HASTINGS DISTRICT COUNCIL

TRANSPORTATION ASSET MANAGEMENT PLAN

Data Collection
Traffic Counting Strategy

Hastings District Council

AUGUST 2014

DRAFT IN PROGRESS

CREATING A ROBUST AND BALANCED TRAFFIC COUNTING STRATEGY FOR MONITORING USE OF THE ROADING NETWORK

1. Background

The Annual Average Daily Traffic (AADT) is a figure used to describe traffic levels on the Network (how busy the roads are). A large number of asset management processes use the AADT figure to provide decision making information. AADT is derived from on-road traffic counts.

There are two principal reasons to have accurate estimates of traffic volumes for the Roads. They are:

a) Funding
NZTA have auditors to check the accuracy of the information provided to support funding applications.

b) Better Decision Making
More accurate information leads to more consistent and robust analysis and confidence in results. This improves credibility and allows Council to better direct resources.

Uses of traffic count data in Hastings:

Long term planning	Network Renewal & Development	Customer Service	Operational
Understanding route use & hierarchy	Project planning (e.g. optimum working periods)	Responding to enquiries	Traffic management requirements
Predictive condition modelling (dTIMS etc)	Deriving traffic loads for pavement design	Development control & planning	Regulatory requirements
Safety studies	Deriving traffic loads bridge design		Network monitoring
Traffic modelling & simulation (Urban micro simulation and Heretaunga Plains macro simulation models)	Project economics (BCR)		Deriving traffic loads for planning and design of maintenance intervention strategies (e.g. reseal programme)
Setting and measuring levels of service			
TSA			
HCV & HPMV management			

2. Objectives

The primary objective of the traffic counting strategy is to ensure that traffic volumes across the network are known in sufficient detail and to an appropriate level of accuracy to inform the tools and processes used by Council that rely on traffic volumes. Traffic count data shall be collected in the most efficient manner possible that enables the above objective to be met.

3. Principles

Traffic counting needs vary depending on the intended use for the data. The following matrix describes the information demands for each core activity that the traffic volumes are used for:

		Network understanding	Condition modelling	Traffic modelling & simulation	Levels of Service	TSA	Safety studies	Project planning	Design loadings	Project economics	Responding to enquiries	Development control	Traffic management req.	Regulatory req.	Maintenance intervention
Data R'qd	***Class volume***	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Class speed	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	
	Cycle counts	✓		✓	✓		✓	✓			✓	✓			

The principle of the traffic counting strategy shall be to collect data to inform the above activities in a manner that accurately estimates, and is sensitive to the changes in, the traffic characteristics listed below.

Traffic Characteristic	**Influences**
Network Use / Volume	Urban/rural split Mode split Hierarchy
Speed	Urban/rural split Mode split Hierarchy
Growth	Hierarchy Residential growth strategy Industrial growth strategy
Seasonal variation	Industrial activity Tourism/holiday activity

4. Strategies

The RAMM Traffic Count Estimation model is particularly robust when correctly implemented. The RAMM Traffic Count Estimation model will be used to develop a counting programme that meets Council's traffic data needs. This programme will be adjusted to achieve the best balance between the need for data accuracy and Council's budget allocation for counting traffic volumes on the network of roads.

There is a fundamental difference in the relationship between links for private vehicles and heavy commercial vehicles, particularly HPMVs that operate on permitted routes only. The RAMM module is not currently designed to establish different link relationships for different vehicle classifications so this element requires a manual audit after the annual update of link volumes.

Approach
Traffic count data shall be collected using Metro tube counters. (N.B. special equipment may be required to count cyclists on the network separate to the standard traffic counts.

The traffic counting budget shall be split into programmed counts and special counts:

	Network understanding	Condition modelling	Traffic modelling & simulation	Levels of Service	TSA	Safety studies	Project planning	Design loadings	Project economics	Responding to enquiries	Development control	Traffic management req.	Regulatory req.	Maintenance intervention
Programmed Counts	1	1	1	1	1	2	2	2	2	2	2	2	1	1
Special Counts	2	2	2	2	2	1	1	1	1	1	1	1	2	2

Note: 1 = Primary Data Source
2 = Secondary Data Source

Programmed counts shall all be carried out "static" count sites and special counts shall be carried out locations as required by the purpose of the count.

Programmed traffic counts are split into two groups: [A] traffic; and [B] cycling, and the base framework for the programmed counts shall be the road hierarchy (traffic or cycling as appropriate to the count group).

Programmed count sites shall be split into the following types and allocated a sub-type equal to the District Plan land use zone that the count site is in:

1. **VKT:** (Vehicles Kilometre Travelled) - Core network volume count sites
   - Top 20% of network overall treatment lengths (TL) sorted by VKT.
   - Heavy Vehicle VKT is also calculated and the to 20% Heavy VKT TL sites are cross matched for any that have no corresponding Traffic VKT.

2. **Growth Node:** Sites tracking strategic growth trends]. Also absorbing the representative sites for verifying low volume road and growth estimation.

3. **Seasonal:** Sites tracking key tourism and industrial fluctuations.

4. **Screenline:** Establishment of a north/south and an east/west screen line through the Hastings urban area and plains. This to assist in calibration of both the strategic regional transport model & the Hastings urban model.

5. **Cycle:** Establishment of count sites for cycle counting using cycle specific counting equipment and aligned with cycling strategy. Cycle counts will be a five day count, Mon – Fri. Sites will not be counted during school holidays.

Counting frequency shall be determined on the basis of the following matrix:

Count Type	Purpose	Location	Criteria	Frequency
VKT Counts	Monitoring traffic flows to capture 80% of VKT on the network	Arterial, Collector, Distributor, Regional Arterial	High Level Traffic VKT >5000 ADT + all Heavy Traffic VKT sites	Annually: randomly selected count dates.
		Local, Local CBD)	Based on Low Level VKT <5000 ADT	Bi-Annually: randomly selected count dates.
Growth Counts	Track strategic growth trends	Nominated development areas and representative sites for verifying growth on low volume roads	Urban and Rural count sites selected on their strategic and base line value.	Annually: counted in the same month each year.
Seasonal Counts	Track key tourism and industrial fluctuations	Key tourism and industrial roads	All	Each count site used once every 5 years. Seven day counts every month within the count year.
Screenline Counts	Assist with calibration of the strategic regional transport model and Hastings Urban model.	Located on North/South and East/West screen lines through Hastings Urban and Plains.	All roads crossing screenlines	As per VKT sites
Cycle Counts	Monitoring cycle flows to capture use of designated cycle routes	Routes as defined by cycling strategy	Urban and Rural count sites selected on their strategic and base line value.	Annually: counted in the same month as the Growth Counts

** Note: Count Frequency*

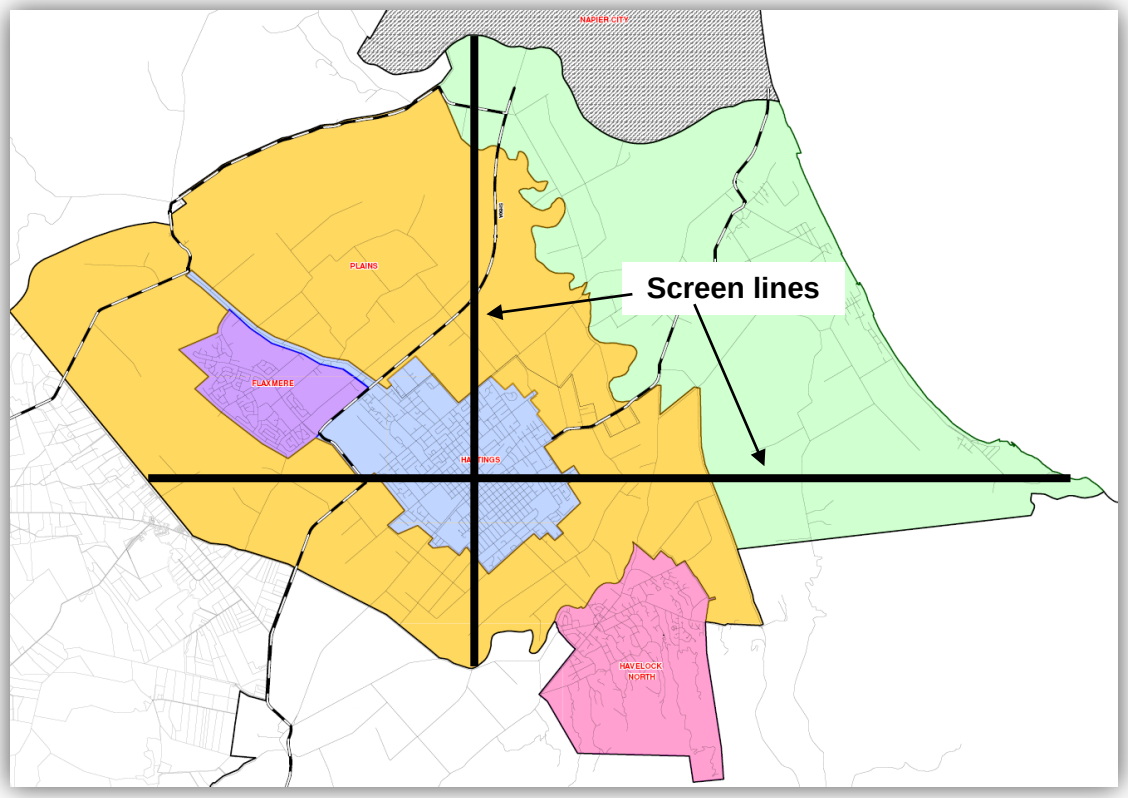
1. *Monthly* — *Seasonal counts will be counted once per every five years. Within the year of counting a count will be on site for one week every month for that year.*
2. *Annually [1]* — *Growth, Cycle: Sites will be counted each year within the same month.*
3. *Annually [2]* — *High Level VKT and Screen Line count sites (>5000 adt <u>OR</u> Road Hierarchy, Arterial, Collector, Distributor, Region Arterial) These sites will be counted every year but the month is randomly selected.*
4. *Bi-Annually* — *Low Level (<5000 adt OR Road Hierarchy Local, Local CBD) VKT and Screen Line counts. These sites will be counted every other year; the month counted will be randomly selected.*

Background seasonal variation shall be obtained from NZTA's permanent count station data and a budget for special counts shall be allocated each year and used as required.

Cordon Counts

Cordon Count stations shall include the establishment of a north/south and an east/west screen line through the Hastings urban area and plains. This is to assist in calibration of both the strategic regional transport model & the Hastings urban model:

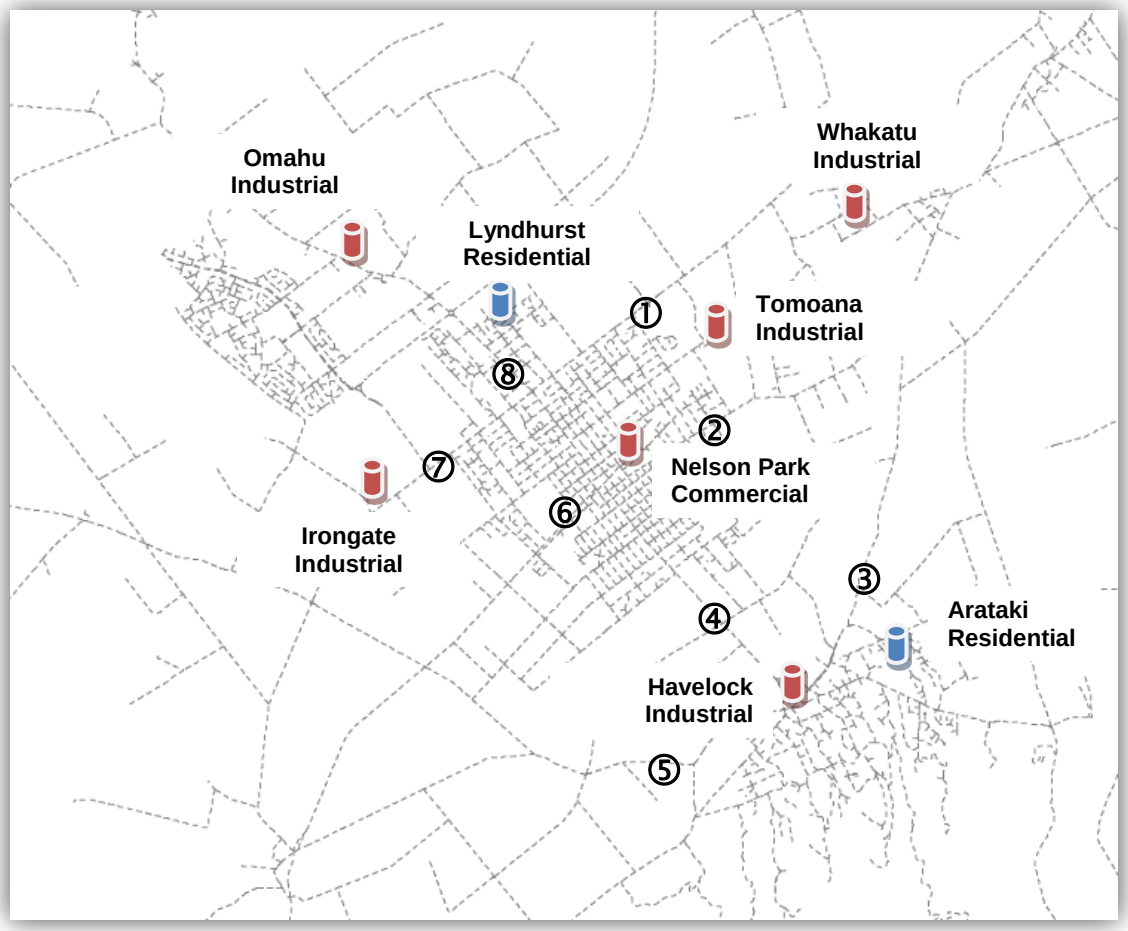
Figure 1: Cordon Screen Lines



Growth Node Counts

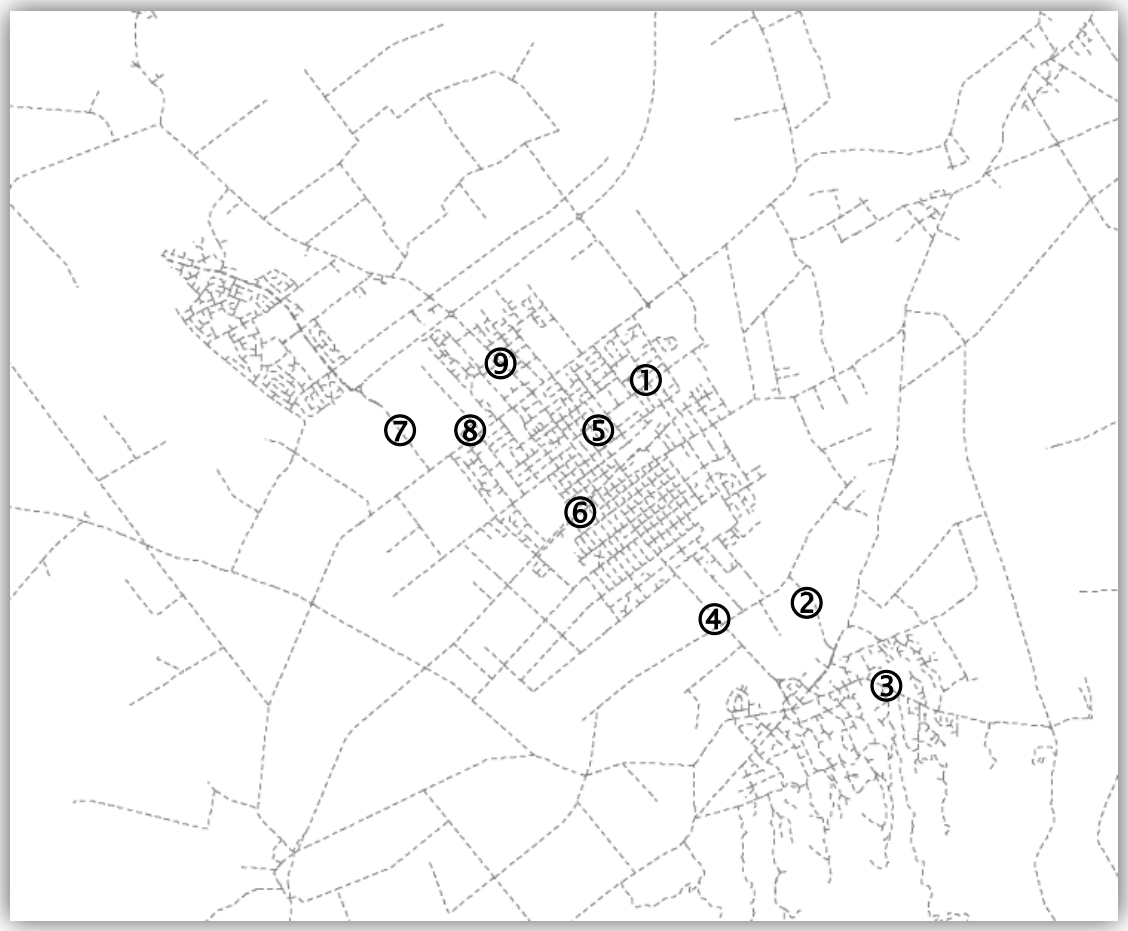
Count stations to monitor network growth shall be located to monitor growth around key strategic sites and on the main arterials. Growth Node Counts at a specific station shall take place in the same week each year:

Figure 2: Urban Vehicle



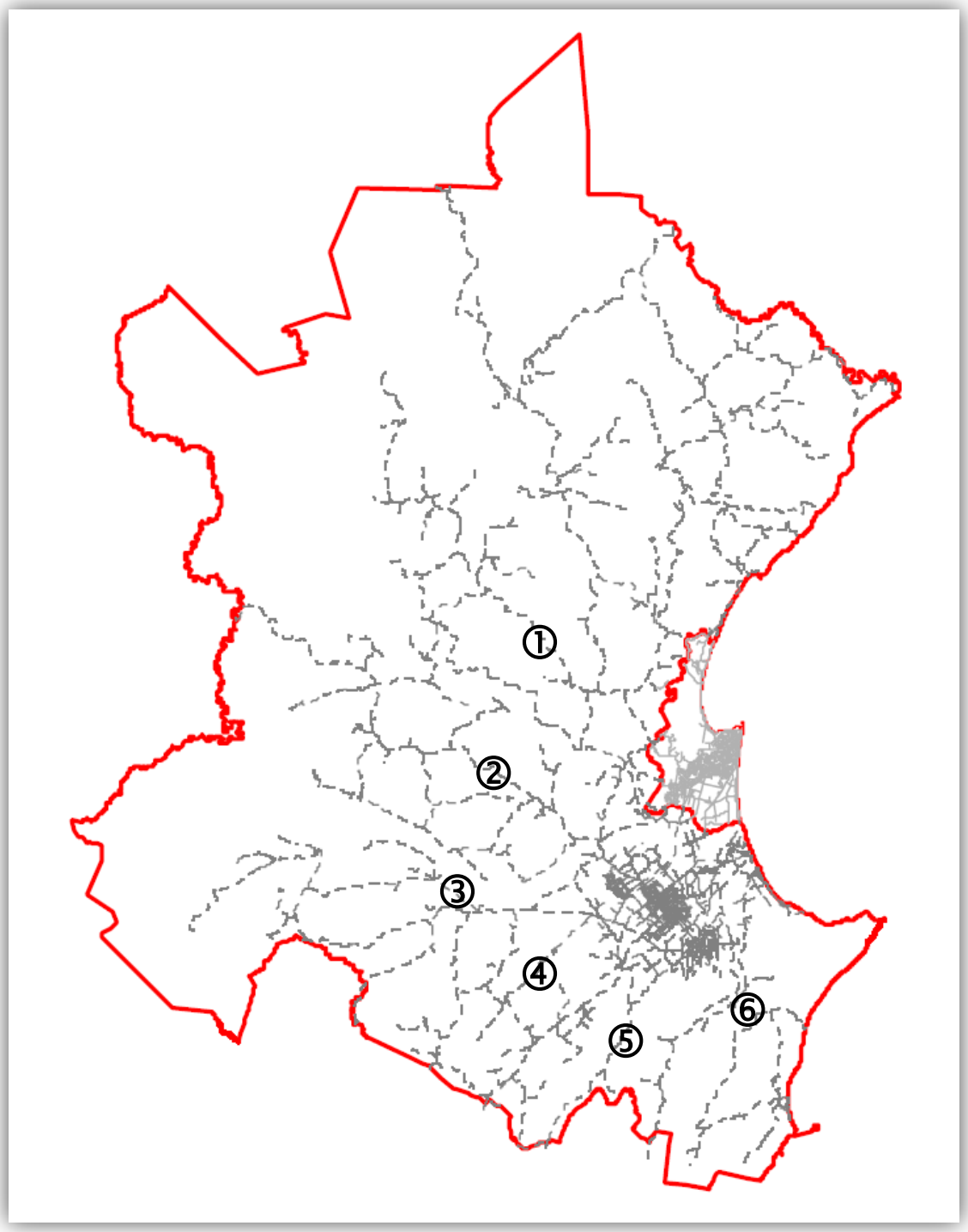
1. Pakowhai Road
2. Karamu Road
3. Napier Road
4. Havelock Road
5. Te Aute Road
6. Railway Road
7. Maraekakaho Road
8. Omahu Road

Figure 3: Urban Cycle



1. Frederick Street
2. Crosses Road
3. Te Mata Road
4. Havelock Road
5. St Aubyn Street
6. Railway Road
7. York Road
8. Maraekakaho Road
9. Omahu Road

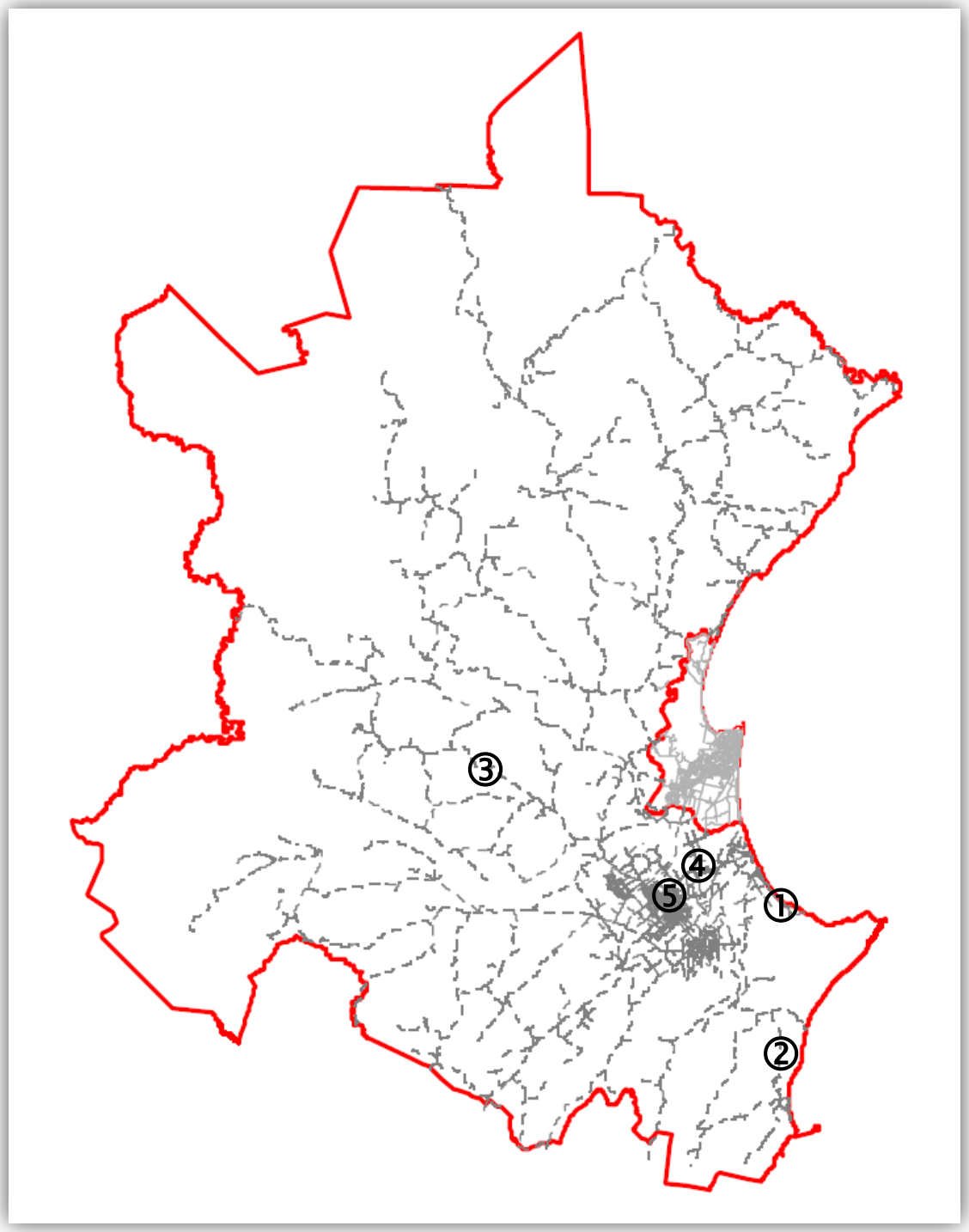
Figure 4: Rural Vehicle



1. Puketitri Road
2. Taihape Road
3. Kereru Road
4. Raukawa Road
5. Middle Road
6. Waimarama Road

5. Seasonal Counts

Count stations to monitor seasonal variation shall be located to monitor traffic fluctuations around key strategic sites:



1. Clifton Road (tourism)
2. Waimarama Road (tourism)
3. Taihape Road (tourism & forestry produce)
4. Whakatu Road (plains produce processing)
5. Tomoana Road (plains produce processing)

6. Outputs

Standard output reports processed and stored for each count shall consist, as a minimum, of:

- 7 day hourly count distribution
- 7 day speed / class distribution
- 7 day speed histogram

In addition to the above, an annual report shall be produced showing growth trends at all strategic growth nodes and seasonal variation at all seasonal count sites.

7. Responsibilities

The person responsible for the traffic counting strategy is the Transportation Asset Manager.

8. Review Cycle

The traffic counting strategy shall be reviewed every 3 years as indicated below.

Review date	**Stage**
2014	In progress
2017	Future review
2020	Future review

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APPENDIX A

1. Traffic Count Station Maps – RA1 & RA2
2. Traffic Counting Programme