



WTSM 2013 Update

TN13 – WPTM Model Calibration

Final Version

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April 2016

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1. Introduction

The 2011 Wellington Transport Strategy Model (WTSM) and Wellington Public Transport Model (WPTM) have been updated to a 2013 base year by Greater Wellington Regional Council (GWRC) and Traffic Design Group (TDG). The re-calibration of WTSM and WPTM is documented in a series of technical notes written over the course of the project.

Population, household and employment forecasts for the Wellington region were developed and are outlined in TN12. The WTSM model testing is reported in TN11. This technical note details the WPTM testing and compares / validates growth against its parent model, WTSM.

Public transport demands from WTSM are applied to WPTM where they are assigned onto WPTM's more refined zone structure. This report seeks to confirm that forecast demands are being applied correctly into WPTM as a result of this recalculation process.

2. PT Demand Growth Validation

As with the 2011 WTSM/WPTM model the growth procedures are validated by demonstrating that the growth is correctly transferred from the WTSM matrices into WPTM at the correct proportions¹.

Some differences in growth rates/proportions between the two models is expected as the WTSM base demand is generated from synthetic means, whereas the WPTM base demand is fully observed, generated by surveys and bus ticket machine data.

However, at a high level, both models should have similar growth rates and should show that growth is spatially distributed in a similar manner.

Table 1 summarises the application of growth rates between WTSM and WPTM for the year 2023 showing the total PT trips in each model in both the base and forecast year models. WTSM has 10% more trips in both the base and forecast year. Growth between the base and forecast years is 13.7% and 14.6% for WTSM and WPTM respectively, indicating a similar level of growth is being applied.

Table 1: Summary of Growth (AM, 2013 to 2023, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	30,900	35,200	4,300	13.9%
WPTM	28,000	32,000	4,000	14.3%
WTSM / WPTM	1.10	1.10		-0.4%

Comparing this to the validation of the 2011 growth process, as detailed in **Table 2**, shows that both the 2013 growth process, like the 2011 process, results in WTSM growth rates being accurately applied to WPTM.

¹ WTSM 2011 Update: TN20 WPTM Forecasting - <http://www.gw.govt.nz/assets/Transport/Transport-models/TN20-WPTM-Forecasting-FINAL.pdf>

Table 2: Previous Model Summary of Growth (AM, 2011 to 2021, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	29,700	34,900	5,200	17.5%
WPTM	27,800	32,700	4,900	17.6%
WTSM / WPTM	1.07	1.07		-0.1%

AM demand growth in WTSM and WPTM for 2013 to 2023 are summarised by Territorial Authority (TA) within Appendix A in **Table 15** (work), **Table 16** (education), **Table 17** (other) and **Table 18** (all purposes combined).

Table 3 and **Table 4** compare the WTSM and WPTM application of growth for 2033 and 2043 respectively.

Both forecast years have a similar match between WTSM and WPTM compared with 2023, showing that growth is being applied accurately for all future year scenarios.

The percentage change in trips is similar for 2033 where WTSM trips increase by 20.4% and WPTM increase by 19.6%, noting that for the 2023 comparison it was WPTM which had the greater trip increase. For the 2043 forecast year WTSM PT trips increase by 27.2% compared to the 26.1% increase which occurs in WPTM.

Table 3: Summary of Growth (AM, 2013 to 2033, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	30,900	37,200	6,300	20.4%
WPTM	28,000	33,500	5,500	19.6%
WTSM / WPTM	1.10	1.11		0.7%

Table 4: Summary of Growth (AM, 2013 to 2043, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	30,900	39,300	8,400	27.2%
WPTM	28,000	35,300	7,300	26.1%
WTSM / WPTM	1.10	1.11		1.1%

Interpeak (IP) growth between 2013 and 2023 is compared in **Table 5** between WTSM and WPTM. Note that WTSM stores the IP values as 6 hour values rather than the 2 hour average of that 6 hour period as is modelled. Due to this, factored WTSM values are also included in the tables.

The application of growth in the IP, is similar between the two models with WTSM having an increase of 10.3% compared with an increase of 14.0% in WPTM. This shows a growth difference of -3.6% between WTSM and WPTM, whilst this is not as close of a match as the AM period, it is still considered an acceptable match and similar to that of the 2011 model.

Table 5: Summary of Growth (IP, 2013 to 2023, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	14,500	16,000	1,500	10.3%
Factored WTSM	4,833	5,333	500	10.3%
WPTM	4,300	4,900	600	14.0%
Factored WTSM/WPTM	1.12	1.09		-3.6%

Table 6 and **Table 7** compare the application of growth between WTSM and WPTM in the interpeak for 2033 and 2043 respectively. The analysis shows that, similar to 2023, while not as good of a match as the AM period, IP WTSM growth is considered to be applied successfully to WPTM.

Table 6: Summary of Growth (IP, 2013 to 2033, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	14,500	16500	2000	13.8%
Factored WTSM	4,833	5500	667	13.8%
WPTM	4,300	5000	700	16.3%
Factored WTSM/WPTM	1.12	1.10		-2.5%

Table 7: Summary of Growth (IP, 2013 to 2043, all segments)

PT Matrix	Base	Test	Change	Change %
WTSM	14,500	17,100	2,600	17.9%
Factored WTSM	4,833	5,700	867	17.9%
WPTM	4,300	5,300	1,000	23.3%
Factored WTSM/WPTM	1.12	1.08		-5.3%

A detailed breakdown of growth comparisons by trip purpose is included in Appendix A.

3. Wellington Station Alighting and Transfers

Figure 1 shows the AM period WPTM alighting and transfers at Wellington Rail station in 2023. This shows that 7767 passengers alight at Wellington Rail Station and walk to their final destination, with 7551 (7102 + 449) alighting from rail services and transferring onto another bus service.

Comparable base year data, as included in **Figure 2**, shows that 9111 passengers alight at Wellington Station and walk to their final destination, with a further 2171 transferring onto a bus to reach their final destination.

Table 8 summarises the 2013 and 2023 boarding, alighting and transfers values for the AM period as modelled by WPTM.

Table 8: Wellington Station Boarding, Alighting and Transfers (AM period)

	2013	2023
Initial Boardings	103.1	120.2
Transfer Boardings	248.5	271.0
Transfer Alightings	2171.1	7551.1 (448.7 + 7102.4)
Final Alightings	9111.1	7766.7

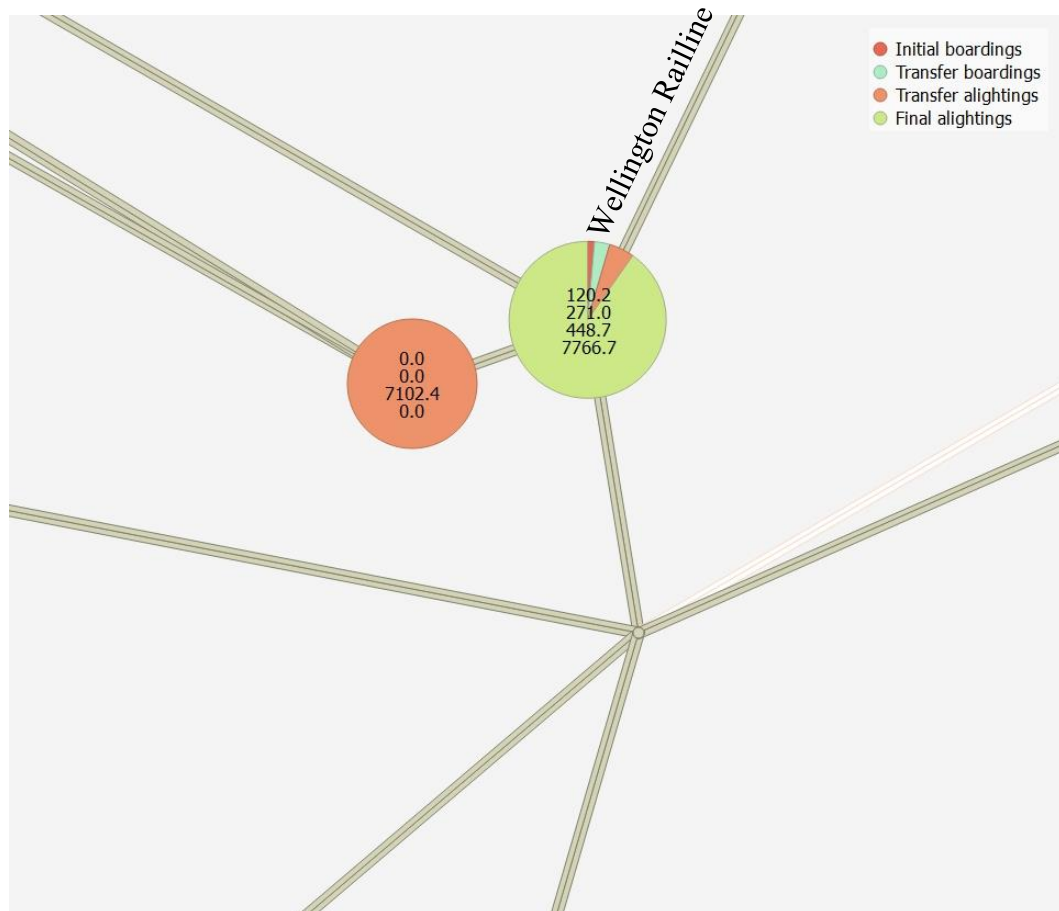


Figure 1: Wellington Station Boarding, Alighting and Transfers (AM, 2023)

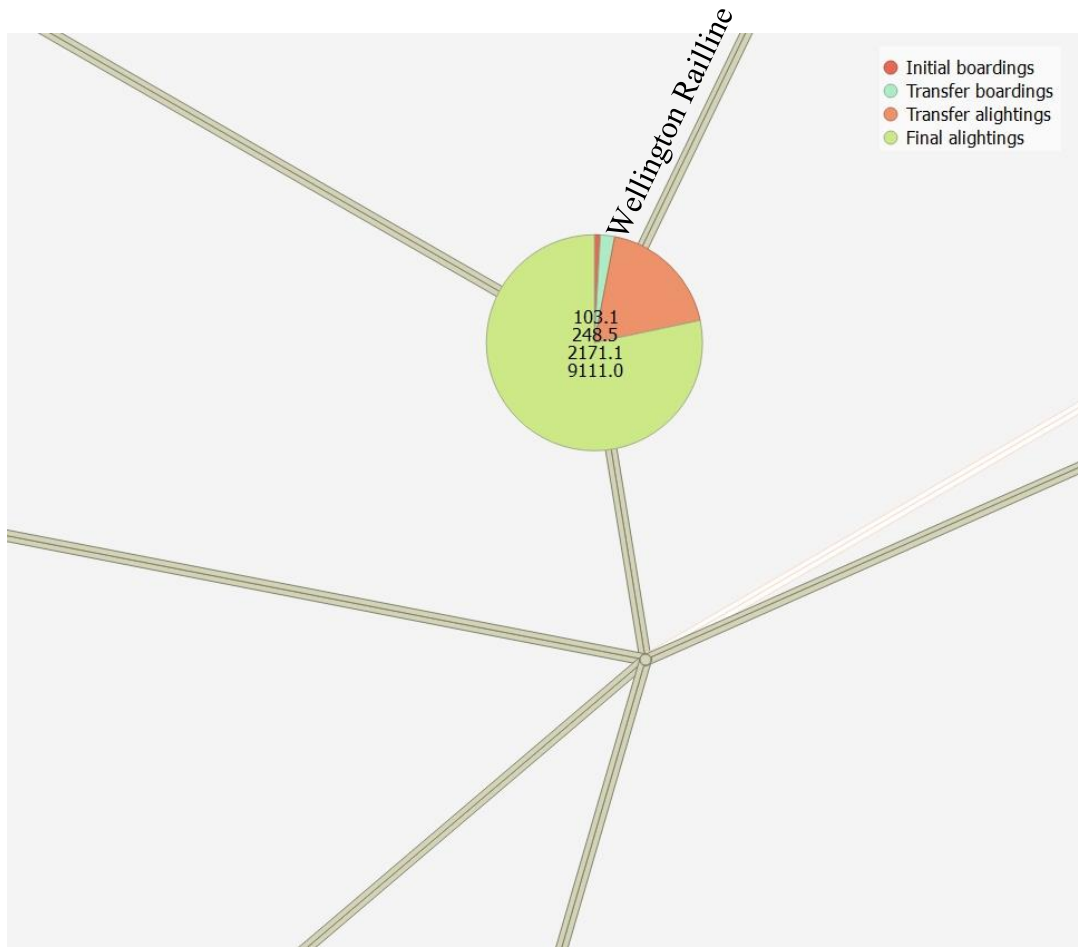


Figure 2: Wellington Station Boarding, Alighting and Transfers (AM, 2013)

Around 50% of passengers transfer from rail services to onwards bus services in 2023. This is a much higher percentage than in the 2013 base model (~20%) that was itself calibrated to observed data that showed that around 15% of persons alighting from rail services at Wellington Station and catching a bus for their onwards journey to their final destination.

The higher level of rail to bus transfer compared with the base model is a result of the introduction of integrated ticketing, which allows passengers to effectively transfer for free between rail and bus services (or any two PT services for that matter).

When utilising WTSM and WPTM 2013 forecast outputs, GWRC and appointed consultants should consider whether it is realistic to expect that the percentage of rail transfer trips would increase from 20% to 50% as a result of integrated ticketing.

4. PT Screenlines

Having demonstrated previously that the growth is being correctly applied at a demand matrix level, this section seeks to confirm that the demands are correctly assigning to the network. Assigned transit volumes across screenlines are compared for WPTM in the forecast years against WTSM in the same forecast years to demonstrate that the changes in patronage are broadly similar between both models. The screenline locations are as indicated in **Figure 3**, these locations tying in with the annual bus cordon surveys.



Figure 3: Wellington CBD Screenline Locations

The screenlines have been broken down into north, east, south and west quadrants. The North Screenline crosses the following locations:

- Rail Line,
- Molesworth Street,
- Mulgrave Street,
- Thorndon Quay, and
- Waterloo Quay

The West Screenline crosses the following locations:

- Bowen Street,
- Cable Car Line,
- Kelburn Parade, and
- Aro Street

The South Screenline crosses the following locations:

- Ohiro Road,
- Brooklyn Road,
- Wallace Street,
- Tasman Street, and
- Adelaide Road

The East Screenline crosses the following locations:

- Mt Victoria Tunnel,
- Hataitai Bus Tunnel,
- Hawker Street, and
- Oriental Parade

Table 9 compares the AM peak PT passenger volumes between WTSM and WPTM summarised across the four screenlines, for the base year and three forecast years.

The inbound totals generally show a good match between WTSM and WPTM and generally similar trends are seen between the two models into the forecast years. The exception is the north screenline in 2023 where, WPTM is showing 1290 less PT trips than WTSM. Forecast rail volumes are lower in WPTM than WTSM, whereas bus volumes are higher, which suggests that PT users are shifting between rail and bus during assignment of the two models. Differences between WTSM and WPTM rail and bus assignment is investigated in the next section.

Table 9: Comparison of WTSM and WPTM Screenline Volumes Entering CBD

Screenline	2013			2023			2033			2043		
	WTSM	WPTM	Diff	WTSM	WPTM	Diff	WTSM	WPTM	Diff	WTSM	WPTM	Diff
North Rail	11280	11280	0	17750	15320	-2430	15940	15020	-920	15900	14850	-1050
North Bus	2420	2670	250	2000	3140	1140	2120	2720	600	2320	2920	600
North Total	13700	13950	250	19750	18460	-1290	18060	17740	-320	18220	17770	-450
West	1310	1460	150	1670	1680	10	1590	1560	-30	1660	1640	-20
South	2670	2630	-40	3130	3140	10	3050	3000	-50	3160	3190	30
East	2210	2010	-200	2950	2730	-220	2910	2620	-290	3310	2810	-500
Total	19890	20050	160	27500	26010	-1490	25610	24920	-690	26350	25410	-940

A detailed breakdown of PT volumes across screenlines is included in Appendix B.

5. PT Line Usage

On several corridors into Wellington, such as between Johnsonville and the Hutt Valley, modal choice exists between bus and rail.

As WPTM and WTSM have difference zone systems, representations of PT costs and base levels of demand, it is to be expected that modal choice will differ between the two models.

The analysis presented in this section looks at differences in rail and bus passenger volumes by line and origin between the two models for the base year and various forecast years.

Table 10 presents the rail passenger volumes entering and exiting Wellington Station in both WTSM and WPTM.

Table 10: WTSM and WPTM Rail Passenger Volumes Entering Wellington Station, AM peak

Rail Service	2013		2023		2033		2043	
	WTSM	WPTM	WTSM	WPTM	WTSM	WPTM	WTSM	WPTM
Hutt	4979	4279	6880	5202	6227	5243	5821	4845
Johnsonville	1180	945	3013	1859	2451	1855	2710	1973
Kapiti	4143	4578	6416	6315	5983	6078	6181	6248
Wairarapa	243	328	219	396	211	366	223	368
Total	10546	10131	16529	13771	14873	13543	14936	13434

The absolute passenger increases in the forecast years for both WTSM and WPTM are shown **Table 11**. Across most of the lines and forecast years, WTSM has a higher absolute change in passenger volumes. WTSM generally shows a greater increase in PT patronage compared to WPTM, particularly in the 2023 forecast.

Table 11: WTSM and WPTM Rail Passenger Volume Growth (relative to 2013) Entering Wellington Station, AM peak

Rail Service	2023			2033			2043		
	WTSM	WPTM	Diff	WTSM	WPTM	Diff	WTSM	WPTM	Diff
Hutt	1901	923	978	1247	964	284	842	566	276
Johnsonville	1833	914	919	1271	910	361	1530	1028	502
Kapiti	2273	1737	536	1840	1500	340	2038	1670	368
Wairarapa	-24	67	-91	-32	38	-70	-20	40	-60
Total	5982	3641	2341	4326	3412	914	4390	3303	1087

This section has shown that the rail line usage into and out of Wellington is much lower in WPTM compared to WTSM.

As the forecast growth between the two models is relatively similar, as outlined in **Section 2**, this suggests that rail passengers may be using alternative means to enter the Wellington CBD.

Table 12 shows bus passenger volumes entering Wellington in WTSM and WPTM on two arterials – Hutt Road and SH1 (Ngauranga Gorge). Across all forecast years WPTM has higher bus passengers than WTSM.

Table 12: WTSM Bus Passengers Entering Wellington, AM peak

Location	2013		2023		2033		2043	
	WTSM	WPTM	WTSM	WPTM	WTSM	WPTM	WTSM	WPTM
SH1	390	459	211	434	228	432	251	439
Hutt Road	1916	2139	1590	2483	1729	2183	1888	2345

Table 13 shows the absolute change in bus passenger volumes between the base and forecast years in both WTSM and WPTM. Bus passenger volumes heading towards Wellington using Hutt Road decrease in WTSM but increase in WPTM, suggesting that the bus remains attractive for certain journeys in WPTM compared with WTSM, where bus volumes decline.

Bus passengers on Hutt Road mostly originate from the Johnsonville/Newlands area, with small proportion originating from the Hutt Valley.

Table 13: WTSM and WPTM Forecast Passenger Changes from Base Year, AM peak

Location	WTSM			WPTM		
	2023	2033	2043	2023	2033	2043
SH1	-179	-161	-139	-25	-26	-20
Hutt Road	-326	-187	-28	344	45	206

The absolute difference in bus passenger volumes between WTSM and WPTM is shown in **Table 14**, with a positive value implying that WTSM volumes are greater than WPTM volumes.

Table 14: WPTM vs WTSM Comparison of changes in bus passenger volumes, AM peak

Location	2013	2023	2033	2043
SH1	69	223	204	188
Hutt Road	223	893	455	457

This shows that the difference between WPTM and WTSM increases through time, confirming that modal shift from bus to rail for trips from Johnsonville / Wellington’s northern suburbs in WTSM is far less pronounced in WPTM.

This, together with analysis presented previously in this report, suggests that there is a bias towards rail on the Johnsonville line in the mode split part of WTSM under future scenarios that included population growth in North Wellington and integrated ticketing.

When utilising WTSM and WPTM 2013 forecast outputs, GWRC and appointed consultants should consider whether this response to integrated ticketing is realistic. In particular the more pronounced modal shift from bus to rail in WPTM compared to WTSM.

PT passenger volume change plots are included in Appendix C.

6. Conclusions

From the analysis presented in this technical note it can be seen that:

- Growth is being correctly applied between WTSM and WPTM in the AM period and to a lesser extent in the IP period. AM and IP response is similar between WTSM and WPTM and also inline with the 2011 model indicating that the growth from WTSM is correctly being applied to WPTM.
- Integrated ticketing is implemented in the base forecast models from 2023 onward. This has the effect of increasing the rail to bus transfers at Wellington Station from 2171 to 7551 in 2023, a 347% increase.
- Generally a good match is seen between WTSM and WPTM across all PT screenlines in the CBD. Some differences are seen in the forecast years across the north screenline where the rail usage is low and bus usage high in WPTM compared to WTSM. This suggests that PT services are being assigned differently for PT users across the north screenline in WTSM and WPTM.
- The Johnsonville PT use has been compared in WPTM and WTSM, where users have a choice between rail and buses. This comparison suggests that there is a bias towards rail on the Johnsonville line in the mode split part of WTSM under future scenarios that included population growth in North Wellington and integrated ticketing that is less pronounced in WPTM.

This analysis indicates that the 2013 update of WPTM performs similarly to the previous 2011 version.

Appendix A: Growth Summaries

Table 15 Summary of growth – Work Purpose (AM, 2013 to 2023)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10372	199	34	123	32	3	10763
g102	Lower Hutt	3325	640	45	10	0	5	4025
g103	Upper Hutt	1153	124	129	3	0	10	1420
g104	Porirua	2035	21	1	220	8	0	2285
g105	Kapiti Coast	1303	9	1	73	113	0	1499
g106	Wairarapa	89	5	7	0	0	179	280
ALL		18277	998	217	430	153	198	20273

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10119	247	23	94	1	0	10484
g102	Lower Hutt	3592	565	157	1	0	0	4315
g103	Upper Hutt	809	112	76	0	0	0	998
g104	Porirua	1962	0	5	125	19	0	2111
g105	Kapiti Coast	972	0	0	42	62	0	1076
g106	Wairarapa	643	58	44	0	0	0	744
ALL		18096	981	306	262	82	0	19728

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	12375	256	46	146	34	5	12863
g102	Lower Hutt	3943	621	40	16	1	5	4626
g103	Upper Hutt	1514	133	124	5	0	9	1784
g104	Porirua	2530	29	2	211	11	0	2784
g105	Kapiti Coast	1372	11	1	48	121	0	1553
g106	Wairarapa	130	8	5	0	0	213	357
ALL		21864	1059	218	426	168	232	23967

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	12022	305	28	117	1	0	12474
g102	Lower Hutt	4152	541	123	2	0	0	4819
g103	Upper Hutt	1043	117	75	0	0	0	1236
g104	Porirua	2369	0	7	125	24	0	2525
g105	Kapiti Coast	1004	0	0	28	60	0	1092
g106	Wairarapa	643	58	44	0	0	0	744
ALL		21232	1021	278	273	86	0	22889

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	2003	58	12	23	2	2	2099
g102	Lower Hutt	618	-19	-5	6	1	0	601
g103	Upper Hutt	360	8	-5	2	0	-1	365
g104	Porirua	495	9	1	-9	3	0	499
g105	Kapiti Coast	69	3	0	-25	8	0	54
g106	Wairarapa	41	3	-2	0	0	34	76
ALL		3588	61	1	-4	14	35	3694

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1903	58	5	24	0	0	1990
g102	Lower Hutt	560	-24	-34	1	0	0	504
g103	Upper Hutt	234	5	-1	0	0	0	238
g104	Porirua	407	0	2	-1	5	0	414
g105	Kapiti Coast	32	0	0	-14	-2	0	16
g106	Wairarapa	0	0	0	0	0	0	0
ALL		3136	40	-28	10	3	0	3161

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	19%	29%	36%	18%	7%	47%	20%
g102	Lower Hutt	19%	-3%	-11%	55%	110%	6%	15%
g103	Upper Hutt	31%	7%	-4%	74%	129%	-12%	26%
g104	Porirua	24%	42%	68%	-4%	38%	42%	22%
g105	Kapiti Coast	5%	30%	-8%	-35%	7%	20%	4%
g106	Wairarapa	47%	55%	-29%	105%	156%	19%	27%
ALL		20%	6%	0%	-1%	9%	18%	18%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	19%	24%	22%	25%	-4%	0%	19%
g102	Lower Hutt	16%	-4%	-22%	106%	63%	0%	12%
g103	Upper Hutt	29%	4%	-1%	0%	142%	0%	24%
g104	Porirua	21%	0%	38%	-1%	27%	0%	20%
g105	Kapiti Coast	3%	0%	0%	-34%	-3%	0%	2%
g106	Wairarapa	0%	0%	0%	0%	0%	0%	0%
ALL		17%	4%	-9%	4%	4%	0%	16%

Table 16: Summary of Growth – Education Purpose (AM, 2013 to 2023)

WTSM Base								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3262	14	2	77	65	0	3419
gl02	Lower Hutt	902	915	63	31	42	0	1953
gl03	Upper Hutt	207	82	531	9	19	2	849
gl04	Porirua	127	1	0	542	203	0	874
gl05	Kapiti Coast	2	0	0	2	518	0	522
gl06	Wairarapa	224	83	81	14	23	73	498
ALL		4724	1095	677	675	870	75	8115

WPTM Base								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3419	69	7	46	0	0	3542
gl02	Lower Hutt	691	704	126	1	0	0	1521
gl03	Upper Hutt	120	89	160	0	0	0	369
gl04	Porirua	584	0	5	267	15	0	871
gl05	Kapiti Coast	113	0	0	39	115	0	267
gl06	Wairarapa	110	21	1	0	0	0	133
ALL		5037	883	300	353	131	0	6704

WTSM Future								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3737	24	3	95	70	0	3929
gl02	Lower Hutt	946	869	60	41	55	0	1970
gl03	Upper Hutt	232	76	500	12	17	0	838
gl04	Porirua	165	3	0	522	195	0	885
gl05	Kapiti Coast	2	0	0	2	538	0	542
gl06	Wairarapa	241	83	101	18	29	64	535
ALL		5323	1054	665	689	903	64	8699

WPTM Future								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3939	92	10	53	0	0	4094
gl02	Lower Hutt	721	682	113	1	0	0	1517
gl03	Upper Hutt	131	80	151	0	0	0	362
gl04	Porirua	730	0	5	256	15	0	1006
gl05	Kapiti Coast	126	0	0	45	118	0	289
gl06	Wairarapa	110	21	1	0	0	0	133
ALL		5757	875	281	355	134	0	7401

WTSM								
Growth		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	475	10	2	18	5	0	510
gl02	Lower Hutt	43	-46	-2	10	13	0	17
gl03	Upper Hutt	26	-6	-31	3	-1	-2	-12
gl04	Porirua	37	1	0	-20	-8	0	11
gl05	Kapiti Coast	1	0	0	-1	20	0	20
gl06	Wairarapa	17	0	20	4	5	-9	38
ALL		599	-41	-11	14	34	-11	584

WPTM								
Growth		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	519	23	3	7	0	0	552
gl02	Lower Hutt	30	-22	-13	1	0	0	-4
gl03	Upper Hutt	12	-9	-9	0	0	0	-7
gl04	Porirua	146	0	0	-11	0	0	135
gl05	Kapiti Coast	13	0	0	6	3	0	22
gl06	Wairarapa	0	0	0	0	0	0	0
ALL		719	-8	-19	2	4	0	697

WTSM								
%		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	15%	73%	110%	24%	7%	389%	103%
gl02	Lower Hutt	5%	-5%	-4%	31%	31%	75%	22%
gl03	Upper Hutt	12%	-7%	-6%	30%	-7%	-100%	-13%
gl04	Porirua	29%	85%	127%	-4%	-4%	2400%	439%
gl05	Kapiti Coast	44%	124%	188%	-21%	4%	0%	56%
gl06	Wairarapa	8%	0%	25%	29%	23%	-12%	12%
ALL		19%	45%	73%	15%	9%	459%	103%

WPTM								
%		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	15%	33%	37%	14%	136%	0%	39%
gl02	Lower Hutt	4%	-3%	-10%	59%	136%	0%	31%
gl03	Upper Hutt	10%	-11%	-6%	0%	424%	0%	70%
gl04	Porirua	25%	0%	1%	-4%	0%	0%	4%
gl05	Kapiti Coast	11%	0%	0%	14%	3%	0%	5%
gl06	Wairarapa	0%	0%	0%	0%	0%	0%	0%
ALL		11%	3%	4%	14%	117%	0%	25%

Table 17: Summary of Growth – Other Purpose (AM, 2013 to 2023)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1411	41	16	79	13	21	1581
g102	Lower Hutt	62	131	18	4	1	5	222
g103	Upper Hutt	28	9	78	2	1	1	118
g104	Porirua	109	4	5	285	22	22	445
g105	Kapiti Coast	14	1	1	10	76	12	115
g106	Wairarapa	11	2	1	7	4	50	75
ALL		1634	188	118	387	117	110	2555

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	951	23	0	19	0	0	993
g102	Lower Hutt	128	107	5	0	0	0	240
g103	Upper Hutt	28	28	12	0	0	0	68
g104	Porirua	72	0	0	26	0	0	97
g105	Kapiti Coast	62	0	0	6	35	0	103
g106	Wairarapa	18	8	4	0	0	0	30
ALL		1258	166	21	51	35	0	1532

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1390	42	18	82	14	21	1567
g102	Lower Hutt	67	115	20	4	1	4	212
g103	Upper Hutt	30	9	82	2	1	1	124
g104	Porirua	112	4	6	273	18	19	432
g105	Kapiti Coast	17	1	2	11	70	12	113
g106	Wairarapa	11	2	1	7	5	50	75
ALL		1627	173	128	379	109	108	2523

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1066	28	1	23	1	0	1119
g102	Lower Hutt	147	121	5	0	0	0	274
g103	Upper Hutt	36	37	13	0	0	0	85
g104	Porirua	89	0	0	28	0	0	117
g105	Kapiti Coast	75	0	0	6	40	0	122
g106	Wairarapa	18	8	4	0	0	0	30
ALL		1431	194	23	57	42	0	1746

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	-21	1	2	3	1	0	-13
g102	Lower Hutt	5	-16	2	0	0	-1	-10
g103	Upper Hutt	2	0	4	0	0	0	6
g104	Porirua	3	0	1	-11	-3	-3	-13
g105	Kapiti Coast	3	0	1	0	-6	0	-2
g106	Wairarapa	1	0	0	-1	0	1	0
ALL		-7	-15	9	-8	-8	-3	-32

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	116	5	1	4	1	0	126
g102	Lower Hutt	19	14	0	0	0	0	34
g103	Upper Hutt	7	9	1	0	0	0	17
g104	Porirua	17	0	0	2	0	0	19
g105	Kapiti Coast	13	0	0	0	5	0	19
g106	Wairarapa	0	0	0	0	0	0	0
ALL		173	28	2	6	7	0	214

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	-1%	3%	15%	3%	11%	0%	5%
g102	Lower Hutt	8%	-12%	10%	6%	-6%	-12%	-1%
g103	Upper Hutt	8%	0%	5%	18%	26%	-4%	9%
g104	Porirua	3%	3%	21%	-4%	-16%	-12%	-1%
g105	Kapiti Coast	19%	7%	42%	5%	-8%	2%	11%
g106	Wairarapa	5%	-10%	18%	-9%	4%	1%	1%
ALL		7%	-2%	18%	3%	2%	-4%	4%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	12%	21%	215%	19%	0%	0%	44%
g102	Lower Hutt	15%	13%	-3%	0%	231%	0%	43%
g103	Upper Hutt	26%	31%	8%	0%	1621%	0%	281%
g104	Porirua	24%	0%	0%	6%	0%	0%	5%
g105	Kapiti Coast	21%	0%	0%	0%	15%	0%	6%
g106	Wairarapa	0%	0%	0%	0%	0%	0%	0%
ALL		16%	11%	37%	4%	311%	0%	63%

Table 18: Summary of Growth – All Purposes Combined (AM, 2013 to 2023)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	15045	254	52	279	109	24	15763
g102	Lower Hutt	4290	1686	125	46	44	10	6200
g103	Upper Hutt	1388	215	738	14	20	13	2387
g104	Porirua	2271	26	6	1047	233	22	3604
g105	Kapiti Coast	1319	10	3	85	707	12	2136
g106	Wairarapa	323	90	89	21	28	302	853
ALL		24635	2281	1012	1492	1140	383	30943

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14489	339	31	159	1	0	15020
g102	Lower Hutt	4411	1375	288	2	0	0	6076
g103	Upper Hutt	957	229	249	0	0	0	1435
g104	Porirua	2617	0	10	418	34	0	3080
g105	Kapiti Coast	1147	0	0	88	212	0	1447
g106	Wairarapa	771	87	49	0	0	0	907
ALL		24391	2030	627	667	248	0	27964

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	17502	323	68	322	118	25	18359
g102	Lower Hutt	4956	1604	119	62	57	9	6808
g103	Upper Hutt	1776	217	705	20	18	10	2747
g104	Porirua	2806	36	8	1006	225	20	4101
g105	Kapiti Coast	1391	12	3	60	729	13	2208
g106	Wairarapa	382	92	107	25	33	327	967
ALL		28814	2286	1011	1494	1180	404	35189

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	17027	425	39	193	2	0	17686
g102	Lower Hutt	5020	1343	241	4	1	0	6610
g103	Upper Hutt	1209	233	239	1	0	0	1683
g104	Porirua	3187	1	12	408	39	0	3648
g105	Kapiti Coast	1205	0	0	79	219	0	1503
g106	Wairarapa	771	87	49	0	0	0	907
ALL		28419	2090	582	684	262	0	32037

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	2457	69	16	43	9	2	2596
g102	Lower Hutt	667	-82	-6	16	14	0	608
g103	Upper Hutt	388	2	-33	5	-1	-3	359
g104	Porirua	536	10	2	-41	-8	-2	497
g105	Kapiti Coast	72	3	1	-25	22	0	72
g106	Wairarapa	59	3	18	3	6	25	114
ALL		4179	5	-1	2	40	21	4246

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	2538	86	8	34	1	0	2667
g102	Lower Hutt	610	-32	-47	2	0	0	533
g103	Upper Hutt	252	4	-9	1	0	0	248
g104	Porirua	570	1	2	-10	5	0	568
g105	Kapiti Coast	58	0	0	-9	7	0	57
g106	Wairarapa	0	0	0	0	0	0	0
ALL		4028	60	-45	17	13	0	4073

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	16%	27%	32%	16%	8%	6%	18%
g102	Lower Hutt	16%	-5%	-4%	34%	31%	-3%	11%
g103	Upper Hutt	28%	1%	-4%	38%	-5%	-23%	6%
g104	Porirua	24%	39%	34%	-4%	-4%	-11%	13%
g105	Kapiti Coast	5%	28%	20%	-29%	3%	2%	5%
g106	Wairarapa	18%	3%	21%	16%	20%	8%	14%
ALL		18%	16%	16%	12%	9%	-3%	67%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	18%	25%	27%	21%	76%	0%	28%
g102	Lower Hutt	14%	-2%	-16%	101%	111%	0%	34%
g103	Upper Hutt	26%	2%	-4%	0%	506%	0%	88%
g104	Porirua	22%	0%	21%	-2%	15%	0%	9%
g105	Kapiti Coast	5%	0%	0%	-10%	3%	0%	0%
g106	Wairarapa	0%	0%	0%	0%	0%	0%	0%
ALL		14%	4%	5%	18%	118%	0%	27%

Table 19 Summary of growth – Work Purpose (AM, 2013 to 2033)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10372	199	34	123	32	3	10763
g102	Lower Hutt	3325	640	45	10	0	5	4025
g103	Upper Hutt	1153	124	129	3	0	10	1420
g104	Porirua	2035	21	1	220	8	0	2285
g105	Kapiti Coast	1303	9	1	73	113	0	1499
g106	Wairarapa	89	5	7	0	0	179	280
ALL		18277	998	217	430	153	198	20273

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10119	247	23	94	1	0	10484
g102	Lower Hutt	3592	565	157	1	0	0	4315
g103	Upper Hutt	809	112	76	0	0	0	998
g104	Porirua	1962	0	5	125	19	0	2111
g105	Kapiti Coast	972	0	0	42	62	0	1076
g106	Wairarapa	643	58	44	0	0	0	744
ALL		18096	981	306	262	82	0	19728

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	13387	358	51	172	37	6	14012
g102	Lower Hutt	4094	576	39	57	1	4	4772
g103	Upper Hutt	1613	133	119	11	0	7	1883
g104	Porirua	2671	45	3	201	12	0	2932
g105	Kapiti Coast	1483	14	1	48	121	0	1668
g106	Wairarapa	168	10	6	2	0	209	395
ALL		23416	1137	220	491	172	227	25662

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	12984	330	28	126	2	0	13470
g102	Lower Hutt	4452	526	123	6	0	0	5108
g103	Upper Hutt	1105	121	71	1	0	0	1298
g104	Porirua	2584	2	7	106	25	0	2723
g105	Kapiti Coast	1088	0	0	25	59	0	1173
g106	Wairarapa	563	56	41	0	0	0	660
ALL		22777	1034	271	265	86	0	24433

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3015	160	17	49	6	3	3249
g102	Lower Hutt	769	-64	-5	46	1	-1	747
g103	Upper Hutt	460	8	-10	8	0	-3	464
g104	Porirua	636	25	1	-19	4	0	646
g105	Kapiti Coast	180	5	0	-24	8	0	169
g106	Wairarapa	80	5	-1	2	0	30	115
ALL		5140	139	2	61	18	29	5390

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	2865	83	5	33	0	0	2986
g102	Lower Hutt	860	-39	-34	5	0	0	793
g103	Upper Hutt	296	9	-6	1	0	0	300
g104	Porirua	622	2	2	-19	6	0	612
g105	Kapiti Coast	116	0	0	-17	-3	0	97
g106	Wairarapa	-79	-2	-3	0	0	0	-84
ALL		4681	53	-35	3	3	0	4705

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	29%	80%	49%	40%	18%	81%	30%
g102	Lower Hutt	23%	-10%	-12%	450%	150%	-12%	19%
g103	Upper Hutt	40%	7%	-8%	249%	0%	-29%	33%
g104	Porirua	31%	119%	92%	-9%	45%	0%	28%
g105	Kapiti Coast	14%	63%	6%	-33%	7%	0%	11%
g106	Wairarapa	90%	96%	-13%	848%	0%	17%	41%
ALL		28%	14%	1%	14%	12%	15%	27%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	28%	34%	22%	35%	32%	0%	28%
g102	Lower Hutt	24%	-7%	-21%	459%	0%	0%	18%
g103	Upper Hutt	37%	8%	-8%	0%	0%	0%	30%
g104	Porirua	32%	0%	37%	-15%	30%	0%	29%
g105	Kapiti Coast	12%	0%	0%	-40%	-5%	0%	9%
g106	Wairarapa	-12%	-3%	-7%	0%	0%	0%	-11%
ALL		26%	5%	-12%	1%	4%	0%	24%

Table 20: Summary of Growth – Education Purpose (AM, 2013 to 2033)

WTSM Base								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3262	14	2	77	65	0	3419
gl02	Lower Hutt	902	915	63	31	42	0	1953
gl03	Upper Hutt	207	82	531	9	19	2	849
gl04	Porirua	127	1	0	542	203	0	874
gl05	Kapiti Coast	2	0	0	2	518	0	522
gl06	Wairarapa	224	83	81	14	23	73	498
ALL		4724	1095	677	675	870	75	8115

WPTM Base								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3419	69	7	46	0	0	3542
gl02	Lower Hutt	691	704	126	1	0	0	1521
gl03	Upper Hutt	120	89	160	0	0	0	369
gl04	Porirua	584	0	5	267	15	0	871
gl05	Kapiti Coast	113	0	0	39	115	0	267
gl06	Wairarapa	110	21	1	0	0	0	133
ALL		5037	883	300	353	131	0	6704

WTSM Future								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3864	47	5	89	80	0	4085
gl02	Lower Hutt	918	755	52	125	48	0	1898
gl03	Upper Hutt	239	74	454	27	17	0	810
gl04	Porirua	198	6	1	467	225	0	896
gl05	Kapiti Coast	3	0	0	2	540	0	545
gl06	Wairarapa	259	76	85	55	25	55	555
ALL		5480	957	597	764	936	55	8789

WPTM Future								
Trips		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	3877	98	10	51	1	0	4036
gl02	Lower Hutt	675	611	112	3	0	0	1401
gl03	Upper Hutt	127	79	144	0	0	0	351
gl04	Porirua	709	1	5	224	16	0	955
gl05	Kapiti Coast	121	0	0	41	116	0	278
gl06	Wairarapa	98	21	1	0	0	0	120
ALL		5606	810	272	319	134	0	7140

WTSM								
Growth		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	602	33	3	13	15	0	666
gl02	Lower Hutt	16	-160	-10	93	7	0	-55
gl03	Upper Hutt	33	-8	-77	18	-2	-2	-39
gl04	Porirua	70	4	0	-75	22	0	21
gl05	Kapiti Coast	1	0	0	-1	22	0	22
gl06	Wairarapa	35	-7	4	41	2	-18	57
ALL		756	-138	-80	89	66	-20	673

WPTM								
Growth		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	457	29	2	4	1	0	494
gl02	Lower Hutt	-16	-93	-14	2	0	0	-121
gl03	Upper Hutt	8	-10	-16	0	0	0	-18
gl04	Porirua	125	1	0	-43	1	0	84
gl05	Kapiti Coast	8	0	0	2	2	0	11
gl06	Wairarapa	-12	-1	0	0	0	0	-13
ALL		569	-73	-28	-35	3	0	436

WTSM								
%		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	18%	234%	199%	16%	24%	0%	19%
gl02	Lower Hutt	2%	-17%	-17%	298%	16%	0%	-3%
gl03	Upper Hutt	16%	-10%	-15%	189%	-11%	-100%	-5%
gl04	Porirua	55%	311%	0%	-14%	11%	0%	2%
gl05	Kapiti Coast	65%	0%	0%	-33%	4%	0%	4%
gl06	Wairarapa	15%	-9%	5%	302%	10%	-25%	11%
ALL		16%	-13%	-12%	13%	8%	-27%	8%

WPTM								
%		gl01	gl02	gl03	gl04	gl05	gl06	ALL
gl01	Wellington	13%	43%	29%	9%	259%	0%	14%
gl02	Lower Hutt	-2%	-13%	-11%	232%	0%	0%	-8%
gl03	Upper Hutt	6%	-11%	-10%	0%	0%	0%	-5%
gl04	Porirua	21%	0%	3%	-16%	6%	0%	10%
gl05	Kapiti Coast	7%	0%	0%	5%	1%	0%	4%
gl06	Wairarapa	-11%	-4%	-7%	0%	0%	0%	-10%
ALL		11%	-8%	-9%	-10%	2%	0%	7%

Table 21: Summary of Growth – Other Purpose (AM, 2013 to 2033)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1411	41	16	79	13	21	1581
g102	Lower Hutt	62	131	18	4	1	5	222
g103	Upper Hutt	28	9	78	2	1	1	118
g104	Porirua	109	4	5	285	22	22	445
g105	Kapiti Coast	14	1	1	10	76	12	115
g106	Wairarapa	11	2	1	7	4	50	75
ALL		1634	188	118	387	117	110	2555

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	951	23	0	19	0	0	993
g102	Lower Hutt	128	107	5	0	0	0	240
g103	Upper Hutt	28	28	12	0	0	0	68
g104	Porirua	72	0	0	26	0	0	97
g105	Kapiti Coast	62	0	0	6	35	0	103
g106	Wairarapa	18	8	4	0	0	0	30
ALL		1258	166	21	51	35	0	1532

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1505	48	28	118	16	15	1731
g102	Lower Hutt	70	123	25	13	2	3	235
g103	Upper Hutt	35	11	89	3	1	1	140
g104	Porirua	131	13	8	308	19	11	491
g105	Kapiti Coast	19	2	4	12	76	9	121
g106	Wairarapa	10	1	1	5	4	52	74
ALL		1770	198	154	460	118	91	2791

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1137	42	1	27	1	0	1208
g102	Lower Hutt	161	137	5	5	0	0	309
g103	Upper Hutt	38	38	13	0	0	0	90
g104	Porirua	101	4	0	28	0	0	133
g105	Kapiti Coast	78	0	0	6	43	0	128
g106	Wairarapa	16	8	4	0	0	0	27
ALL		1531	229	23	67	45	0	1895

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	94	7	12	39	4	-5	150
g102	Lower Hutt	8	-8	7	8	0	-2	13
g103	Upper Hutt	7	2	11	1	1	0	21
g104	Porirua	23	9	3	24	-2	-11	46
g105	Kapiti Coast	5	1	2	2	0	-3	6
g106	Wairarapa	0	0	1	-3	-1	3	-1
ALL		136	10	36	72	1	-19	236

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	186	19	1	8	1	0	215
g102	Lower Hutt	33	30	0	5	0	0	69
g103	Upper Hutt	10	10	1	0	0	0	22
g104	Porirua	29	4	0	2	0	0	36
g105	Kapiti Coast	16	0	0	0	8	0	25
g106	Wairarapa	-2	0	0	0	0	0	-3
ALL		273	63	2	16	9	0	363

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	7%	16%	74%	50%	27%	-25%	10%
g102	Lower Hutt	12%	-6%	41%	202%	26%	-43%	6%
g103	Upper Hutt	26%	21%	14%	65%	93%	-36%	18%
g104	Porirua	21%	243%	74%	8%	-12%	-49%	10%
g105	Kapiti Coast	35%	78%	152%	23%	-1%	-27%	6%
g106	Wairarapa	-4%	-27%	93%	-38%	-17%	6%	-2%
ALL		8%	5%	30%	19%	1%	-17%	9%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	20%	80%	319%	42%	0%	0%	22%
g102	Lower Hutt	26%	28%	2%	0%	0%	0%	29%
g103	Upper Hutt	36%	35%	9%	0%	0%	0%	32%
g104	Porirua	41%	0%	0%	8%	0%	0%	37%
g105	Kapiti Coast	26%	0%	0%	4%	21%	0%	24%
g106	Wairarapa	-11%	-3%	-7%	0%	0%	0%	-9%
ALL		22%	38%	10%	31%	27%	0%	24%

Table 22: Summary of Growth – All Purposes Combined (AM, 2013 to 2033)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	15045	254	52	279	109	24	15763
g102	Lower Hutt	4290	1686	125	46	44	10	6200
g103	Upper Hutt	1388	215	738	14	20	13	2387
g104	Porirua	2271	26	6	1047	233	22	3604
g105	Kapiti Coast	1319	10	3	85	707	12	2136
g106	Wairarapa	323	90	89	21	28	302	853
ALL		24635	2281	1012	1492	1140	383	30943

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14489	339	31	159	1	0	15020
g102	Lower Hutt	4411	1375	288	2	0	0	6076
g103	Upper Hutt	957	229	249	0	0	0	1435
g104	Porirua	2617	0	10	418	34	0	3080
g105	Kapiti Coast	1147	0	0	88	212	0	1447
g106	Wairarapa	771	87	49	0	0	0	907
ALL		24391	2030	627	667	248	0	27964

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	18756	453	83	380	134	21	19828
g102	Lower Hutt	5082	1454	117	194	51	7	6905
g103	Upper Hutt	1887	217	662	41	18	8	2833
g104	Porirua	3000	64	11	976	256	11	4318
g105	Kapiti Coast	1504	16	5	62	737	9	2333
g106	Wairarapa	437	87	93	61	29	316	1024
ALL		30666	2292	970	1714	1225	373	37242

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	17998	470	39	204	3	0	18715
g102	Lower Hutt	5288	1274	241	15	1	0	6818
g103	Upper Hutt	1271	238	228	1	0	0	1738
g104	Porirua	3393	7	13	358	41	0	3811
g105	Kapiti Coast	1288	1	0	73	218	0	1580
g106	Wairarapa	677	84	46	0	0	0	806
ALL		29914	2074	566	651	264	0	33468

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3711	199	32	101	25	-2	4065
g102	Lower Hutt	792	-232	-8	148	8	-3	705
g103	Upper Hutt	500	2	-76	26	-1	-5	446
g104	Porirua	729	38	5	-71	23	-11	714
g105	Kapiti Coast	186	6	2	-23	30	-3	198
g106	Wairarapa	114	-3	4	40	1	14	171
ALL		6032	11	-42	222	85	-10	6299

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3509	131	8	45	2	0	3695
g102	Lower Hutt	877	-101	-48	13	1	0	741
g103	Upper Hutt	314	9	-21	1	0	0	303
g104	Porirua	776	7	2	-60	7	0	732
g105	Kapiti Coast	141	1	0	-15	6	0	133
g106	Wairarapa	-94	-3	-4	0	0	0	-100
ALL		5522	43	-61	-16	16	0	5504

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	25%	78%	62%	36%	22%	-10%	26%
g102	Lower Hutt	18%	-14%	-7%	323%	18%	-28%	11%
g103	Upper Hutt	36%	1%	-10%	185%	-6%	-40%	19%
g104	Porirua	32%	149%	82%	-7%	10%	-48%	20%
g105	Kapiti Coast	14%	65%	88%	-27%	4%	-27%	9%
g106	Wairarapa	35%	-3%	4%	188%	5%	5%	20%
ALL		24%	1%	-4%	15%	7%	-3%	20%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	24%	39%	26%	28%	157%	0%	25%
g102	Lower Hutt	20%	-7%	-16%	620%	131%	0%	12%
g103	Upper Hutt	33%	4%	-8%	0%	0%	0%	21%
g104	Porirua	30%	0%	23%	-14%	20%	0%	24%
g105	Kapiti Coast	12%	0%	0%	-17%	3%	0%	9%
g106	Wairarapa	-12%	-3%	-7%	0%	0%	0%	-11%
ALL		23%	2%	-10%	-2%	6%	0%	20%

Table 23 Summary of growth – Work Purpose (AM, 2013 to 2043)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10372	199	34	123	32	3	10763
g102	Lower Hutt	3325	640	45	10	0	5	4025
g103	Upper Hutt	1153	124	129	3	0	10	1420
g104	Porirua	2035	21	1	220	8	0	2285
g105	Kapiti Coast	1303	9	1	73	113	0	1499
g106	Wairarapa	89	5	7	0	0	179	280
ALL		18277	998	217	430	153	198	20273

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	10119	247	23	94	1	0	10484
g102	Lower Hutt	3592	565	157	1	0	0	4315
g103	Upper Hutt	809	112	76	0	0	0	998
g104	Porirua	1962	0	5	125	19	0	2111
g105	Kapiti Coast	972	0	0	42	62	0	1076
g106	Wairarapa	643	58	44	0	0	0	744
ALL		18096	981	306	262	82	0	19728

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14583	394	55	190	41	7	15270
g102	Lower Hutt	4322	579	41	59	1	5	5007
g103	Upper Hutt	1712	137	120	11	0	9	1989
g104	Porirua	2893	48	3	204	12	1	3162
g105	Kapiti Coast	1620	16	1	51	123	0	1813
g106	Wairarapa	155	9	6	2	0	217	389
ALL		25286	1183	226	517	179	239	27629

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14127	355	29	137	2	0	14650
g102	Lower Hutt	4661	539	127	7	1	0	5334
g103	Upper Hutt	1158	123	70	1	0	0	1352
g104	Porirua	2767	3	7	108	25	0	2911
g105	Kapiti Coast	1176	1	0	27	59	0	1263
g106	Wairarapa	563	56	41	0	0	0	660
ALL		24452	1076	275	280	87	0	26169

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	4211	195	21	67	9	3	4506
g102	Lower Hutt	997	-62	-4	48	1	1	981
g103	Upper Hutt	559	12	-9	8	0	-1	570
g104	Porirua	859	28	2	-16	4	0	877
g105	Kapiti Coast	317	7	0	-22	10	0	314
g106	Wairarapa	66	4	-1	1	0	38	108
ALL		7009	185	8	87	25	42	7356

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	4008	108	6	44	1	0	4166
g102	Lower Hutt	1069	-26	-30	6	0	0	1019
g103	Upper Hutt	349	11	-6	1	0	0	354
g104	Porirua	806	3	2	-17	7	0	800
g105	Kapiti Coast	204	1	0	-15	-3	0	186
g106	Wairarapa	-79	-2	-3	0	0	0	-84
ALL		6356	94	-32	18	5	0	6441

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	41%	98%	62%	54%	29%	101%	42%
g102	Lower Hutt	30%	-10%	-8%	469%	181%	16%	24%
g103	Upper Hutt	48%	10%	-7%	274%	0%	-9%	40%
g104	Porirua	42%	134%	117%	-7%	56%	0%	38%
g105	Kapiti Coast	24%	85%	24%	-30%	9%	0%	21%
g106	Wairarapa	75%	80%	-20%	776%	0%	21%	39%
ALL		38%	19%	4%	20%	17%	21%	36%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	40%	44%	25%	47%	57%	0%	40%
g102	Lower Hutt	30%	-5%	-19%	512%	0%	0%	24%
g103	Upper Hutt	43%	10%	-8%	0%	0%	0%	35%
g104	Porirua	41%	0%	40%	-14%	35%	0%	38%
g105	Kapiti Coast	21%	0%	0%	-36%	-5%	0%	17%
g106	Wairarapa	-12%	-3%	-7%	0%	0%	0%	####
ALL		35%	10%	-10%	7%	6%	0%	33%

Table 24: Summary of Growth – Education Purpose (AM, 2013 to 2043)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3262	14	2	77	65	0	3419
g102	Lower Hutt	902	915	63	31	42	0	1953
g103	Upper Hutt	207	82	531	9	19	2	849
g104	Porirua	127	1	0	542	203	0	874
g105	Kapiti Coast	2	0	0	2	518	0	522
g106	Wairarapa	224	83	81	14	23	73	498
ALL		4724	1095	677	675	870	75	8115

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3419	69	7	46	0	0	3542
g102	Lower Hutt	691	704	126	1	0	0	1521
g103	Upper Hutt	120	89	160	0	0	0	369
g104	Porirua	584	0	5	267	15	0	871
g105	Kapiti Coast	113	0	0	39	115	0	267
g106	Wairarapa	110	21	1	0	0	0	133
ALL		5037	883	300	353	131	0	6704

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3953	49	5	98	85	0	4189
g102	Lower Hutt	924	717	50	128	50	0	1869
g103	Upper Hutt	255	73	436	29	18	0	812
g104	Porirua	204	6	1	472	222	0	904
g105	Kapiti Coast	3	0	0	2	536	0	540
g106	Wairarapa	268	74	80	58	27	51	558
ALL		5607	919	571	787	937	51	8872

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	3901	99	10	54	1	0	4064
g102	Lower Hutt	677	593	109	3	0	0	1382
g103	Upper Hutt	129	78	138	0	0	0	346
g104	Porirua	712	1	5	220	20	0	958
g105	Kapiti Coast	121	0	0	43	113	0	278
g106	Wairarapa	98	21	1	0	0	0	120
ALL		5637	792	263	321	134	0	7147

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	691	35	4	21	20	0	770
g102	Lower Hutt	22	-198	-13	97	8	0	-84
g103	Upper Hutt	48	-9	-95	20	-1	-2	-37
g104	Porirua	76	4	0	-70	19	0	29
g105	Kapiti Coast	1	0	0	-1	17	0	18
g106	Wairarapa	44	-9	-1	44	4	-22	60
ALL		883	-176	-105	112	67	-24	757

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	481	30	2	7	1	0	522
g102	Lower Hutt	-14	-111	-17	2	0	0	-140
g103	Upper Hutt	9	-11	-22	0	0	0	-23
g104	Porirua	128	1	0	-47	4	0	87
g105	Kapiti Coast	8	0	0	4	-2	0	11
g106	Wairarapa	-12	-1	0	0	0	0	-13
ALL		600	-91	-36	-33	3	0	443

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	21%	246%	211%	28%	31%	0%	23%
g102	Lower Hutt	2%	-22%	-20%	308%	20%	0%	-4%
g103	Upper Hutt	23%	-10%	-18%	218%	-3%	-100%	-4%
g104	Porirua	60%	315%	0%	-13%	9%	0%	3%
g105	Kapiti Coast	88%	0%	0%	-26%	3%	0%	3%
g106	Wairarapa	20%	-10%	-2%	325%	16%	-30%	12%
ALL		19%	-16%	-16%	17%	8%	-32%	9%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14%	44%	30%	15%	314%	0%	15%
g102	Lower Hutt	-2%	-16%	-13%	265%	0%	0%	-9%
g103	Upper Hutt	8%	-12%	-14%	0%	0%	0%	-6%
g104	Porirua	22%	0%	3%	-17%	28%	0%	10%
g105	Kapiti Coast	7%	0%	0%	11%	-2%	0%	4%
g106	Wairarapa	-11%	-4%	-7%	0%	0%	0%	-10%
ALL		12%	-10%	-12%	-9%	2%	0%	7%

Table 25: Summary of Growth – Other Purpose (AM, 2013 to 2043)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1411	41	16	79	13	21	1581
g102	Lower Hutt	62	131	18	4	1	5	222
g103	Upper Hutt	28	9	78	2	1	1	118
g104	Porirua	109	4	5	285	22	22	445
g105	Kapiti Coast	14	1	1	10	76	12	115
g106	Wairarapa	11	2	1	7	4	50	75
ALL		1634	188	118	387	117	110	2555

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	951	23	0	19	0	0	993
g102	Lower Hutt	128	107	5	0	0	0	240
g103	Upper Hutt	28	28	12	0	0	0	68
g104	Porirua	72	0	0	26	0	0	97
g105	Kapiti Coast	62	0	0	6	35	0	103
g106	Wairarapa	18	8	4	0	0	0	30
ALL		1258	166	21	51	35	0	1532

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1465	47	37	129	17	40	1736
g102	Lower Hutt	62	109	25	13	2	5	217
g103	Upper Hutt	39	11	89	3	1	1	144
g104	Porirua	122	13	7	295	19	18	475
g105	Kapiti Coast	16	2	4	13	68	16	118
g106	Wairarapa	18	2	1	7	6	50	82
ALL		1722	184	163	460	113	130	2772

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	1201	48	1	28	2	0	1280
g102	Lower Hutt	168	146	5	6	0	0	326
g103	Upper Hutt	40	39	13	0	0	0	93
g104	Porirua	106	5	0	29	1	0	142
g105	Kapiti Coast	80	0	0	7	45	0	132
g106	Wairarapa	16	8	4	0	0	0	27
ALL		1611	247	24	71	48	0	2001

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	54	6	21	50	4	19	156
g102	Lower Hutt	0	-22	7	9	0	0	-5
g103	Upper Hutt	11	2	11	1	1	0	25
g104	Porirua	13	9	3	11	-3	-3	30
g105	Kapiti Coast	2	1	2	2	-7	3	3
g106	Wairarapa	7	0	0	-1	1	0	8
ALL		87	-4	45	73	-4	20	217

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	250	25	1	9	2	0	287
g102	Lower Hutt	40	39	0	6	0	0	86
g103	Upper Hutt	12	11	1	0	0	0	25
g104	Porirua	34	5	0	3	1	0	44
g105	Kapiti Coast	18	0	0	1	10	0	29
g106	Wairarapa	-2	0	0	0	0	0	-3
ALL		353	81	3	20	12	0	469

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	4%	15%	135%	64%	32%	95%	10%
g102	Lower Hutt	0%	-17%	42%	213%	26%	8%	-2%
g103	Upper Hutt	39%	22%	14%	63%	93%	-7%	21%
g104	Porirua	12%	237%	62%	4%	-13%	-15%	7%
g105	Kapiti Coast	13%	69%	148%	25%	-10%	28%	3%
g106	Wairarapa	64%	13%	44%	-11%	25%	0%	10%
ALL		5%	-2%	38%	19%	-3%	18%	8%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	26%	108%	392%	49%	0%	0%	29%
g102	Lower Hutt	32%	37%	4%	0%	0%	0%	36%
g103	Upper Hutt	42%	40%	11%	0%	0%	0%	37%
g104	Porirua	48%	0%	0%	13%	0%	0%	45%
g105	Kapiti Coast	29%	0%	0%	11%	28%	0%	28%
g106	Wairarapa	-11%	-3%	-7%	0%	0%	0%	-8%
ALL		28%	49%	13%	39%	36%	0%	31%

Table 26: Summary of Growth – All Purposes Combined (AM, 2013 to 2043)

WTSM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	15045	254	52	279	109	24	15763
g102	Lower Hutt	4290	1686	125	46	44	10	6200
g103	Upper Hutt	1388	215	738	14	20	13	2387
g104	Porirua	2271	26	6	1047	233	22	3604
g105	Kapiti Coast	1319	10	3	85	707	12	2136
g106	Wairarapa	323	90	89	21	28	302	853
ALL		24635	2281	1012	1492	1140	383	30943

WPTM Base								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	14489	339	31	159	1	0	15020
g102	Lower Hutt	4411	1375	288	2	0	0	6076
g103	Upper Hutt	957	229	249	0	0	0	1435
g104	Porirua	2617	0	10	418	34	0	3080
g105	Kapiti Coast	1147	0	0	88	212	0	1447
g106	Wairarapa	771	87	49	0	0	0	907
ALL		24391	2030	627	667	248	0	27964

WTSM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	20001	490	97	417	143	47	21195
g102	Lower Hutt	5308	1405	116	200	53	11	7093
g103	Upper Hutt	2006	221	645	44	20	10	2945
g104	Porirua	3219	67	11	971	253	19	4540
g105	Kapiti Coast	1639	18	5	65	728	16	2471
g106	Wairarapa	441	85	86	66	33	318	1029
ALL		32614	2286	960	1764	1229	421	39273

WPTM Future								
Trips		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	19228	502	40	219	4	0	19994
g102	Lower Hutt	5506	1277	242	16	1	0	7042
g103	Upper Hutt	1327	241	221	1	1	0	1791
g104	Porirua	3585	9	13	358	46	0	4011
g105	Kapiti Coast	1378	1	0	77	217	0	1673
g106	Wairarapa	677	84	46	0	0	0	806
ALL		31700	2115	562	672	269	0	35317

WTSM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	4956	236	46	138	33	23	5432
g102	Lower Hutt	1019	-282	-9	154	10	1	893
g103	Upper Hutt	618	6	-93	30	0	-3	558
g104	Porirua	948	41	5	-76	20	-3	936
g105	Kapiti Coast	321	8	2	-20	20	4	335
g106	Wairarapa	117	-4	-3	45	5	16	176
ALL		7979	5	-52	272	89	38	8331

WPTM								
Growth		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	4739	163	9	60	3	0	4974
g102	Lower Hutt	1095	-98	-46	14	1	0	966
g103	Upper Hutt	370	11	-27	1	0	0	356
g104	Porirua	968	9	3	-60	12	0	931
g105	Kapiti Coast	231	1	0	-11	5	0	226
g106	Wairarapa	-94	-3	-4	0	0	0	-100
ALL		7309	84	-65	5	20	0	7354

WTSM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	33%	93%	89%	50%	30%	96%	34%
g102	Lower Hutt	24%	-17%	-7%	336%	22%	12%	14%
g103	Upper Hutt	45%	3%	-13%	208%	2%	-22%	23%
g104	Porirua	42%	159%	80%	-7%	9%	-14%	26%
g105	Kapiti Coast	24%	84%	94%	-23%	3%	29%	16%
g106	Wairarapa	36%	-5%	-3%	212%	18%	5%	21%
ALL		32%	0%	-5%	18%	8%	10%	27%

WPTM								
%		g101	g102	g103	g104	g105	g106	ALL
g101	Wellington	33%	48%	29%	38%	209%	0%	33%
g102	Lower Hutt	25%	-7%	-16%	695%	157%	0%	16%
g103	Upper Hutt	39%	5%	-11%	0%	0%	0%	25%
g104	Porirua	37%	0%	25%	-14%	34%	0%	30%
g105	Kapiti Coast	20%	0%	0%	-12%	2%	0%	16%
g106	Wairarapa	-12%	-3%	-7%	0%	0%	0%	####
ALL		30%	4%	-10%	1%	8%	0%	26%

Appendix B PT Screenlines

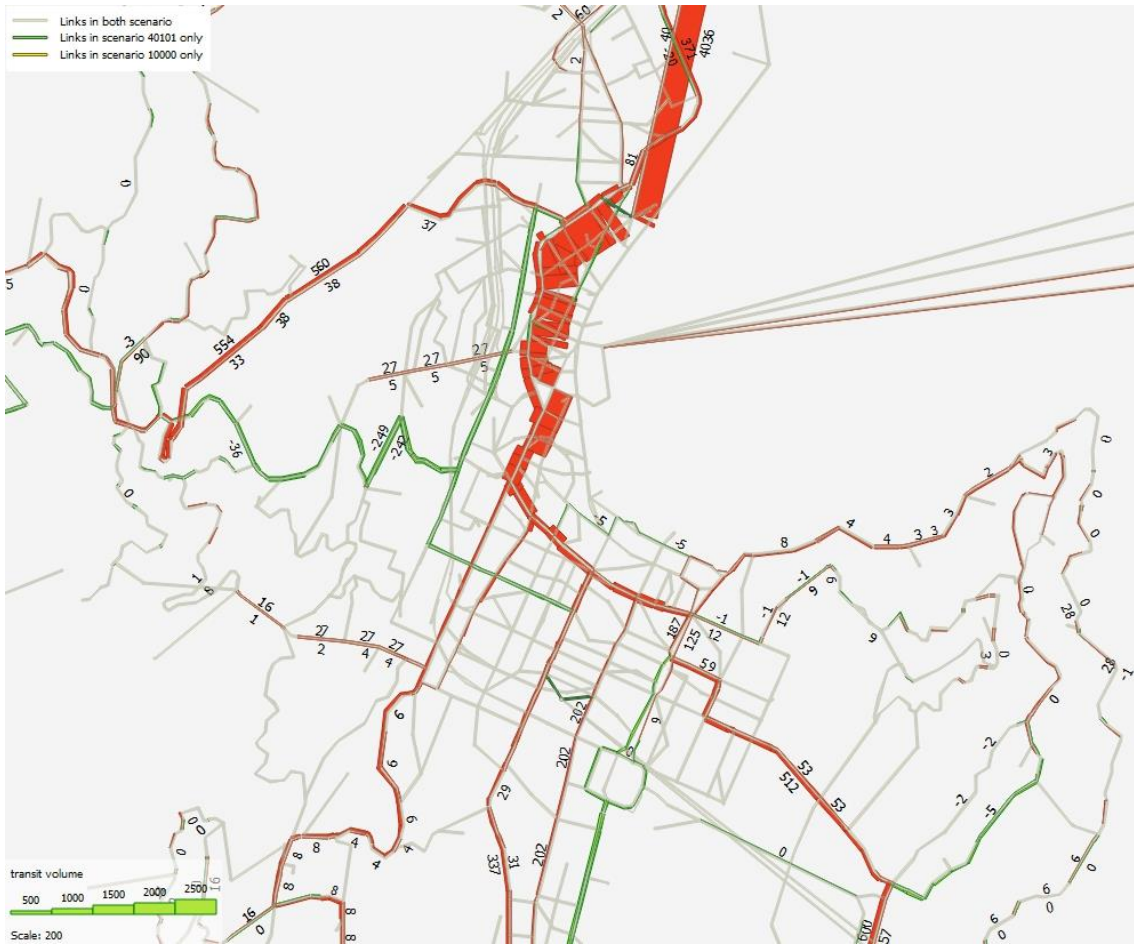
Table 27: WTSM Screenlines

Screenline	Location	Direction	2013	2023	2033	2043
North	Rail	In	11285	17745	15943	15905
		Out	747	1024	977	1075
	Molesworth Street	Out	256	220	249	251
		Mulgrave Street	In	724	615	600
	Thorndon Quay	In	1688	1387	1516	1658
		Out	340	903	1102	1112
	Waterloo Quay	In	0	0	0	0
		Out	0	0	0	0
	Total	In	13697	19748	18060	18217
		Out	1343	2147	2329	2438
West	Bowen Street	In	901	1439	1364	1432
		Out	171	319	390	357
	Cable Car	In	11	18	15	17
		Out	1	1	1	1
	Kelburn Parade	In	399	58	58	70
		Out	68	28	41	39
	Aro Street	In	0	160	154	136
		Out	0	11	17	15
	Total	In	1311	1675	1591	1656
		Out	239	359	448	412
South	Ohiro Road	In	0	0	0	0
		Out	0	0	0	0
	Brooklyn Road	In	547	885	848	911
		Out	40	48	58	56
	Wallace Street	In	385	588	447	314
		Out	142	221	219	201
	Tasman Street	In	0	442	433	170
		Out	0	0	0	0
	Adelaide Road	In	1738	1213	1325	1761
		Out	245	94	120	111
Total	In	2670	3129	3052	3156	
	Out	427	364	397	367	
East	Mt Vic Tunnel	In	0	0	0	0
		Out	0	0	0	0
	Hataitai Bus Tunnel	In	1924	2373	2347	2704
		Out	162	259	305	292
	Hawker Street	In	0	0	0	0
		Out	0	0	0	0
	Oriental Parade	In	285	574	563	605
		Out	41	59	75	69
	Total	In	2209	2947	2910	3309
		Out	203	319	380	361
Total All Screenlines		In	19887	27499	25614	26337
		Out	2213	3188	3554	3578

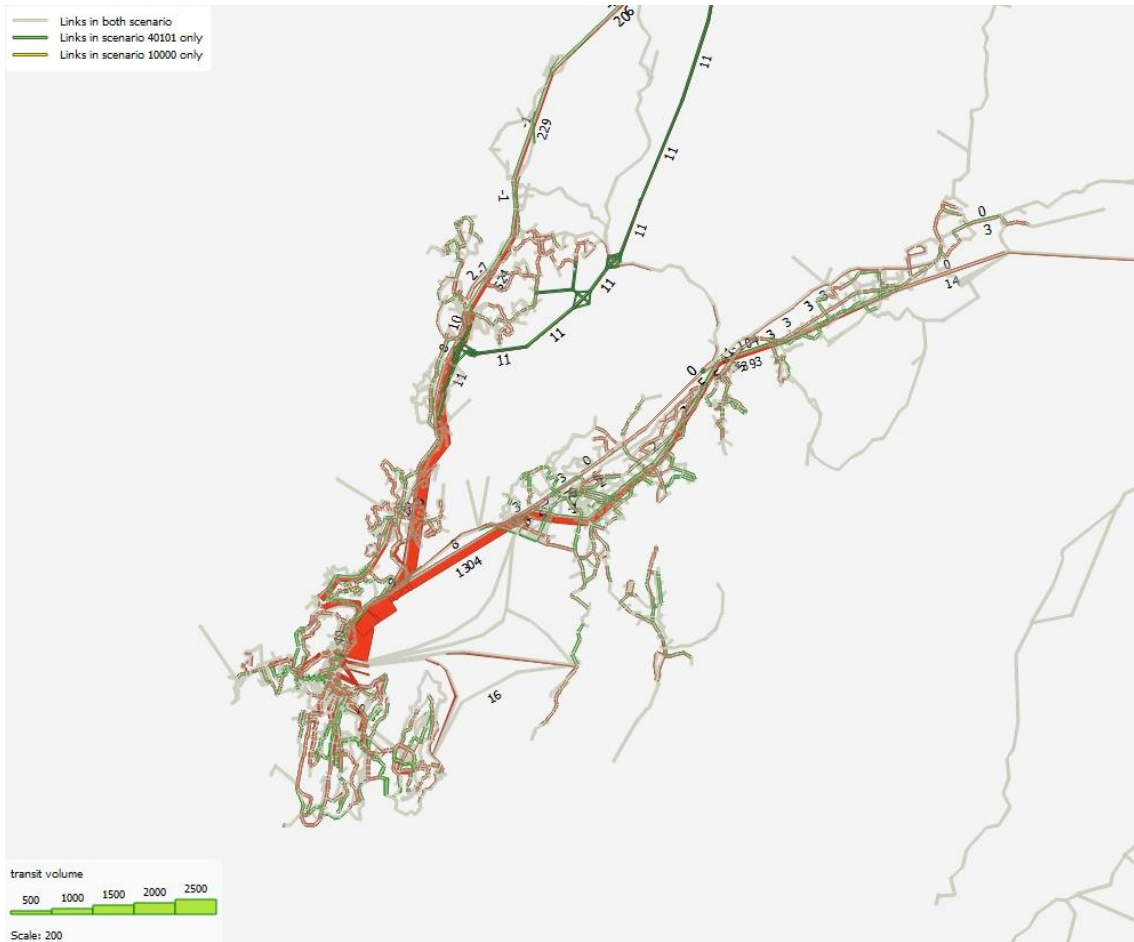
Table 28: WPTM Screenlines

Screenline	Location	Direction	2013	2023	2033	2043
North	Rail	In	11282	15318	15025	14853
		Out	352	391	371	379
	Molesworth Street	Out	354	303	271	282
		Mulgrave Street	In	709	772	700
	Thorndon Quay		In	1958	2374	2014
		Waterloo Quay	Out	143	224	442
			In	0	0	0
			Out	0	0	0
	Total		In	13949	18464	17739
		Out	849	918	1085	1074
West	Bowen Street	In	889	1298	1225	1294
		Out	79	96	128	121
	Cable Car	In	2	29	56	63
		Out	0	5	20	21
	Kelburn Parade	In	549	300	210	212
		Out	529	287	124	119
	Aro Street	In	22	49	69	70
		Out	0	5	14	14
	Total	In	1462	1675	1559	1638
		Out	609	393	287	275
South	Ohiro Road	In	0	0	0	0
		Out	0	0	0	0
	Brooklyn Road	In	507	849	803	853
		Out	21	27	46	46
	Wallace Street	In	548	863	805	589
		Out	118	147	150	148
	Tasman Street	In	0	202	153	160
		Out	0	0	0	0
	Adelaide Road	In	1577	1221	1234	1585
		Out	246	149	70	66
Total	In	2632	3136	2995	3187	
	Out	385	324	266	260	
East	Mt Vic Tunnel	In	0	0	0	0
		Out	0	0	0	0
	Hataitai Bus Tunnel	In	1817	2329	2170	2338
		Out	125	178	210	207
	Hawker Street	In	21	30	44	46
		Out	2	0	9	9
	Oriental Parade	In	169	368	403	430
		Out	15	23	29	28
	Total	In	2008	2728	2618	2814
		Out	142	201	248	244
Total All Screenlines		In	20050	26003	24911	25414
		Out	1985	1835	1885	1852

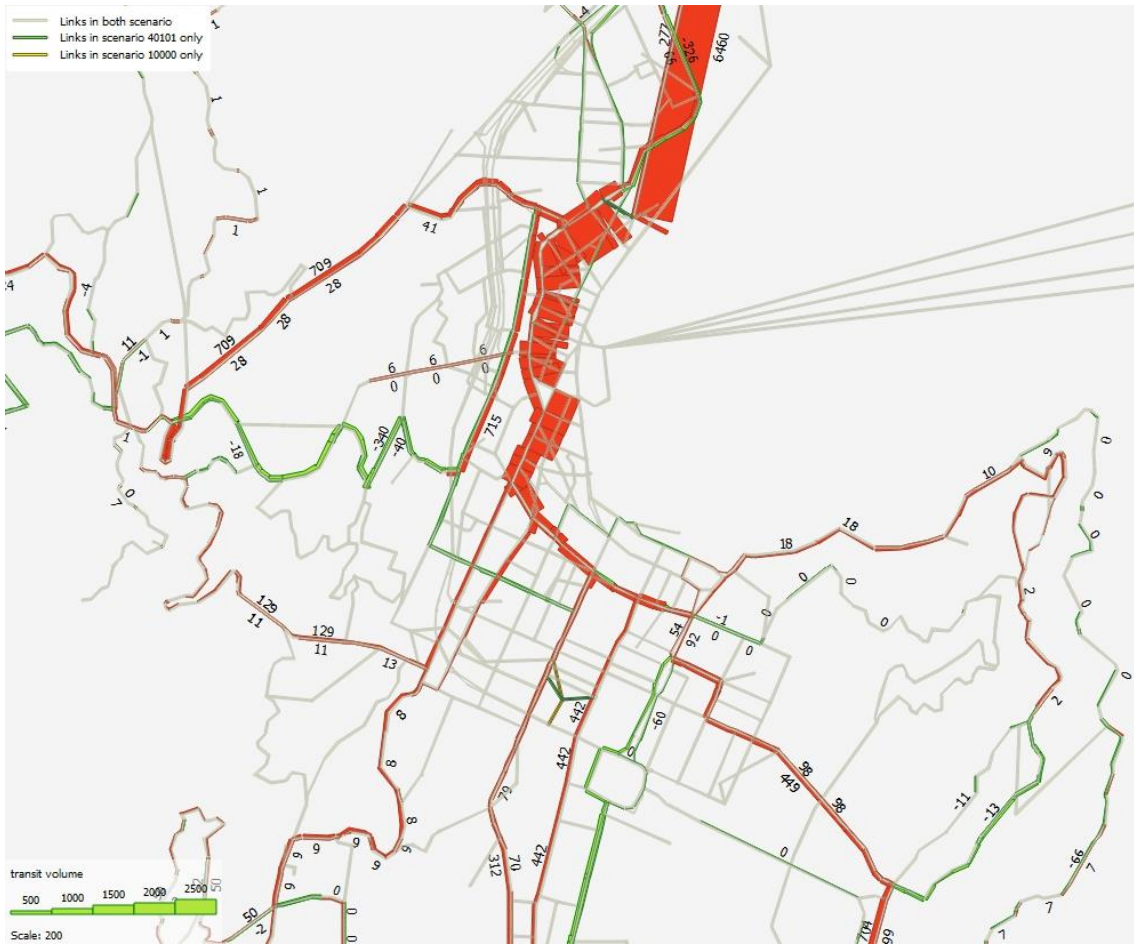
Appendix C PT Volume Change Plots



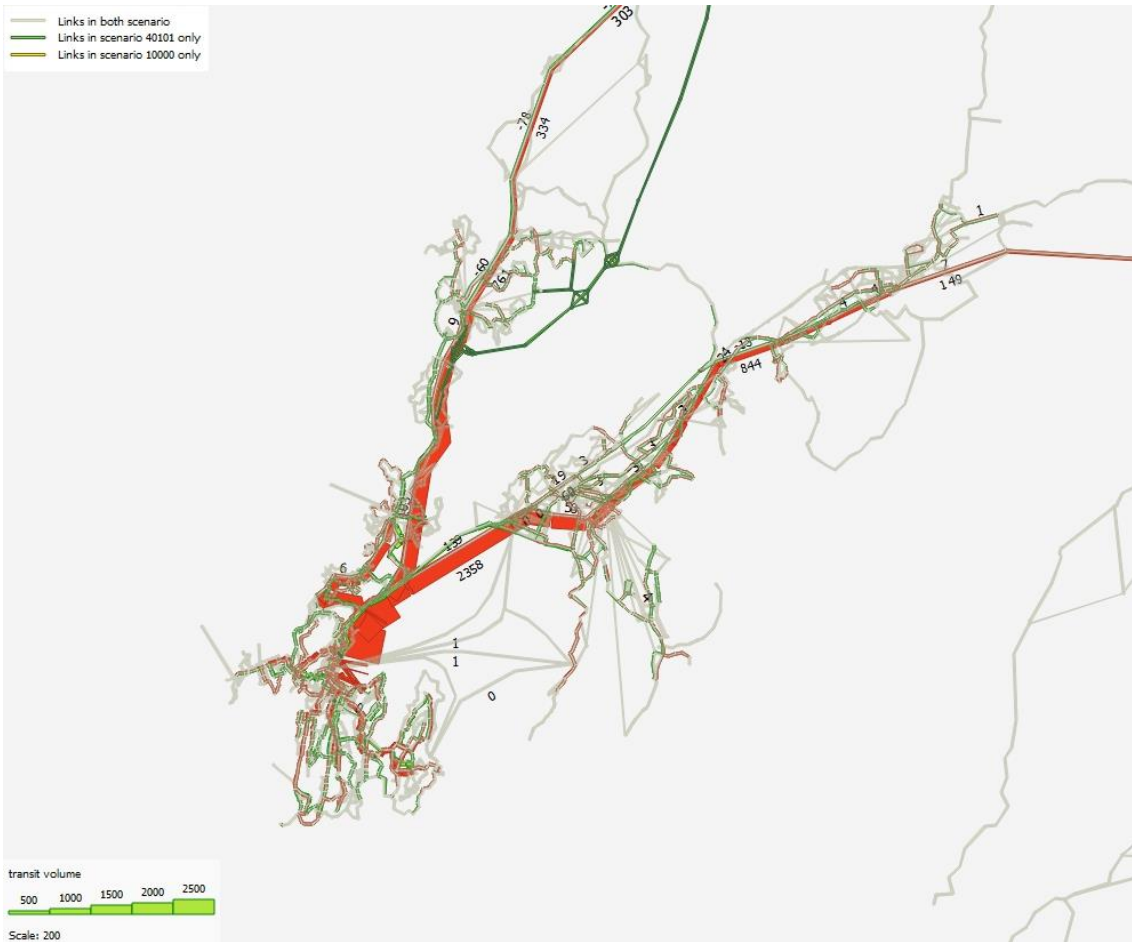
CBD WPTM AM 2023 vs 2013



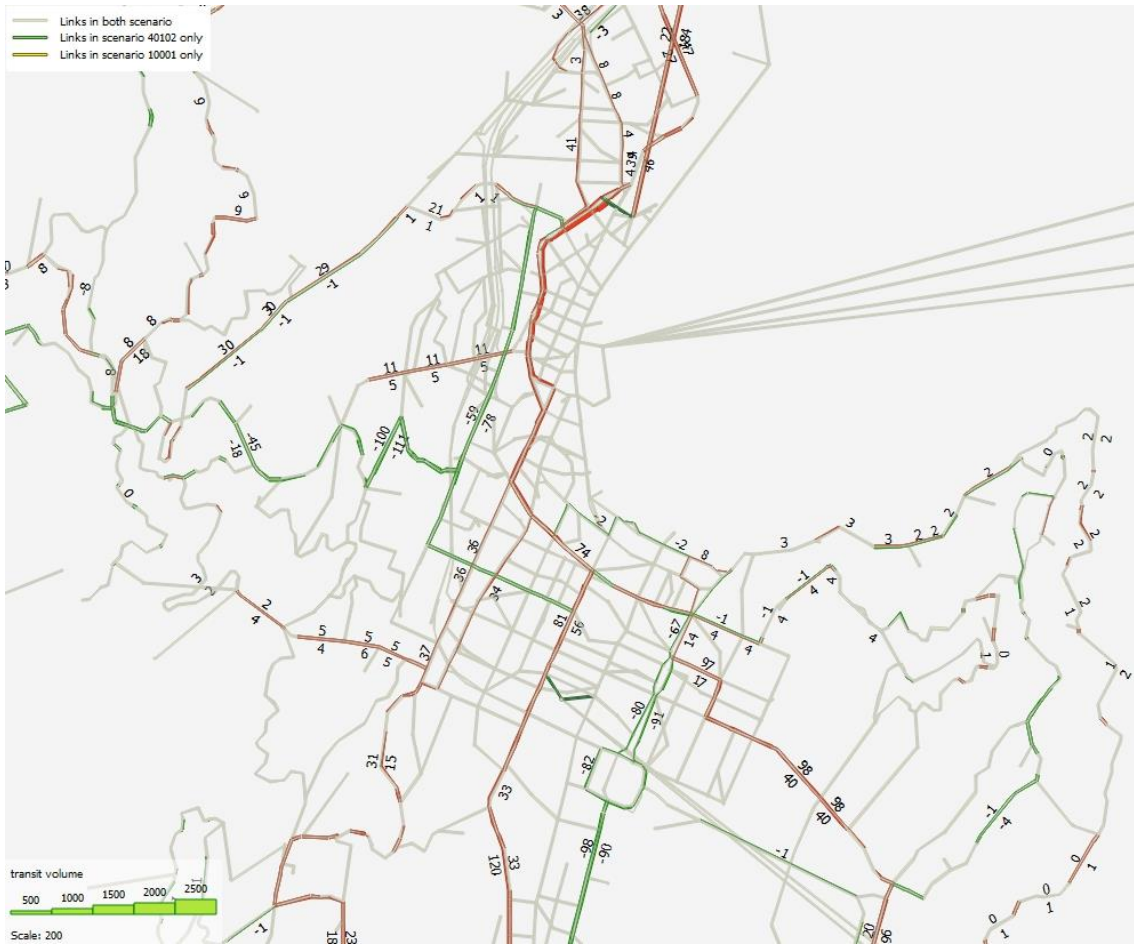
Region WPTM AM 2023 vs 2013



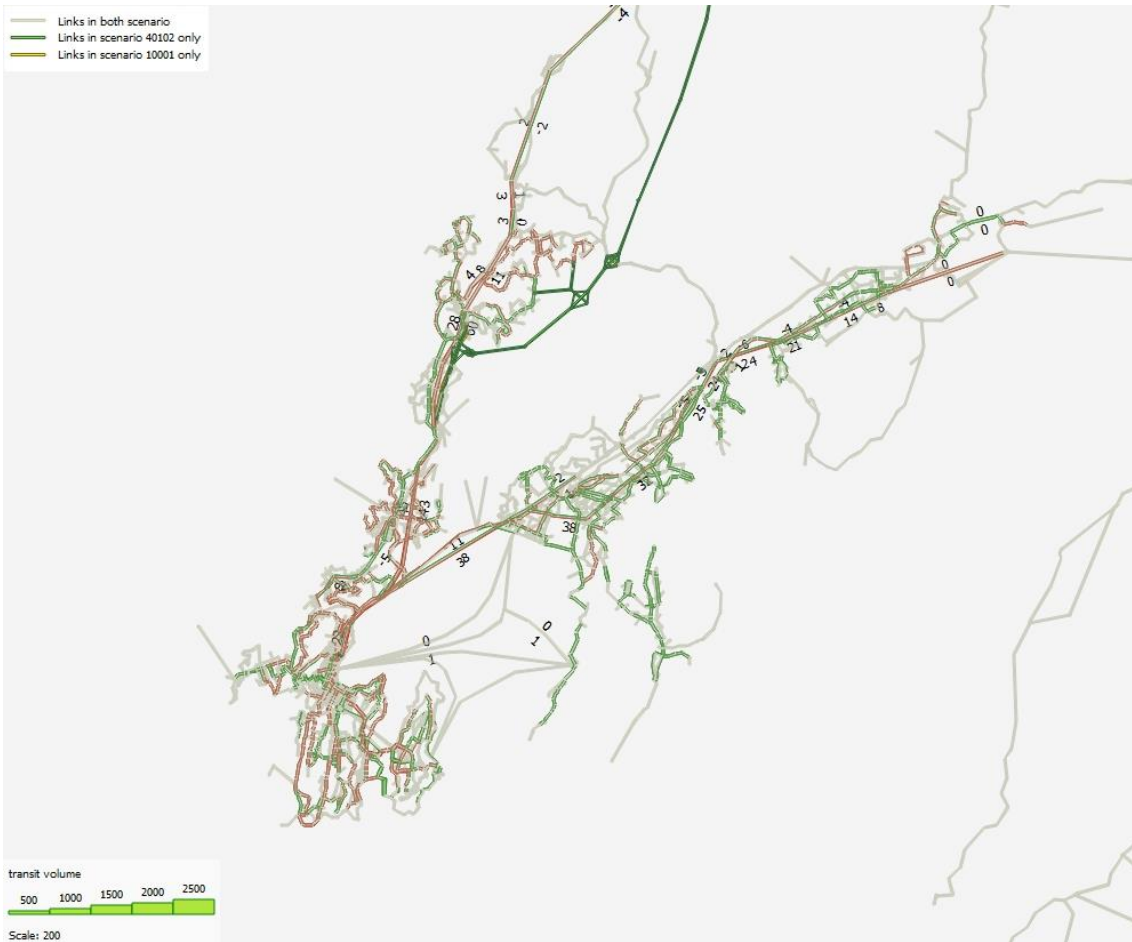
CBD WTSM AM 2023 vs 2013



Region WTSM AM 2023 vs 2013



CBD WPTM IP 2023 vs 2013



Region WPTM IP 2023 vs 2013



Region WTSM IP 2023 vs 2013

