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M1 (MONASH-CITY LINK-WEST GATE) UPGRADE FREEWAY MANAGEMENT SYSTEM

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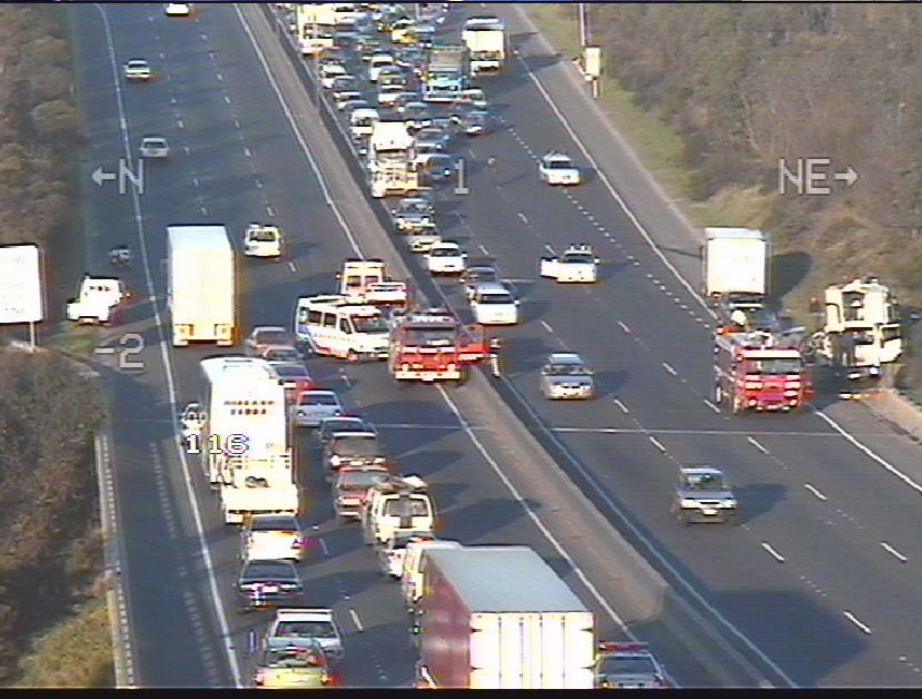


The M1 Freeway Corridor

- The spine of Melbourne's road network



The Challenge



M1 Upgrade Objectives

- Reduce peak hour travel times
- Improve travel time reliability
- Reduce crashes by up to 20 per cent
- Improve freight performance and reliability
- Reduce peak traffic on feeder roads

- Make best use of the transport network:
 - Remove the inefficiencies caused by flow breakdown
 - Make full use of the capacity of the West Gate Bridge
 - Make full use of the capacity of the CityLink tunnels



The M1 Freeway Management System

- Coordinated freeway ramp metering at 63 interchanges
- Lane-use management signs along 18 kilometres of freeway, including on Southern Link (part of the CityLink Toll Road)
- Improved intelligence on real-time performance
 - Key requirement for real-time management and optimisation
- Improved traveller information
 - En-route and before entry decision points
- Highly resilient communications system
- Central control system to operate all devices along the M1 Freeway



What's different about this managed motorway?

- Uses large suite of control tools:
 - Corridor wide coordinated adaptive ramp metering
 - Variable Speed Limits, integrated with Lane Use Management
- Privately managed toll road between two state managed road sections



Innovations

- Corridor Wide Coordinated Adaptive Ramp Metering
 - Full corridor (including private toll-road) managed as one
- Full pavement utilisation
 - All lanes available, closed only when needed to be (rare)
 - Avoids operational challenges of part-time lanes
 - Shoulders provided wherever feasible
- Rules based dynamic generation of response plans
 - 10,000+ library of plans avoided
 - 23 simple rules implemented
- Traveller Information at decision points
 - Once on freeway, drivers are committed to the freeway
 - Inform their choice to enter the freeway



Integrated Speed and Lane Use Management



Traveller Information at Decision Points



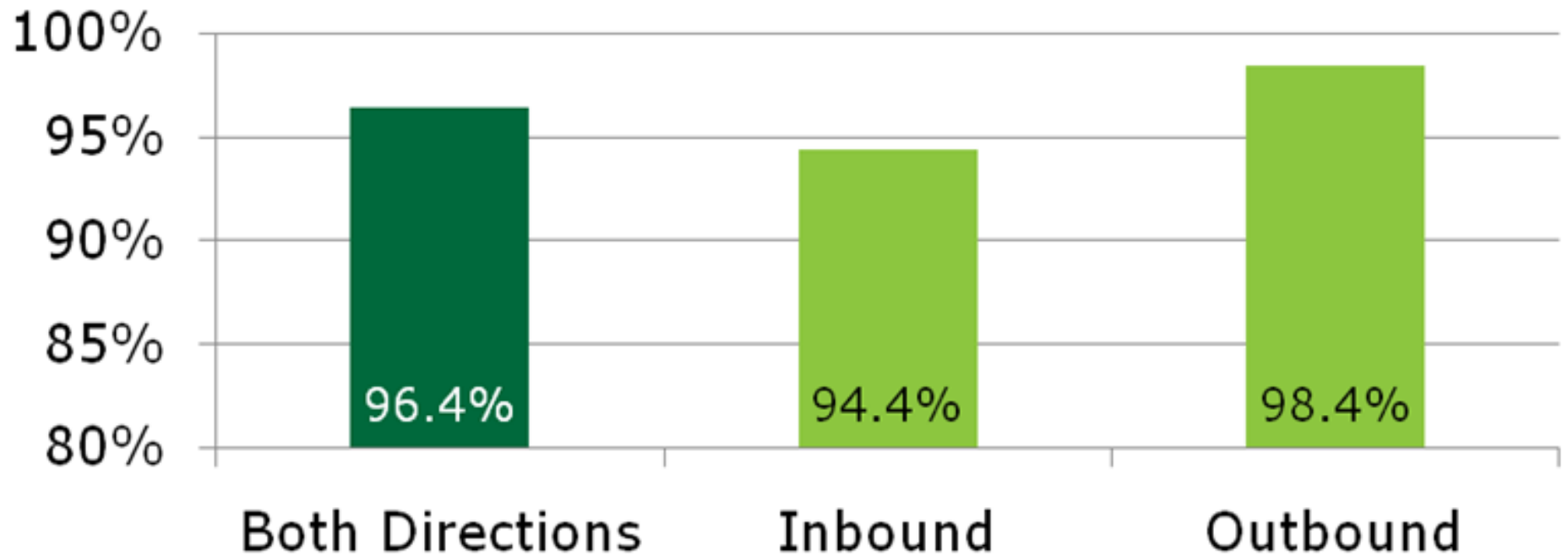
Benefit realisation commenced with pilot

- Coordinated Freeway Ramp Signals pilot in 2007
 - 25% improved travel speed compared to fixed time (AM)
 - 59% Improved travel speed compared to unmetered (PM)
 - 30% reduction in crashes (but limited sample size)
- Results from first fully operational sections of corridor also positive
 - average peak period traffic volumes up by 10 per cent, despite overall daily traffic volumes remaining
 - significant reduction in the afternoon weekday peak period: from four hours to less than two hours



How much of the time does this work?

Productivity - M1 Monash Freeway



Variability (Predictability) – Peak Period

Peak Period (6-10am, 3-7pm) Inbound, Warrigal Rd to Toorak Rd

Austrroads Reliability Value	Measured Performance
0.2 (very low variability)	55%
0.4 (low variability)	69%
0.6 (moderate variability)	86%



Variability (Predictability) – Non Peak Period

Outside Peak Period Inbound, Warrigal Rd to Toorak Rd

Austrroads Reliability Value	Measured Performance
0.2 (very low variability)	96%
0.4 (low variability)	99.8%
0.6 (moderate variability)	100%



Where to next?

- Post-completion benefit appraisal with all civil and ITS works completed (final civil works completed mid 2011)
- Continued demand growth in outer areas due to population growth is creating new pressures
 - This does not remove the benefits realised in the main part of the corridor
- Construction underway on M80 Ring Road Upgrade
- Planning underway for other urban motorways
- Australian Federal Government has commenced managed motorways program
- Projects committed in Queensland and Western Australia, in development in New South Wales and South Australia

