Townsville Area Study Report
Executive Summary
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1. Introduction

The Townsville Area Study provides a framework to support transport planning by both state and local agencies to 2031. It provides the basis for integrating and coordinating transport and land use planning outcomes appropriate to Townsville and supports planning and decision making by both state and local authorities. The Townsville Area Study area covers the Townsville urban area and major development fronts of Rocky Springs, the Upper Ross, the Bohle Plains and the Northern Beaches.

2. Strategy objectives

The Townsville Area Study objectives take account of the vision embodied in the *Townsville Thuringowa Integrated Regional Transport Plan*, as well as current and emerging transport planning issues. The objectives are consistent with the State Government’s *Transport Coordination Plan*. The Townsville Area Study objectives are to achieve:

- an integrated land use and transport system which supports increasing the sustainability of travel by reducing private car use and increasing mode shares for public transport and walking and cycling
- a transport system that supports the development of a compact urban form and supports self-containment
- improved accessibility and support for the accessibility needs of all members of the community, including walking, cycling and public transport
- an efficient, effective, reliable and sustainable transport system
- transport infrastructure that efficiently and safely moves freight and supports future development of key economic land uses including Townsville Port
- transport infrastructure that efficiently and safely moves people and that minimises passenger and freight conflicts
- a system which maximises the utilisation of existing assets prior to investing in new facilities
- desired outcomes using the most cost-effective package of measures
- a system which can be adapted to future changes in climate, oil price changes and is resilient to the potential impacts of natural disasters.

3. Current situation

Townsville City has a current population of 165,278 (Australian Bureau of Statistics 2006). The city acts as a primary service centre for a vast catchment reaching south to the Whitsunday coast, north to Cardwell and west to the Northern Territory border including the economically significant North West and North East Minerals Provinces.
3.1 Settlement pattern

The city has a dispersed and fragmented urban form that features highly segregated land uses and a relatively weak centres hierarchy. The Townsville Central Business District’s role as the region’s primary activity centre has declined over recent years, particularly from a retail perspective, as other competing suburban centres have emerged (e.g. Aitkenvale, Thuringowa Central, Hyde Park/Townsville West). The growth of the suburban centres along this corridor has also led to significant strip development along the Ross River Road and Charters Towers Road.

3.2 Passenger travel patterns

Car is the dominant travel mode, used for nearly 90% of commuting trips. Buses account for 2% of commuting trips. Active modes (cycling and walking) account for 7% of commuting trips. Cycling mode shares are currently higher than the Queensland average, and higher than many comparable cities. The use of the private vehicle dominates transport supply in Townsville. There are many factors that encourage the use of the private car in the region, including short trip times and distances to work (low cost of journeys), ease of parking, low levels of congestion and the level of public transport services.

3.3 Freight demand

Townsville lies on the north–south Brisbane-Cairns freight corridor and the east-west Mount Isa–Townsville corridor. Townsville is an export gateway for the North West Minerals Province around Mount Isa and also the North East Minerals Province. Freight demands on the Townsville network are generated by:

- export commodities travelling to the Townsville Port, including minerals and agricultural products
- commodities flowing from Townsville Port including inputs to support the mining, minerals processing and agricultural industry
- inter-regional freight flows
- intra-Townsville urban freight demands.

3.4 Townsville Port

Townsville Port is North Queensland’s link to international markets and has one of the most diverse trade profiles of any regional port in Australia, reflecting the strength and diversity of the region’s economy. The total throughput of freight for the Townsville Port has grown consistently from around 2.5 million mass tonnes in 1987/88 to more than 10 million tonnes in 2009/10. Future strong growth is expected. The vast majority of trade transported to and from the Townsville Port is via rail.
3.5 Freight rail network

Townsville lies at the junction of the Mount Isa–Townsville rail line and the North Coast rail line. Queensland Rail's *Mount Isa System Rail Infrastructure Master Plan 2009* describes the Townsville-Mount Isa rail corridor and its capacity. A key capacity constraint is the link between Stuart and the Townsville Port, which will be improved by the proposed Eastern Access rail link. The historical configuration of rail lines within the Port of Townsville results in inefficiencies. Inadequate design and length of rail loops within the Port of Townsville result in limitations on train sizes. Stage two of the *Mount Isa System Rail Infrastructure Master Plan* is currently being prepared by Queensland Rail to investigate future rail planning from Stuart to the Townsville Port.

3.6 Freight road network

The *Townsville Thuringowa Integrated Regional Transport Plan* was finalised in late 2001 and an ongoing updating and revision process keeps the plan relevant. The plan identified a road freight functional hierarchy, identifying both principal freight routes which serve inter-regional movements and secondary freight routes which serve intra-urban area movements. The principal freight routes link the Flinders Highway west of Townsville, the Bruce Highway to the north and south of Townsville with the Townsville Port. The principal freight network includes arterial and sub-arterial roads, within urban Townsville, including Woolcock Street from the north and west and Abbott Street from the south.

3.7 Highway network

Townsville is well served by the national and state-controlled road network, including the Bruce Highway (National Highway) which links the region to the southern and northern areas of Queensland and also provides access between the coastal settlements in the region. Traffic congestion is not currently a significant problem in Townsville and the majority of roads within the study area show a good level of service (modelled traffic volumes less than 50% of road capacity). This indicates that the majority of Townsville’s road network experiences generally free flowing conditions.

There are some links with higher levels of congestion including:

- Sections of the Bruce Highway (between Veales Road and Geaney Lane), Riverway Drive and Blackwood Street which have a level of service E (modelled traffic volumes are 90%-100% of road capacity). This indicates that traffic conditions border on a range in which small increases in flow may significantly reduce travel speed.
- Sections of Abbott Street, the Flinders Highway, Fulham Road, Pilkington Street, and Eyre Street which show a level of service of D (modelled traffic volumes are 75%-90% of road capacity). This indicates these roads experience stable operating conditions with manoeuvring becoming more restricted.
3.8 Passenger and freight network conflicts
Conflicts between passenger and freight vehicles exist on the road network, particularly in and around the Central Business District, and the principal freight network from Bruce Highway north and south to the Townsville Port. Growth in freight and private vehicle traffic will increase congestion for both freight and passenger traffic. Open level crossings are also conflict points.

3.9 Public transport network
The public transport network includes urban bus, school bus, community transport, ferry and taxi services. The most patronised routes in the current network are along the Ross River Road corridor between the Central Business District, Hospital/University area and Kelso. Public transport accessibility is generally moderately good in the corridor between the Central Business District and Kirwan (where there are high frequency bus services running on weekdays), but is poor in other areas. The current/proposed urban areas of Alligator Creek, Douglas, Burdell, and Bushland Beach, and the Lavarack Barracks, all have poor levels of public transport accessibility. These areas have either no public transport service or have a low frequency bus service. However, there are also areas of low density development which would be unlikely to support viable bus services.

3.10 Active modes network
The pedestrian network comprises kerbside footpaths, which are often shared with cyclists due to the absence of dedicated cycle facilities, and pedestrian footpaths through parks and along the oceanfront. The Townsville and Thuringowa region has an extensive cycling network. The current bicycle network covers more than 100 kilometres of on-road bicycle lanes, more than 40 kilometres of off-road bicycle paths and more than 10 kilometres of dedicated cycle routes. In addition there is an extensive network of shared pedestrian and bicycle paths. The on-road cycle network is typically defined by road surface markings, wide shoulders and signage. Off-road facilities are typically shared paths and bicycle routes are generally located in quiet streets. In places the network is fragmented and some facilities are indirect and oriented towards recreational and leisure cycling. Pedestrian and cyclist conflicts are a significant issue in central areas such as along The Strand.

4. Planning pressures
Key issues identified include:

4.1 Future growth
- Future economic and population growth is expected to continue strongly for the study forecast horizon to 2031.
- The current land use pattern is dispersed low–density residential development, and lacking a strong hierarchy of commercial and retail activity centres.
- Limited forward planning in new development areas makes delivery of efficient public transport and active mode networks difficult to achieve, e.g. lack of structure planning or master planning to support development in the Northern Beaches and Bohle Plains.
4.2 Passenger travel

- Travel patterns are highly dispersed and not strongly focussed on activity centres, making it difficult to provide an efficient, high quality public transport network.
- Car is the dominant passenger transport mode, now and into the future.
- Cycling mode shares are currently higher than the Queensland average, and higher than many comparable cities.
- Around 67% of commuter trips are less than 10 km, which are very attractive trip lengths for cycling. This, combined with the flat terrain, suggests that there is significant potential to increase cycling mode shares with supporting infrastructure and transport policy.
- Public transport has an important role in providing accessibility and travel choices and its provision in new developments especially, may be a countervailing influence on the trend to 2 and 3+ car owning households.

4.3 Freight

- Meeting the transport requirements from the growth of the mining industry, and planning around the levels of uncertainty about future transport demand associated with this growth.
- Ensuring efficient and safe access to the Townsville Port and managing urban amenity issues; external impacts on the wider community may require more and better buffers along key corridors.
- Maintaining the competitiveness of rail, especially for bulk minerals.
- Meeting the transport requirements for agricultural commodities.

4.4 Freight and passenger network interactions

- Increasing conflicts between freight and passenger network functions as both freight and passenger travel demands increase; this will likely be evidenced on the Townsville Port Access Road, the Townsville Ring Road, Woolcock Street, the Bruce and Flinders Highways.
- Increasing heavy vehicle volumes and size.
- Increasing mode conflicts such as level crossings between road and rail, due to increasing frequency of road and rail services and length of rail trains.

5. Developing the strategy

The approach to developing the Townsville Area Strategy was based on stakeholder consultation, review of current land use and transport studies and scenario testing.

Scenario testing, including transport modelling and analysis, was used to analyse the performance of the transport system under a range of alternative future assumptions. Scenarios included variations of future land use patterns, highway network assumptions, freight growth and
mode share. The scenarios were used to assess how well each alternative future transport system performs against a range of measures, including:

- public transport performance
- highway network performance
- sustainability, reliability and safety of the system
- system cost effectiveness.

Further consultation with stakeholders was undertaken to discuss the outcomes of the scenario testing, to identify potential actions and strategies to achieve the desired objectives, and to identify elements of the preferred strategy.

5.1 Key outcomes from the scenario testing

The main input assumptions to the best performing future scenario are:

- a land use pattern with increased densities and activity in key transport corridors and around transport hubs. The Ross River Road corridor has been identified as a key transport corridor
- a continued increase in the share of trips made by active modes, together with a significant increase in the number of trips made by bus
- improvements to the road network, including the Bruce Highway and Flinders Highway approaches to Townsville and continued development of the Ring Road to bypass the Townsville urban area.

Compared with the business as usual scenario, the best performing scenario achieves:

- around 20% fewer vehicle kilometres and vehicle hours travelled on the network, reducing fuel and CO₂ emissions accordingly
- an improvement in the number of network kilometres operating at good levels of service, improving highway network efficiency
- a significant reduction in the number of network hours operating at very poor levels of service, improving reliability
- an improvement in accessibility
- a more compact urban form.
5.2 Key future issues
The scenario testing and stakeholder consultation identified a number of issues that have been investigated as part of this study:

- how to achieve a mode shift from private car to public transport and active modes
- how to minimise and manage passenger and freight conflicts on key elements of the network, including Townsville Port Access Road, Woolcock Street and University Drive and at open level crossings
- how to meet the transport needs of outer area residential developments
- how to develop the transport network to achieve an appropriate future level of service, accommodating future growth in population and economic activity including freight.

5.3 Key themes from stakeholder consultation
Key themes that emerged from stakeholder workshops group work included:

- support measures to increase densities along key public transport corridors
- develop the use of intelligent transport system technology to manage the network, increase efficiency and improve safety
- implement a principal cycle network and end of trip facilities
- improve public transport information including implementation of real time information
- continue road planning for improvements to the Bruce Highway north and south, and along the Flinders Highway
- investigate future operations and management of open level crossings
- continue Townsville Port Access Road Management Plan and South Townsville road hierarchy investigations
- develop inter-modal freight hubs; support measures to co-locate complementary land uses
- consider relocating the South Townsville rail yards to Stuart, in conjunction with development of Eastern Port Access Rail corridor.

6. Preferred transport strategy
The preferred strategy addresses key issues and challenges identified during the study. These include:

- providing efficient, reliable, sustainable and safe passenger and freight transport networks to accommodate future population and economic growth, particularly continued, strong growth in freight traffic
- providing a transport system that delivers attractive travel choices which support a shift from private car travel and increases the mode share to active and public transport modes.
6.1 Key planning principles

The following transport planning principles summarise the strategy development and were used to develop the recommendations and implementation plan:

**Land use planning principles**

- master plan around major centres and transport hubs to include mixed uses and increased residential density
- promote excellence in streetscape and urban design around transport hubs and along the public transport network and principal cycle network. Active frontages and streetscape design should also respond to the tropical environment
- develop structure plans and/or master plans to support any further development of greenfield sites. This will ensure that the development pattern allows for an appropriate transport network and road hierarchy that incorporates public transport and active modes
- develop employment strategies that promote commercial and appropriate industrial development beyond the retail sector, particularly in outer urban areas of Northern Beaches and Rocky Springs
- develop the Townsville State Development Area at Stuart to provide a location for complementary land uses including heavy industry, Townsville Port related industry and freight logistics and warehousing activities
- consider re-location of the South Townsville Rail Yards to Stuart, providing a significant catalyst site for inner-city re-development
- protect the integrity of freight routes and hubs from sensitive or incompatible land uses.

**Transport planning principles**

- provide a network of high frequency, trunk services connecting transport hubs located at major centres, and major trip generators (hospital, university, airport and ferry terminal), in addition to direct, express services from the outer areas
- provide local bus feeder routes supporting the high frequency trunk routes and transport hubs and ensure accessibility to all areas
- extend bus services to outer areas as development occurs, to ensure that the population living within these areas has feasible travel choices
- provide transport hubs which provide easy, convenient and safe interchange and high quality waiting environments. Provide high quality, real-time, travel time information and directional signage that is easy to understand and access
- develop bus priority measures to improve bus journey times and reliability at key locations
- manage long-term commuter car parking in key centres and limit provision of further long-term parking.
Active modes planning principles

- develop a high quality cycling network, connecting major centres, transport hubs, secondary and tertiary education campuses and other key employment locations. Develop a Principal Cycle Network Plan and local Cycling Strategy
- develop a local scale walking network, integrated with the principal cycling network and public transport network, minimising conflicts with road transport
- provide safer routes to schools including walking and cycling paths
- provide end-of-trip facilities at key destinations including major centres and transport hubs
- give priority and increased green time at signalised intersections to pedestrians and cyclists, in precincts including major centres, transport hubs and other key walking and cycling destinations
- link the provision of infrastructure with appropriate promotional initiatives and travel behaviour change programs to minimise barriers (either real or perceived) to walking and cycling.

Roads and freight planning principles

- manage the existing network to maximise efficiency
- manage local access to the inter-regional strategic freight network
- manage freight conflicts on the urban Townsville road network, particularly open level crossings
- maintain the Townsville Port Access Road function as a principal freight route and manage access and links to the network in South Townsville to promote the Townsville Port Access Road role in the freight network
- improve the efficiency of road and rail freight links to the Townsville Port to accommodate medium and high freight growth forecasts.

6.2 Key elements of the preferred transport strategy

The preferred transport strategy has been developed, following consultation, workshops and other discussions with stakeholders. The strategy includes:

- continued development of the public transport and active transport networks to support increased mode share to public transport and active modes, particularly cycling, which improves travel choices, sustainability and accessibility
- land use planning measures that support urban consolidation around existing key centres and increased employment self-containment in new residential areas. Increasing the density of activity around major centres and along core public transport corridors improves the efficiency of the public transport network. Trip lengths are reduced and consequently higher mode shares to active modes can be achieved
• continued development of the road and rail freight network to increase efficiency and safety, to minimise passenger/freight conflicts, and to manage the expected, continued strong growth in freight from both the North West and North East Minerals Provinces. Townsville Port will continue to be a major export gateway for mining and agriculture, and also the import gateway for the wide range of industrial inputs required by these industries.

• continued development of the strategic road network, including the Bruce Highway and Flinders Highway to Townsville, and continued development of the Ring Road. These developments will bypass the Townsville urban area and protect the integrity of the strategic road network for freight. Managing local access and providing an appropriate local road network catering for local trips enhances the safety and efficiency of the strategic road network.

• in the longer term, managing the private car travel demand, using strategies including managing car parking, especially long-stay commuter car parking (capacity and pricing).

Principal cycle network
A principal cycle network and local cycling strategy will be developed to provide a safe and convenient network for cyclists. The network will link transport hubs and major centres, providing end of trip facilities, and will allow for integration with the public transport network.

High quality public transport network
A high quality core public transport network will be developed, providing links with transport hubs and major centres. Ultimately, by 2031, services on core public transport corridors will operate at high frequencies, providing effectively a “no timetable” service. A local network of feeder bus services designed around the transport hubs will augment the core public transport network and provide accessibility to all residential areas.

Ross River Road corridor
An integrated package of land use planning, transport policies and infrastructure measures in the Ross River Road corridor between Thuringowa and the Central Business District will be implemented. This will help to achieve greater density and activity, supported by high quality, integrated public transport and active mode networks.

The Ross River Road corridor has been identified as a core public transport and active modes transport corridor, which should ultimately extend to link Thuringowa with the Northern Beaches. The Ross River Road corridor has been identified as having the most significant potential for achieving a mode shift from private cars. It represents a significant opportunity to implement an integrated package of land use planning, transport policies and infrastructure measures that achieve the strategy objectives. From a transport perspective, the preferred land use pattern increases population, employment, and therefore transport movements within the Ross River Road corridor.

The key transport benefits of achieving greater density and activity around existing centres on the Ross River Road include:

• more efficient use of existing infrastructure
• improving the efficiency of public transport by minimising the number of destinations and increasing the potential market along the corridor

• reducing trip lengths and making alternatives to driving more attractive.

Rocky Springs and the Northern Beaches

Significant future residential development will take place in the outer Townsville suburbs, Rocky Springs and the Northern Beaches. These locations present significant challenges to achieving the strategy objectives of reducing car-based travel and utilising existing infrastructure. The preferred land use pattern encourages greater employment self-containment by supporting increased employment and job diversity in the outer growth areas.

To achieve the objectives of reducing car use, and therefore improve the efficiency and sustainability of the transport system, it is important that public transport and active modes are supported within any new development. Public transport services should be introduced once occupation of new developments commences, to ensure that the population living within these areas has feasible travel choices from the beginning, and does not become dependent solely on private vehicle use. Having feasible travel alternatives to private car travel reduces the number of households needing to own two or more cars.

The benefits of this include:

• reduced total vehicle kilometres and average trip length

• less congestion in the future, particularly on the major highway freight routes between the city and Rocky Springs/Northern Beaches

• more vibrant and economically diverse communities

• improving the efficiency and effectiveness of the public transport and active mode networks.

Eastern Port access corridor

The Eastern Port access corridor is a key link in the principal road and rail freight network. Development of the rail corridor removes Mount Isa rail corridor movements from inner Townsville and provides significant urban amenity and safety improvements.

Benefits of the corridor are:

• reduction of freight traffic by both road and rail in the inner city and South Townsville providing significant amenity and safety benefits associated with the current use of Boundary Street and Perkins Street rail alignment

• significant improvement in freight network efficiency by providing a dedicated freight route between Stuart and the Townsville Port, removing the constraints and road/rail conflicts within the rail network in inner Townsville and providing benefits to road and rail performance
• integrated development of the Stuart industrial area as the Townsville State Development Area, providing a location for complementary land uses, including heavy industry, port related industry and freight logistics and distribution activities, including investigation of relocation of the South Townsville rail yards to this area.

**Townsville Ring Road**

The Townsville Ring Road links the Flinders Highway and the Bruce Highway in the south, and the Townsville Port access road and the state development area with the Bruce highway in the north. It bypasses the Townsville urban area and will provide a high quality, inter-regional freight route. Limiting local access to these routes is recommended to maintain their efficiency and role in the freight network.

### 7. Recommendations

Further consideration and planning of infrastructure improvements to the road and rail networks is required. These include:

- the Eastern Port Access Corridor, a key link in the principal road and rail freight network. Development of the rail corridor removes Mount Isa rail corridor movements from inner Townsville and provides significant urban amenity and safety improvements

- continued planning of the Ring Road, an inter-regional transport corridor to include Ring Road Section 4, to improve network capacity and provide a high quality bypass of Townsville to reduce conflicts with local traffic. Local access to the Ring Road should be limited to maintain its role and the efficiency of inter-regional movements, in particular freight. The timing and staging of the Shaw Road upgrade should be reviewed

- continued improvement of the highway approaches to Townsville, including the Bruce Highway Southern Corridor, the Flinders Highway and the Bruce Highway north, to maintain efficiency and improve safety

- investigation into open level crossings to prioritise future upgrades or grade separation to enhance safety and efficiency

- reinforcing the role of the Ring Road, and the Townsville Port access road as key links in the inter-regional freight network, linking the Townsville Port and state development area with the strategic highway network. Management of these routes, to limit local access, is important to maintaining safety and efficiency

- the development of a high quality, core public transport network linking transport hubs and major centres. The Ross River Road corridor has been identified as a core public transport and active modes transport corridor, which should ultimately extend to link Thuringowa with the Northern Beaches

- supporting the public transport network with a network of feeder bus routes that service the urban area and link to transport hubs and the public transport network
the development of a principal cycle network and local cycling strategy to provide a safe and convenient network for cyclists, linking transport hubs and major centres, provided with end of trip facilities, integrated with the public transport network

land use planning measures to co-locate complementary freight related land uses, including continued development of the state development area at Stuart and investigate the potential relocation of the South Townsville rail yards to the state development area.