CITY OF FREMANTLE SUSTAINABLE TRANSPORT STRATEGIES

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Abstract

The City of Fremantle is promoting healthy outcomes through provision of its transport network. This includes active transport modes of walking, cycling and public transport. Whilst the road network plays a vital role in providing access to the Port city the intent is to prioritise active transport modes to provide a more balanced mode share. Making the city more bicycle friendly and walkable are key strategies.

Whilst the current cycling rates in Fremantle is almost double the Perth average they are very low in comparison to many other liveable cities in Europe and North America. The City aims to achieve the ambitious target of doubling its cycling rate from 2.9% to 5.8% by 2018. To improve the modal share for cycling in the City over the next five years will require a continuous high quality cycling network together with community behaviour change.

The City's central business district will be managed to promote a balanced and shared use low speed environment.

This paper addresses the challenges to implement the transport strategies whilst maintaining the City's heritage and being alongside an operating port. This has required some innovative treatments and working in partnership with key stakeholders to achieve the desired outcomes.

Key words

Sustainable transport, balanced mode share, active transport, bike plan, shared use paths

Introduction

The City of Fremantle's Strategic Plan sets out the aspirations of the Council. One of the strategic imperatives in the Strategic plan is Transport.

The City's Vision for Transport is to

… Lead in the provision of environmentally and economically sustainable transport solutions.

Fremantle is currently heavily reliant on cars to achieve the transport task. People have few options other than car use in most of the urban area.

While allowing that some car use is necessary, the sustainable transport strategies aims to support a shift in passenger transport behaviour from car use to more efficient, sustainable transport modes. Studies show that active transport modes are important in achieving good public health outcomes.

This paper addresses the transport strategies and how these are being implemented in both the short and longer terms.

The City has a number of challenges in the provision of infrastructure to support these strategies and the need to use other than normal design standards is also outlined.

Background

Fremantle as the Western Australia's metropolitan 'second city' to the capital Perth is emerging as a unique activity centre. It is a strategic metropolitan centre serving a broad population catchment and is also recognised as a popular tourist destination for local, interstate and international visitors.

Situated on the mouth of the Swan River Fremantle is also home to Western Australia's largest and busiest general cargo inner harbour port. The Port plays a fundamental role in the metropolitan and Western Australian economy. The Port currently handles the vast majority of containerised freight imports and exports for the state. It also handles general trade including livestock and vehicles.
The activity associated with the Port is anticipated to grow over the next decade.

The City of Fremantle supports the retention of the Inner Harbour as a working port.

The majority of freight carried to and from Fremantle's Inner Harbour travels by road. Whilst the State Government has committed to increasing the percentage of containers transported by rail from currently around 14% to nearly double that, it is likely that road transportation will remain a dominant use. This makes heavy freight one of the key transport challenges facing Fremantle. The operating port also provides challenges on pedestrian and cycling connectivity between the inner City and across the Swan River to the north of Fremantle.

As a strategic centre there is a need for effective transport connections to Perth and other parts of the metropolitan area. This includes public transport and Fremantle is served by a passenger railway to Perth.

Major employment centres to the east of Fremantle are also set to expand in coming years, and there is a need to ensure there is high capacity, high frequency public transport links to these centres.

Health

In terms of the health of individuals, the transport network can play a central role in achieving good public health outcomes. Walking and cycling are known as active transport modes which deliver obvious and substantial health benefits. Public transport usage also delivers a positive health benefit by encouraging more walking to and from stops and stations. Together, these modes can also reduce private car usage, reducing congestion as well as emissions, thus having a significant long term benefit on public health.

Transport Modes Hierarchy

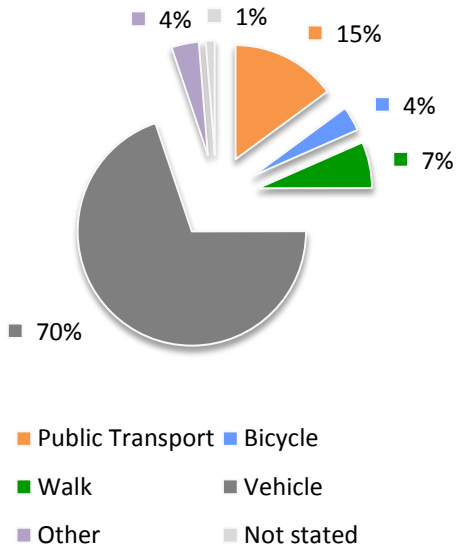
While the car has been the dominant mode in the past, its ability to deliver the transport task in to the future is becoming limited.

However the car still has a valuable role and the City of Fremantle has no plans to ban car use in the City. The road network plays a vital role in providing access to Fremantle to meet a whole variety of transport needs such as, local services, tourism and emergency services. While allowance needs to be made for essential car trips, a more balanced mode share provides people with more transport choice.

Fremantle is currently heavily reliant on cars to achieve the transport task. People have few options other than car use in most of the urban area. Fremantle's Journey to Work data from the 2011 Census (Figure 1; 2011 Journeys to work in Fremantle) reflects this reliance on cars

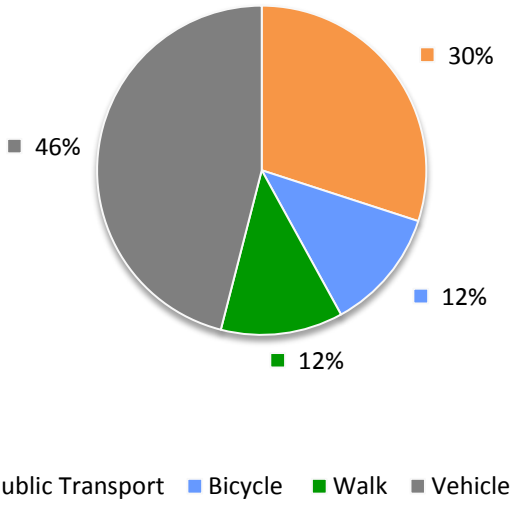
While allowing that some car use is necessary, the sustainable transport strategy aims to support a shift in passenger transport behaviour from car use to more efficient, sustainable transport modes. (Fremantle Figure 2).

Figure 1; 2011 Journeys to work in Fremantle



Source; ABS Census, 2011

Figure 2; 2031 Target Mode Share – journeys to work in Fremantle



Likewise, linking destinations within the Fremantle area and making these as walking and cycling friendly as possible is a core element of this strategy.

As well as recognising destinations, it is important to accommodate some of the differing traits of people and the purposes of their trips. This strategy attempts to accommodate a range of people such as adults, children, older people, people with disabilities, tourists, residents, visitors and workers.

While walking, cycling and public transport are the preferred modes for moving people, this strategy recognises that there is still a need for private vehicle trips.

The City has adopted a transport mode hierarchy with the higher to lower order being;

Pedestrians,
Cyclist,
Public transport,
Cars and freight.

Walking and Cycling

The highest inner city priority

Walking and cycling have been integral ways of moving around Fremantle since the town's urban establishment in the 1829. Walking underpins the inner Fremantle economy. Making Fremantle and its local centres and destinations more walkable and more bicycles friendly is a core element of this strategy.

Destinations within the central business district include a Fishing Boat Harbour, Cruise Ship's Passenger Terminal, Train station, educational institutions and beaches.

Community visioning feedback supports making pedestrians a priority in the inner city.

A number of strategies for making walking more attractive across a range of abilities include limiting parking, reduced traffic speeds and to create shared zones.

Some of these strategies have been recently used at the City's South Terrace "cappuccino strip" which is a popular alfresco dining area.

The cappuccino strip is a two lane road of approximately 400 metres in length with heavy pedestrian usage. Prior to traffic treatment it carried between 6500 to 7500 vpd at the southern and northern sections respectively. With this amount of traffic volume and the random nature of pedestrian crossings along the road it was decided that to install a few formalised pedestrian crossing points would be problematic. It was considered to slow traffic through the implementation of a changed street scape.

In this regard the road pavement was resurfaced with red asphalt and slightly elevated plateaus were installed at strategic locations along the street. To narrow the traffic lanes approximately 20 removable concrete planters with trees were placed in the median of the pavement. Also no parking is allowed along this section of street.

Following this treatment the recorded traffic date shows a reduction in volumes and speeds as listed in the table.

Traffic data South Terrace				
	Before vpd	After vpd	Before 85% km/h	After 85% Km/h
south	6500	6100	35	31
north	7500	6900	33	29

The posted speed limit has been officially reduced from 40 km/h to 30 km/h. The intention is to further reduce the speed limit to 10 km/h and also incorporate a "shared space" precinct.
A major issue is that this street is a well-used public bus route to and from the train station with approximately 800 buses a day.

Other initiatives to promote walking include improved pedestrian crossings between residential neighbourhoods and local centres and improved amenity such as shade and shelter. The City plants over 1000 trees each year as part of its parks and streetscape upgrades.

Also to ensure that there is connectivity to the fishing boat harbour and beaches the City negotiated with the Public Transport Authority to maintain 14 pedestrian railway crossings along a 3 km section of the freight line.

Fremantle's 2030 cycling network

By 2030, Fremantle aims to have a connected, safe and seamless bicycle network.

The Fremantle Local Bicycle Plan (2014) sets the target of doubling cycling by 2018, based on the ABS 'Journey to Work' census data. In 2011, 2.9% of journeys to work in Fremantle were made by bicycle. Doubling this to 5.8% over the next three years will require a significant commitment from the City in its cycling program delivery and infrastructure programs.

The City aims to achieve this change through the three approaches detailed in the Bike Plan: *Everyone having access to a bike* – including bike share and other facilities; *a safe enjoyable riding environment* – including infrastructure upgrades, signage and end of trip facilities; and *educational and promotional programs* – including community education, active travel to school and social bicycle groups.

The Planning needs to accommodate the whole range of cyclists in such a way that is complementary to pedestrians and other transport modes.

To fund the infrastructure works the Council in its 2014/15 budget allocated $1,025,000 to commence its major investment program with the focus on local routes rather than principal shared paths. The principal shared paths tend to attract State Government funding. Proposed improvements include the provision of 'head start boxes' and advanced stop lines at intersections together with bicycle phase traffic signals. Bicycle awareness zones have been installed including in the "cappuccino strip".

The City is committed to trialling new designs and treatments to provide cycling infrastructure.

The City has number of one way streets in the central business district. As this provides issues for cyclists' direct movements the City has trialled a contra flow cycle lane marked on the pavement without a physically separated space along a 200m section of a one way street near its Administration Centre. This is a fairly busy street with a large flow of pedestrians crossing the street. To achieve the contra flow lane the existing parallel car parking on both sides of the one way street was converted to angle parking on one side but with a loss of 9 bays. The trial to date has been successful.

The longer one way streets in the central business district however remain a challenge with the associated traffic flows, intersections and on street parking.

Another trial in progress is providing an exclusive exit bicycle lane to a cul de sac opposite the terminating leg of a signalised tee intersection. This link allows cyclists to join the local bicycle network rather than having to turn either left or right from the terminating leg.

The City is also investigating the provision for cyclist's lanes when they are turning right within a main roundabout.
There are also some major projects and funding investment needed for the City to achieve its vision for cyclists.

This includes works for a high quality seamless off road path along the passenger rail corridor through North Fremantle and over the river into the central business district. The existing commuter path network is along local roads adjacent to the railway corridor and it crosses a major freight route. The recorded traffic volumes on the freight route are around 22000 vpd with approximately 15% being heavy vehicles. The existing path network is used by approximately 200 cyclists on a week day and 360 cyclists on a Sunday. To address the crossing conflict at the freight route and subject to future upgrades of this

freight link there is consideration to provide a grade separated overpass.

As part of the network connection into the central business district there is the potential to retain the existing four lane Fremantle traffic timber bridge spanning across the river as a future pedestrian and cyclist facility if the State Government funds a separate replacement bridge. The existing heritage timber bridge which was built in 1939 has a 1.8 m shared path located between a guard rail fence and balustrade on its western side which is below standards.

In addition the City is also upgrading elements of its expansive recreational networks.

Providing space for people cycling such as on road cycle lanes or off road facilities can greatly improve road safety. The City is constructing a number of off road shared use paths along its distributor roads.

Public transport

Public transport is uniquely placed to help Fremantle reach its growth potential. More people living, working and visiting Fremantle will result in many more passenger movements to, from and within Fremantle in the future.

The implementation of high capacity, high frequency public transport is considered essential for the general functioning and liveability of the region and will assist in a mode shift away from private vehicles.

This strategy draws on the State Government's position on public transport as set out in its draft *Public Transport plan* as well as previous transit corridor studies. It aims to identify and establish corridors linking Fremantle to the wider region. The policy will enable the City of Fremantle to effectively plan for transit corridors. This network is set out in Figure 3.

Figure 3 - Trunk Rapid Transit Network

At a local level the ability for people to access destinations within the City of Fremantle such as local centres, by public transport, is important especially in reducing short trips by private vehicle or where walking or cycling might not be possible.

At this level, Council supports the Central Area Transit (CAT) buses provided by the State Government's Public Transport Authority that operate in Fremantle. They provide a convenient and free public transport option for residents, workers and visitors. At this stage the Fremantle CAT buses serve more of a tourist / visitor function. Council contributes 50 % of the operating costs and continues to support and consider expanding the CAT services where possible.

The Road Network

The basic layout of Fremantle's streets today was established in the 1800's, well before the car began to dictate urban form and design. Originally, the town was designed as an urban centre with narrow streets fronted by active land uses, especially in the Heritage West End.

Over a period of time many alterations have been made to the street network to accommodate motorised traffic, including the widening of streets, one way streets, introduction of on and off street car parking, and other measures to prioritise car use.

The City has approximately 1000 on street bays and 3500 off street parking bays. These car bays tend to satisfy current demand.

With the established transport strategies motorists in the central area can expect a slower, less free-flowing way. The City has already installed mini roundabouts in some of its inner streets with formalised pedestrian crossings which give priority to pedestrians. This approach encourages through traffic to stay on the peripheral routes.

The local road network primarily serves local residential and commercial traffic connecting local neighbourhoods, education, commercial and (light) industrial destinations as well as the Fremantle CBD.

Private vehicles

Cars will continue to play an important role in Fremantle, however it is car over use that needs to be minimised.

The uses of taxis, carpooling or occasional car hire are all options.

The City will welcome car share operators. As car sharing works best in higher density, mixed use centres, with the urban change currently occurring in Fremantle, car sharing is likely to be a viable and popular transport option for many residents and workers.

The City supports electric vehicle parking and aims to increase the number of publically available electric parking spaces available in Fremantle.

Transport corridors

The City considers that Light Rail is capable of providing significant capacity, at reliable and high frequencies that are required to serve Fremantle and the surrounding growing area. Light rail transport systems represent a quality of service that is above the existing suburban bus network.

Light rail can also initiate greater development in ways that new bus projects rarely achieve. Rail systems such as trams and trains indicate to the property market and business owners that public transport is a priority and long term investment.

While bus transport will continue to play a significant role it is considered there is a need for corridors connecting Fremantle with the other significant centres in the region to be served by higher order transport, such as light rail.

While the established heavy rail passenger line from Fremantle to Perth is a recognised corridor to the north, most of the growth is to the south.

There may be the opportunity of using the freight rail reserve as a longer term Light Rail alignment to the south.

Whilst the use of this reserve may not meet desired separation distances of the rail operator there are operating examples of ‘adjacent running’ heavy and light rail systems in other parts of the world.

Behaviour change

The City promotes behaviour change programs such as TravelSmart to help people to understand their personal transport alternatives.

Stakeholder relationships

To achieve the transport strategies the City will need to work with key stakeholders such as the State Government Transport’s section including Public Transport Authority and Main Roads, the Planning Department, the Port, business and adjacent local governments. There is also a need for significant funding investment.

The City will also need to work with the community to implement local initiatives and to help facilitate behaviour change.

Conclusion

The City of Fremantle is promoting healthy outcomes through provision of its transport network. Whilst the road network plays a vital role in providing access to the Port City the intent is to prioritise active transport modes of walking, cycling and public transport to provide a more balanced mode share. The City's central business district will be managed to promote a balanced and shared use zone.

The City aims to achieve the ambitious target of doubling its cycling rate by 2017. To improve the modal share for cycling in the City over the next five years will require a continuous high quality cycling network together with community behaviour change. This will also need significant investment of funds.

In improving infrastructure the challenges of heritage, an operating Port and the historic layout of the central business district has required out of box solutions and trialling of innovative designs. It is evident that normal design standards cannot always be applied. It has also been found that a number of solutions are required to be site specific.

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Author Biography

Peter is a civil engineer and has had over 30 years' experience with a number of Local Governments in the Perth Metropolitan area. His background includes Regional Road transport planning, traffic management and associated infrastructure design and construction. Over the past five years he has been the Director of Technical services at the City of Fremantle and has been involved in implementing sustainable transport solutions. Peter is a Member of the Institution of Engineers, a Chartered Professional Engineer and is a Fellow of the Institute of Public Works Engineering Australasia.