Our speakers tonight are...

Andrew Wall  Manager Network Operations, VicRoads
Sameem Mostih  Manager Integrated Transport Engineering, VicRoads
Dr Cameron Munro  Senior Transport Planner, Sinclair Knight Merz

Managing Congestion across metropolitan road networks

Sustainable management of congestion requires an integrated approach involving more efficient use of road space by:
• promoting public transport and higher vehicle occupancy;
• encouraging walking and cycling options;
• making roads operate better through improved management of traffic and incidents; and
• managing travel demand through measures such as land use planning and road pricing.

This technical forum will provide an insight into the techniques used and case studies of congestion management across metropolitan road networks both in Melbourne and in Europe.
Managing Congestion
Using Network Operating Plans

Andrew Wall
Manager Network Operations

Sameem Moslih
Manager Integrated Transport Engineering

Congestion Management Strategies

Causes of Congestion
- Peak Demand
- Economic Success
- Population Growth
- Incidents

Congestion Management Strategies
- Land Use Planning
- Travel Demand (Pricing)
- Travel Options (Improve alternative travel modes)
- Traffic Flow (Travel Efficiency)
- Incident Response (Travel Reliability)
- Build capacity

Strategy Effectiveness

Organisational Culture and Perception

A changing focus

Network Operations Planning Framework

Strategic Objectives
Road Use Hierarchy
Operating Objectives
Gap Analysis
Operating Strategies
Network Operating Plans

Principles & priorities

- Public transport
  - Has first priority on designated routes on the PPTN
- Bicycles
  - Promote links to activity centres
- Pedestrians
  - Promote walking in areas of high pedestrian activity
- Freight
  - Has unrestricted access across arterial network
  - Promote preferred traffic routes to avoid restrictions
- General traffic
  - Promote preferred traffic routes to avoid conflicts with abutting land use and improve flow around activity centres
### The hierarchy of priorities

<table>
<thead>
<tr>
<th>Top-level Mode Priority</th>
<th>Hierarchy of Priorities (in order)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>PedBicycleBus Freight (other)</td>
</tr>
<tr>
<td>Bus</td>
<td>Freight to PPTN  PedBicycleBusF (other)</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Bus PedBicycleBicycle Freight (other)</td>
</tr>
<tr>
<td>Bicycle</td>
<td>Freight to PPTN  PedBicycleBusF (other)</td>
</tr>
<tr>
<td>Motorised Traffic</td>
<td>Freight to PPTN  PedBicycleBusF (other)</td>
</tr>
<tr>
<td>Other Traffic</td>
<td>Freight to PPTN  PedBicycleBusF (other)</td>
</tr>
</tbody>
</table>

### Road user measures

- **Results of Austroads Road Users Survey**
  - Public transport users
    1. Travel time reliability
    2. Travel time
  - Commuters & Freight
    1. Travel time
    2. Travel time reliability
Measuring congestion?

Travel Time Routes

Performance Objectives

<table>
<thead>
<tr>
<th>Top-level Mode Priority</th>
<th>AM Peak LoM performance objective (by Mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LoM A</td>
</tr>
<tr>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>5:00-5:15</td>
<td>2 units</td>
</tr>
<tr>
<td>6:30-6:45</td>
<td>2.5 units</td>
</tr>
<tr>
<td>7:00-7:15</td>
<td></td>
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<tr>
<td>8:30-8:45</td>
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</tbody>
</table>

Identifying Performance Gaps
Identifying Performance Gaps

Operating Strategies

Typical Access Management Strategy

Typical Lane Management Strategy (AM peak)

Typical Parking Management Strategy (AM peak)

Typical Signal Operating Strategy (AM peak)
Putting it all into action – Box Hill

Box Hill Transit City – road use priorities

- Priority in/out:
  - Buses
  - Trams
  - Bicycles
  - Pedestrians

- Priority around:
  - Freight
  - Cars

Box Hill Transit City – performance gaps

- Long pedestrian waiting times
- Unsafe ped behaviour
- Bus delays & reliability
- Traffic congestion

Box Hill Transit City – operating strategies

- Signal control changes
- More crossing opportunities
- Smart Bus priority
- More services
- Grade separate rail
- Signal control changes
- Intersection upgrade

- Traffic congestion
- Bus delays
- Traffic congestion
- Crashes

- Signal control changes
- Intersection widening to increase capacity

Wider network solution

Doncaster Hill Activity Centre

Putting it all into action – High St, Northcote

Box Hill Transit City

Network Operating Plans

Canterbury Rd
Whitehorse Rd
Middlesborough Rd
Elgar Rd

General Traffic
Bus
Tram
Pedestrian
High St, Northcote – road use priorities

- Priority in/out
  - Buses
  - Trams
  - Pedestrians

- Priority around
  - Freight
  - Cars

High St, Northcote – performance gaps

- Tram delays
- Pedestrian DDA
- Pedestrian delays
- Traffic congestion
- Tram delays
- Bicycle safety
- Congestion
- Congestion

High St, Northcote – operating strategies

- Parking restrictions
- Tram platform stops
- Intersection upgrade
- Signal changes
- Route upgrade

Wider network solution

Northcote activity centre

Eastern Freeway – EastLink impact

Graph showing Eastern Freeway

Doncaster Hill Activity Centre
Conclusions

- Stronger alignment of stakeholder objectives
- Transparency
- Integrates transport with land use planning
- Maximises transport outcomes when funding becomes available
- Is relevant to inner and growth area councils
Road Pricing: A Congestion Management Tool
Dr Cameron Munro

Managing Congestion
“Pricing strategies are the only sustainable option for reducing congestion over the long-term, and they will be immediately effective upon implementation.”
– Martin Wachs, RAND Corporation (Los Angeles)

Road pricing is inevitable
• We can’t build our way out of congestion
• Roads financing
• Sustainability
... so we might as well start planning for it now.

Central London Congestion Charging Zone

Central London Congestion Charging Zone
Operational from February 2007

London – Impact on traffic volumes
Stockholm

ANPR cameras

Current change

Stockholm

Traffic impacts during the trial

Time-of-Day Impacts

Where did they go?

Former car drivers

Car share

Destination switch

Time-of-day switch

Trip suppression

Trip chaining

Other modes

[Sco, m/s, walk, cycle etc.]

Where to from here?

- Political champion
- Infrastructure Australia
  - Road pricing-linked investment
- Voluntary road pricing
- HOT lanes