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Assessment of personal travel adaptive capacity using a participatory survey approach

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New Zealand's specialist land-based university

Assessment of personal travel adaptive capacity using a participatory survey approach

- Overview
 - Adaptive capacity
 - Motivation
 - The survey
 - Results
 - Compared to Household travel
 - Adaptive capacity
 - Important factors found
 - Summary and on going work

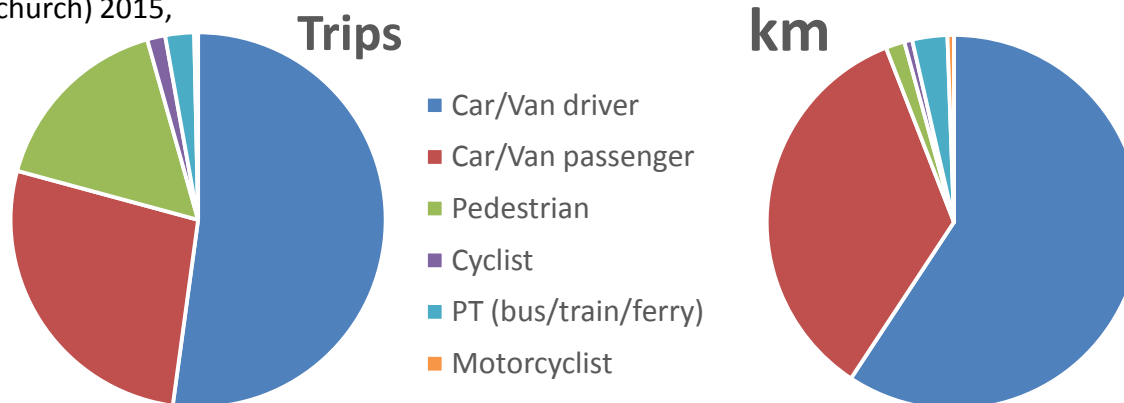
Adaptive capacity / Resilience

- Travel adaptive capacity defined as
 - *maximum potential to reduce private transport fuel consumption through;*
changing transport mode,
car-pooling, and
participating in the activity without traveling
- Higher adaptive capacity → increased resilience to;
 - fuel price increases,
 - fuel supply interruptions,
 - Other factors that may impact private transportation

Adaptive capacity / resilience

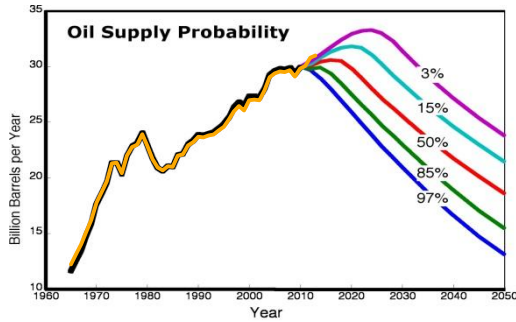


Google Maps (showing Christchurch) 2015,

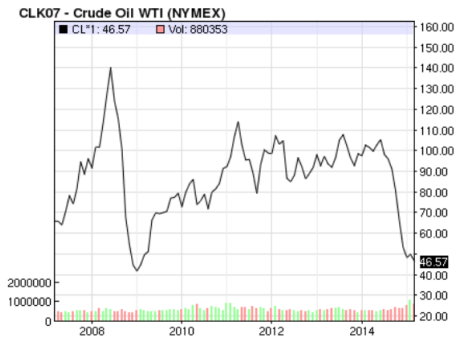


New Zealand Household Travel Survey 2009-2012, May 2013

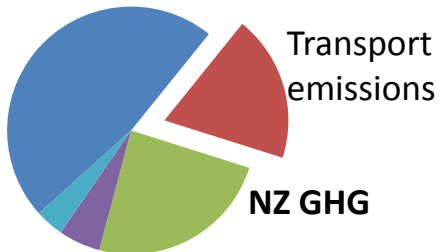
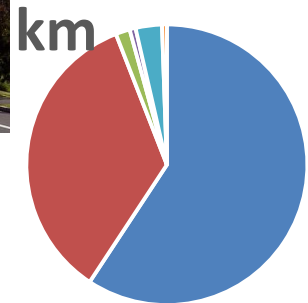
Motivation



Continued supply

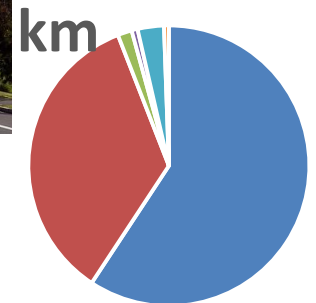


Price



Environmental

The survey

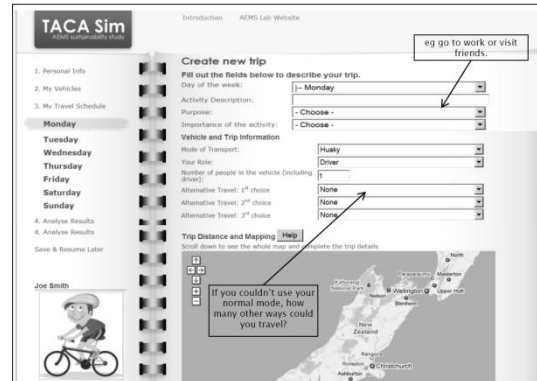


The survey

- Found out peoples typical weekly travel activity
 - time, purpose, mode, distance...
- For each trip, we asked;
“If you couldn’t use your normal mode, how many other ways could you travel”
 - I could do this activity without travelling
 - I could share a ride
 - I could use a bike
 - I could walk
 - I could use a bus (or some other public transport mode)
 - Other

The survey

Web based
survey



University of Canterbury,
Staff and students

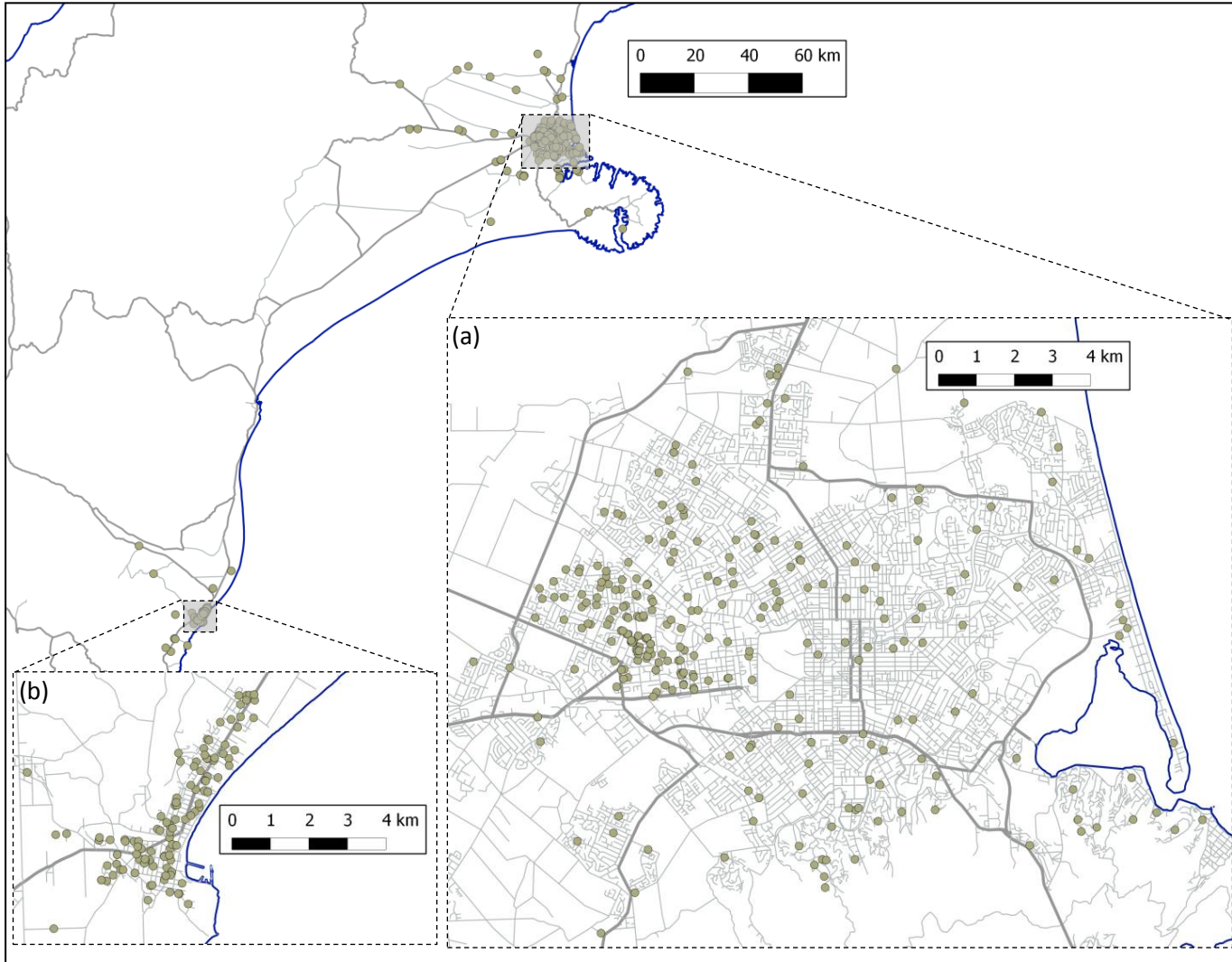


Rural town of Oamaru



New Zealand's specialist land-based university

The survey



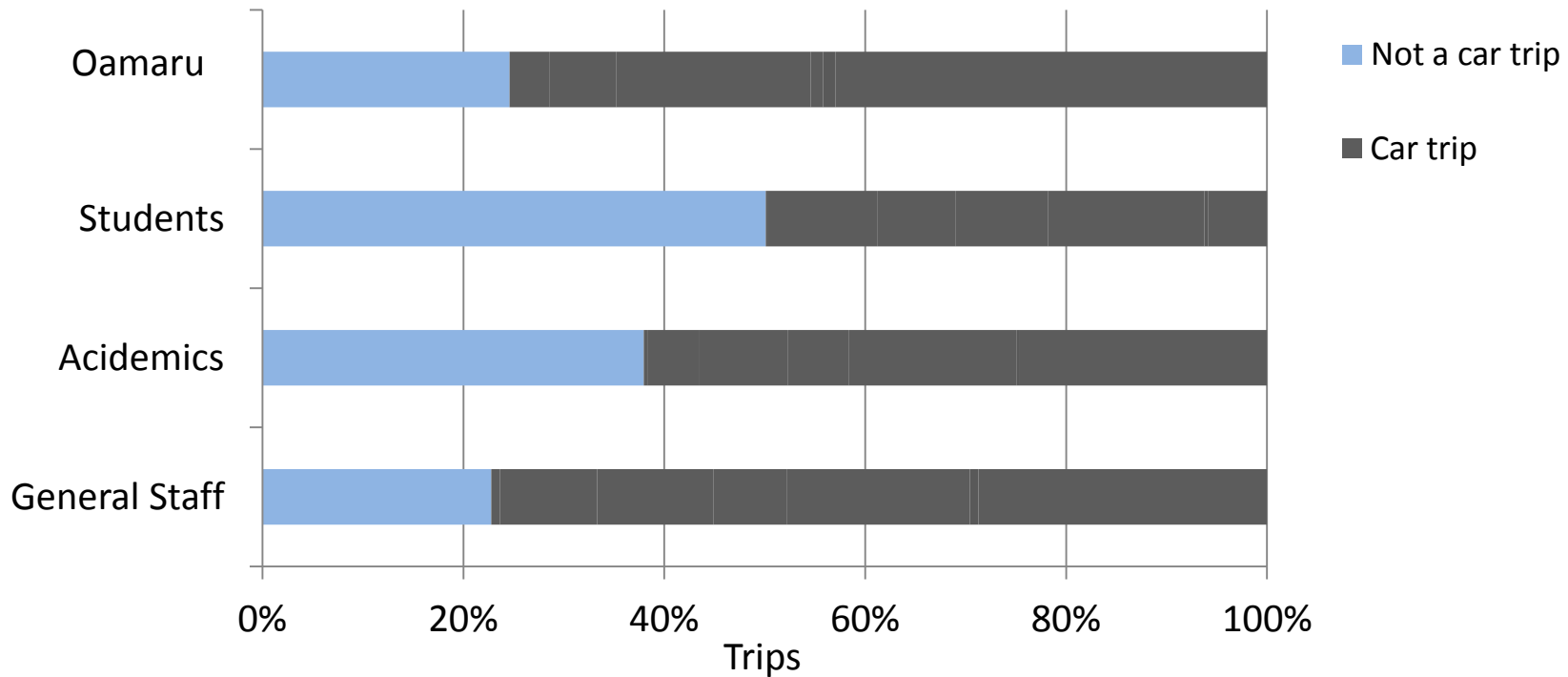
Results

- Compared with the Household travel survey

Mode	Christchurch		Otago Region	Oamaru
	MOT	TACA	MOT	TACA
Trip legs in sample	17959	6364	8816	2082
%household trip legs				
1. Car/ van driver	46%	55%	53%	68%
2. Car/van passenger	24%	7%	23%	7%
3. Pedestrian	23%	14%	20%	18%
4. Cyclist	3%	16%	1%	6%
5. PT (bus/train/ferry)	4%	5%	1%	1%
6. Motorcyclist	0%	0%	0%	0%
7. Other	1%	1%	1%	0%
Total	100%	100%	100%	100%

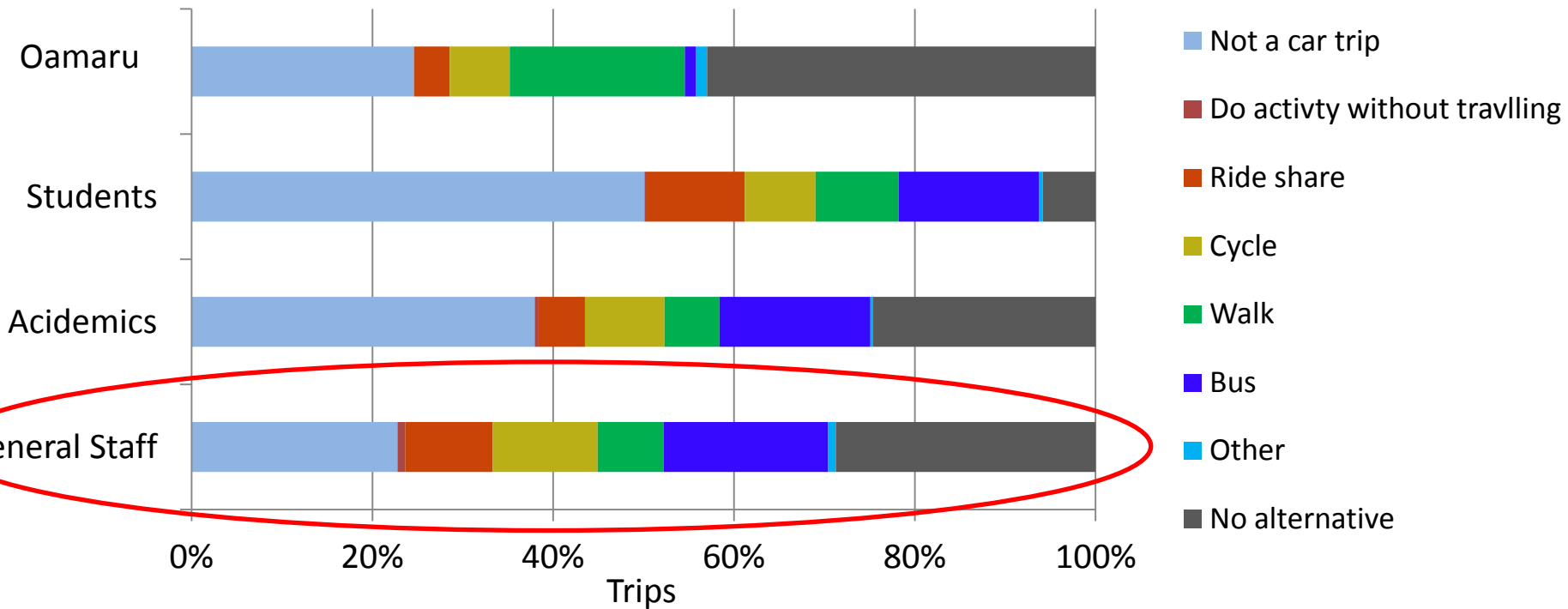
Results

How people normally travel



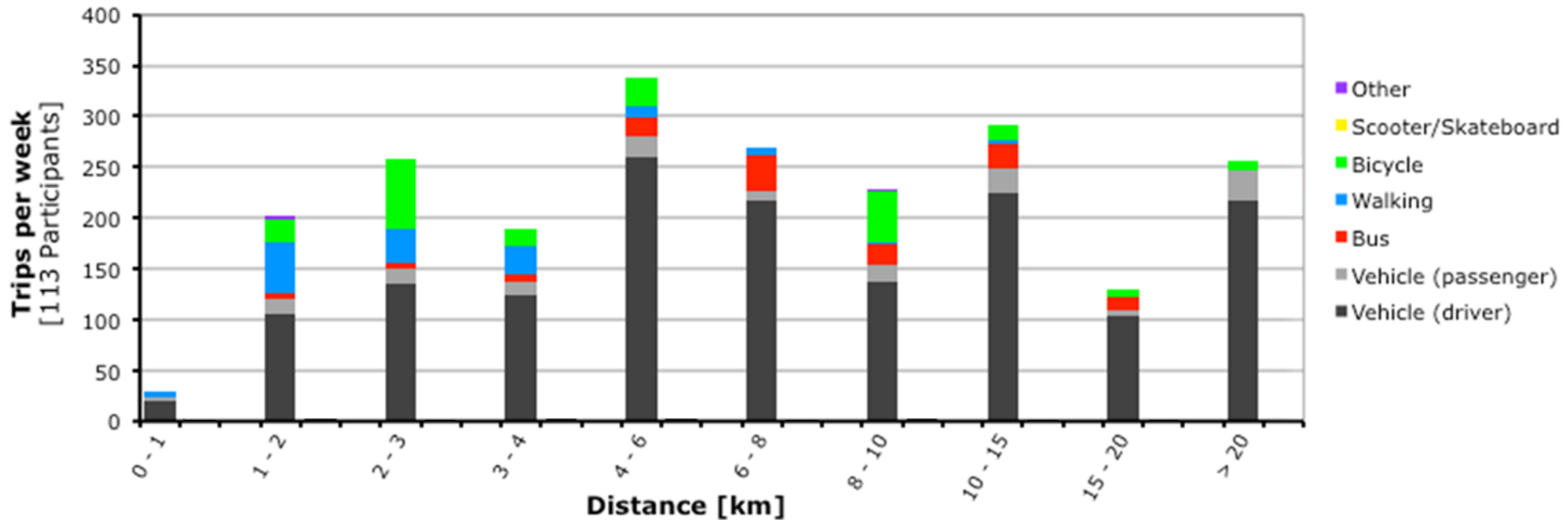
Results

- Options they have



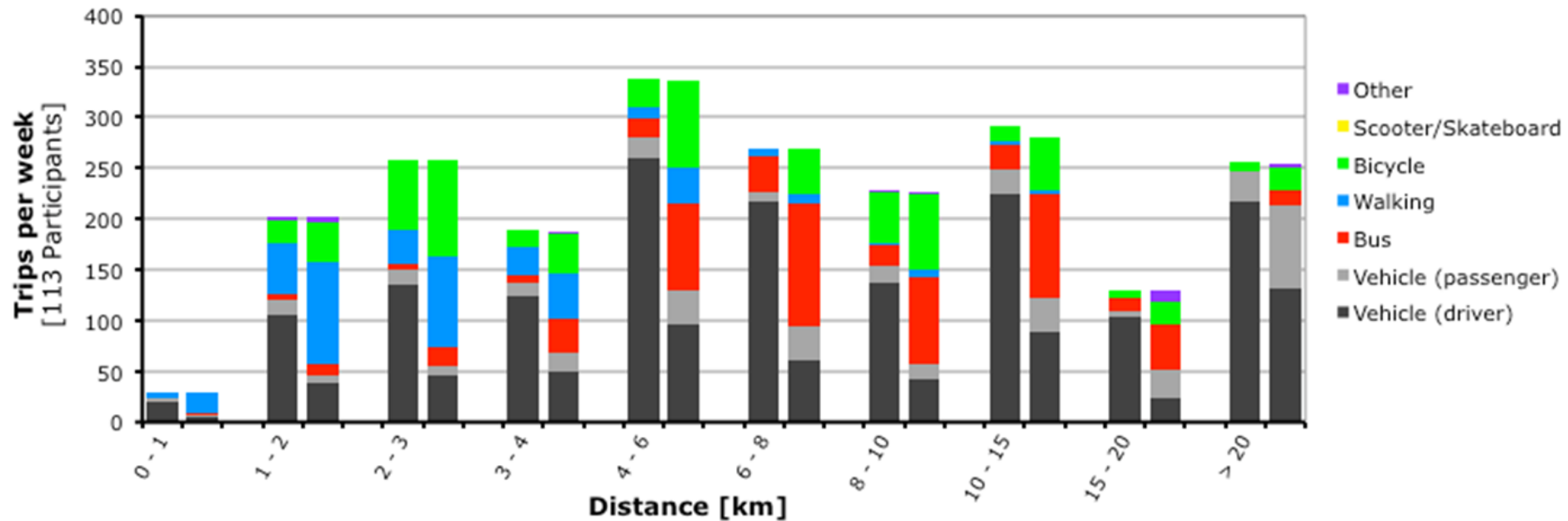
Results

How people normally travel



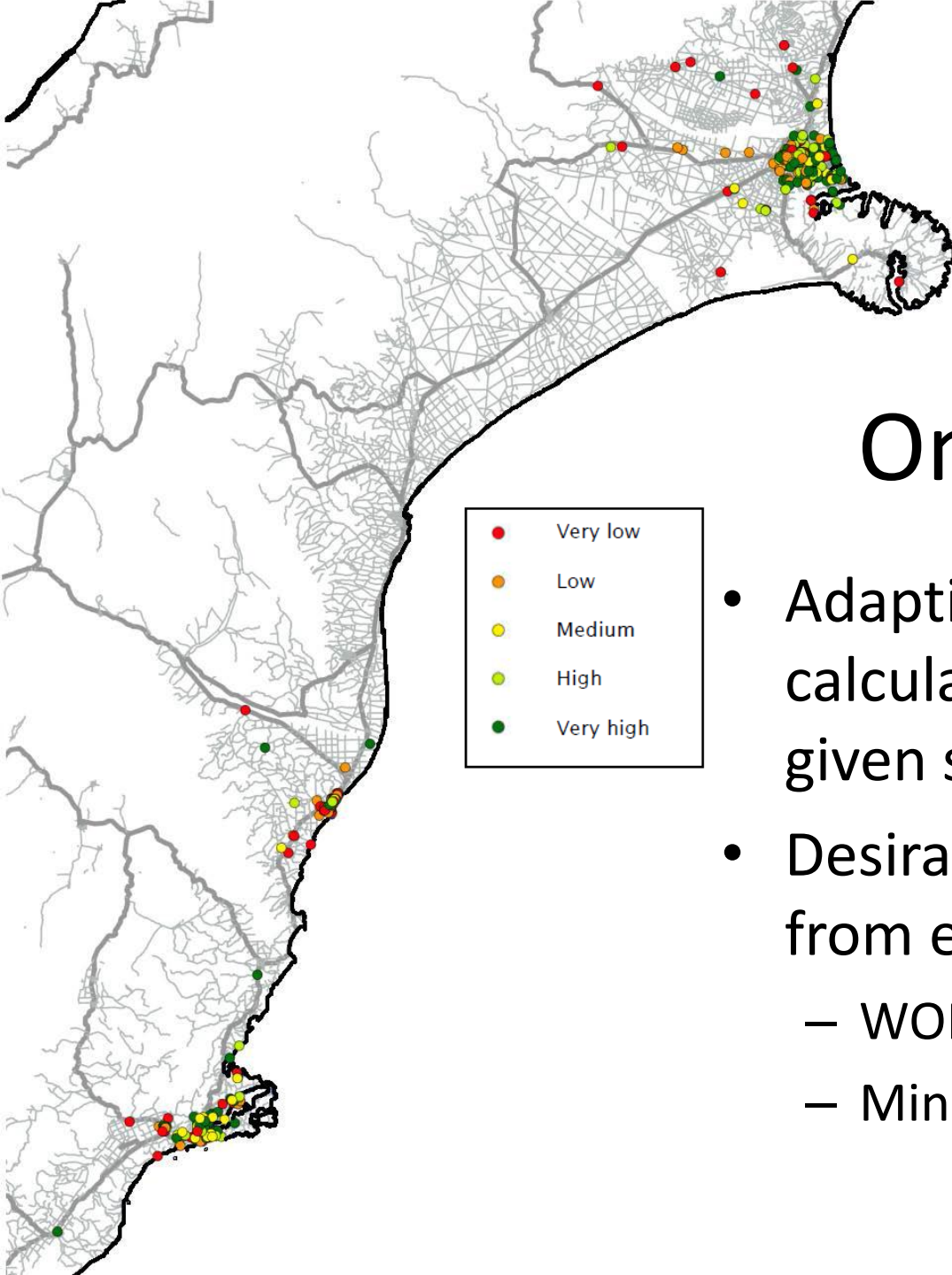
Results

Options they have



Results

- Summary of results
 - Over half of all car travel had an alternative, leaving approx. 25% of all trips having no alternative to the car
 - The adaptive capacity depended on
 - Transport infrastructure
 - Location of activities in relation to home (distances)
 - Demographics to some degree
 - Multinomial logit model developed to tease out factors of influence



On Going work...

- Adaptive Capacity can be calculated at individual level given survey results
- Desirable if it could be calculated from existing data...can be using;
 - WOF – current energy demands
 - Minimum Energy Activity modelling

Summary

- Travel adaptive capacity defined as
 - maximum potential to reduce private transport fuel consumption through changing transport mode, car-pooling, and participating in the activity without traveling
- Web based survey undertaken found
 - Over half of all car travel had an alternative, leaving approx. 25% of all trips having no alternative to the car
- Ongoing work has developed a measure of vulnerability (limited adaptive capacity) based on existing data sources

