Using ICT to Improve Traffic Management

Tabled 11 June 2014
Background

- Road congestion in Melbourne will keep growing as the economy and population increases.
- 50 per cent of traffic volume is concentrated on 3 per cent of roads during peak periods.
- Economic cost of congestion is $1.3–$2.6 billion per year:
  - Victorian Competition and Efficiency Commission predicts it is likely to double by 2020.
- Intelligent transport systems (ITS) use ICT to manage road traffic and reduce congestion.

*Photo courtesy of TK Kurikawa/Shutterstock.com.*
Background – continued

VicRoads’ ICT traffic management systems, or ITS, include:

• Sydney Coordinated and Adaptive Traffic System (SCATS)—approximately 4 000 traffic signals across Victoria

• STREAMS Freeway Management System (FMS).
Audit objective and scope

Objective

To assess the effectiveness of VicRoads in managing ICT systems to improve traffic flow.

The audit examined whether:

• ICT traffic systems are operating efficiently, and whether they are improving traffic flow
• ICT traffic initiatives are effective and linked with broader strategic objectives.

Scope

• Focused on the Department of Transport, Planning and Local Infrastructure (DTPLI).
• Also examined Public Transport Victoria (PTV) and VicRoads.
Conclusions

• Use of ICT traffic systems has not been strategically planned.

• Effectiveness of ICT traffic systems is limited when road capacity is increasingly saturated.

• VicRoads has not complied with its own guideline to review traffic signals once every five years in order to review their effectiveness in handling traffic conditions.

• Public transport traffic signal priority is not efficient. Tram and bus tracking systems currently do not communicate with VicRoads' ICT traffic signals systems.
Findings – no strategic planning

• No statewide strategy on the government's approach to addressing traffic congestion.

• Consequently, agency initiatives occur largely in silos with limited consultation/coordination and no monitoring of performance.

• VicRoads is:
  • yet to fully develop its 2013 ICT Strategy
  • unable to assure that it is optimising the use of its ITS traffic systems or whether it has what it needs to effectively manage the Victorian road network.
Findings – public transport traffic signal prioritisation

- The traffic signal priority program is designed to promote the use of public transport by giving trams and buses priority in crossing traffic intersections.
- However, Melbourne’s tram tracking system is obsolete and is unable to interface with VicRoads’ traffic signals.
- Similarly, since August 2013 no bus has been able to interface with VicRoads’ traffic signal.
- Consequently, traffic signal priority for trams and buses is not effective and can cause inefficient and protracted red light time for public transport users.
- DTPLI and PTV have not yet solved this issue of an ineffective system interface with VicRoads.
Findings – limited effectiveness of ICT traffic systems

• VicRoads’ indicator for congestion—Degree of Saturation (DS)—indicates that above 95 per cent it is heavy traffic congestion.

• From 2011 to 2013, the number of traffic intersections with a DS equal to or greater than 95 per cent consistently increased for both the morning and afternoon peak periods.

• Although SCATS plays a critical role in optimising traffic flow, there is a limit to what can be achieved in situations where traffic demand consistently exceeds road capacity.
Findings – traffic signal review

- VicRoads’ guidelines requires all of its nearly 4,000 traffic signals to be reviewed once every five years.

- On average, 200 traffic signal sites per year have been reviewed in the past six years—a quarter of the reviews required under the five-year target.

- At this rate, the state’s traffic signals will only be reviewed once every 20 years, instead of the five-year target.

- International research confirms that improvements arising from such traffic signal reviews can have a benefit-cost ratio of up to 21:1.
## Recommendations

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<tr>
<td>1.</td>
<td>That DTPLI, PTV and VicRoads develop a statewide strategy on traffic management.</td>
<td>✓</td>
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<td>2.</td>
<td>That VicRoads develops a program to ensure consistency between traffic signals and <em>SmartRoads</em> operating plans.</td>
<td>✓</td>
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<td>3.</td>
<td>That VicRoads reviews resource allocation against its ability to effectively manage traffic.</td>
<td>✓</td>
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<td>4.</td>
<td>That PTV improves data communicated with road signals to enable effective public transport prioritisation.</td>
<td>✓</td>
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### Recommendations – continued

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<td>5.</td>
<td>That PTV and VicRoads better use technology to improve tram and bus priority.</td>
<td>✓</td>
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<td>6.</td>
<td>That VicRoads improves performance monitoring of deployed ITS.</td>
<td>✓</td>
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<td>7.</td>
<td>That VicRoads improves the traffic signal review program.</td>
<td>✓</td>
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<td>8.</td>
<td>That VicRoads better informs decisions, and evaluates the deployment of ITS assets.</td>
<td>✓</td>
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Relevant reports

Past reports


Future reports

- Coordinating Public Transport, scheduled for tabling in August 2014.
Contact details

For further information on this presentation please contact:

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