



excellence in asset management



Third Edition
RAMM Software Ltd
Auckland
NEW ZEALAND

Copyright © 2012

[RAMM Software Limited](#).
All rights reserved

The software described in this document contains proprietary information of [RAMM Software Limited](#). It is provided for your use under a licence agreement containing restrictions on its use and disclosure. It is also protected by copyright law. Reverse engineering of the software is prohibited. Under the terms of the licence, the information in this document is also confidential between [RAMM Software Limited](#) and the client and remains the exclusive property of [RAMM Software Limited](#).

This information may change without notice because of the scale and complexity of the continued product development. [RAMM Software Limited](#) does not warrant that this document is free of errors. If you find any problems in the documentation, please report them to [RAMM Software Limited](#). See Contact [RAMM Software Limited](#) (on page 28).

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of [RAMM Software Limited](#).

[RAMM Software Limited](#)

PO Box 302 278
North Harbour
Auckland 0751
New Zealand

+64 9 475 0500
0800 256 832

Email: support@ramm.co.nz
<http://www.ramm.co.nz>

Document Release

To check that you are reading the most recent release of this document, please go to the [RAMM Software Limited](http://www.ramm.co.nz) web site (<http://www.ramm.co.nz>).

Author	Version	Release Date
Grant Mackenzie	First Edition	1st May, 2009
Grant Mackenzie	Second Edition	28th March, 2011
Grant Mackenzie	Third Edition	10th June, 2011

Notes to the Third Edition

RAMM Traffic Count Estimation enables you to combine historical traffic data with intelligent Carriageway Section linking to produce a traffic counting and estimation programme which delivers the most Network coverage, the most accurate and up to date ADT Estimates for the minimum number of counts. Below you will find the areas of refinement of this system for the 2011 version of **RAMM**:

- Initial Processes and Parameters** (on page 57)
 You set initial parameters so that **Traffic Count Estimation** is implemented to match your circumstances. First you select your **Region** and **Road Council**. Next you define the number of years of your most recent Count data you want to be taken into account when setting up **RAMM Traffic Count Estimation**. The major decision you take is to determine the percentage of your Network VKT that you want to count.
- Traffic Link Maintenance**
 There are a number of refinements to the creation and maintenance of **Traffic Links** in **RAMM 2011**. These refinements are particularly useful when you have created the recommended **Traffic Links** and are associating them.
- Traffic and Loading Definition**
 Traffic and Loading in **RAMM 2011** has been updated to accommodate the requirements of different sets of users.
- Traffic and Loading Data Import** (on page 249)
 When importing Traffic and Loading count data into **RAMM Manager** you have a specialised data file import option. You use this rather than the generic **RAMM Manager** Import File option.

- **MetroCount File Import**

MetroCount Traffic Count and Loading data files can now be imported into **RAMM** databases using the MetroCount Import utility. You access this from **RAMM Applications** or from **RAMM Manager**.

Contents

Document Release	iv
Notes to the Third Edition	iv
Chapter 1 Introduction to Traffic Count Estimation.....	1
Overview	2
Traffic Count and ADT Data Entry	2
Loading Data Entry	3
Audience	4
Related Guides	5
Chapter 2 Introduction to RAMM.....	7
What is RAMM?.....	8
Your RAMM Applications	9
Your RAMM Database.....	11
Your Other Software and RAMM	12
The RAMM Main Screen	13
RAMM Terminology.....	15
Log in to RAMM.....	18
RAMM Hosting Service	19
Logging in to the RAMM Hosting Service.....	19
RAMM Help Options.....	21
Context-sensitive Help	22
RAMM Help on the Internet.....	24
RAMM Guides and Manuals.....	25
Help from Other Users	26
RAMM Database Details.....	27
Contact RAMM Software Limited	28
Comments and Suggestions.....	29
Chapter 3 Why Optimise Traffic Data in RAMM?.....	31
Funding	32
Traffic Management.....	32
Planning.....	32
Cost Effectiveness	32
Chapter 4 How Does Traffic Count Estimation Work?.....	33
Traffic Counts and Traffic Links.....	34
Count Sites and the Counting Programme	35

Chapter 5 ADT and AADT in RAMM.....	37
ADT Estimate Calculation	38
ADT Calculation Factors	40
AADT Calculation.....	41
Chapter 6 Improve the Accuracy of ADT Estimates.....	43
Select Count Sites.....	44
Season Profiles for Road Types.....	45
Road Type Selection Process	47
Traffic Growth Groups	48
Other Factors.....	49
Chapter 7 Traffic Count Estimation Set Up	51
Traffic Count Estimation Set Up Process	52
Chapter 8 Initial Processes and Parameters	57
Processes and Parameters Overview	58
Activate Traffic Counting Processes	58
Available Processes	60
Process Deactivation.....	60
Activating Traffic Counting Processes.....	61
Traffic Counting Parameters	62
Region	63
Road Council.....	64
Include Count Sites for	64
Network Coverage.....	65
Latest Traffic Estimate	66
Setting Traffic Counting Parameters	67
Chapter 9 Legacy Data	69
Count Duration Data	70
Time of Day Data	72
Sample Group Data	74
Fixing Missing Count Duration Data in Bulk.....	76
Chapter 10 Traffic Link Creation	79
View Recommended Traffic Links on the Map	80
View a List of Recommended Traffic Links.....	81
Temporary Records Only.....	82
Process All Roads.....	82

Select Recommended Traffic Links.....	83
Save Traffic Links.....	85
How RAMM Recommends Traffic Links.....	86
Generating Recommended Traffic Links	87
Saving Recommended Traffic Links	90
Chapter 11 Count Site Creation	95
View Recommended Count Sites on the Map	96
View a List of Recommended Count Sites	97
Temporary Records Only	98
Count Sites List	98
Select Recommended Count Sites	99
Save Count Sites.....	101
How RAMM Recommends Count Sites	102
Generating Recommended Count Sites	104
Saving Recommended Count Sites	107
Chapter 12 Associate Traffic Links by Count Site.....	111
Traffic Link Association	112
Parent Child Link Percentage Calculation	114
Child Link with Higher ADT Than the Parent Link.....	115
Circular Link Warning	116
Deselect Traffic Link.....	116
Fixed Count Traffic Links	117
Colour Format Traffic Links	118
Associating Traffic Links	119
Updating Count Site Sample Group Values	122
Refresh the Traffic Counting Map	124
Reduce Estimate Records.....	125
Chapter 13 Data and Status Checks.....	127
Unlinked Carriageways.....	128
Run Status Check.....	129
Traffic Links with No Average ADT	129
Chapter 14 Select Sites and Develop a Programme.....	131
Rotational Monitoring Sites	132
Background	132
Sample Selection	133
Core Monitoring Sites	134
Sample Specifications and Framework	135

Select the Sample with a Spreadsheet.....	137
Add Number to the Spreadsheet.....	139
Add Percentage to the Spreadsheet	141
Add AADT Band to the Spreadsheet.....	143
Randomise and Select.....	145
Other Monitoring Sites	146
Chapter 15 Traffic Count Schedule.....	149
View Scheduled Traffic Counts on the Map	150
View a List of Scheduled Traffic Counts	151
Overdue Counts	153
Traffic Count Dispatches	153
Asset Selection and Dispatch Creation	154
Chapter 16 Traffic Count Estimation and RAMM	157
Carriageway	158
Count Site.....	159
Traffic and Loading	161
General.....	162
Count.....	163
Location	164
Detail.....	165
Default Loading.....	166
Financial Year.....	167
Survey Methods, Site Types and Loading Methods	168
Traffic Link.....	170
Treatment Length Maintenance	173
Treatment Selection	173
Chapter 17 Traffic Count Estimation and the Map.....	175
Map Features for Traffic Count Estimation	176
Tool Bar	177
Traffic Links.....	179
Count Sites	182
Traffic Counts	184
Relate Traffic Links	185
Associate a Carriageway Section with a Traffic Link	188
Show Traffic Data for All Roads	189
Refresh the Traffic Counting Map.....	192
View Options.....	193
Unlinked Carriageways	195
Traffic Links with No Average ADT	196

Recommended Traffic Links and the Map.....	197
Recommended Count Sites and the Map.....	199
View Scheduled Traffic Counts on the Map.....	201
Lookup Maintenance	202
Action Option.....	203
Update Traffic Counts and Estimates	204
Reduce Estimate Records.....	205
Legend	207
Chapter 18 Traffic Count Estimation and RAMM Manager.....	209
Where Are the RAMM Manager Functions?	210
Road Types and Correction Factors	210
Road Type Group Graphs.....	211
Correction Factors Screen.....	212
Part Day Factors	213
Week Day Factors.....	214
Week Number Factors	215
Region Factors.....	216
Season Profile Factors	217
Growth Group Factors.....	219
Sample Group	221
Traffic Counting Header	222
Recommend Traffic Links	223
Process All Roads	224
Accept Recommended Traffic Links	225
Recommend Count Sites	226
Run Recommended Count Sites Process	227
Accept Recommended Count Sites	228
Update Traffic Counts and Estimates	230
Traffic Latest Selection.....	232
Auto Update Pavement Use	232
Existing Carriageway Traffic and Loading Records.....	234
Counting Schedules	234
Temporary Records Only	235
Overdue Counts.....	236
Overdue Counts Initial Selection	236
Traffic Count Dispatches.....	237
Sanity Check Reports	238
Missing Data.....	238
Unlinked Carriageways.....	241
Traffic Links with No ADT.....	241
Traffic Headers.....	242
Survey Methods	242

Site Type for NZ State Highways	244
Vehicle Classification.....	244
Default Loading	245
Chapter 19 Traffic Count Estimation and RAMM Network Manager.....	247
Traffic Link Information	248
Chapter 20 Traffic and Loading Data Import	249
Traffic and Loading Data File Import Process.....	251
Your Data Must Match Your Network Type.....	252
Import File Types	252
Loading the Data File	253
Link Data to RAMM Columns.....	255
Traffic Counting Header.....	256
Import Tool Bar.....	257
Unique Record IDs	258
Financial Year for Traffic and Loading.....	260
Linking Your Data to the RAMM Columns.....	260
Layout File	262
Create a Layout File	263
Saving a Layout File	264
Data Validation	267
Validating Data.....	267
Data Correction and Excel	269
Data Correction in RAMM.....	270
Duplicate Checks.....	273
Checking for Duplicates.....	274
Move and Process Data	277
Moving and Processing Data.....	278
Chapter 21 Staff Permissions and Traffic Counting.....	281
Introduction to Staff Permissions	282
Staff Permissions for the Parameter Screen.....	284
Granting Staff Permission to Update the Parameter Screen	285
Data Maintenance Staff Permissions	287
Lookup Table Staff Permissions.....	288
Status Check Staff Permissions	289
Other Staff Permissions.....	290
Dispatch Creation Permissions	291
Chapter 22 Traffic Count Estimation Reports	293
Counting Schedule Report.....	294

Missing Data Report	295
Recommended Count Sites Report.....	295
Recommended Traffic Links Report.....	297
Traffic Latest Errors Report.....	297
Traffic Links with No ADT Report	298
Unlinked Carriageways Report	299
Chapter 23 NZTA and Traffic Count Estimation	301
State Highways and TMS	302
Correction Factors.....	303
Count Site Reference and Site Type.....	303
Recording and Estimation of ESA	304
Traffic Count Duration	305
Traffic Growth Calculation	306
Traffic Link Location	306
Chapter 24 Traffic Count Estimation Maintenance	309
Fine Tune Traffic Data	310
Check for New Carriageways	311
Schedule Regular Traffic Counts	312
Add Traffic Count Dispatches	312
Import Traffic Count Data	313
Update ADT Values.....	313
Chapter 25 Austroads and MetroCount Files	315
MetroCount File Import.....	315
Austroad Vehicle Classes.....	317
Appendix A - VKT Calculation from Sample.....	318
Appendix B - TLA Table	319
Appendix C - Local Version Requirement.....	323
Glossary.....	325
Index.....	331

Introduction to Traffic Count Estimation

Your traffic data is important **RAMM** database information. Best practice is to use **RAMM Traffic Count Estimation** to manage this data.

Traffic Count Estimation is a sophisticated traffic data management system which you can implement in **RAMM**. It:

- recommends Carriageway Sections for you to link to maximise the efficacy of count data
- identifies the Roads which you need to count most often
- recommends sites at which to perform counts
- recommends a count schedule based on parameters you have set.

You use your knowledge of your Network to link Carriageway Sections to the Roads where counts take place. Then those Carriageway Sections which take a known percentage of traffic can automatically have an Average Daily Traffic (ADT) Estimate calculated for them based on the actual count and other factors.

RAMM Traffic Count Estimation enables you to combine historical traffic data with intelligent Carriageway Section linking to produce a traffic counting and estimation programme which delivers the most Network coverage, the most accurate and up to date ADT Estimates for the minimum number of counts.

In This Chapter

Overview	2
Traffic Count and ADT Data Entry	2
Loading Data Entry	3
Audience	4
Related Guides	5

Overview

RAMM Traffic Count Estimation is designed to generate the most accurate possible Estimates of traffic volumes for each Carriageway Section in your Road Network. It does this by taking actual **Traffic Counts** which you have made and extrapolating Average Daily Traffic (ADT) Estimate values for each and every Carriageway Section in your Road Network.

This is achieved by the creation of **Traffic Links**. These are linked Carriageway sections with the same traffic volumes. **Traffic Links** which receive traffic from another **Traffic Link** can also have a known percentage of the total traffic of the feeder **Traffic Link** set as their Estimated traffic volume.

Once the **Traffic Links** have been set, **RAMM** can recommend **Count Sites**.

When you have set up the **Traffic Links** and **Count Sites** in your **RAMM** database, have updated your legacy data and generated a count schedule, you perform your **Traffic Counts**. You then enter the ADT and Loading values into **RAMM**. The data collected measures only the traffic which occurred during the time period of the survey. So, to make this more meaningful, **RAMM** takes a variety of factors into account:

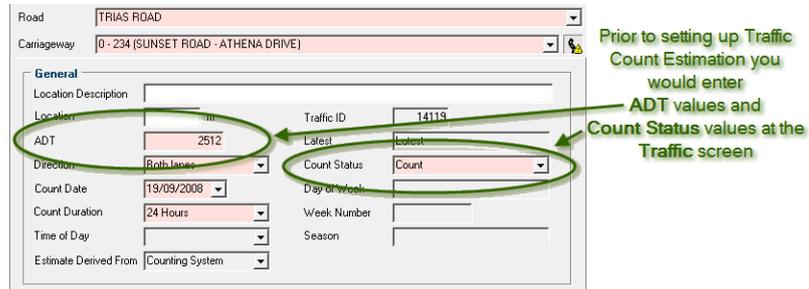
- the duration of the count
- the time of day of the count
- the day of the week of the count
- the week of the year of the count
- the region in which the count was taken
- the season in which the count was taken
- the classification of the Road on which the count was taken
- the traffic growth profile for the **Count Site** at which the count was taken.

This is then used to update the ADT Estimates.

Traffic Count and ADT Data Entry

Prior to setting up **RAMM Traffic Count Estimation** you would enter Average Daily Traffic (ADT) values and **Count Status** values at the **Traffic** screen, shown below, for each Carriageway in your database. The **Traffic** screen has now been replaced by the **Traffic and Loading** screen

Standard practice was to enter the data into **RAMM** by importing a file containing the information. Often, this meant that those Carriageway Sections which were not counted every year were then not updated every year.



Data Entry for Traffic Count Estimation

Once you have set up **RAMM Traffic Count Estimation** you will need to enter ADT values only for those Carriageway Sections on which an actual **Traffic Count** has taken place.

RAMM will then generate ADT Estimate values for all the linked Carriageway Sections based on decisions you made during set up.

You can still manually enter ADT values at the Detail tab of the **Traffic and Loading** screen. See **Traffic and Loading** (on page 161).

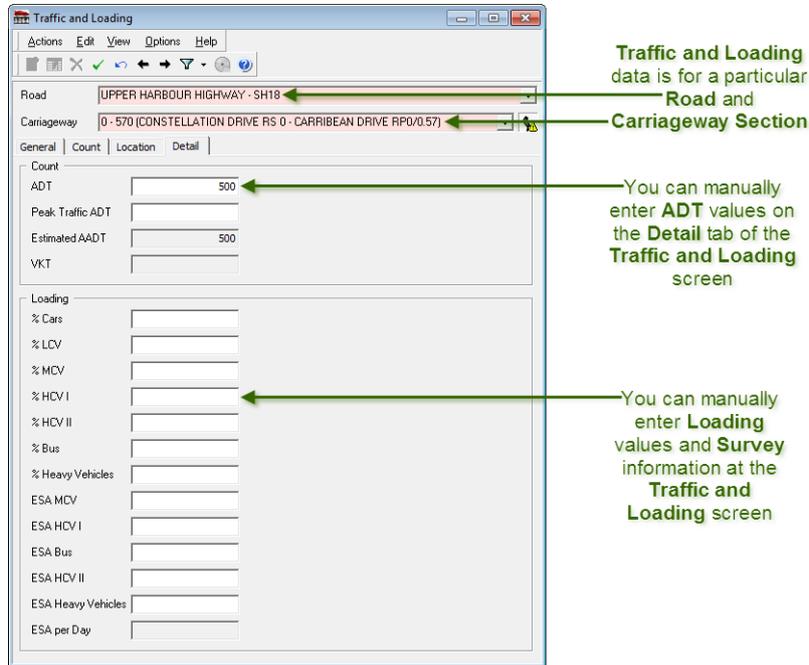
Loading Data Entry

Once you have set up **RAMM Traffic Count Estimation** you will enter ADT and Loading values only for those Carriageway Sections on which an actual **Traffic Count** has taken place.

RAMM will then generate Loading Estimate values for all the linked Carriageway Sections based on decisions you made during set up.

Data Entry for Traffic Count Estimation

You can manually enter Loading values at the Detail tab of the **Traffic and Loading** screen.



Audience

This **RAMM Traffic Count Estimation** guide is for Network Engineers, Consultants and their staff. It is for those who set up and manage traffic counting in their **RAMM** databases. It may be of use to Contractors who perform the actual **Traffic Counts** if they also enter the data into the **RAMM** database.

The guide contains:

- the reasons to institute **RAMM Traffic Count Estimation**
- how **RAMM Traffic Count Estimation** works
- how to set up **RAMM Traffic Count Estimation** in your **RAMM** database
- advice on the set up of **Count Sites** to maximise the efficient use of resources
- how to generate Dispatches in **RAMM Contractor** to ensure the **Traffic Counts** take place
- useful **Traffic Count Estimation** reports
- a series of appendices with the values of the variable factors used in the **Traffic Count Estimation** calculations.

Related Guides

There are several guides related to [RAMM Traffic Count Estimation](#) which you should consider reading.

Using RAMM

This [RAMM](#) primer takes a new user through the basics of using [RAMM](#). If you are unfamiliar with [RAMM](#) you will find the chapters on the [RAMM](#) Workspace, Filters and in particular, Mapping very helpful.

RAMM Contractor

If you use a Contractor to perform the actual [Traffic Counts](#) you can read this guide. It has step-by-step instructions on how to set up a Contract. It also explains how to use [RAMM Contractor](#) Dispatches.

For a list of [RAMM](#) guides see [RAMM](#) Guides and Manuals (on page 25).

Introduction to RAMM

Road Assessment and Maintenance Management (**RAMM**) is software developed and supported by **RAMM Software Limited**. This software is used by Road Controlling Authorities (RCAs) to manage Road Inventory Assets and Condition for their Network.

RAMM is the complete package for Asset maintenance, valuation, assessment, Forward Work Planning as well as inventory-based Asset management. It also includes a range of report and analysis applications which complement the management functions.



excellence in asset management

In This Chapter

What is RAMM?.....	8
Log in to RAMM.....	18
RAMM Help Options.....	21

What is RAMM?

The **RAMM** (Road Assessment and Maintenance Management) software from **RAMM Software Limited** is a comprehensive suite of applications to maintain and manage Road Inventory and Condition data.



The name **RAMM** is used not only for a suite of Road Assessment and Maintenance Management applications but also for the central software application itself.

The RAMM Suite

The full **RAMM** suite includes **RAMM** (sometimes referred to as **RAMM** for Windows), **RAMM Contractor**, **Pocket RAMM**, **RAMM Manager**, **RAMM Network Manager**, **RAMM SQL**, **Hosting Administration**, **CAR Manager** and **RAMM GIS**.

When **RAMM** was introduced to the industry in the 1980s, it was a green screen application. Later a GUI (graphical user interface) was introduced. This is when it was sometimes called **RAMM** for Windows. As users came to expect more from **RAMM** other applications were added. **RAMM Manager**, **RAMM Network Manager** and **RAMM SQL** were added to facilitate Lookup, Staff Permissions, process, report and Network maintenance, database manipulation and data extraction. When Network Owners and Contractors needed a better system for contract management, **RAMM Contractor** and **Pocket RAMM** were introduced.

Recently the **CAR Manager** has been added to enable NZ Corridor Managers to manage access to their Network. **Hosting Administration** has been designed to give clients greater control over the users who access their Network data. It will be rolled out to our New Zealand clients in the near future. **RAMM GIS** enables easy viewing of **RAMM** data on a map without having to log in to **RAMM**.



Your RAMM Applications

The full **RAMM** suite includes the following applications. You can access each individual application only if you have the correct Staff Permissions.

RAMM (for Windows)

RAMM (for Windows) is the central application of the **RAMM** suite. You access your Inventory, Asset and Condition data for your Network from **RAMM**.

RAMM Manager

RAMM Manager is the module in the **RAMM** suite of products which you use to set up Lookups, to maintain Staff Permissions, to run processes such as Status Check, and to run reports.

RAMM Contractor

RAMM Contractor is the module of the **RAMM** suite of products which enables Contractors, Network Owners and Consultants to manage Road Asset Maintenance Contracts. In particular, it has been optimised to facilitate the Programming of Network maintenance and the Estimation and Claims process which is integral to Programmed Maintenance Contracts. It also includes the special features for the managing of Contracts for Signs, Street Lights and Traffic Signals maintenance.

Pocket RAMM

Pocket RAMM is the module of the **RAMM** suite of products which enables a user to run **RAMM** on a netbook, laptop, tablet or PDA, and to perform Contract, Inventory and Claim management while mobile, in the field. Virtually all of the everyday maintenance ability of **RAMM Contractor** is present in **Pocket RAMM**. Please note that the **Pocket RAMM** application has become so comprehensive that the use of PDAs with **Pocket RAMM** is no longer recommended. PDAs are no longer powerful enough to deliver a positive user experience.

RAMM SQL

RAMM SQL is the module of the **RAMM** suite of products which enables a power user to manipulate **RAMM** data using SQL (Structured Query Language). It is a very powerful tool and should be used only by advanced users who have a detailed knowledge of the **RAMM** database.

 **RAMM Network Manager**

RAMM Network Manager is the module in the **RAMM** suite of products which you use to manage the details of your Network and in particular, the Road centre lines. **RAMM Network Manager** is a powerful, flexible and comprehensive Road Network maintenance tool that helps you automate tasks and perform complex Network management actions. For example, you can reverse a Road with a single press of your mouse. When you apply this change **RAMM Network Manager** will update all relevant tables within the database. It also has a graphical display which displays current and historical views of the changes you are making.

**Hosting Administration**

The **Hosting Administration** is an online application which enables users to manage access to their Network. It enables Network Administrators to create logins for individual users and allows those individuals to maintain their own passwords. At the time of writing, Hosting Administration is available only to Western Australian LGAs who are clients of <arrb>.

**CAR Manager**

CAR Manager is the online application used by corridor managers to manage requests by utility operators, or their contractors, to access the Road corridor. Access to the corridor is required to make changes to electricity, gas, telecommunications, water, wastewater and postal infrastructure. At the time of writing, **CAR Manager** is available only to New Zealand RCAs who are clients of [RAMM Software Limited](#).



RAMM GIS is the **RAMM** Geospatial Information Service. Using it is a bit like flying over your network and viewing your **RAMM** data, but without ever leaving the office.



Your ability to view and access the complete suite of **RAMM** products will depend on your Staff Permissions. Best practice is to grant you permission to view and access only those applications which you need for your normal duties.

Your RAMM Database

All your Road Inventory and Condition information in **RAMM** is stored in a central database. Everything you do in **RAMM** is linked to it. All the actions you perform affect it.

How the Database Is Arranged

The information in the **RAMM** database is stored in tables. There are many of these, one for each aspect of the Road Network. Examples of **RAMM** tables are Surface Structure and Roughness. **RAMM** often combines information from different tables when you are working with it.

Each table holds its data in a combination of rows and columns. Each row in a table can also be called a record. It contains all the details for the particular aspect of the Road section - for example, the Start Displacement, Material, Construction Date and so on of a particular Road section. Each individual item of data is held in its own column.

These columns are related to the fields on **RAMM** screens. Information in a field on a **RAMM** screen resides in a table column. The column contains information about all the Roads, but pertaining only to one aspect of the Road - for example, just the Displacements for the various Roads and Road sections you are looking at.

Road Asset:	Column (Field):			
Surface Structure Table	Road Name	Start Displacement	Pavement Type	Construction Date
Row (Record):	Smith Street	000m	Thin Surfaced Flexible	17/03/2003
	Jones Road	100m	Concrete	12/02/2000



You will see messages and warnings from time to time, some accompanied by detailed, database related information. It is always useful to either print or record this information somewhere and have it at hand when you call [RAMM Software Limited](#) for assistance. See Contact [RAMM Software Limited](#) (on page 28).

Your Other Software and RAMM

When you are working with [RAMM](#), you will use other software. The following list is not exhaustive. Also, you might not use some of the software listed.

Internet Browser

Your web or internet browser is the software application you use for accessing, presenting, and navigating information on the World Wide Web. You use it to access [RAMM](#) through the [RAMM Hosting Service](#). Common browsers are Internet Explorer, Firefox, Safari and Chrome. Best results for accessing [RAMM](#) through the [RAMM Hosting Service](#) have been achieved using Internet Explorer.

Citrix Client

The Citrix client is a third party, remote access application. It allows users to access [RAMM](#) remotely. It enables secure passing of data between a remote server and your local, or client pc or other device. Once the Citrix connection is established, you work with [RAMM](#) as if it were running on your local device.

Microsoft Excel and Others

You can export **RAMM** data in a format usable in Microsoft Excel, Access and other data manipulation and reporting software.

Windows Explorer

You use Windows Explorer (sometimes referred to as My Computer) to access files on your computer which you attach to records in **RAMM** on the Multimedia tab of the **RAMM** Detail screens. Similarly you can use the software to download and save **RAMM** multimedia files to your own hard drive.

dTIMS

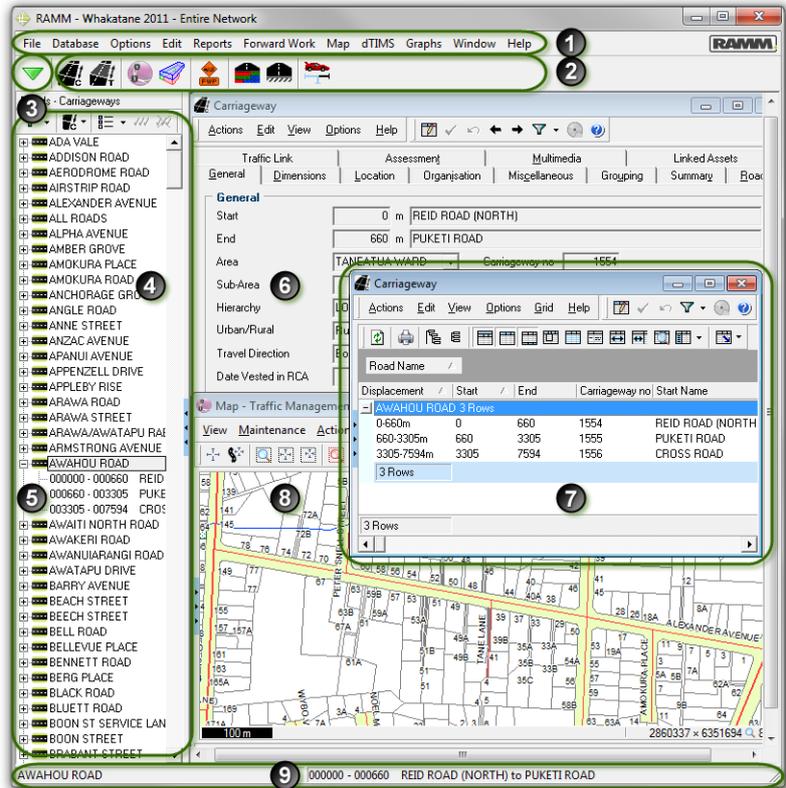
Deighton Total Infrastructure Management System (dTIMS) is a software tool used to model Pavement Deterioration. **RAMM** provides a method of extracting Treatment Length, Maintenance Cost and related data from the Road Network in a format that can be imported into dTIMS. You export information from **RAMM** for use in dTIMS, and then import the results of your analysis back into **RAMM**.

RAMM Web Service

A web service is software application supporting one software product to talk to another. You use the **RAMM** Web service to enable your CSRs (Customer Service Representatives) to use their customer service software to add a Job into **RAMM Contractor** for, say, a Street Light out, and to monitor the Job progress. Configuring access to the **RAMM Contractor** Web Service is the responsibility of the Network Owner.

The RAMM Main Screen

The **RAMM** main screen is your portal to your **RAMM** database. You should familiarise yourself with its main items.



No	Item	Comments
1	Menu Bar	This contains the standard drop-down lists with which all Windows users will be familiar.
2	Tool bar	This is a repository for shortcuts to the screens you use most often.
3	Show toolbar menu (screen selection drop-down list)	You press this button for the drop-down list to access all the RAMM Inventory, Condition and other data screens.
4	Roads list panel	This panel lists all the Roads in your Network. You can Filter this list to include only the group of Roads you require.
5	Expanded tree	You press  to expand the tree and reveal the Carrieway Sections for a Road.

6	Detail screen	Detail screens display the details for one RAMM Inventory, Condition or other data record. You edit the item details at the Detail screen.
7	Grid screen	Grid screens display the details for one or more RAMM Inventory, Condition or other data records. You use Grid screens for reporting and other purposes.
8	Map	The Map in RAMM is a wonderful tool for visualising your Network and updating it.
9	Status bar	This is where you look to see useful information about what you are doing.

RAMM Terminology

In **RAMM**, as with any software application, there are terms which have a meaning specific to the software. When you are working in **RAMM** you will encounter these terms. You should have an understanding of them before you do. Some of these terms are also used in the wider Road industry. The definitions below are specific to **RAMM**.

The following list is a minimum of the terms you need to understand before you start to work with **RAMM**. You can also look at the Glossary at the end of this guide for a more comprehensive list.

RCA

A Road Controlling Authority (RCA) is the organisation responsible for a particular Road Network. An example of an RCA could be the New Zealand Transport Agency (NZTA) or a TLA (Territorial Local Authority).

Network

A Network is a collection of Roads managed by a particular Road Controlling Authority (RCA). Each **RAMM** database usually contains all the information for one Network.

Road

For Local Authorities, a Road denotes a single named Road that is part of their Network. For State Highways, a Road is a segment of the State Highway. Roads may include associated Assets such as Pavement, Top Surface, and Shoulders. Assets such as Signs and Surface Water Channels are associated with a Road.

Carriageway

Roads in **RAMM** are divided into logical sections named Carriageways. These start and end at easily identifiable Locations such as Intersections and Bridges. You can define your Carriageway Sections to suit your own purposes. For instance you may define them to start and end when the number of Lanes in the Road changes or if the Road changes between Sealed and Unsealed sections. A Carriageway Section starts at one Displacement along the Road and ends at another Displacement. Carriageways define the lengths of Road against which other Assets can be referenced.

Displacement

Displacement is the distance along a Road measured from the start of the first Carriageway Section of the Road. It is stated in metres.

Location

Location refers to the collection of details used to position an Asset or Inventory item within a database. The most basic Location information is a combination of Road and Displacement. Location information can also include helpful notes such as nearby landmarks. Point Assets such as Signs have a Location field whose value is the Displacement of the Sign from the start of the Road.

Asset

An Asset is an item in a Network which has a value. It could be a physical component of a Road, such as its Surface. It could be something real such as a Bridge, a Footpath or a Street Light. Where no table exists in **RAMM** for one of your Asset Types, you set up a User Defined Table (UDT) to manage the Assets.

Nonasset

Nonassets are items for which screens exist in **RAMM** but which have no monetary value. They are generally something not physically present on the Road Network such as Roughness, Maintenance Cost and Crash. You can set up User Defined Tables (UDTs) to manage Nonassets which do not have their own screens in **RAMM**. Examples could be slips, hazards and certain Condition data.

Stock Asset

In **RAMM** the three Asset Types, Signs, Street Lights and Traffic Signals are referred to as Stock Asset Types. This is because, unlike the other Asset Types, when Signs, Street Lights and Traffic Signals Assets or components are replaced, a detailed record is kept of the replacements including the Replacement Reason. So you have an itemised list of the current and past Assets. You create Stock UDTs to manage those of your Assets (if any) which do not already exist in **RAMM** and for which you need to keep replacement records.

Network Inventory

Your Network Inventory is your **RAMM** database records including real items such as a Bridges and Footpaths as well as your Survey and other data such as Crashes and Bylaws. Your Condition data such as Roughness and your report data such as **RAMM** 3D do not form part of your Network Inventory.

Condition

The term Condition has two related meanings in **RAMM**. In **RAMM Assessment** the Condition of an Asset describes its fitness or readiness for use. Typical **RAMM** and NAMS Conditions are Excellent, Good, Average, Poor and Very Poor. Assessment Condition Weighting is used to determine Risk of Failure and the Consequences of Failure.

There are also Road Conditions which have their own **RAMM** screens. Roughness, High Speed Rutting and Skid Resistance are examples of **RAMM** items used to describe the Condition of your Roads.

You will be able to tell from the context in which it is used, which meaning of the term Condition is intended.

Assessment

An Assessment is the record of an inspection of an Asset. You use Assessments for a number of reasons including to record the Condition of an Asset or its associated Likelihood and Consequences of Failure (Risks). Rating and HSD are used to Assess Roads.

Rating

Rating is the process of recording the state of a Road by measuring the extent of the deterioration which has occurred. This includes factors such as the length of Cracking and Potholes. This is sometimes referred to as Condition Rating.

HSD

High Speed Data (HSD) is the collective name for particular properties and state of a Road as measured by specialised equipment mounted on a vehicle. The properties of the Road include its slope and curvature values. The state of the Road includes its Roughness and Skid Resistance values.

Treatment Length

A Treatment Length is a section of a Road with consistent performance and purpose. For example, it could have the same Top Surface material and Annual Average Daily Traffic (AADT) count along its length. A Treatment Length may have had similar Treatments applied along its length and is often different from its adjoining sections.

Treatment Lengths may coincide with Carriageway sections, but the same Carriageway section may have more than one Treatment Length. A Treatment Length may span more than one Carriageway section. Treatment Lengths will usually change over time, as conditions change.

Treatment Selection

A Treatment Selection is a recommended treatment for a Treatment Length to be carried out in the next twelve months. This recommendation can of course be No Treatment. Treatment Selections are generated in **RAMM** using the Treatment Selection Algorithm (TSA).

Log in to RAMM

You must log in to **RAMM** before you can use it.

You cannot log in to any of the **RAMM** applications unless you have a login name and a password. Once you have logged in you need appropriate Staff Permissions to carry out tasks related to your role.

Contact the Systems Administrator for the correct Staff Permissions to perform your normal tasks. See the Security chapter of the *Working with RAMM* guide.

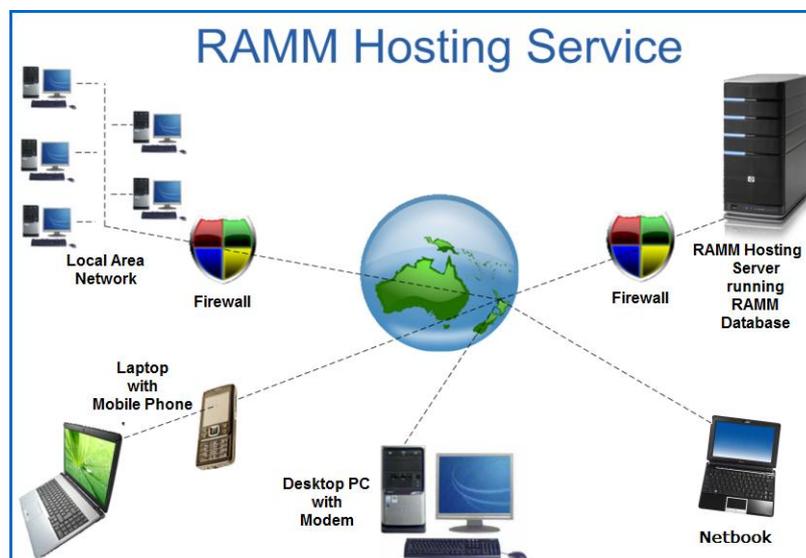
You log in to **RAMM** using the **RAMM** Hosting Service.

RAMM Hosting Service

The **RAMM Hosting Service** is a service run by **RAMM Software Limited**. It enables you to run **RAMM** across the Internet. It hosts your database and the software on a server at a centralised location. You use your standard internet browser to access the software and work with your data, so you do not need any specialised software. It is very secure.

You use the **RAMM Hosting Service** from anywhere with an internet connection.

The graphic below shows the the options to access **RAMM** using the **RAMM Hosting Service**.



Logging in to the RAMM Hosting Service

Introduction

You log in to the **RAMM Hosting Service** to access the **RAMM** applications.

Before you do this you need to have:

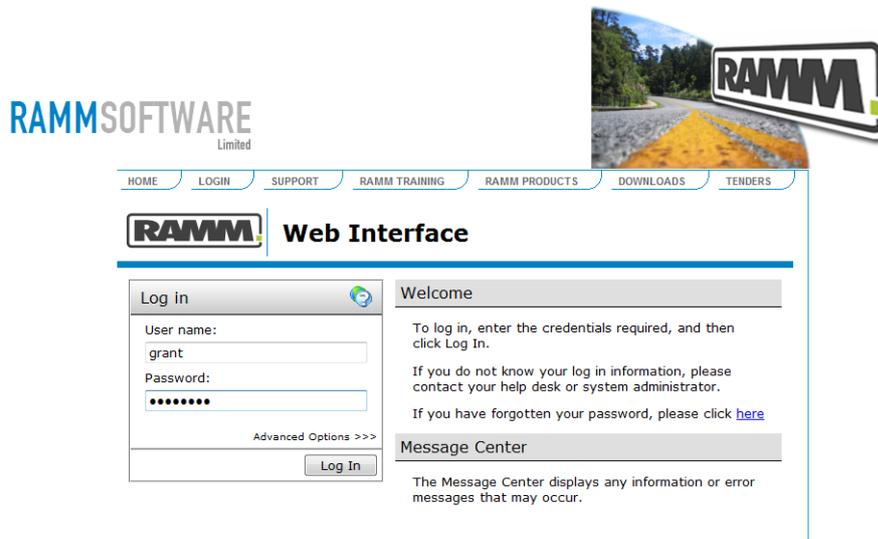
- been granted access with a username and password by **RAMM Software Limited**. To contact **RAMM Software Limited** for assistance, see Contact **RAMM Software Limited** (on page 28).

- Downloaded the MetaFrame Presentation Server Client for 32-bit Windows. You do this by clicking the link on the [RAMM Software Limited](#) website **Log in** page and following the instructions.
- opened your web browser such as Internet Explorer or Mozilla Firefox.

Menu Path

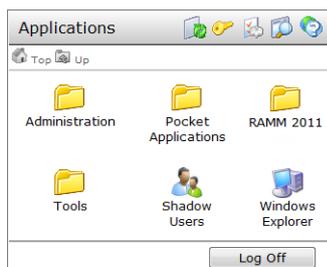
Follow the menu path [ramm.co.nz https://login.ramm.co.nz/](https://login.ramm.co.nz/) to open the **Log in** page.

► To Log in to the RAMM Hosting Service



To do this you follow these steps:

- 1 Type your username and password in the **User name:** and **Password:** fields.
- 2 Press **Log In**.
The **Applications** panel will open. What you see in the **Applications** panel will depend on your **Security Permissions**.



The icons you see in the **Applications** panel will depend on your **Staff Permissions**

- 3 Do you want to use **Pocket RAMM**?

Yes	go to step 4.
No	go to step 6.

- 4 Press the Pocket Applications icon.
The **Pocket RAMM** applications will become available.
- 5 Go to step 7.
- 6 Press RAMM 2011.
The Applications panel will open. The software icons will be available.



Again, the icons you see in the Applications panel will depend on your Staff Permissions

- 7 Press the icon for the **RAMM** software you want to use.
The **RAMM** software application will open. If you have access to more than one database, a dialog will open so that you can choose the database which you require.



NOTE

If you use an older version of Mozilla Firefox as your internet browser, a **Warning** telling you that you do not have the MetaFrame Presentation Server Client for 32-bit Windows will display as in the **Log in** page screen shot above. Once you have downloaded the software you can ignore this warning.

RAMM Help Options

The time will come when you will want to know more about **RAMM** so that you can be both more proficient and efficient. Use the following options to upskill:

- use the Help from within the software. See Context-sensitive Help (on page 22).
- use internet-based Help. See **RAMM** Help on the Internet (on page 24).
- read the **RAMM** documentation. See **RAMM** Guides and Manuals (on page 25).
- discover the **RAMM** tables and columns. See **RAMM** Database Details (on page 27).
- talk to other **RAMM** users. See Help from Other Users (on page 26).
- seek professional help. See Contact **RAMM Software Limited** (on page 28).



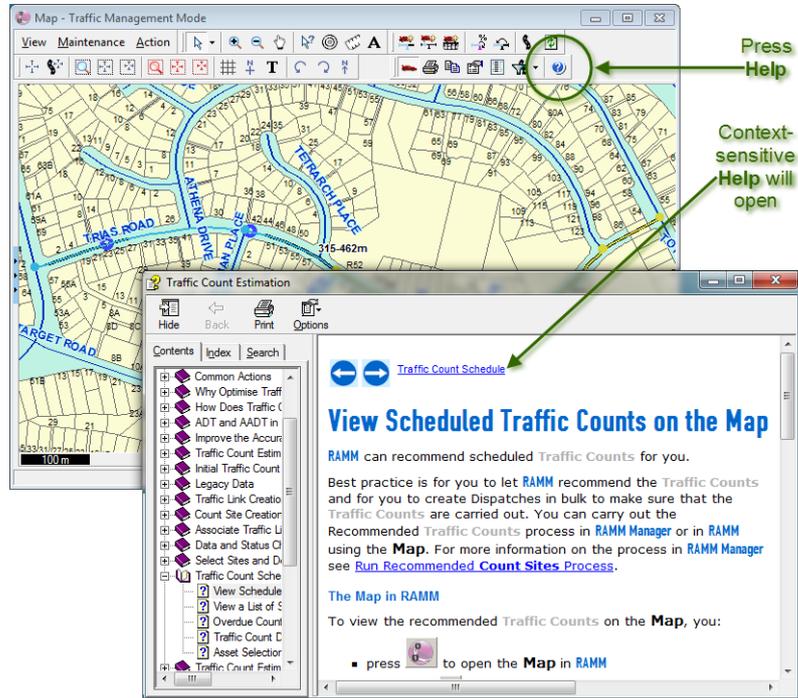
Context-sensitive Help

User assistance has been integrated into the **RAMM** applications.

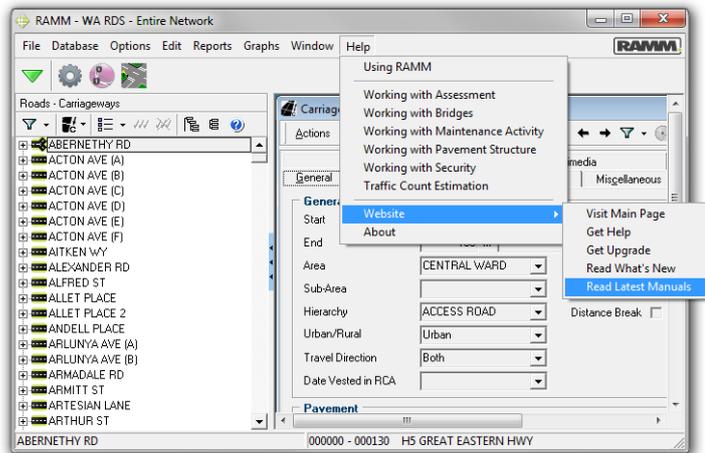
Most screens in **RAMM** have a Help  menu option. You press F1 on your keyboard or press Help  at the top of the screen to open the context-sensitive Help.

As you can see in the graphic below, when you press Help  at the top of the screen, one page in a .chm file will open. In this example information to enable you to view Scheduled Traffic Counts on the **Map** on **RAMM** is being offered.

If the information on the page does not solve your issues, you can navigate through the .chm file. Use the **Search** and **Index** to speedily locate the information you require.



If you still need further information you can follow the menu path Help > Website > Read Latest Manuals. This will take you to a list of the latest RAMM manuals and guides where you can search for answers.



RAMM Help on the Internet

The **RAMM** user guides and manuals are available from the [RAMM Software Limited](http://www.ramm.co.nz) web site (<http://www.ramm.co.nz>). They are generally available in both downloadable .pdf versions and in online Web Help versions.

Traffic Count Estimation Guide
 RAMM Traffic Count Estimation enables you to combine historical traffic information with intelligent Carriageway Section linking to produce a traffic counting and estimation programme which delivers the most Network coverage, the most accurate and up to date ADT Estimates for the minimum number of counts.

RAMM 2008 Best Practice Guide
 This guide is for Contractors and Network Owners who want to use RAMM Contractor and Pocket RAMM to manage the Roading Network in the most productive and efficient manner.

Best Practice for Assessment in Pocket RAMM
 You can now perform Assessments using from Pocket RAMM.
 Read this guide to see how.

Use this link to open a Web Help version of the manual

Web Help opens in your browser, is pretty and searchable, but prints only one page at a time

Use this link to download a .pdf file which is easily shared and printed

Web Help

The Web Help versions of the user guides and manuals are the primary versions you will want to use. They are available from the web site and so are available to you, so long as you have access to the internet.

The Web Help versions open in your internet browser and are very attractive. They are fully searchable. They have both a table of contents and an index for quick access to the information you want.

Their only disadvantages are that you can print only one page at a time and they are not available to you when the internet is not available.

PDFs

The .pdf versions of the user guides and manuals are useful mainly if you want to print complete documents or large portions of them.

Also, the .pdfs may be useful if you want to keep your own copy of the manual on your desktop or mobile device.

Google Search

If you type a question into the Google search, this will sometimes return the information you are after. This can be hit or miss.

RAMM Guides and Manuals

RAMM Software Limited offers useful guides and manuals to enable you to maximise the benefits to you of using RAMM.

Release Notes

Users who want to know what is in the latest version of RAMM should read:

- **What's New in RAMM 2011 (Web Help)**
This is a detailed description of the changes and improvements to the RAMM software suite in the 2011 release. In particular, it is the changes to Assets, Data, Finance, Patrols, Reports, Roads and Traffic Count Estimation, which are featured. The Web Help version of this document is fully detailed and fully searchable.

Basic Help

Users who are new to RAMM need to understand the RAMM basics to maximise their experience with the software. They should read the following RAMM primer as it includes very helpful introductory information:

- **Using RAMM**
This is a basic help guide introduction to RAMM. It covers the essentials, common tasks, procedures as well as Mapping and Decision Cube functions. There is a comprehensive explanation of the RAMM tool bar controls.

Advanced RAMM Functions

Users familiar with RAMM and ready for its more advanced functions should read:

- **Best Practice for Assessment in Pocket RAMM**
This guide shows how you can set up Assessments for Pocket RAMM and record your Assessments in the field. This guide is available online only.
- **Managing RAMM**
This advanced guide includes sections on Skid Resistance, Treatment Selection and Auditing Survey data. It has not been updated recently. This guide is available online only.
- **RAMM Assessment**
This guide is for those who manage and record Assessment Inspections of Network Assets, enter the results into RAMM and generate analyses of Condition and Risk.
- **RAMM Asset Valuation**
This advanced guide to the Asset Valuation process covers valuing a Road Network and calculating Replacement Costs.
- **RAMM Forward Work Programme**
This guide is for those who use RAMM Forward Work Programme (FWP) - also known as NOMAD. It is an advanced tool for forecasting and analysis.

- **Traffic Count Estimation**
This guide explains the set up and use of the **RAMM** Traffic Count Estimation System.
- **Working with RAMM**
This is an advanced help guide for power users of **RAMM**. Use this guide only if you have a good working knowledge of **RAMM**, its Assets, the database structure and key components such as Treatment Lengths. This guide covers: User Defined Assets, Surfaces, **RAMM SQL**, Bridges, Maintenance Activity, Pavement Structure, Pavement Strength and **RAMM** Security.

RAMM Contractor Guides

Those users who need to know how to use **RAMM Contractor** should read the following manuals:

- **RAMM Best Practice**
This guide gives step-by-step instructions on how to run a Programmed Maintenance Contract in **RAMM Contractor**. It is available as a .pdf or .xhtml file but not as a printed manual.
- **RAMM Contractor**
This guide is for those Road Maintenance Contractors and Network Owners who use **RAMM Contractor** software. It covers setting up Contracts, managing Dispatches, generating Claims for work done and reporting on Contract activities.

Printed Manuals

RAMM Software Limited is happy to provide you with printed manuals to which you can refer at your convenience.

There is a small charge for additional copies of the manuals. Printed manuals do not require access to a computer or the Internet and are ideal for browsing, reference or learning about something in depth.

There are a number of guides which are available to **RAMM** users. The following list includes those most used and gives a brief overview of what they cover. For a full list of available guides, see the **RAMM Software Limited** web site Documentation page (<http://www.cjntech.co.nz/index.php?section=55>).

Help from Other Users

Other users can be a mine of information.

If there are other users in your organisation, you should approach them if they perform the same tasks as you do or if they have been using **RAMM** for longer than you.

They probably know shortcuts, tips and tricks which they can teach you. Don't reinvent the wheel. Talk to someone who knows more than you.

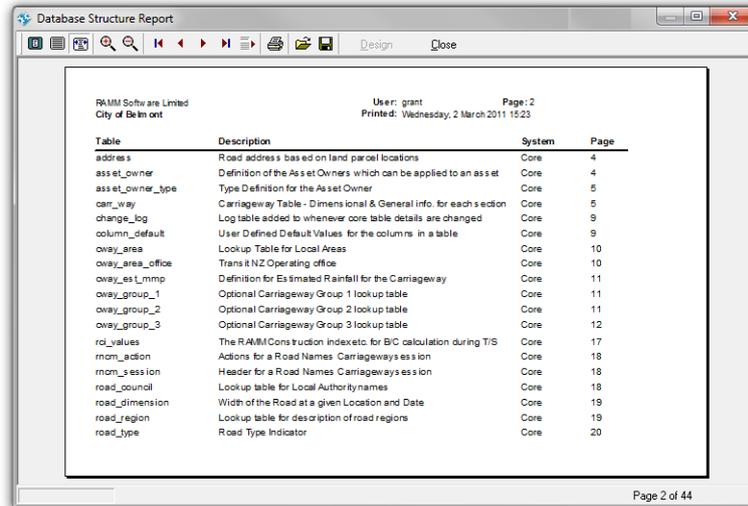


RAMM Database Details

When you begin to carry out more complex tasks, you will need to know where specific details are stored in the **RAMM** database. These details are available in the Database Structure report.

The Database Structure report is a listing of all tables and columns in the **RAMM** database. It is available from the **RAMM Manager** main menu. You follow the menu path Reports > Database Structure.

You then choose the tables you wish to view and then press Preview or Print to view or print the report.



Database Structure Report

RAMM Software Limited
City of Belmont

User: grant
Printed: Wednesday, 2 March 2011 15:23

Page: 2

Table	Description	System	Page
addresses	Road addresses based on land parcel locations	Core	4
asset_owner	Definition of the Asset Owners which can be applied to an asset	Core	4
asset_owner_type	Type Definition for the Asset Owner	Core	5
carrieway	Carrieway Table - Dimensional & General info. for each section	Core	5
change_log	Log table added to whenever core table details are changed	Core	9
column_default	User Defined Default Values for the columns in a table	Core	9
oway_area	Lookup Table for Local Areas	Core	10
oway_area_office	Transit NZ Operating office	Core	10
oway_est_mmp	Definition for Estimated Rainfall for the Carrieway	Core	11
oway_group_1	Optional Carrieway Group 1 look up table	Core	11
oway_group_2	Optional Carrieway Group 2 look up table	Core	11
oway_group_3	Optional Carrieway Group 3 look up table	Core	12
rdi_values	The RAMM Construction Index etc. for B/C calculation during T/S	Core	17
road_action	Actions for a Road Names Carrieway session	Core	18
road_session	Header for a Road Names Carrieway session	Core	18
road_council	Lookup table for Local Authority names	Core	18
road_dimension	Width of the Road at a given Location and Date	Core	19
road_region	Lookup table for description of road regions	Core	19
road_type	Road Type Indicator	Core	20

Page 2 of 44

Contact RAMM Software Limited

Internet

This is the link to open the [RAMM Software Limited](http://www.ramm.co.nz) web site (<http://www.ramm.co.nz>).

Email

This is the link to send an email to [RAMM Support](mailto:support@ramm.co.nz) (<mailto:support@ramm.co.nz>).

This is the link to send an email to [RAMM Documentation](mailto:documentation@ramm.co.nz) (<mailto:documentation@ramm.co.nz>).

Phone

+ 64 9 475 0500

0800 256 832 from within New Zealand only

1800 196 213 from within Australia only

Fax

+ 64 9 475 0501

Postal Address

PO Box 302 278
North Harbour
Auckland 0751
New Zealand

Physical Address

102 Rosedale Road
Albany
Auckland
New Zealand

Comments and Suggestions

If you have any feedback about this document or about the software itself, please contact [RAMM Software Limited](#) at whichever address above is convenient to you. Your observations and suggestions are welcome. Your feedback is an important element in improving and updating the [RAMM](#) experience.



Why Optimise Traffic Data in RAMM?

There are many compelling reasons to ensure that you have the most accurate Estimates of traffic volumes for your Roads. Traffic data is used for funding issues, traffic management, network planning and cost effectiveness.

In This Chapter

Funding.....	32
Traffic Management.....	32
Planning.....	32
Cost Effectiveness	32

Funding

One of the factors which funding agencies use to grant funds is traffic volume. In general terms, the greater the traffic volumes on your Network of Roads, the greater your share of the available funds will be.

Funding agencies have auditors to check the accuracy of the information provided to support funding applications. The **RAMM Traffic Count Estimation** model is particularly robust when correctly implemented.

Traffic Management

You will want to ensure that your traffic management resources are directed to those areas of your Network of Roads with the greatest traffic volumes. The **RAMM Traffic Count Estimation** model is gives particularly accurate Estimates of traffic volumes when correctly implemented. This enables you to identify the high volume areas and to prioritise your traffic management resources.

Planning

When making decisions concerning intersection controls and Traffic Management Plans for Road works and other traffic disruptions, the level of planning and control will vary dependent on the traffic volumes. More accurate traffic Estimates allow you to plan with confidence.

Cost Effectiveness

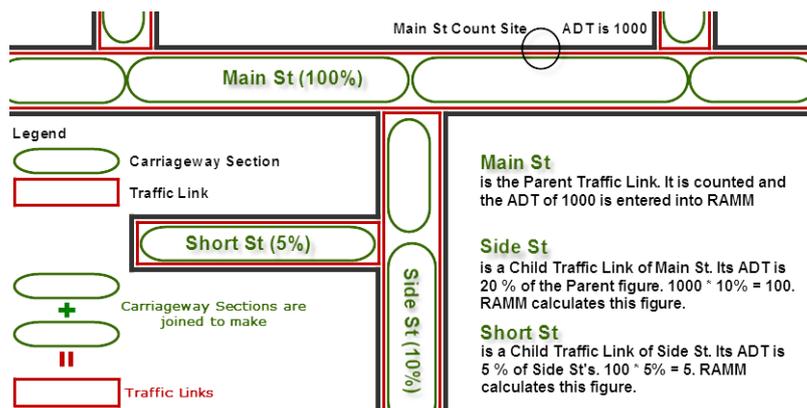
You will have a budget for counting traffic volumes on your Network of Roads. The **RAMM Traffic Count Estimation** model, when correctly implemented, has the potential to maximise the outcomes from your traffic counting budget. You may require fewer actual **Traffic Counts**. The greater likelihood is that rather than reduce the amount you spend on counting traffic volumes, you will be able to schedule the **Traffic Counts** for greater cost effectiveness.

How Does Traffic Count Estimation Work?

RAMM uses the **Traffic Link** model in which **Traffic Counts** at one Location are automatically linked to other Locations. This increases the coverage of the **Traffic Count** programme. Count values are adjusted using Correction Factors.

In the graphic below the Main St Carriageway Sections link together to form a **Traffic Link**. The Side St **Traffic Link** is associated with the Main St **Traffic Link**. Its ADT is defined as ten per cent of Main St's. Short St **Traffic Link** is associated with Side St **Traffic Link** and its ADT is five per cent of Side St's.

So if a Count taken at the **Count Site** on Main St results in an ADT of one thousand then, subject to Correction Factors, Side St will have an ADT of one hundred (ten per cent of one thousand) and Short St will have an ADT of five (five per cent of one hundred).



In This Chapter

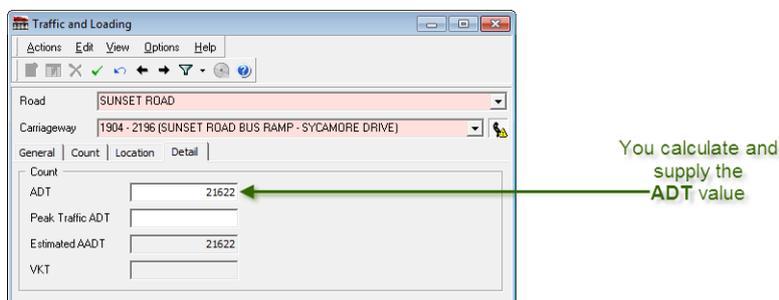
Traffic Counts and Traffic Links	34
Count Sites and the Counting Programme	35

Traffic Counts and Traffic Links

Traffic Counts are taken at a point Location. These Locations are recorded in the **RAMM** databases and are referenced in terms of:

- the Road identification and
- a displacement in metres from the start of that Road to the Location at which the **Traffic Count** was undertaken.

The **Traffic Count** is converted to an Average Daily Traffic (ADT) value. This is the value which is entered into **RAMM** in the ADT field in the Count section of the Detail tab on the **Traffic and Loading** screen.



The ADT value on the Carriageway Section that has been counted can then be used to update the ADT Estimates on any adjacent Carriageway Sections which carry the same or similar traffic volumes. This is achieved by linking the Carriageway Sections.

The linked Carriageway Sections are called **Traffic Links**.

Traffic Links

The **Traffic Link** model allows aggregation of adjacent **RAMM** Carriageway Sections that carry essentially the same traffic. This approach has two significant benefits:

- it maximises the Network coverage of the count programme, particularly if it can be automated
- it reduces the size of the sampling framework.

A **Traffic Count** undertaken at any Location on a **Traffic Link** is then used to derive the Estimated ADT for all **RAMM** Carriageway Sections that form the **Traffic Link**. In addition it is also possible to relate one **Traffic Link** to another. For example it is possible to specify that the ADT on link A will always be 10% of that recorded on link B. In this way it is only necessary to undertake **Traffic Counts** on link B.

Count Sites and the Counting Programme

Once you have created your [Traffic Links](#) you then create a Network of [Count Sites](#), taking into account that you need to count an entire [Traffic Link](#) only once as the count applies to the entire length of the [Traffic Link](#) and any associated with it.

You select the initial [Count Sites](#) using the Locations where existing counts were taken as well as sites recommended by [RAMM](#). See [Generating Recommended Count Sites](#) (on page 104) and [Saving Recommended Count Sites](#) (on page 107).

Traffic Count Programme

Best practice is to count traffic on all [Count Sites](#) every year. So you would place all [Count Sites](#) in the Core Monitoring - Annual Group 1 Sample Group. However, budget and time constraints may prevent the taking of [Traffic Counts](#) on every [Count Site](#) every year. If so, you optimise the [Traffic Count](#) programme by grouping [Count Sites](#) based on how often they should ideally be counted. See [Select Sites and Develop a Programme](#) (on page 131).

There are nine Sample Groups in [RAMM](#). They are:

- **Core Monitoring – Annual Group 1**
These sites are the most important and are counted every year
- **Biannual Group 2**
These are the second most important and are counted every alternate year when Biannual Group 3 is not being counted
- **Biannual Group 3**
These are the second most important and are counted every alternate year when Biannual Group 2 is not being counted
- **Five Yearly - Year 1**
These are less important and are counted in the first year of a five year sequence
- **Five Yearly - Year 2**
These are less important and are counted in the second year of a five year sequence
- **Five Yearly - Year 3**
These are less important and are counted in the third year of a five year sequence
- **Five Yearly - Year 4**
These are less important and are counted in the fourth year of a five year sequence
- **Five Yearly - Year 5**
These are less important and are counted in the fifth year of a five year sequence
- **Ad Hoc**
These are all the other sites which are available should extra counts be required

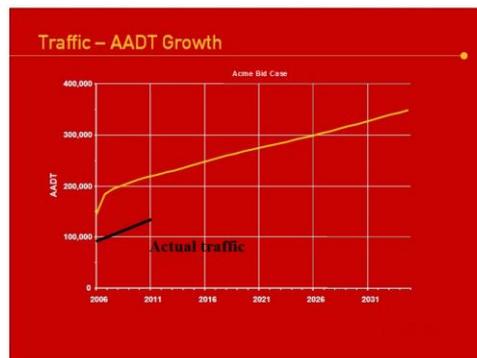
The creation of [Traffic Links](#) means that selecting [Count Sites](#) and developing a new more efficient traffic counting programme is made simpler.

ADT and AADT in RAMM

The Annual Average Daily Traffic (AADT) is a figure to describe traffic levels for the length of a Network. It is used in many ways throughout RAMM and by the regulatory authorities. Potentially, it could be used to determine whether Speed Limit Signs were required. For instance, if the AADT Estimate for a Road did not exceed 500 vehicles per day, a Sign could be required on the left hand side. If it were greater than 500, a Sign on the right hand side or in the centre could also be required.

This figure is calculated from the Average Daily Traffic (ADT) value.

ADT, is a measure used primarily in transportation planning and transportation engineering. It is the total volume of vehicle traffic of a Highway or Road for a year divided by 365 days. ADT is a useful and simple measurement of how busy the Road is. It is also sometimes reported as Average Annual Daily Traffic.



In This Chapter

ADT Estimate Calculation.....	38
ADT Calculation Factors.....	40

AADT Calculation..... 41

ADT Estimate Calculation

The Average Daily Traffic (ADT) value is critical to the [Traffic Count Estimation](#) process.

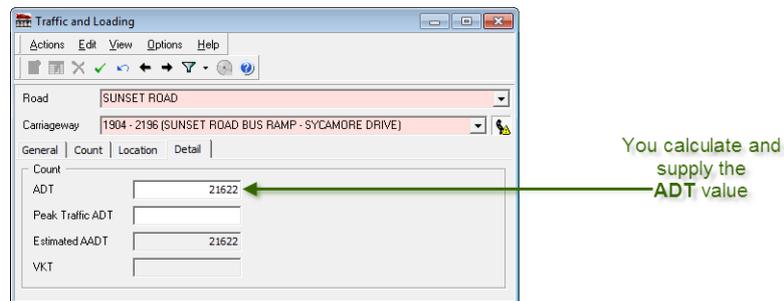
You calculate the ADT from the counts you have taken. For instance, if the result of a seven day [Traffic Count](#) were 7,000 vehicles, then you would calculate the ADT as 1,000.

General Section of the Traffic Screen

You then enter the value in the ADT field in the General section of the **Traffic and Loading** screen as below.

RAMM converts ADT count values into ADT Estimates by taking into account the Duration, Time of Day, Week Number, Season, the Day of the Week and the Growth Profile of the [Count Site](#).

It does this when you run the Status Check process. See [Update Traffic Counts and Estimates](#) (on page 230).



General Tab of the Traffic Link Screen

So, the ADT value of 21,622 which you calculated and entered in the **Traffic and Loading** screen above becomes an ADT Estimate.

This has the value of 22,806 in the examples below.

One place this becomes available is at the General tab of the **Traffic Link** screen, as below after you have run the Status Check.

General	
Description	SUNSET ROAD 243 to 753 m Traffic Link 276
AADT Estimate Band	High
Road Type	Urban Arterial/Commuter
Growth Group	Growth 1
ADT	22806
Percentage Heavies	5 %
ESA Heavies	1.064

This is the ADT value after it has been adjusted during the Status Check process (the Traffic Link screen)

The Traffic Link Tab of the Carriageway Screen

The ADT value of 21,622 also becomes an ADT Estimate value of 22,806 at the Traffic Link tab of the **Carriageway** screen as below, after you have run the Status Check.

General	Dimensions	Location	Organisation	Miscellaneous	Grouping	Summary
Road		Traffic Link		Multimedia		
Traffic Link	SUNSET ROAD 243 to 753 m					
ADT	22806					
Road Type	Urban Arterial/Commuter					
Growth Group	Growth 1					

This is the ADT value after it has been adjusted during the Status Check process (the Carriageway screen)

The Summary Tab of the Carriageway Screen

The ADT value of 21,622 is recorded at the Count field along with the date of the Latest Count.

This will remain until another **Traffic Count** is taken on the Carriageway Section.

The ADT Estimate value of 22,806 is recorded at the Estimate field along with the date on which the Status Check was most recently run to produce this Latest Estimate.

These values are on the Summary tab of the **Carriageway** screen as below, after you have run the Status Check.

General	Dimensions	Location	Organisation	Miscellaneous	Grouping	Summary
Traffic						
Count	21622 ADT	Date	25/08/2008			
Estimate	22806 ADT	Date	30/09/2008			

Latest Count and Estimates are kept as are the Dates



RAMM determines the traffic growth on a daily basis.

This means that your ADT Estimate can be different from the actual count even though they are determined in the same year. There is an example of this in the graphic above where the dates of the Count and Estimate are one month apart.

ADT Calculation Factors

The Average Daily Traffic (ADT) Estimate is used within **RAMM**. The method for calculating the Traffic ADT Estimate for Carriageway Sections is designed to derive values from the actual count data.

ADT Estimate

Firstly, an ADT Estimate is calculated based on the most recent actual count within the [Traffic Link](#) or an associated [Traffic Link](#).

Part Day Count Calculation

If the actual count which has taken place was for only part of a day this would have been for a three hour period either in the morning or the afternoon. When dealing with a Part Day count, the ADT Estimate for the [Traffic Link](#) will be calculated as follows.

$$\text{ADT} = \text{Traffic} \times \text{Part Day} \times \text{Week Day} \times \text{Week Number} \times \text{Region} \times \text{Season Profile} \times \text{Traffic Growth}$$

Full Day Counts

If the actual count has been for the full day, then the ADT Estimate for the [Traffic Link](#) will be calculated as follows.

$$\text{ADT} = \text{Traffic} \times \text{Week Day} \times \text{Week Number} \times \text{Region} \times \text{Season Profile} \times \text{Traffic Growth}$$

Full Week Counts

If the actual count has been for a full week, then the ADT Estimate for the [Traffic Link](#) will be calculated as follows.

$$\text{ADT} = \text{Traffic} \times \text{Week Number} \times \text{Region} \times \text{Season Profile} \times \text{Traffic Growth}$$

Traffic Growth

You will see that the formulae above use a Traffic Growth Factor. This is required when the latest actual count is not current. In order to get an ADT Estimate any growth in Traffic volumes since the date of the count must be taken into account.

Traffic Links are associated with a Growth Group and so in order to calculate the Traffic Growth for a given **Count Site** **RAMM** looks at the previous count history at all **Count Sites** within the same Growth Group. Looking at all the counts over time at each site **RAMM** works out the Traffic Growth for each consecutive pair of actual Counts using the following calculation.

$$\% \text{ Growth} = ((\text{Count} - \text{Previous Count}) / \text{Previous Count}) / \text{No of Days between Counts}$$

This calculation is repeated for each consecutive pair of counts within a **Count Site** and again for each **Count Site**. The actual Traffic Growth that is an average of each of these calculated figures. The average Traffic Growth can then be applied to ADT calculated using one of the above methods.

Multiple Traffic Count Sites

If more than one **Count Site** is associated with a **Traffic Link** then **RAMM** will go through the appropriate processes in order to calculate an ADT Estimate from each. These values will then be averaged in order to get one value for the **Traffic Link**.

AADT Calculation

The Annual Average Daily Traffic (AADT) value is not stored anywhere in **RAMM**. It is calculated when it is required. It is used in the Network VKT calculation.

Vehicle Kilometres Travelled (VKT) is the total kilometres travelled by motor vehicles on a Road Network during a given period of time. VKT is an important variable in the analysis of traffic density, highway safety and other areas. VKT can equally be applied to **Traffic Links**. However, VKT for **Traffic Links** is not explicitly recorded in **RAMM**.

$$\text{AADT} = \text{ADT Estimate} \times 365$$

$$\text{VKT} = (\text{AADT} \times \text{Carriageway length in metres}) / 1,000$$

Improve the Accuracy of ADT Estimates

There are two issues that directly impact on the accuracy and currency of the ADT Estimate recorded in **RAMM**. You should keep these in mind when implementing **RAMM Traffic Count Estimation**. They are:

- 1 is the traffic being counted at the right Location
- 2 is the process of converting **Traffic Counts** to ADT Estimates robust?

In order to ensure that the best possible Estimates of ADT are available for each counted site, each **Traffic Link** is allocated a Road Type and a Traffic Growth Group. The Road Types have factors to correct for the time of day, day of the week, week of the year, Region and Season Profile. A Traffic Growth Group is a group of **Traffic Links** that are believed to have approximately the same level of traffic growth from year to year. **RAMM** averages the actual **Traffic Counts** for **Count Sites** on **Traffic Links** in the Traffic Growth Group and uses the results when updating ADT Estimates.

Each **Count Site** is allocated to a Sample Group to determine how often a **Traffic Count** should occur at the site.

These groups allow **RAMM** to automatically adjust a traffic survey to reflect the expected seasonal variation in traffic. They provide a means of automatically updating Estimates to a particular date.

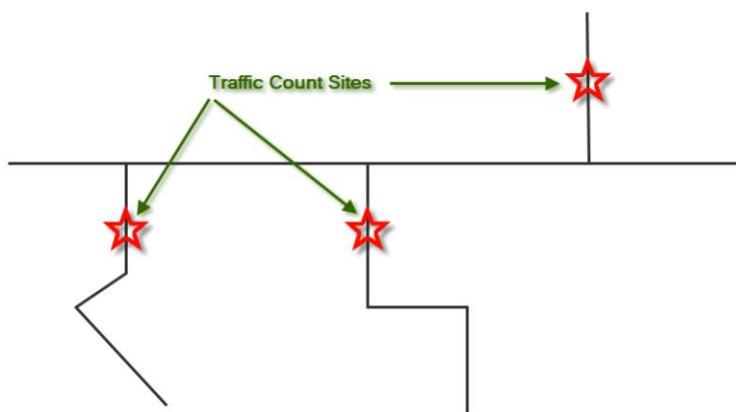
In This Chapter

Select Count Sites	44
Season Profiles for Road Types	45
Road Type Selection Process	47
Traffic Growth Groups	48
Other Factors	49

Select Count Sites

Traffic Counts are undertaken at a specific Location. It should be a Location that is representative of the Traffic Link as a whole.

It is not possible to assess how representative the traffic volume recorded at the Traffic Counts is. There is considerable potential for the practical aspects of traffic counting to introduce significant bias.



To help address this issue RAMM identifies the historical traffic counting sites on a particular Traffic Link and, if there are no sites, will recommend a possible Location.

This is only an indicative recommendation based on a simple random distribution of Locations along uncounted links. The purpose of this tool is to provide a first cut of Locations that will assist in reducing systematic bias.



It is important to note that the recommendations take no account of the actual conditions on the link. There is no specific requirement to adopt the recommended Location for a new Count Site.

Where there have been multiple Traffic Counts on a Traffic Link, or where for some other purpose, such as monitoring a screen-line, there is a desire to undertake multiple Traffic Counts on a Traffic Link, the ADT Estimation route will use all seasonally adjusted counts on that link to establish the ADT Estimate.

Season Profiles for Road Types

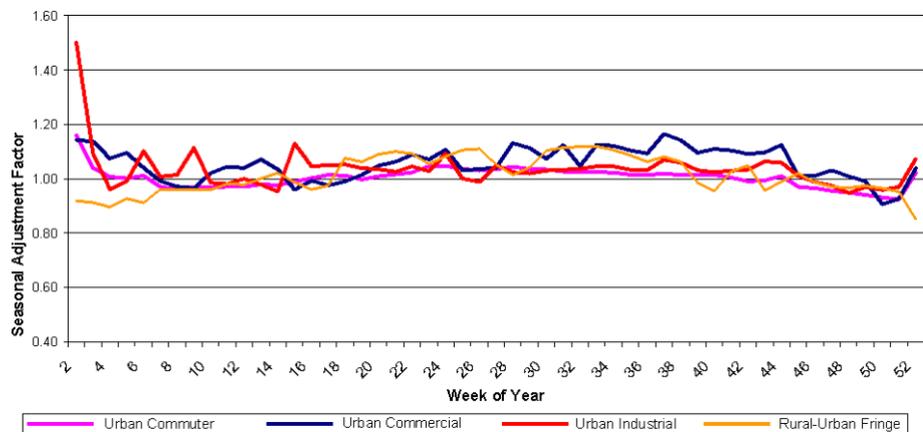
Traffic volumes on particular [Traffic Links](#) vary throughout the year. This seasonal variation depends on the function of the [Traffic Link](#). For example, a Road to a popular beach is likely to be used more in the summer months than in the winter. Conversely a Road servicing an industrial area will typically carry less traffic during the weekend and over the Christmas to New Year period. So the traffic counted in a particular week may not accurately represent the Average Daily Traffic (ADT).

An analysis of the seasonal variation in traffic volumes for different Roads suggests that there are at least seven very different [Season Profiles](#). These typical profiles provide seasonal adjustment factors that can be applied to the [Traffic Count](#) undertaken in a particular week to provide a better Estimate of the ADT. Selection of the most appropriate profile for a particular [Traffic Link](#) should be based on a comparison of the predefined [Season Profiles](#) and the actual seasonal profile of the [Traffic Link](#). You should use the Road Type selection process flow diagram to assist in making this decision. See Road Type Selection Process (on page 47). However, when using this diagram, it is important to remember that the questions and answers relate to the [Season Profile](#) of the traffic on the Road, not to the type of Road or its allocation in a Road hierarchy.

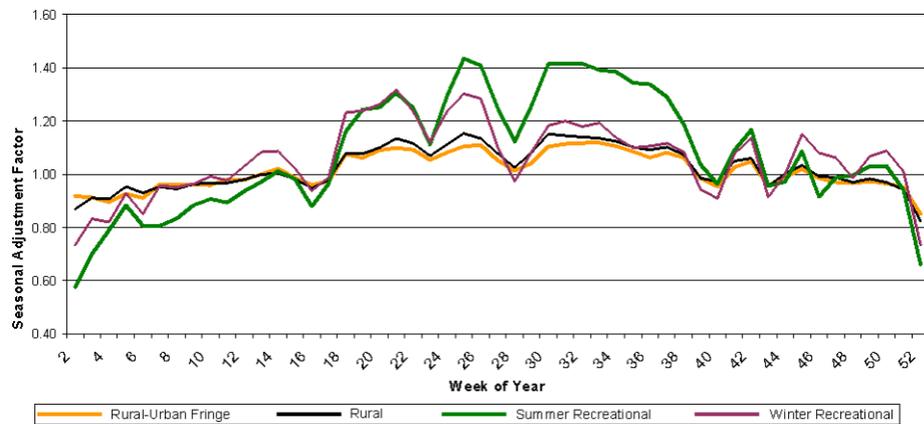
Associate Profiles with Traffic Links

Each [Traffic Link](#) should be associated with one of the profiles shown in the graphics below.

Urban Profiles



Rural and Recreational Profiles



The Season Profile is used to seasonally adjust the [Traffic Counts](#) undertaken at the [Count Site](#) to provide a more reliable Estimate of ADT. [Traffic Count](#) values will automatically be multiplied by an adjustment factor to produce a seasonally adjusted Estimate of ADT.

The adjustment varies from those recorded in the graphic above, depending on the region of the RCA and the AADT Estimate for the site - Low, Medium, or High. An AADT Estimate is chosen for each [Traffic Link](#) at the link model stage. See **Correction Factors** Screen (on page 212).

The typical Season Profiles are already in **RAMM** but it is possible to create your own, if you have sufficient data. You associate a Season Profile **Road Type** for each [Traffic Link](#) based on your Network knowledge. Seven different types of Season Profile have been defined. Each has been associated with a Road Type:

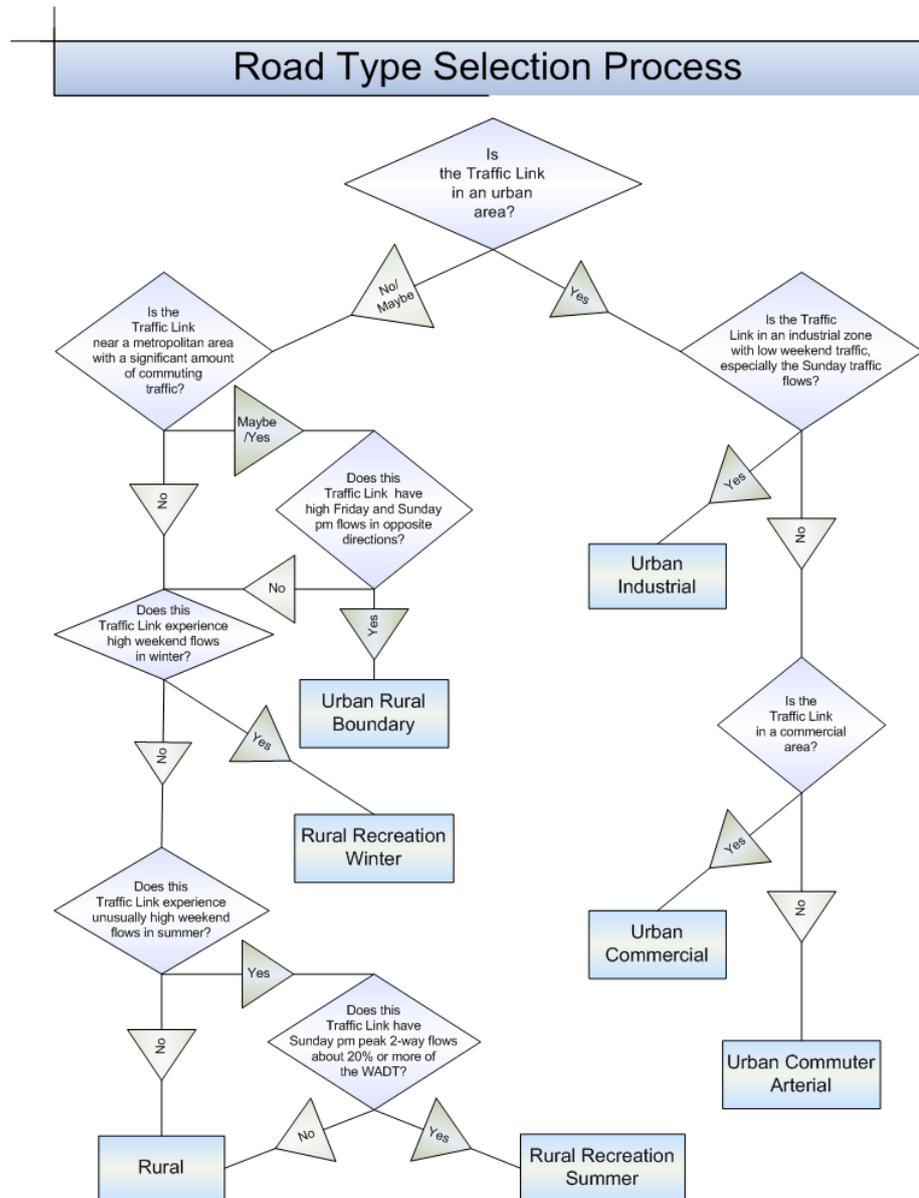
- Urban Commuter
- Urban Commercial
- Urban Industrial
- Rural/Urban Fringe
- Rural
- Summer Recreational
- Winter Recreational.



You should be aware that it is the expected shape of the Season Profile that is important, not the name it has been given.

Road Type Selection Process

Use the following flowchart when you are deciding the correct Road Type for a Traffic Link.



Traffic Growth Groups

One aspect of the Average Daily Traffic (ADT) Estimates process which you may consider for improvement is the regular updating of the Estimates. In many instances prior to the introduction of **RAMM Traffic Count Estimation**, count data has been added to the database but the Estimates have not been updated.



Not updating the ADT Estimates can pose problems if you use software such as dTIMS which uses the Estimates not the counts.



Traffic Count Estimation uses Growth Groups to solve this issue.

Each **Traffic Link** is allocated to a Traffic Growth Group. This is a group of **Traffic Links** that are believed to have approximately the same level of traffic growth from year to year.

This allows a previous ADT Estimate at a site that has not been counted in the current year to be updated using the average traffic growth recorded at other similar sites that have been counted. The same mechanism ensures that all Estimates are updated to the current date.



NOTE

When calculating the traffic growth for a Traffic Growth Group, **RAMM** finds all the actual Traffic Counts for Count Sites on Traffic Links in the Traffic Growth Group. It then averages the growth factors for all these Traffic Counts except that it ignores any which are greater than one and one half standard deviations above or below the mean growth for the group.

This feature is particularly important in situations where the Rotational Sample is monitored over a two year period, but will be of general use when seeking to keep all ADT Estimates up to date.

A single default Traffic Growth Group is entered for each **Traffic Link** when you create the **Traffic Links**. You can update this value later. Best practice is to update the Growth Group values when associating the **Traffic Links**. See Updating **Count Site Sample Group Values** (on page 122).

Other Factors

As well as the Season Profiles and Growth Groups, there are other factors taken into account when **RAMM** generates the ADT Estimates during Status Check. They are:

- **Part Day Factors**

Some **Traffic Counts** are for only part of a day. **RAMM** can accept data from three hour counts and uses different factors for the morning and the afternoon.
See **Part Day Factors** (on page 213).

- **Week Day Factors**

Estimates generated by **RAMM** on the basis of a **Traffic Count** of 3 Hour or 24 Hour duration will differ dependent on the day of the week on which they were performed. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account.
See **Week Day Factors** (on page 214).

- **Week Number Factors**

Estimates generated by **RAMM** on the basis of a **Traffic Count** of 3 Hour, 24 Hour or 7 Day duration will differ dependent on the week of the year in which they were performed. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account.
See **Week Number Factors** (on page 215).

- **Region Factors**

Estimates generated by **RAMM** on the basis of a **Traffic Count** will differ dependent on the Region in which they were performed. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account.
See **Region Factors** (on page 216).

Traffic Count Estimation Set Up

There is a process to follow in order to set up **RAMM** Traffic Count Estimation. You must:

- turn on Traffic Management
- set initial Traffic Count Estimation parameters
- fix your existing traffic data
- create Traffic Links
- create Count Sites
- associate the Traffic Links with each other
- update the Traffic Count and Estimate data
- schedule your Traffic Count programme
- create your Traffic Count dispatches.

The process is detailed further below in the Traffic Count Estimation Set Up Process.



Best practice is to set up Traffic Count Estimation from the **Map** within **RAMM**. If you are not familiar with the **Map** you should read the Mapping chapter of the *Using RAMM* guide.

You may also find it useful to read the chapter in this guide which reveals the **Map** functions which relate to Traffic Count Estimation. See Traffic Count Estimation and the **Map** (on page 175).

In This Chapter

Traffic Count Estimation Set Up Process	52
---	----

Traffic Count Estimation Set Up Process

You follow the steps in the order as below. This is ensure that all the prerequisites for each individual procedure have been carried out before you attempt it.

Follow these steps to set up **RAMM** Traffic Count Estimation for your database.

Step	Action	Comments
1	Run Status Check to update Latest Counts and Estimates.	<p>Prior to activating Traffic Count Estimation you should run the Status Check. Select the Set most recent flags for Traffic and Loading Data option. Then when you are setting up Traffic Links and other items you will be using the most up-to-date ADT Estimate data.</p> <p>You run Status Check in RAMM Manager at the Status Check screen.</p> <p>See Update Traffic Counts and Estimates (on page 230).</p>
2	Activate Traffic Count Estimation .	<p>You can implement Traffic Count Estimation only after it has been Activated. Activation makes all the required functions and processes available in RAMM, RAMM Manager and RAMM Network Manager. You turn on the processes you require.</p> <p>You Activate Traffic Count Estimation at the Processes tab of the Parameter screen.</p> <p>See Activating Traffic Counting Processes (on page 61).</p>
3	Set initial Traffic Count Estimation parameters.	<p>You set initial parameters so that Traffic Count Estimation is implemented to match your circumstances. First you select your Region and Road Council. Next you define the number of years of your most recent Count data you want to be taken into account when setting up RAMM Traffic Count Estimation. The major decision you take is to determine the percentage of your Network VKT that you want to count.</p> <p>You do this in RAMM Manager at the Traffic Counting tab of the Parameter screen.</p> <p>See Setting Traffic Counting Parameters (on page 67).</p>

Step	Action	Comments
4	Fix your legacy data.	<p>Some traffic records which existed prior to the set up and use of RAMM Traffic Count Estimation will be missing the data required to enable it to work properly.</p> <p>You do this in RAMM at the Filter Road Details - Traffic dialog.</p> <p>See Fixing Missing Count Duration Data in Bulk (on page 76).</p>
5	Generate Recommended Traffic Links .	<p>You can manually create your own Traffic Links for your database. However, it is more efficient to accept the RAMM Recommended Traffic Links which are contiguous Carriageway Sections from the same Road that have the same Average Daily Traffic (ADT) Estimate value, plus or minus 10%.</p> <p>You do this in RAMM at the Map.</p> <p>See Generating Recommended Traffic Links (on page 87).</p>
6	Save the Recommended Traffic Links .	<p>Once you have created the Recommended Traffic Links, you group and then save them. Each Traffic Link must have a Road Type, a Traffic Growth Group and an AADT Band. So you are best to group all Roads with matching parameters and save them in bulk.</p> <p>You address this in RAMM at the Recommended Traffic Links screen.</p> <p>See Saving Recommended Traffic Links (on page 90).</p>
7	Generate Recommended Count Sites .	<p>You create Count Sites so that Traffic Counts can best be positioned and scheduled. You could manually create Count Sites for your database. However, it is more efficient to accept the RAMM Recommended Count Sites. These are based on historical counts or a random Location on Traffic Links which have never been counted.</p> <p>You do this in RAMM at the Map.</p> <p>See Generating Recommended Count Sites (on page 104).</p>

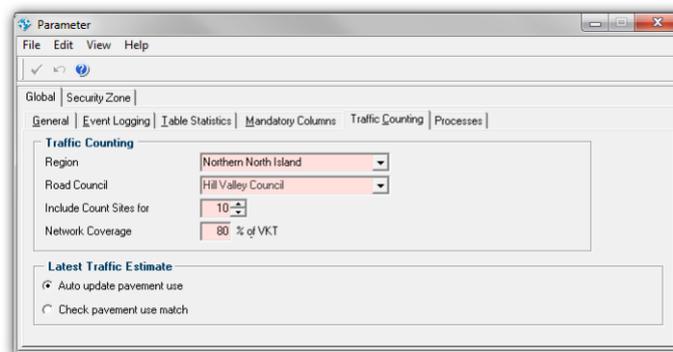
Step	Action	Comments
8	Save the Recommended Count Sites.	<p>Once you have created the Recommended Count Sites, you select those which represent the value you set at the Network Coverage % of VKT field at the Parameter screen in RAMM Manager. RAMM highlights these for you. You then save them to create Count Sites so that you can schedule Traffic Counts for the most important Roads in your Network.</p> <p>You do this in RAMM at the Recommended Count Sites screen.</p> <p>See Saving Recommended Count Sites (on page 107).</p>
10	Associate Traffic Links.	<p>When you have defined your Traffic Links on which you want to count traffic and the Count Sites where you want to perform the Traffic Counts you can then relate subsidiary, or secondary, Traffic Links to the traffic-contributing, or primary, Traffic Link.</p> <p>You do this in RAMM at the Map.</p> <p>See Associating Traffic Links (on page 119).</p>
11	Update Count Site Sample Group values.	<p>The logical and efficient time to decide to which Sample Group Count Sites should belong, is when you are relating Traffic Links at the Map. That is why when you created your Count Sites you gave them all a default value at the Sample Group field.</p> <p>You do this in RAMM at the Map.</p> <p>See Updating Count Site Sample Group Values (on page 122).</p>
12	Locate and fix any unlinked Carriageway Sections.	<p>It is possible that some Carriageway Sections will not have been associated with a Traffic Link. An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.</p> <p>You find these unlinked Carriageways by running the Unlinked Carriageways report. You do this in RAMM at the Map.</p> <p>See Unlinked Carriageways (on page 128).</p>
13	Update Traffic Count and Estimate Data	<p>You run a Status Check process to update the database to take into account any Traffic Counts and Estimates entered since the most recent Status</p>

Step	Action	Comments
		<p>Check. It then updates the ADT Estimates taking into account the new readings and the other factors. It also updates Loading data.</p> <p>You run Status Check in RAMM at the Map.</p> <p>See Run Status Check (on page 129).</p>
14	Locate and fix Traffic Links with no ADT.	<p>Running Status Check outputs the Traffic Latest Errors report. You can easily identify Traffic Links with no ADT on the Map.</p> <p>You fix Traffic Links with no ADT in RAMM at the Map.</p> <p>See Traffic Links with No Average ADT (on page 129).</p>
15	Schedule Traffic Counts.	<p>Once the Traffic Count Estimation set up has been completed, you schedule the Traffic Counts. You do this based on the Sample Group of the Count Sites combined with the date of the most recent count entered into RAMM. When you have the list of Scheduled Traffic Counts, you can create Dispatches in RAMM Contractor for a selected Contract.</p> <p>You carry out the Recommended Traffic Counts process in RAMM at the Map.</p> <p>See Select Sites and Develop a Programme (on page 131).</p>
16	Create Traffic Count Dispatches.	<p>When you have generated the scheduled Traffic Counts you can create Dispatches for them. These will be listed in RAMM Contractor. The Contractor who will perform the Traffic Counts can then see the future work load.</p> <p>You do this at the Create Dispatches screen in RAMM or RAMM Manager.</p> <p>See Traffic Count Dispatches (on page 153).</p>

Initial Processes and Parameters

Before you create and associate [Traffic Links](#) and [Count Sites](#) you need to make decisions to ensure that the **RAMM** processes are optimised for your particular circumstances.

You do all this at the **Parameter** screen in **RAMM Manager**.



In This Chapter

Processes and Parameters Overview	58
Activate Traffic Counting Processes	58
Available Processes	60
Process Deactivation	60
Activating Traffic Counting Processes	61
Traffic Counting Parameters	62
Setting Traffic Counting Parameters	67

Processes and Parameters Overview

You Activate **RAMM Traffic Count Estimation** at the the **Parameter** screen in **RAMM Manager**. Then you turn on your initial processes and define your initial parameters.

Process Activation

You can implement **Traffic Count Estimation** only after it has been Activated. Activation makes all the required functions and processes available in **RAMM**, **RAMM Manager** and **RAMM Network Manager**. You turn on the processes you require. See *Activating Traffic Counting Processes* (on page 61).

Initial Parameter Definition

You set initial parameters so that **Traffic Count Estimation** is implemented to match your circumstances. First you select your **Region** and **Road Council**. Next you define the number of years of your most recent **Count** data you want to be taken into account when setting up **RAMM Traffic Count Estimation**. The major decision you take is to determine the percentage of your **Network VKT** that you want to count. See *Region* (on page 63), *Road Council* (on page 64), *Include Count Sites for* (on page 64), and *Network Coverage* (on page 65). See *Setting Traffic Counting Parameters* (on page 67).

Pavement Use ADT Range Options

You also decide whether you want:

- **RAMM** to automatically update the **Pavement Use ADT** range value to match a **Latest** reading or
- the opportunity to make the changes manually yourself.

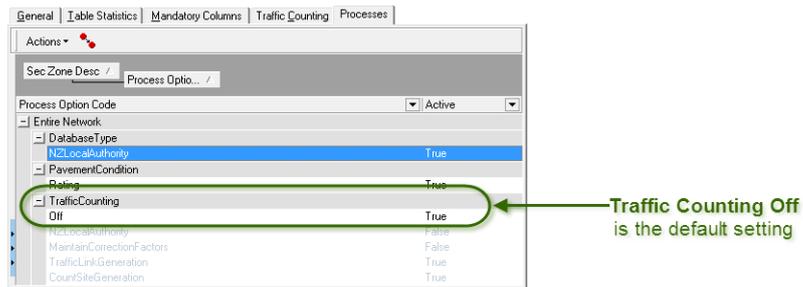
See *Latest Traffic Estimate* (on page 66).

Activate Traffic Counting Processes

RAMM Traffic Count Estimation is not enabled by default. When you decide to institute the system in your database you first need to turn on the **Traffic Count Estimation** processes for your database type.

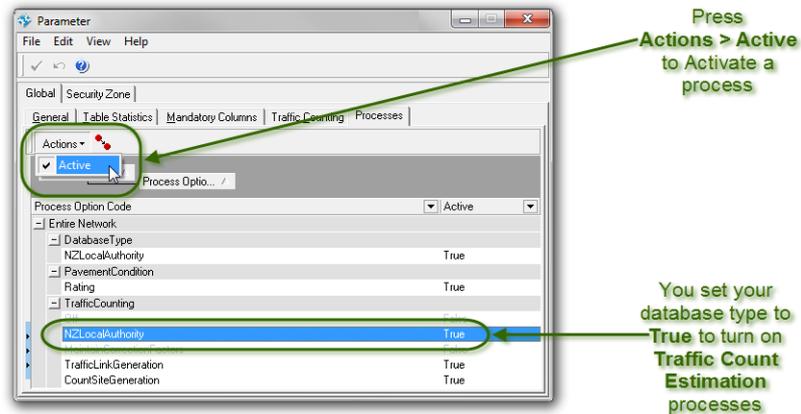
Off by Default – True

In the graphic below you can see **RAMM Traffic Count Estimation** is inactive (Off) by default. The Off option is selected (True). To use **Traffic Count Estimation** you need to deactivate this setting. You do this by Activating your Network type.



Activate Traffic Counting

You activate **Traffic Count Estimation** by selecting your Network type and following the menu path **Actions > Active**. In the graphic below the Network type is NZLocalAuthority.



Other Processes

There are a number of processes which are used during the **Traffic Count Estimation** set up process. When you activate **Traffic Count Estimation** at the Processes tab of the **Parameter** screen you will see a list of the **Traffic Count Estimation** processes available to you. These will vary depending on your Network type.

At the time of writing, the ability to maintain Correction Factors is not available. This process may become available at a later date.

The `TrafficLinkGeneration` and `CountSiteGeneration` processes are always selected and cannot be cleared. They are only available when [Traffic Count Estimation](#) has been Activated for your Network type.



Your Database Type determines the processes that you see. The graphic above displays the standard process set for NZLocalAuthority.

Available Processes

To see the functions which become available once you have activated the [Traffic Count Estimation](#) processes see:

- [Traffic Count Estimation](#) and [RAMM](#) (on page 157)
Best practice is to perform the majority of [Traffic Count Estimation](#) set up and maintenance activities in [RAMM](#).
- [Traffic Count Estimation](#) and the [Map](#) (on page 175)
You use the [Map](#) in [RAMM](#) to manage almost every aspect of [Traffic Count Estimation](#).
- [Traffic Count Estimation](#) and [RAMM Manager](#) (on page 209)
Users who prefer to use screen-based processes can perform all the [Traffic Count Estimation](#) activities from within [RAMM Manager](#) rather than using the [Map](#) from within [RAMM](#).
- [Traffic Count Estimation](#) and [RAMM Network Manager](#) (on page 247)
If you use [RAMM Network Manager](#) to manage your Network, you need to be aware that there are now some elements which take [RAMM Traffic Count Estimation](#) into account.

Process Deactivation

If, after having set up [RAMM Traffic Count Estimation](#) and created the [Traffic Links](#), [Count Sites](#) and updated all your data, you deactivate [Traffic Count Estimation](#), this will not affect the data in the database. It will remove the menu options, screens and tabs for [RAMM Traffic Count Estimation](#).

You will then be unable to update your [Traffic Count Estimation](#) data.

Any [Traffic Counts](#) you enter after you have deactivated your [Traffic Count Estimation](#) processes will not be adjusted by the Correction Factors. This is not recommended.

Activating Traffic Counting Processes

Introduction

You can implement [Traffic Count Estimation](#) only after it has been Activated. Activation makes all the required functions and processes available in [RAMM](#), [RAMM Manager](#) and [RAMM Network Manager](#). You turn on the processes you require.

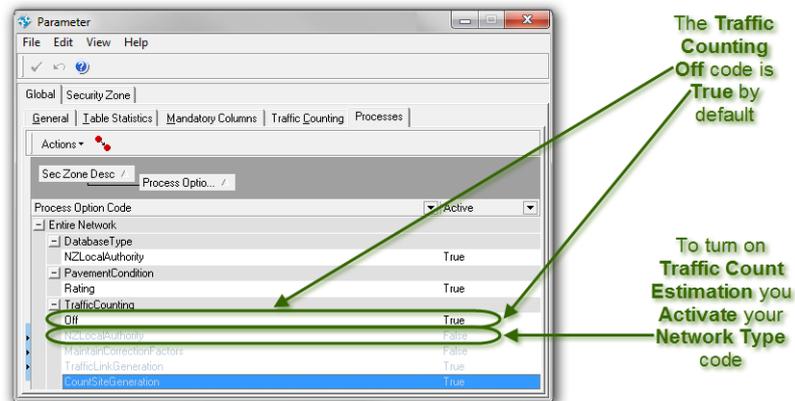
Before you do this you need to have:

- run a Status Check to ensure that the Latest Count data is up to date. You do this at the **Status Check** screen. See Update [Traffic Counts](#) and Estimates (on page 230).
- the correct Staff Permissions. See Granting Staff Permission to Update the **Parameter** Screen (on page 285).
- logged in to [RAMM Manager](#).

Menu Path

Follow the menu path Maintenance > Parameter > (press Processes) to open the **Parameter** screen at the Processes tab.

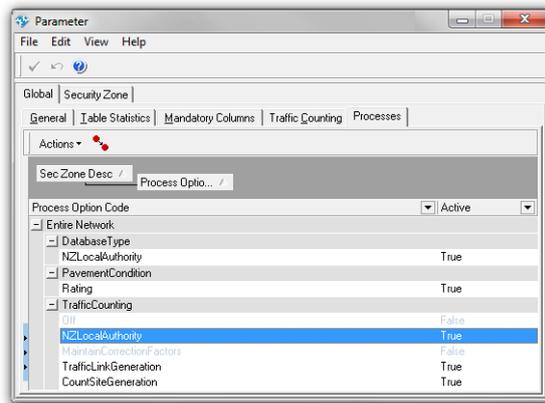
▶ Activating Traffic Counting Processes



To do this you follow these steps:

- 1 Select your Database Type code in the Traffic Counting section of the Process Option Code panel.
- 2 Press Actions.
The Active button will appear.

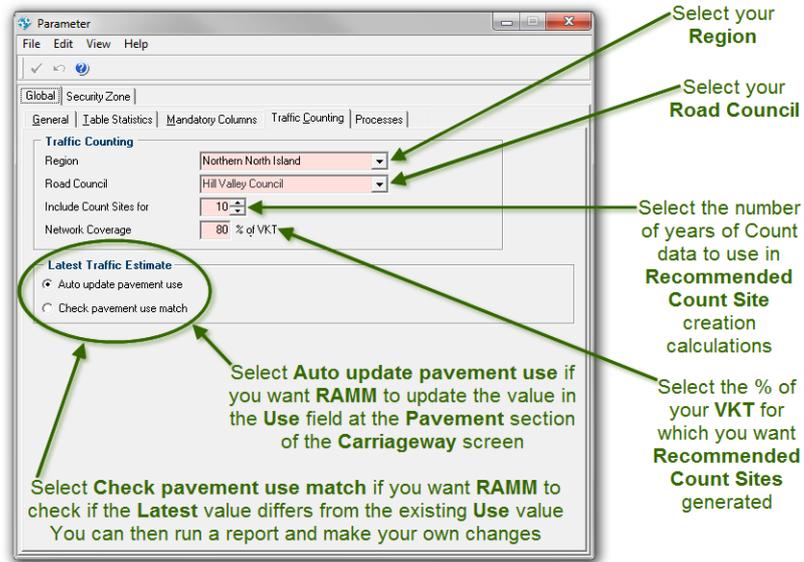
- 3 Press **Active**.
The **Active** value for your **Network Type** code will become **True**. The **Active** value for the **Off** code will become **False**.
- 4 Press .
Your changes will be saved and **Traffic Count Estimation** will be activated.



- 5 Go to **Setting Traffic Counting Parameters** (on page 67).

Traffic Counting Parameters

Once you have Activated the Traffic Counting Processes, you must select and define the initial parameters before you can set up and use **Traffic Count Estimation**. You do this in **RAMM Manager** at the **Traffic Counting** tab on the **Parameter** screen.



Parameters

You need to set the following **Traffic Count Estimation** parameters:

- Region (on page 63)
- Road Council (on page 64)
- Include Count Sites for (on page 64)
- Network Coverage (on page 65)
- Latest Traffic Estimate (on page 66).

Region

Regions are used as a factor in determining ADT values. So you need to select the code for your Region for your ADT calculations to be correct. You select your Region code at the Region drop-down list at the Traffic Counting tab on the **Parameter** screen.



Region Factors

You define Region Factor values at the Region tab of the **Road Type and Multiplication Factors** screen. See Region Factors (on page 216).

At the time of publishing all **Region Multiplication Factors** have been set to 1

Region factors are used to adjust ADT Estimates to take into account the Region of the country in which the Counts were performed

Region	Multiplication Factor
NZ Region	1.0000
Northern North Island	1.0000
Southern North Island	1.0000
Northern South Island	1.0000
Southern South Island	1.0000



Regions are added by RAMM Software Limited. Your Region code will be available by default. At the time of writing, all the Region Factor values have been set to 1.

Road Council

You need to select your Road Council code from the Road Council drop-down list at the Traffic Counting tab on the **Parameter** screen.

Traffic Counting	
Region	Northern North Island
Road Council	Hill Valley Council
Include Count Sites for	10
Network Coverage	80 % of VKT



Road Council codes are added by RAMM Software Limited. Road Councils are also referred to as RCAs (Road Controlling Authorities).

Include Count Sites for

Traffic Count Estimation uses historical counts when recommending Count Sites. You need to decide how many years' worth of historical counts RAMM should take into account.

You select a number of years prior to which **RAMM** will ignore **Traffic Counts** when recommending **Count Sites**. You do this at the **Include Count Sites for** field at the **Traffic Counting** tab on the **Parameter** screen.

Traffic Counting	
Region	Northern North Island
Road Council	Hill Valley Council
Include Count Sites for	10
Network Coverage	80 % of VKT

Which Date

You might make this decision on the basis of when you introduced new traffic counting technology or practices which increased the accuracy of the Counts.



Historical Counts require extra data added before **Traffic Count Estimation** can use them in its calculations.



You should select an **Include Count Sites for** value to include only those historical counts for which you know the **Count Duration** and if necessary, **Time of Day** values. See **Fixing Missing Count Duration Data in Bulk** (on page 76).

Network Coverage

You define the percentage of your **Network** traffic which you want to count. You do this at the **Network Coverage** field at the **Traffic Counting** tab on the **Parameter** screen.

Count Traffic on Only the Busiest Roads

It is not necessary to count traffic on every **Road** in your **Network**. It is a most efficient use of resources to spend most of the traffic counting budget on those **Roads** which carry the most traffic. So you might make a decision that you are not interested in counting traffic on the **Roads** which carry the bottom twenty per cent of your **Network Vehicle Kilometres Travelled (VKT)**. In this case you would set the **Network Coverage %** value to 80.

Traffic Counting	
Region	Northern North Island
Road Council	Hill Valley Council
Include Count Sites for	10
Network Coverage	80 % of VKT

You define the percentage of your **Network** traffic which you want to count at the **Network Coverage % of VKT** field

Then when you run the recommend [Count Sites](#) process, **RAMM** will create recommended [Count Sites](#) for all [Traffic Links](#) but will group and highlight those which carry the percentage you have specified.

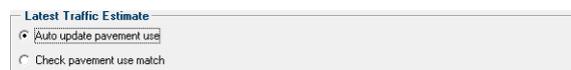
See How **RAMM** Recommends [Count Sites](#) (on page 102).

Latest Traffic Estimate

During the **RAMM** [Traffic Count Estimation](#) set up process, **RAMM** checks if the Pavement Use ADT range value matches the Latest reading. You set a parameter to determine whether **RAMM** automatically updates the value or leaves it for you to check and to update the values yourself manually if appropriate.

You do this in the Latest Traffic Estimate section on the Traffic Counting tab of the **Parameter** screen. You have the option of selecting:

- **Auto Update Pavement Use**
You select this option if you want **RAMM** to automatically update the Pavement Use ADT range value to match a Latest reading
- **Check Pavement Use Match**
You select this option if you want **RAMM** to automatically check whether the Pavement Use ADT range value matches a Latest reading. You can then run a report to find the discrepancies and update the values manually if appropriate. See [Traffic Latest Errors Report](#) (on page 297).



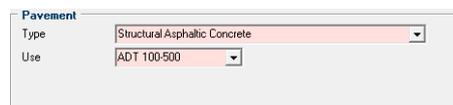
Latest Traffic Estimate

Auto update pavement use

Check pavement use match

Where is the ADT Range Displayed

The ADT range for the Carriageway is displayed in the Pavement Use field in the Pavement section of the General tab of the **Carriageway** Detail screen.



Pavement

Type: Structural Asphaltic Concrete

Use: ADT 100-500

Setting Traffic Counting Parameters

Introduction

You set initial parameters so that [Traffic Count Estimation](#) is implemented to match your circumstances. First you select your [Region](#) and [Road Council](#). Next you define the number of years of your most recent Count data you want to be taken into account when setting up [RAMM Traffic Count Estimation](#). The major decision you take is to determine the percentage of your Network VKT that you want to count.

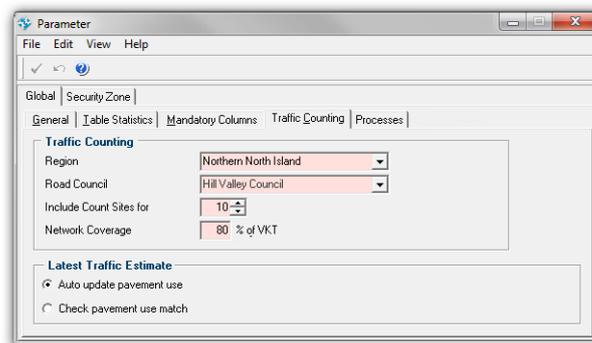
Before you do this you need to have:

- Activated [Traffic Count Estimation](#). See [Activating Traffic Counting Processes](#) (on page 61).
- logged in to [RAMM Manager](#)
- been granted the correct Staff Permissions. You do this at the [Staff Permissions](#) screen in [RAMM Manager](#). See [Data Maintenance Staff Permissions](#) (on page 287).

Menu Path

Follow the menu path Maintenance > Parameter > (press Traffic Counting) to open the **Parameter** screen at the Traffic Counting tab.

► Setting Traffic Counting Parameters



To do this you follow these steps:

- 1 Select the **Region** for your Network from the **Region** drop-down list. See [Region](#) (on page 63).
- 2 Select the name of your Network from the **Road Council** drop-down list. See [Road Council](#) (on page 64).

- 3 Type, in the **Include Count Sites for** years field, the number of years of historical data you wish **RAMM** to take into account when recommending **Count Sites**. See **Include Count Sites for** (on page 64).



NOTE

Historical Counts require extra data added before **Traffic Count Estimation** can use them in its calculations.

You should select an **Include Count Sites for** value to include only those historical counts for which you know the **Count Duration** and if necessary, **Time of Day** values. See **Fixing Missing Count Duration Data in Bulk** (on page 76).

- 4 Type in the **Network Coverage** % field the percentage of your **Network Vehicle Kilometres Travelled (VKT)** for which you want **RAMM** to highlight recommended **Count Sites**. See **Network Coverage** (on page 65). See **View a List of Recommended Count Sites** (on page 97).
- 5 Do you want **RAMM** to automatically update the **Pavement Use ADT** range value to match a Latest reading? See **Latest Traffic Estimate** (on page 66).

Yes	then go to step 6.
No	then go to step 8.

- 6 Select the **Auto update pavement use** option.
- 7 Go to step 9.
- 8 Select the **Check pavement use match** option.
RAMM will now automatically check whether the **Pavement Use ADT** range value matches a Latest reading. You can then run a report to find the discrepancies and update the values manually if appropriate.
- 9 Press .
- 10 Your changes will be saved and **Traffic Count Estimation** parameters have been set.
Close the screen in the normal manner.
You will be returned to the **RAMM Manager** main screen.

Legacy Data

Some traffic records which existed prior to the set up and use of **RAMM Traffic Count Estimation** will be missing the data required to enable it to work properly.

It is important that your existing data is compatible with **RAMM Traffic Count Estimation** before you set up **Traffic Count Estimation** in your database. However, as the data fields are not available unless Traffic Management has been Activated for your Network Type, you cannot fix the data until it has been turned on. See Initial Processes and Parameters (on page 57).

State Highway Databases

If your database is for State Highways only, you can ignore this chapter as your legacy data will not be missing data.



Count data for State Highway databases do not require correction as traffic is counted for 365 days a year on State Highways. So for State Highway databases, the Correction Factor process is not turned off but all the Correction Factors are set to 1.

In This Chapter

Count Duration Data.....	70
Time of Day Data.....	72
Sample Group Data.....	74
Fixing Missing Count Duration Data in Bulk.....	76

Count Duration Data

RAMM Traffic Count Estimation uses criteria including the duration of the **Traffic Count** to fine tune Average Daily Traffic (ADT) Estimates. The accuracy of a **Traffic Count** is affected by its duration. The longer the duration of the count, the more accurate it is. There are three standard Count Durations in **RAMM** being 3 hours, 24 Hours and 7 Days.

If your legacy data does not include Count Duration information, you need to add it.

Direction	Both lanes
Count Site	TARGET ROAD 240 m
Load Method	Visual
Count Date	3/09/2002
Counter	
Count Status	Count
Count Duration	
Time of Day	
Location	96
Week Day	Monday
Week Number	
Season	

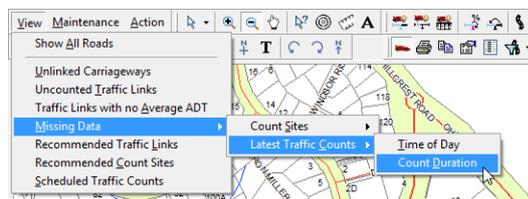
Some legacy **Traffic Count** data may be missing a **Count Duration** value

You need to fix this before implementing **Traffic Count Estimation Management**

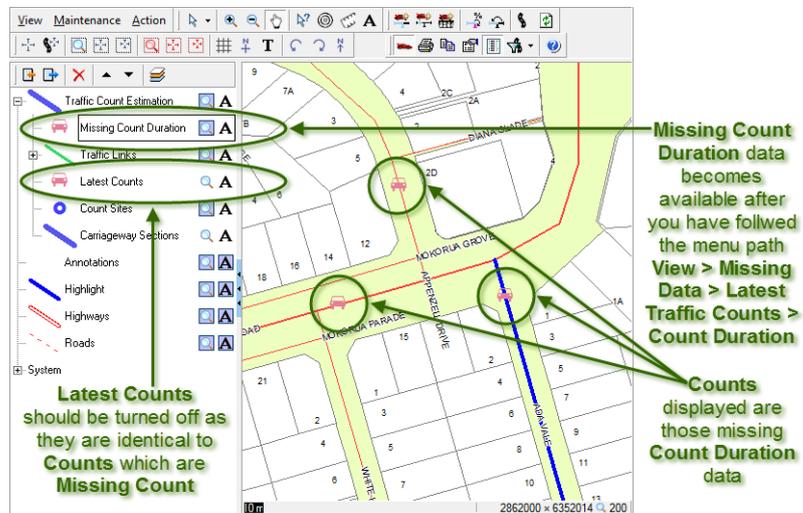
Identify Records with Missing Data

If you prefer using **RAMM Manager** to manipulate your data you use the Missing Data report to identify the records which need to be updated. See Missing Data Report (on page 295).

If you prefer to use the **Map**, you follow the menu path View > Missing Data > Latest Traffic Counts > Count Duration.



The **Traffic Counts** which have no Count Duration values will display on the **Map**.



Fix the Data

You select the **Traffic Count** you want to edit, right-click and select Show Traffic Count Detail. The **Traffic and Loading** Detail screen will open at the Count tab.



Tip When you right-click on the icon for the missing Count data, you may be offered the Show Traffic Link Detail option instead of the Show Traffic Count Detail option. You fix this by opening the **Map Legend** and toggling the **Traffic Link** visibility so that Traffic Links do not display.

You then press **Update Record**  to make the fields available. You can then select 3 Hours, 24 Hours or 7 Days from the **Count Duration** drop-down list.



If you selected 3 Hours you then need to select a Time of Day value.

Time of Day Data

RAMM Traffic Count Estimation uses criteria including the time of day of the **Traffic Count** to fine tune Average Daily Traffic (ADT) Estimates. The time of day affects the volume of traffic which will travel along a Road. **Traffic Counts** taken in the morning are likely to vary from those taken in the afternoon. **RAMM Traffic Count Estimation** uses a Time of Day factor to account for this when a **Traffic Count** is taken, unless it is for 24 hours or for 7 days.

If your legacy data does not include Time of Day information for **Traffic Counts** with a **Count Duration** value of 3 Hours, you need to add it.

Count	
Direction	Both lanes
Count Site	TARGET ROAD 240 m
Load Method	Visual
Count Date	3/09/2002
Counter	
Count Status	Count
Count Duration	3 Hours
Time of Day	
Location	96
Week Day	Monday
Week Number	
Season	

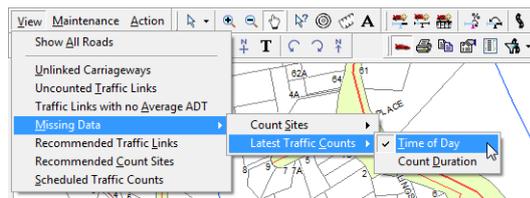
Time of Day values may be needed for legacy data with a Count Duration of 3 Hours

You need to fix this before implementing Traffic Count Estimation Management

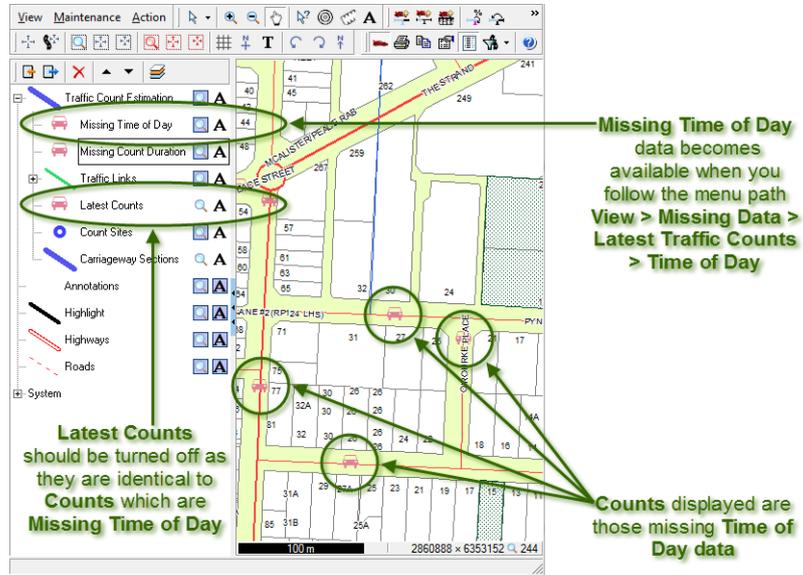
Identify Records with Missing Data

If you prefer using **RAMM Manager** to manipulate your data you use the Missing Data report to identify the records which need to be updated. See Missing Data Report (on page 295).

If you prefer to use the **Map**, you follow the menu path View > Missing Data > Latest Traffic Counts > Time of Day.

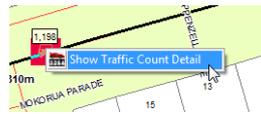


The **Traffic Counts** which have no Time of Day values will display on the **Map**.



Fix the Data

You select the **Traffic Count** you want to edit, right-click and select Show Traffic Count Detail. The **Traffic and Loading** Detail screen will open.





When you right-click on the icon for the missing Count data, you may be offered the Show Traffic Link Detail option instead of the Show Traffic Count Detail option. You fix this by opening the **Map Legend** and toggling the **Traffic Link** visibility so that Traffic Links do not display.

You then press Update Record  to make the fields available. You can then select Morning or Afternoon from the Time of Day drop-down list.

You select **Morning** or **Afternoon** at the **Time of Day** drop-down list

Sample Group Data

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a Sample Group to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

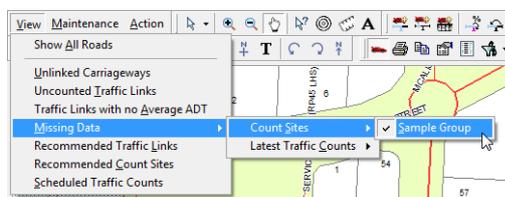
RAMM Traffic Count Estimation uses the Sample Group of a **Count Site** to schedule **Traffic Counts**. If your legacy data does not include Sample Group values, you need to add them.

You need **Sample Group** values before you can implement **Traffic Count and Estimation Management**

Identify Records with Missing Data

If you prefer using **RAMM Manager** to manipulate your data you use the Missing Data report to identify the records which need to be updated. See Missing Data Report (on page 295).

If you prefer to use the **Map**, you follow the menu path **View > Missing Data > Count Sites > Sample Group**.

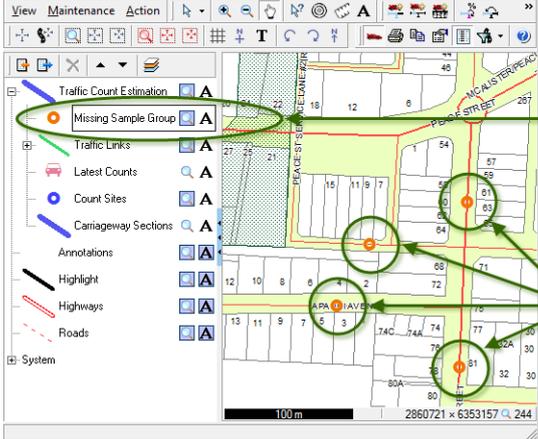


The **Count Sites** which have no Sample Group values will display on the **Map**.



NOTE

Count Sites do not exist before Traffic Management Mode has been turned on. So under normal circumstances there will be no legacy Count Sites. If you have added Count Site records using **RAMM SQL** it is possible to create them without Sample Group values. These are the only records which would display.

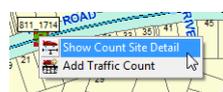


Missing Sample Group data becomes available when you follow the menu path View > Missing Data > Count Sites > Sample Group

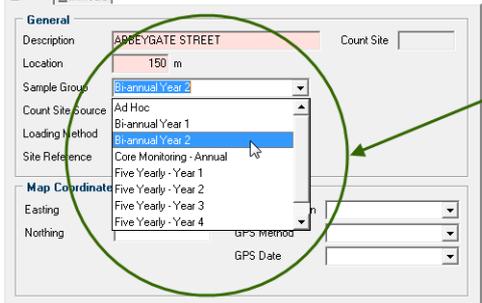
Count Sites displayed are those missing Sample Group data

Fix the Data

You select the **Traffic Count** you want to edit, right-click and select Show Count Site Detail. The **Count Site** Detail screen will open.



You then press **Update Record**  to make the fields available. You can then select the appropriate value from the Sample Group drop-down list.



You select the appropriate Sample Group from the Sample Group drop-down list

Fixing Missing Count Duration Data in Bulk

Introduction

RAMM Traffic Count Estimation uses criteria including the duration of the **Traffic Count** to fine tune Average Daily Traffic (ADT) Estimates. Some traffic records which existed prior to the set up and use of **RAMM Traffic Count Estimation** will be missing the data required to enable it to work properly. If your legacy data does not include Count Duration information, you need to add it.

The most efficient method of adding data in **RAMM** is the Bulk Update. So you can set a filter to list all Counts with the same Count Duration for the period set at the **Parameter** screen in **RAMM Manager**.

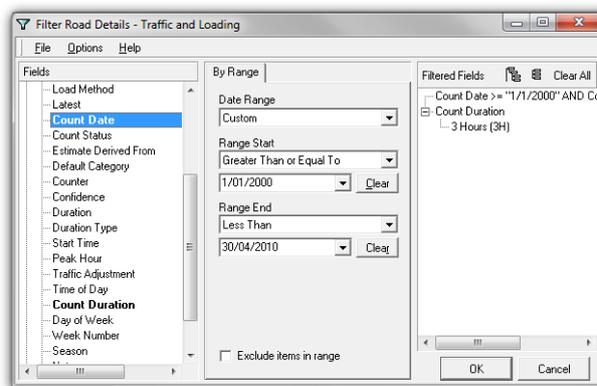
Before you do this you need to have:

- set initial **Traffic Count Estimation** parameters. You do this at the Traffic Counting tab of the **Parameter** screen in **RAMM Manager**. See Setting Traffic Counting Parameters (on page 67).
- been granted the correct Staff Permissions. You do this at the **Staff Permissions** screen in **RAMM Manager**. See Data Maintenance Staff Permissions (on page 287).
- logged in to **RAMM**.

Menu Path

Follow the menu path (press Show Traffic and Loading) > (press Edit Filter) to open the **Filter Road Details - Traffic and Loading** Filter screen.

► Fixing Missing Count Duration Data in Bulk



To do this you follow these steps:

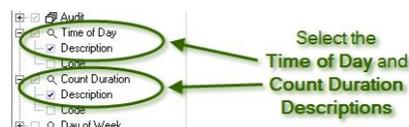
- 1 Clear the **Latest** and **Not Latest** check boxes. When **RAMM** recommends **Count Sites** it will look at all count records in the period you defined at the **Traffic Counting** tab of the **Parameter** screen in **RAMM Manager**. See **Traffic Counting Parameters** (on page 62).
- 2 Select **Count Date** in the **Fields** panel.
- 3 Press the **By Range** tab.
- 4 Select, from the **Range Start** drop-down calendar, the date which aligns with the value you set in the **Include Count Sites for** years field on the **Parameter** screen in **RAMM Manager**.
- 5 Select today's date at the **Range End** drop-down calendar.
- 6 What you do next depends on your records and your data. If all your Counts were for a set duration, you do not need to filter further. Otherwise you need to set the filter to group those Counts which you know had the same **Count Duration**.
- 7 Press .
The **Confirm Filter Option** dialog will open.



- 8 Select the **All Roads in Entire Network** option.
- 9 Press .
The **Confirm Filter** dialog will close and you will be returned to the **Traffic and Loading** Grid screen with the count records listed.
- 10 Are the **Count Duration** and **Time of Day** columns available?

Yes	then go to step 14.
No	then go to step 11.

- 11 Press the **Panel Sizer**.
The **Layout** panel will open.



- 12 Select the **Time of Day** and **Count Duration** Descriptions.
- 13 Press the **Panel Sizer**.
The **Layout** panel will close and the **Time of Day** and **Count Duration** columns will appear on the **Traffic** Grid screen.

- 14 Follow the menu path **Actions > Bulk Update**.
The **Bulk Update** screen will open.
- 15 Make your selections.
- 16 Press .
Your changes will be saved.
- 17 Close the screen in the normal manner.
You will be returned to the **RAMM** main screen.



All clients will have a different set of legacy count records and will have different methods of identifying records with identical Count Durations. So a one-size-fits-all filter cannot be described here.

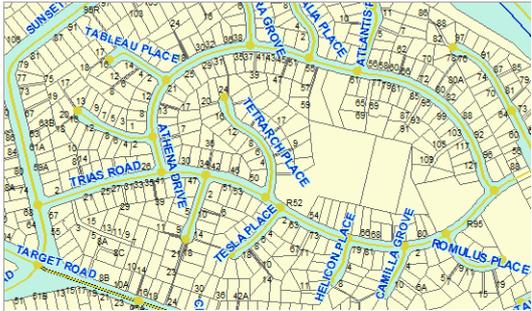
All clients will at least want to filter for all Counts during the time period **RAMM** has been set to consider when recommending Count Sites, not just Latest Counts.

Traffic Link Creation

Traffic Links are combinations of sequential RAMM Carriageway Sections that are considered to carry the same volume of traffic over the entire length of the link. Once you have set the initial Traffic Count Estimation parameters and fixed your legacy data, you can create Traffic Links in your RAMM database.

You can manually create your own Traffic Links for your database. However, it is more efficient to accept the RAMM Recommended Traffic Links which are contiguous Carriageway Sections from the same Road that have the same Average Daily Traffic (ADT) Estimate value, plus or minus 10%.

You can accept these recommendations in bulk and fine tune the results later.



In This Chapter

- View Recommended Traffic Links on the Map80
- Select Recommended Traffic Links.....83
- Generating Recommended Traffic Links87
- Saving Recommended Traffic Links.....90

View Recommended Traffic Links on the Map

RAMM can recommend **Traffic Links** for you to create for **Traffic Count Estimation**. You can choose to accept them all in bulk or to accept them in groups, such as by suburb.

Best practice is for you accept in bulk the **Traffic Links** recommended by **RAMM** and to fine tune them later.

You can carry out the Recommended **Traffic Links** process in **RAMM Manager** or in **RAMM** using the **Map**. For more information on the process in **RAMM Manager** see Recommend **Traffic Links** (on page 223).

The Map in RAMM

To view the recommended **Traffic Links** on the **Map**, you:

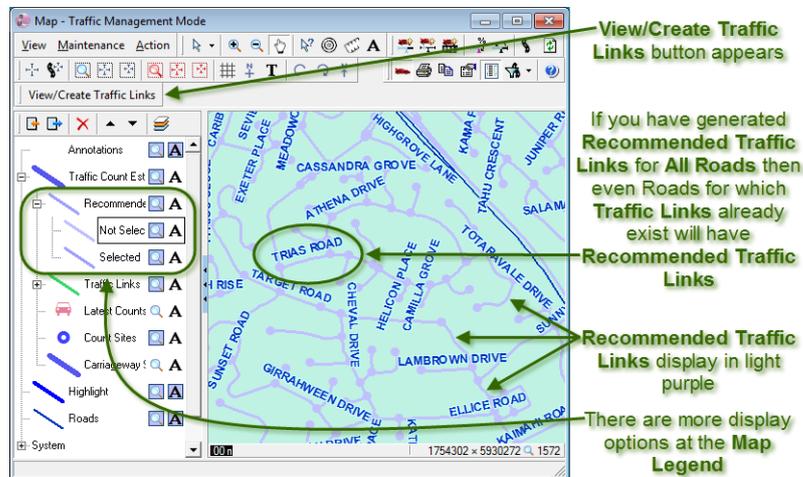
- press  to open the **Map** in **RAMM**
- then press  to turn on Traffic Management Mode. This makes the required tool bars and buttons available.
- then press  to make the Traffic Management information display on the **Map**.

Recommended Traffic Links

You follow the menu path **View > Recommended Traffic Links** to start the process to generate a Layer on the **Map** of **Traffic Links** recommended by **RAMM**. A screen will open asking if you want to run the Recommend Traffic Links for all Roads. Initially you would opt to run the process for all Roads.



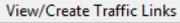
A screen will then open showing the progress in the Layer generation. When the process is completed, the recommended **Traffic Links** will display in the **Map**. More options will become available at the **Map** Legend.



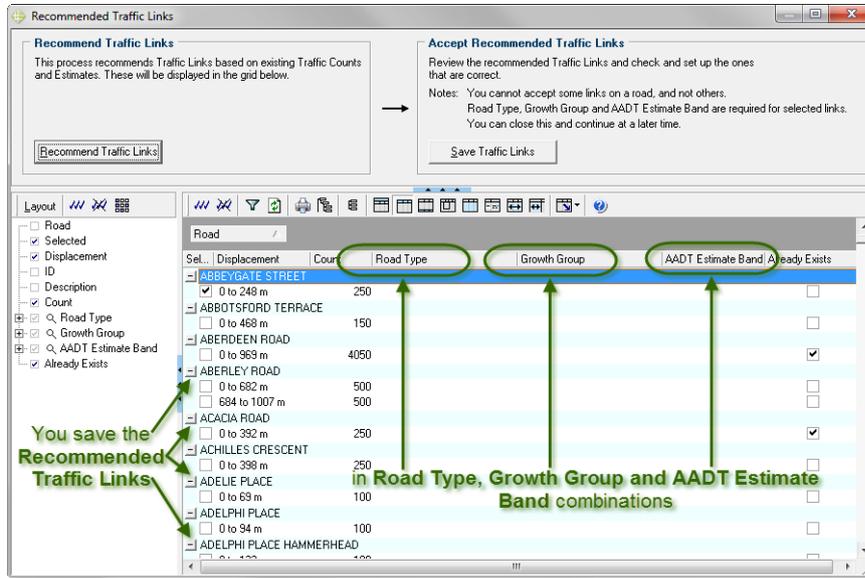
The first time you create the **Map** Layer, there will be no Recommended **Traffic Links**. These will not appear until you have run the Recommend **Traffic Links** process at the **Recommended Traffic Links** screen or from within **RAMM Manager**.

 You create **Traffic Links** for only those **Roads** whose traffic you are going to count. So you have no need to create **Traffic Links** for **Roads** you do not own.

View a List of Recommended Traffic Links

The **View/Create Traffic Links** button  becomes available once you have created the **Map** Layer of Recommended **Traffic Links**. You press this button to open the **Recommended Traffic Links** screen and run the Recommend **Traffic Links** process. You can then group and save the Recommended **Traffic Links** in bulk.

The list of Recommended **Traffic Links** will be the same as when you last closed the screen and will reflect the Recommend **Traffic Links** process which you last ran and any changes you made after running the process. So the first time you open the screen it will be empty as you have run no processes.



Temporary Records Only

Running the Recommend Traffic Links process does not create permanent records. These Recommended Traffic Links are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended Traffic Links and pressed Save Traffic Links.

 So if you work on the Recommended Traffic Links, close RAMM, open it again and return to the screen, you can begin where you left off as your work has been preserved in the temporary table.

Process All Roads

When you press **Recommend Traffic Links** the **Recommend Traffic Links** dialog will open.



There are two options:

- **Process Roads with no Traffic Links**
Any Roads already associated with **Traffic Links** are ignored. So if you are creating **Traffic Links** in groups, rather than all at once, the list of Recommended **Traffic Links** will shorten each time you run the process.
- **Process all Roads**
Recommended **Traffic Links** are created for all Roads in the Network whether or not **Traffic Links** have been created for them. You use this when you want to view **Traffic Links** which have been created as well as the ones recommended by **RAMM**.



It is not possible to generate Recommended **Traffic Links** for a select range of Roads even if you filter the Roads in the Road list panel or select Roads on the **Map**. You can only filter the list of Recommended **Traffic Links**.

Select Recommended Traffic Links

Each **Traffic Link** has associated parameters which are used in the creation of Average Daily Traffic (ADT) Estimates.

These vary dependent on the:

- **Road Type**
One of the factors which affects traffic on a Road is the **Road Type**. For instance, a Road which is an access route to a ski field in winter will have a different usage pattern from one which is used to access a popular beach in summer.

Similarly, Roads used for industry will have different usage patterns from those used as main arterial routes for commuters. There are seven default **Road Types** used for **RAMM Traffic Count Estimation**. See **Road Type Selection Process** (on page 47).

- **Traffic Growth Group**

A **Traffic Growth Group** is a group of **Traffic Links** that are believed to have approximately the same level of traffic growth from year to year.

Each **Traffic Link** is associated with a **Traffic Growth Group**. This allows a previous ADT Estimate at a site that has not been counted in the current year to be updated using the average traffic growth recorded at other similar sites that have been counted in the current year. See **Growth Group Factors** (on page 219).

- **AADT Band**

The **Annual Average Daily Traffic (AADT)** count is a figure to describe traffic levels for a **Treatment Length**.

Traffic Links are grouped dependent on whether they have a **High, Medium or Low AADT Band**. See **ADT and AADT in RAMM** (on page 37).

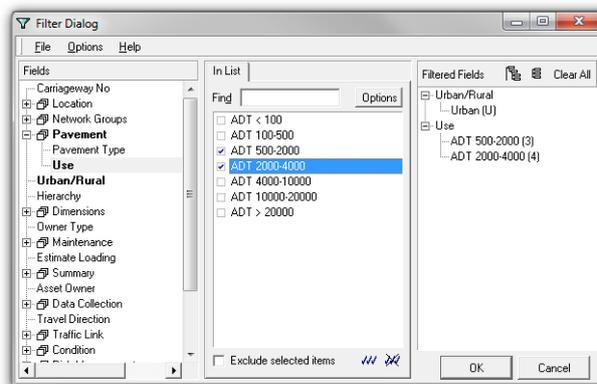


When you save **Recommended Traffic Links** you assign **Road Type, Traffic Growth Group and AADT Band** values in bulk. So it makes sense to filter the **Recommended Traffic Links** before you save them.

Filter the Recommended Traffic Links

How you filter the **Recommended Traffic Links** to group Roads with the same **Road Type, Traffic Growth Group and AADT Band** will depend on your **Road Network** and your knowledge of the same.

Obvious filter parameters are the **Pavement Use, Urban/Rural and Hierarchy** options.

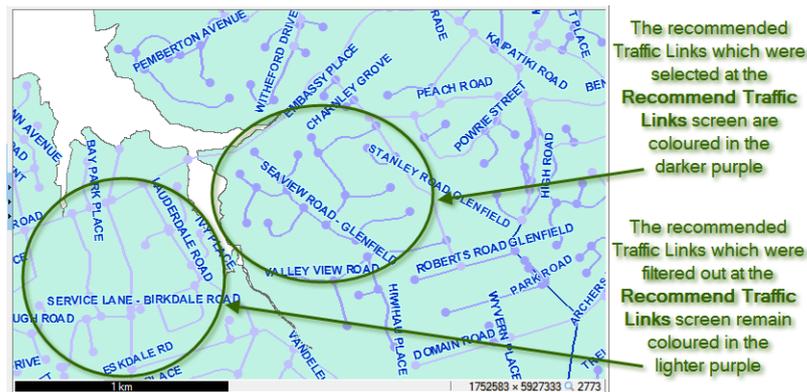


Select the Recommended Traffic Links

You select all the filtered and grouped Recommended [Traffic Links](#) by pressing .

Then when you close the **Recommended Traffic Links** screen you will be returned to the **Map** and the recommended [Traffic Links](#) will be displayed.

You can then work your way through the highlighted Roads.



Save Traffic Links

Best practice is to create [Traffic Links](#) in bulk at the **Recommended Traffic Links** screen.

You do this by selecting the check boxes adjacent to the Recommended [Traffic Links](#) and then pressing the Save Traffic Links button. This opens the **Bulk Set Traffic Link Fields** screen.

You select the values which match the characteristics of the [Traffic Links](#), press OK and the [Traffic Links](#) are created.

Now that these [Traffic Links](#) have changed from being Recommended to actual [Traffic Links](#) they will disappear from the list.

Process All Roads

If you run the Recommend [Traffic Links](#) process again after selecting Process all Roads, **RAMM** will generate a Recommended [Traffic Link](#) for each of the [Traffic Links](#) you have created.

You will be alerted to the fact that a [Traffic Link](#) exists as the Already Exists check box will be selected.

Road	Displacement	Count	Road Type	Growth Group	AADT Estimate	Already Exists
<input type="checkbox"/> 0 to 664 m		650				<input type="checkbox"/>
<input checked="" type="checkbox"/> HEDFIELD STREET						<input type="checkbox"/>
<input checked="" type="checkbox"/> 0 to 518 m		650				<input type="checkbox"/>
<input checked="" type="checkbox"/> HAMMOND PL CARPARK DP 38599 LOT 10		500				<input checked="" type="checkbox"/>
<input type="checkbox"/> 0 to 46 m		500				<input checked="" type="checkbox"/>
<input type="checkbox"/> HAMMOND PL CARPARK DP 38599 LOT 6		500				<input type="checkbox"/>
<input type="checkbox"/> 0 to 40 m		500				<input type="checkbox"/>
<input checked="" type="checkbox"/> HINEMOA STREET						<input type="checkbox"/>
<input checked="" type="checkbox"/> 0 to 515 m		650				<input type="checkbox"/>
<input checked="" type="checkbox"/> 515 to 713 m		1350				<input type="checkbox"/>
<input checked="" type="checkbox"/> ISLAND BAY ROAD						<input type="checkbox"/>
<input checked="" type="checkbox"/> 0 to 550 m		650				<input type="checkbox"/>
<input checked="" type="checkbox"/> KAURUGLEN ROAD						<input type="checkbox"/>
<input checked="" type="checkbox"/> 0 to 237 m		650				<input type="checkbox"/>
<input type="checkbox"/> KAURU ROAD						<input type="checkbox"/>
<input type="checkbox"/> 507 to 630 m		500				<input type="checkbox"/>
<input type="checkbox"/> 700 to 824 m		500				<input type="checkbox"/>
<input type="checkbox"/> KAWANA STREET						<input type="checkbox"/>
<input type="checkbox"/> 0 to 307 m		2700				<input type="checkbox"/>

You select the check boxes adjacent to the Recommended Traffic Links which you wish to convert into actual Traffic Links

The Already Exists checkboxes are selected for Traffic Links which you have already created

How RAMM Recommends Traffic Links

RAMM analyses Carriageway Sections one Road at a time to recommend **Traffic Links**.

Step	Action	Comments
1	Select and sort data	RAMM selects all Carriageway table records and sorts them into Road and Start Displacement order.
2	Round Average Daily Traffic (ADT) Estimate	RAMM rounds each existing Carriageway ADT Estimate record in turn to the nearest 100 vehicles.
3	Select first available record	RAMM then selects the first available record.
4	Create Traffic Link record	RAMM creates a Traffic Link record and associates the currently selected Carriageway Section to it. It names the Traffic Link after the selected Carriageway Section.
5	Select Carriageway Section	RAMM selects the next available Carriageway Section.
6	Compare rounded ADT values	RAMM compares the rounded ADT value of the selected Carriageway Section with that of the first Carriageway Section associated with the Traffic Link .
7	Is the ADT value within plus or minus 10%	RAMM goes to step 8 if the rounded ADT value of the selected Carriageway Section is within plus or minus 10% of the Carriageway Section associated with the Traffic Link . Otherwise it goes to step 10.
8	Check Road	RAMM checks whether the Road of the selected Carriageway Section is the same as the Road of the

Step	Action	Comments
		Carriageway Section associated with the Traffic Link .
9	Are the Road values the same	If the Road of the selected Carriageway Section and the one associated with the Traffic Link are the same, RAMM associates the selected one to the Traffic Link and goes back to step 5. Otherwise it goes to step 10.
10	Complete Traffic Link	RAMM completes and saves the Traffic Link .
11	Check next Carriageway Section	RAMM checks whether another Carriageway Section not associated with a Traffic Link is available.
12	Is there another Carriageway Section	If there is another Carriageway Section which is not associated with a Traffic Link , RAMM goes to step 3, otherwise the process is complete.

Generating Recommended Traffic Links

Introduction

You create [Traffic Links](#) by combining Carriageway Sections. These are the building blocks of **RAMM Traffic Count Estimation**. You can manually create your own [Traffic Links](#) for your database. However, it is more efficient to accept the **RAMM Recommended Traffic Links** which are contiguous Carriageway Sections from the same Road that have the same Average Daily Traffic (ADT) Estimate value, plus or minus 10%.

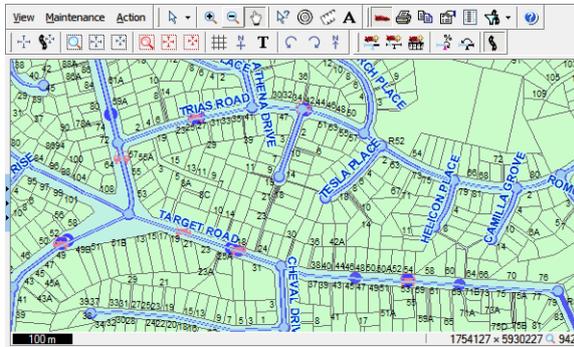
Before you do this you need to have:

- set [Traffic Count Estimation](#) parameters. You do this in **RAMM Manager** at the **Parameter** screen. See Setting Traffic Counting Parameters (on page 67).
- the correct Staff Permissions. You grant these at the **Staff Permissions** screen. See Data Maintenance Staff Permissions (on page 287).
- logged in to **RAMM**.

Menu Path

Follow the menu path (press Show Map ) > (press Traffic Management Mode ) > (press Show Traffic Data for all Roads ) to open the **Map** with the Traffic Management tool bars, buttons and information available.

► Generating Recommended Traffic Links



To do this you follow these steps:



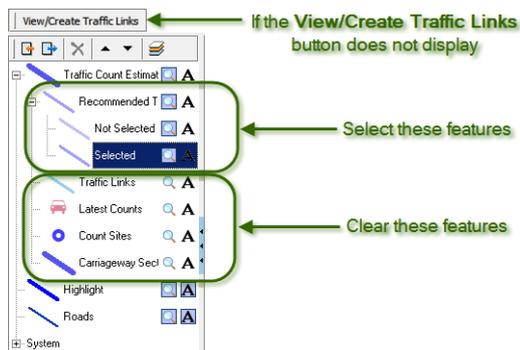
You should familiarise yourself with the Traffic Management Mode **Map** features before performing this procedure. See **Map Features for Traffic Count Estimation** (on page 176).

- 1 Follow the **Map** menu path **View > Recommended Traffic Links**.
A screen will open showing that the process of creating the Recommended **Traffic Links** Layer for the **Map** is running. When complete, the screen will close and the Recommended **Traffic Links** will be displayed on the **Map**.
- 2 Does **View/Create Traffic Links** display?

Yes then go to step 6.

No then go to step 3.

- 3 Press the Panel Sizer to open the **Map** Legend.



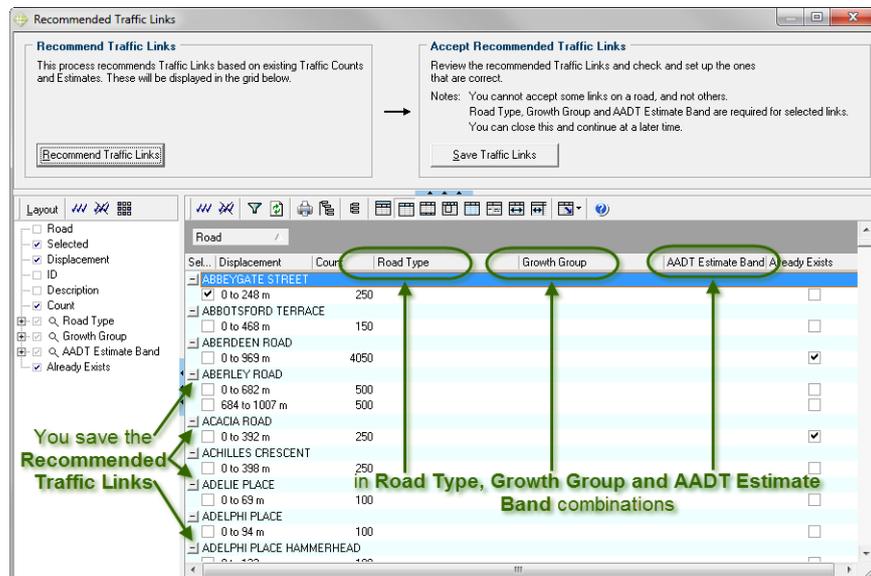
- 4 Select and clear the display options as in the graphic above.

5 Press the Panel Sizer to close the **Map Legend**.

6 Press **View/Create Traffic Links**.

The **Recommended Traffic Links** screen will open. What you see will depend on your previous actions. If you have yet to run the Recommend **Traffic Links** process, there will be no Recommended **Traffic Links** listed. If you have previously run the Recommend **Traffic Links** process with **Process Roads with no Traffic Links** selected, then any Roads which have already been made into **Traffic Links** are ignored in the process and will not be listed.

If you have previously run the Recommend **Traffic Links** process with **Process all Roads** selected, then the list will include Recommended **Traffic Links** for all Roads in the Network, whether or not **Traffic Links** have been created for the Road.



7 Press **Recommend Traffic Links**.

The **Recommend Traffic Links** dialog will open.



Save time by selecting **Process roads with no Traffic Links**

Select **Process all roads** if you want to rerun the **Recommend Traffic Links** process

- 8 Select **Process Roads with no Traffic Links**.
If you have run the process previously, there will be a warning on the screen advising you of this and asking if you really want to run the process again.
- 9 Press .
The process will run. If this is the first time you have run the Recommend **Traffic Links** process, a screen will open to display the process as it runs. A list of Recommended **Traffic Links** for all Roads which have not already been made into **Traffic Links** will display.
- 10 Go to Saving Recommended **Traffic Links** (on page 90).

Saving Recommended Traffic Links

Introduction

Once you have created the Recommended **Traffic Links**, you group and then save them. Each **Traffic Link** must have a **Road Type**, a **Traffic Growth Group** and an **AADT Band**. So you are best to group all Roads with matching parameters and save them in bulk.

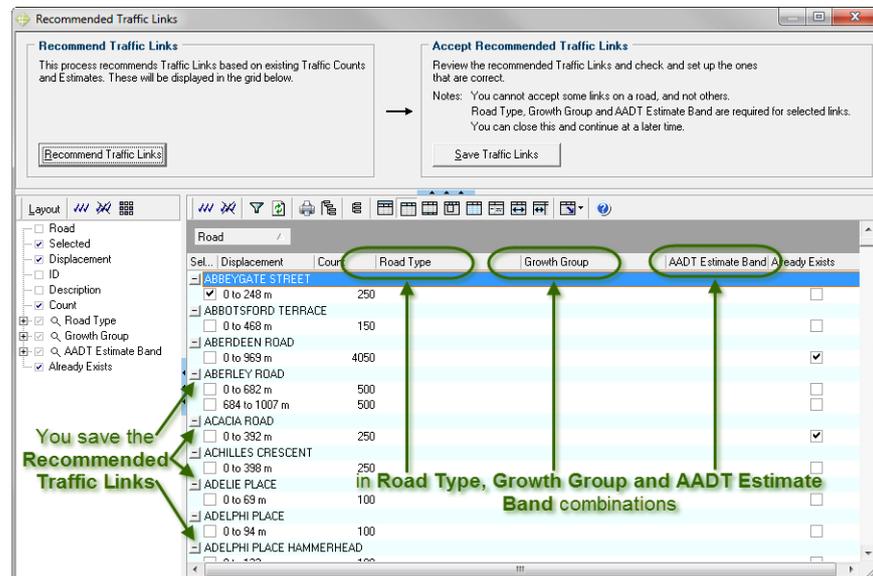
Before you do this you need to have:

- run the Recommended **Traffic Link** Generation process at the **Recommended Traffic Links** screen. See [Generating Recommended Traffic Links](#) (on page 87).
- the correct **Staff Permissions**. You grant these at the **Staff Permissions** screen. See [Data Maintenance Staff Permissions](#) (on page 287).

Menu Path

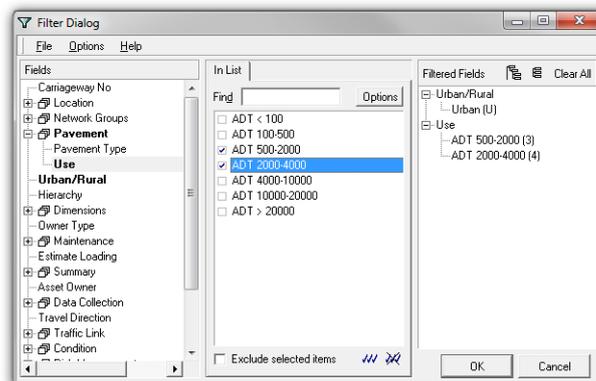
Follow the menu path (press **Show Map** ) > (press **Traffic Management Mode** ) > (press **Show Traffic Data for all Roads** ) > **View** > **Recommended Traffic Links** > (press **View/Create Traffic Links** ) to open the **Recommended Traffic Links** screen with a list of Recommended **Traffic Links**.

Saving Recommended Traffic Links



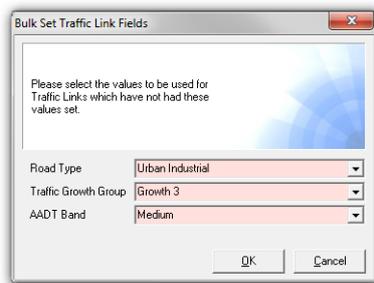
To do this you follow these steps:

- 1 Press . The **Filter Dialog** for Traffic Management will open.



- 2 What you do next will depend on your own Network and your knowledge of the same. You filter the Recommended **Traffic Links** to group Roads with the same Road Type, Traffic Growth Group and AADT Band. See Road Type Selection Process (on page 47). Obvious filter parameters are the Pavement Use, Urban/Rural and Hierarchy options.

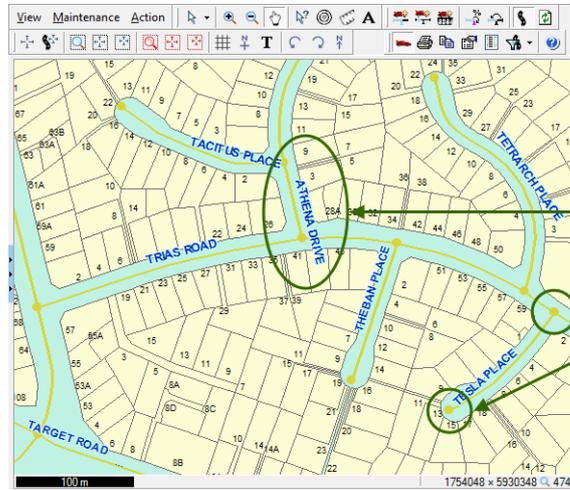
- 3 Press .
The **Filter Dialog** will close and you will be returned to the **Recommended Traffic Links** screen. Only the Recommended **Traffic Links** for Roads which matched your filter criteria will be listed.
 - 4 Press .
- All the Recommended **Traffic Links** will be selected.
- 5 Press .
- The **Bulk Set Traffic Link Fields** screen will open.



- 6 Select the appropriate values from the **Road Type**, **Traffic Growth Group** and **AADT Band** drop-down lists.
 - 7 Press .
- The **Bulk Set Traffic Link Fields** screen will close and you will be returned to the **Recommended Traffic Links** screen. The Recommended **Traffic Links** which you have just saved will no longer be listed.
- 8 Are there Recommended **Traffic Links** listed in the display?

Yes	then go to step 2.
No	then go to step 9.

- 9 Close the screen in the normal manner.
You will be returned to the **Map** where the newly created **Traffic Links** will display.



When **Traffic Links** are first created and not yet associated with another link they are coloured yellow

Traffic Links have a node at each end



Running the Recommend Traffic Links process does not create permanent records. These Recommended Traffic Links are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended Traffic Links and pressed Save Traffic Links

Count Site Creation

Count Sites in **RAMM** are the Locations at which **Traffic Counts** will occur. They are positioned on a **Traffic Link**.

You should create **Count Sites** after you have created your **Traffic Links** but before you have begun associating **Traffic Links** with each other. Best practice is to let **RAMM** recommend these **Count Sites** for you and then to accept the recommendations which best suit your Network and **Traffic Count Estimation** goals.

You use **Sample Groups** to group **Count Sites**. **Sample Groups** group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a **Sample Group** to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

You use **Growth Groups** to group **Count Sites** which have the same growth profiles. A **Traffic Growth Group** is a group of **Traffic Links** that are believed to have approximately the same level of traffic growth from year to year. They are used in the update Average Daily Traffic (ADT) Estimates process. **RAMM** averages the actual **Traffic Counts** for **Count Sites** on **Traffic Links** in the **Traffic Growth Group**, ignoring any greater than one and one half standard deviations above or below the mean growth for the group. Having found the average annual traffic growth, **RAMM** applies this factor to previous ADT Estimates where there has been no count in the current year.

In This Chapter

View Recommended Count Sites on the Map	96
Select Recommended Count Sites.....	99
Generating Recommended Count Sites.....	104
Saving Recommended Count Sites	107

View Recommended Count Sites on the Map

Once you have created your [Traffic Links](#) you create your [Count Sites](#). You could perform this task manually. It is much more efficient to use [RAMM](#) to recommend [Count Sites](#). It recommends them based on the sites of historical reads and a randomised process. See [How RAMM Recommends Count Sites](#) (on page 102).

Best practice is for you to let [RAMM](#) recommend the [Count Sites](#) and for you to accept in bulk the [Count Sites](#) which represent the percentage of Network Vehicle Kilometres Travelled (VKT) which you set at the [Parameter](#) screen in [RAMM Manager](#). You can give them a default Sample Group and fine tune them later.

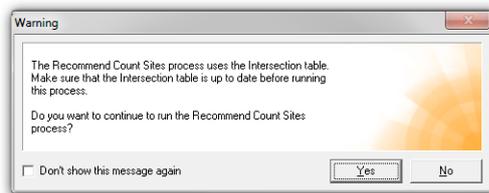
The Map in RAMM

To view the recommended [Count Sites](#) on the [Map](#), you:

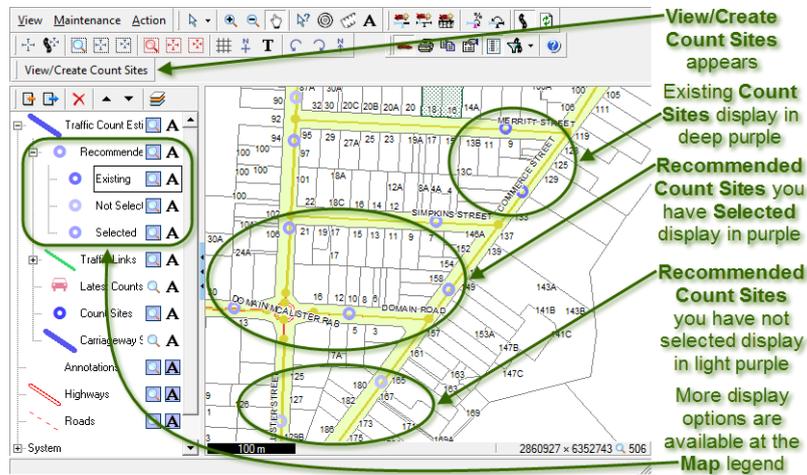
- press  to open the [Map](#) in [RAMM](#)
- then press  to turn on Traffic Management Mode. This makes the required tool bars and buttons available.
- then press  to make the Traffic Management information display on the [Map](#).

Recommended Count Sites

You follow the menu path [View > Recommended Count Sites](#). The first time you do this a [Warning](#) screen will open advising that as the Recommend Count Sites process uses Intersections, your Intersection records need to be up-to-date. If they are not, you need to generate and correct your Intersection records before you view the recommended Count Sites.



If your Intersection records are up-to-date you press [Yes](#) to close the [Warning](#) and to open a screen showing the process to generate a Layer on the [Map](#) of [Count Sites](#) recommended by [RAMM](#). When the process is completed, the Recommended [Count Sites](#), if any, will display in the [Map](#). More options will become available at the [Map Legend](#).



The first time you create the **Map** Layer, there will be no Recommended **Count Sites**. These will not appear until you have run the Recommend **Count Sites** process at the **Recommended Count Sites** screen or from within **RAMM Manager**.

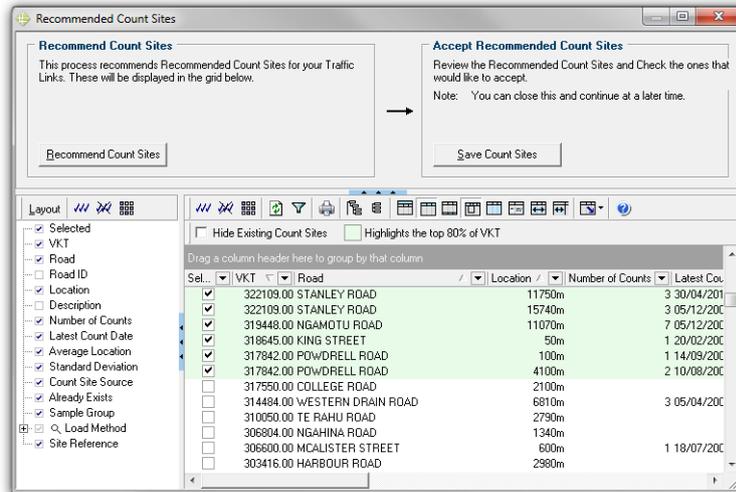
You can carry out the Recommended **Count Sites** process in **RAMM Manager** or in **RAMM** using the **Map**. For more information on the process in **RAMM Manager** see Run Recommended **Count Sites** Process (on page 227).

Tip You create Count Sites for only those Roads whose traffic you are going to count. So you have no need to create Count Sites for Roads you do not own.

View a List of Recommended Count Sites

Once you have created the **Map** Layer of Recommended **Count Sites** the View/Create Count Sites button **View/Create Count Sites** becomes available. You press this button to open the **Recommended Count Sites** screen and run the Recommend **Count Sites** process. You can then group and save the Recommended **Count Sites** in bulk.

Tip **RAMM** highlights the Recommended Count Sites which represent the Network Coverage % of VKT value you set at the **Parameter** screen in **RAMM Manager** when you set Traffic Counting parameters.



Temporary Records Only

When you run the Recommend **Count Sites** process at this screen, you are not creating permanent records. These Recommended **Count Sites** are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended **Count Sites** and pressed .

Count Sites List

The list of Recommended **Count Sites** will be the same as when you last closed the screen. So it will reflect the Recommend **Count Sites** process which you last ran and will include any changes you made after running the process. So the first time you open the screen it will be empty as you have run no processes.

This means that if you work on the Recommended **Count Sites**, close **RAMM**, open it again and return to the screen, you can begin where you left off as your work has been preserved in the temporary table.

Existing Count Sites

When you run the Recommend **Count Sites** process, existing **Count Sites**, if any, will be listed. They will be readily identifiable as the **Already Exists** check box will be selected and the record will be highlighted in grey.

Drag a column header here to group by that column

Sel...	VKT	Road	Location	Number of Counts	Latest Cou
<input type="checkbox"/>		24156.14 WAIIPA STREET	80m		5 13/03/200
<input type="checkbox"/>		24148.56 TAHAROTO ROAD	250m		4 23/06/199
<input type="checkbox"/>		23042.71 ANZAC STREET	660m		9 07/08/200
<input type="checkbox"/>		21708.88 ESKDALE RD	1360m		
<input type="checkbox"/>		21050.93 FORREST HILL ROAD	1930m		6 26/11/200
<input type="checkbox"/>		20621.60 KITCHENERS ROAD	130m		
<input type="checkbox"/>		20423.66 EAST COAST ROAD	7260m		5 07/11/200
<input type="checkbox"/>		20338.35 EAST COAST ROAD	6500m		
<input type="checkbox"/>		19370.96 OCEAN VIEW ROAD - NORTHCOTE	170m		
<input type="checkbox"/>		18913.91 ARCHERS ROAD	2100m		3 21/03/200
<input type="checkbox"/>		18807.71 HINEMOA STREET	1320m		4 08/04/200
<input type="checkbox"/>		18495.46 TARGET ROAD	480m		1 03/09/200
<input type="checkbox"/>		17837.01 GLENFIELD ROAD	3410m		
<input type="checkbox"/>		17634.43 LINK DRIVE	570m		6 28/12/200
<input type="checkbox"/>		17634.43 SUNNYNOOK ROAD	1970m		7 11/04/200
<input type="checkbox"/>		17634.43 RUI DIMPH RISE	920m		1 07/06/200

Existing Count Sites have the **Already Exists** check box selected and are highlighted in grey

Tip It is not possible to generate Recommended Count Sites for a select range of Roads even if you filter the Roads in the Road list panel or select Roads on the **Map**. You can only filter the list of Recommended Count Sites.

Select Recommended Count Sites

You will not want to count the traffic on every Road in your Network.

It is most efficient to channel your **Traffic Count Estimation** resources to those **Traffic Links** which carry most of the traffic.

Network Coverage

When you set the Traffic Counting parameters at the **Parameter** screen in **RAMM Manager** you set a **Network Coverage % of VKT** value.

Traffic Counting

Region: Northern North Island

Road Council: Hill Valley Council

Include Count Sites for: 10

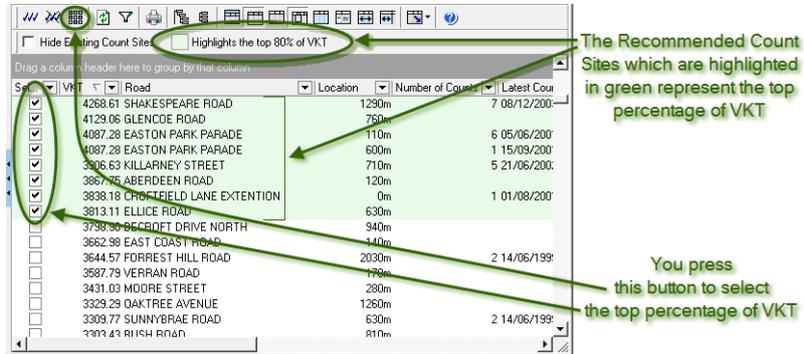
Network Coverage: 80 % of VKT

You define the percentage of your Network traffic which you want to count at the **Network Coverage % of VKT** field

Count Sites and Network Coverage

RAMM highlights the Recommended **Count Sites** which represent the value you set at the **Network Coverage % of VKT** field at the **Parameter** screen in **RAMM Manager**.

You press **Select Top % of VKT**  to select these highlighted **Count Sites**.



Sample Group

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a **Sample Group** to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

Each **Count Site** must have an associated **Sample Group** parameter which is used to determine when a **Traffic Count** will next be scheduled at the **Count Site**. See **Traffic Count Schedule** (on page 149).



When you save Recommended Count Sites you assign Sample Group values in bulk. So you can filter and group the Recommended Count Sites which require the same Sample Group value before you save them.

You can also just give all the Count Sites a temporary Sample Group value and correct this as part of a future process. See **Updating Count Site Sample Group Values** (on page 122).

Filter the Recommended Count Sites

If you decide to filter the Recommended **Count Sites** to group Roads with the same **Sample Group** value, your filter parameters will depend on your Road Network and your knowledge of the same.

The obvious filter parameter is the VKT.

Select the Recommended Count Sites

You can select all the filtered and grouped Recommended **Count Sites** by pressing . Then when you close the **Recommended Traffic Links** screen you will be returned to the **Map** and the recommended **Count Sites** will be displayed.



NOTE

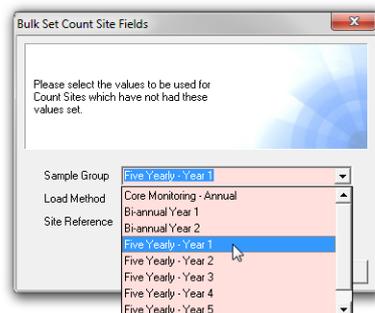
If you export and sum VKT values to check the **RAMM % VKT** calculations there may appear to be errors even though the highlighted list is accurate.

When **RAMM** recommends two Count Sites on one Traffic Link to account for multiple historical counts, the VKT value is listed twice. VKT for child Traffic Links associated with a parent Traffic Link will not appear in the list because **RAMM** will not recommend Count Sites for them. The VKT of Carriageway Sections which are not in a Traffic Link will still be part of the calculation but not in the list.

Save Count Sites

Best practice is to select **Count Sites** in bulk at the **Recommended Count Sites** screen. You do this by selecting the check boxes adjacent to the Recommended **Count Sites** and then pressing . This opens the **Bulk Set Traffic Link Fields** screen.

Bulk Set Count Site Fields



You select the values which match the characteristics of the **Count Sites**, press OK and the **Count Sites** are created.

You must select a **Sample Group** for the **Count Sites**. You have the option of selecting **Load Method** and defining a **Site Reference** if this is useful to you.

**Tip**

When you save Recommended Count Sites you assign Sample Group values in bulk. So you can filter and group the Recommended Count Sites which require the same Sample Group value before you save them.

You can also just give all the Count Sites a temporary Sample Group value and correct this as part of a future process. See Updating Count Site Sample Group Values (on page 122).

Run Recommended Count Sites Process Again

If you run the Recommend Count Sites process again, **RAMM** will generate a Recommended Count Site for each of the Count Sites you have created. You will be alerted to the fact that a Count Site exists as the Already Exists check box will be selected. They will also be highlighted in grey.

How RAMM Recommends Count Sites

There are two ways that **RAMM** selects a Location for a Count Site.

Firstly it looks at the historical record of Traffic Counts and recommends that these Locations become Count Sites.

Then, it randomly picks a Location somewhere along a Traffic Link which has no associated Traffic Link.

Associated Traffic Links

When you set up your Traffic Link associations you do so in a series of hierarchical Parent/Child relationships so that when you perform a Traffic Count on the uppermost of the Parent Traffic Links the reading will filter down to all the subsidiary Traffic Links as per the percentages defined.

The Traffic Link which is at the top of the hierarchical relationships of the Parent Traffic Links will have no Related To values. This is because it does not have an Average Daily Traffic (ADT) Estimate calculated as a percentage of another Traffic Link. So it needs to have its traffic counted.

The screenshot shows a software window with tabs: General, Carriageways, Count Sites, Location, and Multimedia. The 'General' tab is selected. It contains the following fields:

- Description: TRIAS ROAD 0 to 315 m
- AADT Estimate Band: Medium
- Road Type: Urban Arterial/Commuter
- Growth Group: Growth 3
- Fixed Count: No
- Traffic Link: 811
- Related To: (empty dropdown)
- Take ADT as: %

A green box highlights the 'Related To' dropdown menu, and a green arrow points from the text on the right to this box.

Count Sites are recommended for Traffic Links with no Related To values

These Traffic Links are at the highest level of the Parent - Child Traffic Link relationships or have been orphaned - ie they have no relationship with any other Traffic Link

Recommended Count Site Process

Recommended [Count Sites](#) are determined by analysing the [Traffic Links](#) using the following steps.

1 Select Traffic Links

Select all the [Traffic Links](#) where there is no associated [Traffic Link](#). These are the ones where there is to be a count performed.

2 Sort Traffic Links

Sort these records into Road and Start Displacement order.

3 Read First Record

Read the first [Traffic Link](#) from the sorted list.

4 Short Traffic Link

If the [Traffic Link](#) is 400m or less in length propose a [Count Site](#) half way along.

Check to ensure that the proposed site is not within 100m of an Intersection. If so then move it. Take the calculated Location and round it to the nearest 10m.

5 Long Traffic Link

If the [Traffic Link](#) is more than 400m in length then randomly select a Location somewhere between the start and the finish.

Check to ensure that the proposed site is not within 100m of an Intersection. If so then move it. Take the calculated Location and round it to the nearest 10m.

6 Next Traffic Link

Select the next [Traffic Link](#) record and go to step 4.

7 No More Traffic Links

If there are no more [Traffic Link](#) Records then go to Step 8.

8 Traffic Count Sites from Actual Counts

Select all the records of actual Counts from the `Traffic` table. For each Road and Carriageway Section, count the number of Counts which have taken place, irrespective of when, and determine the average Location. Round the average Location to the nearest 10m and propose this as the Location of the [Count Site](#). Repeat this step for all Roads and Carriageway Sections.



If you export and sum VKT values to check the **RAMM** % VKT calculations there may appear to be errors even though the highlighted list is accurate.

When **RAMM** recommends two Count Sites on one Traffic Link to account for multiple historical counts, the VKT value is listed twice. VKT for child Traffic Links associated with a parent Traffic Link will not appear in the list because **RAMM** will not recommend Count Sites for them. The VKT of Carriageway Sections which are not in a Traffic Link will still be part of the calculation but not in the list.

Generating Recommended Count Sites

Introduction

You create **Count Sites** so that **Traffic Counts** can best be positioned and scheduled. You could manually create **Count Sites** for your database. However, it is more efficient to accept the **RAMM** Recommended **Count Sites**. These are based on historical counts or a random Location on **Traffic Links** which have never been counted. If you have followed best practice, this will be every **Traffic Link** as you will not have associated **Traffic Links** with each other.

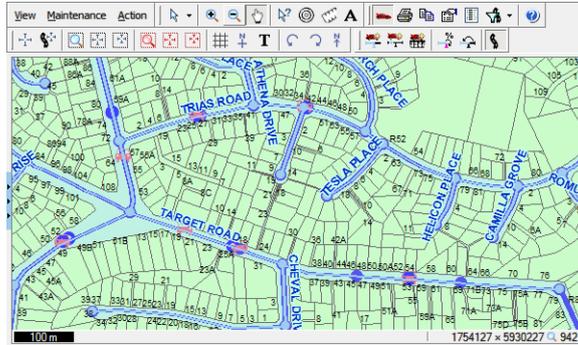
Before you do this you need to have:

- created the **Traffic Links** You do this at the **Recommended Traffic Links** screen. See **Traffic Link** Creation (on page 79).
- the correct Staff Permissions. You grant these at the **Staff Permissions** screen. See Data Maintenance Staff Permissions (on page 287).
- logged in to **RAMM**.

Menu Path

Follow the menu path (press Show Map ) > (press Traffic Management Mode ) > (press Show Traffic Data for all Roads ) to open the **Map** with the Traffic Management tool bars, buttons and information available.

► Generating Recommended Count Sites



To do this you follow these steps:

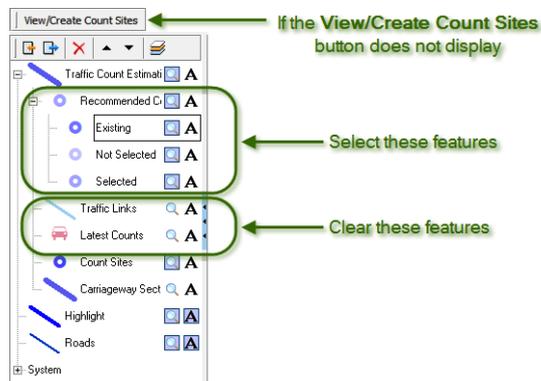
- 1 Follow the **Map** menu path **View > Recommended Count Sites**.
A screen will open showing that the process of creating the Recommended **Count Sites** Layer for the **Map** is running.

When this process is complete, the screen will close and the Recommended **Count Sites** will be displayed on the **Map**.

- 2 Does **View/Create Count Sites** display?

Yes	then go to step 6.
No	then go to step 3.

- 3 Press the Panel Sizer to open the **Map** Legend.



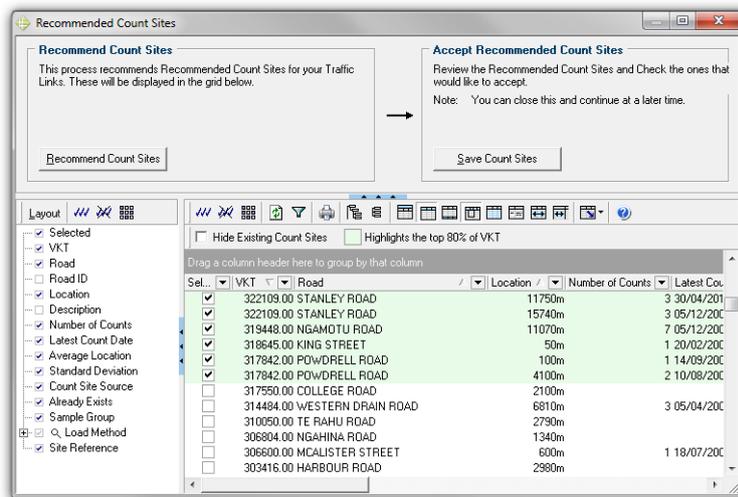
- 4 Select and clear the display options as in the graphic above.
- 5 Press the Panel Sizer to close the **Map** Legend.

6 Press **View/Create Count Sites**.

The **Recommended Count Sites** screen will open. What you see will depend on your previous actions.

If you have yet to run the Recommend **Count Sites** process, there will be no Recommended **Count Sites** listed.

If you have previously run the Recommend **Count Sites** process then the list will include Recommended **Count Sites** for all **Traffic Links** in the Network with no associated **Traffic Link** and for all points at which historical Counts have been taken. Where a **Count Site** exists, it will be highlighted in grey.



7 Press **Recommend Count Sites**.

If you have run the process previously, a **Warning** screen will open advising you of this and asking if you really want to run the process again. Press **Yes** to run the process.

If this is the first time you have run the Recommend **Count Sites** process, a screen will open to display the process as it runs. A list of Recommended **Count Sites** for all **Traffic Links** in the Network with no associated **Traffic Link** and for all points at which historical Counts have been taken will display. Where a **Count Site** exists, it will be highlighted in grey.

8 Go to Saving Recommended **Count Sites** (on page 107).

Saving Recommended Count Sites

Introduction

Once you have created the Recommended **Count Sites**, you select those which represent the value you set at the **Network Coverage % of VKT** field at the **Parameter** screen in **RAMM Manager**. **RAMM** highlights these for you. You then save them to create **Count Sites** so that you can schedule **Traffic Counts** for the most important Roads in your Network.

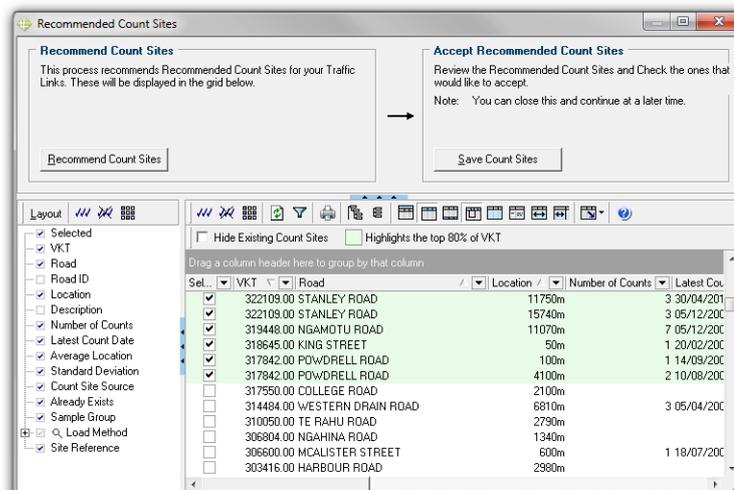
Before you do this you need to have:

- run the Recommended **Count Site** process. You do this at the **Recommended Count Sites** screen. See [Generating Recommended Count Sites](#) (on page 104).
- the correct Staff Permissions. You grant these at the **Staff Permissions** screen. See [Data Maintenance Staff Permissions](#) (on page 287).

Menu Path

Follow the menu path (press **Show Map** ) > (press **Traffic Management Mode** ) > (press **Show Traffic Data for all Roads** ) > **View** > **Recommended Traffic Links** > (press **View/Create Count Sites** ) to open the **Recommended Count Sites** screen with a list of Recommended **Count Sites**.

► Saving Recommended Count Sites



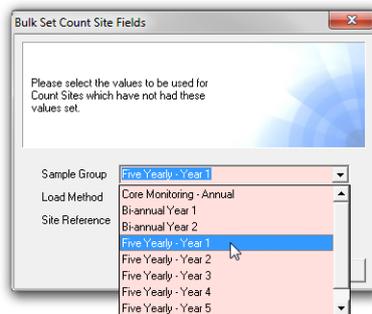


Each Count Site must have an associated Sample Group parameter which is used to determine when a Traffic Count will next be scheduled at the Count Site. Best Practice is to give all the Count Sites a default Sample Group value and to change this if required during a later process. See Updating Count Site Sample Group Values (on page 122).

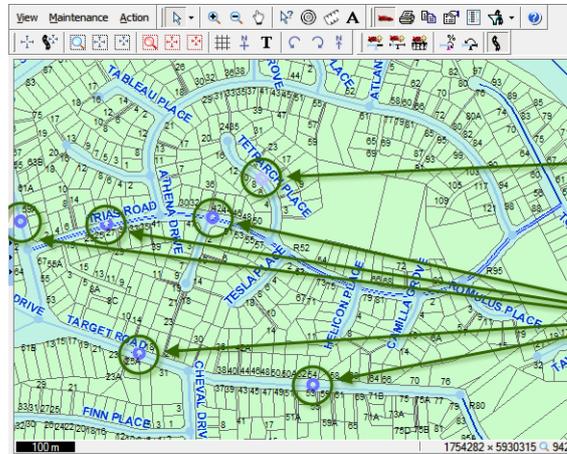
To do this you follow these steps:

- 1 Press **Select Top % of VKT** .
The Recommended **Count Sites** which represent the value you set at the **Network Coverage % of VKT** field at the **Parameter** screen in **RAMM Manager**, will be selected. These are highlighted in green.
- 2 Press **Save Count Sites** .

The **Bulk Set Count Sites Fields** screen will open.



- 3 Select a default value from the **Sample Group** drop-down list.
 - 4 Select a value from the **Load Method** drop-down list if this information is useful to you.
 - 5 Type the **Site Reference** code in the **Site Reference** field if you use **Site References**.
 - 6 Press **OK** .
- The **Bulk Set Count Sites** screen will close and you will be returned to the **Recommended Count Sites** screen. The Recommended **Count Sites** which you have just saved will be greyed out to show that they are now existing **Count Sites**.
- 7 Close the screen in the normal manner.
You will be returned to the **Map** where the newly created **Count Sites** will display.



The remaining Recommended Count Sites will display in lighter shades of purple

The Recommended Count Sites which you have changed into actual Count Sites will display in deep purple



When you run the Recommend Count Sites process at this screen, you are not creating permanent records. These Recommended Count Sites are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended Count Sites and pressed the Save Count Sites button. So you can run the Recommended Count Sites process over and over without causing problems.

Associate Traffic Links by Count Site

When you set your initial [Traffic Count Estimation](#) parameters, you defined the percentage of your Network Vehicle Kilometres Travelled (VKT) which you intend to count. **RAMM** helps you place [Count Sites](#) on the [Traffic Links](#) which carry this percentage of your Network traffic.

So when you come to associate [Traffic Links](#) with each other, you can see clearly the Roads you want to count as they now have [Count Sites](#) on them. The Roads you do not want to count will not have a [Count Site](#).

Every [Traffic Link](#) which does not have a [Count Site](#) must be associated with another [Traffic Link](#) from which it receives traffic. You associate the [Traffic Links](#) which are not being counted with those which will be counted.

You do this at the **Map** where you can see the relationship between contiguous Roads. There is a special tool which makes it simple to relate one [Traffic Link](#) to another [Traffic Link](#).

In This Chapter

Traffic Link Association	112
Associating Traffic Links	119
Updating Count Site Sample Group Values	122
Refresh the Traffic Counting Map	124
Reduce Estimate Records.....	125

Traffic Link Association

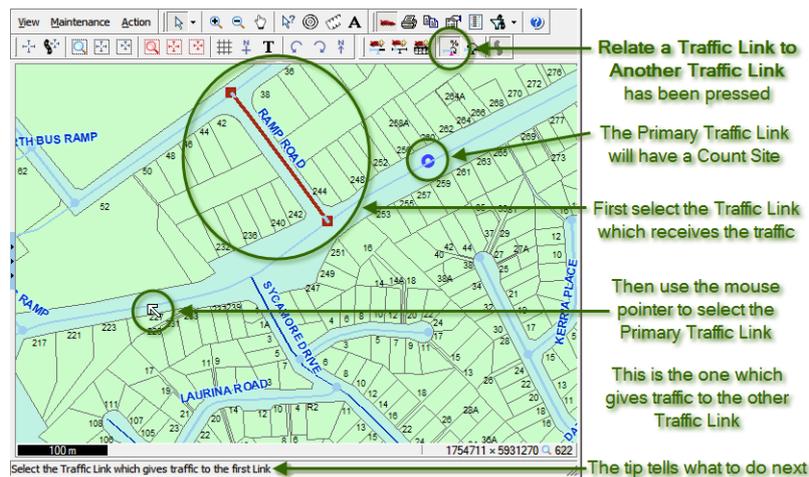
When you have created your [Traffic Links](#) and [Count Sites](#) you can then associate the links with each other to reflect the manner in which the Roads in the Network are related to one another. You can set the Average Daily Traffic (ADT) Estimate of one [Traffic Link](#) to be estimated at a percentage of the original [Traffic Link](#). This enhances the effectiveness of [Traffic Counts](#).

Relate a Traffic Link to Another Traffic Link

You use the Relate a Traffic Link to Another Traffic Link button  to associate [Traffic Links](#).

First you select the secondary [Traffic Link](#). This is the one with the lesser traffic volume. Its ADT will be Estimated as a percentage of the primary [Traffic Link](#)

You then select the primary [Traffic Link](#). This is the one with the greater traffic volume which gives traffic to the secondary [Traffic Link](#).



The primary [Traffic Link](#) will then appear briefly before the **Traffic Link** Detail screen opens. You then check the details.

The details of the [Traffic Link](#) you selected first will default into the upper **General** section. You can change these details if necessary. These should be the details for the secondary [Traffic Link](#) which will be defined as having an ADT as a percentage of the ADT of the primary [Traffic Link](#).

The Secondary **Traffic Link** details will default
 The Primary **Traffic Link** gives traffic to the secondary **Traffic Link**
RAMM calculates the percentage of the Primary **Traffic Link** traffic which is expected to flow into the secondary link
 You can edit this value

 **NOTE** In the graphic above, there are no Traffic and Loading data such, as ADT, for the secondary Traffic Link. This is because the data have not yet been set. Even if the Traffic Link to which it is being related has an actual ADT, no ADT will be set for the secondary Traffic Link. This will not occur until a Status Check has been run. See Run Status Check (on page 129).

The name of the Traffic Link you selected second will default into the lower Related To section.

RAMM will have calculated a default percentage of the traffic from the primary Traffic Link which is expected to flow into the secondary Traffic Link. This will default into the Take ADT as % field. You can edit this figure if required. To do this you type a value in the Take ADT as % field. This defines the percentage of the ADT of the primary Traffic Link which is expected on the secondary Traffic Link.

 **Tip** If you are using the Relate a Traffic Link to Another Traffic Link process and you inadvertently click on the **Map** in error, you may experience unexpected behaviour such as a screen not appearing. If this happens, look under the Window menu option. If the Traffic Link Detail screen is listed, select it. You should then see what you are expected to do next.

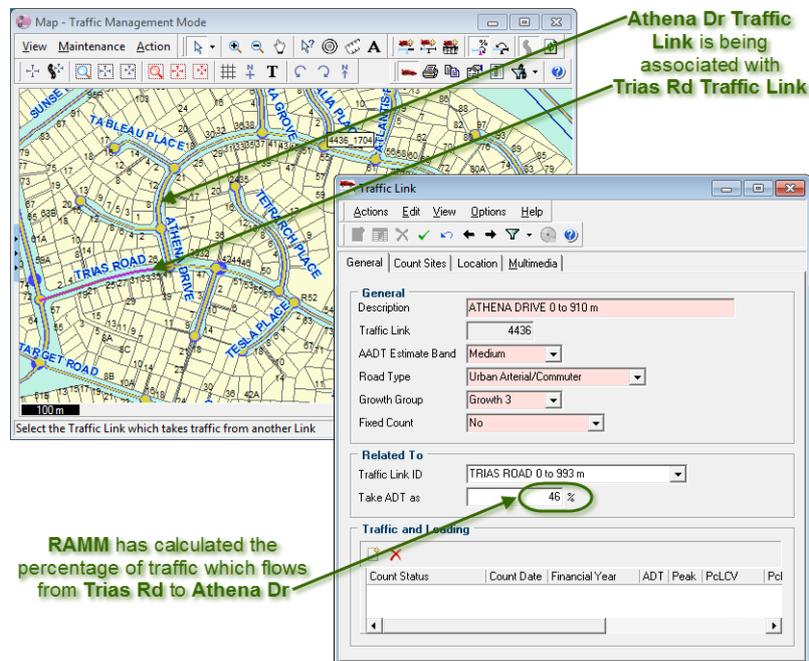
If you select and display the Traffic Link Detail screen it should become obvious what you need to do next

Parent Child Link Percentage Calculation

When you are associating **Traffic Links**, **RAMM** defaults a suggested percentage ADT value for the traffic the child link will take from the parent link.

The Default ADT % Calculation

When associating **Traffic Links** at the **Map** in **RAMM**, You first select a dependent or child **Traffic Link**. This is the link which takes traffic from the other. You then select the parent link. This is the **Traffic Link** which gives traffic to the other.



RAMM then defaults a suggested percentage ADT value for the traffic the child link will take from the parent link. It calculates this by selecting all the Carriageway Sections which comprise both **Traffic Links**. The average ADT is then calculated for both the parent and the child links. A default % value is then added to the **Take ADT as** field. **RAMM** calculates this value as $(\text{average ADT of child link}) / (\text{average ADT of parent link}) \star 100$.

Users can overwrite this default value.

In the graphic above the dependent or child link is Athena Drive. The parent or traffic-giving link is Trias Rd.

Child Link with Higher ADT Than the Parent Link

If you attempt to associate a child or traffic-receiving **Traffic Link** with a parent or traffic-giving **Traffic Link** which has a lower ADT, **RAMM** advises you by displaying a percentage figure of over 100% to show that the traffic will actually be flowing the other way.

High ADT and Low VKT

When you are generating recommended **Count Sites** this is usually done on the basis of a percentage of the network VKT. In rare situations you may want to place a **Count Site** on a **Traffic Link** with a small VKT.

A child **Traffic Link** associated with this as a parent link would potentially have a higher ADT than the parent **Traffic Link**. This would not generally be logical as it would mean the traffic-receiving child **Traffic Link** would have greater traffic than the traffic-giving parent.

So the ADT % would be greater than 100%.

While you can enter a value greater than 100%, it is not advisable to do so. So **RAMM** displays a value of greater than 100% to warn you against doing this in error.

The screenshot shows the RAMM software interface. On the left is a map titled 'Map - Traffic Management Mode' showing a street network. On the right is the 'Traffic Link' configuration window. The 'General' tab is active, showing the following details:

- Description: TRIAS ROAD 0 to 933 m
- Traffic Link: 4435
- AADT Estimate Band: High
- Road Type: Urban Arterial/Commuter
- Growth Group: Growth 2
- Fixed Count: No

The 'Related To' section shows:

- Traffic Link ID: ATHENA DRIVE 0 to 910 m
- Take ADT as: 219 %

The 'Traffic and Loading' section contains a table:

Count Status	Count Date	Financial Year	ADT	Peak	PcLCV	Pcl
Estimate	29/06/2010	2010/11	450			

Annotations in green text point to specific elements:

- 'Athena Drive has less traffic than Trias Road' points to the 'Related To' section.
- 'The Take ADT as value is greater than 100%' points to the '219 %' value.
- 'This shows that Athena Drive will be taking traffic from Trias Road, not the other way around' points to the 'Take ADT as' field.

Circular Link Warning

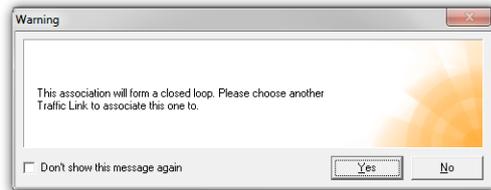
You need to ensure that [Traffic Links](#) you create are not associated with themselves through circular linking. **RAMM** warns you when you are about to do this.

Warning

When you are associating one [Traffic Link](#) (the primary) with another (the secondary), **RAMM** checks that the association does not create a closed loop. It does this by looking for a [Traffic Link](#) associated with the secondary link. If it finds an associated link, it checks that it is not the primary [Traffic Link](#). It repeats this check until it finds a [Traffic Link](#) with no other associated link.

If **RAMM** discovers that an associated link is the primary link the following warning is displayed.

This association will form a closed loop. Please choose another [Traffic Link](#) to which to associate this one.



Deselect Traffic Link

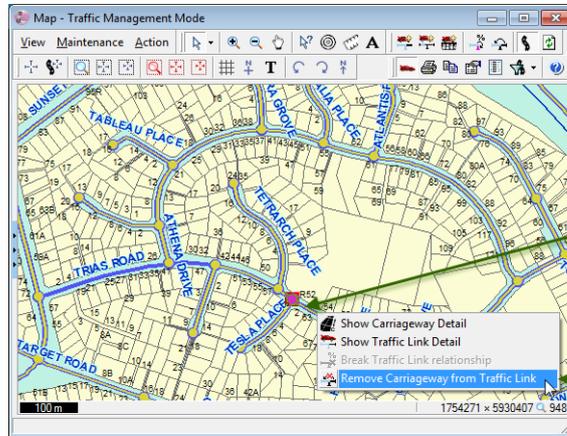
You can break the association between two [Traffic Links](#) when working at the **Map** in **RAMM**.

Associated Carriageway Sections and Traffic Links

When you are setting up and maintaining [Traffic Count Estimation](#) at the **Map** in **RAMM** you might make an error of judgement and associate a Carriageway Section incorrectly to a [Traffic Link](#). Another error could be incorrectly associating two [Traffic Links](#).

To dissociate a Carriageway section from a [Traffic Link](#) you highlight the Carriageway and right-click for the menu options.

To dissociate a [Traffic Link](#) from another you highlight the [Traffic Link](#) and right-click for the menu options.



- 1 To remove a Carriageway Section from a Traffic Link
- 2 You select the Carriageway Section and right-click
- 3 Select Remove Carriageway from Traffic Link

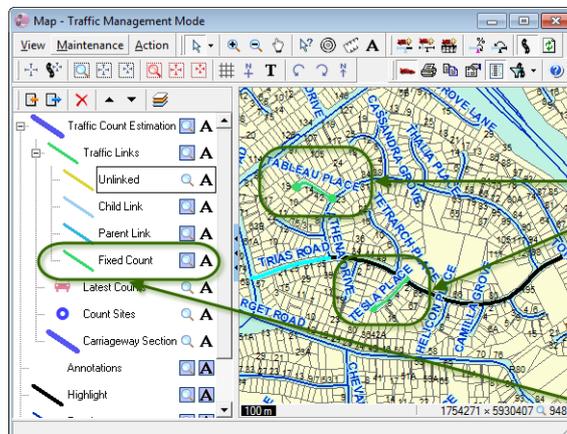
Fixed Count Traffic Links

You can define **Traffic Links** which do not need to be counted and can be left for manual ADT Estimate review.

Set ADT and Leave It

You probably have cul-de-sacs, short rural roads and others for which you would prefer to set the ADT and leave it. **Traffic Links** comprised solely of such roads would not be counted. They would be excluded from most of the **Traffic Count Estimation** processes and ignored until you decided to manually update them.

They would be affected only by increases or decreases based on their Growth Group.



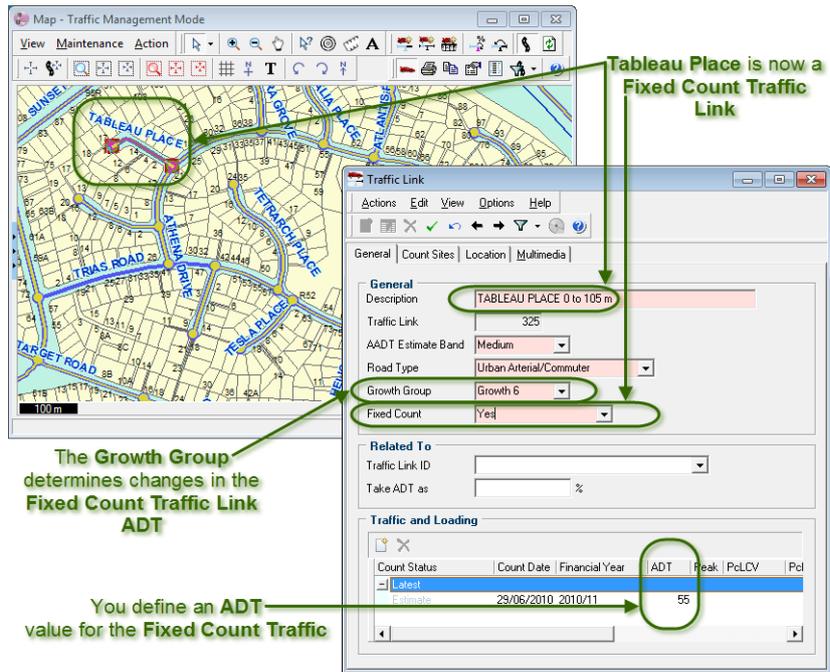
- Fixed Count Traffic Links** are not counted nor are they linked to **Traffic Links** which are counted
- You can see that **Tableau Place** and **Tesla Place** are **Fixed Count Traffic Links** because of their colour
- In the **Map Legend** you set the colour for **Fixed Count Traffic Links**

Set the Colour

You set a colour for the Fixed Count Traffic Links which will differentiate them from other Traffic Links.

Fixed Traffic Link Option

You select the Fixed Count option to determine that a Traffic Link is not to be counted.



Colour Format Traffic Links

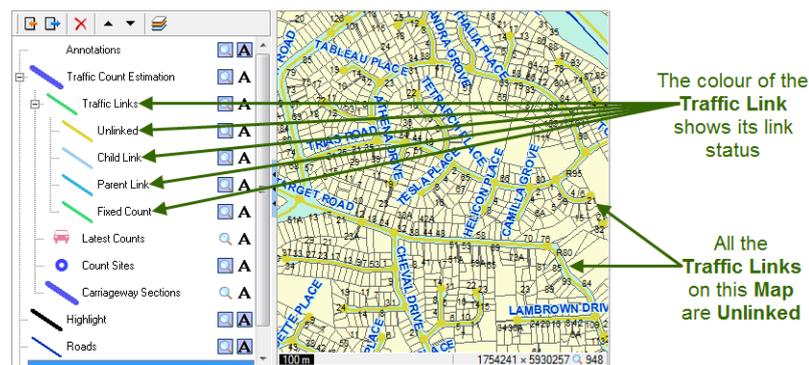
You can colour Traffic Links to distinguish between parent links, child links, those which have yet to be associated with another Traffic Link, and those links which have a fixed ADT and should not be counted.

Parent, Child, Orphan and Fixed Count Colours

When you are setting up and maintaining Traffic Count Estimation at the Map in RAMM you can set up your Map Legend to differentiate Traffic Links and show the status of each.

This will assist in the initial process of linking all the [Traffic Links](#) in your Network. You use colour as a visual clue to display those [Traffic Links](#) which still require association.

If you set colours for [Traffic Links](#) which are associated with another [Traffic Link](#), or whose Count is fixed, then the remaining [Traffic Links](#) will be the ones with which you still have to deal.



Associating Traffic Links

Introduction

When you have defined your [Traffic Links](#) on which you want to count traffic and the [Count Sites](#) where you want to perform the [Traffic Counts](#) you can then relate subsidiary, or secondary, [Traffic Links](#) to the traffic-contributing, or primary, [Traffic Link](#).

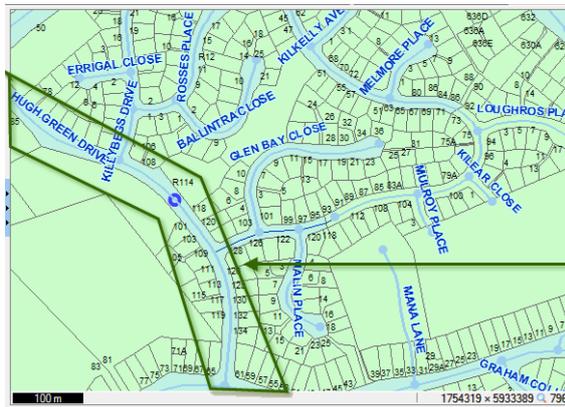
Before you do this you need to have:

- created the [Traffic Links](#). You do this at the **Recommended Traffic Links** screen. See [Traffic Link Creation](#) (on page 79).
- created the [Count Sites](#). You do this at the **Recommended Count Sites** screen. See [Count Site Creation](#) (on page 95).
- the correct **Staff Permissions**. You grant these at the **Staff Permissions** screen. See [Data Maintenance Staff Permissions](#) (on page 287).

Menu Path

Follow the menu path (press Show Map ) > (press Traffic Management Mode ) > (press Show Traffic Data for all Roads ) > (locate primary Traffic Link) to open the **Map** with traffic management data displayed for the primary Traffic Link. In the graphic below, the primary Traffic Link is Hugh Green Drive on the left of the screen. It has a Count Site.

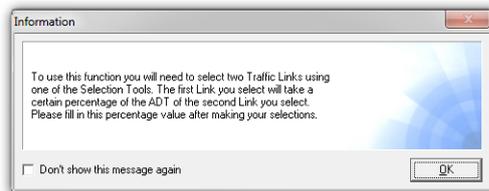
► Associating Traffic Links



The primary Traffic Link is Hugh Green Drive
It is the one which will contribute traffic

To do this you follow these steps:

- 1 Press Relate a Traffic Link to Another Traffic Link .
The tool to relate Traffic Links is enabled. The message Select the Traffic Link which takes traffic from another Link appears at the base of the **Map**. An **Information** screen will open advising you how to use the tool if this is the first time you have pressed the button.



- 2 Read the information.
 - 3 Select Don't show this message again.
 - 4 Press .
- The **Information** screen will close and you will be returned to the **Map**. Next time you press  the **Information** screen will not appear.

- Use the mouse pointer to select the secondary **Traffic Link**. This is the one which will receive traffic from the primary **Traffic Link**. The **Traffic Link** will become highlighted. The message **Select the Traffic Link which gives traffic to the first Link** will appear at the base of the **Map**.



- Use the mouse pointer to select the primary **Traffic Link**. This is the one which will give traffic to the secondary **Traffic Link**. The **Traffic Link** Detail screen will open. The details for the secondary **Traffic Link** will have defaulted into the upper **General** section. The name of the primary **Traffic Link** will have defaulted into the lower **Related To** section.

General	Carriageways	Count Sites	Location	Multimedia
General				
Description	KILLYBEGS DRIVE 0 to 457 m		Traffic Link	2125
AADT Estimate Band	Medium			
Road Type	Urban Arterial/Commuter			
Growth Group	Growth 3			
Fixed Count	No			
Related To				
Traffic Link	HUGH GREEN DRIVE 0 to 1433 n			
Take ADT as	4 %			
Traffic and Loading				
Count Status	Count Date	Financial Year	ADT	Peak Traffic ADT % M

- Look at the AADT Estimate Band, Road Type and Growth Group values in the **General** section. Update them if necessary.
- Type in the **Take ADT as** % field, the percentage of traffic of the primary **Traffic Link** you expect to flow along the secondary **Traffic Link**.
- Press . Your changes will be saved.
- Close the **Traffic Link** Detail screen in the normal manner. You will be returned to the **Map** where you can relate another **Traffic Link**.
- Have you checked the **Sample Group** value of the **Count Site** for the primary **Traffic Link**?

Yes	then go to step 13.
No	then go to step 12.

- 12 Check the **Sample Group** value of any **Count Site**. See Updating **Count Site Sample Group Values** (on page 122).
- 13 Are there any remaining secondary **Traffic Links** to be related to a primary **Traffic Link**?

Yes	then go to step 5.
No	then go to step 14.

- 14 Close the **Map** in the normal manner.

Updating Count Site Sample Group Values

Introduction

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a **Sample Group** to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years. The logical and efficient time to decide to which **Sample Group Count Sites** should belong, is when you are relating **Traffic Links** at the **Map**. That is why when you created your **Count Sites** you gave them all a default value at the **Sample Group** field.

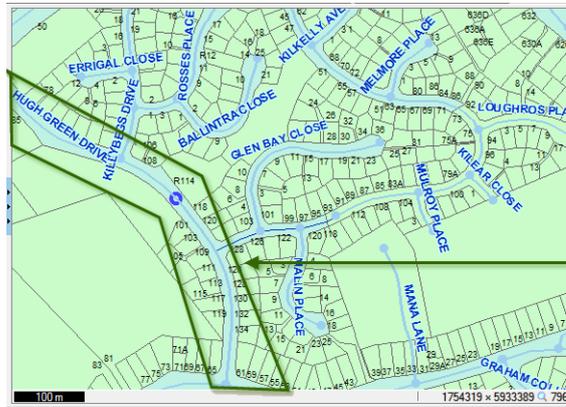
Before you do this you need to have:

- created the **Traffic Links**. You do this at the **Recommended Traffic Links** screen. See **Traffic Link Creation** (on page 79).
- created the **Count Sites**. You do this at the **Recommended Count Sites** screen. See **Count Site Creation** (on page 95).
- performed steps 1 to 12 of the Relating **Traffic Links** procedure. You do this at the **Traffic Link Detail** screen. See **Associating Traffic Links** (on page 119).
- the correct **Staff Permissions**. You grant these at the **Staff Permissions** screen. See **Data Maintenance Staff Permissions** (on page 287).

Menu Path

Follow the menu path (perform the Relating Traffic Links procedure to step 12) to open the **Map** with the **Count Site** that you wish to check displayed. In the graphic below, the **Count Site** is on Hugh Green Drive on the left of the screen.

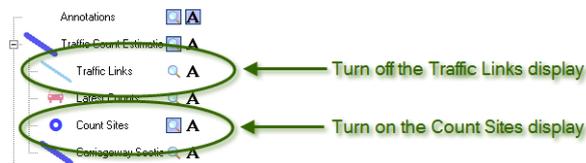
► Updating Count Site Sample Group Values



The primary Traffic Link is Hugh Green Drive
It is the one which will contribute traffic

To do this you follow these steps:

- 1 Press Relate a Traffic Link to Another Traffic Link . The tool to relate Traffic Links is disabled.
- 2 Press the Panel Sizer. The Map Legend will open.



- 3 Make sure that the Traffic Links display is turned off and that the Count Sites display is turned on. Otherwise it will be very difficult to select the Count Site.
- 4 Press the Panel Sizer. The Map Legend will close.
- 5 Use the mouse pointer to select the Count Site.
- 6 Right-click to bring up the options.



- 7 Press Show Count Site Detail. The Count Site Detail screen will open with the details of the Count Site defaulted.

General	
Description	HUGH GREEN DRIVE 330 m Count Site 4
Location	330 m
Sample Group	Core Monitoring - Annual
Count Site Source	Manual
Loading Method	
Site Reference	

Is the Sample Group value appropriate for the Count Site?

- 8 Is the **Sample Group** value correct?

Yes	then go to step 12.
No	then go to step 9.

- 9 Press .
The fields become available.
- 10 Select the appropriate value from the **Sample Group** drop-down list.
- 11 Press .
Your changes are saved.
- 12 Close the **Count Site** Detail screen in the normal manner.
You will be returned to the **Map**.
- 13 Is there another **Count Site** whose **Sample Group** value you want to check?

Yes	then go to step 5.
No	then go to step 14.

- 14 Press the **Panel Sizer**.
The **Map** Legend will open.
- 15 Make sure that the **Traffic Links** display is turned on and that the **Count Sites** display is turned on.
- 16 Press the **Panel Sizer**.
The **Map** Legend will close.
- 17 Press **Relate a Traffic Link to Another Traffic Link** .
The tool to relate **Traffic Links** is enabled.
- 18 Return to step 13 of the Associating **Traffic Links** procedure. See Associating **Traffic Links** (on page 119).

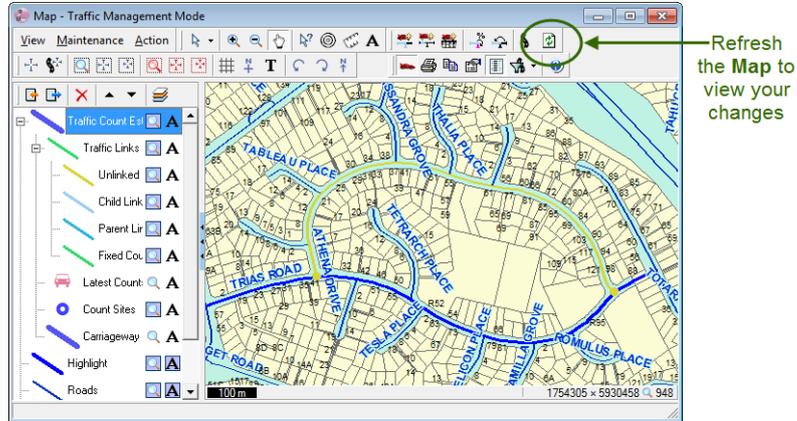
Refresh the Traffic Counting Map

When you are creating and maintaining your **Traffic Count Estimation** Assets at the **Map** in **RAMM** you can refresh the **Map** so that you can more easily view the changes you have made.



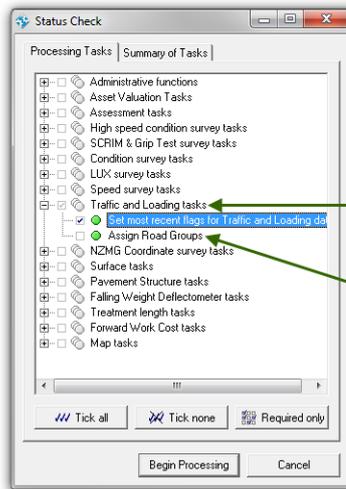
See Your Changes

When you are creating and maintaining **Traffic Count Estimation** at the **Map** in **RAMM** you may want to see your changes reflected in the **Map**. You see this whenever the **Map** is refreshed. If the **Map** auto refresh function is not updating often enough, you can press **Refresh** to view your updates.



Reduce Estimate Records

A large number of Estimate records are created when you are setting up **Traffic Count Estimation**. You can now reduce that number by having **RAMM** overwrite records when sensible.



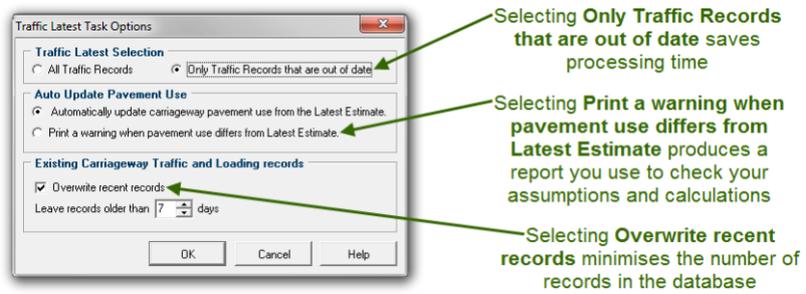
Status Check
Traffic and Loading Tasks
are now combined

Assign Road Groups
is used for NZTA reports
unrelated to Traffic Count
Estimation and is not run as
part of this process

Status Check Option

When the **Traffic Count Estimation** process is run in Status Check, the final step is to create Estimate records for each Carriageway Section. If you do not wish to create large numbers of Estimates you can choose to overwrite the existing record rather than to create new ones.

You specify, in the Existing Carriageway Traffic and Loading records section, that if the age of the records is equal to or less than a particular number of days old, they are overwritten.



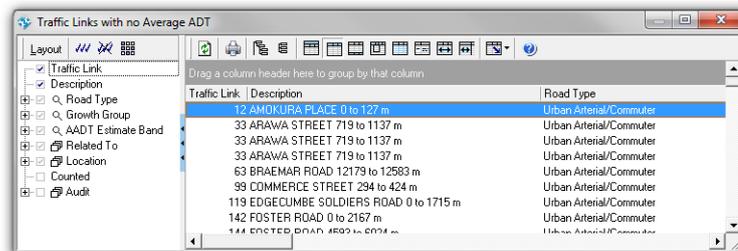
Data and Status Checks

When you have created your [Traffic Links](#), [Count Sites](#) and related your [Traffic Links](#) to each other, you will want to schedule your [Traffic Counts](#).

You should validate your data before you schedule your [Traffic Counts](#). First you check for Carriageway Sections which are not part of a [Traffic Link](#).

Once you have found any unlinked Carriageway Sections and either made them into a [Traffic Link](#) or joined them to an existing [Traffic Link](#) you can run Status Check. This updates the database to take into account any [Traffic Counts](#) and Estimates entered since the most recent Status Check. It then updates the Average Daily Traffic (ADT) Estimates taking into account the new readings and the other factors. So all [Traffic Links](#) should then have an ADT.

So as a final sanity check you run a report to locate [Traffic Links](#) with no Average ADT value.



Traffic Link	Description	Road Type
12	AMDKURA PLACE 0 to 127 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
63	BRAEMAR ROAD 12179 to 12583 m	Urban Arterial/Commuter
99	COMMERCE STREET 294 to 424 m	Urban Arterial/Commuter
119	EDGECLUMBE SOLDIERS ROAD 0 to 1715 m	Urban Arterial/Commuter
142	FOSTER ROAD 0 to 2167 m	Urban Arterial/Commuter
144	FOSTER ROAD 4893 to 6074 m	Urban Arterial/Commuter

In This Chapter

Unlinked Carriageways.....	128
Run Status Check.....	129
Traffic Links with No Average ADT.....	129

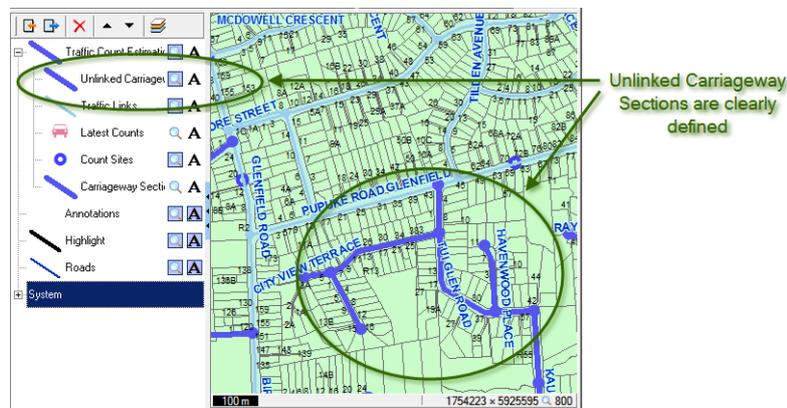
Unlinked Carriageways

It is possible that some Carriageway Sections will not have been associated with a [Traffic Link](#). An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.

You find these unlinked Carriageways by running the Unlinked Carriageways report. You do this through the **Map**. You can also run it from **RAMM Manager**. See Unlinked Carriageways (on page 241).

Unlinked Carriageways Map Layer

When you follow the menu path View > Unlinked Carriageways **RAMM** creates a Layer for the **Map** which distinguishes Carriageways with no [Traffic Link](#) defined. The Carriageways are obvious.



How to Fix the Problem

If there are a large number of items to fix, the most efficient method is to run the Recommended [Traffic Links](#) process again. You do this at the **Recommended Traffic Links** screen. See View a List of Recommended [Traffic Links](#) (on page 81).

If there are only a few Carriageways, it is probably faster to use the **Map**. You press  and add the [Traffic Links](#) in the standard manner. See Associate a Carriageway Section with a [Traffic Link](#) (on page 188).



In order to run the Unlinked Carriageways report a user must have at least Enquiry Permission for Road Name and Carriageway.

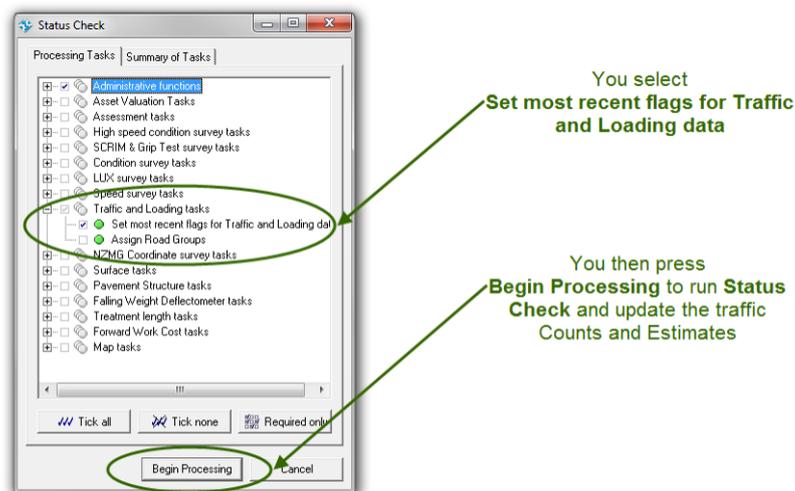
Run Status Check

Once you have found any unlinked Carriageway Sections and either made them into a [Traffic Link](#) or joined them to an existing [Traffic Link](#) you can run Status Check. This updates the database to take into account any [Traffic Counts](#) and Estimates entered since the most recent Status Check. It then updates the Average Daily Traffic (ADT) Estimates taking into account the new readings and the other factors. So all [Traffic Links](#) should then have an ADT.

Status Check

You can run the Status Check from the **Map** in [RAMM](#). See Update [Traffic Counts](#) and Estimates (on page 204).

You can also run the Status Check from [RAMM Manager](#). See Update [Traffic Counts](#) and Estimates (on page 230).



Traffic Links with No Average ADT

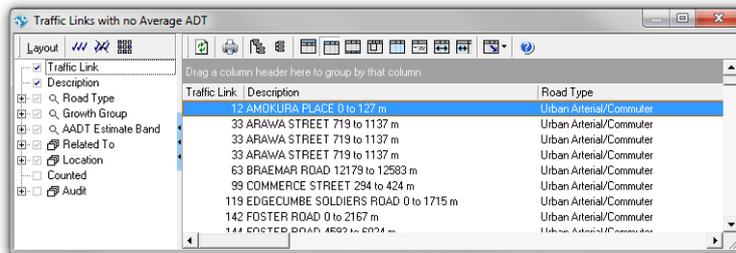
When you have run Status Check, there may be errors reported in the resulting Traffic Latest Errors report. See Traffic Latest Errors Report (on page 297).

Hill Valley Regional Council Printed: 03/09/2011 Page: 1
User: grant

Traffic Latest Errors

Carriageway Section	Date	Error
GLENFIELD ROAD (11)		
PUPUKE ROAD - GLENFIEL - MOORE STREET (0-235)		Pavement Use (7) con fids with AD T (1887)
MOORE STREET - PARK HILL ROAD (235-448)		Pavement Use (7) con fids with AD T (1066)
ESKDALE ROAD - SPEEDYCRE SCENT (506-835)		Pavement Use (7) con fids with AD T (2332)
SPEEDYCRE SCENT - CORONATION ROAD (835-1257)		Pavement Use (7) con fids with AD T (1707)
CAPILANO PLACE - DOWNING STREET (1859-2419)		Pavement Use (7) con fids with AD T (4208)
MANUKAROAD - WARAU ROAD (3552-4072)		Pavement Use (7) con fids with AD T (11950)

You should locate the [Traffic Links](#), identify and fix the problems which are causing the errors. You can easily identify some of the [Traffic Links](#) with problems by running the Traffic Links with no ADT report. You can run this report from within **RAMM Manager**. See [Traffic Links with No ADT](#) (on page 241).



See the Traffic Links on the Map

You follow the menu path View > Traffic Links with no ADT. A Layer will then be created so that you can more easily find the [Traffic Links](#) with errors.

When you have located the [Traffic Links](#) with errors and fixed them the Layer should disappear. If not, there must be more [Traffic Links](#) to fix.

Select Sites and Develop a Programme

Prior to implementing **RAMM Traffic Count Estimation**, each Road Controlling Authority (RCA) will have had its own traffic counting programme. The implementation of **RAMM Traffic Count Estimation** is an opportunity for each RCA to consider improvements which they can make in the selection of the sites where **Traffic Counts** should take place and how often traffic should be counted on each Road, if at all.

The following sections include recommendations for a potentially more efficient traffic counting programme that:

- targets those Roads that contribute most to Network traffic
- retains the investment in historical monitoring
- provides a means for monitoring the volume of vehicle traffic on the Network.



There is no standard traffic counting programme which will suit all RCAs. How you design your programme will depend on your budget and your particular Network of Roads.

It is the principles outlined in this chapter which are important. The individual details of each aspect of the recommended programme will not suit all RCAs.

In This Chapter

Rotational Monitoring Sites.....	132
Core Monitoring Sites	134
Other Monitoring Sites.....	146

Rotational Monitoring Sites

If you are unable to count all your major [Traffic Links](#) every year, you use Rotational [Traffic Counts](#) to provide more frequent traffic monitoring on those [Traffic Links](#) that carry the greatest proportion of total Network travel.

Background

In an ideal world, Road Network planning and performance monitoring would be based on detailed knowledge of the traffic conditions on every link in the Road Network. However, monitoring the traffic volumes on every Road in the Network would be an inefficient use of resources as the majority of travel undertaken on a Road Network is concentrated on a relatively small selection of Roads.

Typically the top 20% of [Traffic Links](#), when sorted in descending order according to the total Vehicle Kilometres Travelled (VKT), carry between 80% and 95% of the total travel undertaken on the Network and between 60% and 90% of traffic crashes occur on these links.

These Roads are therefore important to the community and the Road Controlling Authority (RCA). Having reliable traffic Estimates on these key links is very important. Depending on just how many key [Traffic Links](#) there are, a decision can be made to:

- count all these links annually, or
- divide the set into two groups which are counted in alternate years.

While the former is obviously preferable, to maintain a similar investment in traffic counting some RCAs will need to adopt the latter approach, hence the name Rotational Monitoring.

If the latter option is selected, it is important to ensure the links that make up any particular group are roughly distributed over the Network. While it may be more efficient to split the groups geographically, it is generally better to look for a more even distribution.

Sample Selection

Selecting the sample of Rotational Monitoring sites is a relatively simple exercise. Simply filter the **Traffic Link** table to identify those **Traffic Links** that, when ordered by Vehicle Kilometres Travelled (VKT), account for 80% of the total Network travel.

Having selected the total sample it, may well be worthwhile investigating which links already have established **Count Sites** and the extent of that traffic counting history.

This can be done using the initial **Recommended Count Sites** screen. See **View a List of Recommended Count Sites** (on page 97). It can be further refined using the **Map**. See **Saving Recommended Count Sites** (on page 107).

Review Core Monitoring Requirements

It may also pay to review the requirements for selecting the Core Monitoring sites, outlined below, as this will assist in developing a programme that makes maximum use of the historical traffic count data, without introducing bias.

Count Programme

Having identified which of the top Rotational Sample sites are to be used as Core Monitoring sites the remaining Rotational Sites can be allocated to a programme. As a general guide the programme should be aiming to ensure that around 15% to 20% of the Network traffic links are counted annually. This equates to roughly 10% to 15% of the **RAMM** Carriageway Sections.

Rotational Monitoring Sites

Based on these percentages, the annual traffic survey programme of 15% to 20% of **Traffic Links** would cover 3% to 6% Core Monitoring sites and around 10% to 14% Rotational Monitoring sites. In many cases it will be necessary to split the Rotational Monitoring sites into two groups, this can be done by simply allocating each consecutive site to one of four groups (A,B,C,D) and then combine groups A and D to form the first years and B and C to form the second. This is not as rigorous as ordering on a random number but should work to ensure that the groups of sites are not geographically biased, which would impact on the update process described below. This process can be done manually or visually in the **Map** or by exporting the **Count Sites** to Excel, completing the exercise and updating results in **RAMM**.

Core Monitoring Sites

Best practice is to have a group of Core Monitoring [Count Sites](#) which are counted annually.

Budget and other constraints may preclude a Road Controlling Authority (RCA) from restricting its sites to a core annual group.

In that case they will need to institute groups of Rotational Monitoring [Count Sites](#). See Rotational Monitoring Sites (on page 132).

Purpose

The Core Monitoring sites are a selection of sites that will be surveyed annually, in order to provide an Estimate of total annual Vehicle Kilometres Travelled (VKT) on the Network.

They will cover those [Traffic Links](#) that contribute most to total Network travel and are placed on the Roads with highest traffic volumes.

Background

The general approach, as outlined in Appendix A, is to calculate the total Vehicle Kilometres Travelled (VKT) that occurs on those [Traffic Links](#) that form the Core Monitoring Sites.

You then scale this up by the ratio of the total Network length to the length of the [Traffic Links](#) that form the sample of Core Monitoring Sites, to obtain an Estimate of the total Network VKT.



The Core Monitoring Sites are selected by ordering the [Traffic Links](#) in decreasing order of ADT Estimate, but the Rotational Monitoring Sites are ordered in terms of VKT. This is calculated as length in kilometres multiplied by AADT.

Sample Specifications and Framework

The sample specifications for each Network are provided in Appendix B.

They involve selecting the required sample as a stratified random sample based on the distribution of ADT values over the Network.

Sample Size

The sample size for the Core Monitoring sites has been set to be 95%.

You can be confident that the true volume of travel lies within plus or minus 10% of the Estimate, and typically involves between 3% and 6% of the total number of [Traffic Links](#).

A more precise Estimate can be obtained by drawing a larger sample. However, to halve the precision - moving toward plus or minus 5% - generally requires approximately four times the sample.

Sample Framework

The sampling framework involves allocating all [Traffic Links](#) into one of five bands;

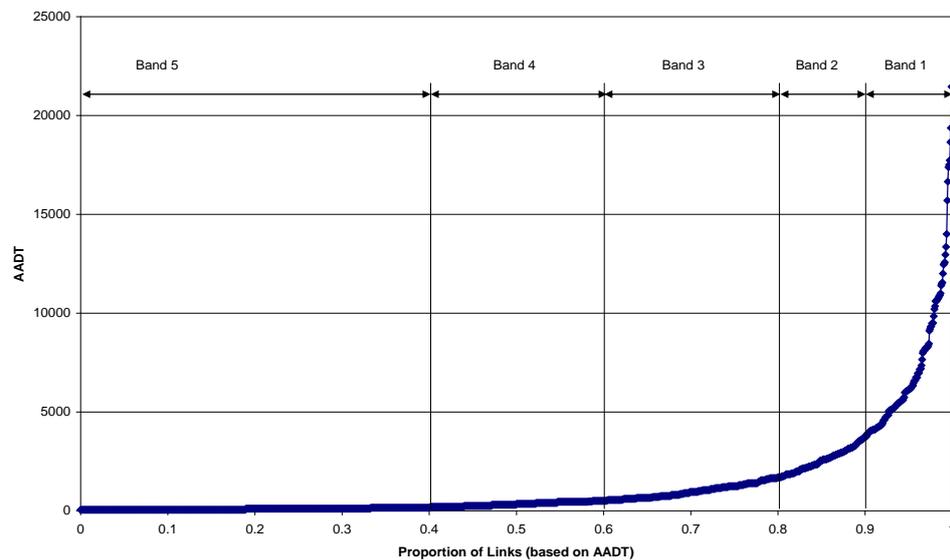
- Band 1 contains the links with the top 10% of ADTs,
- Band 2 contains the next 10% of links ordered by ADT (80% to 90%),
- Band 3 contains the next 20% of links ordered by ADT (60% to 80%),
- Band 4 contains the next 20% of links ordered by ADT (40% to 60%),
- Band 5 contains the remaining 40% of links ordered by ADT (0% to 40%),

In the table below, the sample requirements for three RCAs have been set out. The graph below shows how the sample is distributed for a typical RCA.

Sample Requirements for Different Levels of Precision

Band		District Council X	City Council Y	District Council Z
1	90 - 100%	27	24	24
2	80 - 90 %	6	6	5
3	60 - 80%	8	5	4
4	40 - 60%	3	1	5
5	<40%	2	1	1
Total		46	37	39

Allocation of Traffic Links to ADT Bands for Drawing Core Sample (District Council X)



The Core Monitoring sample required to Estimate total VKT on the District Council X Road Network would involve drawing:

- 2 traffic links from those in band 5
- 3 traffic links from those in band 4
- 8 traffic links from those in band 3
- 6 traffic links from those in band 2
- 27 traffic links from those in band 1

This provides the most efficient sample, the one that provides the desired precision for the smallest number of sites.

While it may be possible to identify existing traffic monitoring sites, and any new sites that form part of the Rotational Monitoring, that will fall into the various bands, it is important to ensure that these Core Monitoring sites are selected randomly and in most RCAs, the existing traffic monitoring sites are biased toward the higher volume Roads or those with higher levels of traffic growth.

In order to minimise the impact of such bias, but at the same time making the most of the existing traffic counting history, the following process should be used to select the Core Monitoring sites.

Select the Sample with a Spreadsheet

The first step is to export all the [Traffic Links](#) to a spreadsheet, together with their updated Estimates of ADT. You then order the [Traffic Links](#) in terms of the descending value of ADT.

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)
7001	OMAHU ROAD (7001)	1273	1653	380	20000
6134	ST AUBYN STREET EAST (6134)	0	208	208	20000
7001	OMAHU ROAD (7001)	641	1273	632	19000
8027	HAVELOCK ROAD (8027)	480	1163	683	18000
8027	HAVELOCK ROAD (8027)	1163	1584	421	18000
6071	HERETAUNGA STREET WEST (6071)	718	911	193	18000
8008	CROSSES ROAD (8008)	90	1312	1222	4850
3028	MIDDLE ROAD (3028)	464	798	334	4700
3052	TE AUTE ROAD (3052)	443	832	389	4500
6118	NELSON STREET NORTH (6118)	677	1071	394	4500
6040	GROVE ROAD (6040)	1131	1416	285	4500
5051	IONA ROAD (5051)	0	114	114	2100
6045	HASTINGS STREET NORTH (6045)	364	480	116	2100

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)
8053	RUAHA ROAD (8053)	1054	2771	1717	2000
9011	CLIFTON ROAD (9011)	432	1979	1547	2000
2056	TAIHAPE ROAD (2056)	0	870	870	2000
5056	KEIRUN ROAD (5056)	0	265	265	571
7086	TARBET STREET (7086)	0	331	331	570
7036	WALTON WAY (7036)	180	460	280	570
2056	TAIHAPE ROAD (2056)	8720	12778	4058	550
9042	LAWN ROAD (9042)	3952	5475	1523	550
1058	WAITARA ROAD (1058)	2076	4068	1992	170
1058	WAITARA ROAD (1058)	0	2076	2076	170
1058	WAITARA ROAD (1058)	4068	4168	100	170
2011	DARTMOOR ROAD (2011)	9764	15980	6216	169
2049	ROTOWHENUA ROAD (2049)	0	830	830	168
1001	AROPAO ROAD (1001)	12225	1334	1109	5
1026	MOKAMO ROAD (1026)	11896	12492	596	5
4025	POPORANGI ROAD (4025)	4243	4978	735	5
1026	MOKAMO ROAD (1026)	11557	11896	339	5

Add Number to the Spreadsheet

You then add an additional field called Number. You use this to number the [Traffic Links](#) starting at 1. Do not use a formula. Add the number as a hard value to each site.

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No
7001	OMAHU ROAD (7001)	1273	1653	380	20000	1
6134	ST AUBYN STREET EAST (6134)	0	208	208	20000	2
7001	OMAHU ROAD (7001)	641	1273	632	19000	3
8027	HAVELOCK ROAD (8027)	480	1163	683	18000	4
8027	HAVELOCK ROAD (8027)	1163	1584	421	18000	5
6071	HERETAUNGA STREET WEST (6071)	718	911	193	18000	6
8008	CROSSES ROAD (8008)	90	1312	1222	4850	216
3028	MIDDLE ROAD (3028)	464	798	334	4700	217
3052	TE AUTE ROAD (3052)	443	832	389	4500	218
6118	NELSON STREET NORTH (6118)	677	1071	394	4500	219
6040	GROVE ROAD (6040)	1131	1416	285	4500	220
5051	IONA ROAD (5051)	0	114	114	2100	433
6045	HASTINGS STREET NORTH (6045)	364	480	116	2100	434

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No
8053	RUAHA ROAD (8053)	1054	2771	1717	2000	435
9011	CLIFTON ROAD (9011)	432	1979	1547	2000	436
2056	TAIHAPE ROAD (2056)	0	870	870	2000	437
5056	KEIRUN ROAD (5056)	0	265	265	571	868
7086	TARBET STREET (7086)	0	331	331	570	869
7036	WALTON WAY (7036)	180	460	280	570	870
2056	TAIHAPE ROAD (2056)	8720	12778	4058	550	871
9042	LAWN ROAD (9042)	3952	5475	1523	550	872
1058	WAITARA ROAD (1058)	2076	4068	1992	170	1302
1058	WAITARA ROAD (1058)	0	2076	2076	170	1303
1058	WAITARA ROAD (1058)	4068	4168	100	170	1304
2011	DARTMOOR ROAD (2011)	9764	15980	6216	169	1305
2049	ROTOWHENUA ROAD (2049)	0	830	830	168	1306
1001	AROPAOA ROAD (1001)	12225	1334	1109	5	2170
1026	MOKAMO ROAD (1026)	11896	12492	596	5	2171
4025	POPORANGI ROAD (4025)	4243	4978	735	5	2172
1026	MOKAMO ROAD (1026)	11557	11896	339	5	2173

Add Percentage to the Spreadsheet

You then add a second column named **Percentage**. Calculate this as **Number/total number of Traffic Links**.

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No	%
7001	OMAHU ROAD (7001)	1273	1653	380	20000	1	0.0%
6134	ST AUBYN STREET EAST (6134)	0	208	208	20000	2	0.1%
7001	OMAHU ROAD (7001)	641	1273	632	19000	3	0.1%
8027	HAVELOCK ROAD (8027)	480	1163	683	18000	4	0.2%
8027	HAVELOCK ROAD (8027)	1163	1584	421	18000	5	0.2%
6071	HERETAUNGA STREET WEST (6071)	718	911	193	18000	6	0.3%
8008	CROSSES ROAD (8008)	90	1312	1222	4850	216	9.9%
3028	MIDDLE ROAD (3028)	464	798	334	4700	217	10.0%
3052	TE AUTE ROAD (3052)	443	832	389	4500	218	10.0%
6118	NELSON STREET NORTH (6118)	677	1071	394	4500	219	10.1%
6040	GROVE ROAD (6040)	1131	1416	285	4500	220	10.1%
5051	IONA ROAD (5051)	0	114	114	2100	433	19.9%
6045	HASTINGS STREET NORTH (6045)	364	480	116	2100	434	20.0%
8053	RUAHA ROAD (8053)	1054	2771	1717	2000	435	20.0%

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No	%
9011	CLIFTON ROAD (9011)	432	1979	1547	2000	436	20.1%
2056	TAIHAPE ROAD (2056)	0	870	870	2000	437	20.1%
5056	KEIRUN ROAD (5056)	0	265	265	571	868	39.9%
7086	TARBET STREET (7086)	0	331	331	570	869	40.0%
7036	WALTON WAY (7036)	180	460	280	570	870	40.0%
2056	TAIHAPE ROAD (2056)	8720	12778	4058	550	871	40.1%
9042	LAWN ROAD (9042)	3952	5475	1523	550	872	40.1%
1058	WAITARA ROAD (1058)	2076	4068	1992	170	1302	59.9%
1058	WAITARA ROAD (1058)	0	2076	2076	170	1303	60.0%
1058	WAITARA ROAD (1058)	4068	4168	100	170	1304	60.0%
2011	DARTMOOR ROAD (2011)	9764	15980	6216	169	1305	60.1%
2049	ROTOWHENUA ROAD (2049)	0	830	830	168	1306	60.1%
1001	AROPAO ROAD (1001)	12225	1334	1109	5	2170	99.9%
1026	MOKAMO ROAD (1026)	11896	12492	596	5	2171	99.9%
4025	POPORANGI ROAD (4025)	4243	4978	735	5	2172	100.0 %
1026	MOKAMO ROAD (1026)	11557	11896	339	5	2173	100.0 %

Add AADT Band to the Spreadsheet

Add a third column named AADT Band. Insert the following formulae:

= if (J2<=0.1, 1, if (J2<=0.2, 2, if (J2<=0.4, 3, if (J2<=0.6, 4, 5))))

where J2 = the column in which the value percentage is contained.

This will identify the AADT Band in which the [Traffic Link](#) resides.

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No	%	AADT Band
7001	OMAHU ROAD (7001)	1273	1653	380	20000	1	0.0%	1
6134	ST AUBYN STREET EAST (6134)	0	208	208	20000	2	0.1%	1
7001	OMAHU ROAD (7001)	641	1273	632	19000	3	0.1%	1
8027	HAVELOCK ROAD (8027)	480	1163	683	18000	4	0.2%	1
8027	HAVELOCK ROAD (8027)	1163	1584	421	18000	5	0.2%	1
6071	HERETAUNGA STREET WEST (6071)	718	911	193	18000	6	0.3%	1
8008	CROSSES ROAD (8008)	90	1312	1222	4850	216	9.9%	1
3028	MIDDLE ROAD (3028)	464	798	334	4700	217	10.0%	1
3052	TE AUTE ROAD (3052)	443	832	389	4500	218	10.0%	2
6118	NELSON STREET NORTH (6118)	677	1071	394	4500	219	10.1%	2
6040	GROVE ROAD (6040)	1131	1416	285	4500	220	10.1%	2
5051	IONA ROAD (5051)	0	114	114	2100	433	19.9%	2

Road ID	Road Name	Link Start (m)	Link End (m)	Link Length (m)	RAMM Estimate (ADT)	No	%	AADT Band
6045	HASTINGS STREET NORTH (6045)	364	480	116	2100	434	20.0%	2
8053	RUAHA ROAD (8053)	1054	2771	1717	2000	435	20.0%	3
9011	CLIFTON ROAD (9011)	432	1979	1547	2000	436	20.1%	3
2056	TAIHAPE ROAD (2056)	0	870	870	2000	437	20.1%	3
5056	KEIRUN ROAD (5056)	0	265	265	571	868	39.9%	3
7086	TARBET STREET (7086)	0	331	331	570	869	40.0%	3
7036	WALTON WAY (7036)	180	460	280	570	870	40.0%	4
2056	TAIHAPE ROAD (2056)	8720	12778	4058	550	871	40.1%	4
9042	LAWN ROAD (9042)	3952	5475	1523	550	872	40.1%	4
1058	WAITARA ROAD (1058)	2076	4068	1992	170	1302	59.9%	4
1058	WAITARA ROAD (1058)	0	2076	2076	170	1303	60.0%	4
1058	WAITARA ROAD (1058)	4068	4168	100	170	1304	60.0%	5
2011	DARTMOOR ROAD (2011)	9764	15980	6216	169	1305	60.1%	5
2049	ROTOWH ROAD (2049)	0	830	830	168	1306	60.1%	5
1001	AROPAO ROAD (1001)	12225	1334	1109	5	2170	99.9%	5
1026	MOKAMO ROAD (1026)	11896	12492	596	5	2171	99.9%	5
4025	POPORA ROAD (4025)	4243	4978	735	5	2172	100.0%	5
1026	MOKAMO ROAD (1026)	11557	11896	339	5	2173	100.0%	5

Randomise and Select

You then insert another column and name it Random. You apply the formulae =rand () for each record. This will assign a random order to each record. The value of rand () will change following any action in the spreadsheet. Once the values are assigned, you copy the column containing rand () and using Paste Special Values paste a fixed set of random numbers back in to the spreadsheet. You then reorder the records according to their random order.

You then start from the top of the spreadsheet, with the records in random order, select the first Traffic Links in each AADT Band to fill your sample requirements.

Potential Issues

This provides a random selected sample of Traffic Links to fill the sample. However, there are two possible problems:

- the sampling frame assumes each link is essentially independent of every other link. This may not be true if two of the Traffic Links lie on the same Road or in a corridor that may be considered to carry the same traffic.
- this random selection does not make the maximum use of the historical Traffic Counts.

Potential Solution

You can solve the first problem by substituting one of the first draft Core Monitoring sites with another site that has the same or a very similar traffic volume. In this context similar would mean a site with a traffic volume of plus or minus 10% of the one being replaced.

However, care should be taken to ensure that all substituted sites do not have higher (or lower) traffic volumes. The easiest way to do this is to ensure that the sum of the new AADT values for the revised list is similar, such as within approximately plus or minus 5% of the sum of the AADT values from the initial list. It should be as close as possible.



NOTE

While this process may appear cumbersome, users are required to perform this process only once.

The selected Traffic Links from the Core Monitoring can then be identified in RAMM.

Other Monitoring Sites

The above framework of Rotational Monitoring and Core Monitoring and sites has been designed to ensure the key monitoring and data needs are met. However, there are other Locations and [Traffic Links](#) for which the Road Controlling Authority (RCA) may want to monitor traffic. These could be Locations:

- of historical interest or historical monitoring
- where future physical works are programmed
- that provide data for the development and calibration of traffic models, or
- of general community interest.

It is possible to identify these sites in **RAMM** and allocate these sites a monitoring frequency.

It is also possible to extend the Rotational Monitoring Framework to include the next level down, and define sites for the next level down in terms of contribution to VKT such as the next 20% to 40%.

So if you take as an example, an RCA that undertook around 300 [Traffic Counts](#) per year on a Network of 2171 Carriageway Sections, then developing a [Traffic Link](#) model would reduce the sample population, the total number of links to 1417.

The core sample monitored each year would be	142 Traffic Counts counted every second year
A Rotational Sample of 20% would be 283 links or	47 annual Traffic Counts
A Second Tier of Rotational Sample of 30% spread over five years	85 Traffic Counts in each of five years
Total	274 Traffic Counts each year.

A total of 274 [Traffic Counts](#) per year would ensure that 50% of the Network would be counted over a five year period, still leaving around 26 [Traffic Counts](#) per year available for one-off studies.

You can use the **Recommended Count Sites** screen to identify the traffic counting regime at each site and select all the [Count Sites](#) which are not included in the programme. These can be deleted or programmed as an Ad Hoc or second tier rotational for future Counts.

You use the Counting Schedule screen to list [Count Sites](#) which should be scheduled for counting within a set period. You can then create Dispatches in **RAMM Contractor** so the Traffic Count Contractor knows the future count schedule.

Fine Tune Season Profile Road Type Associations

While the current procedure for seasonal adjustment of short duration periodic [Traffic Counts](#) is based on allocation of each [Traffic Link](#) to one of the seven typical seasonal traffic profiles, a traffic monitoring programme may be constructed to include additional [Traffic Counts](#) to be undertaken at particular locations throughout the year. For example an RCA might undertake a weekly [Traffic Count](#) on a particular Road in each of the four seasons, six bimonthly counts or even count one week in each of the twelve months. These seasonal counts may assist the RCA to establish just which Season Profile (Road Type) is the most appropriate or even to develop an alternative more applicable Season Profile.

Traffic Count Schedule

Once the **Traffic Count Estimation** set up has been completed, it is time to schedule the **Traffic Counts**.

Traffic Counts are scheduled based on the Sample Group of the **Count Sites** combined with the date of the most recent count entered into **RAMM**. For instance, if a **Count Site** were in the Core Monitoring - Annual group, **RAMM** would take the date of the most recent count and schedule another for twelve months later.

When you have the list of Scheduled **Traffic Counts**, you can create Dispatches in **RAMM Contractor** for a selected Contract. This will allow the **Traffic Count Contractor** to see what counts are required over the schedule period.



In This Chapter

- View Scheduled Traffic Counts on the Map 150
- View a List of Scheduled Traffic Counts 151
- Overdue Counts 153
- Traffic Count Dispatches 153
- Asset Selection and Dispatch Creation 154

View Scheduled Traffic Counts on the Map

RAMM can recommend scheduled **Traffic Counts** for you.

Best practice is for you to let **RAMM** recommend the **Traffic Counts** and for you to create Dispatches in bulk to make sure that the **Traffic Counts** are carried out. You can carry out the Recommended **Traffic Counts** process in **RAMM Manager** or in **RAMM** using the **Map**. For more information on the process in **RAMM Manager** see Run Recommended **Count Sites** Process (on page 227).

The Map in RAMM

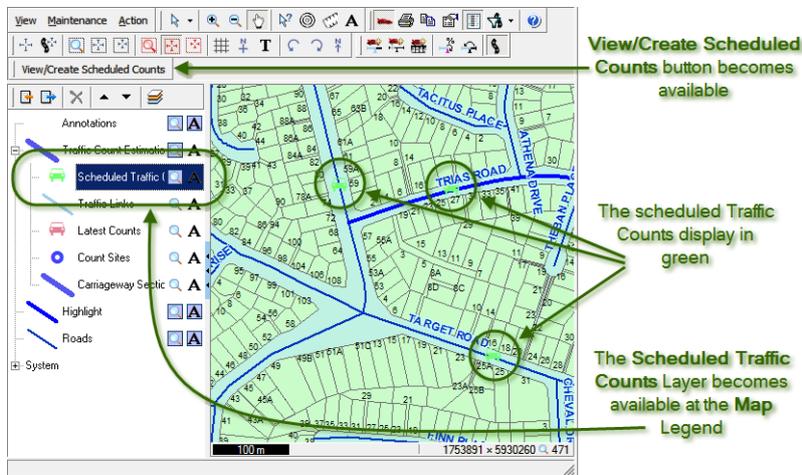
To view the recommended **Traffic Counts** on the **Map**, you:

- press  to open the **Map** in **RAMM**
- then press  to turn on Traffic Management Mode. This makes the required tool bars and buttons available.
- then press  to make the Traffic Management information display on the **Map**.

Scheduled Traffic Counts

You follow the menu path View > Scheduled Traffic Counts to start the process to generate a Layer on the **Map** of scheduled **Traffic Counts** recommended by **RAMM**. The **Counting Schedule** screen will open. You generate the scheduled **Traffic Counts** which you can then view on the **Map**.

The Scheduled Traffic Counts option will become available at the **Map Legend**.



View a List of Scheduled Traffic Counts

Once you have followed the menu path **View > Create/View Scheduled Traffic Counts** and created the **Map Layer** of Scheduled **Traffic Counts** the **View/Create Traffic Links** button  becomes available. You press this button to open the **Counting Schedule** screen.

You run the **Generate Scheduled Traffic Counts** process at this screen. You can then create **Dispatches** for the **Traffic Counts**. The first time you run this process the  button will be available. Once you have pressed the button to run the process it changes to .

Temporary Records Only

When you run the **Generate Scheduled Traffic Counts** process at this screen, you are not creating permanent records. You are just running a report. So these scheduled **Traffic Counts** exist only in the report. They are not actual records in the database. It is the **Dispatches** you create as part of the **Generate Scheduled Traffic Counts** process which are recorded in the database. So it is possible to run the **Generate Scheduled Traffic Counts** process over and over.

What Will You See in the List?

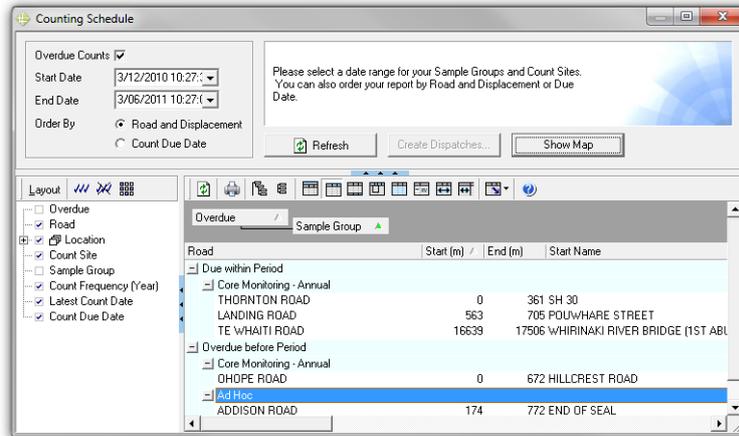
When you first open the screen in a **RAMM** session, the list of scheduled **Traffic Counts** will be empty. Once you have run the **Generate Scheduled Traffic Counts** process, the **Scheduled Traffic Counts** will be listed.

If you close the screen and then open it again in the same **RAMM** session, the list will be the same as when you last closed the screen. So it will reflect the **Generate Scheduled Traffic Counts** process which you last ran and will include any changes you made after running the process.

If you close **RAMM** and then open another **RAMM** session, the first time you open the **Counting Schedule** screen it will be empty as you have run no processes during the session. After you have run the process you will see the generated list.

Overdue Counts

When you first run the **Generate Scheduled Traffic Counts** process it is likely that there will be **Count Sites** which are overdue for counting. You use the **Overdue Counts** option to manage this. See **Overdue Counts** (on page 153). See **Overdue Counts Initial Selection** (on page 236).



Date Range

You run the Generate Scheduled [Traffic Counts](#) process for a specific date range. The default is from today's date to six months from now.

Report Order

You have the option of ordering the list by Road and Displacement order or by Count Due Date order.



You may want to generate Scheduled [Traffic Counts](#) for a select range of Roads. This is not possible. Whether you filter the Roads in the Road list panel or select a number of Roads on the [Map](#), when you run the Generate Scheduled [Traffic Counts](#) process, **RAMM** processes all Roads in the Network.

You can group Scheduled [Traffic Counts](#) by Sample Group at the [Counting Schedule](#) screen and you can make specific selections at the Asset Selection panel of the [Create Dispatches](#) screen.

Overdue Counts

The first time you run the Counting Schedule report at the **Counting Schedule** screen it is likely that you will have converted to **Count Sites**, some historical sites at which counts took place.

You will have assigned them to a Sample Group at the time of conversion.

Potential Problem

If, for example, the last count occurred at an historical site two years ago and you placed the resulting **Count Site** in the Core Monitoring - Annual Sample Group then if you run the Counting Schedule report for the default today's date to six months hence, **RAMM Manager** will not list the **Count Site** and you might not count a Road which needs it.

That is because the **Count Site** is not due for counting. It is overdue. In this situation you use the Overdue Counts option. See Overdue Counts Initial Selection (on page 236).

Traffic Count Dispatches

When you have generated the scheduled **Traffic Counts** you can create Dispatches for them. These will be listed in **RAMM Contractor**. The Contractor who will perform the **Traffic Counts** can then see the future work load.



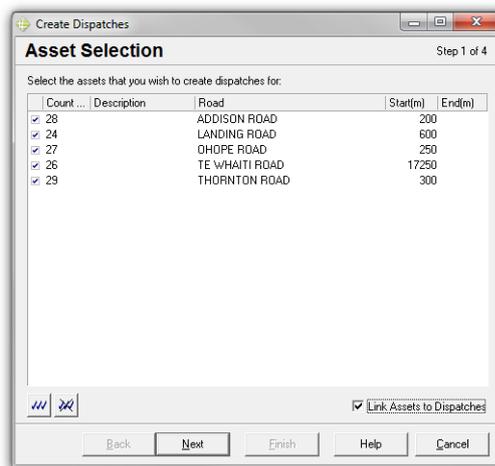
Unless you have set up a valid Contract for Asset Type Traffic Count in **RAMM Contractor**, you will not be able to create Dispatches at the **Create Dispatches** screen. See Asset Selection and Dispatch Creation (on page 154).

You will need the correct Staff Permissions for the Contract in **RAMM Contractor** to be able to add and assign Dispatches. See Dispatch Creation Permissions (on page 291).

When you are satisfied that you have the optimum list of scheduled **Traffic Counts** you press . This opens the **Create Dispatches** screen with a list of scheduled **Traffic Counts** for which you can create Dispatches.

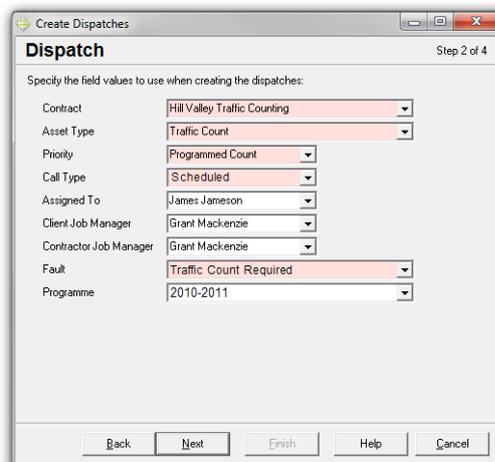
Asset Selection and Dispatch Creation

If you use different Count Durations, you will, no doubt have some way of prescribing this in the Dispatch. So you will want to select all the scheduled [Traffic Counts](#) with the same Count Duration at this screen before creating the Dispatches in bulk.



Dispatch Creation

You create the Dispatches in bulk.





You need to take care when creating Dispatches for scheduled Traffic Counts.

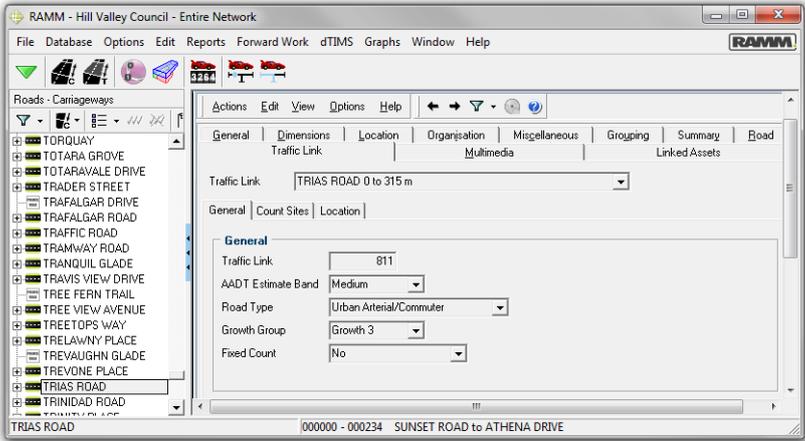


If you have previously run the Generate Scheduled Traffic Counts process for the same date range and created Dispatches from the results, the scheduled Traffic Counts will be generated again unless the Traffic Counts have taken place and been entered into **RAMM**.

So you need to set up your own internal systems to prevent the creation of more than one Dispatch for the same Traffic Counts.

Traffic Count Estimation and RAMM

Best practice is to perform the majority of [Traffic Count Estimation](#) set up and maintenance activities in [RAMM](#). The **Carriageway**, **Count Site**, **Traffic and Loading** and **Traffic Link** Detail and Grid screens used to maintain [Traffic Count Estimation](#) items are available only from [RAMM](#).

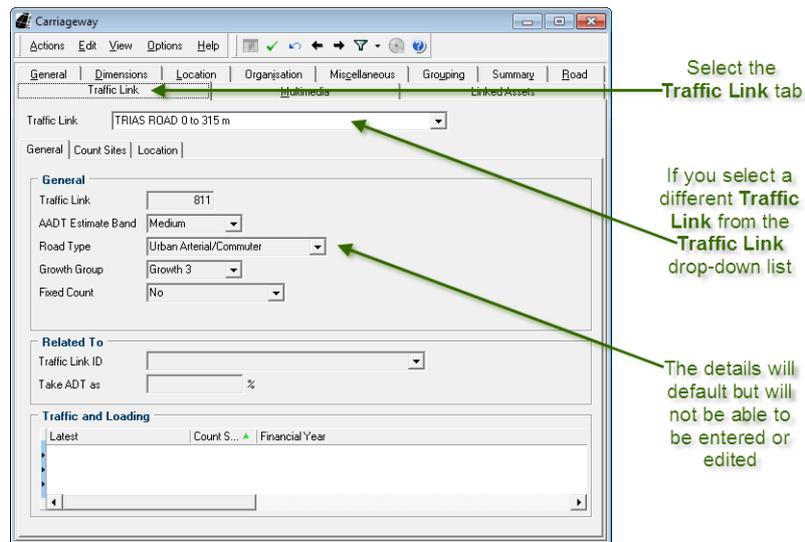


In This Chapter

- Carriageway 158
- Count Site 159
- Traffic and Loading..... 161
- Traffic Link..... 170
- Treatment Length Maintenance 173
- Treatment Selection 173

Carriageway

You press  to open the **Carriageway** Detail screen with the details of the Carriageway Section selected in the adjacent **Roads** list panel displayed. You can associate a Carriageway Section with a **Traffic Link** at the **Traffic Link** tab.



You select the **Traffic Link** from the Traffic Link drop-down list. The details of the **Traffic Link** will default into the ADT, Road Type and Growth Group fields. You maintain these values at the **Traffic Link** Detail screen. See **Traffic Link** (on page 170).

If there is a **Count Site** within the Start and End of the **Traffic Link** which contains the Carriageway Section being viewed, Count Site, Road, Location, Sample Group Description and Count Frequency will default. You maintain these values at the **Traffic Count** Detail screen. See **Count Site** (on page 159).



NOTE

RAMM Traffic Count Estimation options and functions are available only if you selected Yes at the Use Traffic Counting System drop-down list on the Traffic Counting tab of the **Parameter** screen in **RAMM Manager**.

See Setting Traffic Counting Parameters (on page 67).



Users will need the correct Staff Permissions to maintain data at the **Carriageway** screens. They will need at least Update Permission for Maintain Road Name & Carriageway Data in the Road Name & Carriageway Section of Core RAMM under Maintenance. See Data Maintenance Staff Permissions (on page 287).

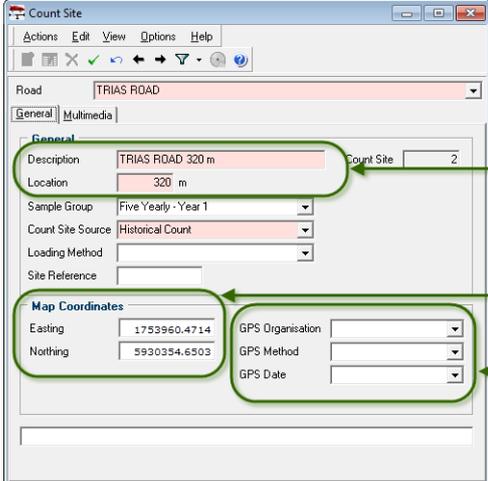


Count Site

The **Count Site** Detail screen is available in **RAMM**.

You press  to open the screen. If you have selected a Road in the adjacent Roads list panel, the details of the **Count Site**, if any, of the Carriageway Section closest to the start of the Road will be displayed. If you have selected a Carriageway Section, the details of the **Count Site** on the Carriageway Section will default.

You use the **Count Site** screen to add and maintain **Count Site** records.



The default name for the **Count Site** is the name of the Road combined with the distance from the start of the Road but you can change this

Easting and Northing values default from the **Map**

You can type in your own GPS coordinate, **Organisation, Method** and **Date** values

Road and Description

When you add a [Count Site](#) you first select the Road from the adjacent Roads list panel. The name of the Road then defaults at the Road drop-down list and at the Description field. The Road drop-down list disappears when the record is saved.

Location

You must define the number of metres from the start of the Road at which the [Count Site](#) is to be located. Please note that at the adjacent Roads list panel you can select the Road itself or any of the Carriageway Sections. **RAMM** will still add the Location measured from the start of the Road, not the Carriageway Section.



You should avoid siting Count Sites closer than 100 m from an Intersection.

Sample Group

Sample Groups group [Count Sites](#) with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a Sample Group to each [Count Site](#) based on how often it needs to be counted, whether this is every year, every second year or once every five years. Even though the Sample Group field is not highlighted as Mandatory, you cannot add a [Count Site](#) record at this screen without selecting a value from the drop-down list.

Count Site Source

When you add a [Count Site](#) record at this screen the Source is obviously Manual. If you are viewing or maintaining existing records, the Source could be based on an Historical Site or one randomly chosen by **RAMM**.

Loading Method

You have the option of selecting the Loading Method type from the Loading Method drop-down list. These are for your information only and serve no functional purpose in **RAMM**.

Site Reference

You may have an existing [Count Site](#) identification system which you wish to retain. If so you add your own identifier into the Site Reference field.

Map Coordinates

When you add a **Count Site** record at this screen, no Map Coordinates will default. When you add a **Count Site** record at the **Map**, the coordinates will default.

You can add GPS Organisation, Method and Date records if you have them. These are for your information only and serve no functional purpose in **RAMM**.



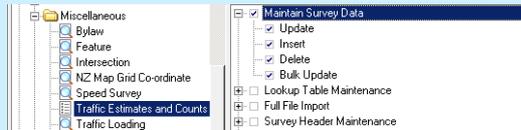
RAMM Traffic Count Estimation options and functions are available only if you selected Yes at the Use Traffic Counting System drop-down list on the Traffic Counting tab of the **Parameter** screen in **RAMM Manager**.

See Setting Traffic Counting Parameters (on page 67).

Staff Permissions for Count Site Data



Users will need the correct Staff Permissions to maintain data at the **Count Site** screens. They will need at least Update Permission for Maintain Survey Data for Traffic Estimates and Counts in the Miscellaneous section under Maintenance. See Data Maintenance Staff Permissions (on page 287).



Traffic and Loading

You press  to open the **Traffic and Loading** screen. This screen displays General, Count, and Location details as well as Details of ADT and Loading.

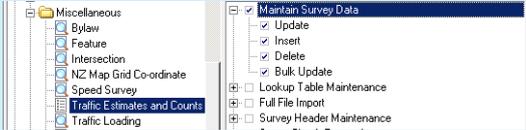
The information at this screen is usually populated by importing a Count data file. You can also manually add update and delete the data at this screen. See:

- **General** (on page 162)
This tab groups the Survey and General data for the Road and Carriageway Section.
- **Count** (on page 163)
This tab groups the information pertaining to the Count but not the ADT.

- **Location** (on page 164)
This tab groups the **Map** coordinates by default or the GPS details for the Road and Carriageway Section if you have added them.
- **Detail** (on page 165)
This tab displays the ADT and Loading data for the Road and Carriageway Section.



Users will need the correct Staff Permissions to maintain data at the **Loading** screens. They will need at least Update Permission for Maintain Survey Data for Traffic Loading in the Miscellaneous section under Maintenance. See Data Maintenance Staff Permissions (on page 287).



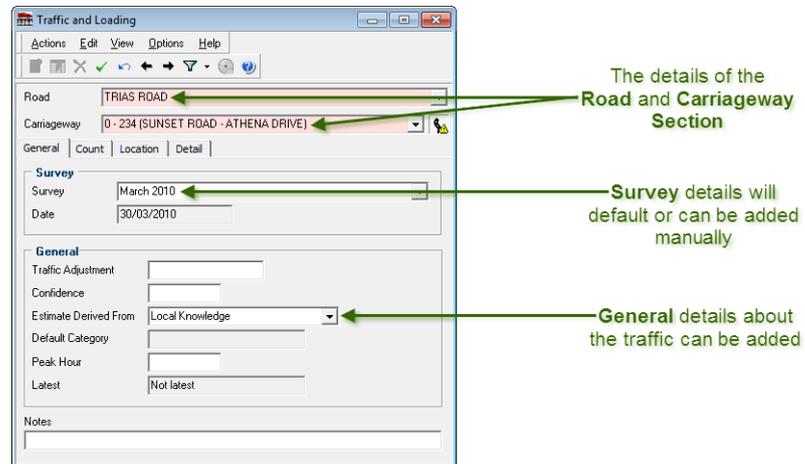
General

You press  to open the **Traffic and Loading** Detail screen at the General tab.

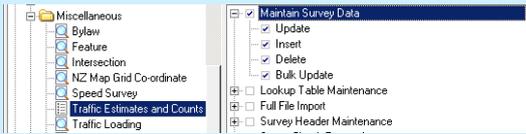
The details of the most recent **Traffic Count**, if any, on the first Carriageway Section of the Road selected in the adjacent **Roads** list panel, will be displayed. If you have selected a Carriageway Section, the details of the most recent **Traffic Count** on it will default.

Normally, **Traffic Counts** are added by importing a data file but you can add or update **Traffic Count** data for a Carriageway Section at the **Traffic and Loading** Detail screen.

You add Survey and General details.



 Users need correct Staff Permissions to maintain data at the **Traffic** screens - Update Permission for Maintain Survey Data for Traffic Estimates and Counts in the Miscellaneous section under Maintenance. See [Data Maintenance Staff Permissions \(on page 287\)](#).



Count

You press  to open the **Traffic and Loading** Detail screen at the Count tab.

The details of the most recent **Traffic Count**, if any, on the first Carriageway Section of the Road selected in the adjacent Roads list panel, will be displayed. If you have selected a Carriageway Section, the details of the most recent **Traffic Count** on it will default.

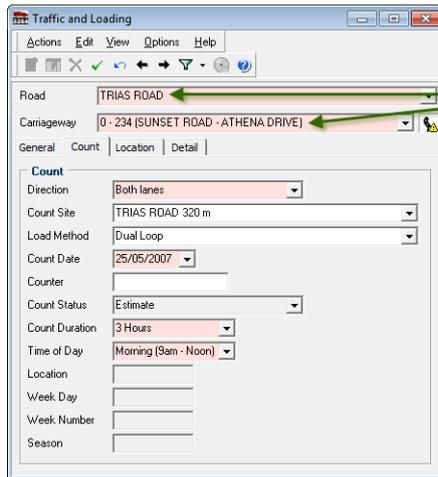
Normally, **Traffic Counts** are added by importing a data file but you can add or update **Traffic Count** data for a Carriageway Section at the **Traffic and Loading** Detail screen.

You select the Road, Carriageway and Count Site values.

If there is no available **Count Site**, you press the adjacent  to open the **Count Site** Detail screen to add one.

You add Direction, Count Date, Count Duration and Time of Day values. Day of Week, Week Number and Season values will default based on the Count Date.

You specify that the status of the count data is derived from an Estimate at the Count Status drop-down list.



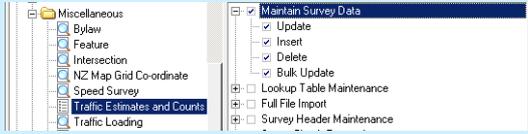
The details of the Road and Carriageway Section

Prior to implementation of Traffic Count Estimation these fields would be populated by importing a Traffic Count data file or manually

After implementation of Traffic Count Estimation these values may be updated during the Traffic Count Estimation process



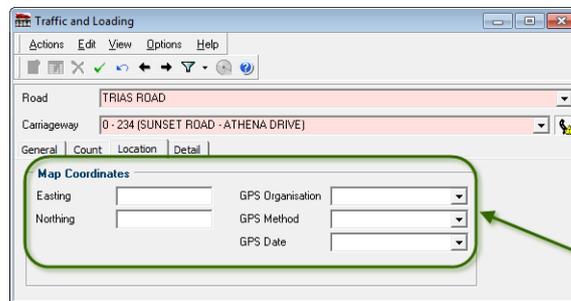
Users need correct Staff Permissions to maintain data at the **Traffic** screens - Update Permission for Maintain Survey Data for Traffic Estimates and Counts in the Miscellaneous section under Maintenance. See Data Maintenance Staff Permissions (on page 287).



Location

Traffic and Loading data is related to a specific point on a Carriageway Section. The position of a **Count Site** is normally expressed as a displacement from the start of a Carriageway.

If you prefer to locate your Traffic and Loading data using GPS Coordinates, you do this at the Location tab of the **Traffic and Loading** screen.



Traffic and Loading data is referenced to a point on a Carriageway section

Normally this point is expressed as a displacement from the start of the Carriageway

You can add GPS Coordinates and related data

Detail

You press  and then the Detail tab to open the **Traffic and Loading** Detail screen with the details displayed of the Loading settings for the Road and Carriageway Section selected in the adjacent Roads list panel. You can manually enter Count and Loading data.

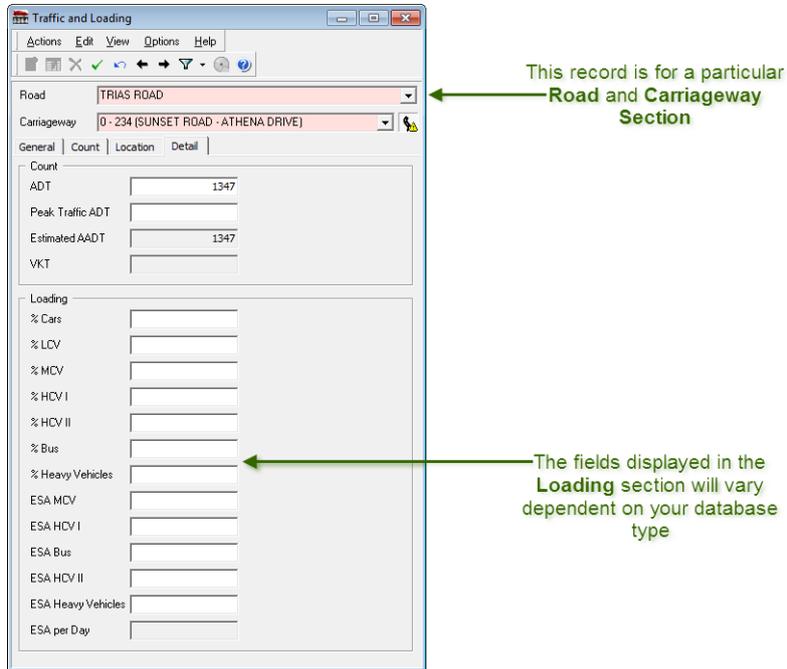
Count

Although you can manually enter Count data, this data is more normally sourced from [Traffic Count](#) data import files. See [Traffic and Loading Data Import](#) (on page 249).

Loading

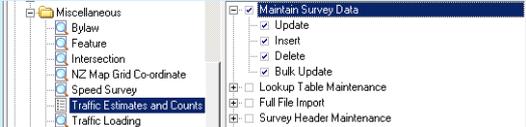
The Heavies Percent and ESA/vehicle values default to the **Traffic Link** screen. See [Traffic Link](#) (on page 170). You update Loading information when you run Status Check. You can do this from the **Map**, see [Update Traffic Counts and Estimates](#) (on page 204), or from **RAMM Manager**. See [Update Traffic Counts and Estimates](#) (on page 230).

The data fields that you will see will depend on your database type. Australian loading classes vary from those in New Zealand. Similarly, State Highway Loading classes vary from those used by Territorial Local Authorities (TLAs).





Users will need the correct Staff Permissions to maintain data at the **Loading** screens. They will need at least Update Permission for Maintain Survey Data for Traffic Loading in the Miscellaneous section under Maintenance. See Data Maintenance Staff Permissions (on page 287).



Default Loading

When you perform a Status Check to update Traffic and Loading Latest values, some Carriageway Sections will have no Traffic and Loading data to update. **RAMM** uses default values for these Carriageway Sections.

Default Loading Screen

You set up four Default Loading value sets at the **Default Loading** screen in **RAMM Manager**. **RAMM** selects the optimum Default Loading value set depending on the combination of Hierarchy and Urban/Rural values for the Carriageway Section.

Database Type

Your Database Type determines the Loading value set that you see. The graphic below displays the standard set for NZLocalAuthority.

Latest	Count Status	Financial Year
Latest	Default	2009/10

General

Asset ID: 1

Asset Type: Default Loading

Latest: Latest

Count Status: Default

Count Date: 7/01/2009

Financial Year: 2009/10

Count

ADT: _____

Peak Traffic ADT: _____

Estimated AADT: _____

VKT: _____

Loading

% Cars: 85

% LCV: 10

% MCV: 2

% HCV I: 1

% HCV II: 2

% Bus: _____

% Heavy Vehicles: _____

ESA MCV: 0.37

ESA HCV I: 0.9

ESA Bus: 1.84

ESA HCV II: 0

ESA Heavy Vehicles: _____

ESA per Day: _____

Financial Year

You define the Financial Year for the Latest Default Loading and the Treatment Length Annual Summary.

Financial Year for Latest Traffic Loading

The Default Loading value set includes a requirement to select the Financial Year for the Latest.



Treatment Length Annual Condition Summary

The Financial year is required for the Treatment Length Annual Condition summary.



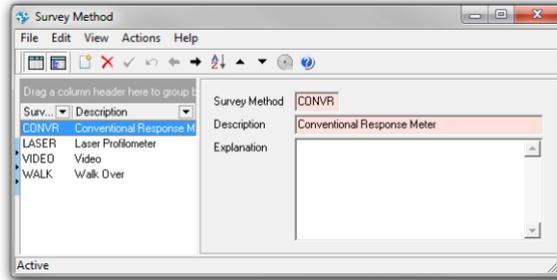
Survey Methods, Site Types and Loading Methods

The method or equipment used to take a **Traffic Count** survey is referred to in **RAMM** as the Survey Method, the Site Type and the Loading Method. Your circumstances will determine which labels are used in your database.

Survey Method

You can add and maintain Survey Method codes for **Count Sites**. These are for your information only and serve no function within **RAMM**.

You do this at the **Survey Method** screen in **RAMM Manager**. You follow the menu path Projects > Traffic Counting > Survey Method. The **Survey Method** screen is a standard **RAMM** Lookup screen.



Site Type

Traffic Counts taken on the New Zealand State Highway Network are assigned a Site Type code. This is the equivalent of a Count Survey Method code. This code describes the method or equipment used to take the Traffic Count survey.

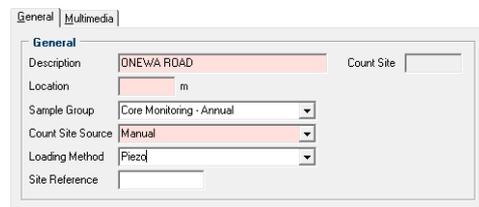


For NZ State Highway databases the **Survey Method** screen is renamed the **Site Type** screen to better align it with the user requirements

NOTE

Loading Method

Values created at the **Survey Method** screen or the **Site Type** screen are available for selection from the Loading Method drop-down list in the General section of the General tab of the **Count Site** screen.



Load Method

Values created at the **Survey Method** screen or the **Site Type** screen are available for selection from the Load Method drop-down list in the Count section of the **General** tab of the **Traffic and Loading** screen.

Count	
Direction	Right lane
Count Site	
Load Method	
Count Date	16/07/1999
Counter	
Count Status	Count
Duration	Duration Type
Day of Week	
Week Number	

Traffic Link

The **Traffic Link** Detail and Grid screens are available in **RAMM**. You press  to open the screen. If you have selected a Road in the adjacent **Roads** list panel, the details of the **Traffic Link** for the Road or Carriageway Section will be displayed.

You use this screen to view and maintain **Traffic Link** data. However, it is recommended that if you are adding a **Traffic Link** you do this at the **Map**. See Recommended **Traffic Links** and the **Map** (on page 197).

General Tab

The main **Traffic Link** details are available at the General tab.

Description

The **Traffic Link** Description will be the name of the Road concatenated with the Start and End points of the link. An example of this could be SUNSET ROAD 0 to 243 m. If the **Traffic Link** is comprised of one or more Roads, the **Traffic Link** Description will be the names of the Roads concatenated as in the graphic below.

AADT Estimate Band

The AADT Estimate Band of Low, Medium or High is used for adjusting factors used to update ADT Estimates.

Road Type

The Road Type value is used for adjusting factors used to update ADT Estimates. Please note that the names used for the seven default Road Types are descriptive although not definitive. You should study the graphs available at the following link to understand the traffic flow projections and associate these with Roads in your Network based on your knowledge and experience, rather than a strict application based on the Descriptions of the Road Types. See Road Type Group Graphs (on page 211). There is also a useful flowchart to follow when deciding the correct Road Type for a [Traffic Link](#). See Road Type Selection Process (on page 47).

Growth Group

A Traffic Growth Group is a group of [Traffic Links](#) that are believed to have approximately the same level of traffic growth from year to year. They are used in the update ADT Estimates process. There are six default Traffic Growth Groups with Growth 1 having the least expected growth and Growth 6 having the most.

Related To

If the [Traffic Link](#) does not have a [Count Site](#), it needs to be associated with a [Count Site](#) through a related [Traffic Link](#) from which it gains traffic. This way ADT Estimates can be calculated for the [Traffic Link](#) with no [Count Site](#). You select the [Traffic Link](#) which gives traffic at the Traffic Link drop-down list. You then specify, in the Take ADT as % field, the expected percentage of traffic from the donor [Traffic Link](#).

The screenshot shows the 'Traffic Link' detail screen with the following fields and annotations:

- General Tab:**
 - Description: TRIAS ROAD 0 to 315 m
 - Traffic Link: 811
 - AADT Estimate Band: Medium
 - Road Type: Urban Arterial/Commuter
 - Growth Group: Growth 3
 - Fixed Count: No
- Related To Tab:**
 - Traffic Link ID: SUNSET ROAD 753 to 1357 m
 - Take ADT as: 8 %

Annotations with green arrows:

- Points to the Description field: "You complete details relevant to the **Traffic Link**"
- Points to the Traffic Link field: "You may relate this **Traffic Link** to another"
- Points to the Growth Group field: "If so, you define the **Average Daily Traffic (ADT)** for the link as a percentage of the ADT of the associated **Traffic Link**"
- Points to the Take ADT as field: "**RAMM** calculates a default value"

Carriageways Tab

There is a listing of the Carriageway Sections which comprise the [Traffic Link](#) at the Carriageways tab of the **Traffic Links** Detail screen.

Carriageway No	Road	Start	End	Start Name
1714	TRIAS ROAD	0	234	SUNSET ROAD
1713	TRIAS ROAD	234	315	ATHENA DRIVE
1712	TRIAS ROAD	315	462	THELAN PLACE
1711	TRIAS ROAD	462	597	TESLA PLACE
1710	TRIAS ROAD	597	700	HELLION PLACE
1709	TRIAS ROAD	700	896	CAMILLA GROVE
1708	TRIAS ROAD	896	993	ATHENA DRIVE
1691	TOTARAVALLE DRIVE	0	91	SUNNYNOOK ROAD
1690	TOTARAVALLE DRIVE	91	295	MORVALE PLACE
1689	TOTARAVALLE DRIVE	295	491	AWAVALLE CRESCENT

The Carriageway Sections will be listed by Start and End order and grouped by Road

Count Sites Tab

The Count Sites, if any, on the Road will be listed at the Count Sites tab.

Count Site	Description	Road ID	Location	Sample Group	Count Frequency
17	SUNSET ROAD	SUNSET ROAD	100	Annual Year 2	Every 2 Years
18	SUNSET ROAD	SUNSET ROAD	1000	Annual Year 2	Every 2 Years

Count Sites will be listed in ascending order from the Start of the Road



RAMM Traffic Count Estimation options and functions are available only if you selected Yes at the Use Traffic Counting System drop-down list on the Traffic Counting tab of the **Parameter** screen in **RAMM Manager**.

See Setting Traffic Counting Parameters (on page 67).

Staff Permissions for Traffic Data

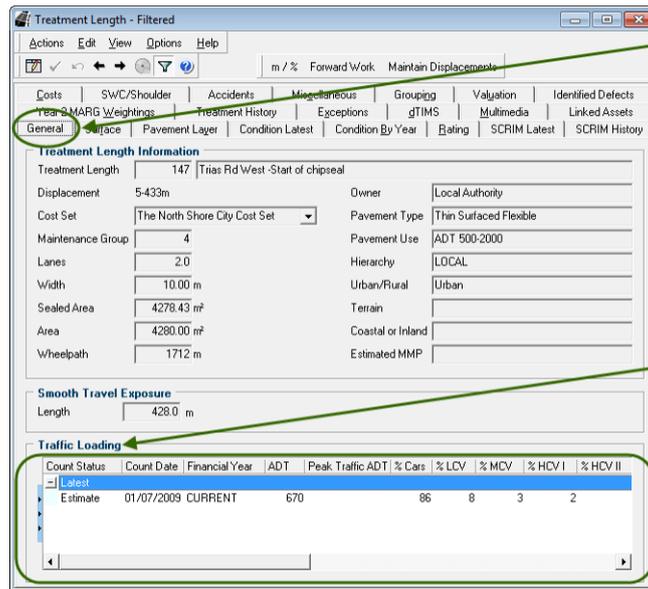


Users will need the correct Staff Permissions to maintain data at the **Traffic** screens. They will need at least Update Permission for Maintain Survey Data for Traffic Estimates and Counts in the Miscellaneous section under Maintenance. See Data Maintenance Staff Permissions (on page 287).

Miscellaneous	Maintain Survey Data
Bylaw	<input checked="" type="checkbox"/> Update
Feature	<input checked="" type="checkbox"/> Insert
Intersection	<input checked="" type="checkbox"/> Delete
NZ Map Grid Co-ordinate	<input checked="" type="checkbox"/> Bulk Update
Speed Survey	<input type="checkbox"/> Lookup Table Maintenance
Traffic Estimates and Counts	<input type="checkbox"/> Full File Import
Traffic Loading	<input type="checkbox"/> Survey Header Maintenance

Treatment Length Maintenance

Traffic and Loading data for a Treatment Length is now available in the Traffic and Loading section on the General tab of the **Treatment Length** Detail screen.



On the **General** tab of the **Treatment Length** screen

You can now view all the **Traffic and Loading** details for the **Treatment Length**

Treatment Selection

Traffic and Loading data for a Treatment Selection is now available in the Traffic and Loading section on the General tab of the **Treatment Selection** Detail screen.

The screenshot shows a software window titled "Treatment Selection - Filtered". It contains several sections for data entry and display:

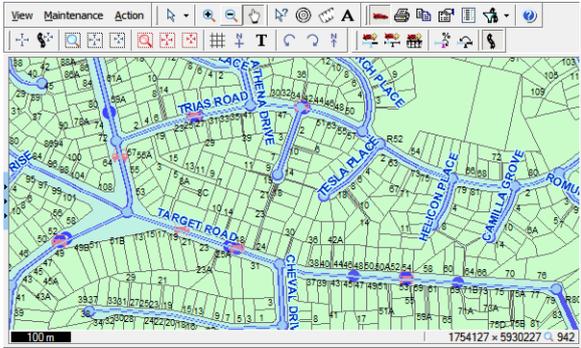
- Rating Section:** Treatment Header: NSCC TSA 2008/09 - BC 4, Treatment Date: 14/08/2008, Displacement: 7.502m, Rating Date: 18/10/2007.
- Treatment Length Information:** Cost Set: The North Shore City Cost Set, Urban/Rural: Urban, Pavement Type: TSF Treatment, Pavement Use: ADT 500-2000, Lanes: 2.0, Number of Crashes: 8.
- Traffic and Loading Table:** A table with columns: Count Status, Count Date, Financial Year, ADT, Peak Traffic, ADT % Cars, % LCV, and %. It contains two rows: "Estimate" and "Count".

Count Status	Count Date	Financial Year	ADT	Peak Traffic	ADT % Cars	% LCV	%
Estimate	14/08/2008	2008/00	1652		86		8
Count	14/08/2008	2008/00	2173		86		8

Traffic and Loading data is now available

Traffic Count Estimation and the Map

You use the **Map** in **RAMM** to manage almost every aspect of **Traffic Count Estimation**. You use it to create **Traffic Links** and **Count Sites**. You can use it to associate Carriageway Sections to **Traffic Links** and to associate one **Traffic Link** to another. You can show or hide Traffic data for all Roads. You use the **Map** to view Recommended **Traffic Links**, Recommended **Count Sites** and Scheduled **Traffic Counts**. See **Map Features** for Traffic Count Estimation (on page 176).



In This Chapter

- Map Features for Traffic Count Estimation.....176
- Tool Bar.....177
- View Options.....193
- Lookup Maintenance202
- Action Option203
- Legend207

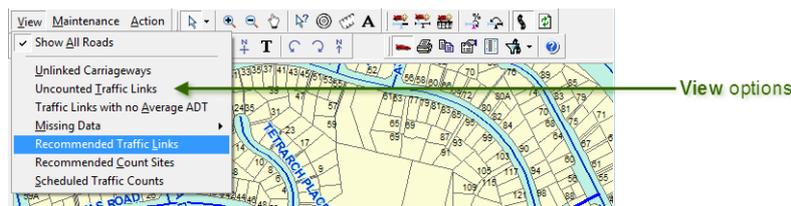
Map Features for Traffic Count Estimation

The **Map** in **RAMM** has been optimised for **Traffic Count Estimation**. In particular you will want to familiarise yourself with the following features:

- **Tool Bar** (on page 177)
You use the **Map** tool bar to access all the functions and views required to manage **RAMM** **Traffic Count Estimation**.



- **View Options** (on page 193)
When you are managing **Traffic Count Estimation** you will want specific data displayed on the **Map** depending on the task you are performing. You will want to see any Carriageways which are not associated with a **Traffic Link**, **Traffic Links** with no ADT value as well as other missing data.



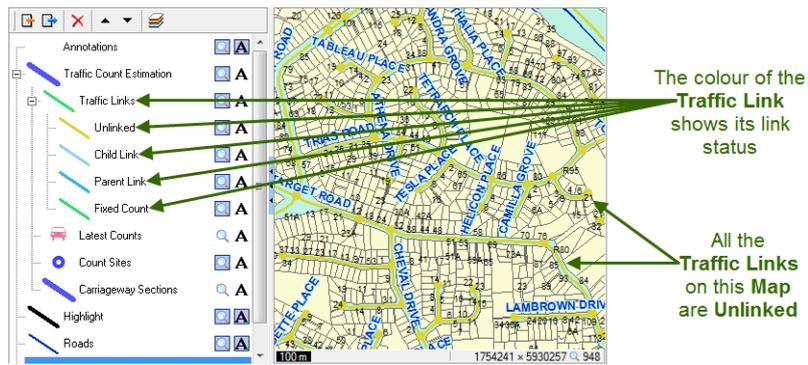
- **Lookup Maintenance** (on page 202)
The relevance and accuracy of a **Traffic Count** is affected by a number of factors. The **Road Type**, the **Count Duration** of 3 Hours, 24 Hours or 7 Days, the **Day of the Week** on which the **Count** was taken, the **Week Number**, **Region** and **Season** all affect the value of the **Traffic Count**. **RAMM** has preset values to adjust the raw data. In the unusual circumstance that these values are not accurate enough for your situation, you can edit the appropriate **Lookups**.



- **Action Option** (on page 203)
When you need the most up-to-date **Average Daily Traffic (ADT) Estimate** data you can perform a **Status Check** at the **Map** by running the **Set most recent flags for Traffic and Loading Data** process. This updates the database to take into account any **Traffic Counts**, **Estimates** and **Loading data** entered since the most recent **Status Check**. It then updates the **Estimates** taking into account the new readings and the other factors. It also creates the **Traffic Latest Errors** report.



- **Legend** (on page 207)
The **Map** Legend has options specific to **RAMM Traffic Count Estimation**. These have been optimised for the creation and maintenance of **Traffic Links** and **Count Sites**.



Tool Bar

You use the **Map** tool bar to access all the functions and views required to manage **RAMM Traffic Count Estimation**.

When you are managing **RAMM Traffic Count Estimation** there are specific buttons and menu options which you will need. However, most of the time when you use the **Map** in **RAMM** you will not need them and so you may want to hide them.

Map Screen Tool Bar – Traffic Management Mode Hidden

The default is to have Traffic Counting buttons hidden.



Press the **Traffic Management Mode** button to hide or reveal the **Traffic Counting** buttons and menus

Map Screen Tool Bar – Traffic Management Mode Buttons and Menus Revealed

When you are working with **Traffic Count Estimation** you need to press the **Traffic Management Mode** button to reveal the menus and buttons.

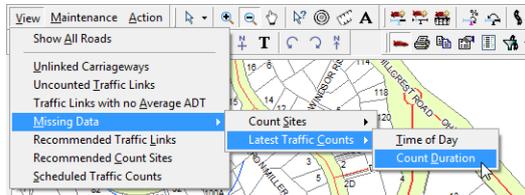


Traffic Management Buttons

- Traffic Management Mode**
 See above.
- Add a Traffic Link**
 See [Traffic Links](#) (on page 179).
- Add a Count Site**
 See [Count Sites](#) (on page 182).
- Add a Traffic Count**
 See [Traffic Counts](#) (on page 184).
- Relate a Traffic Link to Another Traffic Link**
 See [Relate Traffic Links](#) (on page 185).
- Associate a Carriageway Section to a Traffic Link**
 See [Associate a Carriageway Section with a Traffic Link](#) (on page 188).
- Show Traffic Data for All Roads**
 See [Show Traffic Data for All Roads](#) (on page 189).
- Refresh Traffic Counting System Data**
 See [Refresh the Traffic Counting Map](#) (on page 124).

Traffic Management Menu Options

- View**



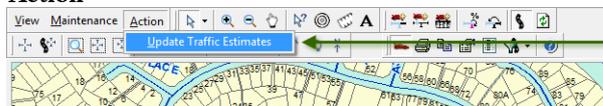
See [View Options](#) (on page 193).

- Maintenance**



See [Lookup Maintenance](#) (on page 202).

- Action**



Update Traffic Estimates

See [Action Option](#) (on page 203).

In order to change the **Map** into Traffic Management Mode, a user must have at least Enquiry Permission for Traffic Estimates and Counts. See Data Maintenance Staff Permissions (on page 287).

Traffic Links

You create **Traffic Links** by combining Carriageway Sections. These are the building blocks of **RAMM Traffic Count Estimation**. When using the **Map** you press the Add a Traffic Link button and then select the ones you want to link to form the **Traffic Link**.

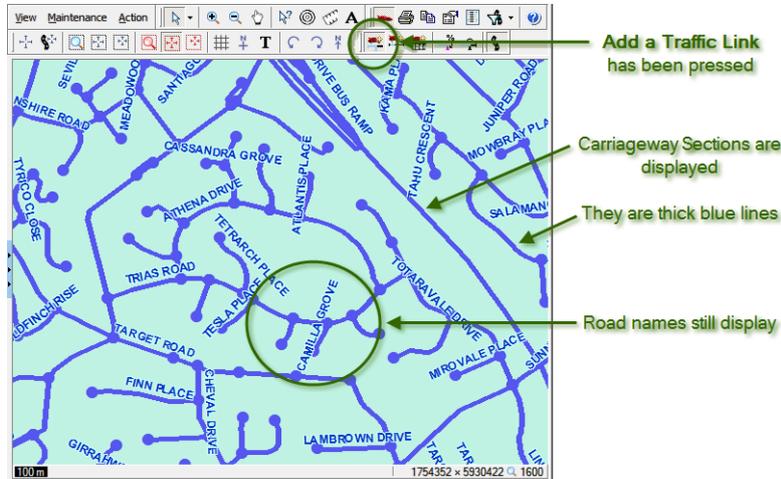


The Map as it Appears Before the Add a Traffic Link Button is Pressed

When you first open the **Map** the Roads and their names are displayed.

The Map as it Appears After the Add a Traffic Link Button Has Been Pressed

Once you press the Add a Traffic Link button, the Carriageway Sections display.



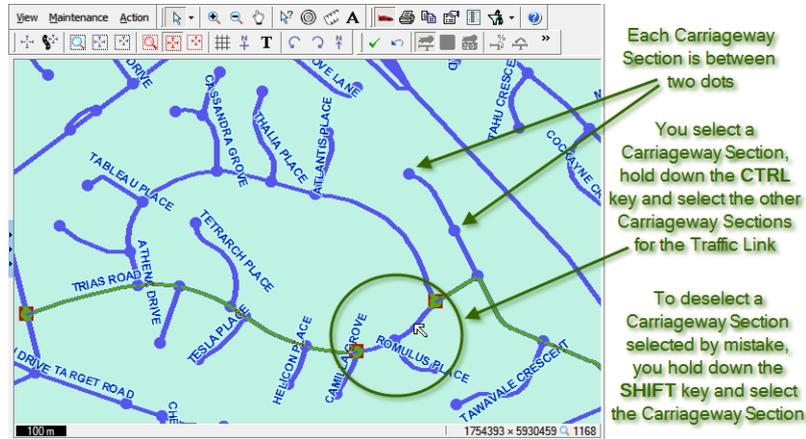
Selecting Carriageway Sections for a Traffic Link

Once you have decided which Carriageway Sections will comprise the [Traffic Link](#) you press the Add a Traffic Link button and select the first Carriageway Section which is highlighted in green. You then hold down the CTRL key on your keyboard and select the other Carriageway Sections in turn.



If you select a Carriageway Section in error, you can hold down the SHIFT button on your keyboard and select the Carriageway Section again. It will then become deselected.

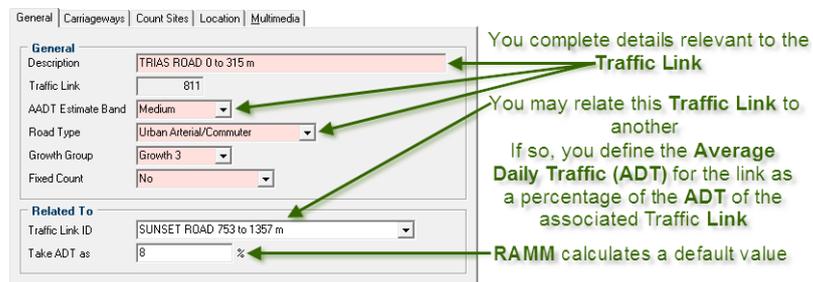
If you make a complete hash of things, just click in the **Map** on an area which is not on a Carriageway Section and all the Carriageway Sections will become deselected.



NOTE

When you are setting up Traffic Count Estimation, best practice is to let **RAMM** recommend Traffic Links. So when you come to use the Add Traffic Link button, all Carriageway Sections will be part of a Traffic Link, unlike the graphic above. The button has been used before **RAMM** has recommended the Traffic Links to make the screen shot easier to understand.

You then press Save Record to save your changes. The **Traffic Link** Detail screen then opens so that you can define the required details for the **Traffic Link**.



Tip

The **Traffic Links** available from the **Traffic Link** drop-down list are determined by the **Carriageway Sections** associated with the **Roads** in the adjacent **Roads** list panel. You filter the **Roads** to limit the **Traffic Links** only to those relevant to the area on which you are working.



RAMM names the Traffic Link using an ascending alphabetical listing of the Roads which contain the linked Carriageway Sections.

Carriageways Tab

There is a listing of the Carriageway Sections which comprise the Traffic Link at the Carriageways tab of the **Traffic Links** Detail screen.

Carriageway No	Road	Start	End	Start Name
1714	TRIAS ROAD	0	234	SUNSET ROAD
1713	TRIAS ROAD	234	315	ATHENA DRIVE
1712	TRIAS ROAD	315	462	THEVAN PLACE
1711	TRIAS ROAD	462	537	TESLA PLACE
1710	TRIAS ROAD	537	700	HELIOS DRIVE
1709	TRIAS ROAD	700	896	CAMILIA GROVE
1708	TRIAS ROAD	896	91	ATHENA DRIVE
1691	TOTARAVALLE DRIVE	0	91	SUNNYNOOK ROAD
1690	TOTARAVALLE DRIVE	91	295	MIDVALE PLACE
1689	TOTARAVALLE DRIVE	295	491	WAWAVALLE CRESCENT

The Carriageway Sections will be listed by Start and End order and grouped by Road

Count Sites

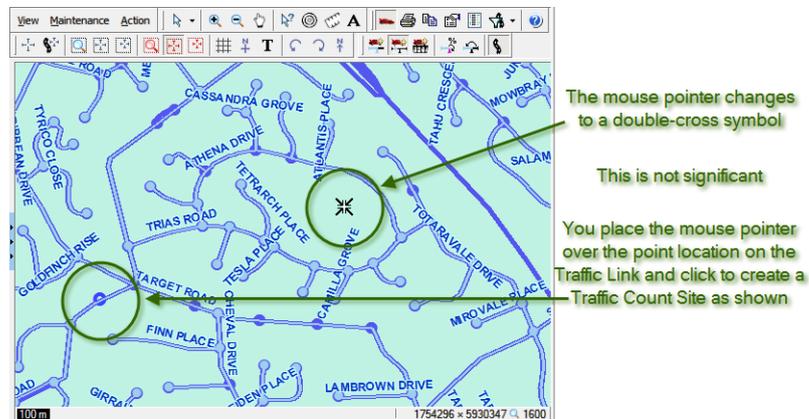
You create **Count Sites** on your **Traffic Links**. Any actual Counts taken then apply to all Carriageway sections in the **Traffic Link**. A percentage of the actual count will also apply to any Carriageway sections of **Traffic Links** associated with the **Traffic Link** on which the **Count Site** is situated. When using the **Map** you press the Add a Count Site button and then position the mouse pointer over the **Traffic Link** where you want it sited. Obviously, you can do this only after you have in added your **Traffic Links**.



The Map as it Appears When the Add a Count Site Button is Pressed

When you first press the Add a Count Site button the cursor turns into a double-cross.

You place the centre of the mouse pointer over the point Location on the Road where you want to position the **Count Site**.



Count Sites appear on the **Map** as blue circles with holes in the centre.

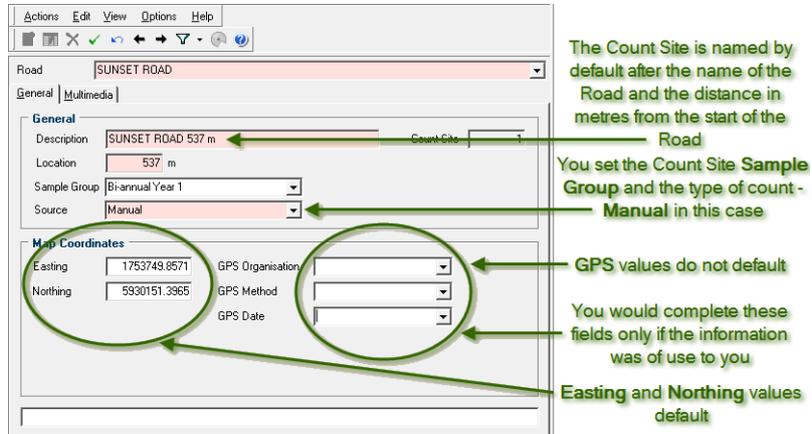
Count Site Detail Screen

When you press Save Record, the **Count Site** Detail screen opens so that you can add details useful for the **Count Site**.

The Sample Group shows how often a **Traffic Count** is to be taken at the site. See Sample Group (on page 221).

The Source shows how the **Count Site** was created, whether:

- **Historical**
in which case it is a **Count Site** based on the point Location at which Counts were taken prior to the introduction of **RAMM Traffic Count Estimation**,
- **Manual**
in which case it has been added manually as in this process,
- **Random and Random (Short Traffic Link)**
in which case it has been added automatically by **RAMM** during the Recommended Count Sites process. See How **RAMM** Recommends **Count Sites** (on page 102).



Map Coordinates

When a **Count Site** is added, the Easting and Northing values from the **Map** will default.

You also have the option to add GPS source information. The GPS Organisation, GPS Method and GPS Date values should be added only if they are useful to your organisation. Otherwise you should leave the fields blank.

Traffic Counts

When you have taken an actual **Traffic Count**, you convert the raw count data to an Average Daily Traffic (ADT) and enter this value into **RAMM**. You can do this at the **Map** at the **Count Site** on which the count was taken.

To do this you open the **Map** so that you can see the **Count Site** at which the count was taken.

You then press Add a Traffic Count and position the mouse pointer over the **Count Site**.

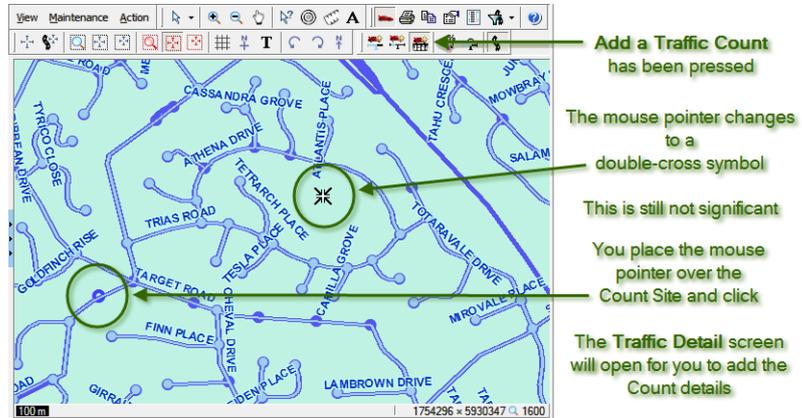
Obviously, you can do this only after you have added your **Count Sites**.



The Map as it Appears When Add a Traffic Count is Pressed

When you press the Add a Traffic Count Site button the cursor turns into a double-cross.

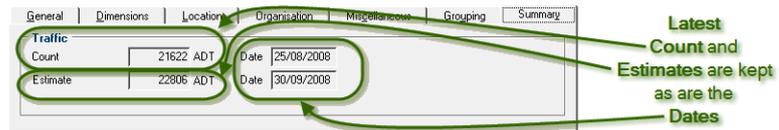
You place the centre of the mouse pointer over the **Count Site** Location on the Road where you took the count.



When you click over the **Count Site** the **Traffic and Loading** Detail screen will open. You then add the details of the **Traffic Count**. See Traffic and Loading (on page 161).

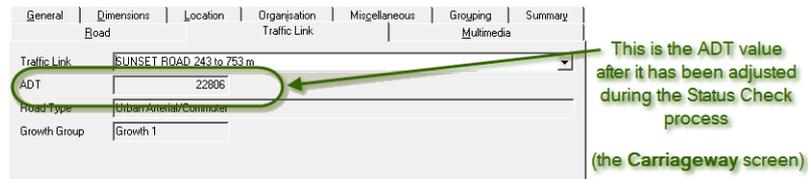
The ADT value and the date of the **Traffic Count** are held against the Carriageway Section.

See Carriageway (on page 158).



These values are used for the generation of ADT Estimates when you perform a Status Check.

See Update **Traffic Counts** and Estimates (on page 204).



Relate Traffic Links

When you have created your **Traffic Links** and **Count Sites** you can then associate the links with each other to reflect the manner in which the Roads in the Network are related to one another. You can set the Average Daily Traffic (ADT) Estimate of one **Traffic Link** to be estimated at a percentage of the original **Traffic Link**. This enhances the effectiveness of **Traffic Counts**.

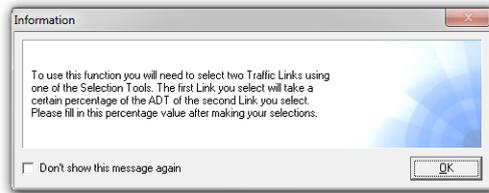
When you want to relate one **Traffic Link** to another the most convenient method is to use the **Map** to add the information.

You open the **Map** so that you can see both the **Traffic Links**.



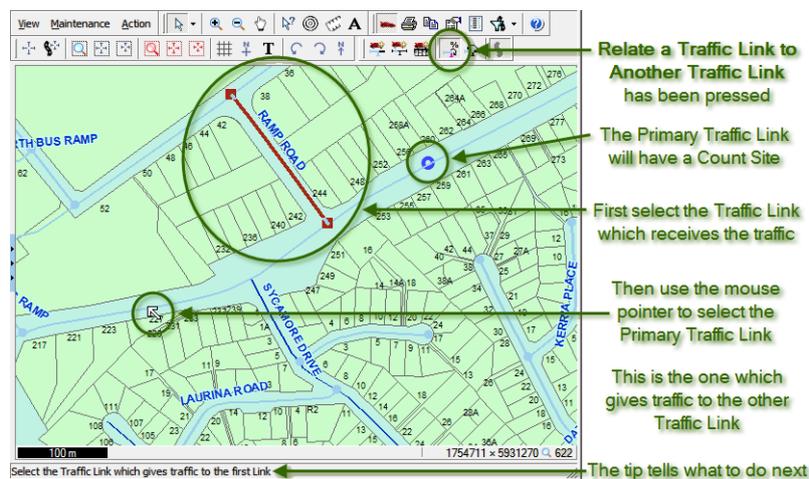
When you first press the Relate a Traffic Link to Another Traffic Link button an information screen will open.

When you have read the message you can select the Don't show this message again option to prevent the screen opening next time you press the button.



You then:

- 1 select the secondary **Traffic Link**. This is the one with the lesser traffic volume. Its ADT will be estimated as a percentage of the primary **Traffic Link**
- 2 select the primary **Traffic Link**. This is the one with the greater traffic volume which gives traffic to the secondary **Traffic Link**.



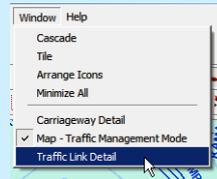
The primary **Traffic Link** will then appear briefly before the **Traffic Link** Detail screen opens for you to check the details and set the ADT percentage. **RAMM** will calculate a default ADT percentage. You can change this.



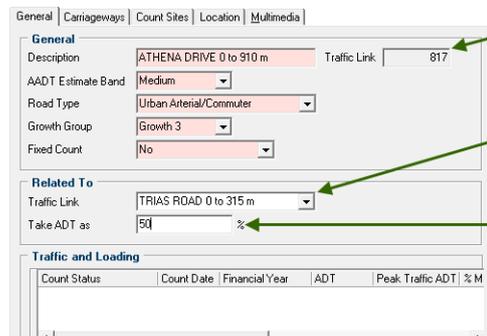
If you are using the **Relate a Traffic Link to Another Traffic Link** process and a screen you are expecting does not appear, or some other unexpected behaviour occurs, this may be because you have inadvertently clicked on the **Map** in error.

If this happens, look under the **Window** menu option and if the **Traffic Link Detail** screen is listed, select it.

You should then see what you are expected to do next.



If you select and display the **Traffic Link Detail** screen it should become obvious what you need to do next



The Secondary **Traffic Link** details will default
The Primary **Traffic Link** gives traffic to the secondary **Traffic Link**

RAMM calculates the percentage of the Primary **Traffic Link** traffic which is expected to flow into the secondary link

You can edit this value

General Section

The details of the **Traffic Link** you selected first will default into the upper **General** section. You can change these details if necessary.

These should be the details for the secondary **Traffic Link** which will be defined as having an ADT as a percentage of the ADT of the primary **Traffic Link**.



NOTE

In the graphic above, there is no ADT value in the **Traffic and Loading** panel. This means it has not yet been set.

Even if the **Traffic Link** to which it is being related has an actual ADT, no ADT will be set for the secondary **Traffic Link** until a **Status Check** has been run. See **Update Traffic Counts and Estimates** (on page 204).

Related To Section

The name of the [Traffic Link](#) you selected second will default into the lower Related To section.

RAMM will calculate a default value for the Take ADT as % field. You can overwrite this if required.

This defines the percentage of the ADT of the primary [Traffic Link](#) which is expected on the secondary [Traffic Link](#).



When you relate one [Traffic Link](#) to another, you select the [Traffic Link](#) with less traffic as the secondary. This is then defined as having an ADT which is a percentage of the ADT of the primary [Traffic Link](#).

There is nothing to prevent you from defining a percentage of over 100% for the secondary [Traffic Link](#).

However, it would not make much sense as it is the [Traffic Links](#) with the higher traffic volumes which you should be counting.

Associate a Carriageway Section with a Traffic Link

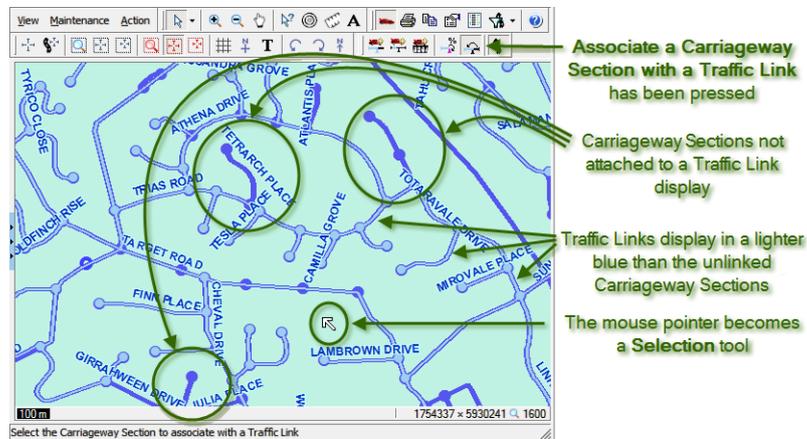
You can associate a selected Carriageway Section with a contiguous [Traffic Link](#) at the **Map**. The Carriageway Section then becomes a part of the [Traffic Link](#) and shares its characteristics. When you have set up [Traffic Links](#) in your Network you use the Associate a Carriageway Section with a Traffic Link button to fine tune them.



If you follow the menu path [View > Unlinked Carriageways](#) the Carriageway Sections which need to be linked become obvious

The Map with the Associate a Carriageway Section with a Traffic Link Button Pressed

Once you have pressed the Associate a Carriageway Section with a Traffic Link button, the Carriageway Sections and the [Traffic Links](#) display. Carriageway Sections not associated with [Traffic Links](#) stand out in a darker blue than the [Traffic Links](#).



You select the Carriageway Section you want to attach to an existing contiguous Traffic Link and then select the Traffic Link.

Tip If you want to associate Carriageway Sections with existing Traffic Links which are not contiguous, you do this at the Carriageways tab of the Traffic Link Detail screen.

Show Traffic Data for All Roads

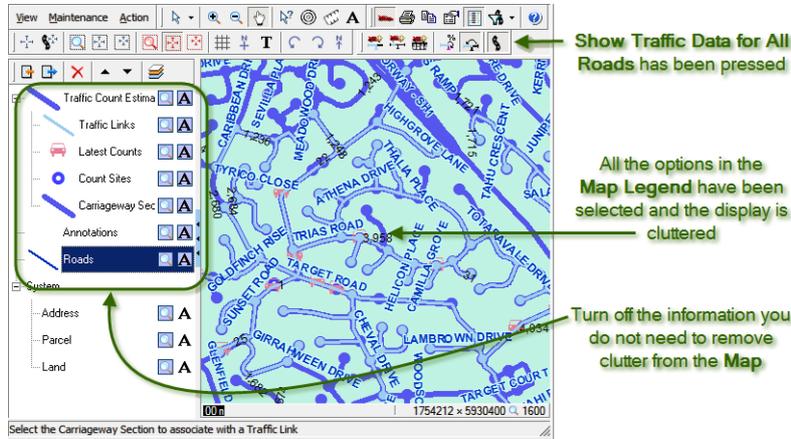
When you are managing Traffic Count Estimation you will want at least some Traffic data displayed on the Map. At other times you will want it hidden.

The data you want to view on the Map when managing Traffic Count Estimation will depend on the task you are performing. You press the Show Traffic Data for All Roads button to display Traffic data on the Map.



If all the available information is displayed on the Map it can become cluttered as in the graphic below.

You use the Map Legend to determine the level of detail displayed. See Legend (on page 207).



Right-click for Details

When the Show Traffic Data for All Roads button has been pressed to display Traffic Links, Carriageway Sections, or Count Sites a user is to be able to right-click on one of the objects and bring up the relevant Detail screen or in some cases add a Dispatch.

Count Site



When you select a Count Site and right-click you have three options:

- Show Count Site Detail**
 This opens the **Count Site** Detail screen with the details for the **Count Site** defaulted. You would use this option to view or edit the **Count Site**.
- Add Traffic Count**
 This opens the **Traffic and Loading** Detail screen with the Road, Carriageway and Count Site details defaulted. You press the four tabs in turn and add the Count details.
- Create Dispatch**
 This opens the **Create Dispatch** screen. This option will be available only if you have run the Counting Schedule report and a count has been scheduled at the **Count Site**.

Carriageway Section



When you select a Carriageway Section and right-click you have two options:

- **Show Carriageway Detail**

This opens the **Carriageway** Detail screen at the **General** tab with the details for the Carriageway defaulted.

You would use this option to view or edit the Carriageway details. The **Use** details which specify the **Pavement Use Category** code which shows the estimated ADT range, would be useful information if you were intending to attach the Carriageway Section to a [Traffic Link](#).

- **Show Traffic Link Detail**

This opens the **Traffic Link** Detail screen at the **General** tab with the details for the [Traffic Link](#) defaulted.

You can press the **Carriageway** tab to view a listing of the Carriageways which comprise the [Traffic Link](#). You would use this option to decide whether to attach the Carriageway Section to the [Traffic Link](#).

This option is available only if the Carriageway Section and the [Traffic Link](#) are contiguous.

Traffic Link



When you select a [Traffic Link](#) and right-click you have two options:

- **Show Carriageway Detail**

This opens the **Carriageway** Detail screen at the **General** tab with the details defaulted for the first Carriageway Section of the Road you clicked which forms part of the [Traffic Link](#).

If you want to view or edit the details of a different Carriageway Section (the one on which you clicked for instance), you use the and arrows to navigate to the one you want. You would use this option to view or edit the Carriageway details.

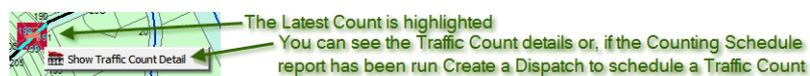
The **Use** details which specify the **Pavement Use Category** code which shows the estimated ADT range, would be useful information if you were intending to remove the Carriageway Section from the [Traffic Link](#).

- **Show Traffic Link Detail**

This opens the **Traffic Link** Detail screen at the **General** tab with the details for the [Traffic Link](#) defaulted.

You can press the **Carriageway** tab to view a listing of the Carriageways which comprise the [Traffic Link](#). You would use this option to decide to view or edit the [Traffic Link](#) details.

Latest Count



When you select a Latest Count and right-click you have two options:

- **Show Traffic Count Detail**
This opens the **Traffic** Detail screen with the details of the count defaulted. You would use this option to view or edit the Latest Count details.
- **Create Dispatch**
This opens the **Create Dispatch** screen. This option will be available only if you have run the Counting Schedule report and a count has been scheduled at the **Count Site**.



If you want to select a Latest Count, you need to have opened the **Map Legend** and toggled **Traffic Links** so that they do not display.

Otherwise when you try to select the Latest Count you will be able to select only the nearest **Traffic Link**.

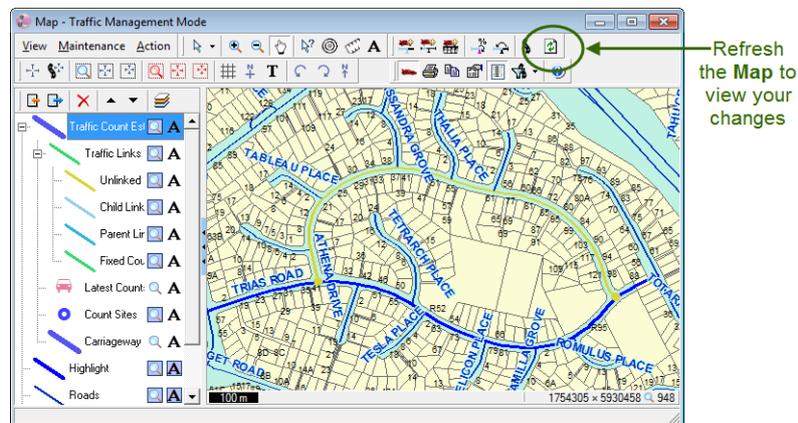
Refresh the Traffic Counting Map

When you are creating and maintaining your **Traffic Count Estimation** Assets at the **Map** in **RAMM** you can refresh the **Map** so that you can more easily view the changes you have made.



See Your Changes

When you are creating and maintaining **Traffic Count Estimation** at the **Map** in **RAMM** you may want to see your changes reflected in the **Map**. You see this whenever the **Map** is refreshed. If the **Map** auto refresh function is not updating often enough, you can press **Refresh** to view your updates.



View Options

When you are managing [Traffic Count Estimation](#) you will want specific data displayed on the **Map** depending on the task you are performing. You will want to see any Carriageways which are not associated with a [Traffic Link](#), [Traffic Links](#) with no ADT value as well as other missing data.

Show All Roads

This option has the same effect as pressing  Show Traffic Data for All Roads.

See Show Traffic Data for All Roads (on page 189).

Unlinked Carriageways

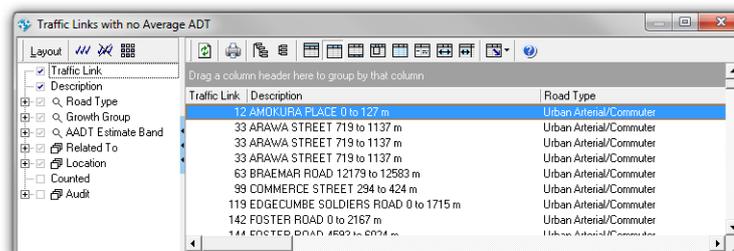
This option is a sanity check you perform after you have set up all your [Traffic Links](#). At this stage, there should be no Carriageway Sections which have not been associated with a [Traffic Link](#). You select this option to see if you have missed any Carriageway Sections. The **Map** will display all Carriageway Sections which have not been associated with a [Traffic Link](#). You can also use this when maintaining [Traffic Count Estimation](#) after set up to see if a Carriageway has been added to the Network without being associated with a [Traffic Link](#).

See Unlinked Carriageways (on page 128).

Traffic Links with no ADT

This option is a sanity check you perform after having set up all the [Traffic Links](#) and then run a Status Check to generate Latest Counts. Once you have done this, all [Traffic Links](#) should have an ADT. The only [Traffic Links](#) with no ADT will be those which are neither associated with a [Traffic Link](#) which does have an ADT nor have had their own reading taken. This option highlights these [Traffic Links](#).

See [Traffic Links](#) with No Average ADT (on page 129).



Traffic Link	Description	Road Type
12	AMOKURA PLACE 0 to 127 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
33	ARAWA STREET 719 to 1137 m	Urban Arterial/Commuter
63	BRAEMAR ROAD 12179 to 12583 m	Urban Arterial/Commuter
99	COMMERCE STREET 294 to 424 m	Urban Arterial/Commuter
119	EDGE CUMBE SOLDIERS ROAD 0 to 1715 m	Urban Arterial/Commuter
142	FOSTER ROAD 0 to 2167 m	Urban Arterial/Commuter
144	FOSTER ROAD 489 to 694 m	Urban Arterial/Commuter

Missing Data > Count Sites > Sample Group

When you are first setting up **RAMM Traffic Count Estimation**, there may be legacy data for Count Sites which does not include a Sample Group value. Count Sites you set up after turning on **Traffic Count Estimation** cannot be saved without a Sample Group value. You use this menu option to display Count Sites with no Sample Group value.

When you open the **Count Site** Detail screen to edit the Count Sites displayed you will not be able to save the record unless it has a Sample Group value.

See Sample Group Data (on page 74).

You need **Sample Group** values before you can implement **Traffic Count and Estimation Management**

Missing Data > Latest Traffic Counts > Time of Day and Duration

When you are first setting up **RAMM Traffic Count Estimation**, there may be legacy data for **Traffic Counts** which does not include a Time of Day or Count Duration value. **Traffic Counts** you set up after turning on **Traffic Count Estimation** cannot be saved without a Time of Day or Count Duration value. You use this menu option to display **Traffic Counts** with no Time of Day or Count Duration value.

See Count Duration Data (on page 70) and Time of Day Data (on page 72).

When you open the **Traffic** Detail screen to edit the **Traffic Counts** displayed you will not be able to save the record unless it has a Time of Day and Count Duration value.

You select **3 Hours, 24 Hours or 7 Days** from the **Count Duration** drop-down list

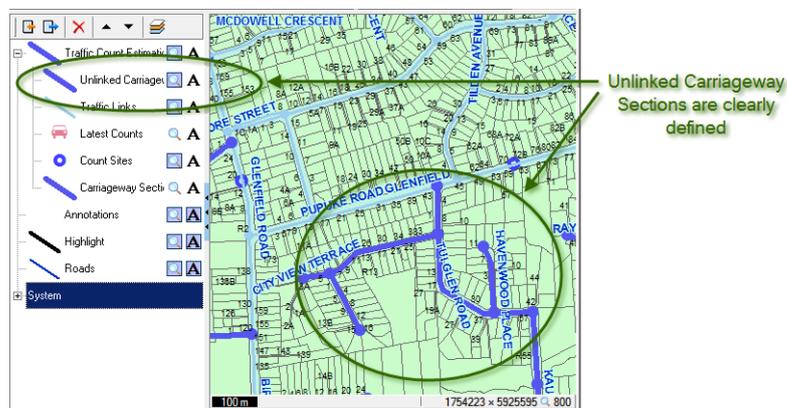
Unlinked Carriageways

It is possible that some Carriageway Sections will not have been associated with a [Traffic Link](#). An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.

You find these unlinked Carriageways by running the Unlinked Carriageways report. You do this through the **Map**. You can also run it from [RAMM Manager](#). See Unlinked Carriageways (on page 241).

Unlinked Carriageways Map Layer

When you follow the menu path View > Unlinked Carriageways [RAMM](#) creates a Layer for the **Map** which distinguishes Carriageways with no [Traffic Link](#) defined. The Carriageways are obvious.



How to Fix the Problem

If there are a large number of items to fix, the most efficient method is to run the Recommended [Traffic Links](#) process again. You do this at the **Recommended Traffic Links** screen. See View a List of Recommended [Traffic Links](#) (on page 81).

If there are only a few Carriageways, it is probably faster to use the **Map**. You press  and add the [Traffic Links](#) in the standard manner. See Associate a Carriageway Section with a [Traffic Link](#) (on page 188).



GO

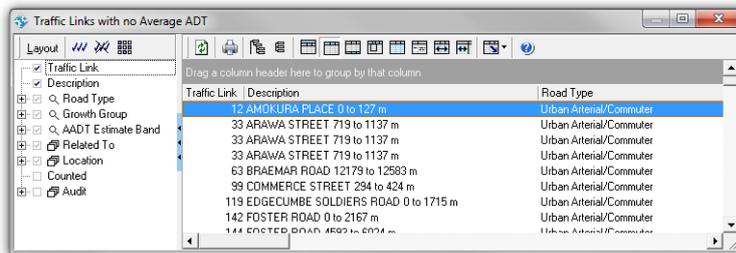
In order to run the Unlinked Carriageways report a user must have at least Enquiry Permission for Road Name and Carriageway.

Traffic Links with No Average ADT

When you have run Status Check, there may be errors reported in the resulting Traffic Latest Errors report. See Traffic Latest Errors Report (on page 297).

Hill Valley Regional Council		Printed: 03/09/2011	Page: 1
		User: grant	
Traffic Latest Errors			
	Carriageway Section	Date	Error
GLENFIELD ROAD (11)	PUPUKE ROAD GLENFIEL - MOORE STREET (0-235)		Pavement Use (7) con fids with AD T (1887)
	MOORE STREET - PARK HILL ROAD (235-448)		Pavement Use (7) con fids with AD T (1066)
	ESKDALE ROAD - SPEEDYCRESCENT (506-835)		Pavement Use (7) con fids with AD T (2332)
	SPEEDYCRESCENT - CORONATION ROAD (835-1257)		Pavement Use (7) con fids with AD T (1707)
	CAPILANO PLACE - DOWNING STREET (1859-2419)		Pavement Use (7) con fids with AD T (4208)
	MAIUKAROAD - WARAU ROAD (3552-4072)		Pavement Use (7) con fids with AD T (11950)

You should locate the [Traffic Links](#), identify and fix the problems which are causing the errors. You can easily identify some of the [Traffic Links](#) with problems by running the Traffic Links with no ADT report. You can run this report from within **RAMM Manager**. See [Traffic Links with No ADT](#) (on page 241).



See the Traffic Links on the Map

You follow the menu path **View > Traffic Links with no ADT**. A Layer will then be created so that you can more easily find the [Traffic Links](#) with errors.

When you have located the [Traffic Links](#) with errors and fixed them the Layer should disappear. If not, there must be more [Traffic Links](#) to fix.

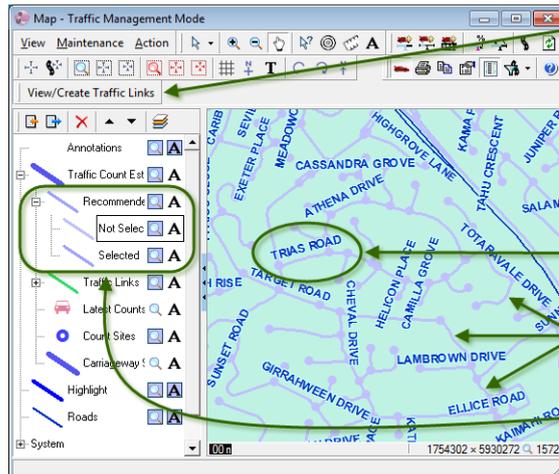
Recommended Traffic Links and the Map

You can manually create your own **Traffic Links** for your database. However, it is more efficient to accept the **RAMM** Recommended **Traffic Links** which are contiguous Carriageway Sections from the same Road that have the same Average Daily Traffic (ADT) Estimate value, plus or minus 10%.



Do not start the Recommended Traffic Links process until the Update Traffic Counts and Estimates process is complete and any problems with your legacy data are fixed. Otherwise you will be making your decisions based on outdated ADT Estimate and Latest Count data. See Update Traffic Counts and Estimates (on page 230).

You follow the menu path View > Recommended Traffic Links to generate a Layer on the **Map** of **Traffic Links** recommended by **RAMM**. A screen will show the progress in the Layer generation. The recommended **Traffic Links** will then display in the **Map**. More options will become available at the **Map** Legend.



View/Create Traffic Links button appears

If you have generated Recommended Traffic Links for All Roads then even Roads for which Traffic Links already exist will have Recommended Traffic Links

Recommended Traffic Links display in light purple

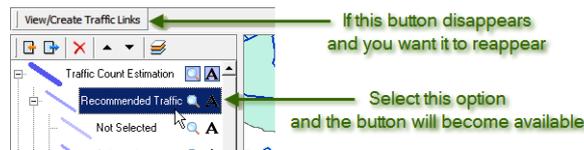
There are more display options at the Map Legend

View/Create Traffic Links Button

When the View > Recommended Traffic Links process is completed, View/Create Traffic Links becomes available. You press it to open the **Recommended Traffic Links** screen. See View a List of Recommended **Traffic Links** (on page 81).

Once the Recommended **Traffic Links** have been created, you relate them to each other. You do this through the **Map** to deal with the **Traffic Links** individually. If you want to accept the recommended **Traffic Links** in bulk, you should press the **View/Create Traffic Links** button and use the **Recommended Traffic Links** screen.

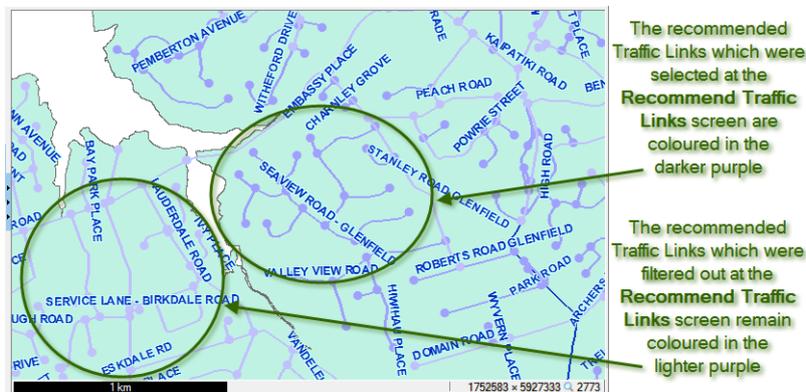
You may find that you need to press the **View/Create Traffic Links** button and that it has disappeared even though the **View > Recommended Traffic Links** menu option is selected. In this situation you open the **Map** Legend and select the **Recommended Traffic** option. The button will then reappear.



Tip It is not possible to generate Recommended **Traffic Links** for a select range of Roads even if you filter the Roads in the Road list panel or select Roads on the **Map**. You can only filter the list of Recommended **Traffic Links**.

Selected Recommended Traffic Links

When you open the **Recommended Traffic Links** screen you can filter the Roads to limit the list to Roads in a particular area with similar ADT band. Then when you close the screen you will be returned to the **Map** and the recommended **Traffic Links** will be displayed. You can then work your way through the highlighted Roads.



Recommended Count Sites and the Map

When you have created your **Traffic Links** you then create **Count Sites** on them. Although you could start from scratch when creating **Count Sites** for your database, it is more efficient to let **RAMM** recommend them for you. If you accept the recommendations, you can edit them later.



You should start the Recommended Count Sites process after you have completed the Recommended Traffic Links process and before you begin the process of associating Traffic Links. Once you have added the Recommended Count Sites the associating Traffic Links process is more obvious and logical. See **Traffic Link Association** (on page 112).

RAMM will add a **Count Site** to all **Traffic Links** with no associated **Traffic Link**.

General		Count Sites		Location		Multimedia	
Description	TRIAS ROAD 0 to 315 m	Traffic Link	811				
AADT Estimate Band	Medium						
Road Type	Urban Arterial/Commuter						
Growth Group	Growth 3						
Fixed Count	No						
Related To							
Traffic Link	[Empty Dropdown]						
Take ADT as	%						

Count Sites are recommended for **Traffic Links** with no **Related To** values

These **Traffic Links** are at the highest level of the Parent - Child **Traffic Link** relationships or have been orphaned - ie they have no relationship with any other **Traffic Link**

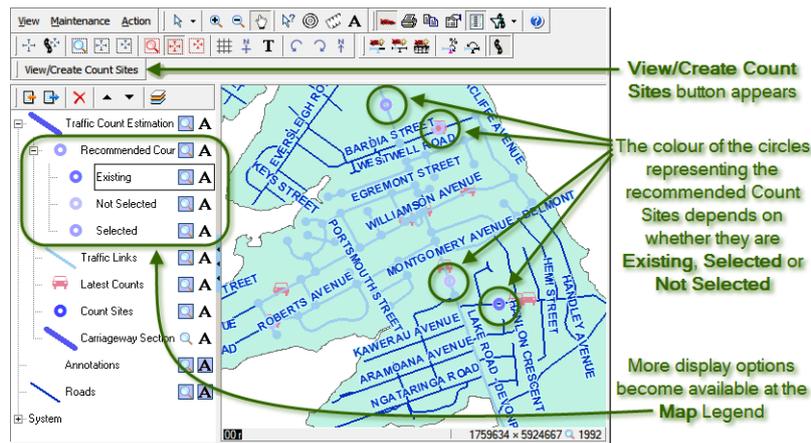
When you set up your **Traffic Link** associations you do so in a series of hierarchical Parent/Child relationships so that when you perform a **Traffic Count** on the uppermost of the Parent **Traffic Links** the reading will filter down to all the subsidiary **Traffic Links** as per the percentages defined.

The **Traffic Link** which is at the top of the hierarchical relationships of the Parent **Traffic Links** will have no **Related To** values. This is because it does not have an Average Daily Traffic (ADT) Estimate calculated as a percentage of another **Traffic Link**. So it needs to have its traffic counted.



When you set the Traffic Counting parameters at the **Parameter** screen in **RAMM Manager** you set a Network Coverage % of VKT value. **RAMM** highlights the Recommended Count Sites which represent the value you set. So even though initially **RAMM** will recommend a Count Site for each Traffic Link you can clearly see the Count Sites which you will want to create.

You follow the menu path View > Recommended Count Sites to start the process to generate a Layer on the Map of Count Sites recommended by RAMM. A screen will open showing the progress in the Layer generation. When the process is completed, the Recommended Count Sites will display in the Map. More options will become available at the Map Legend.



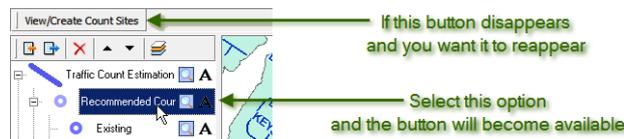
View/Create Count Sites Button

View/Create Count Sites

When the View > Recommended Count Sites process is completed the View/Create Count Sites button becomes available. You press this button to open the **Recommended Count Sites** screen. See View a List of Recommended Count Sites (on page 97).

Once the recommended Count Sites have been created, you need to decide which ones to accept. You do this through the Map if you are going to deal with the Count Sites individually. If you want to accept the recommended Count Sites in bulk, you should press the View/Create Count Sites button and use the **Recommended Count Sites** screen.

You may find that you need to press the View/Create Count Sites button and that it has disappeared even though the View > Recommended Count Sites menu option is selected. In this situation you open the Map Legend and select the Recommended Count Sites option. The button will then reappear.





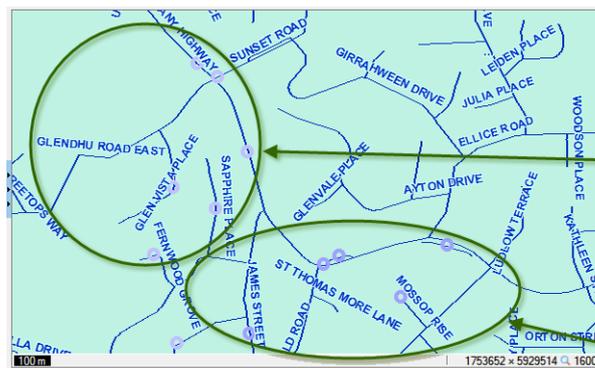
You may want to generate recommended Count Sites for a select range of Roads. This is not possible. Whether you filter the Roads in the Road list panel or select a number of Roads on the **Map**, when you follow the menu path View > Recommended Count Sites **RAMM** processes all Roads in the database with no Count Sites.

You can however, filter the Roads at the **Recommended Count Sites** screen to limit the selected recommended Count Sites displayed on the **Map**.

Selected Recommended Count Sites

When you open the **Recommended Count Sites** screen you can filter the Roads to limit the list to Roads in a particular geographical area. Then when you close the screen you will be returned to the **Map** and the recommended **Traffic Links** will be displayed.

You can then work your way through the recommended **Count Sites**.



The recommended Count Sites which were filtered out at the **Recommend Count Sites** screen are coloured in the lighter purple

The recommended Count Sites which were selected at the **Recommend Count Sites** screen are coloured in the darker purple

View Scheduled Traffic Counts on the Map

RAMM can recommend scheduled **Traffic Counts** for you.

Best practice is for you to let **RAMM** recommend the **Traffic Counts** and for you to create **Dispatches** in bulk to make sure that the **Traffic Counts** are carried out. You can carry out the Recommended **Traffic Counts** process in **RAMM Manager** or in **RAMM** using the **Map**. For more information on the process in **RAMM Manager** see Run Recommended **Count Sites** Process (on page 227).

The Map in RAMM

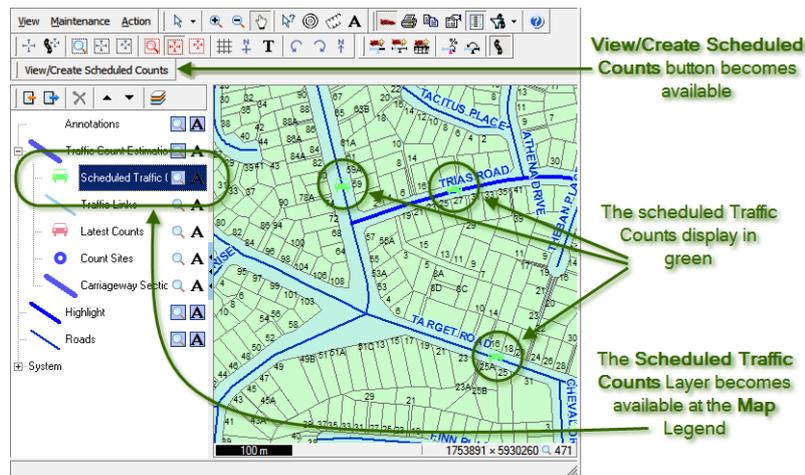
To view the recommended **Traffic Counts** on the **Map**, you:

- press  to open the **Map** in **RAMM**
- then press  to turn on Traffic Management Mode. This makes the required tool bars and buttons available.
- then press  to make the Traffic Management information display on the **Map**.

Scheduled Traffic Counts

You follow the menu path **View > Scheduled Traffic Counts** to start the process to generate a Layer on the **Map** of scheduled **Traffic Counts** recommended by **RAMM**. The **Counting Schedule** screen will open. You generate the scheduled **Traffic Counts** which you can then view on the **Map**.

The Scheduled Traffic Counts option will become available at the **Map** Legend.



Lookup Maintenance

The relevance and accuracy of a **Traffic Count** is affected by a number of factors. The Road Type, the Count Duration of 3 Hours, 24 Hours or 7 Days, the Day of the Week on which the Count was taken, the Week Number, Region and Season all affect the value of the **Traffic Count**. **RAMM** has preset values to adjust the raw data. In the unusual circumstance that these values are not accurate enough for your situation, you can edit the appropriate Lookups.

Lookups

You can maintain the [Traffic Count Estimation](#) Lookups from the **Map**. The maintenance screens are available from the **Maintenance** menu option.

The same options are available in **RAMM Manager**.

See [Road Types and Correction Factors](#) (on page 210), [Growth Group Factors](#) (on page 219) and [Sample Group](#) (on page 221).



You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

Lookup Maintenance

If you do make changes to Lookups such as the seven default [Road Types](#), you should remember that their names are descriptive although not definitive.

You should study the graphs at the following link to understand the traffic flow projections and associate these with Roads in your Network based on your knowledge and experience, rather than a strict application based on the Descriptions of the [Road Types](#).

See [Road Type Group Graphs](#) (on page 211).

Action Option

When you need the most up-to-date [Average Daily Traffic \(ADT\) Estimate](#) data you can run the [Update Traffic Estimates](#) process from the **Action** menu of the **Map**. You run the process to generate ADT Estimates for all [Carriageway Sections](#) and to set them as [Latest](#) values. This process also generates [Loading Estimates](#) for all [Carriageway Sections](#) taking into account the new readings and other factors.

See [Update Traffic Counts and Estimates](#) (on page 204).

This performs a [Status Check](#) for the [Set most recent flags](#) for [Traffic](#) and [Loading data](#) option.

This updates the database to take into account any [Traffic Counts](#) and [Estimates](#) entered since the most recent [Status Check](#). It then updates the [ADT Estimates](#) taking into account the new readings and the other factors.



When to Update Loading Counts and Estimates

Best practice is to run the Status Check process prior to setting up **RAMM Traffic Count Estimation** so that you are using the latest data. Standard practice is then not to run the Update Traffic Estimates process until you have set up **RAMM Traffic Count Estimation**.

You then run it after you have run the Update Traffic Counts and Estimates process to produce the Traffic Latest Errors report as a data sanity check.

You would typically run the process once a year after you have imported the file with the **Traffic Counts** and Loading data.



You can run this process at the **Status Check screen in **RAMM Manager**. See [Update Traffic Counts and Estimates \(on page 230\)](#).**

NOTE

Update Traffic Counts and Estimates

When you need the most up-to-date Average Daily Traffic (ADT) Estimate data you can perform a Status Check at the **Map** by running the Set most recent flags for **Traffic and Loading Data** process. This updates the database to take into account any **Traffic Counts**, Estimates and Loading data entered since the most recent Status Check. It then updates the Estimates taking into account the new readings and the other factors. It also creates the Traffic Latest Errors report. See **Traffic Latest Errors Report** (on page 297).

Menu Path

You follow the menu path **Action > Update Traffic Estimates** to run a Status Check to update the **Traffic Counts** and Estimates.



When to Update Traffic Counts and Estimates

Best practice is to run the Status Check process prior to setting up **RAMM Traffic Count Estimation** so that you are using the latest data. Standard practice is then not to run the Update Traffic Counts and Estimates process until you have set up **RAMM Traffic Count Estimation**.

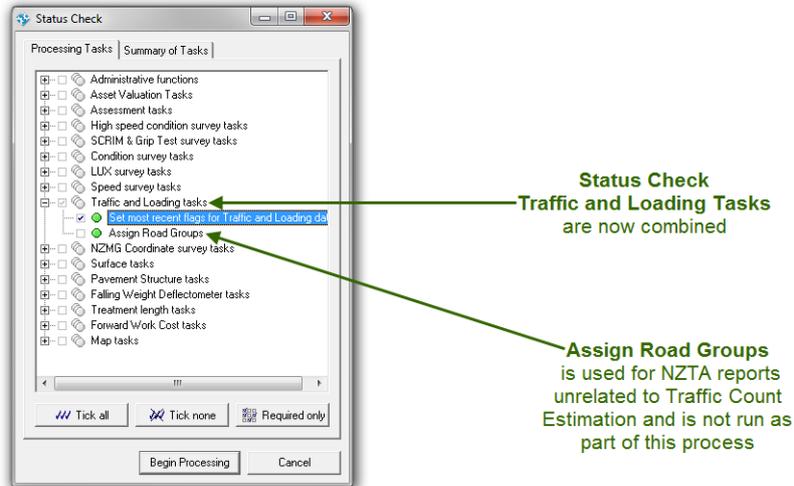
You then run it to produce the Traffic Latest Errors report as a data sanity check.

You would typically run the process once a year after you have imported the file with the **Traffic Counts**.

Hill Valley Regional Council		Printed: 03/09/2008	Page: 1
		User: grant	
Traffic Latest Errors			
	Carriageway Section	Date	Error
DROP OFF DRIVE (4074)	NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-138)		No estimate
HEALTH ROAD (4075)	NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-352)		No estimate
ROTO ROAD (4076)	NORTH SHORE HOSPITAL - END OF THE ROAD (0-328)		No estimate
MEDWAY ROAD (4083)	THE OVAL - END OF THE ROAD (0-421)		No estimate
WARMAN ROAD (4086)	GALS ROAD - END OF THE ROAD (0-1477)		No estimate
WEST LAKE STATION CA (6088)	SHAKESPEARE ROAD ACC - SHAKESPEARE ROAD ACCESS WEST (0-80)		No estimate
PRESTON COURT (4105)	PRESTON AVENUE - END OF THE ROAD (0-104)		No estimate
THOMAS HUNTER LANE (4107)	ROLAND ROAD - END OF THE ROAD (0-234)		No estimate

Reduce Estimate Records

A large number of Estimate records are created when you are setting up **Traffic Count Estimation**. You can now reduce that number by having **RAMM** overwrite records when sensible.



Status Check Option

When the **Traffic Count Estimation** process is run in Status Check, the final step is to create Estimate records for each Carriageway Section. If you do not wish to create large numbers of Estimates you can choose to overwrite the existing record rather than to create new ones.

You specify, in the Existing Carriageway Traffic and Loading records section, that if the age of the records is equal to or less than a particular number of days old, they are overwritten.

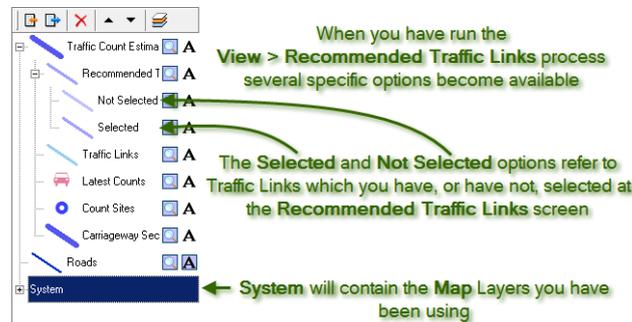


Legend

The **Map** Legend has options specific to **RAMM Traffic Count Estimation**. These have been optimised for the creation and maintenance of **Traffic Links** and **Count Sites**.

View > Recommended Traffic Links

When you follow the menu path View > Recommended Traffic Links **RAMM** runs a process to create Recommended **Traffic Links**. It places the results in a temporary table. These Recommended **Traffic Links** display on the **Map**. You use the Legend to understand what you see.



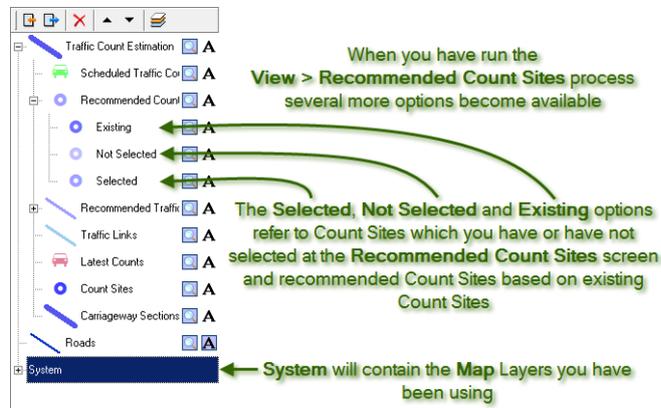
You can turn Traffic Links, Latest Counts, Count Sites and Carriageway Sections on or off.

The **View/Create Traffic Links** button becomes available. You press this to open the **Recommended Traffic Links** screen. See View a List of Recommended **Traffic Links** (on page 81).

At this screen you are presented with the complete list of Recommended **Traffic Links**. You can filter the list to work on discrete areas of the Network. If you select the Recommended **Traffic Links** on which you want to work, these will display as in the Legend below and those not selected will be differentiated as in the Legend above.

View > Recommended Count Sites

When you follow the menu path View > Recommended Count Sites **RAMM** runs a process to create Recommended **Count Sites**. It places the results in a temporary table. These Recommended **Count Sites** display on the **Map**. You use the Legend to understand what you see.



You can turn Scheduled Traffic Counts, Traffic Links, Latest Counts, Count Sites and Carriageway Sections on or off.

The **View/Create Count Sites** button becomes available. You press this to open the **Recommended Count Sites** screen. See [View a List of Recommended Count Sites](#) (on page 97).

At this screen you are presented with the complete list of Recommended **Count Sites**. You can filter the list to work on discrete areas of the Network. If you select the Recommended **Count Sites** on which you want to work, these will display as in the Legend above and those not selected will be differentiated as in the Legend above.

You can also see Recommended **Count Sites** which were based on an existing **Count Site**

For general information on the **Map** see the Mapping chapter of the *Using RAMM* guide.

Traffic Count Estimation and RAMM Manager

Users who prefer to use screen-based processes can perform all the [Traffic Count Estimation](#) activities from within **RAMM Manager** rather than using the **Map** from within **RAMM**. Some actions, such as associating [Traffic Links](#) will always be easier from the **Map** as you can see the contiguous [Traffic Links](#).

Best practice is to perform the majority of [Traffic Count Estimation](#) set up and maintenance activities in **RAMM** using the **Map**. See [Traffic Count Estimation](#) and the **Map** (on page 175).

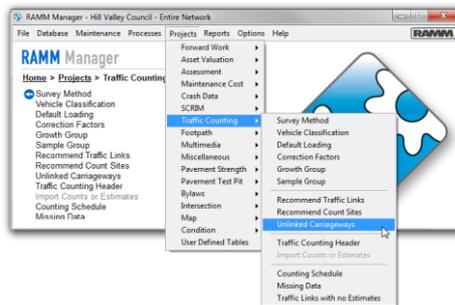
In This Chapter

- Where Are the RAMM Manager Functions?210
- Road Types and Correction Factors210
- Recommend Traffic Links223
- Recommend Count Sites226
- Update Traffic Counts and Estimates230
- Counting Schedules234
- Sanity Check Reports.....238
- Survey Methods242
- Vehicle Classification244
- Default Loading.....245

Where Are the RAMM Manager Functions?

All the [Traffic Count Estimation](#) functions are available from the menu path **Projects > Traffic Counting**. This includes the reports and the Lookup maintenance screens.

Where a New Zealand State Highway database is used the menu path will be **Projects > TMS**.



Road Types and Correction Factors

When a [Traffic Count](#) is performed on a Road, you enter the Average Daily Traffic (ADT) into **RAMM**. These data are updated when Status Check is run. The ADTs are corrected by a variety of factors to create ADT Estimates. The Correction Factors vary dependent on the Road Type.

There are seven default Road Types used for **RAMM Traffic Count Estimation**. Default factor profiles exist for:

- Urban Arterial/Commuter
- Urban Commercial
- Urban Industrial
- Urban/Rural Boundary
- Rural
- Summer Recreational
- Winter Recreational.

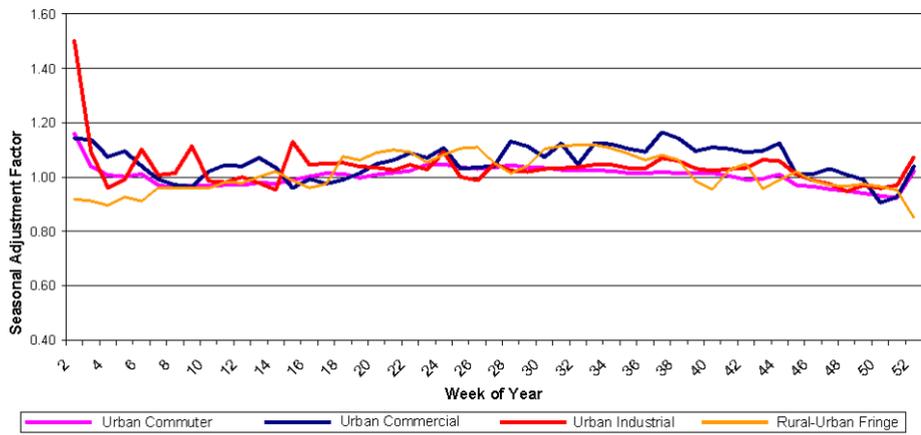


You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

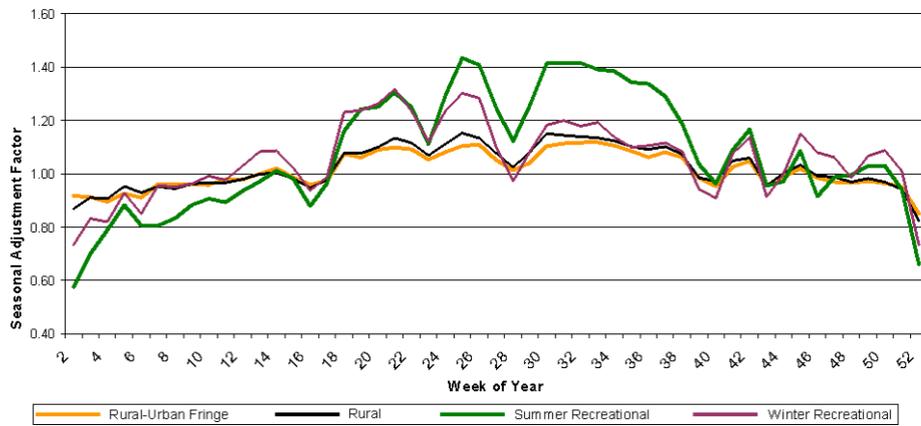
Road Type Group Graphs

The names used for the seven default Road Types are descriptive, not definitive. You should study the graphs below to understand the traffic flow projections and associate these with Roads in your Network based on your knowledge and experience, rather than a strict application based on the Road Types Descriptions.

Urban Road Types Graph



Rural and Seasonal Road Types Graph



Correction Factors Screen

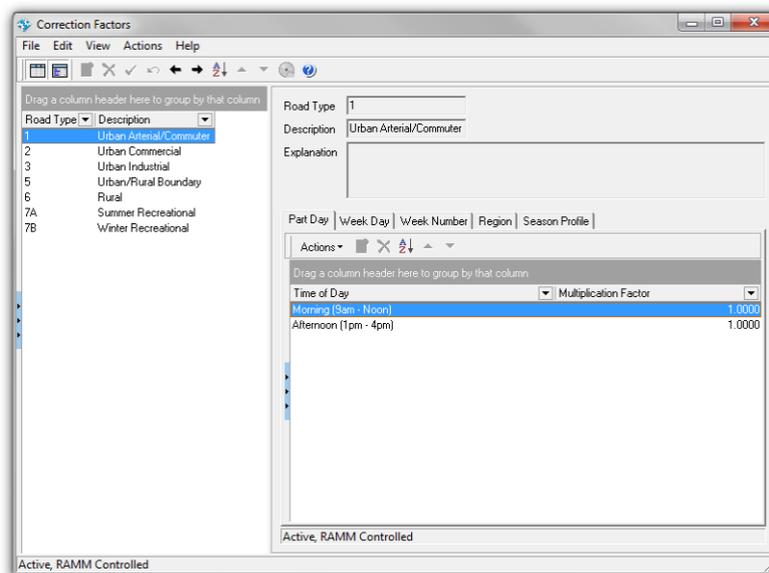
You use this screen to view and maintain the information recorded in the Road Type table.



You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

You access the screen in **RAMM Manager** by following the menu path Projects > Traffic Counting > Correction Factors.

You access the screen in **RAMM** by opening the **Map**, pressing Traffic Management Mode  and following the menu path Maintenance > Correction Factors.



Correction Factors

For each Road Type value there are default Correction Factors.

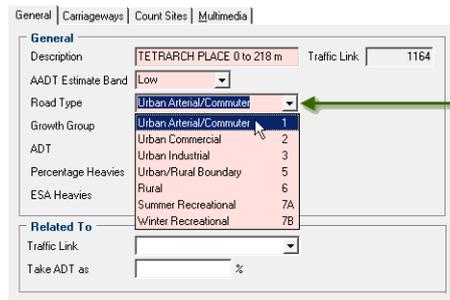
If you have sufficient data and experience with your Network traffic flows you can define your own values to replace the defaults:

- **Part Day**
You define these at the Part Day tab.
See Part Day Factors (on page 213).

- **Week Day**
You define these at the Week Day tab.
See Week Day Factors (on page 214).
- **Week Number**
You define these at the Week Number tab.
See Week Number Factors (on page 215).
- **Region**
You define these at the Region tab.
See Region Factors (on page 216).
- **Season Profile**
You define these at the Season Profile tab.
See Season Profile Factors (on page 217).

Default Road Types

The seven default Road Type values are available at the Road Type drop-down list on the General tab of the **Traffic Links** maintenance screen. This is a mandatory field. You use the Road Type selection flowchart to assist in the selection of the correct Road Type for a **Traffic Link**. See Road Type Selection Process (on page 47).



When you create a Traffic Link you must associate a Road Type value so that the Traffic Count values can be adjusted by the appropriate factors for the time of day, week of the year and other factors

Part Day Factors

You use the Part Day tab of the **Road Type and Multiplication Factors** screen to view and maintain the information recorded in the Part Day Factor table.

Estimates generated by **RAMM** on the basis of a **Traffic Count** of 3 Hour duration will differ dependent on whether they were taken in the morning or in the afternoon. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account. Of course, these values will vary by Road Type.

Time of Day	Multiplication Factor
Morning (8am - Noon)	5.8405
Afternoon (1pm - 4pm)	5.2744

Part Day factors are used to adjust Traffic Counts to take into account whether a Part Day Traffic Count was performed in the morning or in the afternoon

These values are from the Urban/Commercial Road Type and so need to be adjusted up to account for the number of Heavies

The factors will vary depending on the Road Type

The Morning and Afternoon factors vary depending on the Road Type selected in the (unnamed) Road Type list panel.

You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

Traffic Screen

Time of Day values are used at the **Traffic** screen in **RAMM**. You select a Time of Day value at the drop-down list only if the Count Duration is 3 Hours.

Road: TRIAS ROAD
 Carriageway: 0 - 234 (SUNSET ROAD - ATHENA DRIVE)

General

Count Site: TRIAS ROAD 140 m
 Location: 136 m
 ADT: 2343
 Direction: Both lanes
 Count Date: 7/06/2001
 Count Duration: 3 Hours
 Time of Day: []

Traffic ID: 3941
 Latest: Latest
 Count Status: Count
 Day of Week: []
 Week Number: []
 Season: []

When you add an ADT at the Traffic screen for a count of 3 Hour duration you need to specify at the Time of Day field whether the count was taken in the Morning or the Afternoon

Week Day Factors

You use the Week Day tab of the **Road Type and Multiplication Factors** screen to view and maintain the information recorded in the Week Day Factor table. Estimates generated by **RAMM** on the basis of a **Traffic Count** of 3 Hour or 24 Hour duration will differ dependent on the day of the week on which they were performed. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account. Of course, these values will vary by Road Type.

Day of Week	Multiplication Factor
Monday	0.9521
Tuesday	0.8916
Wednesday	0.8704
Thursday	0.8611
Friday	0.8532
Saturday	1.4696
Sunday	1.689

Annotations:

- Week Day factors are used to adjust Traffic Counts to take into account the day of the week on which they were performed
- These values are from the Urban/Industrial Road Type so Traffic Counts taken at the weekend need to be adjusted up to account for less activity
- The factors will vary depending on the Road Type

The Week Day factors vary depending on the Road Type selected in the (unnamed) Road Type list panel.



You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

Traffic Screen

When the Count Date value is selected from the drop-down list, RAMM calculates the day of the week on which the Traffic Count has taken place. The appropriate Week Day values are then used in RAMM calculations.

Form Fields:

- Road: TRIAS ROAD
- Carriageway: 0 - 234 (SUNSET ROAD - ATHENA DRIVE)
- Count Site: TRIAS ROAD 140 m
- Location: 140 m
- ADT: 2343
- Direction: Both Lanes
- Count Date: 4/09/2008
- Count Duration: 3 Hours
- Time of Day: Morning (9am - Noon)
- Traffic ID: Latest
- Count Status: Count
- Day of Week: Thursday
- Week Number: 35
- Season: July to September

Annotations:

- When you select the Count Date from the drop-down calendar
- RAMM calculates the Day of the Week, Week Number and Season values which default

Week Number Factors

You use the Week Number tab of the Correction Factors screen to view and maintain the information recorded in the Week Number Factor table. Estimates generated by RAMM on the basis of a Traffic Count of 3 Hour, 24 Hour or 7 Day duration will differ dependent on the week of the year in which they were performed. So RAMM Traffic Count Estimation uses different factors in calculations to take this into account.

AADT Estimate Band	Week Number	Multiplication Factor
Low	46	1.0455
Low	47	1.042
Low	48	1.0492
Low	49	0.9946
Low	50	1.0062
Low	51	0.9829
Low	52	1.0639
Low	53	1
Medium	1	1
Medium	2	1.1984
Medium	3	1.0382
Medium	4	1.0001
Medium	5	1.0108
Medium	6	0.9986
Medium	7	0.9709

Week Number factors are used to adjust Traffic Counts to take into account the week of the year, from 1 - 53, in which the Traffic Count was performed

The factors will vary depending on the Road Type

There are separate Week Number values for the three AADT Estimate Bands

Week Number factors vary depending on the Road Type selected in the (unnamed) Road Type list panel. There are fifty three Week Number values for each of the three AADT Estimate Bands. 365 and 366 (the number of days in a normal and leap year) cannot be divided equally by 7 (the number of days in a week). So there will always be a short week at the end of every year. The week 53 value is always the same as the value for week number 1.

You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

RAMM calculates the Week Number values from the Count Date at the **Traffic** screen.

When you select the Count Date from the drop-down calendar

RAMM calculates the Day of the Week, Week Number and Season values which default

Region Factors

You use the Region tab of the **Correction Factors** screen to view and maintain the information recorded in the Region Factor table.

Estimates generated by **RAMM** on the basis of a **Traffic Count** will differ dependent on the Region in which they were performed. So **RAMM Traffic Count Estimation** uses different factors in calculations to take this into account. Of course, these values will vary by Road Type.

Region	Multiplication Factor
NZ Region	1.0000
Northern North Island	1.0000
Southern North Island	1.0000
Northern South Island	1.0000
Southern South Island	1.0000

At the time of publishing all **Region Multiplication Factors** have been set to 1

Region factors are used to adjust ADT Estimates to take into account the Region of the country in which the Counts were performed

The Region factors vary depending on the country of operation and the Road Type selected in the (unnamed) Road Type list panel. At the time of publication, all Region factors have been set at 1.

You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

Parameter Screen

You set your Region at the **Parameter** screen in **RAMM Manager** when you first set up **Traffic Count Estimation**. The correct Region factors are then used in all **Traffic Count Estimation** Estimate calculations. See Traffic Counting Parameters (on page 62).

Traffic Counting

Region	Northern North Island
Road Council	Hill Valley Council
Include Count Sites for	10
Network Coverage	80 % of VKT

You select your **Region** so that the correct **Region Factors** will be applied to all Estimate calculations

Season Profile Factors

Traffic volumes on particular **Traffic Links** vary throughout the year. This seasonal variation depends on the function of the **Traffic Link**. For example, a Road to a popular beach is likely to be used more in the summer months than in the winter. Conversely a Road servicing an industrial area will typically carry less traffic during the weekend and over the Christmas to New Year period. So the traffic counted in a particular week may not accurately represent the Average Daily Traffic (ADT).

An analysis of the seasonal variation in traffic volumes for different Roads suggests that there are at least seven very different Season Profiles. These typical profiles provide seasonal adjustment factors that can be applied to the Traffic Count undertaken in a particular week to provide a better Estimate of the ADT. Selection of the most appropriate profile for a particular Traffic Link should be based on a comparison of the predefined Season Profiles and the actual seasonal profile of the Traffic Link. You should use the Road Type selection process flow diagram to assist in making this decision. See Road Type Selection Process (on page 47). However, when using this diagram, it is important to remember that the questions and answers relate to the Season Profile of the traffic on the Road, not to the type of Road or its allocation in a Road hierarchy.

While the current procedure for seasonal adjustment of short duration periodic Traffic Counts is based on allocation of each Traffic Link to one of the seven typical traffic Season Profiles, a traffic monitoring programme may be constructed to include additional Traffic Counts to be undertaken at particular locations throughout the year. For example a Road Controlling Authority (RCA) might undertake a weekly Traffic Count on a particular Road in each of the four seasons, six bimonthly counts or even count one week in each of the twelve months. These seasonal counts may assist the Authority to establish just which Season Profile is the most appropriate or even to develop an alternative more applicable Season Profile.

Season Profile Tab

You use the Season Profile Day tab of the Correction Factors screen to view and maintain the information recorded in the Season Profile Factor table. Estimates generated by RAMM on the basis of a Traffic Count will differ dependent on the Season during which they were performed. So RAMM Traffic Count Estimation requires different factors in calculations to take this into account. Of course, these values will vary by Road Type.

The screenshot shows a table with the following columns: Season, AADT Estimate Band, NZ Region, and Multiplication Factor. The table lists various combinations of these factors. Annotations with arrows point to the table:

- An arrow points to the top of the table with the text: "Season Profiles are used to adjust Traffic Counts to take into account the combination of Season, AADT Estimate Band and Region".
- An arrow points to the Multiplication Factor column with the text: "The factors will vary depending on the Road Type".
- An arrow points to the Multiplication Factor column with the text: "These values are from the Summer Recreational Road Type and so the Summer values need to be adjusted downwards".

Season	AADT Estimate Band	NZ Region	Multiplication Factor
January to March	High	Northern North Island	0.9574
January to March	High	Northern South Island	0.9512
January to March	Medium	Southern North Island	0.9514
January to March	Medium	Southern South Island	0.951
January to March	Low	Northern South Island	0.9626
January to March	Low	Southern North Island	0.96
January to March	Low	Southern South Island	0.9596
January to March	Medium	Northern North Island	0.9503
January to March	Medium	Northern South Island	0.954
January to March	High	Southern North Island	0.9496
January to March	High	Southern South Island	0.9482
January to March	Low	Northern North Island	0.9689
April to June	High	Southern South Island	0.9465
April to June	Low	Southern North Island	0.9583
April to June	Low	Northern South Island	0.9609

Season Profile factors vary depending on the Road Type selected in the (unnamed) Road Type list panel. Default Multiplication Factors have been defined for Season and AADT Estimate combinations for each of the four currently defined Regions.



You should take great care before changing default values. Unless you understand the model at the highest level and can relate it to the Roads in your Network, you should use the default values.

When the Count Date value is selected from the drop-down list, **RAMM** calculates the day of the week, number of the week of the year and the Season in which the **Traffic Count** has taken place. The appropriate **Season Profile** values are then used in **Traffic Count Estimation** Estimate calculations.

Road	TRIAS ROAD		
Carriageway	0 - 234 (SUNSET ROAD - ATHENA DRIVE)		
General			
Count Site	TRIAS ROAD 140 m	Traffic ID	
Location	140 m	Latest	Latest
ADT	2343	Count Status	Count
Direction	Both lanes	Day of Week	Thursday
Count Date	4/09/2008	Week Number	35
Count Duration	3 Hours	Season	July to September
Time of Day	Morning (9am - Noon)		

When you select the **Count Date** from the drop-down calendar

RAMM calculates the **Day of the Week**, **Week Number** and **Season** values which default

Growth Group Factors

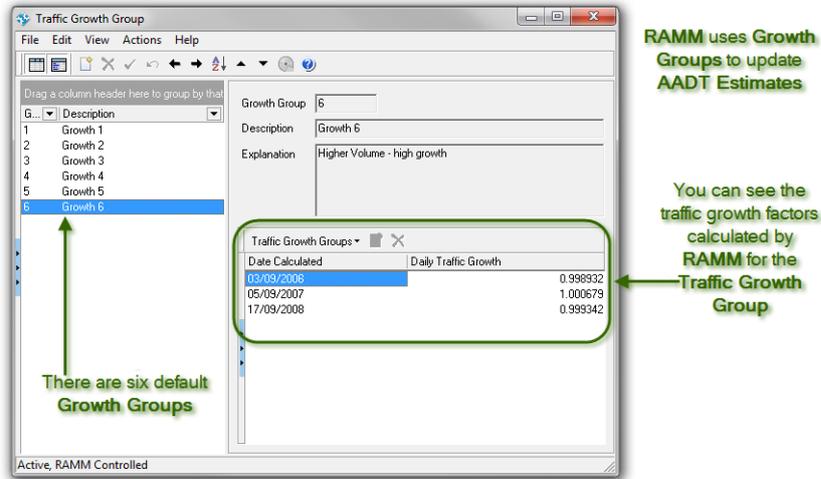
You use the **Traffic Growth Group** screen to view and maintain the information recorded in the **Growth Group** table.

A **Traffic Growth Group** is a group of **Traffic Links** that are believed to have approximately the same level of traffic growth from year to year. They are used in the update **Average Daily Traffic (ADT)** Estimates process. **RAMM** averages the actual **Traffic Counts** for **Count Sites** on **Traffic Links** in the **Traffic Growth Group**, ignoring any greater than one and one half standard deviations above or below the mean growth for the group. Having found the average annual traffic growth, **RAMM** applies this factor to previous **ADT** Estimates where there has been no count in the current year.

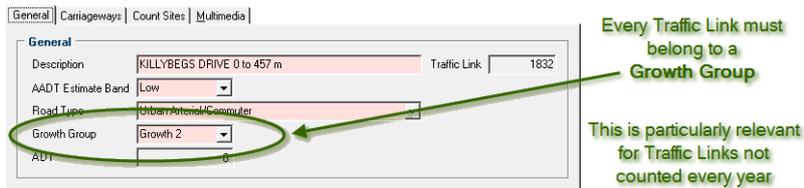
Daily Traffic Growth Calculation

You can associate a **Traffic Link** with a **Traffic Growth Group** at the **Map** in **RAMM** but if you want to see the results of the **Daily Traffic Growth Calculation** you do this in **RAMM Manager** at the **Traffic Growth Group** screen.

You access the screen in **RAMM Manager** by following the menu path **Projects > Traffic Counting > Growth Group**.



There are six default Traffic Growth Groups with Growth 1 having the least expected growth and Growth 6 having the most. Each Traffic Link is allocated to a Traffic Growth Group. When you are creating Traffic Links it is sensible to group them by Traffic Growth Group. See Saving Recommended Traffic Links (on page 90).



This allows a previous ADT Estimate at a site that has not been counted in the current year to be updated using the average traffic growth recorded at other similar sites that have been counted in the current year.

The same mechanism ensures that all Estimates are updated to the current date.



NOTE

When calculating the traffic growth for a Traffic Growth Group, **RAMM** finds all the actual Traffic Counts for Count Sites ON Traffic Links in the Traffic Growth Group.

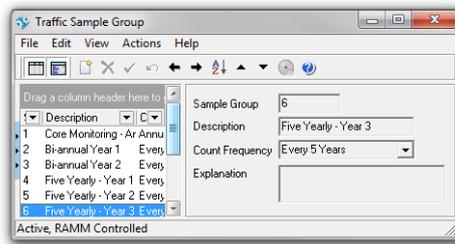
It then averages the growth factors for all these Traffic Counts except that it ignores any which are greater than one and one half standard deviations above or below the mean growth for the group.

Sample Group

You use the **Traffic Sample Group** screen to view and maintain the information recorded in the Sample Group table.

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a Sample Group to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

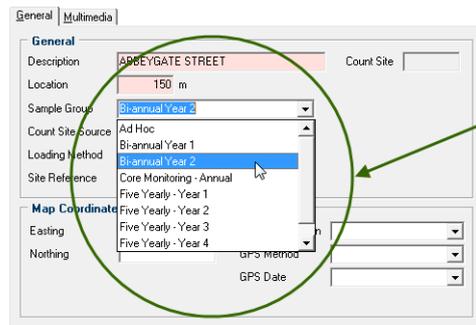
You access the screen in **RAMM Manager** by following the menu path Projects > Traffic Counting > Sample Group.



There are nine default Sample Groups with self-explanatory Descriptions. You can add your own, setting the Count Frequency in years to match your business requirements.

Each **Count Site** is allocated to a Sample Group. This identifies how often traffic is to be counted at the site. When you are creating **Traffic Links** it is sensible to give them a default Sample Group and then to select the actual Sample Group when you are associating **Traffic Links**. See **Updating Count Site Sample Group Values** (on page 122).

Count Site Screen

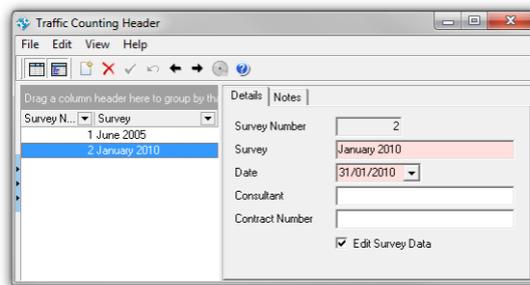


You select the appropriate **Sample Group** from the **Sample Group** drop-down list

Traffic Counting Header

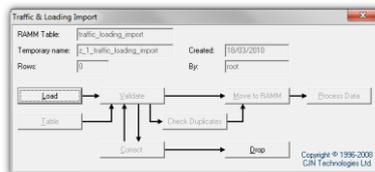
When you import Traffic and Loading Count data, you use a Traffic Counting Header to group and identify the Counts. For State Highway databases this is called a Survey Header.

Traffic Counting Headers are defined and maintained at the **Traffic Counting Header** screen. This is available in **RAMM Manager** from the menu path Projects > Traffic Counting > Traffic Counting Header.



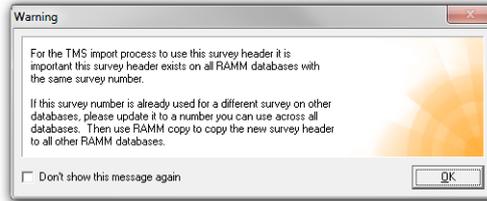
Traffic and Loading Import

The **Traffic and Loading Import** screen is available from the File Import menu path of the **Traffic Counting Header** screen. If you use this to access the **Traffic and Loading Import** screen, the data imported is associated with the selected Traffic Counting Header.



TMS Import Process

If you are using the TMS (Traffic Management System) import function then any Traffic Counting Headers (called Survey Headers) you use must exist in all your **RAMM** databases. If it does not yet exist across all databases you use **RAMM** copy functions to copy the new header to the databases.



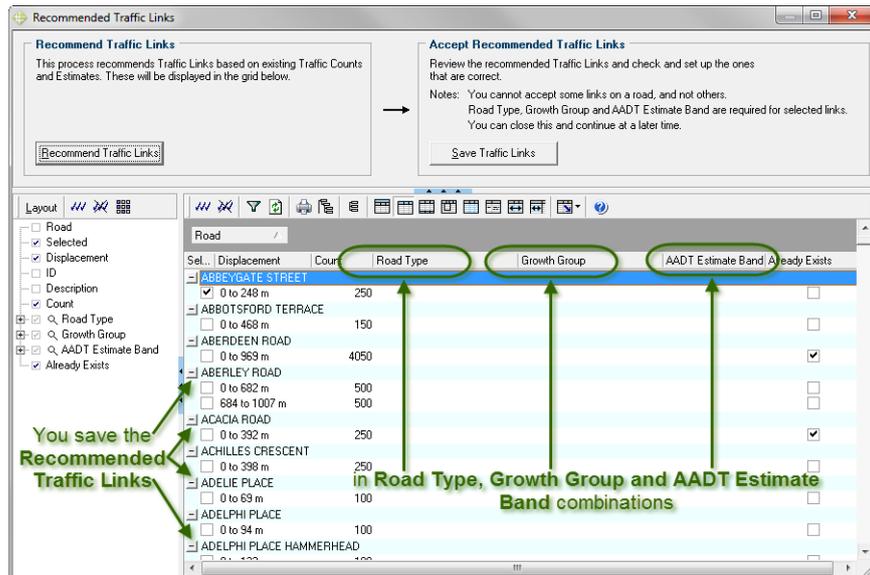
If you have a State Highway database and are using the TMS import process you need to ensure that the Traffic Counting Header exists in all State Highway databases

Recommend Traffic Links

You use the **Recommended Traffic Links** screen to run the process to have **RAMM** recommend **Traffic Links**. You then use it to save the **Traffic Links** in bulk, grouped by Road Type, Traffic Growth Group and AADT Band.

Traffic Links are combinations of sequential **RAMM** Carriageway Sections that are considered to carry the same volume of traffic over the entire length of the link.

You access the screen in **RAMM Manager** by following the menu path Projects > Traffic Counting > Recommend Traffic Links.



Process All Roads

When you press the **Recommend Traffic Links** dialog will open.



There are two options:

- **Process Roads with no Traffic Links**
This is the default. Any Roads which have already been made into [Traffic Links](#) are ignored in the process. So if you are creating [Traffic Links](#) in groups, rather than all at once, the list of Recommended [Traffic Links](#) will shorten each time you run the process.
- **Process all Roads**
This creates Recommended [Traffic Links](#) for all Roads in the Network. It does this for each Road, whether or not [Traffic Links](#) have been created for the Road. You would use this when you wanted to view [Traffic Links](#) which you have already created as well as the ones recommended by **RAMM**. You can see in the graphic above that [Aberdeen Road](#) and [Acacia Road](#) have already been made into [Traffic Links](#).

Temporary Records Only

Running the Recommend [Traffic Links](#) process does not create permanent records. These Recommended [Traffic Links](#) are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended [Traffic Links](#) and pressed .

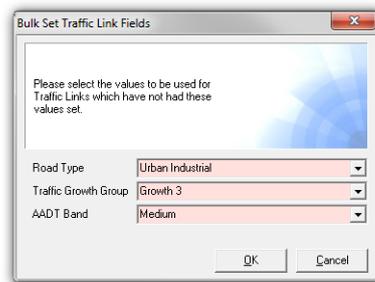
Recommended Traffic Links Process

RAMM Manager selects all the records from the `Carriageway` table. It then sorts them into Road and Start Displacement order. **RAMM Manager** then takes the Traffic ADT Estimate from each `Carriageway` record in turn and rounds it to the nearest 100 vehicles. It uses this information to recommend [Traffic Links](#).

See How **RAMM** Recommends [Traffic Links](#) (on page 86).

Accept Recommended Traffic Links

Best practice is to create [Traffic Links](#) in bulk at the **Recommended Traffic Links** screen. You do this by selecting the check boxes adjacent to the Recommended [Traffic Links](#) and then pressing the Save Traffic Links button. This opens the **Bulk Set Traffic Link Fields** screen.



You select the values which match the characteristics of the [Traffic Links](#), press OK and the [Traffic Links](#) are created. Each [Traffic Link](#) has associated parameters which are used in the creation of Estimates. These depend on the Road Type, Traffic Growth Group and AADT Band.

Road Type

The Road Type is one of the factors which affect traffic volumes on a Road. For instance, a Road which is an access route to a ski field in winter will have a different usage pattern from one which is used to access a popular beach in summer. Similarly, Roads used for industry will have different usage patterns from those used as main arterial routes for commuters. You use the Road Type selection flowchart to assist in the selection of the correct Road Type for a [Traffic Link](#). See Road Type Selection Process (on page 47).

There are seven default Road Types used for **RAMM** Traffic Count Estimation.

Traffic Growth Group

A Traffic Growth Group is a group of [Traffic Links](#) that are believed to have approximately the same level of traffic growth from year to year. They are used in the update Average Daily Traffic (ADT) Estimates process. **RAMM** averages the actual [Traffic Counts](#) for [Count Sites](#) on [Traffic Links](#) in the Traffic Growth Group, ignoring any greater than one and one half standard deviations above or below the mean growth for the group. Having found the average annual traffic growth, **RAMM** applies this factor to previous ADT Estimates where there has been no count in the current year.

AADT band

The Annual Average Daily Traffic (AADT) count is a figure to describe traffic levels for the length of a Network.

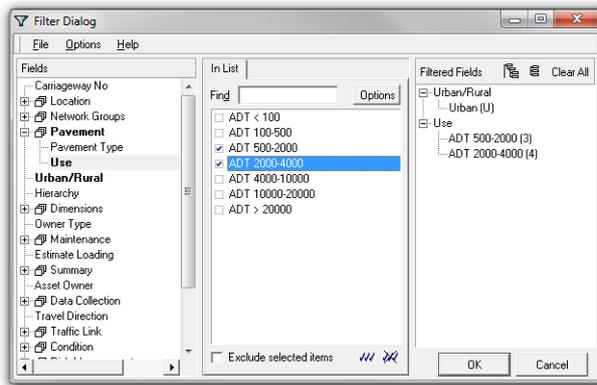
Traffic Links are grouped dependent on whether they have a High, Medium or Low AADT Band.

 When you save Recommended Traffic Links you assign Road Type, Traffic Growth Group and AADT Band values in bulk. So it makes sense to filter the Recommended Traffic Links before you save them.

Filter the Recommended Traffic Links

How you filter the Recommended Traffic Links to group Roads with the same Road Type, Traffic Growth Group and AADT Band will depend on your Road Network and your knowledge of the same.

Obvious filter parameters are the Pavement Use, Urban/Rural and Hierarchy options.



Recommend Count Sites

Count Sites in RAMM are the Locations at which Traffic Counts will occur. They are positioned on a Traffic Link.

You use the Recommended Count Sites screen to run the process to have RAMM recommend Count Sites.

You then use it to save the [Count Sites](#) in bulk.

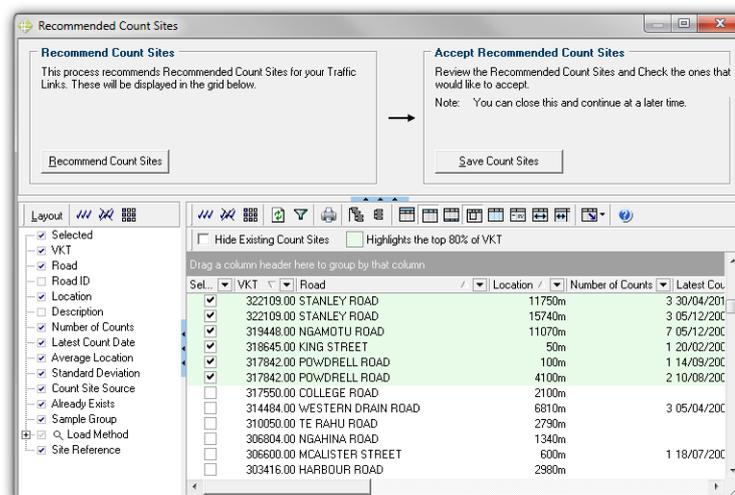
Default Sample Group Value

Best practice when you save the [Count Sites](#) is to give them all a default Sample Group value.

You then allocate the correct value when associating [Traffic Links](#).

See Updating [Count Site](#) Sample Group Values (on page 122).

You access the screen in [RAMM Manager](#) by following the menu path Projects > Traffic Counting > Recommend Count Sites.



Run Recommended Count Sites Process

You press [Recommend Count Sites](#) to run the [Recommend Count Sites](#) process. There are two ways that [RAMM](#) selects a Location for a [Count Site](#). Firstly it looks at the historical record of [Traffic Counts](#) and recommends that these Locations become [Count Sites](#). Then, it randomly picks a Location somewhere along a [Traffic Link](#) which has no associated [Traffic Link](#). See [How RAMM Recommends Count Sites](#) (on page 102).

Temporary Records Only

When you run the Recommend **Count Sites** process at this screen, you are not creating permanent records. These Recommended **Count Sites** are sitting in a temporary table. They become actual records in the database only when you have selected the Recommended **Count Sites** and pressed .

What Will You See in the List?

The list of Recommended **Count Sites** will be the same as when you last closed the screen. So it will reflect the Recommend **Count Sites** process which you last ran and will include any changes you made after running the process. So the first time you open the screen it will be empty as you have run no processes.

This means that if you work on the Recommended **Count Sites**, close **RAMM**, open it again and return to the screen, you can begin where you left off as your work has been preserved in the temporary table.

Existing Count Sites

When you run the Recommend **Count Sites** process, existing **Count Sites**, if any, will be listed. They will be readily identifiable as the Already Exists check box will be selected and the record will be highlighted in grey.

Sel.	VKT	Road	Location	Number of Counts	Latest Cou
<input type="checkbox"/>	24156.14	WAIPIA STREET	80m		5 13/03/200
<input type="checkbox"/>	24148.56	TAHAROTO ROAD	250m		4 23/06/199
<input type="checkbox"/>	23042.71	ANZAC STREET	660m		9 07/08/200
<input type="checkbox"/>	21708.88	ESKDALE RD	1360m		
<input checked="" type="checkbox"/>	21050.93	FORREST HILL ROAD	1930m		6 26/11/200
<input checked="" type="checkbox"/>	20821.60	KITCUMBY ROAD	130m		
<input checked="" type="checkbox"/>	20425.66	EAST COAST ROAD	7260m		5 07/11/200
<input checked="" type="checkbox"/>	20338.35	EAST COAST ROAD	6500m		
<input checked="" type="checkbox"/>	19370.96	OCEANVIEW ROAD - NORTHCOE	170m		
<input checked="" type="checkbox"/>	18815.94	ARCHERS ROAD	2100m		3 21/03/200
<input checked="" type="checkbox"/>	18807.21	LINEMOOR STREET	1320m		4 03/04/200
<input checked="" type="checkbox"/>	18435.46	TARGET ROAD	4930m		1 03/05/200
<input checked="" type="checkbox"/>	17837.81	SHENFIELD ROAD	3410m		
<input checked="" type="checkbox"/>	17694.43	LINK DRIVE	570m		6 28/12/200
<input checked="" type="checkbox"/>	17694.43	SUNNYNDOK ROAD	1970m		7 11/04/200
<input checked="" type="checkbox"/>	17694.43	GRI FINCH RISE	320m		1 07/06/200

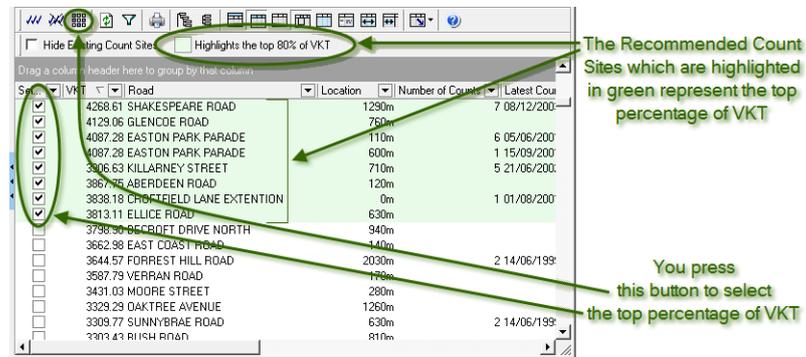
Existing Count Sites have the Already Exists check box selected and are highlighted in grey

Accept Recommended Count Sites

RAMM Manager lists the Recommended **Count Sites** in descending order of Vehicle Kilometres Travelled (VKT). You select the Recommended **Count Sites** which you want to accept and then save them.

A percentage of the Recommended **Count Sites** will be highlighted. This will be the group of **Count Sites** which represent the percentage of your Network Vehicle Kilometres Travelled (VKT) which you set when you first defined the initial **Traffic Count Estimation** parameters at the **Parameter** screen in **RAMM Manager**. The percentage is the value which you typed at the Network Coverage % of VKT field.

You press **Select Top % of VKT** to select these highlighted **Count Sites**.



Sample Group

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a **Sample Group** to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

Each **Count Site** must have an associated **Sample Group** parameter which is used to determine when a **Traffic Count** will next be scheduled at the **Count Site**. So when you accept one or more Recommended **Count Sites** you must assign them a **Sample Group**.



Tip

When you save Recommended Count Sites you assign Sample Group values in bulk. So you can filter and group the Recommended Count Sites which require the same Sample Group value before you save them.

You can also just give all the Count Sites a temporary Sample Group value and correct this as part of a future process. See [Updating Count Site Sample Group Values](#) (on page 122).

Filter the Recommended Count Sites

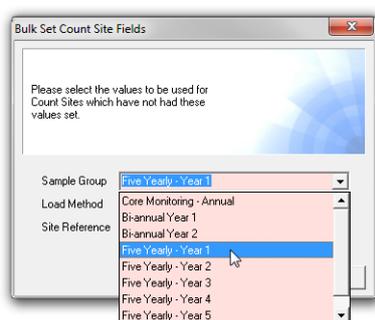
If you decide to filter the Recommended **Count Sites** to group Roads with the same **Sample Group** value, your filter parameters will depend on your Road Network and your knowledge of the same. The obvious filter parameter is the **VKT**.

Select the Recommended Count Sites

You can select all the filtered and grouped Recommended [Count Sites](#) by pressing [WWW](#). Then when you close the **Recommended Traffic Links** screen you will be returned to the **Map** and the recommended [Count Sites](#) will be displayed.

Best practice is to select [Count Sites](#) in bulk at the **Recommended Count Sites** screen. You do this by selecting the check boxes adjacent to the Recommended [Count Sites](#) and then pressing Save Count Sites . This opens the **Bulk Set Traffic Link Fields** screen.

Bulk Set Count Site Fields



You select the value which match the characteristics of the [Count Sites](#), press OK and the [Count Sites](#) are created.

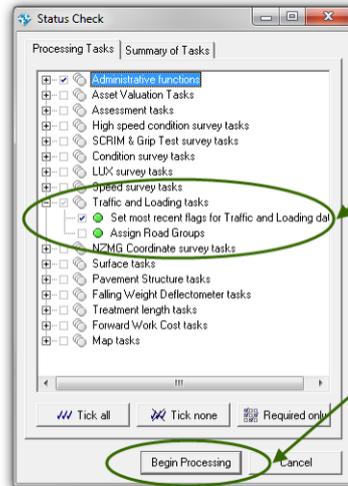
Update Traffic Counts and Estimates

When you need the most up-to-date Average Daily Traffic (ADT) Estimate data you can perform a Status Check for the Set most recent flags for Traffic and Loading Data option.

This updates the database to take into account any [Traffic Counts](#) and Estimates entered since the most recent Status Check. It then updates the ADT Estimates taking into account the new readings and the other factors. It also creates the Traffic Latest Errors report. See Traffic Latest Errors Report (on page 297).

Menu Path

You follow the menu path Processes > Status Check. This opens the **Status Check** screen. You then select the Set most recent flags for Traffic and Loading data option to run a Status Check to update the [Traffic Counts](#) and Estimates.

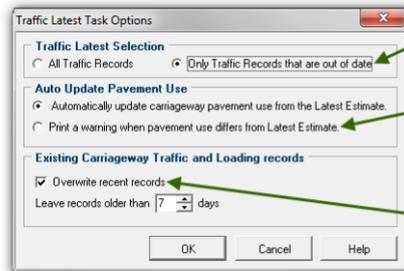


You select **Set most recent flags for Traffic and Loading data**

You then press **Begin Processing** to run **Status Check** and update the traffic Counts and Estimates

Options

When you press **Begin Processing**, the **Traffic Latest Task Options** dialog opens.



Selecting **Only Traffic Records that are out of date** saves processing time

Selecting **Print a warning when pavement use differs from Latest Estimate** produces a report you use to check your assumptions and calculations

Selecting **Overwrite recent records** minimises the number of records in the database

You then have three option sections:

- Traffic Latest Selection (on page 232)
- Auto Update Pavement Use (on page 232)
- Existing Carriageway Traffic and Loading Records (on page 234).

When to Update Traffic Counts and Estimates

You would typically run the Status Check process once a year after you have imported the file with the **Traffic Counts**.



Prior to activating Traffic Count Estimation you should run the Status Check Set most recent flags for Traffic and Loading Data option. Then when you are setting up Traffic Links and other items you will be using the most up-to-date ADT Estimate data.

Then when you have completed Traffic Count Estimation set up you Update Traffic Counts and Estimates to update the database to take into account any Traffic Counts and Estimates entered since the most recent Status Check. It then updates the ADT Estimates taking into account the new readings and the other factors.

Traffic Latest Selection

In the Latest Traffic Selection section you have the option to have Status Check process All Traffic Records or Only Traffic Records that are out of date. If you accept the latter default option, you will save processing time.

Auto Update Pavement Use

You then make your selection in the Auto Update Pavement Use section to determine if **RAMM** will update the Carriageway Section Pavement Use values or if you will do this yourself.

What is Pavement Use?

In the Pavement section at the General tab of the **Carriageway** Detail screen there is a (Pavement) Use field as below.

Pavement	
Type	Structural Asphaltic Concrete
Use	ADT 100-500

The Pavement Use for a Carriageway Section is one of seven Average Daily Traffic (ADT) bands. These are the range in which the expected ADT will fall. The value in the Use field is likely to be an Estimate and, if this is the first time you have run Set most recent flags for Traffic and Loading data Status check, since setting up **Traffic Count Estimation**, it may be some time since the value was updated.

So there is potential for this value to change for a large number of Carriageway Sections.

Automatically Update Carriageway Pavement Use

If you are confident that your calculations and assumptions were correct when setting up [Traffic Count Estimation](#), and in particular, when you associated [Traffic Links](#), you should accept the default Automatically update carriageway pavement use from the Latest Estimate option.

Warn When Pavement Use Differs

If you want to be able to check that your calculations and assumptions were correct when setting up [Traffic Count Estimation](#), and in particular, when you associated [Traffic Links](#), you should select Print a warning when pavement use differs from the Latest Estimate.

That way you can use the resulting report to check the reason why a Latest Estimate would be different from the range in which the ADT was expected to fall.

Traffic Latest Errors Report

The Traffic Latest Errors report becomes available when you have run Status Check. It lists errors such as where no Estimate has been created or duplicate readings have occurred.

If you selected Print a warning when pavement use differs from the Latest Estimate at the **Traffic Latest Task Options** dialog, the report will also list where the Latest Estimate differed from the Pavement Use.

This results in the errors displayed below such as Pavement Use (7) conflicts with ADT (1377).

Hill Valley Regional Council		Printed: 03/09/2011	Page: 1
		User: grant	
Traffic Latest Errors			
	Carriageway Section	Date	Error
GLENFIELD ROAD (11)	PUPUKE ROAD GLENFIEL - MOORE STREET (0-235)		Pavement Use (7) conflicts with ADT (1887)
	MOORE STREET - PARK HILL ROAD (235-448)		Pavement Use (7) conflicts with ADT (1066)
	ESKDALE ROAD - SPEEDY CRESCENT (506-835)		Pavement Use (7) conflicts with ADT (2332)
	SPEEDY CRESCENT - CORONATION ROAD (835-1257)		Pavement Use (7) conflicts with ADT (1707)
	CAPILANO PLACE - DOWNING STREET (1859-2419)		Pavement Use (7) conflicts with ADT (4206)
	MANUKAROAD - WAIRAU ROAD (3552-4072)		Pavement Use (7) conflicts with ADT (11950)

Existing Carriageway Traffic and Loading Records

In the Existing Carriageway Traffic and Loading records section you determine whether **RAMM** will overwrite existing records rather than creating new ones and storing the previous ones.

Multiple Records

When you are setting up **Traffic Count Estimation** you will probably run Status Check several times in quick succession. This will create a large number of Latest records. There is probably no reason to keep these.

You can select the Overwrite recent records option. Any Latest records younger than the number of days in the Leave records older than days field will then be overwritten and discarded during the Status Check process.

This has the advantage of not adding unwanted records to your database.

Counting Schedules

Once the **Traffic Count Estimation** set up has been completed, it is time to schedule the **Traffic Counts**.

Traffic Counts are scheduled based on the Sample Group of the **Count Sites** combined with the date of the most recent count entered into **RAMM**. For instance, if a **Count Site** were in the Core Monitoring - Annual group, **RAMM** would take the date of the most recent count and schedule another for twelve months later.

When you have the list of Scheduled **Traffic Counts**, you can create Dispatches in **RAMM Contractor** for a selected Contract. This will allow the **Traffic Count Contractor** to see what counts are required over the schedule period.

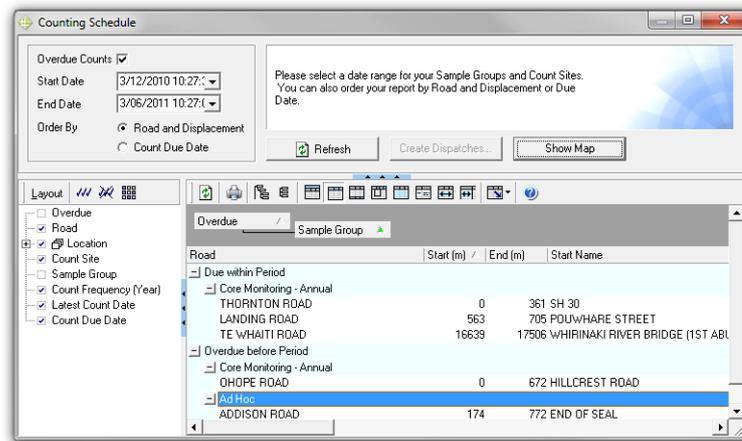


Counting Schedule Screen

You follow the menu path **Projects > Traffic Counting > Counting Schedule** to open the **Counting Schedule** screen.

You select a date range and press  to run the report.

The button then changes to  as in the graphic below.



Temporary Records Only

When you run the Generate Scheduled [Traffic Counts](#) process at this screen, you are not creating permanent records. You are just running a report. So these scheduled [Traffic Counts](#) exist only in the report. They are not actual records in the database. It is the [Dispatches](#) you create as part of the Generate Scheduled [Traffic Counts](#) process which are recorded in the database. So it is possible to run the Generate Scheduled [Traffic Counts](#) process over and over.



You may want to generate Scheduled [Traffic Counts](#) for a select range of Roads. This is not possible. Whether you filter the Roads in the Road list panel or select a number of Roads on the [Map](#), when you run the Generate Scheduled [Traffic Counts](#) process, **RAMM** processes all Roads in the Network.

You can group Scheduled [Traffic Counts](#) by Sample Group at the [Counting Schedule](#) screen and you can make specific selections at the Asset Selection panel of the [Create Dispatches](#) screen.

Overdue Counts

The first time you run the Counting Schedule report at the **Counting Schedule** screen it is likely that you will have converted to **Count Sites**, some historical sites at which counts took place.

You will have assigned them to a Sample Group at the time of conversion.

Potential Problem

If, for example, the last count occurred at an historical site two years ago and you placed the resulting **Count Site** in the Core Monitoring - Annual Sample Group then if you run the Counting Schedule report for the default today's date to six months hence, **RAMM Manager** will not list the **Count Site** and you might not count a Road which needs it.

That is because the **Count Site** is not due for counting. It is overdue. In this situation you use the Overdue Counts option. See Overdue Counts Initial Selection (on page 236).

Overdue Counts Initial Selection

When you first run the Counting Schedule report at the **Counting Schedule** screen, what you should do and what you will see will depend on your circumstances.

Before you proceed you need to know how the Overdue Counts option operates.



When you select a date range at the Start End and End Date drop-down calendars, the resulting list will contain only those **Traffic Counts** which are scheduled for the period. It will not include **Traffic Counts** which were scheduled earlier or later than the dates selected. So the first time you run this report you may want to select the Overdue Counts option and accept the default date range.

When you press  you will be presented with two grouped lists of Scheduled Counts. There will be those Due within Period and those Overdue before Period.

Road	Count Due D...	Sample Group	Start (m)	End (m)	Start Name	End Name	Count Sit
Due within Period	23/08/2009	Core Monitoring - Annual	243	641	GIRRAHWEEN DRIVE	TARGET ROAD	SUNSET
Overdue before Period	31/12/1995	Core Monitoring - Annual	2142	2414	GOLF COURSE/NO 2	FORREST HILL R	EAST CC
WAIRAU ROAD	31/12/1995	Core Monitoring - Annual	1086	1661	ARCHERS ROAD	TRISTRAM AVEN	WAIRAU
BARRY'S POINT ROAD	28/06/1998	Core Monitoring - Annual	0	345	ANZAC STREET	DES SWANN DRI	BARRYS
GLENFIELD ROAD	30/08/1998	Core Monitoring - Annual	506	835	ESKDALE ROAD	SPEEDY CRESC	GLENFIE
GLENFIELD ROAD	27/03/1998	Core Monitoring - Annual	7	235	PUIPUKE ROAD	GLEN MOORE ST	GLENFIE
EAST COAST ROAD	24/10/1998	Core Monitoring - Annual	5600	5968	SUNRISE AVENUE	ROSEDALE ROAD	EAST CC

The counts which are **Overdue before Period** and those **Due within Period** are grouped separately when you select the **Overdue Counts** option

You could then check each of those in the **Overdue before Period** group and filter out those which you do not want to count before creating **Dispatches** for them.

Overdue Counts Option - Normal Selection

When you have your **Traffic Count** programme running well, you should have no reason to select the **Overdue Counts** option as all the required counts should be made.

You would select the option only in order to check that the **Traffic Count** programme is up to date.

Traffic Count Dispatches

When you have generated the scheduled **Traffic Counts** you can create **Dispatches** for them. These will be listed in **RAMM Contractor**. The Contractor who will perform the **Traffic Counts** can then see the future work load.



Unless you have set up a valid **Contract** for Asset Type **Traffic Count** in **RAMM Contractor**, you will not be able to create **Dispatches** at the **Create Dispatches** screen. See **Asset Selection and Dispatch Creation** (on page 154).

You will need the correct **Staff Permissions** for the **Contract** in **RAMM Contractor** to be able to add and assign **Dispatches**. See **Dispatch Creation Permissions** (on page 291).

When you are satisfied that you have the optimum list of scheduled **Traffic Counts** you press **Create Dispatches...**. This opens the **Create Dispatches** screen with a list of scheduled **Traffic Counts** for which you can create **Dispatches**.

Sanity Check Reports

Some traffic records which existed prior to the set up and use of **RAMM Traffic Count Estimation** will be missing the data required to enable it to work properly. There are three **RAMM Manager** reports which you use to check your data and to perform sanity or completeness checks on the Traffic Link information:

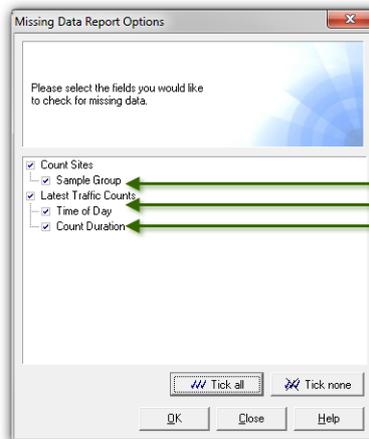
- Missing Data Report**
 This lists **Count Sites** with no Sample Group and Latest **Traffic Counts** with no Time of Day and Count Duration values. See Missing Data (on page 238).
- Unlinked Carriageways Report**
 This locates and lists Carriageways which do not form part of a **Traffic Link**. See Unlinked Carriageways (on page 241).
- Traffic Links with no ADT Report**
 This lists **Traffic Links** for which no ADT Estimate exists. There are clearly problems with such **Traffic Links** which you need to fix. See **Traffic Links with No ADT** (on page 241).

Missing Data

You should check your **Traffic Link** and the Latest **Traffic Count** data and fix any errors before you run the Status Check to generate Latest Estimates. You locate the errors by running the Missing Data report.

Missing Data Report Options

You can run the report for Count Site Sample Groups, as well as the Time of Day and Count Duration values for Latest Traffic Counts.

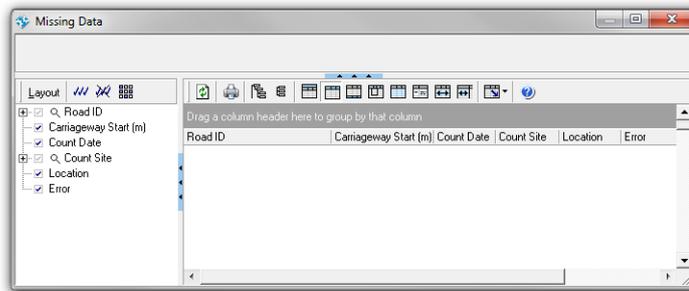


You can run the report to find missing **Sample Groups**, **Time of Day** and **Count Duration** data or any combination of the three

It is unlikely that any of your **Count Sites** will be missing **Sample Group** data unless you added them using **RAMM SQL**

Missing Data Report

Once you have pressed the report runs and the **Missing Data** screen opens. In the graphic below there are no reported errors.



Fixing the Data

When you have run the report and have a list of errors you can print out the report. You then log in to **RAMM** and fix the errors. There is no link directly to the records from the report.

Missing Sample Group Data

Sample Groups group **Count Sites** with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a Sample Group to each **Count Site** based on how often it needs to be counted, whether this is every year, every second year or once every five years.

RAMM Traffic Count Estimation uses criteria including the Sample Group of a **Count Site** to fine tune ADTs. If your legacy data does not include Sample Group values, you need to add it.



You need **Sample Group** values before you can implement **Traffic Count and Estimation Management**



Count Sites do not exist before Traffic Management Mode has been turned on. So under normal circumstances there will be no legacy Count Sites. If you have added Count Site records using **RAMM SQL** it is possible to create them without Sample Group values. These are the only records which would display.

Missing Count Duration Data

The accuracy of a **Traffic Count** is affected by its duration. The longer the duration of the count, the more accurate it is. There are three standard Count Durations in **RAMM** being 3 hours, 24 Hours and 7 Days.

If your legacy data does not include Count Duration information, you need to add it. If the Count Durations are for 3 Hours you will also need to add Time of Day values.

Direction	Both lanes
Count Site	TARGET ROAD 240 m
Load Method	Visual
Count Date	3/09/2002
Counter	
Count Status	Count
Count Duration	
Time of Day	
Location	96
Week Day	Monday
Week Number	
Season	

Some legacy **Traffic Count** data may be missing a **Count Duration** value

You need to fix this before implementing **Traffic Count Estimation Management**

Missing Time of Day Data

The time of day affects the volume of traffic which will travel along a Road. **Traffic Counts** taken in the morning are likely to vary from those taken in the afternoon. **RAMM Traffic Count Estimation** uses a Time of Day factor to account for this when a **Traffic Count** is taken, unless it is for 24 hours or for 7 days.

If your legacy data does not include Time of Day information for **Traffic Counts** with a Count Duration value of 3 Hours, you need to add it.

Direction	Both lanes
Count Site	TARGET ROAD 240 m
Load Method	Visual
Count Date	3/09/2002
Counter	
Count Status	Count
Count Duration	3 Hours
Time of Day	
Location	96
Week Day	Monday
Week Number	
Season	

Time of Day values may be needed for legacy data with a **Count Duration** of 3 Hours

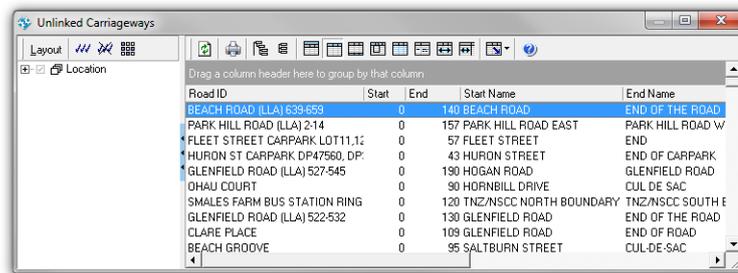
You need to fix this before implementing **Traffic Count Estimation Management**

Unlinked Carriageways

It is possible that some Carriageway Sections will not have been associated with a [Traffic Link](#). An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.

This situation could occur during the set up of [RAMM Traffic Count Estimation](#) if Carriageway Sections are inadvertently ignored in the [Traffic Link](#) creation process. It could also occur if new Carriageway Sections are added to the database but not associated with a [Traffic Link](#) at the time they are added.

You follow the menu path [Projects > Traffic Counting > Unlinked Carriageways](#) to run the Unlinked Carriageways report.



Road ID	Start	End	Start Name	End Name
BEACH ROAD (LLA) 639-659	0	140	BEACH ROAD	END OF THE ROAD
PARK HILL ROAD (LLA) 2-14	0	157	PARK HILL ROAD EAST	PARK HILL ROAD W
FLEET STREET CARPARK LOT11.12	0	57	FLEET STREET	END
HURON ST CARPARK DP47560, DP	0	43	HURON STREET	END OF CARPARK
GLENFIELD ROAD (LLA) 527-545	0	190	HOGAN ROAD	GLENFIELD ROAD
OHAU COURT	0	90	HORNBILL DRIVE	CUL DE SAC
SMALES FARM BUS STATION RING	0	120	TNZ/NSCC NORTH BOUNDARY	TNZ/NSCC SOUTH E
GLENFIELD ROAD (LLA) 522-532	0	130	GLENFIELD ROAD	END OF THE ROAD
CLARE PLACE	0	109	GLENFIELD ROAD	END OF ROAD
BEACH GROOVE	0	95	SALTBURN STREET	CUL-DE-SAC

How to Fix the Problems

If there is a large number of items to fix, the most efficient method is to run the Recommended [Traffic Links](#) process again. You do this at the **Recommended Traffic Links** screen. See [Generating Recommended Traffic Links](#) (on page 87).

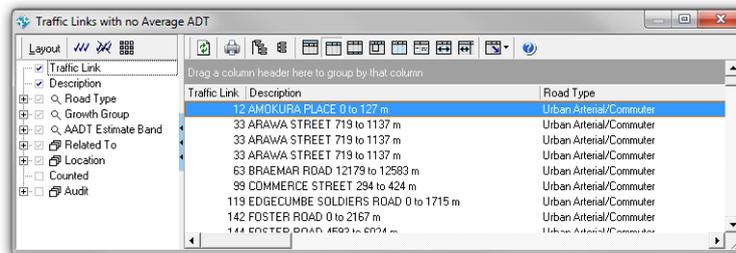
If there are only a few Carriageways, it is probably faster to use the **Map**. You log in to [RAMM](#) and open the **Map**, press  and link the Carriageways to existing [Traffic Links](#) in the standard manner or create new [Traffic Links](#) using the unlinked Carriageways. See [Associate a Carriageway Section with a Traffic Link](#) (on page 188).

Traffic Links with No ADT

When you have run Status Check, there may be errors relating to [Traffic Links](#) with no Average Daily Traffic (ADT) reported in the resulting Traffic Latest Errors report. See [Traffic Latest Errors Report](#) (on page 297).

So it may make more sense to run the [Traffic Links](#) with no ADT report to find the [Traffic Links](#) and fix the errors prior to running Status Check.

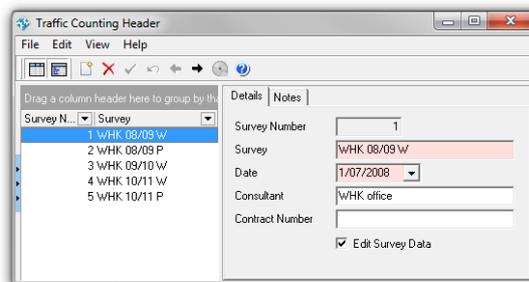
You follow the menu path **Projects > Traffic Counting > Traffic Links with No ADT**. You can then print out the list of **Traffic Links**. Correcting problems is easiest from the **Map** in **RAMM**. See **Map View Options** (on page 193).



Traffic Headers

When you are importing your **Traffic Count** data you may want to group it with a **Traffic Header**. If so you first need to create the **Traffic Header**.

You do this at the **Traffic Counting Header** screen in **RAMM Manager**. You follow the menu path **Projects > Traffic Counting > Traffic Counting Header**.

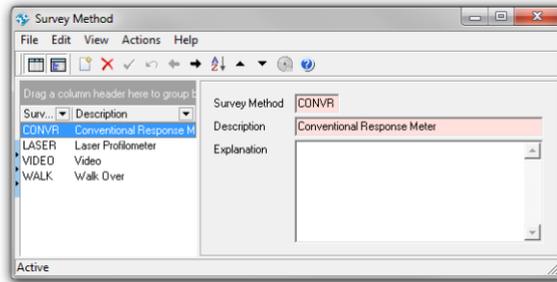


This is a standard **RAMM Manager** maintenance screen. You add and maintain **Traffic Headers** in the standard **RAMM** manner.

Survey Methods

You can add and maintain **Survey Method** codes for **Count Sites**. These are for your information only and serve no function within **RAMM**.

You do this at the **Survey Method** screen in **RAMM Manager**. You follow the menu path **Projects > Traffic Counting > Survey Method**. The **Survey Method** screen is a standard **RAMM** Lookup screen.

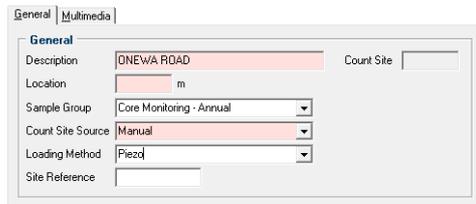


 For NZ State Highway databases the **Survey Method** screen is renamed the **Site Type** screen to better align it with the user requirements

NOTE

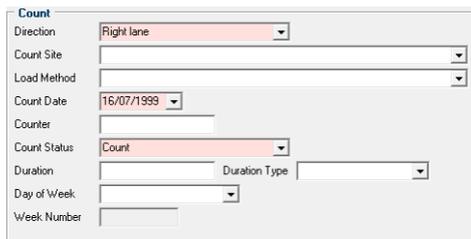
Loading Method

Values created at the **Survey Method** screen are available for selection from the Loading Method drop-down list in the General section of the General tab of the **Traffic and Loading** screen.



Load Method

Values created at the **Survey Method** screen are available for selection from the Load Method drop-down list in the Count section of the General tab of the **Traffic and Loading** screen.



Site Type for NZ State Highways

For NZ State Highway databases, the **Survey Method** screen is replaced by the **Site Type** screen. The **RAMM Manager** menu path becomes Projects > Traffic Counting > Site Type.

The Site Type codes become available at the same screens as the Survey Method codes. The fields are renamed Site Type.

You can add and maintain Site Type codes for **Count Sites**. These are for your information only and serve no function within **RAMM**.

Vehicle Classification

The **Vehicle Classification** screen is for the definition and maintenance of Vehicle Classification codes.

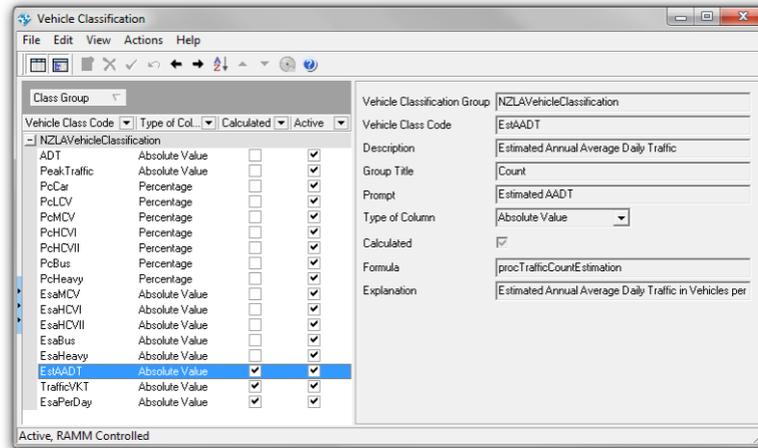
RAMM will have preloaded the correct Vehicle Classification codes for your database type. So it is unlikely that you will need to add a new Vehicle Classification code or redefine an existing one.

Active and Inactive Codes

You have the option to make individual codes Active or Inactive. You do this by following the menu path Actions > Active.

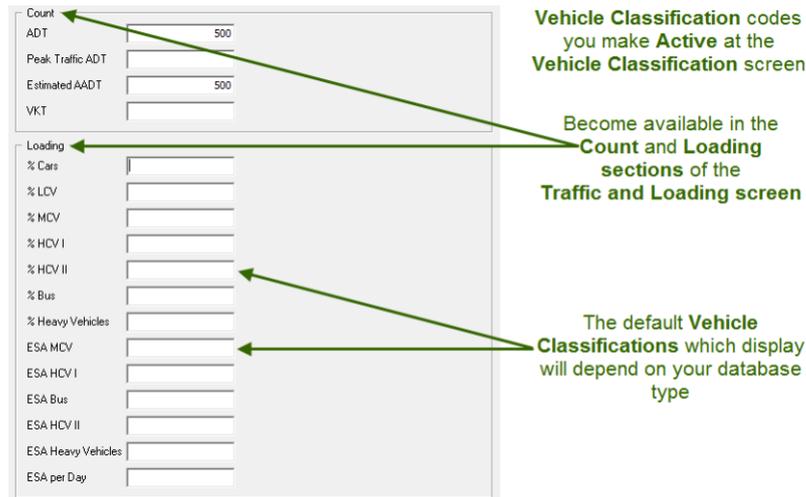
Delete Codes

You can delete those Vehicle Classification codes which you have added yourself. You cannot delete **RAMM** Controlled codes. If you delete your own codes you may lose your data.



Traffic and Loading Values

Default Vehicle Classification codes and codes which you create and activate at the **Vehicle Classification** screen become available in the Count and Loading sections on the Detail tab of the **Traffic and Loading** screen.



Default Loading

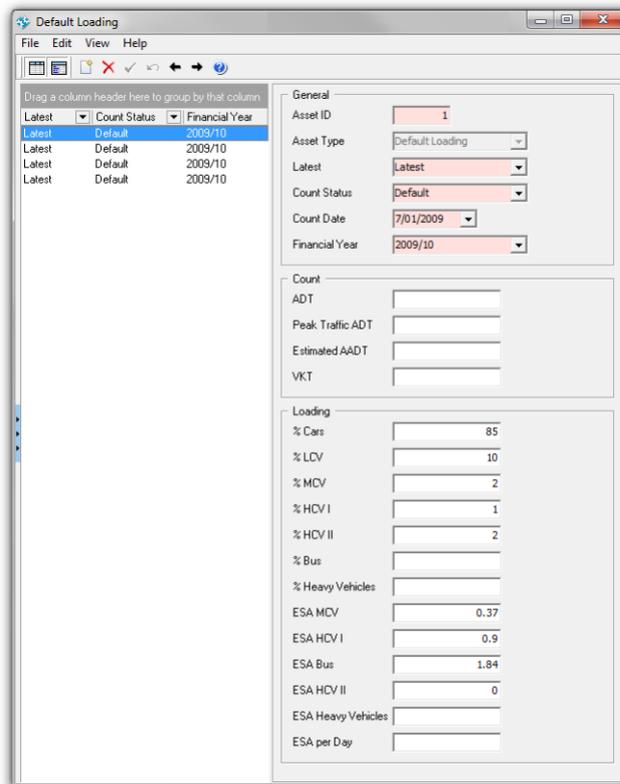
When you perform a Status Check to update Traffic and Loading Latest values, some Carriageway Sections will have no Traffic and Loading data to update. **RAMM** uses default values for these Carriageway Sections.

Default Loading Screen

You set up four Default Loading value sets at the **Default Loading** screen in **RAMM Manager**. **RAMM** selects the optimum Default Loading value set depending on the combination of Hierarchy and Urban/Rural values for the Carriageway Section.

Database Type

Your Database Type determines the Loading value set that you see. The graphic below displays the standard set for NZLocalAuthority.



Traffic Count Estimation and RAMM Network Manager

If you use **RAMM Network Manager** to manage your Network, you need to be aware that there are now some elements which take **RAMM Traffic Count Estimation** into account.

For more information on **RAMM Network Manager** see the relevant chapter of the *Working with RAMM* guide.



In This Chapter

Traffic Link Information.....248

Traffic Link Information

If you are editing a Road or Carriageway Section in **RAMM Network Manager** it is likely that you will not have to make any changes to take into account **Traffic Count Estimation**.

Edit Carriageway Sections

For instance, **RAMM Network Manager** will reverse any **Traffic Links** for a Road if you reverse it. If you delete a Carriageway Section, **RAMM Network Manager** will make the appropriate changes to the **Traffic Link**.

Add Carriageway Sections

If you are adding a new Carriageway Section, you can associate it with a **Traffic Link** at the **Traffic Link** tab on the Carriageway tab.

The screenshot shows the 'Traffic Link' tab in the RAMM Network Manager. The 'Traffic Link' dropdown is set to 'TOTARAVALE DRIVE, TRIAS ROAD'. The 'ADT' field is '128' and the 'Road Type' is 'Urban Arterial/Commute'. Below is a 'Count Sites' table with the following data:

Count Site	Description	Road ID	Location	Sample Group	Count Fre
2	TRIAS ROAD 136 m	TRIAS ROAD	136	Ad Hoc	Ad Hoc
21	TRIAS ROAD 320 m	TRIAS ROAD	320	Five Yearly - Year	Every 5 Y
22	TRIAS ROAD 140 m	TRIAS ROAD	140	Five Yearly - Year	Every 5 Y
199	TOTARAVALE DRIVE 0 m	TOTARAVALE	0	Core Monitoring	Annually

Annotations on the right side of the screenshot:

- You select the Traffic Link for the Carriageway Section from the Traffic Link drop-down list
- The ADT, Road Type and Count Site values default
- You can not enter or edit them
- If you need to add the Carriageway Section to a new Traffic Link you do this in the normal manner at the Map in RAMM



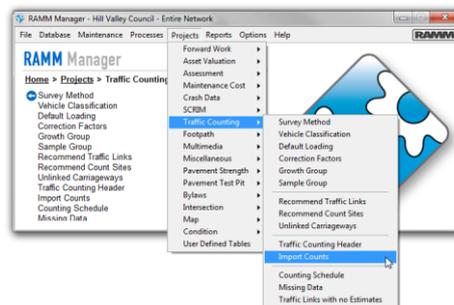
If, as part of the process of adding a new Carriageway Section you need to create a new **Traffic Link** for the Carriageway Section, you do not do this in **RAMM Network Manager**.

You log in to **RAMM** and add the new **Traffic Link** at the **Map**.

Traffic and Loading Data Import

When importing Traffic and Loading count data into **RAMM Manager** you have a specialised data file import option. You use this rather than the generic **RAMM Manager** Import File option.

Most users will follow the menu path in the graphic below. State Highway databases use the Traffic Monitoring System (TMS) for their Traffic and Loading data. So their menu option is TMS Import rather than Import Counts.



In This Chapter

Traffic and Loading Data File Import Process.....	251
Loading the Data File	253
Link Data to RAMM Columns.....	255
Layout File.....	262
Data Validation	267
Data Correction and Excel.....	269
Duplicate Checks	273
Move and Process Data.....	277

Traffic and Loading Data File Import Process

You follow these steps to import your Traffic and Loading data into **RAMM**.

Step	Action	Comments
1	Load your data file.	Your Traffic and Loading data needs to be entered into RAMM so that Traffic Count Estimation can use it to update your Network ADTs. You load the data file into the Traffic and Loading Import screen before you validate the data and move it to RAMM . See Loading the Data File (on page 253).
2	Link your data columns.	Once your Traffic and Loading count data is loaded into the temporary table you need to link the import data file columns with the RAMM database columns. See Linking Your Data to the RAMM Columns (on page 260).
3	Save a layout file for future use.	You can create and save a layout file which includes the correct column links from your import data to the RAMM table columns. Then when you import Traffic and Loading data, you import the layout file as well to correctly link the columns by default. See Saving a Layout File (on page 264).
4	Validate the data.	RAMM validates the Traffic and Loading data which you have loaded into the temporary table. It then presents you with a list of errors and warnings. See Validating Data (on page 267).
5	Correct the data.	You correct your data errors in the Correct Data screen or external to RAMM in an Xcel spreadsheet. See Data Correction and Excel (on page 269) and Data Correction in RAMM (on page 270).
6	Check for duplicates	After data validation, you check whether similarities in secondary key values suggest record duplication. Duplicate records in a RAMM database distort processes and outcomes. Duplication of record primary keys is corrected during data validation. See Checking for Duplicates (on page 274).

<p>7</p>	<p>Move the data into RAMM and process it.</p>	<p>The last step in the process to load Traffic Counts into the RAMM database is to move the data into RAMM and process it. You cannot do this until the data is validated and the data errors fixed.</p> <p>See Moving and Processing Data (on page 278).</p>
-----------------	---	---

Your Data Must Match Your Network Type

The standard **RAMM Manager** Import File process has been simplified for the import of **RAMM Traffic Count Estimation** Traffic and Loading data. A File Import process specific to **Traffic Count Estimation** has been designed to expect that there will be a single import file which matches a single table in the **RAMM** database.

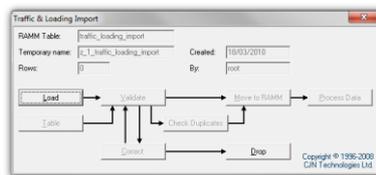
Your Network Type

There are currently three different **RAMM** user Network types:

- NZ Local Authority
- NZ State Highway
- WA Local Shire.

Traffic and Loading data from different Network types is not compatible as each has a different Traffic and Loading dataset. The Traffic and Loading data table in **RAMM** is defined dynamically to match the client dataset.

The **Traffic and Loading Import** data import process is matched to your database type and Network type.



Import File Types

The data file you import must be of a type compatible with the **RAMM** File Import process. Data can be imported in:

- **a delimited text file .txt**
This is a text file in which the data is separated by a character called a delimiter. You can use any character you like. The comma, pipe and tab are the normal delimiters

- **an unload file .unl**
This is an Informix binary file created by the UNLOAD command.
- **an unload command file .ucd**
This is an unstructured cell data format.

Loading the Data File

Introduction

Your Traffic and Loading data needs to be entered into **RAMM** so that **Traffic Count Estimation** can use it to update your Network ADTs. You load the data file into the **Traffic and Loading Import** screen before you validate the data and move it to **RAMM**.

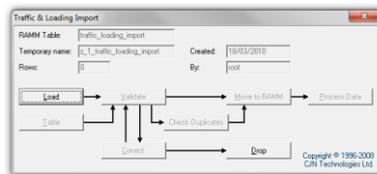
Before you do this you need to have:

- created the data file from your Traffic and Loading program. This must be in a compatible format. See Import File Types (on page 252).
- created, if required, the layout file for your Traffic and Loading data. This must be in a compatible format. See Saving a Layout File (on page 264).
- logged in to **RAMM Manager**.

Menu Path

Follow the menu path Projects > Traffic Counting > Import Counts to open the **Traffic and Loading Import** screen.

► Loading the Data File

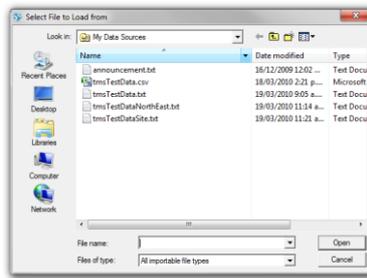


To do this you follow these steps:

- 1 Press . The **Load Dialog - Select the file to load** dialog will open.



- 2 Press adjacent to the File to load field.
The **Select File to Load from** dialog will open.



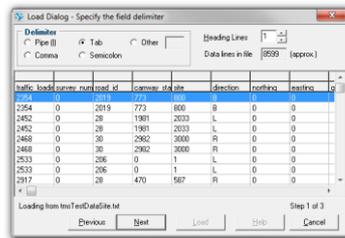
- 3 Navigate to and select the data file to import.
- 4 Press .
The **Select File to Load from** dialog will close and you will be returned to the **Load Dialog - Select the file to load** dialog.
- 5 Do you want to load a layout file? See Saving a Layout File (on page 264).

Yes	then go to step 6.
No	then go to step 9.

- 6 Press adjacent to the Optional layout file field.
The **Open** dialog will open.
- 7 Navigate to and select the layout file to import.
- 8 Press .
The **Open** dialog will close and you will be returned to the **Load Dialog - Select the file to load** dialog.

9 Press **Next**.

The **Load Dialog - Specify the field delimiter** screen will open.



10 In the **Delimiter** section, select the delimiter used in the file.

11 Ensure that the number in the **Heading Lines** field matches the number of lines used by the heading data in your data file.

12 Press **Next**.

The **Load Dialog - Specify the format of dates in load file** dialog will open.

13 In the **Import Data Date Format** section, select the format for the dates to be used in the load file. The example will change dynamically as you make your selections.

14 Press **Next**.

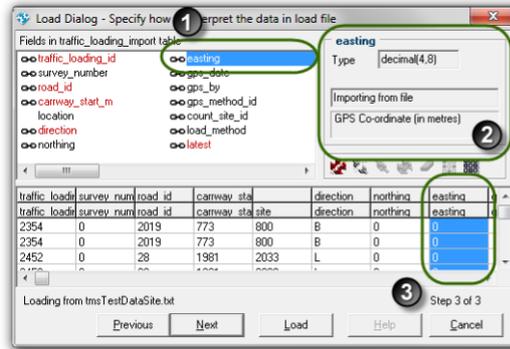
The **Load Dialog - Specify how to interpret the data in load file** dialog will open.

15 You now need to link the columns in your data import file with the **RAMM** database columns. Go to **Linking Your Data to the RAMM Columns** (on page 260).

Link Data to RAMM Columns

When you import Traffic and Loading data into **RAMM** you need to map your import data columns to the appropriate **RAMM** data table columns.

If your data columns have the same names and data types, **RAMM** Traffic Loading and Import will automatically map the columns. If not, you need to map them manually. You do this at the **Load Dialog - Specify how to interpret the data in load file** dialog.



- 1 When you select a column from the import table
- 2 The details of the column type appear in the panel which will be named after the column - in this case **easting**
- 3 The listed field values will become highlighted

Linked Data

The columns in the data file which has been loaded will be linked to the **RAMM** database columns automatically during the load process. You can see which import data columns have been linked by the Linked icon which appears adjacent to the column name. The location column in the graphic above is the only one which has not been linked.

Data Required

The columns in the import data file which are highlighted in red, such as the `road_id` column above, may not have null values.

Traffic Counting Header

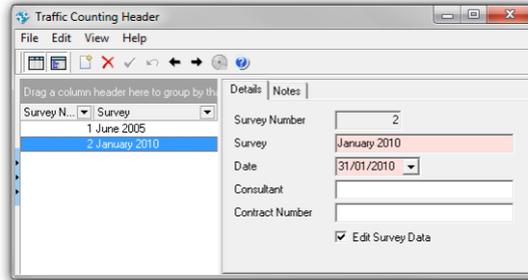
When you import Traffic and Loading Count data, you use a Traffic Counting Header to group and identify the Counts. For State Highway databases this is called a Survey Header.

Default Traffic Counting Header

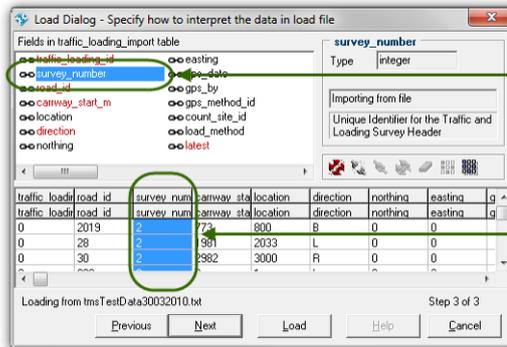
You can access the **Traffic and Loading Import** screen from either the:

- **RAMM Manager** menu path Projects > Traffic Counting > Import Counts. See Loading the Data File (on page 253).
- menu path File > Import from the **Traffic Counting Header** screen. See Traffic Headers (on page 242).

If you access the **Traffic and Loading Import** screen from the **RAMM Manager** menu path, there will be no default import data `survey_number` column linked with the destination `survey_number` column unless you are reimporting your own Count data which you had previously exported.



If you access the **Traffic and Loading Import** screen from the **Traffic Counting Header** screen, the import data `survey_number` column will be linked with the destination `survey_number` column. The default values will be the number of the Survey Header which was selected when the screen was opened using the File > Import menu path.



the import column `survey_number` is linked by default with a destination column

The default import values are the number of the **Traffic Counting Header** selected at the **Traffic Counting Header** screen

Import Tool Bar

There is an **Import** tool bar for linking and unlinking columns and manipulating data. The buttons are available only when it is logical for them to be available.

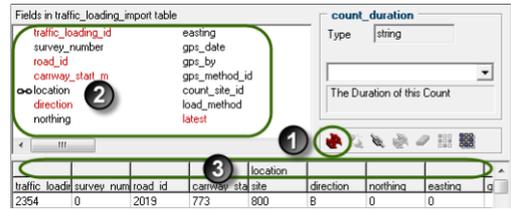


Buttons

The buttons are:

-  **Unlink All By Name**

Press this button to break all links between the import file columns and the **RAMM** columns where the column names are the same.



1 When you press **Unlink All By Name**

2 Link icons disappear from linked import columns whose names match the **RAMM** column names, and

3 Their import header names are cleared

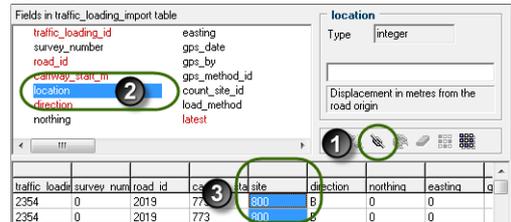
traffic_loading_id	survey_number	road_id	location	direction	nothing	easting	g
2354	0	2019	773	800	B	0	0

-  **Unlink**

Press this button to break the link between a highlighted import file column and the highlighted **RAMM** column. The Linked icon adjacent to the import column will disappear. The header cell for the import file will be cleared.

-  **Link**

Press this button to link the highlighted import file column with the highlighted **RAMM** column.



1 Press **Link**

2 The highlighted data import column

3 Will be linked with the highlighted **RAMM** data column

traffic_loading_id	survey_number	road_id	location	direction	nothing	easting	g
2354	0	2019	773	800	B	0	0
2354	0	2019	773	800	B	0	0

-  **Unlink All**

Press this button to break all links between the import file columns and the **RAMM** columns whether or not the column names are the same.

-  **Clear Field Value**

Press this button to clear the value in the (unnamed) Importing from File field. This prevents data from the selected data import column from being imported from the data import file.

-  **Set to Default Value**

Press this button to set all the values in a selected **RAMM** column to the default values. This button is available only when a default value for a highlighted **RAMM** column exists.

-  **Set to the Default for All Unassociated Fields**

Press this button to set all the values in all **RAMM** columns which both have a default value set and are not linked to a data import column.

Unique Record IDs

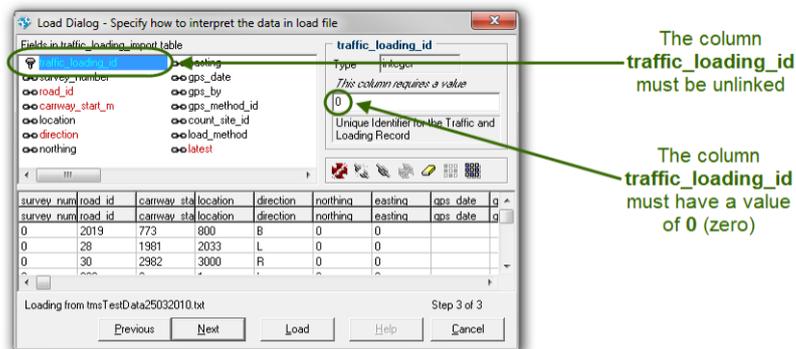
Each record which you move into the **RAMM** database must have a unique ID. For Traffic and Loading import data this ID is `traffic_loading_id`.

Import Fresh Data

When you are importing new count data, **RAMM** adds the column `traffic_loading_id` to the import table.

When you are linking your import data columns, you should ensure that `traffic_loading_id` is not linked and that it has a column value of 0 (zero).

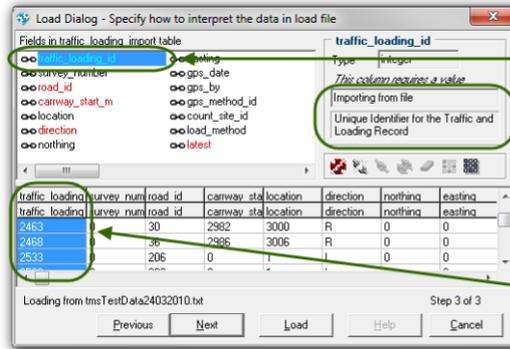
RAMM then will populate this column with unique values when the data is moved to **RAMM**.



Import Extracted Data

If you have extracted Traffic and Loading count records from the **RAMM** database and, having manipulated them, wish to reimport them, you need to consider how to handle `traffic_loading_id`. If you:

- want to keep the unique `traffic_loading_id` values which you extracted, then you need to import the `traffic_loading_id` column and link it to the **RAMM** column of the same name
- do not want to keep the unique `traffic_loading_id` values, then you should not import the `traffic_loading_id` column. You should ensure that `traffic_loading_id` is not linked and that it has a column value of 0 (zero) as if you were importing fresh data.



The import column **traffic_loading_id** needs to be linked to the **RAMM** database column **traffic_loading_id**

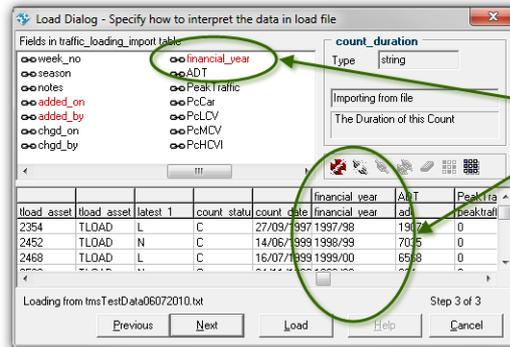
When you are importing data which you previously extracted from the **RAMM** database

And you are certain that **traffic_loading_id** values are unique in the **RAMM** database

Financial Year for Traffic and Loading

If the Traffic and Loading data file imported does not include the Financial Year for the Traffic and Loading records, **RAMM** adds this by default. Financial Years run from July to June.

This makes possible the summary of Traffic and Loading for each Financial Year. See Financial Year (on page 167).



- 1 If the **Traffic and Loading** data import file does not include the **Financial Year** for the records
- 2 **RAMM** adds the **Financial Year** for the records by default

Linking Your Data to the RAMM Columns

Introduction

Once your Traffic and Loading count data is loaded into the temporary table you need to link the import data file columns with the **RAMM** database columns.

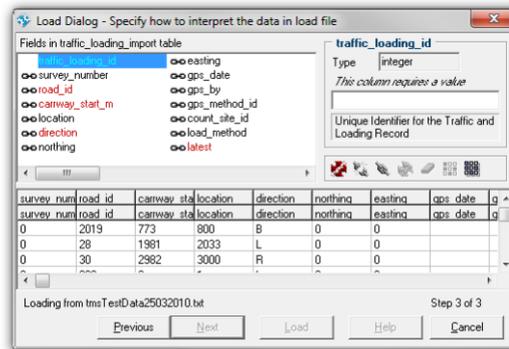
Before you do this you need to have:

- completed steps 1-15 of Loading the Data File. See Loading the Data File (on page 253).

Menu Path

Follow the menu path steps 1-15 of Loading the Data File to open the **Load Dialog - Specify how to interpret the data in load file** dialog.

▶ Linking Your Data to the RAMM Columns



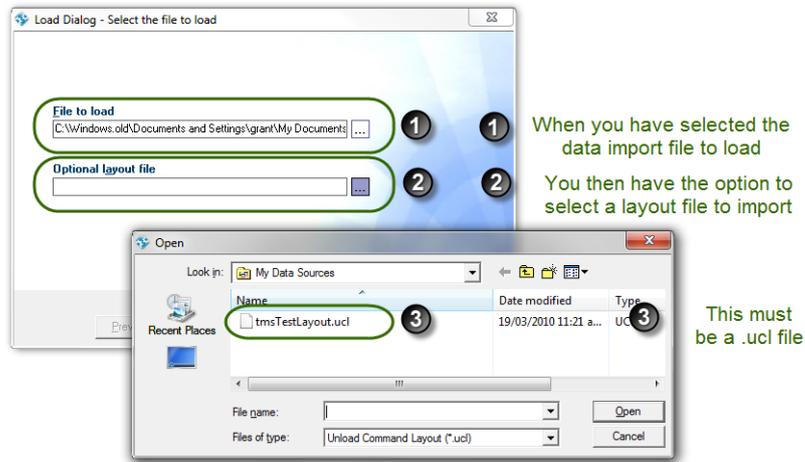
To do this you follow these steps:

- 1 What you must do depends on whether you are importing fresh Traffic and Loading count data or you are importing data which you have previously extracted from the **RAMM** database?

If	then
you are importing fresh Traffic and Loading count data	go to step 2.
you are importing Traffic and Loading count data which you previously extracted from the RAMM database and do not have unique traffic_loading_id values	go to step 2.
you are importing Traffic and Loading count data which you previously extracted from the RAMM database and their traffic_loading_id values are unique	the traffic_loading_id import column will be linked by default to the RAMM database traffic_loading_id column. Accept the default. Go to step 6.

- 2 In the Fields in traffic_loading_import table panel, select traffic_loading_id.
- 3 If traffic_loading_id is linked to a **RAMM** database column, press  to unlink it.

You create a layout file when you are importing Traffic and Loading data. See Loading the Data File (on page 253).

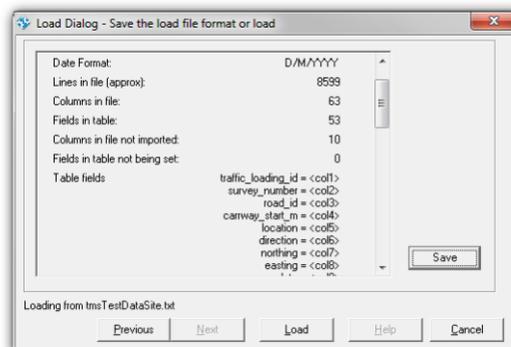


Create a Layout File

When you first import a Traffic and Loading file you will have to specify how to interpret the data in the load file if your data file did not match the columns of the **RAMM** table.

You have the option to export the Layout you have created so that when you import data files in the future, you do not have to match up the data columns to those of the **RAMM** table.

You do this during the data import process. See Loading the Data File (on page 253).



Save Layout As

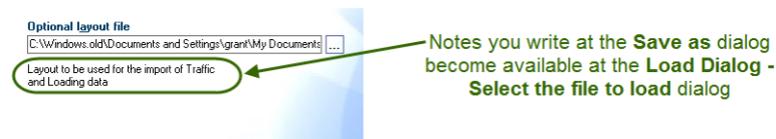
You use the **Save as** dialog to save the .ucl layout file. You also have the option to save the data with the layout file if this is useful.

The default folder in which the file will be saved is My Data Sources under My Documents.



Notes

Information you write in the **Notes** field becomes visible on the **Load Dialog - Select the file to load** dialog when the layout file is selected at the **Optional layout file** field. This can be a useful confirmation that the correct layout file has been selected.



Saving a Layout File

Introduction

You can create and save a layout file which includes the correct column links from your import data to the **RAMM** table columns. Then when you import Traffic and Loading data, you import the layout file as well to correctly link the columns by default.

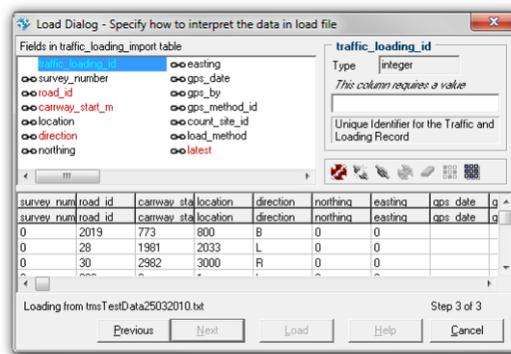
Before you do this you need to have:

- completed steps 1-11 of Linking Your Data to the **RAMM** Columns. See Linking Your Data to the **RAMM** Columns (on page 260).

Menu Path

Follow the menu path steps 1-11 of Linking Your Data to the **RAMM** Columns to open the **Load Dialog - Specify how to interpret the data in load file** dialog.

► Saving a Layout File

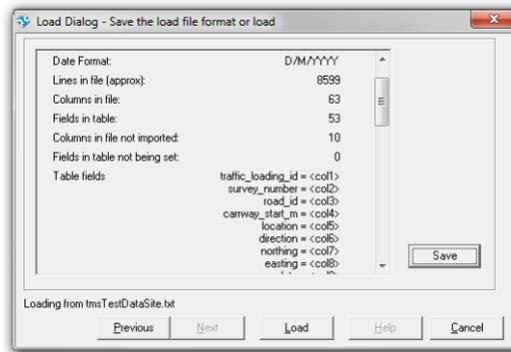


To do this you follow these steps:

- 1 Do you want to save this import Layout for future imports?

Yes	then go to step 2.
No	then go to step 5.

- 2 Press .
The **Load Dialog - Save the load file format or load** dialog will open.



- 3 View the data import settings. Slide the scroll box to make the values visible if necessary.

- 4 Press .
The **Save as** dialog will open.



- 5 Do you want to save the data as well as the import Layout?

Yes	then go to step 6.
No	then go to step 11.

- 6 Select the **Save data with layout file (*.ucd)** option.
The fields in the (unnamed) **Details** section will become available.
- 7 Type the correct details in the **Organisation**, **User Name** and **Recipient** fields.
- 8 Type, in the **Notes** field, any information relevant to a user who might use this layout file in future data imports. Information you write in the **Notes** field becomes visible on the **Load Dialog - Select the file to load** dialog when the layout file is selected at the **Optional layout file** field. This can be a useful confirmation that the correct layout file has been selected. See **Layout File** (on page 262).
- 9 Type the name for the file in the **File name** field. By default the file will be saved in your **My Data Sources** folder.

If	then
you want the layout file to be saved in your My Data Sources folder	type the file name in the File Name field.
you want to overwrite another layout file	press  . Navigate to the file. Press  .
you want to store the layout file in a folder other than the default	press  . Navigate to the folder. Type the file name in the File Name field. Press  .

- 10 Press .
The **Save as** dialog will close and you will be returned to the **Load Dialog - Save the load file format or load** dialog.

11 Go to Validating Data (on page 267).

Data Validation

When you have linked the columns in your Traffic and Loading data import file you then load the data into a temporary table.

RAMM then validates the data. This can take some time.

Errors and Warnings

Once validation is complete, you are offered a report listing the data errors and warnings explaining the nature of the errors.

Until you have corrected or removed the erroneous data, you cannot move the data from the temporary table into **RAMM**.

Grid Header	Comment	Rows in Error	Total Rows	% in Error
[-] 0				
[-] Traffic Counting System				
[-] Traffic and Loading				
[-] Check displacements				
Location	location falls outside the length of the Carriageway.	1838	8648	21.3
[-] Check indexes				
[-] Check lookups				
GPS Method	Column contains invalid lookup values	8648	8648	100
Count Site	Column contains invalid lookup values	8648	8648	100
Survey	Column contains invalid lookup values	8648	8648	100
[-] Check table constraints				
[-] Check table specific requirements				

Validating Data

Introduction

RAMM validates the Traffic and Loading data which you have loaded into the temporary table. It then presents you with a list of errors and warnings.

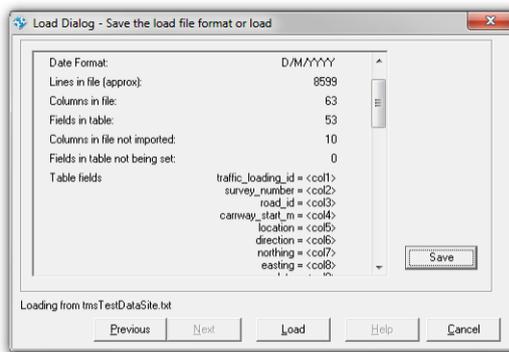
Before you do this you need to have:

- completed steps 1-11 of Saving a Layout File. See Saving a Layout File (on page 264).

Menu Path

Follow the menu path steps 1-11 of Saving a Layout File to open the **Load Dialog - Save the load file format or load dialog**.

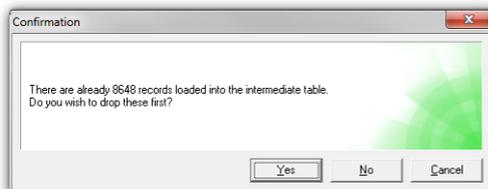
► Validating Data



To do this you follow these steps:

- 1 Press .
- 2 Does a **Confirmation** dialog open?

Yes	then go to step 3.
No	then go to step 4.



This **Confirmation** screen opens if you have already loaded the temporary table

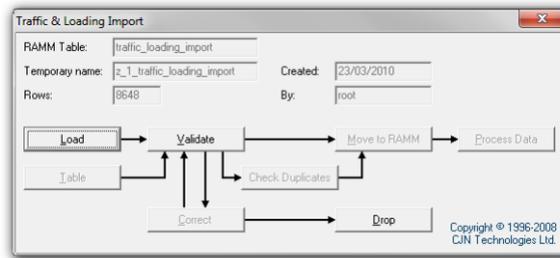
If the screen appears and you have not loaded the temporary table you need to find out who has before proceeding

- 3 Did you load the temporary table?

if	then
you loaded the table by having a few false starts in the process	Press <input type="button" value="Yes"/> . The records will be dropped.
you did not load the temporary table	someone else did. This means they are trying to load data into the same table as you are. You should not proceed until you have found

If	then
	the person and resolved the matter. End of procedure.

- 4 The **Load Dialog** screen will display data load progress. You will be returned to the **Traffic and Loading Import** screen. The **Validate** button will be available.



- 5 Press . The **Validate Import Data for Traffic and Loading** progress screen will open while **RAMM** validates the data to be imported. Go and have a cup of coffee. When you are finished it is likely that an **Information** dialog will open announcing the totals for errors and warnings.
- 6 Press . The **Data Validation Grid Report** screen will open.
- 7 Go to Checking for Duplicates (on page 274).

Data Correction and Excel

You have two options for correcting invalid data. You can:

- stop the data import process and return to your original data file. You place the data in a spreadsheet such as Excel and manipulate the data externally to **RAMM**.
- fix the data within **RAMM** at the **Correct data for z_1_traffic_loading_import** screen. See Data Correction in **RAMM** (on page 270).

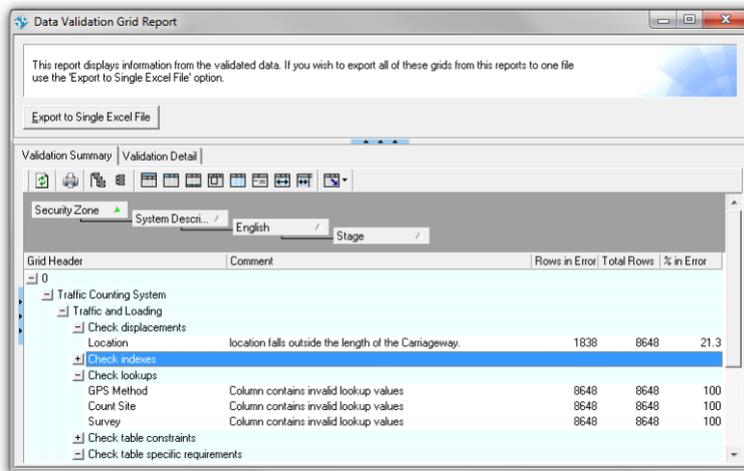
Whichever option you choose, you will need a listing of the errors which require correction and the warnings describing the data errors. You do this by exporting them to Excel from the **Data Validation Grid Report** screen.

Export to Excel

The errors and warnings are grouped in the **Data Validation Grid Report** screen. Whether you manipulate the data externally to **RAMM** in an Excel spreadsheet, or fix the data within **RAMM**, you will need this list as a reference. The most convenient format to refer to the information is an Excel spreadsheet.

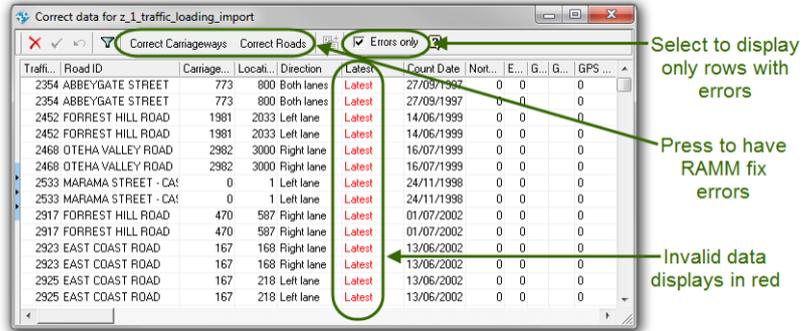
You press . **RAMM** will then create an Excel file to be saved in your My Data Sources folder in your My Documents library. You then refer to this spreadsheet when correcting your data errors in your original data source file.

You save the spreadsheet which contains the corrected data and convert it to an import file. You then import the file using the **Traffic and Loading Import** screen to repeat the data import process.



Data Correction in RAMM

You can fix the Traffic and Loading data at the **Correct data for z_1_traffic_loading_import** screen.

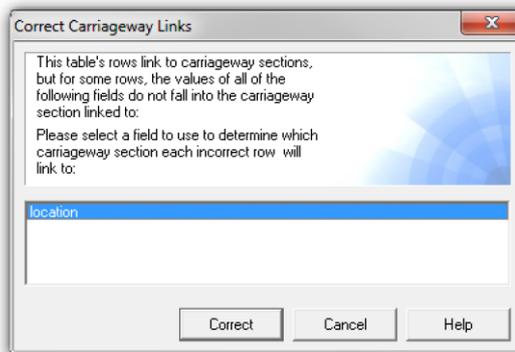


Errors Only

All data rows are displayed by default. If you want to see only those rows which contain data errors select the Errors only option.

Correct Carriageways

RAMM can correct some basic errors in the Carriageway section linking. You press **Correct Carriageways**. The **Correct Carriageway Links** dialog will open. You are advised of the problem and offered a solution.



Correct Roads

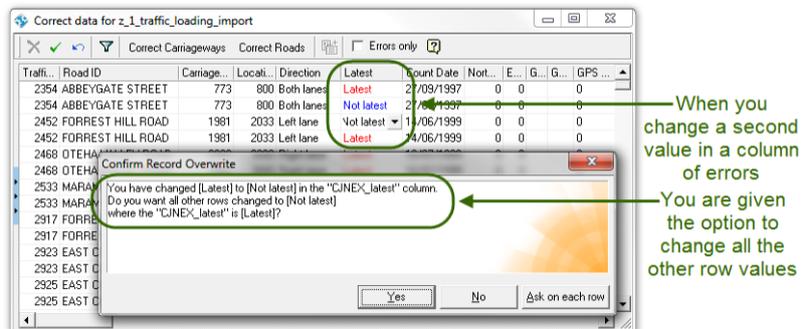
RAMM can correct some basic errors in the Road linking. You press **Correct Roads**. The **Correct Road Links** dialog will open. You are advised of the problem and offered a solution.



Correct All Identical Values in a Column

If you have a column with many incorrect values, **RAMM** can save you time correcting them. For instance, the value Latest in the Latest column below is red and so incorrect. If you change one value to Not Latest, save the change, the **Confirm Record Overwrite** dialog will open. You are then offered the option of having all other rows with a value of Latest changed to Not Latest.

If this does not meet your requirements you can elect to be asked on each row.



Validate Again

When you have corrected the import data, you close the **Correct data for z_1_traffic_loading_import** screen and validate the import data again.

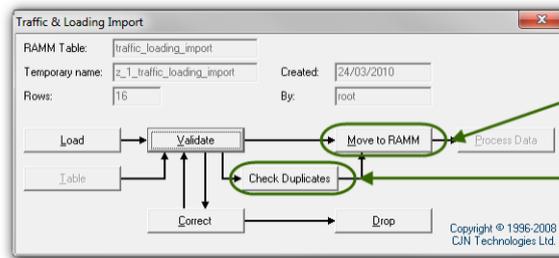
The values which you have corrected will no longer be highlighted in red. If you select the Errors Only option, the number of rows of data should reduce each time you revalidate the data.

You do this until no errors are returned. You are then ready to check the data for duplicates and send the data to **RAMM**.

Duplicate Checks

When you validate your import data, **RAMM** checks that there are no duplicate primary keys in the records to be imported. There are some situations where the similarities in secondary keys suggest that there has been duplication and that more than one record will be created if the data is moved to **RAMM**.

You may want to check for signs of secondary duplication.

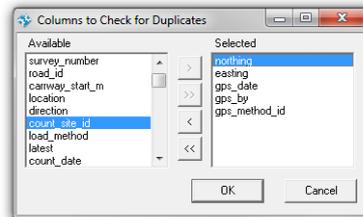


Once your import file has been validated you can move the data to **RAMM**

You have the option to check for duplicate records before you move the data into **RAMM**

Choose Columns

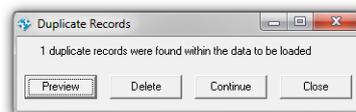
If you press **Check Duplicates**, the **Columns to Check for Duplicates** dialog opens.



In the Available panel there will be a listing of the columns in your data import file. You select the columns you want to check for duplicates and use the arrows **<<**, **<**, **>**, **>>** to move the columns to check for duplicates to the Selected panel.

Duplicate Combinations

RAMM checks for records which have duplicate values for all the columns selected. The **Duplicate Records** dialog opens displaying the number of duplicate records found.



You preview the report if duplicates were found.

Hi Valley Council User: grant Printed: 25/03/2010 Page: 1

Duplicate Report

traffe_loading_id	survey_number	road_id	camray_start_m	location	direction	northing	easting	gps_date	gps_id	gps_method_id
102466	1	30	2982	3000	R	0	0		UKN	6
102533	1	206	0	1	L	0	0		UKN	6
102917	1	26	470	SE7	R	0	0		UKN	6
103216	1	2	4072	4072	R	0	0		UKN	6
103224	1	226	0	200	B	0	0		UKN	6
103291	1	2006	917	1000	R	0	0		UKN	6
103424	1	17	1996	1996	R	0	0		UKN	6
110620	1	32	0	0	B	0	0		UKN	6
110900	1	2016	0	0	B	0	0		UKN	6
111006	1	67	0	0	B	0	0		UKN	6
111239	1	14	0	0	B	0	0		UKN	6
111423	1	1	0	0	B	0	0		UKN	6
111618	1	666	0	0	B	0	0		UKN	6
111739	1	55	0	0	B	0	0		UKN	6
111913	1	38	0	0	B	0	0		UKN	6

You can then check if the duplication will lead to duplicate records being created in **RAMM**. You do this by pressing **RAMM** then checks whether any records in the data to be loaded are duplicates of records within the existing table.

If there are records in the import data which are duplicates of existing records, you delete them.

Checking for Duplicates

Introduction

After data validation, you check whether similarities in secondary key values suggest record duplication. Duplicate records in a **RAMM** database distort processes and outcomes. Duplication of record primary keys is corrected during data validation.

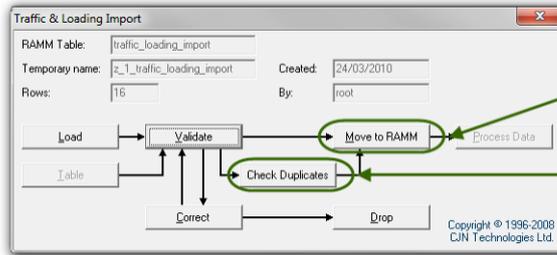
Before you do this you need to have:

- completed steps 1-7 of Validating Data. See Validating Data (on page 267).

Menu Path

Follow the menu path steps 1-7 of Validating Data to open the **Traffic and Loading** screen. The Check Duplicates and Move to RAMM buttons will be available.

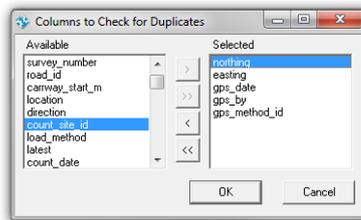
▶ Checking for Duplicates



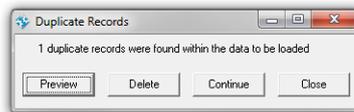
Once your import file has been validated you can move the data to **RAMM**. You have the option to check for duplicate records before you move the data into **RAMM**.

To do this you follow these steps:

- 1 Press **Check Duplicates**. The **Columns to Check for Duplicates** dialog will open.



- 2 Use **<<**, **<**, **>** and **>>** to move from the Available panel to the Selected panel, the combination of columns you want to check for duplication.
- 3 Press **OK**. **RAMM** will check the import data for records for which the values in each of the selected columns are identical to another record. The **Duplicate Records** dialog will open indicating if duplicate records were found.



- 4 Were duplicate records found?

Yes	then go to step 5.
No	then go to step 13.

- 5 Press **Preview**. The **Duplicate Report** screen will open.

Hi Valley Council User: grant Printed: 25/03/2010 Page: 1

Duplicate Report

traffic_load_id	survey_number	road_id	calendar_start_m	location	direction	northing	easting	gps_date	gps_id	gps_method_id
102468	1	30	2982	3000	R	0	0	UKN	6	
102833	1	206	0	1	L	0	0	UKN	6	
102917	1	23	470	657	R	0	0	UKN	6	
103218	1	2	4072	4072	R	0	0	UKN	6	
103224	1	226	0	200	B	0	0	UKN	6	
103291	1	2036	917	1000	R	0	0	UKN	6	
103424	1	17	1996	1996	R	0	0	UKN	6	
110820	1	22	0	0	B	0	0	UKN	6	
110803	1	2016	0	0	B	0	0	UKN	6	
111006	1	67	0	0	B	0	0	UKN	6	
111239	1	14	0	0	B	0	0	UKN	6	
111423	1	1	0	0	B	0	0	UKN	6	
111518	1	666	0	0	B	0	0	UKN	6	
111739	1	55	0	0	B	0	0	UKN	6	
111813	1	38	0	0	B	0	0	UKN	6	

- 6 View the report.
- 7 Close the report in the normal manner.
You will be returned to the **Duplicate Records** dialog.
- 8 Does the data duplication in the report suggest that duplicate records will be created if the data is moved to **RAMM**?

Yes	then go to step 9.
No	then go to step 13.

- 9 Press .
RAMM then checks whether any records in the data to be loaded are duplicates of records within the existing table.

- 10 Are there are duplicates?

Yes	then go to step 11.
No	then go to step 13.

- 11 Press .
The duplicate records are deleted and you will be returned to the **Traffic and Loading Import** screen.

- 12 Go to step 14

- 13 Press .
The **Duplicate Records** dialog will close and you will be returned to the **Traffic and Loading Import** screen.

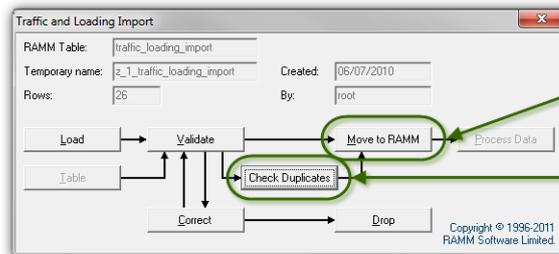
- 14 Do you want to check another combination of columns for possible duplicate records?

Yes	then go to step 1.
No	then go to step 15.

- 15 Go to Moving and Processing Data (on page 278).

Move and Process Data

Once your data has been validated, corrected and had any secondary duplication removed, the Move to RAMM button becomes available.



Move to RAMM becomes available when your data has been loaded, validated and corrected

You should check your data for secondary duplication before moving it to RAMM

You can then move the data into **RAMM** and process it. You move the data into **RAMM** by pressing the Move to RAMM button. An **Information** screen will open with the message that the data has been successfully moved across to its **RAMM** table.

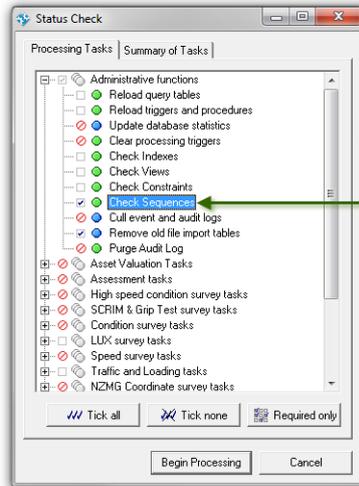


Incorrect Sequences

If your Traffic Loading ID sequence is incorrect, the error message The value for Detail ID (traffic_loading_dtl_id) must be unique... will appear.



If this occurs you need to run Check Sequences during Status Check to reset your sequences.



If the error message "The value for Detail ID (traffic_loading_dtl_id) must be unique..." appears you need to run Status Check to reset the next available ID. You run **Check Sequences**.

This resets the next available unique **Traffic Loading ID**.

Moving and Processing Data

Introduction

The last step in the process to load **Traffic Counts** into the **RAMM** database is to move the data into **RAMM** and process it. You cannot do this until the data is validated and the data errors fixed.

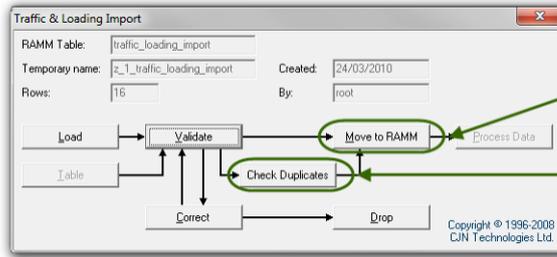
Before you do this you need to have:

- completed steps 1-15 of Checking for Duplicates. See Checking for Duplicates (on page 274).

Menu Path

Follow the menu path steps 1-15 of Checking for Duplicates to open the **Traffic and Loading Import** screen. The Move to RAMM button will be available.

► **Moving and Processing Data**



Once your import file has been validated you can move the data to **RAMM**

You have the option to check for duplicate records before you move the data into **RAMM**

To do this you follow these steps:

- 1 Press **Move to RAMM** an **Information** screen will open.



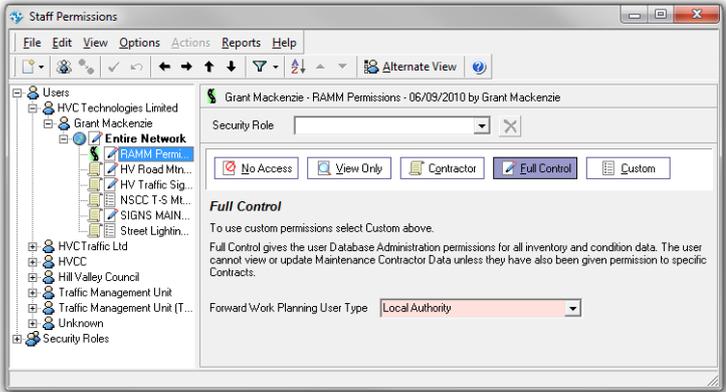
- 2 Press **OK**
The **Information** screen will close and you will be returned to the **Traffic and Loading Import** screen. The **Process Data** button will be available.
- 3 Press **Process Data**.
Your data will be processed.
- 4 Close the screen in the normal manner.

Staff Permissions and Traffic Counting

Staff who view or maintain **RAMM Traffic Count Estimation** will need the correct Staff Permissions.

Firstly a user needs to access the **Parameter** screen to activate **Traffic Count Estimation** and to set the initial parameters. Other users will need a different set of Staff Permissions to allow them to view and maintain **Traffic Count Estimation** in **RAMM**, **RAMM Manager** and **RAMM Network Manager**.

Staff Permissions are set in **RAMM Manager** at the **Staff Permissions** screen.



In This Chapter

- Introduction to Staff Permissions282
- Staff Permissions for the Parameter Screen.....284
- Data Maintenance Staff Permissions287
- Dispatch Creation Permissions.....291

Introduction to Staff Permissions

Best Practice is to manage access to [Traffic Count Estimation](#) by a combination of User Profiles and Security Roles.

User Profiles

A User Profile is a security item you create in **RAMM Manager**. It holds user Login and Organisation information. A user cannot log in to **RAMM** unless they have a User Profile. It is the Staff Permissions associated with the User Profile which determine what a user can see and do once they have logged in to **RAMM**.

Security Roles

A Security Role is an item you create with Staff Permissions, as if it were a User Profile. Then, where there is a group of users who perform the same tasks as each other, rather than define individual Staff Permissions for each User Profile, you associate the User Profiles with one Security Role. This makes it faster grant a new user the appropriate Staff Permissions. You can also change the Staff Permissions for a whole group of people by changing the Permissions associated with their Security Role.



The setting up of User Profiles and Security Roles to manage Staff Permissions is explained in full in the Security chapter of the *Working with RAMM* guide.

Create User Profiles and Security Roles

You create User Profiles for users. You then create Security Roles with the appropriate Staff Permissions for the tasks that groups of users perform.

You then associate the User Profiles with the appropriate Security Role for the tasks that user will perform. Security Roles limit the actions of users to those areas of [Traffic Count Estimation](#) to which they need access in order to be able to perform their normal work tasks.

Individual Security Switches

You use Security Switches to grant Staff Permissions to a User Profile or Security Role.

In the example below the user or Security Role can Maintain Road Name and Carriageway Data but not maintain Lookups or import files.



Global Switches

RAMM Security uses a Global Switch to grant preset levels of database access.

This sits on top of the individual switches and allows you to set a specific range of values across all the individual switches in one go.

This switch has five settings:

- No Access
- View Only
- Contractor
- Full Control
- Custom Settings.



No Access

Setting No Access has the effect of denying a user any access at all to the RAMM Database. They have no Staff Permissions.

View Only

If you use this Global Setting to set a user to View Only it means that all the individual Staff Permission switches for that user are set to View Only.

Contractor

This setting grants user access to the database in Maintenance Contractor applications only. It is used to give access the the user who in the first instance sets up Contracts in RAMM Contractor. If a user is granted access to a Contract from within RAMM Contractor they will by default be allocated this setting in RAMM Manager.

Full Control

Full Control gives the user just that - permission to access anything and to run any process.

Custom

Using Custom Settings gives you access to the individual switches so you can personally tailor the Staff Permissions for a user.



When you make changes to user Permissions, **RAMM** tells the Informix database to align its internal permissions (Connect, Resource, DBA) accordingly. This happens automatically when you close the **Staff Permissions** screen after making changes. If you want to manually grant or revoke permissions, you go to the menu at the top of the **Staff Permissions** screen and choose File > Grant/Revoke.

This special control commits the changes you make to a Permissions record to a database, allowing you to continue working with the **Staff Permissions** screen.

Staff Permissions for the Parameter Screen

You cannot set up and run **RAMM Traffic Count Estimation** unless it is switched on and the initial parameters have been set. You do this at the **Parameter** screen in **RAMM Manager**.

See Setting Traffic Counting Parameters (on page 67).

Parameter Screen Staff Permissions

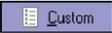
You need the appropriate Staff Permissions to turn on **RAMM Traffic Count Estimation** and to select the other initial parameters. You need either Full Control or the appropriate Custom Permissions.

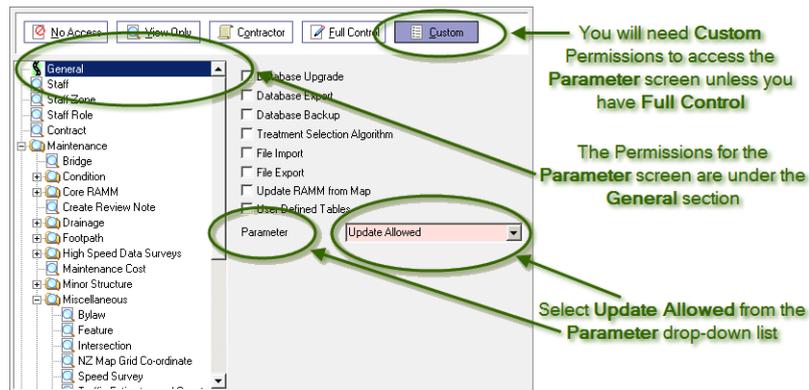
You open the **Staff Permissions** screen in **RAMM Manager** by following the menu path Maintenance > Staff.

Full Control

If you have , you have the complete Permission set for the database. This gives you automatic Permission to access the **Parameter** screen.

Custom Permissions

If you have  Permissions, you need to have Update Allowed Permission at the Parameter drop-down list under the General section.



Granting Staff Permission to Update the Parameter Screen

Introduction

You cannot turn on and set initial **RAMM Traffic Count Estimation** parameters unless you have Parameter Update Allowed Staff Permission.



You will need to have the correct Security Permissions before you can perform this procedure. See your Systems Administrator for assistance if required.

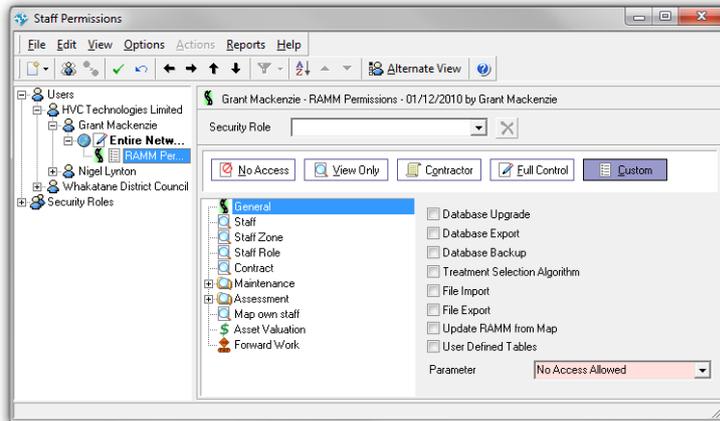
Before you do this you need to have:

- the correct Staff Permissions. See the note above.
- logged in to **RAMM Manager**.

Menu Path

Follow the menu path Maintenance > Staff to open the **Staff Permissions** screen.

► Granting Staff Permission to Update the Parameter Screen



To do this you follow these steps:

- 1 In the (unnamed) Users list panel, press Plus adjacent to the name of the Organisation to which the user belongs. The tree will open beneath the name of the Organisation.
- 2 Highlight the name of the user to whom you are going to grant Permission to the Parameter screen. The details of the user will default into the (unnamed) Details panel on the right of the screen.
- 3 Check the details to be sure that you have selected the correct person. If not, go back to step 2.
- 4 Press Plus adjacent to the name of the user. The tree will open beneath the name of the user.
- 5 Press Plus beneath the name of the user. The RAMM Permissions will become available.
- 6 Select RAMM Permissions. The (unnamed) RAMM Permissions panel will open on the right of the screen. What you see will depend on the current Permissions of the user.
- 7 Does the user have Full Control?

Yes	then go to step 12.
No	then go to step 8.

- 8 Press Custom. The (unnamed) Permissions list panel will open.
- 9 Select General. A number of general Permission options will become available on the right of the (unnamed) RAMM Permissions panel.
- 10 Select Update Allowed from the Parameter drop-down list.

11 Press .

Your changes are saved and the user has Permission to turn on **RAMM Traffic Count Estimation** and set the initial parameters at the **Parameter** screen.

12 Close the **Staff Permissions** screen in your preferred manner.
You will be returned to the **RAMM Manager** main screen

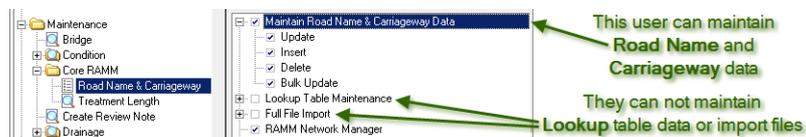
Data Maintenance Staff Permissions

You view and maintain **RAMM Traffic Count Estimation** data at the following six screens:

- **Carriageway**
- **Count Site**
- **Loading**
- **Map**
- **Traffic**
- **Traffic Link.**

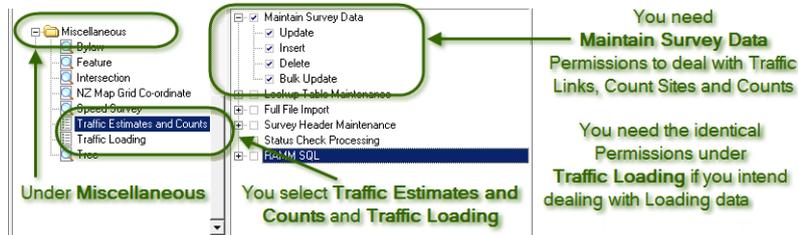
Carriageway Data

Traffic Links are collections of Carriageways. To maintain Carriageway and Road Name data you need Update, Insert, Delete and Bulk Update Staff Permissions as appropriate. You locate these at the **Staff Permissions** screen. You open the tree under Maintenance > Core RAMM > Road Name & Carriageway at the (unnamed) Details panel on the right of the screen. You select and clear the options at the (unnamed) RAMM Permissions panel to the right of the Details panel.



Count Site, Loading, Map, Traffic and Traffic Link screens

To maintain **Traffic Count Estimation** data you need to access the **Map** and Update, Insert, Delete and Bulk Update Staff Permissions as appropriate. You locate these at the **Staff Permissions** screen. You open the tree under Maintenance > Miscellaneous > Traffic Estimates and Counts at the (unnamed) Details panel on the right of the screen. You select and clear the options at the (unnamed) RAMM Permissions panel to the right of the Details panel. If you intend to manage Loading data at the **Loading** screen you will also need the identical Staff Permissions for Traffic Loading.



Lookup Table Staff Permissions

You view and maintain [Traffic Count Estimation](#) Lookup data in [RAMM](#) and [RAMM Manager](#) at the **Correction Factors**, **Traffic Growth Group** and **Sample Group** screens.

Correction Factors

For each Road Type value there are default Correction Factors. If you have sufficient data and experience with your Network traffic flows you can define your own values to replace the defaults.

See **Correction Factors** Screen (on page 212).

Traffic Growth Group

There are six default Traffic Growth Groups with Growth 1 having the least expected growth and Growth 6 having the most. Each [Traffic Link](#) is allocated to a Traffic Growth Group.

See Growth Group Factors (on page 219).

Sample Group

There are nine default Sample Groups with self-explanatory Descriptions. You can add your own, setting the Count Frequency in years to match your business requirements. Each [Count Site](#) is allocated to a Sample Group.

See Sample Group (on page 221).

Lookup Data Staff Permissions

To maintain [Traffic Count Estimation](#) Lookup data you need Update and Merge Staff Permissions as appropriate.

You locate these at the **Staff Permissions** screen. You open the tree under Maintenance > Miscellaneous > Traffic Estimates and Counts at the (unnamed) Details panel on the right of the screen. You select and clear the options at the (unnamed) RAMM Permissions panel to the right of the Details panel.



Status Check Staff Permissions

You run Status Check for **Traffic Count Estimation** in **RAMM Manager** at the **Status Check** screen.

See Update **Traffic Counts** and Estimates (on page 230).

You run Update Traffic Counts and Estimates for **Traffic Count Estimation** in **RAMM** at the **Map**.

See Update **Traffic Counts** and Estimates (on page 204).

If an error report is produced after you have run Status Check, you will want to have the correct permissions to update the erroneous data.

To view the required Staff Permissions to make the changes through the screens see Data Maintenance Staff Permissions (on page 287).

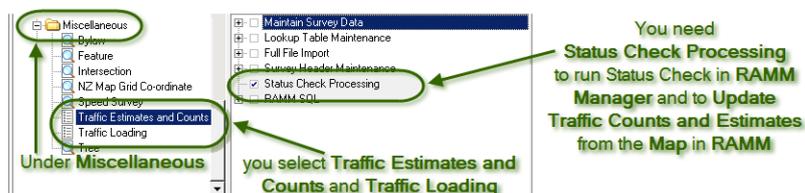
To see the required Staff Permissions to make the changes through **RAMM SQL** see Other Staff Permissions (on page 290).

Status Check

To run Status Check you need Status Check Processing Staff Permissions as appropriate.

You locate these at the **Staff Permissions** screen. You open the tree under Maintenance > Miscellaneous > Traffic Estimates and Counts at the (unnamed) Details panel on the right of the screen. You select and clear the options at the (unnamed) RAMM Permissions panel to the right of the Details panel.

You will also need the identical Status Check Processing Staff Permissions for Traffic Loading.



Other Staff Permissions

There are three areas of specific Staff Permissions which can be switched on if required.

Import Data

The most common data import to the `Traffic` and `Loading` tables are [Traffic Count](#) and Loading data.

You need Full File Import Permission to do this.

Survey Header Maintenance

You can add and maintain Traffic Headers in [RAMM Manager](#) to group traffic data. See [Traffic Headers](#) (on page 242).

You need Survey Header Maintenance Permission to do this.

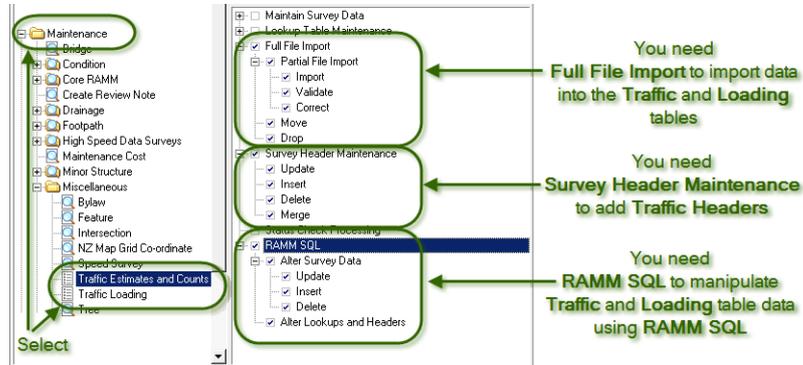
RAMM SQL

You can manipulate data in the `Traffic` and `Loading` tables using [RAMM SQL](#).

You need RAMM SQL Permission under `Traffic Estimates and Counts` and `Traffic Loading` to do this.

Menu Path

You locate these Permissions at the **Staff Permissions** screen. You open the tree under `Maintenance > Miscellaneous > Traffic Estimates and Counts` at the (unnamed) `Details` panel on the right of the screen. You select and clear the options at the (unnamed) `RAMM Permissions` panel to the right of the `Details` panel. Identical Permissions are available under `Traffic Loading`.



Dispatch Creation Permissions

If you are going to create Dispatches for [Traffic Counts](#) you first need to set up a Contract in [RAMM Contractor](#). See the *RAMM Contractor* guide.

Once the set up of the Contract is complete, you need the correct Staff Permissions to add a Dispatch and then to assign the Dispatch to the appropriate person.

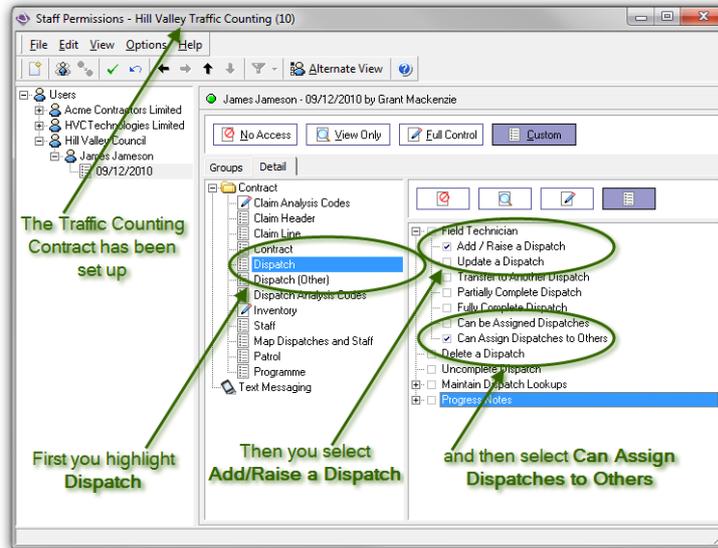
Best practice is to do this from within [RAMM Contractor](#) even though it is possible to grant Staff Permissions to a Contract in [RAMM Manager](#).

RAMM Contractor Staff Permissions Screen

In [RAMM Contractor](#) at the Staff Permissions screen you need either  or  with the correct options selected.

At the Detail tab you select Dispatch. Then in the adjacent (unnamed) Permissions list panel you need to select at least:

- Add/Raise a Dispatch and
- Can Assign Dispatches to Others.



Traffic Count Estimation Reports

There are a number of reports which are useful both when setting up **RAMM Traffic Count Estimation** and afterwards when you are maintaining it.

The reports are generally available from within the **Map** in **RAMM** or from within **RAMM Manager**.

Hill Valley Regional Council	Printed: 03/09/2008	Page: 1
	User: grant	
Traffic Latest Errors		
Carriageway Section	Date	Error
DROP OFF DRIVE (4074) NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-138)		No estimate
HEALTH ROAD (4075) NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-352)		No estimate
ROTO ROAD (4076) NORTH SHORE HOSPITAL - END OF THE ROAD (0-328)		No estimate
MEDWAY ROAD (4083) THE OVAL - END OF THE ROAD (0-421)		No estimate
WARMAN ROAD (4086) GAWLS ROAD - END OF THE ROAD (0-1477)		No estimate
WEST LAKE STATION CA (6088) SHAKESPEARE ROAD ACC - SHAKESPEARE ROAD ACCESS WEST (0-80)		No estimate
PRESTON COURT (4105) PRESTON AVENUE - END OF THE ROAD (0-104)		No estimate
THOMAS HUNTER LANE (4107) ROLAND ROAD - END OF THE ROAD (0-234)		No estimate

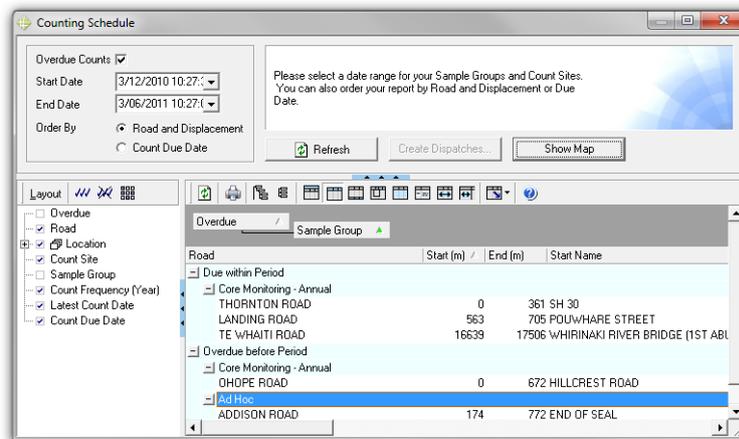
In This Chapter

Counting Schedule Report	294
Missing Data Report	295
Recommended Count Sites Report.....	295
Recommended Traffic Links Report.....	297
Traffic Latest Errors Report	297
Traffic Links with No ADT Report	298
Unlinked Carriageways Report.....	299

Counting Schedule Report

You run the Counting Schedule report to schedule [Traffic Counts](#) for a period which you define. You run the report once you have set up [RAMM Traffic Count Estimation](#). You run it any time you want to schedule future [Traffic Counts](#).

Once the [Traffic Count Estimation](#) set up has been completed, you schedule the [Traffic Counts](#). You do this based on the Sample Group of the [Count Sites](#) combined with the date of the most recent count entered into [RAMM](#). When you have the list of Scheduled [Traffic Counts](#), you can create Dispatches in [RAMM Contractor](#) for a selected Contract.



Before you run the report you need to understand the effect of selecting the **Overdue Counts** option. See [Overdue Counts](#) (on page 153). See [Overdue Counts Initial Selection](#) (on page 236).

You create a list of Scheduled [Traffic Counts](#) by running the Counting Schedule report. You can do this:

- in [RAMM](#). See [View a List of Scheduled Traffic Counts](#) (on page 151).
- in [RAMM Manager](#). See [Counting Schedules](#) (on page 234).



You need to take care when creating Dispatches for scheduled [Traffic Counts](#).

If you have previously run the Generate Scheduled Traffic Counts process for the same date range and created Dispatches from the results, the scheduled [Traffic Counts](#) will be generated again unless

the Traffic Counts have taken place and been entered into **RAMM**. So you need to set up your own internal systems to prevent the creation of more than one Dispatch for the same Traffic Counts.

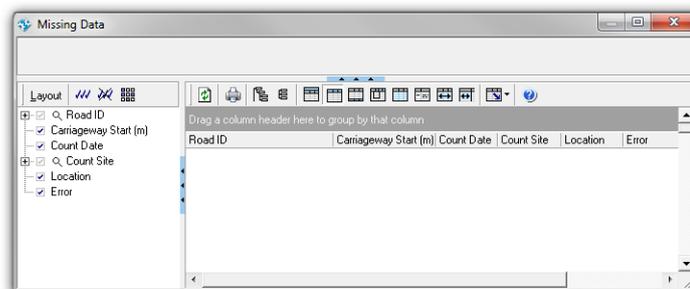
Missing Data Report

If your initial data is faulty then your [Traffic Count Estimation](#) set up will not be as accurate as it should be.

You run the Missing Data report to check your [Traffic Link](#) and Latest [Traffic Count](#) data and fix any errors before you run Status Check to generate Latest Estimates.

You locate the errors by running the Missing Data report.

You can run the report for Count Site Sample Groups, as well as the Time of Day and Count Duration values for Latest Traffic Counts.



In **RAMM Manager** you run one instance of the report. See Missing Data (on page 238).

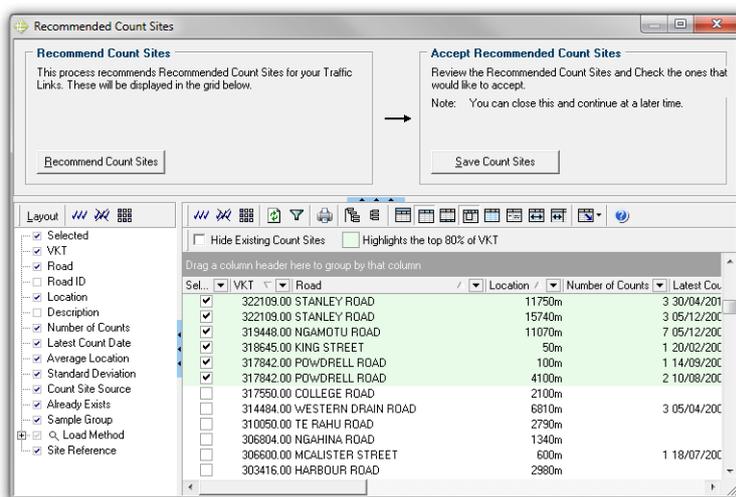
At the **Map** in **RAMM** you run the report in sections. You do this for:

- Sample Groups. See Sample Group Data (on page 74).
- Time of Day. See Time of Day Data (on page 72).
- Count Duration. See Count Duration Data (on page 70).

Recommended Count Sites Report

You run the Recommended Count Sites report when setting up **RAMM Traffic Count Estimation**. You do this after you have started the [Traffic Link](#) creation process.

When you have created your **Traffic Links** you then create **Count Sites** on them. Although you could start from scratch when creating **Count Sites** for your database, it is more efficient to let **RAMM** recommend them for you. If you accept the recommendations, you can edit them later.



You can run the Recommended Count Sites report from within:

- **RAMM Manager**. See Recommend **Count Sites** (on page 226).
- the **Map** in **RAMM**. See Recommended **Count Sites** and the **Map** (on page 199).



NOTE

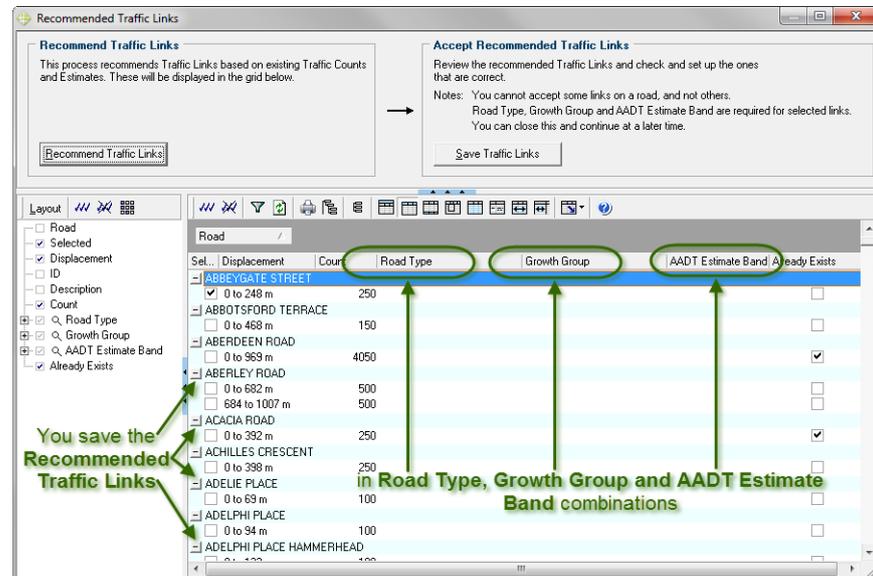
If you export and sum VKT values to check the **RAMM** % VKT calculations there may appear to be errors even though the highlighted list is accurate.

When **RAMM** recommends two **Count Sites** on one **Traffic Link** to account for multiple historical counts, the VKT value is listed twice. VKT for child **Traffic Links** associated with a parent **Traffic Link** will not appear in the list because **RAMM** will not recommend **Count Sites** for them. The VKT of **Carriageway Sections** which are not in a **Traffic Link** will still be part of the calculation but not in the list.

Recommended Traffic Links Report

You run the Recommended Traffic Links report when you are setting up **RAMM Traffic Count Estimation**. You would generally do this after you have fixed your legacy data and before you have started the Recommended **Count Sites** process.

You can manually create your own **Traffic Links** for your database. However, it is more efficient to accept the **RAMM** Recommended **Traffic Links** which are contiguous Carriageway Sections from the same Road that have the same Average Daily Traffic (ADT) Estimate value, plus or minus 10%.



You can run the Recommended Traffic Links report from within:

- **RAMM Manager**. See Recommend **Traffic Links** (on page 223).
- the **Map** in **RAMM**. See Recommended **Traffic Links** and the **Map** (on page 197).

Traffic Latest Errors Report

When you have run the Update Traffic Counts and Estimates process, if there are errors in the data, **RAMM** will create the Traffic Latest Errors report.

Hill Valley Regional Council Printed: 03/09/2008 Page: 1
User: grant

Traffic Latest Errors

Carriageway Section	Date	Error
DROP OFF DRIVE (4074) NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-138)		No estimate
HEALTH ROAD (4075) NORTH SHORE HOSPITAL - NORTH SHORE HOSPITAL DRIVE (0-352)		No estimate
ROTO ROAD (4076) NORTH SHORE HOSPITAL - END OF THE ROAD (0-328)		No estimate
MEDWAY ROAD (4083) THE OVAL - END OF THE ROAD (0-421)		No estimate
WARMAN ROAD (4086) GAILS ROAD - END OF THE ROAD (0-1477)		No estimate
WEST LAKE STATION CA (6088) SHAKESPEARE ROAD ACC - SHAKESPEARE ROAD ACCESS WEST (0-80)		No estimate
PRESTON COURT (4105) PRESTON AVENUE - END OF THE ROAD (0-104)		No estimate
THOMAS HUNTER LANE (4107) ROLAND ROAD - END OF THE ROAD (0-234)		No estimate

Duplicate Traffic Counts

The Traffic Latest Errors report will identify Carriageway Sections where there are duplicate [Traffic Counts](#). This could occur where the file containing the [Traffic Counts](#) has been imported twice.

No Estimate

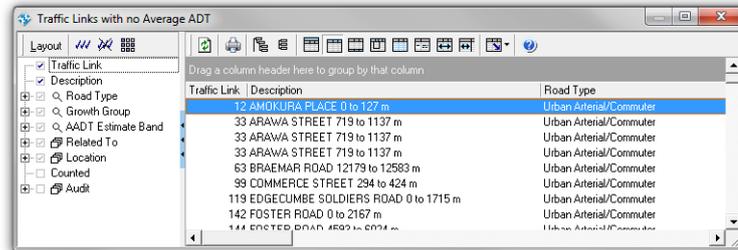
It will also list those Carriageway Sections where there is no ADT Estimate. All Carriageway Sections in **RAMM** must have an ADT Estimate. So you will need to investigate any Carriageways with no Estimate.

The Map in RAMM

You can do this at the **Map**. You follow the menu path View > Traffic Links with no ADT. A Layer will then be created so that you can more easily find the [Traffic Links](#) with errors.

Traffic Links with No ADT Report

Every [Traffic Link](#) must have an Average Daily Traffic (ADT) value. If they do not have one then there is a problem which you need to fix.



You can identify the [Traffic Links](#) with problems by running the Traffic Links with no Average Daily Traffic (ADT) report from within [RAMM Manager](#). See [Traffic Links with No ADT](#) (on page 241).

Map Layer

You can also use the **Map** to locate and fix these [Traffic Links](#) with no ADT. You follow the menu path **View > Traffic Links with no ADT**. A Layer will then be created so that you can more easily find the [Traffic Links](#) with errors.

When you have located the [Traffic Links](#) with errors and fixed them the Layer should disappear. If not, there must be more [Traffic Links](#) to fix. See [Traffic Links with No Average ADT](#) (on page 129).

Unlinked Carriageways Report

You run the Unlinked Carriageways report when you have finished associating Carriageway Sections to make [Traffic Links](#). You do this to be sure that all Carriageway Sections have been linked. You should also run this report every year as part of your maintenance plan. Then, if any Carriageway Sections have been added since the set up of [Traffic Count Estimation](#) but not associated with a [Traffic Link](#), you can locate and link them.

It is possible that some Carriageway Sections will not have been associated with a [Traffic Link](#). An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.

Unlinked Carriageways

Layout

Location

Drag a column header here to group by that column

Road ID	Start	End	Start Name	End Name
BEACH ROAD (LLA) 639-659	0	140	BEACH ROAD	END OF THE ROAD
PARK HILL ROAD (LLA) 2-14	0	157	PARK HILL ROAD EAST	PARK HILL ROAD W
FLEET STREET CARPARK LOT11,12	0	57	FLEET STREET	END
HURON ST CARPARK DP47560, DP:	0	43	HURON STREET	END OF CARPARK
GLENFIELD ROAD (LLA) 527-545	0	190	HOGAN ROAD	GLENFIELD ROAD
OHAIU COURT	0	90	HORNBILL DRIVE	CUL DE SAC
SMALES FARM BUS STATION RING	0	120	TNZ/NSCC NORTH BOUNDARY	TNZ/NSCC SOUTH E
GLENFIELD ROAD (LLA) 522-532	0	130	GLENFIELD ROAD	END OF THE ROAD
CLARE PLACE	0	109	GLENFIELD ROAD	END OF ROAD
BEACH GROOVE	0	95	SALTBURN STREET	CUL-DE-SAC

You can run the Unlinked Carriageways report from within:

- **RAMM Manager**. See Unlinked Carriageways (on page 241).
- the **Map** in **RAMM**. See Unlinked Carriageways (on page 128).

NZTA and Traffic Count Estimation

The New Zealand Transport Agency (NZTA) uses **RAMM Traffic Count Estimation** to integrate with their Traffic Monitoring System (TMS) software for estimation of State Highway Road usage.



In This Chapter

State Highways and TMS	302
Correction Factors	303
Count Site Reference and Site Type.....	303
Recording and Estimation of ESA	304
Traffic Count Duration	305
Traffic Growth Calculation	306
Traffic Link Location	306

State Highways and TMS

The New Zealand Transport Agency (NZTA) is the Crown Entity responsible for State Highways. These are the strategic Roads and motorways that are about 12% (10,894 km) of all New Zealand Roads, but account for about half of the 36 billion vehicle kilometres travelled every year. It promotes land transport sustainability and safety and allocates government funding for land transport.

New Zealand Transport Agency (NZTA)

NZTA is committed to planning, developing and maintaining the State Highway system in a way that contributes to an integrated, safe, responsive and sustainable land transport system for New Zealand.

To achieve this mission, NZTA must have reliable information about the Road users in terms of traffic volumes, vehicle mix and traffic loading.

Traffic Monitoring System (TMS)

The TMS software facility is:

- an accurate data collection system with efficient procedures and means of storing data for subsequent retrieval and analysis
- a means of representing the entire State Highway Road system in terms of nodes and links
- an appropriate vehicle classification scheme for the vehicle fleet using the State Highway system

A reliable estimate of State Highway Road usage is vital to the routine management and future planning of the highway infrastructure and other transport systems associated with it.

TMS delivers this information effectively and efficiently. It ensures that appropriate decisions concerning the Road network are made in accordance with the best business practices.

State Highway Databases

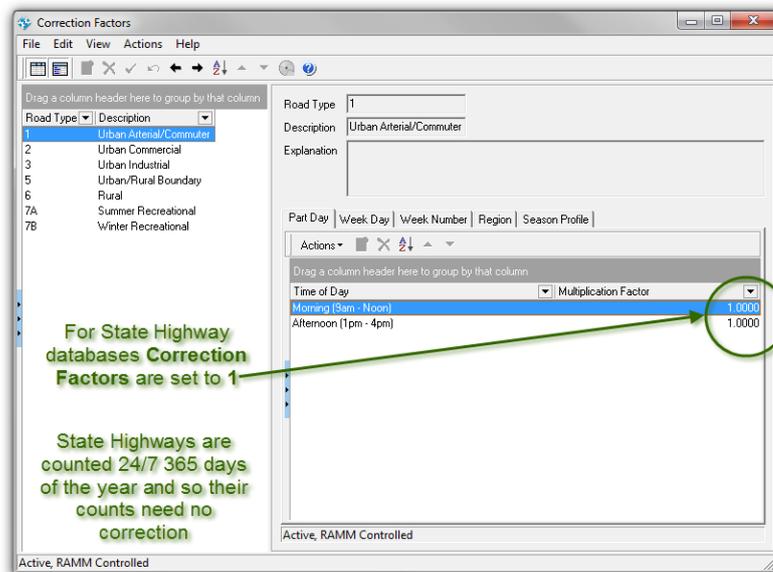
RAMM State Highway databases are dynamically configured to match the requirements of the TMS.

Correction Factors

RAMM Traffic Count Estimation uses a variety of Correction Factors to correct **Traffic Counts** based on factors such as the time of day and time of year of the Count.

The New Zealand Transport Agency (NZTA) counts for 365 days of the year. So the data imported into **RAMM** from the NZTA Traffic Management System (TMS) does not need Correction Factors.

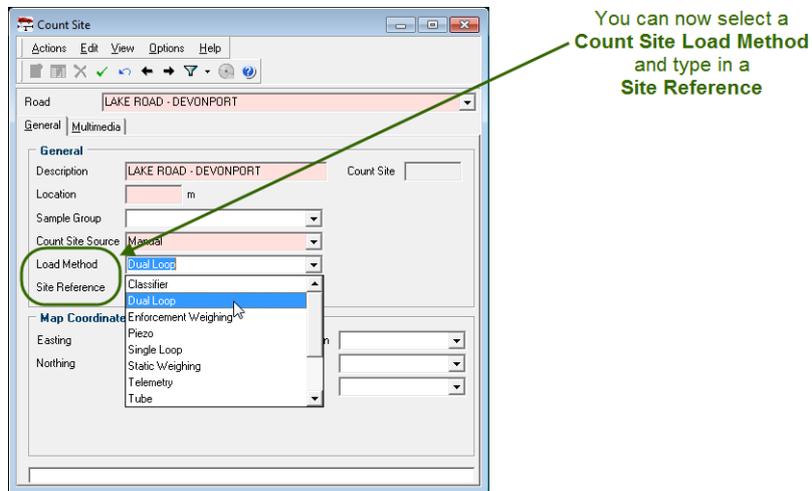
So in State Highway databases, these Correction Factors are set to 1 and so have no effect.



Count Site Reference and Site Type

You can maintain Site Reference and Site Type (Load Method) details for individual **Count Sites**. They are for your information only and serve no functional purpose in **RAMM**.

These were introduced primarily for New Zealand Transport Agency (NZTA) but are available for all users.

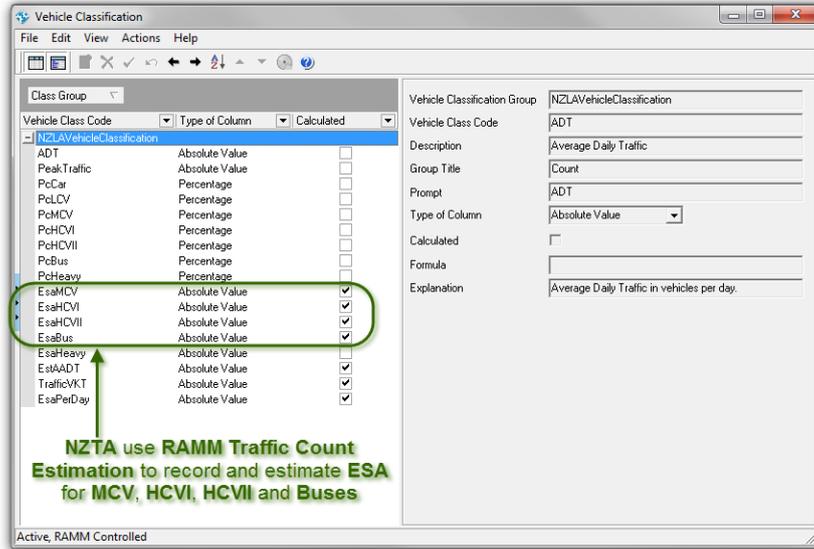


Recording and Estimation of ESA

The Equivalent Standard Axle (ESA) is the number of standard axle loads that are equivalent in damaging effect on a pavement to a given vehicle or axle loading. This is used as a Loading unit of measure.

Local Government Organisations use [Traffic Count Estimation](#) to record and estimate the ADT, Percentage Heavies and ESA Heavy for each [Traffic Link](#) which either has a [Traffic Counts](#) or is linked to a [Traffic Link](#) which is. The New Zealand Transport Agency (NZTA) use [Traffic Count Estimation](#) to record and estimate ESA for:

- MCV
- HCVI
- HCVII
- Buses.

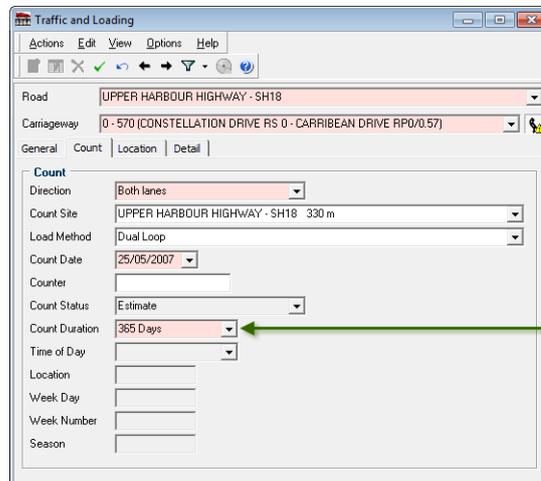


Traffic Count Duration

Traffic Count Estimation has recorded the duration of Traffic Counts as:

- 3 hours
- 24 hours and
- 7 days.

State Highway databases allow count durations of 7 to 365 days.

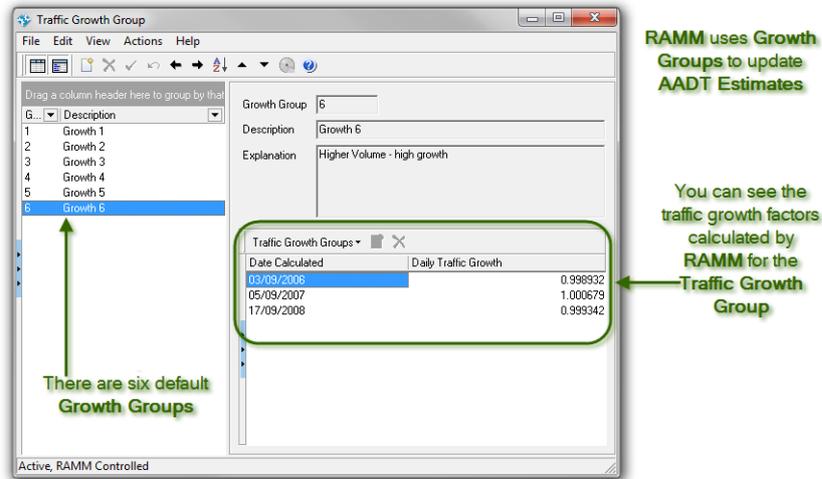


Traffic Growth Calculation

RAMM Traffic Count Estimation uses Growth Groups in its traffic growth recording and calculation. The New Zealand Transport Agency (NZTA) records traffic volumes 365 days each year on State Highways.

This negates the necessity to perform traffic growth calculations as the actual traffic growth is known.

So in State Highway databases, this aspect of **Traffic Count Estimation** is disabled.



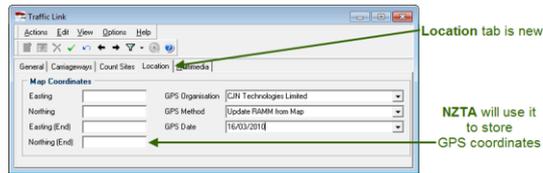
Traffic Link Location

You can now use GPS coordinates to positively locate the Start and End of **Traffic Links**. Most users will locate the Start and End by the Carriageway Sections which comprise the link. The nature of the State Highway Network means that NZTA require GPS coordinates.

Several Traffic Links on the Same State Highway

Initially, **Traffic Count Estimation** located a **Traffic Link** only by the Carriageway Sections associated with it. This enabled a **Traffic Link** to be comprised of one or more Roads.

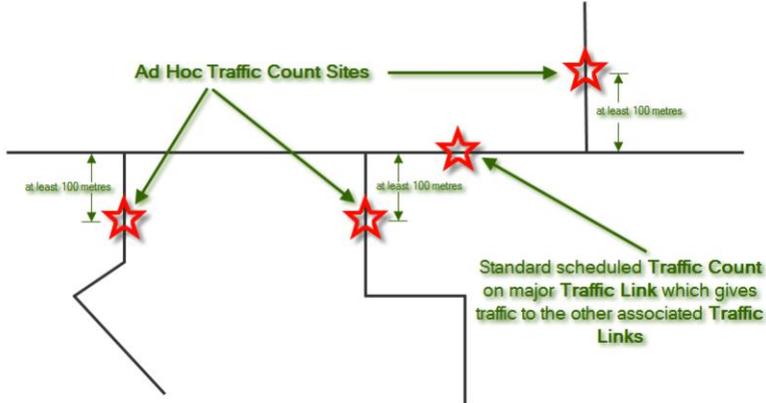
The New Zealand Transport Agency (NZTA) needs the option to create multiple **Traffic Links** on the same State Highway. So recording the GPS coordinates for the Start and End of the **Traffic Link** will be meaningful to them.



Traffic Count Estimation Maintenance

Having set up **RAMM Traffic Count Estimation** you will want to maintain it so that you can produce the most accurate possible Average Daily Traffic (ADT) Estimates. You do this using a combination of:

- adding ADTs as a result of actual **Traffic Counts**
- scheduling ad hoc **Traffic Counts** to check that your traffic flow assumptions are accurate
- running Status Check to update Latest Counts and Estimates
- updating **Traffic Links** when new Roads and Carriageways are added to the Network.



In This Chapter

Fine Tune Traffic Data310

Check for New Carriageways311

Schedule Regular Traffic Counts312

Update ADT Values.....313

Fine Tune Traffic Data

When you set up your **Traffic Link** associations you do so in a series of hierarchical Parent/Child relationships so that when you perform a **Traffic Count** on the uppermost of the Parent **Traffic Links** the reading will filter down to all the subsidiary **Traffic Links** as per the percentages defined.

The **Traffic Link** which is at the top of the hierarchical relationships of the Parent **Traffic Links** will have no **Related To** values. This is because it does not have an Average Daily Traffic (ADT) Estimate calculated as a percentage of another **Traffic Link**. So it needs to have its traffic counted.

You generally associate one **Traffic Link** with another at the **Map** in **RAMM**. See **Relate Traffic Links** (on page 185).

The Secondary **Traffic Link** details will default
The Primary **Traffic Link** gives traffic to the secondary **Traffic Link**
RAMM calculates the percentage of the Primary **Traffic Link** traffic which is expected to flow into the secondary link
You can edit this value

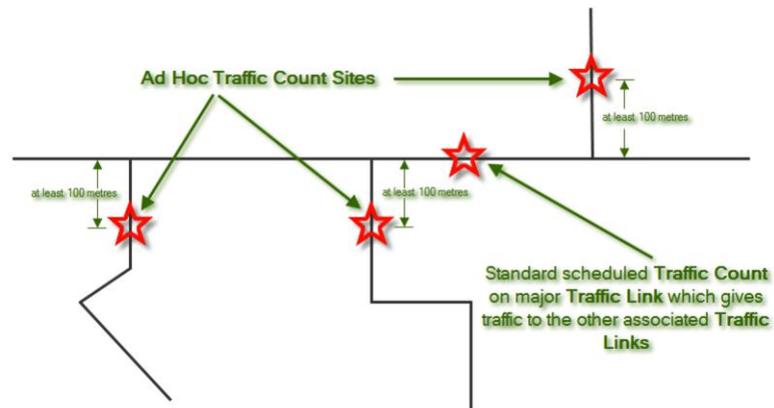
Check the Take ADT as % Value

When you are associating **Traffic Links** the value which you set at the **Take ADT as %** is likely to be either the default value as calculated by <> or a best guess value based on your knowledge of your Network.

You should check these assumptions as part of your maintenance programme.

How often you do this will depend on your budget and other factors.

As part of your Ad Hoc **Traffic Count** budget, when you schedule a standard **Traffic Count** on a major **Traffic Link** you should schedule Ad Hoc **Traffic Counts** on associated **Traffic Links**.



Check for New Carriageways

It is possible that some Carriageway Sections will not have been associated with a [Traffic Link](#). An Average Daily Traffic (ADT) Estimate value would not be calculated for these Carriageway Sections unless this is corrected.

You should check for unlinked Carriageway Sections as part of your maintenance plan. Then, if any Carriageway Sections have been added since the set up of [Traffic Count Estimation](#) but not associated with a [Traffic Link](#), you can locate and link them.

Road ID	Start	End	Start Name	End Name
BEACH ROAD (LLA) 639-659	0	140	BEACH ROAD	END OF THE ROAD
PARK HILL ROAD (LLA) 2-14	0	157	PARK HILL ROAD EAST	PARK HILL ROAD W
FLEET STREET CARPARK LOT11,12	0	57	FLEET STREET	END
HURON ST CARPARK DP47560, DP-	0	43	HURON STREET	END OF CARPARK
GLENFIELD ROAD (LLA) 527-545	0	190	HOGAN ROAD	GLENFIELD ROAD
OHAU COURT	0	90	HORNBILL DRIVE	CUL DE SAC
SMALES FARM BUS STATION RING	0	120	TNZ/NSCC NORTH BOUNDARY	TNZ/NSCC SOUTH E
GLENFIELD ROAD (LLA) 522-532	0	130	GLENFIELD ROAD	END OF THE ROAD
CLARE PLACE	0	109	GLENFIELD ROAD	END OF ROAD
BEACH GROOVE	0	95	SALTBURN STREET	CUL-DE-SAC

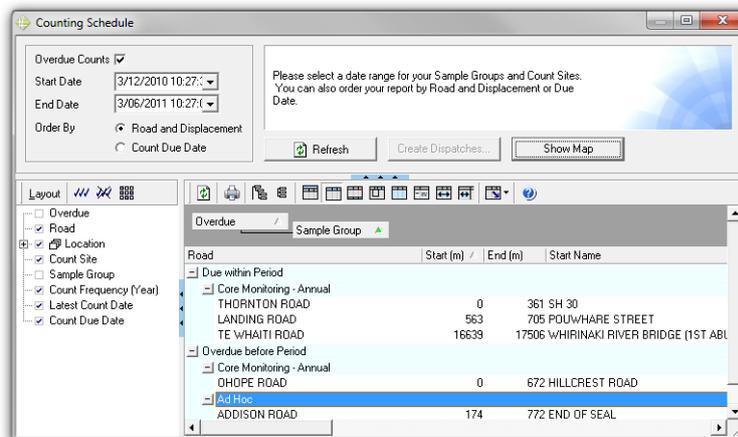
You locate these unlinked Carriageway Sections by running the Unlinked Carriageways report. You can do this from within:

- **RAMM Manager**. See Unlinked Carriageways (on page 241).
- the **Map** in **RAMM**. See Unlinked Carriageways (on page 128).

Schedule Regular Traffic Counts

Once the [Traffic Count Estimation](#) set up has been completed, you schedule the [Traffic Counts](#). You do this based on the Sample Group of the [Count Sites](#) combined with the date of the most recent count entered into [RAMM](#). When you have the list of Scheduled [Traffic Counts](#), you can create Dispatches in [RAMM Contractor](#) for a selected Contract.

[Traffic Counts](#) are scheduled based on the Sample Group of the [Count Sites](#) combined with the date of the most recent count entered into [RAMM](#). For instance, if a [Count Site](#) were in the Core Monitoring - Annual group, [RAMM](#) would take the date of the most recent count and schedule another for twelve months later.



Before you run the report you need to understand the effect of selecting the [Overdue Counts](#) option. See [Overdue Counts](#) (on page 153). See [Overdue Counts Initial Selection](#) (on page 236).

You create a list of Scheduled [Traffic Counts](#) by running the Counting Schedule report. You can do this:

- at the [Map](#) in [RAMM](#). See [View Scheduled Traffic Counts on the Map](#) (on page 150).
- in [RAMM Manager](#) See [Counting Schedules](#) (on page 234).

Add Traffic Count Dispatches

When you have the list of Scheduled [Traffic Counts](#), you can create Dispatches in [RAMM Contractor](#) for a selected Contract. This will allow the [Traffic Count Contractor](#) to see what Counts are required over the schedule period.

You can add the Dispatches from the **Map** in **RAMM**. See [Traffic Count Dispatches](#) (on page 153).



You can also add the Dispatches in **RAMM Manager** as an integral part of the process of generating Scheduled [Traffic Counts](#). See [Traffic Count Dispatches](#) (on page 153).

The image shows the 'Create Dispatches' dialog box in RAMM Manager, Step 2 of 4. The dialog is titled 'Dispatch' and contains the following fields:

Field	Value
Contract	Hill Valley Traffic Counting
Asset Type	Traffic Count
Priority	Programmed Count
Call Type	Scheduled
Assigned To	James Jameson
Client Job Manager	Grant Mackenzie
Contractor Job Manager	Grant Mackenzie
Fault	Traffic Count Required
Programme	2010-2011

At the bottom of the dialog are buttons for Back, Next, Finish, Help, and Cancel.

Import Traffic Count Data

When the [Traffic Counts](#) have been made it is possible to enter each one at the correct [Count Site](#) at the **Map** in **RAMM**. However, if there are a large number of [Traffic Counts](#) it is more efficient to import them using the Import tool in **RAMM Manager**. See [Traffic and Loading Data Import](#) (on page 249).

To do this you will need the correct Staff Permissions. See [Other Staff Permissions](#) (on page 290).

Update ADT Values

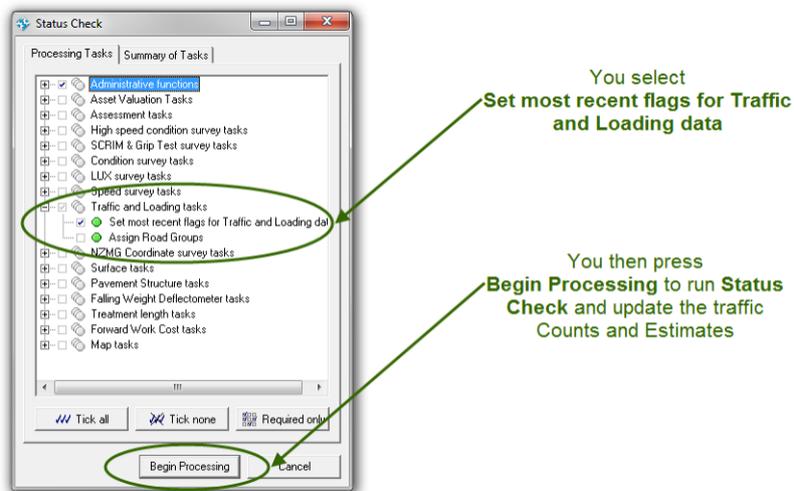
When the [Traffic Counts](#) have been imported you can update the Latest Average Daily Traffic (ADT) Counts and Estimates.

When you need the most up-to-date Average Daily Traffic (ADT) Estimate data you can perform a Status Check at the **Map** by running the Set most recent flags for Traffic and Loading Data process. This updates the database to take into account any **Traffic Counts**, Estimates and Loading data entered since the most recent Status Check. It then updates the Estimates taking into account the new readings and the other factors. It also creates the Traffic Latest Errors report.

You can do this at the **Map** in **RAMM**. See Update **Traffic Counts** and Estimates (on page 204).



You can do this in **RAMM Manager**. See Update **Traffic Counts** and Estimates (on page 230).



Austroads and MetroCount Files

RAMM Software Limited has made enhancements to the RAMM suite of products to add functions required for operation in Australia. These include the ability to:

- import MetroCount files. See MetroCount File Import (on page 315).
- use the Austroads Vehicle Classification System. See Austroad Vehicle Classes (on page 317).



In This Chapter

MetroCount File Import.....	315
Austroad Vehicle Classes.....	317

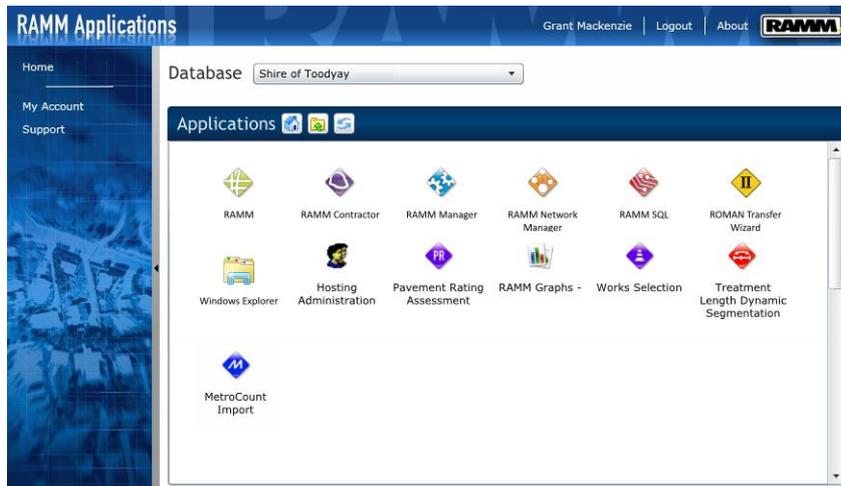
MetroCount File Import

MetroCount software is used for vehicle counting and classification. WALGA members use the MetroCount Traffic Count and Loading data files for their Traffic and Loading records.

These files can be imported into RAMM using the a utility specifically created for the import of MetroCount files into the RAMM database.

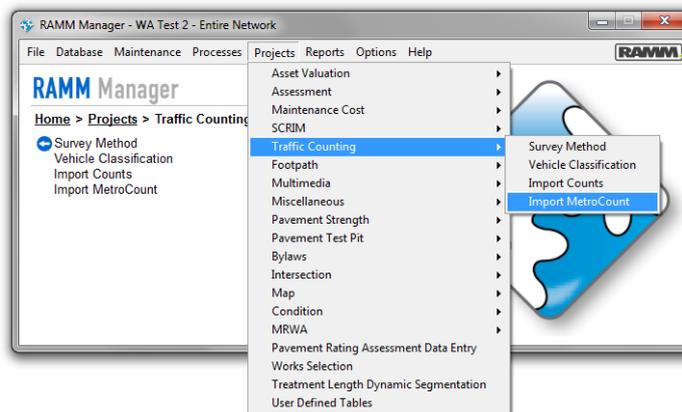
Access from RAMM Applications

You can access the MetroCount Import utility directly from [RAMM Applications](#).



Access from RAMM Manager

You can access the MetroCount Import utility from [RAMM Manager](#). You follow the menu path **Projects > Traffic Counting > Import MetroCount**.



 Please note that the import utility is optimised for Australian Loading Classes. New Zealand MetroCount users will continue to import their data into **RAMM Manager** after having converted it into a .csv file or similar.

Austroad Vehicle Classes

The Austroads Vehicle Classification system is used by all Australian Road Controlling Authorities (RCAs) including the members of WALGA.

The Austroads Vehicle Classification system classifies vehicles by axle configuration or vehicle length. MetroCount files are configured for the twelve Austroads vehicle classes used in Australia.

RAMM Vehicle Classifications

RAMM has been updated so that there are three preset Vehicle Classification sets. The database type determines the standard Vehicle Classification set. Depending on your circumstances, your database will include:

- the twelve Austroads vehicle classes
- the six New Zealand local government vehicle classes
- the six New Zealand State Highway vehicle classes.

The WALGA databases will have the twelve Austroads vehicle classes by default.

New Database Table

This flexibility is the result of a new database table. Information specific to a vehicle class has been removed from the existing Traffic and Loading tables. The data has been combined into a new table, `traffic_loading_dtl`. This table is flexible enough to display either the six New Zealand or twelve Austroads vehicle classes.



Austroads

Appendix A – VKT Calculation from Sample

In the Territorial Local Authority (TLA) there are N links. In the sample there are n links, $n_1 \dots n_n$ from the five Annual Average Daily Traffic (AADT) bands. For any link i, AADT and lengths are: a_i and l_i respectively.

$$\text{Total Length for TLA} \quad L = \sum_{i=1}^n l_i$$

$$\text{Length of all sampled Links} \quad l = \sum_{i=1}^n l_i$$

$$\text{Average AADT for sampled Links} \quad = \sum_{i=1}^n a_i$$

This estimates the average AADT for the TLA. The sampling structure is designed to produce the most efficient sample size to estimate the overall average AADT.

$$\text{VKT for sampled Links} \quad = \sum_{i=1}^n a_i * l_i$$

$$\text{VKT for whole TLA} \quad = L * \sum_{i=1}^n a_i * l_i / l$$

So, estimating from the sample, it is the ratio of the sampled lengths to the total length that is important. In English, the method is to compute the Vehicle Kilometres Travelled (VKT) for the total sample, then scale up according to the ratio of the total TLA length to the sample total length.

Appendix B – TLA Table

Confident that 95% of the time the true value is within +/- 10% of the estimate

Territorial Local Authority (TLA)	<40%	40-60%	60-80%	80-90%	90-100%	Total
Invercargill	2	1	6	6	15	29
Gore	1	2	7	6	17	33
Southland	1	5	4	5	24	38
Clutha	5	1	2	9	23	39
Dunedin	3	1	6	7	31	47
Queenstown-Lakes	2	1	5	5	21	34
Central Otago	10	0	2	3	13	28
Waitaki	4	0	4	5	25	38
Waimate	4	1	4	3	25	36
Mackenzie	2	2	0	2	2	8
Timaru	3	2	6	5	24	39
Ashburton	2	2	5	5	33	47
Selwyn	4	2	0	3	24	33
Banks Peninsula	1	0	0	4	32	37
Christchurch	2	1	7	7	15	31
Waimakariri	2	1	3	3	36	45
Hurunui	14	1	0	2	12	29
Westland	1	0	2	5	25	32
Grey	1	1	2	4	29	37

Confident that 95% of the time the true value is within +/- 10% of the estimate

Territorial Local Authority (TLA)	<40%	40-60%	60-80%	80-90%	90-100%	Total
Buller	1	0	3	4	27	35
Kaikoura	1	1	3	2	13	19
Marlborough	2	1	4	7	34	47
Nelson	1	1	4	4	28	39
Tasman	2	2	5	5	18	31
South Wairarapa	3	2	4	3	11	24
Carterton	5	2	3	3	4	16
Masterton	2	2	5	6	15	29
Wellington	2	1	5	5	34	47
The Hutt	3	1	6	7	16	33
Upper Hutt	1	1	5	6	24	37
Porirua	2	2	3	5	25	37
Kapiti Coast	2	2	5	5	26	40
Horowhenua	13	1	2	4	15	35
Tararua	5	1	6	3	26	41
Palmerston North	2	2	7	6	13	30
Manawatu	1	0	3	4	20	28
Rangitikei	3	1	3	3	28	39
Wanganui	2	2	6	6	15	31
Ruapehu	2	2	4	5	20	32
South Taranaki	3	2	4	3	11	24
Stratford	10	1	5	2	13	31
New Plymouth	2	2	6	6	33	48

Confident that 95% of the time the true value is within +/- 10% of the estimate

Territorial Local Authority (TLA)	<40%	40-60%	60-80%	80-90%	90-100%	Total
Central Hawkes Bay	2	1	4	4	30	42
Napier	4	1	2	6	18	31
Hastings	2	3	8	6	27	45
Wairoa	2	1	3	6	25	36
Gisborne	3	1	4	3	47	58
Opotiki	2	2	5	4	9	21
Kawerau	3	1	3	1	6	12
Whakatane	2	2	5	6	23	38
Rotorua	1	1	3	5	34	45
Tauranga	3	2	4	6	29	44
Western Bay of Plenty	3	2	5	5	16	31
Taupo	2	2	5	5	24	38
Waitomo	2	2	4	4	16	27
South Waikato	2	1	4	7	21	35
Otorohanga	2	2	5	4	14	28
Waipa	2	1	5	5	41	55
Hamilton	3	2	5	5	28	42
Matamata-Piako	3	2	5	5	18	33
Waikato	3	2	4	5	20	35
Hauraki	4	2	4	4	14	27
Thames-Coromandel	3	1	5	4	33	46
Franklin	3	2	5	4	32	47
Papakura	1	1	4	4	23	34

Confident that 95% of the time the true value is within +/- 10% of the estimate

Territorial Local Authority (TLA)	<40%	40-60%	60-80%	80-90%	90-100%	Total
Manukau	1	1	7	8	22	39
Auckland	1	1	4	11	40	56
Waitakere	2	2	5	7	46	62
North Shore	2	1	3	8	41	56
Rodney	3	2	4	5	28	42
Kaipara	2	2	5	7	46	62
Whangarei	2	1	2	4	59	68
Far North	3	2	5	3	42	56

Appendix C – Local Version Requirement

If you are using a local version of **RAMM** rather than the Hosting Service, you require the Informix Client SDK 3 or above which makes use of Microsoft .net which uses features that are not available in earlier versions of the Informix Client SDK.



When installing the Informix Client SDK 3 you have the option at the Finish panel to install Visual Studio Add-in. Do not install this. Leave the Launch VSAI Installer check box cleared.

See your System Administrator for details.

Glossary

AADT

The Annual Average Daily Traffic (AADT) is a figure to describe traffic levels for the length of a Network. It is used in many ways throughout **RAMM** and by the regulatory authorities. Potentially, it could be used to determine whether Speed Limit Signs were required. For instance, if the AADT Estimate for a Road did not exceed 500 vehicles per day, a Sign could be required on the left hand side. If it were greater than 500, a Sign on the right hand side or in the centre could also be required.

ADT

The Average Daily Traffic (ADT) count is a figure to describe daily traffic levels for a [Traffic Link](#). When a variety of factors are taken into account an Annual Average Daily Traffic (AADT) value is calculated. It is this value which is used in **RAMM**.

Carriageway

Roads in **RAMM** are divided into logical sections named Carriageways. These start and end at easily identifiable Locations such as Intersections and Bridges. You can define your Carriageway Sections to suit your own purposes. For instance you may define them to start and end when the number of Lanes in

the Road changes or if the Road changes between Sealed and Unsealed sections.

Count Duration

The accuracy of a [Traffic Count](#) is affected by its duration. The longer the duration of the count, the more accurate it is. There are three standard Count Durations in **RAMM** being 3 hours, 24 Hours and 7 Days.

Count Site

[Count Sites](#) in **RAMM** are the Locations at which [Traffic Counts](#) will occur. They are positioned on a [Traffic Link](#).

Custom

Custom is one of the settings of the Global Security Switch. When you individualise the Permissions for a user, the Global Security Switch is automatically set to Custom.

Database

This is a structured collection of data that is stored in a computer so that an application can consult it to answer queries. In **RAMM**, this is a particular Road Network. It is possible that you will use more than one **RAMM** database, especially if you work with more than one Road Controlling Authority.

Detail Screen

Detail screens in **RAMM** are used for working with Road Inventory, Condition and other items one at a

time. You use them to view and maintain details for one item only at a time.

Dispatch

A Dispatch is a defined activity generated from within **RAMM Contractor** so that Contractor field crew can repair a Network Fault. In **Pocket RAMM** it is referred to as a Job.

dTIMS

Deighton Total Infrastructure Management System (dTIMS) is a software tool used to model Pavement Deterioration. **RAMM** provides a method of extracting Treatment Length, Maintenance Cost and related data from the Road Network in a format that can be imported into dTIMS.

Filter (Database Filter, Grid Filter)

Filters are the screens which you use to sort the data in Detail or Grid screens according to selected criteria. You use these to streamline the information you see in **RAMM** such as in the Roads list panel.

Full Control Security Switch

Full Control is one of the settings of the Global Security Switch. It allows the user Permission to access, add, update or delete any record and to run any process. You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in

order to be able to perform their normal work tasks. If you set a user to Full Control it means that all the individual Permission switches for that user are set to Full Control.

Full Day Count

A Full Day Count is one in which traffic volume on a Road is measured for a 24 hour period.

Full Week Count

A Full Week Count is one in which traffic volume on a Road is measured for a 7 day period.

Global Security Switch

RAMM Security uses a Global Switch to grant preset levels of database access. This sits on top of the individual switches and allows you to set a specific range of values across all the individual switches in one go. This switch has four settings:

- No Access
- View Only
- Full Control
- Custom Settings.

You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in order to be able to perform their normal work tasks.

Grid Screen

The Grid screen in **RAMM** is a visual report writer. You use Grid screens to work with multiple Road Inventory, Condition and other

items. You adjust the Grid Layout so that it looks right and it suits your purposes. You can then view, export or print the displayed details.

Growth Group

A Traffic Growth Group is a group of [Traffic Links](#) that are believed to have approximately the same level of traffic growth from year to year. They are used in the update Average Daily Traffic (ADT) Estimates process. **RAMM** averages the actual [Traffic Counts](#) for [Count Sites](#) on [Traffic Links](#) in the Traffic Growth Group, ignoring any greater than one and one half standard deviations above or below the mean growth for the group. Having found the average annual traffic growth, **RAMM** applies this factor to previous ADT Estimates where there has been no count in the current year.

Network

A Network is a collection of Roads managed by a particular Road Controlling Authority (RCA). Each **RAMM** database usually contains all the information for one Network.

NZTA

The New Zealand Transport Agency (NZTA) is the Crown Entity responsible for State Highways. These are the strategic Roads and motorways that are about 12% (10,894 km) of all New Zealand Roads, but account for about half of the 36 billion vehicle kilometres travelled every year. It promotes land transport

sustainability and safety and allocates government funding for land transport.

Parameters

Parameters are the independent variables whose values determine the characteristics or behavior of a process or system such as [Traffic Count Estimation](#). They have measurable or quantifiable characteristics.

Part Day Count

Some [Traffic Counts](#) are for only part of a day. **RAMM** can accept data from three hour counts and uses different factors for the morning and the afternoon.

Pavement Use

The [Pavement Use](#) for a Carriageway Section is one of seven Average Daily Traffic (ADT) bands. These are the range in which the expected ADT will fall.

Permissions

Staff Permissions are access rights granted to specific users and groups of users. They are authorisations for users to view or make changes to the contents of aspects of **RAMM**.

You manage access to **RAMM** by setting Staff Permissions. You do this to limit the actions of users to those areas of **RAMM** to which they need access in order to be able to perform their normal work tasks.

RAMM

Road Assessment and Maintenance Management (**RAMM**) is software developed and supported by **RAMM Software Limited**. This software is used by Road Controlling Authorities (RCAs) to manage Road Inventory Assets and Condition for their Network.

RAMM Contractor

RAMM Contractor is the module of the **RAMM** suite of products which enables Contractors, Network Owners and Consultants to manage Road Asset Maintenance Contracts. In particular, it has been optimised to facilitate the Programming of Network maintenance and the Estimation and Claims process which is integral to Programmed Maintenance Contracts. It also includes the special features for the managing of Contracts for Signs, Street Lights and Traffic Signals maintenance.

RAMM Hosting Service

The **RAMM Hosting Service** is a service run by **RAMM Software Limited**. It enables you to run **RAMM** across the Internet. It hosts your database and the software on a server at a centralised location. You use your standard internet browser to access the software and work with your data, so you do not need any specialised software. It is very secure.

RAMM Software Ltd

This is the company which specialises in the development of software for the roading industry. Its core product, **RAMM** (Road Assessment and Maintenance Management) has been the benchmark in road asset management software in New Zealand for over 20 years. **RAMM** is now a suite of software products including **RAMM Contractor**, **Pocket RAMM**, **RAMM SQL**, **RAMM Manager**, **RAMM Network Manager** and the **RAMM CAR Manager**.

RCA

A Road Controlling Authority (RCA) is the organisation responsible for a particular Road Network. An example of an RCA could be the New Zealand Transport Agency (NZTA) or a TLA (Territorial Local Authority).

Road

For Local Authorities, a Road denotes a single named Road that is part of their Network. For State Highways, a Road is a segment of the State Highway.

Road Type

The **Road Type** is one of the factors which affect traffic volumes on a Road. For instance, a Road which is an access route to a ski field in winter will have a different usage pattern from one which is used to access a popular beach in summer.

Similarly, Roads used for industry will have different usage patterns from those used as main arterial routes for commuters.

Sample Group

Sample Groups group [Count Sites](#) with the same count frequency. You count traffic on high volume Roads more often than on low traffic volume Roads. So you assign a Sample Group to each [Count Site](#) based on how often it needs to be counted, whether this is every year, every second year or once every five years.

Security Role

A Security Role is an item you create with Staff Permissions, as if it were a User Profile. Then, where there is a group of users who perform the same tasks as each other, rather than define individual Staff Permissions for each User Profile, you associate the User Profiles with one Security Role. This makes it faster grant a new user the appropriate Staff Permissions. You can also change the Staff Permissions for a whole group of people by changing the Permissions associated with their Security Role.

Staff Permissions

Staff Permissions are access rights granted to specific users and groups of users. They are authorisations for users to view or maintain specific aspects of [RAMM](#). You set Staff Permissions for users, firstly, to manage their access to [RAMM](#) and, secondly, once they have accessed

[RAMM](#), to limit their actions to those which they need in order to perform their normal work activities.

Time of Day

The time of day affects the volume of traffic which will travel along a Road. [Traffic Counts](#) taken in the morning are likely to vary from those taken in the afternoon. [RAMM Traffic Count Estimation](#) uses a Time of Day factor to account for this when a [Traffic Count](#) is taken, unless it is for 24 hours or for 7 days.

TLA

A city or a district council is sometimes referred to as a Territorial Local Authority (TLA). TLAs are the lower branch of government. They are created by statute but autonomous and accountable to their local community.

They own and manage their Road Network so a TLA may also be referred to as a Road Controlling Authority (RCA). However, RCAs such as airports which own their own Roads and the New Zealand Transport Agency (NZTA) which manages the State Highway Network, are not TLAs.

Traffic Count Estimation

[RAMM Traffic Count Estimation](#) enables you to combine historical traffic data with intelligent Carriageway Section linking to produce a traffic counting and estimation programme which

delivers the most Network coverage, the most accurate and up to date ADT Estimates for the minimum number of counts.

Traffic Counts

These are physical Counts of traffic passing a Location known as a [Count Site](#). [Traffic Counts](#) are used to calculate the ADT which is then used to generate an AADT. The [Traffic Count](#) applies to the entire [Traffic Link](#) on which it is sited.

Traffic Links

[Traffic Links](#) are combinations of sequential [RAMM](#) Carriageway Sections that are considered to carry the same volume of traffic over the entire length of the link.

User Profile

A User Profile is a security item you create in [RAMM Manager](#). It holds user Login and Organisation information. A user cannot log in to [RAMM](#) unless they have a User Profile. It is the Staff Permissions associated with the User Profile which determine what a user can see and do once they have logged in to [RAMM](#).

View Only Security Switch

View Only is one of the settings of the Global Security Switch. It allows the user Permission only to view records and not to run any processes or to add, update or delete any records.

You manage access to [RAMM](#) by setting Staff Permissions. You do this to limit the actions of users to those areas of [RAMM](#) to which they need access in order to be able to perform their normal work tasks.

If you set a user to View Only it means that all the individual Permission switches for that user are set to View Only.

VKT

Vehicle Kilometres Travelled (VKT) is the total kilometres travelled by motor vehicles on a Road Network during a given period of time. VKT is an important variable in the analysis of traffic density, highway safety and other areas. VKT can equally be applied to [Traffic Links](#). However, VKT for [Traffic Links](#) is not explicitly recorded in [RAMM](#).

Index

A

AADT • 325

band • 170, 225

calculation • 41

Estimate • 45, 83

ADT • 325

bands • 135

calculation factors • 40, 45, 49, 210

Carriageways, unlinked • 128

data entry • 2, 34

Estimate calculation • 38

Estimate spreadsheet • 137, 139, 141, 143, 145

percentage of Traffic Link traffic • 112, 185, 310

Traffic Links with no ADT • 52, 129, 298

update • 48, 52, 313

values • 184

Annual Average Daily Traffic • See AADT

Average Daily Traffic • See ADT

C

Carriageways

screen • See Carriageway screen

Sections, unlinked • 52, 128, 188, 299, 311

Traffic Links, • 179

Correction Factors screen (screens) • 212, 213, 214, 215, 216, 217

Count Site screen • 74, 122, 159, 182, 189, 193, 221, 239, 287

Counting Schedule

report • 153, 294, 312

screen • 151, 234, 236, 294, 312

Counts • 330

Dispatches • 153, 154

Duration • 70, 240

historical • 44, 62, 67

introduction • 34

overdue • 151, 153, 236

programme • 35

Schedule • 52, 150, 151, 234, 235

Status • 2

view • 150

Custom • 282

D

database

details • 27

log in • 19

Day Types • See Week Day Factors

Dispatches

create • 52, 154, 189, 312

Staff Permissions • 291

Traffic Count • 153

dTIMS • 48

E

Estimates

calculation • 38, 40, 41, 48

update • 52

F

Filter screen • 76, 83, 90, 225

Full Control • 282, 326

G

Growth Groups • 327

introduction • 48

screen • 219, 288

Traffic Links • 225

H

help

contact ROMAN II • 28

guides • 25

other users • 26

L

legacy data

Count Duration • 70, 240

data, missing • 70, 72, 74, 76, 238, 295

fix • 52, 238

Time of Day • 72, 240

Loading screen • 161

M

Map

actions

Staff Permissions • 289

Update Traffic Counts and Estimates
• 204

buttons

Add a Count Site button • 177, 182

Add a Traffic Count button • 177,
184

Add a Traffic Link button • 177, 179

Associate a Carriageway Section with
a Traffic Link button • 128, 177, 188

Relate a Traffic Link to Another
Traffic Link button • 112, 119, 177,
185, 241

Show Traffic Data for All Roads
button • 177, 189, 193

Traffic Management Mode button •
177

View/Create Count Sites button •
199, 207

View/Create Scheduled Counts
button • 151

View/Create Traffic Links button •
197, 207

Carriageways, unlinked • 128, 188, 193

Count Duration data, missing • 70, 193

Count Sites, Recommended • 96, 104,
107, 182, 199

Counts, Scheduled • 150

Legend

Carriageways, unlinked • 128

introduction • 207

Recommended Traffic Links • 197

Scheduled Traffic Counts • 150

Show All Roads • 189

View/Create Count Sites button,
display • 104, 199

View/Create Traffic Links button,
display • 87, 197

menu options

introduction • 177

Recommended Traffic Links • 197

Scheduled Traffic Counts • 150

Show All Roads • 189

Sample Group data, missing • 74, 193

Time of Day data, missing • 72, 193

tool bar • 177

Traffic Links

introduction • 90, 119, 122, 185

Recommended • 80, 83, 87, 90, 197

with no ADT • 193, 298

View

introduction • 193

Recommended Traffic Links • 197

Scheduled Traffic Counts • 150

Show All Roads • 189

Missing Data

report • 238, 295

screen • 238, 295

N

Network • 62, 67

No Access • 282

P

Parameter screen • 62, 67, 99, 216, 284,
285

parameters • 327

initial • 62, 216

set • 52, 67

Part Day Factors • 213

Pavement Use • 62, 67, 230

R

RAMM Manager

main screen • 210

multiplication factors • 210

RAMM Network Manager • 248

RAMM SQL • 74, 239, 290

RCA • 328

Count Sites • 132

initial parameters • 62

select • 67

Recommended Count Sites screen • 97,
98, 99, 104, 107, 226, 227, 228, 295

Recommended Traffic Links screen •
81, 85, 87, 90, 223, 297

Regions

Factors • 216

initial parameters • 62, 67

reports

Counting Schedule report • 153, 294,
312

Missing Data report • 238, 295

Recommended Count Sites • 295

Recommended Traffic Links • 297

Traffic Latest Errors report • 129, 204,
230, 297

Traffic Links with no ADT report • 129, 193, 241, 298

Unlinked Carriageways report • 128, 241, 299, 311

Road Controlling Authority • See RCA

Road Network • See Network

Road Types

graphs • 211

multiplication factors • 210

screen • 212, 288

selection flowchart • 47

Traffic Links • 170, 225

S

Sample Groups

Count Site values, update • 122, 159, 228

data, missing • 74, 239

default values • 35, 52, 122, 226

screen • 221, 288

set in bulk • 107, 122

screens

Carriageway screen • 38, 62, 158, 189, 287

Correction Factors screen (screens) • 212, 213, 214, 215, 216, 217

Count Site screen • 74, 122, 159, 182, 189, 193, 221, 239, 287

Counting Schedule screen • 151, 234, 236, 294, 312

Filter screen • 76, 83, 90, 225

Loading screen • 161

Missing Data screen • 238, 295

Parameter screen • 62, 67, 99, 216, 284, 285

RAMM Manager main screen • 210

Recommended Count Sites screen • 97, 98, 99, 104, 107, 226, 227, 228, 295

Recommended Traffic Links screen • 81, 85, 87, 90, 223, 297

Staff Permissions screen • 284, 285, 287, 288, 290, 291

Status Check screen • 129, 230, 289, 313

TMS Header screen • 242

Traffic Growth Group screen • 219

Traffic Latest Errors screen • 129, 204, 230, 297

Traffic Link screen • 38, 102, 112, 119, 170, 179, 185, 189, 199, 212, 219, 287, 310

Traffic Links with no ADT screen • 129, 241, 298

Traffic Sample Group screen • 221

Traffic screen • 2, 34, 38, 70, 72, 162, 184, 189, 193, 213, 214, 215, 217, 240, 287

Unlinked Carriageways screen • 128, 241, 299, 311

Season Profiles

Factors • 217

graphs • 45

Staff Permissions

Custom • 282

Full Control • 282, 326

global security switch • 282

introduction • 282, 290

No Access • 282

Parameter screen • 67, 284, 285

screen • 284, 285, 287, 288, 290, 291

- Security Roles • 282
 - Traffic data maintenance • 76, 87, 90, 104, 107, 119, 122, 158, 159, 162, 170, 177
 - User Profiles • 282
 - View Only • 282, 330
- Status Check**
- ADT values • 38, 230
 - factors • 49
 - screen • 129, 230, 289, 313
 - Staff Permissions • 289
 - Update Traffic Counts and Estimates • 204
 - when to run • 52, 67, 129, 204
- T**
- Territorial Local Authority • See RCA
 - Time of Day • 72
 - TLA • See RCA
 - TMS Header screen • 242
- Traffic**
- Count Estimation Management
 - introduction • 2
 - parameters • See parameters
 - set up process • 52
 - Count Sites
 - ad hoc • 146, 310
 - core • 134, 135, 146
 - introduction • 35
 - Recommended • 44, 52, 96, 97, 98, 99, 101, 102, 104, 107, 199, 207, 226, 227, 295
 - rotational • 132, 133, 146
 - select • 44, 199
 - selection spreadsheet • 135, 137, 139, 141, 143, 145
 - source • 182
 - Counts • See Counts
 - ADT values • 184
 - Map, Locations • 184
 - Growth Groups • See Growth Groups
 - Headers • 242, 290
 - Links
 - associate • 52, 112, 119, 122, 185
 - introduction • 34, 179
 - Recommended • 52, 80, 81, 82, 86, 87, 90, 197, 207, 223, 224, 297
 - with no ADT • 52
 - Management in RAMM • 2
 - screen • See Traffic screen
 - Traffic Growth Groups • See Growth Groups
 - Traffic Latest Errors report • 129, 204, 230, 297
 - Traffic Links with no ADT report • 129, 193, 241, 298
- U**
- Unlinked Carriageways
 - report • 128, 241, 299, 311
 - screen • 128, 241, 299, 311
 - User Profiles • 282
- V**
- Vehicle Kilometres Travelled • See VKT

View Only • 282, 330

VKT • 330

 AADT calculation • 41

 Network coverage percentage • 62, 67,
 96, 97, 99, 107, 132, 134, 228

W

Week Day Factors • 214

Week Number Factors • 215