Public Perception of the Urban Environment: Comparison of Wellington with National Data

Contract Research Report

Prepared for the Wellington Regional Council

by

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1. Background

The first State of the Environment Reporting (SER) exercise based on a survey of New Zealanders' perceptions of the environment was undertaken in 2000. The survey questionnaire is constructed upon a Pressure-State-Response model. Hughey *et al.* (2001) provide background and justification for the survey approach used. OECD (1996) and MfE (1997) explain this model, which is used internationally as the basis for environmental reporting. The survey by Hughey *et al.* was designed to be undertaken biennially and subsequent surveys were undertaken in 2002 and 2004.

2. Objectives

The main aims of the research are to measure, analyse and monitor changes in New Zealanders' perceptions, attitudes and preferences towards a range of environmental issues, ultimately contributing to improved state of the environment reporting. Specific objectives are to:

- Implement a questionnaire, operated biennially, to measure and monitor New Zealanders' environmental attitudes, perceptions, and preferences;
- Provide independent commentary on environmental issues of public concern as a contribution to public debate and a means of alerting government and others to these issues;
- Provide opportunities for organisations and other researchers to derive one-off research data for individual areas of interest, including teaching purposes; and
- To report biennially, via a published report and other research publications, on findings from the research.

With regard to the present report, the Wellington Regional Council asked us to compare data – that had been gathered through the survey by Hughey *et al.* – for the Wellington region (as defined through the respective post codes[1]) with data for the Rest of New Zealand (excluding Wellington).

[1] Postcodes for Wellington: 5560, 5901, 5921, 5951, 5952, 5953, 5954, 5970 and 6002 – 6010

This was to be done for five data sets, these are as follows (the corresponding data as provided through :

- The perceived state of the natural environment in towns and cities
- Perceived availability of parks and reserves in towns and cities
- Perceived state of the natural environment in towns and cities compared to five years ago
- Respondents' perception of current management of the natural environment in towns and cities
- Respondents' perception of the quality of management of the natural environment in towns and cities compared to five years ago

3. Methods

A postal questionnaire based on the Pressure-State-Response (PSR) model and the survey administered in 2000 is used to gather information on New Zealanders' perceptions of the environment and environmental management. The postal questionnaire was selected as the best method of gathering this information. The large number of questions (143 in 2004) deemed it unsuitable for a telephone survey, and interviews would have been an expensive and cumbersome method for sampling the New Zealand population. Data are analysed using SPSS for Windows. For a more detailed overview of the methodology used also refer to Hughey *et al.* (2004) (pages 9-12).

With regard to this report's objectives, analysis was carried out using SPSS 12.0.1 for Windows (release 11 Nov 2003). For this, the original data set used by Hughey *et al.* was reduced and non-relevant data, i.e. data relevant for other questions, deleted. Moreover, some survey data could not be used for this analysis since correlating post codes were either not available or data was flawed/incomplete. In cases where data could not be assigned to a particular region, i.e. either Wellington or the Rest of New Zealand (Non-Wellington), data was omitted from the data set. Thus, five relevant data sets for the five questions and two variables, i.e. survey year and area (Wellington and Non-Wellington), remained.

4. Results

The following figures show the results of the analysis of the five data sets divided into Wellington and Non-Wellington results. The Chi Square test was applied to test for changes in responses over the different surveys, i.e. comparing observed with expected distribution with P = Probability of Chi Squared. The tests focused on two aspects: (1) the comparison of the distribution between different years (within one data set), and (2) the comparison of the distribution between the two 'regions', i.e. between Non-Wellington and Wellington[2]. Note that Chi Square tests compared spread of responses but excluded 'don't know' answers.

Perceived state of natural environment in towns and cities

Figures' 4-1 and 4-2 show the state of the natural environment in towns and cities. Most people considered this state to be adequate or good – see below for details of the statistical analyses.

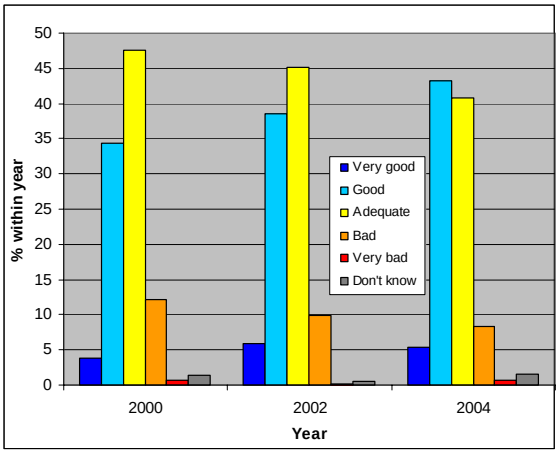

Figure 4-1: **Non-Wellington** – Perceived state of natural environment in towns and cities

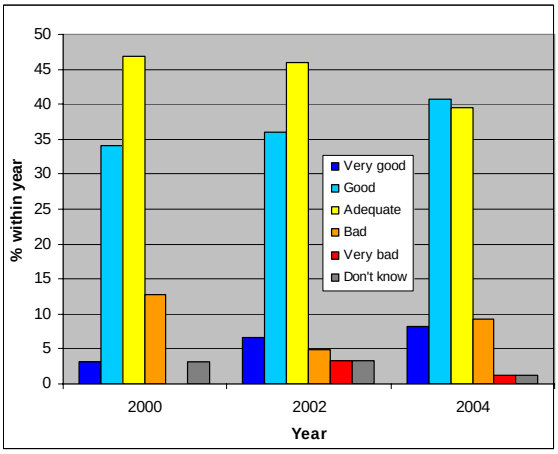

Figure 4-2: **Wellington** – Perceived state of natural environment in towns and cities

The Chi Square tests comparing the distribution between different years (within one data set) yielded the following results:

Non-Wellington: P = 0.006, a **significant result** since P < 0.1.

Wellington: P = 0.469, an insignificant result since P> 0.1.

[2] Note that for this test N was increased through combining variables and adjusting the number of columns from 5 to 3 in the Chi Square test (i.e. very good and good = good; adequate = adequate; bad and very bad = bad).

The Chi Square test comparing the distribution between the two 'regions', i.e. between Non-Wellington and Wellington yielded the following results:

2000: P = 0.996, an insignificant result since P > 0.1.

2002: P = 0.902, an insignificant result since P > 0.1.

2004: P = 0.905, an insignificant result since P > 0.1.

Perceived availability of parks and reserves in towns and cities

Figures' 4-3 and 4-4 show comparisons between the availability of parks and reserves in towns and cities. Overall, most people were of the view that the availability of these resources was adequate to good. There were no significant differences for any of these comparisons, as reported below.

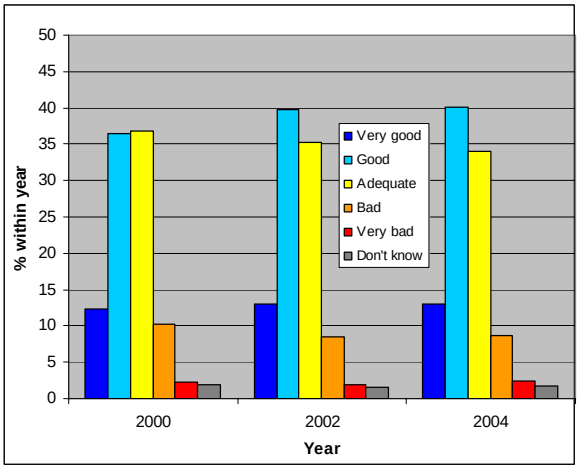

Figure 4-3: **Non-Wellington** – Perceived availability of parks and reserves in towns and cities

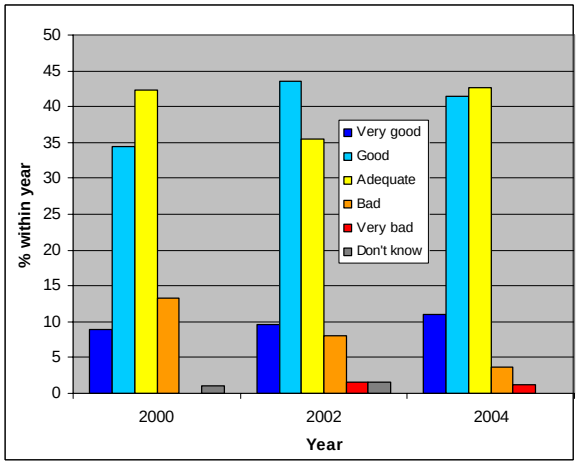

Figure 4-4: **Wellington** – Perceived availability of parks and reserves in towns and cities

The Chi Square tests comparing the distribution between different years (within one data set) yielded the following results:

Non-Wellington: P = 0.943, an insignificant result since P > 0.1.

Wellington: P = 0.543, an insignificant result since P > 0.1.

The Chi Square test comparing the distribution between the two 'regions', i.e. between Non-Wellington and Wellington yielded the following results:

2000: P = 0.560, an insignificant result since P > 0.1.

2002: P = 0.980, an insignificant result since P > 0.1.

2004: P = 0.120, an insignificant result since P > 0.1.

Perceived state of the environment in towns and cities compared to five years ago

The state of the environment in towns and cities compared to five years ago is shown in Figures' 4-5 and 4-6. While most people think the state has improved it is notable that for both 2002 and 2004 Wellington respondents were more likely to hold this view than were others in New Zealand (P<0.1, and see other analysis details below).

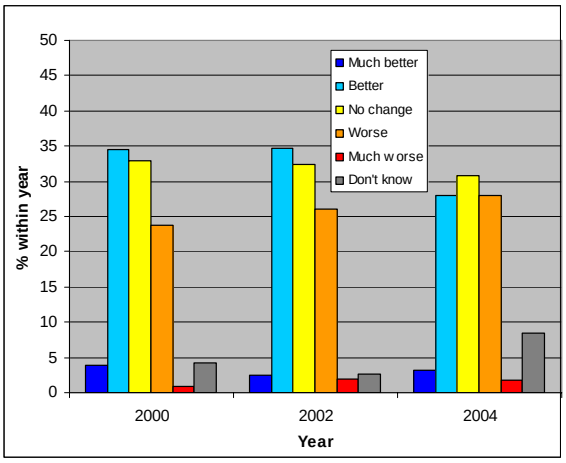

Figure 4-5: **Non-Wellington** – Perceived state of the environment in towns and cities compared to five years ago

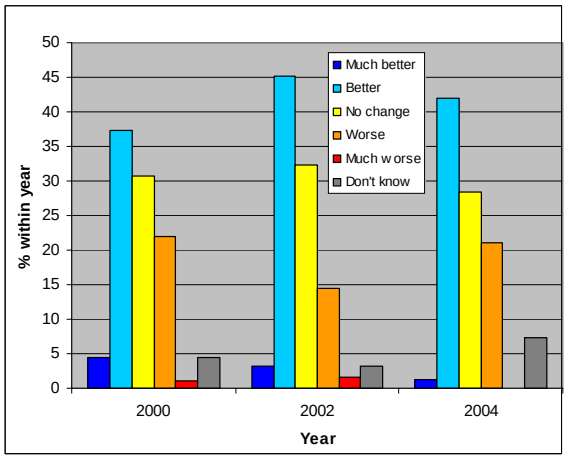

Figure 4-6: **Wellington** – Perceived state of the environment in towns and cities compared to five years ago

The Chi Square tests comparing the distribution between different years (within one data set) yielded the following results:

Non-Wellington: P = 0.000, a **significant result** since P < 0.1.

Wellington: P = 0.825, an insignificant result since P > 0.1.

The Chi Square test comparing the distribution between the two 'regions', i.e. between Non-Wellington and Wellington yielded the following results:

2000: P = 0.815, an insignificant result since P > 0.1.

2002: P = 0.096, a **significant result** since P < 0.1.

2004: P = 0.072, a **significant result** since P < 0.1.

Respondents' perception of current management of the natural environment in towns and cities

Figures 4-7 and 4-8 indicate perceptions of current management of the natural environment in towns and cities. While respondents report generally positive views there were no significant differences between the data sets, as reported below.

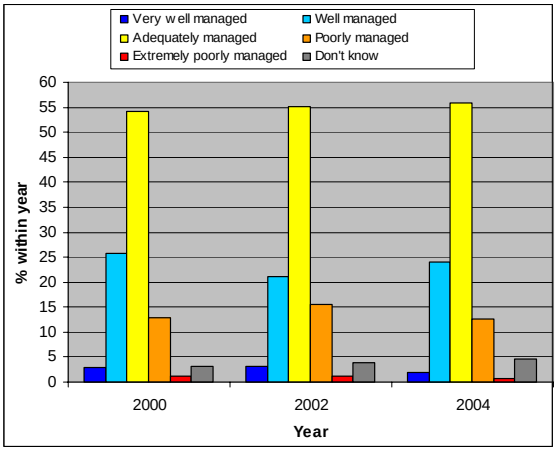

Figure 4-7: **Non-Wellington** – Respondents' perception of current management of the natural environment in towns and cities

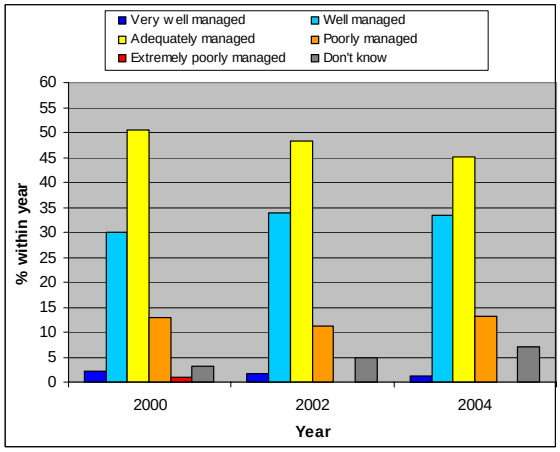

Figure 4-8: **Wellington** – Respondents' perception of current management of the natural environment in towns and cities

The Chi Square tests comparing the distribution between different years (within one data set) yielded the following results:

Non-Wellington: P = 0.596, an insignificant result since P > 0.1.

Wellington: P = 0.958, an insignificant result since P > 0.1.

The Chi Square test comparing the distribution between the two 'regions', i.e. between Non-Wellington and Wellington yielded the following results:

2000: P = 0.764, an insignificant result since P > 0.1.

2002: P = 0.122, an insignificant result since P > 0.1.

2004: P = 0.171, an insignificant result since P > 0.1.

Respondents' perception of the quality of management compared to five years ago

Perceptions of the quality of management compared to five years ago is shown in Figures' 4-9 and 4-10, with analysis of the statistical details presented below. Most respondents thought management had not changed or was better than 5 years ago.

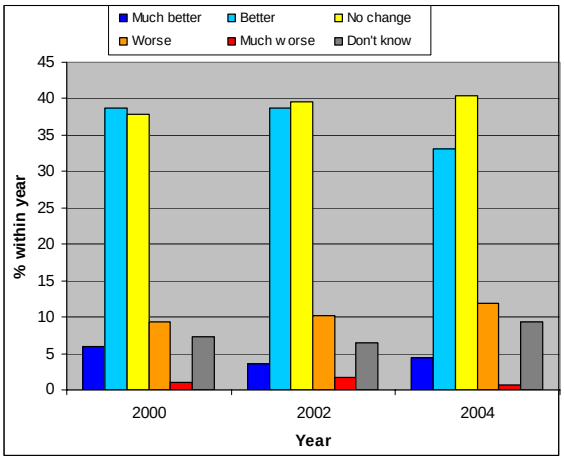

Figure 4-9: **Non-Wellington** – Respondents' perception of the quality of management compared to five years ago

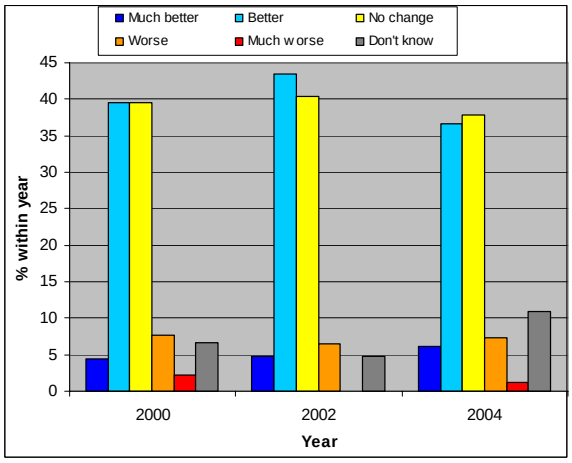

Figure 4-10: **Wellington** – Respondents' perception of the quality of management compared to five years ago

The Chi Square tests comparing the distribution between different years (within one data set) yielded the following results:

Non-Wellington: P = 0.088, a **significant result** since P < 0.1.

Wellington: P = 0.939, an insignificant result since P > 0.1.

The Chi Square test comparing the distribution between the two 'regions', i.e. between Non-Wellington and Wellington yielded the following results:

2000: P = 0.957, an insignificant result since P > 0.1.

2002: P = 0.390, an insignificant result since P > 0.1.

2004: P = 0.441, an insignificant result since P > 0.1.

5. Discussion and Conclusions

The results of most Chi Square tests do not indicate significant differences either between years for Wellington or the Rest of New Zealand, or between Wellington and the Rest of New Zealand. However, with regard to the comparison of the distribution between different years (within one data set), changes are significant (P < 0.1) for the Non-Wellington (Rest of New Zealand) region for three data sets:

(1) the perceived state of the natural environment in towns and cities (Figure 4-1),
(2) the perceived state of the environment in towns and cities compared to five years ago (Figure 4-5), and
(3) respondents' perception of the quality of management compared to five years ago (Figure 4-9).
The figures also indicate 'visible' changes for the Wellington region; however, the Chi Square test do not indicate significance, possibly due to the low sample size for Wellington region that could be tested in these comparisons.

Furthermore, with regard to the comparison of the distribution between the two regions (Non-Wellington and Wellington), changes are significant ($P < 0.1$) for the data set on the perceived state of the environment in towns and cities compared to five years ago (Figure 4-5 and Figure 4-6). Although data is limited, the Chi Square test provides support for the conclusion that Wellington did better here than the rest of New Zealand in 2002 and 2004.

The results show that while survey data collected by Hughey *et al.* are very useful in obtaining a picture about the public perceptions of the environment in New Zealand, the survey data is somewhat limited when restricted to specific regions such as Wellington. Nevertheless the analysis did detect differences and these may be of use for environmental and other reporting on a regional basis. However, the ability to determine any further differences between the Wellington region and the rest of New Zealand are limited.

References

Hughey, K. F. D., Kerr, G. N., & Cullen, R. (2001). *Perceptions of the State of New Zealand's Environment: Findings from the first biennial survey undertaken in 2000*. Lincoln: Lincoln University.

Hughey, K. F. D., Kerr, G. N., & Cullen, R. (2004). *Public Perceptions of New Zealand's Environment: 2004*. Christchurch: EOS Ecology.

MfE. (1997). *The State of New Zealand's Environment*. Wellington: MfE & GP Publications.

OECD. (1996). *Environmental Performance Reviews. New Zealand*. Paris: Organisation for Economic Co-operation and Development.

Appendix - Data

Table 1: Perceived state of natural environment in towns and cities

Area		Year	Condition of the natural environment in towns and cities						Total	Mean	Std. Dev.
			Very good	Good	Adequate	Bad	Very bad	Don't know			
			1	2	3	4	5			(1-5)	(1-5)
Non-Wellington											
	Count	2000	29	267	368	94	6	11	775	2.71	0.76
	% within year	2000	3.74	34.45	47.48	12.13	0.77	1.42	100.00		
	Count	2002	27	175	205	45	1	2	455	2.60	0.76
	% within year	2002	5.93	38.46	45.05	9.89	0.22	0.44	100.00		
	Count	2004	38	307	289	59	5	11	709	2.55	0.75
	% within year	2004	5.36	43.30	40.76	8.32	0.71	1.55	100.00		
Wellington											
	Count	2000	3	32	44	12	0	3	94	2.71	0.74
	% within year	2000	3.19	34.04	46.81	12.77	0.00	3.19	100.00		
	Count	2002	4	22	28	3	2	2	61	2.61	0.83
	% within year	2002	6.56	36.07	45.90	4.92	3.28	3.28	100.00		
	Count	2004	7	35	34	8	1	1	86	2.54	0.83
	% within year	2004	8.14	40.70	39.53	9.30	1.16	1.16	100.00		

Table 2: Perceived availability of parks and reserves in towns and cities

Area		Year	Perceived availability of parks and reserves in towns and cities						Total	Mean	Std. Dev.
			Very good	Good	Adequate	Bad	Very bad	Don't know			
			1	2	3	4	5			(1-5)	(1-5)
Non-Wellington											
	Count	2000	94	276	279	78	17	14	758	2.53	0.92
	% within year	2000	12.40	36.41	36.81	10.29	2.24	1.85	100.00		
	Count	2002	59	181	161	39	9	7	456	2.46	0.90
	% within year	2002	12.94	39.69	35.31	8.55	1.97	1.54	100.00		
	Count	2004	92	284	241	62	17	12	708	2.47	0.92
	% within year	2004	12.99	40.11	34.04	8.76	2.40	1.69	100.00		
Wellington											
	Count	2000	8	31	38	12	0	1	90	2.61	0.83
	% within year	2000	8.89	34.44	42.22	13.33	0.00	1.11	100.00		
	Count	2002	6	27	22	5	1	1	62	2.48	0.85
	% within year	2002	9.68	43.55	35.48	8.06	1.61	1.61	100.00		
	Count	2004	9	34	35	3	1	0	82	2.43	0.79
	% within year	2004	10.98	41.46	42.68	3.66	1.22	0.00	100.00		

Table 3: Perceived state of the environment in towns/cities compared to five years ago

Area		Year	Condition of the natural environment in towns and cities						Total	Mean	Std. Dev.
			Much better	Better	No change	Worse	Much worse	Don't know			
			1	2	3	4	5			(1-5)	(1-5)
Non-Wellington											
	N	2000	29	261	248	179	6	32	755	2.82	0.88
	% within year	2000	3.84	34.57	32.85	23.71	0.79	4.24	100.00		
	N	2002	11	159	148	119	9	12	458	2.90	0.89
	% within year	2002	2.40	34.72	32.31	25.98	1.97	2.62	100.00		
	N	2004	22	197	216	197	12	59	703	2.97	0.91
	% within year	2004	3.13	28.02	30.73	28.02	1.71	8.39	100.00		
Wellington											
	N	2000	4	34	28	20	1	4	91	2.77	0.90
	% within year	2000	4.40	37.36	30.77	21.98	1.10	4.40	100.00		
	N	2002	2	28	20	9	1	2	62	2.65	0.84
	% within year	2002	3.23	45.16	32.26	14.52	1.61	3.23	100.00		
	N	2004	1	34	23	17	0	6	81	2.75	0.82
	% within year	2004	1.23	41.98	28.40	20.99	0.00	7.41	100.00		

Table 4: Respondents' perception of the current management of the natural environment in towns and cities

Area		Year	Management of the natural environment in towns and cities						Total	Mean	Std. Dev.
			Very well managed	Well managed	Adequately managed	Poorly managed	Extremely poorly managed	Don't know			
			1	2	3	4	5			(1-5)	(1-5)
Non-Wellington											
	Count	2000	22	194	406	96	9	24	751	2.83	0.74
	% within year	2000	2.93	25.83	54.06	12.78	1.20	3.20	100.00		
	Count	2002	14	97	252	71	6	18	458	2.90	0.75
	% within year	2002	3.06	21.18	55.02	15.50	1.31	3.93	100.00		
	Count	2004	14	166	385	87	5	32	689	2.85	0.69
	% within year	2004	2.03	24.09	55.88	12.63	0.73	4.64	100.00		
Wellington											
	Count	2000	2	28	47	12	1	3	93	2.80	0.74
	% within year	2000	2.15	30.11	50.54	12.90	1.08	3.23	100.00		
	Count	2002	1	21	30	7	0	3	62	2.73	0.69
	% within year	2002	1.61	33.87	48.39	11.29	0.00	4.84	100.00		
	Count	2004	1	28	38	11	0	6	84	2.76	0.71
	% within year	2004	1.19	33.33	45.24	13.10	0.00	7.14	100.00		

Table 5: Respondents' perception of the management compared to five years ago

Area		Year	Management of the natural environment in towns and cities						Total	Mean	Std. Dev.
			Much better	Better	No change	Worse	Much worse	Don't know			
			1	2	3	4	5			(1-5)	(1-5)
Non-Wellington											
	Count	2000	44	289	283	70	8	54	748	2.58	0.801
	% within year	2000	5.88	38.64	37.83	9.36	1.07	7.22	100.00		
	Count	2002	16	176	180	46	8	29	455	2.66	0.794
	% within year	2002	3.52	38.68	39.56	10.11	1.76	6.37	100.00		
	Count	2004	30	226	276	81	5	64	682	2.68	0.79
	% within year	2004	4.40	33.14	40.47	11.88	0.73	9.38	100.00		
Wellington											
	Count	2000	4	36	36	7	2	6	91	2.61	0.803
	% within year	2000	4.40	39.56	39.56	7.69	2.20	6.59	100.00		
	Count	2002	3	27	25	4	0	3	62	2.51	0.704
	% within year	2002	4.84	43.55	40.32	6.45	0.00	4.84	100.00		
	Count	2004	5	30	31	6	1	9	82	2.56	0.799
	% within year	2004	6.10	36.59	37.80	7.32	1.22	10.98	100.00		