NZ TRANSPORT AGENCY
WAKA KOTAHI

Annual Weigh- In- Motion (WiM) Report 2012

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Quality Assurance Statement

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Revision Schedule

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1		First draft	Bernadette Bañez	Philip Blagdon, Neil Beckett	
2		Final version	Bernadette Bañez	Philip Blagdon, Neil Beckett	David Darwin

CONTENT

1.0 DISCLAIMER

The traffic data contained in this report is intended to be used as an approximate indication of traffic loading and vehicle weights at Weight-in-Motion (WiM) sites. The limitations of the equipment and their installation, congestion effects and various analysis procedures contribute to a level of approximation in the data. These factors should be taken into account when using the data.
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2.0 EXECUTIVE SUMMARY

All heavy vehicles are referred to as vehicles in this report.

Table 1.0 | Vehicle frequency and estimated gross mass by vehicle type

Vehicle Type	Heavy Vehicles[1]				Overweight Heavy Vehicles[2]				Percentage of Overweight over Recorded Vehicles		Average Estimated Gross Mass per Vehicle	
	Recorded		Gross Mass		Recorded		Gross Mass		Recorded	Gross Mass	Overall	Overweight
	f	*%*[3]	*f*	*%*[3]	*f*	*%*[3]	*f*	*%*[3]	*%*[4]	*%*[4]	*Tonne*	*Tonne*
Rigid	1,199,268	*40.2*	11,771,648	*17.1*	28,237	*10.6*	608,637	*5.2*	*2.4*	*5.2*	*9.8*	*21.6*
T&T	1,039,873	*34.9*	*34,705,350*	*50.4*	180,763	*67.6*	8,487,614	*72.2*	*17.4*	*24.5*	*33.4*	*47.0*
Artic	497,110	*16.7*	*13,813,321*	*20.0*	31,063	*11.6*	1,373,223	*11.7*	*6.2*	*9.9*	*27.8*	*44.2*
A&B Train	245,529	*8.2*	*8,636,485*	*12.5*	27,282	*10.2*	1,281,700	*10.9*	*11.1*	*14.8*	*35.2*	*47.0*
Total	2,981,780	*100.0*	68,926,803	*100.0*	267,345	*100.0*	11,751,173	*100.0*	*9.0*	*17.0*	*23.1*	*44.0*

Note: [1]Total number of vehicles recorded or the estimated gross mass (including the vehicle and load mass) during the accepted days of operations.
[2]Total number of vehicles recorded or the estimated gross mass (including the vehicle and load mass) that exceed their maximum limit during the accepted days of operations.
[3]The proportion of each vehicle type from the given column total. For example, 67.6 percent of the overall total of overweight vehicles recorded as trucks and trailers.
[4]The proportion of heavy vehicles or overweight mass over the total heavy vehicles recorded of each vehicle type. For example, approximately 6.2 percent (31,063) of 497,110 Artic type vehicles were overweight.

Vehicle Fleet

- The total heavy vehicles recorded during 2012 had decreased by 4.82 percent (2,981,780) compared to 2,986,792 in 2011, despite of the additional WiM site.
- During 2012, rigid and T&T vehicle types had the highest total number of heavy vehicles recorded across six WiM sites with 40.2 percent and 34.9 percent, respectively.
- PAT classes 891, 21 and 45 *(see Figure 1for illustration)* reported as having the largest proportion of vehicles, combined they account for approximately more than 51 percent of the total heavy vehicle fleet (*see Table 7.0).* In 2011, PAT class 31 the third most frequent heavy vehicles, which replaced by PAT class 45 in 2012.
- More than half (50.4percent) of the estimated gross mass carried by T&T vehicle type and followed by Artic.
- The overall average estimated gross mass per vehicle is 23.1 tonnes regardless of vehicle type.
- A&B Train vehicle type had the highest estimated gross mass per vehicle with 35.2 tonnes while the rigid vehicle type had an average of 9.8 tonnes per vehicle.

Vehicle Fleet Overweight

- The number of overweight vehicles increased by 2.7 percent (6,852) to 259,826 (excluding Hamanatua Bridge) from 252,974 in 2011.

- T&T vehicle type had the highest overweight vehicles recorded during 2012 with 67.6 percent of the total overweight vehicles.
- The overweight vehicles estimated gross mass is similar with the maximum legal limit with 44 tonnes across vehicle types.
- T&T and A&B train vehicle types tied for having the same average estimated gross mass per overweight vehicle with 47.0 tonnes each.
- PAT class 891 (48.2 percent), 751 (13.9 percent) and 31 (9.1 percent) had the largest proportion of vehicles recorded as being over each specific maximum weight limit (combined approximately 71percent of the total heavy vehicles recorded as overweight) *(see Table 10.0)*

Table 2 shows the frequency and percentage distributions of total heavy and overweight vehicles by vehicle type and WiM sites.

Table 2.0 | Heavy vehicle type by WiM site (2012)

Vehicle Type	WiM Site						Total
	Drury	Eskdale	Hamanatua Bridge	Te Puke	Tokoroa	Waipara	
Number of Heavy vehicles							
Rigid	605,444	81,273	89,253	188,650	128,570	106,078	1,199,268
T&T	442,746	88,405	61,992	148,121	175,391	123,218	1,039,873
Artic	295,642	26,067	2,893	62,412	68,237	41,859	497,110
A&B Train	114,052	18,181	806	21,989	51,262	39,239	245,529
Total	1,457,884	213,926	154,944	421,172	423,460	310,394	2,981,780
Number of Overweight vehicles							
Rigid	17,491	1,187	734	4,500	3,064	1,261	28,237
T&T	61,016	24,941	6,687	35,377	38,191	14,551	180,763
Artic	15,066	1,322	83	7,833	5,957	802	31,063
A&B Train	11,145	1,988	15	4,313	7,206	2,615	27,282
Total	104,718	29,438	7,519	52,023	54,418	19,229	267,345
Percentage of overweight vehicles (%)							
Rigid	*2.9*	*1.5*	*0.8*	*2.4*	*2.4*	*1.2*	*2.4*
T&T	*13.8*	*28.2*	*10.8*	*23.9*	*21.8*	*11.8*	*17.4*
Artic	*5.1*	*5.1*	*2.9*	*12.6*	*8.7*	*1.9*	*6.2*
A&B Train	*9.8*	*10.9*	*1.9*	*19.6*	*14.1*	*6.7*	*11.1*
Total	*7.2*	*13.8*	*4.9*	*12.4*	*12.9*	*6.2*	*9.0*
Estimated gross mass							
Rigid	5,572,939	925,078	1,064,332	1,932,272	1,330,596	946,432	11,771,648
T&T	13,905,381	3,262,974	2,380,933	5,144,882	6,051,718	3,959,463	34,705,350
Artic	7,983,992	754,527	63,807	1,768,553	2,045,067	1,197,377	13,813,321
A&B Train	3,930,507	646,810	25,487	746,498	1,886,146	1,401,038	8,636,485
Total	31,392,819	5,589,387	3,534,558	9,592,204	11,313,526	7,504,309	68,926,803
Estimated overweight vehicles gross mass							
Rigid	378,354	25,555	15,171	95,260	67,942	26,356	608,637
T&T	2,863,907	1,162,090	308,787	1,682,241	1,792,479	678,112	8,487,614
Artic	656,892	59,008	3,743	348,500	269,479	35,602	1,373,223
A&B Train	520,922	92,808	700	206,307	338,811	122,154	1,281,700
Total	4,420,074	1,339,460	328,400	2,332,307	2,468,710	862,223	11,751,173
Estimated Gross Mass per vehicle (tonne)							
Rigid	*9.2*	*11.4*	*11.9*	*10.2*	*10.3*	*8.9*	*9.8*
T&T	*31.4*	*36.9*	*38.4*	*34.7*	*34.5*	*32.1*	*33.4*
Artic	*27.0*	*28.9*	*22.1*	*28.3*	*30.0*	*28.6*	*27.8*
A&B Train	*34.5*	*35.6*	*31.6*	*33.9*	*36.8*	*35.7*	*35.2*
Total	*21.5*	*26.1*	*22.8*	*22.8*	*26.7*	*24.2*	*23.1*
Estimated overweight vehicles gross mass per vehicle (tonne)							
Rigid	*21.6*	*21.5*	*20.7*	*21.2*	*22.2*	*20.9*	*21.6*
T&T	*46.9*	*46.6*	*46.2*	*47.6*	*46.9*	*46.6*	*47.0*
Artic	*43.6*	*44.6*	*45.1*	*44.5*	*45.2*	*44.4*	*44.2*
A&B Train	*46.7*	*46.7*	*46.6*	*47.8*	*47.0*	*46.7*	*47.0*
Total	*42.2*	*45.5*	*43.7*	*44.8*	*45.4*	*44.8*	*44.0*

Interpretation:

- During 2012, there were approximately nine overweight vehicles for every 100 heavy vehicles and this is slight higher compared to 2011 with eight.

- More than 67 percent of overweight vehicles were T&T vehicle type *(see Table 1.0)*, which revealed that for every 100 vehicles of this type approximately 17 of those were overweight *(see Table 2.0)*. This vehicle type also had the highest number of overweight vehicles across all WiM sites and at the Eskdale WiM site had the highest proportion of overweight with approximately 28 overweight vehicles for every 100 recorded heavy vehicles.

- A&B Train had the lowest frequency of heavy vehicles but this vehicle type landed the second highest proportion of overweight with 11 overweight for every 100 heavy vehicles.

- Eskdale WiM site had the highest proportion of overweight vehicles and reported that for every 100 heavy vehicles approximately 14 of those were overweight regardless of vehicle type while Hamanatua Bridge (new WiM site) has the least with 5 overweight vehicles for every 100 heavy vehicles.

- Tokoroa WiM site had the highest average estimated gross mass per vehicle with 26.7 tonnes while Drury WiM site had the lowest with 21.5 tonnes.

- T&T vehicle type at Hamanatua Bridge had the highest average estimated gross mass per vehicle with 38.4 tonnes.

- At the Eskdale and Tokoroa WiM sites the average estimated gross mass of more than 45 tonnes per overweight vehicles.

- A&B vehicle type at the Te Puke WiM site showed the highest average estimated gross mass with 47.8 tonnes per overweight vehicle.

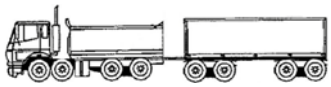
Figure 1.0 | PAT type 21, 31, 891, 751 and 851

PAT type 21:

PAT type 31:

PAT type 45:

PAT type 891:



PAT type 751:

PAT type 851:

Vehicle Fleet > 44T/48T

§ PAT class 891, 751 and 851 *(see tables 13.0 and 13.1)* represent the PAT class with largest frequencies of heavy vehicles recorded at both >44T and >48T (combined they account for approximately more than 80 percent of the total heavy vehicles recorded for both >44T and >48T).

Time of Day

§ Table 3.0 indicates the hours range, which overweight vehicle frequencies exceeded its hourly average on a regular day at each WiM site:

Table 3.0 | Overweight above hourly average distribution by WiM site *(start to end)*

WiM Site	Start	End
Drury	6:00	15:59
Tokoroa	5:00	14:59
Te Puke	6:00	16:59
Waipara	9:00	16:59
Eskdale	5:00	15:59
Hamanatua Bridge	10:00	16:59

§ The spikes may represent long-hauls reported across two or more WiM Sites while smaller spikes may represent localise vehicle movements distribution *(see Charts 3.0 – 3.5)*

§ Tokoroa and Eskdale WiM sites recorded more than the hourly average overweight vehicles as early as five in the morning while Drury and Te Puke started an hour later *(*see Charts 3.0–3.5).

3.0 INTRODUCTION

There were six WiM sites in New Zealand collecting axle loading data for use nationally in traffic monitoring during 2012. An additional source of WiM data is being developed in Auckland and this project will include the provision of loading data to the national system. This data is not included in the 2012 WiM report.

The current sites are as follows:

Table 4.0 | WiM site location

Region	SH	RS	Description
02 - Auckland	1N	461	DRURY -Telemetry Site 48 - (WiM Site 1205)
03 - Waikato	1N	625	TOKOROA - Telemetry Site 51 - (WiM Site 421)
04 - Bay of Plenty	2	171	TE PUKE - Telemetry Site 49 - (WiM Site 24)
05 - Gisborne	35	321	HAMANATUA BRIDGE - Telemetry Site 108 (WiM Site)
06 - Hawkes Bay	5	259	ESKDALE – Telemetry Site 101 – (WiM Site 5721)
11 - Canterbury	1S	284	WAIPARA - Telemetry Site 52 - (WiM Site 518)

All data used within this report was collected within the 2012 calendar year and is available to selected users, within the NZTA's State Highway Traffic Monitoring System (TMS). This report is intended to provide an insight into available heavy vehicle collected data for further or more detailed analysis, to be undertaken by TMS users.

4.0 OTHER DOCUMENTS

The documents below provide information relating to Traffic Monitoring practices used on State Highways by the NZ Transport Agency. These can be downloaded from our website. www.nzta.govt.nz

- State Highway Traffic Volume Booklet
- Traffic Monitoring for State Highways Manual SM052

5.0 TECHNOLOGY

NZTA uses the PAT bending plate technology at a total of six WiM sites and two further sites at the Auckland Harbour Bridge are used for a special study. All sites are continuously collecting individual vehicle records, and statistics normally downloaded weekly.

The first system was installed in 1985 at Pukerua Bay near Wellington and then relocated to Te Puke in the Bay of Plenty in 1997. Four of the original bending plates are still in operation.

6.0 DATA QUALITY REQUIREMENTS

Readers of this report should take note of the accuracy tolerances required during the collection of data.

Accuracy is as defined for high speed weigh in motion in ASTM E 1318 (or latest revision):

For 95% of confidence:

Gross Vehicle Weight: ± 10%

Axle group load: ± 15%

With a good (new) pavement, the above weight errors are reduced by a factor of 1.5

6.0 DATA QUALITY REQUIREMENTS (Continued)

Requisite quality is determined by the final use of data, in simple terms:

- Pavement is periodically checked for level and rectified
- Calibration is carried out with vehicle of known axle weights and speed.
- Data is monitored for errors and deviation.

Current use of data:

- Average ESA's for pavement design.
- Load distributions for bridge design.
- Network loading analysis.
- Indicators for Police Enforcement.

Potential future use of data:

- Assessments of revenue from Road User Charges.

Other factors affecting data accuracy

- Pavement smoothness. Trucks bouncing onto scales will affect accuracy.
- Truck Driver Behavior
- Strong Winds

7.0 DERIVATIONS

Overweight
This report contains the number of overweight vehicles data by vehicle type (PAT class rigid, T&T and others). The data has been sourced from the 'Distribution by Gross Vehicle Mass' report in the TMS.

Overweight data in each vehicle fleet category is computed based on the specified weight limit of the vehicle. For example, vehicle fleet of PAT class 21 legal limit is 14 tonnes. For this class (21) only vehicles with loads weight greater than or equal to 15 tonnes considered overweight.

In order to compute the number of overweight vehicles by vehicle type, simply take the sum of the overweight vehicles in all vehicle fleets which belong to a certain vehicle type. *(refer to Table 5 for the classification scheme)* For example, in 2012 there were 1,261 overweight rigid heavy vehicles recorded at the Waipara WiM site. This is the sum of PAT classes 20, 21, 31, 34, 45, 47, 301, and 511, which are under rigid type at the said WiM site. For the overall total overweight vehicles, simply add all the overweight vehicles in all WiM sites.

Estimated gross mass
The WiM Daily Weight table in TMS contains the collected gross mass for each WiM site on daily breakdown. However, this information contains mass of PAT classes lower than the PAT class 20. In this report, the estimated gross mass data were derived from WIM Distribution Within Gross Vehicle Mass Ranges table. In deriving the estimated gross mass by simply multiply the vehicle frequency to the mass mid range and sum the product for every PAT class of each WiM site. Same principle applied for the overweight vehicles except it start on the above mid range of the maximum limit of each PAT class.

Average estimated gross mass per vehicle
To compute for the average estimated gross mass per vehicle just divide the computed estimated gross mass over the number of heavy vehicle for given PAT class for each WiM site. This is similar with the computation for the overweight vehicles.

8.0 PERMITTED VEHICLES

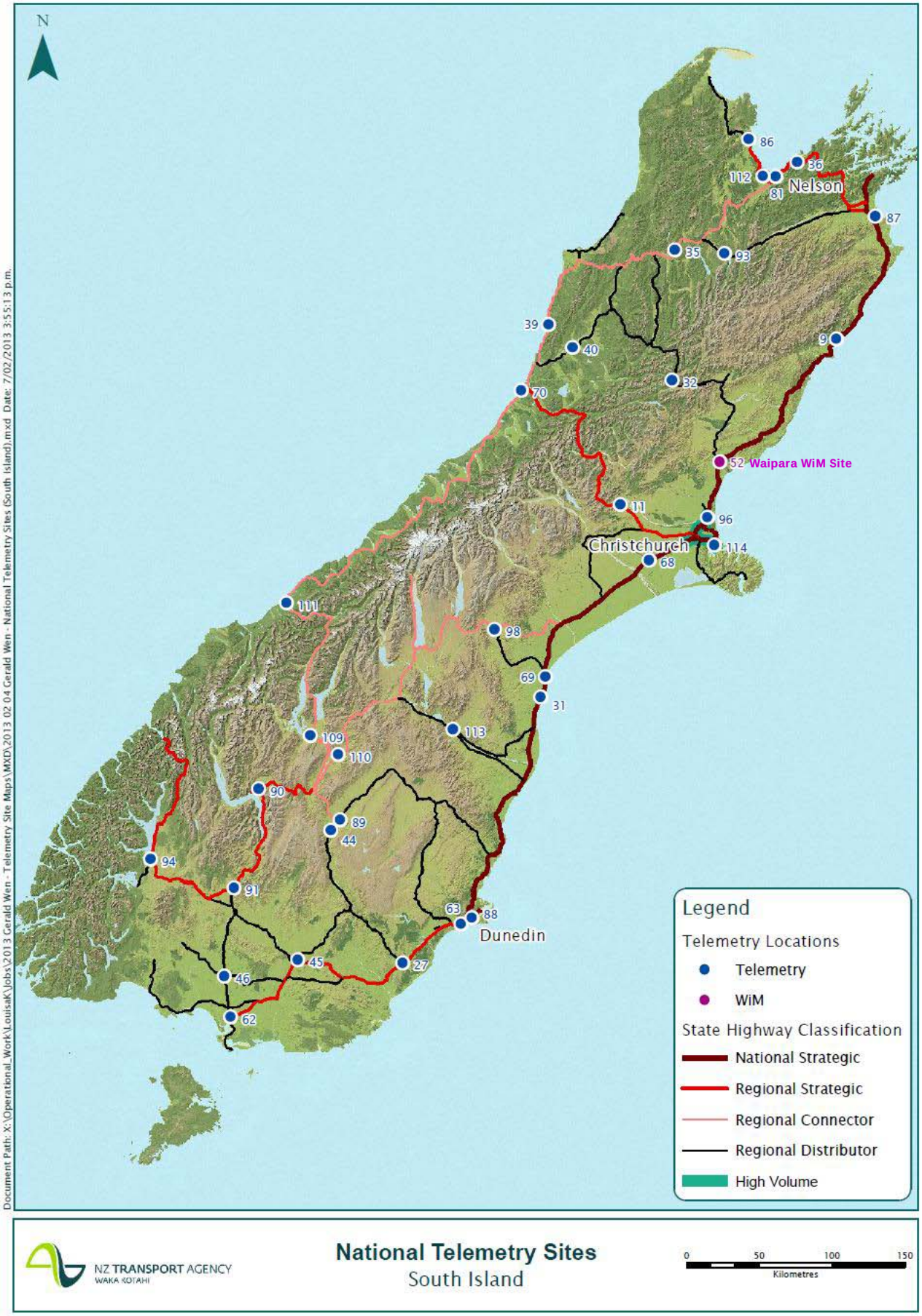
Within this report, permitted vehicles were not identified separately. A small proportion of the vehicles identified as being overweight will be operating under a permit.

PAT Type 69, 6 axle artic and the PAT Type 791, 7 axle artic are legally limited to below 44 Tonne Gross, but may be operating on overweight permits at 44 Tonne Gross.

In 2012, there were some changes in the maximum limits for 20 PAT types, with 14 of those decreased their maximum limits. *(refer to Table 5 for the PAT class that change its maximum limit)*

9.0 WiM SITE MAPS

9.0 WiM SITE MAPS (Continued)



10.0 CLASSIFICATION SCHEME

Table 5.0 | Heavy vehicle classification 2011 scheme

EEM (PEM) Class	Vehicle Type Group	PAT Class	Vehicle Types in Class	Axles	Group	Old Max Limit	New Max Limit	Criteria
Bus & MCV	Rigid	20	o--o (short truck or bus)	2	2	14	14	2ax, AS1-2/GVW
		21	o----o (truck or bus)	2	2	14	14	2ax AS 1criterion
	T&T	300	o--o--o (truck towing light trailer)	3	3	40	20	3 ax, AS 1,2 criteria
		401	o--o--oo (truck tow light 2 ax trailer)	4	3	40	18	4 ax, AS 1,3 criteria
Bus & HCV1	Rigid	31	o--oo (truck or bus/coach)	3	2	21	18	3 axles, 2 groups
		301	o--oo (tractor without semi-trailer)	3	2	40	21	3 axles, 2 groups
		34	oo--o (twin steer truck)	3	2	19	19	3 axles, 2 groups
	T&T	402	o--oo---o (truck tow light 1 ax trailer)	4	3	40	29	4 ax, AS 1,2,3 criteria
		44	oo--o---o (twin steer tow 1 ax trailer)	4	3	26	27	4 ax, AS 1,3 criteria
HCV1	Rigid	45	oo--oo (heavy truck)	4	2	21	26	
		47	o--ooo (heavy truck)	4	2	24	24	4,5 axles, 2 groups
		511	oo--ooo (heavy truck)	5	2	40	28	
	Artic	30	o--o-----o (artic e.g. bread truck)	3	3	22	26	3 ax, AS 1,2 criteria
		41	o--o--oo (artic A112)	4	3	29	29	4 ax, AS 1,2,3 criteria
		42	o--oo--o (artic A121)	4	3	26	23	4 ax, AS 1,2,3 criteria
	T&T	40	o--o--o--o (truck tow heavy trailer)	4	4	30	30	4 axles, 4 groups
HCV2	Artic	50[1]	o-o-o-o-o (mobile crane)	5	3	40	40	5 axles
		53	o--oo--oo	5	3	36	36	5 axles
		57	o--o-----ooo	5	3	40	32	
		69	o--oo--ooo	6	3	39	39	
		68	oo--oo--oo	6	3	42	41	
		747	o--ooo--ooo	7	3	42	42	6-8 axles
		791	o--oo--oooo	7	3	41	41	3 groups
		713	oo--oo--ooo	7	3	44	44	
		826	oo--oo--oooo	8	3	44	44	
		847	o--ooo--oooo	8	3	44	44	
	A Train	622	o--o--oo--o-o	6	5	40	39	
		74	o--oo--oo--o-o	7	5	39	39	(AS 1 criterion)
		85	o--oo--oo--o-oo	8	5	44	39	not twin steer
		89	o--oo--ooo--o-o	8	5	39	39	(AS 1 criterion)
		810	o--oo--ooo--o-oo	8	5	40	39	
	B Train	751[2]	o--oo--oo--oo	7	4	44	44	7 axles, not twin steer
		851	o--oo--ooo-oo	8	4	44	44	
		811	o--oo--oo--ooo	8	4	40	44	
		951	o--oo--ooo-ooo	9	4	44	44	
		1032	o--oo--ooo-oooo	10	4	44	44	8-11 axles
	T&T	503	o--oo--oo (truck tow light trailer)	5	3	40	25	
		52	o--oo--o--o	5	4	37	37	3,4,5 groups
		63	o--oo--o-oo	6	4	42	44	
		66	oo--oo--o--o	6	4	42	42	6 axles
		62	o--oo--o-o-o	6	5	40	42	4,5 groups
		61	o-o--o-o--oo	6	5	42	42	
		751[2]	o--oo--oo-oo	7	4	44	44	
		77	oo--oo--o-oo	7	4	44	44	
		771	oo--o--oo--oo	7	4	40	39	
		891	oo--oo--oo-oo	8	4	44	44	
		915	oo--oo--oo-ooo	9	4	44	44	7-11 axles
		914	oo--oo--ooo-oo	9	4	44	44	twin steer
		1020	oo--oo--ooo-ooo	10	4	44	44	(AS 1 criterion)
		1020	oo--ooo--oo--ooo	10	4	44	44	
		1133	oo--oo--ooo-oooo	11	4	44	44	
		x	various (twin steer A train)	7-11	5			
		999	Not classified	any	-			Everything else

Symbol: **-** decreased in new maximum limit
– increased in the new maximum limit

Note: [1]PAT class 50 mobile crane is a unique vehicle type but in the table above and succeeding tables this PAT class is included in Artic vehicle category.
[2]The new NZTA 2011 heavy vehicle classification, PAT class 751 has been split in two vehicle type categories, T&T and B Train. But this PAT class was tabulated under T&T vehicle type category.

11.0 ANNUAL AVERAGE DAILY TRAFFIC (AADT) BY SITE

AADT provides an estimation of the number of vehicles crossing a site on an average day.

% Heavy

The % Heavy column provides an estimate of the proportion of the AADT, deemed a heavy vehicle: i.e. greater than 3.5 tonnes for the current year.

Table 6.0 | Annual average daily traffic by WiM site

WiM Site	SH	Description	AADT 2012	Number of heavies per day	% Heavy
1205	1N	DRURY -Telemetry Site 48	41,806	4,473	*10.7*
5721	5	ESKDALE – Telemetry Site 101	3,651	646	*17.7*
6281	35	HAMANATUA BRIDGE - Telemetry Site 108	4,401	471	*10.7*
421	1N	TOKOROA - Telemetry Site 51	8,442	1,503	*17.8*
24	2	TE PUKE - Telemetry Site 49	18,055	1,824	*10.1*
518	1S	WAIPARA - Telemetry Site 52	7,452	1,177	*15.8*

(Source: State Highway Traffic Data Booklet 2007-2012, to be published on April 2013)

12.0 VEHICLE FLEET DISTRIBUTION TABLES

PAT Class – This is the code relating to the axle configuration.
Description – This illustrates the PAT type by providing an indication of the spacing between axles.
Total Volume – This indicates the number of heavy vehicles for each PAT class.

Table 7.0 | Heavy vehicles frequency and percentage distributions by vehicle type, by PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamanatua Bridge		Total Volume	%
				Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%		
Rigid	Bus & MCV	20	o--o	71,126	4.9	9,531	2.3	13,263	3.1	12,407	4.0	4,495	2.1	11,355	7.3	122,177	4.1
		21	o----o	316,187	21.7	61,530	14.5	92,466	22.0	56,198	18.1	30,827	14.4	23,639	15.3	580,847	19.5
	Bus & HCV1	31	o--oo	137,720	9.4	24,651	5.8	35,712	8.5	17,627	5.7	11,340	5.3	7,541	4.9	234,591	7.9
		34	oo--o	276	0.0	135	0.0	155	0.0	148	0.0	245	0.1	27	0.0	986	0.0
		301	o--oo	2,955	0.2	309	0.1	560	0.1	479	0.2	181	0.1	95	0.1	4,579	0.2
	HCV1	45	oo--oo	76,228	5.2	32,360	7.6	46,351	11.0	18,940	6.1	34,150	16.0	46,591	30.1	254,620	8.5
		47	o--ooo	157	0.0	10	0.0	11	0.0	237	0.1	23	0.0	2	0.0	440	0.0
		511	oo--ooo	795	0.1	44	0.0	132	0.0	42	0.0	12	0.0	3	0.0	1,028	0.0
T&T	Bus & MCV	300	o--o--o	14,665	1.0	3,519	0.8	2,977	0.7	3,759	1.2	1,589	0.7	803	0.5	27,312	0.9
		401	o--o--oo	10,784	0.7	3,885	0.9	2,678	0.6	4,043	1.3	1,960	0.9	1,271	0.8	24,621	0.8
	Bus & HCV1	44	oo--o---o	15	0.0	4	0.0	17	0.0	9	0.0	12	0.0	-	-	57	0.0
		402	o--oo---o	3,622	0.2	1,151	0.3	934	0.2	869	0.3	359	0.2	103	0.1	7,038	0.2
	HCV2	52	o--oo-o--o	5,494	0.4	602	0.1	471	0.1	534	0.2	442	0.2	499	0.3	8,042	0.3
		61	o-o--o-o--oo	3	0.0	2	0.0	-	-	-	-	0	-	1	0.0	6	0.0
		62	o--oo--o-o-o	1,152	0.1	585	0.1	416	0.1	720	0.2	620	0.3	286	0.2	3,779	0.1
		63	o--oo-o--oo	8,107	0.6	2,161	0.5	1,994	0.5	1,548	0.5	387	0.2	324	0.2	14,521	0.5
		66	oo--oo--o--o	709	0.0	181	0.0	240	0.1	206	0.1	103	0.0	47	0.0	1,486	0.0
		77	oo--oo--o-oo	14,087	1.0	4,654	1.1	4,398	1.0	5,782	1.9	3,521	1.6	4,023	2.6	36,465	1.2
		503	o--oo--oo	214	0.0	92	0.0	140	0.0	336	0.1	38	0.0	7	0.0	827	0.0
		751[3]	o-oo--oo--oo	112,514	7.7	20,316	4.8	31,601	7.5	12,003	3.9	12,676	5.9	7,752	5.0	196,862	6.6
		771	oo--o--oo--oo	1	0.0	7	0.0	11	0.0	8	0.0	-	-	-	-	27	0.0
		891	oo--oo-oo--oo	258,901	17.8	133,084	31.4	98,374	23.4	87,866	28.3	65,658	30.7	46,843	30.2	690,726	23.2
		914	oo-oo--ooo-oo	1,053	0.1	640	0.2	162	0.0	695	0.2	447	0.2	2	0.0	2,999	0.1
		915	oo-oo--oo-ooo	8,050	0.6	4,411	1.0	1,841	0.4	4,806	1.5	560	0.3	31	0.0	19,699	0.7
		1020	oo-oo-ooo-ooo	3,375	0.2	97	0.0	1,867	0.4	34	0.0	33	0.0	-	-	5,406	0.2
Artic	HCV1	30	o--o-----o	3,356	0.2	561	0.1	424	0.1	601	0.2	299	0.1	64	0.0	5,305	0.2
		41	o--o--oo	12,787	0.9	3,244	0.8	1,420	0.3	2,083	0.7	1,611	0.8	314	0.2	21,459	0.7
		42	o--oo--o	896	0.1	54	0.0	27	0.0	50	0.0	55	0.0	1	0.0	1,083	0.0
		53	o-oo--oo	23,660	1.6	3,425	0.8	3,328	0.8	2,544	0.8	1,978	0.9	1,170	0.8	36,105	1.2
		57	o--o-----ooo	2,144	0.1	468	0.1	203	0.0	274	0.1	370	0.2	4	0.0	3,463	0.1
		68	oo--oo--oo	14,903	1.0	5,851	1.4	991	0.2	3,437	1.1	1,081	0.5	313	0.2	26,576	0.9
		69	o-oo--ooo	116,225	8.0	18,572	4.4	28,538	6.8	12,373	4.0	6,488	3.0	922	0.6	183,118	6.1
		713	oo-oo--ooo	13,832	0.9	3,398	0.8	2,004	0.5	1,061	0.3	870	0.4	11	0.0	21,176	0.7
		747	o--ooo---ooo	56	0.0	16	0.0	3	0.0	12	0.0	7	0.0	-	-	94	0.0
		791	o-oo-oooo	41,694	2.9	10,848	2.6	4,607	1.1	9,488	3.1	2,778	1.3	62	0.0	69,477	2.3
		826	oo-oo--oooo	64,579	4.4	21,609	5.1	20,825	4.9	9,853	3.2	10,525	4.9	32	0.0	127,423	4.3
		847	o--ooo---oooo	1,510	0.1	191	0.0	42	0.0	83	0.0	5	0.0	-	-	1,831	0.1
A&B Train	HCV2	74	o-oo--oo-o--o	12	0.0	3	0.0	-	-	2	0.0	-	-	228	0.1	245	0.0
		622	o--o--oo--o-o	23	0.0	15	0.0	7	0.0	2	0.0	2	0.0	2	0.0	51	0.0
		811	o--oo--oo--ooo	1,863	0.1	295	0.1	12	0.0	28	0.0	176	0.1	1	0.0	2,375	0.1
		851	o-oo--ooo--oo	81,257	5.6	32,825	7.8	19,350	4.6	28,955	9.3	14,051	6.6	574	0.4	177,012	5.9
		951	o-oo-ooo-ooo	30,897	2.1	18,124	4.3	2,620	0.6	10,251	3.3	3,952	1.8	1	0.0	65,845	2.2
		1032	o-oo-ooo-oooo	-	-	-	-	-	-	1	0.0	-	-	-	-	1	0.0
Total				1,457,884	100.0	423,460	100.0	421,172	100.0	310,394	100.0	213,926	100.0	154,944	100.0	2,981,780	100.0
Percentage from the total				*48.9*		*14.2*		*14.1*		*10.4*		*7.2*		*5.2*		*100.0*	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Note: [1]Percentage of each PAT class from the total number of heavy vehicles per WiM site.
[2]Percentage of each WiM site total from the overall total of heavy vehicles at all WiM sites.
[3]In the new NZTA heavy vehicle classification, PAT class 751 has been split in two vehicle type categories, T&T and B Train. However, this PAT class was reported under T&T vehicle type category.

Interpretation: At the Tokoroa WiM site, 7.6 percent (32,360) of all heavy vehicles were PAT type 45. The Drury WiM site has recorded 48.9 percent (1,457,884) of the overall total vehicles at all sites.

12.0 VEHICLE FLEET DISTRIBUTION TABLES (Continued)

Table 8.0 | Annual average daily heavy vehicles frequency[1] by vehicle type and by WiM site (2003- 2012)

Year	Vehicle Type	WiM Site						Weighted Average[2]
		Drury	Eskdale	Hamanatua Bridge	Te Puke	Tokoroa	Waipara	
2003	Rigid	1,473	-	-	651	450	258	1,011
	T&T	892	-	-	540	446	223	636
	Artic	712	-	-	198	166	111	494
	A&B Train	332	-	-	108	154	82	225
2003 Total		3,410	-	-	1,498	1,215	674	2,325
2004	Rigid	1,697	-	-	697	392	280	1,173
	T&T	1,028	-	-	570	501	232	724
	Artic	802	-	-	222	188	127	555
	A&B Train	371	-	-	111	184	93	254
2004 Total		3,899	-	-	1,600	1,264	732	2,654
2005	Rigid	1,639	-	-	630	419	299	1,121
	T&T	1,162	-	-	569	468	280	796
	Artic	763	-	-	211	180	134	525
	A&B Train	343	-	-	106	175	100	234
2005 Total		3,907	-	-	1,516	1,243	814	2,643
2006	Rigid	1,713	-	-	452	429	304	1,179
	T&T	1,154	-	-	577	503	321	791
	Artic	745	-	-	188	180	122	517
	A&B Train	353	-	-	109	164	113	238
2006 Total		3,966	-	-	1,325	1,276	860	2,673
2007	Rigid	1,715	-	-	696	397	298	1,183
	T&T	1,164	-	-	589	562	321	805
	Artic	727	-	-	215	178	133	498
	A&B Train	340	-	-	113	181	123	233
2007 Total		3,946	-	-	1,612	1,317	875	2,667
2008	Rigid	1,826	-	-	694	370	322	1,263
	T&T	1,138	-	-	570	486	316	779
	Artic	831	-	-	240	182	147	573
	A&B Train	356	-	-	102	156	127	240
2008 Total		4,151	-	-	1,606	1,194	913	2,807
2009	Rigid	1,627	-	-	689	368	335	1,116
	T&T	1,063	-	-	515	488	311	728
	Artic	823	-	-	246	207	151	563
	A&B Train	327	-	-	90	157	121	222
2009 Total		3,840	-	-	1,540	1,219	918	2,587
2010	Rigid	1,634	208	-	762	386	350	1,067
	T&T	1,088	213	-	588	518	337	713
	Artic	853	75	-	277	215	162	558
	A&B Train	307	44	-	102	162	130	201
2010 Total		3,882	540	-	1,729	1,282	980	2,491
2011	Rigid	1,724	227	-	758	390	361	1,121
	T&T	1,173	231	-	636	552	376	768
	Artic	818	68	-	253	208	135	540
	A&B Train	331	47	-	96	176	136	217
2011 Total		4,046	573	-	1,744	1,327	1,007	2,589
2012	Rigid	1,691	229	249	737	420	334	1,040
	T&T	1,237	249	173	579	573	387	761
	Artic	826	73	8	244	223	132	541
	A&B Train	319	51	2	86	168	123	207
2012 Total		4,072	603	432	1,645	1,384	976	2,492

Symbol: – no data

Note: [1]Annual average daily heavy vehicles referring to the average number of heavy vehicles that passed during 24-hour period in a given year in each or all WiM site(s). This was computed by dividing the total heavy vehicles recorded over the total accepted days for each WiM site.
[2]Weighted average was computed by summing up the proportion of total heavy vehicles of each WiM sites. So, the total average is not equal to the sum of average daily heavy vehicles across WiM sites.

Interpretation:

- A weighted average of 2,492 heavy vehicles recorded during 2012 across all WiM sites, which decreased by 3.7 percent compared to 2011.
- In 2012, the annual average daily traffic for the rigid heavy vehicle type went down at three WiM sites (Drury, Te Puke and Waipara).
- The annual daily average traffic for the T&T vehicle type shows increases in all WiM site except for Te Puke WiM site. At the same WiM site, all vehicle types decreased in annual average daily heavy vehicles when comparing to 2011 figures.

12.0 VEHICLE FLEET DISTRIBUTION TABLES (Continued)

Table 9.0 | Annual average daily heavy vehicles frequency[1] by selected[2]PAT class and by WiM site (2007- 2012)

Year	Vehicle Type	WiM Site						Weighted Average[3]
		Drury	Eskdale	Hamanatua Bridge	Te Puke	Tokoroa	Waipara	
2007	21	727	-	-	289	98	93	522
	31	420	-	-	141	86	52	295
	45	209	-	-	141	84	55	151
	751	391	-	-	168	80	38	279
	891	621	-	-	364	432	245	460
	Others[4]	1,578	-	-	509	536	391	1,058
2007 Total		3,946	-	-	1,612	1,317	875	2,667
2008	21	840	-	-	340	137	134	591
	31	397	-	-	136	76	60	277
	45	205	-	-	128	75	56	145
	751	332	-	-	163	74	39	237
	891	690	-	-	363	364	240	482
	Others[4]	1,687	-	-	475	467	384	1,141
2008 Total		4,151	-	-	1,606	1,194	913	2,807
2009	21	866	-	-	364	176	189	595
	31	370	-	-	130	79	57	257
	45	201	-	-	143	81	58	146
	751	304	-	-	132	70	40	213
	891	651	-	-	342	375	231	459
	Others[4]	1,448	-	-	429	438	344	975
2009 Total		3,840	-	-	1,540	1,219	918	2,587
2010	21	857	83	-	389	185	193	565
	31	374	32	-	146	84	60	248
	45	198	90	-	152	85	55	139
	751	295	32	-	148	76	41	199
	891	686	159	-	389	403	254	462
	Others[4]	1,473	144	-	505	448	377	946
2010 Total		3,882	540	-	1,729	1,282	980	2,491
2011	21	913	87	-	367	188	194	600
	31	387	32	-	145	84	57	258
	45	205	93	-	191	87	54	155
	751	289	31	-	148	73	42	195
	891	716	171	-	417	422	274	484
	Others[4]	1,537	159	-	475	473	386	986
2011 Total		4,046	573	-	1,744	1,327	1,007	2,589
2012	21	883	87	66	361	201	177	560
	31	385	32	21	140	81	55	250
	45	213	96	130	181	106	60	151
	751	314	36	22	123	66	38	203
	891	723	185	130	384	435	276	463
	Others[4]	1,554	167	63	456	495	370	978
2012 Total		4,072	603	432	1,645	1,384	976	2,492

Symbol: – no data

Note:
[1]Annual average daily heavy vehicles referring to the average number of heavy vehicles that passed during 24-hour period in a given year in each or all WiM site(s). This was computed by dividing the total heavy vehicles recorded over the total accepted days for each WiM site.
[2]The selection of PAT class was based on the highest frequency recorded in the current year.
[3]Weighted average was computed by summing up the proportion of total heavy vehicles of each WiM sites. So, the total average is not equal to the sum of average daily heavy vehicles across WiM sites
[4]All not stated PAT class were included in 'Others' category.

Interpretation:

- Of the five PAT classes indentified with the highest frequency, four of them show decreases in annual weighted average daily heavy vehicles from 2011, except for PAT class 751.
- Only Te Puke WiM site shows a decrease in the annual average daily heavy for the PAT class 891.
- At the Drury WiM site, PAT class 21(883) was the most frequent heavy vehicles per day while PAT class 891was at the other sites.

13.0 VEHICLE FLEET OVERWEIGHT TABLES

PAT Type – This is the code relating to the axle configuration.
Description – This illustrates the PAT type by providing an indication of the spacing between axles.
Total Overweight – This indicates the number of heavy vehicles overweight for each PAT type.

Table 10.0 | Overweight vehicles frequency and percentage distributions by vehicle type, PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Total Volume	%
				Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%		
Rigid	Bus & MCV	20	o--o	-	-	-	-	13	0.0	5	0.0	-	-	10	0.1	28	0.0
		21	o----o	631	0.6	89	0.2	107	0.2	64	0.3	52	0.2	7	0.1	950	0.4
	Bus & HCV1	31	o--oo	14,996	14.3	2,538	4.7	4,083	7.8	1,131	5.9	1,022	3.5	685	9.1	24,455	9.1
		34	oo--o	2	0.0	1	0.0	-	-	1	0.0	2	0.0	-	-	6	0.0
		301	o--oo	150	0.1	1	0.0	1	0.0	7	0.0	4	0.0	1	0.0	164	0.1
	HCV1	45	oo--oo	1,545	1.5	428	0.8	288	0.6	43	0.2	101	0.3	30	0.4	2,435	0.9
		47	o--ooo	22	0.0	2	0.0	3	0.0	2	0.0	4	0.0	-	-	33	0.0
		511	oo--ooo	145	0.1	5	0.0	5	0.0	8	0.0	2	0.0	1	0.0	166	0.1
T&T	Bus & MCV	300	o--o--o	1	0.0	1	-	1	0.0	-	-	-	-	-	-	2	0.0
		401	o--o--oo	15	0.0	4	0.0	-	-	1	0.0	4	0.0	-	-	24	0.0
	Bus & HCV1	402	o--oo--o	4	0.0	1	0.0	8	0.0	1	0.0	2	0.0	-	-	16	0.0
	HCV2	52	o--oo-o--o	55	0.1	5	0.0	-	-	-	-	6	0.0	1	0.0	67	0.0
		62	o--oo--o-o-o	143	0.1	284	0.5	153	0.3	254	1.3	156	0.5	103	1.4	1,093	0.4
		63	o--oo-o--oo	321	0.3	34	0.1	8	0.0	11	0.1	10	0.0	6	0.1	390	0.1
		66	oo--oo--o--o	2	0.0	1	0.0	2	0.0	1	0.0	1	0.0	-	-	7	0.0
		77	oo--oo--o-oo	1,022	1.0	1,190	2.2	809	1.6	1,118	5.8	1,167	4.0	320	4.3	5,626	2.1
		503	o--oo--oo	5	0.0	2	0.0	-	-	1	0.0	-	-	-	-	8	0.0
		751[3]	o-oo--oo--oo	20,298	19.4	5,451	10.0	6,018	11.6	1,602	8.3	3,229	11.0	579	7.7	37,177	13.9
		771	oo--o--oo--oo	-	-	2	0.0	-	-	-	-	-	-	-	-	2	0.0
		891	oo--oo-oo--oo	36,073	34.4	30,239	55.6	26,348	50.6	10,463	54.4	20,176	68.5	5,677	75.5	128,976	48.2
		914	oo-oo--ooo-oo	180	0.2	153	0.3	38	0.1	84	0.4	76	0.3	-	-	531	0.2
		915	oo-oo--oo-ooo	1,339	1.3	807	1.5	786	1.5	1,010	5.3	110	0.4	1	0.0	4,053	1.5
		1020	oo-oo-ooo-ooo	1,558	1.5	18	0.0	1,206	2.3	5	0.0	4	0.0	-	-	2,791	1.0
Artic	HCV1	41	o--o--oo	4	0.0	-	-	-	-	-	-	1	0.0	-	-	5	0.0
		42	o--oo--o	-	-	-	-	-	-	2	0.0	-	-	-	-	2	0.0
	HCV2	53	o-oo--oo	525	0.5	11	0.0	37	0.1	1	0.0	5	0.0	-	-	579	0.2
		57	o--o----ooo	-	-	3	0.0	-	-	-	-	4	0.0	-	-	7	0.0
		68	oo--oo--oo	8	0.0	7	0.0	21	0.0	-	-	2	0.0	-	-	38	0.0
		69	o-oo--ooo	6,137	5.9	1,408	2.6	3,112	6.0	229	1.2	346	1.2	78	1.0	11,310	4.2
		713	oo-oo--ooo	47	0.0	48	0.1	7	0.0	14	0.1	12	0.0	-	-	128	0.0
		747	o--ooo---ooo	5	0.0	2	0.0	-	-	-	-	-	-	-	-	7	0.0
		791	o-oo-oooo	2,283	2.2	1,256	2.3	397	0.8	245	1.3	161	0.5	5	0.1	4,347	1.6
		826	oo-oo--oooo	6,030	5.8	3,186	5.9	4,254	8.2	297	1.5	790	2.7	-	-	14,557	5.4
		847	o--ooo---oooo	27	0.0	36	0.1	5	0.0	14	0.1	1	0.0	-	-	83	0.0
A&B Train	HCV2	74	o-oo--oo-o--o	-	-	-	-	-	-	1	0.0	-	-	1	0.0	2	0.0
		811	o--oo--oo--ooo	713	0.7	60	0.1	4	0.0	16	0.1	8	0.0	1	0.0	802	0.3
		851	o-oo--ooo--oo	7,413	7.1	4,493	8.3	3,609	6.9	1,705	8.9	1,430	4.9	13	0.2	18,663	7.0
		951	o-oo-ooo-ooo	3,019	2.9	2,653	4.9	700	1.3	893	4.6	550	1.9	-	-	7,815	2.9
Total				104,718	100.0	54,418	100.0	52,023	100.0	19,229	100.0	29,438	100.0	7,519	100.0	267,345	100.0
Percentage from the total				*39.2*		*20.4*		*19.5*		*7.2*		*11.0*		*2.8*		*100.0*	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Note: [1]Percentage of each PAT class from the total number of overweight vehicles per WiM site.
[2]Percentage of overweight vehicle at each WiM site from the overall total of overweight at all WiM sites.
[3]In the new NZTA heavy vehicle classification, PAT class 751 has been split in two vehicle type categories, T&T and B Train. However, this PAT class was reported under T&T vehicle type category.

Interpretation: Around 34 percent of all overweight vehicles which crossed at the Drury WiM site were of PAT class 891. However, 39.2 percent of the overall total overweight vehicles during 2012 passed over the same WiM site.

13.0 VEHICLE FLEET OVERWEIGHT TABLES (Continued)

Table 11.0 | Annual average daily overweight vehicles frequency[1] by vehicle type and by WiM site

Year	Vehicle Type	WiM Site						Weighted Average[2]
		Drury	Eskdale	Hamanatua Bridge	Te Puke	Tokoroa	Waipara	
2003	Rigid	32	-	-	16	3	5	23
	T&T	121	-	-	120	59	43	100
	Artic	32	-	-	15	5	2	24
	A&B Train	35	-	-	20	16	4	25
2003 Total		220	-	-	170	83	54	165
2004	Rigid	69	-	-	18	6	7	52
	T&T	155	-	-	121	57	45	116
	Artic	62	-	-	14	8	2	48
	A&B Train	64	-	-	19	17	4	46
2004Total		351	-	-	173	89	58	245
2005	Rigid	49	-	-	16	4	7	36
	T&T	121	-	-	71	92	49	92
	Artic	34	-	-	5	11	3	24
	A&B Train	35	-	-	12	23	7	25
2005Total		239	-	-	104	130	65	166
2006	Rigid	53	-	-	19	7	6	38
	T&T	132	-	-	50	127	42	108
	Artic	40	-	-	6	16	3	29
	A&B Train	33	-	-	8	26	8	25
2006Total		257	-	-	83	175	59	187
2007	Rigid	57	-	-	16	5	4	43
	T&T	179	-	-	57	96	35	124
	Artic	50	-	-	8	17	2	38
	A&B Train	37	-	-	11	21	5	26
2007Total		323	-	-	92	140	46	224
2008	Rigid	78	-	-	13	3	7	62
	T&T	295	-	-	73	40	58	209
	Artic	102	-	-	12	7	4	85
	A&B Train	68	-	-	14	8	11	50
2008Total		543	-	-	111	58	80	400
2009	Rigid	37	-	-	15	6	5	27
	T&T	77	-	-	101	39	53	76
	Artic	28	-	-	26	7	4	24
	A&B Train	19	-	-	14	7	10	14
2009Total		163	-	-	157	59	71	132
2010	Rigid	45	3	-	22	8	5	31
	T&T	152	90	-	171	59	62	127
	Artic	37	6	-	41	9	5	33
	A&B Train	30	7	-	23	12	13	21
2010Total		264	106	-	257	88	86	202
2011	Rigid	52	4	-	16	8	5	36
	T&T	169	66	-	73	76	85	109
	Artic	56	4	-	14	11	6	39
	A&B Train	37	7	-	10	18	16	24
2011Total		314	80	-	113	114	111	195
2012	Rigid	49	3	2	18	10	4	33
	T&T	170	70	19	138	125	46	125
	Artic	42	4	0	31	19	3	31
	A&B Train	31	6	0	17	24	8	22
2012Total		293	83	21	203	178	60	202

Symbol: – no data

Note: [1]Annual average daily overweight heavy vehicles referring to the average number of overweight heavy vehicles that passed during a 24-hour period in a given year in each or all WiM site(s). This was computed by dividing the total overweight heavy vehicles recorded over the total accepted days for each WiM site.

[2]The annual weighted average overweight vehicle was computed by summing up for each WiM sites. So, the total average is not equal to the sum of average daily overweight heavy vehicles across WiM sites.

Accepted days refers to days with recorded data which excludes shutdowns and site maintenance.

Interpretation:

- Only the T&T vehicle type had decreased in annual weighted average daily overweight down to 107 (excluding Hamanatua Bridge).

- Overweight T&T vehicle type shows increases by 90.0 percent and 64.3 percent at the Te Puke and Tokoroa WiM sites, respectively. However, overweight T&T vehicle type dropped at the Waipara WiM site.

13.0 VEHICLE FLEET OVERWEIGHT TABLES (Continued)

Table 12.0 | Average annual daily overweight vehicles frequency[1] on selected[2] PAT class and by WiM site

Year	Vehicle Type	WiM Site						Weighted Average[3]
		Drury	Eskdale	Hamanatua Bridge	Te Puke	Tokoroa	Waipara	
2007	31	51	-	-	15	5	4	38
	751	88	-	-	15	18	6	65
	826	6	-	-	2	4	0	5
	851	29	-	-	10	15	4	20
	891	85	-	-	40	74	23	67
	Others[4]	64	-	-	10	23	9	45
2007 Total		323	-	-	92	140	46	224
2008	31	68	-	-	12	2	6	54
	751	120	-	-	15	10	8	97
	826	25	-	-	3	2	1	21
	851	54	-	-	13	5	8	40
	891	166	-	-	56	29	43	114
	Others[4]	110	-	-	12	10	13	86
2008 Total		543	-	-	111	58	80	400
2009	31	35	-	-	14	5	5	25
	751	29	-	-	29	7	8	24
	826	11	-	-	9	3	1	9
	851	15	-	-	13	4	7	12
	891	46	-	-	69	30	36	50
	Others[4]	27	-	-	23	9	14	21
2009 Total		163	-	-	157	59	71	132
2010	31	41	3	-	19	7	5	28
	751	58	15	-	44	9	9	42
	826	12	4	-	16	5	2	11
	851	22	5	-	22	8	10	17
	891	90	68	-	120	47	47	85
	Others[4]	41	12	-	37	12	13	31
2010 Total		264	106	-	257	88	86	202
2011	31	43	3	-	14	7	4	30
	751	51	9	-	11	11	11	33
	826	20	3	-	5	7	2	14
	851	25	4	-	10	10	11	16
	891	109	52	-	59	61	66	75
	Others[4]	65	9	-	13	18	17	42
2011 Total		314	80	-	113	114	111	195
2012	31	42	3	2	16	8	4	28
	751	57	9	2	24	18	5	37
	826	17	2	-	17	10	1	14
	851	21	4	0	14	15	5	15
	891	101	57	16	103	99	33	86
	Others[4]	56	8	2	30	28	13	37
2012 Total		293	83	21	203	178	60	202

Symbol: – no data

Note: [1]Annual average daily heavy vehicles referring to the average number of heavy vehicles that passed during 24-hour period in a given year in each or all WiM site(s). This was computed by dividing the total heavy vehicles recorded over the total accepted days for each WiM site.

[2]The selection of PAT class was based on the highest frequency recorded in the current year.

[3]Weighted average was computed by summing up the proportion of total heavy vehicles of each WiM sites. So, the total average is not equal to the sum of average daily heavy vehicles across WiM sites

[4]All not stated PAT class were included in 'Others' category.

Interpretation:

- PAT class 751 has an average of 37 overweight vehicles travelled in a day during 2012. Most of overweight of the same PAT class passed Drury WiM site.

- In 2012, of the top five PAT classes in terms of highest overweight frequency still PAT class 891 shows an increase. Looking at the WiM site level this PAT class shows decreases at the Drury and Waipara WiM sites.

14.0 VEHICLE FLEET >44T/48T DISTRIBUTION TABLES

PAT Type – This is the code relating to the axle configuration.

Description – This illustrates the number of axles and an indication of the spacing between axles.

Table 13.0 | Frequency and percentage distributions of heavy vehicles >44T by vehicle type, PAT class and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamanatua Bridge		Total Volume	%
				Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%		
Rigid	HCV1	45	oo--oo	-	-	3	0.0	-	-	-	-	-	-	-	-	3	0.0
T&T	HCV2	52	o--oo-o--o	1	0.0	1	0.0	-	-	-	-	1	0.0	-	-	3	0.0
		62	o--oo--o-o-o	116	0.1	271	0.6	141	0.3	209	1.2	135	0.5	95	0.3	872	0.4
		63	o--oo-o--oo	321	0.4	34	0.1	8	0.0	11	0.1	10	0.0	6	0.0	384	0.2
		66	oo--oo--o--o	-	-	-	-	2	0.0	-	-	-	-	-	-	2	0.0
		77	oo--oo--o-oo	1,022	1.3	1,190	2.4	809	1.8	1,118	6.4	1,167	4.2	320	1.2	5,306	2.4
		751	o-oo--oo--oo	20,298	25.8	5,451	11.1	6,018	13.6	1,602	9.2	3,229	11.6	579	2.1	36,598	16.3
		891	oo--oo-oo--oo	36,073	45.9	30,239	61.5	26,348	59.7	10,463	59.8	20,176	72.7	5,677	20.5	123,299	55.1
		914	oo-oo--ooo-oo	180	0.2	153	0.3	38	0.1	84	0.5	76	0.3	-	-	531	0.2
		915	oo-oo--oo-ooo	1,339	1.7	807	1.6	786	1.8	1,010	5.8	110	0.4	1	0.0	4,052	1.8
		1020	oo-oo-ooo-ooo	1,558	2.0	18	0.0	1,206	2.7	5	0.0	4	0.0	-	-	2,791	1.2
Artic	HCV2	53	o-oo--oo	2	0.0	3	0.0	2	0.0	-	-	-	-	-	-	7	0.0
		68	oo--oo--oo	1	0.0	6	0.0	18	0.0	-	-	2	0.0	-	-	27	0.0
		69	o-oo--ooo	181	0.2	149	0.3	152	0.3	20	0.1	17	0.1	26	0.1	519	0.2
		713	oo-oo--ooo	47	0.1	48	0.1	7	0.0	14	0.1	12	0.0	-	-	128	0.1
		747	o--ooo--ooo	3	0.0	-	-	-	-	-	-	-	-	-	-	3	0.0
		791	o-oo-oooo	285	0.4	378	0.8	45	0.1	42	0.2	26	0.1	1	0.0	776	0.3
		826	oo-oo--oooo	6,030	7.7	3,186	6.5	4,254	9.6	297	1.7	790	2.8	-	-	14,557	6.5
		847	o--ooo---oooo	27	0.0	36	0.1	5	0.0	14	0.1	1	0.0	-	-	83	0.0
A&B Train	HCV2	811	o--oo--oo--ooo	713	0.9	60	0.1	4	0.0	16	0.1	8	0.0	1	0.0	801	0.4
		851	o-oo--ooo--oo	7,413	9.4	4,493	9.1	3,609	8.2	1,705	9.7	1,430	5.2	13	0.0	18,650	8.3
		951	o-oo-ooo-ooo	3,019	3.8	2,653	5.4	700	1.6	893	5.1	550	2.0	-	-	7,815	3.5
Total				78,629	100.0	49,179	100.0	44,152	100.0	17,503	100.0	27,744	100.0	6,719	100.0	223,926	100.0
Percentage from the total				*35.1*		*22.0*		*19.7*		*7.8*		*12.4*		*3.0*		*100.0*	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Note: [1]Percentage of each PAT class from the total number of heavy vehicles recorded as >44T per WiM site.
[2]Percentage of each WiM site from the overall total number of heavy vehicles recorded as >44T at all WiM sites.
[3]In the new NZTA heavy vehicle classification, PAT class 751 has been split in two vehicle type categories, T&T and B Train. However, this PAT class was reported under T&T vehicle type category.

Interpretation: At the Tokoroa WiM site, there were 4,493 (9.1 percent) PAT class 851 vehicles reported with overweight mass over 44 tonnes. The Te Puke WiM site has 19.7 percent of the total overweight heavy vehicles, with a mass over 44 tonnes, of the total of the six WiM sites.

14.0 VEHICLE FLEET >44T/48T DISTRIBUTION TABLES (Continued)

Table 13.1 | Frequency and percentage distributions of heavy vehicles >=48T by vehicle type, PAT class and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Total Volume	%
				Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%	Total Volume	%		
Rigid	HCV1	45	oo--oo	-	-	2	0.0	-	-	-	-	-	-	-	-	2	0.0
T&T	HCV2	52	o--oo-o--o	-	-	1	0.0	-	-	-	-	-	-	-	-	1	0.0
		62	o--oo--o-o-o	78	0.5	241	2.5	110	1.0	159	7.0	100	3.1	76	22.0	688	1.7
		63	o--oo-o--oo	57	0.4	5	0.1	3	0.0	2	0.1	2	0.1	6	1.7	69	0.2
		66	oo--oo--o--o	-	-	-	-	1	0.0	-	-	-	-	-	-	1	0.0
		77	oo--oo--o-oo	229	1.6	243	2.5	73	0.7	131	5.7	49	1.5	8	2.3	725	1.8
		751	o-oo--oo--oo	3,873	27.3	952	10.0	489	4.4	218	9.6	267	8.3	34	9.8	5,799	14.2
		891	oo--oo-oo--oo	6,380	44.9	5,614	58.9	6,817	60.7	1,143	50.1	2,399	74.6	204	59.0	22,353	54.8
		914	oo-oo--ooo-oo	55	0.4	48	0.5	17	0.2	17	0.7	18	0.6	-	-	155	0.4
		915	oo-oo--oo-ooo	319	2.2	197	2.1	685	6.1	151	6.6	28	0.9	-	-	1,380	3.4
		1020	oo-oo-ooo-ooo	989	7.0	6	0.1	1,083	9.6	3	0.1	-	-	-	-	2,081	5.1
Artic	HCV2	53	o-oo--oo	-	-	2	0.0	-	-	-	-	-	-	-	-	2	0.0
		68	oo--oo--oo	-	-	6	0.1	15	0.1	-	-	2	0.1	-	-	23	0.1
		69	o-oo--ooo	41	0.3	76	0.8	19	0.2	13	0.6	2	0.1	15	4.3	151	0.4
		713	oo-oo--ooo	5	0.0	7	0.1	-	-	3	0.1	2	0.1	-	-	17	0.0
		791	o-oo-oooo	18	0.1	51	0.5	10	0.1	11	0.5	3	0.1	-	-	93	0.2
		826	oo-oo--oooo	353	2.5	489	5.1	412	3.7	30	1.3	55	1.7	-	-	1,339	3.3
		847	o--ooo---oooo	2	0.0	4	0.0	-	-	2	0.1	-	-	-	-	8	0.0
A&B Train	HCV2	811	o--oo--oo--ooo	87	0.6	12	0.1	2	0.0	16	0.7	1	0.0	1	0.3	118	0.3
		851	o-oo--ooo--oo	1,143	8.0	906	9.5	1,005	9.0	180	7.9	183	5.7	2	0.6	3,417	8.4
		951	o-oo-ooo-ooo	578	4.1	677	7.1	487	4.3	203	8.9	104	3.2	-	-	2,049	5.0
Total				14,207	100.0	9,539	100.0	11,228	100.0	2,282	100.0	3,215	100.0	346	100.0	40,817	100.0
Percentage from the total				*34.8*		*23.4*		*27.5*		*5.6*		*7.9*		*0.8*		*100.0*	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Note: [1]Percentage of each PAT class from the total number of heavy vehicles recorded as >48T per WiM site.
[2]Percentage of each WiM site from the overall total number of heavy vehicles recorded as >48T at all WiM sites.

Interpretation:

- Still PAT Class 891 has the highest proportion of overweight with mass greater than and equal to 48 tonnes. The majority (30.5 percent) of this is found at Te Puke WiM site.

- More than 11,000 overweight vehicles, with mass greater than equal to 48 tonnes, were recorded at the Drury and Te Puke WiM sites.

15.0 VEHICLE FLEET ESTIMATED GROSS MASS

The total estimated gross mass is the total estimated mass recorded that includes the heavy vehicle mass and its load for each PAT type, vehicle group and by WiM site.

Table 14.0 | Vehicle estimated gross mass frequency and percentage distribution by group, PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Gross Tonne	%
				Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%		
Rigid	Bus & MCV	20	o--o	309,554	1.0	44,032	0.4	57,130	0.6	53,317	0.7	19,388	0.3	49,308	1.4	532,727	0.8
		21	o----o	2,029,400	6.5	398,524	3.5	591,211	6.2	341,981	4.6	194,258	3.5	147,889	4.2	3,703,262	5.4
	Bus & HCV1	31	o--oo	1,908,909	6.1	343,137	3.0	494,111	5.2	238,078	3.2	160,343	2.9	105,372	3.0	3,249,949	4.7
		34	oo--o	3,125	0.0	1,639	0.0	1,499	0.0	1,613	0.0	1,775	0.0	318	0.0	9,967	0.0
		301	o--oo	38,838	0.1	2,918	0.0	7,199	0.1	4,106	0.1	1,996	0.0	1,179	0.0	56,234	0.1
	HCV1	45	oo--oo	1,261,241	4.0	539,064	4.8	778,254	8.1	302,730	4.0	546,671	9.8	760,187	21.5	4,188,146	6.1
		47	o--ooo	2,894	0.0	213	0.0	220	0.0	3,621	0.0	377	0.0	9	0.0	7,332	0.0
		511	oo--ooo	18,980	0.1	1,071	0.0	2,650	0.0	988	0.0	272	0.0	73	0.0	24,033	0.0
T&T	Bus & MCV	300	o--o--o	90,199	0.3	19,718	0.2	18,066	0.2	22,747	0.3	9,665	0.2	4,655	0.1	165,047	0.2
		401	o--o--oo	83,363	0.3	28,899	0.3	18,927	0.2	30,705	0.4	15,145	0.3	9,032	0.3	186,070	0.3
	Bus & HCV1	44	oo--o---o	93	0.0	52	0.0	215	0.0	161	0.0	95	0.0	-	-	615	0.0
		402	o--oo---o	43,684	0.1	16,010	0.1	11,862	0.1	8,702	0.1	3,760	0.1	1,278	0.0	85,294	0.1
	HCV2	52	o--oo-o--o	114,121	0.4	13,400	0.1	9,331	0.1	11,076	0.1	10,138	0.2	11,087	0.3	169,152	0.2
		61	o-o--o-o--oo	31	0.0	34	0.0	-	-	-	-	-	-	22	0.0	86	0.0
		62	o--oo--o-o-o	35,367	0.1	24,285	0.2	15,223	0.2	26,646	0.4	20,543	0.4	10,551	0.3	132,615	0.2
		63	o--oo-o--oo	222,351	0.7	59,178	0.5	54,689	0.6	41,451	0.6	10,484	0.2	8,411	0.2	396,563	0.6
		66	oo--oo--o--o	17,913	0.1	4,784	0.0	5,693	0.1	5,315	0.1	2,771	0.0	1,283	0.0	37,757	0.1
		77	oo--oo--o-oo	423,003	1.3	166,628	1.5	170,994	1.8	210,318	2.8	143,218	2.6	152,149	4.3	1,266,309	1.8
		503	o--oo--oo	3,376	0.0	1,555	0.0	2,366	0.0	4,696	0.1	599	0.0	111	0.0	12,703	0.0
		751	o-oo--oo--oo	3,749,885	11.9	708,108	6.3	1,087,501	11.3	393,861	5.2	462,227	8.3	252,224	7.1	6,653,805	9.7
		771	oo--o--oo--oo	14	0.0	161	0.0	132	0.0	198	0.0	-	-	-	-	504	0.0
		891	oo--oo-oo--oo	8,666,967	27.6	4,812,190	42.5	3,589,274	37.4	3,005,709	40.1	2,546,199	45.6	1,929,040	54.6	24,549,378	35.6
		914	oo-oo--ooo-oo	37,438	0.1	24,902	0.2	5,892	0.1	26,221	0.3	17,132	0.3	51	0.0	111,635	0.2
		915	oo-oo--oo-ooo	284,986	0.9	168,370	1.5	70,103	0.7	170,414	2.3	19,912	0.4	1,044	0.0	714,828	1.0
		1020	oo-oo-ooo-ooo	132,595	0.4	3,448	0.0	84,617	0.9	1,246	0.0	1,089	0.0	-	-	222,993	0.3
Artic	HCV1	30	o--o-----o	36,111	0.1	6,011	0.1	4,297	0.0	5,886	0.1	3,516	0.1	651	0.0	56,471	0.1
		41	o--o--oo	195,812	0.6	52,891	0.5	20,197	0.2	33,336	0.4	25,236	0.5	4,916	0.1	332,387	0.5
		42	o--oo--o	11,405	0.0	552	0.0	253	0.0	411	0.0	612	0.0	19	0.0	13,251	0.0
	HCV2	53	o-oo--oo	515,399	1.6	75,847	0.7	70,900	0.7	54,038	0.7	39,750	0.7	23,785	0.7	779,719	1.1
		57	o--o-----ooo	37,052	0.1	8,221	0.1	2,567	0.0	3,573	0.0	6,542	0.1	83	0.0	58,038	0.1
		68	oo--oo--oo	400,710	1.3	171,380	1.5	23,462	0.2	93,925	1.3	27,166	0.5	6,900	0.2	723,540	1.0
		69	o-oo--ooo	3,036,061	9.7	512,545	4.5	775,018	8.1	333,102	4.4	176,125	3.2	24,508	0.7	4,857,358	7.0
		713	oo-oo--ooo	382,786	1.2	97,880	0.9	54,641	0.6	33,677	0.4	24,321	0.4	293	0.0	593,597	0.9
		747	o--ooo--ooo	1,756	0.0	538	0.0	122	0.0	363	0.0	238	0.0	-	-	3,016	0.0
		791	o-oo-oooo	1,234,758	3.9	354,451	3.1	135,474	1.4	286,202	3.8	90,859	1.6	1,821	0.1	2,103,565	3.1
		826	oo-oo--oooo	2,081,094	6.6	758,027	6.7	680,223	7.1	349,817	4.7	359,962	6.4	832	0.0	4,229,953	6.1
		847	o--ooo---oooo	51,050	0.2	6,726	0.1	1,402	0.0	3,050	0.0	203	0.0	-	-	62,430	0.1
A&B Train	HCV2	74	o-oo--oo-o--o	338	0.0	107	0.0	-	-	55	0.0	-	-	6,592	0.2	7,092	0.0
		622	o--o--oo--o-o	243	0.0	146	0.0	64	0.0	11	0.0	15	0.0	23	0.0	501	0.0
		811	o--oo--oo--ooo	80,214	0.3	10,908	0.1	430	0.0	1,264	0.0	6,449	0.1	61	0.0	99,325	0.1
		851	o-oo--ooo--oo	2,750,188	8.8	1,197,626	10.6	648,891	6.8	1,030,231	13.7	493,004	8.8	18,779	0.5	6,138,717	8.9
		951	o-oo-ooo-ooo	1,099,526	3.5	677,361	6.0	97,113	1.0	369,440	4.9	147,342	2.6	33	0.0	2,390,814	3.5
		1032	o-oo-ooo-oooo	-	-	-	-	-	-	38	0.0	-	-	-	-	38	0.0
Gross Tonne				31,392,819	100.0	11,313,526	100.0	9,592,204	100.0	7,504,309	100.0	5,589,387	100.0	3,534,558	100.0	68,926,803	100.0
Percentage from the total				*45.5*		*16.4*		*13.9*		*10.9*		*8.1*		*5.1*		*100.0*	

Symbol: – no data

Top 5 with highest frequency in each WiM site

Top 5 with highest frequency across all WiM sites

Interpretation:

- The Drury WiM site has the highest estimated gross mass recorded with 39.2 percent of the overall gross mass and this is followed by Tokoroa WiM site with 20.4 percent.

- Still PAT class 891 has the highest estimated gross mass recorded across all PAT class with more than 24 million tonnes (35.6 percent).

15.0 VEHICLE FLEET ESTIMATED GROSS MASS (Continued)

The table below shows the total estimated gross mass that exceeded the maximum limit of each PAT type by group for each WiM site.

Table 15.0 | Overweight vehicle estimated gross mass frequency and percentage distribution by group, PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Gross Tonne	%
				Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%	Tonne	%		
Rigid	Bus & MCV	20	o--o	-	-	-	-	210	0.0	80	0.0	-	-	167	0.1	456	0.0
		21	o----o	10,077	0.2	1,416	0.1	1,684	0.1	1,022	0.1	823	0.1	112	0.0	15,132	0.1
	Bus & HCV1	31	o--oo	315,920	7.1	53,359	2.2	83,892	3.6	23,484	2.7	21,504	1.6	13,841	4.2	511,999	4.4
		34	oo--o	41	0.0	23	0.0	0	-	24	0.0	41	0.0	-	-	128	0.0
		301	o--oo	3,463	0.1	23	0.0	24	0.0	192	0.0	93	0.0	23	0.0	3,816	0.0
	HCV1	45	oo--oo	43,797	1.0	12,917	0.5	9,212	0.4	1,265	0.1	2,928	0.2	994	0.3	71,112	0.6
		47	o--ooo	572	0.0	55	0.0	84	0.0	51	0.0	106	0.0	-	-	868	0.0
		511	oo--ooo	4,485	0.1	151	0.0	157	0.0	240	0.0	60	0.0	36	0.0	5,127	0.0
T&T	Bus & MCV	300	o--o--o	22	0.0	0	-	22	0.0	0	-	0	-	-	-	43	0.0
		401	o--o--oo	322	0.0	82	0.0	0	-	20	0.0	81	0.0	-	-	504	0.0
	Bus & HCV1	402	o--oo---o	122	0.0	31	0.0	246	0.0	35	0.0	64	0.0	-	-	497	0.0
	HCV2	52	o--oo-o--o	2,210	0.0	207	0.0	0	-	0	-	246	0.0	41	0.0	2,703	0.0
		62	o--oo--o-o-o	6,986	0.2	15,297	0.6	7,948	0.3	12,682	1.5	7,968	0.6	5,456	1.7	56,336	0.5
		63	o--oo-o--oo	15,039	0.3	1,583	0.1	399	0.0	515	0.1	471	0.0	343	0.1	18,349	0.2
		66	oo--oo--o--o	87	0.0	44	0.0	97	0.0	44	0.0	44	0.0	-	-	315	0.0
		77	oo--oo--o-oo	48,016	1.1	55,913	2.3	37,561	1.6	52,037	6.0	53,947	4.0	14,713	4.5	262,186	2.2
		503	o--oo--oo	136	0.0	58	0.0	0	-	27	0.0	0	-	-	-	220	0.0
		751	o-oo--oo--oo	952,189	21.5	255,296	10.3	278,872	12.0	74,718	8.7	149,736	11.2	26,764	8.1	1,737,574	14.8
		771	oo--o--oo--oo	0	-	81	0.0	0	-	0	-	0	-	-	-	81	0.0
		891	oo--oo-oo--oo	1,688,670	38.2	1,417,730	57.4	1,245,258	53.4	486,568	56.4	940,566	70.2	261,426	79.6	6,040,216	51.4
		914	oo-oo--ooo-oo	8,509	0.2	7,250	0.3	1,829	0.1	3,946	0.5	3,577	0.3	-	-	25,111	0.2
		915	oo-oo--oo-ooo	63,097	1.4	38,050	1.5	42,412	1.8	47,281	5.5	5,203	0.4	46	0.0	196,088	1.7
		1020	oo-oo-ooo-ooo	78,506	1.8	860	0.0	67,598	2.9	242	0.0	188	0.0	-	-	147,394	1.3
Artic	HCV1	41	o--o--oo	127	0.0	0	-	0	-	0	-	31	0.0	-	-	158	0.0
		42	o--oo--o	0	-	0	-	0	-	54	0.0	0	-	-	-	54	0.0
	HCV2	53	o-oo--oo	20,207	0.5	470	0.0	1,452	0.1	38	0.0	193	0.0	-	-	22,358	0.2
		57	o--o-----ooo	0	-	108	0.0	0	-	0	-	137	0.0	-	-	245	0.0
		68	oo--oo--oo	346	0.0	390	0.0	1,098	0.0	0	-	116	0.0	-	-	1,949	0.0
		69	o-oo--ooo	254,544	5.8	59,898	2.4	130,226	5.6	9,656	1.1	14,379	1.1	3,522	1.1	472,224	4.0
		713	oo-oo--ooo	2,176	0.0	2,235	0.1	319	0.0	663	0.1	557	0.0	-	-	5,949	0.1
		747	o--ooo--ooo	231	0.0	87	0.0	0	-	0	-	0	-	-	-	318	0.0
		791	o-oo-oooo	99,403	2.2	55,719	2.3	17,296	0.7	10,745	1.2	7,024	0.5	221	0.1	190,406	1.6
		826	oo-oo--oooo	278,608	6.3	148,888	6.0	197,878	8.5	13,794	1.6	36,526	2.7	-	-	675,694	5.8
		847	o--ooo--oooo	1,253	0.0	1,685	0.1	233	0.0	654	0.1	47	0.0	-	-	3,871	0.0
A&B Train	HCV2	74	o-oo--oo-o--o	0	-	0	-	0	-	42	0.0	0	-	41	0.0	82	0.0
		811	o--oo--oo--ooo	33,122	0.7	2,827	0.1	203	0.0	927	0.1	368	0.0	61	0.0	37,507	0.3
		851	o-oo--ooo--oo	346,232	7.8	210,745	8.5	170,558	7.3	79,166	9.2	66,652	5.0	599	0.2	873,950	7.4
		951	o-oo-ooo-ooo	141,569	3.2	125,240	5.1	35,546	1.5	42,020	4.9	25,788	1.9	-	-	370,162	3.1
Gross Tonne				4,420,074	100.0	2,468,710	100.0	2,332,307	100.0	862,223	100.0	1,339,460	100.0	328,400	100.0	11,751,173	100.0
Percentage from the total				*37.6*		*20.4*		*19.5*		*7.2*		*11.0*		*2.8*		*100.0*	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Interpretation:

- More than 11.8 million tonnes was the total estimated gross mass that exceeds the specified maximum limit across all PAT type.

- Tokoroa and Te Puke WiM sites had more than two million tonnes exceeds the specified maximum limit across all PAT type.

16.0 AVERAGE ESTIMATED GROSS MASS PER VEHICLE

The average estimated gross mass per vehicle is derived from dividing the total estimated gross mass over the heavy vehicle frequency for each PAT type, each WiM site and combined. This is also similar in deriving the overweight vehicles.

Table 16.0 | Average estimated gross mass per vehicle and rank distribution by group, PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Tonne	Rank
				Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank		
Rigid	Bus & MCV	20	o--o	4.35	42	4.62	42	4.31	40	4.30	42	4.31	39	4.34	37	4.36	43
		21	o----o	6.42	39	6.48	40	6.39	38	6.09	39	6.30	37	6.26	34	6.38	41
	Bus & HCV1	31	o--oo	13.86	29	13.92	31	13.84	27	13.51	31	14.14	28	13.97	27	13.85	32
		34	oo--o	11.32	34	12.14	34	9.67	34	10.90	33	7.24	36	11.76	30	10.11	38
		301	o--oo	13.14	31	9.44	38	12.86	28	8.57	36	11.02	31	12.41	28	12.28	33
	HCV1	45	oo--oo	16.55	26	16.66	29	16.79	25	15.98	28	16.01	25	16.32	24	16.45	28
		47	o--ooo	18.43	24	21.30	25	19.95	22	15.28	29	16.37	24	4.50	36	16.66	27
		511	oo--ooo	23.87	21	24.34	21	20.08	21	23.52	23	22.67	21	24.17	17	23.38	22
T&T	Bus & MCV	300	o--o--o	6.15	41	5.60	41	6.07	39	6.05	40	6.08	38	5.80	35	6.04	42
		401	o--o--oo	7.73	38	7.44	39	7.07	37	7.59	38	7.73	34	7.11	33	7.56	40
	Bus & HCV1	44	oo--o---o	6.17	40	13.00	33	12.62	31	17.83	26	7.92	33	-	-	10.78	36
		402	o--oo---o	12.06	33	13.91	32	12.70	29	10.01	34	10.47	32	12.40	29	12.12	35
	HCV2	52	o--oo-o--o	20.77	23	22.26	23	19.81	23	20.74	25	22.94	20	22.22	18	21.03	24
		61	o-o--o-o--oo	10.17	37	17.00	27	-	-	-	-	-	-	21.50	20	14.33	31
		62	o--oo--o-o-o	30.70	12	41.51	1	36.59	6	37.01	4	33.13	12	36.89	4	35.09	8
		63	o--oo-o--oo	27.43	17	27.38	19	27.43	15	26.78	20	27.09	17	25.96	15	27.31	18
		66	oo--oo--o--o	25.26	20	26.43	20	23.72	18	25.80	21	26.90	18	27.29	11	25.41	21
		77	oo--oo--o-oo	30.03	13	35.80	8	38.88	3	36.37	7	40.68	1	37.82	3	34.73	9
		503	o--oo--oo	15.78	27	16.90	28	16.90	24	13.98	30	15.76	26	15.79	25	15.36	30
		751	o-oo--oo--oo	33.33	9	34.85	13	34.41	10	32.81	13	36.46	7	32.54	7	33.80	12
		771	oo--o--oo--oo	13.50	30	22.93	22	11.95	32	24.75	22	-	-	-	-	18.65	25
		891	oo--oo-oo--oo	33.48	8	36.16	7	36.49	7	34.21	12	38.78	3	41.18	2	35.54	7
		914	oo-oo--ooo-oo	35.55	4	38.91	2	36.37	8	37.73	2	38.33	4	25.50	16	37.22	4
		915	oo-oo--oo-ooo	35.40	5	38.17	3	38.08	4	35.46	11	35.56	8	33.66	5	36.29	6
		1020	oo-oo-ooo-ooo	39.29	2	35.54	9	45.32	1	36.65	6	32.98	13	0.00	38	41.25	2
Artic	HCV1	30	o--o-----o	10.76	35	10.71	35	10.13	33	9.79	35	11.76	29	10.17	32	10.64	37
		41	o--o--oo	15.31	28	16.30	30	14.22	26	16.00	27	15.66	27	15.66	26	15.49	29
		42	o--oo--o	12.73	32	10.22	36	9.35	35	8.22	37	11.12	30	18.50	23	12.23	34
	HCV2	53	o-oo--oo	21.78	22	22.14	24	21.30	20	21.24	24	20.10	22	20.33	22	21.60	23
		57	o--o-----ooo	17.28	25	17.57	26	12.64	30	13.04	32	17.68	23	20.75	21	16.76	26
		68	oo--oo--oo	26.89	18	29.29	16	23.67	19	27.33	18	25.13	19	22.04	19	27.23	19
		69	o-oo--ooo	26.12	19	27.60	18	27.16	17	26.92	19	27.15	16	26.58	13	26.53	20
		713	oo-oo--ooo	27.67	16	28.81	17	27.27	16	31.74	14	27.96	15	26.59	12	28.03	17
		747	o--ooo---ooo	31.36	11	33.63	14	40.50	2	30.25	15	33.93	11	-	-	32.09	14
		791	o-oo-oooo	29.61	14	32.67	15	29.41	14	30.16	16	32.71	14	29.37	9	30.28	15
		826	oo-oo--oooo	32.23	10	35.08	12	32.66	13	35.50	10	34.20	10	26.00	14	33.20	13
		847	o--ooo---oooo	33.81	7	35.21	11	33.38	12	36.74	5	40.50	2	-	-	34.10	11
A&B Train	HCV2	74	o-oo--oo-o--o	28.17	15	35.50	10	-	-	27.50	17	-	-	28.91	10	28.94	16
		622	o--o--oo--o-o	10.54	36	9.70	37	9.07	36	5.50	41	7.50	35	11.50	31	9.81	39
		811	o--oo--oo--ooo	43.06	1	36.97	5	35.83	9	45.14	1	36.64	6	60.50	1	41.82	1
		851	o-oo--ooo--oo	33.85	6	36.49	6	33.53	11	35.58	9	35.09	9	32.72	6	34.68	10
		951	o-oo-ooo-ooo	35.59	3	37.37	4	37.07	5	36.04	8	37.28	5	32.50	8	36.31	5
		1032	o-oo-ooo-oooo	-	-	-	-	-	-	37.50	3	-	-	-	-	37.50	3
Tonne				21.53		26.72		22.78		24.18		26.13		22.81		23.12	

Symbol: – no data

Top 5 with highest frequency in each WiM site

Top 5 with highest frequency across all WiM sites

Interpretation:

- During 2012 the average estimated gross mass per vehicle was 23.12 tonnes regardless of PAT class.
- The Tokoroa WiM site had the highest average estimated gross mass per vehicle with 26.72 tonnes, which followed by Eskdale WiM site with 26.13 per vehicle.
- PAT class 811 had the highest average estimated gross mass per vehicle with 41.82 tonnes and followed by PAT class 1020 with 41.25 tonnes per vehicle.

16.0 AVERAGE ESTIMATED GROSS MASS PER VEHICLE (Continued)

Table 17.0 | Overweight average estimated gross mass per vehicle and rank distribution by group, PAT class, and by WiM site

Group	PEM Class	PAT Class	Description	Drury		Tokoroa		Te Puke		Waipara		Eskdale		Hamamanaua Bridge		Tonne	Rank
				Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank	Tonne	Rank		
Rigid	Bus & MCV	20	o--o	-	-	-	-	16.12	27	15.90	31	-	-	16.70	17	16.29	37
		21	o----o	15.97	33	15.90	33	15.73	28	15.97	30	15.83	31	15.93	18	15.93	38
	Bus & HCV1	31	o--oo	21.07	31	21.02	31	20.55	26	20.76	28	21.04	28	20.21	16	20.94	36
		34	oo--o	20.50	32	22.50	29	-	-	23.50	27	20.50	29	-	-	21.33	34
		301	o--oo	23.09	28	22.50	29	23.50	24	27.36	23	23.25	27	22.50	15	23.27	32
	HCV1	45	oo--oo	28.35	25	30.18	25	31.99	20	29.41	22	28.99	25	33.13	14	29.20	28
		47	o--ooo	26.00	27	27.50	28	27.83	23	25.50	26	26.50	26	-	-	26.29	31
		511	oo--ooo	30.93	23	30.10	26	31.30	21	30.00	21	30.00	24	35.50	13	30.89	27
T&T	Bus & MCV	300	o--o--o	21.50	29	-	-	21.50	25	-	-	-	-	-	-	21.50	33
		401	o--o--oo	21.43	30	20.50	32	-	-	19.50	29	20.25	30	-	-	21.00	35
	Bus & HCV1	402	o--oo---o	30.50	24	30.50	24	30.75	22	34.50	20	32.00	22	-	-	31.06	26
	HCV2	52	o--oo-o--o	40.17	20	41.30	21	-	-	-	-	41.00	19	40.50	11	40.34	22
		62	o--oo--o-o-o	48.85	2	53.86	2	51.94	4	49.93	2	51.08	2	52.97	3	51.54	2
		63	o--oo-o--oo	46.85	8	46.56	15	49.88	7	46.77	8	47.10	4	57.17	2	47.05	7
		66	oo--oo--o--o	43.50	17	43.50	17	48.50	8	43.50	16	43.50	17	-	-	44.93	17
		77	oo--oo--o-oo	46.98	5	46.99	8	46.43	14	46.54	11	46.23	14	45.98	7	46.60	13
		503	o--oo--oo	27.10	26	29.00	27	-	-	26.50	25	-	-	-	-	27.50	29
		751	o-oo--oo--oo	46.91	6	46.83	11	46.34	15	46.64	10	46.37	12	46.22	4	46.74	11
		771	oo--o--oo--oo	-	-	40.50	22	-	-	-	-	-	-	-	-	40.50	21
		891	oo--oo-oo--oo	46.81	9	46.88	10	47.26	10	46.50	12	46.62	8	46.05	5	46.83	8
		914	oo-oo--ooo-oo	47.27	3	47.38	4	48.13	9	46.98	6	47.07	5	-	-	47.29	6
		915	oo-oo--oo-ooo	47.12	4	47.15	6	53.96	2	46.81	7	47.30	3	45.50	8	48.38	4
		1020	oo-oo-ooo-ooo	50.39	1	47.78	3	56.05	1	48.30	3	47.00	6	-	-	52.81	1
Artic	HCV1	41	o--o--oo	31.75	22	-	-	-	-	-	-	30.50	23	-	-	31.50	25
		42	o--oo--o	-	-	-	-	-	-	27.00	24	-	-	-	-	27.00	30
	HCV2	53	o-oo--oo	38.49	21	42.68	19	39.23	19	37.50	19	38.50	20	-	-	38.61	23
		57	o--o-----ooo	-	-	35.83	23	-	-	-	-	34.25	21	-	-	34.93	24
		68	oo--oo--oo	43.25	18	55.64	1	52.26	3	-	-	58.00	1	-	-	51.29	3
		69	o-oo--ooo	41.48	19	42.54	20	41.85	18	42.16	17	41.56	18	45.15	9	41.75	19
		713	oo-oo--ooo	46.29	13	46.56	14	45.50	16	47.36	4	46.42	11	-	-	46.48	14
		747	o--ooo---ooo	46.10	15	43.50	17	-	-	-	-	-	-	-	-	45.36	16
		791	o-oo-oooo	43.54	16	44.36	16	43.57	17	43.86	15	43.62	16	44.10	10	43.80	18
		826	oo-oo--oooo	46.20	14	46.73	13	46.52	12	46.44	13	46.24	13	-	-	46.42	15
		847	o--ooo---oooo	46.39	12	46.81	12	46.50	13	46.71	9	46.50	10	-	-	46.63	12
A&B Train	HCV2	74	o-oo--oo-o--o	-	-	-	-	-	-	41.50	18	-	-	40.50	11	41.00	20
		811	o--oo--oo--ooo	46.45	11	47.12	7	50.75	6	57.94	1	46.00	15	60.50	1	46.77	10
		851	o-oo--ooo--oo	46.71	10	46.91	9	47.26	11	46.43	14	46.61	9	46.04	6	46.83	9
		951	o-oo-ooo-ooo	46.89	7	47.21	5	50.78	5	47.05	5	46.89	7	-	-	47.37	5
Tonne				42.21		45.37		44.83		44.84		45.50		43.68		43.96	

Symbol: – no data
Top 5 with highest frequency in each WiM site
Top 5 with highest frequency across all WiM sites

Interpretation:

- The average estimated gross mass per overweight vehicles during 2012 was 43.96 tonnes.
- An overweight PAT class 1020 had the highest average estimated gross mass with 52.81 tonnes per overweight vehicle.
- In terms of WiM site, the Eskdale and Tokoroa WiM sites showed an average estimated gross mass of more the 45 tonnes per overweight vehicle.

17.0 AXLE GROUP DISTRIBUTION TABLES

Load (kN) – This is the load imposed by each axle type.

Table 18.0 | Axle Group Approximate Load Limit

Axle Group	Approximate Load Limit (kN)
SAST – Single Axle Single Tyre	60
SADT - Single Axle Dual Tyre	60
TADT – Tandem Axle Dual Tyre	-
TSST – Twin Steer Single Tyre	-
TRDT – Triple Axle Dual Tyre	160
QADT - Quad Axle Dual Tyre	200

It is important to note that the weigh-in-motion (WiM) data from which the following table is derived, cannot distinguish between single and dual tyres. It is assumed that steer axles are single tyred and all others are dual tyred. From observation, there is an increase in the utilisation of 'super single' type tyres in the SADT, TADT, TAST and TRDT groups, however, the impact or significance cannot be measured or derived from this technology. Despite the QADT description, 80-90% of Quad Axles are single tyred. The highlighted sections indicate the peaks in load per axle group.

Table 19.0 | Site: 00200176 (Te Puke)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	1%	5%	0%	-	-	-
20	23%	31%	2%	0%	0%	-
30	19%	26%	3%	0%	0%	0%
40	12%	14%	8%	0%	1%	1%
50	26%	10%	7%	0%	3%	2%
60	18%	7%	6%	2%	8%	4%
70	2%	5%	7%	14%	13%	8%
80	0%	2%	6%	30%	12%	9%
90	0%	1%	7%	28%	7%	10%
100	0%	0%	9%	18%	5%	10%
110	-	0%	11%	6%	4%	5%
120	-	0%	10%	0%	4%	3%
130	-	0%	8%	0%	4%	2%
140	-	0%	7%	0%	4%	2%
150	-	0%	5%	0%	4%	2%
160	-	0%	2%	0%	6%	3%
170	-	-	1%	0%	7%	3%
180	-	-	0%	0%	7%	4%
190	-	-	0%	0%	7%	6%
200	-	-	0%	0%	4%	7%
210	-	-	0%	0%	1%	11%
220	-	-	0%	-	0%	6%
230	-	-	0%	-	0%	1%
240	-	-	0%	-	0%	0%
250	-	-	0%	-	0%	0%
260	-	-	-	-	0%	0%
270	-	-	-	-	0%	0%

Symbol: – no data

= approximate axle group mass legal limit

17.0 AXLE GROUP DISTRIBUTION TABLES (Continued)

Table 19.1 | Site: 01N00463 (Drury)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	1%	5%	0%	-	-	-
20	20%	30%	2%	0%	0%	-
30	18%	27%	4%	0%	0%	0%
40	11%	14%	9%	0%	2%	0%
50	24%	10%	9%	1%	5%	2%
60	23%	7%	9%	4%	7%	6%
70	3%	4%	8%	16%	8%	9%
80	0%	3%	7%	24%	8%	8%
90	0%	1%	7%	25%	8%	5%
100	0%	0%	8%	20%	7%	6%
110	-	0%	9%	8%	6%	5%
120	-	0%	9%	1%	6%	4%
130	-	0%	7%	0%	7%	5%
140	-	0%	6%	0%	6%	5%
150	-	0%	4%	0%	6%	5%
160	-	-	2%	-	6%	4%
170	-	-	1%	0%	5%	4%
180	-	-	0%	-	5%	5%
190	-	-	0%	0%	3%	6%
200	-	-	0%	-	2%	9%
210	-	-	0%	-	1%	7%
220	-	-	0%	-	0%	3%
230	-	-	0%	-	0%	1%
240	-	-	0%	-	0%	0%
250	-	-	0%	-	0%	0%
260	-	-	-	-	0%	0%
270	-	-	0%	-	0%	0%

Table 19.2 | Site: 01N00628 (Tokoroa)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	2%	5%	0%	-	-	-
20	19%	29%	2%	0%	0%	-
30	14%	24%	3%	0%	0%	-
40	9%	13%	6%	0%	1%	0%
50	23%	10%	6%	0%	3%	0%
60	29%	7%	7%	2%	5%	2%
70	4%	5%	6%	10%	6%	5%
80	0%	4%	7%	25%	7%	6%
90	0%	2%	9%	29%	7%	6%
100	0%	0%	10%	24%	8%	5%
110	-	0%	11%	8%	9%	6%
120	-	0%	11%	1%	9%	5%
130	-	0%	8%	0%	9%	6%
140	-	0%	6%	0%	8%	6%
150	-	0%	4%	0%	8%	6%
160	-	0%	2%	0%	7%	6%
170	-	-	1%	0%	6%	6%
180	-	-	0%	0%	4%	6%
190	-	-	0%	0%	3%	6%
200	-	-	0%	0%	1%	7%
210	-	-	0%	-	0%	8%
220	-	-	0%	-	0%	5%
230	-	-	0%	-	0%	2%
240	-	-	0%	-	0%	1%
250	-	-	0%	-	0%	0%
260	-	-	0%	-	0%	0%
270	-	-	0%	-	0%	0%

Symbol: – no data

= approximate axle group mass legal limit

17.0 AXLE GROUP DISTRIBUTION TABLES (Continued)

Table 19.3: Site: 01S00285 (Waipara)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	2%	7%	0%	-	-	-
20	33%	44%	3%	0%	0%	-
30	15%	21%	4%	0%	0%	-
40	9%	10%	5%	1%	1%	0%
50	25%	6%	8%	2%	2%	0%
60	14%	5%	7%	3%	3%	1%
70	1%	3%	7%	15%	5%	1%
80	0%	2%	8%	28%	6%	3%
90	0%	1%	10%	29%	7%	5%
100	0%	0%	11%	18%	8%	7%
110	-	0%	12%	3%	9%	7%
120	-	0%	9%	0%	10%	7%
130	-	0%	7%	0%	11%	8%
140	-	0%	5%	0%	10%	7%
150	-	0%	3%	0%	10%	8%
160	-	-	1%	0%	8%	8%
170	-	-	0%	0%	6%	9%
180	-	-	0%	0%	3%	9%
190	-	-	0%	-	1%	8%
200	-	-	0%	0%	1%	6%
210	-	-	-	-	0%	4%
220	-	-	0%	-	0%	2%
230	-	-	0%	-	0%	1%
240	-	-	0%	-	0%	0%
250	-	-	-	-	0%	0%
260	-	-	-	-	0%	0%
270	-	-	-	-	0%	0%

Table 19.4 | Site: 00500259 (Eskdale)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	2%	5%	0%	-	-	-
20	23%	29%	2%	0%	0%	-
30	14%	27%	2%	0%	0%	0%
40	10%	11%	4%	1%	1%	0%
50	25%	9%	4%	1%	3%	1%
60	24%	6%	5%	4%	6%	3%
70	2%	6%	5%	16%	6%	5%
80	0%	5%	8%	26%	6%	6%
90	0%	2%	11%	27%	7%	5%
100	0%	0%	10%	20%	7%	4%
110	-	0%	13%	5%	8%	4%
120	-	0%	11%	1%	8%	4%
130	-	0%	8%	0%	8%	5%
140	-	0%	7%	0%	7%	5%
150	-	0%	6%	0%	8%	5%
160	-	-	2%	0%	8%	6%
170	-	-	0%	0%	7%	7%
180	-	-	0%	0%	5%	8%
190	-	-	0%	0%	3%	10%
200	-	-	0%	0%	1%	10%
210	-	-	0%	-	0%	6%
220	-	-	0%	-	0%	2%
230	-	-	0%	-	0%	1%
240	-	-	0%	-	0%	0%
250	-	-	-	-	0%	0%
260	-	-	0%	-	0%	0%
270	-	-	-	-	0%	0%

Symbol: – no data

= approximate axle group mass legal limit

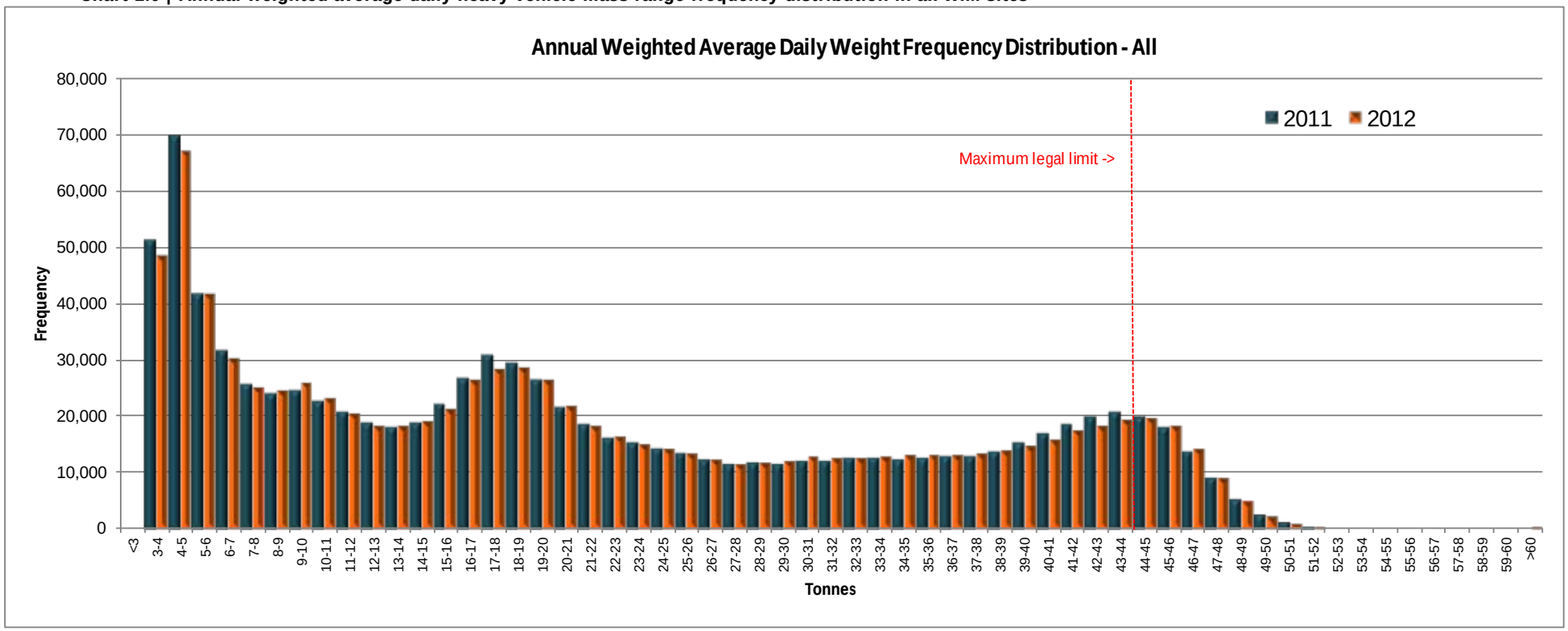
17.0 AXLE GROUP DISTRIBUTION TABLES (Continued)

Table 19.5 | Site: 03500321 (Hamanatua Bridge)

Load (kN)	SAST	SADT	TADT	TSST	TRDT	QADT
10	2%	3%	0%	-	-	-
20	29%	31%	2%	-	-	-
30	28%	29%	2%	0%	-	-
40	9%	12%	2%	1%	1%	-
50	19%	7%	3%	1%	6%	-
60	11%	5%	4%	2%	5%	-
70	2%	6%	3%	17%	19%	9%
80	0%	4%	5%	49%	12%	15%
90	0%	1%	13%	28%	6%	20%
100	0%	0%	17%	3%	1%	4%
110	-	0%	16%	0%	2%	5%
120	-	0%	9%	0%	3%	1%
130	-	0%	6%	-	4%	-
140	-	0%	10%	0%	6%	5%
150	-	-	7%	0%	8%	1%
160	-	0%	1%	-	9%	5%
170	-	-	0%	0%	11%	4%
180	-	-	0%	-	3%	3%
190	-	-	0%	-	2%	8%
200	-	-	0%	-	1%	5%
210	-	-	0%	-	1%	5%
220	-	-	0%	-	1%	4%
230	-	-	0%	-	0%	1%
240	-	-	0%	-	0%	1%
250	-	-	0%	-	0%	-
260	-	-	0%	-	0%	-
270	-	-	-	-	0%	-

18.0 APPENDIX A – HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS

Chart 1.0 | Annual weighted average daily heavy vehicle mass range frequency distribution in all WiM sites

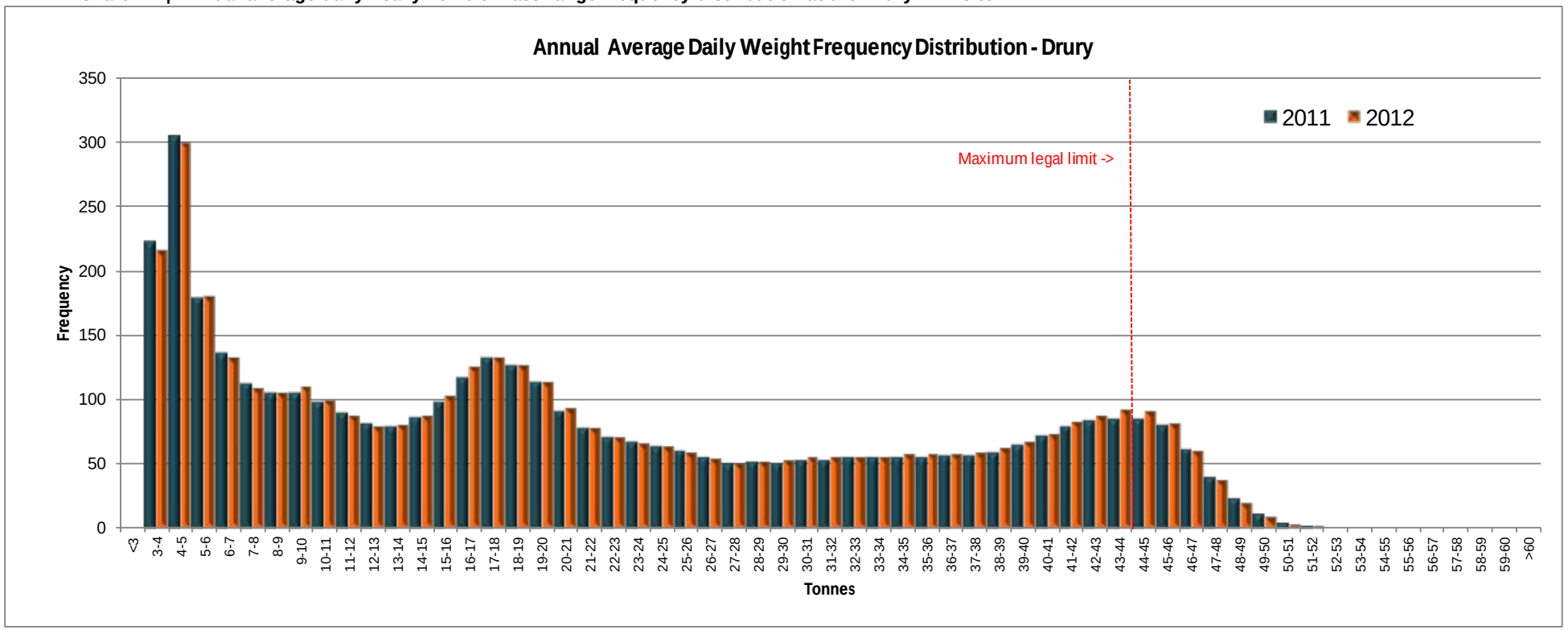


Interpretation: The chart above shows the comparison of annual weighted average daily total heavy vehicles in across WiM sites, which decreased during 2012.

Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

Chart 1.1 | Annual average daily heavy vehicle mass range frequency distribution at the Drury WiM Site

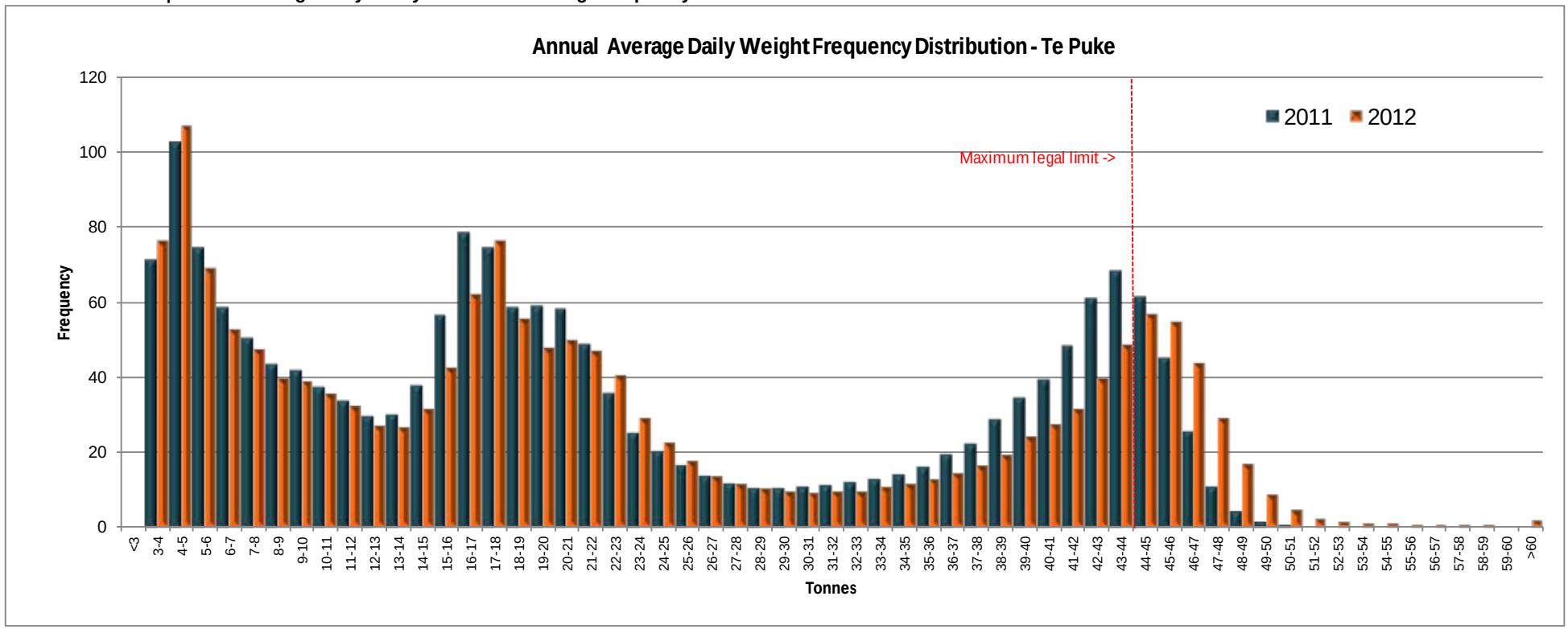


Interpretation: Looking at the above chart, it illustrates that the annual average daily heavy vehicles in some load bands decreased in the previous year but a slight increases in load bands 33-34 to 45-46 during 2012.

Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

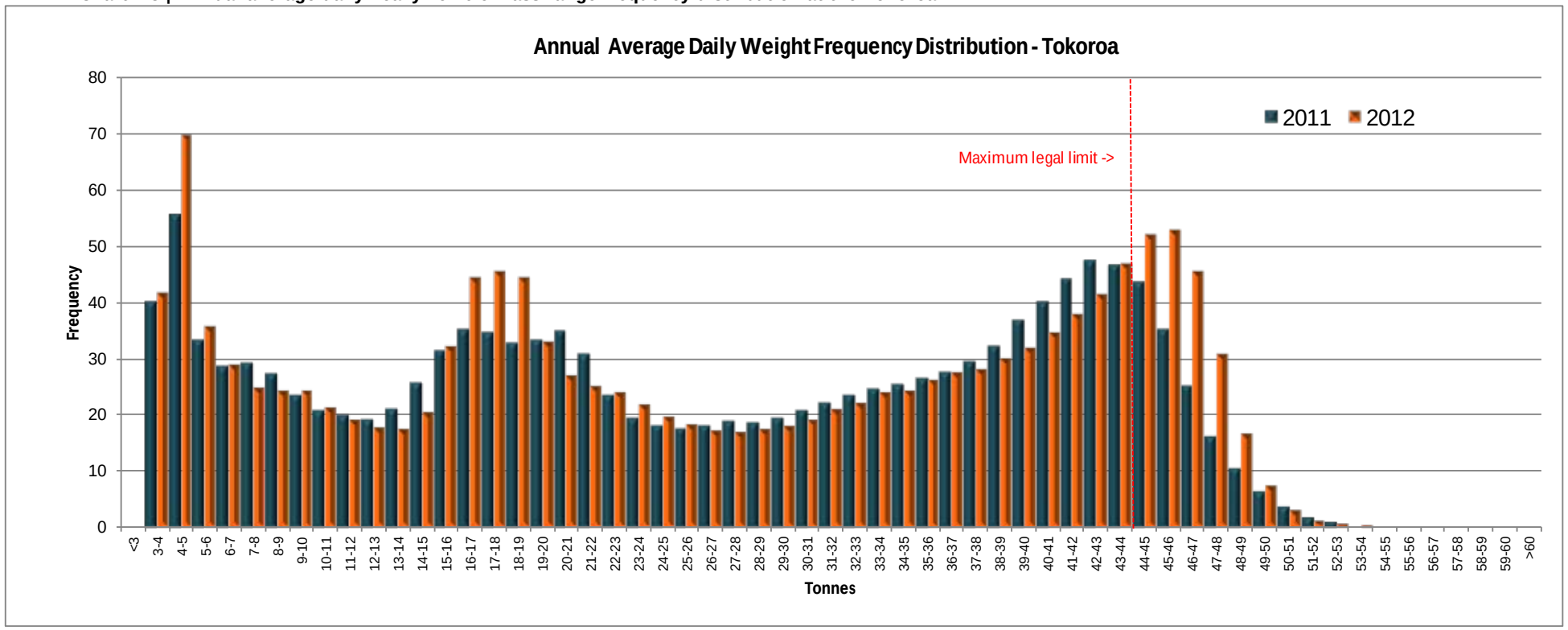
Chart 1.2 | Annual average daily heavy vehicle mass range frequency distribution at the Te Puke



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

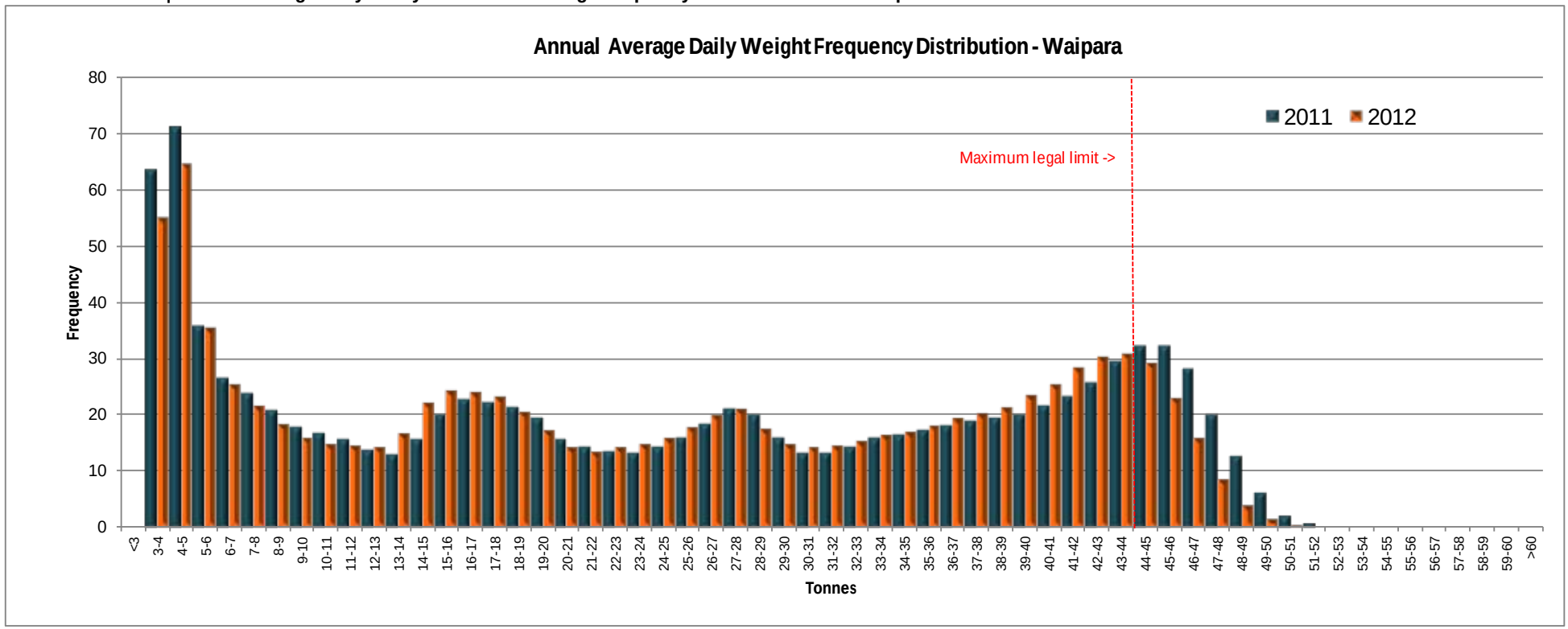
Chart 1.3 | Annual average daily heavy vehicle mass range frequency distribution at the Tokoroa



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

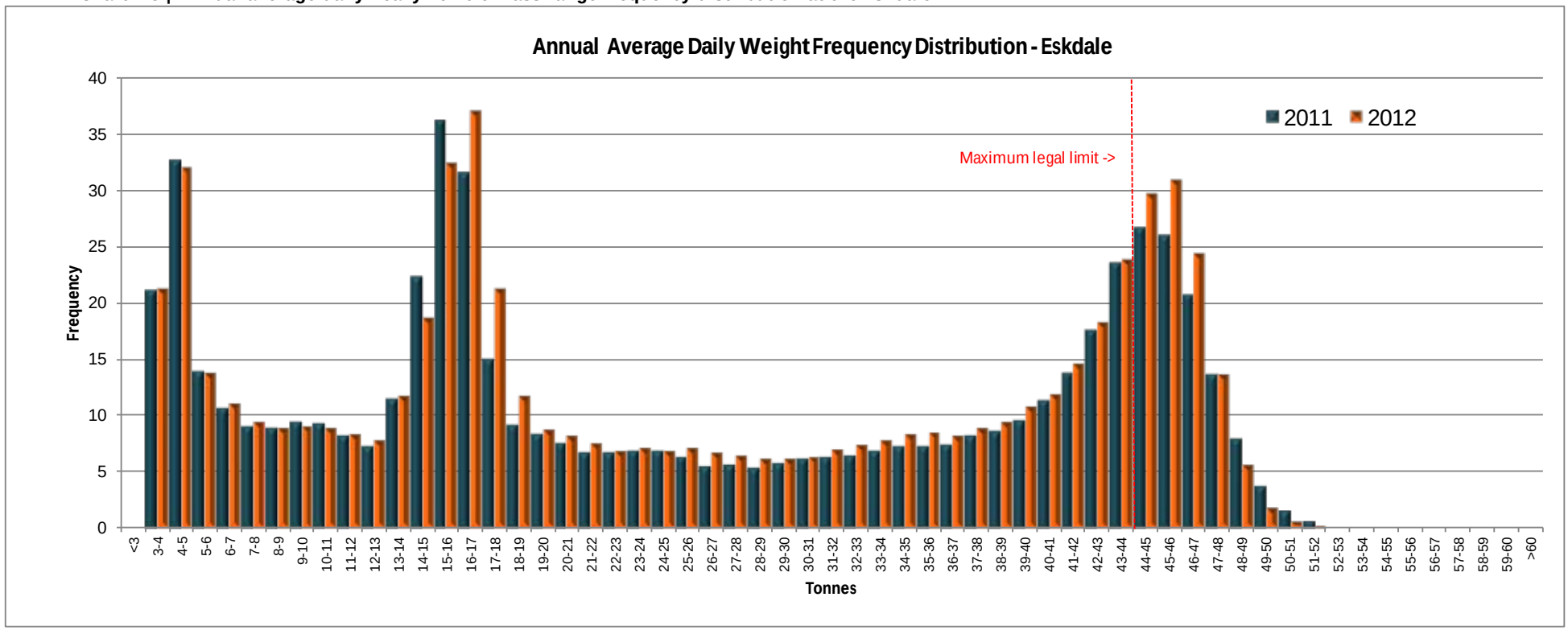
Chart 1.4 | Annual average daily heavy vehicle mass range frequency distribution at the Waipara



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

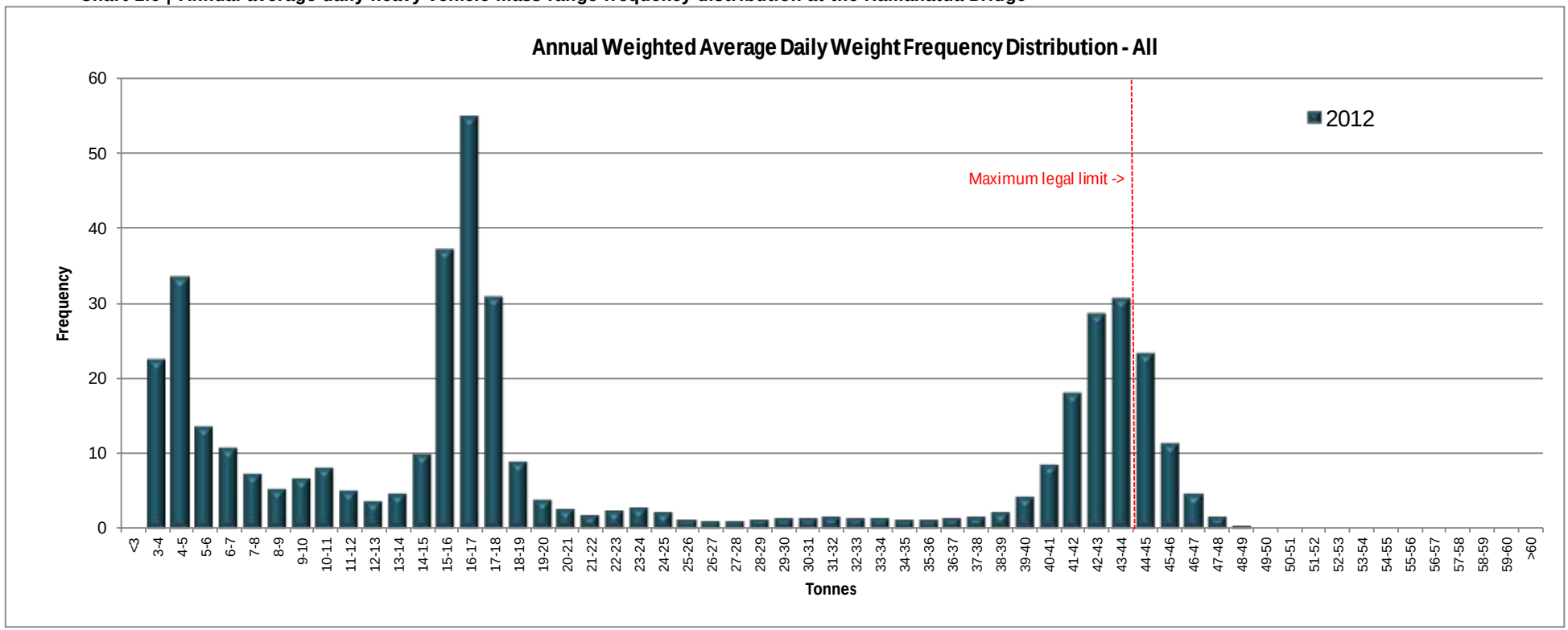
Chart 1.5 | Annual average daily heavy vehicle mass range frequency distribution at the Eskdale



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

18.0 APPENDIX A - HEAVY VEHICLES MASS RANGE FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

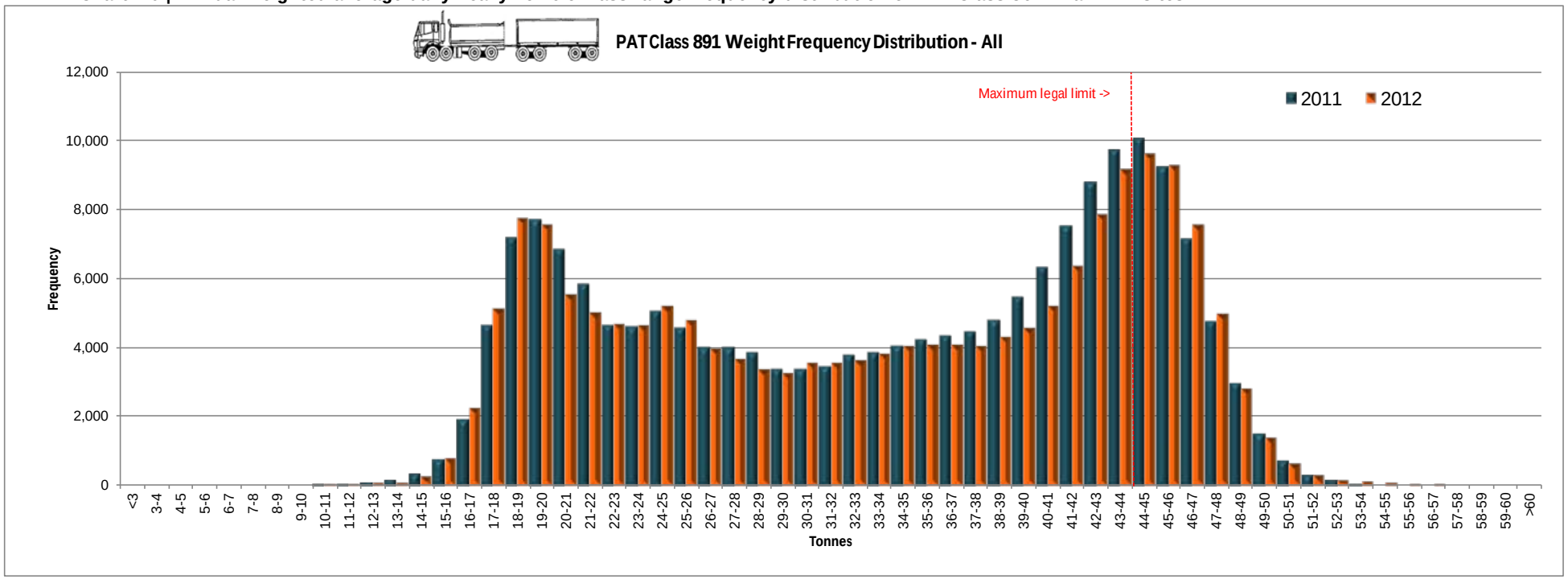
Chart 1.6 | Annual average daily heavy vehicle mass range frequency distribution at the Hamanatua Bridge



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS

Chart 2.0 | Annual weighted average daily heavy vehicle mass range frequency distribution of PAT Class 891 in all WiM sites

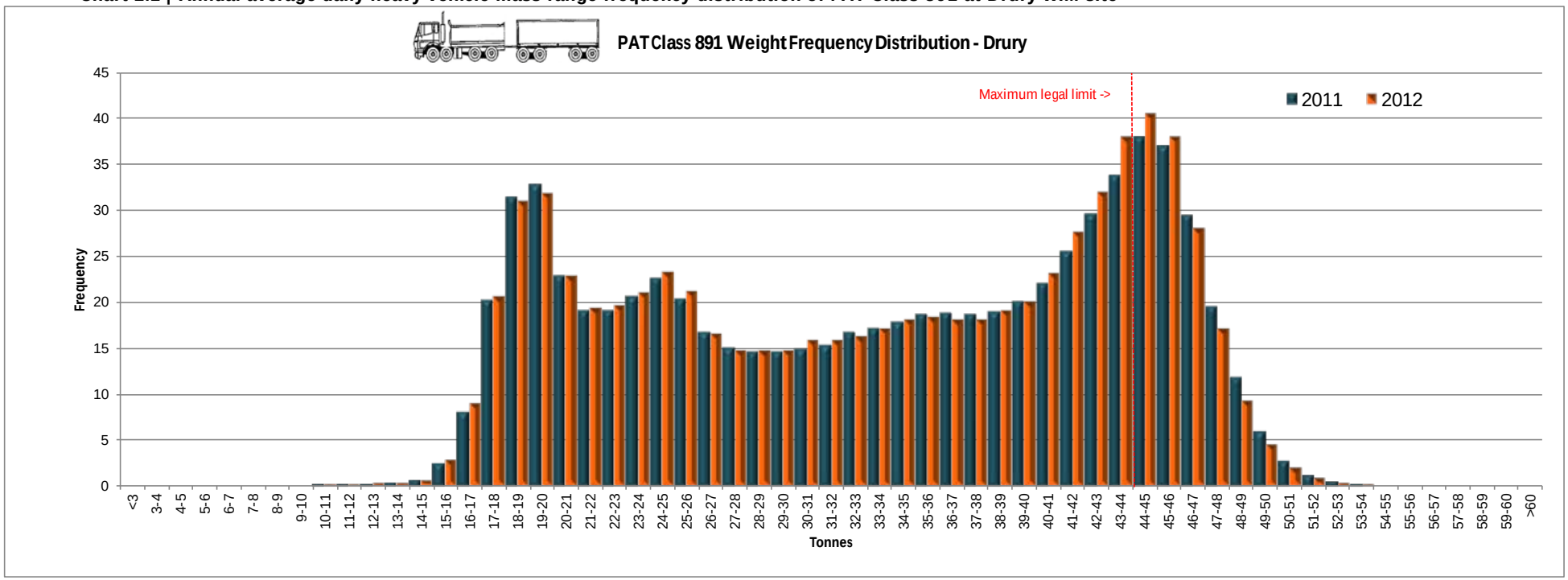


Interpretation: PAT class 891shows increases between the following bands: 15 to 19, 22 to 26, 30 to 32, 45 to 48 and 52 to 59.

Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

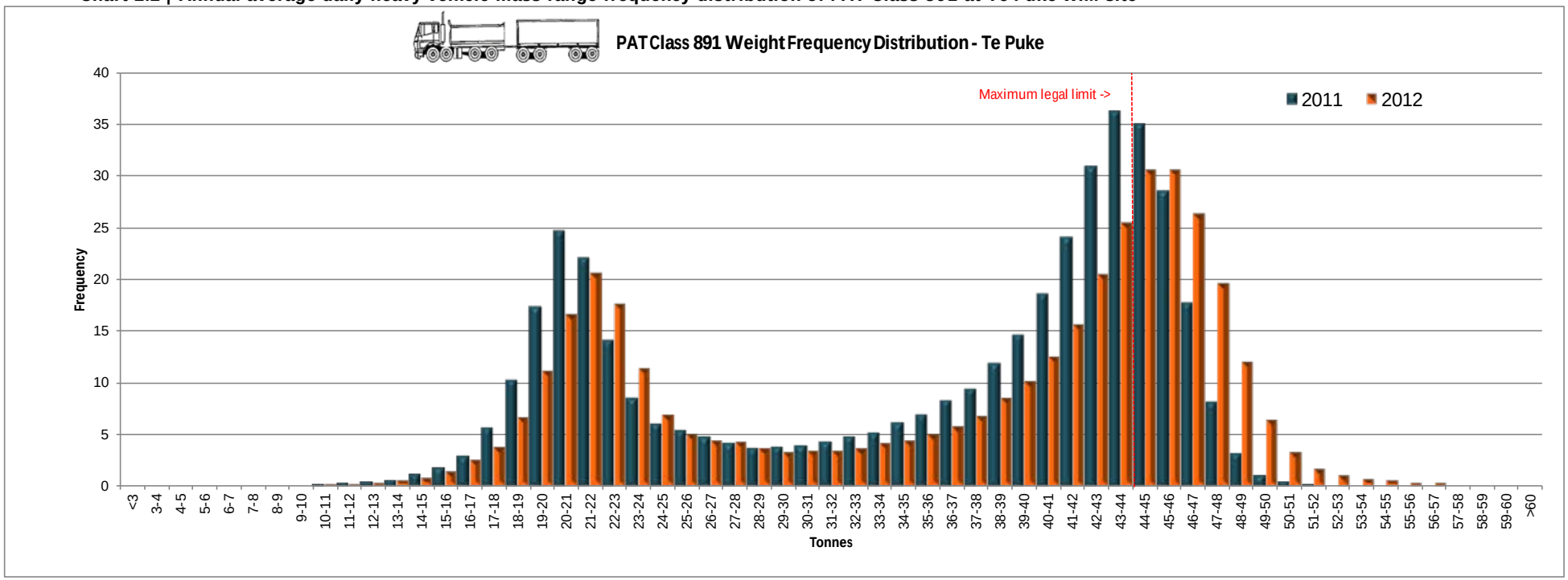
Chart 2.1 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Drury WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

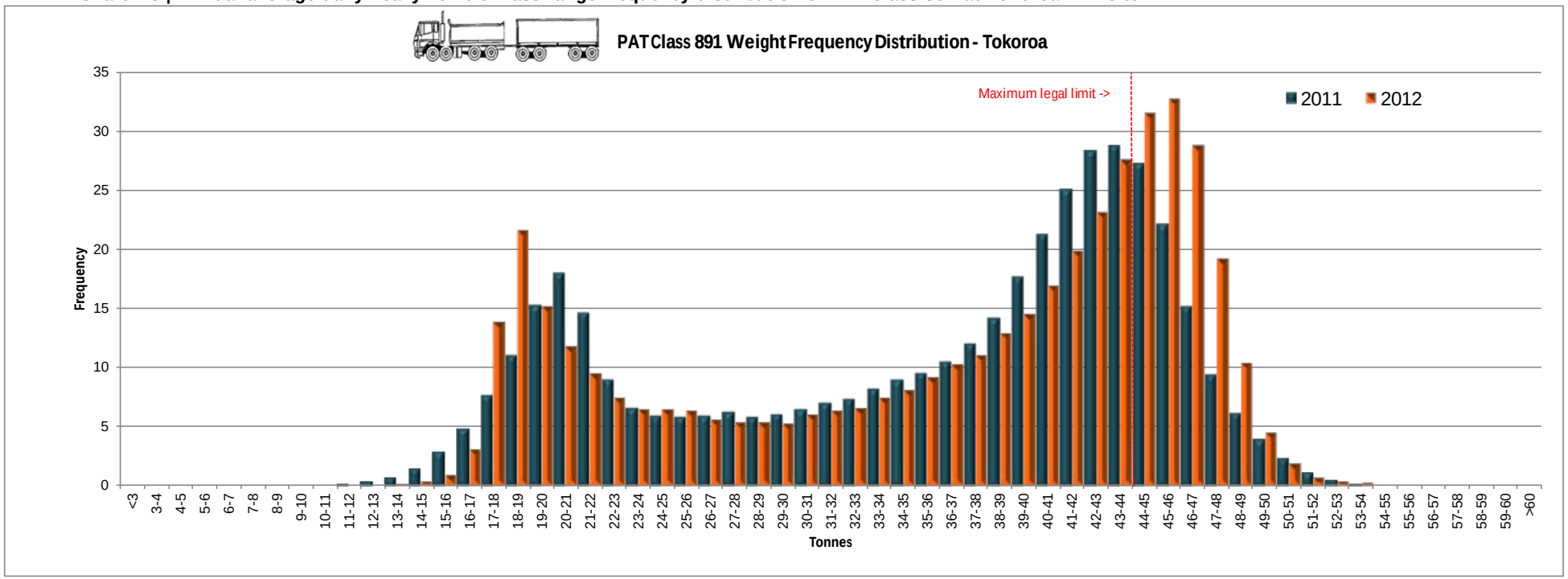
Chart 2.2 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Te Puke WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

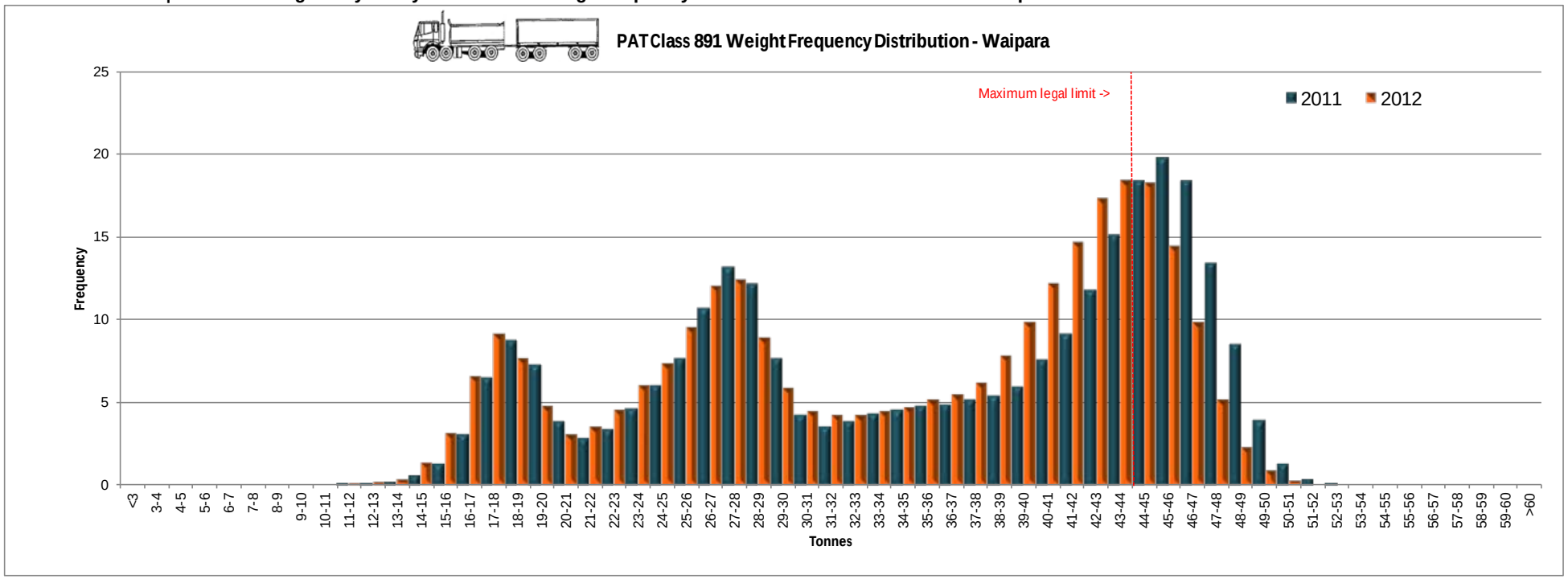
Chart 2.3 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Tokoroa WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

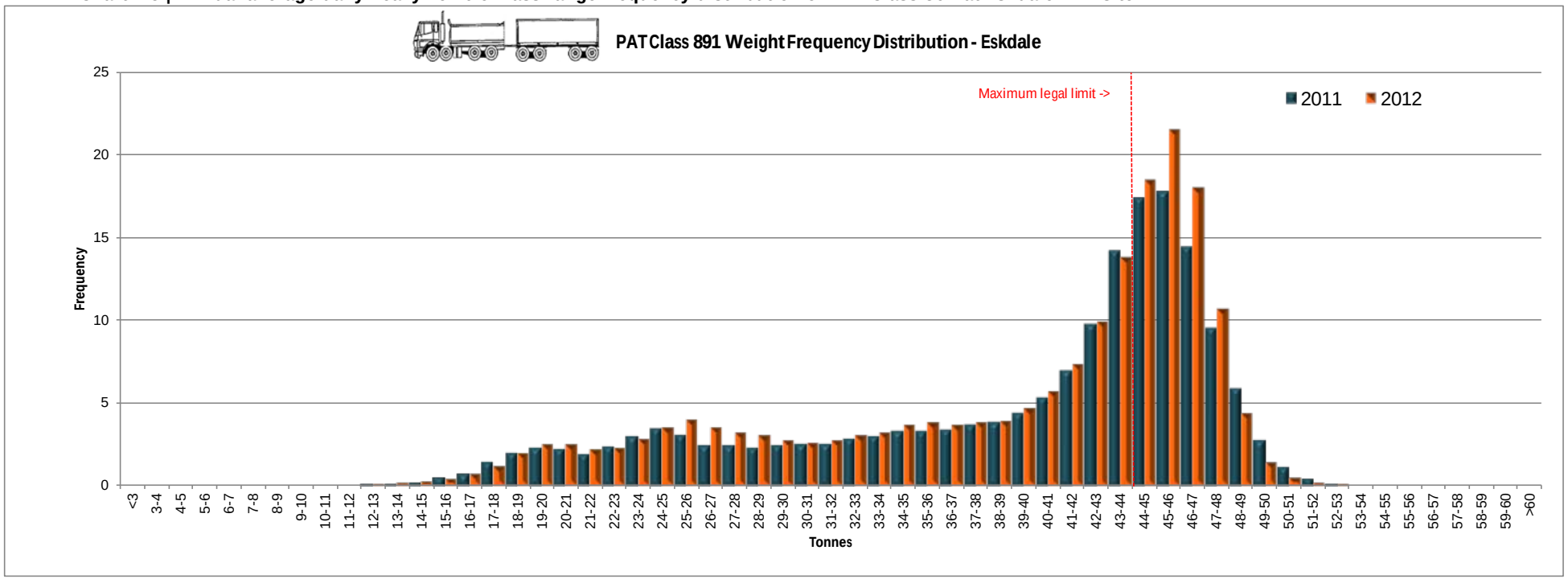
Chart 2.4 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Waipara WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

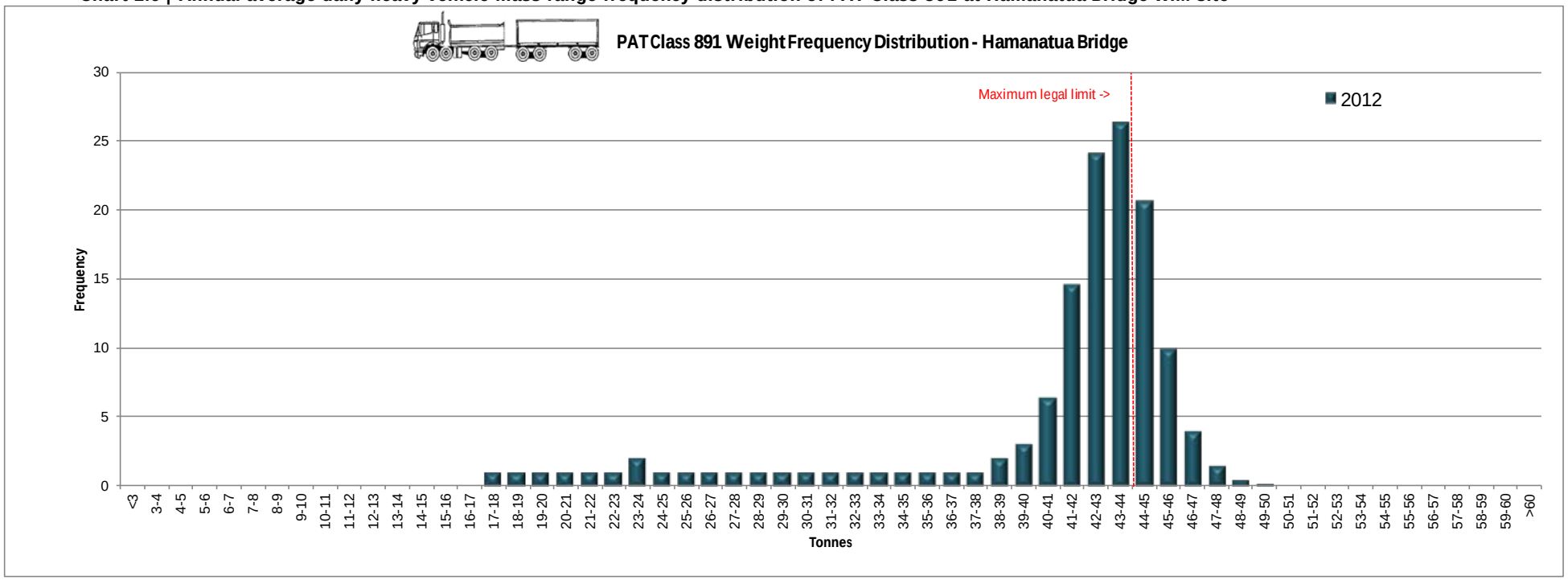
Chart 2.5 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Eskdale WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

19.0 APPENDIX B – PAT CLASS 891 MASS FREQUENCY DISTRIBUTION BY WiM SITE CHARTS (Continued)

Chart 2.6 | Annual average daily heavy vehicle mass range frequency distribution of PAT Class 891 at Hamanatua Bridge WiM site



Note: Maximum legal limit (VDAM) without HPMV or on overweight permits.

20.0 APPENDIX C - VEHICLE FLEET OVERWEIGHT CHARTS

The following charts depict the time of 24-hour distribution of the vehicle fleet deemed overweight at each site.

Chart 3.0 | All WiM Sites

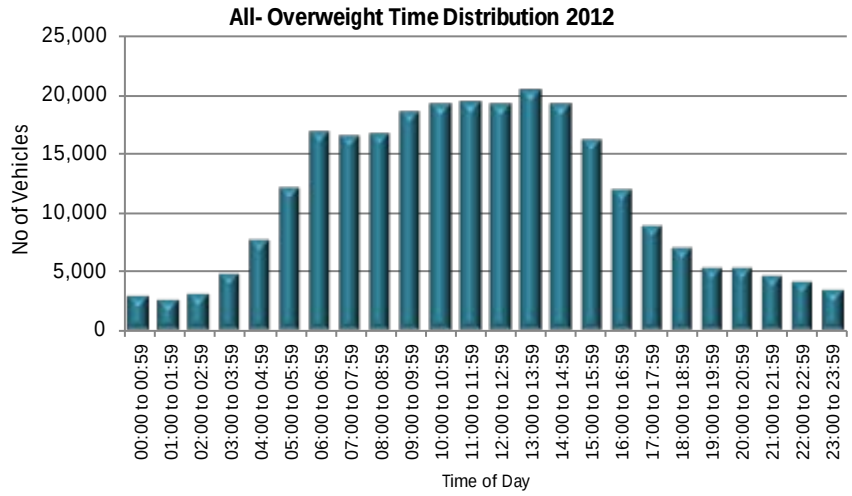


Chart 3.1 | Drury

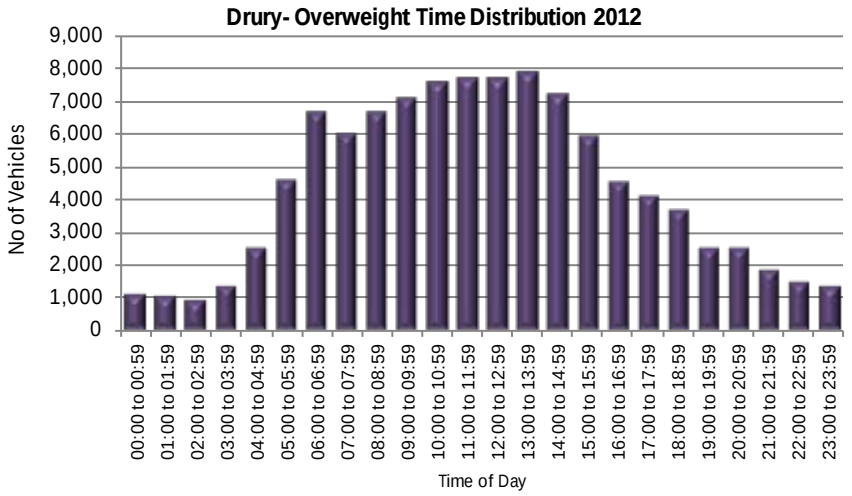


Chart 3.2 | Eskdale

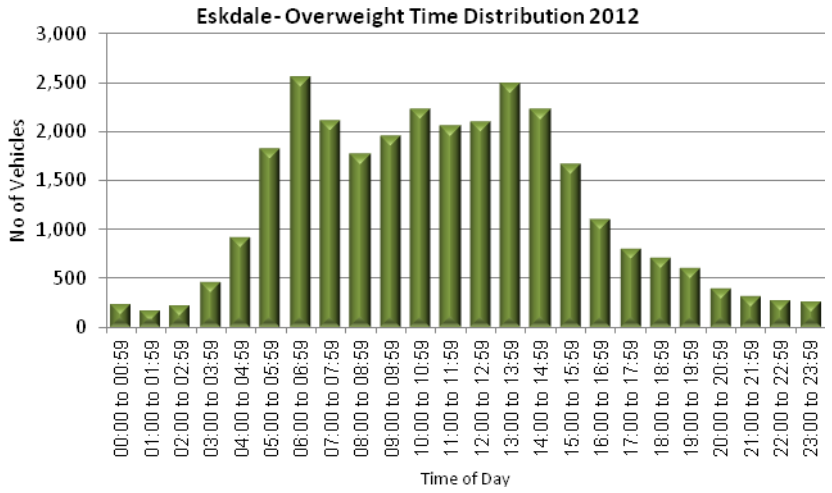
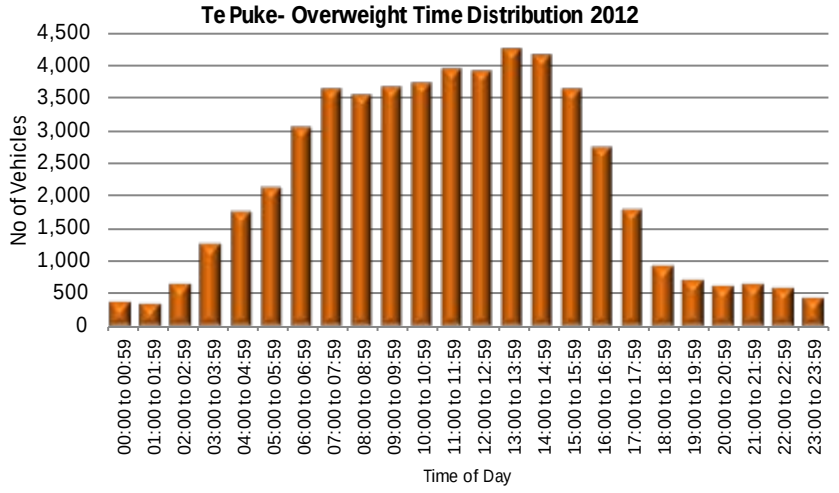


Chart 3.3 | Te Puke



20.0 APPENDIX C - VEHICLE FLEET OVERWEIGHT CHARTS (Continued)

Chart 3.4 | Tokoroa

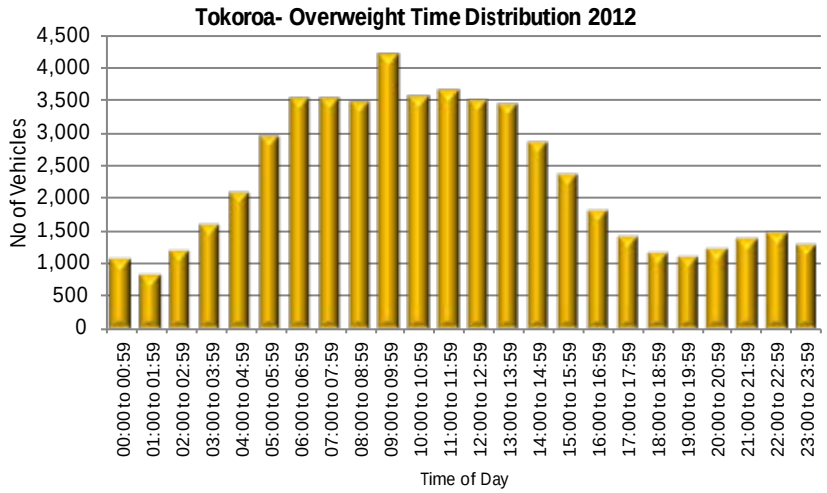


Chart 3.5 | Waipara

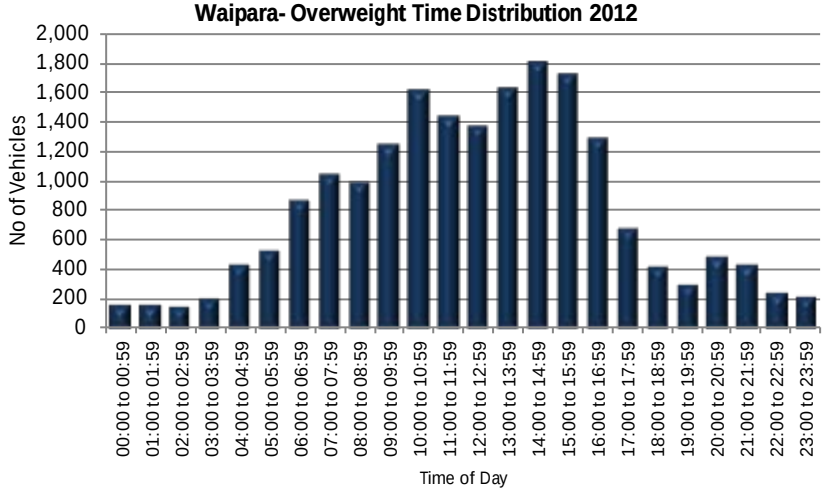
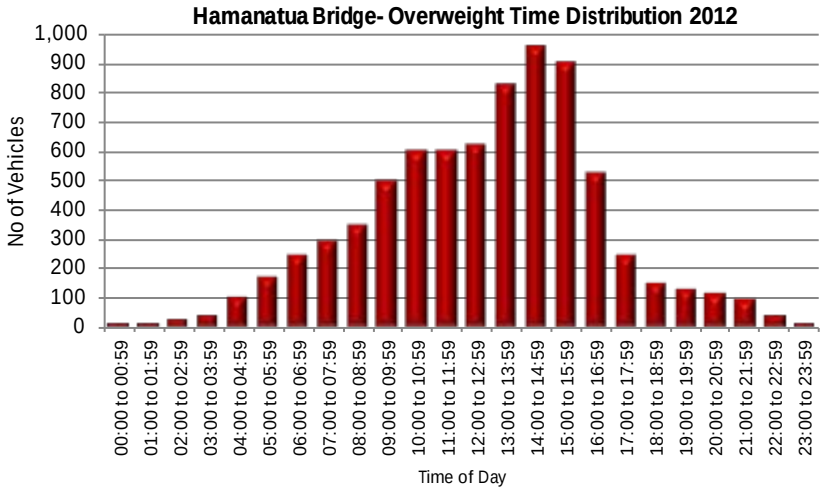


Chart 3.5 | Hamanatua Bridge



Interpretation: Drury WiM site reported two peaks in frequency/time distribution of overweight vehicles. The peaks occur at approximately between 06:00 - 06:59 and 13:00 - 13:59. The peak at Tokoroa may exist as a result of a long-haul delay from the peak in Drury.

21.0 APPENDIX D – PAT CLASS 891 OVERWEIGHT CHARTS

The charts below show the number of PAT class 891recorded as more than 48 Tonnes in 24-hour period at each site.

Chart 4.0 | All WiM sites

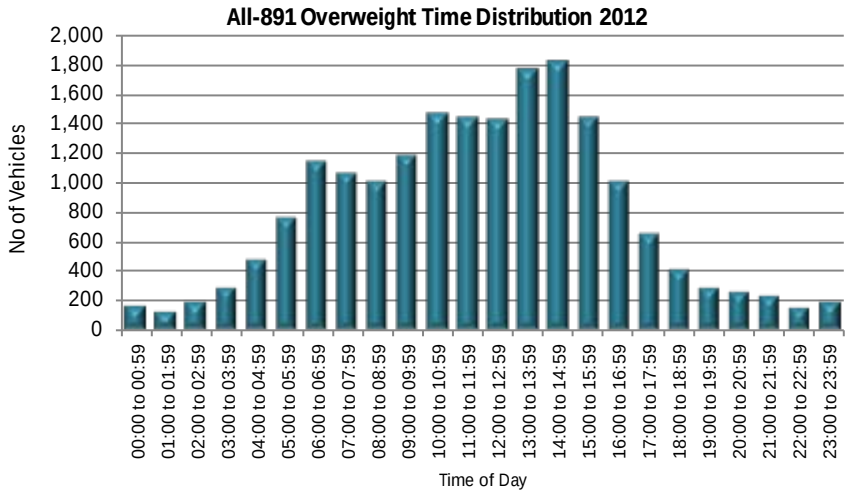


Chart 4.1 | Drury

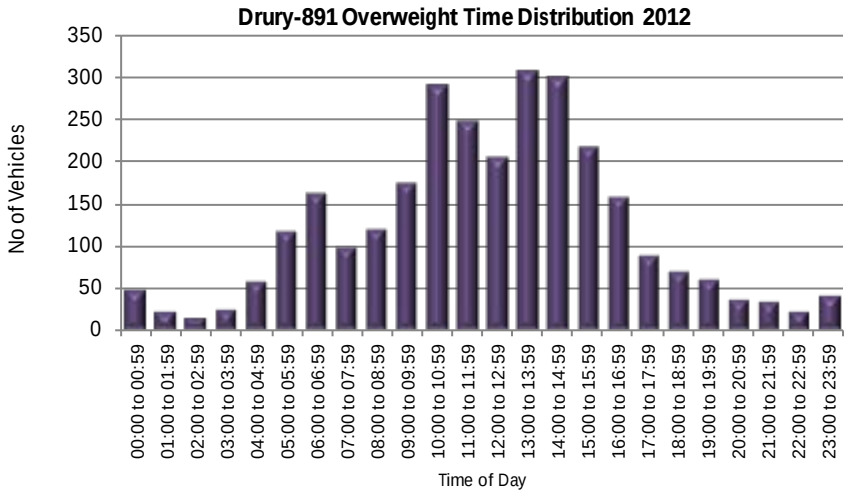


Chart 4.2 | Eskdale

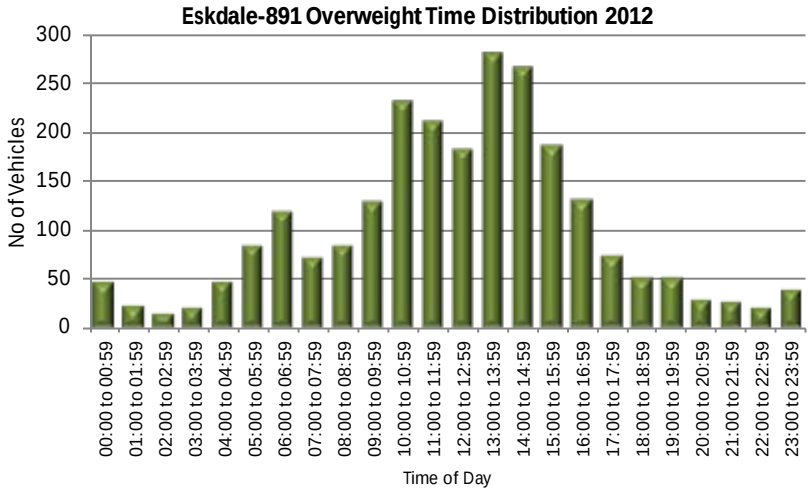
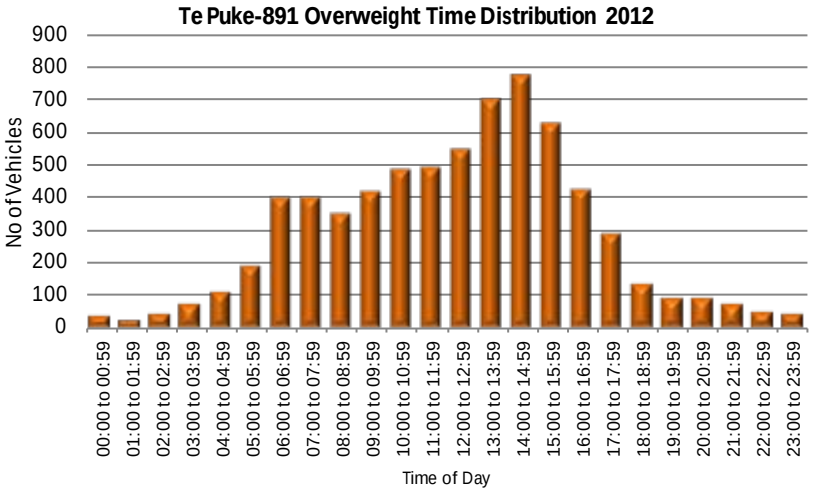


Chart 4.3 | Te Puke



21.0 APPENDIX D – PAT CLASS 891 OVERWEIGHT CHARTS (Continued)

Chart 4.4 | Tokoroa

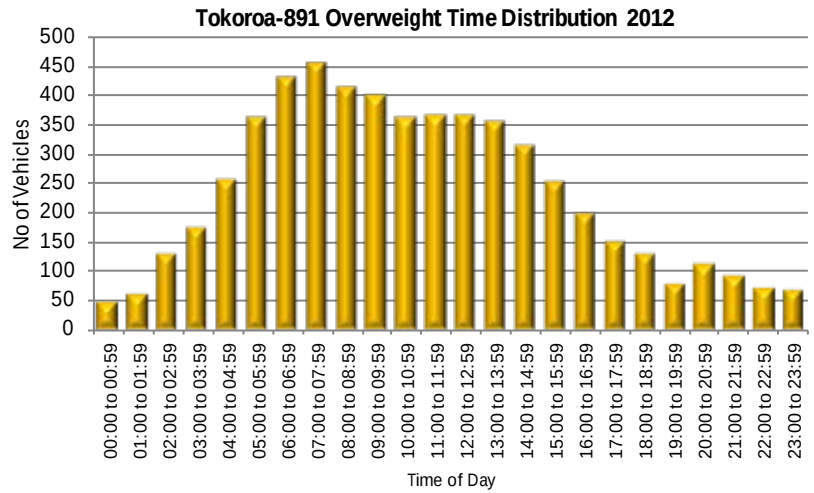


Chart 4.5 | Waipara

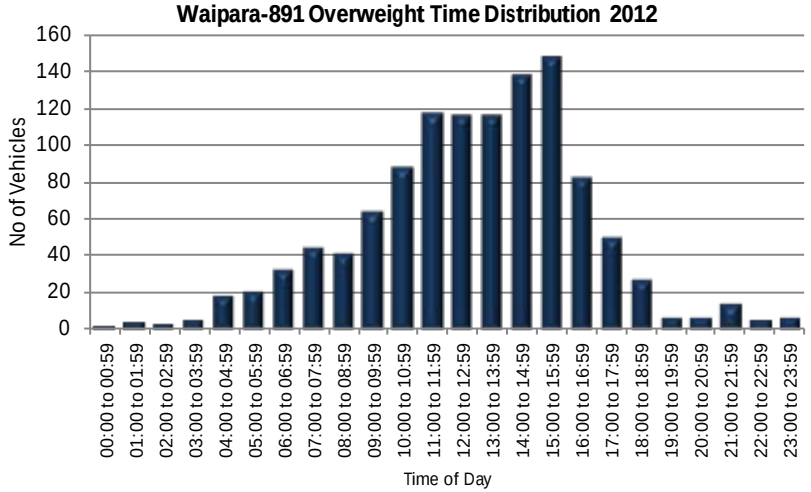
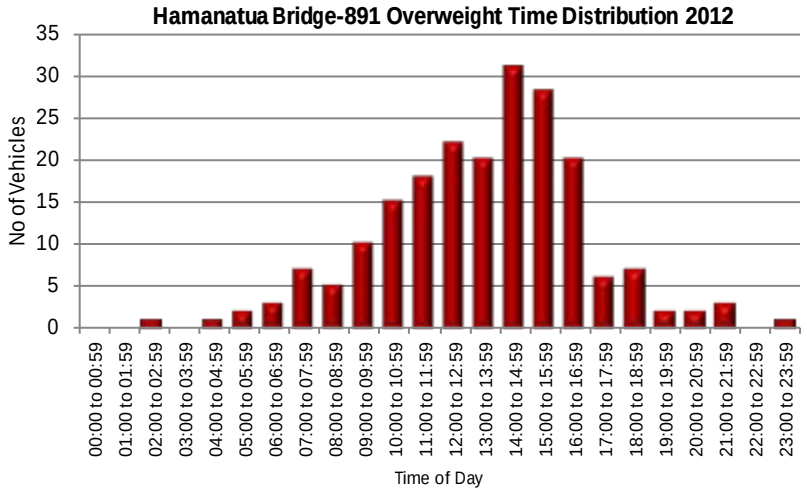


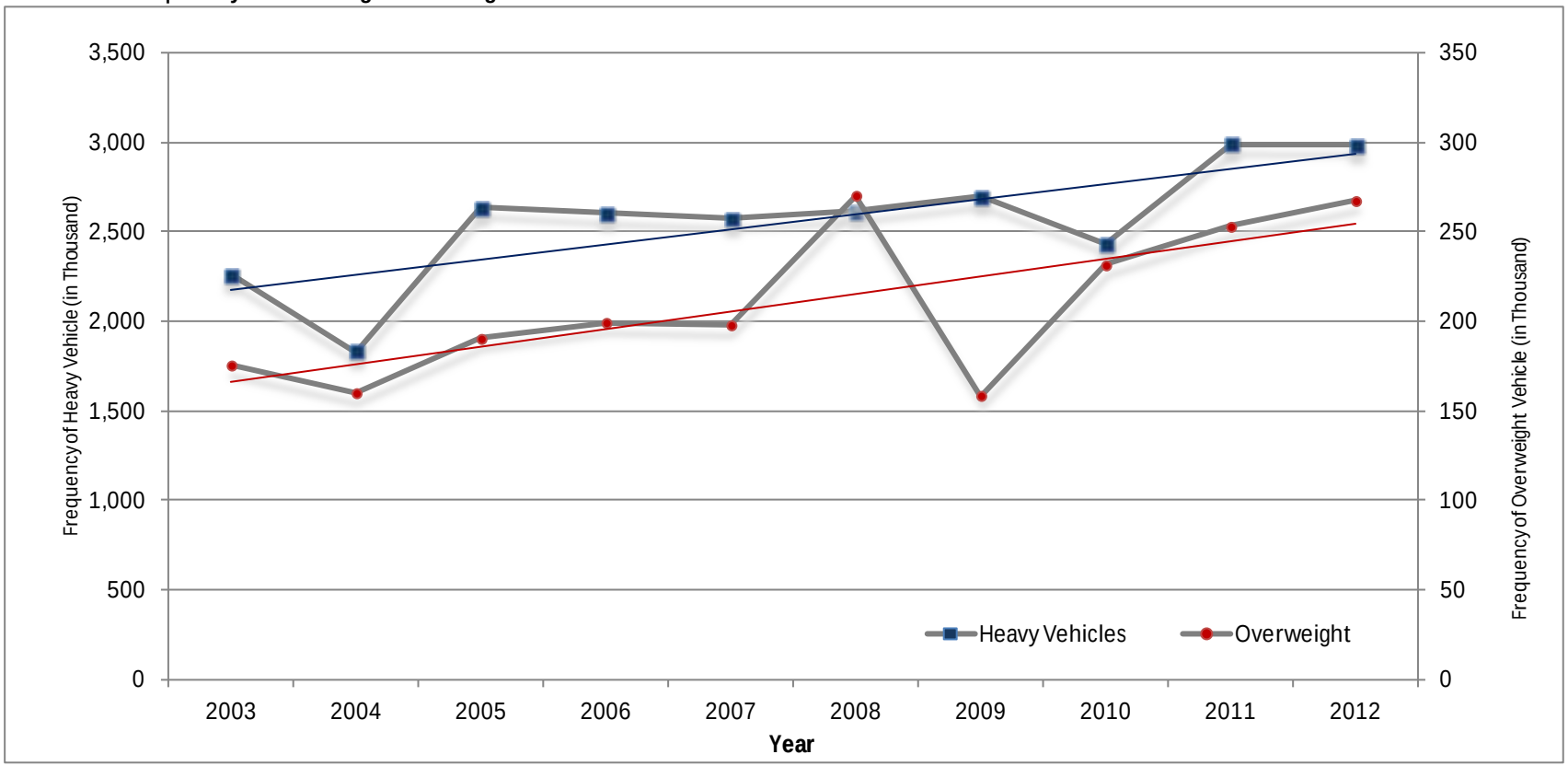
Chart 4.5 | Hamanatua Bridge



Interpretation: Most of WiM sites show that overweight PAT Class 891 recorded greater than equal to 48 Tonnes peak starts at 10 in the morning until 4pm except Tokoroa WiM Site which starts earlier.

22.0 APPENDIX E - HEAVY VEHICLES LOAD/OVERWEIGHT TRENDS

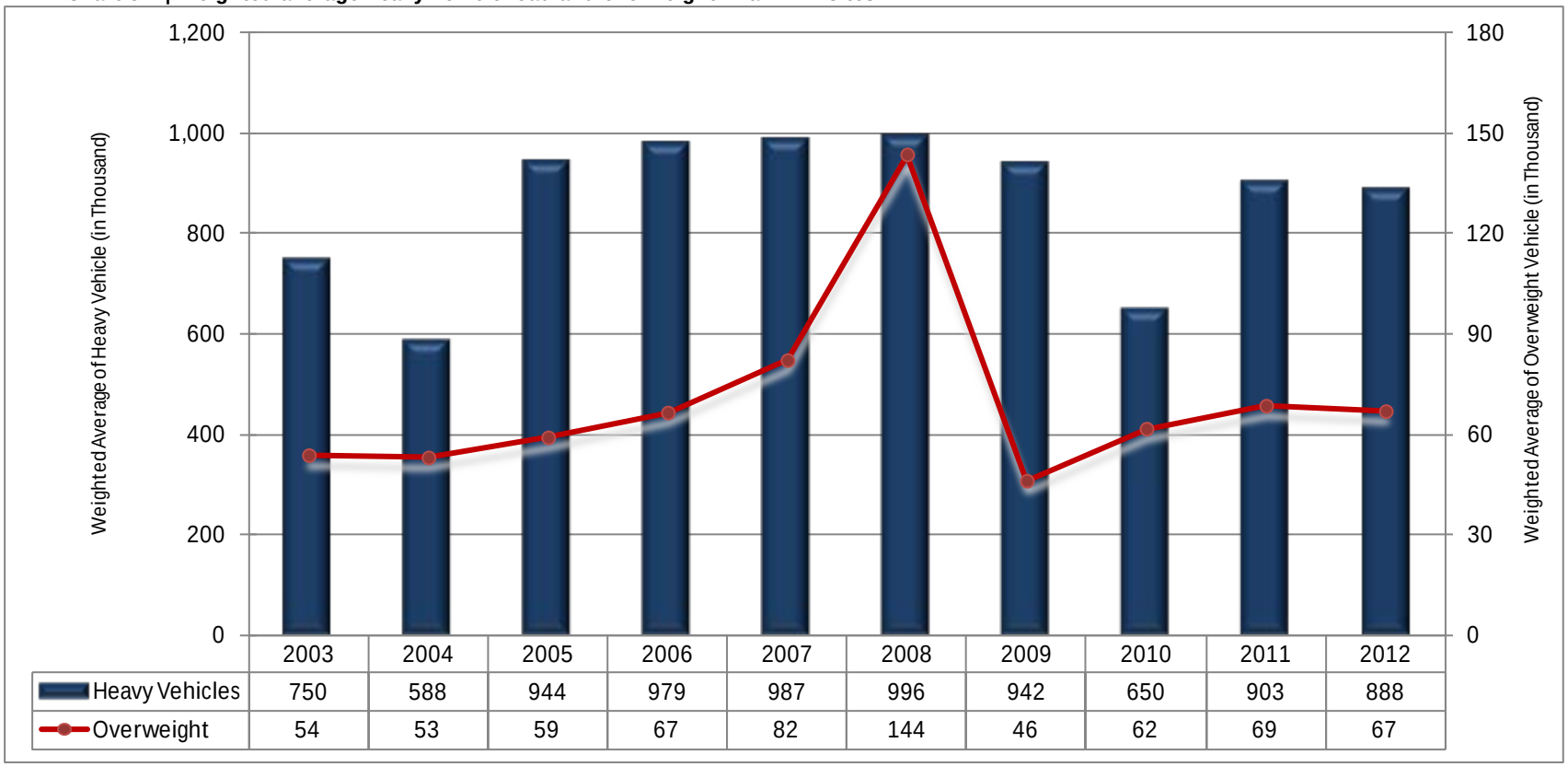
Chart 5.0 | Heavy vehicle weight/overweight trends in all WiM sites



Interpretation: In 2012, total heavy vehicles shows a slight decreased while overweight vehicles increased from the previous year. However, both also show increasing trends.

22.0 APPENDIX E - HEAVY VEHICLES LOAD / OVERWEIGHT TRENDS (Continued)

Chart 5.1 | Weighted average heavy vehicle load and overweight in all WiM sites

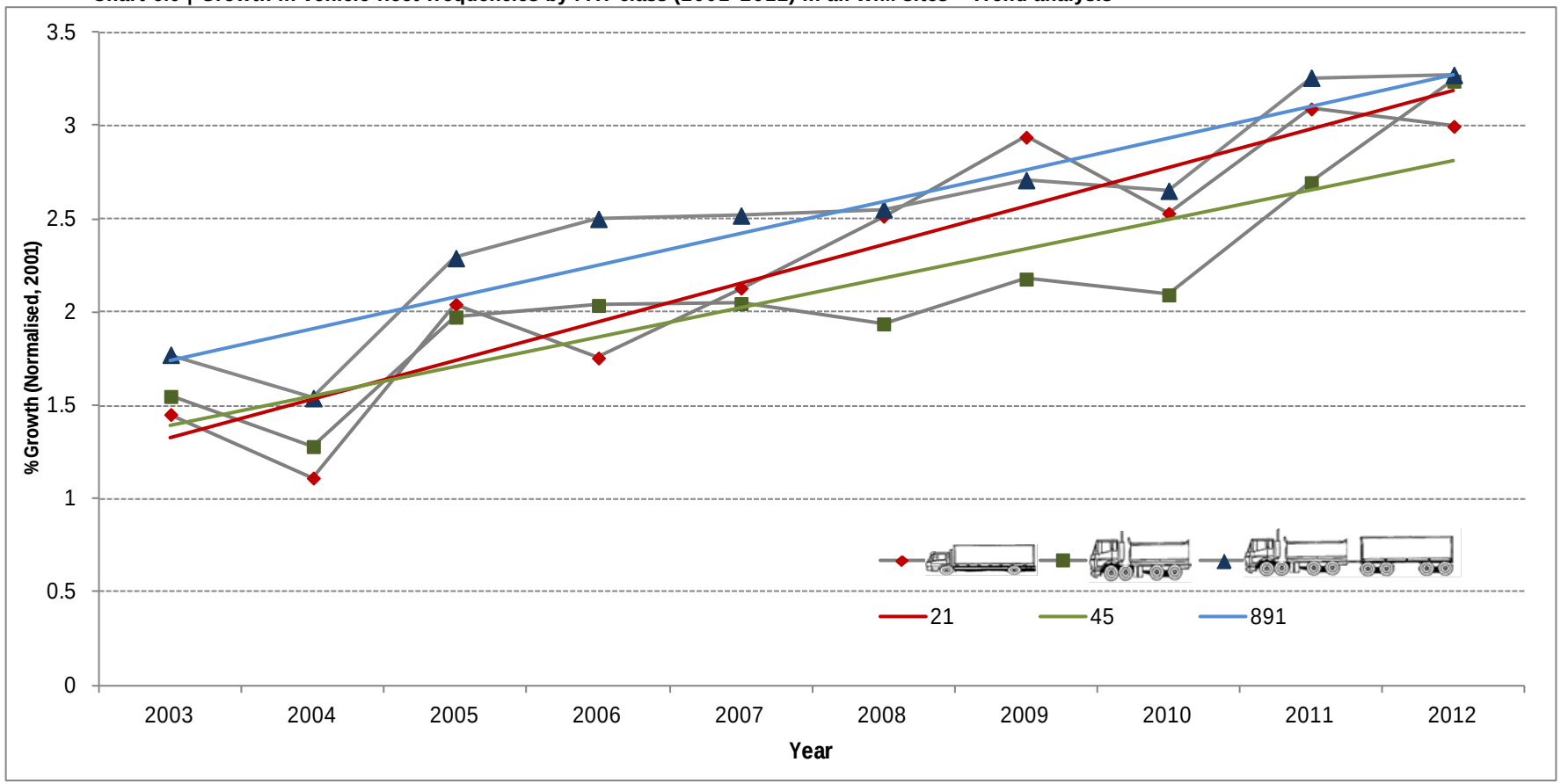


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Heavy Vehicles	750	588	944	979	987	996	942	650	903	888
Overweight	54	53	59	67	82	144	46	62	69	67

Note: The weighted average heavy and weighted overweight vehicles in all WiMs site in a given year.

23.0 APPENDIX F - VEHICLE FLEET TRENDS

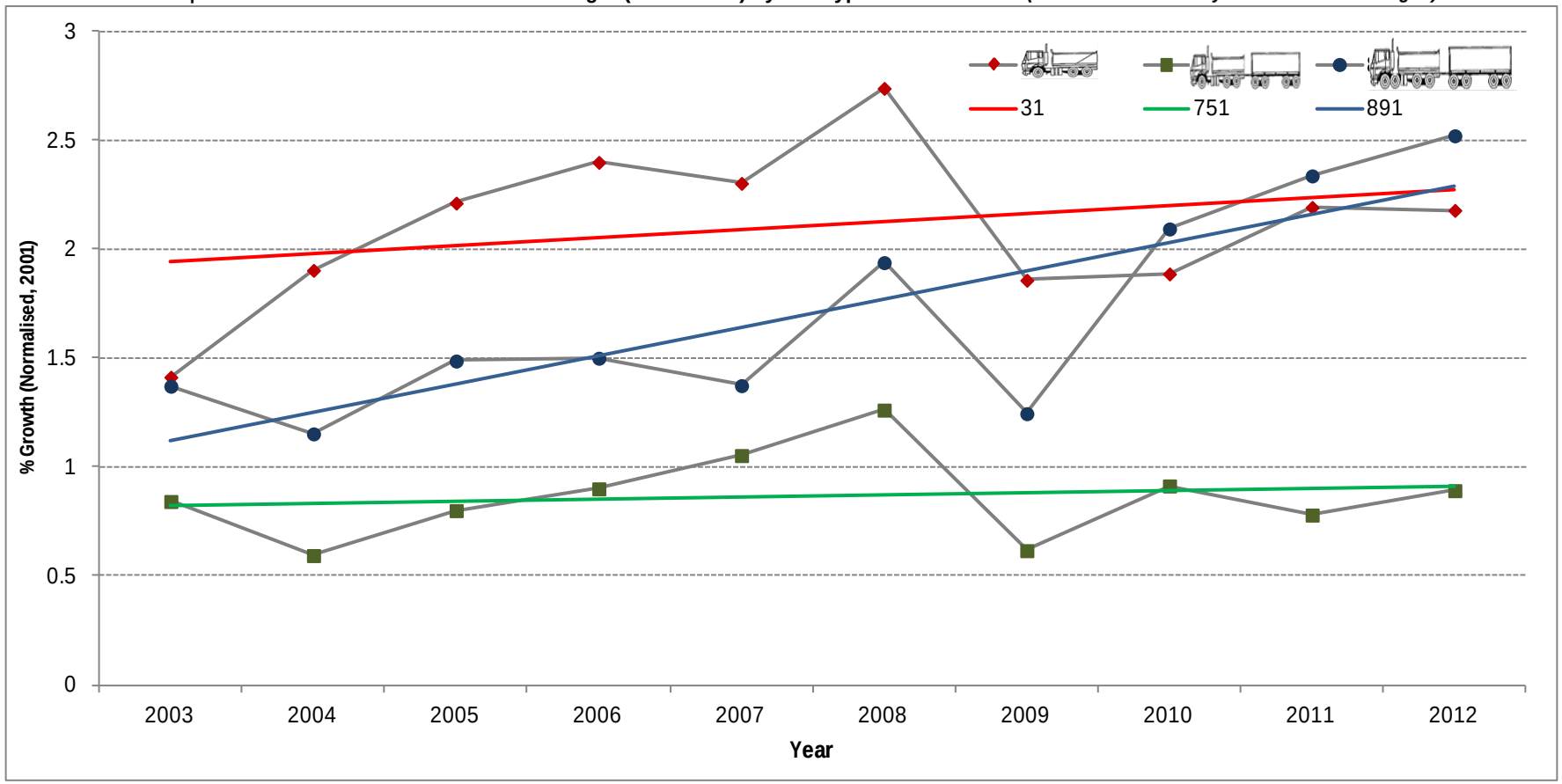
Chart 6.0 | Growth in vehicle fleet frequencies by PAT class (2001–2012) in all WiM sites – Trend analysis



Interpretation: The three most frequent PAT classes (891, 21, and 45) show an increasing trend in the long-term. However, PAT Classes 45 and 891 are picking from the dip in 2010 while PAT class 21 decreased from 2011.

24.0 APPENDIX G - VEHICLE FLEET OVERWEIGHT TRENDS

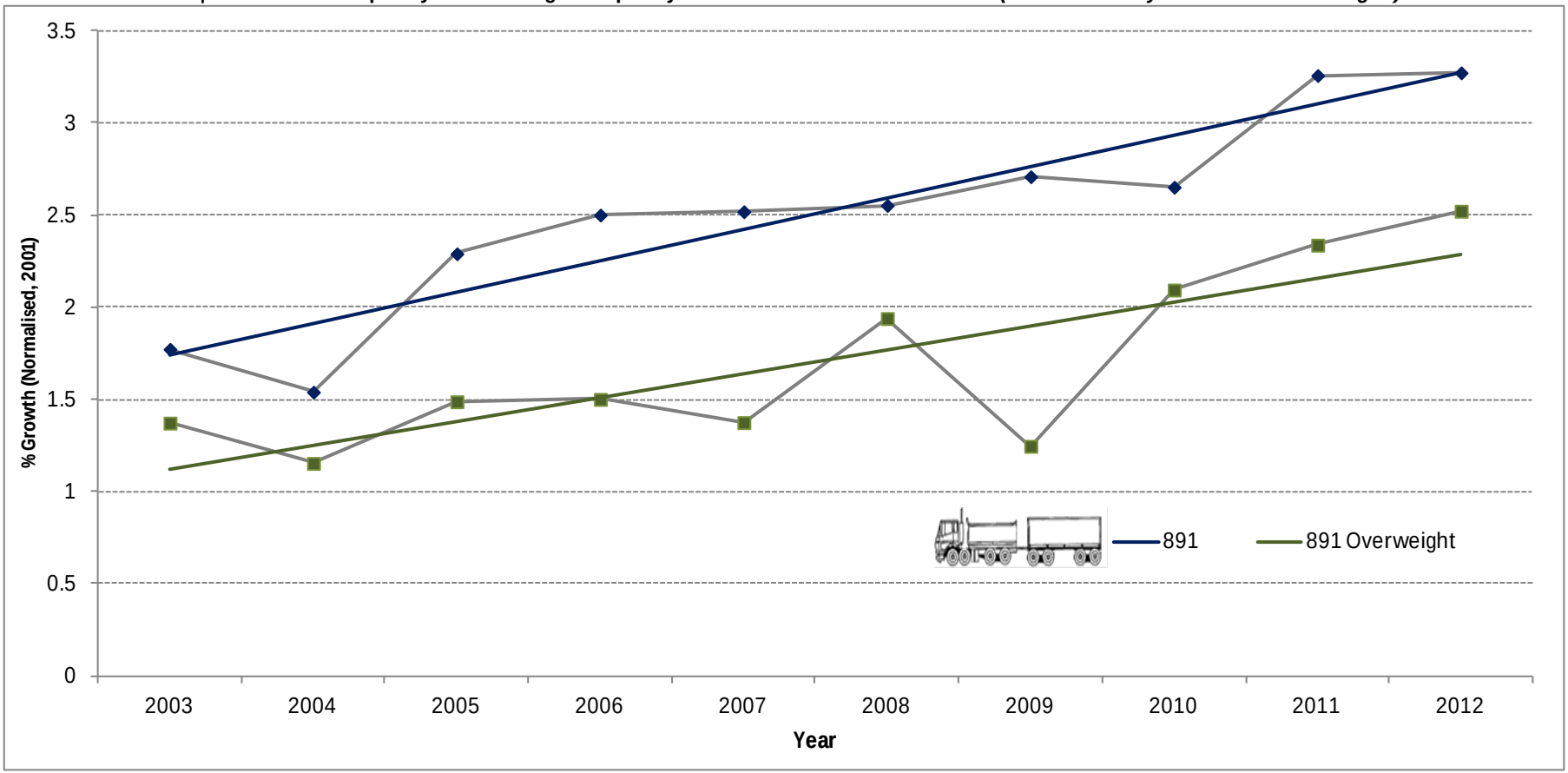
Chart 7.0 | Growth in vehicles recorded as overweight (2001–2012) by PAT type in all WiM sites ***(Three most commonly recorded as overweight.)***



Interpretation: PAT class 891 continues to report an increasing overweight trend; PAT class 751 illustrates a slightly flat trend; while PAT class 31 shows an increasing trend.

25.0 APPENDIX H - VEHICLE FLEET FREQUENCY vs OVERWEIGHT CHARTS

Chart 8.0 | Vehicle load frequency vs. overweight frequency of PAT class 891 in all WiM sites *(Most commonly recorded as overweight.)*



Interpretation: There exists a possible positive correlation between the frequency of heavy vehicles and the frequency of heavy vehicles overweight. The two plots both indicate a long term increasing trend from 2003 – 2012.

25.0 VEHICLE FLEET FREQUENCY vs OVERWEIGHT CHARTS (Continued)

Chart 8.1 | Vehicle load frequency vs. overweight frequency PAT class 751 in all WiM sites

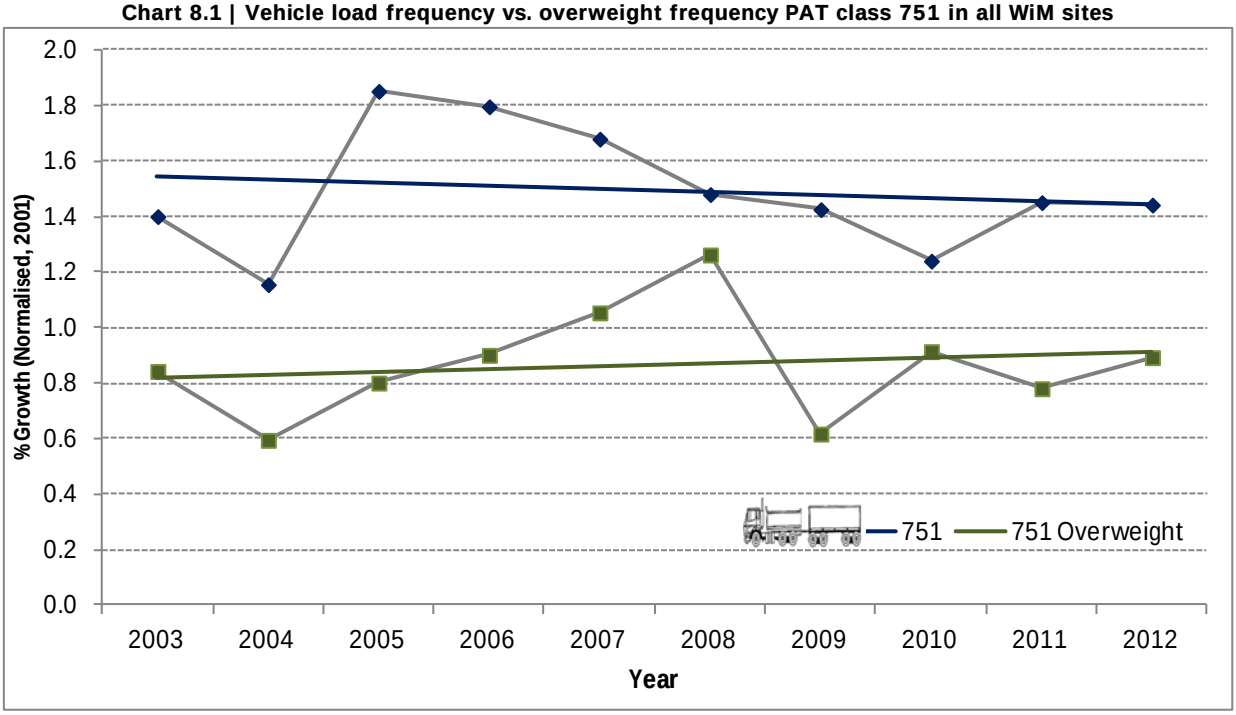


Chart 8.2 | Vehicle load frequency vs. overweight frequency PAT class 851 in all WiM site