



Improving Traffic Count Data in RAMM (project update)

Presented to: Traffic Management Workshop 2007

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Date: 8 October Session C6



Background

- **High quality traffic data important**
 - road asset management,
 - transportation planning, and
 - transport and environmental policy activities
 - Performance assessment (road safety)
- **Previous analysis of RAMM databases**
 - Only 30% had count based data
 - Less than 40% of latest counts <6 years
- **Numerous estimate quality issues**
 - Estimates not updated
 - Lack of seasonal correction



Outline

- **New Project**
 - MOT and LTNZ
 - Aims to Improve the coverage and quality
 - Better structure to maximise value from current spend
- **Stage 1**
 - Survey of current practices
 - Trials in 3 RCAs
 - Assess impact for nationwide roll out



Trial RCAs



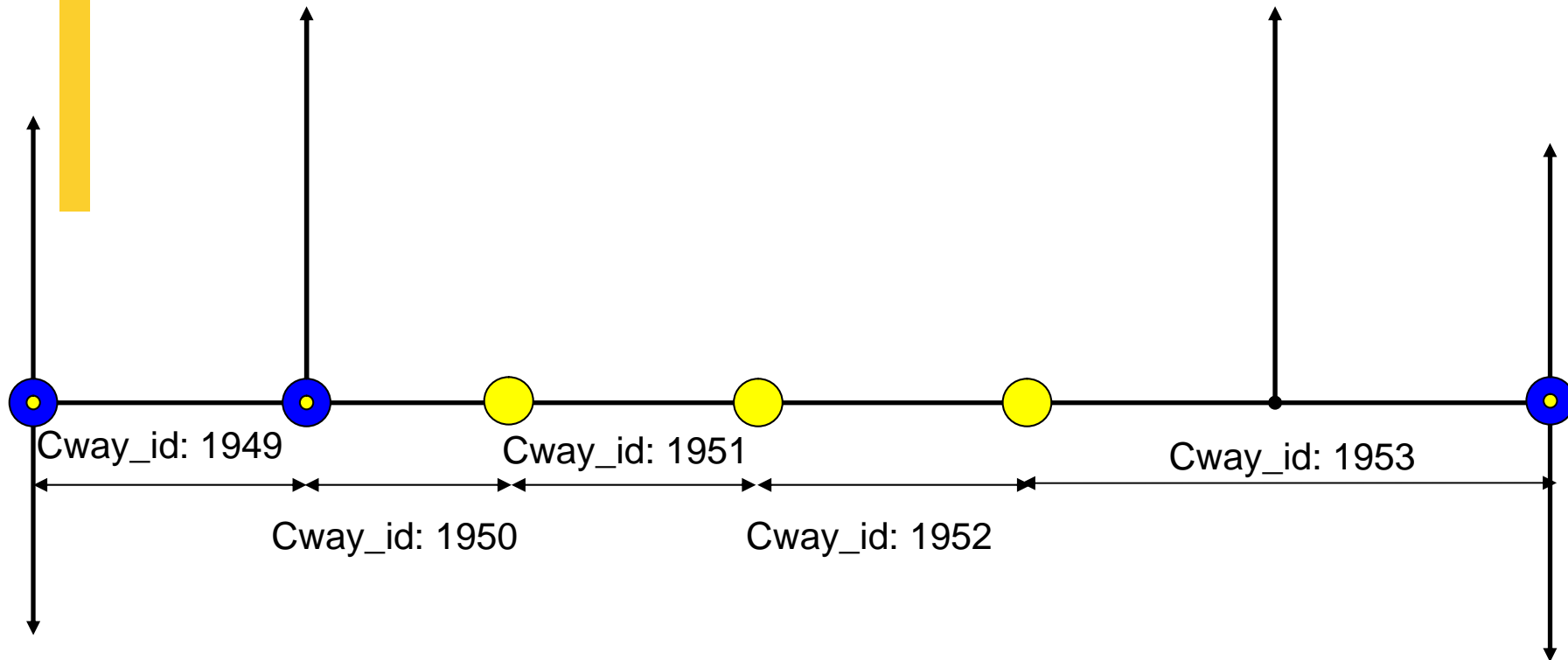
Network	Southland Dist. Council	Upper Hutt City	Hastings Dist. Council
Description	Largest (rural) TLA	Mid sized city	Mixed
Kilometres of network	6,288	266	1,848
Proportion of Rural	95% rural	35%	83%
Carriageway sections in RAMM	4,079	1,024	2,171
Traffic counts per year	350 (239 sites)	100 sites	300-350 (300 sites)
General outline	20 annual 330 ad-hoc	13 annual 87 bi-annual 138 /5 yrs 10 ad-hoc	63 annual 183 / 5 yrs 200 ad-hoc
Description of programme	Forward works programme	Long term monitoring Traffic Model	Cordon monitoring Seasonal Fluctuation Forward Works




Trial Process

- **“Update” Traffic Estimates to Base Year (2005)**
- **Traffic Link Network**
- **Draw Samples**
 - Core sample
 - Rotational sample
- **Fit Samples and Assess Impacts**



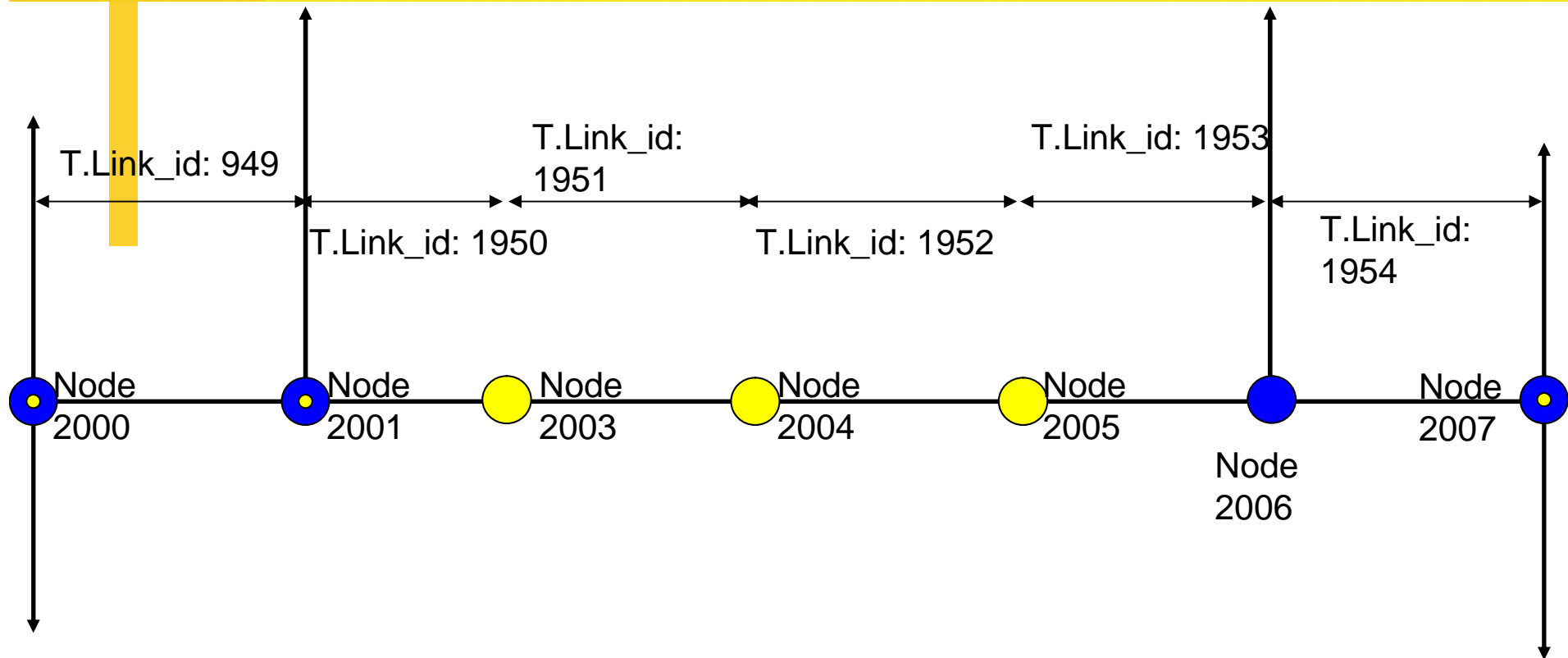
Traffic Link Network (1)






- Legend:**
-  Node point derived from Spatial model
 -  RAMM C_way section node point
 -  Combined spatial and RAMM C_way section node point



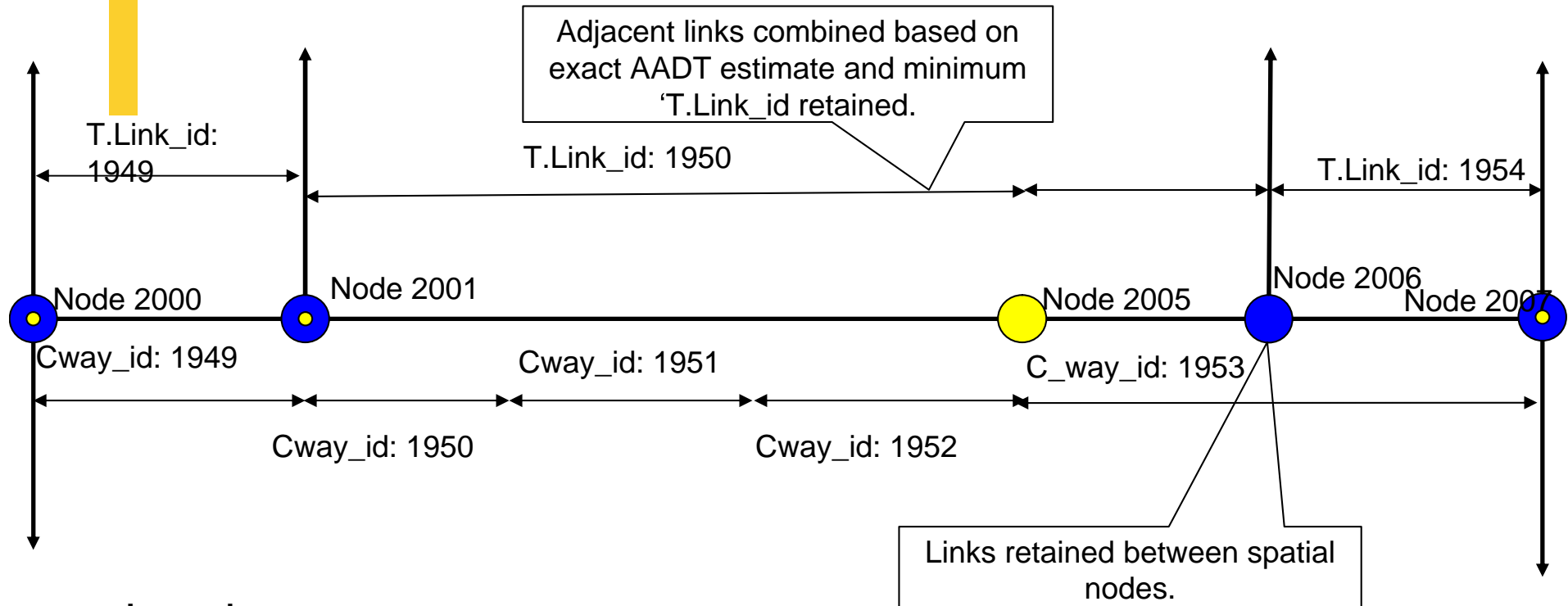
Traffic Link Network (2)






- Legend:**
-  Node point derived from Spatial model
 -  RAMM C_way section node point
 -  Combined spatial and RAMM C_way section node point



Traffic Link Network (3)



Legend:

-  Node point derived from Spatial model
-  RAMM C_way section node point
-  Combined spatial and RAMM C_way section node point



Impact of Traffic Links

Aggregation	Description	Total Number of Links		
		Hastings	Upper Hutt	Southland
RAMM Sections	Number of carriageway sections in the RAMM database	2171	1024	4079
Level 1	Number of sections following introduction of spatial nodes	2225	1175	5300
Level 2	Number of sections following aggregation of adjacent links	1417	754	2352
% Reduction	Reduction Level 2/ RAMM	35%	26% (2%)	42%

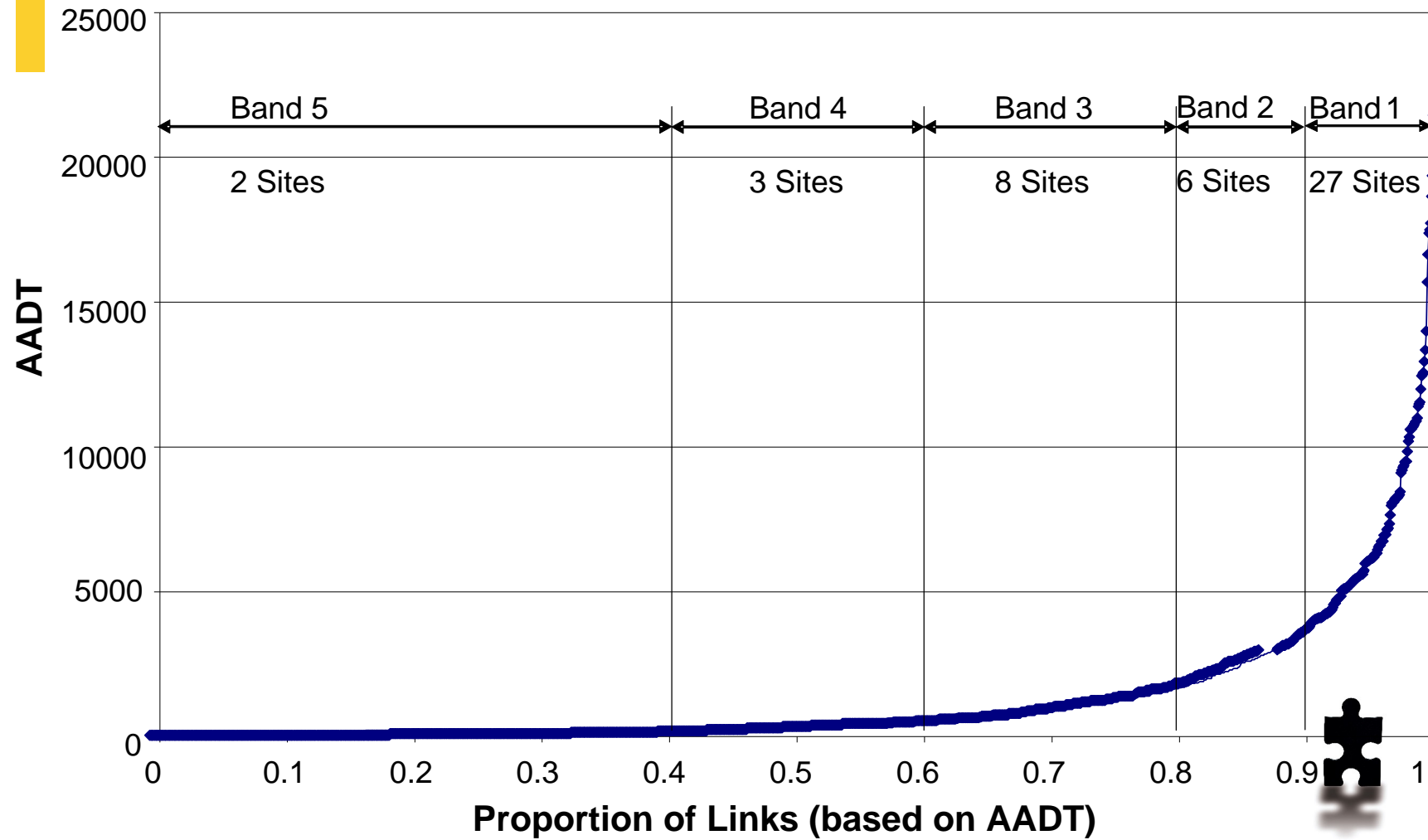


Drawing Sample

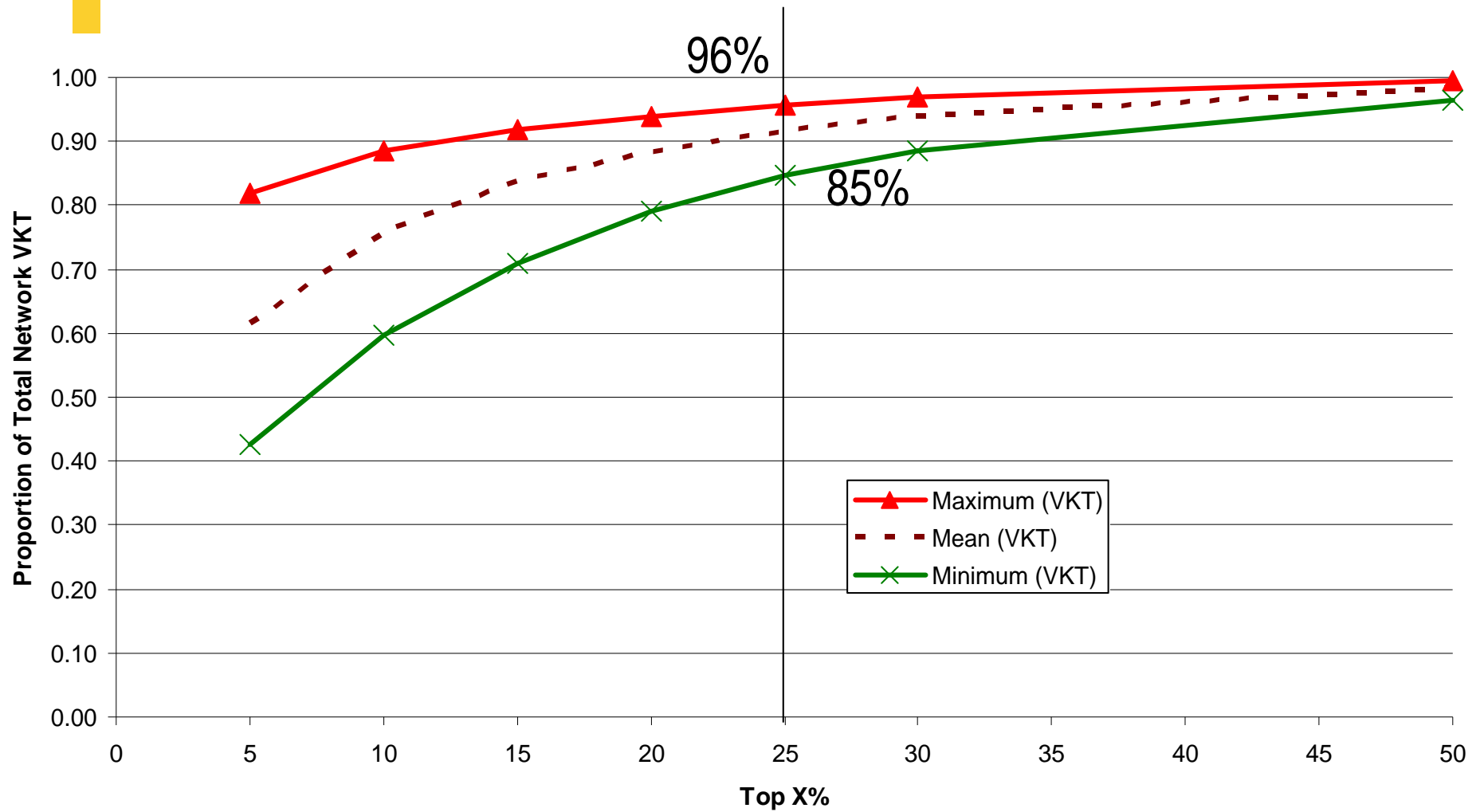
- **Core Sample**
 - Drawn on the basis of AADT
 - Estimation of average AADT over all links
 - Sample monitored annually to give VKT to +/- 10% (95% conf.)
 - Approx 3.2% of traffic links (0.6% Christchurch to 12% Kaikoura)
- **Rotational Sample**
 - Drawn on the basis of VKT
 - Nominally the top 25% of links when ordered by contribution to TLA VKT.
 - Nationally >11,600 sites counted each year 14% of expected traffic links



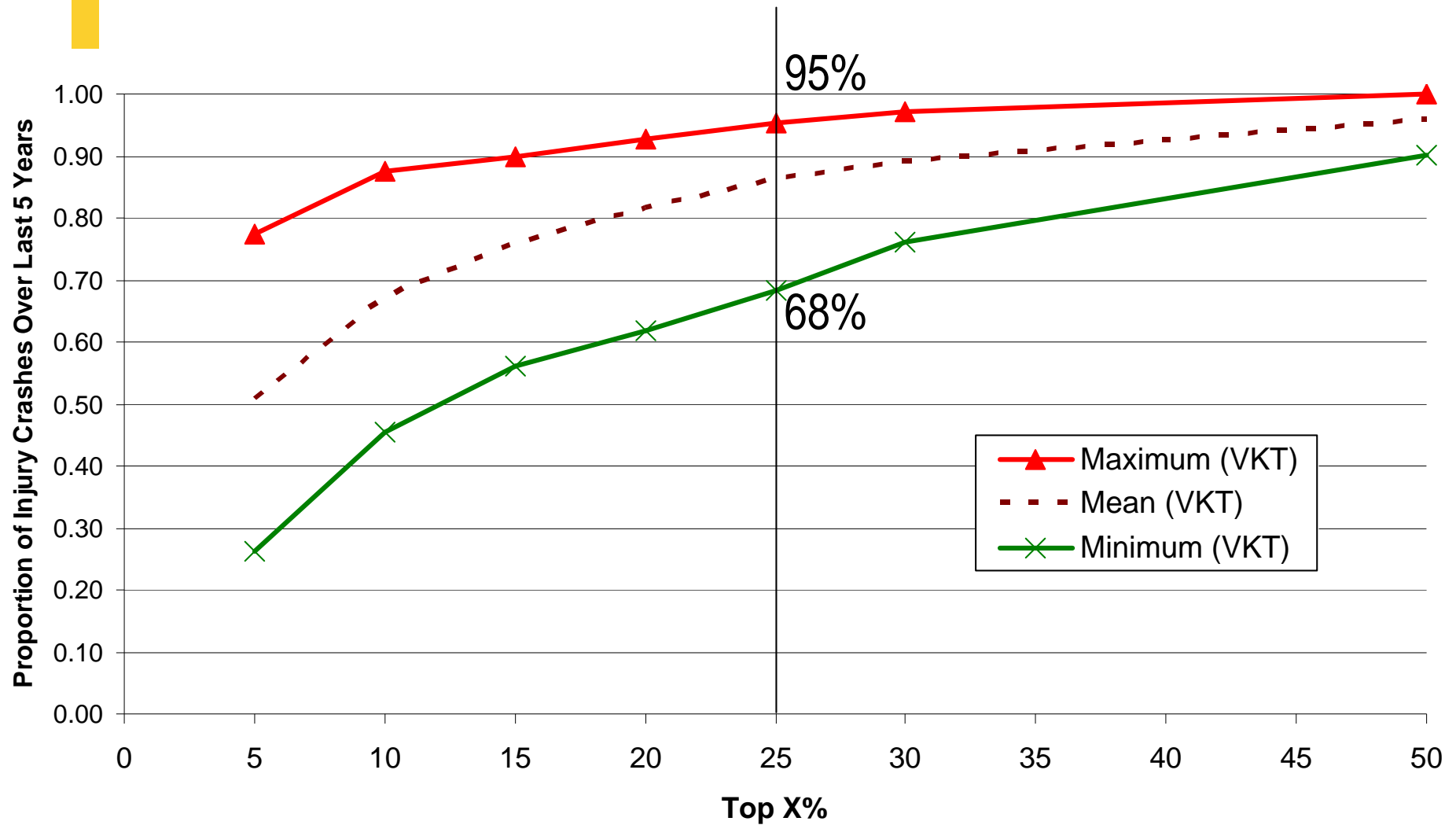
Core Sample -Hastings (46)



Network Travel



Injury Crashes



Fitting Sample

- **With systematic substitution Core Sample is contained in the top 25% of links selected on the basis of vkt.**
- **The degree to which the new counting strategy overlaps the current varies**
- **For each of the trial TLAs it was possible to cover 80% of vkt using the top 17% to 19% of traffic links**
- **It may be better to cover the 80% of vkt over 2 years
This provides some spare for ad-hoc counting**
- **Impact**
 - Hastings 10% reduction (\$10,000)
 - Upper Hutt 50% increase (\$14,000)
 - Southland no change (but 80% requires 3 years)



Next Steps

- **CJN currently developing a specification for RAMM to include:**
 - Routine for creating/suggesting traffic links
 - Identification of those without count sites
 - Allocating sites to:
 - Seasonal Traffic Profiles –to improve AADT estimates from counts
 - Traffic Growth groups
 - Count Schedules/groups
 - Routine for updating estimates to current year based on count group
- **Test the new processes tools and documentation in 2 RCA's**





Key Findings Hastings

- **Currently 300 to 350 counts per year**
- **46 Core sites required**
- **387 sites for top 255 of links (87% of vkt)**

- **23 Core sites covered by sites counted each of the past 2 years**
- **All other Core sites could be accommodated in the 25% model**
- **25% increase in counting to cover top 25% of links + core**

- **Recommended**
 - 46 core sites annually
 - Cover 80% of vkt over 2 years (55% of current programme)
 - Cover 97% over 5 years (using 100 counts/yr)
- **A reduction in counting of 10% per year (\$10,000)**



Key Findings Upper Hutt

- **Currently 100 counts/ year (13 annual, 87 bi-annual, 137 5 yearly)**
- **37 Core sites required**
- **193 sites for top 255 of links (87% of vkt)**

- **1 Core site was part of UHCC annual counting programme**
- **9 Core substitutions could be made from the bi-annual programme**
- **All other Core sites could be accommodated in the 25% model**
- **100 of the top 25% of links had been counted in the last 2 years**

- **Recommended**
 - Retain most of current programme
 - Cover 80% of vkt over 2 years
- **An increase in counting of 50% per year (\$14,000)**



Trials (2)

- **Southland District**
 - Largest rural TLA in NZ
 - 6,288 km of road 95% rural
 - 4,079 carriageway sections in RAMM
 - Typically long carriageway lengths with generally low volumes
 - Formal traffic counting programme
 - 350 traffic counts per year over 239 sites
 - 20 “Annual Monitoring Sites”
 - Focussed on supporting forward works programme



Trials (3)

- **Upper Hutt City**
 - Principally urban
 - 266 km of road, 65% urban
 - 1,024 carriageway sections in RAMM
 - Typically short carriageway lengths with high volumes
 - Formal traffic counting programme of 100 sites
 - 13 monitored annually
 - 87 bi-annually (44)
 - 138 once every 5 years
 - 10 ad hoc
 - Focussed longer term monitoring and supporting traffic model



Trials (4)

- **Hastings District Council**
 - Mixed urban/rural
 - 1,848 km of road, 17% urban
 - 2,171 carriageway sections in RAMM

 - Formal traffic counting programme of 300 to 350 counts
 - Covering 300 sites
 - 63 monitored annually
 - 183 once every 5 years

 - Cordon monitoring, seasonal fluctuation, and supporting forward works programme

