



# Developing and Implementing Local Speed Management Plans



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*Trafinz Conference, Nov 2018*



# Presentation Outline

- Effect of Speed on Safety
- Speed Management Plan process
  - NZTA speed/risk data maps
  - Speed implementation options
  - Keys to limiting vehicle speed
  - Common Concerns with lower speeds



# Speed in New Zealand

- Speed is a major factor in crash occurrence & severity
  - Illegal speed over speed limit
  - Inappropriate speed for conditions
- 2014-16 in NZ (MoT crash stats)
  - **16%** of **minor** injury crashes had a speed factor
  - **21%** of **serious** injury crashes had a speed factor
  - **29%** of **fatal** crashes had a speed factor

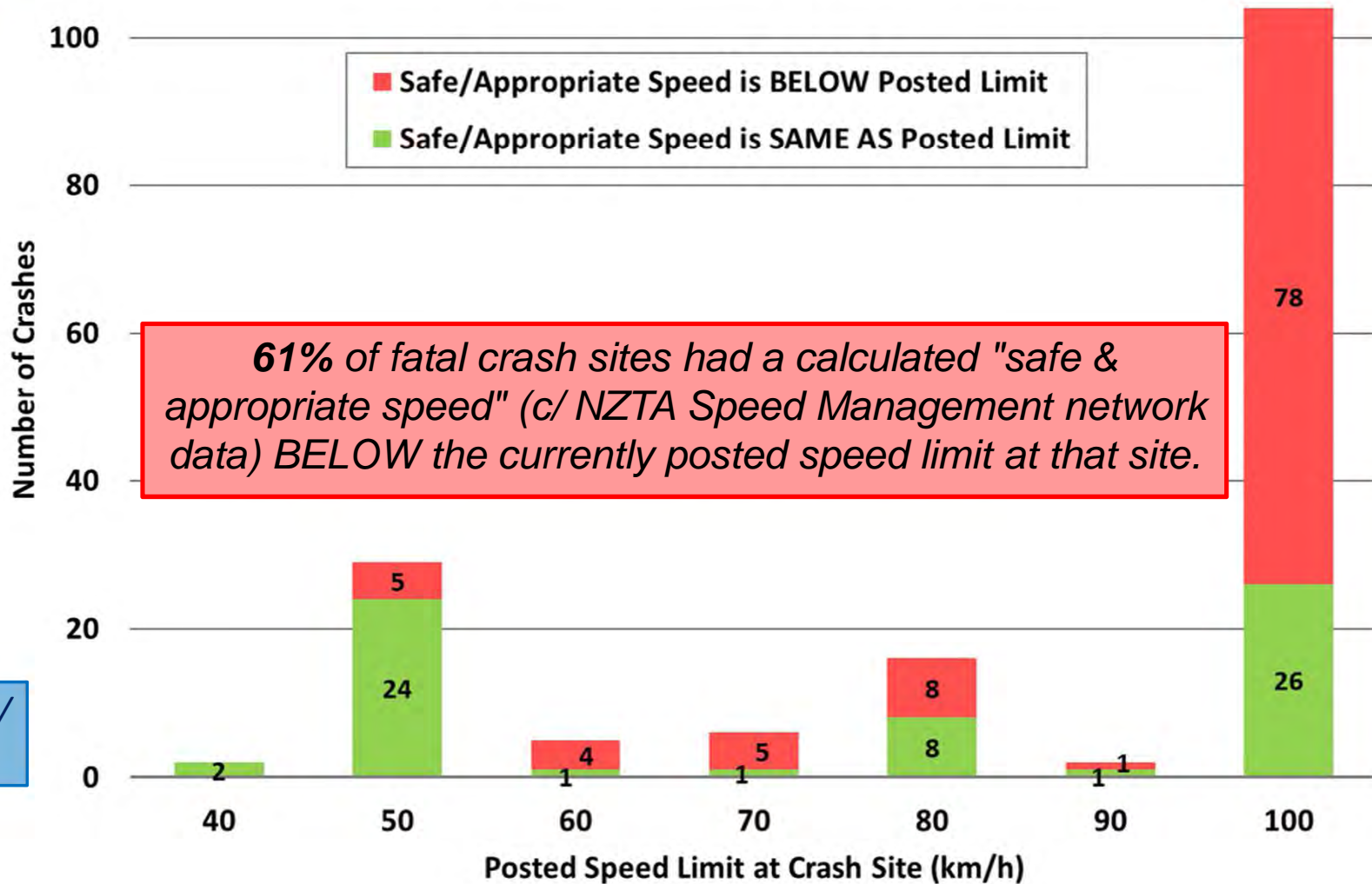


*On par with drink-driving as our biggest road safety problem*



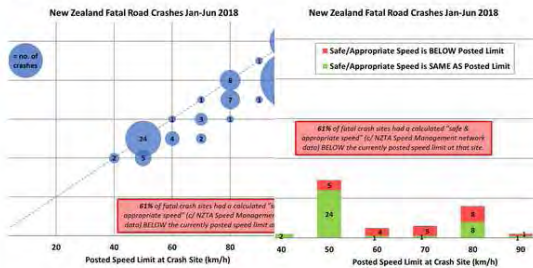
# Those stats may be under-estimating things...

New Zealand Fatal Road Crashes Jan-Jun 2018



Glen Koorey  
@GKoorey

I was curious about our existing speed limits in relation to our road safety record. So I reviewed the 164 fatal crashes in NZ during the first half of 2018 and compared the posted spd limit with the NZTA calculated "safe & appropriate" spds. Most speed limits should be lower...



8:21 PM - 15 Jul 2018

20 Retweets 32 Likes



3 20 32

<https://twitter.com/GKoorey/status/1018410307004162048>



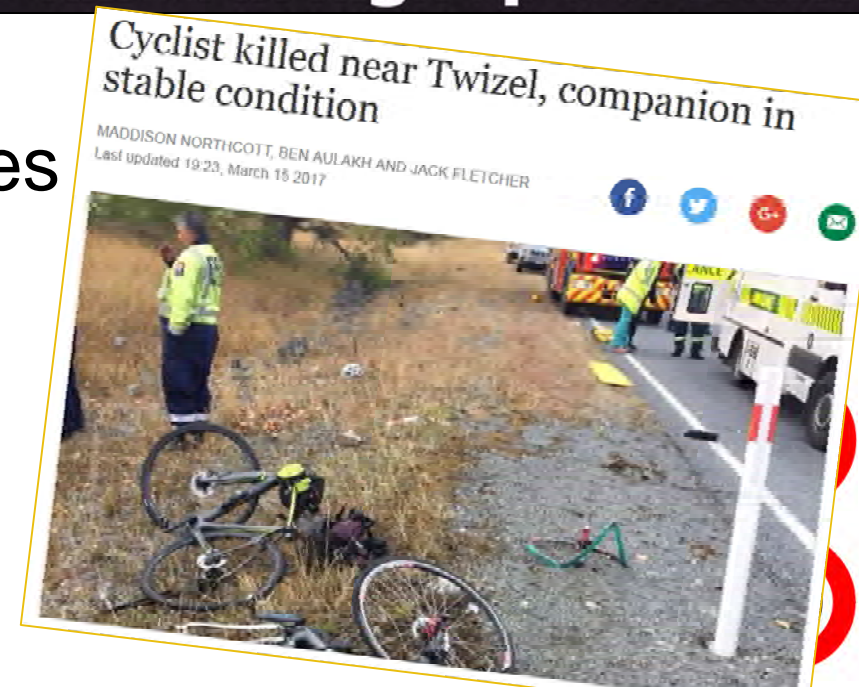
# Urban vs Rural speeds

Rural roads a problem for **M.Vehs**

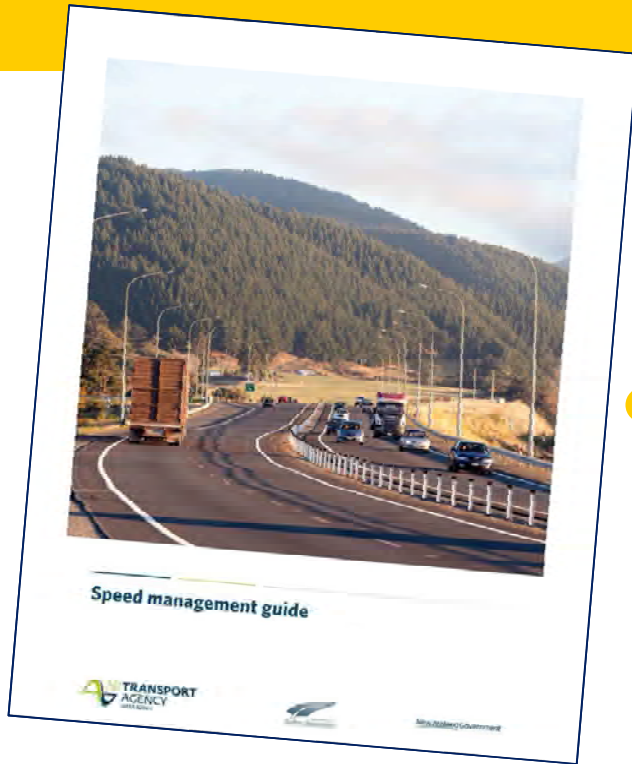
- **80%** of fatal MV crashes happen on 80+ km/h roads
  - 75% on 100 km/h roads

Urban roads a problem for **active** modes

- Most walking/cycling in urban areas
  - But **40%** of all walk/cycle fatals still occur in 80+ km/h roads



# All the tools... What now?



- NZTA *Speed Management Guide* (2016)

- Setting of Speed Limits Rule (2017)

Land Transport Rule  
Setting of Speed Limits 2017

Contents

Section	Objective of the Rule Extent of consultation	IN	MR
Part 1	Rule, regulations Preliminary provisions	1	1
1.1	Title	1	1
1.2	Commencement	1	1
1.3	Purpose	1	1
1.4	Revisions	1	1
Section 2	General purpose	2	2
2.1	General intention and purpose of Agency	2	2
2.2	Risk of that providing assistance to setting and setting speed limits	2	2
2.3	Agency must develop and maintain information about speed management	2	2
2.4	Agency's obligations about speed management to avoid causing nuisance	2	2
2.5	Consulting on proposed speed limits	2	2
2.6	Additional consultation required when consulting on particular proposed speed limits	2	2
2.7	Decision-making procedure and conditions of an speed limit	2	2
2.8	Registration of all speed limits except temporary speed limits	2	2
2.9	Black controlling authority to vary speed and how	2	2
2.10	Agency's power to appropriate and direct road signalling resources and to change to single speed limit	2	2
2.11	Traffic control devices	2	2
2.12	Compliance of sign or change of speed limit	2	2
2.13	Speed limits set under previous rule	2	2
Section 3	Categories of, range of, and default speed limits	3	3
3.1	Categories of speed limit	3	3
3.2	Range of speed limit	3	3
3.3	Black limits for speed limit	3	3
3.4	Default values and other speed limits	3	3
3.5	Derogations of use in urban locations	3	3
Section 4	Reviewing, proposing, and setting speed limits application of section	4	4
4.1	Application of section	4	4

- NZTA Risk Assessment Tool (Mega Maps)

TRANSPORT AGENCY Safer Journeys Risk Assessment Tool

Find address or place

Layer List

- Operational layers
- National Road Network
- Speed Management Framework 2018
- Posted Speed Limits
- ONRC
- Road Safety Metric
- Infrastructure Risk Rating
- Safe and Appropriate Speeds
- Operating Speed
- High Benefit Speed Management
  - Top 10% DS: Saving Network Sections (18-21 GFS Target)
  - First 10% Interventions
  - Second 10% Interventions

Infrastructure Risk Rating: 007-0239

Land Use	Rural Residential
Road Stereotype	Two lane undivided
Alignment	Curved
AADT	1000-6000
Intersection Density	<1 per km
Lane Width	≥3.5m - Wide
Shoulder Width	0m to <0.5m - Very Narrow
Roadside Hazards	High_Moderate
Access Density	2 to <5 per km
IRR Score	1.63
IRR Band	Medium High

Zoom to

# Speed Management Plan: Step by Step

- Suggested steps for developing a strategy plan:
  1. Review existing NZTA maps/data, identify preliminary proposed treatments
  2. Consider additional local information (strategies, feedback, etc) for each site
    - *Optional: Undertake community research to gauge opinions on road risk (incl. speed)*
  3. Identify the most suitable management option(s) for each road section
  4. Determine appropriate treatments to implement the desired management options (signage, markings, physical works, etc) and estimate likely costs
  5. Develop a prioritisation plan for the work to inform 2018-21 LTP & beyond
  6. Present the proposed management and implementation plan to Council and the public, together with relevant supporting information
  7. Revise the plan based on feedback received from Council / stakeholders
  8. Programme and implement projects, and continue to monitor results



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# (1) Review NZTA Data maps

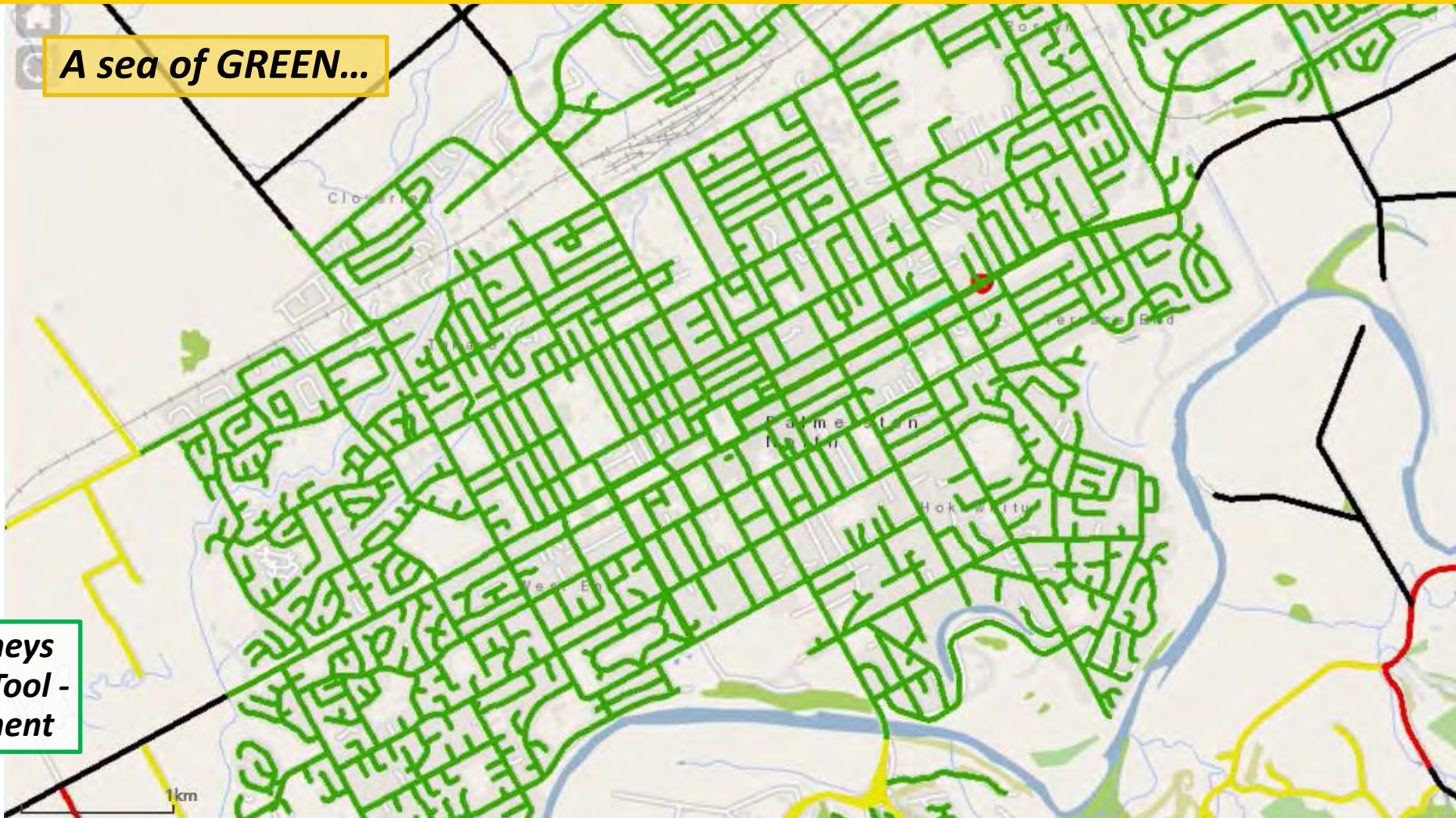
## Example: Palmerston North

*A sea of GREEN...*

Posted Speed Limits

- 100
- 90
- 80
- 70
- 60
- 50
- 40
- 30

*NZTA Safer Journeys  
Risk Assessment Tool -  
Speed Management*



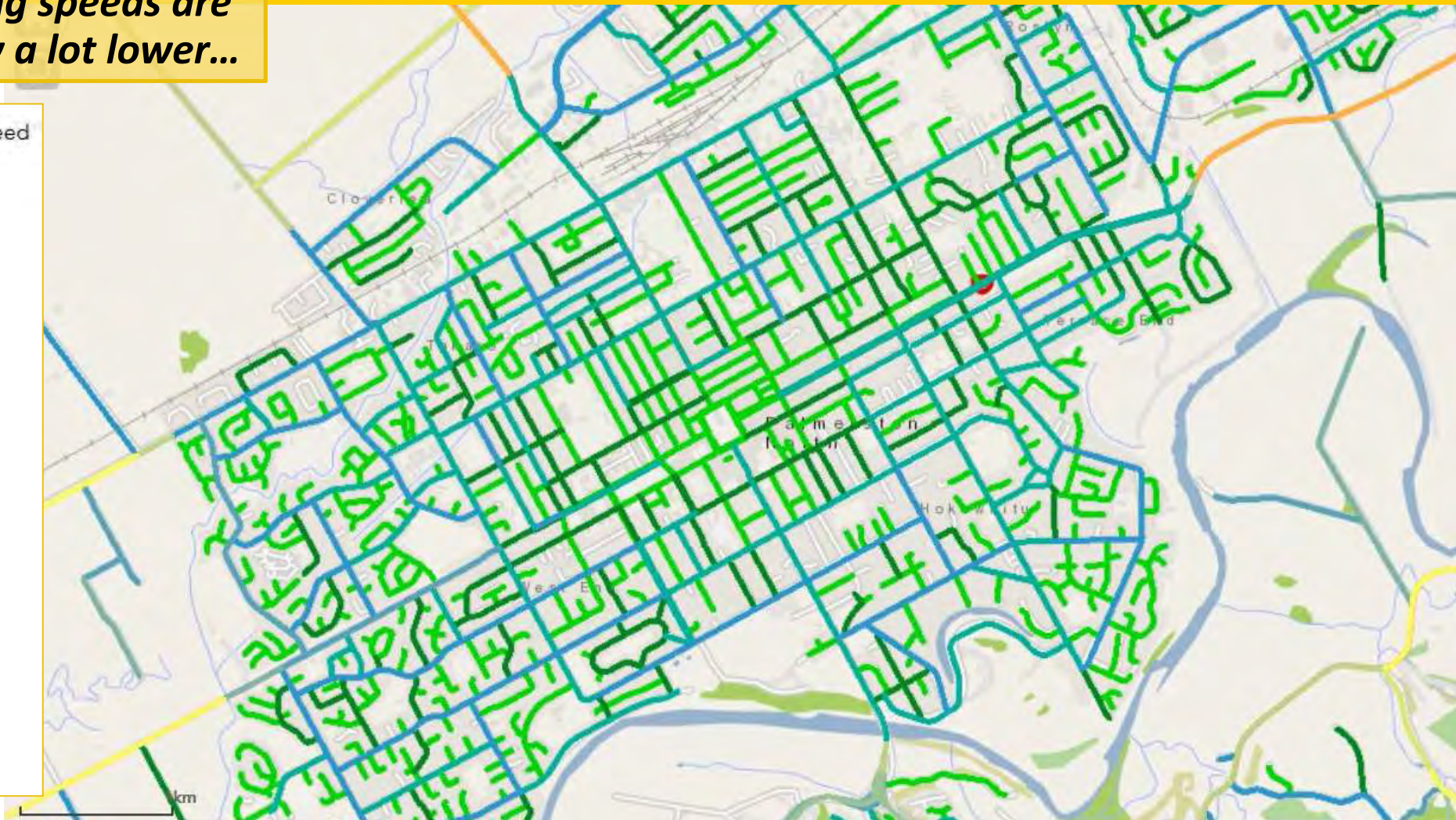


# (1) What speeds are actually typical?

*Operating speeds are generally a lot lower...*

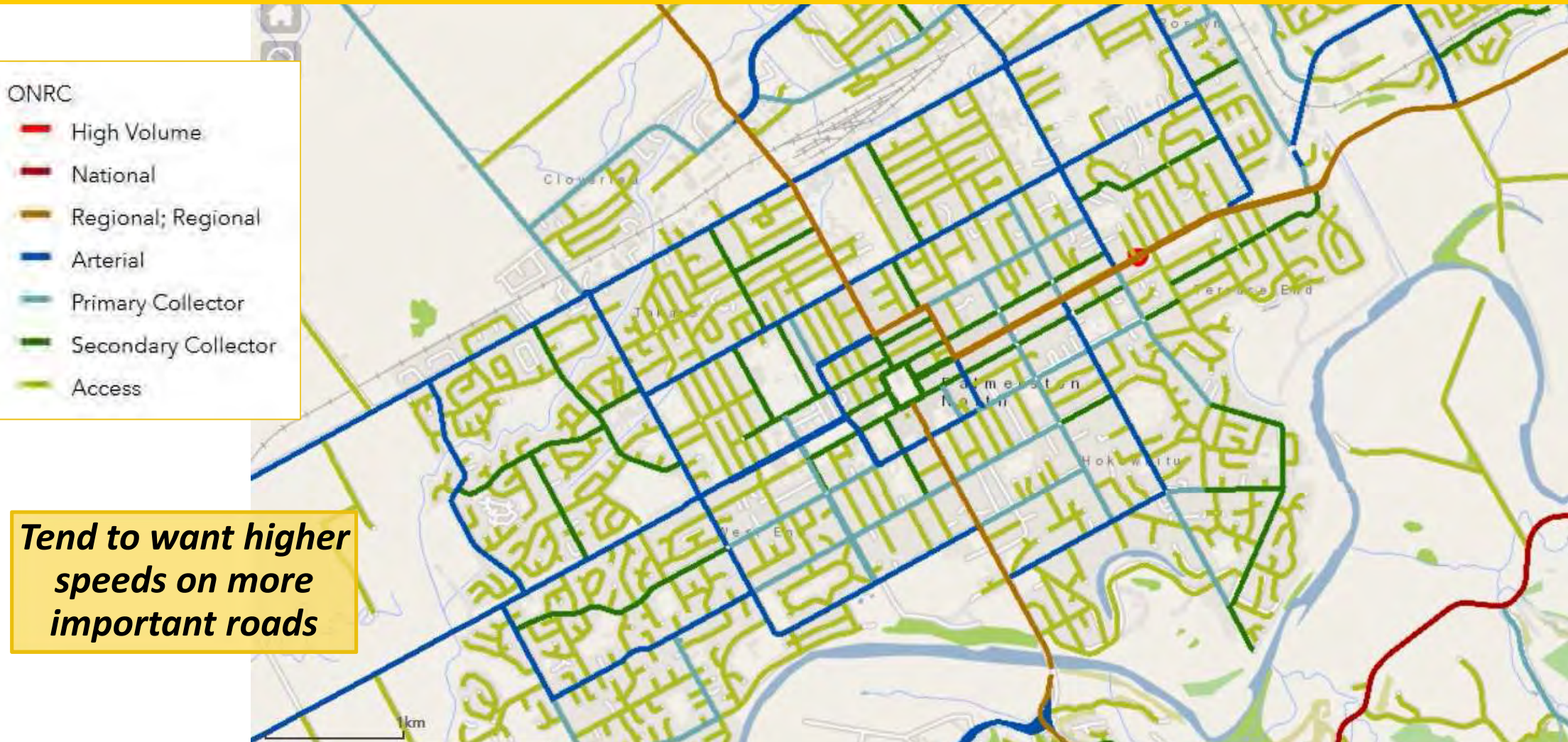
7-Day TomTom Travel Speed

- <30
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60-64
- 65-69
- 70-74
- 75-79
- 80-84
- 85-89
- 90-94
- 95-100





# (1) “One Network” Road Classification (ONRC)









## (2) “Local calibration” of NZTA speed data

- May be other factors not captured by this data that influence the decision to adjust a speed limit, e.g.
  - Improvement in **amenity** for adjacent local residents & businesses
  - Encouragement of more **walking and cycling**
  - Alignment with local area **strategies or corridor plans**
  - Coordination with **existing** planned programme works
  - **Local support** (or otherwise) by communities for speed changes
  - Harmonisation of **adjacent road sections** to provide consistency

*Initial recommendations from NZTA need to be “sense tested” and adjusted to reflect these factors*

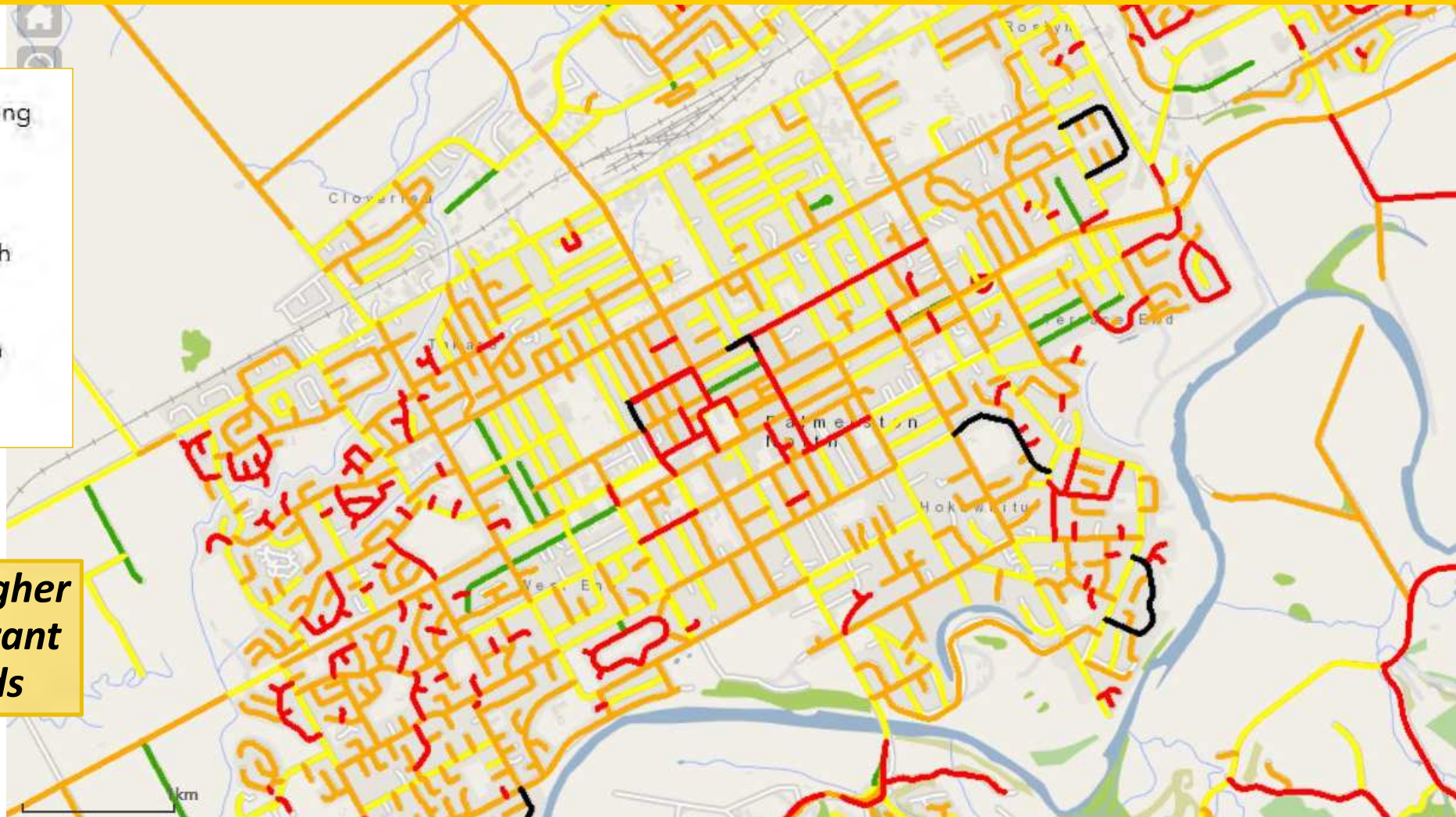
A red circular speed limit sign with the number 80 in black.A red circular speed limit sign with the number 30 in black.

# Infrastructure Risk Rating

## Infrastructure Risk Rating

### IRR Band

- High
- Medium High
- Medium
- Low Medium
- Low



***Roads with higher risk may warrant lower speeds***



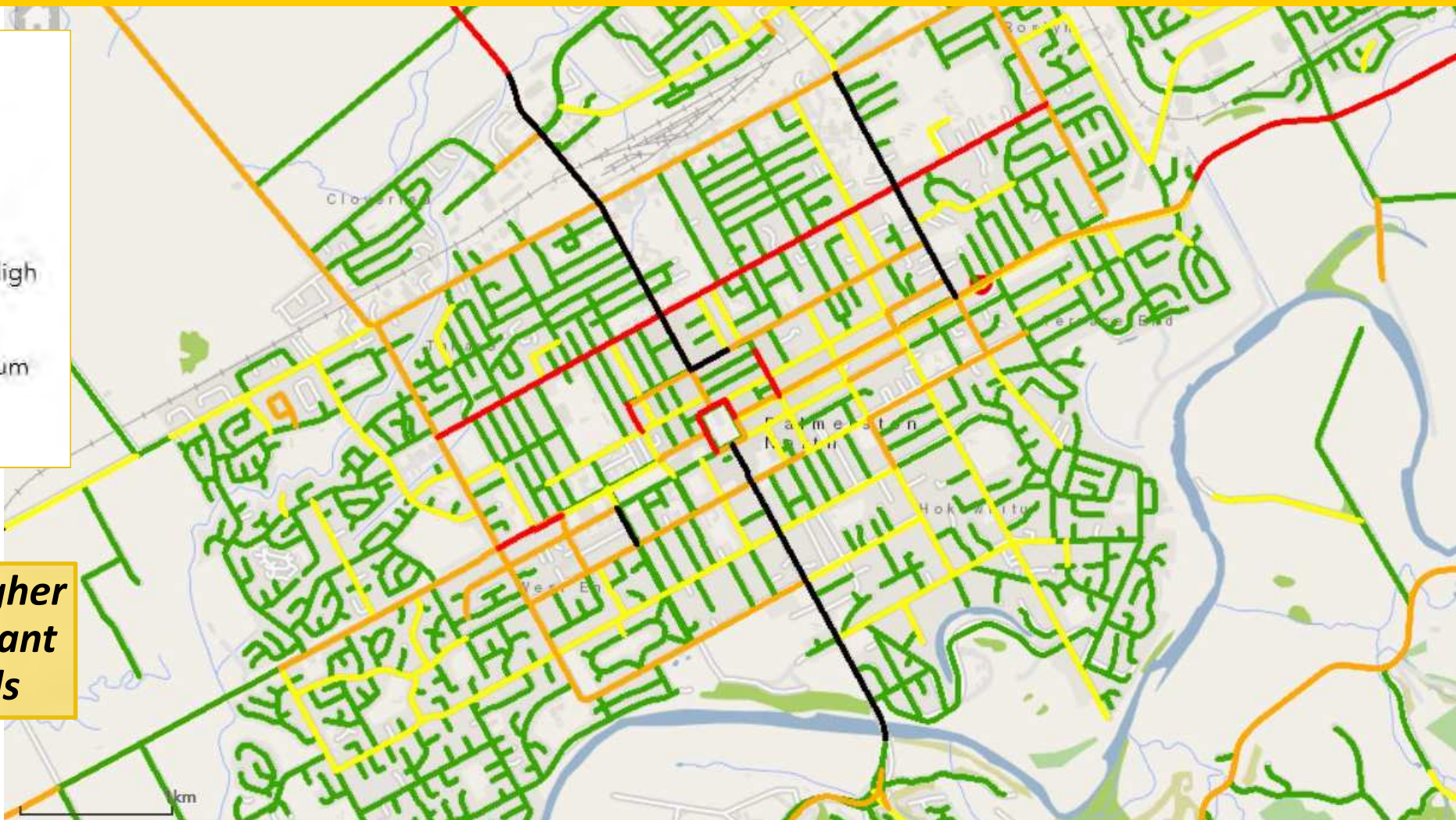
# Crash Risk (Individual and Collective)

## Crash Risk

### Collective Risk

### Collective Risk

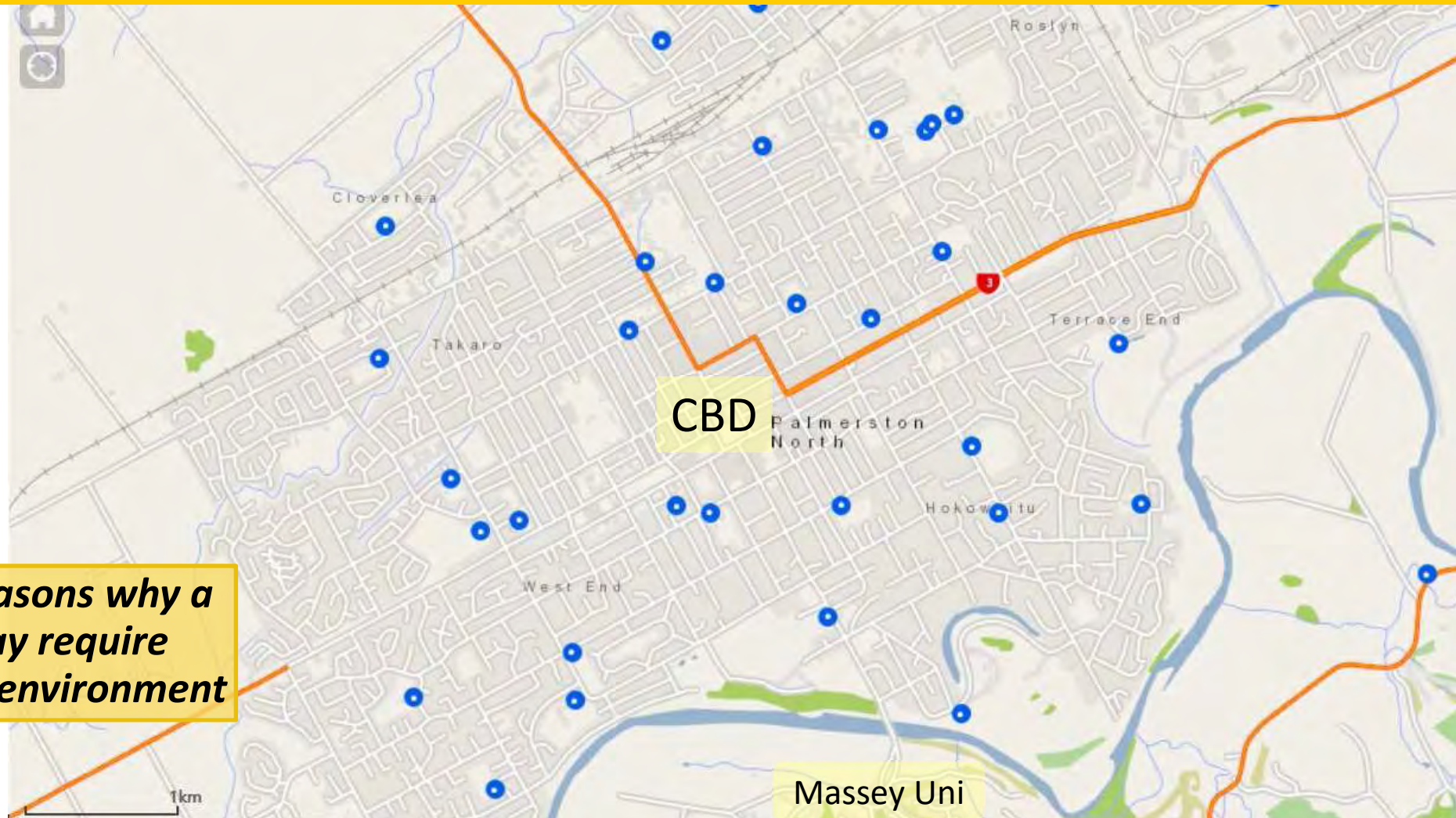
- High
- Medium High
- Medium
- Low Medium
- Low



**Roads with higher risk may warrant lower speeds**



# Local Context



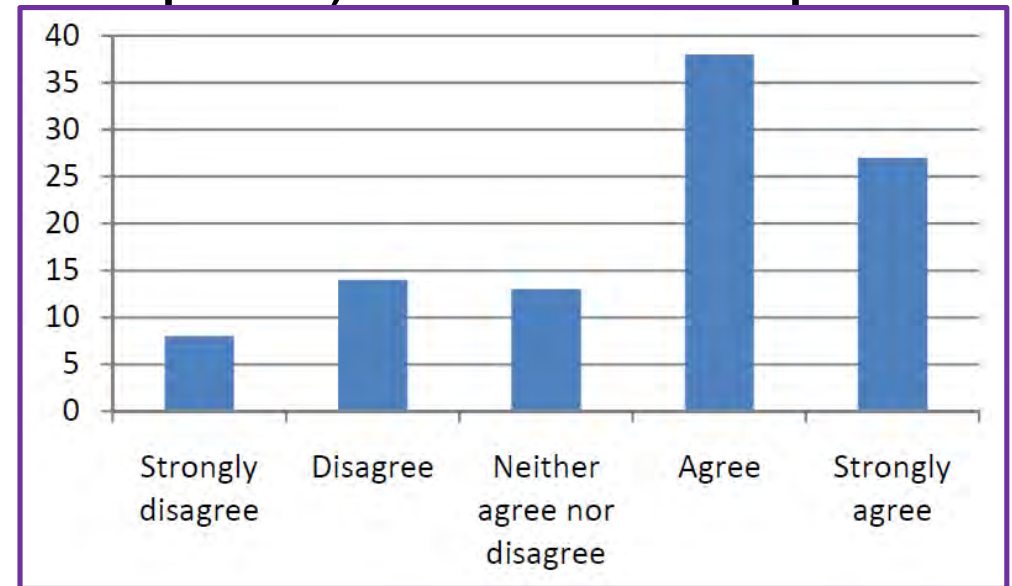
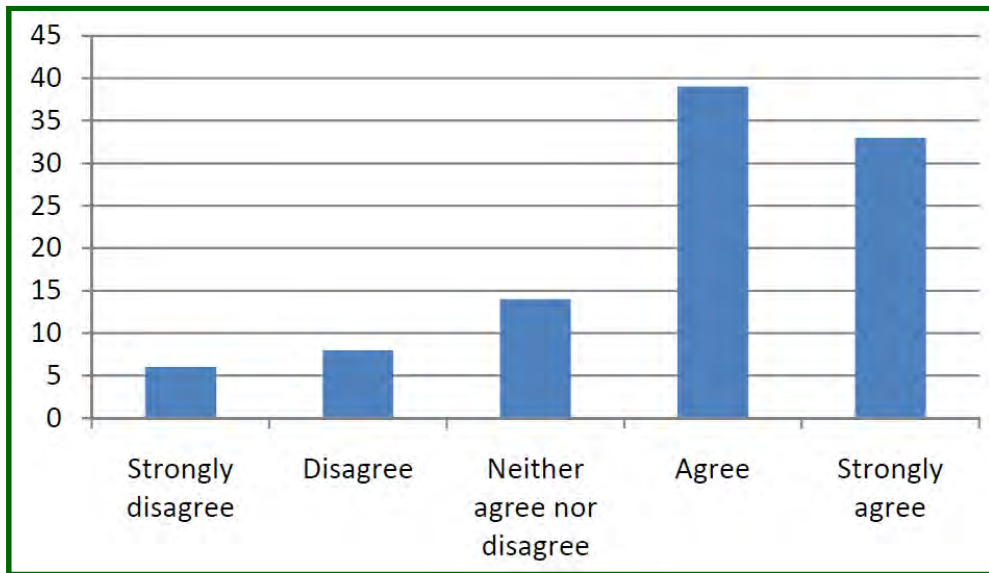
*All sorts of reasons why a corridor may require specific speed environment*

# *(optional) Undertake community research to gauge opinions*

- Cover road risk in general (incl. speed) and other impacts

- e.g. Hamilton CC:

*“Q: Safer Speed Areas help prevent people being injured or killed on local roads.”*

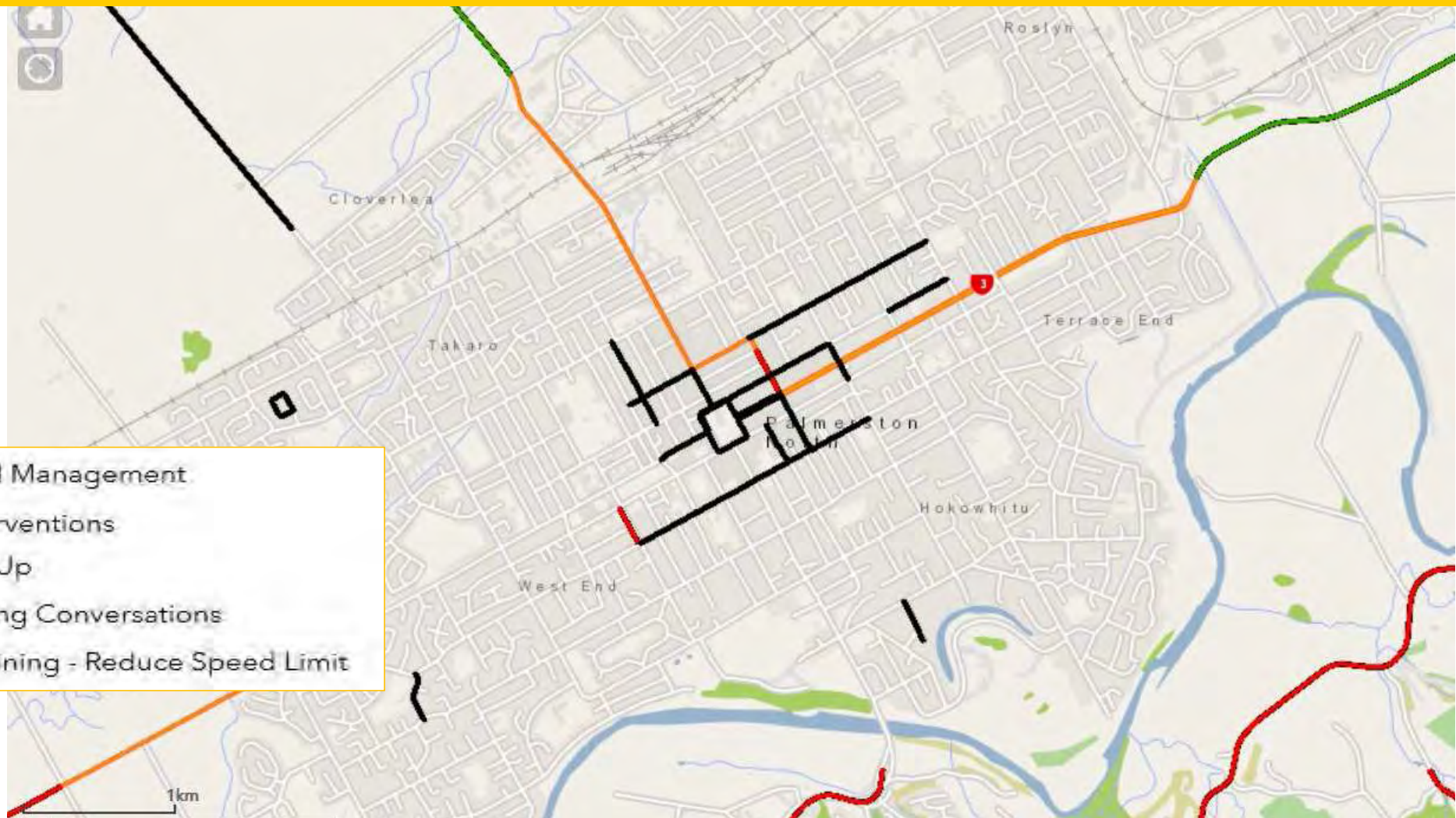


*“Q: Safer Speeds are good for the local community”*













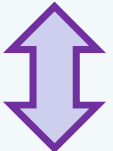




# (3) Suggested Speed Management Strategy





# (3) Identify Speed Management Options

	Engineering DOWN	NO Engineering	Engineering UP
<b>Increase speed limit</b> 			
<b>No speed change</b> 			
<b>Decrease speed limit</b> 			← <i>Temporary until road improvements</i>
<b>Variable speed limit</b> 			

*Some options may be challenging...*

# Good Speed Limit Practices

- Limit is appropriate to road function
  - High conflict areas may have lower limits
- Speed zones of adequate length
  - Avoid frequent changes of speed limit
- Clear and regular signposting
  - Esp. if not “self-explaining” road environment
- Don't apply to compensate for hazards
  - But could address deficiency in short term



*Is it the speed limit that needs changing?*

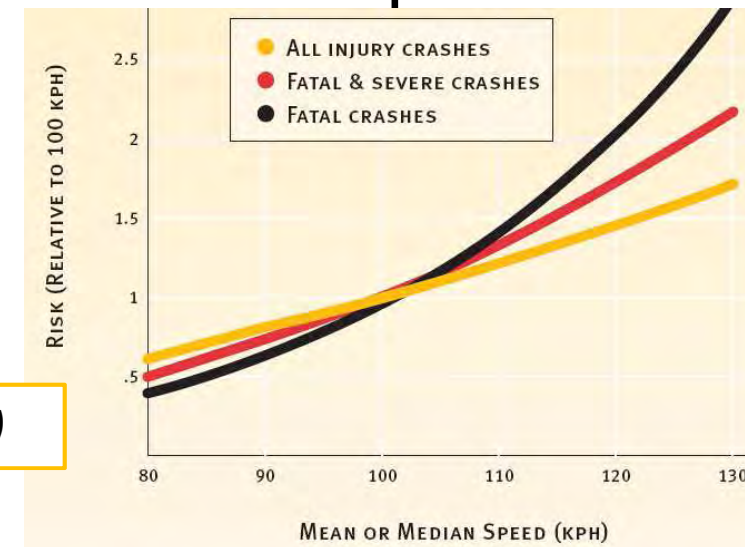


# “Lower posted speed limits alone won’t change traffic speeds”

- For every 10 km/h posted speed limit reduction, typically we observe a **2-3 km/h** reduction in mean speeds

*(NB: 1% speed reduction  
= -2% crashes & -4% fatalities)*

*Nilsson (2004)*



- If need be, add some minor additional traffic management features to get the speeds down a bit more
  - e.g. remove centrelines on local streets, add central islands





## (4) Key physical tools for lower speeds



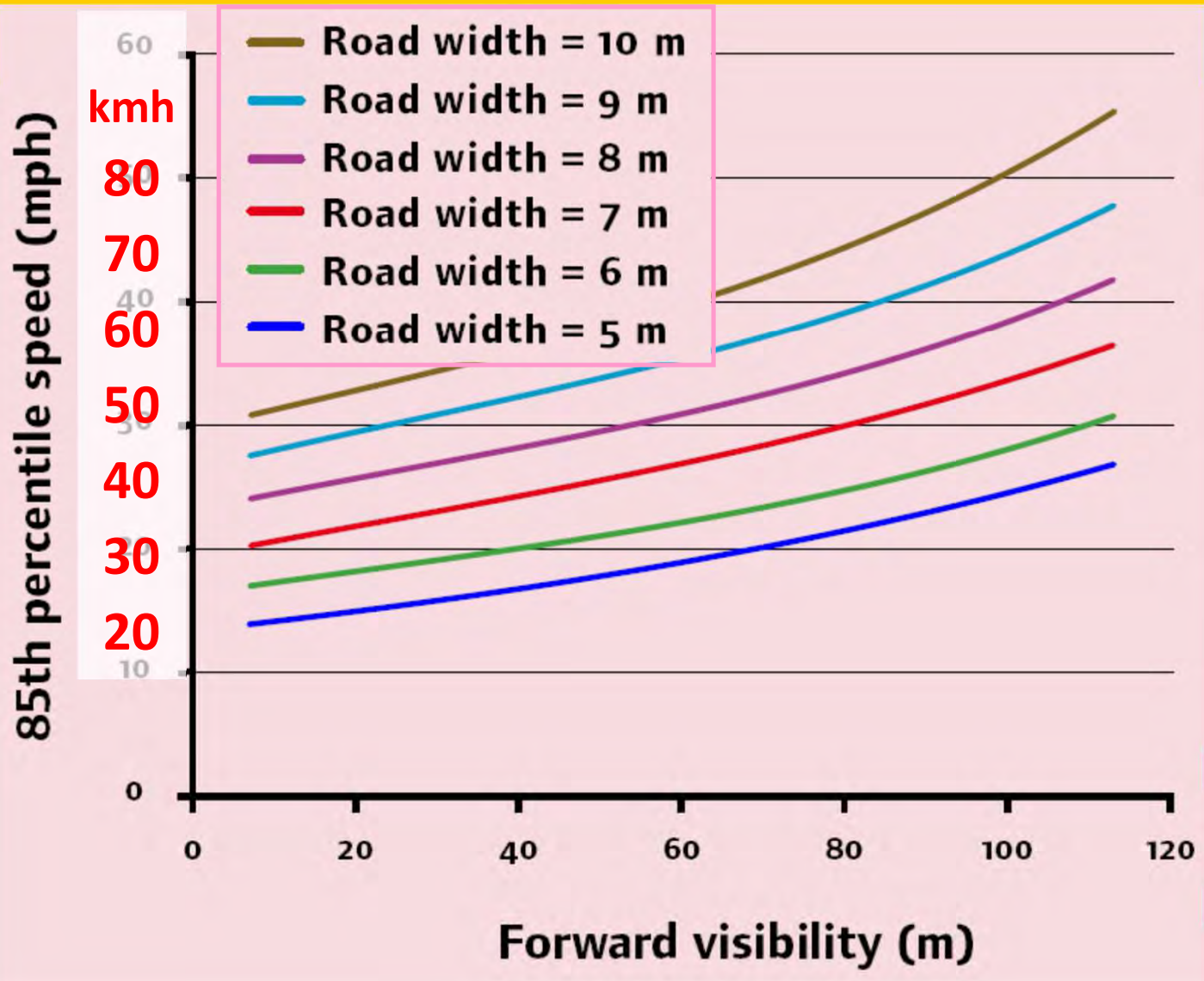
# Contributors to higher vehicle speeds

- Road **Length** – visual and physical
  - *Treatments: Have street sections < 250m, Limit forward sight distance (plantings, realignment)*
- Road **Width** – perceived and actual
  - *Treatments: Reduction in visual or actual width (kerbs extensions, plantings, wide lines), Pavement deflections (chicanes/islands)*
- Smooth **Surfaces**
  - *Treatments: Cobbled/tiled pavements, Vertical deflections (humps/platforms), Rumble strips*



# Effect of Geometry on Traffic Speeds

- Width and sight distance make a difference



TRL Report #661,  
DfT UK (2007)



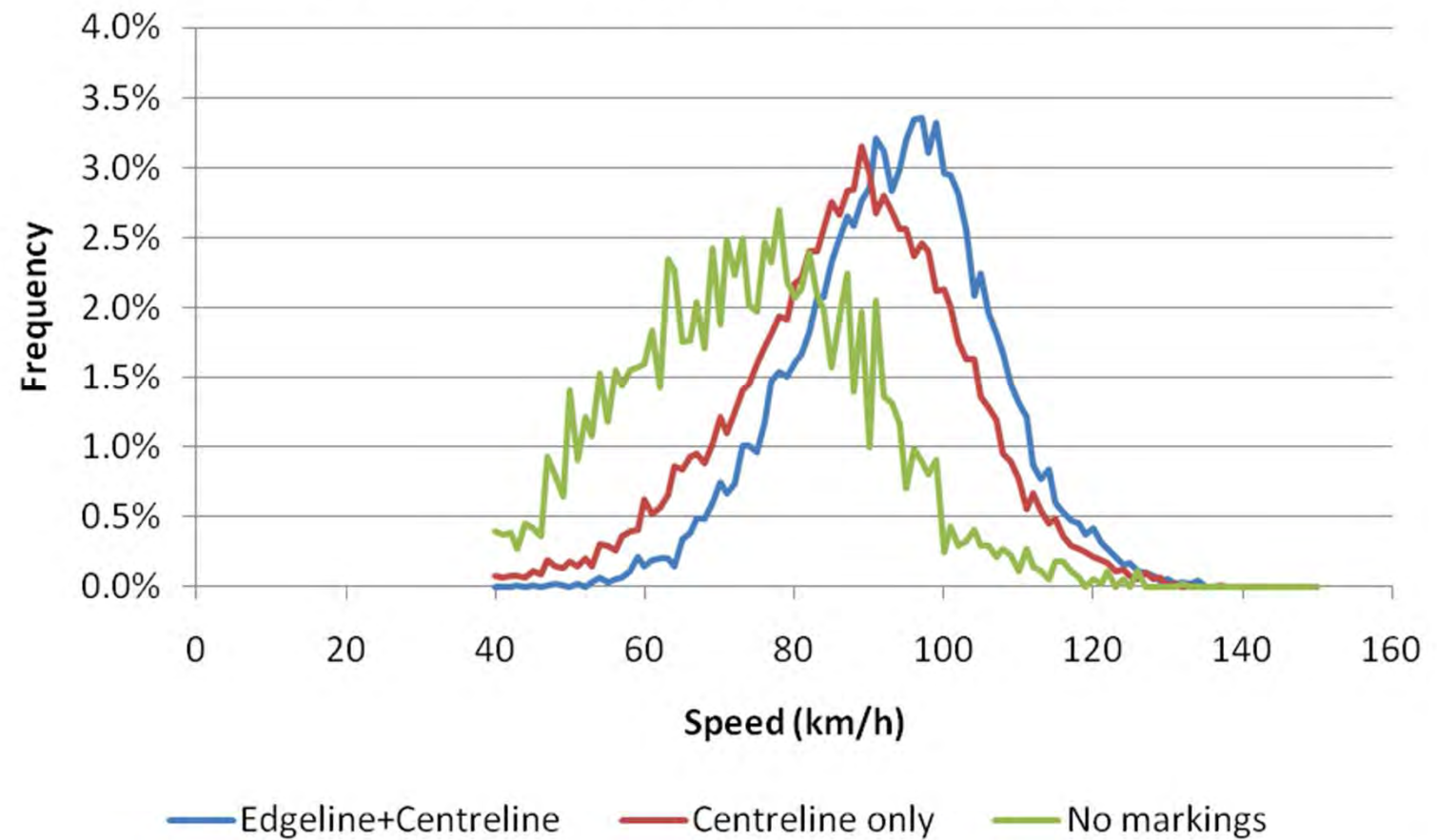


# Effect of Road Markings on Speeds

*Burdett & Nicholson  
(2010)*



Relative Speed Frequencies on Rural Roads





# Explain WHY people should slow down





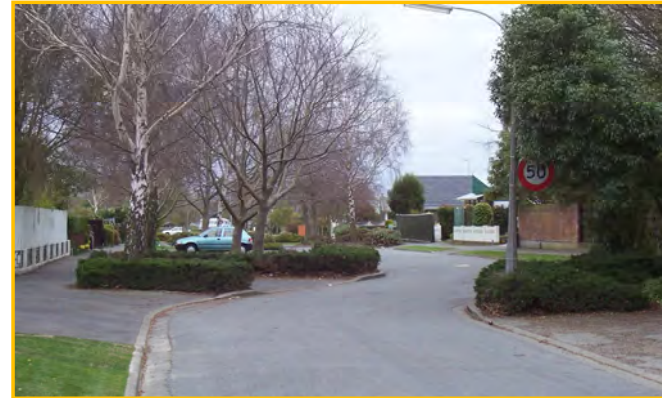
## (5) Prioritisation

# Start with the 'Low Hanging Fruit'

- Suburban/CBD shopping streets



- Residential traffic calmed areas



- School zones



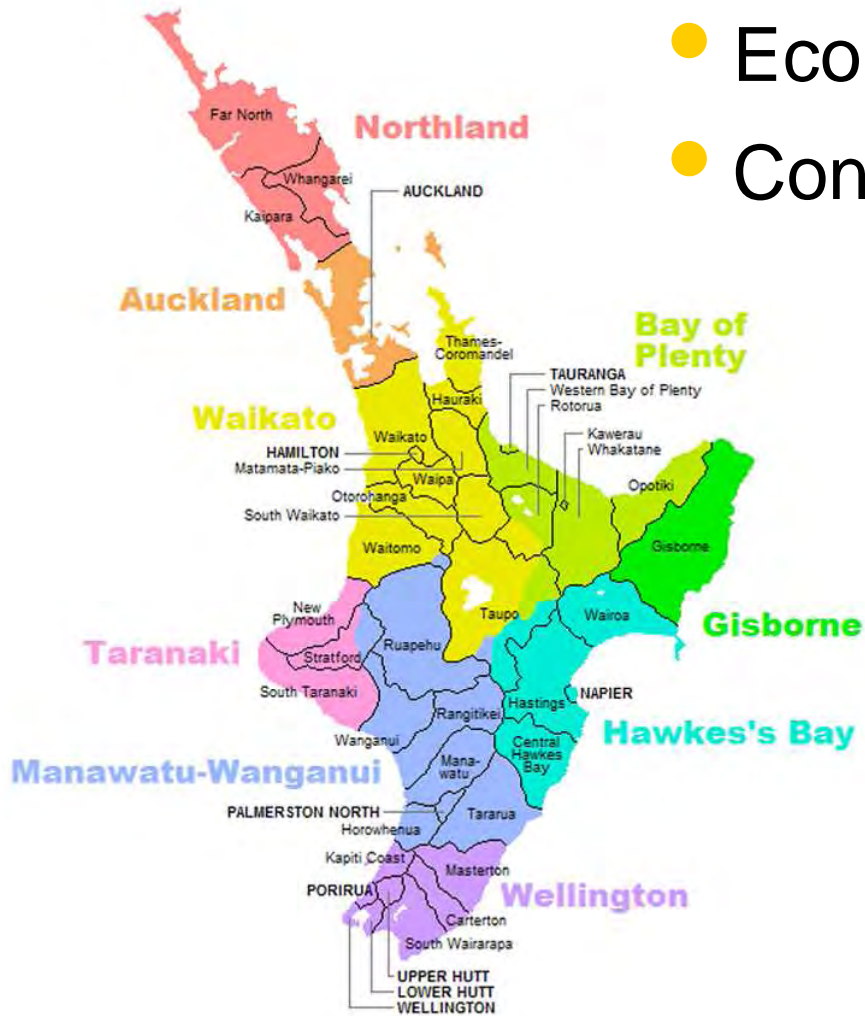
- Unsealed/winding/narrow rural roads





# Consider a region-wide speed plan?

- Economies of scale
- Consistency of approach



## (6) Public & political engagement

- Focus on **risk** – highlight safety record and relative severities
- Have **data!** Risk ratings, Speeds, Community concerns, etc
- Explain the **link** between speed and casualty rates
  - Lots of research, in NZ and overseas
- Demonstrate a **strategy** that considers all options
- Talk to **everyone** (residents, schools, active users, etc)
  - Not just motorists (AA, RTF, etc)
- Have ready answers to **pre-empt** the usual concerns
  - Such as...



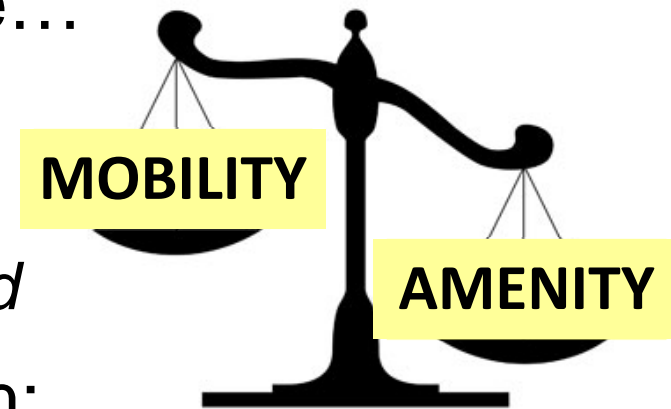
# “Won’t lowering speed limits greatly increase Travel Times?”

- Maybe a little, but most traffic delay is due...
  - Other **traffic** (local towns, interscetions)
  - **Site** restrictions (curves, roadworks)

*Typically few opportunities to reach max. speed*

- You will gain more economic benefits from:
  - **Safety** benefits of reduced speeds
  - **Health** benefits of encouraging more active trpt
  - **Retail** benefits from encouraging passing trade
  - **Property Value** benefits due to more liveability

*Trading a little mobility for vastly improved **amenity***

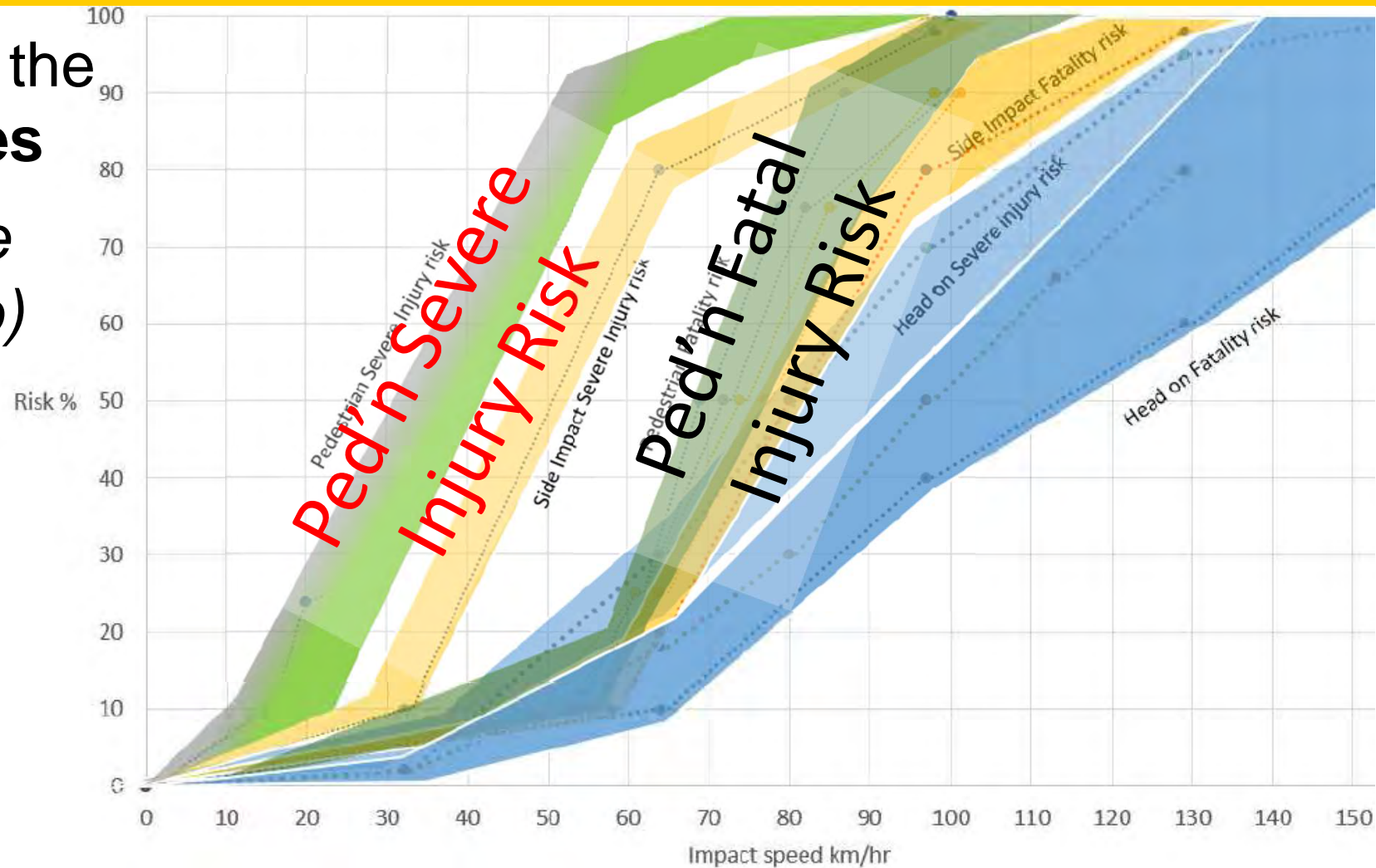




**“It’s not speed that causes crashes,  
it’s poor driving and poor roads”**

- Speed affects the **consequences**

*(it affects the likelihood too)*



Scott & Mackie 2014

*“The average speed is already well below the speed limit”*

- So reinforce that with an **enforceable** speed limit!





# (7) Consultation feedback from stakeholders

● WHO are you asking?



These guys...

...or these guys?

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# Summary: Speed Management Plan process

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# Conclusions

- Speed continues to be a problem in NZ
  - Driver speed greatly affected by road environment
  - Inappropriate speed limits for the conditions
- Setting speed limits easier now in NZ
  - But required network review/consultation process still takes work
- Lower speed limits (+ traffic calming) still under-used in NZ
  - Plenty of “low hanging fruit”

*Do we fit the speed limit to the road  
or fit the road to the speed limit?*



# Thank You!

- Any Questions?

- [glen@viastrada.nz](mailto:glen@viastrada.nz)

 [GKoorey](#)

*Dominion Post,  
11 Feb 2015*

## 'City 30kmh speed limit saved my life'

TOM HUNT AND OLIVIA WANNAN

Last updated 05:00, February 11 2015



SUPPLIED

COUNTING HER BLESSINGS: Elle Haring escaped with cuts and bruises.

Elle Haring simply did not hear the "silent" bus that knocked her down in central Wellington.

The Valley Flyer bus, travelling about 25kmh, hit her from behind in Manners St, between Victoria St and Cuba St, shortly after 8am yesterday, she said.

"The bus was completely silent. I think if I had heard it, I would have looked.

