7.9	0.0836	7.9	0.0836	7.9	0.0837	7.9
Social / recreation trip	0.0785	9.3	0.0786	9.4	0.0785	9.3	0.0784	9.3	0.0784	9.3	0.0784	9.3
Outbound trip period-specific constants												
Leave home 5-6	-1.24	-12.4	-1.24	-12.4	-1.25	-12.4	-1.24	-12.3	-1.21	-12	-1.24	-12.4
Leave home 6-7	-0.472	-6	-0.473	-6	-0.472	-6	-0.472	-6	-0.472	-6	-0.472	-6
Leave home 7-8	0		0		0		0		0		0	
Leave home 8-9	0.369	5.7	0.369	5.7	0.369	5.7	0.369	5.7	0.369	5.7	0.369	5.7
Leave home 9-10	0.713	11.1	0.713	11.1	0.713	11.1	0.718	11.2	0.727	11.3	0.714	11.1
Leave home 10-11	0.711	10.4	0.71	10.4	0.71	10.4	0.715	10.4	0.724	10.5	0.711	10.4

Model label	**tonlyn**		**tonlynb**		**tonlync**		**tonlynd**		**tonlyne**		**tonlynf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Leave home 11-12	0.455	5.9	0.455	5.9	0.454	5.9	0.458	6	0.467	6.1	0.455	5.9
Leave home 12-13	0.361	4.3	0.361	4.3	0.36	4.3	0.364	4.4	0.373	4.5	0.361	4.3
Leave home 13-14	0.397	4.4	0.395	4.4	0.396	4.4	0.402	4.5	0.412	4.6	0.398	4.4
Leave home 14-15	0.28	2.8	0.278	2.8	0.279	2.8	0.285	2.9	0.294	3	0.28	2.8
Leave home 15-16	0.374	3.6	0.377	3.6	0.375	3.6	0.378	3.6	0.381	3.6	0.374	3.6
Leave home 16-17	0.639	5.8	0.642	5.8	0.64	5.8	0.644	5.8	0.647	5.9	0.639	5.8
Leave home 17-18	0.93	8	0.933	8	0.931	8	0.935	8	0.939	8	0.93	8
Leave home 18-19	1.04	8.4	1.04	8.4	1.04	8.4	1.05	8.4	1.06	8.5	1.04	8.4
Leave home 19-20	0.291	2.1	0.292	2.1	0.29	2.1	0.296	2.1	0.311	2.3	0.292	2.1
Leave home 20-23	-0.327	-2.2	-0.327	-2.2	-0.329	-2.2	-0.323	-2.1	-0.307	-2	-0.326	-2.1
Leave home 23-5	-1.9	-9.6	-1.89	-9.6	-1.9	-9.6	-1.89	-9.6	-1.87	-9.5	-1.89	-9.6
Return trip period-specific constants												
Return home 5-6	-10		-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10		-10	
Return home 7-8	-4.41	-24.3	-4.4	-24.3	-4.41	-24.3	-4.41	-24.3	-4.4	-24.3	-4.4	-24.3
Return home 8-9	-3.58	-23.9	-3.57	-23.9	-3.58	-24	-3.58	-24	-3.57	-23.9	-3.58	-23.9
Return home 9-10	-2.77	-22.2	-2.78	-22.2	-2.78	-22.2	-2.77	-22.2	-2.76	-22.1	-2.77	-22.2
Return home 10-11	-1.97	-18.7	-1.98	-18.8	-1.98	-18.7	-1.98	-18.7	-1.96	-18.6	-1.97	-18.7
Return home 11-12	-1.41	-15.5	-1.41	-15.5	-1.41	-15.5	-1.41	-15.5	-1.4	-15.4	-1.41	-15.5
Return home 12-13	-1.2	-14.8	-1.2	-14.9	-1.2	-14.8	-1.2	-14.9	-1.19	-14.7	-1.2	-14.8
Return home 13-14	-1.04	-14.8	-1.04	-14.9	-1.04	-14.8	-1.04	-14.8	-1.03	-14.6	-1.04	-14.8

Model label	**tonlyn**		**tonlynb**		**tonlync**		**tonlynd**		**tonlyne**		**tonlynf**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	TOD		TOD		TOD		TOD		TOD		TOD	
Modes included	Auto		Auto		Auto		Auto		Auto		Auto	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Return home 14-15	-0.745	-12.3	-0.749	-12.4	-0.748	-12.3	-0.744	-12.3	-0.732	-12.1	-0.744	-12.2
Return home 15-16	-0.471	-9	-0.471	-9	-0.471	-9	-0.472	-9	-0.474	-9	-0.471	-9
Return home 16-17	-0.304	-6.4	-0.304	-6.4	-0.304	-6.4	-0.305	-6.4	-0.306	-6.4	-0.304	-6.4
Return home 17-18	0		0		0		0		0		0	
Return home 18-19	-0.171	-3.5	-0.175	-3.6	-0.175	-3.5	-0.17	-3.5	-0.152	-3.1	-0.17	-3.4
Return home 19-20	0.0369	0.7	0.0321	0.6	0.0329	0.6	0.038	0.7	0.0558	1.1	0.0379	0.7
Return home 20-23	0.94	18.2	0.935	18.1	0.936	17.9	0.942	18.2	0.96	18.3	0.941	18
Return home 23-5	-1.27	-14.7	-1.27	-14.7	-1.28	-14.7	-1.27	-14.7	-1.25	-14.4	-1.27	-14.6

Table A2-3: Seattle RP Data – Trip Mode Choice Models – HB Work (1)

Model label	**monlyw04x**	**monlyw04**	**monlyw04a**	**monlyw04b**	**monlyw04c**	**monlyw04d**
Data set	SEA RP	SEA RP	SEA RP	SEA RP	SEA RP	SEA RP
Choice type	MODE	MODE	MODE	MODE	MODE	MODE
Modes included	All	All	All	All	All	All
Time periods included	Actual	Actual	Actual	Actual	Actual	Actual
Skim periods	17	5	5	5	5	5
Observation	Trip	Trip	Trip	Trip	Trip	Trip
Purpose	HB Work	HB Work	HB Work	HB Work	HB Work	HB Work
Observations	11798	11798	11798	11798	11798	11798
Final log-likelihood	-8178.2	-8192.6	-8192.6	-8187.1	-8192.6	-8191.2

Model label	**monlyw04x**		**monlyw04**		**monlyw04a**		**monlyw04b**		**monlyw04c**		**monlyw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Degrees of freedom	28		28		29		29		29		29	
Rho-squared w.r.t. 0	0.584		0.583		0.583		0.584		0.583		0.583	
Rho-squared w.r.t. cons	0.188		0.186		0.186		0.187		0.186		0.186	
Imputed values of time ($/hr)												
Auto in-vehicle time	7.47		6.78				8.82		6.80		8.07	
Transit in-vehicle time	2.49		1.76		1.82		2.32		1.78		1.85	
Transit walk access time	14.55		14.26		14.34		15.34		14.30		14.25	
Transit wait time	11.29		10.60		10.68		11.46		10.64		10.54	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Cost (fare, parking, operat., $)	-0.294	-14.6	-0.3	-14.9	-0.3	-14.8	-0.3	-14.8	-0.3	-14.9	-0.299	-14.8
Cost - additive for HOV2												
Cost - additive for HOV3+												
Cost - additive for low income												
Cost - additive for high income												
Cost - additive for very high income												
Cost - additive for missing income												
Cost - function including occupancy and income												
Auto travel time (min)	-0.0366	-10.4	-0.0339	-8.9			-0.0441	-8.9	-0.034	-8.1	-0.0402	-7.5
Auto extra travel time on links over 1.2*free flow					-0.0327	-6.6						

Model label	**monlyw04 x**		**monlyw0 4**		**monlyw04 a**		**monlyw04 b**		**monlyw04 c**		**monlyw04 d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Auto travel time on links below 1.2*free flow					-0.0351	-6.9						
Auto travel time st. deviation (min)							0.154	3.3				
Auto travel time st. dev./distance (min/mile)									0.0684	0.1		
Auto travel time 90th percentile (min)											0.0067	1.7
Auto travel time 90th pctile / distance (min/mile)												
Auto travel time * distance (min-mile)												
Auto travel time * dist. Squared (min-mile2)												
Transit in-vehicle time (min)	-0.0122	-2.2	-0.0088	-1.6	-0.0091	-1.6	-0.0116	-2	-0.0089	-1.6	-0.0092	-1.6
Transit walk access time (min)	-0.0713	-9.5	-0.0713	-9.4	-0.0717	-9.4	-0.0767	-9.5	-0.0715	-9.2	-0.071	-9.4
Transit wait time (min)	-0.0553	-6.3	-0.053	-6.1	-0.0534	-6.1	-0.0573	-6.4	-0.0532	-6	-0.0525	-6
Transit number of transfers	-0.838	-5.1	-0.885	-5.3	-0.884	-5.3	-0.886	-5.3	-0.884	-5.3	-0.883	-5.3
Non-motorized mode distance (miles)	-0.886	-11.2	-0.888	-11.1	-0.892	-11	-0.931	-11	-0.889	-10.9	-0.887	-11.1
Time - additive for females												
Time - additive age (years over 18)												
Time - additive part time worker												
Mode-specific constants												
Drive to transit	-1.9	-9.2	-1.87	-9.1	-1.88	-9.1	-1.89	-9	-1.87	-8.9	-1.87	-9.1
Walk to transit	-2.8	-7.5	-2.87	-7.5	-2.88	-7.5	-2.99	-7.6	-2.87	-7.5	-2.85	-7.5
HOV 3+	-3.9	-32.4	-3.9	-32.4	-3.89	-32.2	-3.89	-32.3	-3.9	-32.3	-3.74	-24.7

Model label	**monlyw04x**		**monlyw04**		**monlyw04a**		**monlyw04b**		**monlyw04c**		**monlyw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
HOV 2+	-2.82	-43.3	-2.81	-43.3	-2.81	-42.6	-2.8	-43.1	-2.81	-43.2	-2.65	-23.6
SOV	0		0		0		0		0		0	
Non-motorized	-1.16	-3.9	-1.16	-3.9	-1.17	-3.9	-1.27	-4.1	-1.16	-3.9	-1.14	-3.8
Mode preference variables												
Walk to transit - no car	6.02	6.3	6.11	6.3	6.14	6.3	6.39	6.4	6.12	6.3	6.1	6.3
Walk to transit - 0 < cars < workers	3.2	10	3.24	9.9	3.24	9.8	3.32	9.8	3.24	9.8	3.23	9.9
HOV - 0 < cars < workers	1.18	10.7	1.18	10.7	1.17	10.7	1.17	10.6	1.17	10.7	1.16	10.5
Non-motorized - no car	2.57	3.2	2.61	3.2	2.62	3.2	2.77	3.3	2.62	3.2	2.61	3.2
Non-motorized - 0 < cars < workers	2.52	8.3	2.54	8.2	2.55	8.2	2.62	8.2	2.54	8.2	2.54	8.2
HOV - square of trip distance	-5.40E-05	-0.7	-2.30E-05	-0.3	-1.90E-05	-0.3	-1.40E-05	-0.2	-2.30E-05	-0.3	1.30E-04	1.2
HOV 3 - less than 3 persons in household	-0.52	-3.7	-0.518	-3.7	-0.518	-3.7	-0.515	-3.6	-0.518	-3.7	-0.519	-3.7
HOV 2 - less than 2 persons in household	-0.898	-6.3	-0.896	-6.3	-0.896	-6.3	-0.895	-6.3	-0.896	-6.3	-0.9	-6.3
HOV 3 - female	0.5	3.5	0.497	3.5	0.497	3.5	0.495	3.5	0.497	3.5	0.486	3.4
HOV2 - female	0.475	6	0.472	5.9	0.472	5.9	0.471	5.9	0.472	5.9	0.462	5.8
Non-motorized - female	-0.969	-4.8	-0.98	-4.8	-0.983	-4.8	-1.02	-4.8	-0.982	-4.8	-0.975	-4.8
Non-motorized - age	-0.0223	-3.1	-0.0225	-3.1	-0.0226	-3.1	-0.0234	-3.1	-0.0226	-3.1	-0.0225	-3.1
Non-motorized - destination is Seattle CBD	-0.318	-1.1	-0.331	-1.1	-0.325	-1.1	-0.282	-0.9	-0.327	-1.1	-0.338	-1.2
Walk to transit - destination is Seattle CBD	0.851	3.1	0.869	3.1	0.876	3.1	0.945	3.3	0.873	3.1	0.857	3.1
Drive to transit - destination is Seattle CBD	0.364	2.2	0.326	2	0.326	2	0.325	2	0.326	2	0.325	2
Nesting paramaters												
All auto-related modes in single nest	0.566	11.8	0.56	11.7	0.559	11.6	0.541	11.6	0.559	11.6	0.562	11.7

Table A2-4: Seattle RP Data – Trip Mode Choice Models – HB Work (2)

Model label	**monlyw04 e**		**monlyw04 f**		**monlyw04 g**		**monlyw04 h**		**monlyw04 i**		**monlyw04 j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Observations	11798		11798		11798		11798		11798		11798	
Final log-likelihood	-8185.2		-8190.8		-8107.4		-8129.1		-8124.8		-8122.1	
Degrees of freedom	29		30		34		28		31		34	
Rho-squared w.r.t. 0	0.584		0.584		0.588		0.587		0.587		0.587	
Rho-squared w.r.t. cons	0.187		0.186		0.195		0.192		0.193		0.193	
Imputed values of time ($/hr)												
Auto in-vehicle time	6.96		6.04									
Transit in-vehicle time	1.28		1.96									
Transit walk access time	14.01		14.20									
Transit wait time	10.29		10.32									
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Cost (fare, parking, operat., $)	-0.299	-14.8	-0.3	-14.8	-0.376	-14.9						
Cost - additive for HOV2					0.123	9.1						
Cost - additive for HOV3+					0.15	7.2						
Cost - additive for low income					-0.0696	-1.6						
Cost - additive for high income					0.0416	2.1						
Cost - additive for very high income					0.132	6.7						
Cost - additive for missing income					0.0042	0.1						

Model label	**monlyw04 e**		**monlyw04 f**		**monlyw04 g**		**monlyw04 h**		**monlyw04 i**		**monlyw04 j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Cost - function including occupancy and income							-214	-17.8	-213	-17.7	-213	-17.6
Auto travel time (min)	-0.0347	-9.2	-0.0302	-3.1	-0.0283	-7.5	-0.0343	-9.3	-0.0296	-6.4	-0.013	-1.1
Auto extra travel time on links over 1.2*free flow												
Auto travel time on links below 1.2*free flow												
Auto travel time st. deviation (min)												
Auto travel time st. dev./distance (min/mile)											0.0349	0
Auto travel time 90th percentile (min)												
Auto travel time 90th pctile / distance (min/mile)	-0.0816	-3.8										
Auto travel time * distance (min-mile)			-4.00E-04	-0.9							-9.70E-04	-1.9
Auto travel time * dist. Squared (min-mile2)			7.40E-06	1.2							1.30E-05	2.1
Transit in-vehicle time (min)	-0.0064	-1.1	-0.0098	-1.6	-0.0087	-1.6	-0.0069	-1.3	-0.0063	-1.2	-0.0104	-1.8
Transit walk access time (min)	-0.0698	-9.3	-0.071	-9.3	-0.0619	-9.3	-0.0612	-9.6	-0.0618	-9.6	-0.0628	-9.4
Transit wait time (min)	-0.0513	-6	-0.0516	-5.8	-0.0499	-6.2	-0.0501	-6.2	-0.0504	-6.2	-0.051	-6
Transit number of transfers	-0.909	-5.5	-0.861	-5.1	-0.82	-5.3	-0.951	-6	-0.966	-6	-0.905	-5.6
Non-motorized mode distance (miles)	-0.833	-10.6	-0.887	-11	-0.791	-11.5	-0.79	-11.9	-0.802	-11.9	-0.796	-11.5
Time - additive for females									-0.0054	-2.5	-0.0053	-2.5
Time - additive age (years over 18)									-1.10E-04	-1.2	-1.30E-04	-1.3
Time - additive part time worker									0.0058	0.7	0.0066	0.8

Model label	**monlyw04 e**		**monlyw04 f**		**monlyw04 g**		**monlyw04 h**		**monlyw04 i**		**monlyw04 j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Mode-specific constants												
Drive to transit	-2.24	-10	-1.9	-7	-1.99	-10.3	-1.92	-9.7	-1.94	-9.7	-1.7	-6.3
Walk to transit	-3.18	-8.3	-2.87	-6.6	-2.49	-7.7	-2.35	-7.9	-2.44	-7.9	-2.19	-6.2
HOV 3+	-4.18	-29.6	-3.9	-32.4	-4.31	-29.5	-4.31	-34.8	-4.31	-34.8	-4.31	-34.8
HOV 2+	-3.09	-31.4	-2.81	-43.2	-3.12	-40.1	-3.06	-45.6	-3.06	-45.6	-3.06	-45.4
SOV	0		0		0		0		0		0	
Non-motorized	-1.71	-5.2	-1.12	-3.6	-1.11	-4.2	-1.1	-4.2	-1.05	-3.9	-0.892	-3.2
Mode preference variables												
Walk to transit - no car	6.01	6.4	6.09	6.3	5.06	6.1	5.02	6.2	5.14	6.2	5.18	6.2
Walk to transit - 0 < cars < workers	3.17	9.9	3.23	9.8	2.91	10.4	2.82	10.4	2.88	10.3	2.89	10.2
HOV - 0 < cars < workers	1.15	10.4	1.18	10.7	1.21	11	1.13	10.2	1.13	10.2	1.13	10.2
Non-motorized - no car	2.62	3.3	2.59	3.2	1.92	2.7	1.74	2.5	1.8	2.5	1.84	2.6
Non-motorized - 0 < cars < workers	2.51	8.3	2.53	8.2	2.26	8.4	2.23	8.5	2.27	8.5	2.29	8.4
HOV - square of trip distance	7.70E-05	1	-2.00E-05	-0.3	-4.50E-04	-4.9	-4.60E-04	-5.3	-4.50E-04	-5.3	-4.50E-04	-5.3
HOV 3 - less than 3 persons in household	-0.523	-3.7	-0.518	-3.7	-0.533	-3.8	-0.601	-4.2	-0.598	-4.2	-0.598	-4.2
HOV 2 - less than 2 persons in household	-0.908	-6.4	-0.896	-6.3	-0.888	-6.3	-1	-7.1	-1	-7.1	-1	-7.1
HOV 3 - female	0.482	3.4	0.497	3.5	0.518	3.6	0.508	3.6	0.519	3.6	0.519	3.6
HOV2 - female	0.46	5.8	0.473	5.9	0.477	6	0.469	5.9	0.476	6	0.476	6
Non-motorized - female	-0.946	-4.7	-0.976	-4.8	-0.897	-5	-0.924	-5.2	-1.01	-5.5	-1.02	-5.5
Non-motorized - age	-0.0219	-3	-0.0224	-3.1	-0.0183	-2.8	-0.0174	-2.8	-0.019	-2.9	-0.0193	-2.9
Non-motorized - destination is Seattle CBD	-0.414	-1.4	-0.341	-1.1	-0.351	-1.4	0.0199	0.1	0.0385	0.2	0.0987	0.4

Model label	**monlyw04 e**		**monlyw04 f**		**monlyw04 g**		**monlyw04 h**		**monlyw04 i**		**monlyw04 j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Walk to transit - destination is Seattle CBD	0.802	3	0.864	3.1	0.696	3.1	1	4.4	1.05	4.5	1.08	4.5
Drive to transit - destination is Seattle CBD	0.32	2	0.327	2	0.496	3	0.812	5.9	0.811	5.9	0.833	6
Nesting paramaters												
All auto-related modes in single nest	0.571	11.8	0.563	11.6	0.634	12.3	0.641	12.8	0.63	12.7	0.626	12.4

Table A2-5: Seattle RP Data – Trip Mode Choice Models – HB Other (1)

Model label	**monlyn04x**		**monlyn04**		**monlyn04a**		**monlyn04b**		**monlyn04c**		**monlyn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Observations	20602		20602		20602		20602		20602		20602	
Final log-likelihood	-20418		-20416.7		-20386.5		-20413.7		-20416.7		-20411.4	
Degrees of freedom	37		37		38		38		38		38	
Rho-squared w.r.t. 0	0.382		0.382		0.383		0.383		0.382		0.383	
Rho-squared w.r.t. cons	0.156		0.156		0.157		0.156		0.156		0.156	
Imputed values of time ($/hr)												
Auto in-vehicle time	10.94		12.33				19.17		11.97		9.02	
Transit in-vehicle time	0.42		1.46		9.91		3.81		1.23		0.55	
Transit walk access time	22.26		22.81		27.91		24.65		22.77		22.33	
Transit wait time	33.87		34.48		42.63		37.03		34.33		34.01	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Cost (fare, parking, operating., $)	-0.186	-4.6	-0.181	-4.5	-0.152	-4.2	-0.175	-4.5	-0.18	-4.5	-0.187	-4.5
Cost - additive for HOV2												
Cost - additive for HOV3+												
Cost - additive for low income												
Cost - additive for high income												
Cost - additive for very high income												
Cost - additive for missing income												
Cost - function including occupancy and income												

Model label	**monlyn04x**		**monlyn04**		**monlyn04a**		**monlyn04b**		**monlyn04c**		**monlyn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Auto travel time (min)	-0.0339	-4	-0.0372	-4.3			-0.0559	-4.8	-0.0359	-3.8	-0.0281	-3.1
Auto extra travel time on links over 1.2*free flow					-0.0017	-0.2						
Auto travel time on links below 1.2*free flow					-0.0841	-8.4						
Auto travel time st. deviation (min)							0.257	2.3				
Auto travel time st. dev./distance (min/mile)									-0.331	-0.3		
Auto travel time 90th percentile (min)											-0.0072	-3.3
Auto travel time 90th pctile / distance (min/mile)												
Auto travel time * distance (min-mile)												
Auto travel time * dist. Squared (min-mile2)												
Transit in-vehicle time (min)	-0.0013	-0.1	-0.0044	-0.3	-0.0251	-2	-0.0111	-0.8	-0.0037	-0.3	-0.0017	-0.1
Transit walk access time (min)	-0.069	-5	-0.0688	-5.1	-0.0707	-5.8	-0.0719	-5.3	-0.0683	-5.1	-0.0696	-5
Transit wait time (min)	-0.105	-4	-0.104	-4.1	-0.108	-4.6	-0.108	-4.2	-0.103	-4	-0.106	-4
Transit number of transfers	-0.873	-2.3	-0.841	-2.2	-0.611	-1.8	-0.812	-2.2	-0.845	-2.2	-0.869	-2.2
Non-motorized mode distance (miles)	-1.52	-7	-1.52	-7.2	-1.51	-8.4	-1.58	-7.5	-1.51	-7.2	-1.54	-6.9
Time - additive for females												
Time - additive age (years over 18)												
Time - additive part time worker												
Mode-specific constants												

Model label	**monlyn04x**		**monlyn04**		**monlyn04a**		**monlyn04b**		**monlyn04c**		**monlyn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Drive to transit	-4.29	-6.6	-4.36	-6.8	-4.79	-8	-4.51	-7.1	-4.38	-6.8	-4.32	-6.6
Walk to transit	-3.56	-4.9	-3.55	-5	-3.51	-5.7	-3.72	-5.2	-3.53	-5	-3.64	-4.9
HOV 3+	-0.619	-14.6	-0.621	-14.6	-0.599	-14	-0.621	-14.6	-0.622	-14.6	-0.746	-13
HOV 2+	-1.05	-28.3	-1.05	-28.3	-1.03	-27.5	-1.05	-28.3	-1.05	-28.3	-1.18	-21.9
SOV	0		0		0		0		0		0	
Non-motorized	-0.116	-0.6	-0.125	-0.6	-0.329	-1.7	-0.234	-1.1	-0.122	-0.6	-0.164	-0.8
Mode preference variables												
Walk to transit - no car	6.42	5	6.32	5.1	5.86	5.7	6.41	5.3	6.28	5.1	6.5	4.9
Walk to transit - 0 < cars < workers	1.17	2.9	1.16	2.9	1.08	3	1.17	2.9	1.15	2.9	1.19	2.9
HOV - 0 < cars < workers	0.066	0.8	0.0672	0.8	0.0683	0.8	0.0672	0.8	0.0673	0.8	0.0739	0.9
Non-motorized - no car	2.45	3.4	2.4	3.5	2.17	3.7	2.44	3.6	2.37	3.4	2.48	3.4
Non-motorized - 0 < cars < workers	1.6	5.6	1.58	5.6	1.49	6.1	1.59	5.8	1.57	5.6	1.62	5.5
HOV - square of trip distance	5.20E-05	1	2.80E-05	0.5	8.50E-05	1.5	4.40E-05	0.8	2.90E-05	0.5	-1.50E-04	-1.9
HOV 3 - less than 3 persons in household	-2.56	-48.4	-2.56	-48.4	-2.55	-48.3	-2.56	-48.4	-2.56	-48.4	-2.56	-48.4
HOV 2 - less than 2 persons in household	-1.76	-26.1	-1.76	-26.1	-1.75	-26	-1.76	-26.1	-1.76	-26.1	-1.76	-26.1
HOV 3 - female	0.152	3.5	0.152	3.5	0.153	3.5	0.153	3.5	0.152	3.5	0.155	3.6
HOV2 - female	0.183	4.9	0.183	4.9	0.183	5	0.182	4.9	0.183	5	0.185	5
Non-motorized - female	-0.417	-3.3	-0.411	-3.3	-0.386	-3.4	-0.417	-3.4	-0.409	-3.3	-0.421	-3.3
Non-motorized - age	-0.0152	-5	-0.0152	-5	-0.0148	-5.3	-0.0152	-5	-0.0151	-5	-0.0152	-4.9
Non-motorized - destination is Seattle CBD	1.17	2.8	1.15	2.8	1.13	3	1.15	2.8	1.13	2.8	1.19	2.8
Walk to transit - destination is Seattle CBD	2.27	4.5	2.24	4.5	2.18	4.9	2.28	4.6	2.22	4.5	2.29	4.4

Model label	**monlyn04x**		**monlyn04**		**monlyn04a**		**monlyn04b**		**monlyn04c**		**monlyn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	17		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Drive to transit - destination is Seattle CBD	3.24	6.1	3.26	6.2	3.46	6.7	3.27	6.2	3.26	6.2	3.22	6
Transit - shopping trip	-0.393	-1.3	-0.381	-1.3	-0.343	-1.2	-0.373	-1.2	-0.381	-1.3	-0.385	-1.3
Transit - restaurant trip	0.596	2.1	0.587	2	0.567	2	0.582	2	0.589	2.1	0.6	2.1
Transit - social/recreation trip	0.159	0.6	0.161	0.6	0.15	0.6	0.142	0.6	0.165	0.7	0.155	0.6
HOV - shopping trip	0.0106	0.3	0.0121	0.3	-0.0049	-0.1	0.0111	0.3	0.0123	0.3	0.0212	0.5
HOV - restaurant trip	1.09	20.9	1.09	20.9	1.1	21	1.09	20.9	1.09	20.9	1.1	21
HOV - social/recreation trip	0.658	16.4	0.658	16.4	0.652	16.2	0.657	16.4	0.659	16.4	0.659	16.4
Non-motorized - shopping trip	-0.0725	-0.5	-0.0706	-0.5	-0.0701	-0.5	-0.0699	-0.5	-0.0704	-0.5	-0.0688	-0.5
Non-motorized - restautrant trip	0.275	1.4	0.275	1.5	0.279	1.6	0.268	1.4	0.277	1.5	0.267	1.4
Non-motorized - social / recreation trip	1.69	7	1.67	7.1	1.58	7.8	1.68	7.3	1.66	7.1	1.69	6.9
Nesting paramaters												
All auto-related modes in single nest	0.628	6.8	0.636	6.9	0.674	7.9	0.629	7.2	0.64	6.9	0.622	6.6

Table A2-6: Seattle RP Data – Trip Mode Choice Models – HB Other (2)

Model label	**monlyn04e**		**monlyn04f**		**monlyn04g**		**monlyn04h**		**monlyn04i**		**monlyn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Observations	20602		20602		20602		20602		20602		20602	
Final log-likelihood	-20412.1		-20412.1		-20401.2		-20417.5		-20414.9		-20412.6	
Degrees of freedom	38		39		43		37		40		43	
Rho-squared w.r.t. 0	0.383		0.383		0.383		0.382		0.382		0.383	
Rho-squared w.r.t. cons	0.156		0.156		0.157		0.156		0.156		0.156	
Imputed values of time ($/hr)												
Auto in-vehicle time	9.11		8.25									
Transit in-vehicle time	-0.49		3.68									
Transit walk access time	22.68		22.57									
Transit wait time	34.05		33.27									
Variable	**Coef**	**T-stat**										
Level of service variables												
Cost (fare, parking, operating., $)	-0.222	-4.6	-0.176	-4.6	-0.257	-4.2						
Cost - additive for HOV2					0.028	2.5						
Cost - additive for HOV3+					0.0072	0.6						
Cost - additive for low income					0.0686	1.1						
Cost - additive for high income					-0.017	-0.3						
Cost - additive for very high income					0.157	2.8						
Cost - additive for missing income					0.0921	1.1						
Cost - function including occupancy and income							-23.1	-5.3	-23	-5.2	-21.6	-4.9

Model label	**monlyn04e**		**monlyn04f**		**monlyn04g**		**monlyn04h**		**monlyn04i**		**monlyn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Auto travel time (min)	-0.0337	-3.6	-0.0242	-1.3	-0.0342	-3.8	-0.0386	-4.5	-0.0427	-3.5	-0.0296	-1.5
Auto extra travel time on links over 1.2*free flow												
Auto travel time on links below 1.2*free flow												
Auto travel time st. deviation (min)												
Auto travel time st. dev./distance (min/mile)											-0.131	-0.1
Auto travel time 90th percentile (min)												
Auto travel time 90th pctile / distance (min/mile)	0.0334	2.9										
Auto travel time * distance (min-mile)			-0.0021	-1.8							-0.0017	-1.5
Auto travel time * dist. Squared (min-mile2)			4.60E-05	2.4							3.60E-05	1.9
Transit in-vehicle time (min)	0.0018	0.1	-0.0108	-0.7	-0.0034	-0.2	0.0021	0.2	1.80E-04	0	-0.0063	-0.4
Transit walk access time (min)	-0.0839	-4.5	-0.0662	-5.3	-0.0701	-5.1	-0.0624	-5.4	-0.0621	-5.1	-0.0597	-5.2
Transit wait time (min)	-0.126	-3.8	-0.0976	-4	-0.106	-4	-0.0987	-4.2	-0.0975	-4.1	-0.0926	-4.1
Transit number of transfers	-1.03	-2.2	-0.776	-2.1	-0.892	-2.3	-0.914	-2.5	-0.877	-2.4	-0.792	-2.2
Non-motorized mode distance (miles)	-1.86	-5.7	-1.46	-7.4	-1.58	-7.1	-1.41	-8.1	-1.41	-7.3	-1.34	-7.3
Time - additive for females									-0.0112	-1.5	-0.0098	-1.4
Time - additive age (years over 18)									3.00E-04	1.4	2.70E-04	1.3
Time - additive part time worker									-0.0026	-0.4	-0.0019	-0.3
Mode-specific constants												

Model label	**monlyn04e**		**monlyn04f**		**monlyn04g**		**monlyn04h**		**monlyn04i**		**monlyn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Drive to transit	-3.68	-4.8	-4.4	-6.7	-4.26	-6.5	-4.56	-7.5	-4.62	-7.4	-4.61	-7.2
Walk to transit	-4.28	-4.2	-3.29	-4.6	-3.76	-4.9	-3.28	-5.4	-3.31	-5	-3	-4.5
HOV 3+	-0.487	-7.8	-0.631	-14.8	-0.629	-13.6	-0.686	-15.6	-0.686	-15.6	-0.69	-15.7
HOV 2+	-0.918	-15.5	-1.06	-28.4	-1.09	-26.9	-1.1	-28.9	-1.1	-28.9	-1.11	-29
SOV	0		0		0		0		0		0	
Non-motorized	0.0168	0.1	-0.0056	0	-0.147	-0.7	-0.0894	-0.5	-0.115	-0.6	-6.40E-04	0
Mode preference variables												
Walk to transit - no car	8.21	4.3	5.97	5.2	6.73	5.1	5.73	5.5	5.74	5	5.38	5
Walk to transit - 0 < cars < workers	1.41	2.8	1.14	3	1.24	3	1.08	3	1.01	2.6	0.975	2.7
HOV - 0 < cars < workers	0.0883	1	0.0695	0.8	0.0688	0.8	0.0651	0.8	0.0644	0.8	0.066	0.8
Non-motorized - no car	3.35	3.2	2.21	3.4	2.6	3.6	2.05	3.5	2.03	3.2	1.85	3.1
Non-motorized - 0 < cars < workers	1.93	4.8	1.52	5.8	1.66	5.6	1.48	6.1	1.48	5.5	1.42	5.6
HOV - square of trip distance	-2.10E-05	-0.4	1.20E-04	1.7	-4.80E-05	-0.7	-1.10E-04	-1.8	-1.10E-04	-1.8	-3.30E-05	-0.4
HOV 3 - less than 3 persons in household	-2.56	-48.4	-2.56	-48.4	-2.55	-48.2	-2.58	-48.5	-2.58	-48.4	-2.58	-48.4
HOV 2 - less than 2 persons in household	-1.76	-26.2	-1.76	-26.1	-1.76	-26.1	-1.77	-26.2	-1.77	-26.1	-1.77	-26
HOV 3 - female	0.154	3.5	0.152	3.5	0.153	3.5	0.153	3.5	0.153	3.5	0.153	3.5
HOV2 - female	0.184	5	0.182	4.9	0.185	5	0.184	5	0.183	5	0.183	5
Non-motorized - female	-0.517	-3.1	-0.392	-3.3	-0.439	-3.4	-0.378	-3.4	-0.499	-3.3	-0.464	-3.2
Non-motorized - age	-0.0167	-4.4	-0.0148	-5.1	-0.0155	-4.9	-0.0146	-5.3	-0.0117	-3.2	-0.0115	-3.3
Non-motorized - destination is Seattle CBD	1.57	2.7	1.09	2.8	1.34	3	1.72	4.3	1.7	4	1.64	4
Walk to transit - destination is Seattle CBD	2.79	3.8	2.13	4.6	2.42	4.5	2.76	5.7	2.74	5.1	2.63	5.2

Model label	**monlyn04e**		**monlyn04f**		**monlyn04g**		**monlyn04h**		**monlyn04i**		**monlyn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE		MODE		MODE		MODE		MODE		MODE	
Modes included	All		All		All		All		All		All	
Time periods included	Actual		Actual		Actual		Actual		Actual		Actual	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Drive to transit - destination is Seattle CBD	2.93	5.1	3.31	6.3	3.2	6	4.01	8.9	4.03	8.9	4.08	9
Transit - shopping trip	-0.441	-1.2	-0.351	-1.2	-0.385	-1.2	-0.347	-1.2	-0.371	-1.3	-0.35	-1.3
Transit - restaurant trip	0.645	2	0.575	2	0.624	2.1	0.571	2.1	0.58	2.1	0.562	2.1
Transit - social/recreation trip	0.119	0.4	0.164	0.7	0.191	0.7	0.234	1	0.22	0.9	0.221	1
HOV - shopping trip	0.017	0.4	0.0152	0.4	0.0174	0.4	0.0263	0.6	0.0262	0.6	0.0278	0.7
HOV - restaurant trip	1.1	21	1.09	21	1.09	20.9	1.1	21.1	1.1	21.1	1.1	21.1
HOV - social/recreation trip	0.656	16.3	0.66	16.4	0.66	16.4	0.667	16.6	0.668	16.6	0.669	16.7
Non-motorized - shopping trip	-0.085	-0.5	-0.067	-0.5	-0.0677	-0.4	-0.0556	-0.4	-0.0559	-0.4	-0.0537	-0.4
Non-motorized - restautrant trip	0.216	0.9	0.285	1.6	0.271	1.4	0.291	1.7	0.291	1.7	0.301	1.8
Non-motorized - social / recreation trip	1.96	5.8	1.61	7.3	1.74	7	1.58	7.8	1.57	7.2	1.51	7.4
Nesting paramaters												
All auto-related modes in single nest	0.518	5.5	0.664	7.1	0.607	6.8	0.684	7.8	0.687	6.8	0.721	7

Table A2-7: Seattle RP Data – Trip Joint Mode and TOD Choice Models – HB Work (1)

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Observations	11798		11798		11798		11798		11798	
Final log-likelihood	-33109.7		-33106.5		-33102.1		-33116.2		-33105.9	
Degrees of freedom	70		71		71		71		71	
Rho-squared w.r.t. 0	0.376		0.376		0.376		0.376		0.376	
Rho-squared w.r.t. cons	0.192		0.192		0.192		0.192		0.192	
Values of time ($/hr)										
Auto travel time	6.83				9.32		7.55		9.05	
Transit in-vehicle time	2.75		3.60		3.62		3.87		2.79	
Transit walk access time	11.95		12.57		12.75		10.94		11.93	
Transit wait time	11.82		12.50		12.73		11.67		11.68	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables										
Cost (fare, parking, operat., $)	-0.26	-14.9	-0.253	-14.3	-0.255	-14.5	-0.22	-11.2	-0.26	-14.9
Cost - additive for HOV2										
Cost - additive for HOV3+										
Cost - additive for low income										
Cost - additive for high income										
Cost - additive for very high income										
Cost - additive for missing income										

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Cost - function including occupancy and income										
Auto travel time (min)	-0.0296	-10.2			-0.0396	-10	-0.0277	-8.7	-0.0392	-8.6
Auto extra travel time on links over 1.2*free flow			-0.0236	-6.5						
Auto travel time on links below 1.2*free flow			-0.0373	-8.8						
Auto travel time st. deviation (min)					0.118	3.9				
Auto travel time st. dev./distance (min/mile)							0.969	2.9		
Auto travel time 90th percentile (min)									0.0105	2.8
Auto travel time 90th pctile / distance (min/mile)										
Auto travel time * distance (min-mile)										
Auto travel time * dist. Squared (min-mile2)										
Transit in-vehicle time (min)	-0.0119	-2.7	-0.0152	-3.4	-0.0154	-3.5	-0.0142	-3.9	-0.0121	-2.8
Transit walk access time (min)	-0.0518	-10.4	-0.053	-10.5	-0.0542	-10.5	-0.0401	-7.8	-0.0517	-10.4
Transit wait time (min)	-0.0512	-7.2	-0.0527	-7.4	-0.0541	-7.5	-0.0428	-6.5	-0.0506	-7.1
Transit number of transfers	-0.724	-5.7	-0.705	-5.5	-0.712	-5.5	-0.545	-4.8	-0.724	-5.7
Non-motorized mode distance (miles)	-0.682	-14.6	-0.689	-14.7	-0.699	-14.7	-0.535	-10.2	-0.682	-14.6
Time - additive for females										
Time - additive age (years over 18)										
Time - additive part time worker										

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Mode-specific constants										
Drive to transit	-2.14	-12.9	-2.19	-13.1	-2.21	-13.1	-2.36	-14.8	-2.13	-12.8
Walk to transit	-1.91	-9.2	-1.89	-9.2	-1.93	-9.4	-1.36	-7	-1.89	-9.1
HOV 3+	-3.99	-29.1	-3.94	-28.6	-3.97	-29	-3.97	-29.1	-3.73	-22.7
HOV 2+	-2.9	-31.6	-2.85	-30.6	-2.88	-31.4	-2.88	-31.8	-2.64	-20.5
SOV	0		0		0		0		0	
Non-motorized	-0.916	-4.2	-0.951	-4.4	-0.99	-4.5	-0.715	-4.1	-0.893	-4.1
Mode preference variables										
Walk to transit - no car	3.84	6.5	3.81	6.5	3.85	6.5	2.55	4.6	3.85	6.5
Walk to transit - 0 < cars < workers	2.43	12.7	2.41	12.7	2.43	12.7	1.9	9.8	2.43	12.7
HOV - 0 < cars < workers	1.18	10.8	1.18	10.7	1.18	10.7	1.18	10.8	1.16	10.5
Non-motorized - no car	1.5	2.6	1.48	2.6	1.51	2.7	0.781	1.7	1.52	2.7
Non-motorized - 0 < cars < workers	1.92	9.7	1.91	9.7	1.92	9.7	1.51	8.3	1.92	9.7
HOV - square of trip distance	-9.00E-05	-1.2	-7.70E-05	-1	-7.70E-05	-1	-6.50E-05	-0.9	1.60E-04	1.4
HOV 3 - less than 3 persons in household	-0.518	-3.7	-0.518	-3.7	-0.516	-3.6	-0.518	-3.7	-0.519	-3.7
HOV 2 - less than 2 persons in household	-0.891	-6.3	-0.891	-6.3	-0.89	-6.3	-0.877	-6.3	-0.896	-6.4
HOV 3 - female	0.498	3.5	0.498	3.5	0.497	3.5	0.498	3.5	0.481	3.4
HOV2 - female	0.472	6	0.472	6	0.471	5.9	0.47	5.9	0.456	5.7
Non-motorized - female	-0.697	-4.9	-0.693	-4.9	-0.699	-4.9	-0.519	-4.5	-0.694	-4.9
Non-motorized - age	-0.0165	-3.1	-0.0164	-3.1	-0.0166	-3.1	-0.0127	-3.1	-0.0165	-3.1
Non-motorized - destination is Seattle CBD	-0.462	-2.2	-0.439	-2.1	-0.444	-2.1	-0.414	-2.4	-0.471	-2.2

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Walk to transit - destination is Seattle CBD	0.392	2.4	0.397	2.5	0.402	2.5	0.23	1.8	0.385	2.4
Drive to transit - destination is Seattle CBD	0.632	4.2	0.664	4.3	0.663	4.3	0.994	5.6	0.626	4.1
Outbound trip departure shift variables										
Extra time on congested links - 8-9 AM, 5-6 PM	-0.007	-5.3	-0.0076	-5.6	-0.0063	-4.8	-0.0064	-5.4	-0.0074	-5.5
Household income ($/yr)	-5.10E-04	-4.3	-5.10E-04	-4.3	-5.00E-04	-4.2	-3.80E-04	-4	-5.00E-04	-4.2
Age (years)	-0.0011	-2.8	-0.0011	-2.9	-0.0011	-2.8	-8.20E-04	-2.8	-0.0011	-2.8
HOV trip	0.0077	0.6	0.0039	0.3	0.0067	0.5	0.0086	0.7	0.005	0.4
Part time worker	0.0691	2.5	0.0688	2.5	0.0693	2.5	0.053	2.5	0.069	2.5
Female	3.70E-06	0	2.00E-04	0	1.10E-06	0	-1.70E-05	0	-1.20E-04	0
Return trip departure shift variables										
Extra time on congested links - 8-9 AM, 5-6 PM	-3.90E-04	-1.6	-5.70E-04	-2.3	-3.40E-04	-1.4	-4.10E-04	-2	-3.60E-04	-1.5
Household income ($/yr)	0.0011	5.2	0.0011	5.2	0.0011	5.2	7.80E-04	4.5	0.0011	5.2
Age (years)	-0.0063	-9.9	-0.0063	-9.9	-0.0063	-9.9	-0.0053	-7.8	-0.0063	-9.9
HOV trip	0.0034	0.5	-1.70E-04	0	0.002	0.3	0.0023	0.3	0.0027	0.4
Part time worker	-0.139	-3	-0.139	-3	-0.14	-3	-0.109	-2.9	-0.139	-3
Female	-0.0072	-0.4	-0.0081	-0.5	-0.0076	-0.5	-0.0093	-0.7	-0.0072	-0.4
Outbound trip period-specific constants										
Leave home 5-6	-1.53	-14.9	-1.54	-15	-1.51	-14.7	-1.16	-10.1	-1.52	-14.8
Leave home 6-7	-0.371	-6.9	-0.372	-7	-0.369	-6.9	-0.287	-6.3	-0.373	-7
Leave home 7-8	0		0		0		0		0	
Leave home 8-9	-0.569	-9	-0.563	-9	-0.574	-9.1	-0.43	-7.3	-0.566	-9

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Leave home 9-10	-1.73	-13.9	-1.74	-13.9	-1.73	-13.8	-1.31	-9.5	-1.71	-13.7
Leave home 10-11	-2.61	-14.3	-2.61	-14.3	-2.62	-14.3	-1.97	-9.6	-2.59	-14.2
Leave home 11-12	-3.07	-14	-3.06	-14	-3.08	-14	-2.32	-9.5	-3.04	-13.9
Leave home 12-13	-2.84	-13.4	-2.83	-13.4	-2.85	-13.4	-2.14	-9.2	-2.81	-13.3
Leave home 13-14	-3.18	-14	-3.18	-14	-3.18	-13.9	-2.43	-9.7	-3.17	-13.9
Leave home 14-15	-2.91	-13.3	-2.91	-13.3	-2.91	-13.2	-2.23	-9.5	-2.9	-13.3
Leave home 15-16	-3.52	-13.2	-3.52	-13.2	-3.53	-13.2	-2.7	-9.5	-3.52	-13.2
Leave home 16-17	-3.9	-12.9	-3.9	-12.9	-3.92	-12.9	-2.99	-9.3	-3.9	-12.9
Leave home 17-18	-4.01	-12.5	-4	-12.5	-4.02	-12.5	-3.07	-9.2	-4.01	-12.5
Leave home 18-19	-4.5	-12.3	-4.48	-12.3	-4.51	-12.3	-3.44	-9.1	-4.5	-12.3
Leave home 19-20	-5.13	-11.7	-5.1	-11.7	-5.14	-11.7	-3.92	-8.9	-5.12	-11.8
Leave home 20-23	-5.73	-11	-5.69	-11	-5.74	-11	-4.37	-8.5	-5.72	-11
Leave home 23-5	-1.78	-7.5	-1.77	-7.5	-1.77	-7.5	-1.35	-6.6	-1.78	-7.5
Return trip period-specific constants										
Return home 5-6	-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10	
Return home 7-8	-8.46	-12.4	-8.4	-12.3	-8.47	-12.3	-6.69	-9	-8.45	-12.4
Return home 8-9	-6.91	-14.6	-6.86	-14.4	-6.92	-14.5	-5.48	-9.6	-6.91	-14.6
Return home 9-10	-6.33	-15	-6.3	-14.9	-6.33	-14.9	-5	-9.7	-6.31	-15
Return home 10-11	-5.91	-15.2	-5.88	-15.1	-5.91	-15.2	-4.65	-9.8	-5.89	-15.2
Return home 11-12	-4.46	-16.1	-4.43	-16	-4.46	-16	-3.52	-9.9	-4.45	-16.1

Model name	**motodw04**		**motodw04a**		**motodw04b**		**motodw04c**		**motodw04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work	
Return home 12-13	-3.47	-16.1	-3.44	-15.9	-3.47	-16	-2.73	-9.8	-3.45	-16
Return home 13-14	-3.61	-16.9	-3.58	-16.8	-3.59	-16.8	-2.83	-10.3	-3.6	-16.9
Return home 14-15	-2.74	-16.9	-2.71	-16.7	-2.72	-16.8	-2.14	-10.3	-2.74	-16.9
Return home 15-16	-1.5	-14.8	-1.5	-14.8	-1.5	-14.8	-1.19	-9.7	-1.5	-14.8
Return home 16-17	-0.668	-10.2	-0.667	-10.2	-0.67	-10.2	-0.535	-8.1	-0.667	-10.2
Return home 17-18	0		0		0		0		0	
Return home 18-19	-0.395	-5.9	-0.364	-5.4	-0.36	-5.4	-0.256	-4.7	-0.39	-5.9
Return home 19-20	-1.55	-11.7	-1.51	-11.4	-1.52	-11.5	-1.11	-8.7	-1.54	-11.7
Return home 20-23	-1.4	-9.8	-1.35	-9.6	-1.37	-9.6	-0.978	-7.7	-1.39	-9.8
Return home 23-5	-2.75	-11.8	-2.69	-11.7	-2.73	-11.7	-1.99	-8.9	-2.75	-11.9
Nesting paramaters										
All modes nested under time periods	1		1		1		1		1	
All auto-related modes in single nest	0.763	18.6	0.767	18.4	0.76	18.5	1	10.8	0.764	18.6

Table A2-8: Seattle RP Data – Trip Joint Mode and TOD Choice Models – HB Work (2)

Model label	**motodw04e**	**motodw04f**	**motodw04g**	**motodw04h**	**motodw04i**	**motodw04j**
Data set	SEA RP	SEA RP	SEA RP	SEA RP	SEA RP	SEA RP
Choice type	MODE/TOD	MODE/TOD	MODE/TOD	MODE/TOD	MODE/TOD	MODE/TOD
Modes included	All	All	All	All	All	All

Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Observations	11798		11798		11798		11798		11798		11798	
Final log-likelihood	-33106.1		-33106.3		-33023.3		-33043.9		-33042.7		-33033.3	
Degrees of freedom	71		72		76		70		73		76	
Rho-squared w.r.t. 0	0.376		0.376		0.378		0.377		0.377		0.378	
Rho-squared w.r.t. cons	0.192		0.192		0.194		0.194		0.194		0.194	
Values of time ($/hr)												
Auto travel time	6.71		3.34		4.83							
Transit in-vehicle time	2.22		3.76		2.17							
Transit walk access time	11.79		12.31		8.75							
Transit wait time	11.54		12.21		8.87							
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Cost (fare, parking, operat., $)	-0.262	-15	-0.255	-14.5	-0.334	-14.9						
Cost - additive for HOV2					0.121	8.9						
Cost - additive for HOV3+					0.147	7						
Cost - additive for low income					-0.0553	-1.5						
Cost - additive for high income					0.0375	2.1						
Cost - additive for very high income					0.126	7						
Cost - additive for missing income					-4.20E-04	0						
Cost - function including occupancy and income							-198	-17.8	-198	-17.7	-196	-17.5
Auto travel time (min)	-0.0293	-10	-0.0142	-2.1	-0.0269	-9.5	-0.0299	-10.4	-0.028	-7.4	-0.0164	-1.9
Auto extra travel time on links over 1.2*free flow												
Auto travel time on links below 1.2*free flow												

Model label	**motodw04e**		**motodw04f**		**motodw04g**		**motodw04h**		**motodw04i**		**motodw04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Auto travel time st. deviation (min)												
Auto travel time st. dev./distance (min/mile)											1.1	2.5
Auto travel time 90th percentile (min)												
Auto travel time 90th pctile / distance (min/mile)	-0.0514	-2.6										
Auto travel time * distance (min-mile)			-8.80E-04	-2.6							-8.60E-04	-2.3
Auto travel time * dist. Squared (min-mile2)			1.10E-05	2.5							1.10E-05	2.4
Transit in-vehicle time (min)	-0.0097	-2.2	-0.016	-3.4	-0.0121	-2.9	-0.0103	-2.4	-0.0101	-2.4	-0.0163	-3.5
Transit walk access time (min)	-0.0515	-10.3	-0.0523	-10.5	-0.0487	-10.3	-0.0491	-10.5	-0.0494	-10.5	-0.0515	-10.7
Transit wait time (min)	-0.0504	-7.1	-0.0519	-7.2	-0.0494	-7.2	-0.0494	-7.1	-0.0495	-7.1	-0.0525	-7.3
Transit number of transfers	-0.747	-5.8	-0.669	-5.2	-0.689	-5.5	-0.781	-6.2	-0.785	-6.2	-0.716	-5.6
Non-motorized mode distance (miles)	-0.656	-14	-0.667	-14.3	-0.654	-14.5	-0.664	-15	-0.669	-15	-0.666	-14.8
Time - additive for females									-0.0025	-1.3	-0.0027	-1.4
Time - additive age (years over 18)									-4.50E-05	-0.5	-5.20E-05	-0.6
Time - additive part time worker									0.0049	0.7	0.005	0.7
Mode-specific constants												
Drive to transit	-2.36	-12.8	-1.9	-9.2	-2.19	-13.5	-2.12	-12.9	-2.13	-12.9	-1.86	-8.8
Walk to transit	-2.16	-9.4	-1.6	-6.5	-1.85	-9.2	-1.81	-9.2	-1.84	-9.3	-1.52	-6.4
HOV 3+	-4.16	-27.3	-3.98	-29.1	-4.39	-27.5	-4.35	-31.3	-4.36	-31.3	-4.34	-31.1
HOV 2+	-3.08	-27	-2.89	-31.5	-3.2	-31.7	-3.12	-33.6	-3.12	-33.6	-3.1	-33.4

Model label	**motodw04e**		**motodw04f**		**motodw04g**		**motodw04h**		**motodw04i**		**motodw04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
SOV	0		0		0		0		0		0	
Non-motorized	-1.28	-5	-0.755	-3.4	-0.939	-4.5	-0.94	-4.4	-0.918	-4.3	-0.765	-3.4
Mode preference variables												
Walk to transit - no car	3.89	6.6	3.8	6.5	3.47	6.1	3.6	6.3	3.63	6.3	3.64	6.3
Walk to transit - 0 < cars < workers	2.43	12.7	2.4	12.6	2.36	12.9	2.33	12.8	2.35	12.7	2.34	12.7
HOV - 0 < cars < workers	1.16	10.6	1.18	10.8	1.22	11.1	1.15	10.4	1.15	10.4	1.14	10.3
Non-motorized - no car	1.57	2.8	1.5	2.7	1.17	2.2	1.1	2	1.11	2	1.16	2.1
Non-motorized - 0 < cars < workers	1.93	9.7	1.91	9.7	1.84	9.7	1.85	9.7	1.86	9.7	1.88	9.7
HOV - square of trip distance	-2.70E-05	-0.3	-9.00E-05	-1.2	-5.10E-04	-5.5	-4.80E-04	-5.6	-4.80E-04	-5.6	-4.80E-04	-5.5
HOV 3 - less than 3 persons in household	-0.52	-3.7	-0.518	-3.7	-0.535	-3.8	-0.592	-4.2	-0.591	-4.2	-0.59	-4.1
HOV 2 - less than 2 persons in household	-0.897	-6.4	-0.89	-6.3	-0.883	-6.3	-0.986	-7	-0.985	-7	-0.985	-7
HOV 3 - female	0.489	3.4	0.498	3.5	0.517	3.6	0.508	3.6	0.514	3.6	0.513	3.6
HOV2 - female	0.465	5.9	0.472	5.9	0.475	6	0.467	5.9	0.472	5.9	0.472	5.9
Non-motorized - female	-0.689	-4.9	-0.696	-5	-0.703	-5.2	-0.746	-5.4	-0.784	-5.6	-0.796	-5.6
Non-motorized - age	-0.0163	-3.1	-0.0163	-3.1	-0.0143	-2.8	-0.0141	-2.8	-0.0146	-2.8	-0.0149	-2.8
Non-motorized - destination is Seattle CBD	-0.502	-2.3	-0.386	-1.8	-0.381	-1.8	-0.0981	-0.5	-0.0957	-0.5	-0.0107	-0.1
Walk to transit - destination is Seattle CBD	0.384	2.4	0.423	2.6	0.432	2.8	0.689	4.7	0.699	4.7	0.736	4.9
Drive to transit - destination is Seattle CBD	0.611	4	0.683	4.4	0.756	4.9	0.971	7.4	0.968	7.4	1.01	7.6
Outbound trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	-0.0071	-5.3	-0.0071	-5.4	-0.0063	-4.9	-0.0065	-5	-0.0065	-4.9	-0.0063	-4.8
Household income ($/yr)	-5.10E-04	-4.3	-5.00E-04	-4.3	-5.00E-04	-4.4	-5.00E-04	-4.4	-5.10E-04	-4.4	-5.00E-04	-4.3

Model label	**motodw04e**		**motodw04f**		**motodw04g**		**motodw04h**		**motodw04i**		**motodw04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Age (years)	-0.0011	-2.9	-0.0011	-2.9	-0.001	-2.9	-0.001	-2.9	-0.0011	-2.9	-0.0011	-2.9
HOV trip	0.0082	0.7	0.0076	0.6	0.0098	0.8	0.0077	0.6	0.0077	0.6	0.007	0.6
Part time worker	0.0694	2.5	0.0689	2.5	0.0664	2.5	0.0673	2.5	0.0683	2.5	0.0689	2.5
Female	2.20E-05	0	-3.30E-05	0	1.20E-05	0	1.10E-04	0	-1.00E-04	0	-2.00E-04	0
Return trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	-4.40E-04	-1.8	-3.90E-04	-1.6	-2.30E-04	-0.9	-3.50E-04	-1.4	-3.50E-04	-1.4	-3.40E-04	-1.4
Household income ($/yr)	0.0011	5.2	0.0011	5.2	0.001	5	0.001	5.1	0.0011	5.1	0.0011	5.1
Age (years)	-0.0063	-9.9	-0.0063	-9.9	-0.0062	-9.8	-0.0063	-9.9	-0.0063	-9.9	-0.0063	-9.9
HOV trip	0.0036	0.5	0.0033	0.5	0.003	0.4	0.0028	0.4	0.0028	0.4	0.0019	0.3
Part time worker	-0.14	-3	-0.139	-3	-0.134	-3	-0.136	-3	-0.136	-3	-0.137	-3
Female	-0.0071	-0.4	-0.0075	-0.5	-0.008	-0.5	-0.0076	-0.5	-0.0082	-0.5	-0.0083	-0.5
Outbound trip period-specific constants												
Leave home 5-6	-1.56	-15	-1.5	-14.6	-1.46	-14.7	-1.49	-15.2	-1.5	-15.2	-1.46	-14.8
Leave home 6-7	-0.373	-6.9	-0.369	-6.9	-0.355	-6.9	-0.36	-7	-0.362	-7	-0.363	-6.9
Leave home 7-8	0		0		0		0		0		0	
Leave home 8-9	-0.571	-9	-0.565	-9	-0.546	-9	-0.552	-9.1	-0.556	-9.1	-0.561	-9.1
Leave home 9-10	-1.75	-14	-1.71	-13.8	-1.66	-13.8	-1.68	-14.2	-1.7	-14.2	-1.69	-14.2
Leave home 10-11	-2.63	-14.4	-2.59	-14.2	-2.5	-14.2	-2.54	-14.7	-2.56	-14.7	-2.56	-14.6
Leave home 11-12	-3.09	-14.1	-3.04	-13.9	-2.94	-13.9	-2.98	-14.3	-3	-14.4	-3.01	-14.3
Leave home 12-13	-2.86	-13.4	-2.81	-13.3	-2.72	-13.3	-2.76	-13.7	-2.78	-13.7	-2.78	-13.6
Leave home 13-14	-3.21	-14	-3.16	-13.9	-3.05	-13.8	-3.08	-14.2	-3.1	-14.2	-3.1	-14.2

Model label	**motodw04e**		**motodw04f**		**motodw04g**		**motodw04h**		**motodw04i**		**motodw04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Leave home 14-15	-2.94	-13.4	-2.89	-13.2	-2.79	-13.2	-2.82	-13.5	-2.84	-13.5	-2.84	-13.5
Leave home 15-16	-3.54	-13.2	-3.5	-13.1	-3.37	-13.1	-3.41	-13.4	-3.43	-13.4	-3.45	-13.4
Leave home 16-17	-3.92	-12.9	-3.88	-12.8	-3.73	-12.8	-3.78	-13.1	-3.8	-13.1	-3.83	-13.1
Leave home 17-18	-4.03	-12.6	-3.98	-12.5	-3.83	-12.4	-3.88	-12.7	-3.9	-12.7	-3.93	-12.7
Leave home 18-19	-4.54	-12.4	-4.46	-12.2	-4.3	-12.2	-4.36	-12.5	-4.39	-12.5	-4.38	-12.4
Leave home 19-20	-5.16	-11.8	-5.08	-11.7	-4.9	-11.7	-4.97	-11.9	-5	-11.9	-5	-11.9
Leave home 20-23	-5.77	-11	-5.68	-10.9	-5.48	-10.9	-5.55	-11.1	-5.58	-11.1	-5.59	-11.1
Leave home 23-5	-1.81	-7.6	-1.75	-7.4	-1.7	-7.5	-1.72	-7.5	-1.73	-7.5	-1.69	-7.3
Return trip period-specific constants												
Return home 5-6	-10		-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10		-10	
Return home 7-8	-8.5	-12.5	-8.4	-12.3	-8.17	-12.2	-8.29	-12.5	-8.34	-12.5	-8.33	-12.4
Return home 8-9	-6.95	-14.7	-6.86	-14.4	-6.68	-14.2	-6.78	-14.6	-6.82	-14.7	-6.81	-14.6
Return home 9-10	-6.37	-15.1	-6.28	-14.8	-6.12	-14.6	-6.21	-15.1	-6.25	-15.1	-6.23	-15
Return home 10-11	-5.95	-15.3	-5.86	-15.1	-5.71	-14.9	-5.8	-15.3	-5.83	-15.4	-5.81	-15.3
Return home 11-12	-4.5	-16.3	-4.42	-15.9	-4.31	-15.6	-4.39	-16.2	-4.41	-16.3	-4.39	-16.1
Return home 12-13	-3.5	-16.2	-3.44	-15.8	-3.36	-15.5	-3.42	-16.1	-3.44	-16.2	-3.41	-16
Return home 13-14	-3.64	-17.1	-3.58	-16.7	-3.48	-16.4	-3.54	-17.1	-3.56	-17.2	-3.53	-17
Return home 14-15	-2.77	-17.1	-2.71	-16.6	-2.64	-16.4	-2.69	-17	-2.71	-17.1	-2.67	-16.9
Return home 15-16	-1.51	-14.9	-1.49	-14.7	-1.45	-14.5	-1.47	-14.9	-1.48	-15	-1.49	-14.9
Return home 16-17	-0.67	-10.2	-0.665	-10.2	-0.648	-10.1	-0.656	-10.3	-0.659	-10.3	-0.663	-10.3

Model label	**motodw04e**		**motodw04f**		**motodw04g**		**motodw04h**		**motodw04i**		**motodw04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work		HB Work		HB Work	
Return home 17-18	0		0		0		0		0		0	
Return home 18-19	-0.418	-6.2	-0.368	-5.5	-0.364	-5.7	-0.387	-6	-0.39	-6	-0.325	-4.9
Return home 19-20	-1.58	-11.8	-1.51	-11.4	-1.46	-11.6	-1.5	-12	-1.51	-12	-1.45	-11.6
Return home 20-23	-1.42	-9.9	-1.36	-9.6	-1.31	-9.7	-1.34	-10	-1.36	-10	-1.3	-9.6
Return home 23-5	-2.8	-11.9	-2.7	-11.7	-2.6	-11.8	-2.66	-12.2	-2.68	-12.2	-2.61	-11.9
Nesting paramaters												
All modes nested under time periods	1		1		1		1		1		1	
All auto-related modes in single nest	0.76	18.7	0.768	18.4	0.797	18.4	0.786	19.4	0.781	19.4	0.776	19.4

Table A2-9: Seattle RP Data – Trip Joint Mode and TOD Choice Models – HB Other (1)

Model label	**motodn04**	**motodn04a**	**motodn04b**	**motodn04c**	**motodn04d**
Data set	SEA RP	SEA RP	SEA RP	SEA RP	SEA RP
Choice type	MODE/TOD	MODE/TOD	MODE/TOD	MODE/TOD	MODE/TOD
Modes included	All	All	All	All	All
Time periods included	17	17	17	17	17
Skim periods	5	5	5	5	5
Observation	Trip	Trip	Trip	Trip	Trip
Purpose	HB Other	HB Other	HB Other	HB Other	HB Other
Observations	20602	20602	20602	20602	20602

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Final log-likelihood	-72520.1		-72520.1		-72751		-72520		-72511.3	
Degrees of freedom	86		87		85		87		87	
Rho-squared w.r.t. 0	0.207		0.207		0.205		0.207		0.207	
Rho-squared w.r.t. cons	0.087		0.087		0.084		0.087		0.087	
Values of time ($/hr)										
Auto travel time	15.09				10.15		14.56		12.36	
Transit in-vehicle time	2.80		2.84		2.05		2.49		2.61	
Transit walk access time	22.37		22.37		19.51		22.22		22.29	
Transit wait time	31.10		31.10		25.85		30.92		31.29	
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables										
Cost (fare, parking, operat., $)	-0.169	-5	-0.169	-4.9	-0.123	-5.9	-0.169	-5	-0.168	-4.9
Cost - additive for HOV2										
Cost - additive for HOV3+										
Cost - additive for low income										
Cost - additive for high income										
Cost - additive for very high income										
Cost - additive for missing income										
Cost - function including occupancy and income										

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Auto travel time (min)	-0.0425	-6.6			-0.0208	-3.7	-0.041	-5.8	-0.0346	-5.2
Auto extra travel time on links over 1.2*free flow			-0.0424	-5.9						
Auto travel time on links below 1.2*free flow			-0.0426	-4.5						
Auto travel time st. deviation (min)					-0.0397	-1				
Auto travel time st. dev./distance (min/mile)							-0.292	-0.5		
Auto travel time 90th percentile (min)									-0.0094	-4.2
Auto travel time 90th pctile / distance (min/mile)										
Auto travel time * distance (min-mile)										
Auto travel time * dist. Squared (min-mile2)										
Transit in-vehicle time (min)	-0.0079	-0.7	-0.008	-0.6	-0.0042	-0.5	-0.007	-0.6	-0.0073	-0.6
Transit walk access time (min)	-0.063	-5.8	-0.063	-5.8	-0.04	-6.9	-0.0626	-5.8	-0.0624	-5.8
Transit wait time (min)	-0.0876	-4.3	-0.0876	-4.3	-0.053	-4.2	-0.0871	-4.3	-0.0876	-4.3
Transit number of transfers	-0.757	-2.3	-0.756	-2.2	-0.546	-2.5	-0.763	-2.3	-0.75	-2.2
Non-motorized mode distance (miles)	-1.42	-9.3	-1.42	-9.3	-0.946	-27.8	-1.41	-9.2	-1.4	-9.1
Time - additive for females										
Time - additive age (years over 18)										
Time - additive part time worker										
Mode-specific constants										
Drive to transit	-4.65	-8.1	-4.65	-8.1	-5.09	-11.6	-4.65	-8.2	-4.69	-8.2

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Walk to transit	-3.43	-5.9	-3.43	-5.9	-2.18	-7.8	-3.42	-5.9	-3.45	-5.9
HOV 3+	-1.65	-25.2	-1.65	-24.8	-1.54	-24.4	-1.65	-25.2	-1.81	-24
HOV 2+	-2.05	-33.4	-2.05	-32.9	-1.94	-33	-2.05	-33.4	-2.2	-30.6
SOV	0		0		0		0		0	
Non-motorized	-0.0583	-0.3	-0.0592	-0.3	0.198	1.7	-0.0548	-0.3	-0.114	-0.6
Mode preference variables										
Walk to transit - no car	5.64	6.4	5.64	6.3	3.23	15.5	5.62	6.4	5.62	6.3
Walk to transit - 0 < cars < workers	1.24	3.4	1.23	3.4	0.958	4.1	1.23	3.4	1.23	3.4
HOV - 0 < cars < workers	-0.0024	0	-0.0024	0	0.0237	0.3	-0.0024	0	0.0055	0.1
Non-motorized - no car	1.98	3.9	1.97	3.8	0.8	4	1.97	3.8	1.94	3.8
Non-motorized - 0 < cars < workers	1.45	6.5	1.45	6.5	1.03	8.6	1.44	6.5	1.45	6.5
HOV - square of trip distance	1.00E-04	1.7	1.00E-04	1.7	1.20E-04	2.2	1.00E-04	1.7	-1.40E-04	-1.7
HOV 3 - less than 3 persons in household	-2.51	-47.4	-2.51	-47.4	-2.48	-47.2	-2.51	-47.4	-2.51	-47.4
HOV 2 - less than 2 persons in household	-1.75	-26	-1.75	-26	-1.67	-25.5	-1.75	-26	-1.74	-25.9
HOV 3 - female	0.2	4.6	0.2	4.6	0.193	4.4	0.2	4.6	0.204	4.7
HOV2 - female	0.215	5.8	0.215	5.8	0.215	5.8	0.215	5.8	0.219	5.9
Non-motorized - female	-0.381	-3.6	-0.381	-3.6	-0.243	-3.6	-0.38	-3.6	-0.378	-3.5
Non-motorized - age	-0.0164	-6	-0.0164	-6	-0.0139	-7.7	-0.0164	-6	-0.0161	-5.9
Non-motorized - destination is Seattle CBD	1.06	3	1.06	3	0.711	3.1	1.06	3	1.08	3
Walk to transit - destination is Seattle CBD	2.14	5.1	2.14	5.1	1.49	6.4	2.13	5.1	2.15	5.1
Drive to transit - destination is Seattle CBD	3.42	6.8	3.42	6.8	3.77	8.7	3.42	6.8	3.44	6.9

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Transit - shopping trip	-0.342	-1.2	-0.341	-1.2	-0.263	-1.3	-0.342	-1.2	-0.337	-1.2
Transit - restaurant trip	0.573	2.1	0.573	2.1	0.474	2.3	0.574	2.1	0.582	2.1
Transit - social/recreation trip	0.2	0.8	0.2	0.8	0.219	1.2	0.201	0.8	0.2	0.8
HOV - shopping trip	-0.0138	-0.3	-0.0139	-0.3	-0.0047	-0.1	-0.0138	-0.3	-0.0021	0
HOV - restaurant trip	1.02	19.2	1.02	19.2	1.03	19.5	1.02	19.2	1.03	19.4
HOV - social/recreation trip	0.559	13.6	0.559	13.6	0.576	14.2	0.559	13.6	0.559	13.6
Non-motorized - shopping trip	-0.0605	-0.4	-0.0605	-0.4	-0.0503	-0.5	-0.0605	-0.4	-0.056	-0.4
Non-motorized - restautrant trip	0.293	1.7	0.293	1.7	0.342	2.8	0.293	1.7	0.287	1.6
Non-motorized - social / recreation trip	1.57	8.5	1.57	8.5	1.17	13.6	1.56	8.5	1.55	8.4
Outbound trip departure shift variables										
Extra time on congested links - 8-9 AM, 5-6 PM	2.50E-04	0.2	2.50E-04	0.2	0.0017	2	2.50E-04	0.2	0.0011	0.9
Household income ($/yr)	-5.40E-05	-0.4	-5.40E-05	-0.4	-6.50E-05	-1.1	-5.40E-05	-0.4	-5.50E-05	-0.4
Age (years)	-0.0043	-11.3	-0.0043	-11.3	-0.0019	-11.7	-0.0043	-11.3	-0.0043	-11.3
HOV trip	0.11	21.9	0.11	21.5	0.0975	20.8	0.11	21.9	0.109	21.8
Part time worker	-0.0942	-7	-0.0942	-7	-0.046	-7.3	-0.0942	-7	-0.0944	-7
Female	-0.0505	-4.7	-0.0505	-4.7	-0.0263	-5.1	-0.0505	-4.7	-0.0505	-4.7
Shopping trip	0.0858	5.9	0.0858	5.9	0.0412	5.9	0.0858	5.9	0.0857	5.9
Restaurant trip	0.0647	3.7	0.0647	3.7	0.0221	2.7	0.0647	3.7	0.0646	3.7
Social / recreation trip	0.106	7.7	0.106	7.7	0.0464	7.3	0.106	7.7	0.106	7.7
Return trip departure shift variables										
Extra time on congested links - 8-9 AM, 5-6 PM	0.0018	4.8	0.0018	4.7	9.40E-04	4.1	0.0018	4.8	0.0019	5

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Household income ($/yr)	1.20E-04	0.9	1.20E-04	0.9	-2.60E-04	-3.8	1.20E-04	0.9	1.20E-04	0.9
Age (years)	-0.0041	-11.5	-0.0041	-11.5	-0.0027	-13.9	-0.0041	-11.5	-0.0041	-11.5
HOV trip	0.0852	20	0.0852	19.7	0.0745	18.8	0.0852	20	0.0847	19.9
Part time worker	-0.22	-13.7	-0.22	-13.7	-0.112	-15.6	-0.22	-13.7	-0.22	-13.7
Female	-0.0751	-6.6	-0.0751	-6.6	-0.0554	-9.3	-0.075	-6.6	-0.0751	-6.6
Shopping trip	-0.0157	-1.1	-0.0158	-1.1	-0.0246	-3.4	-0.0157	-1.1	-0.0158	-1.1
Restaurant trip	0.211	9.2	0.211	9.2	0.0827	8.1	0.211	9.2	0.212	9.2
Social / recreation trip	0.174	9.6	0.174	9.6	0.0644	8.2	0.174	9.6	0.175	9.6
Outbound trip period-specific constants										
Leave home 5-6	-2.77	-12.5	-2.77	-12.5	-1.32	-13.8	-2.78	-12.5	-2.77	-12.5
Leave home 6-7	-0.95	-6.1	-0.95	-6.1	-0.446	-6.1	-0.95	-6.1	-0.948	-6.1
Leave home 7-8	0		0		0		0		0	
Leave home 8-9	0.782	6	0.782	6	0.364	5.9	0.781	6	0.78	6
Leave home 9-10	1.54	11.1	1.54	11.1	0.713	11.8	1.53	11.1	1.53	11.1
Leave home 10-11	1.59	10.9	1.59	10.9	0.725	11.3	1.59	10.9	1.58	10.8
Leave home 11-12	1.14	7.4	1.14	7.4	0.49	6.9	1.14	7.4	1.13	7.3
Leave home 12-13	1	6.1	1	6	0.408	5.2	1	6	0.992	6
Leave home 13-14	1.05	6	1.05	6	0.441	5.3	1.05	5.9	1.05	6
Leave home 14-15	0.952	5	0.952	5	0.375	4.2	0.95	5	0.951	5
Leave home 15-16	1.16	5.7	1.16	5.7	0.463	4.8	1.16	5.7	1.16	5.7
Leave home 16-17	1.76	8.1	1.76	8.1	0.738	7.4	1.77	8.1	1.76	8.1

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Leave home 17-18	2.4	10.1	2.4	10.1	1.03	9.8	2.4	10.1	2.4	10.1
Leave home 18-19	2.72	10.7	2.72	10.7	1.16	10.3	2.72	10.7	2.72	10.7
Leave home 19-20	1.33	5.1	1.33	5.1	0.46	3.7	1.32	5.1	1.33	5.1
Leave home 20-23	0.208	0.8	0.208	0.8	-0.103	-0.8	0.205	0.7	0.212	0.8
Leave home 23-5	-3.13	-8.1	-3.13	-8.1	-1.75	-9.6	-3.14	-8.1	-3.12	-8.1
Return trip period-specific constants										
Return home 5-6	-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10	
Return home 7-8	-7.31	-24.2	-7.31	-24.2	-4.32	-26.8	-7.31	-24.2	-7.31	-24.2
Return home 8-9	-6.03	-24.5	-6.03	-24.5	-3.62	-26.4	-6.04	-24.5	-6.03	-24.4
Return home 9-10	-4.62	-23.6	-4.62	-23.6	-2.86	-24.8	-4.62	-23.6	-4.62	-23.6
Return home 10-11	-3.07	-19.8	-3.07	-19.8	-2.04	-21.1	-3.08	-19.9	-3.08	-19.9
Return home 11-12	-2.13	-15.8	-2.13	-15.8	-1.51	-18	-2.14	-15.8	-2.14	-15.8
Return home 12-13	-1.82	-14.6	-1.82	-14.6	-1.29	-17.2	-1.82	-14.6	-1.82	-14.6
Return home 13-14	-1.65	-14.4	-1.65	-14.4	-1.11	-17.1	-1.65	-14.4	-1.65	-14.4
Return home 14-15	-1.16	-11.2	-1.16	-11.2	-0.811	-14.3	-1.17	-11.2	-1.16	-11.2
Return home 15-16	-0.678	-7.1	-0.678	-7.1	-0.503	-10.2	-0.677	-7.1	-0.677	-7.1
Return home 16-17	-0.479	-5.2	-0.479	-5.2	-0.344	-7.5	-0.479	-5.2	-0.479	-5.2
Return home 17-18	0		0		0		0		0	
Return home 18-19	-0.346	-3.6	-0.346	-3.6	-0.172	-3.7	-0.354	-3.6	-0.343	-3.6
Return home 19-20	-0.0121	-0.1	-0.0119	-0.1	0.0447	0.9	-0.02	-0.2	-0.0086	-0.1

Model label	**motodn04**		**motodn04a**		**motodn04b**		**motodn04c**		**motodn04d**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All	
Time periods included	17		17		17		17		17	
Skim periods	5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other	
Return home 20-23	1.73	16.9	1.73	16.9	0.938	19.7	1.72	16.6	1.73	16.9
Return home 23-5	-2.88	-13.6	-2.88	-13.6	-1.24	-15.5	-2.89	-13.6	-2.87	-13.6
Nesting paramaters										
All modes nested under time periods	0.707	8.7	0.707	8.7	0.71	8.6	0.706	8.7	0.704	8.6
All auto-related modes in single nest	0.684	9	0.684	9	0.683	8.8	0.686	9	0.687	8.9

Table A2-10: Seattle RP Data – Trip Joint Mode and TOD Choice Models – HB Other (2)

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Observations	20602		20602		20602		20602		20602		20602	
Final log-likelihood	-72515.9		-72517		-72503.1		-72517.3		-72515		-72512.7	
Degrees of freedom	87		88		92		86		89		92	
Rho-squared w.r.t. 0	0.207		0.207		0.207		0.207		0.207		0.207	
Rho-squared w.r.t. cons	0.087		0.087		0.087		0.087		0.087		0.087	
Values of time ($/hr)												
Auto travel time	13.56		12.87		10.35							
Transit in-vehicle time	2.55		3.55		2.03							
Transit walk access time	22.02		21.18		16.15							
Transit wait time	30.03		29.33		22.20							
Variable	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**	**Coef**	**T-stat**
Level of service variables												
Cost (fare, parking, operat., $)	-0.188	-5.1	-0.179	-5.1	-0.24	-4.5						
Cost - additive for HOV2					0.0323	2.8						
Cost - additive for HOV3+					0.0113	0.9						
Cost - additive for low income					0.0664	1.1						
Cost - additive for high income					-0.0231	-0.5						
Cost - additive for very high income					0.149	2.8						
Cost - additive for missing income					0.107	1.3						

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Cost - function including occupancy and income							-25.9	-5.9	-25.4	-5.9	-25.7	-6
Auto travel time (min)	-0.0425	-6.5	-0.0384	-3.2	-0.0414	-6.3	-0.0432	-6.7	-0.0539	-5.8	-0.0433	-3
Auto extra travel time on links over 1.2*free flow												
Auto travel time on links below 1.2*free flow												
Auto travel time st. deviation (min)												
Auto travel time st. dev./distance (min/mile)											-0.243	-0.4
Auto travel time 90th percentile (min)												
Auto travel time 90th pctile / distance (min/mile)	0.0303	2.9										
Auto travel time * distance (min-mile)			-5.30E-04	-0.9							-7.60E-04	-1.3
Auto travel time * dist. Squared (min-mile2)			9.90E-06	1.7							1.10E-05	1.8
Transit in-vehicle time (min)	-0.008	-0.6	-0.0106	-0.8	-0.0081	-0.7	-7.20E-04	-0.1	-0.0031	-0.3	-0.0065	-0.6
Transit walk access time (min)	-0.069	-5.7	-0.0632	-5.8	-0.0646	-5.8	-0.0603	-5.9	-0.0568	-5.9	-0.0563	-5.9
Transit wait time (min)	-0.0941	-4.3	-0.0875	-4.3	-0.0888	-4.2	-0.0877	-4.4	-0.0844	-4.5	-0.0843	-4.5
Transit number of transfers	-0.816	-2.2	-0.723	-2.1	-0.797	-2.3	-0.855	-2.5	-0.777	-2.4	-0.725	-2.3
Non-motorized mode distance (miles)	-1.57	-8.4	-1.42	-9.1	-1.48	-9	-1.38	-9.8	-1.31	-10	-1.28	-9.8
Time - additive for females									-0.002	-0.3	-0.0019	-0.3
Time - additive age (years over 18)									2.80E-04	1.5	2.90E-04	1.5
Time - additive part time worker									0.0046	0.8	0.0045	0.7

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Mode-specific constants												
Drive to transit	-4.31	-7.1	-4.63	-7.8	-4.57	-7.9	-4.72	-8.4	-4.85	-8.8	-4.75	-8.3
Walk to transit	-3.66	-5.5	-3.43	-5.6	-3.63	-5.8	-3.35	-6.1	-3.13	-6	-2.98	-5.6
HOV 3+	-1.53	-19.4	-1.65	-25.2	-1.66	-24.5	-1.71	-25.8	-1.71	-25.8	-1.71	-25.8
HOV 2+	-1.92	-25.5	-2.05	-33.4	-2.09	-33.1	-2.09	-33.8	-2.09	-33.8	-2.09	-33.8
SOV	0		0		0		0		0		0	
Non-motorized	0.109	0.5	-0.0342	-0.2	-0.0898	-0.5	-0.054	-0.3	-0.132	-0.8	-0.0638	-0.3
Mode preference variables												
Walk to transit - no car	6.37	6	5.68	6.3	6.01	6.4	5.48	6.6	5.1	6.7	5.05	6.6
Walk to transit - 0 < cars < workers	1.36	3.4	1.25	3.4	1.32	3.5	1.21	3.5	1.01	3	1.01	3
HOV - 0 < cars < workers	0.0167	0.2	-0.0025	0	-9.80E-04	0	-0.0054	-0.1	-0.0058	-0.1	-0.0062	-0.1
Non-motorized - no car	2.32	3.8	1.99	3.8	2.15	4	1.84	3.8	1.62	3.6	1.61	3.6
Non-motorized - 0 < cars < workers	1.59	6.2	1.46	6.4	1.51	6.4	1.43	6.7	1.33	6.6	1.32	6.6
HOV - square of trip distance	5.20E-05	0.9	9.80E-05	1.7	7.90E-06	0.1	-4.60E-05	-0.8	-4.00E-05	-0.6	-4.50E-05	-0.7
HOV 3 - less than 3 persons in household	-2.51	-47.4	-2.51	-47.4	-2.51	-47.3	-2.54	-47.6	-2.54	-47.5	-2.54	-47.5
HOV 2 - less than 2 persons in household	-1.75	-25.9	-1.75	-26	-1.75	-26	-1.77	-26.2	-1.76	-26.1	-1.76	-26
HOV 3 - female	0.202	4.6	0.2	4.6	0.201	4.6	0.201	4.6	0.201	4.6	0.201	4.6
HOV2 - female	0.216	5.8	0.214	5.7	0.217	5.8	0.216	5.8	0.215	5.8	0.215	5.8
Non-motorized - female	-0.422	-3.5	-0.384	-3.6	-0.406	-3.6	-0.372	-3.6	-0.37	-3.1	-0.367	-3.1
Non-motorized - age	-0.0169	-5.6	-0.0164	-6	-0.0167	-5.8	-0.0163	-6.1	-0.0121	-3.8	-0.0121	-3.8
Non-motorized - destination is Seattle CBD	1.26	3.1	1.01	2.8	1.25	3.2	1.64	4.7	1.49	4.6	1.5	4.6

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Walk to transit - destination is Seattle CBD	2.36	4.9	2.1	5	2.32	5.1	2.71	6.4	2.5	6.3	2.49	6.3
Drive to transit - destination is Seattle CBD	3.28	6.4	3.36	6.6	3.38	6.7	4.03	8.9	4.05	9	4.06	9
Transit - shopping trip	-0.362	-1.2	-0.338	-1.2	-0.341	-1.2	-0.324	-1.2	-0.312	-1.2	-0.31	-1.2
Transit - restaurant trip	0.599	2.1	0.578	2.1	0.605	2.1	0.578	2.1	0.557	2.1	0.557	2.2
Transit - social/recreation trip	0.185	0.7	0.191	0.8	0.23	0.9	0.257	1.1	0.231	1	0.229	1
HOV - shopping trip	-0.0083	-0.2	-0.0139	-0.3	-0.0075	-0.2	1.20E-04	0	8.00E-05	0	4.00E-04	0
HOV - restaurant trip	1.03	19.3	1.02	19.2	1.02	19.2	1.03	19.4	1.03	19.4	1.03	19.4
HOV - social/recreation trip	0.558	13.6	0.559	13.6	0.561	13.7	0.568	13.8	0.568	13.9	0.568	13.9
Non-motorized - shopping trip	-0.066	-0.4	-0.0605	-0.4	-0.058	-0.4	-0.0473	-0.4	-0.0445	-0.4	-0.0445	-0.4
Non-motorized - restautrant trip	0.265	1.4	0.294	1.7	0.289	1.6	0.302	1.8	0.31	1.9	0.313	2
Non-motorized - social / recreation trip	1.67	7.8	1.57	8.4	1.63	8.3	1.55	8.8	1.47	9	1.46	9
Outbound trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	5.40E-04	0.5	2.10E-04	0.2	5.80E-04	0.5	9.20E-04	0.8	9.30E-04	0.8	9.00E-04	0.8
Household income ($/yr)	-5.30E-05	-0.4	-5.50E-05	-0.4	-6.20E-05	-0.5	-5.10E-05	-0.4	-5.10E-05	-0.4	-5.10E-05	-0.4
Age (years)	-0.0043	-11.3	-0.0043	-11.3	-0.0043	-11.3	-0.0043	-11.3	-0.0043	-11.3	-0.0043	-11.3
HOV trip	0.11	21.8	0.11	21.9	0.11	21.8	0.109	21.8	0.109	21.7	0.109	21.8
Part time worker	-0.0946	-7	-0.0943	-7	-0.0941	-7	-0.0944	-7	-0.0944	-7	-0.0945	-7
Female	-0.0506	-4.7	-0.0504	-4.7	-0.0504	-4.7	-0.0505	-4.7	-0.0506	-4.7	-0.0505	-4.7
Shopping trip	0.0859	5.9	0.086	5.9	0.0856	5.9	0.0859	5.9	0.086	5.9	0.0862	5.9
Restaurant trip	0.0648	3.7	0.0649	3.7	0.0646	3.7	0.0647	3.7	0.0648	3.7	0.0649	3.7
Social / recreation trip	0.106	7.7	0.106	7.7	0.106	7.7	0.106	7.7	0.106	7.7	0.106	7.7

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Return trip departure shift variables												
Extra time on congested links - 8-9 AM, 5-6 PM	0.0019	5	0.0018	4.8	0.0019	5	0.0019	5.1	0.0019	5.1	0.0019	5.1
Household income ($/yr)	1.30E-04	0.9	1.30E-04	0.9	1.20E-04	0.8	1.30E-04	0.9	1.30E-04	0.9	1.30E-04	0.9
Age (years)	-0.0041	-11.5	-0.0041	-11.5	-0.0041	-11.6	-0.0041	-11.5	-0.0041	-11.5	-0.0041	-11.5
HOV trip	0.0849	19.9	0.0853	20.1	0.0848	19.9	0.0846	19.9	0.0844	19.9	0.0845	19.9
Part time worker	-0.221	-13.7	-0.221	-13.7	-0.22	-13.7	-0.221	-13.7	-0.221	-13.7	-0.221	-13.7
Female	-0.0751	-6.6	-0.0751	-6.5	-0.0751	-6.6	-0.0751	-6.5	-0.0752	-6.6	-0.0751	-6.5
Shopping trip	-0.0156	-1.1	-0.0156	-1.1	-0.0158	-1.1	-0.0156	-1.1	-0.0155	-1.1	-0.0155	-1.1
Restaurant trip	0.212	9.2	0.212	9.2	0.211	9.2	0.212	9.2	0.212	9.2	0.212	9.2
Social / recreation trip	0.175	9.6	0.175	9.6	0.174	9.6	0.175	9.6	0.175	9.6	0.175	9.6
Outbound trip period-specific constants												
Leave home 5-6	-2.77	-12.4	-2.78	-12.4	-2.76	-12.5	-2.77	-12.5	-2.77	-12.4	-2.77	-12.4
Leave home 6-7	-0.951	-6.1	-0.952	-6.1	-0.948	-6.1	-0.95	-6.1	-0.951	-6.1	-0.952	-6.1
Leave home 7-8	0		0		0		0		0		0	
Leave home 8-9	0.782	6	0.783	6	0.78	6	0.781	6	0.782	6	0.783	6
Leave home 9-10	1.54	11.2	1.54	11.1	1.53	11.2	1.53	11.1	1.53	11.1	1.54	11.1
Leave home 10-11	1.6	10.9	1.59	10.9	1.59	10.9	1.59	10.9	1.59	10.9	1.59	10.9
Leave home 11-12	1.14	7.4	1.14	7.4	1.14	7.4	1.13	7.3	1.13	7.3	1.14	7.3
Leave home 12-13	1.01	6.1	1	6.1	1	6.1	0.997	6	0.997	6	0.998	6
Leave home 13-14	1.06	6	1.06	6	1.06	6	1.06	6	1.06	6	1.06	6
Leave home 14-15	0.956	5	0.954	5	0.955	5	0.952	5	0.953	5	0.954	5

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Leave home 15-16	1.16	5.7	1.16	5.7	1.16	5.7	1.16	5.7	1.16	5.7	1.17	5.7
Leave home 16-17	1.77	8.1	1.77	8.1	1.76	8.1	1.77	8.1	1.77	8.1	1.77	8.1
Leave home 17-18	2.41	10.1	2.41	10.1	2.4	10.2	2.4	10.1	2.41	10.1	2.41	10.2
Leave home 18-19	2.73	10.7	2.73	10.7	2.72	10.7	2.72	10.7	2.72	10.7	2.72	10.7
Leave home 19-20	1.33	5.1	1.33	5.1	1.33	5.2	1.33	5.1	1.32	5.1	1.33	5.1
Leave home 20-23	0.211	0.8	0.21	0.8	0.216	0.8	0.205	0.7	0.203	0.7	0.204	0.7
Leave home 23-5	-3.13	-8.1	-3.13	-8.1	-3.11	-8.1	-3.14	-8.1	-3.15	-8.2	-3.15	-8.1
Return trip period-specific constants												
Return home 5-6	-10		-10		-10		-10		-10		-10	
Return home 6-7	-10		-10		-10		-10		-10		-10	
Return home 7-8	-7.31	-24.2	-7.31	-24.2	-7.3	-24.2	-7.31	-24.2	-7.31	-24.2	-7.32	-24.2
Return home 8-9	-6.04	-24.4	-6.04	-24.4	-6.03	-24.5	-6.04	-24.5	-6.04	-24.4	-6.04	-24.4
Return home 9-10	-4.62	-23.5	-4.62	-23.5	-4.62	-23.6	-4.62	-23.6	-4.63	-23.6	-4.63	-23.5
Return home 10-11	-3.07	-19.8	-3.07	-19.8	-3.07	-19.9	-3.08	-19.9	-3.08	-19.9	-3.08	-19.8
Return home 11-12	-2.13	-15.7	-2.13	-15.8	-2.14	-15.8	-2.14	-15.8	-2.14	-15.8	-2.14	-15.8
Return home 12-13	-1.82	-14.5	-1.82	-14.6	-1.82	-14.6	-1.82	-14.6	-1.83	-14.6	-1.83	-14.6
Return home 13-14	-1.64	-14.3	-1.65	-14.4	-1.65	-14.4	-1.65	-14.4	-1.65	-14.4	-1.65	-14.4
Return home 14-15	-1.16	-11.1	-1.16	-11.1	-1.16	-11.2	-1.16	-11.2	-1.17	-11.2	-1.17	-11.1
Return home 15-16	-0.678	-7	-0.677	-7	-0.679	-7.1	-0.677	-7	-0.678	-7	-0.678	-7
Return home 16-17	-0.479	-5.2	-0.479	-5.2	-0.48	-5.2	-0.479	-5.2	-0.479	-5.2	-0.479	-5.2
Return home 17-18	0		0		0		0		0		0	

Model name	**motodn04e**		**motodn04f**		**motodn04g**		**motodn04h**		**motodn04i**		**motodn04j**	
Data set	SEA RP		SEA RP		SEA RP		SEA RP		SEA RP		SEA RP	
Choice type	MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD		MODE/TOD	
Modes included	All		All		All		All		All		All	
Time periods included	17		17		17		17		17		17	
Skim periods	5		5		5		5		5		5	
Observation	Trip		Trip		Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other		HB Other		HB Other	
Return home 18-19	-0.341	-3.5	-0.346	-3.6	-0.343	-3.6	-0.35	-3.6	-0.355	-3.7	-0.355	-3.6
Return home 19-20	-0.0064	-0.1	-0.012	-0.1	-0.0087	-0.1	-0.0158	-0.2	-0.0211	-0.2	-0.022	-0.2
Return home 20-23	1.73	16.9	1.73	16.8	1.73	16.9	1.72	16.9	1.72	16.8	1.72	16.6
Return home 23-5	-2.88	-13.6	-2.88	-13.6	-2.86	-13.6	-2.89	-13.7	-2.9	-13.7	-2.9	-13.6
Nesting paramaters												
All modes nested under time periods	0.774	7.9	0.71	8.6	0.741	8.5	0.692	9.2	0.649	9.3	0.644	9.2
All auto-related modes in single nest	0.624	8.1	0.681	8.9	0.654	8.8	0.698	9.6	0.743	9.7	0.749	9.7

APPENDIX A3

Stated Preference Data – Seattle, Los Angeles and San Francisco

Table A3-1: Stated Preference models – Seattle congestion pricing

Model name	**SESPW01**		**SESPW02**		**SESPN01**		**SESPN02**	
Data set	SEA SP		SEA SP		SEA SP		SEA SP	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
Observations	1355		1355		1507		1507	
Final log-likelihood	-1414.4		-1404.9		-1574		-1567	
Rho-squared zero	0.247		0.252		0.247		0.25	
Rho-squared constants	0.183		0.189		0.184		0.188	
Variable	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**
Route type within TOD nest logsum	0.402	-4.4	0.43	-4.6	0.463	-6.2	0.452	-6.1
Cost ($)- all incomes	-0.574	-10.0			-0.766	-10.1		
Cost- lowest income quartile			-0.804	-8.0			-0.958	-8.1
Cost- 2nd income quartile			-0.678	-8.5			-0.81	-8.5
Cost- 3rd income quartile			-0.522	-6.2			-0.704	-5.6
Cost- highest income quartile			-0.39	-5.1			-0.504	-4.4
Auto in-vehicle time (min)	-0.115	-9.4			-0.126	-8.0		
SOV in-vehicle time (min)			-0.115	-9.1			-0.107	-5.5
HOV in-vehicle time (min)			-0.118	-4.0			-0.149	-6.9
Fraction of trips with 15+ min delay	-4.1	-10.7	-4.08	-10.6	-5.0	-13.0	-5.07	-13.1
Distance (miles)	-0.0537	-1.6	-0.0507	-1.5	-0.129	-3.2	-0.132	-3.3
Constant- tolled route	-0.8	-6.4	-0.76	-6.0	-1.11	-8.6	-1.12	-8.6
Off-peak period-actual off-peak	1.56	-3.1	1.43	-3.2	3.28	-5.5	3.38	-5.5
AM- shift earlier (min)	-0.0201	-3.8	-0.0189	-3.9	-0.0058	-1.4	-0.0059	-1.4

Model name	**SESPW01**		**SESPW02**		**SESPN01**		**SESPN02**	
Data set	SEA SP		SEA SP		SEA SP		SEA SP	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
AM- shift later (min)	-0.0323	-4.5	-0.0306	-4.7	-0.0317	-3.8	-0.0321	-3.7
PM- shift earlier (min)	-0.0235	-3.6	-0.0221	-3.7	-0.0044	-2.6	-0.0045	-2.6
PM- shift later (min)	-0.0118	-3.1	-0.0113	-3.2	3.20E-04	-0.2	3.50E-04	-0.2
Values of SOV IV time ($/hour)								
All incomes	$ 12.02				$ 9.87			
lowest income quartile			$ 8.58				$ 6.70	
2nd income quartile			$ 10.18				$ 7.93	
3rd income quartile			$ 13.22				$ 9.12	
highest income quartile			$ 17.69				$ 12.74	
Values in terms of SOV IVT (min)								
HOV in-vehicle time (min)			1.03				1.39	
Fraction of trips with delay	35.65		35.48		39.68		47.38	
Distance (miles)	0.47		0.44		1.02		1.23	
Constant- tolled route	6.96		6.61		8.81		10.47	
Off-peak period-actual off-peak	(13.57)		(12.43)		(26.03)		(31.59)	
AM- shift earlier (min)	0.17		0.16		0.05		0.06	
AM- shift later (min)	0.28		0.27		0.25		0.30	
PM- shift earlier (min)	0.20		0.19		0.03		0.04	
PM- shift later (min)	0.10		0.10		(0.00)		(0.00)	

Table A3-2: Stated Preference models – Los Angeles congestion pricing

Model name	**LASPW01**		**LASPW02**		**LASPN01**		**LASPN02**	
Data set	Los Angeles SP		Los Angeles SP		Los Angeles SP		Los Angeles SP	
Choice type	Route/TOD/Mode		Route/TOD/Mode		Route/TOD/Mode		Route/TOD/Mode	
Modes included	Auto, Transit		Auto, Transit		Auto, Transit		Auto, Transit	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
Observations	2976		2976		2932		2932	
Final log-likelihood	-3907.5		-3831.6		-3961.5		-3895.8	
Rho-squared (zero)	0.297		0.311		0.276		0.288	
Rho-squared (constants)	0.201		0.217		0.197		0.21	
	Coeff.	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**
Time periods within mode nesting logsum	0.581	4.9	0.65	5.5	0.5	constr.	0.5	constr.
Route types within time period nesting logsum	0.387	9.6	0.376	9.3	0.264	6.4	0.32	7.6
Scale factor for second choice from each set	0.863	22.8	0.875	22.1	0.801	22.8	0.82	22.4
Cost ($)- all incomes	-0.51	-12.3			-0.56	-11.8		
Cost- lowest income quartile			-0.7	-7.5			-0.63	-8.3
Cost- 2nd income quartile			-0.64	-9.9			-0.6	-9.1
Cost- 3rd income quartile			-0.51	-7.7			-0.51	-7.3
Cost- highest income quartile			-0.33	-7.1			-0.42	-6.4
Auto in-vehicle time (min)	-0.0953	-14.1			-0.0875	-12.1		
SOV in-vehicle time (min)			-0.0889	-12.7			-0.0722	-8.7
HOV in-vehicle time (min)			-0.114	-10.3			-0.0968	-12
Transit total time (min)	-0.13	-5.6	-0.124	-6	-0.0862	-3.9	-0.0834	-4.7
Transit service frequency (min)	-0.0411	-1.8	-0.0371	-1.8	-0.0641	-1.4	-0.0518	-1.4
Transit transfers	-1.51	-2.4	-1.36	-2.5	-1.39	-1.2	-1.13	-1.2

Model name	**LASPW01**		**LASPW02**		**LASPN01**		**LASPN02**	
Data set	Los Angeles SP		Los Angeles SP		Los Angeles SP		Los Angeles SP	
Choice type	Route/TOD/Mode		Route/TOD/Mode		Route/TOD/Mode		Route/TOD/Mode	
Modes included	Auto, Transit		Auto, Transit		Auto, Transit		Auto, Transit	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
Transit mode constant	-5.47	-3.1	-4.68	-3.1	-16.9	-5	-13.7	-5.4
Toll route constant	-1.29	-12.2	-1.25	-11.8	-1.27	-12.1	-1.21	-11.5
Before AM peak- actual choice	7.08	7.5	7.14	7.4	4.2	2.3	3.4	2.4
After AM peak- actual choice	4.53	6.4	4.74	6.4	6.11	6	5.08	7.1
Before PM peak- actual choice	4.85	7.9	4.95	7.7	6.62	6.2	5.45	7.3
After PM peak- actual choice	2.28	3.4	2.2	3.2	3.34	3.5	2.65	3.6
AM- shift earlier (min)	-0.038	-9.6	0.0033	0.3	-0.0542	-6.2	-0.0985	-3.9
AM-shift earlier squared			-0.0016	-5.4			-0.0011	-2.2
AM-shift earlier cubed			4.90E-06	5.5			4.70E-06	2.9
AM-shift earlier*hours after 6am			0.0246	5.2			0.0365	3.8
AM- shift later (min)	-0.0864	-9.2	-0.0766	-2.7	-0.0845	-6.2	-0.311	-4.2
AM-shift later squared			-0.0021	-3.4			0.0069	3.4
AM-shift later cubed			1.20E-05	4			-4.50E-05	-3.3
AM-shift later*hours after 6am			0.0261	3.6			0.002	0.3
PM- shift earlier (min)	-0.0343	-8.8	-0.0172	-0.8	-0.0338	-5.2	-0.0884	-3.3
PM-shift earlier squared			-8.00E-05	-0.2			5.40E-04	1.5
PM-shift earlier cubed			-8.00E-07	-0.4			-1.40E-06	-1.1
PM-shift earlier*hours after 3 pm			0.0021	0.7			0.006	1.9
PM- shift later (min)	-0.0754	-8.7	-0.0389	-1	-0.0633	-5.4	-0.212	-3
PM-shift later squared			5.40E-04	0.5			0.0049	2.6
PM-shift later cubed			-5.10E-06	-0.8			-3.00E-05	-2.4

Model name	**LASPW01**	**LASPW02**		**LASPN01**	**LASPN02**	
Data set	Los Angeles SP	Los Angeles SP		Los Angeles SP	Los Angeles SP	
Choice type	Route/TOD/Mode	Route/TOD/Mode		Route/TOD/Mode	Route/TOD/Mode	
Modes included	Auto, Transit	Auto, Transit		Auto, Transit	Auto, Transit	
Time periods included	Peak, OP	Peak, OP		Peak, OP	Peak, OP	
Skim periods	n/a	n/a		n/a	n/a	
Observation	Trip	Trip		Trip	Trip	
Purpose	HB Work	HB Work		HB Other	HB Other	
PM-shift later*hours after 3pm		-0.0158	-2.8		-0.0046	-0.7
Values of auto SOV time ($/hour)						
All incomes	$ 11.21			$ 9.38		
lowest income quartile		$ 7.62			$ 6.88	
2nd income quartile		$ 8.33			$ 7.22	
3rd income quartile		$ 10.46			$ 8.49	
highest income quartile		$ 16.16			$ 10.31	
Values in terms of SOV IVT (min)						
HOV in-vehicle time (min)		1.28			1.34	
Transit total time (min)	1.36	1.39		0.99	1.16	
Transit service frequency (min)	0.43	0.42		0.73	0.72	
Transit transfers	15.84	15.30		15.89	15.65	
Transit mode constant	57.40	52.64		193.14	189.75	
Toll route constant	13.54	14.06		14.51	16.76	
Before AM peak- actual choice	-74.29	-80.31		-48.00	-47.09	
After AM peak- actual choice	-47.53	-53.32		-69.83	-70.36	
Before PM peak- actual choice	-50.89	-55.68		-75.66	-75.48	
After PM peak- actual choice	-23.92	-24.75		-38.17	-36.70	
AM- shift earlier (min)	0.40	see plots		0.62	see plots	
AM- shift later (min)	0.91	see plots		0.97	see plots	

Model name	**LASPW01**	**LASPW02**	**LASPN01**	**LASPN02**
Data set	Los Angeles SP	Los Angeles SP	Los Angeles SP	Los Angeles SP
Choice type	Route/TOD/Mode	Route/TOD/Mode	Route/TOD/Mode	Route/TOD/Mode
Modes included	Auto, Transit	Auto, Transit	Auto, Transit	Auto, Transit
Time periods included	Peak, OP	Peak, OP	Peak, OP	Peak, OP
Skim periods	n/a	n/a	n/a	n/a
Observation	Trip	Trip	Trip	Trip
Purpose	HB Work	HB Work	HB Other	HB Other
PM- shift earlier (min)	0.36	0.19	0.39	see plots
PM- shift later (min)	0.79	0.44	0.72	see plots

Table A3-3: Stated Preference models – San Francisco cordon pricing

Model name	**SFSPW01**		**SFSPW02**		**SFSPN01**		**SFSPN02**	
Data set	San Fran SP		San Fran SP		San Fran SP		San Fran SP	
Choice type	TOD/Mode		TOD/Mode		TOD/Mode		TOD/Mode	
Modes included	Auto, Transit		Auto, Transit		Auto, Transit		Auto, Transit	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
Observations	2357		2357		2722		2722	
Final log-likelihood	-2723.7		-2633.4		-3360.4		-3275.6	
Rho-squared (zero)	0.166		0.194		0.109		0.132	
Rho-squared (constants)	0.133		0.162		0.092		0.115	
	Coeff.	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**
Time period within mode nesting logsum	0.669	7.6	0.346	8.9	0.5	constr.	0.5	constr.
Cost ($)- all incomes	-0.168	-7.8			-0.128	-8.9		
Cost- lowest income quartile			-0.538	-6.3			-0.308	-6.3
Cost- 2nd income quartile			-0.435	-8.7			-0.205	-7.6
Cost- 3rd income quartile			-0.352	-9.4			-0.193	-7.9
Cost- highest income quartile			-0.279	-9.6			-0.082	-4.7
Auto in-vehicle time (min)	-0.0496	-7.8			-0.0337	-7.6		
SOV in-vehicle time (min)			-0.054	-6.0			-0.023	-4.5
HOV in-vehicle time (min)			-0.0604	-6.0			-0.043	-8.2
Transit in-vehicle time	-0.0357	-6.5	-0.0483	-5.6	-0.0402	-9.2	-0.040	-9.1
Transit out-of-vehicle time	-0.054	-5.3	-0.108	-5.7	-0.0327	-4.7	-0.042	-5.7
Transit transfers	-0.481	-3.2	-0.973	-3.4	-0.536	-4	-0.562	-4.1
Average extra delay (min)	-0.0208	-0.5	-0.0752	-1.5	-0.098	-2.5	-0.127	-3.1
Transit constant- walk access	-1.39	-3.9	-2.3	-3.9	-1.2	-3.6	-1.117	-3.3
Transit constant- drive access	-0.634	-2.7	-2.03	-5.1	0.39	-1.9	0.223	1.0

Model name	**SFSPW01**		**SFSPW02**		**SFSPN01**		**SFSPN02**	
Data set	San Fran SP		San Fran SP		San Fran SP		San Fran SP	
Choice type	TOD/Mode		TOD/Mode		TOD/Mode		TOD/Mode	
Modes included	Auto, Transit		Auto, Transit		Auto, Transit		Auto, Transit	
Time periods included	Peak, OP		Peak, OP		Peak, OP		Peak, OP	
Skim periods	n/a		n/a		n/a		n/a	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Other		HB Other	
AM- shift earlier (min)	-0.0103	-11.5	-0.0404	-6.7	-0.0098	-13.6	-0.012	-2.4
AM-shift earlier squared			-4.50E-05	-0.6			-4.8E-05	-0.8
AM-shift earlier cubed			-4.10E-08	-0.1			3.24E-07	1.6
AM-shift earlier*hours after 6am			0.0097	6.2			8.86E-05	0.1
AM- shift later (min)	-0.0328	-16	-0.102	-11	-0.0029	-1.9	-0.018	-1.1
AM-shift later squared			9.50E-04	6.5			0.0002	0.9
AM-shift later cubed			-2.80E-06	-4.2			-2E-08	0.0
AM-shift later*hours after 6am			0.0032	1.9			-0.0039	-0.9
PM- shift earlier (min)	-0.0044	-1.6	-0.0059	-1.7	-0.009	-10.6	-0.0056	-0.9
PM-shift earlier squared							-0.0002	-3.3
PM-shift earlier cubed							7.29E-07	3.0
PM-shift earlier*hours after 3 pm							0.0026	2.4
PM- shift later (min)	-0.0849	-2.8	-0.109	-3.2	-0.008	-8.4	-0.0491	-6.7
PM-shift later squared							0.0005	5.1
PM-shift later cubed							-1.3E-06	-4.1
PM-shift later*hours after 3pm							0.0040	3.2
Values of auto SOV time ($/hour)								
All incomes	$ 17.71				$ 15.80			
lowest income quartile			$ 6.02				$ 4.43	
2nd income quartile			$ 7.45				$ 6.66	

Model name	**SFSPW01**	**SFSPW02**	**SFSPN01**	**SFSPN02**
Data set	San Fran SP	San Fran SP	San Fran SP	San Fran SP
Choice type	TOD/Mode	TOD/Mode	TOD/Mode	TOD/Mode
Modes included	Auto, Transit	Auto, Transit	Auto, Transit	Auto, Transit
Time periods included	Peak, OP	Peak, OP	Peak, OP	Peak, OP
Skim periods	n/a	n/a	n/a	n/a
Observation	Trip	Trip	Trip	Trip
Purpose	HB Work	HB Work	HB Other	HB Other
3rd income quartile		$ 9.20		$ 7.06
highest income quartile		$ 11.61		$ 16.62
Values in terms of SOV IVT (min)				
HOV in-vehicle time (min)		1.12		1.90
Transit in-vehicle time	0.72	0.89	1.19	1.75
Transit out-of-vehicle time	1.09	2.00	0.97	1.86
Transit transfers	9.70	18.02	15.91	24.71
Average extra delay (min)	0.42	1.39	2.91	5.59
Transit constant- walk access	28.02	42.59	35.61	49.06
Transit constant- drive access	12.78	37.59	-11.57	-9.81
AM- shift earlier (min)	0.21	see plots	0.29	see plots
AM- shift later (min)	0.66	see plots	0.09	see plots
PM- shift earlier (min)	0.09	0.11	0.27	see plots
PM- shift later (min)	1.71	2.02	0.24	see plots

APPENDIX A4

Experimental Data – Seattle Traffic Choices

Table A4-1: Seattle Experimental Data - Traffic Choices models – Work trips

Model name	**routodw01a**		**routodw01c**		**routodw01d**		**routodw01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work	
Observations	1350		1350		1350		1350	
Final log-likelihood	-2611.2		-2532.5		-2516.6		-2513.4	
Degrees of freedom	17		19		20		20	
Rho-squared w.r.t. 0	0.253		0.275		0.28		0.281	
Rho-squared w.r.t. cons	-0.089		-0.056		-0.049		-0.048	
	Coeff.	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**
Toll cost ($)	-0.58	-8.5	-0.61	-9	-0.60	-8.7	-0.64	-9.4
Auto travel time (min)	-0.0697	-6	-0.064	-5.1	-0.0581	-4.7	-0.0612	-5
Std. deviation auto time (min)					-0.042	-5.4		
Std dev. auto time per mile							-0.161	-5.4
Freeway route type constant			-3.98	-5.8	-4.22	-6	-4.26	-6.1
Fraction of distance on freeway links			5.59	5.8	5.82	5.8	6	6
Outbound trip period-specific constants								
Leave home 5-6	-5.21	-14.6	-5.19	-14.8	-5.48	-15.4	-5.41	-15.4
Leave home 6-7	-0.842	-10.2	-0.842	-10.2	-0.893	-10.6	-0.875	-10.5
Leave home 7-8	0		0		0		0	
Leave home 8-9	-2.15	-15.3	-2.15	-15.3	-2.08	-14.7	-2.09	-14.7
Leave home 9-10	-2.41	-17.1	-2.44	-17.3	-2.47	-17.6	-2.49	-17.6
Leave home 10-11	-2.22	-16.7	-2.25	-17	-2.35	-17.2	-2.29	-16.9

Model name	**routodw01a**		**routodw01c**		**routodw01d**		**routodw01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work	
Leave home 11-12	-4.96	-11.9	-4.99	-12	-5.16	-12.3	-5.08	-12.2
Leave home 12-13	-6.75	-6.7	-6.78	-6.8	-6.97	-6.9	-6.89	-6.9
Leave home 13-14								
Leave home 14-15								
Leave home 15-16								
Leave home 16-17								
Leave home 17-18								
Leave home 18-19								
Leave home 19-20								
Leave home 20-23								
Return trip period-specific constants								
Return home 5-6								
Return home 6-7								
Return home 7-8								
Return home 8-9								
Return home 9-10								
Return home 10-11								
Return home 11-12								
Return home 12-13								
Return home 13-14	-3.21	-8.2	-3.22	-8.3	-3.93	-9.7	-3.98	-9.9
Return home 14-15	-1.3	-5	-1.3	-5	-1.86	-6.8	-1.97	-7.3

Model name	**routodw01a**		**routodw01c**		**routodw01d**		**routodw01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Work		HB Work		HB Work		HB Work	
Return home 15-16	-0.442	-2.1	-0.517	-2.4	-1.04	-4.5	-1.19	-5.1
Return home 16-17	1.15	6.9	1.15	6.9	0.629	3.4	0.539	2.9
Return home 17-18	0		0		0		0	
Return home 18-19	-1.15	-4.4	-1.1	-4.1	-1.67	-5.9	-1.83	-6.4
Return home 19-20	-2.57	-8	-2.6	-8.1	-3.22	-9.7	-3.35	-10.1
Return home 20-23	-2.76	-8.2	-2.79	-8.4	-3.45	-9.8	-3.5	-10.1
Logsum coefficient route types under time periods	0.36	4.9	0.8	5.4	0.739	5.6	0.757	5.6

Table A4-2: Seattle Experimental Data - Traffic Choices models – Non-work trips

Model name	**routodn01a**		**routodn01c**		**routodn01d**		**routodn01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other	
Observations	7828		7828		7828		7828	
Final log-likelihood	-21495.7		-21460.9		-21451.4		-21453.8	
Degrees of freedom	32		34		35		35	
Rho-squared w.r.t. 0	0.072		0.074		0.074		0.074	
Rho-squared w.r.t. cons	0.062		0.064		0.064		0.064	
	Coeff.	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**	**Coeff.**	**T-stat.**
Toll cost ($)	-0.17	-2.8	-0.38	-5.4	-0.38	-5.5	-0.38	-5.5
Auto travel time (min)	-0.0347	-13.1	-0.0234	-6.9	-0.0345	-8	-0.0268	-7.7
Std. deviation auto time (min)					0.0354	4.6		
Std dev. auto time per mile							0.0973	3.8
Freeway route type constant			-1.01	-7.2	-1	-7.1	-0.953	-6.7
Fraction of distance on freeway links			2.41	8.2	2.38	8.1	2.33	7.9
Outbound trip period-specific constants								
Leave home 5-6	-6.6	-17.1	-6.76	-17.5	-6.66	-17.2	-6.66	-17.2
Leave home 6-7	-2.94	-10.6	-2.94	-10.6	-2.87	-10.3	-2.87	-10.3
Leave home 7-8	0		0		0		0	
Leave home 8-9	-2.24	-8.5	-2.24	-8.5	-2.29	-8.7	-2.28	-8.7
Leave home 9-10	-3.26	-11.4	-3.36	-11.8	-3.4	-11.9	-3.37	-11.8
Leave home 10-11	-3.21	-11.3	-3.3	-11.6	-3.29	-11.6	-3.3	-11.6

Model name	**routodn01a**		**routodn01c**		**routodn01d**		**routodn01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other	
Leave home 11-12	-3.56	-12.2	-3.65	-12.5	-3.6	-12.3	-3.61	-12.3
Leave home 12-13	-4.05	-13.3	-4.15	-13.6	-4.13	-13.5	-4.12	-13.5
Leave home 13-14	-3.56	-12.2	-3.65	-12.5	-3.6	-12.3	-3.6	-12.3
Leave home 14-15	-3.44	-11.9	-3.54	-12.2	-3.49	-12.1	-3.5	-12.1
Leave home 15-16	-3.71	-12.5	-3.82	-12.8	-3.79	-12.7	-3.8	-12.7
Leave home 16-17	-3.67	-12.3	-3.63	-12.2	-3.59	-12	-3.59	-12.1
Leave home 17-18	-2.74	-10	-2.7	-9.8	-2.7	-9.8	-2.69	-9.8
Leave home 18-19	-2.55	-9.5	-2.47	-9.2	-2.45	-9.2	-2.43	-9.1
Leave home 19-20	-4.32	-13.9	-4.42	-14.2	-4.37	-14	-4.36	-14
Leave home 20-23	-7.85	-17.8	-7.95	-18	-7.93	-18	-7.96	-18
Return trip period-specific constants								
Return home 5-6	-22.5	-7.9	-22.6	-8	-22.5	-7.9	-22.4	-7.9
Return home 6-7	-18.7	-10.4	-18.7	-10.4	-18.5	-10.3	-18.5	-10.3
Return home 7-8	-16.8	-11.8	-16.8	-11.7	-16.7	-11.7	-16.7	-11.7
Return home 8-9	-11.4	-15.3	-11.4	-15.2	-11.3	-15.2	-11.3	-15.1
Return home 9-10	-8	-15.8	-8.08	-15.9	-8.03	-15.8	-8.01	-15.8
Return home 10-11	-6.49	-15	-6.57	-15.2	-6.5	-15	-6.49	-15
Return home 11-12	-5.43	-14	-5.51	-14.2	-5.38	-13.8	-5.36	-13.7
Return home 12-13	-4.74	-13	-4.81	-13.2	-4.72	-12.9	-4.7	-12.8
Return home 13-14	-3.96	-11.7	-4.03	-11.9	-3.93	-11.6	-3.91	-11.5
Return home 14-15	-3.32	-10.3	-3.4	-10.6	-3.33	-10.3	-3.3	-10.2

Model name	**routodn01a**		**routodn01c**		**routodn01d**		**routodn01e**	
Data set	Traffic Choices		Traffic Choices		Traffic Choices		Traffic Choices	
Choice type	Route/TOD		Route/TOD		Route/TOD		Route/TOD	
Modes included	Auto		Auto		Auto		Auto	
Time periods included	16		16		16		16	
Skim periods	16		16		16		16	
Observation	Trip		Trip		Trip		Trip	
Purpose	HB Other		HB Other		HB Other		HB Other	
Return home 15-16	-2.17	-7.3	-2.29	-7.7	-2.19	-7.4	-2.2	-7.4
Return home 16-17	-0.775	-2.9	-0.775	-2.9	-0.685	-2.5	-0.676	-2.5
Return home 17-18	0		0		0		0	
Return home 18-19	-0.917	-3.4	-0.87	-3.3	-0.827	-3.1	-0.786	-2.9
Return home 19-20	-1.67	-5.9	-1.77	-6.2	-1.67	-5.9	-1.64	-5.7
Return home 20-23	-2.24	-7.6	-2.34	-7.9	-2.26	-7.6	-2.23	-7.5
Logsum coefficient route types under time periods	0.25	constrained	0.25	constrained	0.25	constrained	0.25	constrained