WEBINAR
Measure Selection in SUMPs
7th February 2019

Prof Tom Rye | Edinburgh Napier University
Session Overview

1. SUMP's contain Objectives (Some examples)

2. Types of Measures used to achieve SUMP objectives (Some Example)

3. How to Select measures and Assess them

4. Exercise

5. Transport models some pros and cons
Typical SUMP Objectives

Example: West Midlands (UK) SUMP
Typical SUMP Objectives

• Ensure transport system underpins economic revitalisation of the Metropolitan Area

• Contribute towards social inclusion by increasing accessibility for everyone

• Support sustainable development and growth

• Improve health and safety for all

• Integrate all forms of transport with each other, with land uses and with other policies
Typical SUMP Objectives

Example: Lyon (FR) SUMP

59 - Communes
1.3 M - Population
Typical SUMP Objectives

- Improved Safety
- Improved air quality and reduced emissions
- Improved urban quality of life
- Improved public spaces
- A transport system that is organised "harmoniously"

Categories of SUMP Measures

KonSULT Guidelines
- Attitude / Behavior
- Information
- Infrastructure
- Infra Management
- Land use
- Pricing

Beginner ➔ Advanced/Innovator

Mobility Management

Physical Environ / Infrastructure

Regulation/service provision / legislation measures

SUMP Measures

Hard ➔ Soft

Types of measure in SUMPsin SUMPsb

Category - Physical /Infrastructure

- Public transport
- Cycling infrastructure
- Better pedestrian environment
- Road capacity restraint / reduction or access control
- Road building
- Road safety measures
- Traffic calming /Speed management
- Maintenance of existing infrastructure
- Nicer street environments for pedestrians, residents.
Types of measure in SUMP

Category - Mobility Management

• Public transport improvements
  • Services
  • Travel Information
  • Ticketing
  • Fares
• Intelligent transport systems/Traffic Management
• Road pricing
• Influencing travel behaviour
  • campaigns,
  • Apps etc.
  • Marketing / education / training
• Parking management
Types of measure in SUMPs

Category – Regulation / Service provision / Legislation

- Freight Partnerships
- Road Pricing
- Speed Management- 30kph/20mph
- Parking management
- Legislation to priorities PT /Cyclist/Pedestrians
- Integrated Land Use Transport Planning
Where to find out about these measures?

Various online resources give a lot of guidance

• [www.eltis.org](http://www.eltis.org)
• [www.leeds.ac.uk/konsult](http://www.leeds.ac.uk/konsult)
• [www.sutp.org](http://www.sutp.org)
• [http://sumps-up.eu/](http://sumps-up.eu/)
Strategies (policies) in SUMPs

What are they?

- Desired direction of change in transport system.
- Not objectives in own right, but changes to achieve objectives.

A Strategic policy lies behind other measures, since it constitutes a decision to implement the other measures / package of measures.
Ghent (BG) – SUMP Strategies (policies)

Some of Ghent’s “strategic lines”

- Protect historic centre from through traffic and for pedestrians
- Improved bicycle network
- Free circulation of public transport, with more tram routes
- Parking management for desirable mobility
- Speed control throughout city, more 30 km/h zones
- Sustainable and liveable alternatives to existing major roads

Strategies (policies) in SUMPs

Example:

A policy measure can be a cycling action plan, i.e. a decision to implement certain actions, and this action plan could include details of individual measures.

There are two ways in which policy measures can interact within a policy package: they can achieve more together than either would on its own and/or they can facilitate other measures in the packages by overcoming the barriers to their implementation (May, 2016).

Exercise
### Ghent (BG) – SUMP Strategies (policies)

#### Some of Ghent’s "strategic lines"

- **Protect historic centre** from through traffic and for pedestrians
- **Improved bicycle network**
- **Free circulation of public transport**, with more tram routes
- **Parking management** for desirable mobility
- **Speed control** throughout city, more 30 km/h zones
- **Sustainable and liveable alternatives to existing major roads**

**Selecting measure(s)**

**Problem:** We know that parking in and close to the city centre is a problem: complaints from shopkeepers, residents – “not enough” parking

**Task:** 1) What measures could we implement to improve the situation? 2) How would we Select and Assess them?

**Information Given:**
- Ghent’s Objectives (see next slide)
- Use Ghent’s “strategic lines” as SUMP strategies
Hypothetical SUMP Objectives

Objectives

Aim to:

• Cut congestion, especially congestion on roads with bus services
• Cut local air pollution
• Increase accessibility of the transport system for disabled
• Improve local economy
• Reduce the city’s reliance on fossil fuels for transport

Appraisal criteria to consider

• value for money
• technically feasible to implement
• publicly acceptable
• incremental implementation possible
• reversible
Generate ideas for measures, guided by SUMP strategies (policies, “strategic lines”) that address your objectives.
**Appraisal 1**

<table>
<thead>
<tr>
<th></th>
<th>New off-street car parking, charged at market cost for visitors and subsidised rates for residents</th>
<th>Parking management (pricing, rationing) for both residents and visitors to bring demand closer to existing supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local air pollution</td>
<td></td>
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<tr>
<td>Less fossil fuel</td>
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<tr>
<td>Cut congestion</td>
<td></td>
<td></td>
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<tr>
<td>Improved economy</td>
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<td>Improved accessibility for PRM</td>
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<td>Value for money?</td>
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<tr>
<td>Technical feasibility</td>
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<td>tion?</td>
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<td>Reversible</td>
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</tbody>
</table>
But what about transport models to help us choose our measures?
Models for external costs

- development of models for traffic accident prediction, gas (CO$_2$, NO$_x$,...) and noise emissions
How do we start?

• Divide model area into zones
Basic 4 steps in most models
Ex-post monitoring of model predictions

### Table 2. Comparison of means and standard deviations for observed demand forecast inaccuracy

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Sample^a</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mackinder and Evans (1981)</td>
<td>Road: 44</td>
<td>$-7%$</td>
<td>N/A</td>
</tr>
<tr>
<td>NAO (1988)</td>
<td>Road: 128</td>
<td>$+8%$</td>
<td>43</td>
</tr>
<tr>
<td>Pickrell (1990)</td>
<td>Rail: 9</td>
<td>$-65%$</td>
<td>17</td>
</tr>
<tr>
<td>Flyvbjerg et al. (2006)</td>
<td>Road: 183</td>
<td>$+10%$</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Rail: 27</td>
<td>$-40%$</td>
<td>52</td>
</tr>
<tr>
<td>DoT (2007)</td>
<td>Rail: 19</td>
<td>$-37%$</td>
<td>31</td>
</tr>
<tr>
<td>DoT (2008)</td>
<td>Rail: 18</td>
<td>$-16%$</td>
<td>59</td>
</tr>
<tr>
<td>Bain (2009)</td>
<td>Toll: 104</td>
<td>$-23%$</td>
<td>26</td>
</tr>
<tr>
<td>Button et al. (2010)</td>
<td>Rail: 44^c</td>
<td>$-21%$</td>
<td>58</td>
</tr>
<tr>
<td>Parthasarathi and Levinson (2010)</td>
<td>Road: 108</td>
<td>$+6%$</td>
<td>41</td>
</tr>
<tr>
<td>HA (2011)</td>
<td>Road: 62</td>
<td>$+3$</td>
<td>21</td>
</tr>
<tr>
<td>Welde and Odeck (2011)</td>
<td>Toll: 25</td>
<td>$-3%$</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Road: 25</td>
<td>$+19%$</td>
<td>21</td>
</tr>
<tr>
<td>Nicolaisen (2012)</td>
<td>Road: 146</td>
<td>$+11%$</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Rail: 31</td>
<td>$-18%$</td>
<td>33</td>
</tr>
</tbody>
</table>

Source: M.S. Nicolaisen and P.A. Driscoll (2014)
Impacts of increased road space, Melbourne, Australia

- Citylink 22km urban motorway project opened in Melbourne in 2000
- Table shows projected and actual impacts on citywide road travel time

<table>
<thead>
<tr>
<th>Expected</th>
<th>Year</th>
<th>Specific value projected</th>
<th>Actual value reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Average travel speed inner Melbourne; all roads whole of day (km/hr)</td>
<td>2001</td>
<td>36.1</td>
<td>33.8</td>
</tr>
<tr>
<td>2. Average travel speed across urban road network (km/hr)</td>
<td>2001</td>
<td>44.3</td>
<td>42.6 (2000-01)</td>
</tr>
<tr>
<td>3. Total daily vehicle hours of travel on the urban road network (000 hrs)</td>
<td>2001</td>
<td>1929.8</td>
<td>1991.8 (1999-00) 2087.2 (2000-01)</td>
</tr>
<tr>
<td>4. Total daily vehicle hours of travel on the urban road network (000 hrs)</td>
<td>2011</td>
<td>2097.0</td>
<td>2157.2 (2006-7)</td>
</tr>
<tr>
<td>5. Melbourne’s freeways total daily vehicle hours (000s)</td>
<td>2011</td>
<td>331.0</td>
<td>244.7 (2006-07)</td>
</tr>
<tr>
<td>6. Melbourne’s arterial roads total daily vehicle hours (000s)</td>
<td>2011</td>
<td>1766.0</td>
<td>1866.8 (2006-07)</td>
</tr>
<tr>
<td>7. Freeway travel’s share of total vehicle kms of across the urban network</td>
<td>2001</td>
<td>(i) 17.3% (ii) 20.3%</td>
<td>21.9%</td>
</tr>
<tr>
<td>8. Total cumulative change in daily vehicle hours (DVH)</td>
<td>1997-8 to 2006-07</td>
<td>-162</td>
<td>328.7</td>
</tr>
</tbody>
</table>
SUMPs measure that can be (easily) modelled – and therefore need lots of data

- Public transport speed improvements, fare changes
- Cycling infrastructure
- *Road capacity restraint and reduction – access controls, road pricing*
- Integrating land use and transport planning
- Road building and junction capacity increases
- *Bus priority*
- Parking management
- Traffic calming

- Mobility management – influencing travel behaviour through marketing and promotion
- Maintenance of existing infrastructure
- Improved streetscape
- More accessible pedestrian environment
- Freight partnerships
- Road safety measures
- Public transport quality improvements
Thank you – any questions?

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