Using ICT to Improve Traffic Management

Tabled 11 June 2014

Background

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- 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.

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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.

Photo courtesy of VicRoads.

Conclusions

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- 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

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- 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.

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Findings – public transport traffic signal prioritisation

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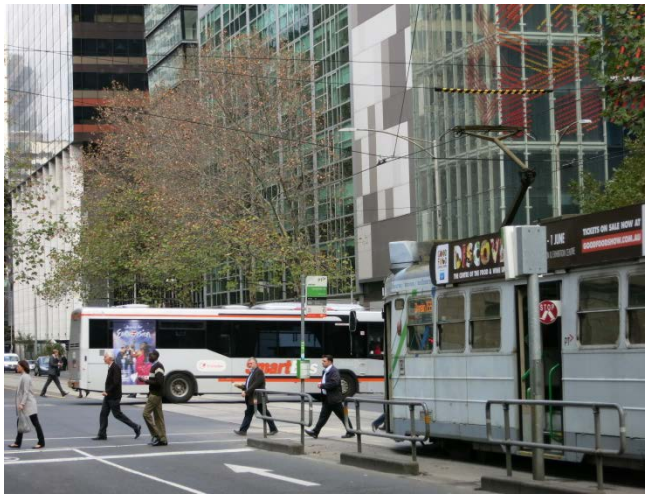

- The traffic signal priority program is designed to promote the use of public transport by giving trams and buses priority in crossing traffic intersections.
- However, Melbourne's tram tracking system is obsolete and is unable to interface with VicRoads' traffic signals.
- Similarly, since August 2013 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

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- 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

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- 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 ration of up to 21:1.

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Recommendations

		Accept
1.	That DTPLI, PTV and VicRoads develop a statewide strategy on traffic management.	✓
2.	That VicRoads develops a program to ensure consistency between traffic signals and *SmartRoads* operating plans.	✓
3.	That VicRoads reviews resource allocation against its ability to effectively manage traffic.	✓
4.	That PTV improves data communicated with road signals to enable effective public transport prioritisation.	✓

Recommendations – *continued*

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

Relevant reports

Past reports

- *Managing Traffic Congestion*, tabled in April 2013.

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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