Early works on Google Earth
Britomart Station – temporary operations
Developments on Google Earth
Planning Effective Delivery
What is the problem?
Demand over and near capacity
Existing conditions on the bus network
### Bus flow service volumes

#### Flow Rates for Exclusive or Near - Exclusive Lane

<table>
<thead>
<tr>
<th>ARTERIAL STREETS</th>
<th>25 or less</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stable Flow - Unconstrained</td>
<td>26 to 45</td>
<td>35</td>
</tr>
<tr>
<td>Stable Flow - Interference</td>
<td>46 to 75</td>
<td>60</td>
</tr>
<tr>
<td>Stable Flow - Some Platooning</td>
<td>76 to 105</td>
<td>90</td>
</tr>
<tr>
<td>Unstable Flow - Queuing</td>
<td>106 to 135</td>
<td>120</td>
</tr>
<tr>
<td>Forced Flow - Poor Operation</td>
<td>Over 135*</td>
<td>150*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CBD STREETS</th>
<th>20 or less</th>
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<tr>
<td>Free Flow</td>
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<tr>
<td>Stable Flow - Unconstrained</td>
<td>21 to 40</td>
<td>30</td>
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<tr>
<td>Stable Flow - Interference</td>
<td>41 to 60</td>
<td>60</td>
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<tr>
<td>Stable Flow - Some Platooning</td>
<td>61 to 80</td>
<td>70</td>
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<tr>
<td>Unstable Flow - Queuing</td>
<td>81 to 100</td>
<td>90</td>
</tr>
<tr>
<td>Forced Flow - Poor Operation</td>
<td>Over 100*</td>
<td>100*</td>
</tr>
</tbody>
</table>

*Results in more than one-lane operation

This is the problem (unstable flow and queuing after 80 buses per hour)
Existing conditions: Symonds Street (AM Peak)
Options investigated
Options investigated

**Option 1:** High Bus investment

**Option 2:** Light Rail investment
Option 2: Light Rail Investment Scenario
Light Rail on Google Earth
Overseas examples: Bus and LRT
Overseas example: Brisbane BRT
Overseas examples: Brisbane BRT
Overseas examples

Trams at the Bourke Street Mall
Commuter and light rail

Metro rail - CRL - links what exists

- A regional solution to optimise rail for an efficient transport network

Light rail - a new solution

- Optimises road within the transport network
Staging

1. Queen Street
2. Dominion Road
3. Sandringham Road
4. Manukau Road
5. Mt Eden Road

Auckland Transport
An Auckland Council Organisation
Planning Effective Delivery
Concept images
Transport

Conclusions

• There is an established way of approach transport appraisal based on straight line growth forecasts and values of time with fixed population and employment patterns, but it is not clear that it reflects what actually happens.

• In reality transport drives land use patterns just as much as land use drives transport demand.

Delivering transport choices to get you where you want, when you want.

Our Vision