MAKING EXISTING ROADS OPERATE BETTER

G. LIDDLE & A. WALL
VicRoads, Victoria, Australia
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ABSTRACT

While facing population growth, increasing congestion and limited ability to develop new infrastructure, Melbourne in Australia has developed the SmartRoads Plan to as a basis for decision-making for managing and improving the arterial road network. The plan allocates a mode-based road use hierarchy that assists with making trade offs between modes and acknowledges the activity spaces that abut the road network.

The SmartRoads Plan has been in use for more than 12 months, and has represented a significant cultural change for VicRoads, the state road authority. It has been embraced by external stakeholders including local government (who are signatories to the plan) and transport system users, as it provides a transparent decision-making framework that is owned by all.

1 INTRODUCTION

As the authority responsible for arterial roads in Victoria, VicRoads, in partnership with key stakeholders, is addressing the challenge of making best use of existing roads in the state's capital, Melbourne. While Melbourne's population is currently about 4 million, it is projected to grow to 5 million well before 2030, much of this growth in established areas. The existing road network, which is already congested, will need to continue providing accessibility, as well as play its role as a vital community place in its own right.

The challenge is being addressed with a unique approach called SmartRoads, which strongly links transport decisions with land use planning. The SmartRoads Plan ensures the most effective use is made of the limited available road space for a more sustainable transport future. It also recognises the importance of activity centres as places to live, work and enjoy. SmartRoads encourages people to choose sustainable modes of transport whilst maintaining efficient freight movement and managing congestion through an integrated approach.

This paper provides an overview of the SmartRoads concept, how it has been developed, and how it is applied. The paper develops on the concept introduced in the World Road Association journal, *Routes/Roads* in 2010 [1].

1.1 Travel demand in Melbourne

Melbourne's road network includes over 3,400 kilometres of freeways and main roads, and carries over 12 million vehicle trips per day. Melbourne's population is forecast to pass 5 million well before 2030 and by 2036 it is expected to have increased by almost 50 per cent - an extra 1.8 million people above today.

Freight volumes across all modes are expected to grow by close to 50 per cent by 2020 and by around 100 per cent by 2030.

Public transport carries over 9 per cent of all trips and walking makes up 13 per cent. Melbourne's road network is used extensively by trams and buses with more than 80 per cent of the city's public transport service kilometres on roads. Over the last 4 to 5 years there has been a rapid growth in the demand for public transport, with a growth of 28 per cent over a time when the population and road demand increased by around 6 per cent.

The Victorian Competition and Efficiency Commission estimated that congestion in Melbourne costs $2.6 billion a year, and this could double within the next 15 years [2].

1.2 Strategies to manage congestion

There is no single or simple solution to managing congestion. The key strategies for effectively managing congestion are:

- Reducing the overall demand for travel by ensuring that land use planning, and the community objectives it embodies, is coordinated with transport management policies.
- Supporting and encouraging higher occupancy and sustainable travel modes, such as trams, buses, cycling and walking in higher density activity centres through allocation of road space, traffic signal priority and information for road users to make smarter travel choices.
- Smarter and more efficient use of infrastructure through managed freeways, signal control systems, clearways and incident management.
- Providing information for road users to make smarter travel choices with respect to mode, route and time of travel.
- Targeting investment in new transport links, such as in growth areas, and address key congestion hot spots in built-up areas.

2 SMARTROADS

SmartRoads sets out an approach for managing the many competing demands for limited road space. Depending on the time of day, some roads will be given bus or tram priority, while other roads provide an alternative route for through traffic. There will also be improved access for pedestrians and cyclists.

For SmartRoads to work, partnerships are needed across all levels of government to ensure land use planning and transport decisions support a sustainable vision for Melbourne. SmartRoads has been developed following extensive consultation with the authorities that share the overall transport management task. For Melbourne, this includes the 31 local government areas, VicRoads and the Department of Transport.

2.1 Road Use Hierarchy

SmartRoads recognises the increasing role that buses, trams, trucks and bicycles play in moving people and goods around the network.

Melbourne's road network needs to support population growth and the ever increasing demands from a wide range of road users. SmartRoads is a more active approach to allocating priority that separates, where possible, many of the resultant conflicts by route, place and time-of-day.

The set of guiding principles that allocates priority road use by transport mode, place and time of day is incorporated into the Road Use Hierarchy. These principles are used to determine the priority use of each main road in Melbourne. The Road Use Hierarchy principles are outlined below.

2.1.1 *By Mode*

Clearly defining the routes that each transport mode will be allocated priority helps resolve competing demands for road space. Figure 1 shows the road use hierarchy resulting from extensive consultation with the 31 councils across Melbourne.

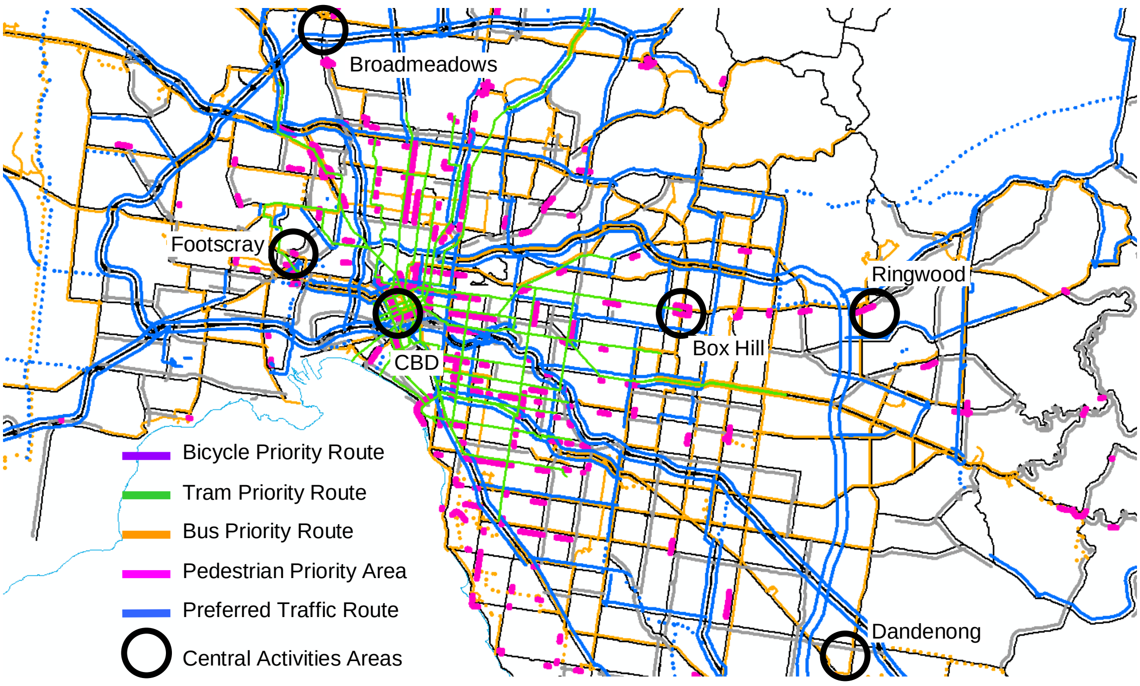

Figure 1 - Road Use Hierarchy by Mode for Melbourne

2.1.2 *By place*

Activity centres are areas that provide a concentration of business, shopping, working and leisure, and are of great importance to the liveability of Melbourne.

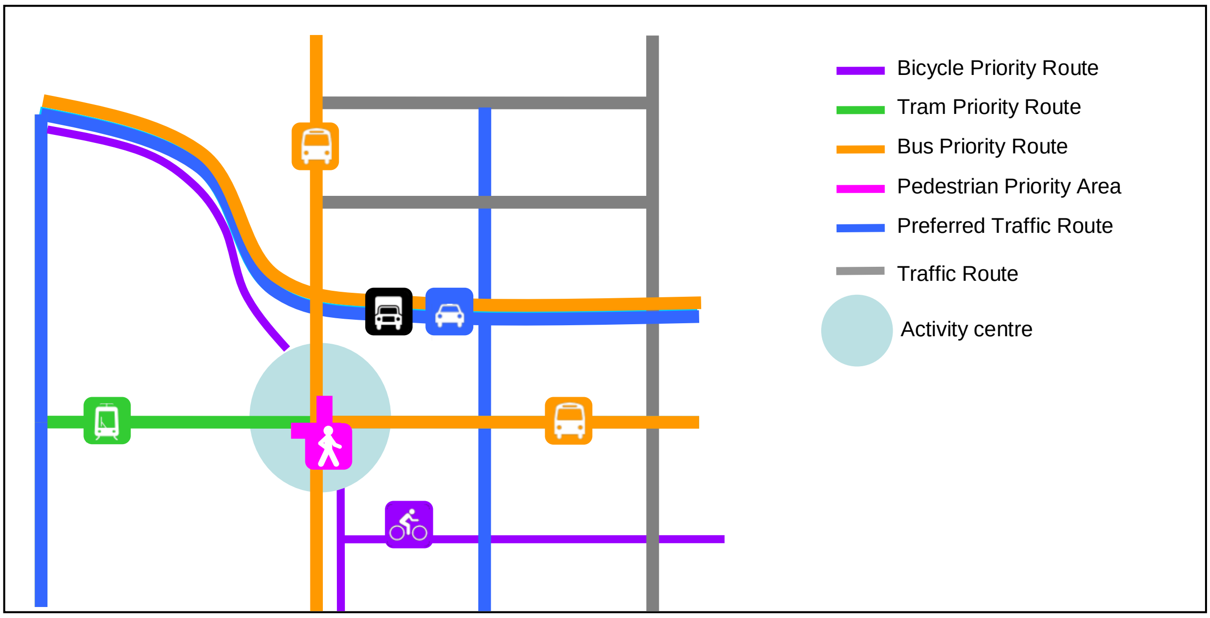

Figure 2 - Road Use Hierarchy around Activity Centres

The key objective is to reduce the level of ‘through’ traffic and promote access to centres via alternative transport modes. This will be achieved by designating and promoting certain main roads as the preferred routes for traffic to bypass activity centres. Traffic will then be encouraged to use these routes allowing priority and space to be made available on other roads for other modes like trams, buses, pedestrians or cyclists within these places (refer Figure 2).

2.1.3 *By time*

The principle for road use priority may change for different periods of the day depending on travel demand and the adjacent land use and activity. The needs of each mode of transport vary throughout the day.

For those commuters in cars, buses and trams, or on bicycles, the morning and afternoon peaks are the more critical periods.

Activity centres and strip shopping centres along main roads generally have higher pedestrian demands in the periods between the morning and afternoon peaks. Time-based management of these different priorities will assist in resolving competing demands throughout the day.

Figure 3 illustrates how the priorities for pedestrians vary by place and time.

	Place				
	Pedestrian Priority Area within				Along a key desire line
Time of day	Strip Shopping Centres	Major Activity Centres	Principal Activity Centres	Central Activity Districts	
AM peak			←	⬅	←
Inter-peak	⬅	⬅	⬅	⬅	←
PM peak	←	←	⬅	⬅	←
Off peak			←	←	←

Relative Priority (RP)		Factor (RPF)
Strongly encourage	⬅	3
Encourage	←	2
No specific encouragement		1
Encourage local access only	⇠	0.5

Figure 3 - Example of Pedestrian Priorities by Place and Time

2.2 Network Operating Plans

With intersections being the primary control points for the management of the road network - the Road Use Hierarchy is translated into priority movements at intersections, referred to as intersection operating plans.

Intersection operating plans (refer Figure 4) have been developed for each of the 31 local government areas across Melbourne. The combination of intersection operating plans across a road network forms the Network Operating Plan.

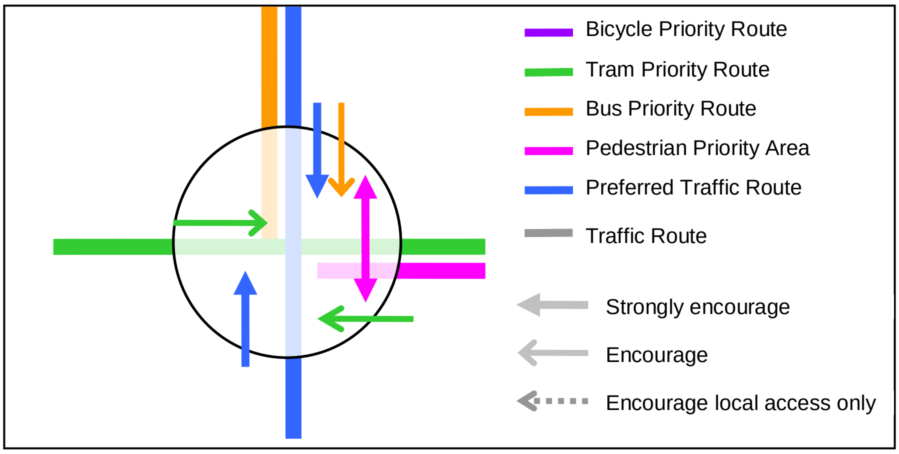

Figure 4 - Example of High Off-peak Intersection Operating Plan

Network operating plans interpret the road use hierarchy onto the actual road system, identifying how individual intersections should operate to support the broader land use and transport principles. Whereas the road use hierarchy is a high level planning and stakeholder engagement tool, the network operating plans are tools for the traffic and transport managers and operators.

Network operating plans exist for each time period. A typical plan for the high off-peak around Kew Junction in Kew is given in Figure 5.

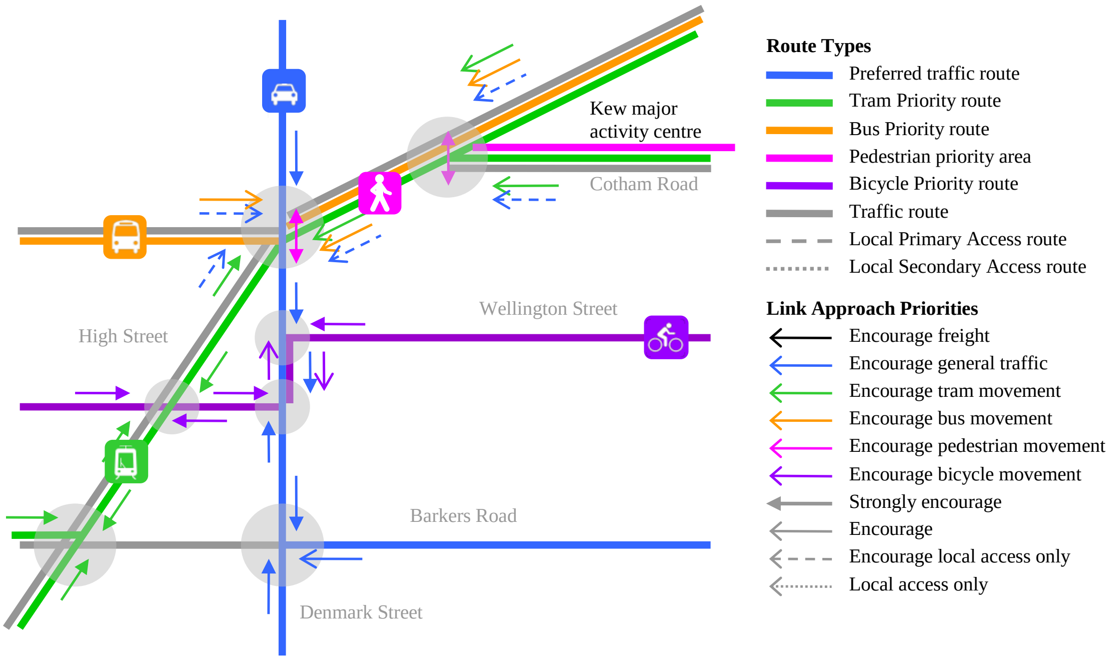

Figure 5 - Network Operating Plan for Kew Junction area in High Off-Peak

2.3 Evaluating Network Operation

A network operating plan defines the strategic operational intent. The next step is to assess how well the current network is performing against the plan. This helps to inform decisions about improving the network and supporting land use planning.

In order to evaluate how the network is operating, there needs to be a way to quantify the operation of each transport mode on the network. A generalised approach has been developed using Level of Service (LOS), Relative Priority Factors (RPF) and Relative

Efficiency Factors (REF) to reflect the economic, social and environmental impacts of operational decisions.

2.3.1 *Level of Service*

Level of Service (LOS) is a recognised way of describing operating performance. A Level of Service definition generally describes operation in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. LOS provides a way to compare the competing objectives between transport modes and also between transport and place objectives.

In a transport context, Level of Service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by the traffic authorities and motorists.

In general there are six levels of service, designated from **A** to **F**, with LOS A representing the best operating condition (e.g. free flow for general traffic) and LOS F the worst (grid-lock for general traffic).

Level of Service can have different definitions depending on the operating objectives being considered. Table 1 sets out the approaches to defining LOS that have been adopted for each road use.

Table 1 - Approaches to Level of Service Definition

Road Use	**Approach to LOS Definition**
Trams	Use tram speed and variability in tram speed
Buses	Use bus speed and variability in bus speed
General traffic	Use traffic flow speed and density (for freeways)
Pedestrians	Use crossing delay and crossing opportunities
Bicycles	Use road space allocation

2.3.2 *Relative Priority*

The social and environmental objectives are considered using a weighting factor based on the network operating plan priorities. These priorities take into account the importance of activity centres from a social perspective and the importance of more sustainable transport modes from an environmental perspective.

The Relative Priority is determined from the intersection operating plans for the time period being considered (refer Figure 4). In order to encourage decision-making that supports these assigned priorities for each mode, a Relative Priority Factor is used as shown in Figure 3.

2.3.3 *Relative Efficiency*

From an economic perspective, a key operational objective for an arterial road is to maximise the throughput of people and goods. For example, trams running full at 2 minute frequencies have roughly double the person throughput than a lane of cars. The major challenge is that many of the transport modes do not currently operate at the optimum level described by this tram example.

Decision-making needs to be encouraged that more efficiently uses road space but also recognises that this will likely occur over relatively medium to long time-frames. This may have short-term economic costs if not well-managed and can also create perceived inequities between modes as the transition occurs from current operation to optimum operation. Specifically, this situation can arise when reallocated road space is not utilised as efficiently as it was previously (e.g. a bus lane operating at a 30 minute frequency). Until the efficiency improves there will be an economic cost due to additional congestion and a road user perception that the road space is being ‘wasted’.

Across Melbourne there is a significant gap between current and optimum operating conditions for modes other than cars and trams. It also illustrates why a purely economic argument is difficult to mount for reallocation of road space to alternative modes other than cars. The likelihood that all tram, bus and bicycle priority routes will be working at their optimum operational efficiency within the next 5 years is low. Yet there needs to be a shift towards more sustainable and efficient transport modes if the longer term congestion challenge is to be met.

To account for both the economic and political realities, a Relative Efficiency Factor (REF) has been defined that is based on the current person/goods throughput for each mode at a point approximately 15 years into the future. The REF is calculated relative to the time value for an unconstrained lane of cars.

2.3.4 *Operating Gap*

The extent to which the effectiveness of the road network can be improved for specific locations, transport modes and time periods is termed the Operating Gap. The Operating gap is an index that is determined from:

- The existing performance level (LOS);
- The relative priority of the mode at the time period being considered (RPF); and
- The relative efficiency of that transport mode in utilising the available road space (REF).

Adopting LOS A as the ideal operating state, a numerical value can be assigned to each LOS as follows: A=0, B=1, C=2, D=3, E=4, F=5.

The Operating Gap index is calculated by taking the product of the LOS Value, Relative Priority Factor (RPF) and the Relative Efficiency Factor (REF) for the time period and transport mode being considered: i.e. Operating Gap = LOS x RPF x REF

For example, a tram service operating at Level of Service E, with 4 minute service frequencies on a tram priority route in the AM peak, would have an operating gap calculated as:

Operating Gap = 4 (for LOS E) x 3 (RPF) x 0.9 (REF) = 11

2.4 Identifying Gaps in Network Operation

The Operating Gap concept can be applied to entire road networks. This can assist in decision-making around:

- Identifying the highest priority gaps in operation including routes or areas;

- Identifying where there is potential to treat multiple transport modes and maximise the benefit to the transport system and the community; and
- Monitoring the network effect of transport programs and policies.

In order to present a network view of operational performance across the various transport modes, a consistent and comparable method of measurement is needed. There is also a need for data to be available across the whole network for all modes and each time period. At first glance this might appear to be an unrealistic and impractical target within the short or even medium term, given the vast quantities of data that could be involved. However, the level of service approach provides a way to achieve a network view of performance using the best currently available data and then gradually improving quality over time.

The key point here is that, provided the broad definitions of LOS are retained, then it doesn't really matter if the data source changes or is mixed. Given that the primary use of a network view of performance is all about understanding network operation, the absolute accuracy of the data is not the primary consideration. It is more important that a network perspective is applied to decision-making as early as possible. To cover the data quality issues, a risk-based approach to the use of the network LOS information is being implemented.

Further, the Operating Gap can easily be aggregated and disaggregated by mode, time period or area. Figure 6 illustrates how the Index is represented across a small network. The size of the pie charts indicates the aggregate Index at each intersection, and each site can be broken down into the modal Indices in operation.

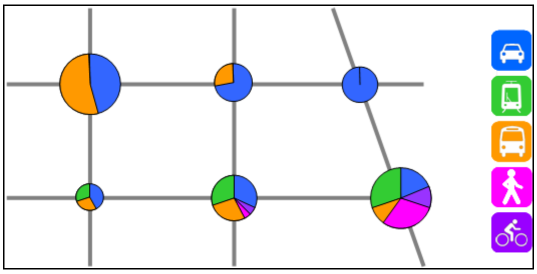

Figure 6 - Operating Gap across a network

2.5 Assessing Proposals

SmartRoads is already informing the consideration of all new road proposals, from major infrastructure projects to minor works, as well as land use development with implications on the road network.

An assessment process is used to determine whether a proposed land use change or changes to the road operation support the intent of the network operating plan. The assessment includes all the roads and intersections that are likely to be affected by the proposal. A software tool has been developed to guide the process (refer Figure 7).

The assessment can be conducted for all time periods across the day or for a specific time period that the proposal is targeting (e.g. am peak). Based on SmartRoads, each transport mode is assessed at each intersection i.e. trams, buses, freight, bicycles, pedestrians and cars.

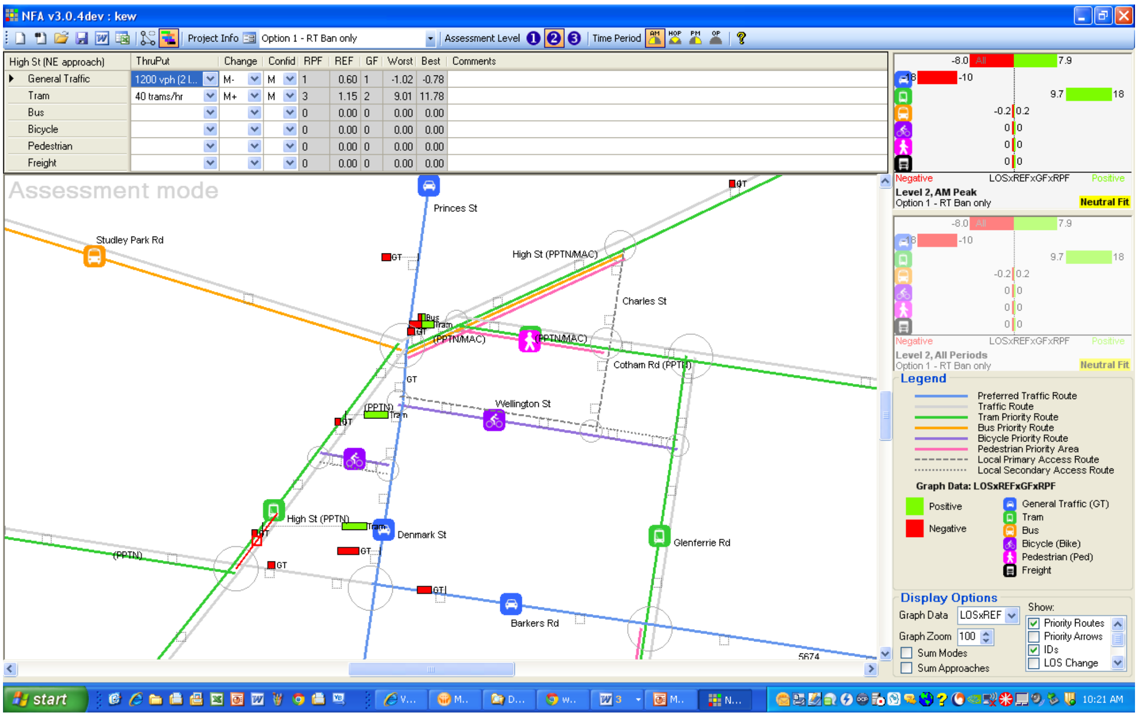

Figure 7 - Network Fit Assessment Tool

The assessment provides decision-makers with information about the trade-offs between transport modes and across a road network. To date, over 200 proposals have been guided by this form of assessment.

3 DEVELOPING SMARTROADS

3.1 Working with Stakeholders

The development of SmartRoads could not have happened without the involvement of a broad range of organisations. The acceptance of the need to make the "Big shift" towards network operations at a national level through Austroads (association of Australian and New Zealand road transport and traffic authorities) was the initial catalyst [3].

In 2004, a metropolitan transport plan was prepared in collaboration with the Department of Transport. This plan identified some key actions to make existing roads operate better, including the development of a road use hierarchy and recognising the importance of on-road public transport, freight, walking and cycling as key elements of the transport system. There was also an understanding that transport needed to support broader land use objectives.

The development of an activity centre model for Melbourne by the Department of Planning and Community Development meant that there was a well-defined "Place" concept. SmartRoads was developed to ensure a tight integration with this concept so that transport could be seen to be supporting and promoting Places.

The Transport Integration Act was introduced in Victoria in mid 2010 [4] The Act sets out requirements and principles for government departments to deliver better, more integrated transport and land use outcomes.

The requirements cover:

- Efficient movement of people and goods
- Environmental sustainability
- Promoting PT, Walking and Cycling
- Integrating transport & land use
- Improve amenity of communities
- Improve safety

SmartRoads has enabled VicRoads to demonstrate how it is complying with the Act. The Act also provides a powerful legitimacy to SmartRoads across government departments and with local government.

3.1.1 *Local Government*

Early on it was recognised that local government was a critical player in network operations. The impacts of local road networks and local planning decisions can make or break an arterial road network. The success of network operating plans would depend on how it played out at a local level.

Local government was also seen as the best representative of the community's aspirations around "places". As such, it was decided that VicRoads would work with each municipality individually to develop SmartRoads.

Key managers within each municipality were consulted to explain the proposed SmartRoads concept and get support for the next steps. There was universal support for the concept and a real sense that this was the sort of leadership that local government had been looking for from VicRoads.

What followed was a series of workshops involving traffic engineers and planners across all 31 local government areas in Melbourne. A number of municipalities had more than one workshop, and the process took around 18 months. The formats of the workshops evolved as lessons were taken from each one. The end result was the first stage of SmartRoads, i.e. the Road Use Hierarchy.

Interestingly, when all the 31 Road Use Hierarchy maps were pieced together, there was better than a 95 per cent match at the boundaries. This gave us confidence that the process and the foundations of the concept were robust.

The Road Use Hierarchy was also sold to local government as a "live" plan that could change at the instigation of either party.

3.1.2 *Non-government Stakeholders*

There are a wide range of non-government stakeholder groups that have been engaged in the development of SmartRoads. These include user groups supporting public transport and bicycles, the freight industry, tram and bus operators, automobile associations, transport advocacy groups and traffic and transport consultants (for example see reference on website of the Victorian Local Governance Association [5]). Some of these groups have been known for their controversial viewpoints on transport issues, while others have a strong operational tie to the road network.

There has been overwhelming support for SmartRoads from all stakeholders.

Balancing the often competing interests of different stakeholder groups has always been a difficult line to tread. SmartRoads provides a way for each stakeholder to have their say, but to also understand the issues and competing priorities of each of the other stakeholders. As advocates for sections of the community and road users, these stakeholders now have a higher level of trust in the transparency behind VicRoads decisions on allocating road space and priority.

3.1.3 *Changing external perceptions*

Road authorities have often been left out of broader community planning processes or engaged only at the last minute. The result has been that the road authority is often portrayed as the 'blocker' to getting things done because of the practical issues they raise. This perception is often reinforced by the community's experiences with road authorities primarily being around the impact on them of building roads or of roadworks.

The misleading debate that pits roads versus public transport also reinforces a perception that the road authority is part of the problem.

One of the key messages to stakeholders is that SmartRoads puts the road authority in a stronger position to facilitate better community outcomes and that early involvement in the planning process will result in a better and integrated outcome for everyone.

3.2 Internal Culture Change

3.2.1 *Vision*

Network operations was embedded as a broad concept in VicRoads strategic directions for 2008-2010 setting a vision for a different way of operating our road system. This has continued in the new 2010-2012 strategic directions document.

Network operating plans was merely a concept when the vision around them was articulated into the strategic directions document in 2007. At the highest level this vision stated that "*VicRoads will use the Network Operating Plan to inform all decisions that affect the way the arterial road network operates*.". By setting the broad vision, it placed an imperative on changing our processes and practices, and defining what network operating plans were trying to achieve.

3.2.2 *A shift from building to operating*

Most road authorities in Australia were born out of the need to build new road infrastructure to meet the demands resulting from the post-war industrial and resources booms of the 1950s and 1960s (see Figure 8). Building roads remained a strong focus right through to the 1990s.

During the 1990s, asset management emerged as a concept to ensure that adequate attention was given to maintaining the road asset in a safe and efficient manner.

During the last 5 years, there has been a growing understanding that cities cannot continue to build their way out of congestion. There is limited land available in inner and middle suburbs for transport infrastructure, and together with the sustainability challenges resulting from climate change and a desire to improve the liveability of cities, road authorities are re-directing their attention to better managing the assets that already exist.

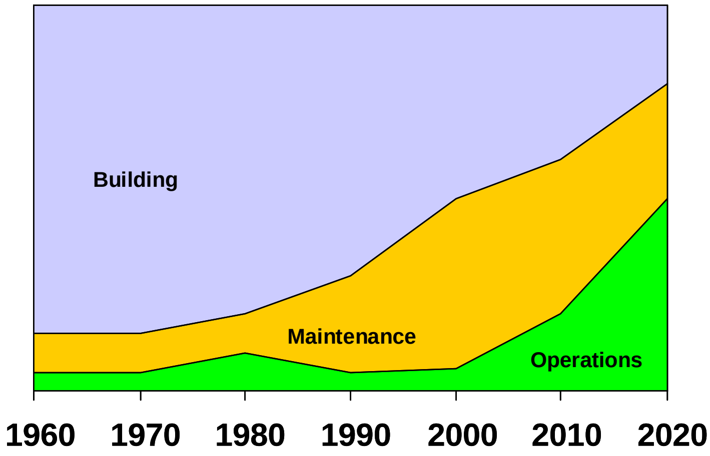

Figure 8 **}** - VicRoads shift in focus

Network operations is the emerging new urban transport discipline that road authorities need to embrace to meet this challenge over the next decade. Initially, discussions with stakeholders on the concept of network operations were met with some scepticism, primarily based on the ‘road builder’ perception. However, as the organisational culture changes and the benefits of a network operations approach becomes apparent, there is growing confidence within road authorities to be more open and prescriptive about how the road network should be used.

3.2.3 *Road User Services*

To help foster the service-orientated culture that underpins network operations, an internal group was formed, called Road User Services.

Road User Services combined the key operational functions across the State so that a more intense focus could be given to improving the way we operated the road network
The key groups within Road User Services include “planned operations” under Network Operations, “real-time operations” under Traffic & Incident Management, the supporting systems and technology under ITS, and a group focussing on communications with road users and stakeholders.

3.2.4 *A new generation of “traffic engineer”*

One of the key challenges for the organisation was the culture change required by a large base of traffic engineers with a strong set of standards, guidelines and tools built around the management of vehicles on the road network.

A new generation of traffic engineers is now needed where the key objectives is about the movement of people and goods NOT vehicles.

Shopping strips have traditionally been a thorn in the traffic engineer’s side as they conspired to slow down vehicles and create conflict. SmartRoads takes a very different approach, recognising activity centres as vital to the broader community goals for a city, and seeing transport as a means to support those goals.

SmartRoads recognises the increasing role that buses, trams, trucks and bicycles play in moving people and goods around the network. It also recognises that good access for pedestrians needs to be a key element of the transport system. Melbourne’s road network also needs to support population growth and the ever increasing demands from a wide range of road users. SmartRoads provides traffic engineers and planners with a tool to help balance the competing demands for often limited road space.

Road networks are very complex systems. They are not easy to model or easy to predict what will happen on any given day. Unlike electricity networks, water networks and gas networks, the “data” being carried by a road network have minds of their own. This means that the operation of roads can often be as much an art as a science. To achieve sustainable transport outcomes, traffic engineers need to be able to conceptualise the impacts of decisions across a complex network instead of the traditional focus on the local or route impacts

4 USING SMARTROADS

The following case study summaries illustrate how SmartRoads has been used to date.

4.1 Northcote Activity Centre

SmartRoads found its first advocate in the City of Darebin in 2007. Backed by a strong local community desire to improve Northcote activity centre as a place to live and work, Council initiated a strategic transport plan that embraced the SmartRoads concept.
Council understood that the key to improving High Street as a place for pedestrians and public transport, there was a need to balance the wider transport demands across their network.

SmartRoads identified the two major north-south routes that would better cater for through traffic. Ensuring that these routes worked better for general traffic and freight would provide incentives for through traffic to transfer off the busy road running through the middle of the activity centre. Improved tram priority and better access and mobility for pedestrians could then be implemented in the Northcote activity centre.

4.2 Tram and Bicycle Improvements, Kew

In 2009, a section of High Street in Kew was identified as a major delay point for trams (refer Figure 9). Trams and cars operate in a mixed traffic environment, with a very heavy right turn movement creating significant delays for trams. Along this section of High Street there is more than twice the number of people travelling on trams than in cars.

Improvement options were developed for the project and SmartRoads was used to determine if these proposals would deliver an improved overall network outcome for all transport modes.

The initially proposed works included a right-turn ban for general traffic and a compensating upgrade of the right turn facility at Denmark Street/Barkers Road intersection. A traffic analysis was undertaken for the two major intersections directly affected by the works. However, the Network Fit assessment considered the entire network shown in Figure 9.

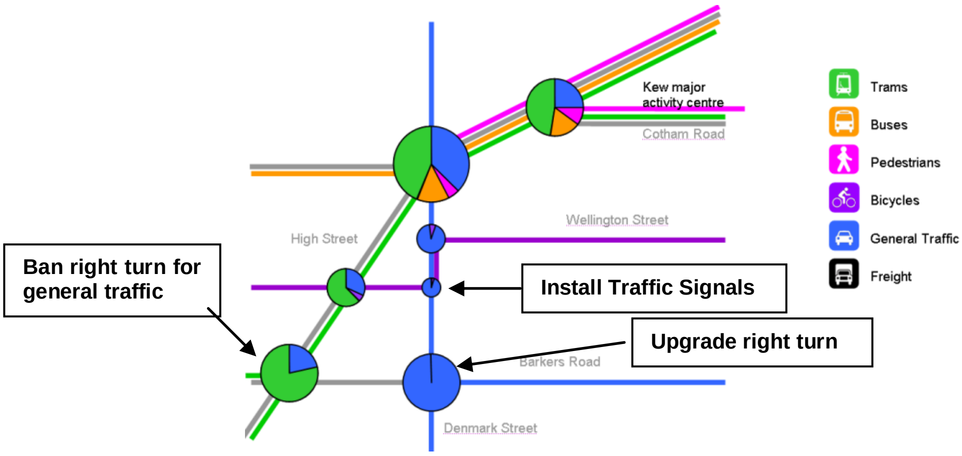

Figure 9 - Operating Gaps and Proposed Works near Kew Junction, Kew

The results of the assessment are given in Figure 10. The overall assessment indicates a wide range of possible outcomes on the network, with an average neutral result. To a large extent this was a result of the uncertainty in the traffic analysis that was undertaken for the project, and also reflected the diverse views amongst a number of traffic engineers about the impact of the works.

At a modal level, the assessment indicated that the benefits to trams were balanced by the disbenefits to general traffic, particularly on Denmark Street.

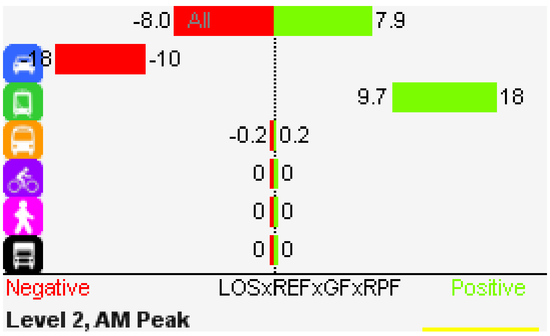

Figure 10 - Network Fit Assessment for Right Turn Ban & Right Turn Upgrade

During further community consultation on the proposed works, a new set of traffic signals was proposed at Stevensons Street/Denmark Street to provide alternative access for residents disadvantaged by the right-turn ban. This set of signals also coincided with a gap in a key east-west bicycle route.

An updated assessment for the works, including the new intersection is shown in Figure 11. The inclusion of the new intersection, while improving access for residents, added delays to general traffic on Denmark Street which is an important north-south Preferred Traffic Route. The result was a rather poor network fit.

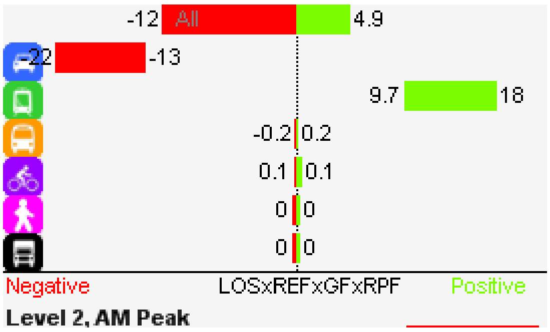

Figure 11 - Network Fit Assessment including New Signals

Following this assessment, the proposed works were modified to improve the right turn capacity on the alternative route on the Denmark Street approach to Barkers Road. The new signals at Stevenson Street were designed to operate with the minimum impact on Denmark Street, providing only enough time to give local traffic an access opportunity every 2 minutes. Figure 12 shows the final assessment result. The result still suggests a wide range of uncertainty in the outcome, but a higher likelihood that the works would improve the overall network operation.

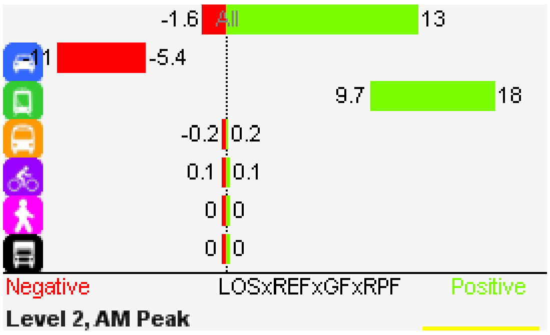

Figure 12 - Network Fit Assessment Final

In this case a more comprehensive traffic modelling exercise could be done to reduce the uncertainty and give greater confidence in the expected outcome.

These works were implemented in early 2010, and a preliminary review of the actual operation of the network in this area indicates an outcome that sits about midway in the assessment range. The impacts on general traffic have been relatively minor, although the benefits to trams and bicycles have also been at the lower end of expectations.

4.2.1 *Dandenong Central Activities Area Redevelopment*

The redevelopment of the Dandenong Central Activities Area in the south east of Melbourne (30km from the Melbourne CBD) has been a major planning project over a number of years. The objective is to position Dandenong as the second business district in Melbourne to attract significant employment and development opportunities.

The project has been slow to progress, largely due to the conflicting needs of public transport, bicycles, walking, car access and commercial and retail development proposals. In early 2010, the SmartRoads process was retrofitted to the project in a bid to break a number of impasses between stakeholders.

As a result, a road use hierarchy was agreed and gaps in the operation of the network identified for each transport mode (refer Figure 13).

Over a 5 month period, a balance between each transport mode and abutting land use was agreed between all stakeholders.

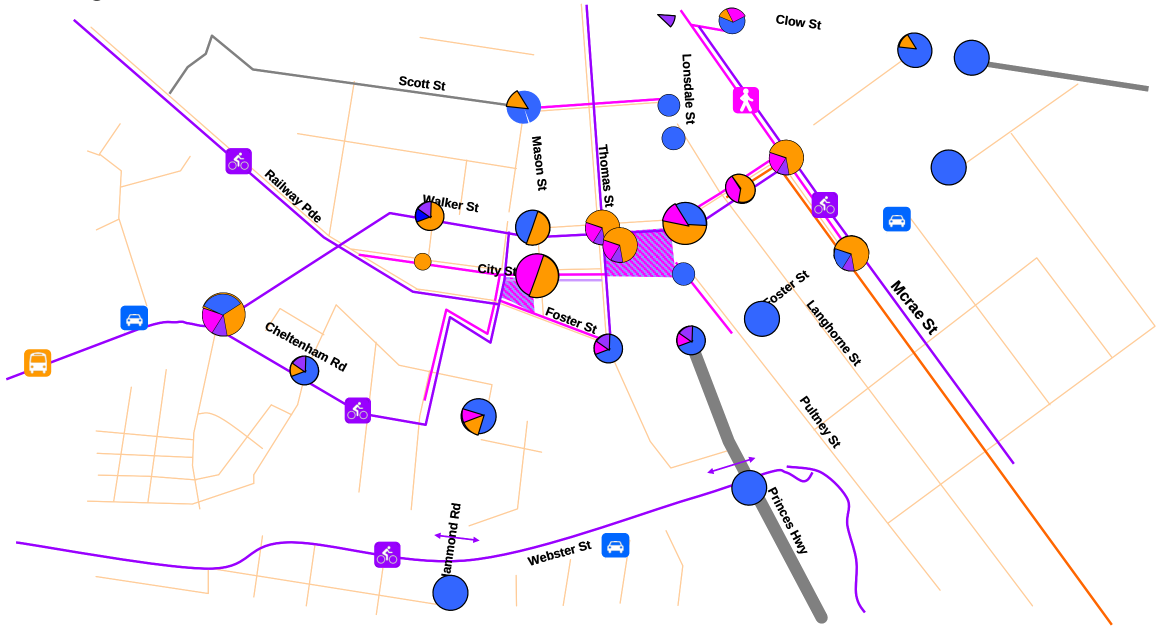

Figure 13 - Dandenong Road Use Hierarchy and Operating Gaps

4.3 Lessons Learned

SmartRoads has evolved over several years and is still being refined. At the start of 2010, it was decided to start using the concept and it was officially launched [6]. There was probably another year of work on the development of SmartRoads concept but this is now occurring in the background.

By starting to make decisions based on the SmartRoads plan, it forced a cycle of constant evaluation and improvement in the process and the plan. In using SmartRoads, problems were encountered, but invariably these setbacks were followed by a profound improvement in SmartRoads itself, guided by real-life examples.

The ability to engage the often competing stakeholders using a common language has emerged as a key success factor.

The journey through the development of SmartRoads has been as important as the plan itself. It is fair to say that the original idea of a network operating plan now appears far removed from what the plan is today. The breadth of areas where SmartRoads is being applied is far beyond the inner urban congestion problem that it was first initiated.

A key lesson was to understand that a network operating plan that tried to set out the solutions to operation for every road was never going to be achieved. Instead the plan now sets out clearly and transparently what the intended operation should look like, and then ensures that every decision from that point onwards heads towards that intention rather than away from it. How fast the operation changes depends on a range of factors including funding, political will and cultural change. However, the key is that there is a broad stakeholder understanding of the intended direction and that all decisions are informed by that direction.

One of the challenges with SmartRoads has been to ensure there is a robust, defendable logic and science behind the concept. At the same time, this needs to be presented to non-technical people in a simple and transparent manner.

SmartRoads includes several layers of detail, starting with a Road Use Hierarchy that forms the public face to SmartRoads, then to a Network Operating Plan that provides greater transparency to transport operators and stakeholder groups. At its most detailed level, quantitative comparisons can be made between different transport modes that factor in the movement of people, the need to support more sustainable transport modes and the value of places to the community.

SmartRoads will continue to improve as it is used to inform everything we do that affects the operation of the network.

5 CONCLUSIONS

Making existing roads operate better is a key strategy in managing congestion. The development and implementation of SmartRoads has highlighted the need to have a clear plan for how the road network should operate to support some broader objectives around sustainable transport and land use. It is then important that all decisions that affect the operation of the road network are informed by that plan.

Over time, Melbourne's road users can expect:

- Greater priority being given to trams and buses on designated routes
- More opportunities created for cycling and walking
- Improvements to the operation of roads that provide better alternatives for through traffic including trucks around activity centres
- Better information about available travel choices
- More vibrant, connected activity centres
- A change in the nature of trips and travel, with public transport, walking and cycling being recognised as increasingly important transport modes

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