

REGIONAL CONGESTION MANAGEMENT ACTION PLAN

















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l.	Introduction	2
	Background	
2.	Research and Review of Existing Strategies	5
3.	EMRC Congestion Mapping	Е
	Existing Congestion Hotspots	
	2021 Future Congestion Hotspots	- 11
	2031 Future Congestion Hotspots	14
	Summary	1
1.	National Approaches to Congestion and Behaviour Change	20
5.	Stakeholder Engagement	22
3.	Summary and Recommendations	26
	Appendices	34
	A: Review of Existing Strategies	34
	B: Level of Service Maps (LOS A - F)	4
	C: National Approaches to Congestion and Behaviour Change	5
	D: Stakeholder Engagement	54
	Figures	
	Figure 3.1: Causes of Congestion (US Department of Transportation Federal Highway Administration)	
	Figure 5.1: 2025 Network Performance with Upgrades – AM Peak Period Density	24
	Figure 5.2: 2025 Network Performance with Upgrades – PM Peak Period Density	2
	Tables	
	Table 3.1: 1994 HCM Level of Service Criteria	



Introduction

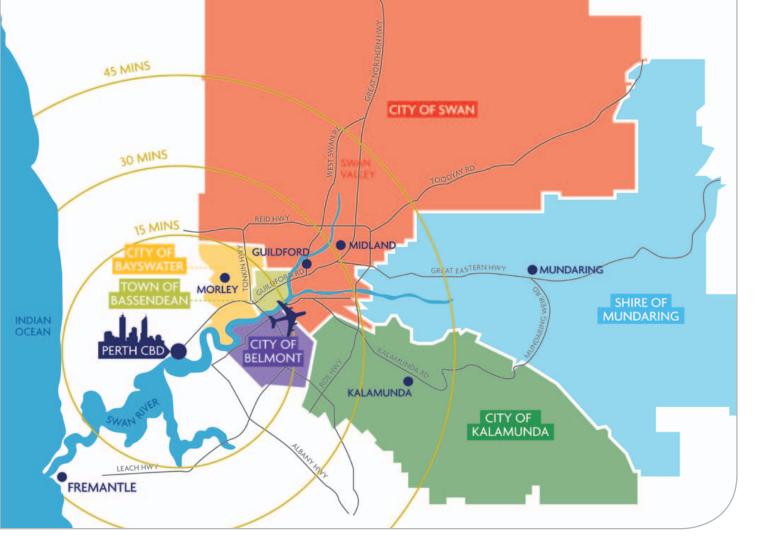
The Perth and Peel @ 3.5 million identifies that congestion is increasing on the regional road network, particularly during the morning peak period. This mainly affects the roads that connect Perth Eastern Region with the City Centre and to the eastern foothills, including Lord Street, Great Northern Highway, Roe Highway, Reid Highway, and Gnangara Road.

The identification and control of congestion hotspots on the road and freight networks at key intersections and rail crossings (through grade separation and/or improvements in traffic management tools such as traffic control signals and signage) will be required to ensure efficient movement of freight and traffic through key corridors. There is also a need to continue smart integration of land use and transport planning through Transit Oriented Developments and through marketing of behaviour change programs such as the Department of Transport's 'Your Move', to ensure future congestion and capacity constraints are minimised and the benefits to the Region and its residents maximised.

Background

The freight and logistics industry make significant economic contributions to the Region and state and is a primary driver for the biggest infrastructure projects that ultimately benefit the wider community through increased transport efficiency and reduced road congestion.

Understanding the scale and impact of the freight industry and the issues and challenges limiting the Region's ability to support its growth and operations is key. The role of both State and Local Government in facilitating and fostering investment through congestion management and travel behaviour change is the focus of this project.



Eastern Metropolitan Regional Council (EMRC) Transport Focus

The EMRC is a progressive and innovative regional local government working on behalf of six member Councils located in Perth's Eastern Region: Town of Bassendean, City of Bayswater, City of Belmont, City of Kalamunda, Shire of Mundaring and the City of Swan.

Providing services in waste management, environmental management and regional development, the EMRC is a model of successful collaboration that has initiated projects that deliver real benefits to the region.

Perth's Eastern Region encompasses the local government areas of the six member Councils and stretches from the edge of the Perth CBD eastwards into the foothills and hill regions. The area includes varied land use forms including commercial, industrial and residential, in both urban and rural settings.

The EMRC Road Safety Strategy Direction Zero 2015 notes that Perth's Eastern Region is home to significant transport infrastructure along with major industrial, commercial and retail locations. These locations are high trip generators and as such access to these locations is important for the efficient movement of people, goods, services and freight. The Region is home to one of Western Australia's most important pieces of infrastructure, Perth Airport, comprising of approximately 2,105 hectares which makes up the estate of Perth Airport Proprietary Limited.

While the movement of people is of upmost importance for the Region, the movement of goods is also important, with the Region being home to a number of large industrial areas.

The Region has a long established history with freight and logistics, predating the 1955 Stephenson Hepburn Plan for Perth, which mapped the established and future form of the Perth metropolitan region and continues to shape the growth of the city today. The 1955 Plan left a legacy for freight and logistics activities within the Region through the identification of land for the establishment and growth of:

- Perth Airport;
- Perth Intermodal Freight Terminal (Kewdale);
- The Kewdale and Welshpool Industrial Area;
- The North Hazelmere and South Guildford Industrial Area;
- Major regional highways, including Roe Highway, Tonkin Highway, Great Eastern Highway, Great Eastern Highway Bypass, Great Northern Highway; and
- The freight rail network, including connections to Fremantle Port's Inner Harbour, the Kwinana Bulk Port and Industrial Area and regional and national freight hubs.

EMRC Regional Integrated Transport Strategy (2017 – 2021)

In addition to the freight task, the EMRC Regional Integrated Transport Strategy highlights and advocates for all modes of transport and helps ensure that a collaborative approach is used in developing an integrated, safe, efficient, accessible, and sustainable transport network.

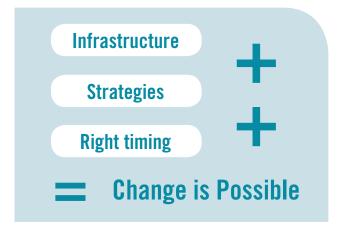
As with wider Western Australia (WA), the private car is, and for some time will be, the primary mode of transport for moving people (whether via manual or autonomous means). However, WA has seen considerable growth in cycling participation over recent years, which has been supported through substantial progress made in bicycle route planning at a state level as shown in the development of the Western Australian Bicycle Network Plan and more innovative programs such as *Safe Active Streets*.

Furthermore, the Pubic Transport Authority, in addition to delivering METRONET (noting the Forrestfield-Airport Link, the proposed planning for the Ellenbrook Rail Line and extension of the Midland line to Bellevue within Perth's Eastern Region) also have a rolling program of on-road public transport investment to enable the movement of people en-mass more reliably, ultimately reducing congestion.

Therefore, to get people to use alternative modes of transport, Behaviour Change practices need to be undertaken. The broader term Travel Demand Management, which includes measures such as improved parking strategies and parking supply, contributions to the development of integrated land use and transport and integrating travel demand measures (travel plans and behaviour change programs) within infrastructure development, can be a difficult task but can have a high impact on infrastructure demands for the Region.

"The central issue [in transforming organisations or people] is never strategy, structure, culture or systems. All those elements and others, are important, but the core of the matter is always about **changing behaviour** of people, and behaviour change happens in highly successful situations by speaking to people's feelings...." –

John Kotter, Professor of Leadership, Harvard Business School.



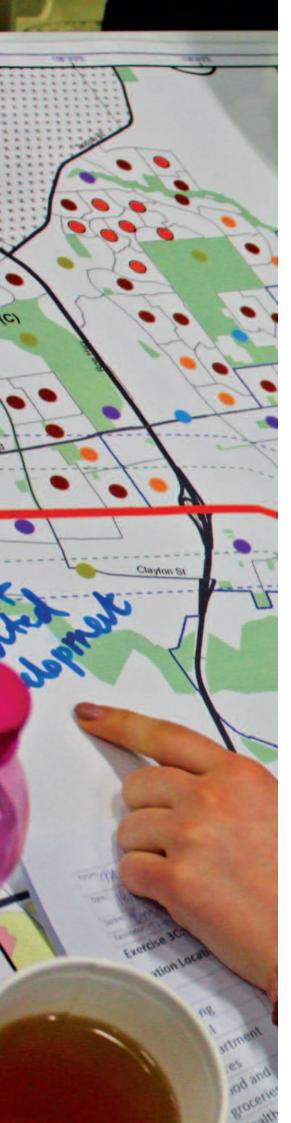
Regional Integrated Transport Strategy Objectives

The Regional Integrated Transport Strategy notes the following objectives within congestion management and behaviour change to work toward achieving the goal "That the capacity of the Region's transport network is maximised and used optimally":

- Identify and advocate for the removal or control of congestion hotspots;
- Identify and advocate for the removal or grade separation of key rail level crossings and road intersections on the freight network;
- Identify and advocate for opportunities in the freight and public transport network where infrastructure improvements will accommodate higher capacity vehicles;
- Identify and advocate for opportunities where intelligent transport systems and traditional infrastructure enhancements could be used to maximise road and rail network efficiency;
- Advocate for and support information, communication, education and behaviour change initiatives that encourage greater use of walking, cycling and public transport; and
- Advocate for and support initiatives that improve employment self-sufficiency such as through mixed land use to reduce commuter travel demand.



To advocate for and support the development of a safe, efficient and effective transport system that supports and enhances the Region's economic, social and environmental wellbeing.



Research and Review of Existing Strategies

Research and review of existing strategies and policies has been undertaken to gain an understanding of what each member Council, key stakeholders and Perth's Eastern Region are doing to identify and respond to congestion as well as Travel Behaviour Change.

It was identified that a number of programs and strategies are in place by both State and Local Government working toward Congestion Management and Travel Behaviour Change and have been summarised below. A full detailed review of these programs and strategies can be found in Appendix A.

Congestion Management Approach

- Expand strategic road freight network to improve connection between the Perth's Eastern Region industrial areas, ports and regional WA and interstate destinations;
- Upgrade the arterial road network to accommodate future demand, which will include grade separations at major intersections and road widening;
- Network performance improvements (opportunities for grade separation at various high-volume intersections and road upgrades of key routes such as Tonkin Highway);
- Extensions to the Midland heavy rail line;
- Forrestfield-Airport Rail Link;
- Train station parking (Guildford Station);
- · Ellenbrook Rail planning; and
- Great Eastern Highway Corridor Plan.

Freight Management Approach

- Whiteman Yanchep Highway (new North-South corridor);
- Upgraded east-west routes (Neaves Road and Stock Road);
- NorthLink WA, consisting of the construction of the Perth Darwin National Highway (NorthLink WA) between the junction of Reid Highway and Tonkin Highway at Malaga and junction of Great Northern Highway and Brand Highway at Muchea;
- Tonkin Highway Grade Separation Program including new interchanges at Benara Road, Morley Drive and Collier Road; and
- Intersection upgrades along the Reid Highway, Roe Highway, Tonkin Highway, Great Eastern Highway and Perth Adelaide National Highway (EastLink).

Travel Behaviour Change Approach

- · Your Move programs;
- Walking and cycling infrastructure design and implementation;
- Access to Stations Infrastructure Program and
- Parking strategies.

EMRC Congestion Mapping

The purpose of the Regional Congestion Management Action Plan is to identify congestion hotspots in Perth's Eastern Region, using metrics that are widely used by the relevant state agencies such as Main Roads WA (MRWA).

Congestion can be caused due to a number of different reasons. The US Department of Transportation Federal Highway Administration notes that congestion results when traffic demand approaches or exceeds the available capacity of the system or infrastructure. Although this is a simple concept, it is not constant. Traffic demands vary significantly depending on the season, the day of the week, and the time of day. In addition, the capacity, often mistaken as a constant, can change because of weather, work zones, traffic incidents, or other non-recurring events. About half of congestion is caused by temporary disruptions that take away part of the roadway from use, that is, nonrecurring congestion.

Roughly half of the congestion experienced happens virtually every day - it is recurring. This is the type of congestion in which there are simply more vehicles than there is roadway. Recurring congestion occurs during peak travel periods for a simple reason: The number of vehicles trying to use the highway system exceeds the available capacity. Effectively managing demand during peak periods involves convincing travellers to make their trip at a less congested time, on a different mode, on a less congested route, or through a means other than travel on the highway system (e.g. telecommuting/working from home).¹

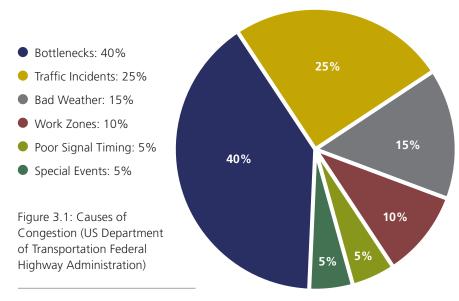
There are a number of different approaches to congestion hotspot identification and analysis, all offering advantages and disadvantages and all requiring differing levels of modelling and/or data analysis.



A Volume to Capactity Ratio of

1.0 indicates that the road is operating at

100% capacity.



¹ https://ops.fhwa.dot.gov/publications/ fhwahop09015/cp_prim7_02.htm

As this project is high level in nature, a high-level assessment of congestion within Perth's Eastern Region has been undertaken utilising Regional Operations Model (ROM) data from MRWA. The ROM is a medium level "strategic/operational" road-based model for assessing the impacts of road infrastructure projects and area wide traffic management measures and is the key metric used by MRWA for planning and managing traffic growth into the future.

For this project, Volume to Capacity Ratio (VCR) and Link Volume (L/V) plots from ROM have been obtained for Perth's Eastern Region to indicate modelled link volumes for year 2016 and future years 2021 and 2031.

The VCR indicates any existing links that are currently operating above close to or above capacity as well as any future links likely to be operating close to or above capacity. The link volumes within the L/V plots were assessed against the number of lanes for the modelled roads undertaking a theoretical capacity analysis, indicating which roads are currently and forecast to be operating above theoretical capacity.

It is noted that the ROM model edge zones suffer from accuracy. Inner zones are inherently more accurate. It is also

noted that the ROM model plots used for this project do not fully capture the Mundaring and Swan areas and as such, further discussion with these councils has taken place.

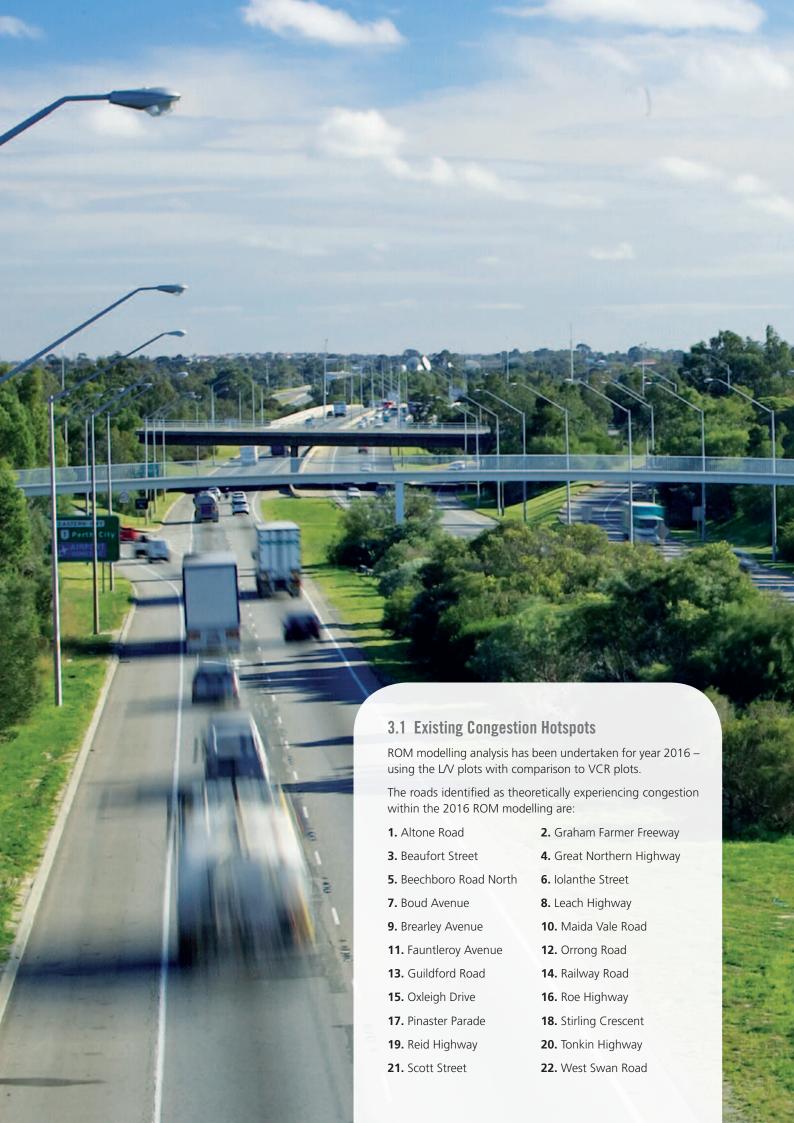
The Volume to Capacity (V/C) ratio is a measure of the level of congestion on a road based on the hourly traffic volume and road capacity. A V/C ratio of 1.0 indicates that the road is operating at 100 per cent capacity. The V/C ratios were calculated by dividing the total hourly traffic volume by the hourly road capacity for each road segment. The traffic volumes were obtained from the ROM model.

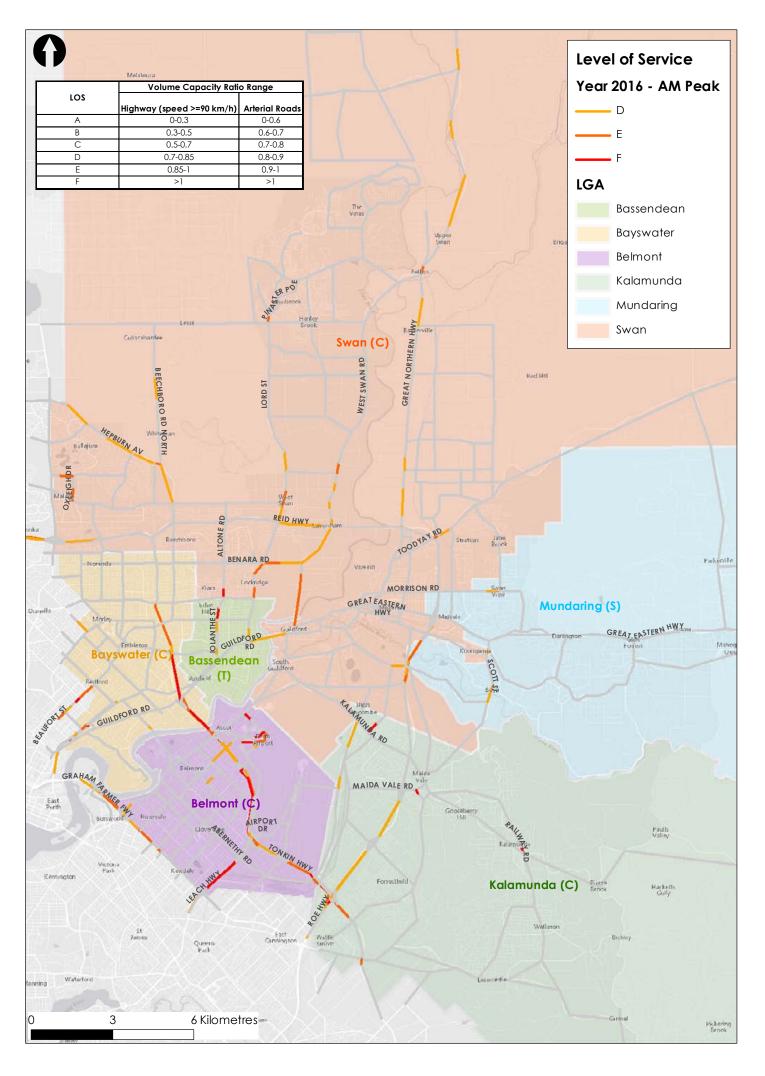
The Level of Service (LOS) value is a qualitative performance indicator of the traffic condition based on the V/C ratio. The Level of Service has six categories from Level A to Level F based on the V/C ratio ranges for the type of roadway and speed limits. Level A represents the free flow situation while level F represents that the road segment is over capacity. The approach provided in the Highway Capacity Manual (HCM) 1994 was used in this assessment to classify LOS for multilane highways and arterials roads. The LOS ranges are for highway and arterial roads categories based on the V/C ratio ranges are given in Table 3.1.

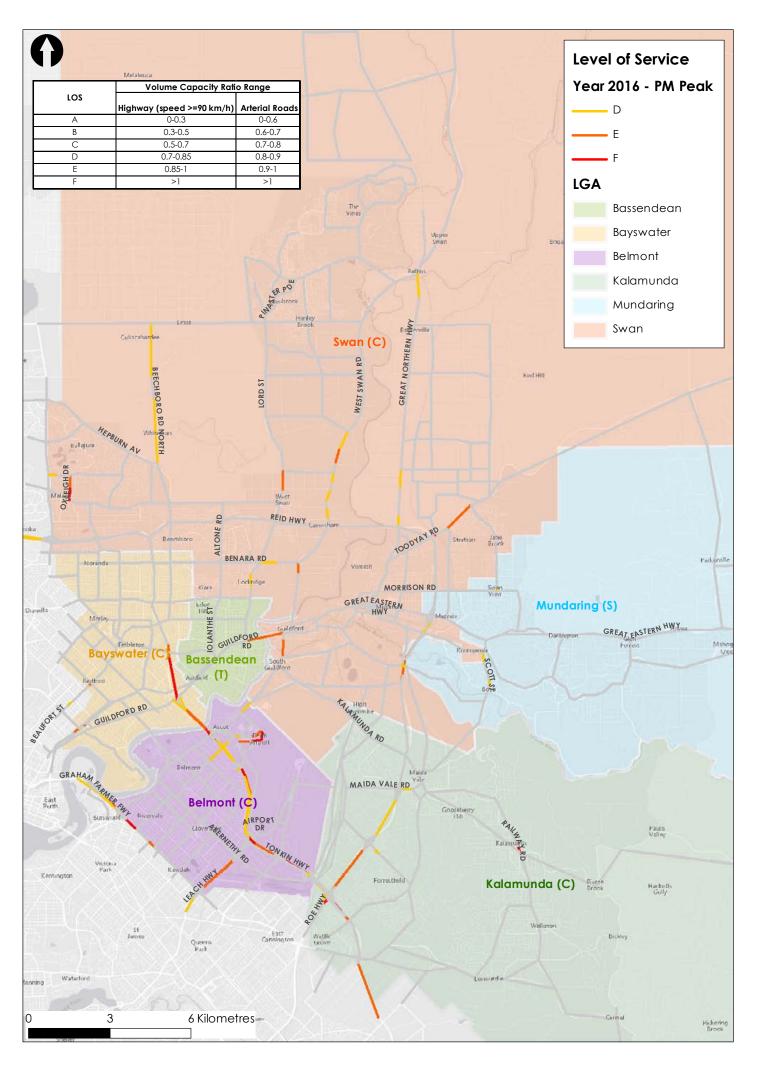
Table 3.1: 1994 HCM Level of Service Criteria

Level of Service	Volume / Capacity Ratio Range		
Level of Service	Highway (speed >= 90 km/h)	Arterial Road	
А	0 - 0.3	0 - 0.6	
В	0.3 - 0.5	0.6 - 0.7	
С	0.5 - 0.7	0.7 - 0.8	
D	0.7 - 0.85	0.8 - 0.9	
E	0.85 - 1	0.9 - 1	
F	>1	>1	

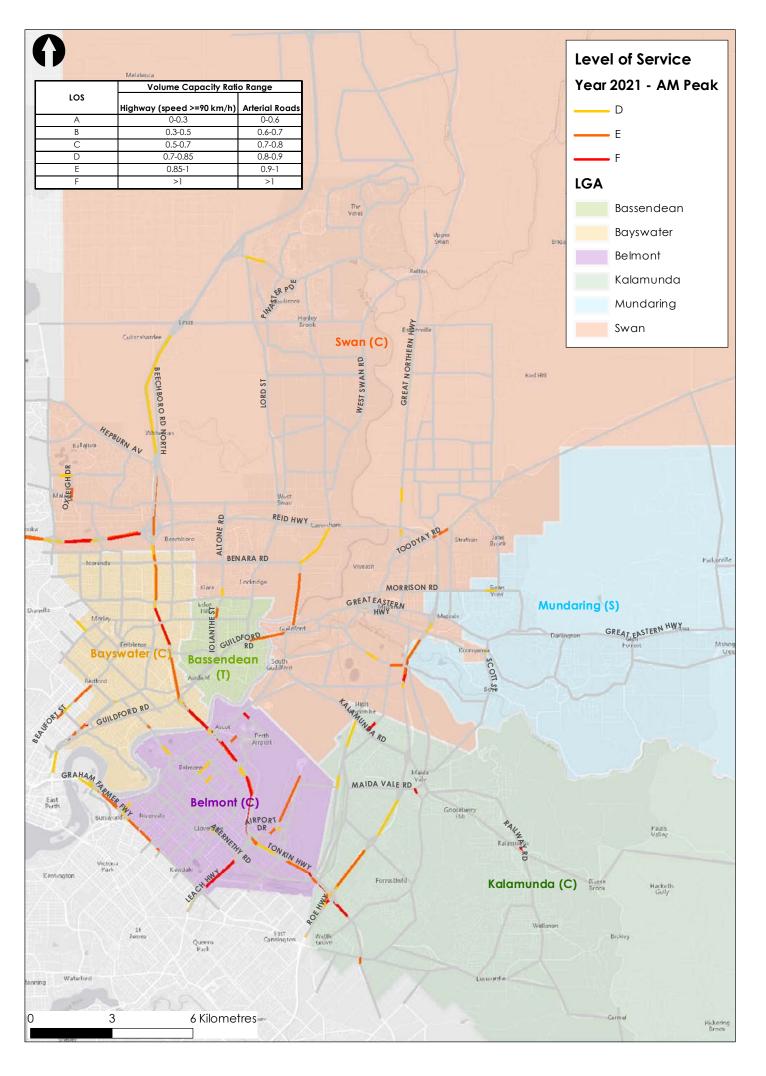
Based on the speed limit and the V/C ratio provided from the traffic model, the LOS value for each road segment was calculated. Full LOS Maps are included as Appendix B.

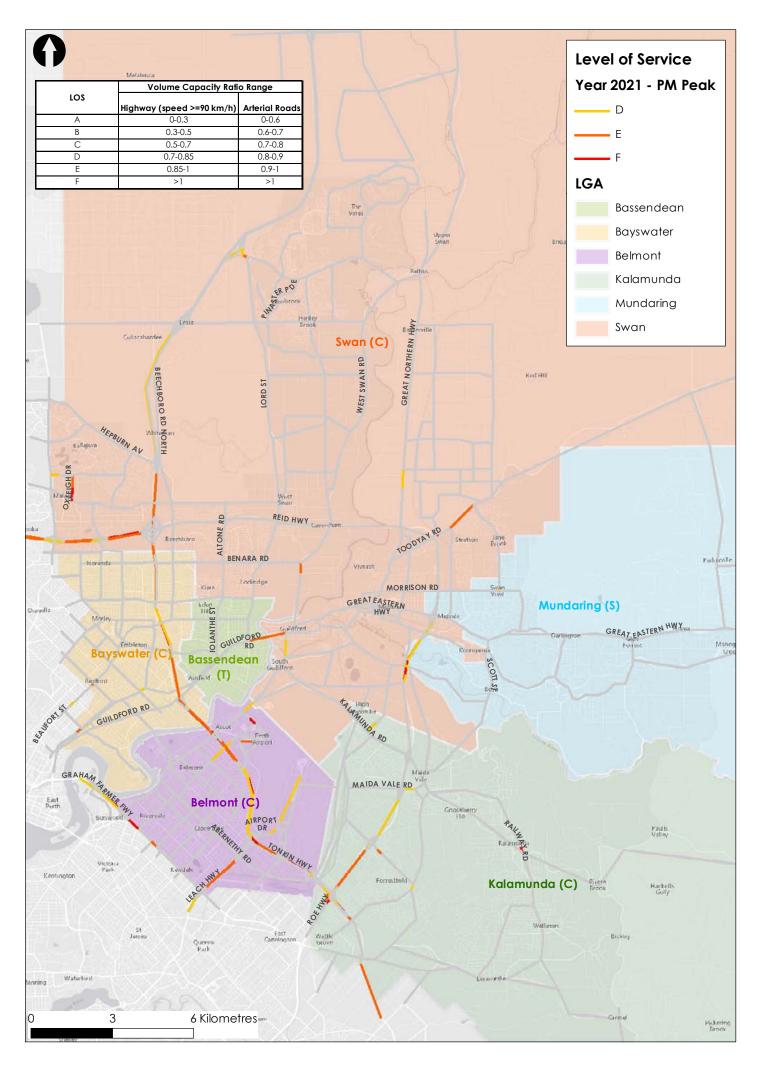




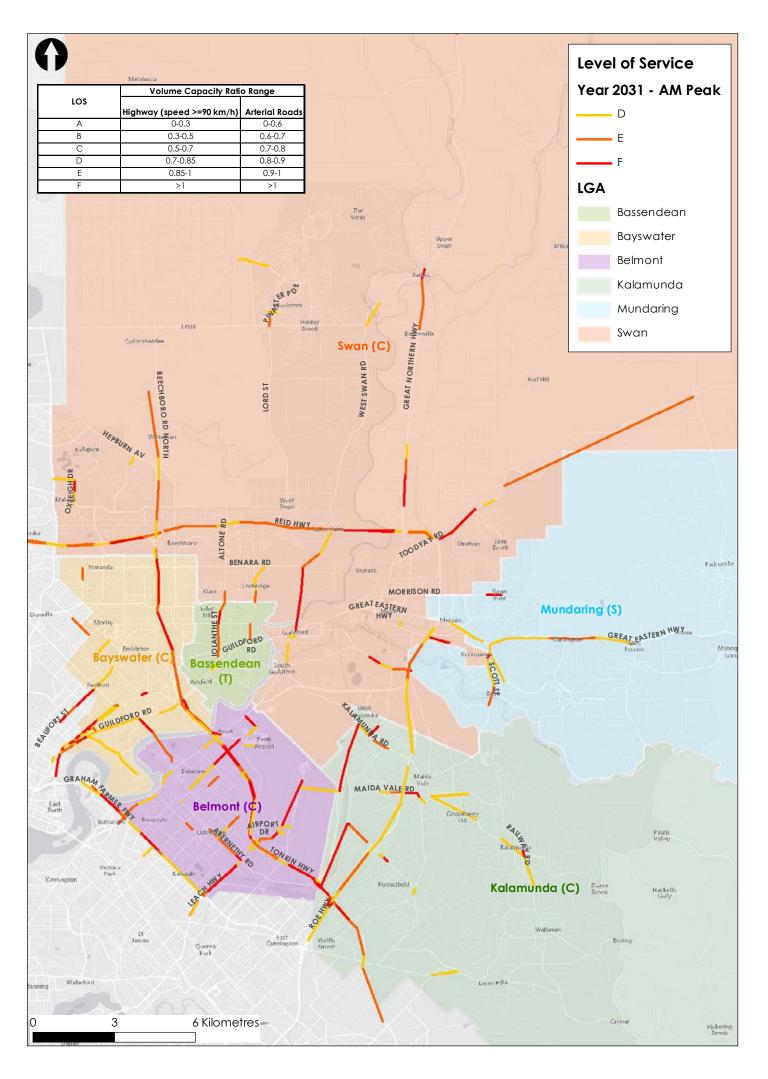


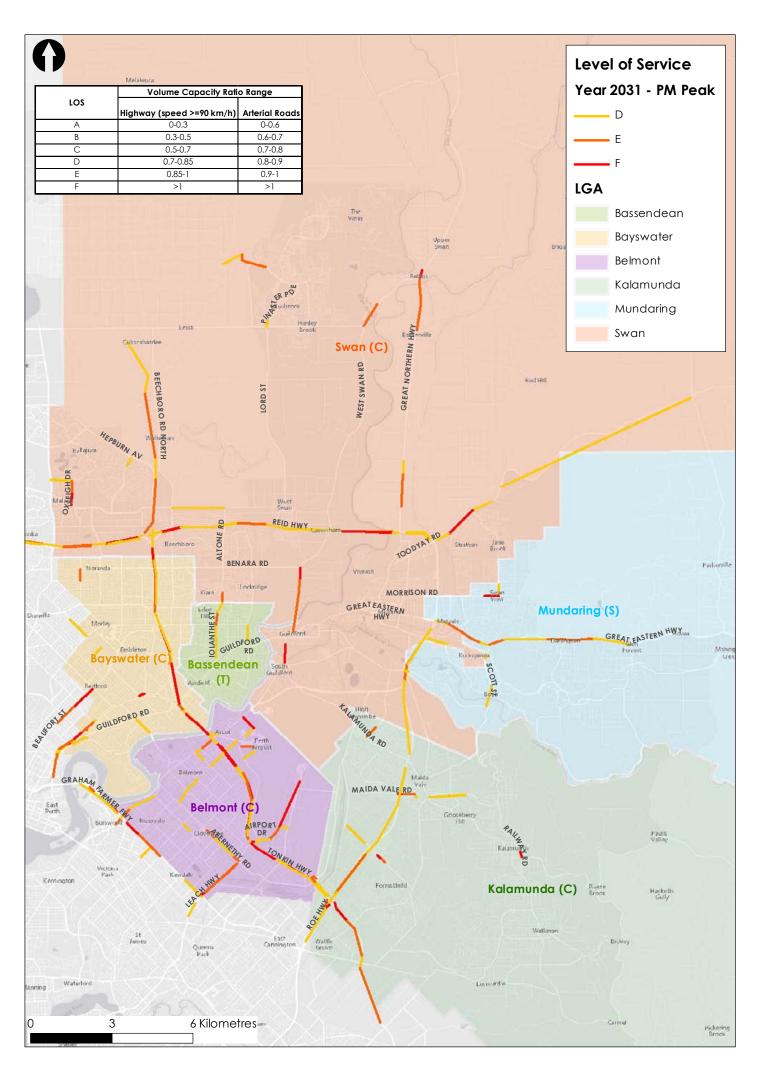














3.4 Summary

As noted, there are a number of road links that have been modelled to indicate likely congestion in the future (2021 & 2031). A number of these are on the local road network and, as such, can be provided to the member Councils for consideration and any necessary action.

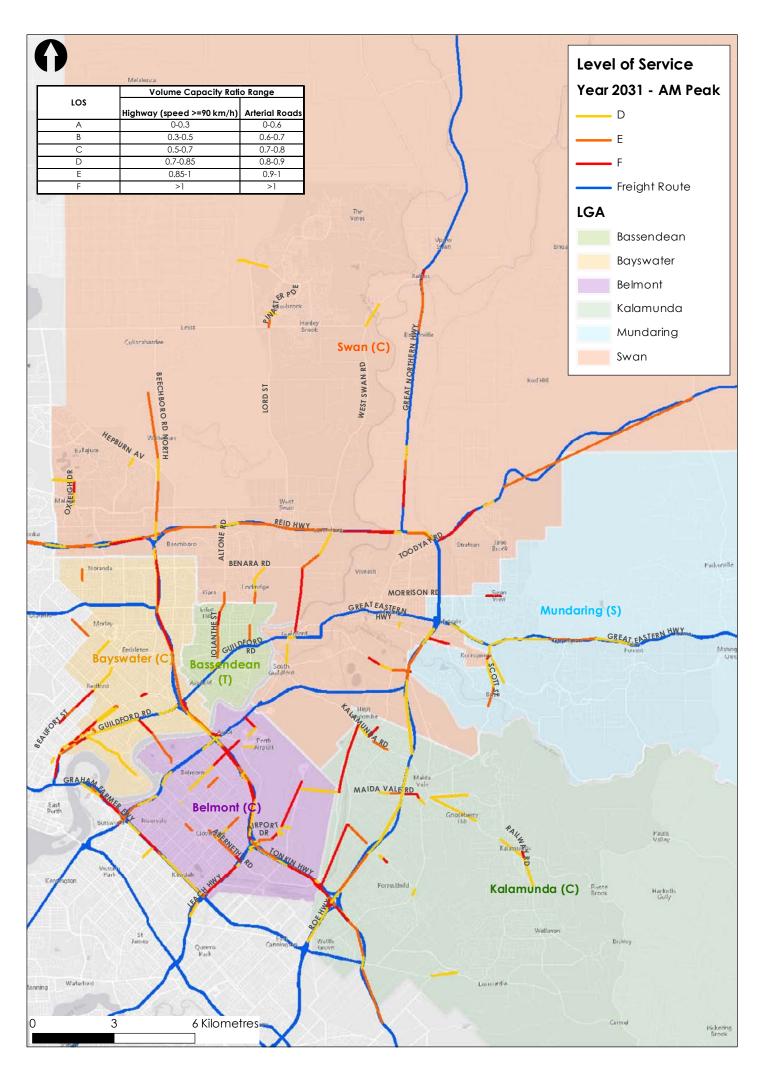
Key Roads / Intersections on the Freight Network

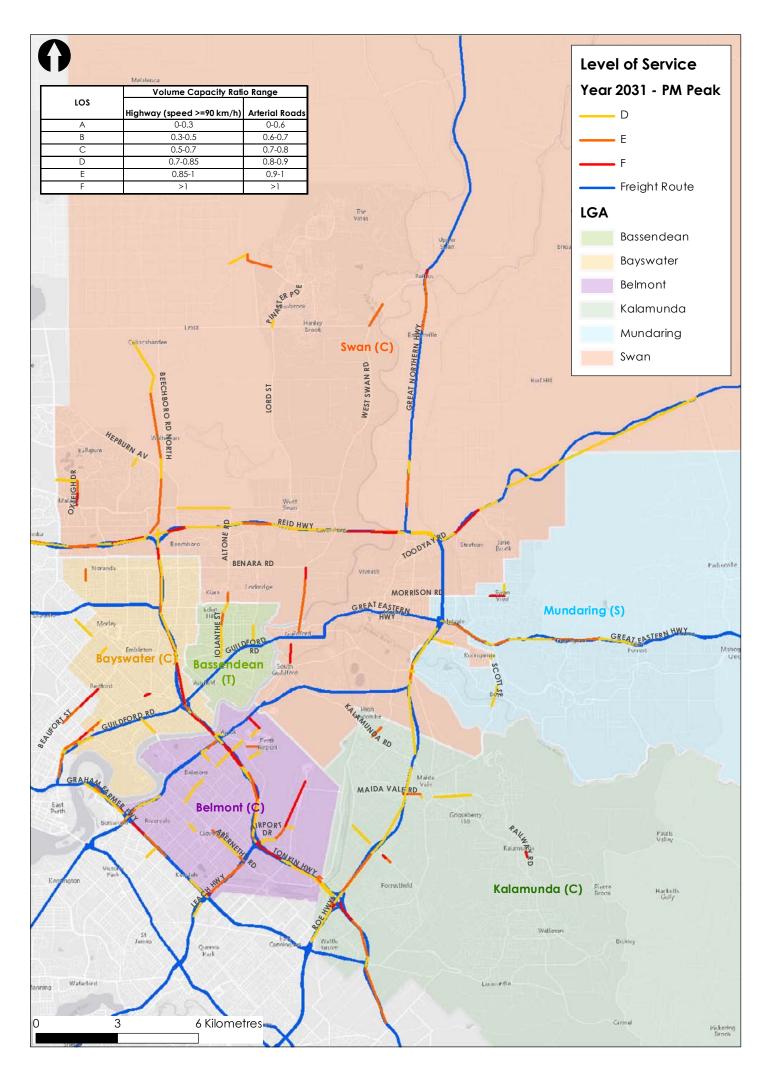
A number of the roads that are forecast to likely experience congestion in the future that will have an impact on the Freight network and as such, should be advocated by the EMRC for improvements, include:

- Graham Farmer Freeway;
- · Great Eastern Highway;
- · Great Northern Highway;
- Leach Highway;
- Reid Highway;
- · Roe Highway;
- Tonkin Highway;
- Toodyay Road; and
- West Swan Road.

In addition to the roads with a poor level service, forecast to experience congested conditions, there are a number of roads, that by 2031, still have a good level of service (level of service A and B – green highlighted roads illustrated on the maps provided in Appendix B).

This presents an opportunity to assess these roads further, to establish if they can be downgraded providing more space for future cycle or pedestrian facilities (Road Diet). For example, it is noted that Benara Road within the Cities of Bayswater and Swan, Morrison Road within the City of Swan and Lord Street within the Town of Bassendean have four lanes for general traffic but, have a forecast Level of Service A or B in 2031.





National Approaches to Congestion and Behaviour Change

Further to the State and Local Strategy Analysis for WA, a national review has been undertaken assessing existing approaches to congestion management and Travel Behaviour Change in other states.

National approaches to congestion and behaviour change were reviewed and considered, as well as recommendations from member Councils. The priorities within the following lists were identified to be applicable to WA, and the approaches for each state are detailed in Appendix C.

National Approach to Congestion Management

- Greater use of technology such as autonomous vehicles, data sharing, customer apps and drones;
- Bus Priority program and extension of bus lanes and additional buses;
- Innovative schemes such as Ride Sharing;
- Smaller 'quick win's' such as localised widening and modifying and optimising traffic signals;
- Pinch Point program;
- Installing CCTV and VMS connected networks; and
- Clearways Program.



National approaches to congestion and behaviour change were reviewed and considered, as well as recommendations from member Councils.



National Approach to Freight Management

- Create 'smart' networks that support integrated 'Freight as a Service' offerings with a unified access and pricing framework, that reflects the quantity of service;
- Integrate transport and land use to separate freight and passenger traffic on major freight corridors and efficiently plan collection points in centres and at network interchanges;
- · Protect freight corridors and facilities; and
- Traffic signalling to support freight movements.

Further the National Freight and Supply Chain Priorities report notes the requirement for a more integrated approach to freight management, recommending priorities such as:

- Streamlining route permit approval processes for heavy vehicles by local governments and associated regulations reducing the approval period to 24 hours;
- Implement market led solutions to road user charging for all heavy and light vehicles, with pricing linked to the level of road infrastructure investment;
- Review and map current and proposed future freight routes for all freight modes to include freight corridors, intermodal terminals, ports, airports and industrial areas to inform ongoing land use planning;
- Reserve and protect land along freight corridors including buffer/transition zones;
- Ensure all tiers of government integrate appropriate land use planning protections for existing freight related activities such as: preservation of industrial land, buffer zones around key freight hubs to allow 24 hour freight operations and protect sites for future freight purposes; and
- Local and State Government working together to develop coordinated urban freight plans.

National Approach to Travel Behaviour Change

- On-Demand Public Transport Trial
- Expansion of cycling infrastructures
- Cvcle Hire Schemes and Trials: and
- 20-minute neighbourhood approaches.



Stakeholder Engagement

Two approaches to stakeholder engagement were undertaken including two stakeholder workshops, held at the EMRC administration offices:

- The first workshop focused around congestion, discussing the congestion mapping undertaken and congestion management strategies; and
- The second workshop focused around Travel Behaviour Change and what the EMRC could advocate for.

In addition to the two workshops, follow up meetings with Perth Airport, City of Kalamunda, Shire of Mundaring and the City of Swan were undertaken. The main issues discussed at the workshops and meetings are summarised below, with full details included as Appendix D.

The discussion during both workshops and the follow up local council meetings noted a number of localised congestion issues and Travel Behaviour Change approaches.

Congestion Issues

- The EMRC could investigate initiating a Regional Congestion Management group/committee.
- Kalamunda Road / Roe Highway interchange is likely to become congested due to local infill development;
- Great Eastern Highway / Lloyd Street intersection is likely to become congested due to local infill development;
- Welshpool Road East / Tonkin Highway is likely to become congested due to local infill development;
- Great Eastern Highway requires upgrading between Tonkin Highway and Great Eastern Highway Bypass and Roe Highway and Great Eastern Highway, Toodyay Road (formerly known as the Orange Route, now referred to as EastLink WA);
- Upgrade of Guildford Road Bridge to accommodate future Urban Growth corridor;
- State funding for the Tonkin Gap project has currently not been made available:
- Great Eastern Highway / Kalamunda Road intersection upgrade;
- Abernethy Road, Dundas Road, Berkshire Road and Kelvin Road all require upgrades;
- Due to urban growth in Helena Valley, Helena Valley Road requires upgrades;



Two approaches to stakeholder engagement were undertaken including two stakeholder workshops, held at the EMRC administration offices.

- The location of the proposed Bellevue Station is likely to result in issues along Clayton Road, Miller Street and Scott Street caused by removal of road / rail crossings;
- Increase in traffic will likely see a requirement for Altone Road / Reid Highway and Marshall Road / Altone Road intersections to be upgraded; and
- Advocate for the removal of all railway level crossings to assist in reducing localised congestion.

Freight Management

- Freight Access Strategies and priority movement along key corridors;
- Greenmount Road experiences freight issues;
- Increase in freight and residential traffic mix within the Mundaring townsite; and
- Stock Road needs to link NorthLink WA to Great Northern Highway and to be a Red Road (Primary Regional Road) in the Metropolitan Region Scheme.

Travel Behaviour Change Approaches

- Identifying and reserving public transport priority corridors (which could be achieved through additional space or signal timing);
- Utilising technology and big data to educate the use of non car modes for short distance trips;
- Your Move schools and workplaces (ensuring sufficient non car modes are available);
- Your Move program for Forrestfield Train Station to reduce the amount of short distance (less than 2km trips by car to the station);
- Infrastructure to enable alternative moves of transport (walking, cycling and public transport) to support Your Move programs;
- Investigate a bike share scheme to connect key tourist destinations:
- Mandatory Travel Plans for all developments (reflective of the development location);
- Local government to be an avenue for State Government to trial future transport innovation;
- Assess improved pedestrian amenity through town centre areas such as Guildford Centre (James Street to Meadow Street) and around transit nodes, such as Bassendean and Belmont Train Stations;
- Improve pedestrian accessibility across strategic corridors;
- More regionally focused cycle routes linking across the boundaries of the member Councils taking advantage of e-bike technology.

Perth Airport Congestion Modelling

Perth Airport have undertaken detailed modelling to the transport network immediately surrounding the Airport identifying possible infrastructure changes that may be required by 2025. The infrastructure changes identified include:

- Roe Highway three lanes bidirectional between Tonkin Highway and Welshpool Road;
- Grade separated Roe Highway / Kalamunda Road interchange;
- Forrestfield-Airport Link associated network changes;
- Removal of the Brearley Avenue Link (Redcliffe Station);
- Great Eastern Highway three lanes bidirectional between Tonkin Highway and Great Eastern Highway Bypass;
- Kalamunda Road two lanes bidirectional between Great Eastern Highway Bypass and Abernethy Road;
- Upgrade of the Great Eastern Highway / Fauntleroy Avenue intersection; and
- Removal of Grogan Road connection as part of the New Runway projects.

The network performance analysis for the morning and evening peak periods indicates that there may be congestion in the Perth Airport Area, predominantly along Great Eastern Highway between Tonkin Highway and Kalamunda Road, and light congestion along Kalamunda Road between Roe Highway and Abernethy Road, and Roe Highway between Tonkin Highway and Kalamunda Road in the morning peak, as shown in Figure 5.1.

Heavy congestion is indicated in the area during the afternoon peak period, predominantly along Great Eastern Highway between Hardy Road and Fauntleroy Avenue, as well as along local roads in Redcliffe. Congestion has also been predicted along Tonkin Highway north of Leach Highway / Airport Drive. Some congestion is also predicted along Roe Highway between Tonkin Highway and Great Eastern Highway Bypass. The congestion map is included as Figure 5.2 on page 25.





Figure 5.1: 2025 Network Performance with Upgrades – AM Peak Period Density



Figure 5.2: 2025 Network Performance with Upgrades – PM Peak Period Density

Summary and Recommendations

Congestion is and will be present on the road network within Perth's Eastern Region, with both strategic arterial roads and more localised distributer roads likely to suffer from an increased traffic demand due to urban infill and general population growth.

Congestion has a clear impact on the efficiency and operation of the freight industry, which, for the EMRC Region, plays a significant role in terms of gross regional product and employment. Indeed, consultation with the freight industry undertaken during the Inland Port study noted that road congestion and heavy vehicle access along with future road planning and design were key issues for the growth of business.

While congestion management and freight management initiatives are important and can be targeted at identified hotspots to alleviate congestion, longer term approaches to changing travel behaviours (both individual travel habits and wider freight industry operations) are required to create more capacity out of the existing constrained network.

This study has identified a number of recommendations for the EMRC to consider, addressing congestion, managing freight and reducing the number of short trips made on the road network in the private car.

Congestion Management Recommendations

Reference	Recommendation	Rationale	Desired Outcome
C1.	Regionally focused parking strategy	City of Swan suggested reviewing all parking strategies in member Councils to ensure they do not compete with each other and encourage short distance car trips. This could be achieved through the EMRC undertaking a review of all member Council parking policies and strategies and advocating to have the DoT Guidelines for Preparation of Integrated Transport Plans updated. Further, land use car parking ratios also need to be reviewed to ensure large format freight forwarding facilities do not provide an over supply of allocated parking.	Coordinated parking policy and strategy within the Eastern Region that reduces the number of short distance single car trips. Setting parking capacity lower than parking demand for the regions and accommodating the shortfall through cycling parking and public transport.

Reference	Recommendation	Rationale	Desired Outcome
C2.	Mandatory Travel Plans – regionally focused	Participants within the Travel Behaviour Change workshop noted Travel Plans that are specific to the region could be introduced as a mandatory requirement from development. Further clarification with the Planning and Development Act maybe required for each member Council.	Travel Behaviour Change for local businesses to encourage employees to travel by different modes.
C3.	The EMRC to work with member Councils to proactively advocate PTA for Access to Stations programs across all stations in the EMRC Region.	Identified within the Travel Behaviour Change workshop.	Reduce short distance car trips to train stations as well as increase the number of people using the train rather than driving.
C4.	The EMRC to advocate for a communication plan between State Government and Local Governments to let them know what work is being done and potentially encourage innovative trials.	Identified within the Travel Behaviour Change workshop where it was noted that DoT are assessing possible On-Demand Public Transport trials. Belmont noted their proximity to the Perth Airport and the Perth CBD and their existing bus network may mean Belmont would be a good location for any On-Demand Public Transport trials.	Allow LGAs to trial new innovative transport initiatives and assist in reducing car travel.
C5.	The EMRC to initiate a Regional Congestion Management group/ committee.	Noted within the Congestion Management Workshop as a means of implementing this Action Plan.	Ensure key actions from this plan are advocated for and implemented.
C6.	The EMRC to work with PTA and member Councils to assess need for bus priority corridors.	Discussion with key stakeholders noted that PTA have a bus priority corridor program and would welcome discussion with LGAs for future corridor planning.	Improve public transport reliability thus reducing car trips.
C7.	A number of pedestrian and cycle access issues were noted within the workshops and consultation meetings. The EMRC to advocate for Local Governments investigating the feasibility to construct footpaths and crossing points along strategic roads, such as Kalamunda Road and Canning Road, corridor review as well as assess pedestrian and cycling issues within local town centres and on arterial roads.	Pedestrian and cycle access issues noted in workshops and consultation meetings. Town centres and busy roads that do not have traffic signals to assist pedestrians crossing the road can lead to short distance car trips. This was noted by the City of Kalamunda, highlighting Canning Road and Kalamunda Road.	Local Governments to assist in reducing short distance car trips.

Reference	Recommendation	Rationale	Desired Outcome
C8.	The EMRC to further investigate the roads modelled to have a good forecast level of service (A or B) and assess the possibility of road downgrades, reducing the number of traffic lanes and improving the cycling and/or walking infrastructure.	Identified within Congestion Mapping, with some roads discussed during stakeholder consultation.	Improved cycle and pedestrian provision could increase the mode share and reduce the number of short to medium distance car trips undertaken.
C9.	The EMRC to advocate for bus priority corridors to be reassessed post planning for @3.5m. Due to the increase in residential density in the Mundaring, Parkerville and Stoneville townsites, the Shire of Mundaring would like to see an increase in public transport frequency along Great Eastern Highway.	Consultation meeting with the Shire of Mundaring noted a need for improved public transport reliability.	In conjunction with Recommendation C6 above, improve public transport reliability reducing car trips.
C10.	The EMRC and member Councils (City of Swan and Shire of Mundaring) to work with the PTA to plan an improved bus and active travel network for access to Bellevue station.	Consultation meeting with the City and the Shire noted uncertainty around planned bus networks for the new station.	Reduce short distance car trips and park and ride demand for this end of line station.
C11.	Assist Local Governments to embrace technology, such as shuttle bus services (possible driverless buses or on demand services) by advocating with State Government and local industry. This could be trialled for the Swan Valley and Guildford areas as well as Kalamunda town centre and Bickley-Carmel areas.	Consultation meeting with the Cities of Swan and Kalamunda noted a need to embrace technology within planning for the future.	Reduce short distance car trips and improve the 'appeal' of public transport to those that maybe sceptical.
C12.	The EMRC to work with its member Councils to establish a list of priority roads and intersections to determine a 'Quick Win's' program. This may include localised widening and modifying traffic signals, such as the local intersections forecast to become congested by local infill development as listed in section 5 including roads that may not be on the MRWA network but are forecast to be congested, such as Abernethy Road, Dundas Road, Berkshire Road, Welshpool Road and Abernethy Road.	Noted in review of congestion management practices by other State Governments to aid congestion management – possible focused around freight hubs/corridors. Also noted in the stakeholder consultation meetings with the individual member Councils.	A regional focus on Quick Wins would assist in reducing congestion and improving efficiency of localised freight movements. This would also compliment the proposed Pinch Point Program (Recommendation C13).

Reference	Recommendation	Rationale	Desired Outcome
C13.	The EMRC to work with member Councils and State Government to identify a Pinch Point program along the Freight and public transport corridors.	Noted in review of congestion management practices by other State Governments to aid congestion and freight management.	Reduced localised congestion and improve freight management. This could work in coordination with recommendation C12 – Quick Wins.
C14.	The EMRC to work with State Government to assess the feasibility of installing CCTV and VMS connected networks.	Noted in review of congestion management practices by other State Governments to aid congestion management and be responsive to road network issues.	Reduce congestion of key corridors (both public transport and freight corridors).
C15.	The EMRC to work with its member Councils assessing a potential Clearways Program that cross boundaries improving regional travel.	Noted in review of congestion management practices by other State Governments to aid congestion management. Also noted within Congestion Management Workshop.	A regional focus on Clearways would assist in reducing congestion and improving efficiency of freight movements. This would also compliment the proposed Pinch Point Program (Recommendation C13).
C16	The EMRC to work closely with state government to identify key level crossing locations to be removed. Example being level crossings within the City of Bayswater.	City of Bayswater noted a desire for all railway level crossings to be removed to assist in improving localised congestion around these areas.	Improvements to localised congestion around level crossing areas, reducing the need for rat running traffic.



Freight Management Recommendations

Reference	Recommendation	Rationale	Desired Outcome
F1.	The EMRC to advocate for grade separation of intersections along the full length of Tonkin Highway, Roe Highway, Reid Highway, Welshpool Road East, Great Eastern Highway & Great Eastern Highway Bypass and the Perth Adelaide National Highway (EastLink WA).	Noted within the Congestion Management Workshop. Further, the Inland Port project and the EMRC City Deals project both identify a number of these corridors as requiring improvements.	Improves Freight Management and operational efficiency.
F2.	Advocate for State Government funding to be allocated to the Tonkin Gap project.	Identified within Congestion Mapping, Perth Airport modelling and Inland Port Study.	Improves Freight Management and operational efficiency.
F3.	Advocate for funding to be allocated to the Great Eastern Highway Bypass / Kalamunda Road grade separation project.	The Perth Airport noted the demand likely for this due to forecast development within the local area.	Improves Freight Management, operational efficiency and reduces localised congestion.
F4.	The EMRC to continue advocating for the Perth Adelaide National Highway (EastLink WA) proposed upgrades within the Shire of Mundaring.	The Shire of Mundaring is experiencing an increase in freight traffic. This is due to an increase in residential growth in the town centre with the local residential trips having an impact on freight movements.	Improves Freight Management, operational efficiency and reduces localised congestion.
F5.	The EMRC to assess the feasibility and location for a Freight Priority Corridor trial.	This requires freight trucks to be connected to traffic signals. Sydney is currently trialling this.	Improves Freight Management and operational efficiency.
F6.	The EMRC to assess the feasibility of creating 'smart' networks that support integrated 'Freight as a Service' offerings with a unified access and pricing framework, that reflects the quantity of service.	Noted in review of freight management practices by other State Governments to aid freight management and operational efficiency.	Improves Freight Management and operational efficiency.
F7.	The EMRC to work with member Councils and State Government to assess the feasibility of separating freight and passenger traffic on major freight corridors and efficiently planning collection points in centres and at network interchanges.	Noted in review of freight management practices by other State Governments to aid freight management and operational efficiency.	Improves Freight Management and operational efficiency.
F8.	The EMRC to work with State Government to protect freight road and rail corridors and facilities from incompatible urban encroachment and noise sensitive development.	Noted in review of freight management practices by other State Governments to aid freight management and operational efficiency and within the Inland Port Study.	Improves Freight Management and operational efficiency.

Travel Behaviour Change Recommendations

Reference	Recommendation	Rationale	Desired Outcome
T1.	The EMRC to work with the City of Swan and State Government to advocate for a Midland Town Centre Your Move program.	Noted during the consultation meeting with the City of Swan.	Encourage the use of non car modes for short distance trips to and from the Midland Town Centre as well as working toward creating a more walkable town centre.
T2.	The EMRC to work with the City of Kalamunda and State Government to advocate for a Forrestfield Station Your Move program, working collaboratively with an Access to Station program.	Noted during the Travel Behaviour Change Workshop to assist in reducing reliance on the car to travel to the station for short trips.	Encourage the use of non car modes for short distance trips to and from the station.
Т3.	The EMRC to work with the City of Bayswater and State Government to advocate for a Bayswater Station Your Move program.	Noted during the Travel Behaviour Change workshop to assist in reducing reliance on the car to travel to the station for short trips.	Encourage the use of non car modes for short distance trips to and from the station.
Т4.	The EMRC to assess the feasibility of undertaking a Regional Bike Plan with a focus on tourism and electronic bikes (e-bikes) for longer commuting.	Noted during the Travel Behaviour Change workshop assessing cross boundary routes that could be e-bike corridors attracting longer distance riding through the area as well as being a tourism attraction (noting e-bikes assist with the topography indicative of the eastern area).	Encourage the use of improved electric bike technology allowing for longer distance cycle commutes – an e-bike highway.
Т5.	The EMRC to work with member Councils to identify existing gaps in the local cycle network to access industrial areas.	During the Inland Port project consultation with industry, specific feedback noted pertained to the 'gaps' in the cycle network to allow employees to cycle to work.	One business in particular outlined that they have a number of employees that cycle most of the year and some that are seasonal. Identifying gaps in cycle infrastructure for industrial areas can achieve targeted mode shifts.
Т6.	The EMRC to work with DoT to identify and encourage other schools and work places to sign up to the Your Move program (starting with each Local Government).	Noted during the Travel Behaviour Change workshop.	Encourage the use of non car modes to travel to and from the identified activity areas.
Т7.	Connecting key destinations and public transport nodes through the Eastern Region by bicycle. A potential route has been identified linking EastLink WA Principal Shared Path, with the old railway corridors connecting across boundaries. This will connect EastLink, Swan Valley and Whiteman Park to the NorthLink Principal Shared Path.	Noted during the consultation meeting with the City of Swan, Relating to Recommendation T4, this could be an ebike corridor through the Swan Valley and hills area and would aid promotion of transport mode change.	Encourage the use of improved electric bike technology allowing for longer distance cycle commutes.

Reference	Recommendation	Rationale	Desired Outcome
Т8.	The EMRC to assist the City of Swan to assess feasibility and advocate State Government to consider a bike share scheme linking Whiteman Park, Swan Valley, and new Ellenbrook train line stations (Brabham, Guildford and Malaga).	Noted during the consultation meeting with the City of Swan.	Encourage the use of cycling for short distances to and from the new stations.
Т9.	The EMRC to liaise with PTA to study the feasibility and likely effect of altering the existing T11. PTA zonal system.	Assessing the zonal system to encourage those living further out (within the Cities of Swan and Kalamunda or Shite of Mundaring) to use public transport. An example of this may be assessing the feasibility of reducing the number of zones, or, reversing the zonal system to make it cheaper to use public transport for people who live further out from the CBD etc.	Encouraging the use of public transport for longer journeys, hence reducing the number of vehicles on the road.
T10.	The EMRC to liaise with PTA to assess existing public transport options for accessing industrial areas earlier than current services. This may be a gap in the bus service to be filled via On- Demand Transit.	During the Inland Port project consultation with industry, specific feedback noted the public transport operational times do not start early enough for some businesses within industrial areas to support employees with limited personnel travel opportunity (such as apprentices).	Encouraging the use of public transport to access industrial areas, thus reducing the number of vehicles travelling on the road or requiring parking within these areas.
Т11.	The EMRC to work with member Councils to assess feasibility of a pilot 20-minute neighbourhood, where local residents have the the ability to meet most of their everyday needs within a 20-minute walk, cycle or bus trip from their homes.	Noted in review of congestion management practices by other State Governments. The 20-minute neighbourhood concept concerns creating walkable, healthy, cohesive, sustainable communities with strong local economies, while reducing the need to travel.	Reduce the number of local short to medium distance trips by the private car.





Appendix A: Review of Existing Strategies

Research and review of existing State and Local Government strategies and policies has been undertaken to gain an understanding of what each member Council and key stakeholders to Perth's Eastern Region are doing to identify and respond to congestion as well as Travel Behaviour Change.

State Government Strategic Approach

Perth Transport Plan for a population of 3.5 million

(Note that while this plan has now been superseded by METRONET, a review was undertaken for context to this study)

The Western Australian Planning Commission (WAPC) released the draft *Perth and Peel @ 3.5 million Strategic Land Use Plan* (2016) and associated spatial frameworks, which project a population of 3.5 million people in Perth and Peel by the year 2050. As such, the *Transport @ 3.5 million Strategic Plan* was prepared to respond to the transport need associated with this growth.

Transport @ 3.5 million provides a strategic vision for the growth of Perth with consideration to existing network conditions and creating a transport network that supports the competing needs of the Perth community.

Transport @ *3.5 million* has as core focus areas, analysis of the future Road Network, Public Transport, Freight and Travel Demand Management demands.

Road Network Plan

The Road Network Plan covers the higher order road network. This includes freeways, the road freight network, the arterial network, proposed new river crossings, and access to and through the Perth CBD. The Plan also includes the provision of on-road public transport priority.

Overall, the Plan aims to achieve the following objectives:

- Improved efficiency / productivity of the road network;
- Improved road safety;
- Improved transport integration;
- Improved amenity;
- Improved sustainability; and
- Improved network resilience.

Further to this, the Plan is structured with the following initiatives:

- Expand the freeway network to service increasing demand in the outer metropolitan sub regions;
- Expand strategic road freight network to improve connection between the city's industrial areas, ports and regional WA and interstate destinations;
- Additional river crossings over the Swan and Canning to alleviate congestion on existing crossings;
- Upgrade the arterial road network to accommodate future demand, which will include grade separations at major intersections and road widening;
- Develop a network of on-road public transport corridors with a range of Bus Priority measures; and
- Network performance improvements (opportunities for grade separation at various high-volume intersections).

Public Transport Plan

The Plan details the proposed enhancements to the public transport system that will be required to support the population milestones of 2.7 million, 3.5 million, and beyond 3.5 million people.

The Plan proposes specific projects for the short, medium and long-terms that are specific to the EMRC Region and intended to deliver mode shift, including:

- Extensions to the Midland heavy rail line;
- · A new heavy rail through the North East corridor;
- Forrestfield-Airport Link;
- Train station parking (Guildford Station); and
- Ellenbrook Bus Rapid Transit (BRT) Stage one (now abandoned by METRONET).

The Plan notes that further work is required (beyond the release of the plan) to confirm the viability and functionality of the proposed network and further priorities investment.

Perth Freight Transport Network Plan

The Plan highlights how the provision of a clear strategic direction for the management of freight is needed in Perth and WA. The Plan suggests that as the pressure on road transport infrastructure and congestion increases from increasing freight demand and distances involved in distribution, a greater balance between road and rail for the movement of freight is needed.

The Plan identifies that rail, traditionally used for long-haul trips, could be a viable alternative to road transport for short-haul trips also as it would reduce road congestion, improve amenity and enhance safety.

The Plan addresses Perth's principal road freight network development priorities over the next two decades and beyond. Specifically, in relation to Perth's Eastern Region, the plan notes:

- Whiteman Yanchep Highway (new North-South corridor); and
- Upgraded east-west routes (Neaves Road).

The plan also highlights the following immediate infrastructure investment priorities:

- Gateway WA Perth Airport and Freight access project (completed);
- Roe 8 Extension (now abandoned by METRONET);
- NorthLink WA (consisting of the construction of the Perth Darwin National Highway between the junction of Reid Highway and Tonkin Highway at Malaga and junction of Great Northern Highway and Brand Highway at Muchea); and
- Tonkin Highway Grade Separation Program including new interchanges at Benara Road, Morley Drive and Collier Road

In addition to the above, the Plan specifically highlights South Bullsbrook as a proposed site for a major intermodal terminal development in the longer term. The reasons for this location being beneficial were noted due to: the site being well situated near existing freight rail line, the existing Great Northern Highway, other major local transport networks, and the new Perth Darwin National Highway (NorthLink WA). Further to this, the Plan notes that planning investigations will gage the potential for strategic relationships between the South Bullsbrook site and other industrial lands within the greater area, including Pinjarra, Neerabup and North Ellenbrook, which were noted as having the potential to act as collection and distribution points for the proposed intermodal terminal.

No timeframes were provided on the above however, this will need to be a major consideration for the future planning of the EMRC Region.



Travel Demand Management Plan

The Plan identifies six key travel demand management measures and initiatives designed to facilitate the future growth of Perth sustainably. The initiatives are intended to reduce the need to develop expensive infrastructure upgrades, identify solutions where there is limited capacity for network expansion and ultimately improve the efficiency and reliability of transport systems by managing demand and supply. The initiatives are:

Travel Plans for new developments: Aims to establish travel plans for new developments, large organisations or precincts that will be effective in changing transport choices.

Travel Behaviour Change programs: Intends to change perceptions or attitudes to alternative transport options in order to decrease overall travel demand, decrease usage of private vehicles, increase active transport and optimise the use of transport infrastructure and services. The programs will target households, workplaces and schools within specific regions (i.e. major activity centres) of Perth and Peel.

Walking and cycling infrastructure: Advocates for the provision of improved walking and cycling infrastructure, with a focus on network expansion, mode separation and end-of-trip facilities, to encourage mode shift and improve efficiency and safety.

Parking strategies: Aims for parking facilities to be used more efficiently. Measures proposed include parking charges, levies and limits to supply (caps) to discourage the use of private vehicles.

Public transport time of day pricing: Proposes to introduce a pricing scheme with fare differentials between peak periods of travel and off-peak (i.e. higher prices during peak periods) with the intention of shifting public transport users' patterns.

Road use pricing reform: Proposes to develop cost reflective road pricing that varies by time, distance, location and vehicle. The reforms would eliminate other road user taxes and charges while charging individual levels of road use more directly. Road use pricing would be designed to mitigate congestion and meet social equity objectives.

The Plan includes a section on travel demand management and freight. As such, the Plan notes the following strategies that could be implemented to improve freight transport efficiencies:

- Improving scheduling and routing to reduce vehicle travel and empty container haulage;
- Adopting innovative technologies;
- Organising regional delivery systems so fewer vehicle trips are needed to distribute goods;
- Using smaller vehicles for urban distributions;
- Changing freight supply chain operating hours, including delivery time, to reduce congestion driving peak periods; and
- Establishing pricing and taxation policies to encourage efficient freight transport.

The Plan discusses the above initiatives in the context of the Perth and Peel Region broadly and although the above initiatives are applicable to Perth's Eastern Region, the area is not specifically mentioned.

METRONET, 2018

METRONET provides a long-term strategic plan for infrastructure improvement to connect Perth suburbs and reduce road congestion. METRONET projects specifically relevant to the EMRC are listed below. These are consistent with the projects noted previously as part of the *Transport* @ 3.5 million Plan.

Forrestfield-Airport Link

- By 2021 the Forrestfield-Airport Link is expected to generate 20,000 passenger trips every day increasing to 29,000 daily by 2031.
- Three new stations at Redcliffe, Airport Central and Forrestfield.

Morley to Ellenbrook Rail Line

 Development of a comprehensive business case to achieve the best outcomes for Ellenbrook and the wider Swan Urban Growth Corridor. One option being considered is a 21km spur line from the existing Midland Line just east of Bayswater Station to connect communities in Morley, Noranda, Malaga, Bennett Springs, Whiteman Park and Ellenbrook. Details on the construction method and timeframe will be developed and confirmed during the planning phase.

Midland Rail Station Project

- Planning is underway to relocate Midland Station, including its bus interchange and parking facilities, to Cale Street (500m east of its current location). The proposed new station will include a bus interchange, station parking, cycle parking and a shared path to provide access to the Midland town centre, hospital precinct and Curtin University Medical School.
- Planning is being undertaken to identify the potential location, alignment and extent of a Midland Line Extension to a future new station at Bellevue, approximately two kilometres from the relocated Midland station.
- Level crossing removal on the Midland railway line.²

Local Government Strategic Context – Town of Bassendean

Town of Bassendean Local Bike Plan 2012

The vision of the Local Bike Plan is to promote, encourage and facilitate the greater use of cycling as a mode of transport in the Town of Bassendean.³

Specifically, the Local Bike Plan aims to:

- Provide a coordinated approach to implement a highquality and connected bicycle network;
- Plan for maintaining and safeguarding the existing and future bicycle network;
- Integrate cycling network development with other developments and projects;
- Guide professionals implementing the projects identified in the Local Bike Plan; and
- Encourage and promote cycling as a legitimate transport mode.

However, no data is available to measure the progress of the Bike Plan to date.

Network Considerations

The Town of Bassendean Local Planning Scheme (updated 2008) identifies the following key network considerations:

- The improved accessibility of road and rail links into the west end of Old Perth Road will have a marked impact upon traffic flow and car parking in this area of the town centre:
- Guildford Road represents the major traffic thoroughfare;
- Morley Drive at the northern town boundary also performs a primary distributor road function; and
- To promote Collier Road as the "central spine" to the Bassendean Industrial Area, both in terms of its traffic function and its commercial exposure and presentation potential.⁴

It is noted that the above network considerations are more than 10 years old, therefore further investigation is required to determine if these are still relevant.

Behaviour Change Existing Initiatives

Safe Active Streets

The Town of Bassendean and Department of Transport have partnered to develop the Whitfield Street Safe Active Street Project. The Whitfield Street corridor is a key local connection that runs north to south through the southern half of the Town. This is now in detailed design stage.

Town of Bassendean Local Planning Strategy

The Local Planning Strategy for Bassendean (2008) notes the vision for Transit Orientated Developments noting Bassendean is well serviced with three railway stations equally spaced along a single central railway network, with each station coinciding with an activity area.

This can be achieved through identifying a walkable catchment for each train station and maximising the possible density for this catchment accordingly. In addition, identifying the need and type of housing stock to make this attractive living and providing appropriate services and amenities.

The main objective being; to confine the majority of Bassendean's population growth and housing redevelopment by targeting walkable catchments around the three railway stations, and thereby: improve the vibrancy of the adjoining activity areas; facilitate improved public use and amenity of the railway; and protect the character of other housing areas.

- 2 http://www.metronet.wa.gov.au/projects, visited 7/3/18
- 3 Town of Bassendean Local Bike Plan, 2012
- 4 Town of Bassendean Local Planning Scheme, 2008

Local Government Strategic Context – City of Bayswater

City of Bayswater – Strategic Community Plan 2013 – 2023

The purpose of the Strategic Community Plan is to link the community's aspirations with the City's vision and long-term strategy. However, there is minimal information related to transport or congestion management initiatives.

Morley Activity Centre Structure Plan

Transport Report

The Transport Report describes the transport environment for the ultimate development of the Morley City Centre. The plan aims for effective transition from its current urban form to a dense mixed used development. The report produces a study about the current scenario with respect to the various modes of transport that are used to commute within the City Centre.

Car Parking Management Plan

The key objective of the Car Parking Management Plan for the Morley Activity Centre is to coordinate the transition of the existing parking scenario in each of the five precincts within the centre, to an ultimate parking scenario that supports a medium / high intensity, mixed use urban centre that is serviced by both private vehicles and enhanced alternative transportation modes including public transport, cycling and walking.

This Plan is comprised of two parts:

Part A – Integrated Parking Strategies. These propose a suite of integrated policy objectives and strategies for car parking and alternative transport modes that will support a medium/high destiny use urban centre served by both private vehicles and enhanced alternative transportation modes; public transport, cycling and walking. They will enable the City to determine the optimum quantity and most appropriate management strategies for parking in the Morley Activity Centre.

Part B – Precinct Parking Management Plans. These apply the overall parking strategies from Part A into each of the five precincts. The Appendices after Part B focus on four specific issues:

- Parking control and management plan to be prepared by developers;
- Cost of provision of parking;
- · Parking needs assessment; and
- Criteria for a manager of parking in the City.

Bayswater Town Centre Structure Plan

The City has prepared a Structure Plan for the Bayswater Town Centre to provide a framework for the future development and revitalisation of the town centre. The Structure Plan aims at facilitating and promoting the use of public transport as a viable alternative to private vehicles. The Structure Plan also aims to encourage alternative modes of transport through the principles of Travel Demand Management.

Movement and Connectivity

The aims for improved movement and connectivity include:

- To provide convenient connections between trip generators/attractors.
- To enhance the north-south connectivity and legibility of the Town Centre.
- To facilitate through-site connections that provide a public benefit
- To create a modal hierarchy of movement that prioritises pedestrians, cyclists and public transport over private car use.
- To create pedestrian and cycling friendly streets.
- To decrease the traffic congestion, the City of Bayswater aim to create a traffic management strategy for the Bayswater Town Centre.

Behaviour Change Existing Initiatives

Safe Active Streets

The City of Bayswater has partnered with the Department of Transport to establish a bike boulevard between Bayswater and the Morley Town Centre. The project is part of the pilot Safe Active Streets Program being implemented across Perth.

- Stage 1 Leake Street and May Street (officially opened in September 2017)
- Stage 2 Edward Street and Catherine Street (not approved by Council at its Meeting of 17 April 2018)

Bayswater Station Survey

A baseline Travel Demand Management Survey was undertaken by the Department of Transport around Bayswater Station and the Bayswater Town Centre. The study aimed to identify travel behaviour of people in schools, local businesses and households, and looked at how students and employees within the study area travelled to and from school or work and the purpose of and where residents travelled to and from.

Local Bike Plan

The Bike Plan aims to ensure that the needs of differing cycle user groups are taken into account, through a range of proposals designed to create an interconnected and accessible cycling network. The Plan sets out to develop a comprehensive network by improving and extending the existing cycle network at a local level and promote, encourage and facilitate the greater use of cycling as a mode of transport. A programme will be developed to create a comfortable and enjoyable cycling experience for all ages of cyclists and confidence levels.

In addition to this, Bayswater have provided additional comments, noting greater emphasis is required in bicycle use as a future mode of accommodating a large number of traffic movements in this regard. DoT should be included in all future discussions as part their 'Long Term Cycling Network Project' (LTCNP).

Final report comments

The City noted that Wellington Road and Walter Road East experience levels of localised congestion outside of the traditional commuter peak periods – largely at weekends. They also noted a desire for the removal of all existing railway level crossings within the City.

Local Government Strategic Context – City of Belmont

Belmont on the Move, March 2017

Belmont on the Move Integrated Movement Network Strategy ⁵ sets out a framework for how the City will plan the transport initiatives within the City of Belmont for the next 10 years. The Plan considers future freight requirements and also provides details on how sustainable modes of transport can be integrated into the overall network. The Plan provides a list of short, medium and long term implementation measures.

In regard to congestion, the Plan notes that the major congestion 'hotspots' are not within the internal street network but rather at entrance points to regional roads or around schools (during peak pick-up and drop-off times).

Congestion Management

The City of Belmont is developing a Corridor Plan for Great Eastern Highway aimed to deal with the following matters:

- Land use and built form opportunities;
- Considerations regarding interface with adjacent properties; and
- Access arrangement for new development along Great Eastern Highway.

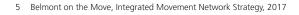
Although the plan does not seek to specifically address congestion and freight movements, Great Eastern Highway is a major consideration with the movement of freight and vehicles within Perth's Eastern Region. Therefore, any strategic plans impacting the Great Eastern Highway should be considered with respect to Perth's Eastern Region as a whole.

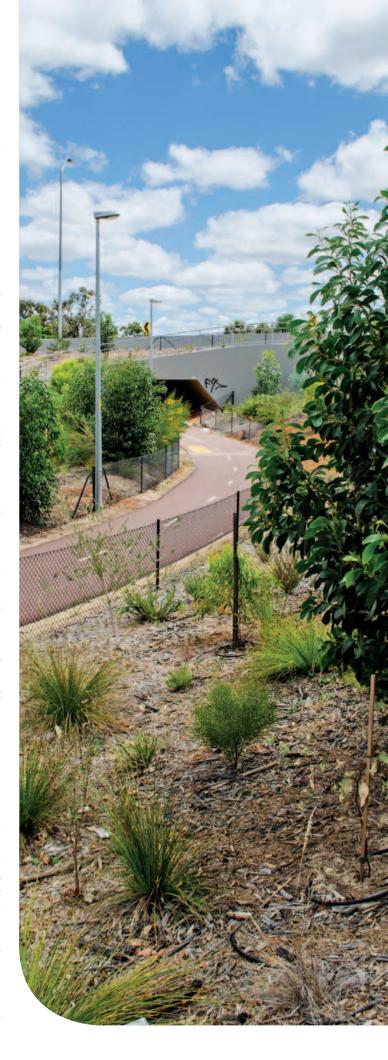
Behaviour Change

The City of Belmont has a Travelsmart Plan 2012 – 2018 aimed at using behaviour change opportunities to reduce congestion.

Sustainable transport initiatives are further supported by the State Government, which is rolling out the best practice 'Safe Active Streets Program'. As highlighted above, the Safe Active Streets program is being undertaken in a number of locations within the EMRC. There is an opportunity to create strategic networks across local government boundaries within the EMRC to increase local benefits.

The City is also currently underway with the development of a Sustainable Transport Strategy combining a new bike and walk plan with a review of public transport and Travel Behaviour Change.







Local Government Strategic Context – City of Kalamunda

Kalamunda Bicycle Plan 2017

The Kalamunda Bicycle Plan has been adopted by Councilone of the key aspects of the vision for the City is to be "easily accessible to and from Perth City, and around the City" – the Bicycle Plan supports this vision by setting out a clear way forward for investment in the active transport network.⁶

Network Considerations

The below traffic conditions were noted in the Kalamunda Bicycle Plan.

- Traffic congestion (intersection of Haynes Street / Canning Road); and
- Congestion of traffic on Railway Road between Mead Street and Haynes Street.

Congestion Management Initiatives

The intersection of Roe Highway and Kalamunda Road is being upgraded as is Abernethy Road to reduce congestion, address safety concerns and improve freight efficiency. Main Roads WA is the lead agency for this work.

Forrestfield Station Precinct – Development Application Planning Report

In 2016 the planning report was prepared by the Public Transport Authority (PTA) to support development application in relation to the Forrestfield-Airport Link.

The Project has the following four primary objectives:

- Promote new and existing centres including Belmont and Forrestfield that result in employment, residential and economic growth for the airport and surrounding areas;
- Provide a quick and efficient connection between the CBD and Perth Airport and promote onward connections to strategic centres and the general transport network;
- Reduce car dependency and improve the public transport network, relieving traffic congestion and therefore improving productivity and available capacity of the road network; and
- Minimise the impact of the airport as a physical divide and improve social equity and quality of life for Perth's community.

Local Government Strategic Context – Shire of Mundaring

Relevant Strategies

Shire of Mundaring Local Planning Strategy Background Document 2012

The most recent strategy of note is the *Shire of Mundaring Local Planning Strategy 2012*. The Strategy states the major areas of traffic congestion identified in the Eastern Metropolitan Region were not in the Shire of Mundaring. However, in its long-term projections (to 2031), a high level of traffic conditions is predicted on Great Eastern Highway from Roe Highway and on Morrison Road.⁷

Existing Initiatives

There are no congestion or behaviour change initiatives noted within this local government.

Local Government Strategic Context – City of Swan

City of Swan Transport Strategy 2014

City of Swan Transport Strategy 2014 includes a number of strategic objectives and initiatives related to freight and congestion as outlined below.⁸

Purpose of the Transport Strategy

- Identify constraints in current and planned road capacity, using the projections of the City (as captured in the most recent update of the Main Roads ROM), Directions 2031 and Beyond and the Central Sub-Regional Strategy;
- Identify measures to upgrade and improve the regional and local road connections to facilitate safe and efficient vehicle movement, manage freight movements and to reduce congestion;
- Consider the implementation and management of 'Moving People' (TransPriority) principles to facilitate an efficient movement system; and
- Identify measures to upgrade and improve public transport connections and facilities to reduce congestion.

Freight

- Investigate freight connectivity to Malaga as part of the Perth Darwin National Highway (NorthLink WA) construction;
- Investigate connectivity between Roe Highway and Hazelmere to provide a legitimate alternative link;
- Investigate Abernethy Road / Adelaide Street connection to improve internal legibility within the Hazelmere Enterprise Area Structure Plan (HEASP); and
- Undertake Local Area Traffic Management planning exercise for the precinct surrounding the Hazelmere Enterprise Area, particularly focused on restricting heavy vehicle access to the Hazelmere Enterprise Area via West Parade, Lloyd Street north of Clayton Street and Kalamunda Road.

Rail Crossings

 Conduct a study to prioritise grade separation of critical rail crossings.

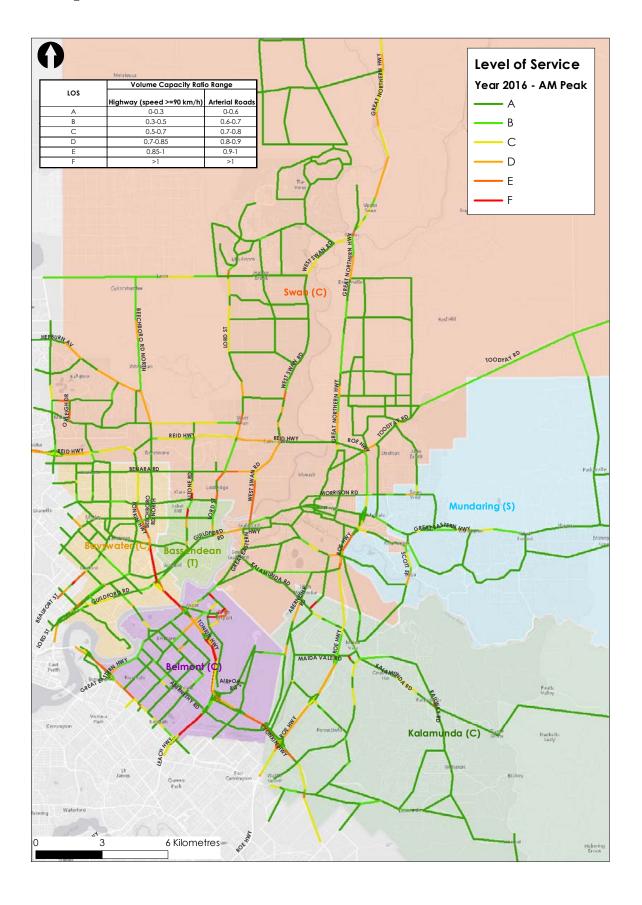
Cycling

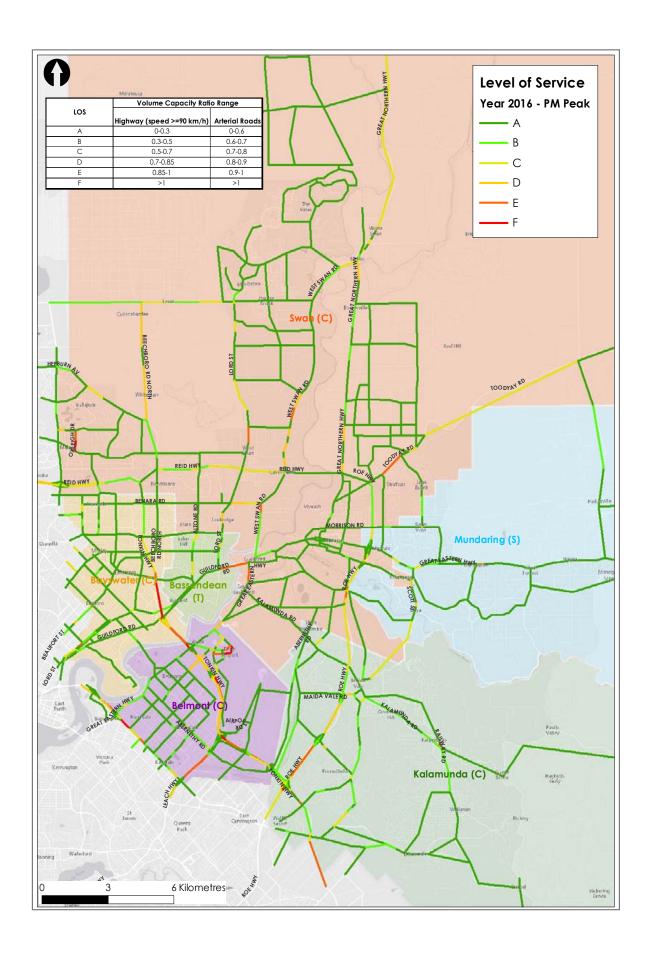
- Introduce minimum infrastructure standards for cycling facilities into planning policies;
- Create a detailed City of Swan Bike Plan which develops the concepts of the Western Australia Bicycle Network, incorporating and revisiting all works already completed;
- Undertake a review of the Urban Growth Corridor planning for cycling infrastructure, reflecting the changes to regional road linkages; and
- Implement the recommendations of the Swan CycleConnect Strategy, including extension of existing funding to achieve the network outcomes.

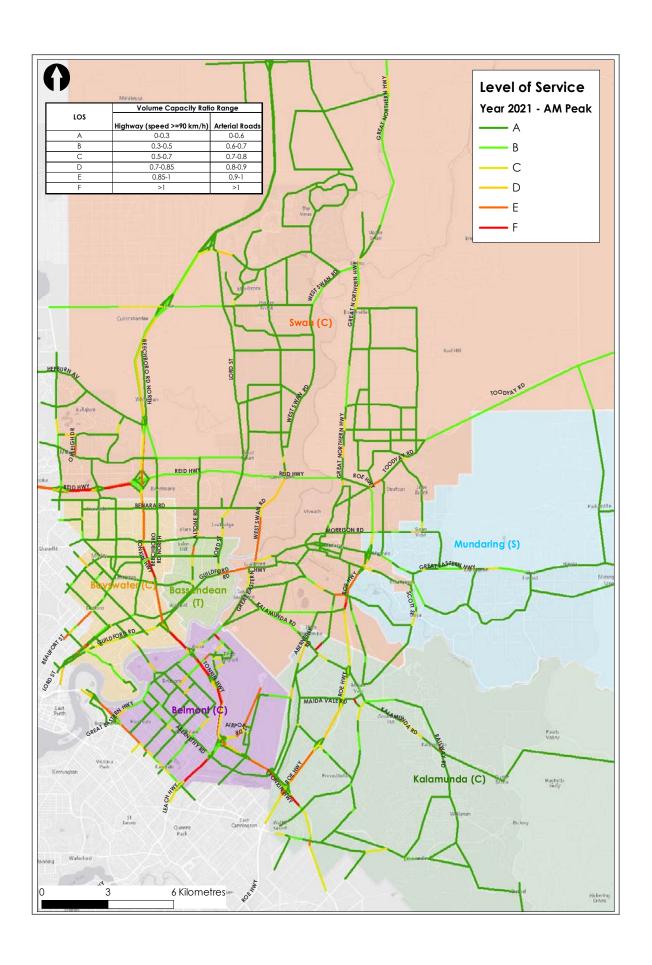
Further discussion with the local government is required to determine if the above objectives have been completed and if the benefits have been measured as part of a review process.

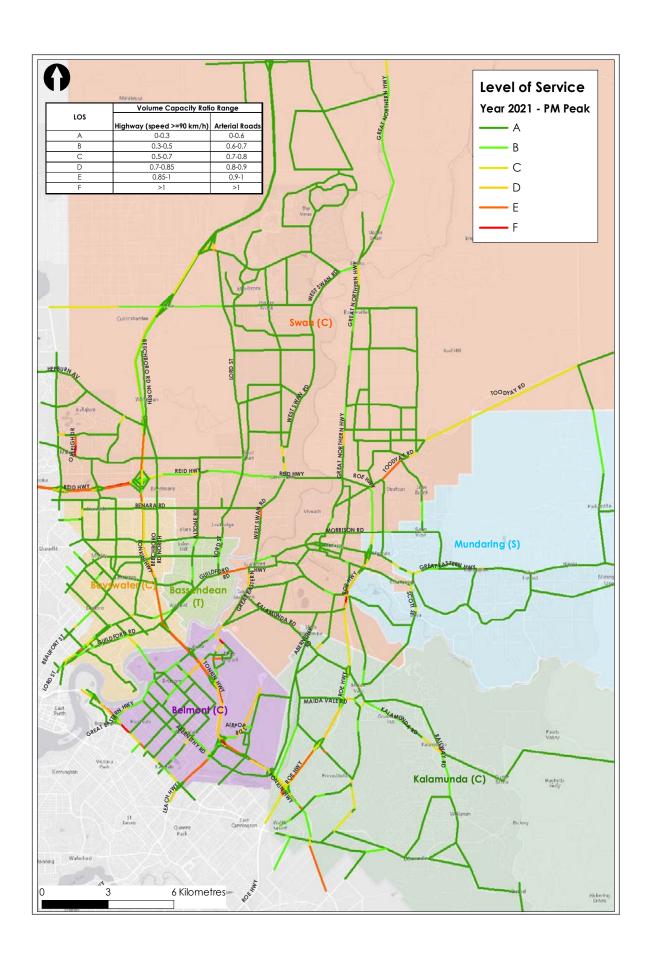
- 6 Kalamunda Bike Plan, 2017
- 7 Shire of Mundaring Local Planning Strategy, 2012
- 8 City of Swan Transport Strategy, 2014

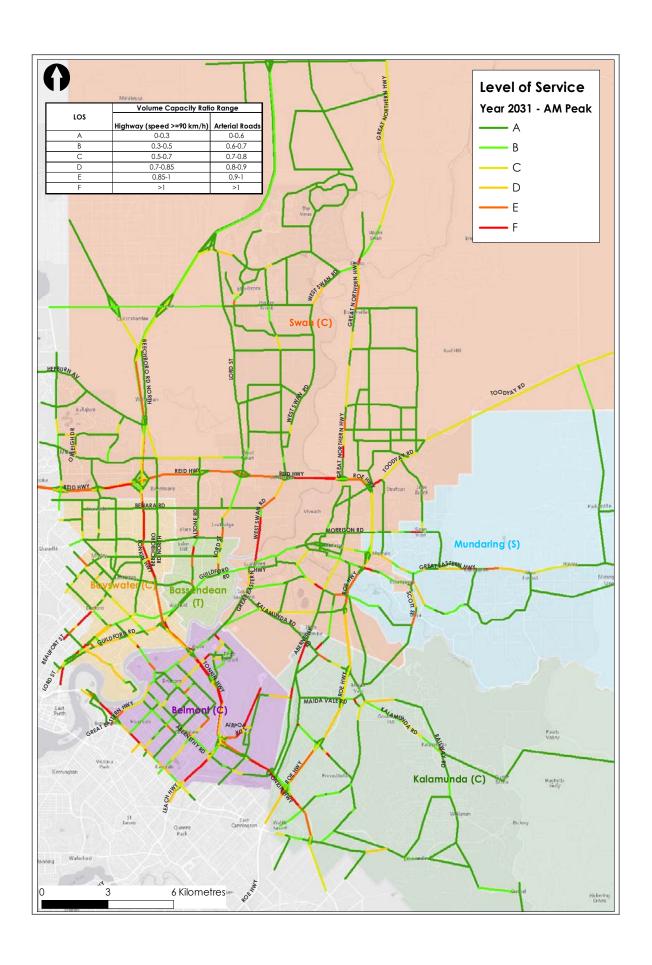
Appendix B: Level of Service Maps (LOS A-F)

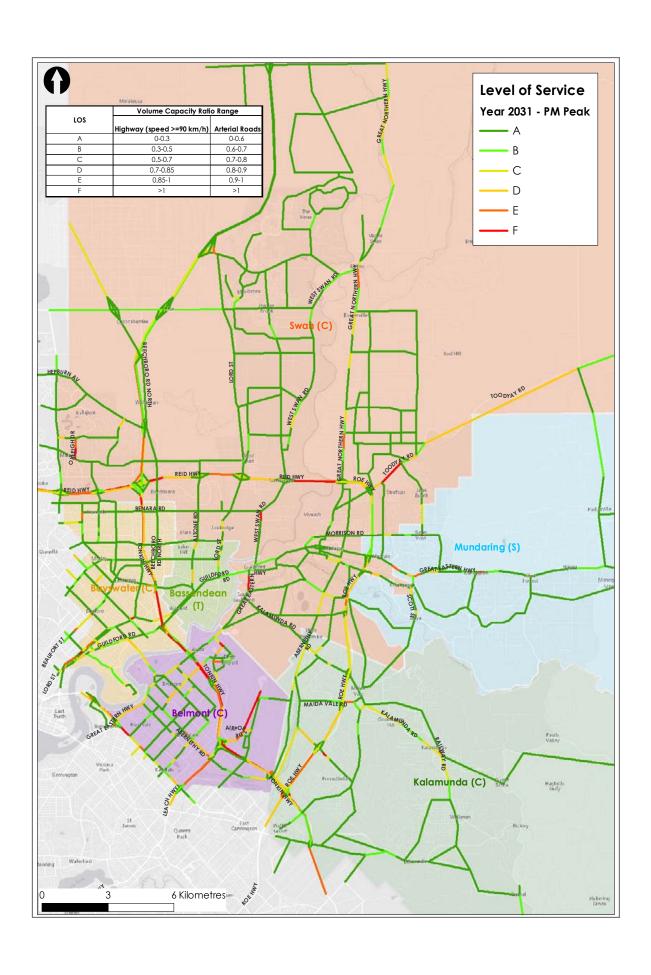


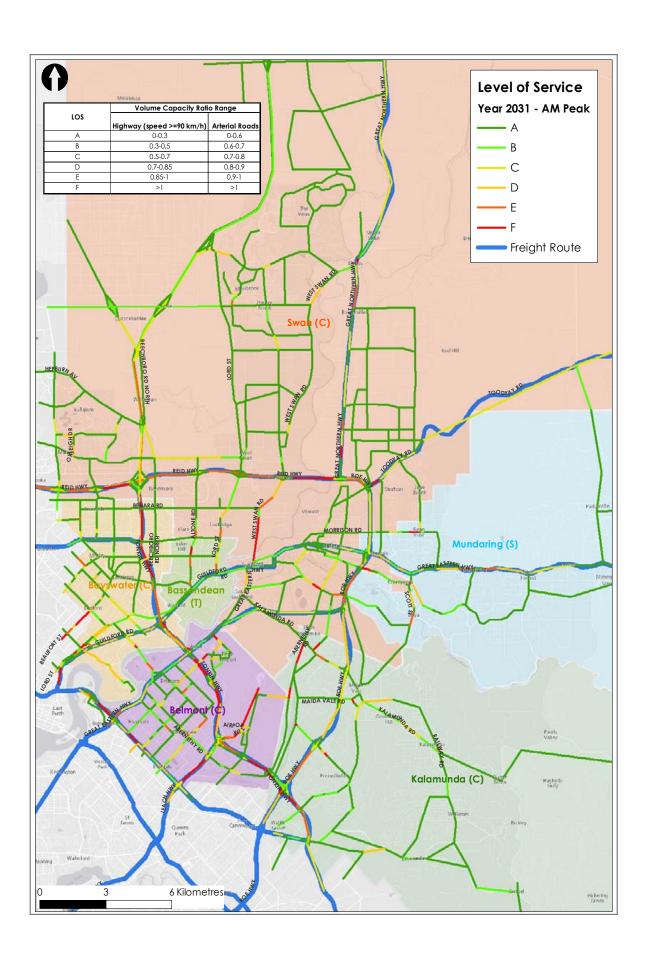


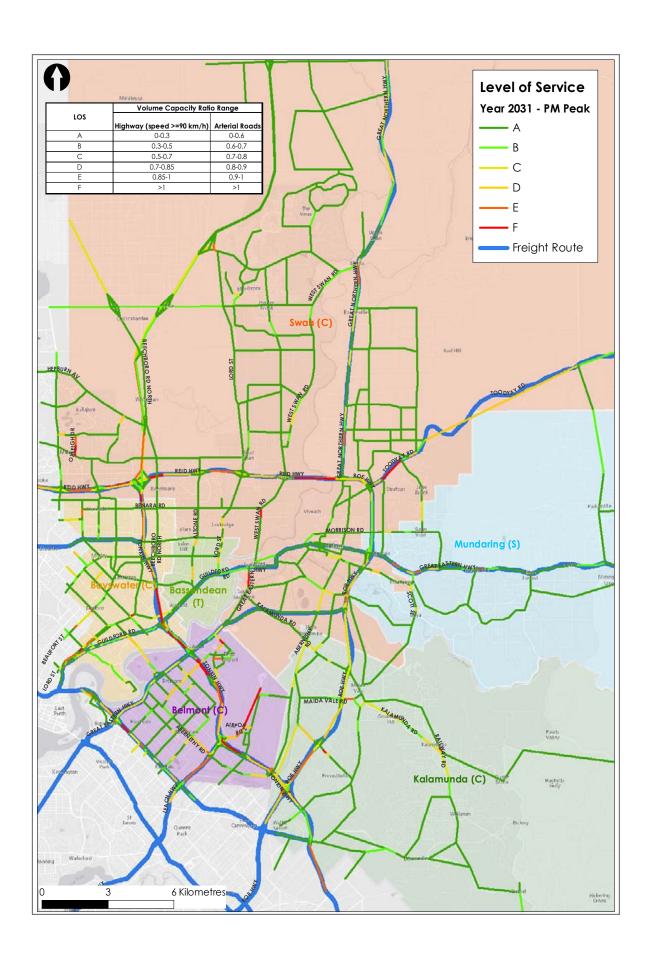














Approaches to Congestion and Behaviour Change

Further to the State and Local strategy analysis for WA, a national review was undertaken assessing existing approaches to congestion management and Travel Behaviour Change in other states.

New South Wales

Strategic Context

Draft Future Transport Strategy 2056

Future Transport is an update of NSW's Long Term Transport Master Plan to provide an integrated vision for the state. It consists of a number of strategies and plans for transport developed in alignment with the:

- Greater Sydney Commission's Sydney Region Plan;
- Infrastructure NSW's State Infrastructure Strategy; and
- The Department of Planning and Environment's regional plans.

The Plan was released in early 2018. The vision is built on the following six outcomes:

- i A Customer Focus: Every customer experience will be seamless, interactive and personalised by technology and big data (Mobility as a Service);
- ii Successful Places: People enjoy 'living local' with fast connections to strong centres that drive economic growth and social cohesion (self-contained communities);
- iii A Growing Economy: A powerhouse economy, enabled by efficient links between people, places, businesses and markets;
- iv Safety and Performance: Every customer will travel safely across a high performing network;
- v Accessible Services: Seamless mobility will enable the participation for all members of the community; and
- vi Financial and Environmental Sustainability: A transport system that contributes to a strong economy and environmental and community wellbeing.

One of the major components of the Plan is the use of new and potential (future) technologies to manage congestion and provide a safe and more efficient customer experience. Examples investigated in the Plan include: autonomous vehicles, data sharing, customer apps and drones.

Further to this, the Plan states that freight will be technology enabled, offering a dynamic, tailored service with high volume freight pathways, new service models, and more last-mile deliveries. The Plan outlines the following key points:

- Create 'smart' networks that support integrated 'Freight as a Service' offerings with unified access and pricing framework, that reflects the quantity of service;
- Integrate transport and land use to separate freight and passenger traffic on major freight corridors and efficiently plan collection points in centres and at network interchanges; and
- Maximise the long-term capacity and performance of the state's three ports and expand intermodal rail capacity.⁹

Congestion Management

Easing Sydney's Congestion Program Office

The Easing Sydney's Congestion Program Office is a major program delivering significant improvements to reduce Sydney's congestion. The following initiatives within the program are:

- Bus Priority program: This is the long term plan to redesign the bus network to meet customer needs now and into the future.
- Parramatta Congestion Improvement Program: Upgrading key intersections that access the Parramatta Central Business District. The program will help congestion through:
 - Widening small sections of road or intersections;
 - Adding extra turn bays, through lanes or turning lanes;
 - Modifying traffic signals at key intersections.
- Pinch Point Program: Aims to reduce traffic delays, manage congestion and improve travel times on Sydney's major roads, particularly during week day peak periods.
 Projects to help ease congestion at pinch points include:
 - Widening small sections of road or intersections;
 - · Lengthening turn bays;
 - · Adding extra turn bays or turning lanes;
 - Replacing heavily used roundabouts with traffic signals; and
 - Installing closed circuit television (CCTV) cameras and electronic message signs (VMS) to help manage traffic and provide real time traffic information to motorists to help them make informed travel decisions.
- **Smart Motorways:** Smart motorways, also known as 'managed motorways', use complementary technologies to monitor traffic conditions, manage congestion and respond to incidents in real time.
- Clearways Program: A clearway is a section of road where stopping or parking is prohibited. Buses and taxis are permitted to stop when dropping off or picking up passengers. Preliminary investigations show that clearways can help manage congestion in many areas of Sydney by allowing motorists to use all traffic lanes.¹⁰

Behaviour Change

Travel Choices Program

Travel Choices is a free resource to help individuals and organisations prepare for and adapt to the changes to Sydney's transport and road network.

Travel Choices have a range of initiatives aimed at both businesses and individuals. These include:

- The NextThere app for buses which provides information on busloads by service during the morning and afternoon peak periods;
- Live Traffic NSW provides news of incidents and road conditions; and
- Journey and congestion warnings are available through real-time road apps.

Data from August 2017 illustrates that since 2015 there has been an 11 per cent reduction in the number of inbound vehicles and a 9.4 per cent increase in public transport use for trips into the CBD during the morning peak. This increase in public transport use equates to over three million additional individual trips into the CBD by public transport.¹¹



- 9 Draft Strategy, Future Transport 2056, October 2017, Page 38
- 10 Easing Sydney Congestion Program, http://www.rms.nsw.gov.au/projects/ easing-sydneys-congestion/index.html
- 11 Travel Choices, http://mysydneycbd.nsw.gov.au/supporting-business/travel-choices

South Australia

Strategic Context

Building a Stronger South Australia, the Integrated Transport and Land Use Plan

In July 2015, the *Integrated Transport and Land Use Plan* was released for South Australia. The document outlines goals and objectives and sets out where and when actions, investments and initiatives are proposed. There is also a secondary document comprising of supporting evidence and analysis providing more detail on the challenges and solutions highlighted in the plan.

The plan identifies the following State-wide priorities:

- Increase maintenance funding to improve and sustain the performance of the transport network and make better use of our transport assets;
- Protect freight corridors and facilities;
- Make our transport system safer and deliver South Australia's Road Safety Strategy. Use smart technology to improve transport system outcomes;
- Support for tourism;
- · Reduce environmental impacts and car dependency;
- Adapt to climate change and building our resilience to disasters.

Congestion Management

Operation Moving Traffic

Operation Moving Traffic is a South Australian Government initiative launched in 2015 to improve the efficiency, reliability and safety of the transport network, which includes both roads and public transport and extends across Greater Adelaide.¹²

Long term initiatives include:

- Changing traffic signal settings to improve the reliability of freight travel;
- Expand the Bluetooth network, providing improved traffic data for commuters;
- Test extended operating hours on clearways to remove obstructive parked vehicles;
- Greater communication between tram crossings and nearby signals to reduce traffic delays;
- Remove illegally parked vehicles from clearways, bike lanes, and bus lanes;
- Improve timetables at key routes to reduce the number of buses stopping and holding up traffic and allow bus priority at selected intersections;
- Extended bus lanes to give public transport commuters a quicker run into the CBD;
- Continue education initiatives such as the Way2Go program to encourage cycling and remove cars from the road during peak; and
- Implement Moving Traffic Plans with local government to improve local traffic flow.

Behaviour Change

The South Australian Government applies Travel Behaviour Change principles to encourage safer, greener and more active travel through reductions in motor vehicle use. The following programs are part of the overarching government travel smart scheme.

- Cycle Instead: The Cycle Instead Journey Planner is an interactive app that generates cycling routes using Adelaide's Bikedirect network of main roads, bike lanes, local streets, off road paths and some unsealed paths.
- Moving Right Along: Obligations and Opportunities for Older Drivers is a resource for communities, individuals, families and friends that provides information about issues facing older drivers, driving safely and alternatives to driving.
- TravelSMART Households: The TravelSMART program focuses on households within a specific target area.
- Way2Go: Way2Go Lead Schools make a commitment to engage in an evidence based planning process that aligns with their school priorities and passions. They access release time for planning and intense support for development of their unique School Travel Plan along with funding for facilities and initiatives that support active travel e.g. bike & scooter shelters.
- Smarter Travel @ Work: Smarter Travel @ Work program supports businesses to adopt safer, greener and more active travel options for both business and commute travel.

There is no cost to a workplace to participate in the program.

Queensland

Congestion Management

Greater Brisbane Key Corridors Performance January – June 2017

This report provides information on the traffic volume and average speed for the Greater Brisbane key transport corridors over the January to June 2017 period.¹³

Brisbane City Council's Key Priorities

Key priorities for congestion-busting projects for 2016 to 2020 include:

- 90 road improvement projects;
- 60 new buses every year;
- \$90 million for smoother suburban streets per year;
- A new CityCat ferry vessel, new express CityCat services and upgrades to ferry terminals;
- CityCycle bike hire;
- \$100 million for the continued expansion of bikeways;
- \$122 million in public transport operating subsidies;
- Planning and construction of Brisbane Metro Subway System; and
- Technology Improvements.

Behaviour Change

Gold Coast Transport Operations Plan June 2017

The 2018 Commonwealth Games (CG2018) Travel Demand Management Initiatives was a comprehensive Travel Demand Management (TDM) program which influenced travel behaviours in the lead up to and during CG2018 to ease the pressure on the transport system. Key audiences travelling during CG2018 were encouraged to re-time, remode, re-route and reduce their trips wherever possible to reduce congestion and maximise the capacity of the transport network across the Gold Coast.¹⁴

In the lead up to GC2018, key stakeholders and the broader community were engaged to ensure:

- Residents, businesses and visitors were prepared to make informed travel decisions;
- Spectators and workforce were informed on travel options to get to and from GC2018;
- More efficient use of the transport network and services to keep the Gold Coast moving in a period of increased demand during GC2018; and
- Progressive long term increase in public and active transport use on the Gold Coast.

Victoria

Plan Melbourne (Refresh)

The Victorian Government released the Metropolitan Planning Strategy, Plan Melbourne on 20 May 2014. The Plan was intended to guide Melbourne's housing, commercial and industrial development through to 2050.

The current State Government is in the process of updating the Plan (Refresh). A discussion paper has been prepared which has been used to consult with relevant stakeholders and identify any key changes to the Plan. However, except for any of the specific changes identified in the refresh, the current Metropolitan Planning Strategy is relevant and to be used to understand how development is expected to occur into the future.

The Plan includes the following key concepts to cater for the anticipated population growth:

- Delivering a new 'integrated economic triangle', connecting key employment clusters, industrial precincts and economic gateways;
- ii Protecting the suburbs by delivering density in defined locations:
- iii Strengthening regional cities distributing future growth to benefit all of Victoria (regional projects);
- iv Delivering a pipeline of large-scale, city shaping infrastructure and urban renewal projects;
- Better use of existing assets, including increasing efficiency of road-based transport and transport land use integration;
- vi 20-minute Neighbourhoods places where people have access to local shops, schools, parks, jobs and a range of community services within 20 minutes of their home.

The Plan is underpinned by seven objectives and a range of

supporting actions. The delivery of the Plan is a central focus of the Victorian Planning Authority (VPA), which was created in October 2013 alongside the release of the draft Strategy.

The Victorian Auditor General Report – Managing Congestion (April 2013)

The Victorian Auditor General Report -Managing Traffic Congestion (April 2013) is a review of whether traffic is being effectively managed in Victoria. The key findings of the report were:

- Currently, the state is investigating in strategies to relieve congestion. However, there is no specific state-wide plan with clear objectives;
- The state is currently focused on expensive supply-side initiatives, increasing capacity - no thought into demand management;
- Due to cost of infrastructure projects, there is pressure to have cheaper options; and
- Successful projects exist, which have the potential to alleviate congestion. However, this is no assurance due to a lack of a coordinated state-wide policy.

The lack of a congestion management program within Victoria indicates a significant strategic planning gap.



- 12 Operation Moving Traffic, https://www.dpti.sa.gov.au/movingtraffic
- 13 Greater Brisbane Key Corridors Program, 2017
- 14 Gold Coast Transport Operations Plan, 2017



Appendix D: Stakeholder Engagement

Two approaches to stakeholder engagement were undertaken including two stakeholder workshops, which were held at the EMRC administration offices:

- The first workshop focused around congestion, discussing the congestion mapping undertaken and congestion management strategies; and
- The second workshop focused around behaviour change and what the EMRC could advocate for.

In addition to the two workshops, follow up meetings with Perth Airport, City of Kalamunda, Shire of Mundaring and the City of Swan were undertaken.

Congestion Management Workshop

At the start of this workshop, GTA consultants presented the congestion mapping undertaken to date, highlighting some of the key findings from the high-level modelling. Following this, Site Planning and Design presented on the Inland Port project they are undertaking which includes a number of the EMRC member Councils.

The key points Site Planning and Design noted from the Inland Port study were:

- A need to ensure sufficient access to the Freight network from industrial areas;
- A need to ensure a quality and standard of road network to cater for this access;
- A need for improved Heavy Vehicle road access approvals;
- The EMRC / Local Governments' need to continue to lobby for infrastructure upgrades (such as the Orange Route / EastLink WA); and
- It was noted in the Inland Port questionnaire initial feedback, that companies are moving away from Kewdale because of the congested road conditions.

The top five issues noted by the respondents from the Inland Port questionnaire noted three transport focussed issues. These being, road congestion, heavy vehicle access and road planning and design as key issues for the industry.

Industry Survey – Key Findings

Top 5 Priorities	Top 5 Priorities (within the influence of local government)		
Road congestion	Road congestion		
Heavy vehicle access	Heavy vehicle access		
Human resource challenges	Regulations, restrictions & red tape		
Regulations, restrictions & red tape	Road planning & design		
Economic conditions	Urban encroachment		

Key discussion held at this workshop included a review of the Perth Airport 2025 modelling which indicates by 2025 the Roe Highway and Tonkin Highway intersection will be congested and tailing back around the Perth Airport Precinct. The private car is the primary contributor to congestion, rather than the light vehicle fleet or larger vehicles. However, due to development (especially within city centre and highly developed areas) industry is noting that trucks over 2.1m in height are increasingly struggling to manoeuvre within the street environment and will likely be replaced with smaller designs of vehicles in the future, increasing the light vehicle fleet on the road network.

A number of the member Councils noted that they are expecting to experience congestion due to housing infill (required to meet Department of Planning, Land and Heritage infill targets) which may not be evident from the high-level congestion mapping undertaken. Specific areas noted include:

- Congestion increase on Scott Street to Roe Highway as urban growth and housing infill around Helena Valley / Bellevue continues;
- Roland Road from Toodyay Road intersection forecasted congestion with residential development;
- Farrell Road to Great Eastern Highway will also increase in congestion due to housing infill along Farrell Road with the Movida housing development;
- Kalamunda Road / Roe Highway interchange will experience high levels of congestion due to the demand in the area;
- Abernethy Road to link with Lloyd Street 2021-2031 will provide some relief for the area;
- Great Eastern Highway and Lloyd Street intersection;
- Great Northern Highway and Reid Highway intersection (travelling north onto Reid Highway);
- The 'Orange Route' (now known as EastLink WA) was noted as requiring upgrades and this will be discussed with the Department of Transport and Main Roads WA;
- Member Councils also noted that once NorthLink is complete, it is likely that local roads will be impacted between South Bullsbrook and Kewdale; and
- It was also noted that Intermodal Terminals will be situated in Kenwick and that the Shire of Serpentine is looking at an Intermodal in Byford and possibly one in Canning Vale also. Limited land supply around the Perth Airport means South

Bullsbrook will have a major role for the freight distribution in Perth, which may have an impact on the proposed residential redevelopment within the Bullsbrook area.

Following the discussion on the congestion mapping, council infill concerns and congestion impact for freight movements, the workshop discussed the way people may travel in the future and the impact on congestion. Key points discussed included the future of automated vehicles on the arterial roads and the impact they have, On-Demand services reducing the number of trips individuals make with private vehicles, the use of drones and their use within the Freight Industry, online shopping, working from home and the advent of E-bikes becoming more affordable allowing short distance travel to be easier without private car use.

Travel Behaviour Change Workshop

At the start of this workshop, GTA consultants presented briefly on the congestion mapping undertaken to date highlighting some of the key findings from the high-level modelling. The presentation then focused on the literature review undertaken assessing existing Travel Behaviour Change programs that exist within WA as well as an assessment of the approach taken elsewhere in Australia. Following this, Upthink presented on the Travel Behaviour Change principles and differing approaches and how a coherent Travel Behaviour Change strategy for the EMRC Region would assist in reducing localised congestion.

Some of the key discussion point of this workshop included:

- Dedicated regional parking bay fees could offset additional inner city cat-buses / automated vehicles;
- Advocating reserving land for on-road public transport routes, such as Beaufort Street as a dedicated Bus Priority corridor:
- Dedicated space has been reserved for a train line on Lloyd Street, near Brabham;
- Could local centres use Automatic Number Plate Recognition technology logging where people come from and if they needed to drive. Perhaps Big Data could be used for this purpose; and
- Car / freight interaction Freight access plan for industrial areas – but does Freight help congestion and cause behaviour change?

Following this general discussion, individual agencies then provided project information, with the Department of Transport (DoT) noting that they have a very pro-active Your Move team with a scheduled program looking at residents, business and schools. Of note the discussion included:

- Your Move schools in the Eastern area and Work-Based Your Move programs in the area, noting the Town of Bassendean is potentially carrying out a Your Move household program;
- Department of Planning, Lands and Heritage are working toward amending State Planning Policy 4.2: Activity Centres for Perth and Peel to include mandatory travel plans for all developments. It was noted during this discussion that travel plans only work in more metro-based councils, due to the lack of transport alternatives in rural and outer fringe councils;
- The DoT are also working to ensure planning and travel demand management policy is more applicable to diverse regions;
- The DoT is currently undertaking research papers in analysis and reform. These include road user pricing, electric vehicles (impact on fuel excise), dockless bike policy paper, real-time information for buses, transport futures (innovation) and Big Data. It was noted during the discussion that local government could be an avenue for state government to trial future transport innovation;
- The City of Swan noted that they are currently updating their bike plan and are considering an approach to combine cycling and parking – specifically for areas such as Midland CBD with an approach to consider if parking is designed to just fall short of demand, cycling and cycle parking can fill the gap to meet demand;
- Further, the City of Swan noted a requirement to upgrade Guildford Bridge and accommodate for the future Urban Growth corridor within the Lord Street area;
- The City of Belmont noted that they are currently developing a Sustainable Transport Strategy which includes an assessment of behaviour change for precincts (1-2km journeys);
- Regarding mandatory Travel Plans; the City of Kalamunda advised that development applications can only apply conditions that are in public interest which is supported by planning policy. Conditions can then only be applied for 1-2yrs;
- The City of Kalamunda also noted that the Structure Plan for Forrestfield North Area is underway. This study along with the new Forrestfield Station study has noted bus route issues for Forrestfield Station. The Forrestfield Station and wider North Area would be ideal for a Your Move program. However, to support this, infrastructure would be required. Workshop participants discussed the

large capacity of parking planned for the station, which would result in difficulty in cycle access to the station. Given that infrastructure is a key influence in people's behaviour, it would be important to design for alternative modes of transport into the including public transport and cycle access. A lack of alternative modes would see more users drive to the station and as such increase congestion;

- The City of Kalamunda noted that the updated Activity Centre planning for Kalamunda Centre noted that there are no traffic signals along Canning Road or Kalamunda Road which means there is nothing to stop traffic and assist pedestrians to cross the road – making it unattractive and leading to most people using the car for short journeys; and
- Canning Road is a popular cycle touring and training route but is also a heavy vehicle route – which results in cycle/ heavy vehicle conflict. The City's new bike plan will seek to address this.

Follow up Meetings

As noted, follow up meetings with Perth Airport, City of Kalamunda, Shire of Mundaring and City of Swan have been undertaken. The key notes taken from these meetings are summarised as follows.

Perth Airport

Perth Airport has undertaken additional modelling which highlighted the following immediate congestion issues:

- Great Eastern Highway requires upgrading between Tonkin Highway and Great Eastern Highway Bypass and Roe Highway and Great Eastern Highway. It is noted that Main Roads WA have plans for this upgrade;
- The Airport is aware of 'rat running' through the airport as traffic seeks to avoid the Tonkin Highway / Great Eastern Highway intersections;
- The 2045 modelling for the Airport has been completed noting that with the development of Forrestfield, the Perth Airport, Development Area 6 and Lloyd Street connecting to Abernethy Road, there will be more traffic travelling to / from Midland exacerbating existing traffic issues in the area:
- The modelling also notes that Tonkin Highway through to Guildford Road will experience ongoing issues. Main Roads WA have noted this as a project called the 'Tonkin Gap'; however, no funding appears to be allocated for this. This should include widening of the Redcliffe Bridge; and
- The modelling also notes that the Great Eastern Highway / Kalamunda Road intersection will also need upgrading to be grade separated; however, no funding appears to be allocated for this.



City of Kalamunda

The discussion with the City of Kalamunda revolved around recent studies and developments occurring within the City that will impact the local network but have not been highlighted within the modelling undertaken for this project. Key issues included:

- It has been assessed by the City that Abernethy Road will require widening to become a dual carriageway south of Kalamunda Road due to forecast future traffic volumes;
- Traffic modelling suggests that Dundas Road will need widening in the future. However, this depends on the impact of traffic utilising the Forrestfield Train Station;
- Traffic modelling suggests that Berkshire Road is likely to be congested east of Roe Highway due to the increasing density of land use north of Berkshire Road; and
- Crystal Brook Road, Welshpool Road and Kelvin Road are likely to experience growth in traffic in the future due to a planned increase in density for the Wattle Grove South structure plan.

Shire of Mundaring

The discussion with the Shire of Mundaring revolved around new developments planned within the Shire that will have an impact on the local network which has not been highlighted within the modelling undertaken for this project. Key issues of note included:

- The Shire has planned for an urban growth expansion within the Helena Valley location. This will result in an increase in traffic and likely future congestion on Helena Valley Road to Bushmead Road. Further to this, Helena Valley Road is planned to link to Katharine Street and will require Helena Valley Road to be widened west of Torquata Boulevard with a bridge widening over Roe Highway;
- The Shire has identified both safety and congestion issues at the intersection of Scott Street / Great Eastern Highway along with Scott Street bridge widening;

- It is expected there will be an increase in congestion as a result of Bellevue Farm Structure Plan which is within vicinity of Bellevue Train Station. Specifically, Clayton Road linking through to Midland, west of Katharine Street;
- Miller Street linking into Bunninyong experiences issues and will likely attract additional traffic with the new Bellevue Station proposal. To assist with these issues, the Shire would like to advocate for Farrall Road to be extended to Clayton Street in conjunction with the planning for the new Bellevue Station;
- Farrall Road between Morrison Road and Great Eastern Highway – no access to Morrison Road from Roe Highway (future design) means more traffic along Farrall Road into Great Eastern Highway to get to Roe Highway;
- Great Eastern Highway / Lloyd Street Main Roads modelling from Roe Highway study indicates 90,000 vehicles through intersection;
- As a result of the increase in density for the Parkerville and Stoneville townsites there will be an increase in traffic on Roland Road and Toodyay Road;
- The Shire is experiencing an increase in freight traffic.
 Due to an increase in residential growth in the town centre the local residential trips have an impacting on freight movements. The Perth Adelaide National Highway (EastLink WA) proposed upgrades would assist with this;
- Greenmount Road currently experiences issues due to the number of heavy vehicles and the topography of the road;
- Due to the increase in residential density in the Mundaring, Parkerville and Stoneville townsites, the Shire would like to see an increase in public transport frequency along Great Eastern Highway; and
- The Shire is supportive of the proposed Bellevue Station. However, with the existing transport network, the residents of Mundaring will struggle to travel to the station by bus, walk or cycle.

City of Swan

The discussion with the City of Swan noted that the City is working with Main Roads WA to refine the ROM modelling for the Midland CBD area to reflect more realistic land uses for the greater Midland area. This work shows the intersection of Great Eastern Highway / Lloyd Street will be a major issue due to the Roe Highway / Morrison Road full access intersection being changed to an overpass only and realignment of the freight rail line through the Bellevue area restricting access of Roe Highway and Military Road. This will result in industrial traffic using Lloyd Street and Clayton Street impacting freight movements resulting from a mix of freight and town centre traffic.

It was noted that the relocation of Midland train station study shows limited locations for rail line road crossings (Lloyd Street underpass and one crossing somewhere between Morrison Road and Helena Road). This will result in the City losing two rail / road crossings, which will likely increase localised congestion in these areas, noting access north and south from the station will be reduced due to the rail line.

There are identified congestion issues at the intersection of Roe Highway / Great Eastern Highway Bypass. However, when this is upgraded Stirling Crescent will lose access resulting in traffic from Hazelmere needing to utilise Abernethy Road and Adelaide Street (intersection needs to be constructed) otherwise all freight traffic will have to travel south on Kalamunda Road through the residential area.

The traffic from the urban growth corridor will result in localised congestion through Guildford (James Street and Meadow Street) travelling into Johnston Street to get to the Great Eastern Highway (approx. 45,000 vehicles per day). This existing 'dog leg' movement through Guildford will exacerbate the safety issue between congestion and pedestrian amenity.

With construction of NorthLink WA, the Stock Road link between NorthLink WA and Great Northern Highway should be a Main Roads WA Red Road (Primary Regional Road) within the Metropolitan Region Scheme. Stock Road links NorthLink WA and Great Northern Highway allowing freight movements to avoid Muchea and Bullsbrook.

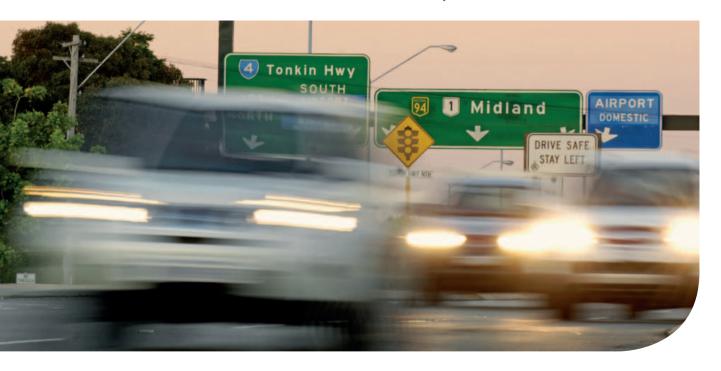
The intersection of Altone Road / Reid Highway is likely to experience an increase in traffic accessing Reid Highway due to the removal of the Beechboro Road / Reid Highway intersection. The Marshall Road and Altone Road intersections are also likely to see a resultant increase in traffic.

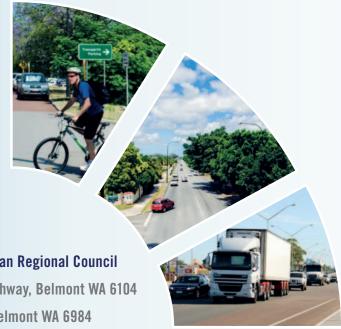
Within Travel Demand Management, the City would advocate for clearways for the morning and evening peak travel periods along Bridge Street through Guildford to assist with tackling the congestion without needing to physically widen the road.

The Perth Adelaide National Highway (EastLink WA) will include the construction of a Principal Shared Path. Along with using the old railway corridors connecting across boundaries and connecting the Swan Valley and Whiteman Park to the NorthLlink WA Principle Shared Path. In addition, the construction of electric bike(E-bike) corridors through the Swan Valley and hills area would aid promotion of mode change.

The City considers new railway stations along the planned Ellenbrook line (such as Brabham) may allow for a bike share scheme linking Whiteman Park, the Swan Valley, and train stations (Brabham, Guildford and Malaga). The City would like to advocate for State and Local Government funding for this.

It was also discussed that Local Governments should embrace technology, such as shuttle bus services (possible driverless buses) or on demand services. This could be trialled for the Swan Valley and Guildford area.





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