Travel Demand Management in NZ: A Cautionary Tale

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Introduction (I)

NZ ratified Kyoto Protocol in 2002:
- GHG emissions during 2008-2012 ≤ 1990 level

Five criteria for evaluating options:
- size of reduction in GHG emissions;
- net benefit after winners compensate losers;
- practicability of implementation;
- impact on competitiveness of NZ businesses;
- impacts distributed fairly on different groups.
**Introduction (II): GHG Types**

<table>
<thead>
<tr>
<th>Emission Types</th>
<th>1990</th>
<th>2005</th>
<th>Change</th>
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<tbody>
<tr>
<td></td>
<td>Level Mt</td>
<td>Share %</td>
<td>Level Mt</td>
</tr>
<tr>
<td>CO₂</td>
<td>25.3</td>
<td>41.1</td>
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<td>CH₄</td>
<td>25.5</td>
<td>41.2</td>
<td>27.2</td>
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<td>N₂O</td>
<td>10.4</td>
<td>16.8</td>
<td>13.3</td>
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<td>0.9</td>
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<tr>
<td>Total</td>
<td>61.9</td>
<td>100.0</td>
<td>77.2</td>
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</tbody>
</table>

**Introduction (III): GHG Sources**

<table>
<thead>
<tr>
<th>Emission Source</th>
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<tr>
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<td>Share %</td>
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<td>14.2</td>
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<td>Energy Other</td>
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<td>4.3</td>
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<td>4.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>61.9</td>
<td>100.0</td>
<td>77.2</td>
</tr>
</tbody>
</table>
Introduction (IV)

CO₂ share is large & growing quickly.
Agriculture share is large but declining.
Transport energy share is medium but growing fast:
- 89% transport emissions from road transport;
- 0.73 motor vehicles/person;
- 75% all trips (83% work trips) by private vehicle;
- 2.5% all trips (6% work trips) by public transport.

NZ Transport Strategy (2002)

Vision: by 2010, an “affordable, integrated, safe, responsive, and sustainable transport system”.

Key objectives:
- assisting economic development;
- assisting safety and personal security;
- improving access and mobility;
- protecting and promoting public health;
- ensuring environmental sustainability.
Updated NZ Transport Strategy (2007)

NZTS and Land Transport Management Act (2003) have been ineffective, hence Updated NZTS.

New goals for NZ:
- “halve per capita domestic GHG emissions by 2040”;
- “be the first carbon neutral country in the world”.

New instruments:
- Emissions Trading Scheme (ETS) from Jan. 2009;
- petrol & diesel to include 3.4% bio-fuel by 2012.

Updated NZ Transport Strategy (2007)

Proposed ETS has met strong opposition:
- minimal reduction in GHG emissions;
- delayed application to agriculture (largest source);
- large credits to large industrial producers, etc.;
- household, small/medium enterprises & road users (33% GHG) bear 90% of cost to 2013.

Major concern about sustainability of bio-fuels.
All trips between north & south must cross isthmus:

94% residents & ‘all’ businesses say very important or important to reduce congestion.

Single Cordon

Charge $6 on Harbour Bridge & $3 elsewhere ($6 maximum/day) for inwards travel across cordon.
Double Cordon

Charge $6 on Harbour Bridge & $3 elsewhere ($6 maximum/day) for inwards travel across each cordon.

Area Charge

Charge $5/day for entering or travelling within CBD & adjoining inner suburbs.
Auckland Road Pricing Study (2006)

Strategic Network Charge
Charge $0.00-$0.25/km on motorways & major arterials, depending on congestion level ($6 maximum/day).

Parking Levy Scheme
Charge $10/trip for parking on public & private land within CBD and main regional commercial centres.
### Auckland Road Pricing Study (2006)

<table>
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<tr>
<th></th>
<th>base case</th>
<th>single cordon</th>
<th>double cordon</th>
<th>area strategic network</th>
<th>parking levy</th>
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<td>Δ(avg. cost) affected trips (%)</td>
<td>n/a</td>
<td>+63</td>
<td>+70</td>
<td>+62</td>
<td>+41</td>
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<tr>
<td>Δ(public transport) (%)</td>
<td>n/a</td>
<td>+31</td>
<td>+46</td>
<td>+36</td>
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<tr>
<td>Δ(walk+cycle) (%)</td>
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<td>+9</td>
<td>+0</td>
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<td>Δ(fuel) (%)</td>
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<td>Benefit/Cost Ratio</td>
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<td>2.9</td>
<td>2.3</td>
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</table>

Public consultation revealed:

- 75% of submitters against road pricing;
- lack of alternative to using car (inadequate public transport system);
- lack of ‘ring road’ around congested area;
- perception that roads have already been paid for via taxes;
- flat charge would affect less-wealthy excessively.
Travel Plans (I)

School-based travel plans (& walking buses):
- reduce car travel to school (currently >50%).

Workplace travel plans/strategies (e.g. UC):
- reduce need for extra parking for growth;
- allow funds to be used for teaching & research.

Goals not opposed, but instrument opposed:
- car parking fees, with income used to promote more sustainable modes.

Travel Plans (II)

Earlier (1975) parking fee scheme was aborted:
- lack of consultation;
- minimal travel behaviour data and analysis;
- high level of opposition.

This time opposition overcome:
- thorough analysis of travel behaviour data;
- considerable consultation.
### Staff Mode Choice (%)

<table>
<thead>
<tr>
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<th>staff</th>
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<td>cycle</td>
<td>walk</td>
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### Student Mode Choice (%)

<table>
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<tr>
<th>year</th>
<th>students</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
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<td>1966</td>
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<td>1971</td>
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<td>33.1</td>
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GHG Emissions Reduction Options

Restrain growth in economy (‘volume effect’).

Reduce ratio of GHG to GDP (‘emission intensity’):
- shift economy towards lower emission activities (‘composition effect’);
- reduce emissions associated with current activities (‘efficiency effect’).
- i.e. de-couple transport & economic growth.

Conclusion (I)

Efforts to reduce GHG emissions ineffective because:
- conflicts between goals not recognised & guidance on conflict resolution not provided;
  - easy to justify ‘business as usual’;
- lack of thoroughness in identifying & evaluating policy options;
  - many options not considered & effectiveness of options not clear;
Conclusion (II)

- policy direction ambiguous;
  - promoting TDM while heralding large increase in road building;
  - easy to justify ‘business as usual’;
- setting unrealistic targets;
  - credibility of proposals (& proposers) reduced;
Very difficult to design a coherent, integrated & effective TDM package to reduce GHG emissions:
- recent large fuel price increases a blessing.