

MONITORING REPORT

**Prepared For Regional Cycle Monitoring Working Group
(Co-ordinated by Auckland Regional Transport Authority)**

**MANUAL CYCLE MONITORING IN THE
AUCKLAND REGION
March 2010**

Regional Summary

Prepared by Gravitass Research and Strategy Limited

FINAL VERSION 28th May 2010

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EXECUTIVE SUMMARY

This summary contains the aggregated cycle monitoring results of the 84 sites surveyed in Auckland region. All data was collected on March 9th (Waitakere and North Shore cities), 10th (Auckland city) and 11th (all other Territorial Authorities) 2010. Results are reported by site and peak traffic period (morning – 6:30am to 9:00am, and evening – 4:00pm to 7:00pm).

Total Movements

- Overall, a total of 12,625 cyclist movements¹ were recorded across the 81 sites monitored in both 2009 and 2010. This figure represents a 27 per cent increase when compared with 2009 (9,937 movements). This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- Across the sites monitored since the manual cycle monitor began in 2007, cyclist movements have increased 26 per cent. This increase is also statistically significant that is, the increase falls outside the margin of error at the 95% confidence interval.

**Summary Table 1a: Average Total Cyclist Movements by TA
2007-2010**

Area	2007	2008	2009	2010	Change 09-10	Change 07-10
Total (61 sites since 2007) [^]	8428	8703	8434	10632	26%	26%
Total (67 sites since 2008) [^]	-	9140	8904	11215	26%	-
Total (81 sites in 2009)	-	-	9937	12625	27%	-
Total (84 sites in 2010)	-	-	-	12909	-	-

- Of the sites monitored in both 2009 and 2010, the average number of cycle movements in the region across the morning and evening periods has increased (174 in 2010 compared with 138 in 2009 – an increase of 26 per cent).
- However, these figures mask considerable variation between Territorial Authorities. Auckland (up 40 per cent), Rodney (up 39 per cent) and Manukau (up 36 per cent) have experienced notable increases in average total cycle movements. In contrast, Franklin has experienced a decline in average total cycle movements since 2009 (down from 45 movements per site in 2009 to 31 this year).

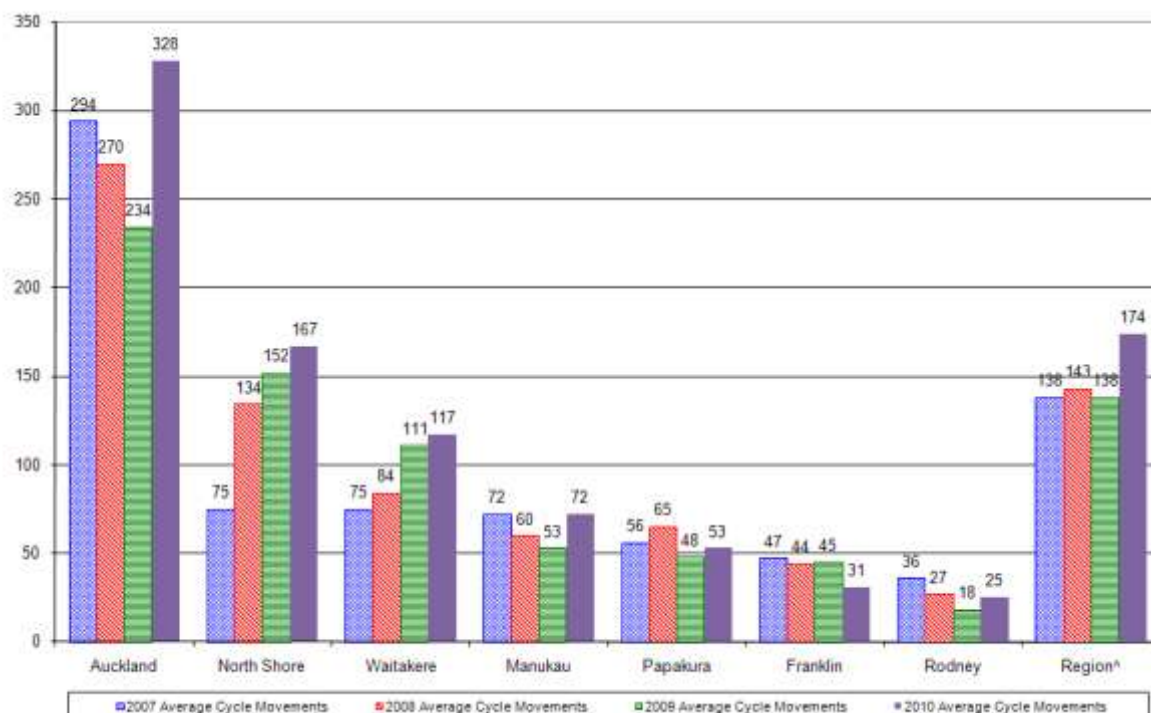
¹ It is important to note that this figure represents individual cyclist movements rather than total cyclist numbers. The limitations of the methodology used mean that, due to the close proximity of sites to one another (particularly in Auckland City's CBD), it is possible for the same cyclist to be counted at more than one site. It is also possible to 'double count' cyclists if they use the same intersection more than once during a shift. At the same time, there will be many cycle trips that will not be counted at all by this methodology, if a cyclist's route does not pass through a monitoring location. Because of these limitations, it cannot be said that 1,2625 different cyclists were counted on the Auckland region's roads using these sites; the actual number of cyclists, and the number of cycle trips they take, may be higher or lower than the number of cycle movements counted through this methodology.

**Table 1b: Summary Of Average Total Cyclist Movements by TA
- 2007-2010 (61 Sites)**

Locations	Number of Sites	2007 Average Cycle Movements	2008 Average Cycle Movements	2009 Average Cycle Movements	2010 Average Cycle Movements	Change 09-10	Change 07-10
Auckland	19	294	270	234	328	40%	12%
North Shore	13	75	134	152	167	10%	123%
Waitakere	11	75	84	111	117	5%	56%
Manukau	9	72	60	53	72	36%	0%
Papakura	2	56	65	48	53	10%	-5%
Franklin	3	47	44	45	31	-31%	-34%
Rodney	4	36	27	18	25	39%	-31%
Region^	61	138	143	138	174	26%	26%

^Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

**Graph 1: Average Total Cyclist Movements by TA
- 2007-2010 (61 Sites)**



- At 90 per cent, the extent of helmet-wearing across the region is high and stable. However, there is considerable variation by Territorial Authority – ranging from 64 per cent of cyclists in Franklin to 95 per cent of North Shore cyclists.
- Most cyclists recorded continue to be adults (88 per cent) while around one fifth of cyclists (22 per cent) continue to ride on the footpath.

**Table 3: Summary of Total Cyclist Characteristics
2007-2010 (%)**

	<i>Auckland</i>	<i>Manukau</i>	<i>North Shore</i>	<i>Waitakere</i>	<i>Rodney</i>	<i>Papakura</i>	<i>Franklin</i>	Aggregate Total (2010)	Aggregate Total (2009)	Aggregate Total (2008)	Aggregate Total (2007)
Cyclist Type											
Adult	95%	88%	82%	82%	34%	70%	42%	88%	87%	86%	88%
School child	5%	12%	18%	18%	66%	30%	58%	12%	13%	14%	12%
Helmet Wearing											
Helmet on head	91%	86%	95%	87%	77%	78%	64%	90%	91%	90%	89%
No helmet	9%	14%	5%	13%	23%	22%	36%	10%	9%	10%	11%
Where Riding											
Road	64%	66%	77%	43%	23%	58%	35%	62%	60%	81%	77%
Footpath	18%	32%	23%	27%	18%	42%	65%	22%	21%	19%	23%
Off-road cycleway ²	18%	2%	0%	30%	59%	0%	0%	16%	19%	-	-
Base:	7390	989	2177	1823	283	105	142	12909	10054	9780	9019

² Since 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.

- In 2010, the average number of cycle movements across the 84 sites in the Auckland region is 74 in the morning peak and 80 in the evening peak.
- Of the seven TAs, the average number of cyclists at each of the monitored sites in 2010 is highest in Auckland city (128 morning movements, 136 evening movements). While the average volume of morning cyclists is lowest in Franklin district (14 morning movements), Rodney district has the lowest evening cyclist counts (12 evening movements).

**Summary Table 1: Average Cyclist Movements by TA
- 2010 (84 sites)**

Area	Number Of Sites	AM	AM Range	PM	PM Range
Auckland	28	128	7 - 498	136	25 - 438
Waitakere	15	55	12 - 179	66	20 - 209
Manukau	14	29	5 - 70	41	7 - 92
North Shore	13	85	29 - 186	82	27 - 159
Rodney	8	24	4 - 73	12	1 - 23
Franklin	4	14	4 - 18	22	4 - 39
Papakura	2	22	15 - 29	31	28 - 33
Regional	84	74	4 - 498	80	1 - 438

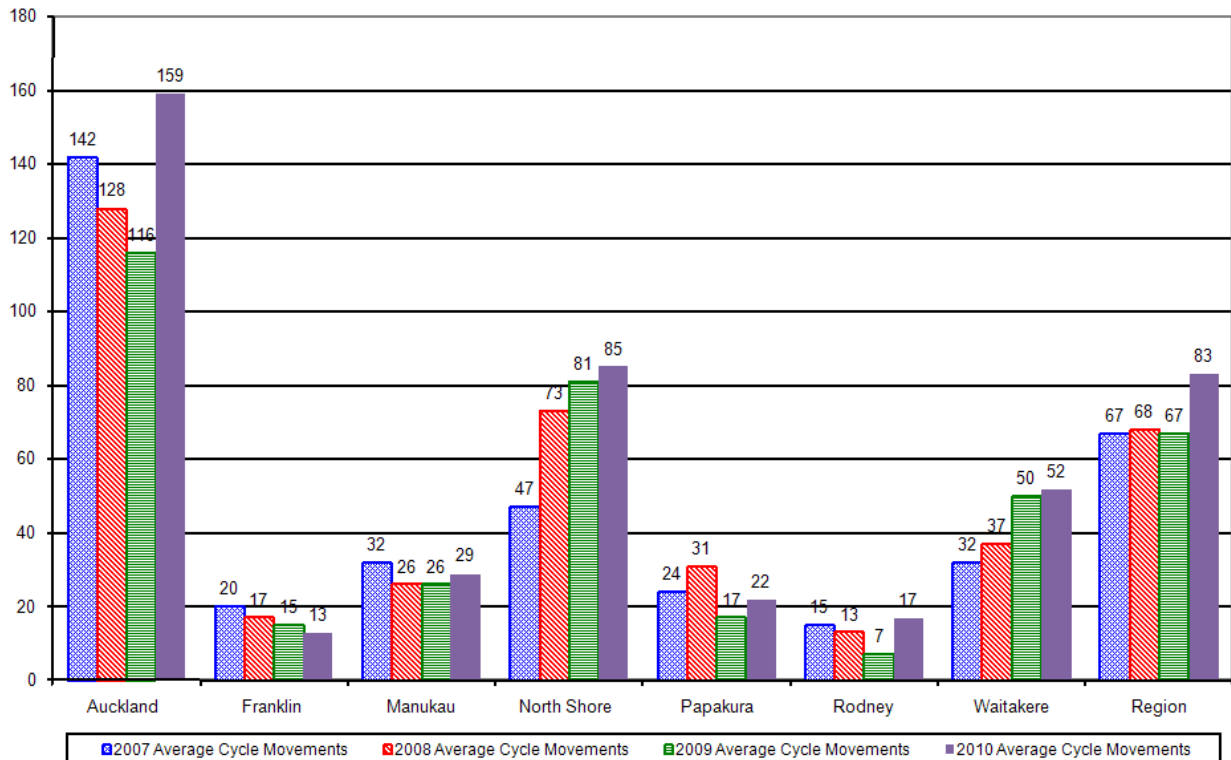
Movements In The Morning Peak

- Of the sites monitored in both 2009 and 2010, the average number of cycle movements across the region in the morning period has increased (83 in 2010 compared with 67 in 2009 – an increase of 24 per cent).
- However, these figures mask considerable variation between Territorial Authorities. Rodney (up 143 per cent) and Auckland (up 37 per cent) have experienced notable increases in average cycle movements in the morning period. In contrast, Franklin have experienced a decline in average cycle movements in the morning peak since 2009 (down from 15 movements per site in 2009 to 13 this year).

**Table 2a: Summary Of Average Morning Cyclist Movements by TA
– 2007-2010 (62 Sites)**

Locations	Number of Sites	2007 Average Cycle Movements	2008 Average Cycle Movements	2009 Average Cycle Movements	2010 Average Cycle Movements	Change 09-10	Change 07-10
Auckland	19	142	128	116	159	37%	12%
North Shore	13	47	73	81	85	5%	81%
Waitakere	11	32	37	50	52	4%	63%
Manukau	9	32	26	26	29	12%	-9%
Papakura	2	24	31	17	22	29%	-8%
Rodney	5	15	13	7	17	143%	13%
Franklin	3	20	17	15	13	-13%	-35%
Region	62	67	68	67	83	24%	24%

**Graph 2: Average Morning Cyclist Movements by TA
– 2007-2010 (62 Sites)**



Movements In The Evening Peak

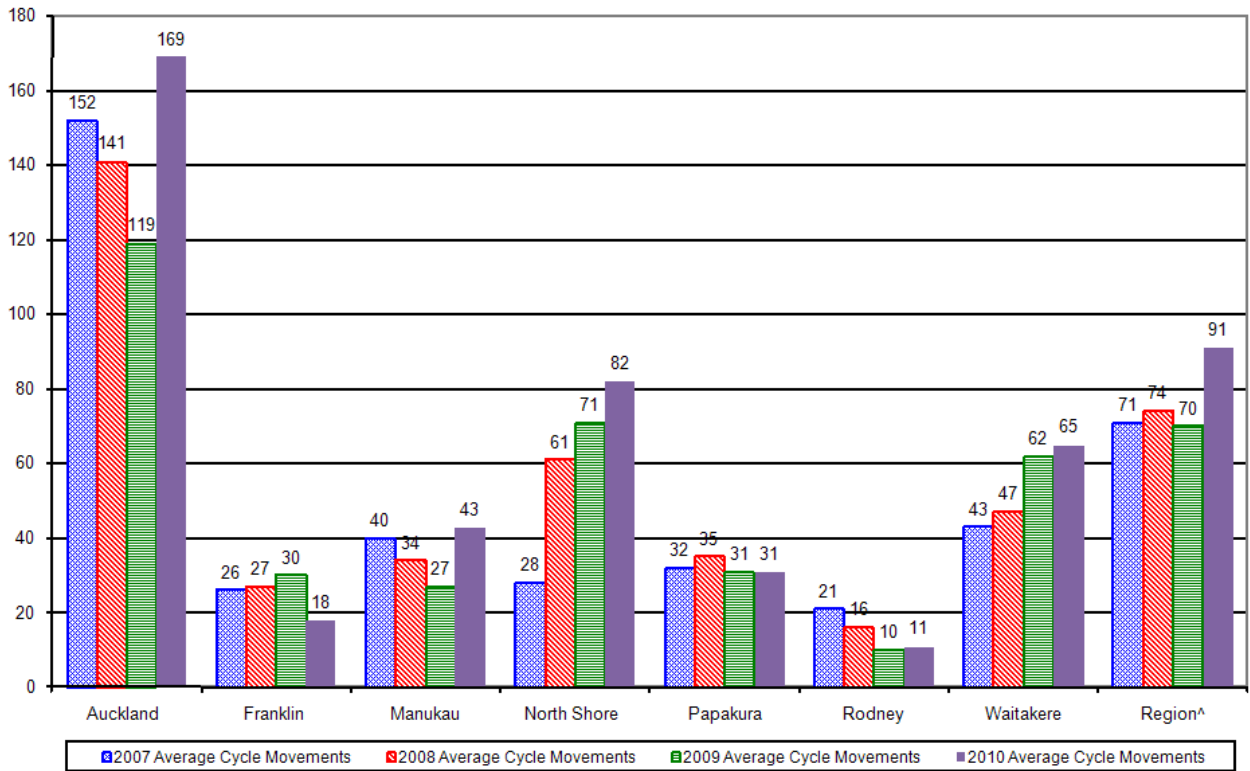
- The pattern for average evening cyclist movements is similar to the morning. While average cycle movements across the region have increased in the last 12 months (from 70 in 2009 to 91 in 2010 – a 30 per cent increase), this result hides considerable variation at the city/district level.
- Manukau and Auckland cities have experienced increases in average evening cycle movements (59 and 42 per cent respectively). In contrast, Franklin district has experienced a 40 per cent decline in average evening cycle movements.

**Table 2b: Summary Of Average Evening Cyclist Movements by TA
– 2007-2010 (61 Sites)**

Locations	Number of Sites	2007 Average Cycle Movements	2008 Average Cycle Movements	2009 Average Cycle Movements	2010 Average Cycle Movements	Change 09-10	Change 07-10
Auckland	19	152	141	119	169	42%	11%
North Shore	13	28	61	71	82	15%	193%
Manukau	9	40	34	27	43	59%	8%
Papakura	2	32	35	31	31	0%	-3%
Franklin	3	26	27	30	18	-40%	-31%
Rodney	4	21	16	10	11	10%	-48%
Waitakere	11	43	47	62	65	5%	51%
Region^	61	71	74	70	91	30%	28%

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

**Graph 3: Average Evening Cyclist Movements by TA
– 2007-2010 (61 Sites)**



Annual Average Daily Traffic (AADT) Estimates

- As in 2008 and 2009, the busiest site of the 84 monitored is the intersection of Tamaki Drive and The Strand in Auckland city (498 morning movements and 438 evening movements yielding an AADT of 1365), while this year the lowest levels of morning and evening cyclist traffic are observed at the Jelas Road/Croi Bridge site in Rodney district (4 morning and 3 evening movement observed yielding an AADT of 10).

Summary Table 4a: Cyclist Movements
2010 (n) – 6.30 to 9.00 am and 4.00 to 7.00 pm

Site Number	Locations	Area	AM	PM	AADT 2010	AADT 2009	AADT 2008	AADT 2007
10	Tamaki Drive/The Strand	Auckland	498	438	1365	880	1146	1313
8	Symonds Street/Karangahape Road	Auckland	283	314	865	765	899	924
9	Karangahape Road/Queen Street	Auckland	272	310	843	669	616	736
2	Ponsonby/Karangahape Road	Auckland	242	317	807	536	602	705
6	North Western Cycleway/Great North Road	Auckland	244	241	705	416	532	335
7	North Western Cycleway/St Lukes	Auckland	222	210	629	451	480	469
22	Ferry Terminal	Auckland	198	197	574	363	459	553
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	179	209	562	513	393	335
13	Ian McKinnon/Newton Road	Auckland	190	184	544	422	-	-
35	Lake Road, by Takapuna Grammar	North Shore	186	141	479	432	440	444
3	Great North/Carrington Road	Auckland	150	164	455	281	333	341
36	Hurstmere Road/Killarney Street	North Shore	180	122	443	466	368	279
42	Shakespeare/East Coast Road	North Shore	146	159	442	454	364	314

Site Number	Locations	Area	AM	PM	AADT 2010	AADT 2009	AADT 2008	AADT 2007
12	Manukau Road/Greenlane West	Auckland	130	127	374	255	296	326
17	Onehunga Harbour Road	Auckland	98	159	369	259	316	357
11	Remuera/Orakei Road	Auckland	149	95	359	274	276	282
37	Taharoto/Northcote Road	North Shore	117	112	333	293	396	375
14	Mount Albert/New North Road	Auckland	91	118	302	205	236	226
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	105	102	301	195	161	-
5	Dominion/Balmoral Road	Auckland	91	114	296	265	291	344
52	Central Park Drive	Waitakere	94	106	290	306	227	184
78	Lagoon Drive/Church Crescent	Auckland	100	95	284	186	-	-
20	St Heliers Bay/West Tamaki Road	Auckland	98	72	249	158	246	308
21	Great South Road/Campbell Road/Main Highway	Auckland	69	102	246	218	165	253
47	Oteha Valley/East Coast Road	North Shore	87	81	245	201	163	137
16	Jervois Road/Wallace Street	Auckland	88	79	243	162	-	-
1	Victoria/Wellesley/Halsey Street	Auckland	82	80	236	180	196	231
80	Pakuranga Road/Ti Rakau Drive	Manukau	70	92	234	176	-	-
39	Upper Harbour Drive/Albany Highway	North Shore	65	93	228	200	143	57
38	Rosedale/East Coast Road	North Shore	93	59	224	235	143	176
73	Blockhouse Bay/Great North Road	Auckland	66	75	204	173	170	-
87	Triangle/Huruhuru Road	Waitakere	59	78	198	-	-	-
53	326 Te Atatu Road (Near Covil Ave)	Waitakere	65	62	185	202	155	127
33	Bucklands Beach/Pakuranga Road	Manukau	45	69	164	137	187	203
46	Rosedale/Bush Road	North Shore	48	61	157	103	106	70
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	34	68	146	148	122	88

Site Number	Locations	Area	AM	PM	AADT 2010	AADT 2009	AADT 2008	AADT 2007
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	44	56	144	118	136	170
85	Rathgar/Pomaria Road	Waitakere	53	46	144	122	-	-
84	Behind Rodney District Council Building	Rodney	73	22	142	130	-	-
51	Luckens/Hobsonville Road	Waitakere	41	54	137	110	60	47
70	Upper Harbour Drive/Buckley Avenue ³	Waitakere	37	57	135	97	51	-
75	Stanley Street/Grafton Road	Auckland	47	46	135	140	95	-
43	Glenfield/Coronation Road	North Shore	37	56	134	113	109	64
41	Wairau/Glenfield Road	North Shore	38	53	131	117	107	93
4	Patiki/Rosebank Road	Auckland	38	52	130	105	114	119
40	Oteha Valley Road/SH17/Albany Highway	North Shore	29	62	130	103	69	42
49	Triangle Road/Don Buck Road	Waitakere	27	63	128	80	88	96
32	McKenzie/Coronation/Walmsley Road	Manukau	38	49	126	75	82	101
48	Henderson Creek	Waitakere	38	46	121	105	43	65
45	Beach/Browns Bay Road	North Shore	50	27	114	86	66	44
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	30	48	112	86	109	117
44	Birkenhead Ave/Mokoia Road	North Shore	29	46	108	83	71	58
23	Great South/Bairds Road	Manukau	34	37	103	83	81	99
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	28	44	103	59	74	106
81	Te Irirangi Drive/Ormiston Road	Manukau	25	41	95	47	-	-
30	Great South/East Tamaki Road	Manukau	25	40	93	92	74	106
65	Great South Road/Rosehill Drive	Papakura	29	33	90	85	106	77
79	Harris/Smales Road	Manukau	25	37	89	88	-	-

³ 2008 and 2009 results do not include movement into or out of Buckley Avenue, southwest on Upper Harbour Drive.

Site Number	Locations	Area	AM	PM	AADT 2010	AADT 2009	AADT 2008	AADT 2007
18	Great South Road/High St/Atkinson/Park Ave	Auckland	25	36	88	71	87	121
57	West Coast/Rosier Road	Waitakere	31	29	87	90	54	69
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	30	30	87	46	87	-
26	Great South/Browns/Orams Road	Manukau	21	37	83	57	81	86
31	Wyllie Avenue/Puhinui Road	Manukau	23	34	82	50	47	55
68	Queen/Harris Street	Franklin	18	39	81	135	119	146
50	Lincoln Road/Fairdene Avenue	Waitakere	21	35	80	62	79	57
88	Keith Hay Park	Auckland	28	25	77	-	-	-
54	Te Atatu Road/Elcoat Avenue	Waitakere	30	22	76	101	66	73
86	George/Elizabeth Street	Franklin	16	33	70	25	-	-
61	D'Oyly Reserve cycleway	Rodney	31		65	13	145	35
28	Massey/Buckland Road	Manukau	16	29	64	57	44	61
66	Great South Road/Taka Street	Papakura	15	28	62	51	83	83
71	Highbrook Drive	Manukau	27	13	59	55	42	-
76	Waikaraka Cycle Way	Auckland	7	35	59	73	76	-
82	Jelas/Moffatt Road	Rodney	24	15	57	55	-	-
15	Richardson Road/Maioro Street	Auckland	14	25	56	30	-	-
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	14	23	53	31	63	80
56	3 Rankin Avenue	Waitakere	12	20	46	56	55	45
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	21	8	43	38	45	42
69	Edinburgh/Tobin Street	Franklin	17	11	41	49	58	51
60	Whangaparaoa Road, near SH1 Intersection	Rodney	13	10	34	17	29	40
25	Tom Pearce/George Bolt Memorial Drive	Manukau	5	7	17	38	-	-

Site Number	Locations	Area	AM	PM	AADT 2010	AADT 2009	AADT 2008	AADT 2007
62	Rata Road/Rimu Road/Centre cycleway	Rodney	8	1	14	16	21	46
67	Karaka/Glenbrook Road/SH22	Franklin	4	4	12	7	13	6
83	Jelas Road/Croi Bridge	Rodney	4	3	10	3		-

Summary Table 4b⁴: AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2010 (n)

Area	2007	2008	2009	2010	Change 09-10	Change 07-10
Total (61 sites since 2007) [^]	8428	8703	8434	10632	26%	26%
Total (67 sites since 2008) [^]	-	9140	8904	11215	26%	-
Total (81 sites in 2009)	-	-	9937	12625	27%	-
Total (84 sites in 2010)	-	-	-	12909	-	-

⁴ The AADT estimates for all TAs in 2008, 2009 and 2010 are calculated using the 'dry' weather factor, whereas a 'wet' factor was applied to 2007's AADT calculation for North Shore City. The 'wet' factor is a greater multiplier than the 'dry' factor and consequently produces higher AADT estimates.

School Bike Shed Count

- Overall, 2 per cent of intermediate, secondary and composite school students eligible to cycle to school in the Auckland region do so. This result is unchanged from previous years.
- Rates of cycling to school are highest among schools in North Shore city (3 per cent, up from 2 per cent last year). By comparison, Franklin district (1 per cent, down from 2 per cent in 2009), Manukau city and Papakura district (1 per cent respectively, unchanged from 2009) have the lowest rates of cycling.
- Rates of cycling to school are highest among intermediate schools surveyed (5 per cent, up from 4 per cent in 2009) and lowest for composite and secondary schools (1 per cent, unchanged from last year)

**Table 5a: Summary Table of School Bike Count by Area
2007-2010 (n)**

Area	Number of Schools Responding (n)	Average School Roll Eligible To Cycle	Average Number of Cycles Counted	Average of Cycling Rate per School (2010)	Average of Cycling Rate per School (2009)	Average of Cycling Rate per School (2008)	Average of Cycling Rate per School (2007)
Rodney	8	817	19	2%	3%	2%	3%
Auckland	39	844	15	2%	2%	2%	2%
Franklin	4	894	6	1%	2%	2%	2%
North Shore	22	992	28	3%	2%	3%	3%
Waitakere	17	844	16	2%	2%	1%	2%
Manukau	30	774	10	1%	1%	1%	2%
Papakura	5	937	13	1%	1%	1%	1%
Total	125	857	16	2%	2%	2%	2%

**Table 5b: Summary Table of School Bike Count by School Level
2007-2010 (n)**

Year Levels	Number of Schools Responding (n)	Average School Roll Eligible To Cycle	Average Number of Cycles Counted	Average Cycling Rate per School (2010)	Average Cycling Rate per School (2009)	Average Cycling Rate per School (2008)	Average Cycling Rate per School (2007)
Intermediate	38	503	24	5%	4%	4%	5%
Intermediate/Secondary	18	859	13	2%	1%	2%	2%
Composite	24	473	3	1%	<1%	1%	1%
Secondary	45	1351	18	1%	1%	1%	1%
Total	125	854	16	2%	2%	2%	2%

1. INTRODUCTION

1.1 The Need For Reliable Cycle Trip Data

The Need For Reliable Cycle Trip Data

Monitoring cycle movements and cycle traffic is important to the Auckland Regional Transport Authority (ARTA) and the local councils in the Auckland region, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help ARTA prioritise future funding through the Auckland Land Transport Programme⁵.

Cycle traffic data will help inform a major programme of improvements for cycling in the Auckland region. In 2007, over \$100 million was planned to be invested in building over 50% of the Regional Cycle Network by 2016. By mid 2009, 21% of the Regional Cycle Network had been built. Comprehensive cycle data assists with the development of the region's cycle network and prioritisation of projects.

This cycle monitoring gives precise cycle traffic information for a number of locations across the region, which can guide investment in infrastructure and other programmes. It also allows councils to track progress against a quality baseline over the coming decade.

⁵ Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*

Manual Cycle Monitoring

Historically, manual cycle monitoring had been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor had been undertaken using a different methodology⁶. This variability prevented the possibility of comparing the relative popularity of different sites across TA boundaries. In addition, each monitor programme took place at different times of the year, preventing comparability from location to location since factors such as weather, school/tertiary education holidays, seasonal variations and daylight savings each have an impact on the numbers of cyclists. Even within TAs, inconsistencies as to when counts took place from year to year prevented robust comparability over time.

Through the Regional Cycle Monitoring Plan, it was proposed that these manual counts be regionally aligned to ensure better regional consistency. Ideally, cycle count monitoring would be carried out at the same time each year across the region, applying a standard methodology. As outlined in the Regional Cycle Monitoring Plan, a consistent methodology would ensure that:

- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and weekends would be made at the outset;
- a consistent set of times are used for monitoring, for the morning, evening and inter-peak periods; and
- a consistent method is used for monitoring direction and location of cyclists, including monitoring how many are on the footpath.

This report presents results from manual cycle counts conducted at 84 sites across the Auckland region following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level. For sites also monitored in 2007, 2008 and/or 2009, comparative results are provided.

Important Note: This report provides a regional summary of the results of manual cycle monitoring conducted at 84 pre-determined sites throughout the Auckland region. Site-by-site results and city/district summaries for each Territorial Authority have been provided in separate documents. Readers should refer to these documents for Territorial Authority and site-level detail.

⁶ For example, Manukau and North Shore cities' monitors took place at the same morning and evening peak times, while Auckland city's differs by one hour for the evening peak, and Waitakere's differs for both peaks.

Cycle Monitoring Locations

Auckland City

1. Victoria / Wellesley / Halsey Street
2. Ponsonby / Karangahape / Newton / Great North Road
3. Great North / Carrington / Point Chevalier Road
4. Patiki / Rosebank Road
5. Dominion / Balmoral Road
6. North Western Cycleway / Great North Road
7. North Western Cycleway / St Lukes Road
8. Symonds / Karangahape / Grafton Road
9. Karangahape Road / Queen Street
10. Tamaki Drive / The Strand
11. Remuera / Orakei / Ascot Road
12. Manukau / Greenlane Road
13. Ian McKinnon / Newton Road*
14. Mount Albert / New North Road
15. Richardson Road / Maioro Street*
16. Jervois Road / Wallace Street*
17. Onehunga Harbour Road
18. Great South Road / High Street / Atkinson Avenue
19. Ellerslie Panmure Highway / Lunn Avenue
20. St Heliers Bay / West Tamaki Road
21. Great South Road / Campbell Road / Main Highway
22. Ferry Terminal
73. Blockhouse Bay / Great North Road**
74. Pilkington Road / Apirana Avenue / Tripoli Road**
75. Stanley Street / Grafton Road / Wellesley Street East**
76. Waikaraka Cycleway**
78. Lagoon Drive / Church Crescent*
88. Keith Hay Park/Sommerset Road/Bridge***

North Shore City

35. Lake Road
36. Hurstmere Road / Killarney Street
37. Taharoto / Northcote Road
38. Rosedale / East Coast Road
39. Upper Harbour Drive / Albany Highway
40. Oteha Valley Road / SH17 / Albany Highway
41. Wairau / Glenfield Road
42. Shakespeare / East Coast Road
43. Glenfield / Coronation Road
44. Birkenhead Avenue / Mokoia Road

***New site in 2010

*New site in 2009

**New site in 2008

- 45. Beach / Browns Bay Road
- 46. Rosedale / Bush Road
- 47. Oteha Valley / East Coast Road

Manukau City

- 23. Great South / Bairds Road
- 24. Great South Road / Te Irirangi Drive / Cavendish Drive
- 25. Tom Pearce / George Bolt Memorial Drive (re-located site)
- 26. Great South / Browns / Orams Road
- 28. Massey / Buckland Road
- 30. Great South / East Tamaki Road
- 31. Wyllie Avenue / Puhinui Road
- 32. McKenzie / Coronation / Walmsley Road
- 33. Bucklands Beach / Pakuranga Road
- 34. Te Irirangi / Ti Rakau Drive
- 71. Highbrook Interchange** – NZTA
- 89. Harris / Smales Road*
- 90. Pakuranga Road / Ti Rakau Drive*
- 91. Te Irirangi Drive / Ormiston Road*

Waitakere City

- 48. Henderson Creek
- 49. Triangle / Don Buck Road
- 50. Lincoln Road / Fairdene Avenue
- 51. Luckens / Hobsonville Road
- 52. Central Park Drive
- 53. 326 Te Atatu Road
- 54. Te Atatu Road / Elcoat Avenue
- 55. Swanson Road / Ranui Station Road / Armada Drive
- 56. 3 Rankin Avenue
- 57. West Coast / Rosier Road
- 58. North Western Cycleway (near Te Atatu off-ramp)
- 70. Upper Harbour Road/Buckley Avenue*** – NZTA
- 72. Te Atatu Road / Old Te Atatu Road**
- 85. Rathgar / Pomaria Road*
- 87. Huruhuru/Triangle Road***

Rodney District

- 59. Whangaparaoa Road – near Red Beach intersection
- 60. Whangaparaoa Road – near SH1 intersection
- 61. D'Oyly Reserve cycleway
- 62. Cycleway between Whangaparaoa Town Centre and Leisure Centre
- 63. Gulf Harbour Drive / Laurie Southwick Parade

***New site in 2010

*New site in 2009

**New site in 2008

- 82. Jelas / Moffatt Road*
- 83. Jelas / Croi Bridge*
- 84. Behind Rodney District Council Building*

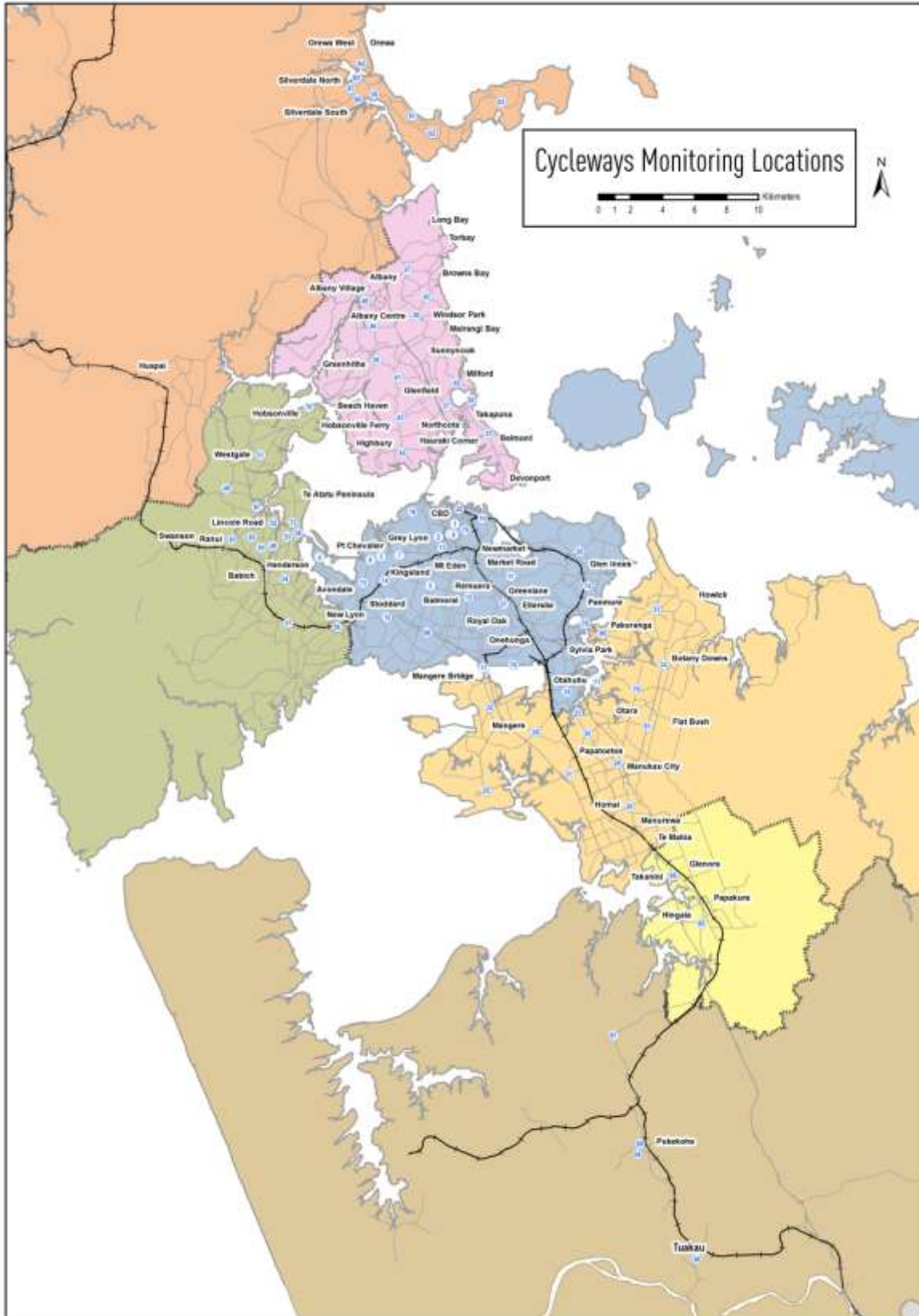
Papakura District

- 64. Great South Road / Rosehill Drive
- 65. Great South Road / Taka Street

Franklin District

- 66. Karaka (SH22) / Glenbrook Road
- 67. Queen / Harris Street
- 68. Edinburgh / Tobin Street
- 86. George / Elizabeth Street*

*New site in 2009



2. REGIONAL SUMMARY OF RESULTS

2.1 Morning Peak

Environmental Conditions

- The weather was fine across almost all sites in all Territorial Authorities in the morning monitoring period. The only exceptions were light drizzle at:
 - Great South/Rosehill Road (Papakura district);
 - George/Elizabeth Street (Franklin district);
 - Great South/Bairds Road (Manukau city); and
 - McKenzie/Coronation/Walmsley Road (Manukau city).
- There were no road works or accidents that may have impact on the cycle counts. The only exception is at the Edinburgh Street/Tobin Street site (Franklin district) where footpath construction work was carried out, restricting the use of the footpath by cyclists.

Key Points

- A total of 6,140⁷ cyclist movements were recorded across the 81 sites monitored in 2009 and 2010 in the morning peak period (between 6:30am and 9:00am) in 2010. This represents a 26 per cent increase from 2009 (4,856 movements). This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- Fifty-four sites (two-thirds of all sites) recorded increases of more than 3 per cent compared to 2009. The most notable increases are at:
 - D'Oyly Reserve cycleway – up 26 to 31 movements (520 per cent);
 - George/Elizabeth Street – up 12 to 16 movements (300 per cent);
 - Jelas Road/Croi Bridge – up 3 to 4 movements (300 per cent);
 - Gulf Harbour Drive/Laurie Southwick Parade – up 9 to 14 movements (180 per cent); and
 - Apirana Avenue/Pilkington/Tripoli Road – up 18 to 30 movements (150 per cent).

⁷ It is important to note that this figure represents individual cyclist movements rather than total cyclist numbers. The limitations of the methodology used mean that, due to the close proximity of sites to one another (particularly in Auckland City's CBD), it is possible for the same cyclist to be counted at more than one site. It is also possible to 'double count' cyclists if they use the same intersection more than once during a shift. At the same time, there will be many cycle trips that were not counted at all by this methodology, if a cyclist's route does not pass through a monitoring location. Because of these limitations, it cannot be said that 6,140 different cyclists were counted on the Auckland region's roads using these sites; the actual number of cyclists, and the number of cycle trips they take, may be higher or lower than the number of cycle movements counted through this methodology.

- In contrast, 20 sites (a quarter of all sites) recorded declines of more than 3 per cent this year compared to 2009. The most notable decreases are at:
 - Waikaraka Cycle Way – down from 18 to 7 movements (61 per cent);
 - 3 Rankin Avenue – down from 21 to 12 movements (43 per cent); and
 - Queen/Harris Street – down from 27 to 18 movements (33 per cent).
- A total of 6,277 cyclist movements were recorded across the 84 sites in the morning peak period (between 6:30am and 9:00am) in 2010. Five per cent of morning cycle movements (n=344) were observed in cycling groups.
- As in previous years, the busiest site out of the 84 in the morning peak is the intersection of Tamaki Drive and The Strand (498 movements, up from 321 movements in 2009), while the lowest levels of morning cyclist traffic were observed at the Great South Road/Taka Street intersection in Papakura district and Jelas Road/Croi Moffatt Road in Rodney district (4 movement respectively).

**Table 2.1A: Summary Of Morning Cyclist Movements
2007-2010 (n) – 6.30 to 9.00 am**

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	Auckland	480	416	321	498	55%	4%
8	Symonds Street/Karangahape Road	Auckland	290	285	246	283	15%	-2%
9	Karangahape Road/Queen Street	Auckland	246	212	238	272	14%	11%
6	North Western Cycleway/ Great North Road	Auckland	98	156	145	244	68%	149%
2	Ponsonby/Karangahape Road	Auckland	226	199	176	242	38%	7%
7	North Western Cycleway/St Lukes	Auckland	152	156	155	222	43%	46%
22	Ferry Terminal	Auckland	195	158	137	198	45%	2%
13	Ian McKinnon/Newton Road	Auckland	-	-	139	190	37%	-
35	Lake Road, by Takapuna Grammar	North Shore	127	200	166	186	12%	46%
36	Hurstmere Road/Killarney Street	North Shore	76	134	186	180	-3%	137%
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	102	121	157	179	14%	75%
3	Great North/Carrington Road	Auckland	114	95	97	150	55%	32%
11	Remuera/Orakei Road	Auckland	86	100	107	149	39%	73%
42	Shakespeare/East Coast Road	North Shore	82	127	177	146	-18%	78%
12	Manukau Road/Greenlane West	Auckland	103	92	84	130	55%	26%
37	Taharoto/Northcote Road	North Shore	111	160	98	117	19%	5%
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	-	56	66	105	59%	-
78	Lagoon Drive/Church Crescent	Auckland	-	-	57	100	75%	-
17	Onehunga Harbour Road	Auckland	93	88	74	98	32%	5%
20	St Heliers Bay/West Tamaki Road	Auckland	139	107	61	98	61%	-29%
52	Central Park Drive	Waitakere	61	68	91	94	3%	54%
38	Rosedale/East Coast Road	North Shore	54	52	105	93	-11%	72%
5	Dominion/Balmoral Road	Auckland	114	90	85	91	7%	-20%
14	Mount Albert/New North Road	Auckland	75	68	59	91	54%	21%

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
16	Jervois Road/Wallace Street	Auckland	-	-	60	88	47%	-
47	Oteha Valley/East Coast Road	North Shore	42	40	69	87	26%	107%
1	Victoria/Wellesley/Halsey Street	Auckland	70	57	59	82	39%	17%
84	Behind Rodney District Council Building	Rodney	-	-	75	73	-3%	-
80	Pakuranga Road/Ti Rakau Drive	Manukau	-	-	46	70	52%	-
21	Great South Road/Campbell Road/Main Highway	Auckland	89	53	64	69	8%	-22%
73	Blockhouse Bay/Great North Road	Auckland	-	57	57	66	16%	-
39	Upper Harbour Drive/Albany Highway	North Shore	14	54	63	65	3%	364%
53	326 Te Atatu Road, near Covil Avenue	Waitakere	44	52	79	65	-18%	48%
87	Triangle/Huruhuru Road	Waitakere	-	-	-	59	-	-
85	Rathgar/Pomaria Road	Waitakere	-	-	32	53	66%	-
45	Beach/Browns Bay Road	North Shore	11	26	29	50	72%	355%
46	Rosedale/Bush Road	North Shore	15	36	26	48	85%	220%
75	Stanley Street/Grafton Road	Auckland	-	36	49	47	-4%	-
33	Bucklands Beach/Pakuranga Road	Manukau	68	53	51	45	-12%	-34%
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	52	42	31	44	42%	-15%
51	Luckens/Hobsonville Road	Waitakere	20	25	26	41	58%	105%
4	Patiki/Rosebank Road	Auckland	37	34	38	38	0%	3%
32	McKenzie/Coronation/Walmsley Road	Manukau	28	21	22	38	73%	36%
41	Wairau/Glenfield Road	North Shore	34	39	42	38	-10%	12%
48	Henderson Creek	Waitakere	14	11	27	38	41%	171%
43	Glenfield/Coronation Road	North Shore	16	36	36	37	3%	131%
70	Upper Harbour Drive/Buckley Avenue ⁸	Waitakere	-	17	23	37	-	-
23	Great South/Bairds Road	Manukau	32	27	29	34	17%	6%
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	15	21	37	34	-8%	127%

⁸ 2008 and 2009 results do not include movement into or out of Buckley Avenue, southwest on Upper Harbour Drive.

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
57	West Coast/Rosier Road	Waitakere	19	18	28	31	11%	63%
61	D'Oyly Reserve cycleway	Rodney	14	19	5	31	520%	121%
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	36	36	30	30	0%	-17%
54	Te Atatu Road/Elcoat Avenue	Waitakere	26	27	37	30	-19%	15%
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	-	22	12	30	150%	-
40	Oteha Valley Road/SH17/Albany Highway	North Shore	4	20	25	29	16%	625%
44	Birkenhead Ave/Mokoia Road	North Shore	20	20	27	29	7%	45%
65	Great South Road/Rosehill Drive	Papakura	29	42	22	29	32%	0%
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	34	25	19	28	47%	-18%
88	Keith Hay Park	Auckland	-	-	-	28	-	-
49	Triangle Road/Don Buck Road	Waitakere	24	29	21	27	29%	13%
71	Highbrook Drive	Manukau	-	13	20	27	35%	-
18	Great South Road/High Street/Atkinson/Park Avenue	Auckland	38	30	21	25	19%	-34%
30	Great South/East Tamaki Road	Manukau	36	24	33	25	-24%	-31%
79	Harris/Smales Road	Manukau	-	-	35	25	-29%	-
81	Te Irirangi Drive/Ormiston Road	Manukau	-	-	13	25	92%	-
82	Jelas/Moffatt Road	Rodney	-	-	15	24	60%	-
31	Wyllie Avenue/Puhinui Road	Manukau	18	8	12	23	92%	28%
26	Great South/Browns/Orams Road	Manukau	25	32	21	21	0%	-16%
50	Lincoln Road/Fairdene Avenue	Waitakere	13	19	21	21	0%	62%
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	13	15	15	21	40%	62%
68	Queen/Harris Street	Franklin	44	31	27	18	-33%	-59%
69	Edinburgh/Tobin Street	Franklin	17	16	15	17	13%	0%
28	Massey/Buckland Road	Manukau	12	11	19	16	-16%	33%

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
86	George/Elizabeth Street	Franklin	-	-	4	16	300%	-
66	Great South Road/Taka Street	Papakura	18	19	12	15	25%	-17%
15	Richardson Road/Maioro Street	Auckland	-	-	8	14	75%	-
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	17	14	5	14	180%	-18%
60	Whangaparaoa Road, near SH1 Intersection	Rodney	11	9	6	13	117%	18%
56	3 Rankin Avenue	Waitakere	16	17	21	12	-43%	-25%
62	Rata Road/Rimu Road/Centre cycleway	Rodney	21	9	6	8	33%	-62%
76	Waikaraka Cycle Way	Auckland	-	13	18	7	-61%	-
25	Tom Pearce/George Bolt Memorial Drive	Manukau	-	-	6	5	-17%	-
67	Karaka/Glenbrook Road/SH22	Franklin	0	4	2	4	100%	-
83	Jelas Road/Croi Bridge	Rodney	-	-	1	4	300%	-
Total (62 sites since 2007)			4130	4205	4143	5139	24%	24%
Total (68 sites since 2008)			-	4402	4365	5494	26%	-
Total (81 sites in 2009)			-	-	4856	6140	26%	-
Total (84 sites in 2010)			-	-	-	6277	-	-

Table 2.1B: Summary Of Average Morning Cyclist Movements by TA
 – 2007-2010 (62 Sites)

Locations	Number of Sites	2007		2008		2009		2010		Change 09-10	Change 07-09
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range		
Auckland	19	142	37 - 480	128	30 - 416	116	21 - 321	159	25 - 498	37%	12%
North Shore	13	47	4 - 127	73	20 - 200	81	25 - 186	85	29 - 186	5%	81%
Waitakere	11	32	13 - 102	37	11 - 121	50	21 - 157	52	12 - 179	4%	63%
Manukau	9	32	12 - 68	26	8 - 53	26	12 - 51	29	16 - 45	12%	-9%
Papakura	2	24	18 - 29	31	19 - 42	17	12 - 22	22	15 - 29	29%	-8%
Rodney	5	15	11 - 21	13	9 - 19	7	5 - 15	17	8 - 31	143%	13%
Franklin	3	20	0 - 44	17	4 - 31	15	2 - 27	13	4 - 18	-13%	-35%
Region	62	67	0 - 480	68	4 - 416	67	2 - 321	83	4 - 498	24%	24%

- Table 2.1C illustrates the comparable summary results between 2008 and 2010 based on 68 sites monitored in these years. Of the seven TAs, the average number of morning cyclists at each of the monitored sites in 2008, 2009 and 2010 is highest in Auckland city (138 movements, up from 101 movements last year) and lowest in Franklin district (13 movements, down from 15 movements in 2009).

**Table 2.1C: Summary Of Average Morning Cyclist Movements by TA
– 2008-2010 (68 Sites)**

Locations	Number of Sites	2008		2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	23	112	13 - 416	101	12 - 321	138	7 - 498	37%
North Shore	13	73	20 - 200	81	25 - 186	85	29 - 186	5%
Waitakere	12	39	11 - 121	51	21 - 157	56	12 - 179	10%
Manukau	10	25	8 - 53	26	12 - 51	29	16 - 45	12%
Papakura	2	31	19 - 42	17	12 - 22	22	15 - 29	29%
Rodney	5	13	9 - 19	7	5 - 15	17	8 - 31	143%
Franklin	3	17	4 - 31	15	2 - 27	13	4 - 18	-13%
Region	68	65	4 - 416	64	2 - 321	80	4 - 498	25%

- Table 2.1D illustrates the comparable summary results between 2009 and 2010 based on 81 sites monitored in both years. Of the seven TAs, the average number of morning cyclists at each of the monitored sites in 2009 and 2010 is highest in Auckland city (132 movements, up from 96 movements last year) and lowest in Franklin district (14 movements, up from 12 movements in 2009).

**Table 2.1D: Summary Of Average Morning Cyclist Movements by TA
– 2009-2010 (81 Sites)**

Locations	Number of Sites	2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	27	96	8 - 321	132	7 - 498	38%
North Shore	13	81	25 - 186	85	29 - 186	5%
Waitakere	13	49	21 - 157	56	12 - 179	14%
Manukau	14	25	6 - 51	29	5 - 70	16%
Rodney	8	16	1 - 75	24	4 - 73	50%
Papakura	2	17	12 - 22	22	15 - 29	29%
Franklin	4	12	2 - 27	14	4 - 18	17%
Region	81	60	1 - 321	75	4 - 498	25%

- As shown in Table 2.1E, the average volume of morning cyclists across the 84 sites in the Auckland region is 74 cycle movements in 2010. Of the seven TAs, the average number of morning cyclists is highest in Auckland City (128 movements) and lowest in Franklin (14 movements).

**Table 2.1E: Summary Of Average Morning Cyclist Movements by TA
–2010 (84 Sites)**

Locations	Number of Sites	Average Cycle Movements	Range
Auckland	28	128	7 - 498
North Shore	13	85	29 - 186
Waitakere	15	55	12 - 179
Manukau	14	29	5 - 70
Rodney	8	24	4 - 73
Papakura	2	22	15 - 29
Franklin	4	14	4 - 18
Region	84	74	4 - 498

Morning cyclist characteristics are shown in Table 2.2 below.

- Overall, 87 per cent of cyclists in the morning peak are adults in 2010 (stable from the last three years).
- Almost all morning cyclists are wearing a helmet (93 per cent, unchanged from previous years).
- On average, four in five morning cyclists are either riding on the road or the off-road cycleway (81 per cent, stable from last year). Seventeen per cent of cyclists are riding on off-road cycleway. *Note that in 2009 riding on the road has been split into riding on the road and riding on the off-road cycleway for some sites; therefore results with previous years are not directly comparable.*
- Of the seven TAs monitored, Auckland city has the highest proportion of cyclists who are adults (94 per cent) and riding either on the road or off-road cycleway (84 per cent), while North Shore city has greatest share of cyclists wearing a helmet (97 per cent).
- By comparison, Franklin district has the greatest share of cyclists who are not wearing helmets (31 per cent) and riding on the footpath (53 per cent), while cyclists identified as being school children are most common in Rodney district (78 per cent).

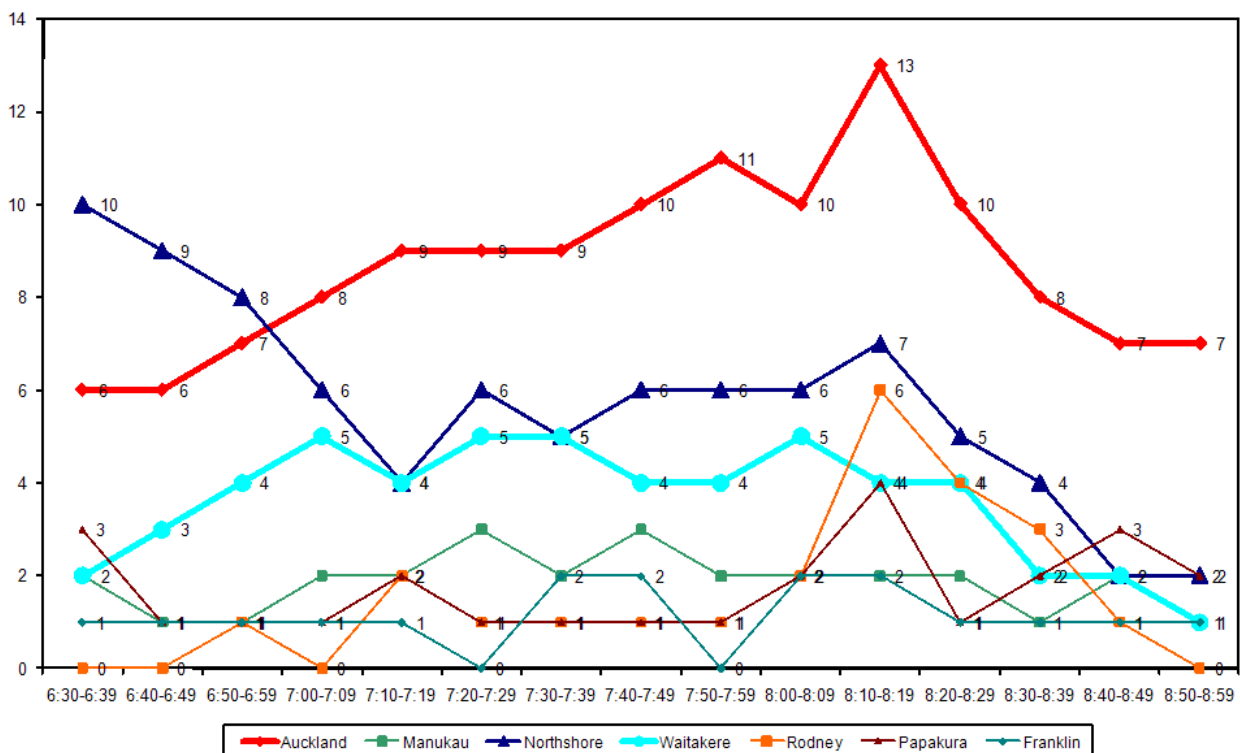
**Table 2.2: Summary of Morning Cyclist Characteristics
2007-2010 (%)**

	<i>Auckland</i>	<i>Manukau</i>	<i>North Shore</i>	<i>Waitakere</i>	<i>Rodney</i>	<i>Papakura</i>	<i>Franklin</i>	Aggregate Total (2010)	Aggregate Total (2009)	Aggregate Total (2008)	Aggregate Total (2007)
Cyclist Type											
Adult	94%	88%	81%	80%	22%	61%	53%	87%	85%	85%	85%
School child	6%	12%	19%	20%	78%	39%	47%	13%	15%	15%	15%
Helmet Wearing											
Helmet on head	93%	89%	97%	93%	82%	84%	69%	93%	93%	93%	93%
No helmet	7%	11%	3%	7%	18%	16%	31%	7%	7%	7%	7%
Where Riding											
Road	66%	65%	79%	46%	18%	55%	47%	64%	63%	81%	78%
Footpath	16%	31%	20%	22%	17%	45%	53%	19%	19%	19%	22%
Off-road cycleway ⁹	18%	4%	1%	32%	65%	0%	0%	17%	18%	-	-
Base:	3594	412	1105	826	188	44	55	6224	4898	4619	4358

⁹ From 2009, surveyors were asked to distinguish between cyclist riding on the road and cyclists riding on off-road cycleway. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.

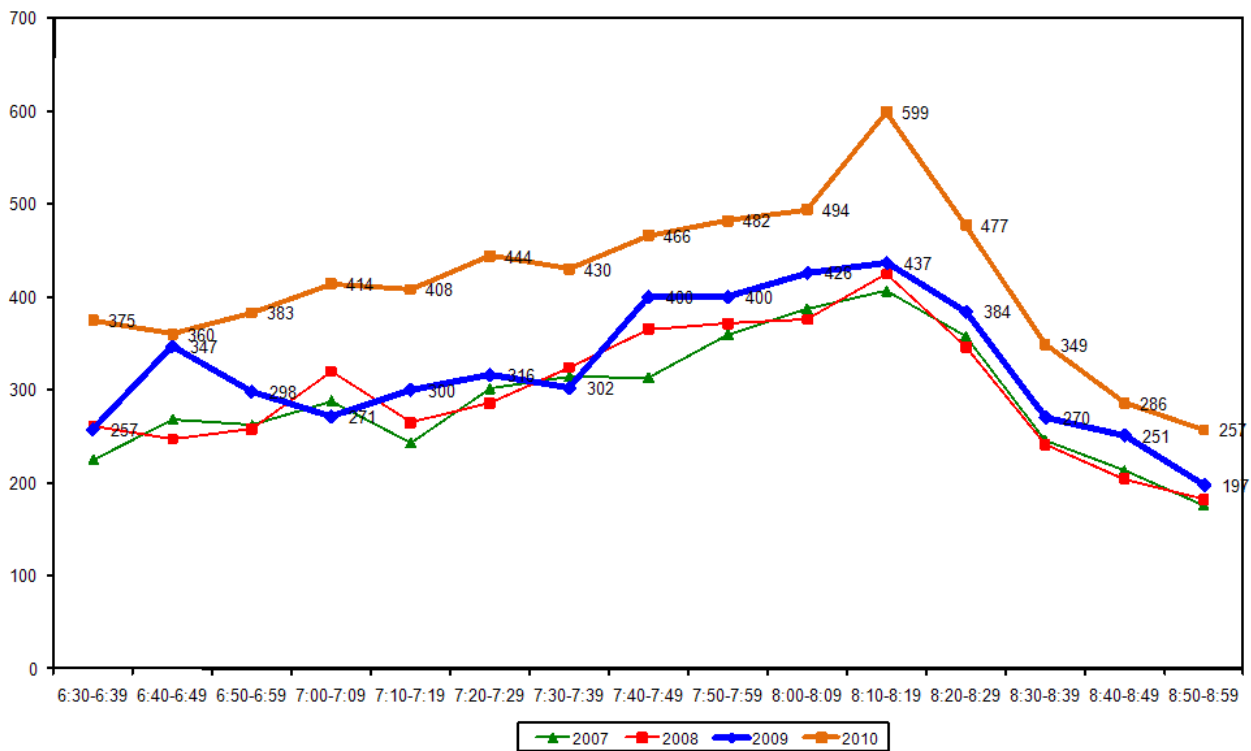
- Figure 2.1 illustrates the average number of morning cycle movements per site by time of trip. The graph shows the different patterns of morning cyclist volumes across each of the cities/districts in the region.
- Of the seven TAs, Auckland city has the highest average number of cycle movements over every ten-minute interval from 7:00am to 8:59am, while North Shore city has the greatest average cyclist volumes between 6:30 and 6:59 am (peaking at 10 movements). The average per-site cycle volumes across the Auckland city sites peak between 8:10 and 8:19 am (13 movements).
- Of the other TAs, Waitakere has the highest number of cycle movements over most ten-minute interval throughout the morning monitoring period, with slight peaks at around 7:00-7:09, 7:20-7:39, and 8:00-8:09 am. The only exceptions were between 8:10 and 8:19 am, where Rodney district recorded a peak (6 cyclists).
- By comparison, Manukau, Papakura and Franklin districts have low cycle volumes throughout the morning monitoring period. Movement numbers are relatively consistent throughout the period, with a slight peak in movement numbers between 8:10 and 8:19 am reported for Papakura district (4 cyclists).

**Figure 2.1: Average Cyclist Frequency per Site by Territorial Authority
– Morning Peak 2010**



- Figure 2.2 shows the overall pattern of total morning cyclist volumes recorded at the 84 sites monitored in the Auckland region. Similar to the overall cyclist pattern reported last year, morning cyclist numbers follow a steady increasing trend from 6:40 to 8:10am, reaching a peak between 8.10 and 8:19am – the same time as last year (599 movements, up from 437 movements in 2009), and then drop off towards the end of the morning period. There were at least 257 cycle movements recorded within any ten minute interval during the morning peak.

**Figure 2.2: Total Cyclist Frequency
– Morning Peak 2007-2010**



2.2 Evening Peak

Environmental Conditions

- Of the 84 sites monitored in the Auckland region, Auckland, North Shore, and Waitakere city all had fine weather throughout the evening shift. In contrast, most sites in Manukau city, a few sites in Rodney, Franklin and Papakura districts had intermittent showers during the evening shift.
- There were no road works that may affect cycle counts during the evening shift.

Key Points

- A total of 6,512 cyclist movements¹⁰ were recorded across the sites also monitored in 2009 in the evening peak period (between 4:00pm and 7:00pm) in 2010. This represents a 28 per cent increase on the 2009 result (5,077 movements). This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- Over the evening peak, 64 sites (79 per cent) recorded increases this year compared to 2009. The most notable increases are at:
 - D'Oyly Reserve cycleway – up from 4 to 13 movements (225 per cent);
 - Jelas Road/Croi Bridge – up from 1 to 3 movements (200 per cent); and
 - George/Elizabeth Street – up from 14 to 33 movements (136 per cent).
- In contrast, 18 sites recorded declines. The most notable decreases are at:
 - Rata Road/Rimu Road/Centre cycleway – down 21 to 7 movements (80 per cent); and
 - Tom Pearce/George Bolt Memorial Drive – down from 5 to 1 movements (67 per cent).
- A total of 6,672 cyclist movements were recorded across the 84 sites in the evening peak period (between 4:00pm and 7:00pm) in 2010. Two per cent of evening cycle movements (n=141) were observed in cycling groups.
- Of the 84 sites monitored in 2010, the Tamaki Drive/The Strand is the busiest in terms of evening cyclist activity, with 438 movements recorded (up by 55 per cent from last year). The lowest level of evening cyclist traffic is at Rata Road/Rimu Road/Centre cycleway in Rodney district (1 movement).

¹⁰ It is important to note that this figure represents individual cyclist movements rather than total cyclist numbers. The limitations of the methodology used mean that, due to the close proximity of sites to one another (particularly in Auckland City's CBD), it is possible for the same cyclist to be counted at more than one site. It is also possible to 'double count' cyclists if they use the same intersection more than once during a shift. At the same time, there will be many cycle trips that will not be counted at all by this methodology, if a cyclist's route does not pass through a monitoring location. Because of these limitations, it cannot be said that 6,512 different cyclists were counted on the Auckland region's roads using these sites; the actual number of cyclists, and the number of cycle trips they take, may be higher or lower than the number of cycle movements counted through this methodology.

**Table 2.3A: Summary Of Evening Cyclist Movements
2007-2010 (n) – 4.00 to 7.00 pm**

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	Auckland	420	370	282	438	55%	4%
2	Ponsonby/Karangahape Road	Auckland	261	216	194	317	63%	21%
8	Symonds Street/Karangahape Road	Auckland	349	336	282	314	11%	-10%
9	Karangahape Road/Queen Street	Auckland	261	212	221	310	40%	19%
6	North Western Cycleway/Great North Road	Auckland	134	213	141	241	71%	80%
7	North Western Cycleway/St Lukes	Auckland	172	175	155	210	35%	22%
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	130	151	198	209	6%	61%
22	Ferry Terminal	Auckland	185	158	111	197	77%	6%
13	Ian McKinnon/Newton Road	Auckland	-	-	152	184	21%	-
3	Great North/Carrington Road	Auckland	121	136	96	164	71%	36%
17	Onehunga Harbour Road	Auckland	156	132	106	159	50%	2%
42	Shakespeare/East Coast Road	North Shore	55	123	133	159	20%	189%
35	Lake Road, by Takapuna Grammar	North Shore	65	97	129	141	9%	117%
12	Manukau Road/Greenlane West	Auckland	122	113	92	127	38%	4%
36	Hurstmere Road/Killarney Street	North Shore	45	118	132	122	-8%	171%
14	Mount Albert/New North Road	Auckland	81	96	83	118	42%	46%
5	Dominion/Balmoral Road	Auckland	123	111	98	114	16%	-7%
37	Taharoto/Northcote Road	North Shore	51	110	104	112	8%	120%
52	Central Park Drive	Waitakere	66	89	121	106	-12%	61%
21	Great South Road/Campbell Road/Main Highway	Auckland	85	61	87	102	17%	20%
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	-	55	68	102	50%	-

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
11	Remuera/Orakei Road	Auckland	109	89	80	95	19%	-13%
78	Lagoon Drive/Church Crescent	Auckland	-	-	72	95	32%	-
39	Upper Harbour Drive/Albany Highway	North Shore	11	44	75	93	24%	745%
80	Pakuranga Road/Ti Rakau Drive	Manukau	-	-	77	92	19%	-
47	Oteha Valley/East Coast Road	North Shore	17	74	69	81	17%	376%
1	Victoria/Wellesley/Halsey Street	Auckland	90	79	65	80	23%	-11%
16	Jervois Road/Wallace Street	Auckland	-	-	51	79	55%	-
87	Triangle/Huruhuru Road	Waitakere	-	-	-	78	-	-
73	Blockhouse Bay/Great North Road	Auckland	-	60	62	75	21%	-
20	St Heliers Bay/West Tamaki Road	Auckland	69	60	47	72	53%	4%
33	Bucklands Beach/Pakuranga Road	Manukau	72	77	43	69	60%	-4%
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	47	65	66	68	3%	45%
49	Triangle Road/Don Buck Road	Waitakere	43	32	35	63	80%	47%
40	Oteha Valley Road/SH17/Albany Highway	North Shore	15	28	47	62	32%	313%
53	326 Te Atatu Road, near Covil Avenue	Waitakere	43	55	59	62	5%	44%
46	Rosedale/Bush Road	North Shore	16	37	46	61	33%	281%
38	Rosedale/East Coast Road	North Shore	22	46	54	59	9%	168%
70	Upper Harbour Drive/Buckley Avenue ¹¹	Waitakere	-	18	45	57	-	-
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	66	52	51	56	10%	-15%
43	Glenfield/Coronation Road	North Shore	12	39	42	56	33%	367%
51	Luckens/Hobsonville Road	Waitakere	12	16	51	54	6%	350%
41	Wairau/Glenfield Road	North Shore	30	34	38	53	39%	77%
4	Patiki/Rosebank Road	Auckland	45	45	34	52	53%	16%
32	McKenzie/Coronation/Walmsley Road	Manukau	42	36	30	49	63%	17%

¹¹ 2008 and 2009 results do not include movement into or out of Buckley Avenue, southwest on Upper Harbour Drive.

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	45	39	29	48	66%	7%
44	Birkenhead Ave/Mokoia Road	North Shore	20	29	30	46	53%	130%
48	Henderson Creek	Waitakere	32	19	46	46	0%	44%
75	Stanley Street/Grafton Road	Auckland	-	29	47	46	-2%	-
85	Rathgar/Pomaria Road	Waitakere	-	-	53	46	-13%	-
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	39	26	22	44	100%	13%
81	Te Irirangi Drive/Ormiston Road	Manukau	-	-	20	41	105%	-
30	Great South/East Tamaki Road	Manukau	37	27	30	40	33%	8%
68	Queen/Harris Street	Franklin	57	52	68	39	-43%	-32%
23	Great South/Bairds Road	Manukau	36	29	28	37	32%	3%
26	Great South/Browns/Orams Road	Manukau	35	23	18	37	106%	6%
79	Harris/Smales Road	Manukau	-	-	25	37	48%	-
18	Great South Road/High Street/Atkinson/Park Avenue	Auckland	46	30	28	36	29%	-22%
50	Lincoln Road/Fairdene Avenue	Waitakere	27	36	22	35	59%	30%
76	Waikaraka Cycle Way	Auckland	-	41	33	35	6%	-
31	Wyllie Avenue/Puhinui Road	Manukau	20	25	23	34	48%	70%
65	Great South Road/Rosehill Drive	Papakura	24	30	37	33	-11%	38%
86	George/Elizabeth Street	Franklin	-	-	14	33	136%	-
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	-	39	20	30	50%	-
28	Massey/Buckland Road	Manukau	31	20	20	29	45%	-6%
57	West Coast/Rosier Road	Waitakere	29	19	34	29	-15%	0%
66	Great South Road/Taka Street	Papakura	40	39	24	28	17%	-30%
45	Beach/Browns Bay Road	North Shore	8	19	30	27	-10%	238%

Site Number	Locations	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
15	Richardson Road/Maioro Street	Auckland	-	-	13	25	92%	-
88	Keith Hay Park	Auckland	-	-	-	25	-	-
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	39	30	17	23	35%	-41%
54	Te Atatu Road/Elcoat Avenue	Waitakere	24	18	32	22	-31%	-8%
84	Behind Rodney District Council Building	Rodney	-	-	11	22	100%	-
56	3 Rankin Avenue	Waitakere	15	21	17	20	18%	33%
82	Jelas/Moffatt Road	Rodney	-	-	23	15	-35%	-
61	D'Oyly Reserve cycleway	Rodney	10	84	4	13	225%	30%
71	Highbrook Drive	Manukau	-	16	18	13	-28%	-
69	Edinburgh/Tobin Street	Franklin	18	24	19	11	-42%	-39%
60	Whangaparaoa Road, near SH1 Intersection	Rodney	17	11	6	10	67%	-41%
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	16	16	11	8	-27%	-50%
25	Tom Pearce/George Bolt Memorial Drive	Manukau	-	-	21	7	-67%	-
67	Karaka/Glenbrook Road/SH22	Franklin	4	5	3	4	33%	0%
83	Jelas Road/Croi Bridge	Rodney	-	-	1	3	200%	-
62	Rata Road/Rimu Road/Centre cycleway	Rodney	10	5	5	1	-80%	-90%
	Total (61 sites since 2007)^		4312	4517	4296	5532	29%	28%
	Total (67 sites since 2008)^		-	4757	4544	5833	28%	-
	Total (81 sites in 2009)		-	-	5077	6512	28%	-
	Total (84 sites in 2010)		-	-	-	6672	-	-

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the total figures exclude this outlier for more accurate comparison.

**Table 2.3B: Summary Of Average Evening Cyclist Movements by TA
–2007-2010 (61 Sites)**

Locations	Number of Sites	2007		2008		2009		2010		Change 08-09	Change 07-09
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range		
Auckland	19	152	45 - 420	141	30 - 370	119	28 - 282	169	36 - 438	42%	11%
North Shore	13	28	8 - 65	61	19 - 123	71	30 - 133	82	27 - 159	15%	193%
Waitakere	11	43	12 - 130	47	16 - 151	62	17 - 198	65	20 - 209	5%	51%
Manukau	9	40	20 - 72	34	20 - 77	27	18 - 43	43	29 - 69	59%	8%
Papakura	2	32	24 - 40	35	30 - 39	31	24 - 37	31	28 - 33	0%	-3%
Franklin	3	26	4 - 57	27	5 - 52	30	3 - 68	18	4 - 39	-40%	-31%
Rodney	4	21	10 - 39	16	5 - 30	10	5 - 17	11	1 - 23	10%	-48%
Region[^]	61	71	4 - 420	74	5 - 370	70	3 - 282	91	1 - 438	30%	28%

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

- Table 2.3C illustrates the comparable summary results between 2009 and 2010 based on 67 sites monitored since 2008. Of the seven TAs, the average number of evening cyclists at each site of those monitored in both 2009 and 2010 continues to be highest in Auckland city (147 movements, up from 105 movements in 2009) and is lowest in Rodney district (11 movements, compared with 8 movements last year).

**Table 2.3C: Summary Of Average Evening Cyclist Movements by TA
–2008-2010 (67 Sites)**

Locations	Number of Sites	2008		2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	23	124	29 - 370	105	20 - 282	147	30 - 438	40%
North Shore	13	61	19 - 123	71	30 - 133	82	27 - 159	15%
Waitakere	12	48	16 - 151	62	17 - 198	68	20 - 209	10%
Manukau	10	32	16 - 77	26	18 - 43	40	13 - 69	54%
Papakura	2	35	30 - 39	31	24 - 37	31	28 - 33	0%
Franklin	3	27	5 - 52	30	3 - 68	18	4 - 39	-40%
Rodney	4	16	5 - 30	10	5 - 17	11	1 - 23	10%
Region[^]	67	71	5 - 370	68	3 - 282	87	1 - 438	28%

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

- Table 2.1D illustrates the comparable summary results between 2009 and 2010 based on 81 sites monitored in both years. Of the seven TAs, the average number of morning cyclists at each of the monitored sites in 2009 and 2010 is highest in Auckland city (140 movements, up from 100 movements last year) and lowest in Rodney district (12 movements, up from 10 movements in 2009).

**Table 2.1D: Summary Of Average Evening Cyclist Movements by TA
– 2009-2010 (81 Sites)**

Locations	Number of Sites	2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	27	100	13 - 282	140	25 - 438	40%
North Shore	13	71	30 - 133	82	27 - 159	15%
Waitakere	13	62	17 - 198	66	20 - 209	6%
Manukau	14	29	18 - 77	41	7 - 92	41%
Papakura	2	31	24 - 37	31	28 - 33	0%
Franklin	4	26	3 - 68	22	4 - 39	-15%
Rodney	8	10	1 - 23	12	1 - 23	20%
Region	81	63	1 - 282	81	1 - 438	29%

- As shown in Table 2.3D, the average volume of evening cyclists across the 84 sites in the Auckland region is 80 cycle movements. Of the seven TAs, the average number of evening cycle movements is highest in Auckland City (136) and lowest in Rodney (12).

**Table 2.3E: Summary Of Average Evening Cyclist Movements by TA
–2010 (84 Sites)**

<i>Locations</i>	<i>Number of Sites</i>	<i>Average Cycle Movements</i>	<i>09 Range</i>
Auckland	28	136	25 - 438
North Shore	13	82	27 - 159
Waitakere	15	66	20 - 209
Manukau	14	41	7 - 92
Papakura	2	31	28 - 33
Franklin	4	22	4 - 39
Rodney	8	12	1 - 23
	84	80	1 - 438

Table 2.4 shows the percentage change in cyclist movements from morning to evening at each site monitored in the Auckland region.

Note that there are three hours for the evening monitoring period compared with 2.5 hours in the morning. To enable the morning and evening cyclist volumes to be fairly compared, a scale factor has been applied so that the count numbers for both periods are based on the same length of time (2.5 hours). However, the limitation of this approach is that it does not take into account the variation in cycle movement numbers that exist over the course of a shift (as illustrated in Figure 2.1 and 3.3); rather, the number of cycle movements is assumed to be consistent throughout the monitoring period. Consequently, the results presented in Table 2.4 should be considered indicative only.

- Overall, the number of evening cycle movements across the 84 sites decreases by 10 per cent from the number recorded in the morning shift. *Note that this decline can be attributed, at least in part, to the fact that the morning peak (6.30 to 9.00am) captured students cycling to school, but these same students will have been missed in the evening peak counts which commenced at 4pm, some time after schools are dismissed.*
- Forty-six per cent of the sites (39 out of 84) have the evening cycle volume greater than the morning cycle volume. The three most notable increases are at:
 - Waikaraka Cycle Way, Auckland city – increase from 7 morning movements to 29 movements in the evening (314 per cent);
 - Triangle Road/Don Buck Road, Waitakere city – increase from 27 morning movements to 53 movements in the evening (96 per cent); and
 - Queen/Harris Street, Franklin district – increase from 18 morning movements to 33 evening movements (83 per cent).
- In contrast, the number of evening cyclists recorded at 44 sites is lower than in the morning peak. The most notable decreases are at:
 - Rata Road/Rimu Road/Centre cycleway, Rodney district – from 8 morning movements to 1 evening movements (88 per cent); and
 - Behind Rodney District Council Building, Rodney district – from 73 morning movements to 18 evening movements (75 per cent).

**Table 2.4: Summary Of Change in Cyclist Movements from Morning to Evening
2010 (%)**

Site Number	Locations	Area	AM	PM¹²	Change
76	Waikaraka Cycle Way	Auckland	7	29	314%
49	Triangle Road/Don Buck Road	Waitakere	27	53	96%
68	Queen/Harris Street	Franklin	18	33	83%
40	Oteha Valley Road/SH17/Albany Highway	North Shore	29	52	79%
86	George/Elizabeth Street	Franklin	16	28	75%
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	34	57	68%
66	Great South Road/Taka Street	Papakura	15	23	53%
28	Massey/Buckland Road	Manukau	16	24	50%
15	Richardson Road/Maioro Street	Auckland	14	21	50%
26	Great South/Browns/Orams Road	Manukau	21	31	48%
56	3 Rankin Avenue	Waitakere	12	17	42%
50	Lincoln Road/Fairdene Avenue	Waitakere	21	29	38%
17	Onehunga Harbour Road	Auckland	98	133	36%
81	Te Irirangi Drive/Ormiston Road	Manukau	25	34	36%
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	14	19	36%
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	30	40	33%
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	28	37	32%
30	Great South/East Tamaki Road	Manukau	25	33	32%
44	Birkenhead Ave/Mokoia Road	North Shore	29	38	31%
70	Upper Harbour Drive/Buckley Avenue	Waitakere	37	48	30%
33	Bucklands Beach/Pakuranga Road	Manukau	45	58	29%

¹² A scale factor of 5/6 has been applied to reduce the evening cyclist volumes to a 2.5 hour interval, consistent with the morning monitoring period.

Site Number	Locations	Area	AM	PM ¹²	Change
43	Glenfield/Coronation Road	North Shore	37	47	27%
79	Harris/Smales Road	Manukau	25	31	24%
21	Great South Road/Campbell Road/Main Highway	Auckland	69	85	23%
31	Wyllie Avenue/Puhinui Road	Manukau	23	28	22%
39	Upper Harbour Drive/Albany Highway	North Shore	65	78	20%
18	Great South Road/High Street/Atkinson/Park Avenue	Auckland	25	30	20%
25	Tom Pearce/George Bolt Memorial Drive	Manukau	5	6	20%
41	Wairau/Glenfield Road	North Shore	38	44	16%
4	Patiki/Rosebank Road	Auckland	38	43	13%
80	Pakuranga Road/Ti Rakau Drive	Manukau	70	77	10%
87	Triangle/Huruhuru Road	Waitakere	59	65	10%
51	Luckens/Hobsonville Road	Waitakere	41	45	10%
2	Ponsonby/Karangahape Road	Auckland	242	264	9%
14	Mount Albert/New North Road	Auckland	91	98	8%
32	McKenzie/Coronation/Walmsley Road	Manukau	38	41	8%
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	44	47	7%
46	Rosedale/Bush Road	North Shore	48	51	6%
5	Dominion/Balmoral Road	Auckland	91	95	4%
48	Henderson Creek	Waitakere	38	38	0%
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	179	174	-3%
65	Great South Road/Rosehill Drive	Papakura	29	28	-3%
9	Karangahape Road/Queen Street	Auckland	272	258	-5%
73	Blockhouse Bay/Great North Road	Auckland	66	63	-5%
52	Central Park Drive	Waitakere	94	88	-6%
8	Symonds Street/Karangahape Road	Auckland	283	262	-7%

Site Number	Locations	Area	AM	PM ¹²	Change
3	Great North/Carrington Road	Auckland	150	137	-9%
42	Shakespeare/East Coast Road	North Shore	146	133	-9%
23	Great South/Bairds Road	Manukau	34	31	-9%
22	Ferry Terminal	Auckland	198	164	-17%
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	30	25	-17%
6	North Western Cycleway/Great North Road	Auckland	244	201	-18%
12	Manukau Road/Greenlane West	Auckland	130	106	-18%
1	Victoria/Wellesley/Halsey Street	Auckland	82	67	-18%
13	Ian McKinnon/Newton Road	Auckland	190	153	-19%
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	105	85	-19%
75	Stanley Street/Grafton Road	Auckland	47	38	-19%
53	326 Te Atatu Road, near Covil Avenue	Waitakere	65	52	-20%
7	North Western Cycleway/St Lukes	Auckland	222	175	-21%
37	Taharoto/Northcote Road	North Shore	117	93	-21%
78	Lagoon Drive/Church Crescent	Auckland	100	79	-21%
47	Oteha Valley/East Coast Road	North Shore	87	68	-22%
57	West Coast/Rosier Road	Waitakere	31	24	-23%
16	Jervois Road/Wallace Street	Auckland	88	66	-25%
88	Keith Hay Park	Auckland	28	21	-25%
67	Karaka/Glenbrook Road/SH22	Franklin	4	3	-25%
83	Jelas Road/Croi Bridge	Rodney	4	3	-25%
10	Tamaki Drive/The Strand	Auckland	498	365	-27%
85	Rathgar/Pomaria Road	Waitakere	53	38	-28%
35	Lake Road, by Takapuna Grammar	North Shore	186	118	-37%
60	Whangaparaoa Road, near SH1 Intersection	Rodney	13	8	-38%

Site Number	Locations	Area	AM	PM¹²	Change
20	St Heliers Bay/West Tamaki Road	Auckland	98	60	-39%
54	Te Atatu Road/Elcoat Avenue	Waitakere	30	18	-40%
36	Hurstmere Road/Killarney Street	North Shore	180	102	-43%
82	Jelas/Moffatt Road	Rodney	24	13	-46%
11	Remuera/Orakei Road	Auckland	149	79	-47%
38	Rosedale/East Coast Road	North Shore	93	49	-47%
69	Edinburgh/Tobin Street	Franklin	17	9	-47%
45	Beach/Browns Bay Road	North Shore	50	23	-54%
71	Highbrook Drive	Manukau	27	11	-59%
61	D'Oyly Reserve cycleway	Rodney	31	11	-65%
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	21	7	-67%
84	Behind Rodney District Council Building	Rodney	73	18	-75%
62	Rata Road/Rimu Road/Centre cycleway	Rodney	8	1	-88%
	Total		6224	5577	-10%

- Most evening cyclists are adults (90 per cent, stable from 89 per cent in the previous year).
- Helmet wearing is still widespread in the evening (88 per cent, compared with 89 per cent in 2009).
- On average, two in three evening cyclists are either riding on the road or off-road cycleway (76 per cent, compared with 77 per cent last year). The share riding on the footpath has remained stable at 24 per cent.
- Of the seven TAs, Auckland city continues to have the greatest share of cyclists who are adults (96 per cent) and riding on the road and off-road cycleway (80 per cent), while North Shore city has the highest share of cyclists wearing a helmet (94 per cent).
- In contrast, Franklin district has the greatest share of cyclists who are school children (66 per cent), not wearing helmets (39 per cent), and riding on the footpath (72 per cent).

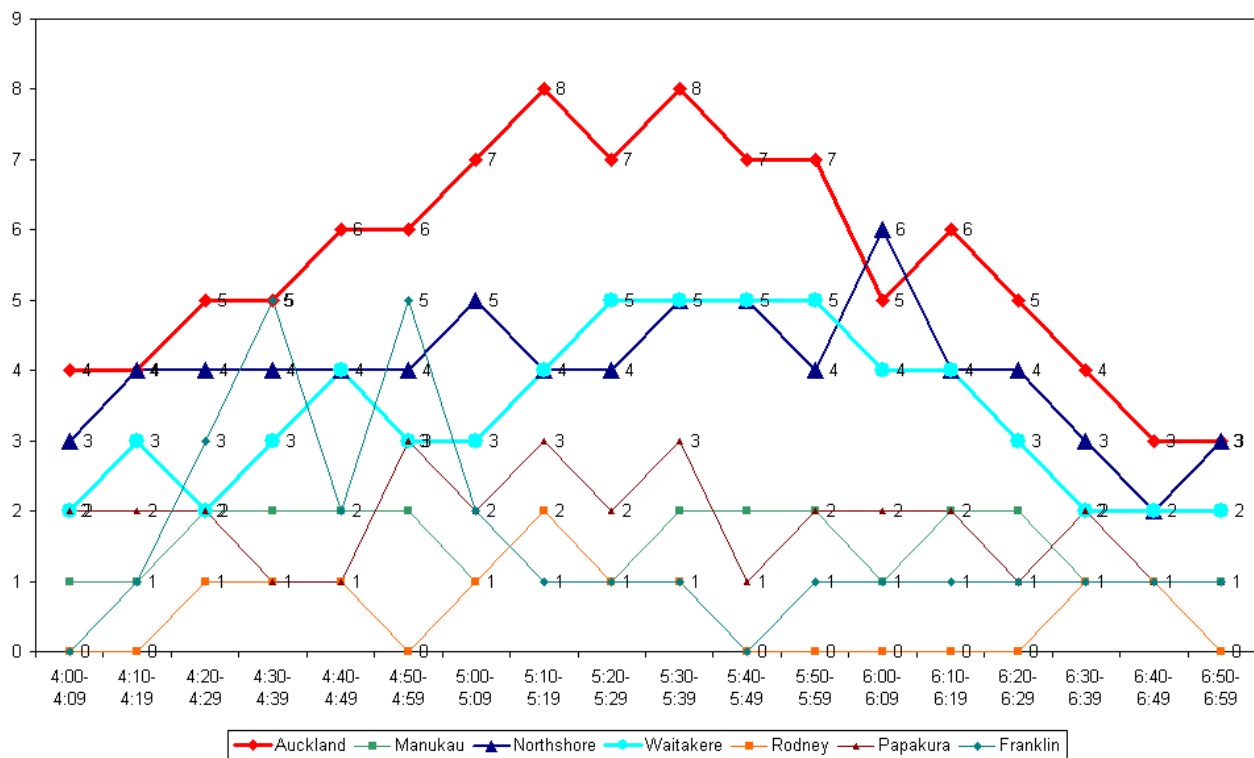
**Table 2.5: Summary of Evening Cyclist Characteristics
2010 (%)**

	Auckland	Manukau	North Shore	Waitakere	Rodney	Papakura	Franklin	Aggregate Total (2010)	Aggregate Total (2009)	Aggregate Total (2008)	Aggregate Total (2007)
Cyclist Type											
Adult	96%	88%	83%	84%	59%	77%	34%	90%	89%	87%	91%
School child	4%	12%	17%	16%	41%	23%	66%	10%	11%	13%	9%
Helmet Wearing											
Helmet on head	90%	84%	94%	82%	67%	74%	61%	88%	89%	87%	86%
No helmet	10%	16%	6%	18%	33%	26%	39%	12%	11%	13%	14%
Where Riding											
Road	61%	67%	75%	41%	33%	61%	28%	60%	57%	80%	77%
Footpath	20%	32%	25%	27%	21%	39%	72%	24%	23%	20%	23%
Off-road cycleway ¹³	19%	1%	0%	32%	46%	0%	0%	16%	20%	-	-
Base:	3796	577	1072	997	95	61	87	6685	5156	5161	4661

¹³ From 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleways and road were classified as road riders. Thus, no comparable results are provided with previous years.

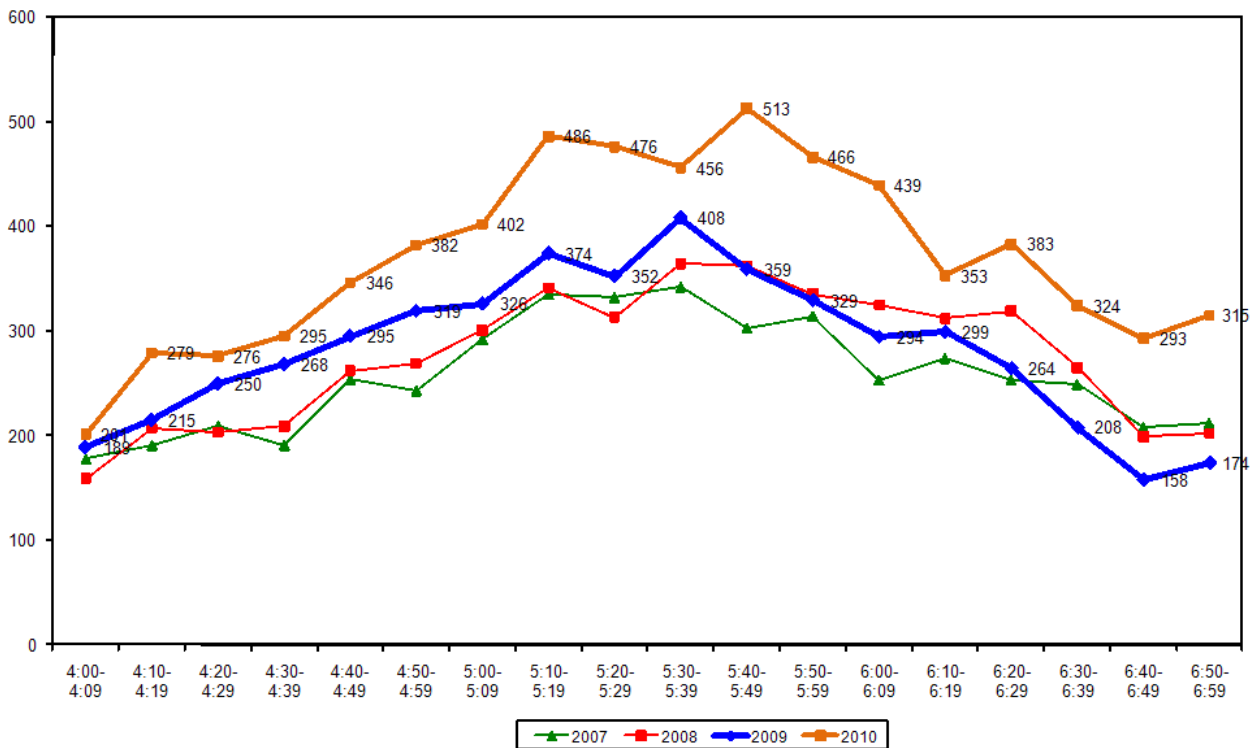
- Figure 2.3 illustrates the average number of evening cycle movements per site by time of trip. The graph shows the different patterns of evening cyclist volumes across each site of the cities/districts in the region.
- Consistent with the overall trend in the morning peak, evening cyclist numbers are highest at the Auckland city sites. No less than an average of 4 evening cyclists per site are recorded in all ten-minute intervals, with peaks evident between 5:10 and 5:29 pm and 5:40 and 5:49pm (10 cyclists per each ten minute interval).
- Whilst notably lower than for Auckland city, evening cycle volumes are higher for North Shore followed by Waitakere when compared with other TAs. Cycle movement numbers peak at around 5:45pm in North Shore city (7 cyclists), while Waitakere reported a slight peak between 5:40pm and 5:59pm (6 cyclists at each ten minute interval).
- By comparison Manukau, Rodney, Papakura and Franklin districts have low cycle volumes throughout the evening monitoring period.

Figure 2.3: Average Cyclist Frequency per Site by Territorial Authority – Evening Peak 2010



- The overall pattern of total evening cyclist volumes derived from the 84 sites is illustrated in Figure 2.4. In 2010, evening cyclist numbers start off relatively low, increase gradually to a peak in the middle of the monitoring period (513 cyclists at around 5:45pm), and then tail off through to the end of the evening period. This is consistent with the general trend observed in previous years.

**Figure 2.4: Total Cyclist Frequency
– Evening Peak 2007-2010**



2.3 Aggregated Total

- Overall, a total of 12,625 cyclist movements¹⁴ were recorded across the 81 sites monitored in both 2009 and 2010. This figure represents a 27 per cent increase when compared with 2009 (9,937 movements). This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- In total, 12,909 cycle movements were reported across the 84 sites in the Auckland region. This includes four per cent of morning cycle movements (n=485) observed in cycling groups. The number of evening cyclists comprises a slightly larger share (52 per cent) of the total number of cycle movements than the morning cyclists (48 per cent).
- Of the 84 sites monitored in the Auckland region, the busiest is the Tamaki Drive/The Strand intersection with a total of 936 movements (up from 603 movements last year).
- Jelas Road/Croi Bridge has the lightest cyclist traffic (7 movements).
- Three-quarters of the sites (63 out of 84) have recorded increases in total cyclist numbers this year compared with 2009. The intersections with the biggest increases are:
 - D'Oyly Reserve cycleway, Rodney district – up from 9 to 44 movements (389 per cent);
 - Gulf Harbour Drive/Laurie Southwick Parade, Rodney district – up from 2 to 7 movements (250 per cent); and
 - Apirana Avenue/Pilkington/Tripoli Road, Auckland City – up from 18 to 49 movements (172 per cent).
- In contrast, the number of total cyclists recorded at 18 sites is lower than last year. The most notable decreases are at:
 - Tom Pearce/George Bolt Memorial Drive, Manukau – down 95 to 57 movements (94 per cent); and
 - Queen/Harris Street, Franklin – down from 27 to 12 movements (88 per cent).

¹⁴ It is important to note that this figure represents individual cyclist movements rather than total cyclist numbers. The limitations of the methodology used mean that, due to the close proximity of sites to one another (particularly in Auckland City's CBD), it is possible for the same cyclist to be counted at more than one site. It is also possible to 'double count' cyclists if they use the same intersection more than once during a shift. At the same time, there will be many cycle trips that will not be counted at all by this methodology, if a cyclist's route does not pass through a monitoring location. Because of these limitations, it cannot be said that 1,2625 different cyclists were counted on the Auckland region's roads using these sites; the actual number of cyclists, and the number of cycle trips they take, may be higher or lower than the number of cycle movements counted through this methodology.

**Table 2.6A: Summary Of Total Cyclist Movements
2007-2010 (n) – 6.30 to 9.00 am and 4.00 to 7.00 pm**

Site Number	Location	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	Auckland	900	786	603	936	55%	4%
8	Symonds Street/Karangahape Road	Auckland	639	621	528	597	13%	-7%
9	Karangahape Road/Queen Street	Auckland	507	424	459	582	27%	15%
2	Ponsonby/Karangahape Road	Auckland	487	415	370	559	51%	15%
6	North Western Cycleway/Great North Road	Auckland	232	369	286	485	70%	109%
7	North Western Cycleway/St Lukes	Auckland	324	331	310	432	39%	33%
22	Ferry Terminal	Auckland	380	316	248	395	59%	4%
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	232	272	355	388	9%	67%
13	Ian McKinnon/Newton Road	Auckland	-	-	291	374	29%	-
35	Lake Road, by Takapuna Grammar	North Shore	192	297	295	327	11%	70%
3	Great North/Carrington Road	Auckland	235	231	193	314	63%	34%
42	Shakespeare/East Coast Road	North Shore	137	250	310	305	-2%	123%
36	Hurstmere Road/Killarney Street	North Shore	121	252	318	302	-5%	150%
12	Manukau Road/Greenlane West	Auckland	225	205	176	257	46%	14%
17	Onehunga Harbour Road	Auckland	249	220	180	257	43%	3%
11	Remuera/Orakei Road	Auckland	195	189	187	244	30%	25%
37	Taharoto/Northcote Road	North Shore	162	270	202	229	13%	41%
14	Mount Albert/New North Road	Auckland	156	164	142	209	47%	34%
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	-	111	134	207	54%	-
5	Dominion/Balmoral Road	Auckland	237	201	183	205	12%	-14%
52	Central Park Drive	Waitakere	127	157	212	200	-6%	57%

Site Number	Location	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
78	Lagoon Drive/Church Crescent	Auckland	-	-	129	195	51%	-
21	Great South Road/Campbell Road/Main Highway	Auckland	174	114	151	171	13%	-2%
20	St Heliers Bay/West Tamaki Road	Auckland	208	167	108	170	57%	-18%
47	Oteha Valley/East Coast Road	North Shore	59	114	138	168	22%	185%
16	Jervois Road/Wallace Street	Auckland	-	-	111	167	50%	-
1	Victoria/Wellesley/Halsey Street	Auckland	160	136	124	162	31%	1%
80	Pakuranga Road/Ti Rakau Drive	Manukau	-	-	123	162	32%	-
39	Upper Harbour Drive/Albany Highway	North Shore	25	98	138	158	14%	532%
38	Rosedale/East Coast Road	North Shore	76	98	159	152	-4%	100%
73	Blockhouse Bay/Great North Road	Auckland	-	117	119	141	18%	-
87	Triangle/Huruhuru Road	Waitakere	-	-	-	137	-	-
53	326 Te Atatu Road, near Covil Avenue	Waitakere	87	107	138	127	-8%	46%
33	Bucklands Beach/Pakuranga Road	Manukau	140	130	94	114	21%	-19%
46	Rosedale/Bush Road	North Shore	31	73	72	109	51%	252%
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	62	86	103	102	-1%	65%
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	118	94	82	100	22%	-15%
85	Rathgar/Pomaria Road	Waitakere	-	-	85	99	16%	-
51	Luckens/Hobsonville Road	Waitakere	32	41	77	95	23%	197%
84	Behind Rodney District Council Building	Rodney	-	-	86	95	10%	-
70	Upper Harbour Drive/Buckley Avenue ¹⁵	Waitakere	-	35	68	94	-	-
43	Glenfield/Coronation Road	North Shore	28	75	78	93	19%	232%
75	Stanley Street/Grafton Road	Auckland	-	65	96	93	-3%	-

¹⁵ 2008 and 2009 results do not include movement into or out of Buckley Avenue, southwest on Upper Harbour Drive.

Site Number	Location	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
40	Oteha Valley Road/SH17/Albany Highway	North Shore	19	48	72	91	26%	379%
41	Wairau/Glenfield Road	North Shore	64	73	80	91	14%	42%
4	Patiki/Rosebank Road	Auckland	82	79	72	90	25%	10%
49	Triangle Road/Don Buck Road	Waitakere	67	61	56	90	61%	34%
32	McKenzie/Coronation/Walmsley Road	Manukau	70	57	52	87	67%	24%
48	Henderson Creek	Waitakere	46	30	73	84	15%	83%
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	81	75	59	78	32%	-4%
45	Beach/Browns Bay Road	North Shore	19	45	59	77	31%	305%
44	Birkenhead Ave/Mokoia Road	North Shore	40	49	57	75	32%	88%
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	73	51	41	72	76%	-1%
23	Great South/Bairds Road	Manukau	68	56	57	71	25%	4%
81	Te Irirangi Drive/Ormiston Road	Manukau	-	-	33	66	100%	-
30	Great South/East Tamaki Road	Manukau	73	51	63	65	3%	-11%
65	Great South Road/Rosehill Drive	Papakura	53	72	59	62	5%	17%
79	Harris/Smales Road	Manukau	-	-	60	62	3%	-
18	Great South Road/High Street/Atkinson/Park Avenue	Auckland	84	60	49	61	24%	-27%
57	West Coast/Rosier Road	Waitakere	48	37	62	60	-3%	25%
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	-	61	32	60	88%	-
26	Great South/Browns/Orams Road	Manukau	60	55	39	58	49%	-3%
31	Wyllie Avenue/Puhinui Road	Manukau	38	33	35	57	63%	50%
68	Queen/Harris Street	Franklin	101	83	95	57	-40%	-44%
50	Lincoln Road/Fairdene Avenue	Waitakere	40	55	43	56	30%	40%
88	Keith Hay Park	Auckland	-	-	-	53	-	-

Site Number	Location	Area	2007	2008	2009	2010	Change 09-10	Change 07-10
54	Te Atatu Road/Elcoat Avenue	Waitakere	50	45	69	52	-25%	4%
86	George/Elizabeth Street	Franklin	-	-	18	49	172%	-
28	Massey/Buckland Road	Manukau	43	31	39	45	15%	5%
61	D'Oyly Reserve cycleway	Rodney	24	103	9	44	389%	83%
66	Great South Road/Taka Street	Papakura	58	58	36	43	19%	-26%
76	Waikaraka Cycle Way	Auckland	-	54	51	42	-18%	-
71	Highbrook Drive	Manukau	-	29	38	40	5%	-
15	Richardson Road/Maioro Street	Auckland	-	-	21	39	86%	-
82	Jelas/Moffatt Road	Rodney	-	-	38	39	3%	-
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	56	44	22	37	68%	-34%
56	3 Rankin Avenue	Waitakere	31	38	38	32	-16%	3%
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	29	31	26	29	12%	0%
69	Edinburgh/Tobin Street	Franklin	35	40	34	28	-18%	-20%
60	Whangaparaoa Road, near SH1 Intersection	Rodney	28	20	12	23	92%	-18%
25	Tom Pearce/George Bolt Memorial Drive	Manukau	-	-	27	12	-56%	-
62	Rata Road/Rimu Road/Centre cycleway	Rodney	31	14	11	9	-18%	-71%
67	Karaka/Glenbrook Road/SH22	Franklin	4	9	5	8	60%	100%
83	Jelas Road/Croi Bridge	Rodney	-	-	2	7	250%	-
	Total (61 sites since 2007)^		8428	8703	8434	10632	26%	26%
	Total (67 sites since 2008)^		-	9140	8904	11215	26%	-
	Total (81 sites in 2009)		-	-	9937	12625	27%	-
	Total (84 sites in 2010)		-	-	-	12909	-	-

^Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the total figures exclude this outlier for more accurate comparison.

**Table 2.6B: Summary Of Average Cyclist Movements by TA
- 2007-2010 (61 Sites)**

Locations	Number of Sites	2007		2008		2009		2010		Change 09-10	Change 07-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range		
Auckland	19	294	82 - 900	270	60 - 786	234	49 - 603	328	61 - 936	40%	12%
North Shore	13	75	19 - 192	134	45 - 297	152	57 - 318	167	75 - 327	10%	123%
Waitakere	11	75	31 - 232	84	30 - 272	111	38 - 355	117	32 - 388	5%	56%
Manukau	9	72	38 - 140	60	31 - 130	53	35 - 94	72	45 - 114	36%	0%
Papakura	2	56	53 - 58	65	58 - 72	48	36 - 59	53	43 - 62	10%	-5%
Franklin	3	47	4 - 101	44	9 - 83	45	5 - 95	31	8 - 57	-31%	-34%
Rodney	4	36	28 - 56	27	14 - 44	18	11 - 26	25	9 - 37	39%	-31%
Region[^]	61	138	4 - 900	143	9 - 786	138	5 - 603	174	8 - 936	26%	26%

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

**Table 2.6C: Summary Of Average Cyclist Movements by TA
- 2008-2010 (67 Sites)**

Locations	Number of Sites	2008		2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	23	236	54 - 786	206	32 - 603	285	42 - 936	38%
North Shore	13	134	45 - 297	152	57 - 318	167	75 - 327	10%
Waitakere	12	87	30 - 272	113	38 - 355	124	32 - 388	10%
Manukau	10	57	29 - 130	52	35 - 94	69	40 - 114	33%
Papakura	2	65	58 - 72	48	36 - 59	53	43 - 62	10%
Franklin	3	44	9 - 83	45	5 - 95	31	8 - 57	-31%
Rodney	4	27	14 - 44	18	11 - 26	25	9 - 37	39%
Region[^]	67	136	9 - 786	133	5 - 603	167	8 - 936	26%

[^]Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the summary figures exclude this site for more accurate comparison.

**Table 2.1D: Summary Of Average Cyclist Movements by TA
– 2009-2010 (81 Sites)**

Locations	Number of Sites	2009		2010		Change 09-10
		Average Cycle Movements	Range	Average Cycle Movements	Range	
Auckland	27	196	21 - 603	272	39 - 936	39%
North Shore	13	152	57 - 318	167	75 - 327	10%
Waitakere	13	111	38 - 355	122	32 - 388	10%
Manukau	14	54	27 - 123	71	12 - 162	31%
Papakura	2	48	36 - 59	53	43 - 62	10%
Franklin	4	38	5 - 95	36	8 - 57	-5%
Rodney	8	26	2 - 86	35	7 - 95	35%
Region	81	123	2 - 603	156	7 - 936	27%

**Table 2.6E: Summary Of Average Cyclist Movements by TA
- 2010 (84 Sites)**

Locations	Number of Sites	Average Cycle Movements	Range
Auckland	28	264	39 - 936
North Shore	13	167	75 - 327
Waitakere	15	122	32 - 388
Manukau	14	71	12 - 162
Papakura	2	53	43 - 62
Franklin	4	36	8 - 57
Rodney	8	35	7 - 95
	84	154	7 - 936

- In total, 88 per cent of all cyclists are adults (compared with 87 per cent last year).
- Most cyclists are wearing a helmet (90 per cent, compared with 91 per cent in 2009).
- The majority of cyclists are either riding on the road or off-road cycleway (78 per cent, stable from 79 per cent last year).

**Table 2.7: Summary of Total Cyclist Characteristics
2007-2010 (%)**

	<i>Auckland</i>	<i>Manukau</i>	<i>North Shore</i>	<i>Waitakere</i>	<i>Rodney</i>	<i>Papakura</i>	<i>Franklin</i>	Aggregate Total (2010)	Aggregate Total (2009)	Aggregate Total (2008)	Aggregate Total (2007)
Cyclist Type											
Adult	95%	88%	82%	82%	34%	70%	42%	88%	87%	86%	88%
School child	5%	12%	18%	18%	66%	30%	58%	12%	13%	14%	12%
Helmet Wearing											
Helmet on head	91%	86%	95%	87%	77%	78%	64%	90%	91%	90%	89%
No helmet	9%	14%	5%	13%	23%	22%	36%	10%	9%	10%	11%
Where Riding											
Road	64%	66%	77%	43%	23%	58%	35%	62%	60%	81%	77%
Footpath	18%	32%	23%	25%	18%	42%	65%	22%	21%	19%	23%
Off-road cycleway ¹⁶	18%	2%	0%	32%	59%	0%	0%	16%	19%	-	-
Base:	7390	989	2177	1823	283	105	142	12909	10054	9780	9019

¹⁶ In 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.

2.4 Annual Average Daily Traffic (AADT) Estimates

Note: A full description of the Annual Daily Traffic tool, the calculation used, and the limitations of the estimates, are provided in Appendix Two. Readers are encouraged to review this section in conjunction with the data presented here.

- Table 2.8 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at Tamaki Drive/The Strand (1365 daily trips, up from 880 daily trips last year) and the lowest is at Jelas Road/Croi Bridge (10 daily trips).
- Four-fifth of the sites (67 out of 84) have recorded increases in total AADT estimates this year compared with 2009. The intersections with the biggest increases are:
 - D'Oyly Reserve cycleway, Rodney district – up from 13 to 65 movements (400 per cent);
 - Gulf Harbour Drive/Laurie Southwick Parade, Rodney district – up from 3 to 10 movements (233 per cent); and
 - Apirana Avenue/Pilkington/Tripoli Road, Auckland City – up from 25 to 70 movements (180 per cent).
- In contrast, AADT estimates at 17 sites are lower than last year. The most notable declines are at:
 - Tom Pearce/George Bolt Memorial Drive, Manukau – down 38 to 17 movements (55 per cent); and
 - Queen/Harris Street, Franklin – down from 135 to 81 movements (40 per cent).

Table 2.8¹⁷: AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2010 (n)

Site Number	Locations	Area	AADT 2007	AADT 2008	AADT 2009	AADT 2010	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	Auckland	1313	1146	880	1365	55%	4%
8	Symonds Street/Karangahape Road	Auckland	924	899	765	865	13%	-6%
9	Karangahape Road/Queen Street	Auckland	736	616	669	843	26%	15%
2	Ponsonby/Karangahape Road	Auckland	705	602	536	807	51%	14%
6	North Western Cycleway/Great North Road	Auckland	335	532	416	705	69%	110%
7	North Western Cycleway/St Lukes	Auckland	469	480	451	629	39%	34%
22	Ferry terminal	Auckland	553	459	363	574	58%	4%
58	North Western Cycleway/near Te Atatu Road off-ramp	Waitakere	335	393	513	562	10%	68%
13	Ian McKinnon/Newton Road	Auckland	-	-	422	544	29%	-
35	Lake Road, by Takapuna Grammar	North Shore	444	440	432	479	11%	8%
3	Great North/Carrington Road	Auckland	341	333	281	455	62%	33%
36	Hurstmere Road/Killarney Street	North Shore	279	368	466	443	-5%	59%
42	Shakespeare/East Coast Road	North Shore	314	364	454	442	-3%	41%
12	Manukau Road/Greenlane West	Auckland	326	296	255	374	47%	15%
17	Onehunga Harbour Road	Auckland	357	316	259	369	42%	3%
11	Remuera/Orakei Road	Auckland	282	276	274	359	31%	27%
37	Taharoto/Northcote Road	North Shore	375	396	293	333	14%	-11%
14	Mount Albert/New North Road	Auckland	226	236	205	302	47%	34%
72	Te Atatu/Old Te Atatu Road/Tatau Way	Waitakere	-	161	195	301	54%	-
5	Dominion/Balmoral Road	Auckland	344	291	265	296	12%	-14%
52	Central Park Drive	Waitakere	184	227	306	290	-5%	58%

¹⁷ The AADT estimates for all TAs in 2008, 2009 and 2010 are calculated using the 'dry' weather factor, whereas a 'wet' factor was applied to 2007's AADT calculation for North Shore City. The 'wet' factor is a greater multiplier than the 'dry' factor and consequently produces higher AADT estimates.

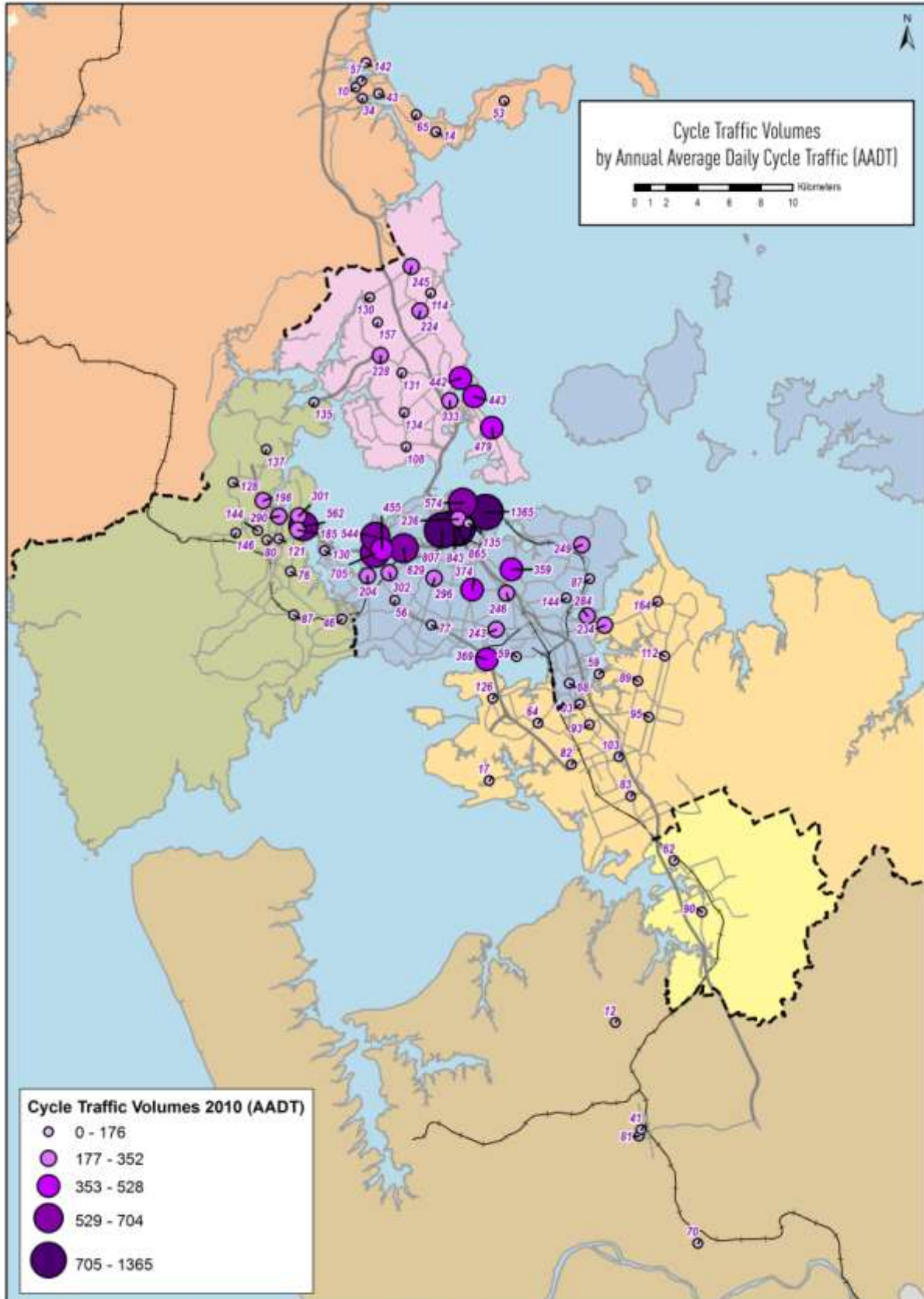
Site Number	Locations	Area	AADT 2007	AADT 2008	AADT 2009	AADT 2010	Change 09-10	Change 07-10
78	Lagoon Drive/Church Crescent	Auckland	-	-	186	284	53%	-
20	St Heliers Bay/West Tamaki Road	Auckland	308	246	158	249	58%	-19%
21	Great South Road/Campbell Road/Main Highway	Auckland	253	165	218	246	13%	-3%
47	Oteha Valley/East Coast Road	North Shore	137	163	201	245	22%	79%
16	Jervois Road/Wallace Street	Auckland	-	-	162	243	50%	-
1	Victoria/Wellesley/Halsey Street	Auckland	231	196	180	236	31%	2%
80	Pakuranga Road/Ti Rakau Drive	Manukau	-	-	176	234	33%	-
39	Upper Harbour Drive/Albany Highway	North Shore	57	143	200	228	14%	300%
38	Rosedale/East Coast Road	North Shore	176	143	235	224	-5%	27%
73	Blockhouse Bay/Great North Road	Auckland	-	170	173	204	18%	-
87	Triangle/Huruhuru Road	Waitakere	-	-	-	198	-	-
53	326 Te Atatu Road, near Covil Avenue	Waitakere	127	155	202	185	-8%	46%
33	Bucklands Beach/Pakuranga Road	Manukau	203	187	137	164	20%	-19%
46	Rosedale/Bush Road	North Shore	70	106	103	157	52%	124%
55	Swanson/Ranui Station Road/Armada Drive	Waitakere	88	122	148	146	-1%	66%
19	Ellerslie Panmure Highway/Lunn Ave	Auckland	170	136	118	144	22%	-15%
85	Rathgar/Pomaria Road	Waitakere	-	-	122	144	18%	-
84	Behind Rodney District Council Building	Rodney	-	-	130	142	9%	-
51	Luckens/Hobsonville Road	Waitakere	47	60	110	137	25%	191%
70	Upper Harbour Drive/Buckley Avenue ¹⁸	Waitakere	-	51	97	135	39%	-
75	Stanley Street/Grafton Road	Auckland	-	95	140	135	-4%	-
43	Glenfield/Coronation Road	North Shore	64	109	113	134	19%	109%
41	Wairau/Glenfield Road	North Shore	93	107	117	131	12%	41%
4	Patiki/Rosebank Road	Auckland	119	114	105	130	24%	9%

¹⁸ 2008 and 2009 results do not include movement into or out of Buckley Avenue, southwest on Upper Harbour Drive.

Site Number	Locations	Area	AADT 2007	AADT 2008	AADT 2009	AADT 2010	Change 09-10	Change 07-10
40	Oteha Valley Road/SH17/Albany Highway	North Shore	42	69	103	130	26%	210%
49	Triangle Road/Don Buck Road	Waitakere	96	88	80	128	60%	33%
32	McKenzie/Coronation/Walmsley Road	Manukau	101	82	75	126	68%	25%
48	Henderson Creek	Waitakere	65	43	105	121	15%	86%
45	Beach/Browns Bay Road	North Shore	44	66	86	114	33%	159%
34	Te Irirangi Drive/Ti Rakau Drive	Manukau	117	109	86	112	30%	-4%
44	Birkenhead Ave/Mokoia Road	North Shore	58	71	83	108	30%	86%
23	Great South/Bairds Road	Manukau	99	81	83	103	24%	4%
24	Great South Road/Te Irirangi Drive/Cavendish Drive	Manukau	106	74	59	103	75%	-3%
81	Te Irirangi Drive/Ormiston Road	Manukau	-	-	47	95	102%	-
30	Great South/East Tamaki Road	Manukau	106	74	92	93	1%	-12%
65	Great South Road/Rosehill Drive	Papakura	77	106	85	90	6%	17%
79	Harris/Smales Road	Manukau	-	-	88	89	1%	-
18	Great South Road/High Street/Atkinson/Park Avenue	Auckland	121	87	71	88	24%	-27%
57	West Coast/Rosier Road	Waitakere	69	54	90	87	-3%	26%
74	Apirana Avenue/Pilkington/Tripoli Road	Auckland	-	87	46	87	89%	-
26	Great South/Browns/Orams Road	Manukau	86	81	57	83	46%	-3%
31	Wyllie Avenue/Puhinui Road	Manukau	55	47	50	82	64%	49%
68	Queen/Harris Street	Franklin	146	119	135	81	-40%	-45%
50	Lincoln Road/Fairdene Avenue	Waitakere	57	79	62	80	29%	40%
88	Keith Hay Park	Auckland	-	-	-	77	-	-
54	Te Atatu Road/Elcoat Avenue	Waitakere	73	66	101	76	-25%	4%
86	George/Elizabeth Street	Franklin	-	-	25	70	180%	-
61	D'Oyly Reserve cycleway	Rodney	35	145	13	65	400%	86%
28	Massey/Buckland Road	Manukau	61	44	57	64	12%	5%

Site Number	Locations	Area	AADT 2007	AADT 2008	AADT 2009	AADT 2010	Change 09-10	Change 07-10
66	Great South Road/Taka Street	Papakura	83	83	51	62	22%	-25%
71	Highbrook Drive	Manukau	-	42	55	59	7%	-
76	Waikaraka Cycle Way	Auckland	-	76	73	59	-19%	-
82	Jelas/Moffatt Road	Rodney	-	-	55	57	4%	-
15	Richardson Road/Maioro Street	Auckland	-	-	30	56	87%	-
63	Gulf Harbour Drive/Laurie Southwick Parade	Rodney	80	63	31	53	71%	-34%
56	3 Rankin Avenue	Waitakere	45	55	56	46	-18%	2%
59	Whangaparaoa Road, near Red Beach Intersection	Rodney	42	45	38	43	13%	2%
69	Edinburgh/Tobin Street	Franklin	51	58	49	41	-16%	-20%
60	Whangaparaoa Road, near SH1 Intersection	Rodney	40	29	17	34	100%	-15%
25	Tom Pearce/George Bolt Memorial Drive	Manukau	-	-	38	17	-55%	-
62	Rata Road/Rimu Road/Centre cycleway	Rodney	46	21	16	14	-13%	-70%
67	Karaka/Glenbrook Road/SH22	Franklin	6	13	7	12	71%	100%
83	Jelas Road/Croi Bridge	Rodney	-	-	3	10	233%	-
Total (61 sites since 2007)^			12957	12629	12253	15422	26%	19%
Total (67 sites since 2008)^			-	13260	12935	16267	26%	-
Total (81 sites in 2009)			-	-	14432	18317	27%	-
Total (84 sites in 2010)			-	-	-	18727	-	-

^Note that the evening count for D'Oyly Reserve cycleway (site 61) in 2008 is considered as an outlier, so the total figures exclude this outlier for more accurate comparison.



Monitoring locations are numbered for ease of reference - please see Section 2.1 for monitoring location descriptions.

2.5 School Bike Shed Count Summary

Background Information

- A total of 160 intermediate, secondary and composite schools throughout the Auckland region were contacted by Gravitas. Of the 125 schools that responded to the survey (78 per cent), most have no policies that restrict students cycling to school.¹⁹ Most schools conducted their count on the 9th of March, 2010.

Key Points

- Of those students from the surveyed schools eligible to cycle to school, on average across the region, two per cent are cycling to their schools.
- Two schools (Belmont Intermediate in North Shore city – 33 per cent - and Pasadena Intermediate in Auckland city – 26 per cent) report more than 10 per cent of students cycling to school. Among secondary schools, Takapuna Grammar (North Shore city) has the highest rate of students cycling to school (8 per cent).
- Of the 125 schools that responded, 33 (26 per cent) had no students cycling to school. This compares with 36 schools (29 per cent) in 2009.

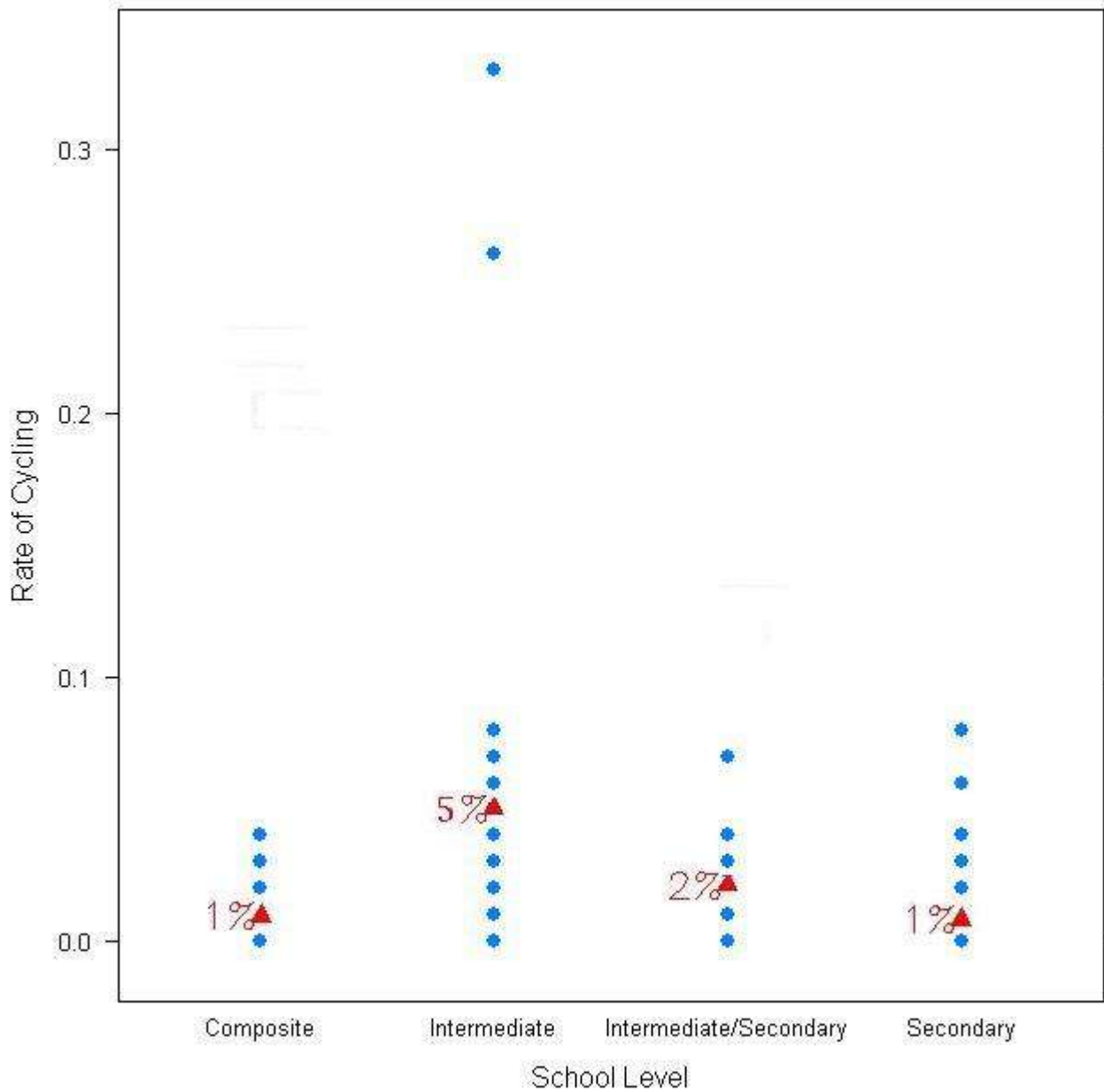
¹⁹ The exceptions were four composite schools which only allow students at Year 4 (Pinehurst School), Year 5 (Tyndale Park Christian School and Kingsway School) or Year 7 (Elim Christian School) onwards to cycle to school.

- Table 2.9 and Figure 2.6 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools surveyed (5 per cent, up from 4 per cent in 2009) and lowest for composite and secondary schools surveyed (1 per cent, unchanged from last year).

**Table 2.9: Summary Table of School Bike Count by School Level
2007-2010 (n)**

Year Levels	Number of Schools Responding (n)	Average School Roll Eligible To Cycle	Average Number of Cycles Counted	Average Cycling Rate per School (2010)	Average Cycling Rate per School (2009)	Average Cycling Rate per School (2008)	Average Cycling Rate per School (2007)
Intermediate	38	504	24	5%	4%	4%	5%
Intermediate/Secondary	18	859	13	2%	1%	2%	2%
Composite	24	473	3	1%	<1%	1%	1%
Secondary	45	1341	17	1%	1%	1%	1%
Total	125	857	16	2%	2%	2%	2%

**Figure 2.6: Cycling Rates by School Level
2010 (%)**

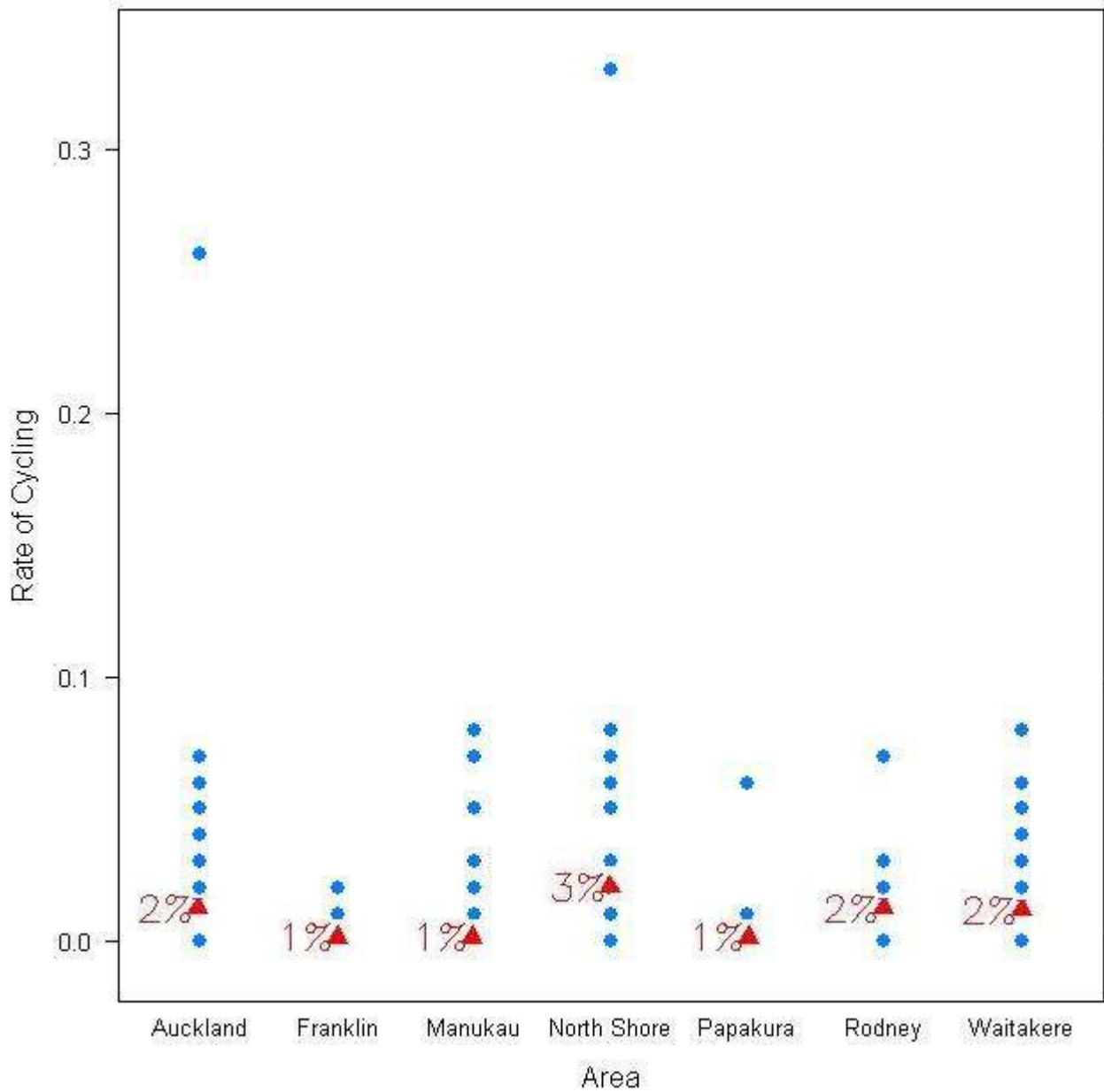


- Table 2.10 and Figure 2.7 illustrate the rates of cycling to school within each of the Auckland TAs. Rates of cycling to school are highest among schools in North Shore city (3 per cent, up from 2 per cent last year). By comparison, Franklin district (1 per cent down from 2 per cent in 2009), Manukau city and Papakura district (1 per cent respectively, unchanged from 2009) have the lowest rates of cycling.

**Table 2.10: Summary Table of School Bike Count by Area
2007-2010 (n)**

Area	Number of Schools Responding (n)	Average School Roll Eligible To Cycle	Average Number of Cycles Counted	Average of Cycling Rate per School (2010)	Average of Cycling Rate per School (2009)	Average of Cycling Rate per School (2008)	Average of Cycling Rate per School (2007)
Rodney	8	817	19	2%	3%	2%	3%
Auckland	39	844	15	2%	2%	2%	2%
Franklin	4	894	6	1%	2%	2%	2%
North Shore	22	992	28	3%	2%	3%	3%
Waitakere	17	844	16	2%	2%	1%	2%
Manukau	30	774	10	1%	1%	1%	2%
Papakura	5	937	13	1%	1%	1%	1%
Total	125	857	16	2%	2%	2%	2%

**Figure 2.7: Cycling Rates by Area
2010 (%)**



The following table ranks the 125 schools from the highest share of cyclists to the lowest.

Table 2.11: School Bike Count, by School

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Belmont Intermediate	Intermediate	North Shore	518	170	33%	22%	26%	34%
Pasadena Intermediate School	Intermediate	Auckland	318	82	26%	17%	12%	18%
Takapuna Grammar School	Secondary	North Shore	1650	139	8%	9%	6%	8%
Te Atatu Intermediate	Intermediate	Waitakere	275	22	8%	9%	7%	10%
Bucklands Beach Intermediate	Intermediate	Manukau	754	63	8%	5%	4%	-
Farm Cove Intermediate School	Intermediate	Manukau	600	41	7%	9%	6%	4%
Takapuna Normal Intermediate School	Intermediate	North Shore	660	48	7%	8%	16%	-
Auckland Normal Intermediate	Intermediate	Auckland	644	46	7%	6%	5%	7%
Orewa College	Intermediate/Secondary	Rodney	1600	104	7%	5%	5%	6%
Rosehill Intermediate	Intermediate	Papakura	352	20	6%	6%	-	-
Ponsonby Intermediate	Intermediate	Auckland	539	33	6%	5%	4%	6%
Wairau Intermediate	Intermediate	North Shore	250	14	6%	5%	7%	4%
Rutherford College	Secondary	Waitakere	1340	75	6%	4%	3%	3%

²⁰ This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.

²¹ This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Remuera Intermediate School	Intermediate	Auckland	950	46	5%	7%	5%	9%
Kowhai Intermediate School	Intermediate	Auckland	374	18	5%	6%	6%	6%
Mission Heights Junior College	Intermediate	Manukau	520	27	5%	3%	-	-
Rangeview Intermediate School	Intermediate	Waitakere	894	41	5%	3%	2%	3%
Northcote Intermediate	Intermediate	North Shore	213	11	5%	2%	3%	2%
Auckland Grammar School	Secondary	Auckland	2500	88	4%	4%	3%	2%
Waiheke High School	Intermediate/Secondary	Auckland	458	17	4%	3%	2%	3%
Henderon Intermediate School	Intermediate	Waitakere	490	19	4%	3%	3%	5%
Sunderland School and College	Composite	Waitakere	115	5	4%	2%	1%	-
Mt Roskill Intermediate	Intermediate	Auckland	665	24	4%	-	2%	2%
Living Way Learning Centre	Composite	Rodney	31	1	3%	9%	3%	24%
Western Springs College	Secondary	Auckland	1170	40	3%	6%	7%	-
Waikowhai Intermediate	Intermediate	Auckland	419	11	3%	4%	3%	3%
Wentworth College	Intermediate/Secondary	Rodney	219	7	3%	4%	<1%	3%
Bruce McLaren Intermediate	Intermediate	Waitakere	307	9	3%	4%	2%	2%
Somerville Intermediate School	Intermediate	Manukau	940	28	3%	3%	4%	4%
Rosmini College	Intermediate/Secondary	North Shore	1003	35	3%	3%	4%	3%
Liston College	Intermediate/Secondary	Waitakere	791	23	3%	3%	2%	2%

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Westlake Boys High School	Secondary	North Shore	2182	68	3%	2%	<1%	2%
Murrays Bay Intermediate School	Intermediate	North Shore	1000	32	3%	2%	2%	5%
Elim Christian College	Composite	Manukau	541	10	2%	6%	5%	-
Hebron Christian College	Composite	Auckland	276	6	2%	3%	2%	3%
Royal Oak Intermediate	Intermediate	Auckland	534	13	2%	3%	2%	2%
Glenfield College	Secondary	North Shore	858	10	1%	1%	-	-
Mt Albert Grammar School	Secondary	Auckland	2310	51	2%	2%	3%	-
Selwyn College	Secondary	Auckland	890	15	2%	2%	1%	-
Kedgley Intermediate School	Intermediate	Manukau	730	15	2%	2%	-	-
Pakuranga College	Secondary	Manukau	2100	32	2%	2%	3%	-
Edgewater College	Secondary	Manukau	924	19	2%	2%	2%	-
Onewhero Area School	Composite	Franklin	399	8	2%	1%	1%	1%
Papatoetoe Intermediate School	Intermediate	Manukau	865	13	2%	1%	-	-
Birkdale Intermediate School	Intermediate	North Shore	490	10	2%	1%	<1%	-
Whangaparaoa College	Intermediate/Secondary	Rodney	1393	25	2%	1%	2%	4%
Waitakere College	Secondary	Waitakere	1172	24	2%	1%	1%	1%
Greenmeadows Intermediate School	Intermediate	Manukau	391	6	2%	0%	5%	3%
Te Kura Kaupapa Maori O Hoani Waititi Marae	Composite	Waitakere	172	3	2%	0%	0%	-

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Albany Senior High School	Secondary	North Shore	431	8	2%	-	-	-
Glenfield Intermediate	Intermediate	North Shore	440	6	1%	3%	2%	4%
Glen Eden Intermediate	Intermediate	Waitakere	1008	11	1%	3%	-	-
Onehunga High School	Secondary	Auckland	1540	20	1%	1%	-	-
Glendowie College	Secondary	Auckland	1037	15	1%	1%	1%	2%
Mt Roskill Grammar School	Secondary	Auckland	2300	29	1%	1%	1%	2%
Tuakau College	Intermediate/Secondary	Franklin	730	10	1%	1%	2%	-
Mangere College	Secondary	Manukau	860	6	1%	1%	-	-
Alfriston College	Secondary	Manukau	1323	7	1%	1%	2%	-
Sancta Maria College	Intermediate/Secondary	Manukau	920	5	1%	1%	1%	2%
Weymouth Intermediate School	Intermediate	Manukau	404	4	1%	1%	1%	2%
Rangitoto College	Secondary	North Shore	3000	37	1%	1%	<1%	1%
Rosehill College	Secondary	Papakura	1869	25	1%	1%	1%	<1%
Kingsway School	Composite	Rodney	1058	15	1%	1%	1%	<1%
Green Bay High School	Secondary	Waitakere	1138	14	1%	1%	1%	1%
Avondale Intermediate School	Intermediate	Auckland	373	2	1%	0%	1%	1%
Manurewa High School	Secondary	Manukau	1976	14	1%	0%	1%	2%
Pinehurst School	Composite	North Shore	675	6	1%	0%	1%	1%

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Papakura High School	Secondary	Papakura	1059	7	1%	0%	<1%	<1%
ACG Strathallan	Composite	Papakura	1200	12	1%	0%	1%	-
Kelston Intermediate	Intermediate	Waitakere	340	4	1%	0%	2%	-
Henderson High School	Secondary	Waitakere	975	5	1%	0%	1%	<1%
ACG Parnell College	Composite	Auckland	832	5	1%	-	0%	-
Birkenhead College	Secondary	North Shore	800	6	1%	-	-	-
The Corelli School	Composite	North Shore	85	1	1%	-	-	-
Lynfield College	Secondary	Auckland	1850	6	<1%	1%	<1%	1%
Saint Kentigern College	Intermediate/Secondary	Manukau	1661	7	<1%	1%	-	-
Kristin School	Composite	North Shore	1578	1	<1%	1%	-	-
Massey High School	Secondary	Waitakere	2422	9	<1%	1%	1%	1%
Epsom Girls Grammar School	Secondary	Auckland	2148	3	<1%	0%	<1%	-
Diocesan School for girls	Composite	Auckland	1480	2	<1%	0%	<1%	0%
Marist College	Intermediate/Secondary	Auckland	752	2	<1%	0%	-	-
One Tree Hill College	Secondary	Auckland	780	1	<1%	0%	-	-
ACG Senior College	Secondary	Auckland	400	1	<1%	0%	0%	0%
James Cook High School	Secondary	Manukau	1400	6	<1%	0%	<1%	-
Sir Douglas Bader Intermediate School	Intermediate	Manukau	219	1	<1%	0%	<1%	0%

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Westlake Girls High School	Secondary	North Shore	2068	1	<1%	0%	<1%	<1%
Northcote College	Secondary	North Shore	1227	6	<1%	0%	-	-
Long Bay College	Secondary	North Shore	1650	8	<1%	0%	1%	-
Mahurangi College	Intermediate/Secondary	Rodney	1225	2	<1%	0%	1%	1%
St. Dominic's College	Intermediate/Secondary	Waitakere	930	2	<1%	0%	<1%	<1%
Kelston Boys High School	Secondary	Waitakere	1100	3	<1%	0%	1%	1%
Pukekohe High School	Secondary	Franklin	1615	6	<1%	-	-	-
Manukau Christian School	Composite	Manukau	104	0	0%	2%	0%	4%
Tamaki Intermediate School	Intermediate	Auckland	200	0	0%	1%	0%	3%
Tamaki College	Secondary	Auckland	700	0	0%	0%	<1%	<1%
Baradene College	Intermediate/Secondary	Auckland	960	0	0%	0%	<1%	0%
Carey College	Composite	Auckland	66	0	0%	0%	-	-
Mind Alive	Composite	Auckland	47	0	0%	0%	-	-
St Mary's College	Intermediate/Secondary	Auckland	818	0	0%	0%	-	-
Te KKM o Puau Te Moananui-a-Kiwa	Composite	Auckland	68	0	0%	0%	-	-
Kings College	Secondary	Auckland	947	0	0%	0%	2%	0%
Marcellin College	Intermediate/Secondary	Auckland	702	0	0%	0%	1%	-
Auckland Girls Grammar School	Secondary	Auckland	1450	0	0%	0%	0%	<1%

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Auckland International College	Secondary	Auckland	338	0	0%	0%	0%	-
McAuley High School	Secondary	Auckland	688	0	0%	0%	0%	0%
Waiuku College	Secondary	Franklin	832	0	0%	0%	1%	1%
Aorere College	Secondary	Manukau	1553	0	0%	0%	-	-
Sir Edmund Hillary Collegiate Middle School	Intermediate	Manukau	249	0	0%	0%	-	-
Te Whanau o Tupuranga	Intermediate/Secondary	Manukau	205	0	0%	0%	-	-
Al-Madinah School	Composite	Manukau	457	0	0%	0%	0%	-
Clover Park Middle School	Intermediate	Manukau	140	0	0%	0%	0%	-
Southern Cross Campus	Composite	Manukau	1741	0	0%	0%	0%	-
Tyndale Park Christian School	Composite	Manukau	138	0	0%	0%	0%	0%
Carmel College	Intermediate/Secondary	North Shore	990	0	0%	0%	<1%	0%
Rodney College	Secondary	Rodney	339	0	0%	0%	0%	2%
Kelston Girls High School	Secondary	Waitakere	886	0	0%	0%	0%	0%
Bridge Academy	Composite	Auckland	16	0	0%	-	-	-
Otahuhu Intermediate School	Intermediate	Auckland	379	0	0%	-	1%	1%
Saint Kentigern School for Girls-Corran	Intermediate/Secondary	Manukau	101	0	0%	-	-	-
Te Wharekura o Manurewa	Composite	Manukau	34	0	0%	-	-	-
Tangaroa College	Secondary	Manukau	1200	0	0%	-	0%	-

School Name	Year Levels	Area	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible²⁰ (2010)	Cyclists as share of those eligible²¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Mansell Senior School	Intermediate	Papakura	205	0	0%	-	-	-
Kaipara College	Secondary	Rodney	673	0	0%	-	0%	<1%
Te Kura Kaupapa Maori a Rohe Mangere	Composite	Manukau	170	0	0%	-	-	-
Te Kura Kaupapa Maori o Te Raki Paewhenua	Composite	North Shore	64	0	0%	-	-	-

APPENDICES

Appendix One: Methodology

Appendix Two: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: METHODOLOGY

Manual Cycle Counts

Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitass have conducted the regional monitoring using a similar approach to that used to collect manual count data for Auckland City Council between 2001 and 2006.*

Choice Of Sites

Decisions as to which sites were chosen for cycle counts were guided by each respective TA, keeping in mind the planned developments for the Regional Cycle Network. In choosing their sites, TAs were strongly recommended to consider sites that could be retained over time as this will allow for the most accurate longitudinal assessment of change in cycle numbers.

Manual counts were undertaken at 84 different sites throughout the region. Sites were distributed throughout the region as follows:

- Auckland City n=28 sites (12 sites monitored since 2001; 10 sites added in 2007; 5 sites added in 2008; 3 sites relocated, one site dropped and one site added in 2009, one site added in 2010)
- Waitakere City n=15 sites (11 sites monitored since 2007; 2 sites added in 2008; 1 site added in 2009; one site relocated and one site added in 2010)
- Manukau City n=14 sites (12 sites monitored since 2007; 1 site added in 2008; one site relocated, 2 sites dropped and 3 sites added in 2009)
- North Shore City n=13 sites
- Rodney District n=8 (5 sites monitored since 2007; 3 sites added in 2009)
- Franklin District n=4 (3 sites monitored since 2007; 1 site added in 2009)
- Papakura District n=2 sites (3 sites monitored since 2007; 1 site dropped in 2010)

Monitoring Times

Time Of Day

On the recommendation of the Regional Cycling Monitoring Working Group, manual counts in the morning peak were conducted between **6.30 and 9.00 am**. It should be noted that this is a slightly longer morning peak than was used for manual counts in Auckland city prior to 2007 – 7.00 to 9.00 am. However, to allow for longitudinal comparisons, results for Auckland city have been presented for both 7.00 to 9.00 am and 6.30 to 9.00 am.

Between 2001 and 2006, Gravitas monitored Auckland city evening cycle numbers between 4.00 and 6.00 pm. However, in 2005 and 2006, data collected at some sites had shown upwards trends and notable peaks later in the shift (particularly between 5.50 and 6.00pm) which suggested that cycle numbers after 6.00 pm may remain high or even increase. To capture this trend, Gravitas recommended extending the evening peak monitoring period to **4.00 to 7.00 pm**. Once again, to allow for longitudinal comparisons, results for Auckland city have been presented for 4.00 to 6.00 pm as well as 4.00 to 7.00 pm.

Day Of Week

Previous experience conducting cycle and other traffic manual counts on behalf of Auckland city has found that these counts are best undertaken on either a Tuesday, Wednesday or Thursday as travel patterns on Mondays and Fridays tend to be more variable.

Time Of Year

To ensure consistency throughout the region, standard monitoring days were selected and agreed upon by the Regional Cycle Monitoring Working Group. In selecting the days, consideration was given to:

- the timing of school and tertiary holidays/the commencement of term time for tertiary institutions;
- the timing of statutory holidays (particularly Easter);
- the timing of Bikewise Month; and
- daylight saving times.

It was agreed that manual counts would commence on Tuesday the 9th of March and be conducted on the first three fine days of the 9th, 10th, 11th, 16th, 17th, or 18th of March.

Counting at sites in **North Shore and Waitakere** cities was completed on **Tuesday the 9th of March**. Counting at sites in **Auckland city** was completed on **Wednesday the 10th of March**. Counts in **Manukau, Rodney, Papakura and Franklin** were completed on **Thursday the 11th of March**. Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

Auckland city's 2006 cycle monitor provides a clear example of the impact of weather conditions on the validity of the data collected. During the (fine) morning peak, 1579 cyclists were recorded across the twelve monitoring sites. By comparison, in the (wet) evening peak on the same day, only 1050 cyclists were counted, demonstrating that only 66% of those who cycled during the morning peak were counted again in the evening. Such a significant drop in cycle numbers was not observed in previous years, when weather was comparable in the morning and evening peak.

To reduce the impact of weather conditions on cycle numbers, manual counts were conducted on predominantly fine days (although intermittent drizzle was observed at a small number of sites). In addition, if it rained during the morning peak, monitoring in the evening peak on that same day was also postponed, irrespective of the weather (as it can be assumed that cyclists' travel behaviour in the evening peak will have been influenced by decisions they made earlier in the day – for example, the decision to leave their bike at home and use public transport instead). Care was taken to ensure that all manual counts were conducted prior to the conclusion of daylight saving.

The weather on the three count days in 2010 was as follows:

Tuesday 9th March

(Waitakere and North Shore city sites monitored)

- Sunrise: 7:13am; Sunset: 7:49pm.
- Average temperature: 19 degrees Celsius.
- Fine weather for all sites in the morning period.
- Weather fine throughout the evening shift.

Wednesday 10th March

(Auckland city sites monitored)

- Sunrise: 7:14am; Sunset: 7:48pm.
- Average temperature: 14 degrees Celsius.
- Fine weather at most sites in the morning period.

Thursday 11th March

(Manukau city and Rodney, Papakura and Franklin district sites monitored)

- Sunrise: 7:15am; Sunset: 7:46pm.
- Average temperature: 20 degrees Celsius.
- Rodney district has fine weather throughout the morning shift. Most sites had overcast weather in the morning period apart from light drizzle at two Manukau city sites, one Franklin and one Papakura site.
- Weather in the evening period was overcast, with intermittent drizzle throughout the period.

Conducting The Manual Counts

Scoping Visit

Gravitas visited each of the selected sites prior to the first monitoring shift. This scoping visit was used to map the roading network and to identify and map the range of directions that cyclists could travel through the site. This visit was also used to identify any particular features (such as designated cycle ways) or potential hazards that surveyors needed to be aware of when monitoring at the site. As part of the scoping visit, a recommended observation point was identified and mapped (this point chosen on the basis of offering the best trade-off between visibility and safety). The maps prepared for each site have been included in this report – just prior to the count results for each site.

As part of the scoping visit, a small number of sites were identified as requiring two or more surveyors to accurately capture all cycle movements (due predominantly to the complexity of the roading/cycleway network at the site or poor visibility at the intersection). Two surveyors were used at:

- Great South Road/Campbell Road/Main Highway, Greenlane (Site 21; Auckland city);
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; North Shore city).

Three surveyors were used at the ferry terminal site (Site 22; Auckland city).

Briefing Session

Prior to their monitoring shift, all surveyors participated in a briefing session. The session covered:

- the overall aims of the Regional Cycle Monitoring Plan and how the manual monitoring fits with this Plan;
- the aims and purpose of the cycle monitoring and the process to be used;
- review of all materials supplied – how to interpret and use the maps, how to accurately record data on count sheets etc;
- health and safety issues; and
- general administration – shift times, collection and return of materials etc.

This session was interactive, with surveyors being encouraged to ask questions and seek further explanation on issues they were unsure about. Surveyors were also provided with a copy of the briefing notes for reference during their shifts. During the briefing session, all surveyors were also required to conduct a “practice count” for 20 minutes at the Ponsonby Road/Karangahape Road site.

Conducting The Manual Counts

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team²².

For consistency with the Auckland city cycle data collected since 2001, during their shift the surveyor collected data on:

- The total number of cyclists²³ passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet; and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway²⁴.

Since 2009, surveyors have been required to indicate those cyclists riding together in groups of three or more. To be consistent with previous year, each member of these ‘pelatons’ has been included in the site-level analysis as a separate cyclist movement. However, where pelatons were observed, the number of cyclists and the time they passed through the site have been given in the report, along with a percentage figure indicating what share of all cyclists of the site were riding as groups.

In addition, where cyclists were recognisable, surveyors were instructed to record each cyclist no more than three times during a single shift, irrespective of how many trips they actually made through the site. Surveyors noted where and when this occurred.

In addition, data was collected on the weather and daylight conditions at the site. Surveyors were also encouraged to record any information that may have affected cycle numbers or cycle

²² This letter also contained contact details for the client organisation and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.

²³ To ensure consistency across all surveyors, a “cycle” was defined as being non-motorised, with two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.

²⁴ Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

movements at the site – for example, construction or maintenance works being conducted on the cycle way or road works at the intersection.

A team of supervisors checked that surveyors were in the correct position and recording data accurately.

Data Analysis

Upon their return to Gravitas, all count sheets were checked for completeness. The raw data was then entered into Excel for logic checking, analysis and graphing.

Annual Average Daily Traffic (AADT) Analysis

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand²⁵, Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

Using the manual count figures for each site, it has been possible to provide the average annual daily traffic flow of cyclists (cycling AADT) estimate for each site. AADT scale factors (morning and afternoon) were provided by ViaStrada²⁶.

By applying the scale factor to the manual count data for each morning and afternoon peak, and averaging the two figures, an average annual daily cyclist flow figure has been obtained for each site. *A more comprehensive overview of the methodology used for this analysis is provided in Appendix One.*

Note: ViaStrada acknowledge that, as cycling volumes fluctuate from day to day depending on the weather, this method should be used with caution. They note that ideally an estimate should be achieved based on the average of the results of several counts, rather than counts from a single day, as in this study²⁷.

²⁵ <http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html>

²⁶ ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

²⁷ Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG) (Land Transport New Zealand, 2004)

School Bike Shed Counts

As stated above, manual cycle counts were undertaken during the morning (6.30 am to 9 am) and evening (4 pm to 7 pm) peaks. However, it was noted in the design phase of the project that the timing of the evening peak monitoring would mean that the greatest share of students cycling home from school will be excluded from the counts. This was identified as a potential weakness of the monitoring proposed.

Therefore, it was suggested that information on numbers of students cycling to and from intermediate and secondary schools across the region could be collected by counting the number of bikes in school bike sheds on a pre-determined day. Rates of cycling among students could also be assessed by calculating the number of bikes counted as a share of the school's total roll (or share of the school's roll eligible to cycle).

It was decided that school bike shed monitoring would focus only on intermediate and secondary schools (and composite schools which included children of intermediate and secondary school age), since children travelling to primary schools are considered by many parents (and schools) as too young to cycle to school.

Methodology

The following process was used to collect the school bike shed count data.

1. Gravitas designed an information sheet that was distributed to most intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region via email (note a small number of schools were omitted due to the special nature of the students eg special needs schools). This sheet was designed in consultation with the Regional Cycle Monitoring Working Group to ensure all necessary information was collected.
2. This email was then sent to all intermediate, secondary and composite schools in Auckland region (n=160) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 9th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).
4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-

entered into Excel. One hundred and twenty-five responses were received, a response rate of 78 per cent.

Reporting

The data from the manual counts has been presented at a site-by-site, TA and regional level.

Manual Counts - Site Level Reporting

For consistency with Auckland city's cycle monitor, the following results have been reported for each site:

- Total number of movements through the intersection during each peak;
- Total number of movements through the intersection during each ten-minute interval during each peak;
- Number of cyclists making each directional movement through the intersection during each peak; and
- Share of cyclists through the intersection during each peak who are:
 - adults/school children
 - wearing a helmet/not wearing a helmet
 - riding on the road/riding on the footpath/riding on an off-road path

Manual Counts - Aggregated Reporting

Results have also been reported at an aggregate level (that is, summing up all sites) – by city/district and across the region – to show the total number of cycle movements recorded (both overall and by ten-minute intervals) and the characteristics of the cyclists.

Bike Shed Counts

Results have been provided by school (along with notes explaining why counts for some schools may not be representative), as well as at a TA and regional level. Raw cycle numbers and a “cyclists as a share of total school roll” figure have both been provided.

APPENDIX TWO: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

Note: *This description of the calculation of the Annual Average Daily Traffic Flow of Cyclists has been provided by ViaStrada based on their May 2007 report for ARTA entitled “Development of a Cycle Traffic AADT Tool”.*

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT²⁸ in the Auckland region from any Gravitas manual count.

Method for Estimating AADT

The methodology is based on that published in Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG)²⁹, adjusted for Auckland conditions based on data collected during March 2007. The aim was to use the published methodology as much as possible, with any necessary departure from it documented below. The following equation yields the best estimate of a cycling AADT:

$$AADT_{Cyc} = Count \times \frac{1}{\sum H} \times \frac{1}{D} \times \frac{W}{7} \times \frac{1}{R}$$

where *Count* = result of count period

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

If more than one set of count data is available (for example, both a morning count and afternoon count), then **the calculation should be carried out for each set of data, and the estimates derived from each averaged.**

The values for the scale factors (*H*, *D*, *W* and *R*) have been deduced in the ViaStrada report and are included in this report in Figure 1. For the Gravitas counts, the following factors apply:

$\sum H_{AM} = 30\%$; $\sum H_{PM} = 33.3\%$; (AM and PM refer to morning and afternoon respectively)

D = 14%

W = 0.9

$R_{DRY} = 100\%$; $R_{WET} = 64\%$ (DRY and WET refer to fine and rainy conditions respectively)

²⁸ Annual average daily traffic

²⁹ LTSA, 2004

These can be combined as a single multiplier to convert the manual count to an AADT estimate as follows:

	Morning	Afternoon
Dry weather	3.06	2.78
Wet weather	4.78	4.35

Worked Example

If morning and afternoon manual traffic counts are available at a site, the AADT can be calculated using the count summaries for each period. For example, a morning survey of 102 and an afternoon survey of 130 are suggested. It is assumed for this example that the weather was fine in both surveys.

- Thus the AADT from the morning survey is estimated as $3.06 \times 102 = 312$.
- The AADT from the afternoon survey is estimated as $2.78 \times 130 = 359$.
- The average of these two estimates is 335; this is the estimate of AADT for this site, based on the two surveys.

Figure 1: Scale Factors for Auckland Region

Period Starting	Period Ending	Interval (hours)	H _{Weekday}		H _{Weekend}	
			Mon to Fri	Sat & Sun		
0:00	6:30	6.50	5.5%	1.8%		
6:30	6:45	0.25	2.3%	0.8%		
6:45	7:00	0.25	2.6%	1.5%		
7:00	7:15	0.25	3.2%	1.4%		
7:15	7:30	0.25	3.7%	2.1%		
7:30	7:45	0.25	3.8%	2.8%		
7:45	8:00	0.25	4.0%	3.3%		
8:00	8:15	0.25	3.9%	3.2%		
8:15	8:30	0.25	3.1%	3.8%		
8:30	8:45	0.25	2.3%	3.5%		
8:45	9:00	0.25	1.3%	3.5%		
9:00	10:00	1.00	4.2%	13.6%		
10:00	11:00	1.00	3.4%	11.6%		
11:00	12:00	1.00	2.6%	9.1%		
12:00	13:00	1.00	2.7%	6.6%		
13:00	14:00	1.00	2.7%	5.0%		
14:00	14:15	0.25	0.7%	1.9%		
14:15	14:30	0.25	0.7%	1.3%		
14:30	14:45	0.25	0.6%	1.3%		
14:45	15:00	0.25	0.6%	1.2%		
15:00	15:15	0.25	0.8%	1.1%		
15:15	15:30	0.25	1.0%	0.9%		
15:30	15:45	0.25	1.3%	1.4%		
15:45	16:00	0.25	1.2%	1.3%		
16:00	16:15	0.25	2.1%	1.0%		
16:15	16:30	0.25	2.3%	1.7%		
16:30	16:45	0.25	2.1%	1.0%		
16:45	17:00	0.25	2.5%	1.2%		
17:00	17:15	0.25	3.3%	1.2%		
17:15	17:30	0.25	3.7%	1.2%		
17:30	17:45	0.25	4.0%	1.1%		
17:45	18:00	0.25	3.2%	1.1%		
18:00	18:15	0.25	3.0%	0.9%		
18:15	18:30	0.25	2.7%	0.7%		
18:30	18:45	0.25	2.4%	0.8%		
18:45	19:00	0.25	2.1%	0.6%		
19:00	20:00	1.00	5.6%	2.0%		
20:00	0:00	4.00	3.0%	1.5%		
			24.00	100.0%	100.0%	

Day	D
Monday	14%
Tuesday	14%
Wednesday	14%
Thursday	14%
Friday	14%
Saturday	14%
Sunday	16%

Period	W
Summer holidays	1.0
Term 1	0.9
April holidays	1.0
Term 2	1.0
July holidays	1.2
Term 3	1.1
Sep/Oct holidays	1.2
Term 4	1.0

Weather	R
Fine	100%
Rain	64%