



Appendix D

Network Summary Statistics

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Forecast year 2016			2006 - Based			Do Minimum			Option 1 Upgrade the Existing SH1 Alignment			Option 2 Expressway Follows WLR Designation			Option 3 Expressway Follows Rail Corridor			Option 4 Expressway Avoids Future Town Centres			
Level	Performance Measure	Units	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	
Network	Network average travel speed	kms/hr	53.1	53.2	50.0	42.8	45.5	38.8	54.2	51.1	47.4	53.4	51.5	48.7	53.4	50.3	47.6	51.5	50.8	46.7	
	Total trips assigned	pcus	8437	9114	10909	12089	12604	15948	12089	12604	15948	12089	12604	15948	12089	12604	15948	12089	12604	15948	
	total vehicle distance	pcu-kms	46049.4	42105.8	53888.6	65557.7	60237.5	78531.8	66934.4	60957.5	80022.9	68414.4	61614.5	81522.7	66478.3	60312.8	79677.6	67228.9	61855.4	81232.0	
	total travel time	pcu-hrs	867.1	790.9	1077.8	1533.3	1323.8	2024.0	1235.2	1191.8	1687.5	1281.6	1196.8	1673.1	1244.3	1198.7	1675.3	1306.0	1218.3	1738.8	
	total delayed time	pcu-hrs	35.7	25.7	59.0	88.0	56.9	107.8	17.6	11.1	24.4	25.8	18.2	34.3	16.3	10.8	24.4	16.4	8.1	17.5	
	total queued time	pcu-hrs	109.7	99.0	158.0	394.6	287.8	612.3	154.2	174.2	339.4	198.9	198.1	338.3	150.2	174.7	313.6	236.1	202.4	387.8	
Intersections	Overall volume/capacity ratios (worst turning movement)	node no.																			
	1 SH1/Poplar Avenue	1002	101%	50%	68%	126%	101%	97%	61%	49%	77%	69%	39%	44%	58%	47%	70%	59%	46%	82%	
	2 SH1/Raumati Road	1021	96%	81%	82%	120%	107%	102%	11%	13%	16%	61%	70%	55%	11%	12%	15%	12%	12%	18%	
	3 SH1/Ihakara Street	1023	73%	78%	76%	110%	106%	102%				67%	79%	47%							
	4 SH1/Kapiti Road	1037	105%	103%	104%	113%	112%	118%	39%	39%	38%	84%	104%	104%	35%	35%	33%	52%	41%	45%	
	5 SH1/Otaihanga Road	2002	60%	44%	67%	116%	112%	135%				83%	64%	80%				107%	92%	106%	
	6 SH1/Te Moana Road	2008	69%	46%	88%	97%	58%	111%				40%	49%	104%				41%	29%	41%	
	7 SH1/Elizabeth Street	2009	86%	74%	73%	74%	91%	81%				61%	83%	83%				62%	64%	87%	
	8 Kapiti Road/Rimu Road	1038	55%	76%	101%	80%	101%	100%	91%	101%	102%	81%	100%	101%	89%	102%	102%	100%	102%	104%	
	9 Kapiti Road/Arawhata Road	1043	61%	77%	91%	102%	103%	109%	82%	90%	102%	101%	103%	106%	73%	89%	104%	76%	89%	104%	
	10 Kapiti Road/Te Roto Dr	1061	39%	61%	85%	60%	88%	100%	82%	91%	106%	64%	81%	101%	68%	91%	101%	78%	92%	102%	
	11 Kapiti Road/Airport accesses (Aerodrome)	8061				57%	64%	71%	54%	59%	81%	53%	63%	72%	56%	58%	77%	52%	59%	82%	
	12 Kapiti Road/Airport accesses (Langdale)	1067				50%	56%	58%	51%	62%	82%	44%	75%	94%	42%	39%	85%	47%	43%	85%	
	13 Kapiti Road/Airport accesses (Hurley)	1078				9%	13%	40%	8%	8%	12%	9%	13%	19%	8%	9%	11%	9%	9%	12%	
	14 WLR/Poplar Avenue	8070							31%	24%	38%	39%	24%	49%	30%	22%	34%	27%	21%	37%	
	15 WLR/Raumati Road (S)	4001							71%	76%	102%				71%	80%	102%	69%	76%	102%	
	16 WLR/Raumati Road (N)	9502							96%	99%	104%				93%	94%	104%	88%	100%	104%	
	17 WLR/Ihakara street (T-Signal)	5101							38%	43%	85%				38%	41%	82%	31%	41%	83%	
	18 WLR/Ihakara street (Roundabout)	9520							9%	15%	30%				8%	14%	30%	8%	15%	31%	
	19 WLR/Kapiti Road	4002							62%	79%	94%				59%	76%	95%	57%	77%	97%	
	20 WLR/Te Roto	5104																			
	21 WLR/Mazengarb Road	4003																			
	22 WLR/Otaihanga Road	4004											86%	40%	64%			112%	103%	117%	
	23 WLR/Te Moana Road	4005																			
	24 WLR/SH1 (Peka Peka)	2073										37%	32%	52%				39%	27%	43%	
	25 Expressway/Poplar Avenue	1002								34%	27%	44%				33%	26%	41%	32%	26%	45%
	26 Expressway/Otaihanga Road	2002								58%	40%	59%				29%	21%	33%			
	27 Expressway/Te Moana	3022								91%	67%	90%				91%	67%	90%			
	28 Expressway/Elizabeth	2009								20%	21%	25%				20%	21%	27%			
	29 Rimu Road/Ihakara Road	1022		21%	30%	32%	42%	94%	101%	41%	49%	68%	58%	60%	85%	41%	51%	83%	42%	48%	85%
	30 Rimu Road/Raumati Road	1020		21%	52%	104%	21%	33%	100%	28%	26%	41%	24%	27%	72%	28%	26%	41%	27%	26%	46%
	31 Mazengarb Road/Guildford	2000		20%	12%	19%	32%	20%	24%	33%	24%	34%	34%	21%	30%	35%	24%	46%	33%	24%	34%
Intersections	Overall volume/capacity ratios (intersection average VC ratio)	node no.																			
	1 SH1/Poplar Avenue	1002	30%	26%	38%	31%	28%	37%	36%	28%	37%	39%	30%	41%	34%	27%	35%	33%	26%	37%	
	2 SH1/Raumati Road	1021	25%	23%	32%	33%	27%	37%	8%	10%	12%	19%	20%	24%	8%	10%	11%	9%	10%	12%	
	3 SH1/Ihakara Street	1023	30%	28%	39%	46%	39%	40%				22%	27%	28%							
	4 SH1/Kapiti Road	1037	64%	60%	67%	101%	81%	86%	38%	39%	38%	61%	59%	58%	32%	33%	31%	46%	40%	44%	
	5 SH1/Otaihanga Road	2002	46%	37%	50%	78%	62%	81%				44%	38%	50%				43%	33%	45%	
	6 SH1/Te Moana Road	2008	27%	25%	30%	43%	37%	45%				33%	26%	31%				32%	25%	31%	
	7 SH1/Elizabeth Street	2009	51%	51%	55%	66%	61%	69%	21%	19%	23%	45%	44%	48%	23%	20%	25%	45%	40%	42%	
	8 Kapiti Road/Rimu Road	1038	50%	76%	87%	43%	47%	51%	47%	47%	44%	44%	38%	40%	40%	42%	36%	48%	48%	46%	
	9 Kapiti Road/Arawhata Road	1043	28%	36%	42%	94%	92%	103%	70%	76%	89%	82%	82%	100%	66%	74%	84%	69%	74%	81%	
	10 Kapiti Road/Te Roto Dr	1061	21%	29%	34%	34%	40%	40%	39%	44%	55%	34%	39%	48%	36%	43%	51%	38%	44%	54%	
	11 Kapiti Road/Airport accesses (Aerodrome)	8061				32%	39%	47%	30%	38%	55%	29%	35%	46%	29%	36%	53%	31%	37%	55%	
	12 Kapiti Road/Airport accesses (Langdale)	1067				28%	35%	41%	28%	37%	60%	28%	33%	45%	26%	28%	58%	29%	33%	59%	
	13 Kapiti Road/Airport accesses (Hurley)	1078				7%	9%	15%	5%	6%	9%	6%	9%	12%	5%	6%	8%	6%	6%	8%	
	14 WLR/Poplar Avenue	8070							28%	23%	39%	34%	22%	39%	27%	22%	36%	25%	21%	37%	
	15 WLR/Raumati Road (S)	4001							35%	36%	51%				35%	37%	51%	34%	36%	51%	
	16 WLR/Raumati Road (N)	9502							38%	38%	50%				37%	37%	50%	35%	36%	49%	
	17 WLR/Ihakara street (T-Signal)	5101							34%	33%	72%				34%	32%	67%	30%	31%	71%	
	18 WLR/Ihakara street (Roundabout)	9520							6%	10%	25%				6%	10%	24%	6%	10%	25%	
	19 WLR/Kapiti Road	4002							39%	44%	57%				36%	42%	55%	39%	42%	57%	
	20 WLR/Te Roto	5104																			
	21 WLR/Mazengarb Road	4003																			
	22 WLR/Otaihanga Road	4004											29%	21%	33%			39%	33%	38%	
	23 WLR/Te Moana Road	4005																			
	24 WLR/SH1 (Peka Peka)	2073											39%	32%	44%			25%	21%	27%	
	25 Expressway/Poplar Avenue	1002								34%	27%	36%				33%	26%	34%	30%	25%	35%
	26 Expressway/Otaihanga Road	2002								32%	26%	36%				22%	15%	21%			
	27 Expressway/Te Moana	3022								34%	24%	32%				34%	24%	29%			
	28 Expressway/Elizabeth	2009								21%	19%	23%				23%	20%	25%			
	29 Rimu Road/Ihakara Road	1022		18%	27%	24%	43%	76%	96%	27%	45%	75%	40%	55%	77%	27%	47%	78%	28%	44%	81%
	30 Rimu Road/Raumati Road	1020		16%	19%	27%	22%	32%	91%	19%	26%	39%	21%	27%	62%	19%	28%	38%	21%	27%	41%
	31 Mazengarb Road/Guildford	2000		18%	12%	16%	25%	17%	25%	28%	20%	34%	27%	18%	29%	30%	21%	42%	28%	20%	33%



Forecast year 2026			2006 - Based			Do Minimum			Option 1 Upgrade the Existing SH1 Alignment			Option 2 Expressway Follows WLR Designation			Option 3 Expressway Follows Rail Corridor			Option 4 Expressway Avoids Future Town Centres		
Level	Performance Measure	Units	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak	AM Peak	Inter Peak	PM Peak
Network	Network average travel speed	kms/hr	53.1	53.2	50.0	39.2	41.0	33.4	52.0	50.0	45.9	52.3	50.9	47.2	51.9	49.3	45.2	47.0	49.1	43.7
	Total trips assigned	pcus	8437	9114	10909	13141	13814	17298	13141	13814	17298	13141	13814	17298	13141	13814	17298	13141	13814	17298
	total vehicle distance	pcu-kms	46049.4	42105.8	53888.6	71494.0	65298.5	84137.5	73352.6	67607.4	88284.2	74397.1	68128.5	89560.3	72862.7	66978.0	87556.9	72699.4	68447.8	89087.6
	total travel time	pcu-hrs	867.1	790.9	1077.8	1825.5	1593.1	2516.4	1409.9	1351.7	1924.9	1423.4	1337.5	1898.8	1403.2	1358.1	1938.5	1545.5	1394.4	2038.0
	total delayed time	pcu-hrs	35.7	25.7	59.0	109.8	71.1	126.9	23.9	14.1	32.7	38.7	24.2	47.7	21.1	13.9	31.8	19.8	11.4	24.2
	total queued time	pcu-hrs	109.7	99.0	158.0	560.5	457.5	979.0	221.4	220.2	427.1	242.8	231.8	425.1	203.2	216.7	433.0	391.0	264.2	550.1
Intersections	Overall volume/capacity ratios (worst turning movement)	node no.																		
	1 SH1/Poplar Avenue	1002	101%	50%	68%	130%	104%	103%	65%	51%	79%	51%	38%	54%	63%	50%	71%	67%	54%	86%
	2 SH1/Raumati Road	1021	96%	81%	82%	123%	108%	108%	11%	13%	17%	102%	94%	84%	11%	13%	15%	13%	14%	18%
	3 SH1/Ihakara Street	1023	73%	78%	76%	114%	104%	107%				85%	89%	69%						
	4 SH1/Kapiti Road	1037	105%	103%	104%	117%	109%	121%	47%	42%	46%	100%	104%	105%	41%	40%	43%	54%	47%	53%
	5 SH1/Otaihanga Road	2002	60%	44%	67%	123%	116%	163%				103%	84%	97%				109%	104%	114%
	6 SH1/Te Moana Road	2008	69%	46%	88%	64%	55%	68%				48%	57%	109%				45%	35%	47%
	7 SH1/Elizabeth Street	2009	86%	74%	73%	84%	80%	83%				71%	100%	95%				70%	73%	62%
	8 Kapiti Road/Rimu Road	1038	55%	76%	101%	82%	100%	109%	100%	103%	104%	98%	100%	101%	100%	103%	103%	102%	104%	104%
	9 Kapiti Road/Arawhata Road	1043	61%	77%	91%	103%	104%	110%	83%	100%	105%	101%	103%	108%	78%	99%	106%	76%	95%	105%
	10 Kapiti Road/Te Roto Dr	1061	39%	61%	85%	64%	86%	96%	87%	94%	104%	68%	87%	101%	76%	94%	102%	82%	92%	103%
	11 Kapiti Road/Airport accesses (Aerodrome)	8061				53%	61%	82%	52%	60%	95%	50%	62%	72%	52%	59%	83%	50%	60%	93%
	12 Kapiti Road/Airport accesses (Langdale)	1067				49%	50%	49%	51%	60%	101%	35%	82%	95%	47%	46%	100%	48%	60%	100%
	13 Kapiti Road/Airport accesses (Hurley)	1078				10%	13%	31%	9%	9%	14%	10%	14%	22%	8%	9%	13%	9%	9%	15%
	14 WLR/Poplar Avenue	8070							35%	25%	39%									
	15 WLR/Raumati Road (S)	4001							78%	83%	102%									
	16 WLR/Raumati Road (N)	9502							99%	101%	104%									
	17 WLR/Ihakara street (T-Signal)	5101							40%	48%	89%									
	18 WLR/Ihakara street (Roundabout)	9520							9%	17%	34%									
	19 WLR/Kapiti Road	4002							70%	80%	99%									
	20 WLR/Te Roto	5104																		
	21 WLR/Mazengarb Road	4003																		
	22 WLR/Otaihanga Road	4004										102%	55%	84%				125%	111%	117%
	23 WLR/Te Moana Road	4005																		
	24 WLR/SH1 (Peka Peka)	2073										44%	31%	34%				43%	31%	49%
	25 Expressway/Poplar Avenue	1002							37%	28%	45%									
	26 Expressway/Otaihanga Road	2002							65%	46%	66%									
	27 Expressway/Te Moana	3022							103%	99%	104%									
	28 Expressway/Elizabeth	2009							22%	22%	29%									
	29 Rimu Road/Ihakara Road	1022	21%	30%	32%	47%	97%	115%	44%	70%	111%	79%	71%	100%	45%	73%	118%	46%	74%	127%
	30 Rimu Road/Raumati Road	1020	21%	52%	104%	24%	37%	101%	29%	28%	41%	35%	37%	101%	29%	28%	43%	29%	29%	45%
	31 Mazengarb Road/Guildford	2000	20%	12%	19%	33%	22%	26%	33%	26%	36%	38%	22%	32%	36%	26%	54%	36%	26%	36%
Intersections	Overall volume/capacity ratios (intersection average VC ratio)	node no.																		
	1 SH1/Poplar Avenue	1002	30%	26%	38%	32%	29%	37%	38%	29%	38%	38%	33%	41%	37%	28%	36%	36%	28%	38%
	2 SH1/Raumati Road	1021	25%	23%	32%	33%	31%	40%	8%	10%	12%	22%	22%	28%	9%	10%	11%	9%	11%	13%
	3 SH1/Ihakara Street	1023	30%	28%	39%	46%	44%	42%				26%	29%	32%						
	4 SH1/Kapiti Road	1037	64%	60%	67%	109%	96%	81%	43%	41%	45%	72%	65%	67%	37%	37%	39%	49%	47%	51%
	5 SH1/Otaihanga Road	2002	46%	37%	50%	88%	70%	87%				53%	44%	57%				44%	39%	53%
	6 SH1/Te Moana Road	2008	27%	25%	30%	50%	40%	50%				39%	29%	35%				36%	30%	35%
	7 SH1/Elizabeth Street	2009	51%	51%	55%	72%	69%	74%	24%	21%	27%	53%	49%	53%	25%	22%	29%	50%	47%	51%
	8 Kapiti Road/Rimu Road	1038	50%	76%	87%	45%	50%	55%	50%	50%	47%	48%	42%	46%	46%	42%	39%	51%	51%	52%
	9 Kapiti Road/Arawhata Road	1043	28%	36%	42%	94%	96%	104%	73%	83%	86%	83%	87%	102%	68%	81%	84%	67%	76%	86%
	10 Kapiti Road/Te Roto Dr	1061	21%	29%	34%	36%	37%	39%	42%	46%	59%	33%	42%	48%	39%	45%	56%	40%	45%	61%
	11 Kapiti Road/Airport accesses (Aerodrome)	8061				31%	37%	46%	31%	39%	60%	27%	36%	46%	31%	37%	58%	31%	39%	61%
	12 Kapiti Road/Airport accesses (Langdale)	1067				29%	34%	40%	29%	39%	72%	27%	34%	46%	28%	32%	71%	29%	38%	71%
	13 Kapiti Road/Airport accesses (Hurley)	1078				7%	8%	20%	6%	7%	10%	6%	9%	16%	6%	6%	9%	6%	7%	10%
	14 WLR/Poplar Avenue	8070							31%	25%	41%	12%	9%	13%				28%	23%	40%
	15 WLR/Raumati Road (S)	4001							38%	40%	52%							36%	38%	52%
	16 WLR/Raumati Road (N)	9502							39%	40%	51%							37%	39%	50%
	17 WLR/Ihakara street (T-Signal)	5101							35%	36%	74%							32%	35%	78%
	18 WLR/Ihakara street (Roundabout)	9520							6%	12%	29%							6%	12%	29%
	19 WLR/Kapiti Road	4002							43%	46%	59%							40%	44%	59%
	20 WLR/Te Roto	5104																		
	21 WLR/Mazengarb Road	4003																		
	22 WLR/Otaihanga Road	4004										33%	24%	35%				40%	36%	38%
	23 WLR/Te Moana Road	4005																		
	24 WLR/SH1 (Peka Peka)	2073										27%	23%	30%				28%	23%	30%
	25 Expressway/Poplar Avenue	1002							36%	27%	36%							33%	27%	36%
	26 Expressway/Otaihanga Road	2002							36%	30%	40%									
	27 Expressway/Te Moana	3022							41%	29%	36%									
	28 Expressway/Elizabeth	2009							24%	21%	27%									
	29 Rimu Road/Ihakara Road	1022	18%	27%	24%	50%	81%	97%	30%	64%	86%	46%	68%	84%	31%	67%	84%	31%	65%	92%
	30 Rimu Road/Raumati Road	1020	16%	19%	27%	25%	39%	98%	20%	28%	40%	32%	39%	79%	20%	29%	40%	21%	29%	41%
	31 Mazengarb Road/Guildford	2000	18%	12%	16%	28%	19%	26%	31%	22%	35%	31%	19%	33%	33%	23%	45%	31%	22%	33%



	Option 1	Option 2	Option 3	Option 4
Description	NPV Benefits (\$ Millions)	NPV Benefits (\$ Millions)	NPV Benefits (\$ Millions)	NPV Benefits (\$ Millions)
Travel Time	107.0	166.1	131.5	131.8
Congestion Relief	28.2	40.5	34.7	34.2
Vehicle Operating	12.8	11.2	20.1	4.7
Accidents (5%)	7.4	10.9	9.4	8.5
Carbon Dioxide (4% of VOC)	0.5	0.4	0.8	0.2
Total NPV Benefits	155.9	229.2	196.5	179.4