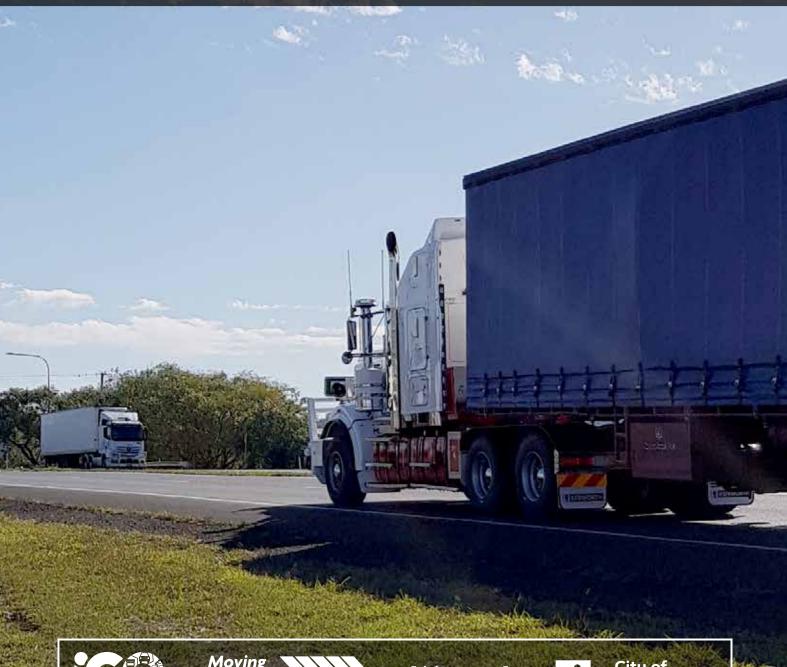
City of Ipswich **iGO Freight Action Plan**Summary Report

December 2020

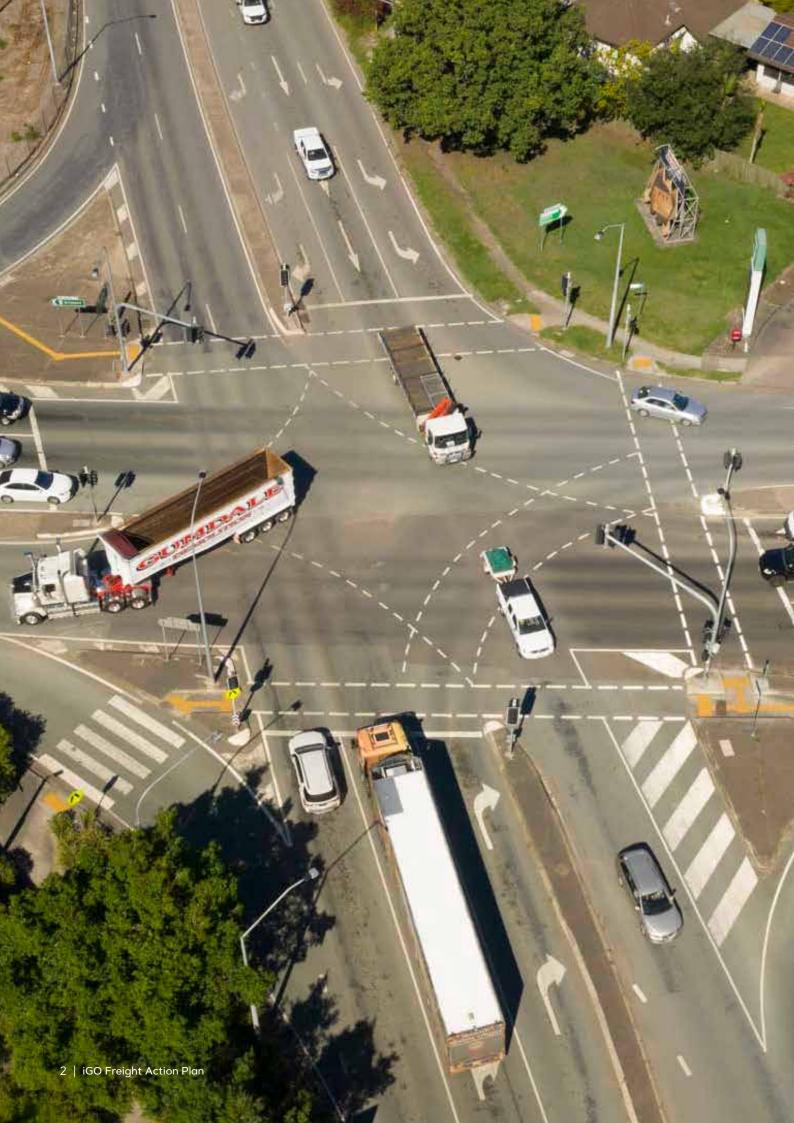






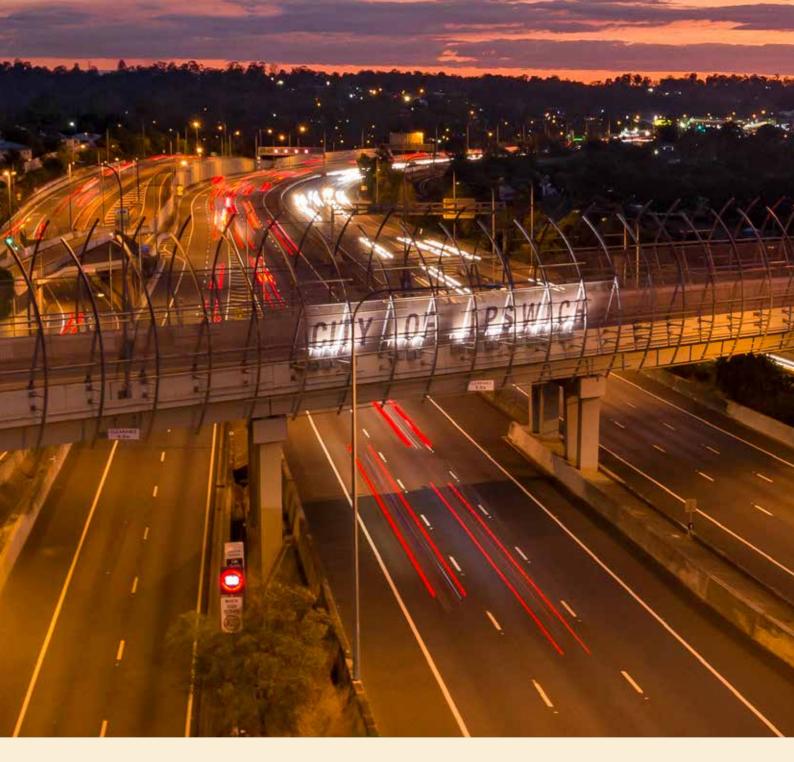






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INTRODUCTION

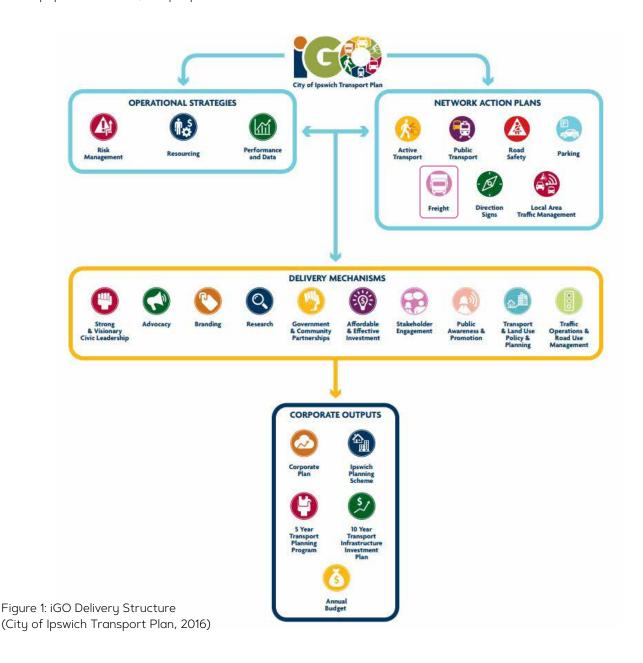
INTRODUCTION

The freight industry is a key pillar of the Ipswich economy contributing \$1.5 billion annually (in 2016) across the primary, secondary and road transport sectors to the regional economy.

The city is dependent on the freight industry to deliver essential goods and services to support and assist local industries and businesses to fully capitalise on the strategic advantages of Ipswich, those being its location on major interstate and intrastate highways, motorways and rail lines, the abundance of greenfield industrial land, and its close proximity to South East Queensland markets and the Port of Brisbane.

The City of Ipswich Transport Plan (branded 'iGO') is Ipswich City Council's (council) masterplan for Ipswich's transport future. It responds to current and future transport challenges and outlines council's aspirations to advance the city's transport system to accommodate a future population of 435,000 people.

The development of the iGO Freight Action Plan, a key action of iGO, has seen council working with key state agencies, freight industry and local businesses to identify the challenges facing the city and to develop key strategies and actions that need to be implemented over coming years. This will ensure that industries and businesses across the city are supported and grow by having efficient, safe and sustainable freight networks that link the city's freight generating centres, as well as domestic and overseas markets.



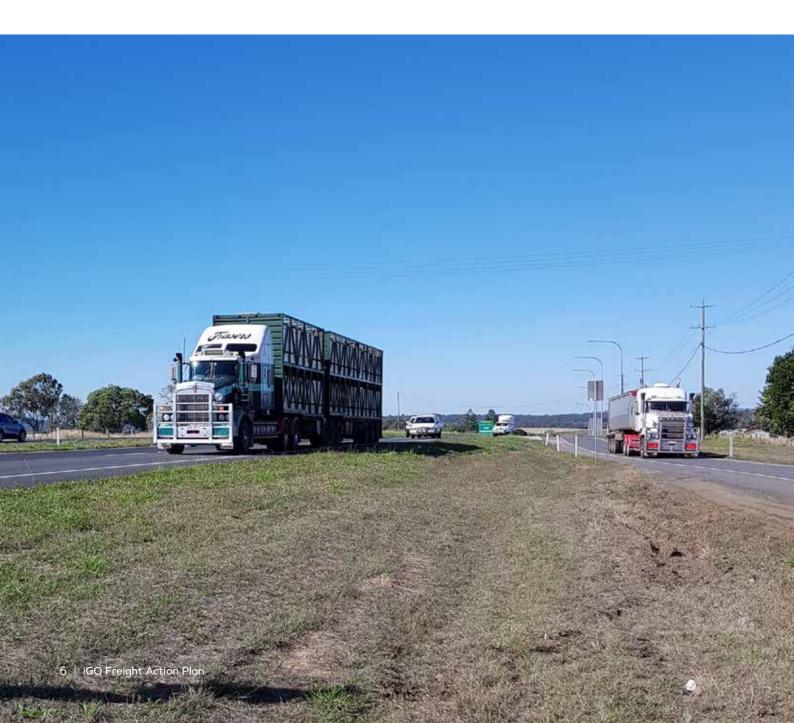
WHAT IS FREIGHT?

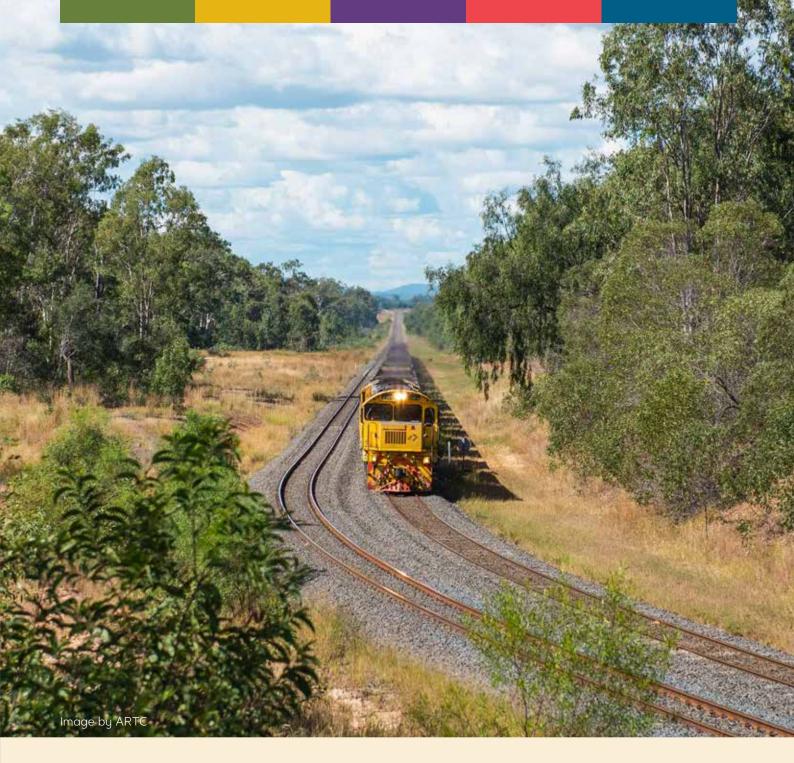
Freight transport is the physical process of moving commodities, merchandise, goods and cargo. There are typically two main components of freight movement, namely the movement of raw materials and the movement of manufactured/refined goods.

The movement of raw materials is undertaken using predominantly larger higher mass vehicles, while the movement of finished products differs depending on the location of the final destination.

Heavy mass freight vehicles generally deliver finished products to a distribution centre where they are transferred to smaller vehicles for delivery to the retail outlet or direct to the consumer. The surge in popularity of online trade and shopping is seeing significant growth in courier deliveries of freight.

Freight movement of goods typically uses one or more modes, namely road, rail, sea and air. Whilst air freight movements have traditionally involved commercial planes, the growth of drones to deliver light freight is seen as an important growth industry in coming years.





FREIGHT IN IPSWICH

FREIGHT IN IPSWICH

The City of Ipswich is strategically located at the junction of the Ipswich Motorway, Warrego Highway and Cunningham Highway, all of which are part of the National Land Transport Network (NLTN) (Figure 2 below). The city benefits from having strong accessibility to markets in the east, west and south by both rail and road networks.

The city also benefits from an abundance of available industrial land, more than 1/3 of the available industrial land in South East Queensland. The Ipswich Planning Scheme has identified approximately 8,000 hectares of zoned industrial land across the city. Of this, approximately 3,000 hectares has been developed.

The diverse industrial nature of Ipswich sees major movements of numerous raw materials (notably coal and grain from the Darling Downs and mined products from the Surat Basin) and manufactured goods across the city. This combined with the transportation of goods to support the city's vibrant centres and businesses as well as services to meet the demand of the city's growing population is impacting on the city's roads with increasing congestion and delays.

Whilst the transportation of freight across the city is predominantly road based, the city is poised to become a major rail freight hub in coming years as the Inland Rail project and a potential intermodal freight terminal at Ebenezer comes to fruition. Combined with ever increasing change in logistics and warehousing, online shopping, technological advances in performance based autonomous and electric freight vehicles, and delivery of goods via alternative means including small electric vehicles and drones, it is essential that Ipswich identifies and plans for the growing and diverse needs of the freight industry in the next 15-20 years.

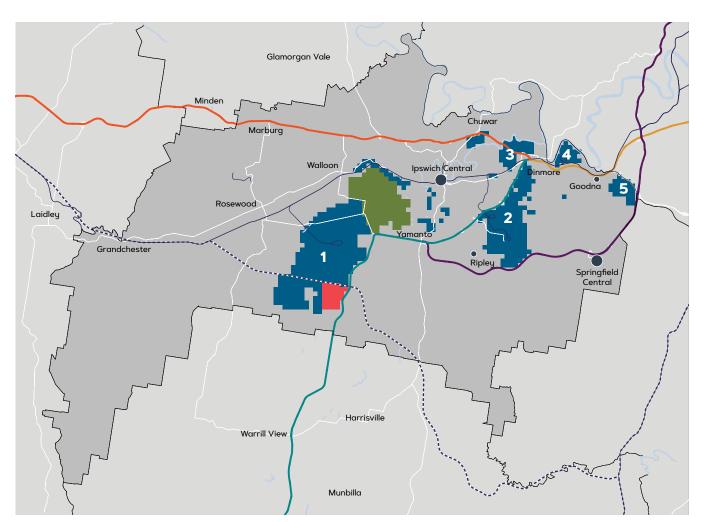
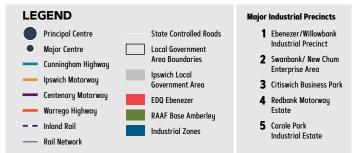


Figure 2: Major freight routes within the Ipswich LGA



IPSWICH IS LOCATED AT THE CONFLUENCE OF

3 NATIONAL LAND TRANSPORT ROAD **ROUTES**



AN INTERMODAL TERMINAL AT EBENEZER ON THE PLANNED INLAND **RAIL COULD OPEN OPPORTUNITIES FOR LOGISTICS** AND WAREHOUSING **INDUSTRIES IN IPSWICH**



IPSWICH IS A MAIN THOROUGHFARE FOR MINED AND **AGRICULTURAL PRODUCTS**



IPSWICH ACCOUNTS FOR ON AVERAGE

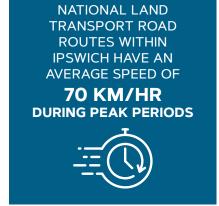
22.5% OF **QUEENSLAND'S TOTAL MANUFACTURING EXPORTS**

(BETWEEN 2000-01 and 2017-18)



Freight statistics in Ipswich Source: CDM Smith 2020

IPSWICH HAS MORE THAN 1/3 OF ALL AVAILABLE **INDUSTRIAL ZONED LAND IN SEQ**



2016

TOTAL FREIGHT GENERATION IN IPSWICH LGA

MILLION TONNES

TOTAL FREIGHT GENERATION IN IPSWICH LGA

MILLION TONNES

CONTRIBUTION TO OUTPUT FROM FREIGHT RELIANT INPUTS -**IPSWICH LGA**

CONTRIBUTION TO OUTPUT FROM FREIGHT RELIANT INPUTS -**IPSWICH LGA**

ANNUAL GROSS OPERATING SURPLUS (GOS) FROM FREIGHT IN IPSWICH LGA

ANNUAL GROSS OPERATING **SURPLUS (GOS) FROM FREIGHT IN IPSWICH LGA**

FREIGHT GENERATORS

EXISTING INDUSTRIAL PRECINCTS

The existing industrial precincts supporting the city's vibrant economy include the following:

- Redbank Motorway Estate, located west of the Ipswich Motorway on the Redbank peninsula and houses logistics, manufacturing, warehousing and distribution centres. The Redbank Motorway Estate provides easy access to southern states via the Cunningham Highway, east to the Port of Brisbane and greater Brisbane markets via the Ipswich/Logan/Pacific and Gateway Motorways, and to western Queensland and the Northern Territory via the Warrego Highway.
- Citiswich Business Park is in close proximity to the major congruence of the Warrego Highway, Cunningham Highway, Ipswich Motorway and Brisbane Road. The business park caters for logistics, manufacturing, warehousing and distribution, construction and wholesale retail and has close proximity to food production, major industry and enterprise areas.
- Carole Park Industrial Estate is located approximately 15km north-east of the Ipswich CBD, in close proximity to both the Ipswich Motorway and Centenary Highway. The industrial estate is suitable for low impact industries, warehousing, logistics and manufacturing operations.

- Swanbank/New Chum Enterprise Area is situated near the junction of the Cunningham Highway, Warrego Highway and Ipswich Motorway. Part of the enterprise area (east of the Cunningham Highway and south of Redbank Plains Road) contains a number of manufacturing warehouse and logistic operations. Much of the land within the boundaries of the New Chum Enterprise Area is significantly altered from its natural state. This land is highly constrained for traditional development forms predominately owing to its past coal and clay mining, and landfill operations.
- **Dinmore** is home to a number of industries including the JBS Dinmore Meats facility. The plant is the largest beef abattoir in the southern hemisphere and has good access to major highways and the rail network.
- **RAAF Base Amberley** is located north of the Cunningham Highway and Haigslea-Amberley Road intersection. The base is home to a number of defence related aeronautical industries supporting the base activities.

There are a number of other industrial areas located across the city. Each plays an important role in housing small to medium industries supplying the local area with services and goods. These include Yamanto, Churchill, Bundamba, Blackstone, North Tivoli and Wulkuruka. Many have existing B-double gazetted roads providing multicombination vehicle access from the industrial areas to the city's arterial road network.

EMERGING INDUSTRIAL PRECINCTS

Ebenezer/Willowbank

The emerging Ebenezer/Willowbank industrial precinct is located adjacent to the Cunningham Highway, approximately 14km south-west of the Ipswich City Centre. It is proposed that the Ebenezer/Willowbank industrial precinct will cater for manufacturing, logistics, freight support and other large footprint industries.

There are a number of factors which support the development of this precinct:

- the construction of Inland Rail, which will dissect the precinct and the potential for a major intermodal freight hub at this location
- the limited stock of large sized greenfield industrial lots within South East Queensland
- access to a large employment base
- proximity to the Cunningham Highway (Sydney to Brisbane inland corridor) and other major road networks
- relative proximity to markets within South East Queensland and the Port of Brisbane.

CITY CENTRES

Each centre with the City of Ipswich requires efficient freight accessibility at all times during the day. Whilst many larger establishments have on-site loading facilities, there is still high demand for on-street loading zones.

As with all cities across the world, the success of online shopping has seen substantial demand for on-street commercial loading zones by courier vehicles. This is placing competitive pressure on the utilisation of loading zones as traditional longer stay users are needing to compete with increasing number of short stay couriers.

It is also important that traffic congestion within centres and along major arterial roads do not impose undue delay costs onto the cost of goods or time of delivery. Whilst not a major issue at present, congestion within lpswich's centres will be an issue that will need to be addressed with the freight industry in the future.





ISSUES AND OPPORTUNITIES

STAKEHOLDER ENGAGEMENT

During the development of the iGO Freight Action Plan (iGO FAP), council actively engaged with industry, government bodies and local businesses within the city.

Stakeholder engagement was conducted between December 2019 and February 2020 with the goal being to identify existing and potential freight issues and opportunities facing the city.

ISSUES

INCREASED ROAD CONGESTION

Traffic congestion, whilst aggravating and costly for general traffic, is even more disruptive for road freight operators. Delays due to traffic congestion can be expensive for road freight operators, whereby increased vehicle operating costs and costs of delay have detrimental impacts to the greater supply chain and consumer. Heavy vehicles are also less likely to seek alternative routes when there is road congestion, particularly if they are a restricted vehicle type¹.

In 2016, the cost of congestion to passenger vehicles associated with heavy vehicle movements along each freight route was highest for the Warrego Highway and lowest for the Cunningham Highway. By 2031, the annual cost of congestion to passenger vehicles travelling along the city's highway/motorway network is anticipated to be approximately \$9.1 million per annum.

IMPACTS ON AMENITY

There is often a negative perception of freight movements (notably high-productivity freight vehicles) in urban areas where residents are less likely to acknowledge the economic benefits of such movements.

Freight movements, whilst providing numerous benefits to the local economy also generate a number of negative externalities such as air, noise and visual pollution.

Freight movements associated with new development can be restricted to certain times of the day as a way of protecting the local amenity of an area. However, time restrictions can also force freight vehicles to deliver during narrow windows which may not be the most efficient time of the operator, particularly if during peak travel periods where road congestion is at its greatest.

PROBLEMATIC 'LAST MILE' FREIGHT JOURNEYS

Online deliveries are revolutionising door to door deliveries, exponentially increasing the number and speed of movements between distribution centres and the delivery points. This will increasingly see delivery vehicles moving through residential areas more frequently, impacting the residential neighbourhoods, congesting the streets and intersections, and struggling to find off-loading space within busy commercial areas.

DIMINISHING ROAD CAPACITY

The future demand on the road freight network will increase as the city also grows. Road upgrades and freight infrastructure enhancements can often be costly, presenting a challenge for all levels of government.

Modelling has indicated that the following core freight routes will require capacity upgrades in the future to cater for future demand:

- Ipswich Motorway 8-lanes Logan Motorway to Dinmore
- Cunningham Highway 4-lanes Ripley Road to Amberley (includes a new interchange at Amberley as well as the possible extension of the 4-lanes to Ebenezer should development of the EDQ estate and the intermodal terminal accelerate the growth of heavy freight vehicles accessing the area)
- Warrego Highway 6-lanes Dinmore to Brisbane Valley Highway
- Centenary Highway 4-lanes Logan Motorway to Yamanto
- Western Ipswich Bypass a connection linking the Warrego Highway to the Cunningham Highway, which will support the future development of the Ebenezer/Willowbank industrial area.

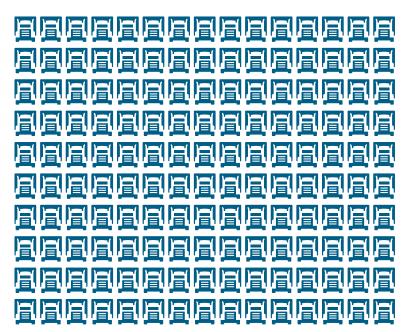
OPPORTUNITIES

SHIFTING FREIGHT MOVEMENTS TO RAIL

Inland rail is seen as a catalyst to encourage more rail freight to/from Brisbane to major destinations such as Melbourne and Sydney and regional centres in western Queensland and north-west New South Wales. The provision of a second freight line from the Darling Downs will provide competition and reduced bulk freight cartage costs, particularly for grain and coal exports through the Port of Brisbane.

Inland Rail will also see a seismic shift in containerised freight across the eastern seaboard, with as many as 150 interstate B-double road freight trips being replaced by one 1,800 metre double stacked train on the Inland Rail.

The are many potential benefits of the Inland Rail project, one of them being the potential to alleviate congestion on the major road freight routes within Ipswich.



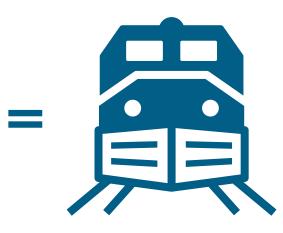


Figure 3: Capacity of a double stacked train compared to an interstate B-Double

EMBRACING NEW TECHNOLOGIES

Road freight has entrenched itself as the most efficient and effective transportation mode for all local, interregional and interstate freight movements. However, this mantle is under threat as new technologies encroach on the road freight landscape.

Drones for example are starting to emerge as a viable alternative to courier deliveries particularly for small lightweight parcels. A number of trials are underway across Australia to assist regulators set operational boundaries for this industry.

Research and trials continue on the development of autonomous vehicle technologies. Whilst the timeframes indicate that it will still be some time before autonomous vehicles will be permitted to operate in open systems, it is certain that freight operators will have fleets with autonomous vehicles in the foreseeable future.

RATIONALISING THE ROAD FREIGHT NETWORK

There are a number of redundant multi-combination routes across the city which is a legacy of old industrial complexes no longer being operational. Some of these gazetted routes are in residential streets, an outcome of the past where an industry was established in semirural areas of the city, only to be surrounded over the decades by residential subdivisions.

Opportunity exists to identify all redundant multi-combination routes across the city and to have these gazetted accordingly to reflect the changed nature of the road.

IMPROVING CENTRE AMENITY

Centres often have the challenge of balancing the competing function of urban streets. There is often conflict between the 'link' function of an urban street (prioritisation of vehicle through movements) and the 'place' function of an urban street (streets that foster pedestrian activity and are considered a destination in their own right)².

The presence of non-essential through traffic (including freight movements) within centres such as the Ipswich City Centre has many detrimental effects such as increased traffic congestion, traffic noise, increased road accidents as well as detracting from the 'place' function of urban streets within centres.

The planned Ipswich City Centre Orbital Road System will provide a longer term solution for local freight movements travelling between suburbs and throughout Ipswich without the need to travel through the Ipswich City Centre.

In particular, the proposed Second Bremer River Crossing (in the vicinity of Norman Street), which forms part of the orbital road system, will encourage heavy vehicle movements out of the core of the Ipswich City Centre, hence providing council with opportunity to pedestrianise the centre.

IMPROVING NETWORK SUSTAINABILITY

Whilst it is acknowledged that council have a limited role in improving the sustainability of the freight network as a whole, there are a number of initiatives that council can implement and support. An opportunity does exist for council to investigate ways of making its waste vehicle fleet more sustainable.

A number of councils across Australia, such as the City of Fremantle (WA)³, Sutherland Shire Council (NSW)⁴, Blue Mountains City Council (NSW)⁵ and the City of Casey (Vic)⁶ have implemented or have trialled electric powered waste collection vehicles as part of their waste management fleets.



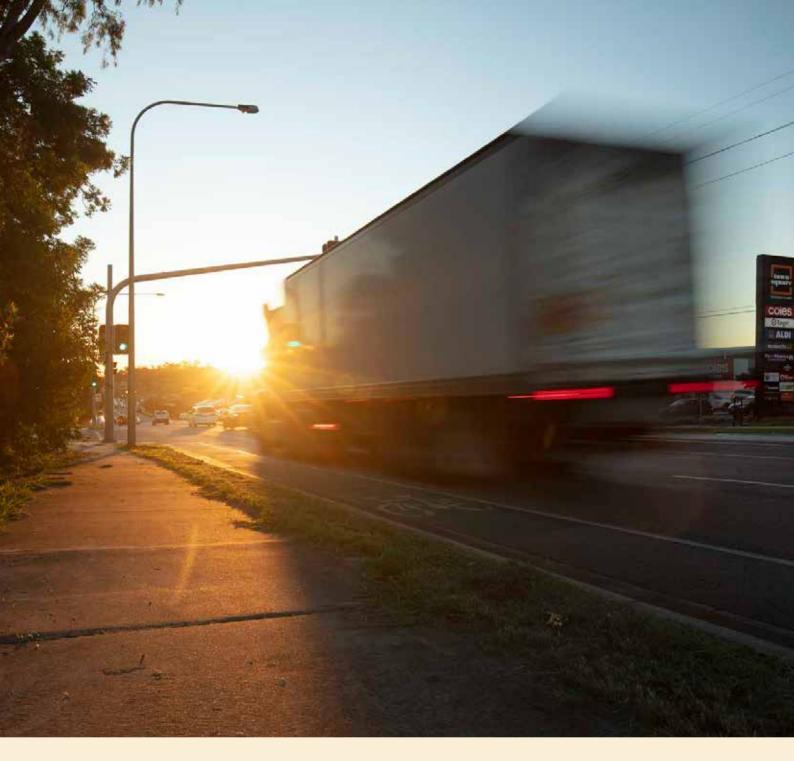
²Jones, P. & Boujenko, N. (2009) "Link' and 'Place': A New Approach to Street Planning and Design', Road & Transport Research: A Journal of Australian and New Zealand Research and Practice 18, 4: 38.

³ Fremantle.wa.gov.au/news-and-media/28102019-introducing-evie-electric-rubbish-truck

⁴ Theleader.com.au/story/6241077/electric-garbage-truck-trial-for-shire/

⁵ Bluemountainsgazette.com.au/story/6931778/blue-mountains-city-council-trials-electric-garbage-truck/

⁶ Casey.vic.gov.au/news/electric-waste-trucks-arrive-casey



ASPIRATIONS

VISION

Throughout the development of the iGO FAP, there has been a comprehensive targeted consultation process. Through this process, the following vision for freight in lpswich has been identified:

'Ipswich City is South East Queensland's pre-eminent freight hub, strategically located to service local, intrastate, interstate and overseas markets via resilient, safe and highly efficient major road, rail and port connections.'

OBJECTIVES

There are five objectives underpinning the iGO FAP.

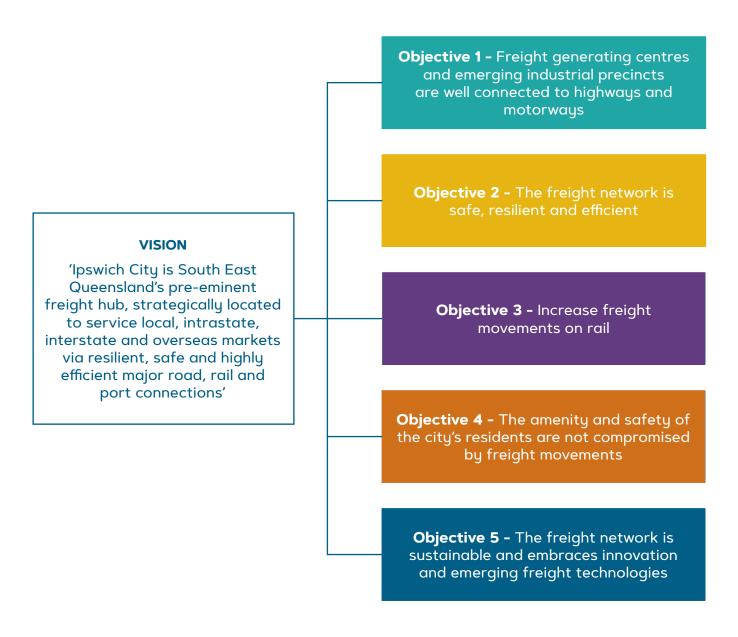
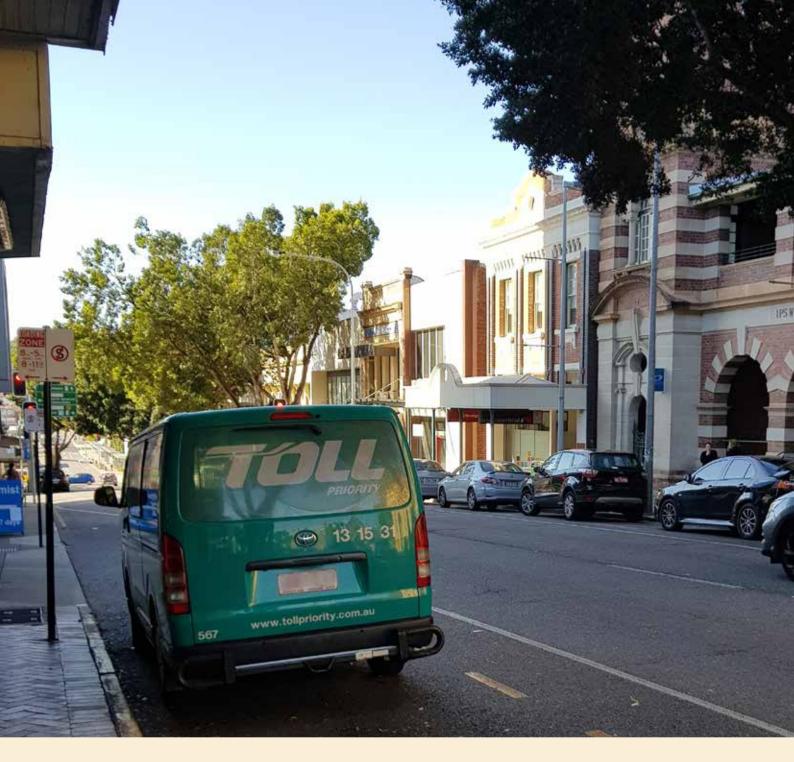


Figure 4: Vision and objectives



DELIVERY

ACTIONS

The action plan has been developed based on the five Objectives:

- Objective 1: Freight Generating Centres and Emerging Industrial Precincts are well connected to Highways and Motorways
- Objective 2: The freight network is safe, resilient and efficient
- Objective 3: Increase freight movements on rail
- Objective 4: The amenity and safety of the city's residents are not compromised by freight movements
- Objective 5: The freight network is sustainable and embraces innovation and emerging freight technologies.

TIMEFRAMES

Each action is given a timeframe that outlines council's freight priorities. They are defined as:

- Signature (actions that can be undertaken immediately)
- Short (< 5 years)
- Medium (5-10 years)
- On-going (actions that are already underway and/ or will occur across all timeframes).

SIGNATURE PROJECTS

ID	Proposed action
1.3	Review and advance planning for the road network within the Ebenezer Regional Industrial Area.
1.4	Review and advance planning for north-south and east-west linkages to the Swanbank Industrial Area.
2.9	Investigate opportunities for collecting and using freight data to improve freight efficiency and inform infrastructure design.
4.2	Review and identify projects to separate active transport and freight movements along designated freight routes, including removing conflicts between freight vehicle and trailer parking in bicycle lanes.
4.8	Review and refine the ICC Road Hierarchy Map with an emphasis on network resilience, ensuring that alternative access routes discourage freight movements through sensitive areas.



OBJECTIVE 1: FREIGHT GENERATING CENTRES AND EMERGING INDUSTRIAL PRECINCTS ARE WELL CONNECTED TO HIGHWAYS AND MOTORWAYS

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
1.1	Review the Ipswich Planning Scheme to ensure new industrial areas are in close proximity to and have designated safe and efficient access points to highways and motorways.				ICC
1.2	Continue joint planning with TMR to identify safe and efficient access arrangements for new industrial areas in Ebenezer, Willowbank and Jeebropilly.				TMR/ICC
1.3	Review and advance planning for the road network within the Ebenezer Regional Industrial Area.				ICC
1.4	Review and advance planning for north- south and east-west linkages to the Swanbank Industrial Area.				ICC



OBJECTIVE 2: THE FREIGHT NETWORK IS SAFE, RESILIENT AND EFFICIENT

		Timeframe			
ID	Proposed action	Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
	Continue to work with TMR to plan, program and advocate for specific upgrades to address capacity constraints for major road freight transportation corridors and in particular:				
2.1	 Western Ipswich Bypass linking Cunningham Highway to Warrego Highway 				TMR/ICC
	 Cunningham Highway duplication from Ripley Road to Amberley Interchange 				(with funding from Federal
	 Redbank Plains Road/Cunningham Highway Interchange upgrade 				Government as necessary for National
	 Amberley Interchange upgrade 				Highways)
	 Centenary Highway duplication from Springfield to Yamanto 				
	Warrego HighwayInterchange upgrades				
	River Road Improvement project				
	■ Warrego Highway upgrade to six lanes.				
2.2	Ensure any future freight routes external to industrial estates are at sub-arterial standard at a minimum to comply with the ICC Road Hierarchy map and the ICC Freight Hierarchy map.				ICC

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
2.3	Ensure that the Ipswich Planning Scheme adapts to the evolving needs and standards of the freight industry for all vehicle specifications including end of trip infrastructure and decoupling areas.				ICC
2.4	Undertake an audit of existing road signs and road markings within existing and emerging freight centres and along heavy vehicle routes to identify and remove redundant and inconsistent signage.				TMR/ICC
2.5	Undertake an audit of major freight access routes to industrial areas to identify and investigate solutions to address where road furniture or on-street parking reduces road capacity and efficiency.				ICC
2.6	Identify problematic first and last mile freight access to existing centres and industrial areas, such as Monash Road, Redbank, and implement freight priority measures such as signal optimisation.				ICC
2.7	Investigate incident management measures to maintain accessibility for industrial areas through measures such as digital communications.				ICC
2.8	Enable the expansion of the freight network and the ongoing rollout of multi-combination (Performance Based Standards) vehicles by ensuring corridors are fit for purpose.				ICC
2.9	Investigate opportunities for collecting and using freight data to improve freight efficiency and inform infrastructure design.				TMR/ICC
2.10	Collaborate with QPS and TMR to ensure compliance on the major freight road network.				TMR/QPS/ ICC
2.11	Review the utilisation of loading zones in centres to ensure the number and size of bays as well as time limitation reflects the needs of the freight industry.				ICC



OBJECTIVE 3: INCREASED FREIGHT MOVEMENTS ON RAIL

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
3.1	Continue to advocate for the timely construction of the Inland Rail Project including the development of the Ebenezer intermodal freight hub.				ICC
3.2	Continue to advocate for the use of rail freight on key strategic corridors (aligning with Queensland Freight Strategy) particularly container freight.				ICC
3.3	Encourage development of intermodal facilities and container logistic facilities with strong linkages to the Port of Brisbane.				ICC



OBJECTIVE 4: THE AMENITY AND SAFETY OF THE CITY'S RESIDENTS ARE NOT COMPROMISED BY FREIGHT MOVEMENTS

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
4.1	Monitor crash statistics along designated freight routes and take remedial action where unsafe operations exist.				TMR/ICC
4.2	Review and identify projects to separate active transport and freight movements along designated freight routes, including removing conflicts between freight vehicle and trailer parking in bicycle lanes.				ICC
4.3	Investigate Ipswich Planning Scheme and local law amendments to enable flexibility of delivery hours where it can be demonstrated that local amenity is not impacted.				ICC
4.4	Consider freight impacts on residential amenity in the development of the iGO Local Area Traffic Management Action Plan.				ICC
4.5	Support TMR to ensure noise and emission levels of heavy road and rail freight vehicles comply with the required specifications.				TMR/ICC

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
4.6	Undertake community education and awareness campaigns about the importance of freight and how it can assist with a sustainable transport future for Ipswich.				ICC
4.7	Identify redundant multi-combination freight routes across the city and remove from the National Heavy Vehicle Regulator register of approved routes such as Mary Street (Blackstone) and Jacaranda Street (Booval).				ICC
4.8	Review and refine the ICC Road Hierarchy Map with an emphasis on network resilience, ensuring that alternative access routes discourage freight movements through sensitive areas.				ICC
4.9	Progress the design and construction of the Ipswich City Centre Orbital Road System to encourage non-essential freight vehicle movements out of the core of the Ipswich City Centre and improve resilience of the freight network.				ICC



OBJECTIVE 5: THE FREIGHT NETWORK IS SUSTAINABLE AND EMBRACES INNOVATION AND EMERGING FREIGHT TECHNOLOGIES

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
5.1	Investigate opportunities to make council's fleet (including waste vehicles) more sustainable.				ICC
5.2	Ensure that planning for new infrastructure is positioned to adapt to climate change including flood resilience.				TMR/ICC
5.3	Investigate opportunities for the incorporation of low-cost smart road safety initiatives in alignment with the iGO Intelligent Transport Systems Strategy.				ICC
5.4	Encourage and support the piloting of new innovative technologies and processes such as drones and active transport.				TMR/DSDTI/ ICC
5.5	Support the development and deployment of integrated corridor management techniques, autonomous vehicles, innovative fleet management and smart logistics tools.				ICC

	Proposed action				
ID		Ongoing	Short (<5 years)	Medium (5-10 years)	Lead
5.6	Ensure local laws are flexible to allow for emerging freight trends.				ICC
5.7	Further promote out of centre collection facilities in order to reduce freight related trips into and out of centres.				ICC
5.8	Advocate the use of smart real time information sensors, Variable Message Signs, and data network communications on freight routes to avoid delays.				ICC
5.9	Partner with and support the freight industry to be more adaptable and flexible, incorporating improved resilience measures.				ICC
5.10	Promote the incorporation of innovative technologies such as vehicle charging stations within new industrial areas.				ICC
5.11	Take advantage of opportunities for grant funding to assist with freight enhancement projects.				ICC

FUNDING

Funding for the completion of each action will largely be the responsibility of the organisation that has been identified as the lead agency. However, there are opportunities for council to apply for funding grants from the state and/or federal governments to assist with the roll out of the defined actions.

MONITORING AND REVIEW

The iGO FAP will be updated every five years to ensure that emerging freight issues are captured and addressed in on-going action delivery.

To monitor the progress of the implementation of the actions, several targets have been devised. Each target links back directly to an objective and has been developed to be easily measurable on a cyclical basis. Where possible, the measures have been taken and/or calculated from readily available data already collected by either ICC or TMR.

Figure 5 (below) outlines each target identified and the associated measure used to evaluate the objectives.

OBJECTIVES TARGETS AND MEASURES All local freight carrying roads operating Objective 1 - Freight at Level of Service 'D' or better generating centres and emerging industrial precincts are well connected to highways Level of service on local freight roads and motorways (i.e. speed) Zero fatalities as a result of road crashes involving freight vehicles **Objective 2 -** The freight network is safe, resilient and efficient Number of road crashes involving medium and heavy freight vehicles All highways and motorways operating at level of service 'D' or better Objective 3 - Increase freight movements on rail Level of service on highways and motorways (i.e. speed) Reduced number of freight related complaints received each year Objective 4 - The amenity and safety of the city's residents are not compromised by Number of freight related (oversize freight movements vehicles, out of hours and pollution - noise and air) complaints received by ICC Increased % of council waste vehicles that Objective 5 - The freight use sustainable technologies network is sustainable and embraces innovation and % of council waste vehicles that are low emerging freight technologies emission or zero emission vehicles

Figure 5: Targets and measures

ACKNOWLEDGEMENTS

The iGO FAP is a collaborative initiative and council acknowledges all key stakeholders for their contributions to the development and implementation of the plan. Special thanks are given to the following organisations who provided substantial input into the development of the plan:

- The Department of Transport and Main Roads
- The Department of State Development, Tourism and Innovation.

