



Evaluating a Travel Behaviour Change By Means of a 3-Year Panel

Professor Peter Stopher and Dr. Eoin Clifford
Institute of Transport and Logistics Studies
The University of Sydney



Outline



- Introduction
- Methodology
- Recruitment Strategy and Process
- Method of Analysis
- Results
- Conclusions





Introduction



- **Implementation of a VTBC project in South Australia beginning in 2005**
 - Staged implementation from mid-2005 to end 2006
 - Targeted 21,000 households as participants out of a population of 64,000 households
- **ITLS separately contracted to undertake an evaluation of its effects from 2005 (March) to 2007 (December)**
- **Two-pronged approach:**
 - Odometer panel of 1000 households
 - GPS panel of 200 households



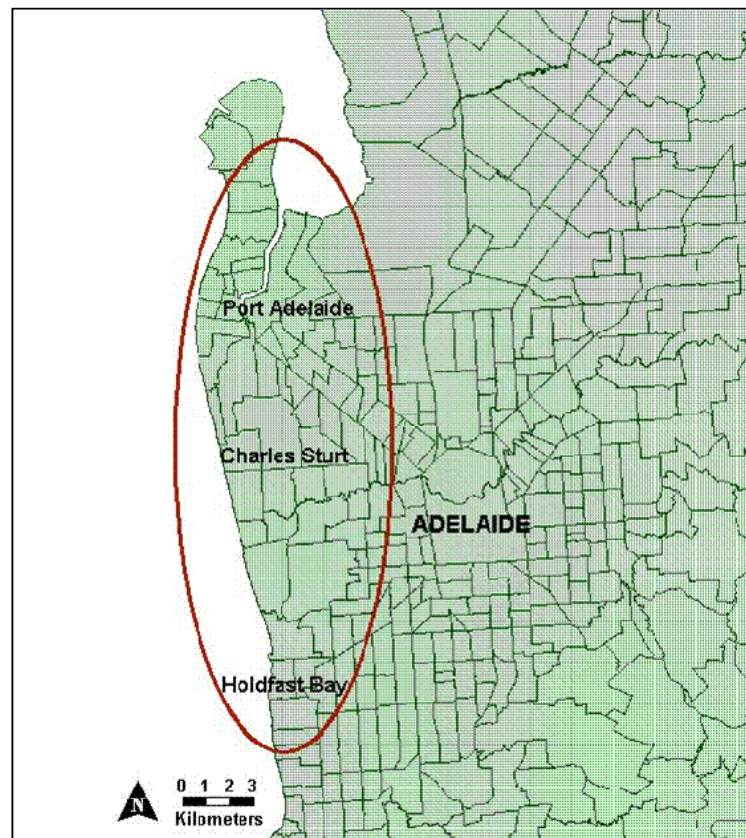
July 2008

Evaluating Travel Behaviour Change

3



Study Area



July 2008

Evaluating Travel Behaviour Change

4



Methodology



- **GPS Panel involved:**
 - Personal GPS device to each household member over 14
 - Carry GPS device for 1 week
 - Panel waves conducted as:
 - Pilot in March-April 2005
 - Wave 1 in September-December 2005
 - Wave 2 in September-November 2006
 - Wave 3 in September-November 2007

t dm
2008 vienna

July 2008

Evaluating Travel Behaviour
Change

5



GPS Device



t dm
2008 vienna

July 2008

Evaluating Travel Behaviour
Change

6



Recruitment



- **Sample drawn from a GIS layer of land use by parcel**
 - Telephone matching to addresses
- **Pre-notification letter sent prior to first contact**
- **Telephone recruitment of households to the panel (3 waves)**
- **University of Sydney Ethics requirement for a signed consent form**



July 2008

Evaluating Travel Behaviour
Change

7



Recruitment *...continued*



- **Households asked to fill out a household form, vehicle form, and GPS usage form (waves 2 and 3)**
- **GPS devices and forms delivered by courier**
- **Telephone call following courier delivery**
- **Telephone call at end of one-week recording period**
- **Arrangement for courier pick up of forms and devices on day or two after recording week**



July 2008

Evaluating Travel Behaviour
Change

8



Panel Maintenance



- Newsletter sent to participants between waves
- Attrition made up in Wave 2, plus extra recruitment to allow for attrition in wave 3
 - Need for at least two waves of data on each household
 - Hence, no additional recruitment in wave 3



July 2008

Evaluating Travel Behaviour
Change

11



Analysis



- ITLS has developed software to:
 - Discard irrelevant data
 - Identify trip ends
 - Identify mode of travel
 - Identify purpose (not used in this study)
- Requires GIS data bases of streets, bus routes, bus stops, land use
- Also requires eliminating persons with too many missing days of data



July 2008

Evaluating Travel Behaviour
Change

12



Results



• Sample disposition:

	Main Wave 1	Main Wave 2		Main Wave 3
Disposition	Total	Continuing	New Recruits	Total
Sample	1000		550	
Attempted to contact	699	244 ⁺	338	279
Refusing Households	323 (46%)	28 (11%)	165 (49%)	42 (15.1%)
Ineligible Households	209 (30%)	30 (12%)	21 (6%)	10 (3.6%)
Recruited Households	167 (24%)	186 (76%)	152 (45%)	227 (81.4%)
Did not comply	16 (10%)*	12 (6%)*	18 (12%)*	30 (13%)*
Completed Households	151 (90%)*	174 (94%)*	134 (88%)*	197 (87%)*

tdm
2008 vienna

July 2008

Evaluating Travel Behaviour
Change

13



Results ...continued



Daily Average Travel Measure	Mean Values						
	Wave 1	Wave 2 All	Wave 3 All	Wave 2 TS	Wave 3 TS	Wave 2 non-TS	Wave 3 non-TS
Total Daily Trips	7.03	9.70	7.65	9.54	7.52	9.98	7.93
Total Time (mins)	49.46	65.06	59.48	63.50	59.45	67.84	59.53
Total Distance (kms)	104.06	130.40	118.65	128.47	120.07	133.86	115.76
Daily car trips*	5.53	6.76	6.07	6.62	5.74	7.00	6.74
Total Car Time*	106.36	111.07	110.97	110.53	110.94	112.04	111.01
Total Car Distance*	57.46	68.69	65.59	67.57	65.10	70.71	66.60

* figures for car travel only take into account days where that mode was used

tdm
2008 vienna

July 2008

Evaluating Travel Behaviour
Change

14



Results *...continued*



- More detailed results cannot be released at this time
- Suffice to say that the evaluation showed significant reductions by VTBC households
 - VTBC households' VKT per day decreased
 - Control group households' VKT per day increased
 - Same results for travel time
 - Most significant differences occurred for travel by car



July 2008

Evaluating Travel Behaviour
Change

15



Conclusions



- Independent evaluation of largest VTBC intervention in Australia to date
- GPS panel of 200 households produced highly significant results of change in travel behaviour
- GPS panel was able to measure travel by car, public transport, bicycle, and walk
- GPS panel showed that VTBC made significant reductions in car travel measured by time and distance
- Some evidence of a decrease in number of car trips



July 2008

Evaluating Travel Behaviour
Change

16