Executive Summary

Background

The Fitzroy River Floodplain and Road Planning Study has investigated long term solutions for existing and forecast Bruce Highway and North Coast Rail Line flooding, freight and road transport impacts in and around the city of Rockhampton. While the study has assessed solutions with a 2031 time horizon, it has made recommendations for corridor protection for infrastructure that would provide for the transport needs of the region well beyond 2031.

The study has assessed current and future demands on the Bruce Highway and the North Coast Rail Line and makes recommendations that will help inform long term transport infrastructure investment decisions in Central Queensland. Specifically, the study has examined ways of reducing congestion within Rockhampton and improving the highway's and railway line's accessibility during major flood events to reduce the impact of Fitzroy River flooding on these vital links.

This strategy draws on the work documented in the seven previous study technical reports and makes recommendations for actions to follow. The process carried out in identifying the preferred alignments included:

- Identification of 12 road corridor options and 6 rail corridor options.
- A comprehensive multi criteria analysis was carried out to shortlist the options to three road and two rail.
- The Western Road Corridor and Western Rail Corridor has been identified as the preferred option.

The Strategy

The centrepiece of the strategy is the Western Combined Road and Rail Corridor, comprising the Western Road Corridor and the Western Rail Corridor. The strategy recommends the staged implementation of the western combined road and rail infrastructure to provide for the strategic transport needs of Rockhampton and Central Queensland to 2031 and beyond. It addresses the objectives of the study by:

- providing improved access to Rockhampton along the Bruce Highway and North Coast Rail Line at the Yeppen Crossing during major flood events, significantly reducing the isolation of Rockhampton and North Queensland during major flood events
- providing an alternative route for heavy vehicles travelling through the city which will also connect the growth areas of Parkhurst and Gracemere where significant future industrial and residential growth is planned
- removing heavy rail from Denison Street and providing faster travel times for through rail freight, while maintaining connections to existing rail infrastructure
- improving safety and amenity within Rockhampton by reducing traffic including freight in urban areas
- providing for long term economic and population growth for the entire region.

Western Combined Road and Rail Corridor

The strategy recommends that a combined corridor be protected with sufficient width to accommodate the ultimate Western Road Corridor and Western Rail Corridor.

The corridor width has been nominally set at:

- combined corridor 140m
- rail only corridor 60m This includes an allowance for additional corridor width on the 5km section of the Blackwater Line to allow for an additional track if required in the future.
- road only corridor 80m
- The corridor alignment and widths have been based on ultimately providing:
- 4 lane divided highway, 110km/hr, at Q100 flood levels.
- 2 railway tracks, 100km/h standard operating speed, 120km/h for a tilt train, and service road at Q100 flood levels.

- limited access corridor with grade separation of all intersections.
- grade separation between road and rail, connection to existing rail infrastructure can be maintained as required.
- services and ancillary infrastructure such as water treatment devices

There will be opportunities to refine and optimise the corridors with further detailed planning including field investigation and consultation as the projects progress through further planning, design and delivery stages.



Figure 1-1 Western Combined Road and Rail Corridor

Western Road Corridor

A "Rockhampton Bypass" (Rockhampton Ring Road) has been identified in the Queensland Government *Bruce Highway Upgrade Strategy* July 2011 for planning and corridor preservation in the next 5 to 10 years.

The Western Road Corridor is a 22km deviation of the Bruce Highway. It extends as far south as the Burnett Highway intersection and north to Glenlee (north of Parkhurst). From the south the corridor alignment follows the Bruce Highway alignment until it deviates at the Capricorn Highway intersection (Yeppen Roundabout). It follows the Capricorn Highway for approximately 2km before it deviates north through the Yeppen Floodplain where it sweeps around the airport at Pink Lily and crosses (and connects to) Rockhampton Ridgelands Road before crossing the Fitzroy River north of Limestone Creek. From there it connects to Alexandra Street at Parkhurst and to the Yeppoon Road via a new connection. The western corridor connects back to the Bruce Highway at Glenlee near Ramsay Creek.

The fully developed corridor is not required until well beyond the timeframes of the study; as such its design has been used to determine a maximum long term corridor width in order to understand its physical impacts. To accommodate projected traffic to 2031, the infrastructure has been scaled down from its ultimate form and designed as a Q100 immune 2 lane road with at-grade intersections. As 2031 is the study horizon, this is the form of the proposed infrastructure which has been staged (as depicted in Figure 1-2), costed (refer Table 1-1) and had its performance assessed against the specific study objectives.



Figure 1-2 Western Road Corridor Stages

Western Rail Corridor

The Western Rail Corridor is a 28km deviation of the North Coast Rail Line from the junction with the Blackwater Line at Rocklands south of Rockhampton to Glenlee north of Parkhurst. The corridor follows the Blackwater Line from its connection to the North Coast Line at Rocklands for approximately 5km before turning North and crossing over Scrubby Creek and the Capricorn Highway. From here the corridor runs parallel with the Western Road Corridor to Glenlee where it rejoins the North Coast Line. Angles are provided at Rocklands and Parkhurst to maintain connectivity to the existing North Coast Line for access to the station and other facilities and the Yeppoon Branch. This would enable the existing line along Denison Street and the Alexandra Bridge to be decommissioned.

To accommodate expected rail traffic to 2031 the corridor's infrastructure has been designed as a 1 track Q100 flood level line connecting from the existing Blackwater Line near Gracemere to Glenlee. While the Blackwater Line is currently single track it is near capacity and planning is underway by QR National for its duplication. Once duplicated the line would have the same capacity as the remainder of the combined North Coast/Coal Line between Rocklands and Gladstone. While the existing Blackwater Line is currently less than the Q100 flood level it has significantly better access during major flood events than the existing North Coast Line through the Yeppen Crossing. There are opportunities to improve this if required either with the planned duplication of the Blackwater Line or the construction of a dedicated freight/passenger line if required in the future.



Figure 1-3 Western Rail Corridor Stages

Rockhampton Ring Road Implementation Plan

An indicative staging program for the delivery of the Rockhampton Ring Road is depicted above in Figure 1-2. Timing details and conceptual based opinion of probable construction costs are shown below in Table 1-1. Note that dollars are based on 2011 costs with no allowance for escalation relative to the nominated program.

Table 1-1 Rockhampton Ring Road Implementation Plan - Conceptual Based Opinion of Probable Cost

Stage	Description	2011- 2016	2016 - 2021	2021 - 2031	Beyond 2031	Estimate		
		Short Term		Medium Term	Long Term	(2011 dollars)	Length	Bridge
1	Bruce Highway Yeppen Lagoon Upgrade (Yeppen North)					\$85M	1km	420m
2	Bruce Highway Yeppen Floodplain Upgrade (Yeppen South)					\$450M - \$550M	3.7km	2.5km
3	Bruce Highway Rockhampton Northern Access Upgrade Stage 1 (Yeppoon Rd to Boundary Rd)					\$100M - \$150M	0.8km	70m
4	Rockhampton Ring Road North (Yeppoon Rd – Rockhampton Ridgelands Rd) 2 lane at grade intersections					\$700M - \$850M	8.7km	640m
5	Bruce Highway Urban Capacity Upgrades – Stanley St to Albert St (Intersections to be confirmed)					\$35M - \$40M	2km	
6	Bruce Highway Lower Dawson Road flood improvements (if required)					\$35M - \$40M	1.5km	
7	Capricorn Highway Duplication (Yeppen - Gracemere)					\$60M - \$100M	2.5km	200m
8	Rockhampton Ring Road South (Rockhampton Ridgelands Rd – Capricorn Highway) 2 lane at grade intersections					\$500M - \$650M	8.4km	1.14km
9	Bruce Highway Rockhampton Northern Access Upgrade Stage 2 (Boundary Rd to Terra Nova Drive)					\$120M - \$160M	2.4km	
10	Rockhampton Ring Road Northern Extension (Alexandra Street – Bruce Highway)					\$450M - \$550M	4.3km	100m
11	New link from Lakes Creek Road to Moores Creek Road					\$60M - \$100M	1.3km	80m
12	Rockhampton Ring Road Ultimate Development North (Yaamba Rd to Rockhampton Ridgelands Rd) Duplication and interchanges					Very Long Term		
13	Rockhampton Ring Road Ultimate Development South (Rockhampton Ridgelands Rd to Bruce Highway) Duplication and interchanges					Very Long Term		
TOTAL (NO ESCALATION i.e. 2011 dollars)							36.6km	5.15km

Rockhampton Rail Bypass Implementation Plan

An indicative staging program for the delivery of the proposed Western Rail Corridor's rail infrastructure (Rockhampton Rail Bypass) is depicted above in Figure 1-3. Timing details and conceptual based opinion of

probable construction costs are shown below in Table 1-2. Note that unlike the road corridor there are no known triggers for the implementation of the Western Rail Corridor's rail infrastructure so it has not been possible to allocate timeframes to the stages shown. No attempt has been made to include any relocation of existing associated rail infrastructure. The optimum staging strategy, including the economic impacts and benefits of each stage, and any opportunities for associated infrastructure relocations, will need to be investigated and confirmed during the preliminary evaluation.

Note, dollars are based on 2011 costs, i.e. no escalation relative to the nominated program.

Stage	Description	Stage 1	Stage 2	Stage 3	Estimate (2011 Dollars)	Length	Bridge
1	Parkhurst to Gracemere (connection to Blackwater Line)				\$600M- \$700M	9.4 km	4.9km
2	Dedicated North Coast Line track adjacent to Blackwater Line				Very Long Term		
3	Ultimate Development Parkhurst to Rocklands (Duplication)				Very Long Term		
	TOTAL (NO ESCALATION	\$600M - \$700M	9.4 km	4.9km			

Table 1-2 Western Rail Corridor Implementation Plan – Conceptual Based Opinion of Probable Cost

Further Recommendations

- Update Rockhampton SATURN model (e.g. source more detailed input data).
- Investigate potential land use benefits (e.g. use of levels to protect strategic land).
- Rail infrastructure and operations investigation (e.g. intermodal hub, relocation of existing infrastructure).
- Rail corridor Denison Street / Alexander Bridge, future use investigation (e.g. use of existing rail corridor).
- Investigation to clarify triggers and design standards for the Western Rail Corridor (e.g. capacity, weight limits, travel time, flood impacts).