NATIONAL TRAFFIC DATABASE

2. QUALITY PLAN

Transit New Zealand Research Report No. 54B

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CONTENTS

GLOSSARY & ABBREVIATIONS

AADT	Annual Average Daily Traffic volume on a road section, generally the result of an estimate, and sometimes the result of an actual count, using tube counters.
ADT	Average Daily Traffic volume on a road section, a measure that is not based on a year of data.
ARCHER	A type of portable traffic counter, giving data which enable distinction between vehicle classes.
ASCII	The American Standard Character set: numbers and characters which are able to be read on a computer screen using standard DOS commands, and are not dependent on software for translation.
AUSTROADS	Association of Road Transport and Traffic Authorities in Australasia, the successor to NAASRA.
CBD	Central Business District.
CVIU	Commercial Vehicle Investigation Unit of the New Zealand Police, who are tasked with enforcement of heavy vehicle standards and laden weights.
DKW	A system of vehicle classification, based on the AUSTROADS system, and modified by DK Wanty, Transit New Zealand, to accommodate the New Zealand vehicle fleet.
EDA	Equivalent Design Axle: this is an axle carrying 8.2 tonnes on two sets of dual tyres.
ESAL	Equivalent Standard Axle: this is an axle carrying 8.2 tonnes on two sets of dual tyres, but of slightly different wheel spacings and tyre-road contact area than an Equivalent Design Axle.
Field Name	Name used for a field in database tables, designated by italics using an initial capital, e.g. *Dkw_c* identifies DKW Class.
HVADT	Heavy Vehicle Average Daily Traffic.
LOM	Lead Operations Manager, National Traffic Database project team.
NAASRA	National Association of Australian State Roads Authorities (now operating as AUSTROADS).
NTDB	National Traffic Database: a collection of data about traffic flows and vehicles using New Zealand roads. It contains selected fields from a Working Spreadsheet, plus the statistically averaged estimates of vehicle classification and vehicle weight distribution.

OM	Operations Manager, National Traffic Database project team.
PAT	A system of measuring and classifying vehicles, based on axle spacings. (From its manufacturer's name, Pietzsch Automatisierungstechnik.)
PAT DAW	Weigh-in-motion instruments used on some state highways in New Zealand to weigh and classify vehicles. (PAT - see above, DAW from its trade name, Dynamische Achslastwaage.)
POM	Project Operations Manager, National Traffic Database project team.
RAMM	Road Assessment and Maintenance Management System: the computer-based databases of road sections and conditions, developed and maintained by each RCA.
RCA	Road Controlling Authority, which is Transit New Zealand in the case of state highways, and a Territorial Authority in the case of local roads.
Region	A Regional Council region within New Zealand. There are 14.
Roadgroup	The grouping of roads corresponding to those determined and published in "Traffic Count Guideline" (TNZ 1994) .
Road section	A length of public road identified by its location that is described in each line of the RAMM database.
Road use category	A classification system for identifying the main use of a road section. Description is based on the daily pattern of traffic volumes using the road.
RUC	Road User Charge: the system of charges made by the Ministry of Transport on all diesel powered heavy vehicles, using the New Zealand road network. It depends on their axle configuration and the total weight, as well as distance travelled.
SOM	Survey Operations Manager, National Traffic Database project team.
TA	Territorial Authority: the body given jurisdiction over local roads in respective territorial districts.
TNZ	Transit New Zealand: the body given jurisdiction over state highways in New Zealand.
VDAS	A type of portable traffic counter, giving data which enable distinction between vehicle classes.
Vehicle Classification	A system for describing a vehicle, usually in terms of length and/or axle number/configuration. The processing of "binning" vehicles into appropriate classes is able to be done using instruments with pairs of counter tubes.

VKT — Vehicle Kilometres Travelled.

WCSL — Works Consultancy Services Ltd, New Zealand: consultant undertaking the research for this project.

WIM — A system for Weigh-In-Motion of vehicles - the weight of each vehicle passing at highway speeds over the WIM detector is estimated and recorded. Data from three permanent WIM sites in New Zealand (at Drury, Pukerua Bay and Waipara) have been interrogated for the NTDB.

Working Spreadsheet — The LOTUS spreadsheet developed for each RCA, consisting of an expansion of the RAMM descriptive inventory and vehicle volume tables. The Working Spreadsheet contains basic classification survey information on a site by site basis, as well as the factors used to improve the ADT values.

EXECUTIVE SUMMARY

1. The National Traffic Database

The National Traffic Database (NTDB) is a system for storing traffic data, including traffic volume, vehicle class and vehicle weight, collected from each of approximately 120,000 sections of public roads (i.e. the state highway and local road network) in New Zealand. It incorporates data collected by each Road Controlling Authority (RCA), i.e. by Transit New Zealand (TNZ) Regional Offices for state highways and by each Territorial Authority (TA) for local roads. The road sections are the divisions of the network used as basic units for the inventories held in the RAMM (Road Assessment and Maintenance Management system) database by each RCA.

As far as can be ascertained from international literature, such a compilation of traffic data has not been made elsewhere in the world.

2. Objective of Project

This project, begun in 1994, has the objective of establishing a database recording where travel is occurring on New Zealand public roads, measured in terms of Annual Average Daily Traffic (AADT), traffic composition and weights of heavy vehicles required to pay Road User Charges (RUC).

3. Structure of Project

The project is reported in three parts:

- National Traffic Database. Content and Operation of Database.
  Transit New Zealand Research Report No.53.
- National Traffic Database. 1. Research Report:
  Transit New Zealand Research Report No. 54A.
- National Traffic Database. 2. Quality Plan:
  Transit New Zealand Research Report No. 54B (this report).

This report, *2. Quality Plan,* contains the instructions for the teams contributing to the construction of the National Traffic Database.

The NTDB was developed by bringing traffic count data to a common base of AADT as at June 1994 for every road section. Distributions of heavy vehicle classes associated with each road use category (a description of the main function[1] of the road section) were obtained from field surveys. Vehicle weight distributions for heavy vehicle classes were obtained from field surveys and from weigh-in-motion (WIM) data.

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1 For example *urban residential, rural arterial,* etc.

A Pilot Study (Stage 1 of this project) was carried out in Regions 5 and 6 (Gisborne and Hawke's Bay) to test the proposed methodology. This task was completed in September 1994, and then the Quality Plan was refined.

The Quality Plan describes the operations planned and executed during Stage 3, by all parties involved in assembling the NTDB, including Work Instructions for implementing respective tasks. It should be noted that, while detailed, the instructions do not include listings of software used for the data manipulation and analysis operations. It is an extension of the methodology produced for the Pilot Study for applying to the remainder of the public road network.

Working Spreadsheets were developed from selected fields of the RAMM database held by each RCA. Assembly of this information and its subsequent enhancement involved the co-operation of 73 TAs and 7 TNZ Regional Offices. The compilation has highlighted a lack of inventory information in some TAs, particularly that about unsealed roads. In order to obtain a nationally complete database, data for some of these sections have been estimated and judgment has been exercised.

4. Structure of the National Traffic Database

The NTDB consists of three data files in DBase format:

- *Road section data (NTDB.DBF),* which are the data on each road section, including length, road use category, and AADT.

- *Vehicle classification distribution data (VEHPROP.DBF),* which describe the proportions of AADT in each of 15 classes of light or heavy vehicles. (Currently a separate distribution is made for each road use category.)

- *Vehicle weight distribution data (WGTDIST.DBF),* which describe the vehicle weight distribution for each vehicle class to assist in generating synthetic vehicle weight data. (Distributions depend not only on the particular vehicle class, but also on the road use category, and RCA.)

The availability of the NTDB will lead to

- Accurate information on vehicle volume demand on all RAMM road sections at a common period in time (currently June 1994),

- An estimate of vehicle kilometres and heavy vehicle kilometres for road use categories within RCAs,

- The basic information needed for making comparison of average ESALs (Equivalent Design Axle) per year between RCAs at a network level or at road use category level.

The following table summarises estimates that are possible to obtain from the NTDB, as well as the recommended levels for the operations.

While summary information can be calculated reliably when several road sections are aggregated, the lack of precision of estimate of heavy vehicle distribution at present does not permit meaningful conclusions to be drawn when only a few road sections are involved in the calculation.

Estimates that can be obtained from the NTDB, and recommended levels of operation.

Estimate of daily/yearly total for:	**Recommended levels of operation***
Vehicle kilometres travelled	N, R, TA
Tonne-kilometres travelled	N, R, TA
Vehicle kilometres by vehicle class	N, R, TA
Tonne-kilometres by vehicle class	N, R, TA
Vehicle kilometres by road use category	N, R, TA
Tonne-kilometres by road use category	N, R
Vehicle kilometres by vehicle class by road use category	N, R
Tonne-kilometres by vehicle class by road use category	N, R

* N = National level, R = Regional level, TA = Territorial Authority level

5. Vehicle Classification System, Road Use Category, Vehicle Weight Distribution

The *vehicle classification system* used in this project was developed by TNZ (by DK Wanty). It is called the DKW system and is an adaptation of the AUSTROADS system, and divides the vehicle fleet into 15 classes, of which 12 are heavy vehicles.

Road use categories, used for classifying the road sections, have been derived from a separate Transit New Zealand Research Project PR3-0025 (in prep.). The distribution of vehicle classes obtained from field classification surveys differs between the nine road use categories.

An estimate of *distribution of weight* for each class of heavy vehicle was made using data from three WIM sites (Drury, Pukerua Bay, Waipara), as well as from specially designed field surveys executed by the Police Commercial Vehicle Investigation Unit (CVIU).

6. Verification of the National Traffic Database

The integrity of the NTDB was checked by computing values and comparing outputs with independent sources. The following table lists items chosen for comparison between predictions obtained from the NTDB and from independent data.

Comparison of predictions obtained from the NTDB and from independent data.

Item compared	Precision of prediction calculated from NTDB compared with independent data
Petrol consumption	91% of sales for domestic transport and resellers
Diesel consumption	59% to 102% of sales, depending on amounts sold to public transport by domestic transport and resellers
Heavy vehicle kilometres travelled	60% of distance of RUC licences purchased
Heavy vehicle tonne-kilometres	79% of result recorded in independent database
Road User Charges	57% of annual national revenue

7. Improvements and Maintenance of the National Traffic Database

Because of budget and time constraints, surveys were carried out at only five of the randomly selected forty[2] sites in each RCA. Currently, the NTDB can nevertheless be used to generate meaningful comparisons between road use categories on a national basis or between RCAs. To improve the accuracy and usefulness of the NTDB, the additional classification surveys that have already been designed need to be completed. The improved NTDB could then be used to provide meaningful comparisons between smaller aggregations of road sections.

In the longer term, an ongoing programme of importing current RAMM data, including vehicle volume information to replace superseded information, as well as a programme of vehicle classification and vehicle weight surveys, should be implemented to maintain the currency of the NTDB.

8. Summary

The National Traffic Database is able to provide estimates of basic traffic information, including total volume, vehicle class and weight data, for the network of public roads in New Zealand, both state highways and local roads.

The methodology which has been developed and applied has produced a NTDB that includes for each RAMM road section:

- The best available estimate of AADT,
- Categorisation of each road section by use,
- A distribution of heavy vehicle classes (by DKW system) as a proportion of AADT for each road use category,
- Distribution of heavy vehicle gross weight by road use category and by geographic locality.

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2 The exact number of selected sites necessary to achieve the target level of precision varied between RCAs, depending on the distribution of AADT between road sections, but was around forty in general.

Arising from this methodology is the basis for systematic upgrade of the NTDB, including:

- A pre-defined sampling plan (by RCA),
- Estimates of reliability of the data.

From the NTDB, estimates can be made for daily, yearly totals and average values for

- Total and heavy vehicle volumes,
- Total and heavy vehicle kilometres,
- Tonne-kilometres,
- ESAL-kilometres,
- RUC revenue,

at national and regional levels. Further subdivision of some of these outputs is possible at an RCA level, as well as by vehicle class and road use category.

The NTDB has internal consistency of measurements on a nationwide basis for traffic volumes. A prepared programme of vehicle classification surveys needs to be completed to improve the precision of the estimate of distribution of heavy vehicles. Regular updating of the NTDB is also required to ensure that it reflects changes in road networks, and changes in the nature of traffic, such as in vehicle classes, weights, and travelled road sections.

ABSTRACT

The National Traffic Database (NTDB) is a system for storing traffic data on each of approximately 120,000 sections of the New Zealand public road network (state highways and local roads). It incorporates data collected by each Road Controlling Authority (RCA), i.e. by Transit New Zealand Regional Offices for state highways and by each Territorial Authority (TA) for local roads. The road sections are as defined in the RAMM (Road Assessment and Maintenance Management system) databases of each RCA.

It describes the relative traffic demand on New Zealand public roads, in terms of traffic volume (i.e. Annual Average Daily Traffic or AADT), traffic composition by vehicle class and by vehicle weight. Such a compilation of these data does not appear to have been made elsewhere in the world.

The availability of a National Traffic Database will provide:

- accurate information on vehicular travel,
- comparative information for traffic demand both in terms of volume and of ESALs (Equivalent Standard Axles) between RCAs or between road use categories on an aggregated national basis.

To improve the accuracy and usefulness of the NTDB, the additional classification surveys that have already been designed need to be completed. In the longer term, an ongoing programme of vehicle classification surveys and vehicle weight surveys needs to be implemented.

At present, estimates by vehicle class at a national level have a precision of approximately ± 10%, whereas at a TA level, estimates by vehicle class have a precision of the order of ± 30% to 40%. Estimates involving weight estimates are relatively less precise.

The project, begun in 1994, is reported in three parts:

- National Traffic Database. Content and Operation of Database: Transit New Zealand Research Report No.53.
- National Traffic Database. 1. Research Report: Transit New Zealand Research Report No. 54A,
- National Traffic Database. 2. Quality Plan: Transit New Zealand Research Report No. 54B (this report).

This report, *2. Quality Plan,* contains the instructions for the teams contributing to the construction of the NTDB.

PART 1: GENERAL

1. INTRODUCTION

The National Traffic Database (or NTDB) is a compilation of data collected from approximately 120,000 road sections of the New Zealand public road network (state highways and local roads). Road sections are divisions of the network used as basic units for the inventories in the RAMM databases held by each RCA (i.e. by TNZ Regional Offices for state highways and by each Territorial Authority (TA) for local roads).

The NTDB contains three files of data. One contains data on road sections exported from the RAMM databases held by the RCAs. The road sections are described in terms of length, traffic volume as at June 1994, type of road use, and whether sealed or unsealed, urban or rural. A second file contains an estimate of the distribution of traffic volume between 15 classes of vehicle (including 12 classes of heavy vehicle) for 11 different road use categories. The third file provides an estimate of the distribution of weight in each of the heavy vehicle classes, depending on RCA as well as road use category.

The overall objective of the National Traffic Database project is

> *to establish a database recording where travel is occurring on New Zealand public roads, measured in terms of annual average daily traffic (AADT), traffic composition and weights of Road User Charge (RUC) vehicles.*

The project is reported in three parts:

- National Traffic Database. Content and Operation of Database: Transit New Zealand Research Report No.53,

- National Traffic Database. 1. Research Report: Transit New Zealand Research Report No. 54A,

- National Traffic Database. 2. Quality Plan: Transit New Zealand Research Report No. 54B (this report).

This part, *2. Quality Plan,* describes the operations planned and executed during Stage 3, including Work Instructions[3] which contain the instructions for the teams contributing to the construction of the NTDB when implementing respective tasks. It should be noted that, while detailed, the instructions do not include listings of software used for the data manipulation and analysis operations[4].

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3 Instructions supplied to personnel to construct the NTDB, and material from other sources, are copies. These pages have running heads, may be set in a different type, and retain their original style and numbers, e.g. Section 15.2 Instructions Sent to CVIUs; Section 8.3 Verification Sheet.

4 Software listings are available for audit purposes, but they are of limited use to a future developer who would use their own inhouse systems to manipulate and analyse data. The software packages used in the analyses within this project include LOTUS, TurboPASCAL, FORTRAN 77 and SPlus.

2. SEQUENCE OF OPERATIONS

The project to prepare the NTDB was carried out in three stages:

Stage 1 consisted of the development of procedures,
Stage 2 was a pilot study to test procedures in the Gisborne/Hawke's Bay regions,
Stage 3 was development of the NTDB for the rest of New Zealand.

The sequence of operations for the project as a whole is summarised in this Section 2. Figure 2.1 summarises the operations for Stage 3, and Figures 2.2, 2.3 and 2.4 detail the sequence of events for three main parts of the project.

Stage 1: Prepare Quality Plan

Stage 1 involved the preparation of a Quality Plan for the methodology to be used in Stage 2 of the project. The Quality Plan took into account the levels of accuracy, statistical confidence and precision that could be achieved. It was completed in late May 1994 and, following experience gained during Stage 2, was updated for Stage 3. Further detail was added during execution of Stage 3.

Stage 2: Develop a Database for Selected Regions

Stage 2 was a Pilot Study to test the methodology for selected regions (i.e. regions 5, Gisborne, and 6, Hawke's Bay), based on the Stage 1 Quality Plan. The Pilot Study was used to develop the method for expanding the database, and to revise the Quality Plan. Stage 2 was commenced in May 1994 and completed in early September 1994.

Stage 3: Refine Methodology and Extend Database

Work on this stage commenced in October 1994. Gathering of data from TAs and TNZ regional offices was not completed until late December 1994. Field classification sampling at the rate of five sites per RCA was completed in early 1995. During execution, Stage 3 was split into two parts, Stage 3(a) and Stage 3(b).

Stage 3(a): Produce Working Spreadsheets

This included making contact with RCAs and obtaining basic information for production of the Working Spreadsheet which is essentially a development of a RAMM inventory for each RCA. In addition, the proposal for design of the public NTDB was developed, and a trial survey of vehicle weights using the CVIU was done. The separate tasks identified for this stage in the Quality Plan are introduced below.

Task 1: ***Complete detail of method***

The Quality Plan used in Stage 2 was subsequently developed to complete the detail of the method for Stage 3.

Task 2: ***Extend Working Spreadsheet: (a) Information Gathering***

This task included training operations managers, making contact with RCAs, interviewing their Road Managers, and obtaining basic data from their records. Working Spreadsheets were prepared, data were entered by RCAs, and addition of further fields and data to the Spreadsheets was carried out by WCSL in Wellington.

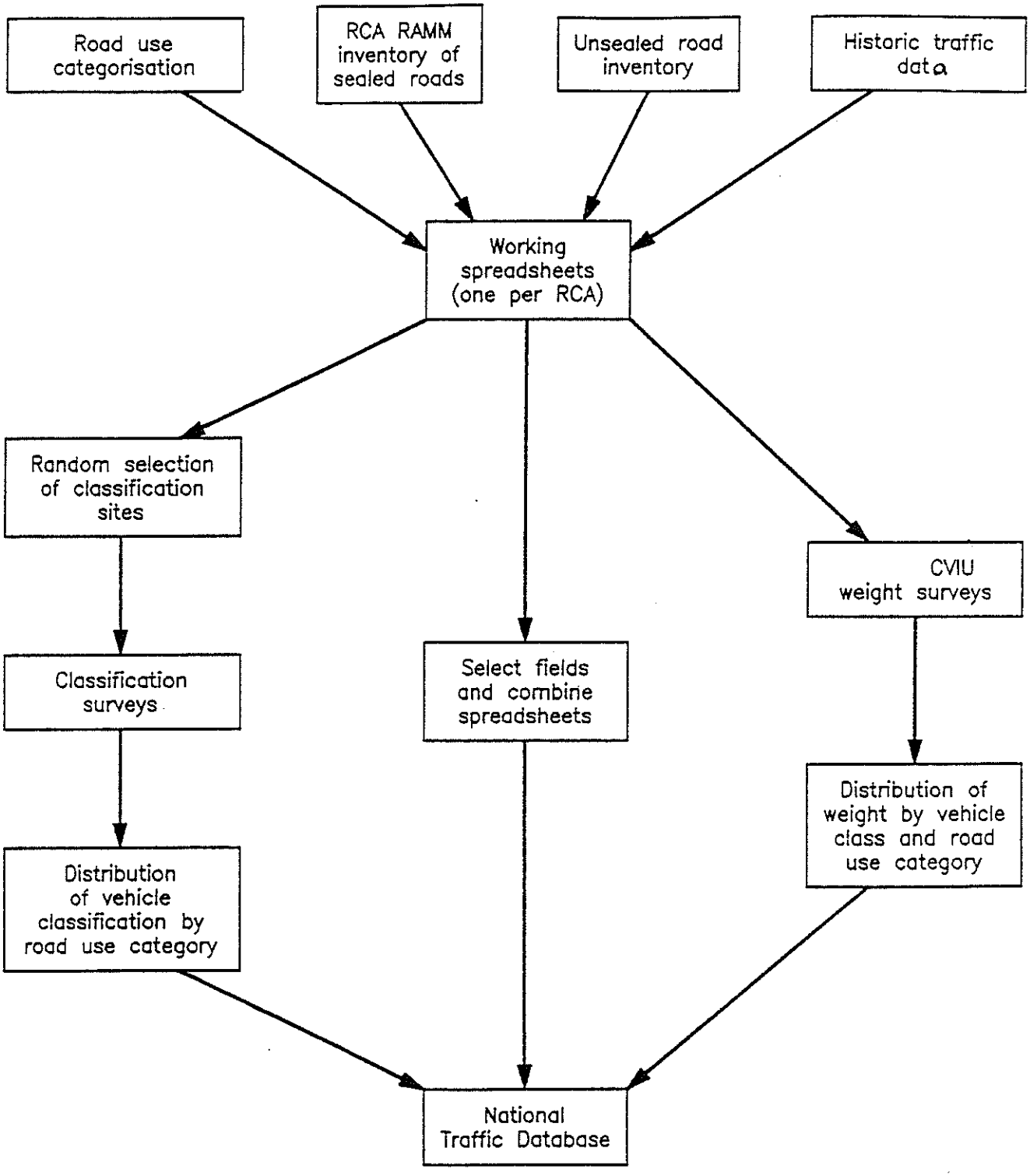

Figure 2.1 Flow of operations followed to develop the NTDB.

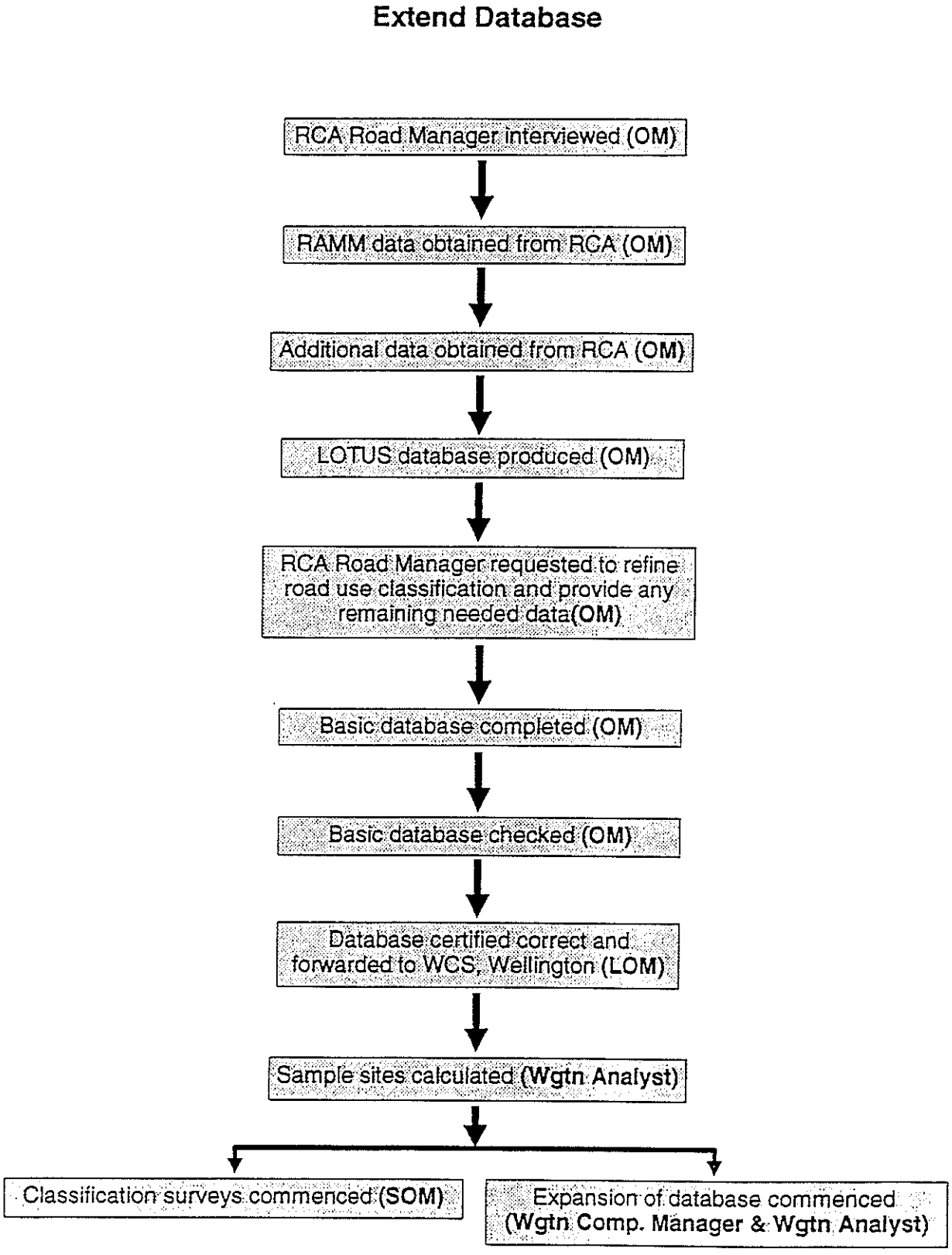

Figure 2.2 Operations followed to extend the NTDB.
Wgtn Wellington; Comp. Computer

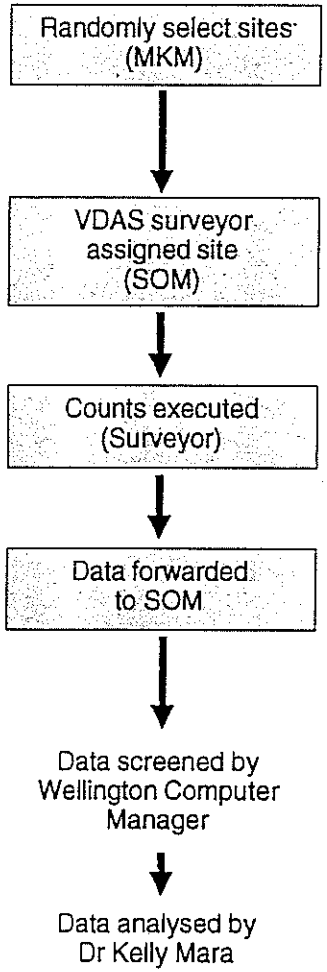

Figure 2.3 Vehicle classification surveys carried out to extend the NTDB. (MKM - Dr Kelly Mara)

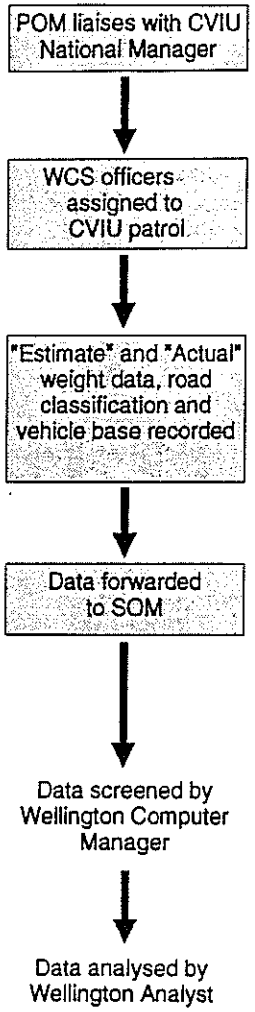

Figure 2.4 Weight surveys carried out by CVIU to extend the NTDB.

Task 3: ***Extend Working Spreadsheet: (b) Design Format of the NTDB***
The objective of this task was to describe the format and the fields to be used in the NTDB that was to be forwarded to all RCAs.

Task 4: ***Extend Working Spreadsheet: (c) Expansion of NTDB***
The Working Spreadsheet was copied and sent to each RCA to enter their data. Following completion of each Working Spreadsheet, selected fields were then assembled and the resulting files combined into a single file as the NTDB road section data file.

Task 5: ***Design of NTDB***
The final format of the NTDB, as derived from the Working Spreadsheets, was designed.

Task 6: ***Pilot CVIU vehicle weight survey and analysis***
The objective of this pilot exercise was to gather vehicle weight information obtained through the surveys carried out by the CVIU for one region, and to analyse it.

Task 7: ***Purchase six VDAS (vehicle classification) instruments***
These additional instruments were needed to ensure that an adequate rate of collection of vehicle classification information could be achieved.

Stage 3(b): Execute Field Surveys and Complete NTDB

Stage 3(b) completed production of the Working Spreadsheets, including expansion of the basic data, execution of the vehicle classification surveys, and completion of the vehicle weight gathering survey. Tasks were identified in the Quality Plan to achieve this.

Task 1: ***Execute field vehicle classification surveys***
The vehicle classification surveys were carried out at the rate of five per RCA. Additional sites are to be surveyed in subsequent years. Procedures for manual classification surveys were also developed and are included in this report, but were not used in the study.

Task 2: ***Execute field vehicle weight surveys***
These vehicle weight surveys were executed by the CVIU at selected geographic areas around New Zealand[5] to a Plan provided by WCSL, and with limited WCSL oversight.

Task 3: ***Interrogate WIM sites***
This task included analysis of vehicle weight data obtained from WIM stations with PAT DAW instrumentation[6].

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5 These areas were subsets of the 6 Police regions within New Zealand. They were subsequently interpreted as TA areas.

6 M660 instruments, new vehicle-weighing componentry being installed at some vehicle classification stations, were not calibrated in time for this survey. Calibration was attempted at one M660 site, but repeatability was very poor. Their data could not be included for comparison with other sources of vehicle weight data.

Task 4: ***Prepare files for NTDB***
The road section data file (NTDB.DBF), the vehicle classification distribution file (VEHPROP.DBF), and the vehicle weight distribution file (WGTDIST.DBF) were prepared (as DBase files). These constitute the NTDB.

Task 5: ***Complete and confirm the NTDB***
The NTDB was assembled, then its accuracy and completeness were confirmed from independent data. Discrepancies were reviewed and adjustments were made before the NTDB was copied electronically.

Stage 4: Documentation and Reporting
This stage encompassed management of the project, client liaison and production of the three reports.

3. TERMS USED WITHIN WORKING SPREADSHEET

The following terms are additional to those included in the Glossary, and are field names used to describe fields used within the Working Spreadsheet. Field names are in italic type.

Add_adt:

The additional ADT information received, either from the TA or from *VDAS* surveys. (Hence *Add_method*, and *Add_date*. These fields are associated with their own *day factors*, and *week factors*.)

Axle factor:

This factor adjusts the ADT to account for the number of axles on a range of vehicle types, which is slightly greater than the figure of 2 assumed in calculating ADT. It is used with TA tube counting instruments.

Bin:

The "slot" or "group" into which a particular numerical value belongs. Used in this report to describe the allocation of vehicles according to their DKW class.

Centreline kilometres:

The length of the road network in an RCA, measured in terms of the road centreline. *Lane kilometres* is an alternative form of measurement which is not used in this report, and is the total length of one lane width in the network. When a road is divided by a physical barrier (usually a motorway), the RAMM Database measures road section lengths as though they were separate roads. The result is (normally) *twice* the *centreline kilometre* value.

Day factor:

Factor by which the sampled data is multiplied to account for the particular day of the week during which the survey was taken.

Dkw c_i:

The proportion of ADT in DKW classification "bin" i.

Neymann allocation:

A statistical process which is the optimum method for stratified sampling when the goal is to obtain a minimum variance estimate of a pre-specified goal function.

Stratification of data:

A process whereby data are grouped (or binned) within a set of ranges of values, e.g. according to whether a particular value lies between the range 10 and 50, 51 and 100, etc. for a low volume road say, but between 50 and 2000, 2001 and 5000, etc. for a high volume road.

Tla_class:

The additional classification information received from TAs following the second questionnaire. This information was to refine, where appropriate, the road use category obtained from the RAMM Database.

Vehicle classification:

A system for describing a vehicle[7], usually in terms of length and/or axle number/configuration. The processing of "binning" vehicles into appropriate classes is done using counting instruments consisting of pairs of counter tubes.

Week factor:

Factor by which the sampled data are multiplied to account for the particular week of the year during which the traffic survey was taken.

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7 "Vehicle" excludes bicycles and the like, being confined to motorised units and unpowered towed units. A motorised and towed unit is classified as an entity, not as separate components.

4. PROJECT PERSONNEL

4.1 Description

The key personnel to the NTDB project, with their functions and locations, are listed below:

Project Leader:

Peter Wilcox, WCSL Wellington. Final responsibility for the performance of the project, in terms of timeliness and quality.

Project Operations Manager:

David Hutchison, WCSL Wellington. Responsible for co-ordinating operations of team members.

Survey Operations Manager:

Graeme Beattie, Central Laboratories, WCSL Lower Hutt. Responsible for co-ordinating the execution of vehicle classification surveys, to liaise with TNZ Head Office, Wellington, regarding WIM vehicle weight measurement, and with the Police regarding CVIU operations.

Wellington Analyst:

Dr Kelly Mara, external consultant. Responsible for statistical analysis of data, including calculation of sampling site locations for vehicle classification surveys, and analysis of vehicle weight and classification data to obtain representative distributions of vehicle type and heavy vehicle weight, with associated levels of precision.

Wellington Computer Manager:

Ian Greenwood, WCSL Wellington. Responsible for receiving all checked Working Spreadsheets from Lead Operations Managers with their Verification Forms, and all data resulting from Vehicle Classification, WIM, and Vehicle Weight Survey data received from the Survey Operations Manager.

Ian Greenwood controlled the inclusion of additional information in Working Spreadsheets received from Lead Operations Managers.

Weigh-in-motion Analyst:

Mike O'Rourke, external consultant. Responsible for cleaning the raw data received from TNZ WIM sites at Drury, Pukerua Bay, and Waipara, and for producing the summary distributions of vehicle weights from this data.

Branch Manager:

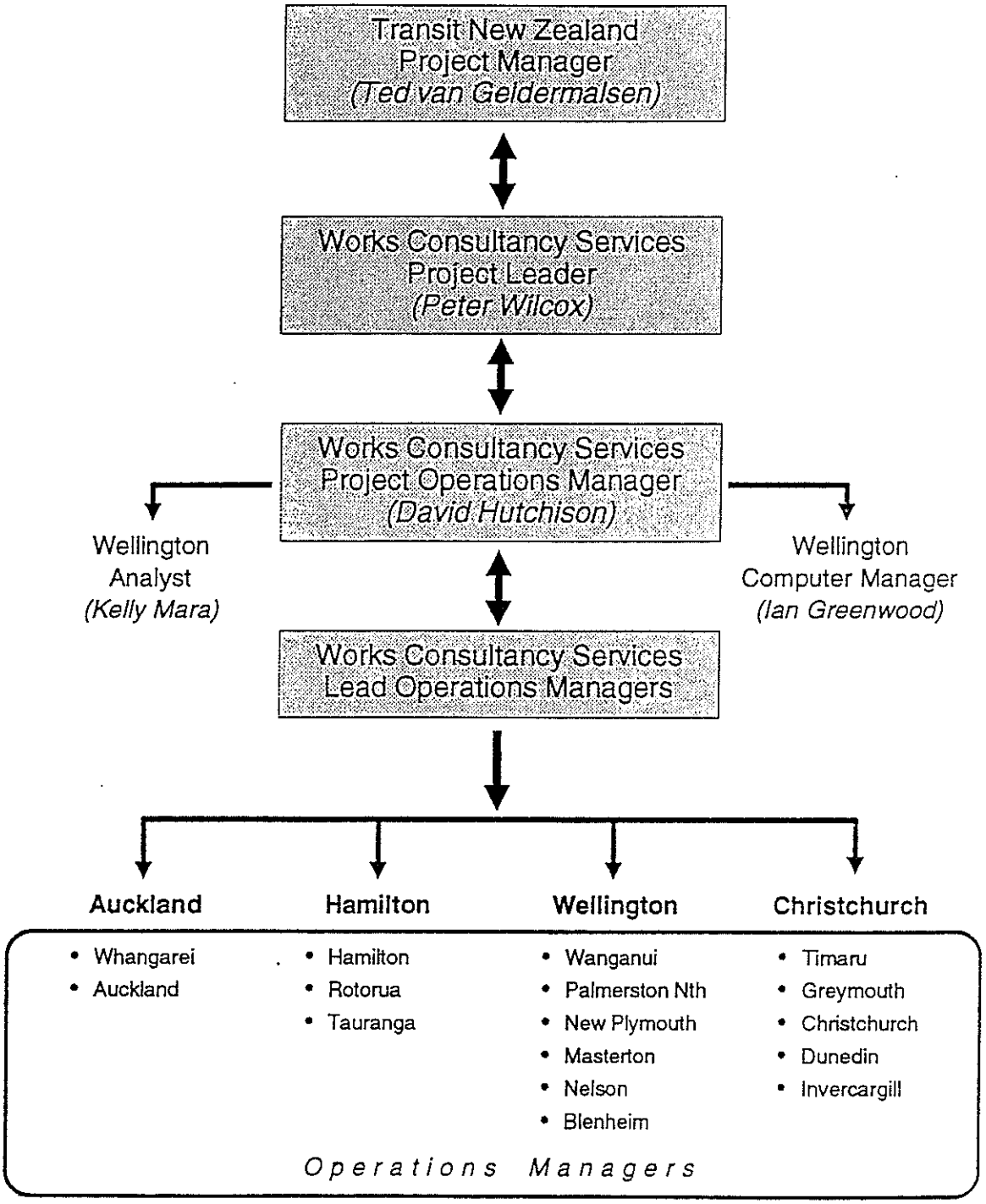
The Branch Manager of each WCSL Office listed in Table 4.1 was responsible for making the first telephone contact with TAs and TNZ Regional Offices at the management level above that of the Road Asset Manager, and prior to contact being made by the Operations Manager.

Table 4.1 Assignment of WCSL offices to RCAs.

WCSL Office (No. of TAs +TNZ Regional Office)*	**Territorial Authority**	**TNZ Regional Office**	**WCSL Database Centre**
Whangarei (3)	Far North, Kaipara, Whangarei	Auckland	Auckland
Auckland (7 + 1)	Auckland, Franklin, Manukau, North Shore, Papakura, Rodney, Waitakere		Auckland
Hamilton (9 +1)	Hamilton, Hauraki, Matamata-Piako, Otorohanga, South Waikato, Thames - Coromandel, Taupo, Waikato, Waipa	Hamilton	Hamilton
Rotorua/Tauranga (7)	Rotorua, Kawerau, Opotiki, Tauranga, Waitomo, Western Bay of Plenty, Whakatane		Hamilton
Wanganui/Palmerston North/New Plymouth (10 + 1)	New Plymouth, South Taranaki, Stratford, Horowhenua, Manawatu, Palmerston North, Rangitikei, Ruapehu, Tararua, Wanganui	Wanganui	Wellington
Masterton (3)	Carterton, Masterton, South Wairarapa		Wellington
Wellington (5 + 1)	Upper Hutt, Lower Hutt, Porirua, Wellington City, Kapiti Coast	Wellington	Wellington
Nelson/Blenheim (4)	Marlborough, Nelson, Tasman, Kaikoura		Wellington
Christchurch/Timaru (9 + 1)	Ashburton, Banks Peninsula, Christchurch, Hurunui, Mackenzie, Selwyn, Timaru, Waimakariri, Waimate	Christchurch	Dunedin
Greymouth (3)	Buller, Grey, Westland		Dunedin
Dunedin (5 + 1)	Central Otago, Clutha, Dunedin, Queenstown Lakes, Waitaki	Dunedin	Dunedin
Invercargill (3)	Gore, Invercargill, Southland		Dunedin

* Appendices 2 and 3 list the numbers and names of TAs and Regions respectively.

Figure 5.1 Overall management structure for Stage 3 (completion of NTDB).



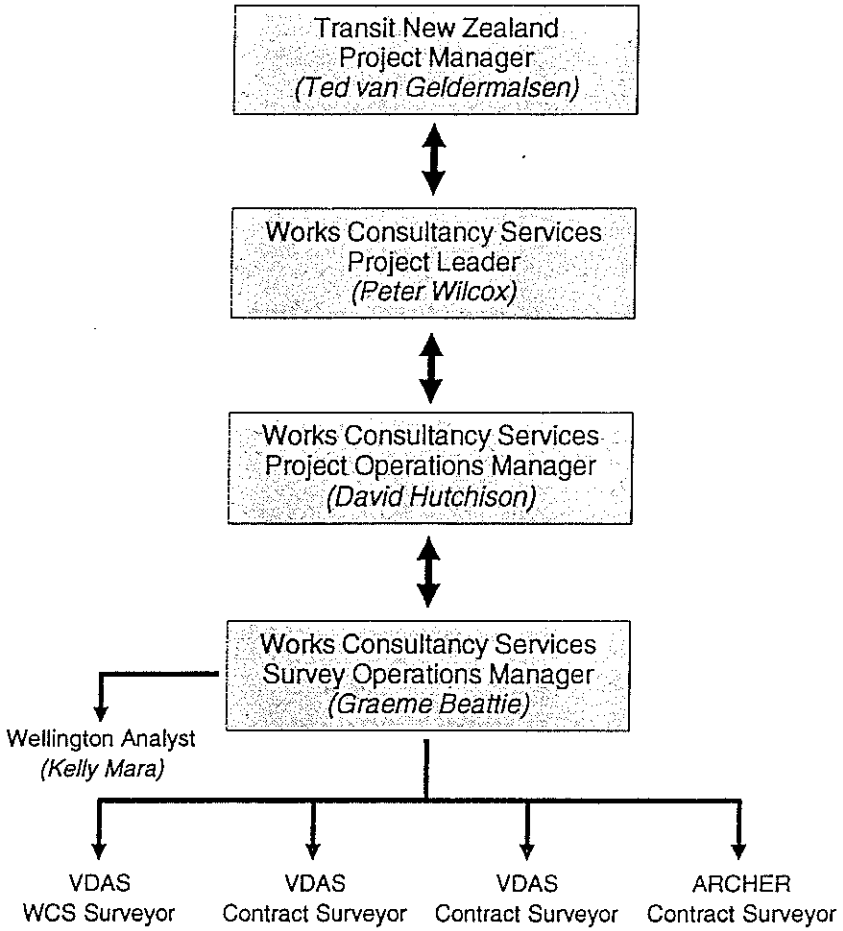


Figure 5.2a. Management structure for conducting vehicle classification surveys.

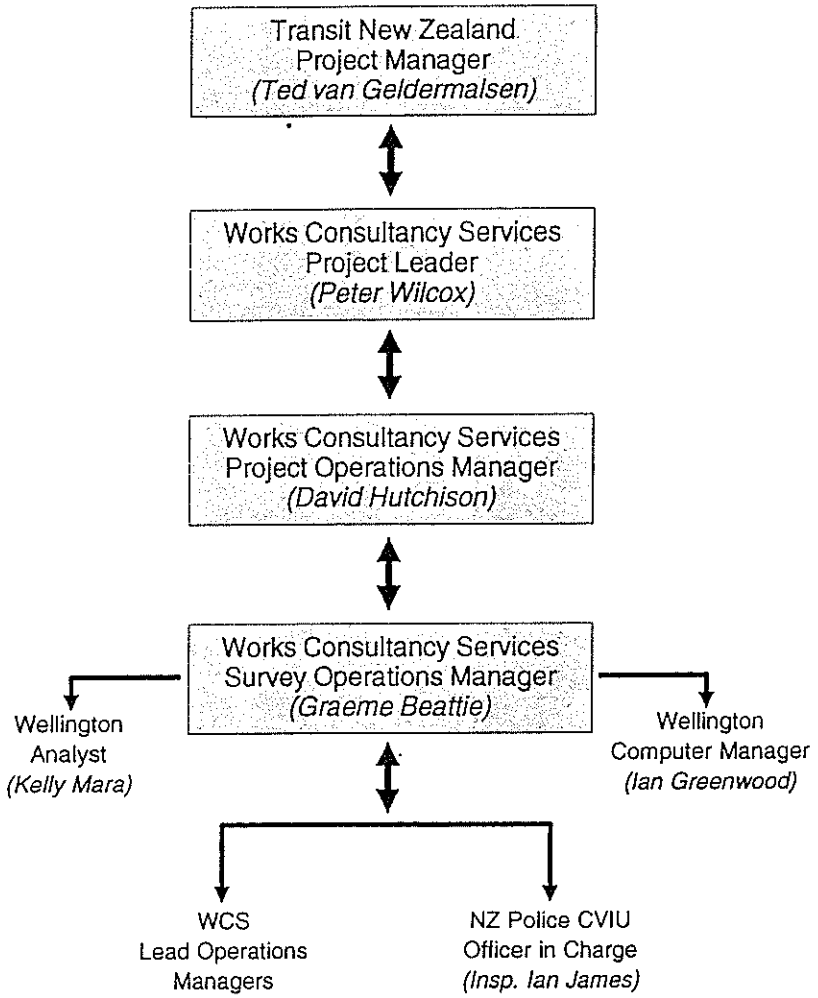


Figure 5.2b. Management structure for conducting vehicle weight surveys.

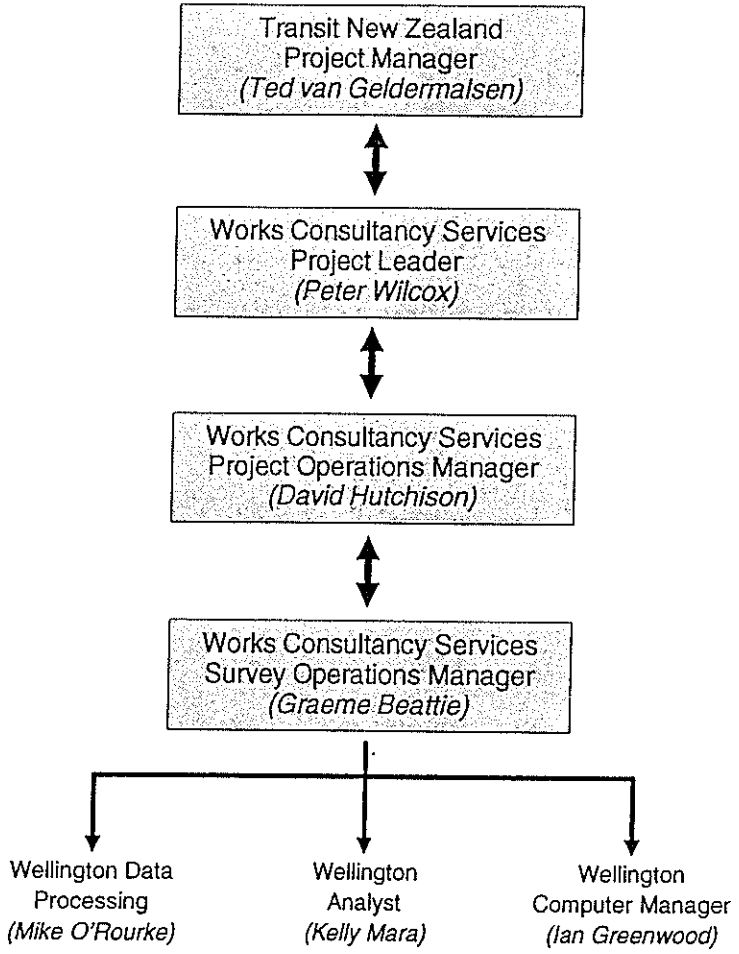


Figure 5.2c Management structure for conducting analysis of WIM data.

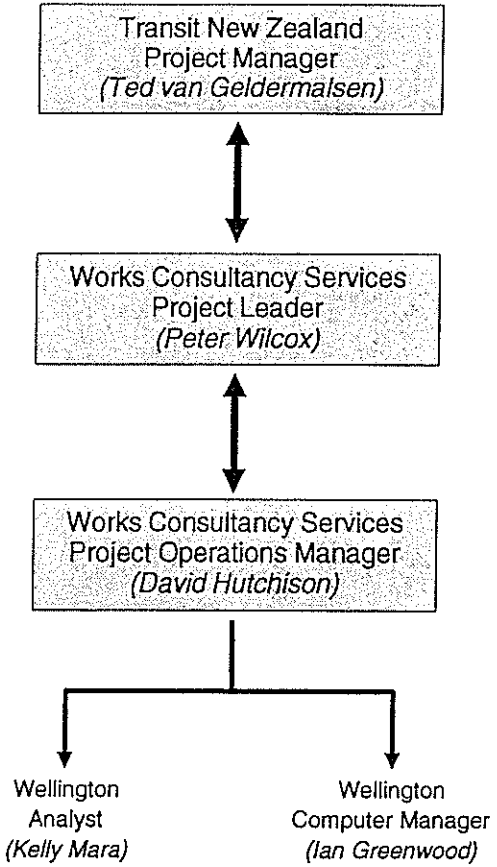


Figure 5.2d Management structure for confirming and completing the NTDB.

Lead Operations Manager:

One per WCSL Regional Office[8].

Operations Manager:

One in each of 17 WCSL branches. The role of the Operations Manager was to liaise personally with the TA/TNZ person(s) responsible for the RAMM database, to manage executing of manual counts, and to check the Working Spreadsheet produced for each TA and TNZ region.

4.2 Assignment of Personnel to RCAs

Table 4.1 shows how personnel were assigned between WCSL offices and RCAs.

4.3 Inhouse Training

WCSL Operations Managers were brought to Wellington WCSL office for a one day training session.

All were briefed on the purpose of the project. Applicable Work Instructions and programme were considered in detail.

5. MANAGEMENT STRUCTURE

Figures 5.1, 5.2a to 5.2d describe the chain of management in the project. The figure is split to illustrate the different components of the Project Team applying to various tasks of the project.

[8] WCSL operates as four regions within New Zealand. These regions are Auckland, Hamilton, Wellington and Christchurch. There are several branch offices within each region.

PART 2: INSTRUCTIONS FOR EXECUTION OF WORK

STAGE 3(a) PRODUCE WORKING SPREADSHEETS

7. Task 1: COMPLETE DETAILED METHOD FOR PRODUCTION OF WORKING SPREADSHEETS AND MANUAL OF WORK INSTRUCTIONS

Element	Description	Person	Start (1994)	Finish (1994)	Confirmed
1	Identify tasks, and the scope of tasks	DLH	20/9	25/9	
2	Develop flow of activities	DLH	20/9	25/9	
3	Express as a programme for Stage 3(a)	DLH	20/9	25/9	
4	Develop elements for Work Instructions for the task(s) relating to preparation of Working Spreadsheet, including checking	DLH	20/9	27/9	
5	*TNZ reviews "basic data" Work Instruction and programme*	DKW	28/9	29/9	
6	Develop elements of Work Instructions for the task(s) relating to expansion of the data in the Working Spreadsheet	DLH	3/10	6/10	
7	Develop elements for Work Instructions for the task(s) relating to executing classification surveys in the field	GJB	27/9	6/10	
8	Develop elements of Work Instructions for the task(s) relating to analysis of field survey data	MKM	27/9	6/10	
9	Prepare brief for design of database	NSK	26/9	7/10	
10	Develop elements of draft Work Instructions for field work with mobile CVIU units	MKM GJB	26/9	5/10	
11	Refine draft Work Instructions ("field work with Police") following week with CVIU unit	GJB	21/10	28/10	
12	Develop elements of Work Instructions for procurement and computer reports of • WIM and • M660 data	GJB	26/9	7/10	
13	Develop draft Work Instructions for analysis of all sources of weight information, leading to distribution of weights by vehicle class	MKM	5/10	12/10	
14	Develop elements of Work Instructions for completing and confirming database	DLH	7/10	14/10	
15	*TNZ reviews the Work Instructions which follow Element 5*	DKW	14/10	21/10	

8. Task 2: EXTEND WORKING SPREADSHEET: (a) INFORMATION GATHERING

8.1 Letters

8.1.1 From Transit New Zealand to RCAs

DEVELOPMENT OF NATIONAL TRAFFIC DATABASE: COLLECTION OF INFORMATION

As you are no doubt aware, the Land Transport Pricing Study is being conducted by Transit New Zealand and the Ministry of Transport to develop a comprehensive framework for the pricing and regulation of roads in New Zealand.

As one component of this study, Transit New Zealand and the Ministry of Transport are assembling a national database of traffic flows which will list daily vehicle counts by different vehicle types on all public road sections throughout New Zealand. (The completed database will be made available to local authorities.)

In order to construct the database, the traffic data held for your district will be a necessary input. In consequence, we would be most grateful for your co-operation in providing such information to our consultant researcher, namely Works Consultancy Services Limited.

A person from the Works Consultancy office in your locality will be seeking an appointment with the appropriate officer in your team to obtain an electronic copy of your council's RAMM road sections and traffic files. A special software program has been prepared so that the Works Consultancy person will be able to download the information. In addition, Works Consultancy will conduct an interview of approximately 30 minutes duration with your officer regarding the possible existence of additional information relevant to the study, and will answer any questions they may have about the data gathering.

Following the visit by Works Consultancy staff, you will be provided with a paper copy of the RAMM data obtained from your council. We would appreciate you annotating this copy in accordance with Works Consultancy instructions and returning such to that officer.

It will be necessary to carry out field surveys in your district to obtain additional data. These will be primarily in the nature of vehicle classification surveys, and will be executed using the VDAS portable classifier. Works Consultancy personnel will advise you of the programme and proposed sites before doing any field work. Those surveys will follow examination of the RAMM database.

Works Consultancy personnel will be in contact with your officer in the week commencing 3 October 1994.

Please contact David Young at Transit New Zealand, Head Office, Wellington phone 04-496 6681, phone 04-496 6676, fax 04-496 6666, or Ted van Geldermalsen phone 04-496 6681 if you would like more information about this project.

Yours faithfully

Dr Jim McMillan
Research and Development Manager

8.1.2 Follow-up from WCSL to some RCAs

TRANSIT NEW ZEALAND NATIONAL TRAFFIC DATABASE: RAMM DATA

This is confirm our telecon of ..... Works Consultancy Services Limited is undertaking a project to obtain traffic data on all New Zealand roads for Transit New Zealand. This forms part of the Land Transport Pricing Study.

As part of this project, we need to get accurate basic factual information on the roading network and traffic count data in each local authority., This is being achieved through an electronic data transfer process downloading certain information from each local authority's RAMM database. The data being obtained through this process are as follows:

- Road section identifier
- Name of road
- Start position of section (metres)
- Finish position of section (metres)
- Length of section - distance between start and finish (metres)
- Description of feature at start of section
- Description of feature at end of section
- Maintenance category
- Description of road use
- "Urban" "Rural"
- Average daily traffic
- Direction of count ("L" left, "R" right or "b" both direction(s))
- Estimate of actual count
- Date of count
- Duration of count

This information will only be used in this Project. I want to assure you that Works Consultancy Services Limited will not be using the information for any other purpose. Once the National Database has been developed it is my understanding that each local authority will receive a copy of their portion covering their area.

Thank you for your feedback on our approach and I hope this provides sufficient information to allay any concerns.

Please don't hesitate to contact me if you have any further queries or concerns.

Yours sincerely

Peter J Wilcox
GENERAL MANAGER - NZ OPERATIONS

8.2 Telephone Calls

8.2.1 Introducing the Study

The items to be raised was made in the telephone call from Branch Manager WCSL to the TA Works Manager and the TNZ Regional Manager. They would have already received knowledge of the study from the TNZ HO letter sent out on Wednesday 24 September 1994.

1. Recap purpose of study
   - Part of a study by TNZ and MOT to develop a comprehensive framework for the pricing and regulation of roads.

   - A national database of traffic flows are to be prepared. This database will list daily average numbers of vehicles by different vehicle types on all public road sections throughout New Zealand.

2. Database to be made available to TAs
   - Potential for its use is expected to include
     - pavement and maintenance management systems
     - pavement design
     - economic evaluation
     - strategic planning

3. Discuss appointment for Operations Manager (OM)
   Purpose of appointment is to:
   - Briefly discuss
     - traffic count programmes
     - present state of road section (RAMM) database
     - roads not currently in RAMM, and any other inventory of these
     - known lack of data

   - Obtain an electronic copy of the RAMM data to act as a basis for the NTDB

   - Obtain historical count information (as electronic or paper copy)

Follow-up contact would be made to complete the NTDB, in particular to refine some categories of road use.

8.2.2 Requesting Appointment for First Interview

The RCA Road Network Manager should already know of the study from his Manager, as a result of the call from the WCSL Branch Manager.

The telephone call from the Operations Manager to the Network Manager should recap the points in Section 8.2.2 and should endeavour to determine if some of the information to be sought - e.g. historical traffic count data, unsealed road inventory, map of network - can be unearthed before he arrives, to maximise the information obtained on the first visit.

Refusal to co-operate on part of TA
This should be advised *immediately* by EMAIL to Lead Operations Manager, copy to David Hutchison. He will then enlist support from TNZ at a high level.

Advise
1. Name of WCSL Person visiting/contacting: _____

2. Name of WCSL Office: _____

3. Name of TA: _____

4. Name of person contacted, and position: _____

5. Date of contact: _____

6. Comment on reason for/nature of refusal:

_____

_____

_____

_____

_____

8.3 Completion of Basic Information: Verification Sheet

A copy of the Verification Sheet is to be completed and returned to the Lead Operations Manager at the time the Working Spreadsheet is forwarded. Following checking of the Working Spreadsheet, the Lead Operations Manager is to complete relevant sections, and forward the completed Work Instruction to David Hutchison in Wellington.

VERIFICATION SHEET

Element	*Name of RCA:*_____ Description	Person	Start (1994)	Complete (1994)	Verified and date
1	Contact RCA Road Manager and arrange appointment for interview, covering items in Section 8.2 above.	OM	3/10	4/10	
2	2.1 Interview RCA Road Manager using questionnaire in the preceding Section 8.2, and 2.2 Download RAMM as per instruction attached as per Section 8.5.	OM	4/10	14/10	
3	3.1 Import RAMM data into LOTUS as per instruction in Section 8.5, 3.2 Sum the length of road sections, and 3.3 Print out the information. Note: The resulting LOTUS spreadsheet is the "basic Working Spreadsheet."	OM	4/10	12/10	
4	Examine the basic Working Spreadsheet for the absence of information, including the following: 4.1 Total length of road the same as the statistics published by TNZ for the RCA, and shown in Section 8.5.4, for both sealed and unsealed roads. 4.2 Presence of count data for each road section: • ADT • "Estimate" • "Count" • date of count/estimate; duration of count • whether both directions or one lane. If count is on an unusual day of the year, e.g. Easter, exclude the given count and replace it with an estimate.	OM	10/10	19/10	
5	5.1 Return printout of Spreadsheet to RCA Road Manager with letter or questionnaire derived from Section 8.4, and request information that is missing as indicated in questionnaire. 5.2 Return of document to have target date of 14 October.	OM	10/10	21/10	
6	Calculate the "growth factors" as per instruction in Section 8.5.3 from historical data.	OM	10/10	21/10	

Element	*Name of RCA:*_____ **Description**		Person	Start (1994)	Complete (1994)	Verified and date
7	7.1	Check the Working Spreadsheet for: • Completeness (i.e. all sections included, all fields complete) • Accuracy - for each TA randomly choose 50 sections and scan these for obvious errors. If errors found, identify cause (typo, entry error, structural error). If error is simple, make correction. If more than 2 unrelated errors are found, sample another 100 sections and perform verification process. Repeat until all data clear. If error is structural or simply repeated (e.g. a particular field is wrong) make corrections throughout all relevant sections. Begin sample again.	OM	17/10	24/10	
	7.2	Copy the electronic copy and paper copy, together with signed and dated copy of this Work Instruction to the Lead Operations Manager.				
8	8.1	Check the Spreadsheet by working through one line picked at random for correctness of format. If incorrect, advise the OM by EMAIL, detailing the apparent error. OM to attend with urgency to the problem, and forward an updated Spreadsheet and EMAIL message of forwarding to the LOM.	LOM, OM LOM	14/10 21/10	25/10 28/10	
	8.2	Scan the received Working Spreadsheet for completeness, and correctness of format, and if OK:				
	8.3	Forward to WCSL Wellington electronically, directory P:\OPEN\TRAFFIC with EMAIL message to David Hutchison advising of despatch.				
9	**Operations performed in Wellington Office** Receive basic Working Spreadsheet from LOMs, via network, together with verification record by fax.		WCM	21/10	18/11	
10	Confirm essential completeness of Working Spreadsheet, for both unsealed and sealed roads, by total lengths, and naming convention of Working Spreadsheet.		WCM	21/10	18/11	
11	Copy columns a, b, c, e, g, k, q, r, aq (refer to Section 9) to a file called "MKMxy.WK1" or "MKMTxy.WK1" (depending on whether local roads or state highways), and forward to Analyst Kelly Mara.		WCM	21/10	18/11	

8.4 Questionnaires

Two questionnaires follow. These have been separated in recognition of the need for two separate contact sessions with the RCA.

The format was designed to enable Operations Managers to forward either of the questionnaires by post. The first questionnaire (Section 8.4.1) could be mailed following the Operations Manager's first telephone call, and accompanied by a note indicating hope that the items indicated will be able to be obtained as far as possible prior to the first meeting.

The second questionnaire (Section 8.4.2) be forwarded in lieu of a second visit. Some of the information requested may already have been obtained. In that case, Operations Managers should strike out (by hand) relevant sections.

8.4.1 First Questionnaire

National Traffic Database:
DEVELOPMENT OF BASIC WORKING SPREADSHEET
IN CO-OPERATION WITH ROAD CONTROLLING AUTHORITY
First Questionnaire

Initial Information Requested

Name of Local Authority: _____

Date: _____

Name of person requesting response: _____

Road Controlling Authority officer, and Position held: _____

Contact phone number: _____ Fax No. _____

1. Traffic Count Programmes

1.1 Is there a systematic count programme, or is counting done on as "as requested" basis (e.g. in order to carry out an economic analysis for a project)?

_____

_____

1.2 If systematic:

- is there a list of locations of the count stations? YES / NO

- how often are counts updated at stations? _____

1.3 What types of instruments are held by you (number and type)?

_____

_____

_____

_____

_____

1.4 What types are hired or used by your traffic count contractor?

_____

_____

1.5 On average, how many counts per year are you undertaking using

- tubes (axle counts) _____
- loops _____
- SCATS _____
- manual counts _____
- classifiers _____

Give names of classifiers, if applicable:

_____

_____

1.6 How is ADT estimated -

- are axle factors applied? YES / NO
- are seasonal or month factors applied? YES / NO

1.7 If commodity surveys are done, then

- when? _____
- how often? _____
- what method?
- to what degree are vehicles classified (e.g. full NAASRA range/heavies only?)

_____

_____

_____

1.8 Do you have any semi-continuous count data YES / NO

2. Estimates of traffic volumes

On what basis are traffic volume estimates made?

- related to similar road sections which have count data YES / NO

- a general assumption based on known use of road, e.g. "all unsealed roads, 100 vpd" YES / NO

3. Trends in data:

3.1 Is historic data kept? YES / NO

3.2 If so, how many years? _____

3.3 Is the data used to generate trends? YES / NO

3.4 Is the data readily available? YES / NO

If so, in what form?

- electronic YES / NO

- single document YES / NO

- multiple documents YES / NO

4. Perceived trends in traffic type:

4.1 Is transport from particular industries on the increase in particular areas? If so please nominate areas affected, type of industry and nature of traffic:

_____

_____

_____

_____

8.4.1 First Questionnaire continued

5. Unusual characteristics of the network traffic demand

5.1 Are there unusual features of traffic demand in your district, e.g. tourism peak, summer/winter recreation, heavy traffic from forestry or other industry?

_____

_____

_____

5.2 It is anticipated that WCSL will want to carry out either traffic count or commodity surveys in many of these areas. We intend to advise the Local Authority when this is intended to happen. Are there additional requirements - if so please describe them?

YES / NO

_____

_____

6. Map of network

Is it possible to make available maps of the network which

- identify the roads by name
- shows count locations and types of count

so that we can relate the sections in the Working Spreadsheet to the network? YES / NO

If so, may we borrow?

7. RAMM Database and Hardware

7.1 Is the RAMM Working Spreadsheet held on computer inhouse?

YES / NO

7.2 If "NO", please advise where the data is stored as computer files.
We will then seek your permission/assistance in downloading the data.

_____

_____

_____

_____

7.3 What sort of data output device does the computer have?

- 5.25 in. floppy disk YES / NO
- 3.5 in. diskette YES / NO
- tape drive YES / NO

8. Subsequent information to be required

Using the information obtained at this meeting, and an agreed means of obtaining RAMM data is stored elsewhere, we will prepare the initial Working Spreadsheet, and then return it with a request for your assistance in

- confirming completeness
- providing missing data, including
  - missing road sections
  - missing ADT data
- refining road use category for road sections

9. Additional comment

Please note any additional information that you think will be of benefit.

8.4.2 Second Questionnaire

National Traffic Working Spreadsheet:
DEVELOPMENT OF BASIC WORKING SPREADSHEET
IN CO-OPERATION WITH ROAD CONTROLLING AUTHORITY
Second Questionnaire

Supplementary Information Requested

Name of Local Authority: _____

Date: _____

Name of person requesting response: _____

Road Controlling Authority officer, and Position held: _____

Contact phone number: _____ Fax No. _____

1. Historical count data

Please provide all available historical traffic count data at any road section, which extends over a period of at least three (and preferably six) years (in diskette, if available, otherwise as paper copy), including

- location (road section)
- date of count
- duration of count
- both ways or one way
- whether tubes or loops used
- description of road use (if not in RAMM)
- whether sealed or unsealed road

2. Reconciliation of land use category with "Urban/Rural" categorisation

The RAMM definitions of "Rural" and "Urban" are related to the speed environment, rather than to the use of land surrounding the road section. Where you consider that the description in RAMM does not truly reflect the environment, please write "U" or "R" as appropriate in the "U/R_adj" column.

3. Description of unusual road use

Where an unusual characteristic applies, as described below, then please annotate the right hand side of that road section as follows:

a - significant use by log transporters
b - seasonal use for crop transport
c - seasonal recreational use, being either of
    c1 summer
    c2 winter
d - significant use by
    d1 milk tankers
    d2 cattle trucks

4. Refinement of four other categories

4.1 Road categorisation

For those (corrected) urban/rural roads, annotate in the "Roaduse_cat" column as follows (this exercise will be helped if hourly count data is available for these or similar sections):

1a - *(Urban arterial a)* where the road section is "Urban" and is characterised by a 7-8 am and 5-6 pm peak traffic flow of about twice the interpeak low flow

1b - *(Urban arterial b)* where the road section is "Urban" and is characterised by a 8-9 am and 4-5 pm peak traffic flow of about 1.5 times the interpeak low flow

2 - *(Urban Commercial)* where the road section is primarily CBD

3 - *(Urban industrial)* where the road section is "Local" and carries industrial traffic

4 - *(Urban other)* - Note: *Annotation not required - this road use is dealt with using a macro*

5 - *(Rural Urban fringe)* where the road section is either "urban" or "rural" and has a high Sunday usage and 7-8 am and 5-6 pm weekday peaks of about 1.5 time the interpeak low flow; usually relevant to largely urban areas - e.g. 30 - 60 mins from city centre - e.g. Rimutaka Hill.

6 - *(Rural strategic - 6a and 6b)* - Note: *Annotation not required - this road use is dealt with using a macro*

7 - *(Rural summer recreational (7a)/rural winter recreational (7b))* - Note: *Annotation not required - this road use is dealt with using a macro*

8 - *(Rural feeder 8)* - Note: *Annotation not required - this road use is dealt with using a macro*

9 - where the road section is *"Urban" and is residential*

5. Confirmation that no "Estimate (E)" are "Counts (C)"

Please cross out "E" and write "C" where an estimate is an actual count.

6. One way streets

Please note where any section is

- a one way street (*"ONE WAY"*)
- one side of a road, and regarded as a road in the RAMM Working Spreadsheet (usually either side of a two way street separated by a raised median) (*"ONE DIR OF TWO WAY"*).

7. Unsealed roads

Unsealed road sections may have to be added to the RAMM Working Spreadsheet from other inventories. The information required is the same as for sealed sections, except that column K of the Spreadsheet (section 3) is completed with "U."

8. Completion of gaps in the data

8.1 Missing sections

From our comparison of your road length and the published statistics, we are missing

___ km or __ % of the sealed network, and

___ km or __ % of the unsealed network.

Please provide additional inventory (in diskette if available), or as a printed listing.

This should identify:

- description of start location of section (e.g. intersecting road, bridge), and start position ("from_off" in Spreadsheet, e.g. metres from start of road)
- description of end section location and end position
- length of section
- whether "U" or "R"
- ADT, Dir, E/C, Count date and Duration (days) where applicable
- whether sealed or unsealed

A pre-formatted sheet is attached for this purpose (see p.50).

8.2 AADT

From your own local knowledge, please estimate the AADT where no information is available in the Spreadsheet, and record it in the empty cell, also whether "E" or "C", direction ("B", "L" or "R") and date of count or estimate, and if "C", the duration).

Indicate on the Spreadsheet the value of any *axle factor* in that cell (other than division by 2) for tube counts. Note: The axle factor has a value of near 1.0, *not* near 2.0. It corrects (by division) the effect of 2 axles being too few.

8.4.2 Second Questionnaire continued

Inventory of Missing Sections

Road Name	Road_ID	From_off	To_off	From_desc	To_desc	Adt

End of Second Questionnaire

8.5 Download of RAMM, Operations within LOTUS Spreadsheet

8.5.1 Download of Selected RAMM Data from RCA Working Spreadsheet

1. Copy the directory P:\OPEN\TRAFFIC from the WCSL Napier office file server on to the relevant size diskette. If you do not have access to the WCSL computer WAN (wide area network), contact Dennis Hebberley of Napier Office who will forward the diskette to you.

2. When at the RCA office, logon to the RAMM machine as root (superuser).

3. Change directory to /tmp by typing in
   cd /tmp
   Note that UNIX slashes are opposite to DOS slashes.

4. Copy the contents of your diskette into the /tmp directory by typing in
   doscp a:wcs_ramm.sh wcs_ramm.sh
   docsp a:traffic.arc traffic.arc
   Note whether the drive you are using is a: or b:.

5. Run the shell script *wcs_ramm* by typing in
   wcs_ramm.sh

   This shell script will ask you several questions:

   a. The name of the report to run: *traffic*.

   b. It will then look for the INFORMIX directory and if it doesn't find it, you will need to enter the path to it. You will need help from the RCA RAMM person if this happens.

   c. It will ask you if the site has *informix_online*. You will need to find this out also from the RCA RAMM person. The known online sites are Whangarei City, Palmerston North City and Waikato District. If the answer to this question is "YES" then it skips questions d. and e.

   d. The script then searches for the RAMM Working Spreadsheet. If it doesn't find one, you will be asked for the path to it e.g. */usr/ramm/data/council.* You will need help from the RAMM person at this point.

   e. If it finds the data directory and there are a multitude of Working Spreadsheets, it will ask you which one you want to extract from. This is unlikely to happen.

   f. It will ask you what media you wish to copy it onto. This is fairly self-explanatory.

   g. It will then ask you which system you are running on.

h. It will then ask which drive to write to, e.g. a: or b:.
This will then copy *traffic.prn* to the diskette.

6. You will then be able to use */ file import* in LOTUS to get *traffic.prn* into the Spreadsheet provided by Ian Greenwood (see Section 8.5.2 below).

8.5.2 Operation of LOTUS Macros within Shell Spreadsheet

1. Load the file SHELL3.WK1 from your P:\OPEN. Save it as SHELL3.WK1

2. Within LOTUS, load the file SHELL3.WK1, enter
   - the name of the RCA,
   - your name, and
   - office,

   in the spaces provided at the top, and save it as BXX.WK1.

3. Combine this shell file and the RAMM file by pressing ALT-B, then enter the name of the RAMM file (*traffic.prn*), including the drive and path. Then press ALT-C to insert "method" column.

4. Save this file: call it RAMMXX, where XX is the number of the TA as in the list given in the TNZ statistics in the following section. In the case of TNZ, "XX" is "XXX" for "T01" to "T14", corresponding to region number 1 to 14.

5. Check that all columns are complete, and that data are in the correct place.

6. Once all the rows are complete, save file then press ALT-A to calculate week number and day number and the "seal," "unseal" fields.

7. After completing insertion of *Roaduse_cat* cells, operate macro by pressing ALT-E. Where a cell of **** appears in the column *Roaduse_cat*, then review and adjust manually.

8.5.3 Calculation of Growth Rate

Road Controlling Authority "XX" - see Section 8.5.4 of this report for relevant value of "XX."

1. From within LOTUS, retrieve the file called P:\OPEN\GROWTH.WK1.

2. Save this as GROWXX.WK1.

3. Enter the *road _id* and start position of section in the cells provided.

4. Enter the traffic count data, and date and duration of count in successive rows of the cells indicated and in separate groups for a given road classification.

5. Execute a linear regression analysis on the count/date pairs using the supplied Spreadsheet GROWTH/.WK1. The output shows:
"Growth rate is _____ vehicles per year."

6. Print the Spreadsheet.

7. Transfer this information to all roads of similar road use category.

8.5.4 Public Road Physical Statistics

Note: The following tables (pp. 56-64) are copies of original data compiled as at 30 June 1994. Similar tables are published annually by TNZ. It also gives the number of each TA to be used in preparing the Working Spreadsheet.

Physical statistics contained in the table, and which are relevant to this study, are the lengths of sealed and of unsealed roads for each TA and each TNZ region.

The tables are:

Table 2 - State Highways - Physical Statistics as at 30 June 1994

	Region	Total Length km	Motorway Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
1	Northland	693.3	0.0	676.3	97.5	162	5354	12	529	0	0	0	0	2	94
2	Auckland	256.4	88.2	256.4	100.0	222	17907	0	0	0	0	0	0	0	0
3	Waikato	1552.0	0.0	1527.7	98.4	368	9398	22	1111	1	204	2	22	7	136
4	Bay of Plenty	752.9	0.0	700.5	93.0	158	6247	2	326	2	201	0	0	0	0
5	Gisborne	329.7	0.0	329.7	100.0	117	4220	10	541	0	0	0	0	0	0
6	Hawkes Bay	462.9	0.0	441.9	95.5	118	4970	9	273	3	47	0	0	2	39
7	Taranaki	387.0	0.8	387.0	100.0	124	3164	1	34	0	0	0	0	0	0
8	Manawatu-Wanganui	945.9	1.0	916.4	96.9	293	10479	5	205	0	0	0	0	0	0
9	Wellington	230.8	17.1	230.8	100.0	122	8317	3	81	0	0	0	0	0	0
North Island Totals		**5610.9**	**107.1**	**5466.7**	**97.4**	**1684**	**70056**	**64**	**3100**	**6**	**452**	**2**	**22**	**11**	**269**
10	Nelson-Marlborough	636.9	0.0	636.9	100.0	237	6780	23	610	1	265	0	0	2	22
11	Canterbury	1341.7	16.0	1341.7	100.0	384	21090	30	2801	2	110	1	34	4	422
12	West Coast	873.3	0.0	873.3	100.0	464	17321	57	5432	1	94	2	242	3	130
13	Otago	1268.5	20.9	1246.9	98.3	250	7679	19	873	10	496	0	0	0	0
14	Southland	725.5	0.0	725.5	100.0	253	4394	4	162	0	0	0	0	0	0
South Island Totals		**4845.9**	**36.9**	**4824.3**	**99.6**	**1588**	**57264**	**133**	**9878**	**14**	**965**	**3**	**276**	**9**	**574**
New Zealand Totals		**10456.8**	**144.0**	**10291.0**	**98.4**	**3272**	**127320**	**197**	**12978**	**20**	**1417**	**5**	**298**	**20**	**843**

Table 2 copied from data compiled as at 30 June 1994 by Transit New Zealand

Table 3 - State Highways - Works Completed During Year Ending 30 June 1994

	Region	Reseals km	Rehabilitation km	Bridge Renewals No	Bridge Renewals Metres	Seal Extensions No	Seal Extensions km	Construction Projects No	Safety Construction Projects No
1	Northland	114.9	29.2	0	0.0	2	4.1	2	5
2	Auckland	50.3	4.6	0	0.0	0	0.0	6	2
3	Waikato	254.0	24.5	1	15.7	2	5.9	2	7
4	Bay of Plenty	97.4	14.0	0	0.0	0	0.0	1	9
5	Gisborne	77.2	4.1	0	0.0	0	0.0	0	1
6	Hawkes Bay	68.5	7.6	0	0.0	0	0.0	2	1
7	Taranaki	45.8	7.2	0	0.0	0	0.0	0	3
8	Manawatu-Wanganui	92.7	13.5	0	0.0	0	0.0	1	6
9	Wellington	30.6	5.7	0	0.0	0	0.0	1	4
North Island		**831.4**	**110.4**	**1**	**15.7**	**4**	**10.0**	**15**	**38**
10	Nelson-Marlborough	75.2	13.6	0	0.0	0	0.0	1	4
11	Canterbury	217.4	21.3	0	0.0	0	0.0	4	19
12	West Coast	98.3	8.1	1	51.0	0	0.0	2	0
13	Otago	132.9	24.8	0	0.0	2	8.2	0	5
14	Southland	79.6	12.5	0	0.0	0	0.0	1	3
South Island		**603.4**	**80.3**	**1**	**51.0**	**2**	**8.2**	**8**	**31**
Head Office		**0.0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**3**	**0**
New Zealand		**1434.8**	**190.7**	**2**	**66.7**	**6**	**18.2**	**26**	**69**

Table 3 copied from data compiled as at 30 June 1994 by Transit New Zealand.

Table 4 - Local Roads - Physical Statistics as at 30 June 1994

	Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges		Single Lane Bridges		Restricted Bridges				Timber Bridges	
										Speed Only		Weight			
						No	Length metres	No	Length metres	No	Length metres	No	Length metres	No	Length metres
1	Far North	U	169.0	169.0	100.0	651	9514.0	585	8394.0	5	255.0	55	800.0	3	30.0
		R	2321.6	349.3	15.0										
		SPR	19.7	0.5	2.5	2	32.0	2	32.0	0	0.0	0	0.0	0	0.0
2	Kaipara	U	90.5	74.8	82.7	339	4577.0	272	4182.0	0	0.0	11	205.0	11	237.0
		R	1504.6	305.1	20.3										
3	Whangarei	U	213.2	204.5	95.9	444	6588.0	361	4827.0	0	0.0	5	112.5	8	167.0
		R	1487.9	519.8	34.9										
Waitangi Trust		SPR	2.9	2.9	100.0	1	162.0	1	162.0	0	0.0	0	0.0	0	0.0
Northland Region		U	472.7	448.3	94.8	1434	20679.0	1218	17403.0	5	255.0	71	1117.5	22	434.0
		R	5314.1	1174.2	22.1										
		SPR	22.6	3.4	15.0	3	194.0	3	194.0	0	0.0	0	0.0	0	0.0
4	Auckland	U	1257.0	1229.0	97.8	98	2381.0	21	162.0	0	0.0	2	295.0	5	38.0
		R	163.0	15.0	9.2										
5	Franklin	U	145.0	145.0	100.0	145	2051.0	43	615.0	0	0.0	1	21.0	1	21.0
		R	1415.0	1093.0	77.2										
6	Manukau	U	786.0	783.1	99.6	108	2259.0	5	106.0	0	0.0	4	29.0	4	24.0
		R	273.0	234.0	85.7										
7	North Shore	U	527.0	525.2	99.7	48	478.2	3	39.0	0	0.0	0	0.0	0	0.0
		R	63.8	45.7	71.6										
8	Papakura	U	150.0	149.4	99.6	37	594.0	4	72.0	0	0.0	1	16.0	0	0.0
		R	116.2	103.7	89.2										
9	Rodney	U	250.7	233.0	92.9	346	4500.0	180	2830.0	0	0.0	10	147.3	2	14.6
		R	1404.1	471.0	33.5										
10	Waitakere	U	555.0	546.4	98.5	70	1244.3	9	132.0	0	0.0	1	20.0	3	34.0
		R	156.1	113.5	72.7										
Auckland Region		U	3670.7	3611.1	98.4	852	13507.5	265	3956.0	0	0.0	19	528.3	15	131.6
		R	3591.2	2075.9	57.8										
11	Hamilton	U	419.2	419.2	100.0	27	1003.0	0	0.0	0	0.0	1	148.0	0	0.0
		R	57.6	54.3	94.3										

Table 4
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Table 4 - continued

	Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges		Single Lane Bridges		Restricted Bridges				Timber Bridges	
										Speed Only		Weight			
						No	Length metres	No	Length metres	No	Length metres	No	Length metres	No	Length metres
12	Hauraki	U	94.5	85.8	90.8	125	1556.0	70	1022.0	0	0.0	2	26.8	7	76.8
		R	498.0	331.1	66.5										
13	Matamata-Piako	U	109.9	109.4	99.5	237	3266.0	51	838.0	0	0.0	2	72.0	0	0.0
		R	884.5	805.9	91.1										
14	Otorohanga	U	27.0	25.4	94.1	144	2171.5	93	1471.5	0	0.0	1	34.7	2	20.3
		R	788.5	358.3	45.4										
15	South Waikato	U	106.9	106.9	100.0	52	693.0	6	189.0	0	0.0	1	18.3	1	18.3
		R	386.8	373.0	96.4										
16	Taupo	U	188.3	186.5	99.0	16	387.0	7	159.0	0	0.0	0	0.0	0	0.0
		R	509.3	327.9	64.4										
		SPR	19.7	19.7	100.0	5	115.4	0	0.0	0	0.0	0	0.0	0	0.0
17	Thames-Coromandel	U	205.9	197.8	96.1	142	1639.0	109	1373.0	0	0.0	6	115.0	18	237.0
		R	427.1	140.5	32.9										
18	Waikato	U	123.3	113.3	91.9	355	4743.0	101	2024.0	0	0.0	4	89.0	111	248.0
		R	1568.5	914.9	58.3										
19	Waipa	U	157.8	154.1	97.7	123	2164.0	30	693.0	0	0.0	3	262.0	2	36.0
		R	923.9	796.4	86.2										
20	Waitomo	U	37.2	36.0	96.8	140	2364.0	93	1804.0	0	0.0	3	177.0	5	201.0
		R	1160.0	278.0	24.0										
Waikato Region		U	1470.0	1434.4	97.6	1361	19986.5	560	9573.5	0	0.0	23	942.8	146	837.4
		R	7204.2	4380.3	60.8										
		SPR	19.7	19.7	100.0	5	115.4	0	0	0	0	0	0	0	0
21	Kawerau	U	39.5	39.5	100.0	5	50.0	1.0	37.0	0	0.0	1	37.0	0	0.0
		R	2.0	0.8	40.0										
22	Opotiki	U	29.8	28.7	96.3	57	1121.0	56.0	1113.0	0	0.0	6	92.0	13	184.0
		R	298.7	67.9	22.7										
23	Rotorua	U	234.7	233.9	99.7	72	1233.0	63.0	943.0	0	0.0	0	0.0	10	127.0
		R	752.0	419.3	55.8										
24	Tauranga	U	329.5	328.5	99.7	12	878.0	3.0	49.0	0	0.0	0	0.0	0	0.0
		R	46.6	43.8	94.0										

Table 4 (continued)
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Table 4 - continued

Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
25 Western Bay of	U	109.1	107.3	98.4	99	1234.0	63	907.0	0	0.0	7	85.9	7	85.9
Plenty	R	900.0	560.5	62.3										
26 Whakatane	U	116.1	114.5	98.6	154	2245.0	60	1144.0	1	12.0	1	60.0	30	289.0
	R	684.2	427.0	62.4										
	SPR	31	1.0	3.2	4	69.0	3	49.0	0	0.0	0	0.0	0	0.0
Bay of Plenty Region	U	858.7	852.4	99.3	399	6761.0	246	4193.0	1	12.0	15	274.9	60	685.9
	R	2683.5	1519.3	56.6										
	SPR	31	1	3.2258	4	69	3	49	0	0	0	0	0	0
27 Gisborne	U	211.5	192.7	91.1	378	9427.0	300	8356.0	2	74.0	29	1096.0	4	77.0
	R	2015.6	431.3	21.4										
Gisborne Region	U	211.5	192.7	91.1	378	9427.0	300	8356.0	2	74.0	29	1096.0	4	77.0
	R	2015.6	431.3	21.4										
28 Central Hawkes Bay	U	65.0	61.0	93.8	243	6114.0	95	2638.0	0	0.0	0	0.0	7	82.0
	R	1211.9	759.3	62.7										
29 Hastings	U	267.9	267.9	100.0	243	5709.0	104	2710.0	0	0.0	11	510.0	1	4.0
	R	1323.8	748.0	56.5										
30 Napier	U	267.2	267.2	100.0	24	487.0	0	0.0	0	0.0	0	0.0	0	0.0
	R	62.8	61.6	98.1										
31 Wairoa	U	40.5	40.0	98.8	156	3907.3	116	3415.5	0	0.0	3	87.0	8	71.0
	R	820.4	146.0	17.8										
	SPR	30.3	0.3	1.0	7	121.0	7	121.0	0	0.0	0	0.0	0	0.0
Dept of Conservation	SPR	12.9	0.0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Hawkes Bay Region	U	640.6	636.1	99.3	666	16217.3	315	8763.5	0	0.0	14	597.0	16	157.0
	R	3418.9	1714.9	50.2										
	SPR	43.2	0.3	1.0	7	121.0	7	121.0	0	0.0	0	0.0	0	0.0
32 New Plymouth	U	287.7	287.0	99.8	256	4167.9	153	2933.9	0	0.0	6	115.7	18	247.3
	R	959.2	743.3	77.5										

Table 4 (continued)
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Table 4 - continued

Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges: Speed Only No	Restricted Bridges: Speed Only Length metres	Restricted Bridges: Weight No	Restricted Bridges: Weight Length metres	Timber Bridges No	Timber Bridges Length metres
	SPR	6.9	6.9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
33 South Taranaki	U	158.0	147.1	93.1	223	2423.0	132	1498.0	0	0.0	11	235.3	12	162.0
	R	1537.0	1237.5	80.5										
34 Stratford	U	39.5	39.5	100.0	150	2266.0	104	1896.0	0	0.0	2	94.0	4	112.0
	R	546.3	289.8	53.0										
	SPR	13.7	13.7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Taranaki Region	U	485.2	473.6	97.6	629	8856.9	389	6327.9	0	0.0	19	445.0	34	521.3
	R	3042.5	2270.6	74.6										
	SPR	20.6	20.6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35 Horowhenua	U	144.8	144.0	99.4	57	884.0	33	533.0	0	0.0	7	173.0	12	195.0
	R	405.7	329.7	81.3										
36 Manawatu	U	107.0	106.0	99.1	198	3432.0	78	1567.0	1	140.0	1	98.0	2	51.0
	R	1299.9	933.1	71.8										
37 Palmerston North	U	273.9	273.1	99.7	78	1341.0	13	174.0	0	0.0	0	0.0	0	0.0
	R	168.3	135.1	80.3										
38 Rangitikei	U	97.0	83.3	85.9	278	4117.0	130	2863.0	0	0.0	6	144.0	0	0.0
	R	1174.0	678.3	57.8										
39 Ruapehu	U	113.7	95.7	84.2	324	5543.0	278	4973.0	0	0.0	23	455.0	15	200.0
	R	1194.6	324.7	27.2										
	SPR	17.4	17.4	100.0	1	19.0	1	19.0	0	0.0	0	0.0	0	0.0
40 Tararua	U	112.6	111.6	99.1	466	9140.0	284	5786.0	NA*	NA*	2	50.0	3	35.0
	R	1832.1	1007.7	55.0										
41 Wanganui	U	216.8	215.1	99.2	73	2519.0	66	1873.0	0	0.0	14	533.0	9	206.0
	R	625.4	304.4	48.7										
Dept of Conservation	SPR	6.0	6.0	100.0	1	29.0	0	0.0	0	0.0	0	0.0	0	0.0
Manawatu-Wanganui Region	U	1065.8	1028.8	96.5	1475	26995.0	883	17788.0	1	140.0	53	1453.0	41	687.0
	R	6700.0	3713.0	55.4										

* N.A: Not Available

Table 4 (continued)
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Table 4 - continued

	Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
		SPR	23.4	23.4	100.0	2	48.0	1	19.0	0	0.0	0	0.0	0	0.0
42	Carterton	U	20.3	20.0	98.5	103	1536.0	31	681.6	0	0.0	1	10.7	17	255.0
		R	417.5	245.9	58.9										
43	Kapiti Coast	U	207.6	207.4	99.9	34	640.0	18	370.0	0	0.0	2	75.0	0	0.0
		R	135.1	114.0	84.4										
44	Hutt	U	442.1	442.1	100.0	31	1454.0	3	53.9	0	0.0	1	15.6	1	15.6
		R	25.8	25.8	100.0										
45	Masterton	U	114.5	113.5	99.1	238	4071.0	90	1972.0	0	0.0	13	274.0	9	185.0
		R	684.0	391.8	57.3										
46	Porirua	U	175.5	175.2	99.8	18	415.0	9	98.0	0	0.0	2	30.0	2	30.0
		R	38.2	33.3	87.2										
47	South Wairarapa	U	55.3	49.7	89.9	131	3228.0	77	2440.0	0	0.0	1	16.0	6	65.0
		R	599.8	278.2	46.4										
48	Upper Hutt	U	124.8	124.6	99.8	44	843.1	21	366.3	0	0.0	2	57.1	6	119.1
		R	85.6	81.7	95.4										
49	Wellington	U	596.6	596.3	99.9	45	609.2	18	140.7	1	13.8	1	20.5	9	52.1
		R	56.8	46.6	82.0										
Wellington Region		U	1736.7	1728.8	99.5	644	12796.3	267	6122.5	1	13.8	23	498.9	50	721.8
		R	2042.8	1217.3	59.6										
North Island Totals		**U**	**10611.9**	**10406.2**	**98.1**	**7838**	**135226.5**	**4443**	**82483.4**	**10**	**494.8**	**266**	**6953.4**	**388**	**4253.0**
		R	**36012.8**	**18496.8**	**51.4**										
		SPR	**160.5**	**68.4**	**42.6**	**21**	**547.4**	**14**	**383.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
51	Marlborough	U	156.8	154.5	98.5	353	5984.0	299	5214.0	1	4.0	9	242.0	101	832.0
		R	1341.9	572.1	42.6										
52	Nelson	U	169.5	169.5	100.0	61	670.0	12	199.0	0	0.0	5	78.0	6	59.0
		R	46.2	25.1	54.3										
53	Tasman	U	137.7	136.1	98.8	473	7442.1	306	5787.5	0	0.0	14	263.0	26	142.0
		R	1742.1	910.0	52.2										
		SPR	20.8	3.3	15.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 4 (continued)
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Table 4 - continued

Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
Nelson-Marlborough	U	464.0	460.1	99.2	887	14096.1	617	11200.5	1	4.0	28	583.0	133	1033.0
Region	R	3130.2	1507.2	48.2										
	SPR	20.8	3.3	15.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
50 Kaikoura	U	16.5	16.3	98.8	37	996.0	30	759.0	0	0.0	5	172.0	7	182.0
	R	183.5	79.5	43.3										
54 Ashburton	U	130.5	126.5	96.9	140	2688.0	63	1223.0	0	0.0	0	0.0	24	226.0
	R	2434.0	1277.2	52.5										
55 Banks Peninsula	U	89.1	81.2	91.1	159	1246.0	63	563.0	0	0.0	3	33.0	71	620.0
	R	566.6	248.6	43.9										
56 Christchurch	U	1288.2	1284.9	99.7	111	2284.0	10	115.0	0	0.0	4	46.0	8	50.0
	R	213.4	189.5	88.8										
57 Hurunui	U	64.8	60.6	93.5	232	5371.0	1855	4749.0	5	190.0	5	217.0	60	1143.0
	R	1433.7	506.3	35.3										
58 MacKenzie	U	36.6	35.6	97.3	87	1734.0	84	1709.0	0	0.0	23	325.0	23	325.0
	R	611.2	89.5	14.6										
59 Selwyn	U	68.8	65.8	95.6	132	2073.0	81	1216.0	0	0.0	11	102.0	53	688.0
	R	2174.6	949.3	43.7										
60 Timaru	U	206.3	204.9	99.3	278	3809.0	166	2884.0	0	0.0	10	94.0	59	511.0
	R	1558.3	656.8	42.1										
61 Waimakariri	U	138.4	130.4	94.2	191	3446.0	84	1008.0	0	0.0	0	0.0	24	195.0
	R	1266.9	579.3	45.7										
62 Waimate	U	29.3	27.9	95.2	176	3408.0	149	3183.0	2	129.0	29	363.0	37	613.0
	R	1311.0	595.6	45.4										
(70) Waitaki (Part)	U	27.0	25.0	92.6	35	579.0	33	565.0	0	0.0	12	207.0	7	83.0
	R	262.4	82.2	31.3										
Dept of Conservation	SPR	7.2	0.0	0.0	1	168.0	1	168.0	0	0.0	0	0.0	0	0.0
Canterbury Region	U	2095.5	2059.1	98.3	1578	27634.0	2618	17974.0	7	319.0	102	1559.0	373	4636.0
	R	12015.6	5253.8	43.7										
	SPR	7.2	0.0	0.0	1	168.0	1	168.0	0	0.0	0	0.0	0	0.0

Table 4 (continued)
copied from data compiled as at 30 June 1994 by Transit New Zealand

Table 4 - continued

Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
63 Buller	U	84.4	77.0	91.2	100	2277.0	87	2190.0	0	0.0	0	0.0	6	63.0
	R	464.3	192.9	41.5										
	SPR	61.6	53.9	87.5	20	568.0	6	271.0	0	0.0	0	0.0	0	0.0
64 Grey	U	125.2	107.1	85.5	216	3559.0	116	2704.0	0	0.0	0	0.0	48	790.0
	R	588.9	232.6	39.5										
65 Westland	U	52.8	51.8	98.1	257	2839.0	149	1529.0	0	0.0	0	0.0	34	311.0
	R	585.1	249.7	42.7										
	SPR	48.6	48.6	100.0	12	924.0	5	620.0	0	0.0	0	0.0	0	0.0
Dept of Conservation	SPR	10.7	0.4	3.7	1	6.0	1	6.0	0	0.0	0	0.0	0	0.0
West Coast Region	U	262.4	235.9	89.9	573	8675.0	352	6423.0	0	0.0	0	0.0	88	1164.0
	R	1638.3	675.2	41.2										
	SPR	120.9	102.9	85.1	33	1498.0	12	897.0	0	0.0	0	0.0	0	0.0
66 Central Otago	U	107.5	98.8	91.9	164	3120.0	124	2477.0	0	0.0	28	864.0	34	540.0
	R	1732.2	281.2	16.2										
67 Clutha	U	118.7	90.0	75.8	325	4644.4	216	3029.6	4	282.0	22	230.0	71	766.9
	R	2836.9	656.8	23.2										
	SPR	40.6	3.3	8.1	6	240.3	5	225.5	0	0.0	0	0.0	0	0.0
68 Dunedin	U	581.9	542.6	93.2	187	3634.0	74	1033.0	8	174.0	3	168.0	23	470.0
	R	1153.6	407.2	35.3										
69 Queenstown-Lakes	U	132.2	109.9	83.1	87	1726.6	77	1613.0	1	29.0	10	443.3	2	104.2
	R	481.2	143.7	29.9										
	SPR	83.5	0.0	0.0	17	152.4	15	135.4	0	0.0	0	0.0	6	87.3
70 Waitaki (Part)	U	97.0	90.3	93.1	123	1491.0	77	883.0	0	0.0	8	175.0	17	132.0
	R	1430.8	421.0	29.4										
Otago Region	U	1037.3	931.6	89.8	886	14616.0	568	9035.6	13	485.0	71	1880.3	147	2013.1
	R	7634.7	1909.9	25.0										
	SPR	124.1	3.3	2.7	23	392.7	20	360.9	0	0	0	0	6	87.3

Table 4 (continued)
copied from data compiled as at 30 June 1994 by Transit New Zealand

Table 4 - continued

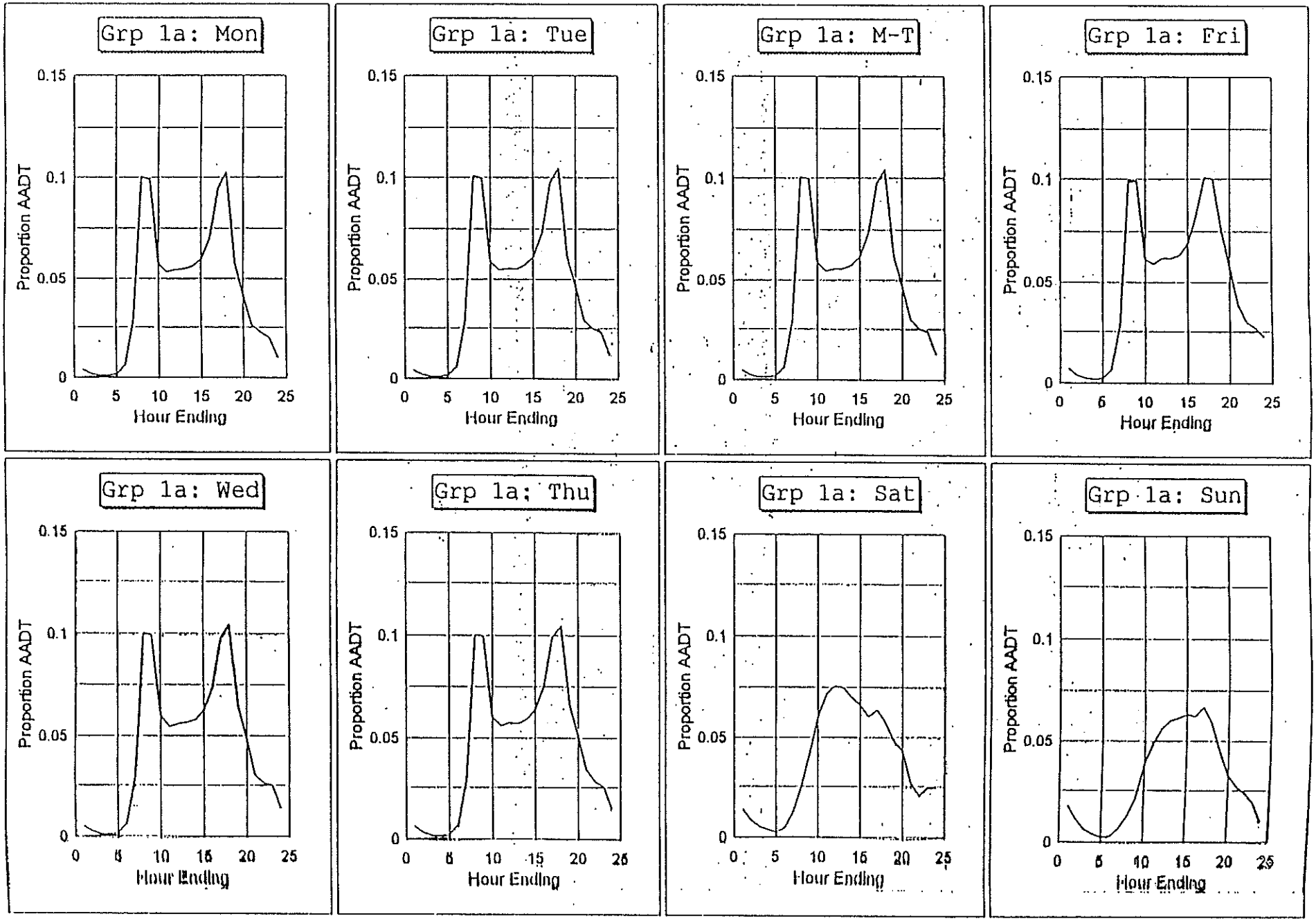
Road Controlling Authority		Total Length km	Length Sealed km	Percent Sealed %	Total Bridges No	Total Bridges Length metres	Single Lane Bridges No	Single Lane Bridges Length metres	Restricted Bridges Speed Only No	Restricted Bridges Speed Only Length metres	Restricted Bridges Weight No	Restricted Bridges Weight Length metres	Timber Bridges No	Timber Bridges Length metres
71 Gore	U	86.4	77.4	89.6	110	1225.0	52	732.0	4	54.0	3	36.0	32	366.0
	R	832.4	272.7	32.8										
72 Invercargill	U	288.0	285.2	99.0	50	1402.0	13	291.0	0	0.0	1	61.0	8	129.0
	R	299.6	163.1	54.4										
73 Southland	U	190.4	159.5	83.8	863	12061.1	446	6669.3	3	95.3	18	371.6	204	1944.4
	R	4715.0	1725.5	36.6										
	SPR	20.4	0.5	2.5	15	137.3	15	137.3	0	0.0	2	24.0	2	24.0
Southland Region	U	564.8	522.1	92.4	1023	14688.1	511	7692.3	7	149.3	22	468.6	244	2439.4
	R	5847.0	2161.3	37.0										
	SPR	20.4	0.5	2.5	15	137.3	15	137.3	0	0.0	2	24.0	2	24.0
74 Chatham Islands	U	4.0	3.5	87.5	24	210.0	24	210.0	0	0.0	2	9.0	18	121.0
	R	168.1	0.7	0.4										
South Island Totals	U	**4428.0**	**4212.3**	**95.1**	**4971**	**79919.2**	**4690**	**52535.4**	**28**	**957.3**	**225**	**4499.9**	**1003**	**11406.5**
	R	**30433.9**	**11508.1**	**37.8**										
	SPR	**293.4**	**110.0**	**37.5**	**72**	**2196.0**	**48**	**1563.2**	**0**	**0.0**	**2**	**24.0**	**8**	**111.3**
Totals	U	**15039.9**	**14618.5**	**97.2**	**12809**	**215145.7**	**9133**	**135018.8**	**38**	**1452.1**	**491**	**11453.3**	**1391**	**15659.5**
	R	**66446.7**	**30004.9**	**45.2**										
	SPR	**453.9**	**178.4**	**39.3**	**93**	**2743.4**	**62**	**1946.2**	**0**	**0.0**	**2**	**24.0**	**8**	**111.3**
GRAND TOTAL		**81940.5**	**44801.8**	**54.7**	**12902**	**217889.1**	**9195**	**136965.0**	**38**	**1452.1**	**493**	**11477.3**	**1399**	**15770.8**

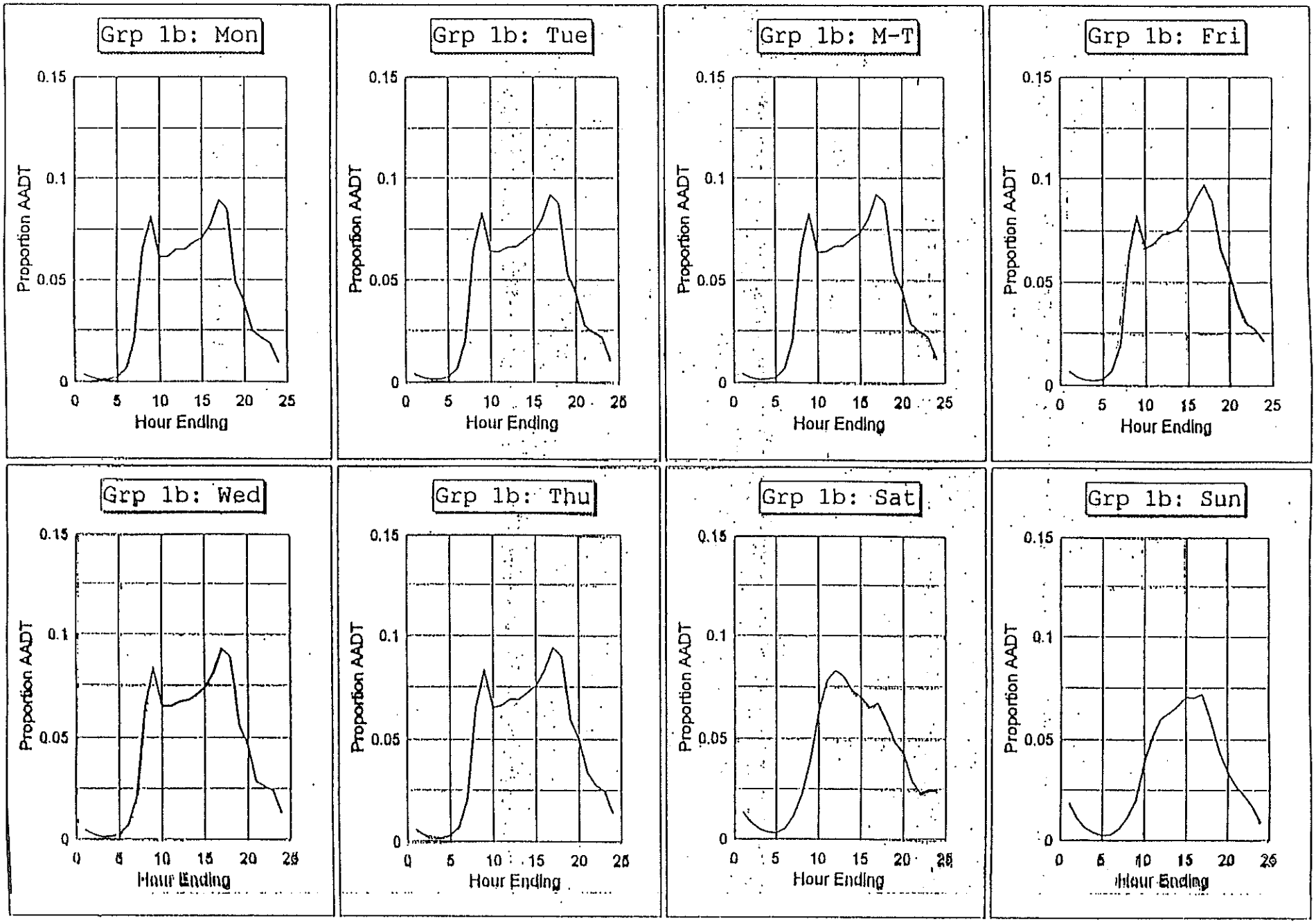
Table 4 (continued)
copied from data compiled as at 30 June 1994 by Transit New Zealand

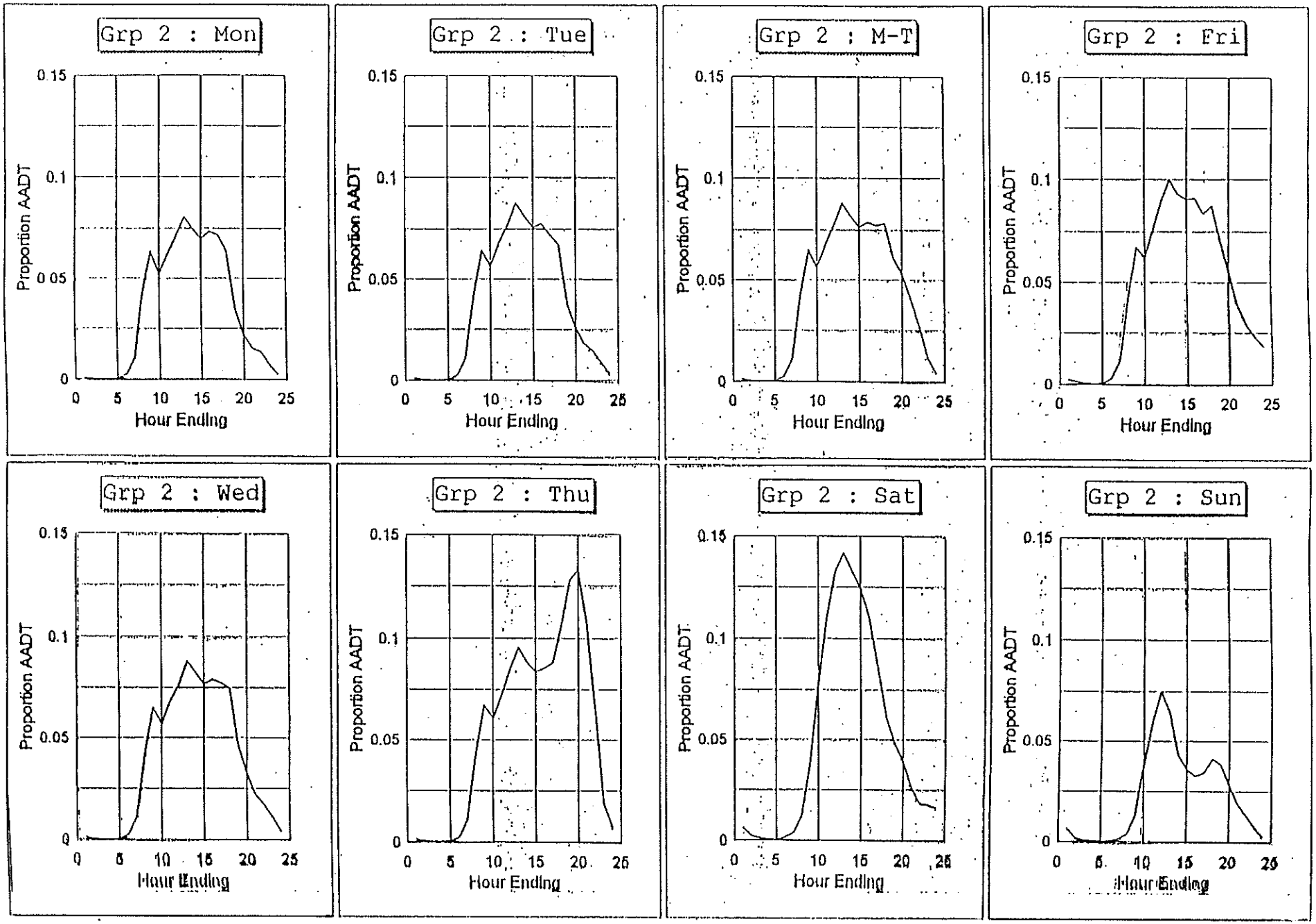
8.5.5 Distributions of Traffic Flow for Road Use Categories

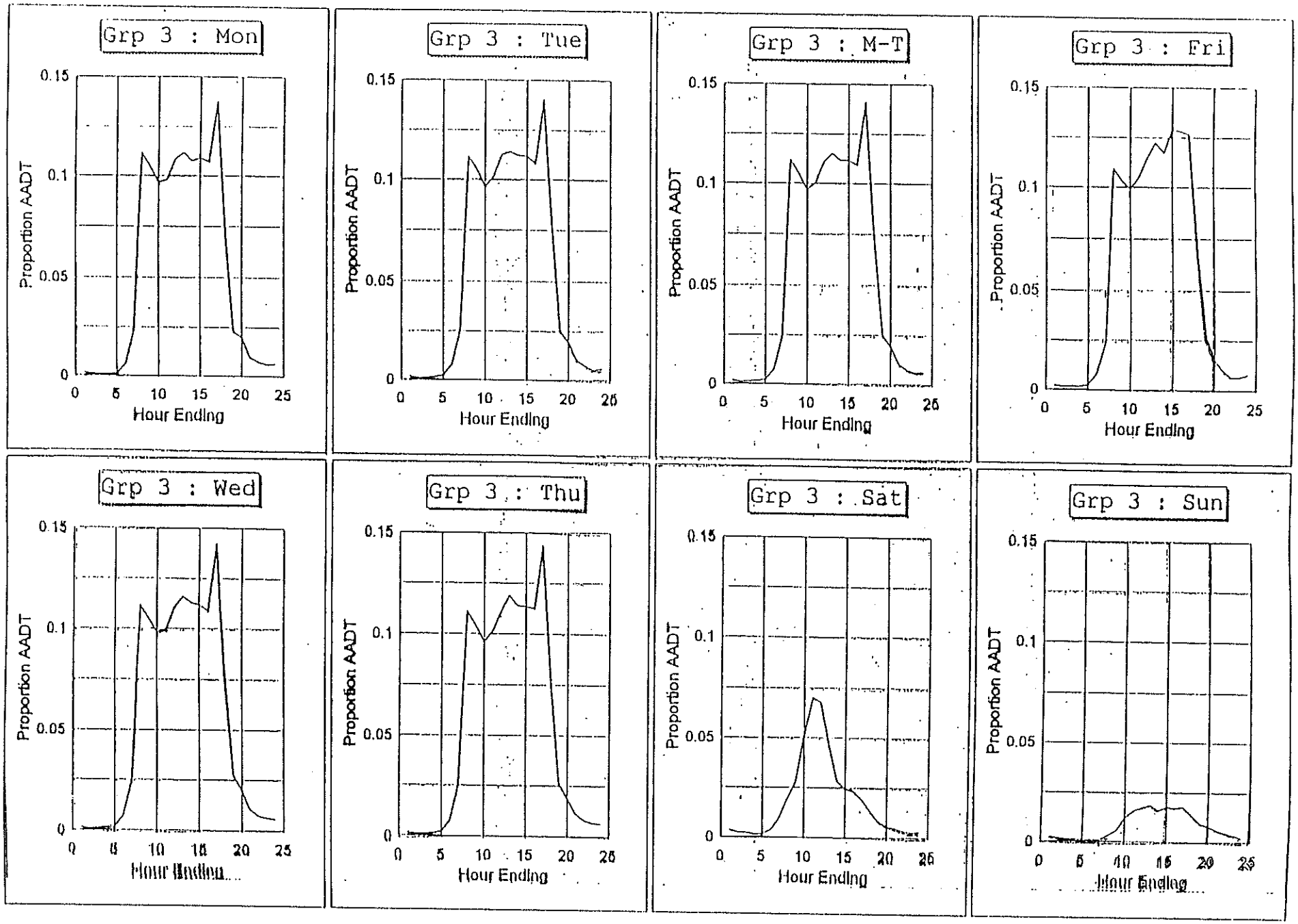
Note: The following graphs were prepared by Dr Kelly Mara, and are reproduced from his originals. They are relevant for obtaining answers to Section 8.4.2 of this report in the Second Questionnaire seeking "Supplementary Information". They assist in assessment of correct allocation for a road section.

The term "Group" (Grp on graphs) describes the particular road use category. Table 10.1, in part *1. Research Report* (Transit New Zealand Research Report 54A), lists the definitions of road use categories.

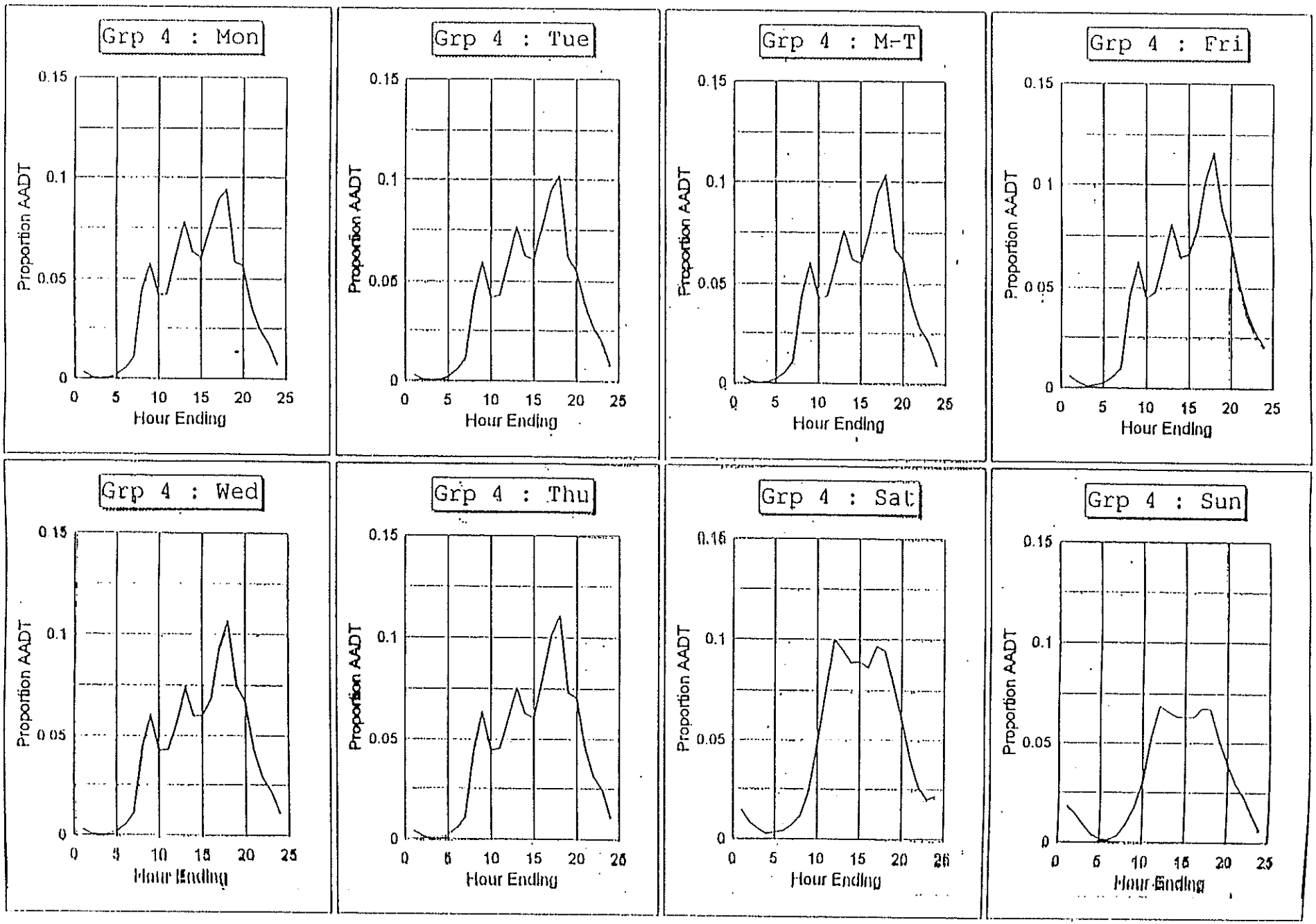

Grp 1a: Mon
Grp 1a: Tue
Grp 1a: M-T
Grp 1a: Fri
Grp 1a: Wed
Grp 1a: Thu
Grp 1a: Sat
Grp 1a: Sun
Proportion AADT
0.15
0.1
0.05
0
0 5 10 15 20 25
Hour Ending

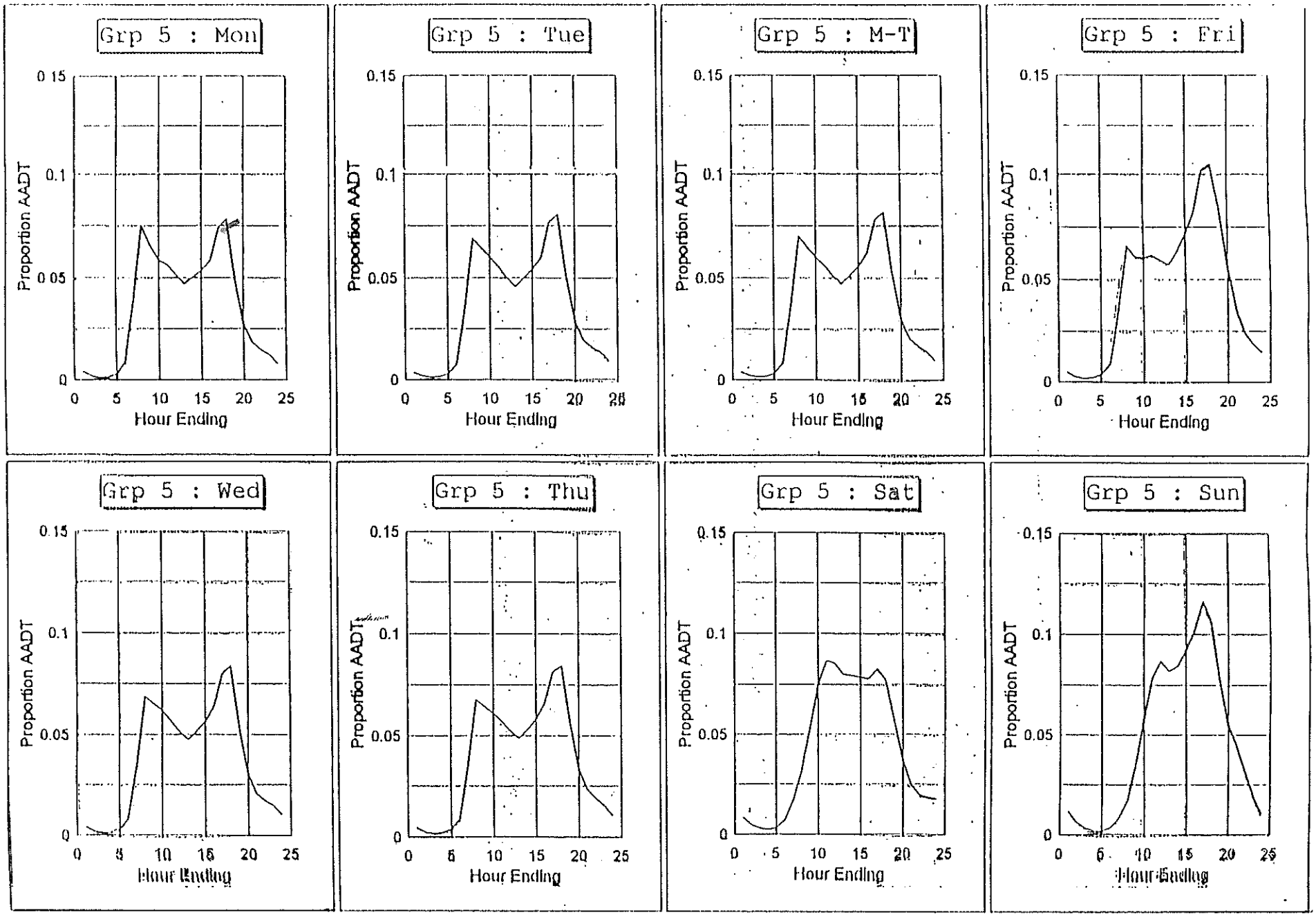

Grp 1b: Mon
Grp 1b: Tue
Grp 1b: M-T
Grp 1b: Fri
Grp 1b: Wed
Grp 1b: Thu
Grp 1b: Sat
Grp 1b: Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25

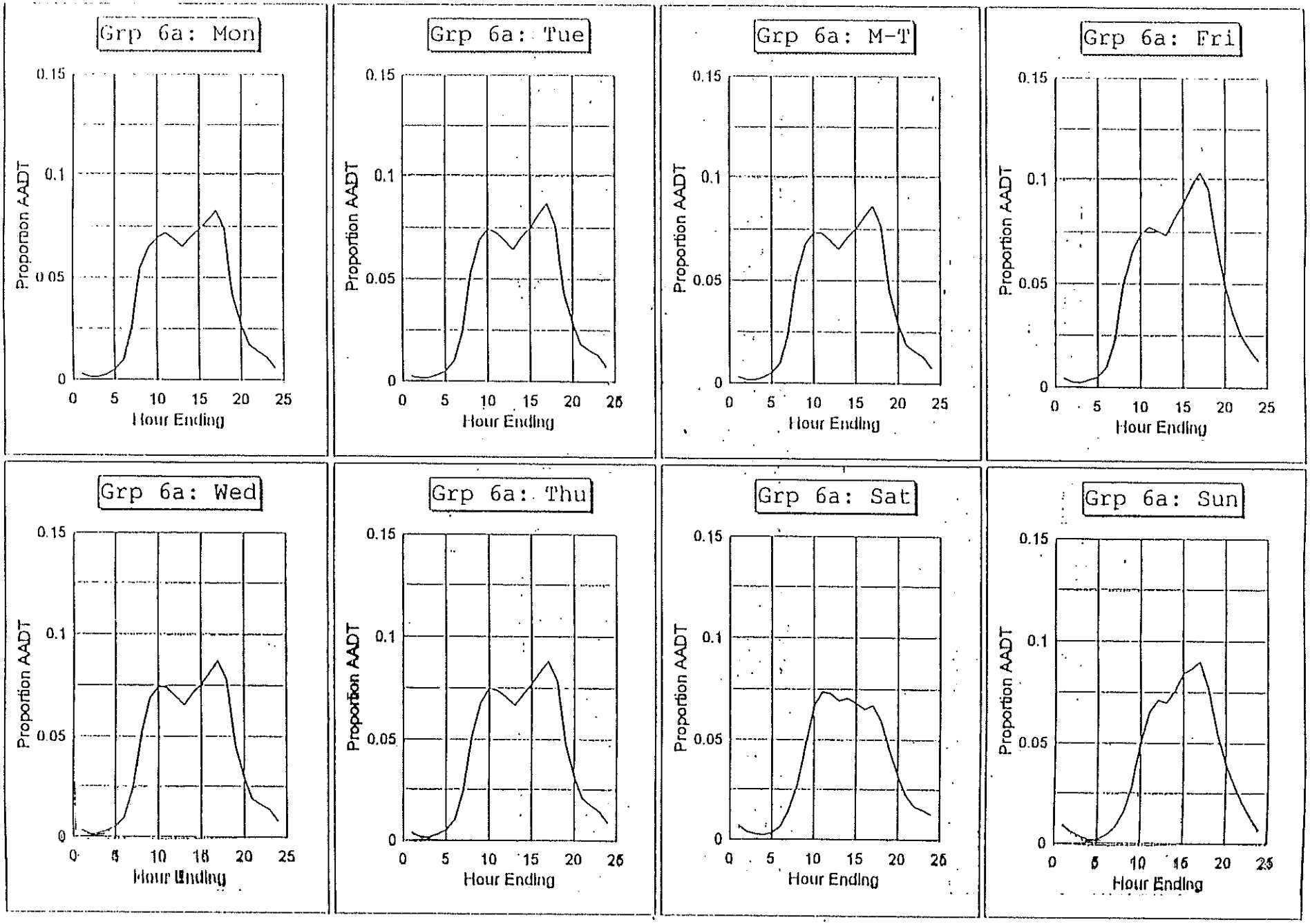

Grp 2 : Mon
Grp 2 : Tue
Grp 2 : M-T
Grp 2 : Fri
Grp 2 : Wed
Grp 2 : Thu
Grp 2 : Sat
Grp 2 : Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25

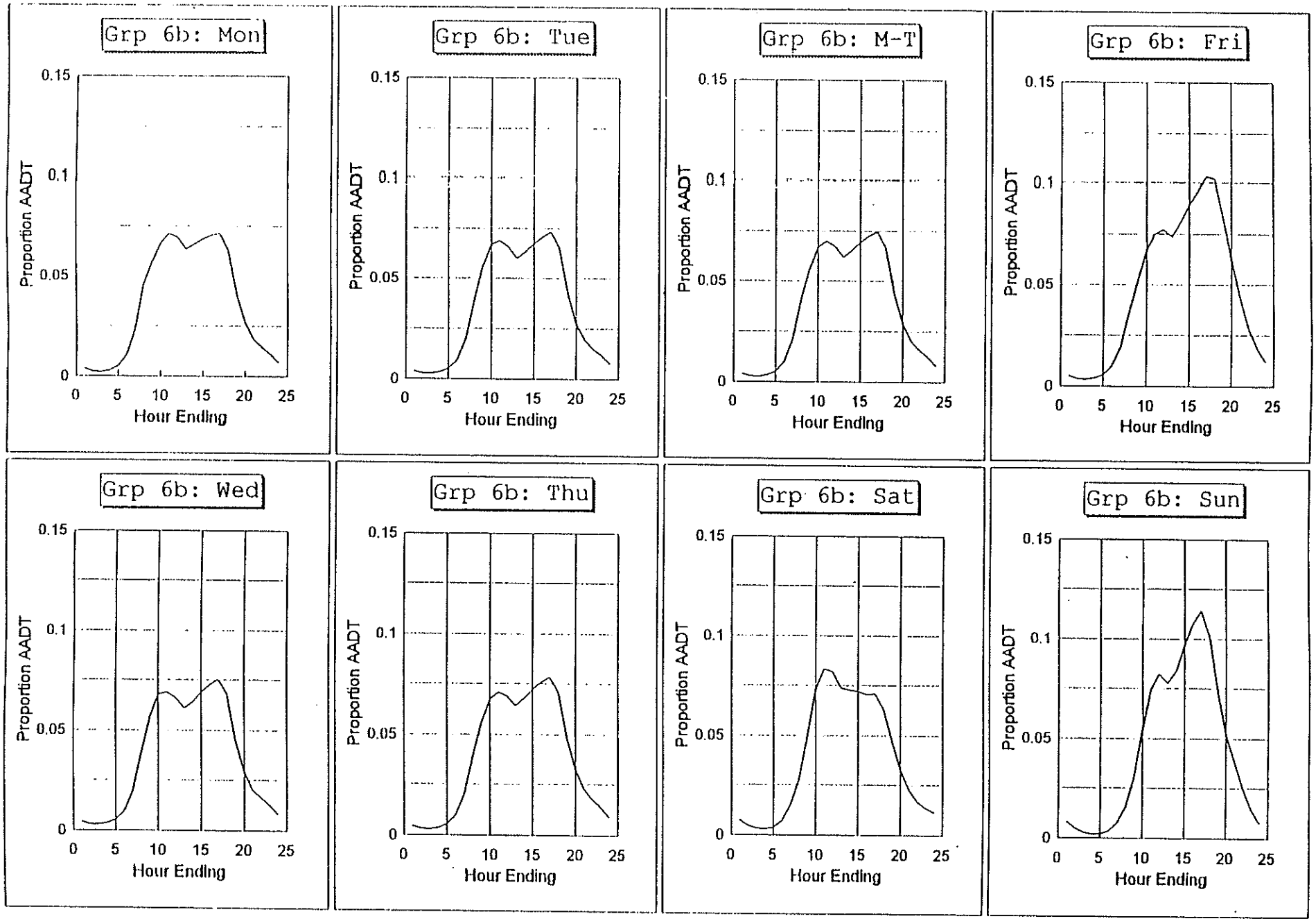


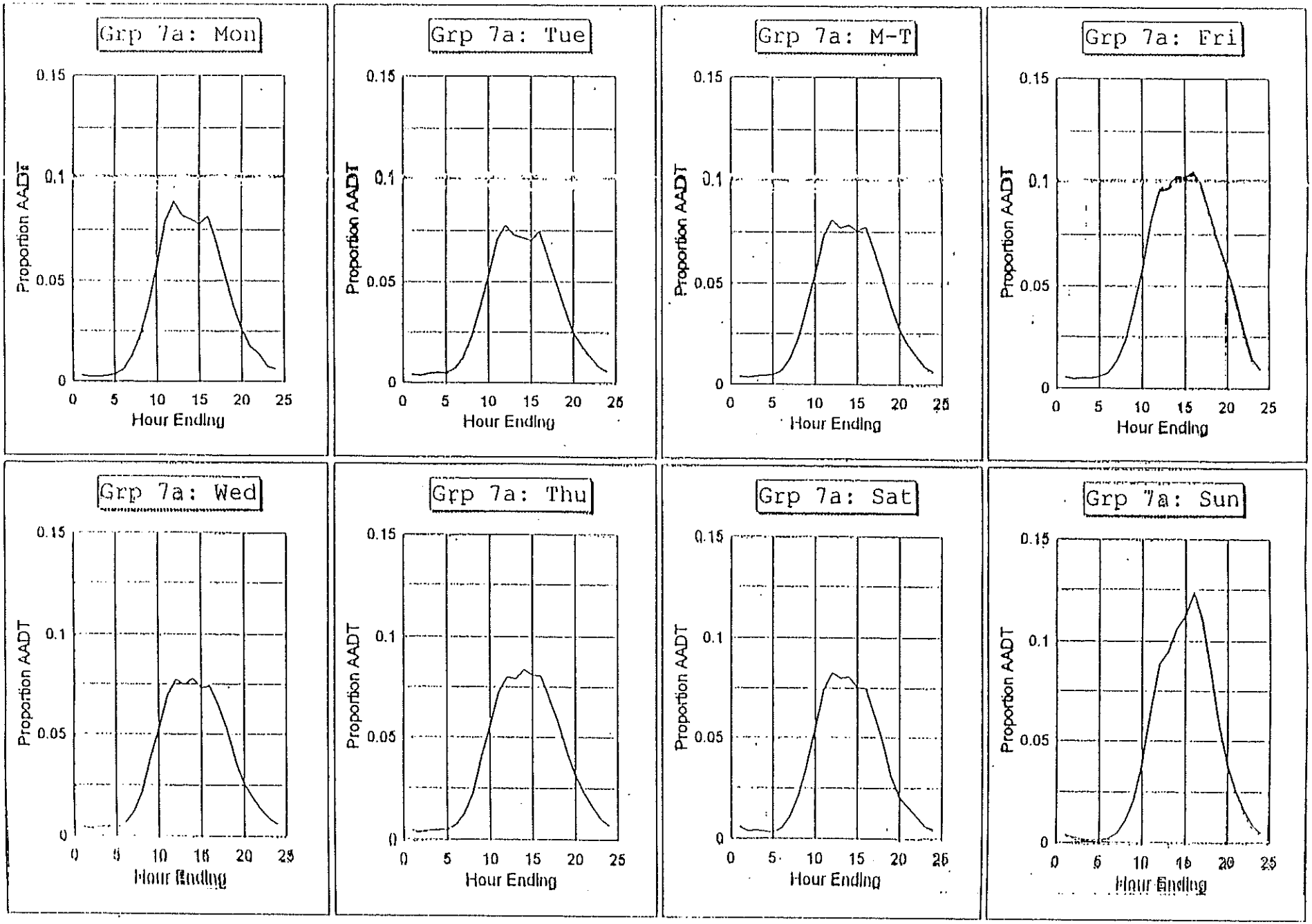
Reproductions of graphs of distributions of traffic flow for road use categories 70

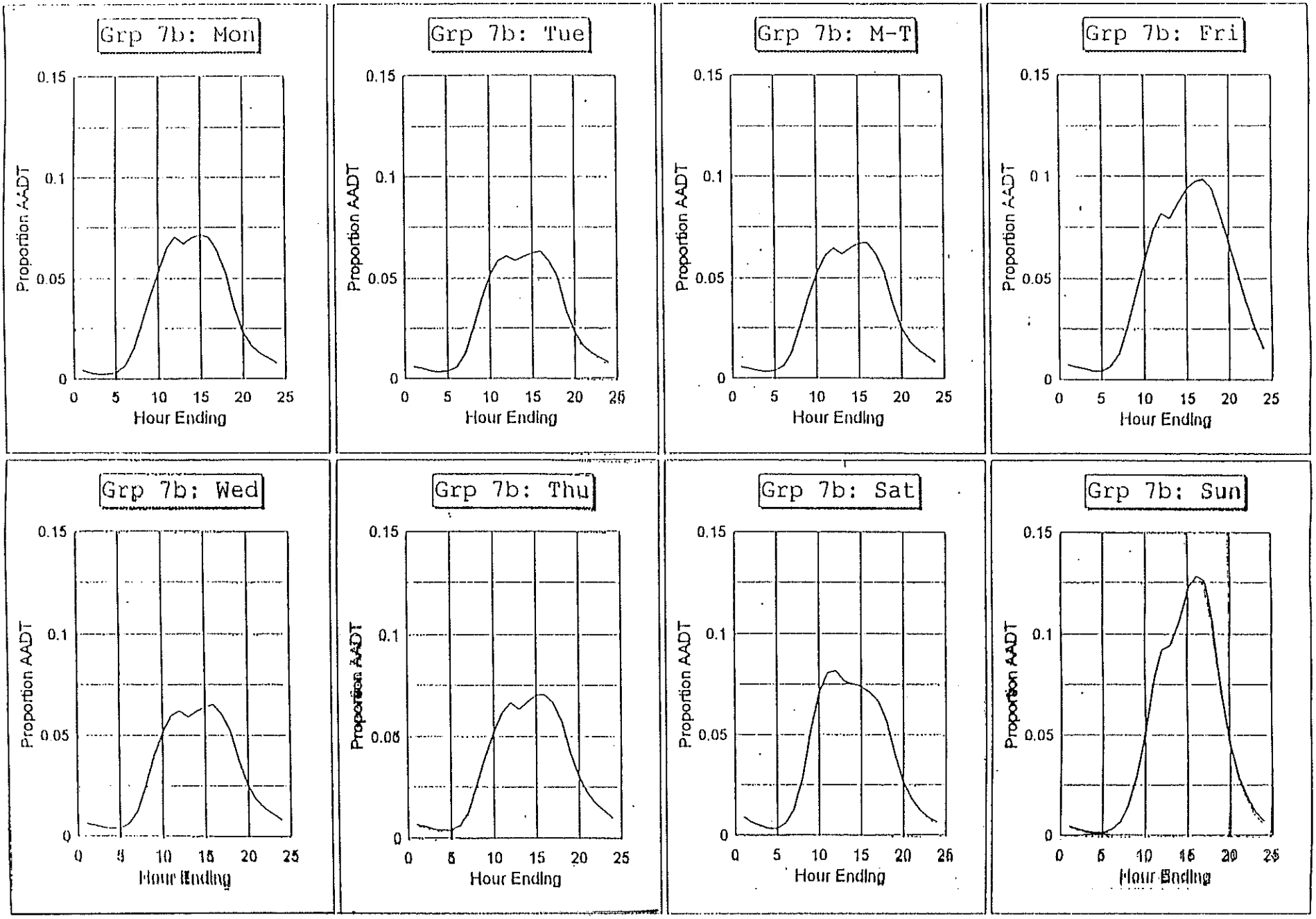

Grp 4 : Mon
Grp 4 : Tue
Grp 4 : M-T
Grp 4 : Fri
Grp 4 : Wed
Grp 4 : Thu
Grp 4 : Sat
Grp 4 : Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25


Grp 5 : Mon
Grp 5 : Tue
Grp 5 : M-T
Grp 5 : Fri
Grp 5 : Wed
Grp 5 : Thu
Grp 5 : Sat
Grp 5 : Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25


Grp 6a: Mon
Grp 6a: Tue
Grp 6a: M-T
Grp 6a: Fri
Grp 6a: Wed
Grp 6a: Thu
Grp 6a: Sat
Grp 6a: Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25


Grp 6b: Mon
Grp 6b: Tue
Grp 6b: M-T
Grp 6b: Fri
Grp 6b: Wed
Grp 6b: Thu
Grp 6b: Sat
Grp 6b: Sun
Proportion AADT
0.15
0.1
0.05
0
0 5 10 15 20 25
Hour Ending


Grp 7a: Mon
Grp 7a: Tue
Grp 7a: M-T
Grp 7a: Fri
Grp 7a: Wed
Grp 7a: Thu
Grp 7a: Sat
Grp 7a: Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25


Grp 7b: Mon
Grp 7b: Tue
Grp 7b: M-T
Grp 7b: Fri
Grp 7b: Wed
Grp 7b: Thu
Grp 7b: Sat
Grp 7b: Sun
Proportion AADT
Hour Ending
0.15
0.1
0.05
0
0 5 10 15 20 25

9. Task 3: EXTEND WORKING SPREADSHEET: (b) DESIGN FORMAT OF NTDB

Col.no.	Field name	Description	Means of generation
a	*Road_ID*	Identifies road section	Ex RAMM Working Spreadsheet normally
b	*Roadname*	Name of road	Ex RAMM Working Spreadsheet normally
c	*TLA_Dist*	Number of Territorial Authority: 1 to 73	Input by OM. Note: use TA number even in the case of state highways passing through a TA district
d	*TNZ_Reg*	Number of region: 1 to 14	Input by OM
e	*Start-m*	Start position of section (metres)	Ex RAMM Working Spreadsheet normally
f	*Finish-m*	Finish position of section (metres)	Ex RAMM Working Spreadsheet normally
g	*Length*	Length of section - dist between start and finish (metres)	Ex RAMM Working Spreadsheet normally
h	*From_desc*	Description of feature at start of section	Ex RAMM Working Spreadsheet normally
i	*To_desc*	Description of feature at end of section	Ex RAMM Working Spreadsheet normally
j	*Location*	Name of road, location	Ex RAMM Working Spreadsheet normally
k	*S/U*	Sealed (S) or Unsealed (U)	Derived automatically from maintenance category
l	*Maint_cat*	Maintenance category	Ex RAMM Working Spreadsheet normally
m	*Hierarchy*	Description of road use	Ex RAMM Working Spreadsheet normally
n	*U/R*	Urban (U) or Rural (R)	Ex RAMM database normally
o	*U/R_adj*	U/R corrected to reflect surrounding environment	Input by OM
p	*Other_usage*	Additional description of use, e.g. logging traffic	Input by OM from questionnaire
q	*Roaduse_cat*	See Section 10 part 1. Research Report for description. of road use categories	Input by OM from questionnaire
r	*HCV%*	Percentage of heavy vehicles	Derived automatically
s	*Adt*	Average daily traffic	Ex RAMM database normally
t	*Dir*	Direction of count (L left, R right, or B both directions)	Ex RAMM database normally

9. *Design Format of NTDB continued*

Col.no.	Field name	Description	Means of generation
u	*Count_Status*	Estimate or actual count	Ex RAMM database normally
v	*Count_date*	Date of count	Ex RAMM database normally
w	*Dur*	Duration of count	Input by OM
x	*Method*	Method of count	Obtained from interview with Road Manager
y	*Week_no*	Number of week	Calculated automatically from count date
z	*Day_no*	Number of day in week	Calculated automatically from count date
aa	*Week_factor*	Week factor for generating AADT	Input automatically from date of survey/estimate
ab	*Day_factor*	Day factor for generating AADT	Input automatically from date of survey/estimate
ac	*Axle_factor*	Factor to adjust tube counts for average number of vehicles	Additional output, for count sites where tube counters are used. Obtained from discussion with Road Manager
ad	*Growth_factor*	Factor to update all count data to present date	Additional input, from OM calculation, from historic count data, and dependent on road use classification
ae	*AADT_est*	ADT adjusted for day/week of actual count, or date of estimated count, and growth rate	Input automatically, using day and week factor and ADT
af	*Add_adt*	Additional count information, not currently within RAMM database	Obtained from interview with Road Manager, or from subsequent classification surveys
ag	*Add_date*	Date of additional count	Input by OM
ah	*Add_dur*	Duration of additional count	Obtained from interview with Road Manager, or from subsequent classification surveys
ai	*Add_method*	Method used to execute additional count	Obtained from interview with Road Manager, or entered as *VDAS* if from subsequent classification surveys
aj	*Add_week_no*	Week of year for additional count information	
ak	*Add_day_no*	Day of month for additional count information	
al	*Add_week_factor*	Factor used with additional count information	
am	*Add_day_factor*	Factor used with additional count information	
an	*Add_axle_factor*	Factor associated with additional count information	

9. Design Format of NTDB continued

Col.no.	Field name	Description	Means of generation
ao	*Add_growth_ factor*	Factor associated with additional count information	
ap	*Add_AADT_est*	Additional AADT, after adjustment for date of count and growth rate	
aq	*AADT_best*	Value of AADT used for subsequent calculation	Determined in WCSL Wellington office: normally the value of AADT derived from the RAMM database (AADT_est), but replaced by actual count value where appropriate, e.g. the *VDAS* survey data *(Add_AADT_est)*
ar to bg	*Dkw_c1 to Dkw_c16*	Proportion of AADT in each of 16 DKW classes of vehicle type	Additional input, carried out in Wellington, and a function of road group
bh	*vkt_year*	Vehicle kilometres travelled for road section per year	Additional output, calculated in Wellington for each road section, from other information in each row
bi	*Ruc$_year*	RUC revenue per road section	Additional output, calculated in Wellington for each road section, using LOTUS macro (f)

10. Task 4: EXTEND WORKING SPREADSHEET (c) EXPANSION OF NTDB

Preparation and check of Working Spreadsheet: copy this page, complete it for each RCA

Authority/ Region	
File Name	

Task No.	Description of task	Task done by:	Date and signature
1	Check columns for completeness and "ERR" in columns. Amend if possible, otherwise send back for completion.		
2	Move to cell BL11, and combine the range "LOOKUP" from the file "LOOKUP.WK1" which is in the directory "G:\ROAD\PROJECTS\C8614.02\RAMMxxx". The key strokes to do this are /FCCN LOOKUP .		
3	Copy the formulae in cell BL12 to cell AA11.		
4	Copy the formulae in cell BM12 to cell AB11.		
5	Copy the formulae in cell BN13 to cell AC11.		
6	Copy the formulae in cell BN12 to cell AE11.		
7	Make a quick check that formulae are referencing correct cells.		
8	Copy formulae in cells AA11 through AE11, down to end of Working Spreadsheet.		
9	Scan down rows checking for obvious errors, such as "ERR" or "0".		
10	With the cursor in cell AE11, take the value of the column and enter it in column AQ. This is done by placing the cursor in cell AE11 and entering the following keystrokes /RV{END}{DOWN ARROW} {ENTER} move to cell AQ11 and press {ENTER}.		
11	Save the file as RAMMxx or RAMMTxx as appropriate.		
12	Move the cursor to cell CK11. Delete columns CK through AR.		
13	Move the cursor to cell AP11. Delete columns AP through V.		
14	Move the cursor to cell T11. Delete columns T and S.		
15	Move the cursor to cell P11. Delete columns P through L.		
16	Move the cursor to cell J11. Delete column J through H.		
17	Move the cursor to cell F11. Delete column F.		
18	Move the cursor to cell D11. Delete column D.		
19	Confirm that remaining columns are: *Road_ID, Roadname, TLA_Dist, Start_m, Length, S/U, Roaduse_cat, HCV%, Count_Status, AADT_best.*		
20	Save the file as MKMxx.WK1 or MKMTxx.WK1 as appropriate in the directory G:\ROAD\PROJECTS\C8614.02\MKMXXX\.		

11. Task 5: DESIGN OF NTDB

Sections 11.1 - 11.7 describe the form of the NTDB derived from the Working Spreadsheets and which will be distributed to all TAs. The document also describes the components of the NTDB and its structure, and therefore serves as a Work Instruction.

11.1 Overview

The NTDB consists of measured and synthesised data about traffic volumes on New Zealand road sections.

The NTDB consists of data in a form suitable for loading into common PC database packages such as Dbase and Paradox.

The data are described in Section 11.2 of this report. Before being used the data on the distribution diskettes must be loaded onto a PC as described in Section 11.3. The use of the data in Paradox, DBase and Lotus is discussed in Section 11.4.

11.2 Data

The NTDB consists of three data files:

- The *road section data* which are the data on each road section;
- The *distribution of vehicle classification* for each of 15 vehicle classes, and dependent on road use category;
- The *vehicle weight distribution* tables, which are expressed as percentiles for respective heavy vehicle class and road use category.

11.2.1 Road Section Data

The principal data are one record for each road section. A description and the format of each data field applying to every road section (one row in the NTDB) are shown in Table 11.1. There are 123,953 rows in the NTDB.

Table 11.1 Fields used in the NTDB for road section and vehicle volume table.

Field name	Description
NTDB	Number of the row
Tnz_region	Number of region: 1 to 14
Tla_number	Number of Territorial Authority: 1 - 73
Road_id	Identifies road section
Start	Start position of section (metres)
Finish	Finish position of section (metres)
Length	Length of section - distance between start and finish (metres)
Roadname	Name of road
From_desc	Description of feature at start of section
To_desc	Description of feature at end of section
H_l	State Highway (H) or local road (l)
S_u	Sealed (S) or unsealed (u)
U_r	Urban (U) or rural (r)
U_r_adj	Urban or rural in terms of surrounding land use or environment
Oth_usage	Additional description of use, e.g. logging traffic
Roaduse	See Section 10, part 1. Research Report, for description of road use categories
Count_meth	Whether Estimate, Tube Count, or Classification Count *(ARCHER or VDAS)*
Aadt	Value of AADT used for subsequent calculation

11.2.2 Vehicle Classification Distribution Data

Table 11.2 Fields used in the NTDB for vehicle classification table.

Field name	Description
VEHPROP	Number of the row
Road_use	Road use category
Dkw_1 to Dkw_15 (15 fields)	Proportion of AADT in each of 15 DKW classes of vehicle

11.2.3 Heavy Vehicle Weight Distribution Data

Table 11.3 Fields used in the NTDB for heavy weight distribution table.

Field name	Description of field
WGTDIST	Number of the row
Set	Name attributing a set of weight distributions to particular road use categories and RCAs
Mean	Mean weight (in kg) for the particular weight stratum (DKW class, groups of RCAs and road use categories)
Std	Standard deviation (in kg) for the particular weight stratum (DKW class, groups of RCAs and road use categories)
5%ile to 95%ile (13 fields)	Average weight (in kg) for the percentage of vehicles less than the set 13 percentile points, namely 5, 10, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 95%

11.3 Loading the Data

The NTDB is loaded on two diskettes in compressed form. Before it can be used, the data must be expanded onto the hard disk of a PC.

Develop steps to tell a competent PC user how to do this.

11.4 Use of the Data

Develop a section intended to be read by competent PC users familiar with a DBase or other database packages.

11.5 NTDB Design

Describe the design of the NTDB, including files and their contents.

11.6 Use of Packages

Develop guidelines to indicate how to load the data.

11.7 Technical and Performance Issues

Describe hardware requirements, and expected performance of the NTDB for common operations.

12. Task 6: PILOT CVIU VEHICLE WEIGHT SURVEY

The Work Instruction for this task has been incorporated in Section 15 (Stage 3(b)) of this part 2 of the report. It applied not only for the pilot survey in Stage 3(a) but also (with the expanded population of data and locations) for the subsequent surveys carried out in Stage 3(b).

13. Task 7: PURCHASE SIX *VDAS* CLASSIFICATION INSTRUMENTS

The instruments were purchased to supplement those procured under Stage 2 of the project, as well as those made available by TNZ.

Stage 3(b) EXECUTE FIELD CLASSIFICATION SURVEYS AND COMPLETE NATIONAL TRAFFIC DATABASE

14. Task 1: EXECUTE FIELD VEHICLE CLASSIFICATION SURVEYS

14.1 Random Selection of Sites

Element	*Name of RCA:* _____	Person	Start (1994)	Complete (1994)	Verify & Date
1	Prepare distribution of ADT by road sections. Select strata with the objective of minimising the number of samples of sites to achieve the target precision.	MKM	21/10	18/11	
2	Exclude all sections with ADT ≤ 55.				
3	Determine approximate effect of variable section lengths.				
4	Adjust total sample size according to effected estimated in 3 to achieve overall ±10% precise sample.				
5	Allocate numbers to strata.				
6	Select, at random, sites to be sampled to achieve target precision.				
7	Determine, at random, road subsection in which counter is to be placed.				
8	Randomly choose sites to be counted for 1994, Stage 3, from total set.				
	Advise SOM of sites, including illustration on a marked up road map.				

14.2 Instrumented Classification Surveys

14.2.1 Field Work

Element	Description
1. **Location and Dates**	The tube counts are to be conducted at the locations shown on the maps attached, and supplied during the sampling. Counts within TA are to be balanced as much as possible across the days of the week.
2. **Survey Period**	The tube counts are to be undertaken between 17 October 1994 and 9 December 1994. The exact days that tube counting is required will be notified in due course.
3. **Site Supervisor**	The site supervisor will be nominated at the training/briefing session. At the conclusion of the surveys all the equipment supplied is to be returned to the site supervisor.
4. **Safety**	All surveyors must ensure that they are working safely, i.e. they are not endangering themselves nor traffic. Glow jackets must be worn at all times. Vehicles must be parked safely off the road in areas of good visibility to traffic and hazard lights or flashing beacon on while working.
5. **Installation of Automated Pneumatic Tube Counters**	The tube counters will count and classify the numbers and type of each of the NAASRA vehicle classes passing the site. The equipment to be used will be the Australian *VDAS* classifier, which is supplied to you.
6. **Tube Installation**	The pneumatic tube shall be installed as follows: a. Multiple Tubes in one lane - when the road is clear, nail down the end of the tube at the centreline of the road. Run the tube back across the full width of the lane at right angles to the centreline and remove kinks, slightly tension the tube, and nail down at the road edge. Ensure that the tubes are spaced the correct distance apart (usually 5m). It is advisable to mark the line of tubes with dazzle paint marks before nailing down the tubes. b. Multiple tubes across full width - as for "a" above: special care is required on busy roads and two people installing the tube may be required.
7. **Counter Box Installation**	The software shall be preset as per the manufacturer's instructions in the office before setting up on site. The counter box shall be located as far off the road as practical. The counter box locations must meet these criteria: • Does not endanger traffic, • Will not be accidentally damaged by traffic, • Located within the road reserve (generally within fence boundaries), • Can be locked up against an immovable object such as a fence or power pole.

14.2.1 Field Work continued

Element	Description
8. **Vehicle Descriptions**	For the tube count survey, the vehicles will be classified as per the NAASRA classification. The operator is *also* required to obtain individual vehicle data. This may be done by selecting NAASRA Class mode C and Individual Vehicle mode V. For the latter all the NAASRA classes, except class 1 are to be tagged.
9. **Site Checks**	An indication of the likely traffic flows at the sites will be provided with the site location maps. By visual observation at the site, confirm the flow and determine from location whether peak flow periods are likely. Determine the number of classifiers required using the following criteria. An accuracy of 95% can be expected for total flows (both ways) of up to 150 vehicles per hour with one classifier covering two lanes. This is an acceptable accuracy. If it is judged that the flow will not exceed 150 vehicles per hour then **one** *VDAS* classifier may be used; if not, two will be required, one for each lane. When the classifier is set up, at busier sites visually compare the passing traffic with the classifier output using "Trial Run" mode for a period of 15 minutes, and selecting individual vehicle data, to confirm accurate operation, before setting the site up for unattended logging. At sites with low traffic flows, use the surveyor's vehicle to check for correct operation.
1.0 **Operator's Manual**	Further information on the setup and operation of the classifiers may be found in the manual "*VDAS* 2000 Vehicle Classifier" supplied by Australasian Traffic Surveys and provided to you.
11. **Retrieval of Data**	The data shall be retrieved in accordance with the following instructions: 11.1 Retrieve data at the end of counting at the site. 11.2 The convention for naming the files shall be TA number and site number as noted on the map provided by the Survey Operations Manager (i.e. "TA no./Site no.") 11.3 Download data at site or take box back to office for retrieval. 11.4 Retrieve tube and box, ensure no nails are left at the site. Fill nail holes with a bituminous epoxy, leaving a bead proud of the surface. 11.5 Forward appropriately labelled diskettes (3.5in.) containing retrieved data to Works Consultancy Services, PO Box 30845, LOWER HUTT, Attention: G Beattie. 11.6 Record the serial number of the classifier against the site on the map.
10. **Payment**	Payment for the work will be at the separately agreed base rate per count site. In setting this rate, it is assumed that up to 5% of count sites will use two counters and up to 1% of sites will use four counters. Should these percentages be exceeded then a new rate will be negotiated. Payment for the counting will be paid at monthly intervals based upon the number of sites completed and upon receipt of data from these sites.

14.2.1 Field Work continued

Element	Description
11. **Works Consultancy Contact**	Contact is Graeme Beattie on (04)568 3119 (w) or (04)566 7964 (ah). Alternatively David Hutchison may be called at (04)471 7581 (w). If you experience difficulties with equipment or counting sites you must ring as soon as possible.
12. **Public**	If a member of the public asks what you are doing, just tell them that you have been engaged by Works Consultancy Services to undertake a traffic count, and they can contact either Graeme Beattie at (04)568 3119 or David Hutchison at (04)471 7000 for further information. You do not have to tell them why you are installing the tube counters.
13. **Personal Emergency**	If an emergency arises (such as injury to a worker) while you are on site, ring (04)568 3119 and ask for Graeme Beattie. If necessary you may use the Telecom operator to place a transfer charge call to Works Consultancy, or Works Consultancy Services will reimburse you for the cost of the call. Please note that the above only applies for *emergency* situations, and if used for non-emergency use could result in you paying for the cost of the call.
15. **Record of Survey Completion**	Complete the form attached once data from each site have been downloaded.

14.2.2 Record of *VDAS* Surveys

Date	TA District	Site Number	Date and Time of Commencement of Survey	Date and Time of Completion of Survey	Sign off

14.3 Manual Classification Surveys

14.3.1 Field Work

Element	Description
1. **Scope of Work**	This survey will involve a manual classified traffic count.
2. **Location and Dates**	The surveys are to be conducted on the TA roads at the locations shown on the sketch maps attached. The surveys are to be undertaken between 17 October 1994 and 9 December 1994.
3. **Survey Hours of Work**	The day for which surveying is required will be notified to you at the training/briefing session. The classifying count data will be recorded in 1 hour intervals on the worksheets attached. The time periods for surveying will be from 8 am to 5 pm. Only one day will be surveyed at each site.
4. **Site Supervisor**	The site supervisor (Operations Manager) will be nominated at the training/briefing session. At the conclusion of the surveys all the equipment supplied is to be returned to the site supervisor.
5. **Safety**	All surveyors must ensure that they are working safely, i.e. they are not endangering themselves nor traffic. Reflectorised glow jackets will not be provided as it is expected that surveyors and their vehicles will be situated well off to the side of the road.
6. **Manual Classified Traffic Counting (MCTC) Technique**	The Manual Classified Traffic Counts (MCTC), that is the numbers of each of the vehicle types, as defined below passing the site will be recorded. No turning traffic movements will be counted. In situations where separate counts are to be made on adjoining roads a separate survey form will be filled in for each road. Vehicle Descriptions For the MCTC survey the vehicles will be classified as listed on the survey form. Counting Technique • Use 5 'bar gate' system i.e. 𝍸 = 5, 𝍸 II = 7 , to record each vehicle type. • Count each vehicle as they cross a reference line such as the double white or yellow "stop" line, or a power pole. • A hand-held tally counter may be provided for recording the cars, which will be most of the traffic and will allow for easier recording of the remaining vehicle types. An example Worksheet is attached.

14.3.1 Field Work continued

Element	Description
7. **Payment**	Payment for the surveying will be direct credited to your bank account, about 1 - 2 weeks after the survey, provided you have completed the following : • Contract for Temporary Employment, • IR 12 (IRD No. required), • Direct Credit Authority (Bank Account No. required).
8. **Works Consultancy Contact**	This will be a nominated person in the local Works Consultancy Services office. Alternatively Graeme Beattie may be called at(04) 568 3119 (w). If you are delayed or unable to make the count you must ring as soon as possible.
9. **Public**	If a member of the public asks what you are doing, tell them that you have been engaged by Works Consultancy Services to undertake a traffic survey, and they can contact David Hutchison at (04) 471 7581 for further information. You do not have to tell them why you are counting.
10. **Accidents**	If a minor accident occurs nearby, carry on counting, but note the time the accident occurred and the time when the road was clear to traffic again. If the accident is more severe and closes the road then commonsense applies and you should provide assistance as you feel necessary. However you should get back to counting as soon as possible and note the times you were absent as best as you can.
11. **Personal Emergency**	If an emergency arises (such as injury to a counter) while you are on site, ring (04) 471 7581 and ask for David Hutchison. If necessary you may use the Telecom operator to place a transfer charge call to Works Consultancy, or Works Consultancy Services will reimburse you for the cost of the call. Please note that the above only applies for *emergency* situations, and if used for non-emergency use could result in you paying for the cost of the call.
12. **Recording of Site**	Complete the form appended to this Work Instruction.

14.3.2 Survey Form

PAT Type	Vehicle type, Axle configuration	Time Period								
		8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5
	Cars,cars+trailers									
	Vans, utilities									
	Motorcycles									
20	o-o (w/b 2-4m)									
21	o--o (w/b 4-5.4m)									
22	o--o (Bus,coach)									
30	o-o--o (Artic)									
31	o-oo									
32	o---oo (Bus,coach)									
34	oo--o									
40	o--o-o--o (T&T)									
41	o-o--oo									
42	o-oo--o									
44	oo-o--o									
45	oo--oo									
47	o--ooo									
50	o-o--o-o--o									
51	o--o-o--oo									
52	o--oo-o--o									
521	o--o-oo--o (T&T)									
53	o-oo--oo									
54	oo--o-o--o									
55	oo-o--oo									
57	o-o--ooo									
58	oo--ooo									
61	o-o--o-o--oo									
62	o-o--oo-o--o									
621	o-oo--o-o--o									
622	o--oo--o-o-o (T&T)									
63	o--oo-o--oo (T&T)									
631	o--o-oo--oo (T&T)									

14.3.2 Survey Form continued

PAT Type	Vehicle type, Axle configuration	Time Period								
		8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5
632	o--oo-oo-o (T&T)									
65	oo--o-o--oo (T&T)									
66	oo--oo-o--o (T&T)									
67	o--ooo-o--o (T&T)									
69	o-oo--ooo (Artic)									
73	o-o--oo-o--oo (A&T)									
731	o-oo--o-o--oo (A&T)									
74	o-oo--oo-o--o (A&T)									
751	o-oo--oo--oo (B-train)									
752	o--oo-oo--oo (T&T)									
76	oo-o--oo-o--o (A&T)									
77	oo--oo-o--oo (T&T)									
771	oo--oo-oo--o (T&T)									
772	oo-oo--o-o--o (A&T)									
773	oo-ooo-o--o (T&T)									
78	o--ooo-o--oo (T&T)									
781	o-oo--ooo-o (A&T)									
791	oo-oo--ooo (Artic)									
85	o-oo--oo-o--oo (A&T)									
851	o-oo--ooo--oo (B-train)									
852	o-ooo-oo--oo (T&T)									
871	oo-oo-o--ooo (T&T)									
873	oo-ooo-o--oo (T&T)									
88	o-o--ooo-o--oo (A&T)									
89	o-oo--ooo-o--o (A&T)									
891	oo--oo-oo--oo (T&T)									
	Other (sketch axle configuration)									

Notes: T&T = truck and trailer
A&T = artic and trailer
w/b = wheelbase
Type 20 and higher vehicles have gross weight greater than 3.5 tonnes.
Tally vehicles using a bar gate system ie 𝍸 = 5 , 𝍸 || = 7

14.3.3 Record of Survey Sites

Date	**Location of Manual Survey**	**Name of Surveyor**	**Comment**	**Output verified** (OM sign and date)

14.4 Manipulation of Data from Instrumented Classification Surveys

Note that two types of classifier instruments were used. Most sites were classified using *VDAS* instruments, but *ARCHER* instruments were also used in order to increase the rate of sampling.

Element	Instruction	
	VDAS	*ARCHER*
1	Copy the files from Central Labs P:\OPEN\VDAS directory to I:\VDAS_NEW or I:\ARCHER as appropriate. Note that the *ARCHER* counts have a .TXT extension while the *VDAS* counts have a .DAT extension.	
2	Using a text editor open each file and check the following: • That there is a line in the summary data for each hour for each lane for all the summary data at the top of the files. Add a row of zeros if line(s) are missing. • Check for 11 axle (and greater) vehicles in the individual records by searching for "WB10". If the vehicle is an erroneous record, then delete record. Record the number of records deleted. • Check that there is a 24 hour period from midnight to midnight. If necessary move data from the start of the hourly summary data to the end of the summary data. Move any corresponding individual records as well. Record the hours moved. • Save the file under its old name. GBeattie has copies of the unaltered originals.	Using a text editor open each file and check the following: • That there is a line in the summary data for each hour for each lane for all the summary data. Add a row of zeros if line(s) are missing. • That there is a 24 hour period from midnight to midnight. If necessary move data from the start of the hourly summary data to the end of the summary data. Record the hours moved. • Save the file under its old name. G Beattie has copies of the unaltered originals. If time increments are less than one hour, then run ARCHER_2.EXE.

Element	Instruction	
	VDAS	*ARCHER*
3	Given three *VDAS* files called V22_123.DAT, V22_456.DAT and V22_789.DAT - Step 1 Create .PIP files for each. The .PIP file contains the file name excluding the extension. i.e. V22_123.PIP contains: V22_123 Step 2 Create a batch file called CARFIX.BAT which contains: CARFIX < V22_123.PIP CARFIX < V22_456.PIP CARFIX < V22_789.PIP Step 3 Create a batch file called VDAS.BAT which contains: VDAS < V22_123.PIP VDAS < V22_456.PIP VDAS < V22_789.PIP Step 4 Create a batch file called LENGTH.BAT which contains: LENGTH < V22_123.PIP LENGTH < V22_456.PIP LENGTH < V22_789.PIP Step 5 Check that the file OUTPUT.DAT exists. Step 6 Create a file called RUN.BAT which contains: CALL CARFIX.BAT RENAME *.DAT *.OLD RENAME *.OUT *.DAT CALL VDAS.BAT RENAME OUTPUT.OLD OUTPUT.DAT CALL LENGTH.BAT	Given three *ARCHER* files called V22_123.TXT, V22_456.TXT and V22_789.TXT - Step 1 Create .PIP files for each. The .PIP file contains the file name excluding the extension. i.e. V22_123.PIP contains: V22_123 Step 2 Create a batch file called ARCHER.BAT which contains: ARCHER < V22_123.PIP ARCHER < V22_456.PIP ARCHER < V22_789.PIP Step 3 Check that the file ARCHER.OUT exists. Step 4 Execute the file ARCHER.BAT. Check the file ARCHER.OUT for completeness. If "**ERROR***: appears at the beginning of a line, then check for reason. Once corrections have been made, import into LOTUS, and save as ...\ARCHER(SUMMARY.WK1).

14.4 Manipulation of Data continued

Element	Instruction	
	VDAS	*ARCHER*
3 (cont.)	Step 7 Execute the file RUN.BAT. This will put data into a file called OUTPUT.BAT. Check the contents of this file.	
4		Give a copy of the ARCHER.WK1 file to Kelly Mara for processing.
5		Move the files to G:\ROAD\PROJECTS\C8614.02\ARCHER\ *.*
6	Import the file OUTPUT.DAT into LOTUS. Add columns for the number of records deleted and road use Category. Then print out spreadsheet. Save as ..\VDAS\SUMMARY.WK1.	
7	Open the appropriate MKMxxx file and annotate onto printout the Roaduse Category.	
8	Add this data to the spreadsheet containing OUTPUT.DAT.	
9	Copy the *.OU2 files to a diskette, and together with a completed copy of the spreadsheet, hand to Kelly Mara.	
10	Move the files to G:\ROAD\PROJECTS\C8614.02\VDAS* .*	

14.5 Explanation of Computer Programs used during Classification Surveys

ARCHER_2.EXE Reads data in time increments less than 1 hour and sums to give hourly totals.

ARCHER.EXE Summarises by NAASRA bin the 24 hour totals (midnight to midnight) for each of 16 classes.

VDAS.EXE From summary data at top of file, produces 24 hours sums for total vehicles, type C1 and C2. Also rewrites individual vehicle data to 2 files:

(i) *.OU1 is column formatted and has totals at top and bottom of file.

(ii) *.OU2 is comma delineated and only contains individual vehicle data.

Both *.OU1 and *.OU2 files have one line per vehicle.

CARFIX.EXE Changes a "short-long" or "long-short" axle configuration to a "long," where "long" is less than 3.2 metres and "short" is less than 0.5 metres; changes "short-long-short" to 2 "long;" re-classifies classes 3 and 4 to use 3.2 m cut-off instead of 3.0m.

LENGTH.EXE Reads appropriate lines from *.OU1, *.OU2 and *.DAT files for reporting to Kelly Mara.

14.6 Analysis of Vehicle Classification Data

Element	Description	Person	Sites	Finish	Confirm
1	1.1 Vehicle classification Convert all individual *VDAS* (standardised) files from NAASRA to DKW classification. Check anomalies by reference to raw data files. Carry out random checks of raw files versus "standardised" files. Produce: DKW classification distribution; ADT; axle factor. Summarise outputs from manual count forms into DKW bins as a separate spreadsheet. 1.2 Comparisons/tests • HV distributions by weekend vs weekday; • Conversion (NAASRA to DKW) by road volumes (Low v High >2500); • HV distributions by road categorisation (by region and some TAs); • Axle factors by weekend vs weekday; • Axle factors screened by road use category. 1.3 Produce Conversion matrix (matrices if indicated from tests in 1.2) or NAASRA to DKW vehicle classification, based on all individual vehicle sites.	MKM			
2	Outputs 2.1 Vehicle classification distributions for each road category. 2.2 Axle factor table. 2.3 Estimate of accuracy of HVADT from sample data for each RCA.	MKM			

Element	Description	Person	Sites	Finish	Confirm
3	Allocate the relevant HV distributions to road sections, according to road categorisation and (if relevant) region.	MKM			
4	Allocate to each road section the relevant axle factor, according to road categorisation and (if relevant) region; volume; weekend/weekday effect.	MKM			
5	Return outputs and allocations to Wellington Computer Manager for inclusion in appropriate Working Spreadsheet files.	MKM IDG			

14.7 Additional Axle Factors and ADT Values

1. Load RAMMxxx file from G:\ROAD\PROJECTS\C8614.02\RAMMXXX*.*
   Turn off the automatic updates by pressing /WGRM

2. Update axle factors where a section has a count and the method is stated as "TUBE". The new factors are attached for each of the road use categories.

   Press F-9 to recalculate spreadsheet.

3. From the updated AADT_est (as a result of the updated axle factors) shift values to the AADT_Best column by taking the values (do not copy) of the former.

4. Into the column titled ADD_ADT enter the values given from our *ARCHER\VDAS* surveys. These are attached, sorted by road use category. A listing of where each site resides within a file is attached. The duration is 1, the method is *VDAS*, and the date is indicated on the attached listing.

5. Go to cell AM6 and copy the range ADD_FACTORS from the file LOOKUP.WK1, which is located within the RAMMXXX directory.

6. Go to cell AJ11 and insert 2 columns (AJ & AK) between ADD_METHOD and ADD_WEEK.

7. Turn on the automatic updates by pressing /WGRA, then pressing F9.

8. Copy cells AP6..AS6 to any row containing additional count information, placing the cursor in column AJ.

10. Delete columns AJ and AK.

11. Move contents of column AK to column AJ.

12. Copy cell AR6 to any row containing additional count information, placing the cursor in column AK.

13. Copy cells AN7..AR7 to rows containing additional counts, placing cursor in column AL.

14. Where an additional count exists, write the number in column AP into column AQ.

15. Save the file under its current name (i.e. ...\RAMMXXX\RAMMxx.WK1)

16. Value the entire worksheet and save under INPxxx in the G:\ROAD\PROJECTS\C8614.02\INPUT*.* directory.

17. Trim the file so that the only columns left are those indicated in Section 11.2.1 of this report, *2. Quality Plan.* You will need to insert a column for H_1. Fill this new column with "L" for local authority roads and "H" for state highways.

18. Save this file again under ...\INPUT\INPxxx.WK1. Then sign and date attached list of road controlling authorities.

15. Task 2: EXECUTE FIELD VEHICLE WEIGHT SURVEYS

15.1 Setting up CVIU Surveys

Following discussion with the Commanding Officer of the CVIU, the following letter was sent. It introduces the Work Instruction for execution of the field survey.

4 November 1994 C8614.02

Inspector Ian James,
Commercial Vehicle Investigations,
Traffic Safety Division,
New Zealand National Police Headquarters,
180 Molesworth Street,
PO Box 3017,
WELLINGTON.

Dear Ian,

Transit New Zealand Research Project: NATIONAL TRAFFIC DATABASE

A project entitled "Land Transport Pricing" is being conducted by Transit New Zealand and the Ministry of Transport to develop a comprehensive framework for the pricing and regulation of roads.

As one component of this study, Transit New Zealand is assembling a national database of traffic flows which will list daily average numbers of vehicles by different vehicle types on all public road sections throughout New Zealand.

The overall objective of this project is

> "to establish a database recording where travel is occurring on New Zealand public roads, measured in terms of ADT, traffic composition and weights of RUC vehicles."

A key component of information is the profile of weights for different vehicle types on the road. In order to achieve this, a sample of heavy vehicles which is representative both in terms of vehicle type and in terms of region in the country is required. While for operational reasons, most tonnages are estimated, it is necessary that at least 5% of all vehicle types be actually weighed. Moreover, prior to weighing, the weight must be estimated and recorded.

Following discussions with yourself, the accompanying information describes the programme for the North Island. Details for the South Island are expected to be available in one week's time.

As discussed, we desire that one of the staff from Works Consultancy accompany your people for at least half a day in the case of each officer to review the procedure.

We anticipate that up to 8 officers will be involved, but that is best assessed by yourself.

We look forward to the results from this survey, and express our gratitude to you for your willingness to assist. Please let me know if there is any further information required.

Yours sincerely,

David Hutchison
Principal Consultant

15.2 Instructions Sent to CVIUs

4 November 1994 C8614.02

NATIONAL TRAFFIC DATABASE: CVIU VEHICLE WEIGHT COLLECTION

INSTRUCTIONS

1. INTRODUCTION

The following instructions deal with gathering a sample of weights of heavy vehicles throughout prescribed Local Authority Districts.

Road types are prescribed and the numbers of vehicles requiring to be weighed or weigh estimated on those roads are also given in the information following.

The study is being carried out to assist a project for Transit New Zealand.

2. VEHICLE TYPES TO BE WEIGHED OR WEIGH ESTIMATED

The numbers and locations of these are described in Form 2 attached. The vehicle type is most conveniently noted by the sketch of axle configuration.

3. ESTIMATED WEIGHT AND ACTUAL WEIGHT

At least 5% of all vehicles are to be weighed. However, the officer must estimate the weight beforehand. In such a case, both the estimate and actual weight are to be recorded on Form 1.

Actual weights are to be recorded for vehicles representative of each WIM type requested in Form 2.

The more vehicles that are actually weighed, the better.

4. ROADS TO BE SURVEYED

Roads which satisfy the Road Use Category in each region are listed in Section 2.6.6. You may select from these however convenient, so that you reach the target number of vehicles of each type for that category of road.

5. AUDIT

A member from Works Consultancy Services Limited will accompany you on one day, so that he/she can audit the process that you follow.

6. TIMETABLE

The survey is required to be completed by 9 December 1994.

15.2 Instructions sent to CVIUs continued

Form 1
VEHICLE WEIGHT ESTIMATES FROM CVIU OFFICERS

Officer:_____ **C8614.02**

Base: _____

Date	Road Identification (Name,From/To)	Road Category	Truck/configuration			Gross Weight (kg)		Commodity Carried
			RUC	WIM#	Config. (sketch)	Estimate	Actual	

Form 2

Vehicle types, numbers and locations for survey

Road Use Classification	Representative Region	Ideal No. of Weight Samples per DKW Bin	DKW Categories targeted	Total number of samples
1a,1b:Urban Arterial	1. Auckland 2. Christchurch 3. Wellington 4. Hawke's Bay	50 50 50 50	5,7,8,9,10	1000
2: Urban Commercial	1. Auckland 2. Wellington 3. Christchurch 3. Dunedin	50 50 50 50	3,4,6	600
3: Urban Industrial	1. Auckland 2. Wellington 3. Christchurch 4. Dunedin	50 50 50 50	8,9,10	600
4: Urban Other	1. Auckland 2. Christchurch	50 50	3,4,5,6	400
5: Rural Urban Fringe	1. Hamilton 2. Wellington 3. Christchurch	50 50 50	7,8,9,10,11, 12,13,14,15	1350
6: Rural Strategic	1. Hamilton 2. Taranaki 3. Hawke's Bay 4. Christchurch 5. Dunedin	50 50 50 50 50	6,7,8,9,10,11, 12,13,14,15	2500
7a,7b: Rural Recreational	-	-	-	-
8: Rural Feeder	1. Hawke's Bay 2. Taranaki 3. Hamilton 4. Christchurch	50 50 50 50	6,7,10,11,12	1000
9: Urban Residential	1. Auckland 2. Hawke's Bay 3. Dunedin	50 50 50	3,4,5,6	600
TOTAL				**8,050**

Form 3 Relationship between PAT, RUC, and DKW Vehicle Classifications

DKW Bin	RUC Type	Vehicle Type, Axle Configuration	PAT Type
3	2	o-o (w/b 3.2-4.1)	20
4	2	o--o (w/b > 4.1)	21
4	2	o--o (bus,coach)	22
5	6	o-oo	31
5	6	o--oo (bus,coach)	32
5	5	oo--o	34
6	14	oo--oo	45
6	14	o--ooo	47
6	19	oo--ooo	58
7	2,24	o-o--o (Artic)	30
8	2,30	o--o-o--o (T&T)	40
8	2,29	o-o--oo	41
8	6,24	o-oo--o	42
9	2,24,30	o-o--o-o--o	50
9	2,37	o--o-o--oo	51
9	6,30	o--oo-o--o	52
9	2,37	o--o-oo--o (T&T)	521
9	6,29	o-oo--oo	53
9	5,30	oo--o-o--o	54
9	5,29	oo-o--oo	55
9	2,33	o-o--ooo	57
10	6,33	o-oo--ooo (Artic)	69
10	14,33	oo-oo--ooo (Artic)	791
11	2,24,37	o-o--o-o--oo	61
11	2,29,30	o-o--oo-o--o	62
11	6,24,30	o-oo--o-o--o	621
11	6,37	o--oo--o-o-o (T&T)	622

DKW Bin	RUC Type	Vehicle Type, Axle Configuration	PAT Type
11	6,37	o--oo-o--oo (T&T)	63
11	2,43	o--o-oo--oo (T&T)	631
11	6,37	o--oo-oo-o (T&T)	632
11	5,37	oo--o-o--oo (T&T)	65
11	14,30	oo--oo-o--o (T&T)	66
11	14,30	o--ooo-o--o (T&T)	67
12	6,29,29	o-oo--oo--oo (B-train)	751
13	6,43	o--oo-oo--oo (T&T)	752
13	5,29,30	oo-o--oo-o--o (A&T)	76
13	14,37	oo--oo-o--oo (T&T)	77
13	14,37	oo--oo-oo--o (T&T)	771
13	14,24,30	oo-oo--o-o--o (A&T)	772
13	19,24	oo-ooo-o--o (T&T)	773
13	14,37	o--ooo-o--oo (T&T)	78
13	14,43	oo-oo-o--ooo (T&T)	871
13	19,37	oo-ooo-o--oo (T&T)	873
13	14,43	oo--oo-oo--oo (T&T)	891
14	2,29,37	o-o--oo-o--oo (A&T)	73
14	6,24,37	o-oo--o-o--oo (A&T)	731
14	6,29,30	o-oo--oo-o--o (A&T)	74
14	6,29,37	o-oo--oo-o--oo (A&T)	85
14	2,33,37	o-o--ooo-o--oo (A&T)	88
14	6,33,30	o-oo--ooo-o--o (A&T)	89
15	6,33,29	o-oo--ooo--oo (B-train)	851
	5,24	oo-o--o	44
	6,43	o-oo--ooo-o (A&T)	781
	14,43	o-ooo-oo--oo (T&T)	852

Appendix 1

LIST OF ROADS OF DIFFERENT ROAD USE CATEGORIES

(These lists were derived from the Working Spreadsheets and were forwarded to CVIUs. A sample of 2 pages only, of Police Regions 2 and 4, is supplied.)

Police Region 2

ROADNAME	LOCAL_AUTH	FROM_DESC	TO_DESC	U_R	ROADUSE	AADT
ATIRAU ROAD TURANGI	16	DEKKER DR	PUATAATA RD/END OF RO	R	5	342
BRYMER RD	11	GRANDVIEW RD (EAST)	THOMAS RD	R	5	592
GORDONTON RD	11	CROSBY RD	PUKETAHA RD	R	5	5168
GORDONTON RD	11	PUKETAHA RD	THOMAS RD	R	5	4134
GORDONTON RD	11	THOMAS RD	BORMAN RD (CITY BDY)	R	5	4134
HUKANUI RD	11	BRIDGE	SPEED RESTRICTION	R	5	1768
HUKANUI RD	11	BROOKVIEW CRT	BRIDGE	R	5	1974
HUKANUI RD	11	SPEED RESTRICTION	ROTOTUNA RD	R	5	1768
ROTOKAURI RD	11	SPEED RESTRICTION	BRYMER RD	R	5	650
ROTOKAURI RD	11	THOMAS RD	SPEED RESTRICTION	R	5	650
RUAKURA RD	11	KNIGHTON RD	SILVERDALE RD	R	5	11283
RUAKURA RD	11	PEACHGROVE RD	KNIGHTON RD	R	5	9589
TRAMWAY RD	11	CARRS RD	CROSBY RD	R	5	6571
TUHIKARAMEA RD	11	PYGMALION PL	(CITY BOUNDARY)	R	5	2303
AVENUE ROAD SOUTH	13	RAILWAY CROSSING	WEST STREET	R	8	555
AVENUE ROAD SOUTH	13	START BRIDGE ABUT #135	KURANUI ROAD	R	8	444
AVENUE ROAD SOUTH	13	WEST STREET	START BRIDGE ABUT #135	R	8	444
BANKIER RD	18	BOYD RD	OLD RIDING BOUNDARY	R	8	437
BANKIER RD	18	HORSHAM DOWNS RD	BOYD RD	R	8	437
BANKIER RD	18	OLD RIDING BOUNDARY	GORDONTON RD	R	8	437
BELL ROAD	13	CHEPMELL ROAD	STERKEY ROAD	R	8	455
BLACK JACK ROAD	17	BRIDGE	SEAL STARTS	R	8	482
BORMAN RD	11	HORSHAM DOWNS RD	GORDONTON RD	R	8	510
BRYMER RD	11	BAGUST RD	ROTOKAURI RD	R	8	510
BRYMER RD	11	THOMAS RD	BAGUST RD	R	8	510
BURBUSH RD	11	TE KOWHAI RD	EXELBY RD	R	8	510
CATE RD	11	ROTOTUNA RD	KAY RD	R	8	408
CEMETERY RD	18	WHATAWHATA RD (SH 23)	CLOSED RD	R	8	407
CHURCH RD	11	TE RAPA RD	BALMERINO CRES	R	8	408
CROZIER STREET	19	PENNY RD	70KPH ZONE	R	8	636
DIAGONAL ROAD	13	STATE HIGHWAY 27	BRIDGE #127 ABUTMENT	R	8	401
DIXON RD	11	END OF SEAL	START OF SEAL	R	8	498
DIXON RD	11	OHAUPO RD	END OF SEAL	R	8	543
EAST COAST RD	18	MIRANDA RD	FRANKLIN DISTRICT BDY	R	8	488
EXELBY RD	11	BURBUSH RD	TE KOWHAI RD	R	8	510
EXELBY RD	11	LEE RD	NEW ROAD ON LHS	R	8	510
EXELBY RD	11	NEW ROAD ON LHS	BURBUSH RD	R	8	510
EXELBY RD	11	ROTOKAURI RD	LEE RD	R	8	559
FLAT ROAD	19	GOLF RD	50KPH ZONE ROLLERSTON	R	8	575
FORKERT ROAD	19	RAILWAY LINE	NGAHINEPOURI RD	R	8	509
FRONTIER ROAD	19	BURNS RD	PAPESCH RD	R	8	636
FRONTIER ROAD	19	PAPESCH RD	PENNY RD	R	8	573
GILLESPIE PLACE ACACIA BAY	16	MAPARA RD	END OF ROAD	R	8	1600
GRACE ROAD TURANGI	16	END OF SEAL	END OF ROAD	R	8	500
GRACE ROAD TURANGI	16	S H 1	END OF SEAL	R	8	459
GUNN ROAD	13	PERIA ROAD	SCHERERS ROAD	R	8	452
HAHEI BEACH ROAD	17	LINK ROAD	URBAN BOUNDARY	R	8	401
HETHERINGTON RD	18	ROTONGARO RD	WAIKOKOWAI RD	R	8	416
HORRELL ROAD	13	CL. GATEWAY LHS	CL. GATEWAY RHS	R	8	517
HORRELL ROAD	13	CL. GATEWAY LHS	ROAD CULVERT	R	8	517
HORRELL ROAD	13	CL. GATEWAY RHS	CL. GATEWAY LHS	R	8	543
HORRELL ROAD	13	CL. GATEWAY RHS	CL. GATEWAY RHS	R	8	453
HORRELL ROAD	13	MANHIRE ROAD	NUMBER 8 ROAD,(S.H. 27)	R	8	569
HORRELL ROAD	13	MURRAY ROAD	CL. GATEWAY RHS	R	8	592
HORSHAM DOWNS RD	11	NORTH RIDGE DR	BORMAN RD	R	8	1794
HORSHAM DOWNS RD	18	OSBORNE RD	BANKIER RD	R	8	457
HUTCHINSON ROAD	13	SETTLEMENT ROAD	START OF KCC LHS	R	8	417
KAIPAKI ROAD	19	MELLOW RD	SPEAKE RD	R	8	485
KARAPIRO ROAD	19	SH1/TIRAU RD	WHITEHALL RD	R	8	573
KELLS LANE	15	LICHFIELD	END OF SEAL	R	8	2916
KINLEITH	15	NZFP ENTRANCE	OLD TAUPO RD	R	8	553
KINLOCH ROAD KINLOCH	16	WHANGAMATA RD	RURAL/URBAN	R	8	481
KOROMATUA ROAD	19	TUHIKARAMEA ROAD	WILLIS RD	R	8	494
LAKE RD	18	KAINUI RD	SEAL JOIN	R	8	407
LAKE RD	18	SEAL WIDTH CHANGE	KAINUI RD	R	8	407
LAKE RD	18	SEAL WIDTH CHANGE	SEAL WIDTH CHANGE	R	8	407
LAKE ROAD MANGAKINO	16	WAIPAPA RD	RANGITIRA DR	R	8	612

ROADNAME	LOC_AUTH	FROM_DESC	TO_DESC	U_R	ROADUSE	AADT
01N-0931	43		UNKNOWN	U	2	14518
01N-0942	43	PARAUMU OB - PAEKAKIKI OB	UNKNOWN	U	5	18019
01N-0953	43	PAEKAKIKI OB - JNCTN SH58	UNKNOWN	R	5	17195
KAPITI ROAD	43	ANTHONY GROVE	OCEAN RD	U	2	8678
KAPITI ROAD	43	ARAWHATA ROAD	MILNE DRIVE	U	2	16140
KAPITI ROAD	43	CEDAR DRIVE	LODGE DRIVE	U	2	15313
KAPITI ROAD	43	GOLF ROAD	MANLY ST ROUNDABOUT	U	2	6125
KAPITI ROAD	43	HINEMOA STREET	SH NO. 1	U	2	7086
KAPITI ROAD	43	HOWELL ROAD	GOLF ROAD	U	2	6125
KAPITI ROAD	43	HURLEY ROAD	MAGRATH AVE	U	2	10209
KAPITI ROAD	43	LANGDALE DRIVE	CEDAR DRIVE	U	2	15313
KAPITI ROAD	43	LARCH GROVE	ARAWHATA RD	U	2	11740
KAPITI ROAD	43	LODGE DRIVE	HURLEY ROAD	U	2	15313
KAPITI ROAD	43	MACLEAN STREET	HOWELL ROAD	U	2	8167
KAPITI ROAD	43	MAGRATH AVE	ANTHONY GROVE	U	2	10209
KAPITI ROAD	43	MILNE DRIVE	TE ROTO DRIVE	U	2	8411
KAPITI ROAD	43	MOANA ROAD	NGAHINA STREET	U	2	11740
KAPITI ROAD	43	NGAHINA STREET	WARRIMOO STREET	U	2	11740
KAPITI ROAD	43	OCEAN RD	MACLEAN STREET	U	2	8167
KAPITI ROAD	43	RIMU ROAD	MOANA ROAD	U	2	11740
KAPITI ROAD	43	SH NO. 1	RIMU ROAD	U	2	10423
KAPITI ROAD	43	TE ROTO DRIVE	LANGDALE DRIVE	U	2	15313
KAPITI ROAD	43	WARRIMOO ST	LARCH GROVE	U	2	11740
MACLEAN STREET	43	BLUEGUM ROAD	KAPITI ROAD	U	2	3219
MACLEAN STREET	43	SEAVIEW ROAD	BLUEGUM ROAD	U	2	3219
MAIN ST	43	MATENE ST	AOTAKI ST	U	2	5742
MARAE LANE	43	NGAIO RD	TEMOANA RD	U	2	4539
MARINE PARADE PARAP.	43	HOWELL ROAD	MACLEAN STREET	U	2	4390
MARINE PARADE PARAP.	43	KAPITI ROAD	HOWELL ROAD	U	2	3744
MARINE PARADE PARAP.	43	MACLEAN STREET	OCEAN ROAD	U	2	4390
MARINE PARADE PARAP.	43	OCEAN ROAD	TORU ROAD	U	2	4390
MARINE PARADE PARAP.	43	RUA ROAD	TAHI ROAD	U	2	4390
MARINE PARADE PARAP.	43	TAHI ROAD	WHAREMAUKU ROAD	U	2	4390
MARINE PARADE PARAP.	43	TORU ROAD	RUA ROAD	U	2	4390
MILL RD	43	ALEXANDER PLACE	ANZAC RD	U	2	6185
MILL RD	43	ANZAC RD	DOMAIN RD	U	2	6185
MILL RD	43	AOTAKI ST	WINIATA PLACE	U	2	5373
MILL RD	43	DOMAIN RD	MILLHAVEN PLACE	U	2	6185
MILL RD	43	DUNSTAN ST	SH NO 1	U	2	6266
MILL RD	43	MILLHAVEN PLACE	DUNSTAN ST	U	2	5099
MILL RD	43	WINIATA PLACE	ALEXANDER PLACE	U	2	6185
RAUMATI ROAD	43	GOLDSBOROUGH AVE	KIWI ROAD	U	2	7685
RAUMATI ROAD	43	HILLCREST ROAD	GOLDSBOROUGH AVE	U	2	7685
RAUMATI ROAD	43	KIWI ROAD	KOWHAI GR	U	2	7685
RAUMATI ROAD	43	KOWHAI GROVE	WEKA ROAD	U	2	7685
RAUMATI ROAD	43	LORIEN COURT	RIMU ROAD	U	2	4923
RAUMATI ROAD	43	MARGARET ROAD	ROSETTA ROAD	U	2	7364
RAUMATI ROAD	43	MATAI ROAD	NOLA AVE	U	2	6497
RAUMATI ROAD	43	NOLA AVE	HILLCREST ROAD	U	2	7685
RAUMATI ROAD	43	RATA ROAD	MATAI ROAD	U	2	10372
RAUMATI ROAD	43	RIMU ROAD	RATA STREET	U	2	8769
RAUMATI ROAD	43	SH NO. 1	LORIEN COURT	U	2	4145
RAUMATI ROAD	43	WEKA ROAD	MARGARET ROAD	U	2	6930
RIMU ROAD RAUMATI	43	FIESTA GROVE	MANAWA AVE	U	2	10515
RIMU ROAD RAUMATI	43	IHAKARA STREET	KAPITI ROAD	U	2	9501
RIMU ROAD RAUMATI	43	KEW GROVE	FIESTA GROVE	U	2	10515
RIMU ROAD RAUMATI	43	MANAWA AVE	IHAKARA STREET	U	2	6520
RIMU ROAD RAUMATI	43	RAUMATI ROAD	KEW GROVE	U	2	10323
TASMAN RD	43	100 KPH SIGN	50 KPH SIGN	U	2	4150
TASMAN RD	43	50 KPH SIGN	TE RAUPARAHA ST	U	2	3190
TASMAN RD	43	BABBACOMBE AVE	HEALTH CAMP ROAD	U	2	3559
TASMAN RD	43	HEALTH CAMP ROAD	NGAIO ROAD	U	2	3559
TASMAN RD	43	MARINE PARADE	MOANA STREET	U	2	4150
TASMAN RD	43	MOANA STREET	BABBACOMBE AVE	U	2	3559
TASMAN RD	43	NGAIO ST	ROBERT MCKEEN ST	U	2	3707
TASMAN RD	43	ROBERT MCKEEN ST	100 KPH SIGN	U	2	4150

Appendix 2

LIST OF WORKS CONSULTANCY SERVICES PERSONNEL

WCSL Office	Phone	Fax	Contact Person
Auckland	(09) 309 6863	(09) 377 1625	Gregg Morrow
Hamilton	(07) 838 9344	(07) 838 9324	Alex Taylor
Wanganui	(06) 345 4109	(06) 345 4299	Peter Roach
New Plymouth	(06) 758 6074	(06) 757 9849	Jonathon Williams
Palmerston North	(06) 356 6730	(06) 356 6731	Raj Sumeran
Wellington	(04) 471 7000	(04) 471 1397	Bob Gaulton
Christchurch	(03) 365 1530	(03) 365 7858	Shelley Perfect
Dunedin	(03) 474 8899	(03) 474 8995	Bill Thew

End of Instructions sent to CVIUs

16. Task 3: INTERROGATE WEIGH-IN-MOTION SITES

Element	Description
1	**Scope of Work** This work instruction describes the steps to be taken to manipulate WIM data into a form suitable for use in the National Traffic Database.
2	**Data Processing** 2.1 For each WIM site, extract raw data files from the Vogel computer for the period 17 June 1994 to 7 October 1994. 2.2 Process the raw data using Vogel routines to identify nonconforming vehicle records, outputting the data into a separate file from the PAT database file on the Vogel computer. 2.3 Process nonconforming records to remove 'phantom' axles, delete unidentifiable events, reclassify into the correct PAT type and output into file created in 2.2. 2.4 Group axles to match RUC (Road User Charge) types and sum weights. 2.5 Use lookup file to get RUC for the axle group weights and therefore for the vehicle. 2.6 Tabulate %iles for RUC for each PAT type and provide total numbers for each type. 2.7 Distribute numbers from PAT types into DKW (D K Wanty) bins using PAT/DKW relationship table. Use RUC %iles for PAT to obtain RUC %iles for DKW bins and numbers in DKW bins. 2.8 Tabulate %iles for RUC for each DKW type and provide total numbers for each type. 2.9 Devise routines to allocate individual vehicles from 2.3 into DKW bins. 2.10 Tabulate numbers of vehicles in each of the DKW bins. Compare with results of 2.7.
3	**Output Data** Provide disk and hard copies of the output files created in element 2. These may be forwarded to Graeme Beattie at Works Consultancy Services Ltd, PO Box 30845, Lower Hutt.
4	**Works Consultancy Contact** This will be Graeme Beattie on (04)568 3119 (w) or (04)566 7964 (ah). Alternatively David Hutchison may be called at (04)471 7000 (w).

17. Task 4: PREPARE FILES FOR NATIONAL TRAFFIC DATABASE

17.1 Road Section Data File

1. From RAMMxxx files, produce INPxxx.WK1 file which contains all fields to go into the final NTDB (including hierarchy).

2. From this, format columns to standard widths as listed below:

Field name	Type*	Length**
NTDB	N	2
Tnz_region	N	2
Tla_number	N	2
Road_id	C	14
SH_loc	C	1
Start	N	6
Finish	N	6
Length	N	6
Roadname	C	30
From_desc	C	30
To_desc	C	26
H_l	C	1
S_u	C	1
U_r	C	1
U_r_adj	C	1
Oth_usage	C	20
Roaduse	C	2
Count_meth	C	6
Aadt	N	6

* N = numeric field; C = character field; ** Number of spaces in field

Save this file to RAMMxxx.CSV.

3. Final check on individual text (comma delimited) files.
Program SUCALC computes the kilometres for sealed and for unsealed road for each TA and each Region from the comma delimited files, and checks the input to the NTDB.

4. Concatenate each RAMMxxx.CSV file into a single file.

5. Import the resulting comma-separated file into DBase. Save as NTDB.DBF.

17.2 Vehicle Classification Distribution File

Assemble summary classification matrices (Section 14.6) and import the comma-separated (CSV) files into DBase. Save as VEHPROP.DBF.

17.3 Vehicle Weight Distribution File

Carry out analysis of the data as in the following instructions:

Element	Description	Person	Start	Finish	Confirmed
1	**PAT Data** 1.1 Allocate individual vehicles to appropriate vehicle class (DKW bins). 1.2 Determine actual weight distributions for each site for each DKW bin. 1.3 Determine relationship of actual weight versus maximum licence weight using individual vehicle records, for each vehicle class. 1.4 Determine relationship of RUC value for actual weight versus RUC value for maximum licence weights, for each vehicle class. 1.5 Compute mean, standard deviation and sample number, and 5, 10, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 95 percentiles for each DKW class.	MKM	31/10	25/11	

Element	Description	Person	Start	Finish	Confirmed
2	**CVIU Patrol Data** 2.1 Assemble estimated and actual weight data (and road category; vehicle type, day of week) from individual vehicle records from CVIU patrols. 2.2 Correct estimated weights recorded by each individual officer through factoring by the ratio of actual versus estimated weights. Assess whether vehicle type is an influencing factor. Summarise weight distributions by road use category and police district in terms of mean, standard deviation and number of samples. 2.2 Using the z score at a 5% level of significance, test for likelihood that the difference in means for a particular vehicle class is zero *between regions*. 2.3 Amalgamate results where permissible, and repeat the process *between road use categories*. Amalgamate where permissible. 2.4 Compare significance of difference between CVIU and WIM results. Where there is no significant difference in means, then discard the CVIU information. (The WIM data has a population of the order of 100 times that of the CVIU population.) 2.3 Determine weight distributions of amalgamated data (mean, standard deviation, 5, 10, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 95 percentiles) for each DKW class.		14/11	16/12	

Import the comma-separated file into DBase. Save as WGTDIST.DBF.

18. Task 5: CONFIRM AND COMPLETE NATIONAL TRAFFIC DATABASE

Element	Description	Person	Start	Finish	Confirm
1	**Road User Charges** 1.1 Obtain published revenue for Road User Charges for 1993/94 by RUC vehicle classes. Also obtain published revenue for fuel excise duty revenue. 1.2 Compute the vehicle kilometres by road use category for each RCA, using Pascal programme PROCESS. Import this information into a spreadsheet. 1.3 Multiply resulting vehicle kilometres per day by 365 days and then by proportions of respective heavy vehicle classes, and then divide by 1000 and multiply by appropriate expected value of RUC revenue per 1000 km for that TA and road use category. Sum the resulting RUC$ for each heavy vehicle class. Sum the totals between vehicle classes, and compare with national revenue.	DLH	5/12	23/12	
2	**Petrol powered vehicles** 2.1 Estimate from published information the proportion of vehicles in each DKW bin that use petrol, and their consumption per kilometre. 2.2 Calculate from spreadsheet the total vehicle kilometres times petrol litres per kilometre for a vehicle in each class times proportion of those vehicles using petrol, and sum totals. 2.3 Multiply total by the tax rate. 2.4 Compare with volumes deduced by published revenue from petrol tax.	DLH WCM			

18. Confirm and Complete National Traffic Database continued

Element	Description	Person	Start	Finish	Confirm
3	**Diesel powered vehicles** 3.1 Separate the remainder of vehicles for each road section from those used in element 2. (This remainder is assumed to use diesel.) 3.2 Obtain the national 1993/94 volume of diesel sales. Separate the quantity of diesel that is attributed to road vehicles. 3.2 Estimate the consumption of diesel per kilometre by DKW class, and multiply by the vehicle kilometres per year for each class and the proportion of diesel powered vehicles in that class. 3.3 Compare with diesel sales information deduced in element 3.2.				
4	**Heavy vehicle-kilometres** 4.1 Summarise database RCA27B.DAT received from TNZ Head Office. This contains the distance and weights of purchased RUC licences for the year ending 30 June 1994. 4.2 Calculated heavy vehicle kilometres from the summation of kilometres purchased for the powered vehicle RUC categories. 4.3 Calculate vehicle kilometres for DKW classes 4 to 15 from the National Traffic Database and compare with element 4.2.				

18. Confirm and Complete National Traffic Database continued

Element	Description	Person	Start	Finish	Confirm
5	**Heavy vehicle tonne-kilometres** 5.1 Compute the sum of distance times weight (tonnes) for all data in file RCA27B.DAT. 5.2 Import the output from program PROCESS into a spreadsheet and operate as follows: Multiply resulting vehicle kilometres per day by 365 days and then by proportions of respective heavy vehicle classes, and then multiply by appropriate expected value of Vehicle Weight for that TA and road use category. Sum resulting tonne-kilometres for each heavy vehicle class. Sum totals between vehicle classes, and compare with national value. 5.3 Compare elements 5.1 and 5.2.				

PART 3: FUTURE OPERATIONS

19. COMPLETION OF FIELD CLASSIFICATION SURVEYS

19.1 Identification of Sites

Surveying at approximately 40 sites in each RCA is required to achieve the target level of precision of 10% of average AADT. Only five of these sites had been surveyed by the end of Stage 3 of this project.

Appendix 1 to this Part 3 of this report lists the surveyed sites and those sites which remain to be surveyed.

Contents of columns in Appendix 1 to Part 3 of this report.

Column	Name	Comment
a	AADT Class	AADT ranges appropriate to the TA area or region.
b	SITE #	The randomly generated location of the survey site: add 10 to this to obtain the number of the line in the relevant Working Spreadsheet, e.g. Site # 434 is line number 444 in the Working Spreadsheet.
c	LENGTH	The total length of the road section, in metres, from the Working Spreadsheet.
d	AADT	Annual Average Daily Traffic.
e	HVADT	Heavy Vehicle Average Daily Traffic.
f	Sample Point	The randomly generated position along the selected road section for positioning the *VDAS* counter.

19.2 Field Work using *VDAS* Classifier Instruments

This field work is to be carried out as per the Work Instruction in Section 14.2 of this report, *2. Quality Plan*[9].

19.3 Data Manipulation

Manipulation of raw data from the field is to be carried out (in the case of electronic records from the *VDAS* instrument) as described in Section 14.4 of this report.

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9 Where it is agreed that manual methods are used instead, then the method to be used is as described in Section 14.3 of this report *(2. Quality Plan)*. However, this is not likely to be necessary. Although no work instruction is available in the Quality Plan for the processing of this data, the essential aim is that the output takes the same form as the manipulated *VDAS* information.

19.4 Data Analysis

The output from this analysis when combined with data from the previously surveyed sites provides an enhanced accuracy to the vehicle classification distribution (by DKW bins). Data from the previously surveyed sites are available from the Working Spreadsheets, and need to be copied from these.

The analysis operation is to be carried out as described in Section 14.6 of this report, *2. Quality Plan*[10].

19.5 Update on a "per RCA" Basis

The updating of the NTDB is done on a "per RCA" basis, and is worthwhile only when an additional five of the randomly selected sites are classified, preferably one per ADT stratum (see Appendix 1 to Part 3 in this report).

When five sites have been counted in an RCA, then the average AADT for that RCA can be adjusted (i.e. the estimate of average AADT is improved).

In addition, the estimate of AADT and the date is to be updated for the road sections where the survey has been carried out.

19.6 Improvement of Distribution of Vehicles

When nearly all the RCAs have an additional five counts, only then can the DKW proportions be upgraded by road use categories to include all sites.

19.7 NAASRA to DKW Conversion

A conversion matrix from the NAASRA system to DKW system of classification has been developed in this project. It is not necessary to update this matrix whenever additional sites are classified. Moreover, the classification survey can output NAASRA data which is then transformed through the conversion matrix to DKW information.

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10 Note however, that there is no requirement to produce a conversion matrix (NAASRA to DKW) as was necessary in Stage 3, because some of the data were from *ARCHER* classifiers which do not produce individual vehicle records.

20. UPDATES REQUIRED IN FUTURE

As well as the additional data resulting from a possible succession of *VDAS* surveys leading ultimately to the full complement of random sites and a 10% estimate of precision, other changes will lead to the need for regular update. The method for incorporating these has not been spelled out in this document, but should be reasonably self-explanatory from this Quality Plan. The sources of change are as follows.

20.1 Changes in Road Network Inventory

These changes can result from the declaration and revocation of state highways (both may affect the local roads component), as well as from new construction, and realignment. In the case of sealed roads, this is addressed in updates of the RAMM database.

Rather than import additional RAMM information into the Working Spreadsheets, it is likely to be more efficient to make changes to the Spreadsheets on a section by section basis.

20.2 Traffic Counting/Classification Survey Programme

RCAs have regular traffic counting programmes, and classification is expected to play an increasing part in them. The count results cannot be used to improve the precision of the average AADT estimate because the sites will not have been randomly selected. However, the information from the regular counting programme can be used to update estimates of traffic volumes on a site by site basis. This regular count information should be incorporated into both the Working Spreadsheets, and the NTDB as the data become available.

The results from single tube count programmes can be enhanced by the use of the "day," "week" and "axle" factors developed in this study. The result is a best estimate of ADT.

20.3 Vehicle Weight Surveys

With the passage of time, and the emergence of development of industry, regional changes to the distribution of vehicle weights within vehicle classes and road use category will be expected.

Such changes are expected to be regional, and cannot be detected readily from RUC data. As well as a means of watching for trends in information from the few WIM stations, a periodic survey by CVIU regions is likely to be called for.

PART 3 APPENDIX 1

RANDOMLY SELECTED SITES FOR *VDAS* CLASSIFICATION COUNTING

NOTE:

1. Traffic volumes are grouped into five strata of values. The range of corresponding AADT values differ for different RCAs, e.g. between RCAs with low traffic volumes and those with high traffic volumes.

   The first site in each of these five strata has been surveyed during Stage 3. Therefore, taking TRANSIT REGION 1 as an example, sites 284, 445, 372, 385, 402 were surveyed in Stage 3.

   The remaining sites will be surveyed in future field classification surveys.

2. Refer to Section 9 for the relation of site to Working Spreadsheet.

ABBREVIATIONS:

TLA Territorial Authority
TRANSIT REGION)
TNZ REGION) Regional or Unitary Authority
See Appendices 1a and 1b for names

APPENDIX 1a. LIST OF TERRITORIAL AUTHORITIES

1 FAR NORTH	26 WHAKATANE	51 MARLBOROUGH
2 KAIPARA	27 GISBORNE	52 NELSON CITY
3 WHANGAREI	28 CENTRAL HAWKE'S BAY	53 TASMAN
4 AUCKLAND	29 HASTINGS	54 ASHBURTON
5 FRANKLIN	30 NAPIER	55 BANKS PENINSULA
6 MANUKAU	31 WAIROA	56 CHRISTCHURCH
7 NORTH SHORE	32 NEW PLYMOUTH	57 HURUNUI
8 PAPAKURA	33 SOUTH TARANAKI	58 MACKENZIE
9 RODNEY	34 STRATFORD	59 SELWYN
10 WAITAKERE	35 HOROWHENUA	60 TIMARU
11 HAMILTON	36 MANAWATU	61 WAIMAKARIRI
12 HAURAKI	37 PALMERSTON NORTH	62 WAIMATE
13 MATAMATA-PIAKO	38 RANGITIKEI	63 BULLER
14 OTOROHANGA	39 RUAPEHU	64 GREY
15 SOUTH WAIKATO	40 TARARUA	65 WESTLAND
16 TAUPO	41 WANGANUI	66 CENTRAL OTAGO
17 THAMES-COROMANDEL	42 CARTERTON	67 CLUTHA
18 WAIKATO	43 KAPITI COAST	68 DUNEDIN
19 WAIPA	44 LOWER HUTT	69 QUEENSTOWN LAKES
20 WAITOMO	45 MASTERTON	70 WAITAKI
21 KAWERAU	46 PORIRUA	71 GORE
22 OPOTIKI	47 SOUTH WAIRARAPA	72 INVERCARGILL
23 ROTORUA	48 UPPER HUTT	73 SOUTHLAND
24 TAURANGA	49 WELLINGTON	
25 WESTERN BAY OF PLENTY	50 KAIKOURA	

APPENDIX 1b. LIST OF REGIONS

1 FAR NORTH
2 AUCKLAND
3 HAMILTON
4 ROTORUA
5 GISBORNE
6 HAWKE'S BAY
7 NEW PLYMOUTH
8 WANGANUI-MANAWATU
9 WELLINGTON
10 NELSON-MARLBOROUGH*
11 CHRISTCHURCH
12 WEST COAST
13 OTAGO
14 SOUTHLAND

* Unitary authorities that have been grouped for the purpose of compiling the NTDB.

TLA	TRANSIT REGION 1			28 Sites (+/-10%)		
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-2000	284	1604	1367.5	191.45	1500	
56-2000	256	6408	151	13.59	2200	
56-2000	104	2152	247	22.23	0	
56-2000	150	219	1481.7	311.16	200	
56-2000	222	1220	1639.4	229.52	300	
56-2000	312	3710	857.8	120.09	2300	
56-2000	32	100	1615.5	226.16	0	
2000-5000	445	465	4087.4	572.23	200	
2000-5000	7	393	3540.1	495.62	200	
2000-5000	3	3282	2069.8	289.77	2600	
2000-5000	301	3398	3229.4	452.12	1000	
2000-5000	296	4870	3734	522.77	4500	
2000-5000	1	370	2069.8	144.89	200	
2000-5000	206	163	3857.4	540.04	100	
2000-5000	248	566	2121.6	297.02	200	
2000-5000	50	1525	3029	636.09	700	
5000-10000	372	45	6003.3	840.46	0	
5000-10000	424	1059	6779	949.07	400	
5000-10000	471	220	5383.4	753.67	200	
5000-10000	454	137	5782.1	809.5	0	
5000-10000	412	403	9980.1	1397.21	0	
5000-10000	379	220	6831.3	956.39	200	
5000-10000	418	1636	7975.3	1116.55	200	
5000-10000	366	553	5382.3	753.52	300	
10000-15000	385	1051	10350.5	724.53	300	
10000-15000	387	505	12420.6	869.44	500	
15000+	402	136	18630.9	1304.16	0	
15000+	391	849	16560.8	1159.25	0	

TLA	TRANSIT REGION 2			22 Sites (+/-10%)		
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-10000	324	137	7311	511.77	0	
56-10000	567	150	4983.9	697.75	100	
56-10000	648	691	8617.3	603.21	500	
56-10000	282	35	4138.7	289.71	0	
56-10000	106	49	5353	374.71	0	
56-10000	306	48	3043.6	213.05	0	
56-10000	181	1869	8427.7	1179.87	100	
56-10000	375	207	9413.2	658.93	200	
10000-20000	27	68	11724.3	820.7	0	
10000-20000	613	65	14936.8	1045.57	0	
10000-20000	112	144	15632.9	2188.6	100	
10000-20000	225	1089	15105.2	2114.73	800	
10000-20000	94	79	11395.5	797.69	0	
10000-20000	483	27	10569.9	739.89	0	
10000-20000	356	104	17154.6	1200.83	0	
20000-35000	676	149	21696.4	1518.75	0	
20000-35000	17	220	23081.5	1615.7	200	
20000-35000	61	111	31870.6	2230.95	0	
35000-50000	389	572	44835.1	3138.45	400	
50000+	384	1373	67968.8	4757.81	1200	
50000+	385	549	53717.2	3760.21	300	
50000+	340	297	67697.4	4738.82	100	
50000+	308	138	63605.7	4452.4	100	

TLA	TRANSIT REGION 03				20 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-5000	1067	4340	1050	147	900	
56-5000	778	174	1300	117	100	
56-5000	836	315	2173.5	152.15	0	
56-5000	811	1776	540.8	48.67	700	
56-5000	1082	1775	260	36.4	800	
56-5000	1046	1861	505	45.45	900	
56-5000	563	1770	3779.9	529.18	1300	
56-5000	627	2110	4248.7	594.81	0	
5000-10000	937	102	5303.9	159.12	100	
5000-10000	525	4137	6591.9	922.86	1800	
5000-10000	34	776	7173.7	1004.32	500	
5000-10000	916	330	5301.4	159.04	200	
5000-10000	191	873	5511.9	771.66	700	
5000-10000	958	112	5303.9	159.12	0	
5000-10000	68	120	7724.8	231.75	0	
10000-15000	342	80	13473.4	404.2	0	
10000-15000	621	161	13625.3	408.76	100	
10000-15000	426	215	12375.7	866.3	200	
15000-20000	125	190	16866.9	1180.68	100	
20000+	408	179	20543.1	1438.02	100	

TLA	TRANSIT REGION 4			18 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-3000	380	2136	1928.9	270.04	1800
56-3000	378	390	2042.3	61.27	100
56-3000	444	4674	113.5	10.21	3800
3000-10000	213	1233	8132.2	1138.51	1100
3000-10000	246	555	5472	164.16	0
3000-10000	301	238	9562.1	286.86	0
3000-10000	218	7330	4401.4	616.2	4900
3000-10000	211	8030	7896.5	1105.51	3000
3000-10000	243	67	5472	766.08	0
3000-10000	79	70	6273.8	188.21	0
3000-10000	105	4230	9192.9	1287.01	1600
10000-18000	162	484	13144.1	394.32	400
10000-18000	237	300	16917	507.51	100
10000-18000	183	115	15741.6	3305.75	100
10000-18000	31	591	13996	979.72	100
18000-25000	36	146	20446.4	613.39	0
18000-25000	38	378	21785.1	653.55	300
25000+	43	94	25868.4	776.05	0

TLA	TNZ REGION 05			19 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-900	1	2280	631	88.34	1200
56-900	55	2839	269.3	37.7	1600
56-900	53	610	269.3	37.7	400
56-900	70	1114	757.2	106.01	400
56-900	77	3464	676.9	94.76	1500
56-900	5	259	608	85.13	100
56-900	61	413	377	11.31	0
900-2500	80	1113	917.8	128.49	300
900-2500	97	5412	1147.3	160.62	3500
900-2500	32	542	1820.2	254.83	100
900-2500	37	2658	969.3	135.71	700
900-2500	83	727	1009.6	141.34	200
900-2500	17	601	969.3	135.71	0
900-2500	20	4069	1292.5	180.94	1000
2500-6000	29	188	3769.7	527.75	100
2500-6000	28	2693	3446.5	482.52	2600
2500-6000	106	1354	5385.2	161.56	100
6000-10000	112	250	9751.7	682.62	100
6000-10000	114	577	7227.8	505.94	200
10000+	110	908	12849.3	899.45	200

TLA	TNZ REGION 06			15 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1700	136	1874	103.8	14.54	1300
56-1700	28	1258	1188.5	166.4	500
56-1700	6	16310	1269.2	177.69	9200
56-1700	143	8853	486.2	68.07	1300
56-1700	114	1042	1642.3	229.93	500
1700-3500	118	2150	1772	248.08	1900
1700-3500	54	505	1925.7	134.8	300
1700-3500	12	1176	1730.8	242.31	1100
3500-6000	75	121	5402.5	378.17	0
3500-6000	71	120	5402.5	378.17	0
3500-6000	42	587	5563.2	389.42	500
6000-11000	67	290	8643.9	605.08	0
6000-11000	158	2186	6707.9	469.55	1800
11000+	162	958	17654	1235.78	800
11000+	68	1464	11885.4	831.98	400

TLA	TNZ REGION 07			19 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-2000	285	1531	100.7	9.07	1200
56-2000	358	1418	1510.6	211.49	100
56-2000	13	122	1912.4	267.74	100
56-2000	380	4161	1007.1	140.99	200
2000-5000	179	856	4126.8	577.75	100
2000-5000	397	269	2819.8	394.78	0
2000-5000	371	200	2014.2	140.99	100
2000-5000	240	208	2214.4	155.01	100
2000-5000	334	1148	2304.5	322.62	700
5000-10000	111	988	5938.6	831.4	100
5000-10000	44	440	8555.6	1197.78	100
5000-10000	168	375	5032.7	352.29	200
5000-10000	308	392	9567.3	669.71	200
5000-10000	99	86	7448.4	521.39	0
5000-10000	152	559	5536	775.04	100
5000-10000	81	422	6039.2	845.49	400
10000-15000	46	2095	12078.5	1690.99	600
15000+	66	236	23150.4	1620.53	0
15000+	48	82	17111.2	2395.57	0

TLA	TNZ REGION 08			16 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-3000	236	130	1119.7	78.38	100
56-3000	453	682	101.8	9.16	200
56-3000	39	700	2221.8	311.05	0
3000-6000	312	95	3521	246.47	0
3000-6000	343	984	4527	633.78	800
3000-6000	27	1002	4039.6	565.55	200
3000-6000	120	148	5267.8	368.74	0
6000-11000	550	218	9067.3	1269.43	0
6000-11000	419	1099	7042	985.88	600
6000-11000	164	120	7091.2	496.39	100
6000-11000	71	369	7597.7	531.84	100
6000-11000	109	313	6078.2	850.95	200
6000-11000	403	4486	6237.2	873.2	3100
11000-18000	442	700	11770.2	1647.82	500
11000-18000	151	91	16208.5	1134.6	0
18000+	144	100	18741.1	1311.88	0

TLA	TRANSIT REGION 9			39 Sites (+/-5%)	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-5000	249	115	4097.1	286.8	100
56-5000	57	354	3604	252.28	200
56-5000	35	4140	4147.7	580.68	600
56-5000	265	960	1678.3	234.96	900
56-5000	137	196	4089.1	286.24	100
56-5000	50	3461	3579.7	250.58	1000
5000-12000	135	214	9221.9	645.54	0
5000-12000	139	140	7019.5	491.36	0
5000-12000	243	418	11881.5	831.71	0
5000-12000	64	796	11911.1	1667.55	200
5000-12000	287	527	8957.8	1254.09	300
5000-12000	158	2635	9872.1	1382.1	1400
5000-12000	156	718	11223	1571.22	100
5000-12000	145	231	7169.9	501.89	0
5000-12000	289	699	9163.7	641.46	0
12000-20000	166	2511	14517.8	2032.49	1300
12000-20000	211	1302	17709.6	1239.67	1100
12000-20000	188	905	17194.8	2407.28	0
12000-20000	204	988	13951.5	976.6	700
12000-20000	74	257	16697	2337.58	100
12000-20000	178	1824	17194.8	2407.28	600
12000-20000	259	180	13173.7	922.16	0
12000-20000	157	1044	14517.8	2032.49	900
12000-20000	234	1460	19925.2	1394.77	1100
12000-20000	195	616	18945.2	1326.16	100
12000-20000	177	1000	17194.8	2407.28	300
12000-20000	163	4463	14414.8	432.44	300
20000-30000	78	192	26772.9	3748.21	100
20000-30000	175	3384	20592.6	2882.96	200
20000-30000	110	570	29653.3	2075.73	0
20000-30000	236	984	22002.5	1540.17	800
20000-30000	132	90	29421.9	2059.53	0
20000-30000	79	404	26775.5	3748.56	400
20000-30000	114	254	29653.3	2075.73	100
20000-30000	206	400	23681.5	1657.7	0
30000+	255	216	37066.7	2594.67	100
30000+	256	2030	37066.7	2594.67	300
30000+	229	1600	35576.3	2490.34	0
30000+	152	446	44878.9	3141.53	400

TLA	TNZ REGION 10				29 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-1500	383	5250	796.2	71.65	600	
56-1500	494	335	244.2	21.98	300	
56-1500	553	3660	500.1	45.01	1900	
56-1500	345	1137	1217	109.53	1100	
56-1500	532	470	177.6	15.98	300	
56-1500	459	1174	455.1	40.96	1000	
56-1500	380	3207	796.2	71.65	1300	
1500-3000	60	1250	2309.9	207.89	300	
1500-3000	287	957	2957.2	266.14	900	
1500-3000	104	1980	2099.9	188.99	1200	
1500-3000	91	424	2099.9	188.99	0	
1500-3000	385	2031	1660.6	116.24	0	
3000-8000	19	615	5125.3	358.77	100	
3000-8000	20	422	5125.3	358.77	400	
3000-8000	357	1400	3727.5	260.93	0	
3000-8000	151	120	7988.5	559.2	0	
3000-8000	224	35	3412.1	238.85	0	
3000-8000	3	54	5291.7	370.42	0	
3000-8000	14	1063	6028	421.96	0	
3000-8000	358	2835	3611	324.99	200	
3000-8000	6	384	5291.7	370.42	100	
3000-8000	10	176	5291.7	370.42	0	
3000-8000	285	1433	3070.9	276.38	900	
8000-20000	170	1869	12481.7	873.72	400	
8000-20000	171	1463	11094.8	776.64	1300	
8000-20000	154	1174	15023.2	1051.63	300	
8000-20000	152	608	13354	934.78	400	
8000-20000	158	368	18361.7	1285.32	200	
20000+	167	882	22230.5	1556.13	500	

TLA	TRANSIT REGION 11				19 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-2000	192	12125	1856.7	259.94	400	
56-2000	125	4000	787.7	110.28	2200	
56-2000	770	273	136.2	12.26	200	
56-2000	717	210	620.7	86.89	100	
56-2000	518	696	1899.9	57	400	
2000-5000	388	1780	3263.3	456.86	1200	
2000-5000	625	1007	2475.6	346.59	700	
2000-5000	425	770	4276.1	598.65	100	
2000-5000	265	519	4613.7	645.91	100	
5000-10000	302	883	7012.5	981.76	200	
5000-10000	349	1630	7544.2	678.98	300	
5000-10000	588	98	8616	258.48	0	
5000-10000	352	1394	7599.6	227.99	200	
5000-10000	593	41	9332.5	1306.55	0	
10000-15000	464	1518	14528.7	435.86	500	
10000-15000	414	390	12792.6	383.78	300	
10000-15000	553	363	14373.8	431.21	0	
15000+	545	243	20362.9	610.89	100	
15000+	495	422	15646.3	469.39	100	

TLA	TRANSIT REGION 12				19 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-1000	316	1615	257.1	23.14	0	
56-1000	90	5095	756.9	105.96	500	
56-1000	213	5969	442.3	39.81	4000	
56-1000	227	2288	442.3	39.81	900	
56-1000	174	6224	707.7	63.69	3400	
56-1000	196	1044	477.7	42.99	1000	
1000-2000	126	1090	1061.6	148.62	400	
1000-2000	267	793	1019.8	142.77	500	
1000-2000	9	116	1114.3	156	0	
1000-2000	113	8096	1061.6	148.62	1000	
1000-2000	327	4105	1714.3	240.01	1200	
2000-4000	43	464	2549.5	356.93	0	
2000-4000	299	147	2057.2	61.72	100	
2000-4000	282	1592	2167.1	65.01	1100	
4000-6500	81	195	5307.8	159.24	0	
4000-6500	57	53	5290.2	158.71	0	
4000-6500	63	250	5736.3	803.09	200	
6500+	49	602	12492.5	374.77	400	
6500+	47	180	8413.3	252.4	100	

TLA	TRANSIT REGION 13				14 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-3000	19	16684	744.6	104.25	6300	
56-3000	270	12060	2180	305.19	9400	
56-3000	74	7080	1654.1	231.57	6400	
56-3000	81	799	1560.9	109.26	400	
3000-9000	108	2170	4269.3	597.7	200	
3000-9000	135	130	4635.2	324.47	0	
3000-9000	114	8170	4029.7	564.15	4200	
3000-9000	303	2720	6057.2	424	200	
9000-18000	187	320	15247.4	1067.32	300	
9000-18000	190	820	13179	922.53	400	
9000-18000	98	1240	16694.7	1168.63	600	
18000-28000	289	250	20268.3	1418.78	100	
18000-28000	150	220	23420.1	1639.4	0	
28000+	156	210	29153.1	2040.72	100	

TLA	TRANSIT REGION 14				9 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-2000	313	7567	358.9	32.3	5100	
56-2000	316	1519	339.9	30.59	400	
56-2000	310	1773	401.1	36.1	200	
2000-5000	133	3900	4226.4	591.69	200	
2000-5000	135	250	4543.4	136.3	100	
5000-8000	113	807	5280.2	158.41	700	
5000-8000	196	121	5916.9	177.51	100	
8000-10000	147	82	8664.1	606.49	0	
10000+	67	135	10349.3	724.45	100	

TLA	FAR NORTH # 01			40 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	940	393	124.9	8.74	200
56-200	1627	175	124.9	3.75	100
56-200	1264	1114	124.9	11.24	500
56-200	59	103	78.1	7.03	100
56-200	704	3441	104.1	9.37	800
56-200	54	258	72.9	6.56	0
200-500	1106	398	260.2	23.42	0
200-500	587	625	260.2	23.42	100
200-500	1201	1059	207.7	18.69	400
200-500	1370	670	342.4	30.82	100
200-500	134	288	437.1	39.34	200
200-500	450	75	208.2	18.73	0
200-500	979	331	416.3	12.49	0
500-2000	1483	227	1040.8	72.86	100
500-2000	1021	1455	624.5	87.43	1200
500-2000	916	4150	654.8	58.94	800
500-2000	243	279	1249	37.47	200
500-2000	1774	3676	923.8	129.34	3400
500-2000	619	651	624.5	56.2	500
500-2000	325	212	1249	174.86	100
500-2000	924	122	1249	37.47	0
500-2000	174	90	624.5	18.73	0
500-2000	697	80	510	45.9	0
500-2000	1806	2797	1561.2	218.57	200
500-2000	1258	145	520.4	15.61	0
2000-4000	1588	309	3632.4	108.97	100
2000-4000	1500	459	2810.2	393.43	200
2000-4000	667	155	3122.5	218.57	0
2000-4000	665	441	3642.9	327.86	200
2000-4000	674	181	3538.8	247.72	100
2000-4000	2143	108	2081.6	291.43	0
2000-4000	543	843	3642.9	327.86	0
2000-4000	215	387	3642.9	765	300
2000-4000	638	409	2914.3	408	0
2000-4000	244	79	2081.6	62.45	0
4000+	1592	211	5204.1	156.12	100
4000+	881	149	6244.9	187.35	0
4000+	1589	217	4163.3	124.9	100
4000+	879	122	5204.1	156.12	0
4000+	882	243	9641.9	289.26	0

TLA	KAIPARA # 02			23 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-100	854	28	80	7.16	0
56-100	779	1346	99	8.95	800
100-200	570	75	149	13.42	0
100-200	347	514	149	13.42	100
100-200	376	45	199	41.75	0
200-500	269	937	497	44.74	200
200-500	830	171	298	20.87	100
200-500	900	137	398	11.93	100
200-500	841	1576	298	41.75	1200
200-500	689	471	249	7.46	400
500-1000	115	376	994	29.83	200
500-1000	114	943	994	89.48	400
500-1000	484	19	596	41.75	0
1000+	930	1400	1690	236.58	400
1000+	934	669	1193	167	100
1000+	1234	69	1988	139.16	0
1000+	669	179	1491	104.38	0
1000+	500	38	1988	59.65	0
1000+	558	175	1591	47.72	100
1000+	416	119	2485	173.97	100
1000+	418	202	1988	59.65	100
1000+	1266	135	1988	139.16	100
1000+	1265	92	2982	208.75	0

TLA	WHANGAREI # 03			31 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	1748	49	339.1	30.52	0
56-500	1041	3052	176.1	15.85	1300
56-500	2360	1862	160.4	14.43	1400
56-500	2340	69	85.5	2.57	0
56-500	1480	131	74.9	2.25	0
500-2000	1708	198	748.6	22.46	0
500-2000	389	84	535.2	16.06	0
500-2000	420	39	1889.2	56.68	0
500-2000	1536	84	1069.4	149.71	0
500-2000	1738	2849	951.4	133.19	1200
500-2000	1331	202	962.4	86.62	100
500-2000	1743	5535	653	91.42	700
2000-5000	801	281	4389.7	307.28	100
2000-5000	905	65	2139	64.17	0
2000-5000	1231	1342	3956.5	553.91	1200
2000-5000	2022	490	2980.8	89.42	200
2000-5000	850	21	2208.5	66.25	0
2000-5000	1410	112	3312.2	99.37	100
5000-10000	1526	779	5558.5	389.1	200
5000-10000	1597	104	8280.5	579.63	100
5000-10000	1124	342	5542.2	166.27	100
5000-10000	210	121	5529	387.03	100
5000-10000	187	46	5780.9	1213.98	0
10000+	903	341	14907.1	1043.5	200
10000+	798	267	11522.8	806.6	0
10000+	1683	1031	15456.9	1081.98	300
10000+	1336	360	13138.4	919.69	200
10000+	726	51	14907.1	1043.5	0
10000+	718	245	11594.4	811.61	100
10000+	722	124	14407	1008.49	100
10000+	795	163	13169	921.83	100

TLA	AUCKLAND # 04			25 Sites	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Sample Point (m)
56-3000	7912	220	1754.8	52.64	100
56-3000	2878	112	208.5	6.25	0
56-3000	137	91	417	12.51	0
56-3000	6159	247	2340.9	70.23	0
56-3000	1300	99	103.2	3.1	0
56-3000	132	200	520.2	15.61	100
56-3000	6092	146	520.2	15.61	0
56-3000	3597	208	520.2	15.61	200
56-3000	1031	67	78.2	2.35	0
3000-10000	5722	208	4391.7	922.27	0
3000-10000	5929	190	3764.4	790.51	0
3000-10000	7343	142	6698.6	468.9	100
10000-20000	4210	208	13395.8	937.7	200
10000-20000	7875	101	16076.6	1125.36	100
10000-20000	7142	257	13398.5	937.89	0
20000-30000	1036	140	20095.7	1406.7	100
20000-30000	1486	83	29473.7	2063.16	0
20000-30000	965	119	26794.3	1875.6	100
20000-30000	4603	92	26794.3	1875.6	0
20000-30000	6387	108	20095.7	1406.7	0
20000-30000	1625	167	20095.7	1406.7	100
30000+	7400	91	33492.8	2344.5	0
30000+	1660	127	32153.1	2250.72	100
30000+	2552	234	33492.8	2344.5	100
30000+	3975	114	40191.4	2813.4	0

TLA	FRANKLIN # 05			39 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	1453	3796	84	7.52	2800
56-200	510	123	91	2.74	100
200-500	91	629	313	28.2	0
200-500	774	3164	289	25.98	600
200-500	126	618	444	39.95	100
500-1500	376	266	1279	38.36	100
500-1500	668	1525	559	78.28	1200
500-1500	1025	4097	1101	154.15	1300
500-1500	137	822	522	46.99	800
500-1500	311	89	508	15.24	0
500-1500	671	2574	522	46.99	2200
500-1500	955	1126	613	85.86	400
500-1500	133	2440	625	87.46	900
500-1500	535	124	508	15.24	100
500-1500	775	3164	1272	178.04	0
500-1500	982	451	813	24.38	200
500-1500	1100	1204	522	46.99	100
500-1500	14	4143	522	46.99	200
1500-3000	1171	448	2012	60.35	0
1500-3000	522	197	2559	76.76	0
1500-3000	1388	202	1874	262.38	0
1500-3000	1390	512	1874	262.38	0
1500-3000	740	211	2911	87.34	100
3000+	880	91	5974	179.22	0
3000+	1475	1860	4606	644.88	700
3000+	1472	137	3339	467.45	100
3000+	480	3258	5414	758	1500
3000+	725	607	5888	176.65	0
3000+	1276	73	8271	578.98	0
3000+	1473	137	4606	644.88	100
3000+	1168	176	4589	137.66	100
3000+	485	1468	5414	758	1300
3000+	1179	85	10339	723.73	0
3000+	1478	606	3373	472.25	0
3000+	1274	120	4187	293.11	100
3000+	961	2383	5619	786.63	2000
3000+	1275	140	4145	124.35	100
3000+	723	304	4352	130.56	0
3000+	369	974	6514	455.95	400

TLA	MANAKAU # 06			45 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	4061	178	242	7.26	100
56-1000	610	155	149.6	4.49	0
56-1000	2706	219	897.9	26.94	0
56-1000	4165	453	382.6	11.48	100
56-1000	2819	174	225.7	6.77	0
56-1000	2868	129	459.2	13.78	100
1000-4000	4314	353	2620	78.6	0
1000-4000	3978	109	3198.6	95.96	100
1000-4000	925	275	1901.1	266.15	0
1000-4000	1165	119	2546.9	76.41	0
1000-4000	4207	252	3013.3	210.93	0
1000-4000	4731	356	2014	60.42	300
1000-4000	938	120	1230.8	36.92	100
1000-4000	2683	333	3781.8	113.45	100
4000-11000	1789	95	9641.1	674.88	0
4000-11000	105	125	4457.1	133.71	100
4000-11000	2374	241	7966.3	557.64	0
4000-11000	1800	191	4127.8	123.83	0
4000-11000	1550	97	4402.2	132.06	0
4000-11000	62	104	8728.1	610.96	100
4000-11000	4220	712	8391.3	587.39	600
4000-11000	4925	54	4467.3	134.02	0
4000-11000	3861	292	4655.8	139.68	200
4000-11000	3667	1046	5428.6	380	900
4000-11000	4093	217	4765.2	142.96	0
11000-25000	2458	50	12205.9	854.41	0
11000-25000	3803	104	13384.3	936.9	0
11000-25000	1861	109	23741.3	1661.89	0
11000-25000	4039	201	14968.8	1047.82	100
11000-25000	278	112	21847.5	1529.33	0
11000-25000	751	221	12112.5	847.87	0
11000-25000	4748	256	13183.6	922.85	200
11000-25000	1464	269	12459.3	872.15	200
11000-25000	3426	87	16135.4	1129.48	0
11000-25000	535	20	13064	914.48	0
11000-25000	3520	202	20073.6	1405.15	200
25000+	1840	174	25218.2	1765.27	100
25000+	1955	84	31037.4	2172.62	0
25000+	1868	104	25822.6	1807.58	0
25000+	3304	276	47178.3	3302.48	0
25000+	3293	115	69715.9	4880.11	100
25000+	1874	160	28625.7	2003.8	0
25000+	3308	71	38570.6	2699.94	0
25000+	3657	115	26231.1	1836.18	100
25000+	1875	247	28625.7	2003.8	100

TLA	NORTH SHORE # 07		44 Sites		
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	2609	37	103	3.1	0
56-500	1945	447	103	3.1	0
500-4000	545	140	2090	62.69	100
500-4000	1607	107	521	15.63	0
500-4000	1656	362	521	15.63	200
500-4000	303	582	756	22.68	300
500-4000	160	660	521	15.63	300
500-4000	482	128	1566	46.99	100
500-4000	2468	195	2787	83.62	100
500-4000	418	121	2067	62	0
500-4000	1217	189	521	15.63	0
500-4000	1123	425	521	15.63	300
500-4000	398	456	1671	50.12	400
4000-10000	1430	260	8261	247.83	100
4000-10000	1697	153	7616	533.13	100
4000-10000	660	637	8161	244.84	300
4000-10000	211	343	8128	568.98	100
4000-10000	104	277	8677	607.37	200
4000-10000	606	105	5423	379.63	0
10000-20000	2481	134	10160	711.22	0
10000-20000	926	560	19030	1332.12	0
10000-20000	2480	210	10160	711.22	200
10000-20000	449	159	13936	975.5	100
10000-20000	146	97	10849	759.42	0
10000-20000	927	185	19030	1332.12	0
10000-20000	1304	165	19054	1333.78	100
10000-20000	82	239	14185	992.96	0
10000-20000	2413	259	15483	1083.79	0
20000+	2282	177	46431	3250.16	0
20000+	1315	142	43881	3071.68	0
20000+	919	58	25374	1776.16	0
20000+	2279	307	30713	2149.92	300
20000+	931	337	21568	1509.74	100
20000+	2305	172	24372	1706.03	100
20000+	1261	29	21358	1495.08	0
20000+	833	386	21587	1511.08	0
20000+	1647	540	25960	1817.19	400
20000+	932	520	21568	1509.74	0
20000+	1257	160	21358	1495.08	0
20000+	1709	274	37258	2608.06	0
20000+	1645	371	31658	2216.04	300
20000+	708	166	22936	1605.55	0
20000+	84	268	31614	2212.95	0
20000+	1715	256	28895	2022.62	100

TLA	PAPAKURA # 08			41 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	132	296	341.7	10.25	100
56-1000	634	662	661.4	19.84	400
56-1000	38	62	99.2	2.98	0
56-1000	351	98	111.3	3.34	0
56-1000	548	54	66.1	1.98	0
56-1000	337	266	330.7	9.92	200
56-1000	569	149	121.2	3.64	100
56-1000	283	85	66.1	1.98	0
56-1000	90	591	550	16.5	200
56-1000	361	78	88.2	2.65	0
1000-4000	490	456	3086.3	432.09	100
1000-4000	706	365	1102.3	33.07	300
1000-4000	17	2788	1355.8	189.81	700
1000-4000	305	746	3747.7	112.43	500
1000-4000	57	799	1763.6	52.91	400
1000-4000	691	478	3857.9	270.05	100
1000-4000	605	157	1289.6	38.69	0
1000-4000	420	527	1884.9	56.55	100
1000-4000	676	556	2733.6	82.01	200
1000-4000	630	173	2094.3	146.6	100
1000-4000	304	639	3306.8	99.2	200
4000-10000	376	397	4497.2	134.92	300
4000-10000	665	321	6420.3	449.42	200
4000-10000	492	332	6602.2	462.15	100
4000-10000	116	409	7954.4	556.81	200
4000-10000	291	303	7210.2	504.72	100
4000-10000	401	819	4896.2	685.47	500
4000-10000	599	130	7954.4	556.81	0
4000-10000	254	388	8931.7	625.22	100
4000-10000	155	394	4490	314.3	0
4000-10000	397	765	5511.3	771.58	0
4000-10000	454	354	4431.1	620.35	0
10000-23000	185	363	13329.7	933.08	0
10000-23000	113	259	20112.9	1407.91	200
10000-23000	249	487	11318	792.26	300
10000-23000	244	265	20306.8	1421.48	200
10000-23000	573	551	10727.1	750.9	300
23000+	238	566	31920	2234.4	500
23000+	241	339	32435.5	2270.48	200
23000+	236	328	37539.2	2627.75	300
23000+	243	283	28453.5	1991.75	100

SITES FOR SAMPLING

TLA	RODNEY # 09			45 Sites	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Sample Point (m)
56-450	451	458	129	3.86	400
56-450	725	8950	96	8.62	5600
56-450	1455	157	96	2.87	0
56-450	1487	1488	64	1.91	1400
56-450	1463	577	105	3.16	0
56-450	1427	390	190	5.69	300
56-450	1109	495	127	11.44	200
56-450	1594	96	93	2.78	0
56-450	1001	101	85	2.56	0
56-450	517	187	240	21.58	100
56-450	25	268	113	3.39	0
56-450	969	714	161	14.53	100
450-1800	487	1775	466	13.99	1100
450-1800	1626	709	1375	192.43	200
450-1800	1351	702	528	15.83	400
450-1800	303	118	649	19.46	100
450-1800	1005	544	486	14.59	0
450-1800	1083	1401	799	111.89	1100
450-1800	584	92	516	15.47	0
450-1800	62	258	1303	39.08	0
450-1800	308	229	1040	31.19	200
450-1800	366	306	1571	47.12	200
450-1800	874	861	509	15.26	700
450-1800	1638	304	480	14.4	300
450-1800	790	182	1219	36.58	0
1800-4500	806	662	1837	55.1	500
1800-4500	265	797	2308	161.56	400
1800-4500	687	2406	2376	332.64	2000
1800-4500	1393	212	3031	90.94	100
1800-4500	1326	635	4050	567.03	600
1800-4500	697	5430	1984	277.78	1100
1800-4500	679	1812	2376	332.64	1600
1800-4500	1754	47	1917	134.18	0
1800-4500	694	224	3123	218.62	100
1800-4500	1644	3718	1931	270.28	2300
4500-11000	1621	184	4589	137.66	100
4500-11000	227	384	7287	510.12	200
4500-11000	1744	426	4798	143.98	0
4500-11000	857	878	4772	668.11	100
4500-11000	228	527	6388	447.18	400
4500-11000	1259	696	6685	467.92	100
11000+	1732	341	15998	1119.86	0
11000+	373	3298	11546	1616.4	1100
11000+	375	4360	13965	1955.14	3000
11000+	1731	706	16833	1164.29	0

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TLA	WAITAKERE # 10			37 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	444	1930	164.4	4.93	800
56-1000	1536	2018	120.6	3.62	300
56-1000	1534	1676	460.3	13.81	1200
56-1000	1054	101	87.7	2.63	0
56-1000	202	245	876.7	122.74	100
56-1000	112	119	602.8	18.08	100
1000-5000	2563	23	3287.8	98.63	0
1000-5000	1662	704	2980.5	208.63	100
1000-5000	772	176	1085	32.55	100
1000-5000	1914	136	2137.1	64.11	0
1000-5000	1889	130	2301.5	69.04	0
1000-5000	1850	147	3116.8	93.51	100
1000-5000	1383	570	2191.9	65.76	300
1000-5000	1993	196	1753.5	52.6	0
5000-15000	763	375	9863.4	690.44	100
5000-15000	1435	240	7353.7	514.76	200
5000-15000	2429	158	5370.1	161.1	0
5000-15000	1299	380	6485.4	453.97	300
5000-15000	505	74	7014	490.98	0
5000-15000	2383	248	7123.6	498.65	0
5000-15000	762	354	10740.2	751.81	100
5000-15000	2297	146	6246.8	437.28	100
5000-15000	789	840	7626.9	533.88	0
5000-15000	347	714	6231	436.17	400
5000-15000	1936	168	5479.7	164.39	100
5000-15000	665	143	7671.5	537.01	0
5000-15000	1796	144	6466	452.62	0
15000-30000	2084	425	21776.4	1524.35	300
15000-30000	2180	106	21763.2	1523.42	0
15000-30000	2189	40	25735.7	1801.5	0
15000-30000	2476	211	19928.7	1395.01	0
15000-30000	2187	366	24415.9	1709.12	100
15000-30000	816	72	28243.3	1977.03	0
15000-30000	969	200	16143.1	1130.02	100
30000+	2194	48	38273.6	2679.16	0
30000+	827	230	34728.7	2431.01	0
30000+	826	131	32093	2246.51	0

TLA	HAMILTON # 11			38 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	1540	140	296.8	8.9	0
56-1000	2232	107	94.1	2.82	0
56-1000	1475	465	166.8	5	400
56-1000	2193	172	666.9	20.01	100
56-1000	1069	108	445.9	13.38	100
56-1000	1271	481	320.7	9.62	0
56-1000	2537	361	227.3	6.82	0
1000-4000	2387	80	2326.7	69.8	0
1000-4000	2351	132	3424.7	239.73	0
1000-4000	1529	110	1439.5	43.18	100
1000-4000	1825	160	1234.4	37.03	100
1000-4000	681	254	3693.2	110.8	0
1000-4000	1795	211	1532.1	45.96	100
1000-4000	1869	204	2256.9	67.71	100
1000-4000	1575	298	1496.3	44.89	100
1000-4000	1820	170	3547.2	106.42	100
1000-4000	1107	104	1684.1	50.52	100
4000-9000	1644	90	8462.7	592.39	0
4000-9000	1923	147	6793.4	475.54	0
4000-9000	1651	81	8462.7	592.39	0
4000-9000	1218	275	4595.9	321.71	0
4000-9000	467	417	8057.8	564.05	100
4000-9000	699	177	4278.4	898.47	0
4000-9000	2003	167	5576.0	390.32	0
9000-18000	1014	127	9114.2	637.99	100
9000-18000	1957	178	9345.5	654.18	0
9000-18000	1944	50	10791.2	755.38	0
9000-18000	1121	402	10005.2	700.37	400
9000-18000	846	255	11026.7	771.87	0
9000-18000	690	65	10117.8	708.25	0
9000-18000	1729	132	12504.2	875.29	100
9000-18000	746	216	10335.4	723.48	0
9000-18000	845	205	11026.7	771.87	200
9000-18000	2331	170	9981.2	698.68	0
18000+	2372	248	18422.5	1289.57	200
18000+	2410	114	21876.7	1531.37	0
18000+	2257	94	26551.5	1858.6	0
18000+	270	81	30783.8	2154.86	0

TLA	HAURAKI # 12			33 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	410	516	73	6.6	200
56-250	897	252	63	1.88	200
56-250	413	289	186	5.58	100
56-250	397	177	70	2.11	0
56-250	79	112	98	2.93	100
56-250	117	148	68	6.16	100
56-250	544	92	147	4.4	0
56-250	888	158	195	5.86	0
56-250	855	2082	122	10.99	100
250-600	695	147	307	9.2	100
250-600	288	120	569	17.06	0
250-600	6	118	344	10.32	0
250-600	950	115	492	44.28	100
250-600	345	485	371	77.97	200
250-600	359	107	330	9.91	0
250-600	561	265	283	8.5	100
600-1800	726	139	984	29.52	100
600-1800	945	2000	634	88.78	200
600-1800	169	103	733	21.98	0
600-1800	471	191	856	25.68	100
600-1800	882	126	1129	237.01	0
600-1800	881	345	1345	282.35	0
600-1800	837	122	636	19.08	100
600-1800	949	518	1015	91.39	0
600-1800	389	89	1041	31.23	0
600-1800	263	2720	736	103	1900
600-1800	20	169	825	24.74	0
600-1800	959	218	1598	111.85	100
1800-3500	298	2064	2266	203.95	2000
1800-3500	292	2086	2477	222.94	600
1800-3500	293	311	2355	211.99	300
3500+	799	90	3985	278.92	0
3500+	800	316	3985	278.92	0

TLA	MATAMATA-PIAKO # 13				30 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-400	199	91	88.8	2.66	0
56-400	1082	4018	211.3	19.02	1800
56-400	67	2501	185.6	16.7	2400
56-400	121	71	55.5	1.66	0
56-400	860	221	221.9	6.66	100
56-400	167	70	107.2	3.22	0
56-400	239	350	221.9	6.66	100
56-400	142	316	111	3.33	0
56-400	235	3226	291.9	26.27	1200
400-1200	699	2725	541.6	48.75	700
400-1200	696	2880	421.5	37.93	2300
400-1200	1206	278	1109.6	33.29	0
400-1200	137	40	750.8	22.52	0
400-1200	992	397	499.3	14.98	0
400-1200	480	2971	568.1	51.13	1800
400-1200	487	97	797.3	23.92	0
400-1200	8	3175	859.4	120.32	2600
400-1200	998	400	1195.8	35.87	0
1200-2500	436	3289	1824.1	255.37	400
1200-2500	1138	620	1711	51.33	500
1200-2500	380	1255	2282	319.48	800
1200-2500	796	735	2021.6	283.02	100
1200-2500	825	2331	1900.2	266.03	800
2500-5000	823	110	4520.4	135.61	0
2500-5000	95	100	4680.2	140.41	0
2500-5000	1051	83	4562.1	136.86	0
2500-5000	682	71	3739.6	523.54	0
2500-5000	1055	155	4358.3	130.75	100
2500-5000	791	3640	2902.5	406.35	2600
2500-5000	683	957	3443.2	482.04	700
5000+	1062	61	5778.4	173.35	0
5000+	1058	39	5360.4	160.81	0

TLA	OTOROHANGA # 14			19 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-150	311	216	121	10.9	200
56-150	486	941	85	7.6	0
56-150	22	80	108	9.7	0
56-150	445	2480	75	6.8	1300
150-300	317	1021	299	26.9	700
150-300	325	1876	240	21.6	400
150-300	279	426	278	8.3	200
150-300	179	1192	237	21.3	0
300-600	117	368	475	14.3	200
300-600	68	226	493	14.8	100
300-600	394	79	398	27.9	0
300-600	69	187	493	14.8	100
600-1000	90	320	808	24.2	200
600-1000	88	503	808	24.2	500
1000+	360	475	1342	40.3	100
1000+	155	215	1293	38.8	200
1000+	370	2315	1848	258.7	100
1000+	372	836	1890	264.6	200
1000+	438	4424	1177	164.8	3400

TLA	S. WAIKATO # 15			31 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	540	35	80	2.39	0
56-300	163	2203	149	13.42	900
56-300	197	91	61	1.83	0
56-300	250	2250	259	23.27	300
56-300	138	222	104	21.94	0
56-300	206	127	61	1.83	0
56-300	35	136	61	1.83	100
56-300	486	4260	59	5.31	2600
300-1000	16	1333	925	129.52	400
300-1000	478	4100	310	27.93	2000
300-1000	115	1090	852	178.97	500
300-1000	69	1271	627	131.64	0
300-1000	45	319	640	19.21	100
300-1000	282	551	870	26.11	500
300-1000	383	2616	352	31.65	2500
1000-2000	508	325	1082	32.46	200
1000-2000	361	421	1001	30.03	100
1000-2000	70	844	1374	41.22	800
1000-2000	19	554	1139	159.53	500
1000-2000	169	417	1449	202.82	100
1000-2000	30	549	1239	260.19	100
1000-2000	448	124	1196	35.89	100
1000-2000	449	1070	1087	32.62	200
1000-2000	12	2805	1107	155.04	1500
2000-4000	212	968	3608	108.23	400
2000-4000	310	267	3190	95.7	200
2000-4000	64	608	3262	228.37	300
2000-4000	31	877	3090	92.69	600
2000-4000	385	982	3203	96.1	100
4000+	65	674	6998	489.88	0
4000+	290	149	4677	327.37	100

TLA	TAUPO # 16			40 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	550	90	100	3	0
56-300	363	410	150	4.5	100
56-300	54	100	75	2.25	0
56-300	990	1000	60	5.4	0
56-300	380	148	75	2.25	0
56-300	716	380	300	9	100
56-300	494	546	300	9	100
300-1000	734	360	400	12	0
300-1000	998	377	700	21	0
300-1000	684	360	700	21	300
300-1000	184	211	600	18	200
300-1000	629	250	1000	30	200
300-1000	666	140	500	15	100
300-1000	508	230	500	15	100
300-1000	719	253	600	18	200
300-1000	878	280	500	15	100
1000-2500	836	236	2400	72	100
1000-2500	30	170	2500	75	100
1000-2500	79	4800	1402.1	196.29	2000
1000-2500	732	206	2259.8	67.8	200
1000-2500	861	300	2400	72	0
1000-2500	727	106	1775.2	53.26	100
1000-2500	301	153	1337.5	40.13	100
1000-2500	646	1200	1500	210	0
1000-2500	299	205	1200	36	100
2500-6000	862	396	2687.3	80.62	100
2500-6000	838	177	3500	105	0
2500-6000	820	105	2997.7	89.93	100
2500-6000	856	250	5640.1	169.2	200
2500-6000	983	253	5000	350	0
2500-6000	347	590	3534.7	106.04	200
2500-6000	842	502	5828.9	174.87	300
2500-6000	474	207	4440.1	133.2	100
2500-6000	867	362	3000	90	300
2500-6000	486	359	3853.4	809.21	300
2500-6000	875	540	3954.7	118.64	0
6000+	740	412	8214.8	246.44	100
6000+	853	210	16148	1130.36	0
6000+	201	465	6868.6	480.8	200
6000+	778	261	7200	504	200

TLA	THAMES-COROMANDEL# 17				30 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	1115	317	88.1	2.64	300
56-300	1549	263	153.9	4.62	0
56-300	1541	120	282.1	8.46	100
56-300	200	247	192.6	5.78	0
56-300	826	360	112.1	3.36	0
56-300	1487	55	82.9	2.49	0
300-900	950	1024	550.3	49.53	700
300-900	486	118	394.8	11.84	0
300-900	783	120	770.9	23.13	0
300-900	767	114	402.5	12.08	0
300-900	849	253	373.6	11.21	200
300-900	883	62	640	19.2	0
300-900	178	84	330.2	9.91	0
300-900	1353	402	330.2	9.91	200
900-2000	11	103	1410	42.3	100
900-2000	264	4308	978.5	136.99	4000
900-2000	858	113	1982	59.46	100
900-2000	1028	193	1601.7	48.05	0
900-2000	993	62	1426.5	42.8	0
900-2000	257	60	1209.2	36.28	0
2000-4000	508	183	2569.2	77.07	0
2000-4000	1189	543	3417.5	102.52	500
2000-4000	1284	201	2399.7	71.99	0
2000-4000	531	260	3497.6	104.93	100
2000-4000	1283	116	2201.3	66.04	0
2000-4000	1025	182	3203.4	96.1	100
2000-4000	788	46	2663.4	79.9	0
4000+	78	121	5218.8	156.56	100
4000+	1121	224	5378.8	376.52	200
4000+	735	224	4759.8	142.79	100

TLA	WAIKATO # 18			34 Sites	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Sample Point (m)
56-300	436	579	73.6	6.62	0
56-300	1075	1550	73.6	6.62	500
56-300	755	365	94.6	8.51	0
56-300	771	2260	106.1	9.55	600
56-300	1659	229	199.7	5.99	0
56-300	1166	115	294.3	8.83	100
56-300	1885	60	262.8	7.88	0
300-1000	1681	27	325.9	22.81	0
300-1000	240	91	436.9	91.75	0
300-1000	1003	645	367.9	11.04	200
300-1000	243	212	420.5	12.61	200
300-1000	604	3034	737.8	103.29	900
300-1000	1447	633	312.3	28.11	300
300-1000	40	75	536.1	16.08	0
300-1000	603	2667	737.8	103.29	1200
300-1000	503	959	624.7	87.46	400
300-1000	1568	275	510.2	45.92	200
300-1000	975	3500	312.3	28.11	1200
1000-2000	557	136	1759.5	52.79	100
1000-2000	1882	371	1500.8	45.02	300
1000-2000	559	220	1759.5	52.79	0
1000-2000	1104	1020	1314	183.95	1000
1000-2000	1795	86	1457.6	43.73	0
1000-2000	566	256	1552.5	217.35	200
2000-4000	1274	125	2186.4	65.59	100
2000-4000	1755	112	2602.9	78.09	0
2000-4000	1240	226	2193	65.79	0
2000-4000	1125	112	2207.5	66.22	0
2000-4000	424	398	2333.1	69.99	100
2000-4000	870	430	2779.9	389.19	0
4000+	370	1846	4036.5	565.11	700
4000+	374	187	4036.5	121.1	0
4000+	448	101	4321.3	129.64	0
4000+	1485	79	7156.5	214.7	0

TLA	WAIPA # 19			37 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	1234	3224	67.8	6.1	100
56-500	690	1352	235.7	21.21	1300
56-500	989	190	329.3	9.88	0
56-500	574	211	439.1	13.17	0
56-500	811	2347	109.8	9.88	200
56-500	363	74	274.5	8.23	0
56-500	993	180	219.5	6.59	100
56-500	613	4138	82.7	7.44	1800
56-500	1079	1850	228.6	20.57	100
56-500	1031	118	76.8	2.31	0
56-500	651	108	164.7	4.94	0
500-1500	121	404	1317.4	276.65	100
500-1500	1134	261	768.4	23.05	100
500-1500	1085	173	785.7	23.57	0
500-1500	570	214	658.6	19.76	200
500-1500	44	182	603.8	42.27	0
500-1500	935	496	603.8	126.79	0
500-1500	595	89	548.9	38.42	0
500-1500	490	373	768.5	23.05	100
500-1500	1026	178	713.5	21.41	100
500-1500	541	1548	628.3	87.97	800
1500-3500	881	30	1570.6	47.12	0
1500-3500	1191	57	2096.5	62.89	0
1500-3500	151	228	3262.6	97.88	200
1500-3500	545	3870	2019.7	282.76	3300
1500-3500	92	124	2175.1	65.25	100
1500-3500	199	1642	3320.8	464.91	1400
1500-3500	924	458	2880.9	86.43	100
1500-3500	926	188	2880.9	86.43	0
3500-6000	747	120	3745.4	112.36	100
3500-6000	24	229	5942.5	1247.93	200
3500-6000	1213	395	4832.8	144.98	0
3500-6000	1211	228	4832.8	144.98	0
6000+	20	437	8810.5	264.31	200
6000+	1202	125	11499.8	804.98	0
6000+	1005	99	8846.3	265.39	0
6000+	16	84	11446	801.22	0

TLA	WAITOMO # 20			22 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	286	821	157.1	14.14	300
56-200	515	1050	138.0	12.42	300
56-200	164	5563	174.0	15.66	300
56-200	715	129	56.0	5.04	0
56-200	543	891	90.0	8.1	300
56-200	262	122	125.0	3.75	100
200-700	570	397	500.0	105	100
200-700	379	367	340.0	30.6	300
200-700	668	373	253.0	53.13	300
200-700	639	84	550.0	16.5	0
200-700	218	79	495.0	34.65	0
200-700	658	513	376.0	33.84	0
200-700	771	143	501.0	15.03	0
200-700	660	2972	376.0	33.84	2300
700-1500	573	153	900.0	63	0
700-1500	13	99	1262.0	37.86	0
700-1500	22	214	765.0	107.1	0
700-1500	562	226	900.0	27	200
1500-3000	144	183	1600.0	48	0
1500-3000	742	3541	1662.0	232.68	3500
1500-3000	525	84	1750.0	52.5	0
3000+	74	289	5240.0	366.8	100

SITES FOR SAMPLING

TLA	KAWERAU # 21			17 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-100	40	85	79.8	2.39	0
100-300	37	170	149.6	4.49	100
100-300	84	450	199.5	5.98	0
100-300	57	390	199.5	5.98	200
300-1000	35	630	498.7	14.96	100
300-1000	6	100	498.7	14.96	0
300-1000	53	735	498.7	14.96	300
300-1000	68	570	498.7	14.96	100
1000-3000	70	3960	2992.4	89.77	2100
1000-3000	66	525	1995	139.65	100
1000-3000	59	1750	1995	59.85	200
1000-3000	82	1745	1496.2	44.89	1500
1000-3000	86	2670	1496.2	44.89	0
1000-3000	33	340	1995	59.85	100
1000-3000	20	1200	1995	59.85	1100
3000+	46	375	3491.2	244.38	100
3000+	26	965	3989.9	837.88	600

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TLA	OPOTIKI # 22			33 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-350	266	222	325.4	9.76	100
56-350	198	72	60.4	1.81	0
56-350	30	223	149.3	4.48	0
56-350	234	860	212.2	19.1	500
56-350	231	930	90.5	8.15	500
56-350	95	145	204.2	6.13	100
56-350	169	2050	152.3	13.7	100
56-350	148	108	79.8	2.39	0
56-350	151	2840	155.3	13.98	1400
56-350	121	81	125.9	11.33	0
56-350	45	2280	117.6	10.59	1900
350-800	191	121	554.9	16.65	0
350-800	43	119	433.6	13.01	100
350-800	272	228	496.2	14.89	200
350-800	268	224	721.4	21.64	100
350-800	56	144	413.9	12.42	0
350-800	21	222	469.1	14.07	0
800-1600	34	223	1460.4	43.81	100
800-1600	164	110	883.5	123.69	0
800-1600	194	104	1208.7	36.26	100
800-1600	167	4100	822.8	115.19	3200
800-1600	71	106	1474.4	44.23	100
800-1600	100	250	948.7	28.46	0
800-1600	270	223	1120.1	33.6	100
1600-4000	64	90	2348	164.36	0
1600-4000	207	116	2045.8	429.62	0
1600-4000	145	222	1691.9	50.76	100
1600-4000	39	127	1924.3	134.7	100
4000+	35	223	4165.6	124.97	100
4000+	38	227	5761.8	403.33	0
4000+	199	66	5032.9	150.99	0
4000+	36	223	4172.7	125.18	100
4000+	37	223	5661.3	396.29	100

TLA	ROTORUA # 23				39 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	992	3870	464.5	41.81	1800
56-500	293	165	83	2.49	0
56-500	753	2560	176.2	15.86	1700
56-500	623	1160	143	12.87	500
56-500	1013	198	103.7	3.11	100
56-500	448	240	83	2.49	200
56-500	513	1156	352.8	10.58	800
56-500	102	336	104.5	3.13	300
500-2000	309	391	588	17.64	0
500-2000	1038	632	1900.5	57.02	500
500-2000	981	825	1334.8	280.32	500
500-2000	596	2240	588	52.92	1300
500-2000	749	981	573.1	17.19	600
500-2000	178	3840	901.4	126.2	1000
500-2000	658	3290	554.9	49.94	300
500-2000	1067	342	588	17.64	300
500-2000	1020	184	556.2	116.8	100
2000-6000	41	229	5377.6	376.43	0
2000-6000	223	257	2206	154.42	0
2000-6000	730	592	4229.3	888.16	0
2000-6000	614	365	5292.1	158.76	100
2000-6000	148	673	5430.7	380.15	0
2000-6000	226	231	4136.8	289.58	200
2000-6000	1035	175	5515	386.05	0
2000-6000	227	147	3828.7	268.01	0
2000-6000	863	3240	3546.5	496.51	3000
2000-6000	17	91	5079.2	355.54	0
2000-6000	828	549	3804.9	114.15	100
6000-10000	726	132	6796.1	475.73	100
6000-10000	862	1480	7275.1	218.25	200
6000-10000	40	187	7780.3	544.62	100
6000-10000	509	793	9286.5	650.05	500
6000-10000	745	221	7698.6	538.9	100
10000+	747	91	14021.1	981.48	0
10000+	919	253	12133	849.31	200
10000+	240	786	14486.5	1014.06	500
10000+	960	90	33089.9	2316.3	0
10000+	461	711	16737.4	1171.62	400
10000+	744	225	10861.4	760.3	0

TLA	TAURANGA # 24			40 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	873	171	120	3.6	0
56-1000	1466	107	515	15.46	100
56-1000	1042	135	335	23.44	100
56-1000	1561	95	99	2.96	0
56-1000	1852	108	181	5.43	100
56-1000	948	127	99	2.96	0
56-1000	1560	174	303	9.08	100
56-1000	1708	114	773	23.19	100
56-1000	737	212	268	8.04	100
56-1000	1355	136	773	23.19	100
1000-3000	387	212	2028	141.98	200
1000-3000	1759	187	2054	143.8	100
1000-3000	976	462	2319	69.58	200
1000-3000	1674	475	2577	77.31	400
1000-3000	1604	115	1546	46.39	0
1000-3000	520	283	2062	61.85	100
1000-3000	1205	442	2661	186.25	0
3000-7000	120	95	5297	1112.36	0
3000-7000	543	87	4969	347.85	0
3000-7000	405	289	3333	233.33	0
3000-7000	1231	255	6814	476.97	100
3000-7000	615	312	5986	179.59	0
3000-7000	1348	370	3789	530.47	300
3000-7000	391	100	3245	227.17	0
3000-7000	592	114	5154	154.62	100
7000-15000	1222	152	10141	709.9	100
7000-15000	189	582	12089	846.2	100
7000-15000	529	191	10141	709.9	100
7000-15000	566	169	9657	676.02	100
7000-15000	1755	678	7227	505.91	500
7000-15000	1229	80	7302	511.13	0
7000-15000	357	113	11886	832.02	100
7000-15000	1027	114	8113	567.92	0
7000-15000	1258	223	8504	255.12	100
15000+	184	230	16226	1135.84	100
15000+	250	159	19269	1348.81	100
15000+	1138	249	15212	1064.85	200
15000+	700	759	20881	1461.68	600
15000+	209	196	28813	2016.89	0
15000+	173	85	18964	1327.51	0

TLA	W. B o PLENTY #25			33 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-350	795	104	124.9	3.75	0
56-350	884	938	258.5	7.76	300
56-350	1014	257	165.3	4.96	200
56-350	802	287	257.4	23.17	100
56-350	978	80	123.9	3.72	0
56-350	191	207	132.3	3.97	100
56-350	868	1514	176.5	15.88	200
56-350	455	289	101.3	3.04	0
56-350	276	99	62.4	1.87	0
350-900	1041	300	781.3	23.44	100
350-900	1081	1102	711.4	99.59	400
350-900	502	107	461.9	13.86	100
350-900	509	99	810.1	24.3	0
350-900	76	79	881.8	26.45	0
350-900	269	2118	484.1	43.57	1700
350-900	879	265	836.8	25.1	100
900-2000	875	828	999.9	139.99	400
900-2000	743	72	1898.5	56.95	0
900-2000	532	152	925.9	27.78	0
900-2000	816	307	1945.3	58.36	300
900-2000	80	304	1392.9	41.79	200
900-2000	170	103	1995.1	59.85	100
900-2000	545	412	1174.4	35.23	0
900-2000	1118	1410	963.8	134.93	0
2000-4000	127	73	3514.8	105.44	0
2000-4000	744	83	2645.4	79.36	0
2000-4000	162	57	2921	87.63	0
2000-4000	130	46	2348.2	70.45	0
2000-4000	135	387	2667.5	80.02	300
2000-4000	134	97	3576.8	107.3	0
2000-4000	813	56	2315.8	69.47	0
4000+	983	84	4866.4	145.99	0
4000+	418	115	4034.3	282.4	0

TLA	WHAKATANE # 26			30 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	422	224	277	8.3	0
56-500	378	120	277	8.3	100
56-500	808	288	221	6.6	0
56-500	305	190	222	6.6	0
56-500	304	456	276	8.3	400
56-500	110	885	87	7.9	500
56-500	723	1044	131	11.8	300
56-500	571	3363	86	7.7	700
500-1500	580	1250	1147	160.6	500
500-1500	139	301	662	19.8	0
500-1500	297	99	585	17.5	0
500-1500	813	4122	713	99.9	3100
500-1500	443	4386	826	115.7	4100
1500-4000	222	136	1550	46.5	100
1500-4000	112	1007	1945	58.3	0
1500-4000	203	408	2872	86.2	200
1500-4000	754	1132	3099	433.8	0
1500-4000	255	234	2423	72.7	200
1500-4000	803	3883	2201	308.1	1800
1500-4000	636	315	2965	207.6	300
1500-4000	252	360	2605	78.1	300
1500-4000	263	644	3191	95.7	600
4000-7000	825	600	5636	169.1	400
4000-7000	262	289	5523	165.7	200
4000-7000	437	102	6238	187.2	0
4000-7000	434	169	5228	156.8	0
7000+	261	142	7180	215.4	100
7000+	538	445	8356	1169.8	300
7000+	540	291	8858	265.7	200
7000+	320	92	7467	522.7	0

TLA	GISBORNE # 27			32 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	927	12377	95	8.53	9400
56-500	777	5029	211	18.96	3100
56-500	1676	7346	104	9.39	5000
56-500	546	127	224	6.72	100
56-500	1614	1133	104	9.39	400
56-500	351	210	105	3.16	200
56-500	1821	161	319	9.56	100
56-500	984	272	79	7.11	200
56-500	397	162	111	3.33	100
500-2000	389	120	530	15.91	0
500-2000	1349	145	559	16.77	100
500-2000	1244	132	1120	33.61	100
500-2000	262	64	1344	40.33	0
500-2000	488	269	1063	31.88	200
500-2000	166	126	672	20.17	0
500-2000	1655	264	896	26.89	0
500-2000	1005	243	526	15.77	200
2000-4000	86	385	3249	682.33	300
2000-4000	1297	225	2543	76.29	0
2000-4000	531	155	2801	252.09	0
2000-4000	1483	218	2124	63.72	100
2000-4000	1470	121	2124	63.72	100
4000-7000	231	94	5602	168.06	0
4000-7000	375	108	5313	159.39	0
4000-7000	1087	132	5935	178.04	100
4000-7000	1125	127	6498	194.95	0
4000-7000	1376	170	5313	159.39	0
7000+	1078	186	7465	223.96	100
7000+	279	373	7482	224.46	100
7000+	1835	120	7799	233.98	100
7000+	1067	178	9032	270.96	0
7000+	1342	53	9988	299.65	0

TLA	C. HAWKES BAY # 28			30 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	4	774	162	4.86	500
56-200	273	3846	92	8.27	2100
56-200	363	2395	135	12.16	0
56-200	331	3257	59	5.35	300
56-200	159	2210	82	7.42	1100
56-200	52	213	130	3.89	100
56-200	733	3148	70	6.32	1400
200-500	489	3670	459	41.33	1100
200-500	450	340	351	10.54	200
200-500	181	4285	324	29.18	3700
200-500	663	810	486	43.76	500
200-500	493	446	230	6.89	200
200-500	715	2826	220	19.78	1200
200-500	792	329	243	7.29	100
500-1100	538	2150	918	128.59	1600
500-1100	22	160	648	58.35	0
500-1100	253	4070	983	137.66	2200
500-1100	596	268	918	27.55	100
500-1100	610	529	824	57.68	100
500-1100	310	197	783	23.5	0
500-1100	670	278	729	21.88	200
1100-2500	648	166	1945	58.35	0
1100-2500	309	251	1125	33.76	0
1100-2500	261	3795	1127	157.74	3000
1100-2500	680	610	1729	121.02	200
1100-2500	210	338	1438	43.15	300
1100-2500	616	210	1675	117.24	100
2500+	679	251	3296	230.71	0
2500+	774	112	3539	106.17	0
2500+	576	269	2566	76.99	200

TLA	HASTINGS # 29			42 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-900	973	186	500	15	0
56-900	263	367	75	2.25	200
56-900	2154	100	490	44.1	0
56-900	1958	97	375	11.25	0
56-900	814	760	115	10.35	600
56-900	297	352	375	78.75	100
56-900	1766	330	176	15.84	300
56-900	284	621	375	11.25	400
56-900	1895	292	75	2.25	100
900-2500	984	500	2000	280	0
900-2500	612	229	1000	30	100
900-2500	1519	120	1200	36	100
900-2500	194	388	1200	36	100
900-2500	2331	360	1200	36	300
900-2500	1702	122	1000	30	0
900-2500	487	240	1200	84	200
900-2500	2362	101	1200	36	100
2500-6000	383	810	2993	269.37	400
2500-6000	228	121	4500	315	100
2500-6000	1245	298	3868	270.76	100
2500-6000	713	140	3500	245	0
2500-6000	1398	100	2676	374.64	0
2500-6000	393	147	3800	266	0
2500-6000	2000	551	2504	225.36	200
6000-12000	519	362	9100	637	200
6000-12000	1349	706	6391	575.19	100
6000-12000	837	121	7600	532	0
6000-12000	524	269	7700	539	0
6000-12000	836	123	7600	532	100
6000-12000	522	144	7700	539	100
6000-12000	2026	216	6500	585	200
12000+	728	179	25000	1750	100
12000+	729	91	25000	1750	0
12000+	1409	204	20000	1400	200
12000+	732	148	25000	1750	0
12000+	1642	146	13000	910	0
12000+	1850	100	13000	910	0
12000+	718	173	14500	1015	100
12000+	1422	214	13622	1225.98	0
12000+	1849	206	13000	910	200
12000+	730	209	25000	1750	100
12000+	1420	1042	13622	1225.98	300

TLA	NAPIER # 30			22 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-900	1223	146	309	9.26	100
56-900	253	89	309	9.26	0
900-2500	1028	186	1187	35.6	0
900-2500	1338	76	1286	89.99	0
900-2500	352	215	1286	38.57	100
900-2500	1205	62	1286	38.57	0
900-2500	886	234	1286	269.97	200
2500-6000	270	67	3863	115.9	0
2500-6000	1630	336	4310	301.68	0
2500-6000	873	220	3168	95.03	0
2500-6000	1446	95	5057	353.99	0
2500-6000	65	142	5603	392.21	100
6000-12000	641	77	7491	224.73	0
6000-12000	952	126	7526	526.84	0
6000-12000	381	174	6242	436.93	0
6000-12000	336	159	9225	645.76	0
6000-12000	941	555	6509	455.62	300
6000-12000	68	127	6594	461.55	0
12000+	773	193	17391	1217.39	100
12000+	559	280	12342	863.92	0
12000+	783	133	18447	1291.28	0
12000+	758	66	15547	1088.32	0

SITES FOR SAMPLING

TLA	WAIROA # 31			20 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-400	205	1059	251	35.11	100
56-400	415	117	56	1.69	0
56-400	602	105	284	8.53	0
56-400	37	340	80	2.39	300
56-400	1	343	214	6.42	0
400-900	259	3077	470	42.34	1300
400-900	535	294	796	55.72	100
400-900	197	157	436	30.51	100
400-900	191	122	465	13.94	0
400-900	66	353	740	51.82	100
400-900	121	240	431	12.94	100
900-1800	48	114	951	28.54	100
900-1800	73	202	1557	46.72	200
900-1800	50	127	1401	42.03	100
900-1800	22	175	995	29.85	0
1800-2500	245	121	2049	61.46	100
1800-2500	298	302	2363	165.39	0
1800-2500	59	221	1994	139.61	0
1800-2500	168	228	1889	132.21	200
2500+	375	241	2788	250.9	200

TLA	N. PLYMOUTH # 32			36 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	950	98	109	3.27	0
56-500	1328	2896	274.3	24.68	400
56-500	702	121	176.3	5.29	100
56-500	791	370	188.6	5.66	100
56-500	1390	493	172.5	5.18	400
56-500	872	378	99	8.91	0
56-500	199	345	176.3	5.29	300
56-500	582	97	93	2.79	0
500-2000	1280	116	1069.9	32.1	0
500-2000	310	353	1685.2	50.56	0
500-2000	256	621	587.5	17.63	300
500-2000	249	381	522.5	15.67	300
500-2000	117	93	679.2	20.38	0
500-2000	1531	192	1564.7	46.94	0
500-2000	122	729	1681.4	50.44	400
500-2000	1275	224	826.8	24.8	0
500-2000	389	321	636.5	19.1	200
500-2000	1232	145	1305.5	39.17	100
2000-5000	1251	296	3948.2	276.37	100
2000-5000	491	330	2485	74.55	0
2000-5000	962	268	3575.8	250.31	200
2000-5000	656	555	2236.5	67.09	0
2000-5000	366	271	4080.4	285.63	200
2000-5000	351	85	2815	84.45	0
2000-5000	467	736	2862.3	200.36	300
2000-5000	898	857	2159	64.77	500
2000-5000	1139	171	2788.5	195.2	100
5000-10000	958	613	5364	375.48	400
5000-10000	488	172	7436.1	223.08	100
5000-10000	767	94	7499.9	225	0
5000-10000	355	195	9006.8	630.47	100
5000-10000	1417	445	9967.5	697.72	0
5000-10000	144	455	8106.4	567.45	100
10000+	914	345	13856.7	969.97	300
10000+	1499	119	11162.1	781.35	0
10000+	1296	399	15528	1086.96	100

TLA	S. TARANAKI # 33			27 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	708	2904	101.6	9.14	2200
56-250	64	482	101.6	9.14	0
56-250	752	3847	112.2	10.1	2000
56-250	71	1849	101.6	9.14	1500
56-250	1173	2840	101.6	9.14	1300
250-600	309	139	298.7	8.96	0
250-600	547	35	298.7	8.96	0
250-600	252	89	298.7	8.96	0
250-600	174	169	298.7	8.96	100
250-600	330	89	298.7	8.96	0
250-600	1449	123	298.7	8.96	100
250-600	57	94	368	11.04	0
250-600	893	133	298.7	8.96	100
600-2000	1453	113	792	110.88	100
600-2000	1456	860	1041	145.73	500
600-2000	1343	1009	1070.6	149.88	300
600-2000	849	3815	610	85.41	2900
600-2000	1512	77	796.1	55.73	0
600-2000	1349	1436	610	85.41	900
600-2000	371	156	1462.6	43.88	0
2000-4000	329	49	2489.5	174.26	0
2000-4000	1196	55	2489.5	174.26	0
2000-4000	145	108	2489.5	174.26	0
4000+	1200	58	5694.3	398.6	0
4000+	1519	194	6977.4	488.42	0
4000+	461	100	4234.1	889.15	0
4000+	1195	248	4229.1	126.87	100

TLA	STRATFORD # 34			16 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	218	3220	98	8.82	2700
56-200	314	2950	98	8.82	200
56-200	136	323	159.7	4.79	0
56-200	369	2590	98	8.82	2200
56-200	368	2475	98	8.82	2100
56-200	334	179	106.4	3.19	100
200-400	433	2560	206.9	18.62	2300
200-400	387	375	319.3	22.35	200
200-400	353	2710	360.4	32.44	2200
200-400	61	3708	345.8	31.12	1800
200-400	294	119	372.6	11.18	100
400-700	299	345	638.7	19.16	0
400-700	338	216	479	14.37	0
400-700	123	123	425.8	12.77	100
700-1100	266	3638	991.5	138.81	2300
1100+	59	114	1596.7	47.9	0

TLA	HOROWHENUA # 35				22 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-400	1039	317	312.2	9.37	0	
56-400	265	95	312.2	9.37	0	
56-400	94	695	214.8	6.44	100	
56-400	522	123	312.2	9.37	0	
56-400	910	224	312.2	9.37	100	
56-400	824	8033	360.9	32.48	6600	
400-700	1149	124	495.3	14.86	0	
400-700	1008	48	495.3	14.86	0	
700-1800	448	510	1431	128.79	500	
700-1800	317	229	733.3	66	0	
700-1800	978	492	1725.4	51.76	100	
700-1800	603	73	832.6	24.98	0	
1800-4000	129	189	2356.3	164.94	0	
1800-4000	973	159	2393.7	71.81	0	
1800-4000	631	645	2890.2	404.63	300	
1800-4000	926	339	1964.8	58.94	100	
1800-4000	865	145	3350.4	234.53	0	
1800-4000	61	128	2356.3	164.94	100	
1800-4000	77	99	2289.6	68.69	0	
4000+	146	216	4152.4	290.67	100	
4000+	875	99	6804.7	476.33	0	
4000+	594	58	5929.9	415.1	0	

TLA	MANAWATU # 36			22 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	109	305	322.5	29.03	200
56-500	5	121	322.5	9.68	0
56-500	552	323	322.5	9.68	200
500-2000	2	502	1343.8	188.13	300
500-2000	97	2789	1343.8	188.13	2200
500-2000	233	4897	1343.8	188.13	3600
500-2000	105	358	1343.8	40.31	300
500-2000	69	254	1343.8	40.31	0
500-2000	340	250	1343.8	40.31	200
2000-4000	329	208	3285.6	295.71	0
2000-4000	148	586	2472.6	74.18	500
2000-4000	703	578	2580.1	77.4	200
2000-4000	141	451	2580.1	77.4	100
4000-6000	704	476	4085.1	122.55	400
4000-6000	796	2710	4300.1	602.02	400
6000+	26	92	6450.2	193.51	0
6000+	462	2020	6450.2	193.51	1300
6000+	509	1000	6450.2	193.51	500
6000+	55	2265	6450.2	903.03	1600
6000+	806	1000	6450.2	193.51	500
6000+	168	1000	6450.2	193.51	200
6000+	368	105	6450.2	193.51	100

TLA	PALM. NORTH # 37			27 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1000	494	71	104.9	3.15	0
56-1000	1430	289	311.4	9.34	0
56-1000	608	101	103.8	3.11	100
56-1000	570	102	104.9	3.15	0
1000-4000	1127	304	1737.7	52.13	300
1000-4000	427	236	1666.9	50.01	0
1000-4000	1474	97	1906.7	57.2	0
1000-4000	909	299	1302.3	39.07	200
1000-4000	424	47	2239.9	67.2	0
1000-4000	1473	18	2231.6	66.95	0
1000-4000	1165	148	3589.6	107.69	100
4000-7000	1336	273	5521.5	165.65	100
4000-7000	478	125	6511.3	195.34	100
4000-7000	1842	127	5708.7	171.26	0
7000-15000	463	99	7487.3	224.62	0
7000-15000	1732	289	11329.9	339.9	100
7000-15000	462	176	8074	242.22	100
7000-15000	41	153	9777.7	293.33	100
7000-15000	690	51	7703.1	231.09	0
7000-15000	799	147	12284.4	368.53	0
7000-15000	769	192	7359	220.77	100
7000-15000	265	244	9875.6	296.27	0
7000-15000	276	121	10636.3	319.09	0
15000+	652	121	16913.9	507.42	100
15000+	1750	110	22075	3090.5	0
15000+	711	242	24228.6	726.86	100
15000+	1201	152	20231.9	606.96	0

TLA	RANGITIKEI # 38			34 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	366	1960	91.9	8.27	1800
56-250	319	250	123.1	3.69	0
56-250	302	101	85.4	2.56	100
56-250	636	1400	80.9	7.28	700
56-250	90	120	143.9	4.32	0
56-250	117	251	200.1	6	0
56-250	338	2190	64.9	5.84	2000
56-250	476	2300	159.9	14.39	2200
250-700	168	675	398.7	11.96	600
250-700	39	340	285.8	8.58	0
250-700	324	2370	340.9	30.68	900
250-700	270	190	265.7	7.97	100
250-700	208	287	512.6	15.38	100
250-700	622	130	326.8	9.8	100
250-700	378	420	250.7	7.52	100
700-1800	514	2630	791.6	110.82	2000
700-1800	179	130	936.6	196.68	100
700-1800	260	41	1432.3	300.79	0
700-1800	193	100	1470.2	102.92	0
700-1800	868	1050	1537.7	215.28	300
700-1800	905	1730	1296.7	181.54	1000
700-1800	872	1740	1533.1	214.63	1600
700-1800	205	213	835	25.05	100
1800-4500	54	211	4394.7	307.63	100
1800-4500	511	2690	2195.7	307.39	2600
1800-4500	58	255	3396.4	237.75	100
1800-4500	902	488	2957.9	207.06	300
1800-4500	53	279	3995.6	279.69	100
1800-4500	194	120	1907.4	133.52	0
1800-4500	900	91	4184	292.88	0
1800-4500	315	74	3396.4	237.75	0
1800-4500	52	184	3636.2	254.54	0
4500+	897	141	4827.2	337.91	0
4500+	889	111	8898.8	622.91	0

TLA	RUAPEHU # 39			30 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	111	233	89.1	2.67	100
56-200	586	118	72.4	2.17	0
56-200	621	402	127.2	3.82	200
56-200	1366	215	56.0	1.68	0
56-200	1431	14	143.5	4.31	0
56-200	821	205	83.5	2.51	200
56-200	804	3007	62.8	5.65	1500
56-200	241	1380	61.3	1.84	0
200-500	594	476	424.5	12.73	400
200-500	399	230	409.1	12.27	200
200-500	1074	157	402.1	36.19	0
200-500	1263	60	204.5	6.14	0
200-500	407	129	201.5	6.04	100
200-500	886	294	213.0	6.39	200
500-1200	1274	411	612.2	18.37	300
500-1200	522	103	715.9	21.48	0
500-1200	133	94	511.3	15.34	0
500-1200	20	50	767.0	23.01	0
500-1200	104	116	617.0	18.51	100
500-1200	598	142	651.9	19.56	100
500-1200	195	414	920.1	128.82	200
1200-2200	72	400	1506.3	45.19	100
1200-2200	394	125	1227.2	36.82	0
1200-2200	149	242	1550.6	108.54	0
1200-2200	1089	15	1329.5	93.06	0
1200-2200	513	369	1329.5	93.06	300
1200-2200	1394	93	1979.3	59.38	0
1200-2200	681	4337	1542.5	138.83	3400
2200+	592	222	2433.1	170.31	100
2200+	151	350	3319.9	232.39	100

TLA	TARARUA # 40			35 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	232	206	82.4	7.42	100
56-200	1718	190	99.7	2.99	100
56-200	1522	136	100.2	3.01	0
56-200	1591	380	81.8	2.45	0
56-200	473	182	195.1	5.85	0
56-200	1150	13910	99.7	2.99	13100
56-200	237	2320	77.9	7.01	700
56-200	128	180	115.2	3.45	0
200-500	778	2100	440.9	39.68	700
200-500	156	160	480.1	14.4	0
200-500	211	265	379.6	11.39	100
200-500	1601	238	279.8	8.39	100
200-500	1131	315	209.4	6.28	300
200-500	691	215	273.9	8.22	0
200-500	2	940	221.1	19.9	700
200-500	777	1960	440.1	39.61	0
200-500	1090	131	414	12.42	100
500-1100	68	224	573.1	17.19	200
500-1100	416	263	809	56.63	200
500-1100	331	120	724.5	21.73	100
500-1100	724	420	1034.9	144.89	200
500-1100	201	139	570.3	17.11	100
500-1100	165	122	831.4	24.94	100
500-1100	262	3470	614.7	18.44	1100
500-1100	610	184	912.9	27.39	0
1100-2800	1165	243	1971	59.13	0
1100-2800	52	170	1939.5	58.18	0
1100-2800	1669	480	1900	266	100
1100-2800	1671	760	1358.6	190.2	700
1100-2800	454	342	1869.5	56.08	0
1100-2800	417	182	1918.2	134.27	0
1100-2800	750	124	2036.7	61.1	0
2800+	51	123	2874.1	86.22	100
2800+	871	176	5252.7	735.38	0
2800+	457	132	3068.9	92.07	0

TLA	WANGANUI # 41			34 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-800	876	1155	153.3	13.8	700
56-800	157	316	204.5	6.13	300
56-800	1204	1981	74.7	6.72	300
56-800	184	551	408.9	12.27	500
56-800	790	76	76.7	2.3	0
56-800	329	46	415.5	12.47	0
56-800	880	256	76.5	2.3	200
56-800	896	307	74.7	6.72	300
56-800	160	2067	153.3	4.6	100
800-2500	1562	76	816	57.12	0
800-2500	1103	101	1022.2	30.67	100
800-2500	935	890	920	27.6	0
800-2500	1651	89	2393	167.51	0
800-2500	1286	292	817.8	24.53	100
800-2500	921	63	1109.6	33.29	0
800-2500	247	210	1533.4	107.34	200
800-2500	334	153	952.6	28.58	100
2500-5000	1179	241	4252.2	297.66	200
2500-5000	925	113	2597	77.91	0
2500-5000	236	260	3491.4	244.4	0
2500-5000	435	24	4017	281.19	0
2500-5000	450	122	4650.1	325.5	100
5000-9000	578	61	7155.7	500.9	0
5000-9000	301	121	7718.9	540.33	100
5000-9000	530	255	5100.1	357.01	0
5000-9000	165	29	5598	391.86	0
5000-9000	1346	174	8536.5	597.55	0
5000-9000	1382	224	6857.9	480.05	200
5000-9000	525	352	7688	538.16	100
5000-9000	1429	124	5560.2	389.21	0
5000-9000	443	158	5548.3	388.38	0
9000+	458	121	11505.4	805.38	0
9000+	1343	221	9159.9	641.19	0
9000+	1531	222	13934.7	975.43	200

SITES FOR SAMPLING

TLA	CARTERTON # 42			18 Sites		
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
<=100	3	730	100	9.01	100	
<=100	22	152	80	2.4	100	
101-200	219	2054	180	16.22	600	
101-200	378	291	125	11.26	200	
101-200	530	350	150	13.51	300	
201-500	62	110	500	15.01	100	
201-500	500	240	350	10.51	0	
201-500	325	6195	306	27.58	4300	
201-500	322	676	500	45.04	400	
201-500	283	365	350	10.51	300	
201-500	501	63	250	7.51	0	
201-500	158	782	250	22.52	0	
201-500	394	88	350	10.51	100	
201-500	164	21	300	9.01	100	
201-500	33	11	500	15.01	0	
501-1000	385	212	651	19.52	100	
501-1000	297	99	601	18.02	0	
1000+	39	222	400	12.01	100	

TLA	KAPITI # 43		35 Sites		
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
<=500	992	199	357	10.72	100
<=500	73	189	106	3.19	200
<=500	31	114	159	4.78	100
<=500	321	119	478	14.35	100
501-2000	695	231	1941	135.84	0
501-2000	1081	224	919	64.32	200
501-2000	1161	91	715	21.44	0
501-2000	14	365	1480	103.62	200
501-2000	99	253	1000	30.00	300
501-2000	11	62	1841	128.84	100
501-2000	955	249	817	171.51	200
501-2000	1159	115	582	17.46	100
501-2000	576	126	1174	82.18	100
501-2000	194	183	510	35.73	100
501-2000	1072	448	1063	31.90	0
2001-5000	1110	89	3063	643.16	100
2001-5000	473	151	3219	225.32	0
2001-5000	866	279	3879	271.56	100
2001-5000	921	96	2042	428.78	0
2001-5000	789	537	2380	71.40	400
2001-5000	865	604	3511	245.75	300
2001-5000	966	172	2042	142.93	100
2001-5000	787	464	2019	60.58	0
2001-5000	516	194	4084	285.85	0
5001-10000	616	104	5921	414.48	100
5001-10000	49	110	7960	557.21	100
5001-10000	397	178	8167	571.70	100
5001-10000	478	122	5848	409.36	0
5001-10000	313	115	5899	412.92	0
5001-10000	1096	102	7555	528.82	0
5001-10000	608	76	5921	414.48	100
10000+	388	65	17355	1214.87	0
10000+	382	125	11740	821.82	100
10000+	393	35	10209	714.63	0
10000+	911	100	10515	736.07	0

TLA	LOWER HUTT # 44			40 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1200	781	88	828.1	24.84	0
56-1200	2364	325	345	10.35	200
56-1200	1214	167	60.4	1.81	100
56-1200	1417	186	839.8	176.37	0
56-1200	2011	370	214.4	6.43	300
56-1200	1122	131	297	8.91	100
56-1200	1770	96	297	8.91	0
56-1200	1391	230	474.6	14.24	100
1200-5000	2216	343	4089.4	122.68	300
1200-5000	1510	229	1587.2	47.62	0
1200-5000	2379	110	4955.5	148.66	0
1200-5000	1706	235	3529.7	247.08	100
1200-5000	1696	270	3696.7	258.77	100
1200-5000	2	151	1546	46.38	100
1200-5000	220	138	1480.5	44.41	0
1200-5000	1431	136	1346	40.38	100
1200-5000	1922	120	3403	102.09	100
1200-5000	1570	64	2958.6	88.76	0
1200-5000	2678	92	3735.2	261.47	0
1200-5000	1309	100	1480.5	44.41	0
5000-11000	1789	250	5695.3	398.67	0
5000-11000	2371	66	7101.8	213.05	0
5000-11000	875	167	10059.2	704.15	0
5000-11000	2086	242	7785.7	545	200
5000-11000	187	220	7101.8	213.05	0
5000-11000	1423	140	10281.4	719.7	100
5000-11000	879	142	10059.2	704.15	0
5000-11000	464	254	7101.8	497.13	100
5000-11000	2510	428	7901.3	553.09	200
5000-11000	239	271	6789.8	475.29	200
11000-18000	864	143	13017.8	911.25	0
11000-18000	1889	99	13588.1	951.17	0
11000-18000	2303	104	13637.8	954.64	0
11000-18000	513	112	11246.5	787.25	100
11000-18000	2429	149	17213.9	1204.97	0
11000-18000	554	89	14984.7	1048.93	0
11000-18000	2709	212	14253.4	997.74	100
18000+	2276	74	22085.4	1545.98	0
18000+	1002	108	18516.1	1296.12	100
18000+	2632	82	20737.7	1451.64	0

TLA	MASTERTON # 45			33 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
<=200	535	4286	114	10.22	1500
<=200	550	206	129	3.86	200
201-500	631	165	396	11.88	200
201-500	773	943	338	10.13	900
501-2000	964	49	990	29.70	0
501-2000	304	3311	948	132.71	2500
501-2000	501	2358	781	109.34	200
501-2000	253	291	596	17.87	0
501-2000	517	492	779	109.00	100
501-2000	186	216	891	26.73	0
501-2000	962	89	693	20.79	100
501-2000	570	107	594	17.82	0
501-2000	528	272	612	85.65	200
501-2000	477	348	701	21.04	200
501-2000	48	171	665	19.94	0
2001-4000	719	129	2719	81.56	100
2001-4000	854	140	2475	74.26	0
2001-4000	500	4119	1969	275.68	1400
2001-4000	363	199	3531	105.93	100
2001-4000	579	808	1337	40.11	200
2001-4000	895	193	3483	104.49	100
2001-4000	12	50	1613	48.38	0
2001-4000	8	59	1733	242.56	0
4000+	205	72	8677	260.30	100
4000+	201	179	4168	125.04	100
4000+	316	169	7435	223.06	100
4000+	204	23	4357	130.70	0
4000+	725	194	6931	207.93	100
4000+	121	221	4195	125.85	0
4000+	212	187	6534	196.03	200
4000+	206	49	9300	278.99	0
4000+	202	48	4357	130.70	0
4000+	684	121	4037	121.11	100

TLA	PORIRUA # 46			35 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
<=500	179	260	215	6.50	0
<=500	105	210	215	6.50	0
<=500	694	524	431	12.90	100
<=500	490	489	129	3.90	0
501-2000	91	216	1616	48.50	200
501-2000	384	312	1077	32.30	100
501-2000	422	239	1185	35.50	0
501-2000	142	486	754	22.60	0
501-2000	45	375	1616	48.50	0
501-2000	430	112	1939	58.20	0
501-2000	71	400	1616	48.50	400
501-2000	31	156	754	22.60	100
2001-5000	467	595	2593	77.80	100
2001-5000	169	517	2693	80.80	400
2001-5000	563	338	2208	66.20	300
2001-5000	38	254	3525	105.70	200
2001-5000	165	223	4309	129.30	0
2001-5000	505	106	2693	565.50	100
2001-5000	185	395	3178	95.40	300
2001-5000	468	417	2262	67.90	100
2001-5000	88	555	2872	603.20	300
5001-10000	314	124	5386	377.00	100
5001-10000	704	597	7669	536.80	400
5001-10000	473	357	5397	377.80	100
5001-10000	417	279	7285	509.90	300
5001-10000	416	333	9156	640.90	200
5001-10000	701	480	7259	508.20	500
5001-10000	358	62	6269	1316.50	0
10000+	649	490	11311	791.70	400
10000+	312	558	14424	1009.70	200
10000+	650	236	22564	1579.40	100
10000+	418	93	20749	1452.40	300
10000+	648	459	15454	1081.80	300
10000+	705	230	13337	933.60	200
10000+	651	878	13465	942.60	700

TLA	S. WAIRARAPA # 47			15 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
<=100	26	219	79	2.38	100
<=100	254	217	99	2.97	200
101-200	283	13270	129	11.58	3200
101-200	274	2550	194	17.45	1300
101-200	290	4600	157	14.17	300
101-200	196	549	198	5.94	100
201-500	279	125	297	8.91	0
201-500	155	125	297	8.91	100
201-500	247	383	297	8.91	300
201-500	303	663	247	7.42	400
201-500	110	4070	247	22.27	100
501-1000	231	3720	997	139.53	2900
501-1000	109	6100	864	120.92	200
501-1000	147	496	594	17.82	300
1000+	107	3350	1498	209.75	2000

TLA	UPPER HUTT # 48			37 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
<=500	138	112	151	4.5	100
<=500	1	45	151	10.6	0
<=500	381	133	302	9.1	100
<=500	173	1235	138	12.4	600
10000+	240	116	16116	1128.10	100
10000+	249	184	12616	883.10	200
10000+	260	45	15770	1103.90	0
10000+	263	138	15981	1118.60	100
10000+	267	101	15981	1118.60	0
10000+	271	294	16611	1162.80	0
10000+	283	125	15455	1081.80	0
10000+	287	165	17032	1192.20	0
2001-5000	8	140	3154	220.8	100
2001-5000	126	239	2044	61.30	0
2001-5000	127	238	2044	61.3	0
2001-5000	128	127	2044	61.30	0
2001-5000	567	276	3060	91.80	1
2001-5000	593	553	2870	602.70	100
2001-5000	618	80	2959	88.8	100
2001-5000	620	163	2555	76.60	100
2001-5000	333	161	2093	62.8	0
2001-5000	885	143	4256	127.7	0
2001-5000	893	121	4893	146.80	0
5001-10000	302	62	7665	229.90	0
5001-10000	818	22	6078	182.30	0
5001-10000	338	226	5111	357.80	100
5001-10000	341	33	5128	153.80	0
5001-10000	904	235	6326	442.80	100
5001-10000	344	107	7629	228.90	100
5001-10000	910	145	6591	461.40	0
5001-10000	277	159	5467	382.70	0
10000+	241	4	16116	1128.10	0
10000+	235	592	14619	1023.30	300
10000+	255	36	15770	1103.9	0
10000+	288	197	17032	1192.2	0
10000+	250	210	15770	1103.9	100
10000+	270	199	16401	1148.1	0
10000+	289	370	14719	1030.3	300
10000+	261	129	15770	1103.9	0

TLA	WELLINGTON # 49			40 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-1400	367	270	505.7	15.17	100
56-1400	396	189	449.5	13.49	0
56-1400	2319	217	842.8	25.29	0
56-1400	1068	145	84.3	2.53	100
56-1400	3667	218	393.3	11.8	0
56-1400	1730	71	337.1	10.11	0
56-1400	122	272	337.1	10.11	100
56-1400	2429	114	84.3	2.53	100
1400-5000	1949	82	1863.5	55.9	0
1400-5000	1627	254	4495.2	134.86	100
1400-5000	641	115	1685.7	50.57	0
1400-5000	970	95	1685.7	50.57	0
1400-5000	2160	150	4495.2	314.66	0
1400-5000	2098	425	3933.3	275.33	300
1400-5000	540	136	2809.5	84.28	0
5000-11000	3281	184	10114.2	707.99	0
5000-11000	3398	227	8990.4	629.33	100
5000-11000	1453	80	10676.1	747.33	0
5000-11000	2555	121	7304.7	511.33	0
5000-11000	3656	176	5843.8	409.06	100
5000-11000	341	103	5057.1	354	100
5000-11000	3653	142	5843.8	409.06	100
5000-11000	2215	88	10114.2	707.99	0
11000-22000	155	32	12923.7	904.66	0
11000-22000	3255	192	15733.2	1101.32	0
11000-22000	1986	49	13024.4	911.71	0
11000-22000	3569	116	15733.2	1101.32	0
11000-22000	1653	93	20790.3	1455.32	0
11000-22000	2916	335	12361.8	865.33	200
11000-22000	1990	122	13024.4	911.71	100
11000-22000	2300	41	11238	786.66	0
11000-22000	2495	121	17980.8	1258.65	100
11000-22000	734	437	20841.3	1458.89	200
22000+	3584	86	31466.4	2202.65	0
22000+	3509	76	24723.6	1730.65	0
22000+	1589	631	29218.8	2045.31	500
22000+	2578	289	29218.8	876.56	200
22000+	2894	357	25847.4	1809.32	0
22000+	999	79	25847.4	1809.32	0
22000+	885	32	46075.8	3225.3	0

TLA	KAIKOURA # 50			16 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	16	1602	99.0	6.95	800
56-200	172	1958	99.0	8.94	900
56-200	12	2430	89.0	8.05	900
56-200	102	270	99.0	2.96	0
200-500	167	1230	375.0	11.25	1000
200-500	78	1830	256.0	23	700
200-500	191	553	345.0	10.36	500
200-500	160	1823	298.0	26.82	700
200-500	170	203	247.0	7.4	200
200-500	125	221	247.0	51.79	0
500-1000	126	968	530.0	74.13	100
500-1000	114	1621	519.0	46.69	1600
1000-2500	50	333	1776.0	124.29	0
1000-2500	49	245	1973.0	138.1	0
1000-2500	96	153	1184.0	82.86	100
2500+	45	928	4002.0	280.14	200

TLA	MARLBOROUGH # 51				40 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	1440	59	158.4	4.75	0
56-500	575	1039	232.3	20.91	800
56-500	1704	178	100.3	3.01	0
56-500	376	3539	116.2	10.45	3500
56-500	1668	144	63.4	5.7	0
56-500	493	290	211.2	19.01	0
56-500	1010	43	84.5	7.6	0
56-500	312	152	242.9	7.29	0
56-500	797	2114	264	23.76	1400
56-500	1302	1231	158.4	14.26	1100
500-2000	829	41	1300.9	91.06	0
500-2000	268	157	1409	98.63	0
500-2000	890	110	1300.8	91.06	100
500-2000	678	268	596.3	41.74	100
500-2000	513	263	1084	75.88	100
500-2000	146	451	650.4	136.58	200
500-2000	250	128	650.5	45.53	0
500-2000	886	421	813.1	24.39	300
500-2000	413	134	947	66.29	0
500-2000	420	396	1084.1	75.89	200
500-2000	138	43	1951.4	136.6	0
500-2000	506	91	1832.1	128.25	0
2000-5000	1707	645	2813.4	196.94	400
2000-5000	1281	11	3336.4	233.55	0
2000-5000	1635	441	3336.1	233.53	200
2000-5000	946	4	2669.1	186.84	0
2000-5000	949	5	2669.1	186.84	0
2000-5000	721	100	2780.4	194.62	0
2000-5000	417	53	2557.9	179.05	0
2000-5000	1128	583	2005.6	140.39	300
2000-5000	1715	164	2224.1	155.68	0
2000-5000	1753	64	2224.1	155.68	0
5000-9000	664	115	6038.9	422.73	100
5000-9000	195	158	5942.1	1247.85	0
5000-9000	1391	191	5516.2	386.14	0
5000-9000	661	228	7785	544.95	200
9000+	657	198	9238	646.66	100
9000+	1422	95	10008.3	700.58	0
9000+	1424	204	9974.9	698.25	100
9000+	972	330	9970.2	697.91	300

TLA	NELSON CITY # 52				40 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-750	380	100	94.1	2.82	0	
56-750	502	197	523.1	109.84	0	
56-750	75	122	313.9	9.42	100	
56-750	271	259	156.9	4.71	0	
56-750	195	255	83.7	2.51	100	
56-750	434	326	83.7	2.51	300	
56-750	375	417	732.5	51.28	0	
56-750	616	60	62.8	1.88	0	
56-750	289	210	261.5	7.85	200	
56-750	302	250	94.2	2.83	200	
750-2500	490	243	1700.3	119.02	200	
750-2500	602	312	1360.3	95.22	100	
750-2500	620	416	837.1	58.6	100	
750-2500	3	254	1046.1	73.22	100	
750-2500	509	246	1046.4	73.25	100	
750-2500	255	231	2221	466.41	200	
750-2500	224	249	837.1	58.59	200	
750-2500	701	221	1683.7	117.86	200	
2500-7500	531	176	3849	269.43	100	
2500-7500	593	124	2527.8	176.95	100	
2500-7500	418	144	3995.4	279.68	0	
2500-7500	711	64	3743.2	786.07	0	
2500-7500	391	339	7322.5	512.58	300	
2500-7500	366	193	3742.3	261.96	0	
2500-7500	401	898	3489.7	244.28	500	
2500-7500	367	391	2719.6	190.38	0	
2500-7500	56	408	3104.7	217.33	300	
2500-7500	543	559	5798.7	405.91	0	
2500-7500	399	712	6108.1	427.56	300	
2500-7500	177	483	2505.5	175.39	300	
7500-15000	242	256	12013.1	840.92	200	
7500-15000	670	254	12014.3	841	200	
7500-15000	463	642	9008.2	1891.73	500	
7500-15000	148	101	9592.4	671.47	100	
7500-15000	79	257	8922.1	624.55	200	
7500-15000	672	316	14527.9	1016.95	300	
7500-15000	251	284	8029.9	562.09	200	
15000+	676	711	18575.3	1300.27	700	
15000+	669	200	15292.5	1070.47	100	
15000+	674	312	16616.7	1163.17	100	

TLA	TASMAN # 53			39 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	317	105	411.9	12.36	0
56-500	685	220	257.5	7.72	100
56-500	1483	934	82.4	7.41	200
56-500	1579	3302	432.6	38.94	100
56-500	1406	618	64	5.76	100
56-500	1286	126	92.7	2.78	0
56-500	58	58	206	43.25	0
56-500	255	131	123.6	3.71	100
56-500	1462	239	61.8	1.85	0
56-500	552	282	92.7	2.78	100
56-500	1303	81	206	6.18	0
56-500	421	91	185.4	5.56	0
56-500	367	1087	61.8	5.56	0
500-1000	621	967	536.1	16.08	400
500-1000	1119	1530	940.3	131.64	1400
500-1000	734	1268	565.3	50.87	700
500-1000	727	86	697.6	20.93	0
500-1000	1065	77	992.5	69.48	0
500-1000	1435	834	543.3	76.06	800
500-1000	201	84	940.3	65.82	0
500-1000	683	236	626.9	43.88	100
1000-2000	1117	1030	1149.4	160.91	600
1000-2000	1643	143	1044.8	219.4	0
1000-2000	328	175	1253.7	87.76	0
1000-2000	1226	342	1523.9	106.67	100
1000-2000	1608	213	1598.5	111.89	100
1000-2000	1097	104	1671.6	117.01	100
1000-2000	1011	321	1506.2	210.87	200
1000-2000	1267	293	1056.3	147.89	200
2000-4000	912	97	3447.7	724.02	0
2000-4000	992	711	2820.9	394.92	300
2000-4000	1620	90	2298.5	160.89	0
2000-4000	1083	35	3134.3	219.4	0
2000-4000	1662	209	2194	153.58	0
2000-4000	1193	143	2089.5	146.27	100
2000-4000	1195	250	2089.5	146.27	200
2000-4000	1616	127	2611.9	182.83	100
4000+	1319	218	13246.1	927.22	200
4000+	1325	388	11793.1	825.51	200

TLA	ASHBURTON # 54				35 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-150	606	1174.813	99.8	2.99	200	
56-150	207	10102.8	59.9	5.39	1800	
56-150	345	2892.779	72.6	6.53	2800	
56-150	2	3161	58	5.22	1100	
56-150	117	523.0498	99.8	2.99	400	
56-150	579	3967.467	79.8	7.18	100	
150-500	306	171.0108	160.3	4.81	0	
150-500	93	1953.61	336.6	10.1	0	
150-500	439	993.8552	267.9	8.04	300	
150-500	449	12412.01	214.6	19.32	6700	
150-500	617	1657.001	398.3	11.95	1200	
150-500	577	1400	499	14.97	500	
150-500	250	312.4794	405.2	85.1	100	
150-500	302	686.6389	265.1	23.86	400	
150-500	31	37021.88	194.5	17.51	14600	
150-500	576	10492.23	279.2	25.13	200	
150-500	319	604.8436	373.3	11.2	400	
150-500	184	1390.366	474.4	14.23	1100	
500-1200	632	288.1384	578.5	17.35	0	
500-1200	153	1139.306	1012.9	212.71	0	
500-1200	386	2335.83	642.1	19.26	300	
500-1200	138	732.041	568	17.04	400	
500-1200	315	519.6233	937.9	65.65	500	
500-1200	177	1064.267	1027.3	71.91	400	
1200-2000	305	1092	1519.5	45.59	200	
1200-2000	88	1389.525	1682.6	117.78	400	
1200-2000	10	1389.646	1209.7	84.68	1200	
1200-2000	597	562.9357	1995.8	139.71	100	
2000+	599	1680.806	3792.5	265.48	1300	
2000+	471	4800.429	2534.1	177.39	100	
2000+	173	604	7127.2	498.9	0	
2000+	536	965.129	2236	469.56	400	
2000+	403	694.1666	3469.9	242.89	600	
2000+	247	1775.795	2675.6	187.29	1100	
2000+	100	1599.355	2043.1	143.02	600	

TLA	BANKS PEN. # 55			9 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-400	568	141	368.6	11.06	100
400-600	171	157	484.1	43.57	100
600-1200	313	398	1073.2	32.2	0
600-1200	346	229	1156.4	161.89	100
600-1200	482	504	1156.4	34.69	200
600-1200	181	209	938.6	28.16	200
1200-2500	178	97	2275.4	68.26	0
1200-2500	64	108	2087.0	62.61	0
2500+	535	113	4904.5	147.13	100

TLA	CHRISTCHURCH # 56				31 Sites	
					Sample	
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point	
					(m)	
56-1000	2779	80	108	3.24	0	
56-1000	3927	258	377.9	11.34	200	
56-1000	2971	166	755.9	22.68	100	
56-1000	120	196	162	4.86	100	
56-1000	282	152	539.9	16.2	0	
56-1000	5615	116	539.9	16.2	100	
1000-3000	76	250	1619.7	48.59	100	
1000-3000	5039	225	2486.2	74.59	0	
1000-3000	686	147	2915.3	87.46	100	
1000-3000	1505	155	1047.7	31.43	0	
1000-3000	1022	315	1079.8	32.39	100	
3000-7000	5684	217	4318.9	129.57	0	
3000-7000	3287	332	4059.2	568.28	100	
3000-7000	4301	288	5237.2	157.12	200	
3000-7000	3396	212	3220.7	96.62	0	
3000-7000	1167	230	4084.5	122.53	200	
3000-7000	1315	215	3239.4	97.18	200	
7000-15000	4830	163	8637.8	259.13	100	
7000-15000	3495	114	9877.1	296.31	100	
7000-15000	1884	122	7992.3	239.77	0	
7000-15000	2501	187	7515	225.45	0	
7000-15000	3298	628	12131.4	363.94	200	
7000-15000	3892	101	13462.2	403.86	100	
7000-15000	355	80	7757.4	232.72	0	
7000-15000	657	282	7678.7	230.36	0	
7000-15000	1112	244	13598.1	407.94	0	
7000-15000	3838	309	9125.4	273.76	200	
7000-15000	3368	150	12417.9	372.54	0	
7000-15000	578	207	9340.1	280.2	200	
15000+	4622	247	15514.9	465.45	0	
15000+	910	275	15689.9	470.7	0	
15000+	4503	155	25486.6	764.6	100	
15000+	3589	261	17963.7	538.91	100	
15000+	4508	176	25229.1	756.87	0	
15000+	4509	390	22657.9	679.74	200	

TLA	HURUNUI # 57			13 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-100	433	4768	95.3	8.58	2300
56-100	290	1237	95.3	8.58	600
56-100	138	110	97.3	2.92	100
56-100	244	113	95.3	8.58	0
100-300	640	3170	110.8	9.98	1500
100-300	221	2580	259.3	23.33	1200
100-300	382	141	124.1	11.17	0
100-300	218	147	272.5	8.18	0
300-500	167	118	486.4	14.59	100
300-500	435	273	486.4	14.59	0
300-500	306	5328	434.9	39.14	500
500-1000	25	2943	825.5	115.57	400
1000+	723	537	1006.7	30.2	0

TLA	MACKENZIE # 58			8 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-80	45	3927	72.7	6.54	3100
80-100	193	6014	99.7	8.97	5300
80-100	403	2425	99.7	8.97	2100
100-120	235	4606	101	9.09	2400
100-120	132	1621	108.3	9.75	1400
120-150	437	144	149.5	13.45	0
120-150	270	1381	149.5	13.45	500
150+	51	4597	224.7	20.23	2000

TLA	SELWYN # 59			23 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	195	3820	105.7	9.51	800
56-250	230	810	215.9	6.48	300
56-250	299	1850	79.7	7.17	400
56-250	218	480	80.9	7.28	300
56-250	270	390	116.5	10.48	100
250-600	36	4020	291.7	26.26	1500
250-600	866	4210	423.3	38.1	2000
250-600	493	2700	345.3	31.08	1300
250-600	348	280	289.7	26.07	0
250-600	403	5657	573.0	51.57	4600
600-1200	411	132	709.1	21.27	0
600-1200	67	1850	855.2	76.97	1300
600-1200	611	4730	1029.8	92.68	300
600-1200	691	144	782.0	23.46	100
600-1200	3	191	1011.2	30.34	100
600-1200	867	3510	619.8	55.78	3000
1200-2500	501	3320	1426.8	128.41	700
1200-2500	263	3350	1529.1	137.62	600
1200-2500	488	657	1359.3	40.78	100
1200-2500	722	3780	1798.9	161.9	3100
1200-2500	515	1030	1233.5	111.01	100
2500+	687	3640	2810.7	252.96	3400
2500+	261	4447	3022.2	272	3600

TLA	TIMARU # 60				42 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-600	1434	660	506.8	106.42	500
56-600	1509	135	572.5	17.18	0
56-600	572	2883	296.3	26.67	1400
56-600	902	91	242.5	7.28	0
56-600	843	109	148.7	4.46	0
56-600	651	106	365.5	10.97	0
56-600	107	167	173.1	5.19	100
56-600	1266	157	310.3	9.31	0
56-600	1743	2700	63.2	5.68	500
56-600	550	971	117.8	10.6	300
56-600	1016	3514	148.2	13.33	1100
600-2000	2116	3373	1145.1	80.16	1800
600-2000	1436	550	792.9	166.51	200
600-2000	807	71	694	20.82	0
600-2000	614	120	1218.5	255.88	100
600-2000	2118	2526	793.6	55.55	0
600-2000	1071	265	987.2	29.61	100
600-2000	299	2036	721.8	101.05	1500
600-2000	1983	114	1205.9	84.42	100
600-2000	1229	347	1514.4	45.43	300
2000-4500	429	123	2803.1	84.09	100
2000-4500	777	163	2023.7	60.71	100
2000-4500	1340	452	3079.1	92.37	400
2000-4500	1634	177	3436.7	721.71	100
2000-4500	659	176	2343.7	70.31	100
2000-4500	406	99	2010.1	60.3	0
2000-4500	493	121	2170.8	65.12	100
2000-4500	961	40	3557.7	249.04	0
2000-4500	780	201	2067.2	62.02	100
4500-9500	344	65	6712.5	469.88	0
4500-9500	338	57	7093.3	496.53	0
2000-4500	1299	64	2178.6	152.5	0
4500-9500	2124	137	6237.4	187.12	100
4500-9500	427	186	8798.4	263.95	100
4500-9500	342	80	5871.4	410.99	0
4500-9500	349	75	6346.3	444.24	0
4500-9500	1407	118	7888.3	552.18	100
4500-9500	2092	219	4966.2	148.99	0
4500-9500	1407	118	7888.3	552.18	0
9500+	840	339	18746.6	562.4	0
9500+	2026	188	9531.2	667.18	100
9500+	1405	220	10040.2	702.81	200

TLA	WAIMAKARIRI # 61				39 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	581	138	58.9	1.77	0
56-250	1190	3024	64.4	5.79	1700
56-250	875	2589	69.5	6.25	600
56-250	310	1282	69.5	6.25	900
56-250	927	809	69.5	6.25	0
56-250	582	69	69.5	6.25	0
56-250	363	3147	69.5	6.25	800
250-800	339	72	294.5	8.83	0
250-800	500	84	294.5	8.83	0
250-800	892	394	294.5	8.83	100
250-800	692	224	294.5	8.83	0
250-800	947	300	294.5	8.83	0
250-800	215	285	294.5	8.83	0
250-800	340	389	347.3	31.26	100
250-800	980	5317	347.3	31.26	4000
250-800	231	96	294.5	8.83	0
250-800	889	476	294.5	8.83	200
250-800	392	291	294.5	8.83	200
800-2400	1091	786	1494.5	44.84	0
800-2400	1077	4461	2190.3	306.64	300
800-2400	767	149	1472.3	44.17	100
800-2400	7	139	1175.4	35.26	0
800-2400	1080	3630	1081.9	151.46	1100
800-2400	687	2241	1886.6	264.13	1100
800-2400	79	358	2136.7	64.1	200
800-2400	8	113	1821	54.63	100
800-2400	571	379	2355.6	70.67	100
2400-5000	381	1025	3578.3	500.96	300
2400-5000	965	750	3046.8	91.4	300
2400-5000	823	854	2561.7	76.85	0
2400-5000	1089	62	2519.9	75.6	0
2400-5000	1050	3282	3718.3	520.57	2900
2400-5000	379	48	4294	601.16	0
2400-5000	564	209	2742	82.26	200
5000+	29	208	8844.8	265.34	100
5000+	490	455	12562.6	376.88	400
5000+	1150	299	12598	377.94	0
5000+	635	806	8833.6	265.01	800
5000+	491	909	8323.4	249.7	0

TLA	WAIMATE # 62			19 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-150	119	1508	82.9	7.46	900
56-150	752	2507	114	10.26	1900
56-150	24	255	59.7	5.37	0
56-150	260	124	69.7	2.09	100
150-300	758	2510	238.8	21.49	1600
150-300	344	2900	266.3	23.96	900
150-300	781	107	151.8	4.55	0
150-300	708	191	199	5.97	100
150-300	761	3782	216.6	19.5	2300
150-300	21	220	214.6	6.44	0
300-700	547	120	423.6	12.71	100
300-700	389	230	447.8	13.43	200
700-1400	576	90	995.1	139.31	0
700-1400	832	140	981	29.43	100
700-1400	637	25	796	23.88	0
700-1400	385	160	701.2	21.04	0
700-1400	1055	128	796	23.88	0
1400+	400	118	2085.3	62.56	100
1400+	631	47	1592	47.76	0

TLA	BULLER # 63			16 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	466	2189	60	5.4	0
56-200	526	1467	84.7	7.62	200
56-200	786	3915	92.6	8.33	2400
56-200	127	57	99.5	8.95	0
56-200	754	2012	150	13.5	100
56-200	785	4178	92.6	8.33	3900
200-500	721	2859	409	36.81	500
200-500	470	267	350.9	10.53	0
200-500	657	1356	427.1	38.44	600
200-500	513	75	308.6	9.26	0
200-500	705	1977	325.5	29.29	800
500-900	429	691	717.5	21.53	400
500-900	132	1648	643.7	90.12	400
900-1500	111	167	1359.7	40.79	0
900-1500	498	1685	948.7	132.81	1300
1500+	241	85	1713.4	51.4	0

TLA	GREY # 64			28 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	635	122	57	1.7	100
56-300	600	68	57	1.7	0
56-300	629	232	227	6.81	200
56-300	584	127	227	6.81	100
56-300	78	98	57	1.7	0
56-300	666	124	170	5.11	0
300-1000	43	160	454	13.62	100
300-1000	384	795	340	10.21	100
300-1000	550	1926	313	28.21	700
300-1000	220	159	567	17.02	100
300-1000	498	48	575	17.24	0
300-1000	229	1809	310	27.94	500
300-1000	831	91	681	20.43	0
1000-2500	140	120	2270	68.09	0
1000-2500	321	39	1135	34.04	0
1000-2500	517	117	2270	68.09	0
1000-2500	518	113	2270	68.09	100
1000-2500	135	122	2132	63.95	100
1000-2500	362	54	2270	68.09	0
1000-2500	662	342	2270	68.09	300
1000-2500	451	113	1702	51.07	0
1000-2500	487	73	1196	35.89	0
1000-2500	26	133	1168	35.03	0
1000-2500	878	50	1702	51.07	0
1000-2500	223	246	1502	45.06	0
2500-4000	760	96	3404	102.13	0
2500-4000	652	293	3044	91.33	0
4000+	821	41	4539	136.17	0

TLA	WESTLAND # 65			15 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	170	144	58	1.74	0
56-300	7	553	117	3.52	500
56-300	133	141	58	1.74	0
300-1000	134	118	606	18.19	100
300-1000	136	43	582	17.47	0
300-1000	399	119	348	10.45	100
300-1000	302	125	303	9.08	0
1000-2000	141	122	1210	36.3	100
1000-2000	436	120	1741	52.24	100
1000-2000	148	340	1210	36.3	300
1000-2000	441	121	1741	52.24	100
1000-2000	145	121	1210	36.3	100
1000-2000	438	119	1741	52.24	0
2000-3000	434	51	2421	72.64	0
3000+	361	385	3025	90.75	0

TLA	CENTRAL OTAGO 66			22 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-150	142	485	101.5	3.04	400
56-150	405	308	60.9	1.83	100
56-150	34	391	121.8	3.65	200
56-150	418	1570	60.9	5.48	900
56-150	116	427	101.5	3.04	200
56-150	426	2770	60.9	5.48	1200
150-300	449	940	152.2	13.7	200
150-300	89	350	152.2	4.57	100
150-300	250	179	152.2	4.57	0
150-300	144	472	203	6.09	200
300-600	6	225	304.5	9.13	200
300-600	22	620	406	12.18	600
300-600	823	1134	507.5	15.22	200
300-600	251	660	304.5	9.13	100
300-600	141	116	406	12.18	0
300-600	411	300	406	12.18	200
300-600	377	1737	426.3	38.36	1700
600-1400	231	677	1014.9	30.45	400
600-1400	824	463	710.4	21.31	400
600-1400	686	630	1014.9	30.45	400
1400+	775	258	1522.4	45.67	100
1400+	68	754	2029.8	60.9	600

TLA	CLUTHA # 67				23 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	2362	1475	76	6.84	900
56-250	1306	1597	245.1	22.06	500
56-250	1452	2710	70.8	6.37	1100
56-250	514	1855	87.6	7.88	1000
56-250	1381	1405	59.5	5.36	400
56-250	364	195	82.1	2.46	0
56-250	2000	2145	138	12.42	400
56-250	675	3830	67.4	6.06	1100
56-250	1162	1702	75.8	6.82	0
56-250	1023	2106	57.8	5.21	2000
250-500	1725	221	279.1	8.37	100
250-500	1491	151	315.8	9.47	0
250-500	2372	108	315.8	9.47	100
250-500	830	53	315.8	9.47	0
250-500	428	125	315.8	9.47	0
250-500	1947	112	315.8	9.47	100
500-1000	570	3201	508.4	45.76	2700
500-1000	2348	220	798.9	23.97	200
500-1000	572	1874	508.4	45.76	0
500-1000	1832	270	737.6	22.13	100
1000-2000	1445	120	1264.1	37.92	0
1000-2000	1840	196	1567.3	47.02	100
2000+	1182	196	2366.2	70.99	0

TLA	DUNEDIN # 68				51 Sites
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-600	2337	275	265.1	7.95	100
56-600	3335	144	76.5	2.29	0
56-600	623	198	101.9	3.06	100
56-600	2	111	56.1	1.68	100
56-600	3525	79	101.9	3.06	0
56-600	2618	1088	178.2	16.04	0
56-600	510	217	419.3	12.58	200
56-600	908	93	101.9	3.06	0
56-600	2714	256	101.9	3.06	0
56-600	2974	1579	102.4	9.22	600
600-2500	3138	351	2019.7	141.38	0
600-2500	2056	278	610.6	18.32	200
600-2500	1365	72	1070	74.9	0
600-2500	3315	254	614.4	18.43	0
600-2500	2580	122	637	19.11	100
600-2500	1685	61	1494.6	104.62	0
600-2500	3352	87	1565.6	46.97	0
600-2500	3913	165	1060.4	31.81	0
600-2500	1270	174	1056.8	31.7	0
600-2500	1213	117	1937	135.59	100
2500-6000	1575	70	5222.9	156.69	0
2500-6000	2802	261	3131.4	93.94	200
2500-6000	1792	262	2849.9	199.49	200
2500-6000	824	225	4835.3	145.06	200
2500-6000	1576	52	5222.9	156.69	0
2500-6000	2162	105	5612.4	392.87	0
2500-6000	1121	118	2933	87.99	0
2500-6000	3535	265	3521.8	105.65	100
2500-6000	2314	176	5744.8	402.14	0
2500-6000	546	177	2610.6	182.74	0
2500-6000	230	342	2988.2	209.17	100
6000-11000	3753	121	7998.4	559.89	0
6000-11000	3813	406	7310.1	511.71	0
6000-11000	106	210	8498.2	594.87	0
6000-11000	48	121	8267.3	578.71	100
6000-11000	2101	861	6802.3	476.16	600
6000-11000	975	138	8078.9	565.52	0
6000-11000	1883	90	7312	511.84	0
6000-11000	3290	829	7560.6	529.24	0
6000-11000	96	241	7835.1	548.46	0
11000+	3186	182	14461.3	433.84	100
11000+	1920	145	11747.2	822.3	100
11000+	102	177	33905	2373.35	0
11000+	3808	195	11578	810.46	0
11000+	3223	305	11529.4	345.88	200
11000+	3188	169	19660.7	589.82	0
11000+	1916	139	17533.3	1227.33	0
11000+	3189	351	14685.2	440.56	200
11000+	1512	217	11548	1616.72	0
11000+	4174	174	46219.3	1386.58	100
11000+	1471	222	11666.8	816.68	100

TLA	Q'TOWN LAKE # 69			35 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-300	938	94	102	3.06	0
56-300	377	1032	99.6	8.96	100
56-300	709	4503	153.1	13.78	1400
56-300	791	87	153.1	4.59	0
56-300	965	305	152.5	4.57	300
56-300	108	2081	142.5	12.83	1400
56-300	746	20	204.1	6.12	0
300-900	275	10	816.3	57.14	0
300-900	366	272	306.1	9.18	200
300-900	652	234	510.2	35.71	200
300-900	1182	490	552.5	77.35	0
300-900	350	101	612.2	42.86	0
300-900	252	114	411.4	28.8	0
300-900	590	183	510.2	15.31	0
300-900	1102	132	510.2	15.31	100
300-900	277	251	306.1	9.18	100
900-2000	202	95	1530.6	107.14	0
900-2000	889	180	1020.4	71.43	100
900-2000	38	45	1224.5	85.71	0
900-2000	242	76	1165.2	81.56	0
900-2000	1064	90	1217.6	85.23	0
900-2000	665	16	1836.7	128.57	0
900-2000	215	50	1020.4	71.43	0
900-2000	117	123	1065.1	74.56	100
2000-4000	170	29	2040.8	142.85	0
2000-4000	84	416	3023.1	423.23	200
2000-4000	81	102	2040.8	285.71	100
2000-4000	656	409	2814.9	197.04	0
2000-4000	473	197	3061.2	214.28	100
2000-4000	127	52	2551	178.57	0
4000+	407	81	4081.6	285.71	0
4000+	673	58	5194.1	363.59	0
4000+	241	79	4081.6	285.71	0
4000+	476	266	7526.9	526.88	100
4000+	469	78	6796	475.72	0

TLA	WAITAKI # 70			32 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-250	335	8360	148.9	13.4	3600
56-250	390	145	55.6	1.67	100
56-250	815	1610	56.4	5.08	0
56-250	976	210	66.9	2.01	0
56-250	671	380	116.7	10.51	100
56-250	370	460	176.9	5.31	200
56-250	126	93	136.5	4.1	0
250-600	191	246	376.7	11.3	200
250-600	968	108	399	11.97	100
250-600	247	522	432.8	12.98	500
250-600	585	190	484.2	14.53	0
250-600	604	234	491.5	14.74	200
250-600	798	573	375.4	11.26	0
600-1400	402	479	718.9	21.57	400
600-1400	937	229	1082.8	32.48	200
600-1400	1029	441	841.1	25.23	400
600-1400	680	446	1208.2	36.25	100
600-1400	763	110	1146.7	34.4	100
600-1400	1011	383	875.5	26.27	0
600-1400	1023	96	759.9	22.8	0
600-1400	54	1000	718.2	100.55	400
600-1400	234	188	759.9	22.8	100
600-1400	180	619	710.5	21.32	300
600-1400	334	643	944.2	28.33	400
1400-3200	456	111	2625.8	78.77	100
1400-3200	1044	430	1835.9	257.02	400
1400-3200	557	242	1419.3	42.58	0
1400-3200	438	730	1548.1	46.44	600
1400-3200	436	639	2716.3	81.49	0
1400-3200	275	191	2362.8	70.88	100
1400-3200	768	199	1837.6	55.13	0
3200+	950	488	5959.6	178.79	300
3200+	989	1102	3343.4	100.3	800

TLA	GORE # 71			27 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-500	4	126	228	6.84	100
56-500	805	6072	154.9	13.94	5100
56-500	11	93	109.5	3.29	0
56-500	486	122	342	10.26	0
56-500	764	243	385.9	11.58	0
56-500	447	1347	112.4	10.11	700
56-500	590	58	418.4	12.55	0
56-500	385	97	456	13.68	0
500-1200	597	138	660.6	19.82	100
500-1200	110	233	684	20.52	200
500-1200	763	92	1140	34.2	0
500-1200	3	492	1198	35.94	100
500-1200	175	276	1105.7	33.17	200
1200-2500	399	121	1415.8	42.47	0
1200-2500	689	121	1509.9	45.3	100
1200-2500	238	114	2052	61.56	0
1200-2500	520	290	2220.4	66.61	0
1200-2500	247	82	2052	61.56	0
1200-2500	326	112	2280	68.4	100
1200-2500	197	90	2017.4	60.52	0
2500-5000	32	76	4560.1	136.8	0
2500-5000	376	263	2904.8	87.14	0
2500-5000	28	100	3420	102.6	0
2500-5000	158	186	2964	88.92	0
2500-5000	234	93	2801	84.03	0
2500-5000	120	199	2519.5	75.58	0
5000+	66	109	5616.1	168.48	0

TLA	INVERCARGILL #72			37 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-700	908	51	406.5	12.2	0
56-700	1054	494	203.3	6.1	100
56-700	9	321	264.2	7.93	200
56-700	1542	3918	457	41.13	1500
56-700	1879	236	223.6	6.71	100
56-700	1030	161	254.1	7.62	0
56-700	847	194	142.3	4.27	0
56-700	688	161	182.9	5.49	100
56-700	1351	78	132.1	3.96	0
700-2000	332	259	1829.4	54.88	0
700-2000	1206	29	1372	41.16	0
700-2000	424	575	1016.3	30.49	0
700-2000	834	99	1829.4	54.88	0
700-2000	1390	51	863.9	25.92	0
700-2000	1699	145	1524.5	45.73	0
700-2000	736	113	1830.2	54.91	0
2000-4000	831	67	2338.3	70.15	0
2000-4000	1259	119	2540.8	76.22	100
2000-4000	1262	68	2743.6	82.31	0
2000-4000	1727	41	3050.4	91.51	0
2000-4000	1377	166	2439.2	73.17	100
2000-4000	1721	35	3762.2	112.86	0
4000-10000	179	134	4065.9	121.98	0
4000-10000	1612	32	4777.4	143.32	0
4000-10000	1405	192	4574.1	137.22	100
4000-10000	868	277	5084	152.52	200
4000-10000	1771	243	5184	155.52	0
4000-10000	391	121	5911.4	177.34	100
4000-10000	1760	392	4065.9	121.98	100
4000-10000	719	206	6914.2	207.43	100
4000-10000	869	111	5084	152.52	100
4000-10000	1759	289	4320	129.6	100
10000+	490	55	11486.2	344.59	0
10000+	506	133	13214.2	396.43	0
10000+	1417	240	10927.1	327.81	200

TLA	SOUTHLAND # 73			26 Sites	
					Sample
AADT CLASS	SITE #	LENGTH	AADT	HVADT	Point
					(m)
56-200	1071	2326	101	9.09	100
56-200	940	2710	163.2	14.69	2700
56-200	1403	1493	56.6	5.1	1100
56-200	2691	1135	101.8	9.16	200
56-200	3042	2355	80.8	7.27	2000
56-200	519	1457	100.5	9.05	500
56-200	1733	119	80.8	2.42	100
200-500	3234	1730	251.3	22.61	200
200-500	882	601	203.6	18.33	500
200-500	688	670	305.5	27.49	400
200-500	3242	273	305.5	21.38	200
200-500	1267	202	201.9	6.06	200
200-500	2144	2686	356.4	32.07	600
200-500	1720	215	252.4	7.57	200
200-500	1658	119	252.4	7.57	0
200-500	1841	212	201.9	6.06	0
500-1000	1114	1023	712.7	99.78	600
500-1000	300	371	804	112.56	200
500-1000	2512	2539	703.5	98.49	800
500-1000	88	428	537.5	37.63	200
500-1000	1909	1542	712.1	99.69	1000
500-1000	1472	332	603	42.21	100
1000-1500	2564	127	1008.2	141.15	0
1000-1500	1678	223	1109	77.63	100
1500+	2792	771	2826.9	395.77	300
1500+	1682	179	1512.3	105.86	0

SITES FOR SAMPLING
LOW VOLUME SITES

TLA	LOW VOLUME ROADS					
		2 PER TLA				
					Sample	
	SITE #	LENGTH	AADT	HVADT	Point	1994
					(m)	
1	434.	620	5.2	0.47	0	##
1	1805	3738	31.0	2.79	2700	
2	218	25	20.0	1.79	0	##
2	712	632	20.0	1.79	200	
3	285	108	32.1	2.89	0	
3	1810	627	53.5	1.60	300	
4	3976	34	26.1	0.78	0	
4	616	103	52.1	1.56	100	
5	991	801	21.0	1.87	100	##
5	39	334	41.0	3.73	100	
6	864	35	44.6	1.34	0	
6	1970	94	34.6	1.04	0	
7	2350	161	40.0	1.20	0	
7	2325	363	50.0	1.50	100	
8	560	212	44.1	1.32	0	##
8	98	324	43.7	1.31	0	
9	1617	1109	36.0	1.07	0	
9	512	1532	38.0	1.13	0	
10	1985	69	32.9	0.99	0	##
10	1372	82	43.8	1.32	0	
11	121	107	24.0	0.71	0	
11	2442	24	23.5	0.71	0	
12	194	222	24.0	0.73	0	
12	490	74	49.0	1.47	0	
13	572	65	15.8	0.47	100	
13	1303	46	11.1	0.33	0	
14	441	4550	30.0	2.70	200	
14	266	203	46.0	1.40	0	
15	503	3100	11.0	0.96	2600	##
15	172	77	20.0	0.61	0	
16	701	100	25.0	0.75	0	
16	287	190	50.0	1.50	200	
17	760	113	16.5	0.50	100	
17	307	83	16.5	0.50	0	
18	537	560	31.5	2.84	200	
18	301	223	52.6	4.73	100	
19	1004	98	43.9	1.32	0	
19	675	1021	54.9	4.94	200	
20	142	110	50.0	1.50	0	
20	248	1974	40.0	3.60	600	
21	22	1300	49.9	4.49	400	Only 1 site
22	67	213	40.3	1.21	200	
22	262	1000	39.9	3.59	700	
23	897	4450	39.9	3.59	900	
23	122	183	51.9	1.56	100	
24	826	27	20.0	0.60	0	
24	682	36	31.0	0.93	0	

SITES FOR SAMPLING
LOW VOLUME SITES

TLA	LOW VOLUME ROADS					
		2 PER TLA				
					Sample	
	SITE #	LENGTH	AADT	HVADT	Point	1994
					(m)	
25	314	71	31.8	0.95	0	##
25	637	172	37.0	3.33	100	
26	154	1715	40.0	3.60	700	##
26	639	582	40.0	3.60	200	
27	846	46	11.0	0.34	0	
27	769	3445	32.0	2.87	1300	
28	607	3945	10.0	0.90	2100	
28	170	20	32.0	2.91	0	
29	2115	1570	15.0	1.35	600	
29	643	90	10.0	0.90	100	
30	506	159	51.0	1.53	100	
30	572	55	51.0	1.53	0	
31	557	608	1.0	0.15	200	##
31	339	1778	48.0	6.65	1100	
32	432	1395	32.2	2.90	200	
32	1205	680	10.6	0.95	300	
33	570	2407	38.2	3.43	300	
33	1570	5960	49.9	4.49	2500	
34	237	59	42.6	2.98	100	
34	306	630	22.5	2.03	100	
35	44	99	52.0	1.56	0	
35	1054	118	52.1	4.68	0	
36	639	1125	53.8	4.84	900	
36	406	2270	53.8	4.84	1900	
37	1667	1338	53.3	4.80	1100	##
37	1285	4519	53.3	4.80	300	
38	174	2580	55.0	4.95	1300	
38	70	50	51.3	1.54	0	
39	558	11	10.5	0.94	0	##
39	840	10	22.3	0.67	0	
40	279	125	36.2	1.09	100	
40	487	1820	34.3	1.03	400	
41	1050	532	30.2	2.72	300	##
41	1565	55	51.1	1.53	0	
42	8	519	40.0	3.60	400	
42	230	120	50.0	1.50	0	
43	986	176	26.0	0.77	100	
43	501	62	53.0	1.59	0	
44	831	91	52.5	1.57	100	
44	37	71	25.7	0.77	0	
45	488	120	50.0	1.49	0	
45	327	473	25.0	2.29	200	
46	116	65	54.0	1.60	0	
46	345	58	54.0	1.60	0	
47	6	60	30.0	0.89	0	
47	128	2170	25.0	2.23	800	
48	835	162	51.0	1.50	100	##
48	162	73	51.0	1.50	0	

SITES FOR SAMPLING
LOW VOLUME SITES

TLA	LOW VOLUME ROADS					
		2 PER TLA				
					Sample	
	SITE #	LENGTH	AADT	HVADT	Point	1994
					(m)	
49	3133	110	50.1	1.50	100	##
49	642	148	50.1	1.50	0	
50	207	727	0.0	1.79	400	
50	29	761	0.0	0.45	500	
51	1011	1963	52.8	4.75	300	
51	1627	3284	21.1	1.90	400	
52	341	650	51.5	10.80	1500	
52	170	84	52.3	1.57	0	
53	775	104	20.6	0.62	0	##
53	1400	1507	51.6	4.63	700	
54	235	4993	10.0	0.90	2300	
54	334	2226	29.9	2.69	900	
55	515	255	5.5	0.49	0	
55	127	1850	15.1	1.36	1200	
56	3662	110	54.0	1.62	0	
56	4765	200	53.7	4.84	0	
57	184	303	39.5	3.56	100	
57	116	780	33.0	2.97	300	
58	448	804	30.3	0.91	500	
58	20	217	49.8	1.49	0	
59	677	139	50.6	1.52	0	
59	363	620	50.8	4.57	200	
60	1060	10	39.7	3.57	0	
60	771	84	49.6	1.49	0	
61	836	411	6.9	0.63	400	
61	1008	2111	30.7	2.76	1200	
62	258	56	49.8	1.49	0	
62	515	576	19.9	1.79	400	
63	546	313	10.4	0.31	0	
63	694	81	12.1	0.36	0	
64	899	4282	23.0	2.04	400	
64	631	495	23.0	2.04	100	
65	293	2374	17.0	1.57	1000	
65	246	229	12.0	1.04	200	
66	546	120	40.6	1.22	0	
66	63	6400	50.7	4.57	2400	
67	253	225	50.5	1.51	0	
67	48	1412	50.5	4.54	300	
68	2225	64	40.8	1.22	100	
68	3359	925	10.2	0.92	400	
69	311	160	51.0	1.53	0	
69	754	3736	50.8	4.57	900	
70	290	1160	50.5	1.51	100	
70	254	3750	50.5	4.54	1000	
71	370	85	22.8	0.68	0	
71	104	5813	11.4	1.03	4400	
72	81	650	50.8	4.57	100	
72	891	82	50.8	1.52	0	
73	205	391	30.3	2.73	200	
73	2391	458	20.2	0.61	500	