## Cycle counting programme in Hamilton

### Why count cyclists?
- Providing transport choices is an objective of the Access Hamilton Strategy.
- Network element prioritisation
- Project appraisal
- Inform design briefs

### Methods of monitoring cycling levels
- **All methods**
  - National surveys
    - Census, Household Travel Survey
  - Local surveys
    - School hands-up, bike shed counts
    - School travel surveys
    - Intercept surveys
  - Traffic counts
    - Cordon
    - Screenline
    - Sample of network sites

- **Counting methods**
  - Manual counts obtain:
    - Cyclist types
    - Turning volumes
    - Calibration data
  - Automatic counts:
    - Larger samples
    - More economic
    - Permanent or short-term

### Programme development

#### 1. Determine number of sites

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Hamilton</th>
</tr>
</thead>
<tbody>
<tr>
<td>City population (2009)</td>
<td>141,504</td>
</tr>
<tr>
<td>City area (km²)</td>
<td>98</td>
</tr>
<tr>
<td>Approximate city dimensions (km)</td>
<td>8 x 12</td>
</tr>
<tr>
<td>City density (people/km²)</td>
<td>1222</td>
</tr>
<tr>
<td>Cycle network length (km)</td>
<td>71</td>
</tr>
</tbody>
</table>

#### 2. Consider strategic site criteria
- Mix of geographic areas and features
- Mix of facility types
- Mix of cyclist types and trip purposes

#### 3. Select counting equipment

<table>
<thead>
<tr>
<th>Detection type</th>
<th>Installation / Duration</th>
<th>Kerbside cycle lane</th>
<th>Cycle lane adjacent to parking</th>
<th>Mixed traffic</th>
<th>Off-road path</th>
<th>Pneumatic tube / Piezoelement</th>
<th>Pneumatic tube / Piezoelement with Thermistor Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrared</td>
<td>Above-ground</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Inductive loops</td>
<td>In-ground</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Piezo-electric cables</td>
<td>Short term or permanent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pneumatic tubes</td>
<td>Above-ground</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Short-term or one-off</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

#### 4. Specify counting durations
- **Automatic**
  - Permanent
  - Short-term
- **Manual** – peak periods only

#### 5. Determine counting method

<table>
<thead>
<tr>
<th>Method</th>
<th>Counting Duration</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent</td>
<td>Automatic counter (ZELT or MetroCount piezos)</td>
<td>Year-long</td>
</tr>
<tr>
<td>Short-term</td>
<td>Automatic counter (ZELT or MetroCount)</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Manual</td>
<td>Manual counter</td>
<td>Peak periods</td>
</tr>
</tbody>
</table>

#### 6. Site selection

<table>
<thead>
<tr>
<th>Location</th>
<th>Area, Direction</th>
<th>Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boundary Rd Bridge</td>
<td>Central (E); Bidirectional</td>
<td>Shldr, path</td>
</tr>
<tr>
<td>Waikato River path</td>
<td>Central (N, E); Bidirectional</td>
<td>Path</td>
</tr>
<tr>
<td>Rifle Range / Norton / Lincoln (SH1)</td>
<td>West, TBD</td>
<td>Path</td>
</tr>
<tr>
<td>Waikato River path (south of Bridge St)</td>
<td>Central (S); Bidirectional</td>
<td>Path</td>
</tr>
<tr>
<td>Caudelands Bridge</td>
<td>Central (E); Outbound</td>
<td>Cycle lane</td>
</tr>
<tr>
<td>Bridge St</td>
<td>Central (E); Outbound</td>
<td>Cycle lane</td>
</tr>
</tbody>
</table>

#### 7. Programme costs
- Equipment capital cost
- Site furniture cost
- Installation cost
- Maintenance costs
- Data collection costs

#### 8. Implementation options
- All sites vs phased rollout
- Full vs partial programme sizes

### Conclusions
- **Methodology**
  - Step by step, iterative approach
  - Used in Christchurch, New Plymouth
  - Applicable to any transport network
- **Opportunities**
  - Develop locally specific scaling factors
  - Improve benchmarking projects and national datasets
  - Further develop count duration knowledge base

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