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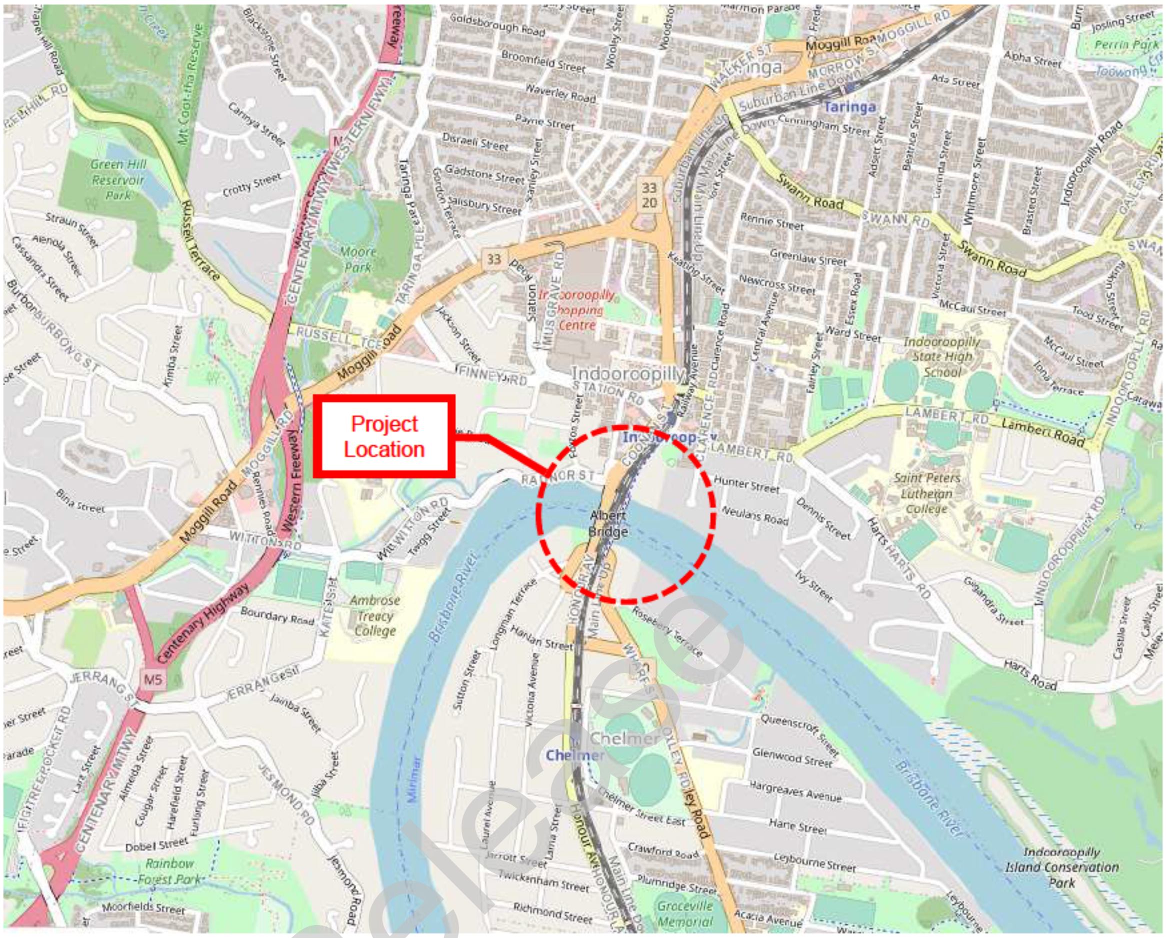

SCOPING DOCUMENT

CHELMER – INDOOROOPILLY NEW RIVER CROSSING PRE-FEASIBILITY STUDY

NOVEMBER 2020

PD20/53028

Document Change History

Document Control Sheet

If you have any questions regarding this Document or if you have a suggestion for improvements, please contact:

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Version History

Version	Author	Reason for Change	Date
00	Stephen Harkins	Draft for discussion	28/10/2020
01	Stephen Harkins	Review Comments by Anthony McKay	05/11/2020
02	Stephen Harkins	Approved for Release to TPO	11/11/2020

The following parties are in agreement with the information contained within this Document.

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1 INTRODUCTION

1.1 Project Details

Project	Chelmer – Indooroopilly River Crossing Pre-feasibility Study
Location/ Suburb	Chelmer, Indooroopilly. The Study will include an area-based approach investigation of the surrounding local transport network
Ward	Tennyson, Walter Taylor
Budget	FY2020-21: $0. This document is to support funding via proposed Budget Review (3BR)
Purpose	To define the problem, and identify options, benefits, impacts, risks, costs and recommendations for future investigations.
Road Hierarchy	Coonan Street = Arterial. Wharf Street and Oxley Road = Arterial. Honour Avenue = Suburban.
Freight Network	Currently not a freight route. Study to consider if a future freight function should be investigated.
Bicycle Network	West-east primary cycle route = Indooroopilly RiverWalk, path east of rail line, and Lambert Road. North-south primary cycle route = Jack Pesch Bridge and approaches plus Clarence Street connecting to Moggill Road at Moggil/Coonan intersection.
Bus Stops	Various
Land Use	Various
Neighbourhood Plan	Indooroopilly Centre Neighbourhood Plan Sherwood – Graceville District Neighbourhood Plan

1.2 Scoping Document Purpose

This document defines the scope for the pre-feasibility stage of investigations for a new river crossing between Chelmer and Indooroopilly.

1.3 Pre-feasibility Study Purpose

This pre-feasibility study (the Study) is to collate, update and develop transport and engineering assessments and solution options to determine the following:

- Assess the strategic merit of additional cross-river transport capacity.
- Identify potential options along with the expected costs, benefits and impacts.
- Identify key risks and opportunities.
- Recommend the next stages of planning required.

1.4 Study Funding

To be confirmed.

2 BACKGROUND

Council's current long-term planning includes for a new river crossing in the vicinity of the existing Walter Taylor bridge.

The Walter Taylor Bridge (WTB) is a two-way, two-lane bridge which carries over 30,000 vehicles per day.

Previous high-level investigations have been undertaken in the past 20 years to determine options and potential alignments. Long term transport network assessments have included scenarios with a future four lane road crossing (refer Oxley Rd Corridor Planning Transport Assessment 2015).

The most recent investigation (2016) selected a potential alignment through Witton Barracks for the purposes of protecting this corridor from any redevelopment proposals. The transport assessment of other major transport infrastructure including the Indooroopilly Roundabout upgrade has also considered future scenarios with a future four lane road crossing to understand long term travel demands.

During consultation activity for the Indooroopilly Roundabout upgrade project, the community raised the issue of needing to upgrade the Walter Taylor Bridge which the community considers to be a major congestion hotspot.

2.1 Local Network Road Hierarchy

Walter Taylor Bridge provides cross-river road access between major employment, retail and educational facilities in the CBD, Toowong, Indooroopilly, and St Lucia and the large predominantly residential catchment of the Chelmer peninsula (consisting of Chelmer, Graceville, Sherwood, Corinda) and parts of Oxley. This results in an arterial road function for the Oxley Road corridor connecting via Coonan Street to Moggill Road.

Longer distance trips may also use WTB to avoid delays or extra travel distance in using the Centenary Highway, Ipswich Motorway or Fairfield Road / Ipswich Road corridors.

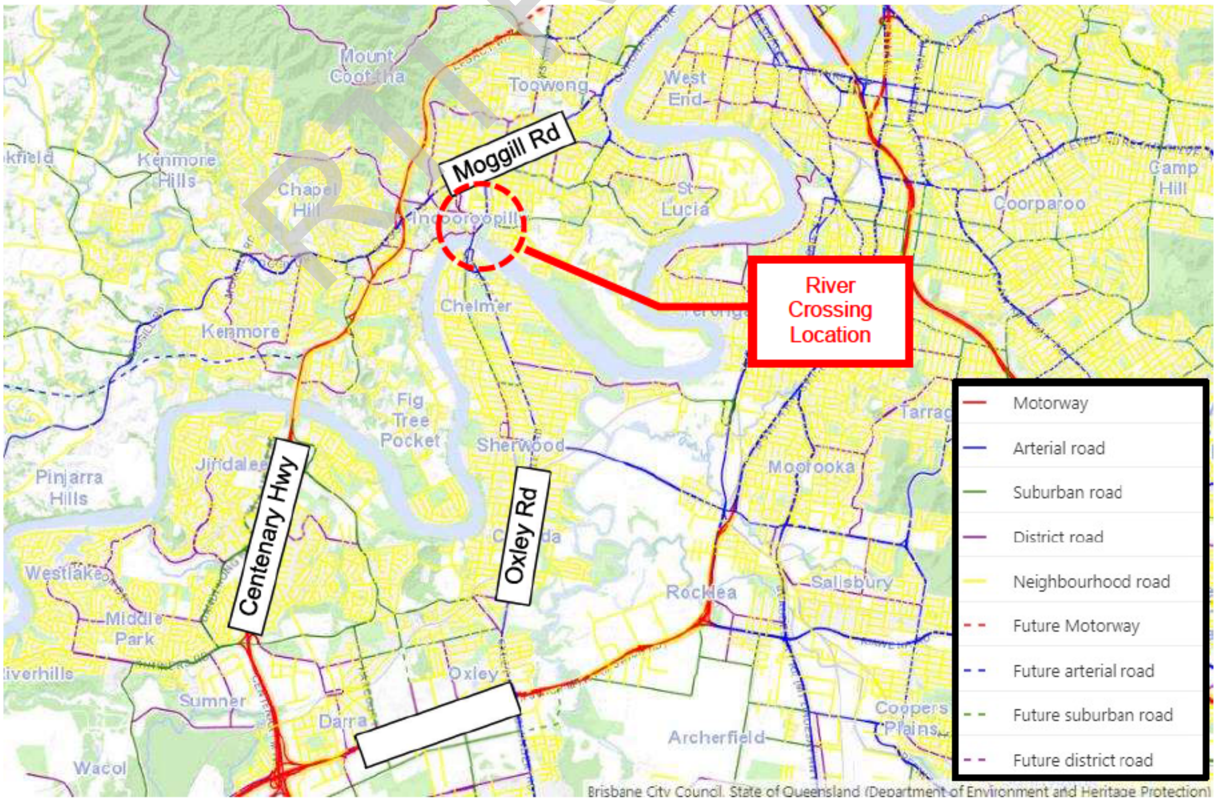


Figure 1: Existing Road Hierarchy

2.2 PREVIOUS INVESTIGATIONS

The pre-feasibility study will collate previous investigations for a new river crossing. Key investigations are outlined below:

2.2.1 Walter Taylor Bridge capacity Enhancement: Options Review (March 2001)

This considered four options which included continued use of WTB for general traffic purposes. It concluded that additional cross river traffic flow capacity favoured a new four lane bridge, but this comes at a substantial cost. Four lane options which relied on the WTB to provides two of these lanes were also considered but dismissed due to the WTB having a limited design life and load carrying capability.

2.2.2 Oxley Rd Corridor Planning Transport Assessment (February 2015)

Council developed the Brisbane Western Area Saturn Model (BWASM) which covers the Indooroopilly area, and using trip matrices derived from the multi-modal Brisbane Strategic Transport Model (BSTM – MM). This has been used to inform substantial road corridor planning investigations including the Oxley Road Corridor Planning Transport Assessment (2015) as well as informing feasibility studies and the design for the Indooroopilly Roundabout upgrade project. Refer to Appendix A for modelling extents.

All Project options (except Do Minimum) included for a future four lane upgrade at WTB, with sub-options considering various partial to full four-laning options for Oxley Road.

The report concluded that all options result in sudden increases in traffic movements as currently diverted trips shift back to the corridor due to improved travel times. To minimise financial outlays, congestion and travel times, it recommended the following upgrading sequence:

The following sequence of upgrade is recommended for the corridor:

1. Minor Upgrades – localised upgrades to congested intersections – 0 to 5 years
2. 4 lane upgrade to Coonan Street – Westminster Road to Moggill Road – 5-10 years
3. **Four Lane Upgrade between Ipswich Motorway and Sherwood Road 10-15 years**
4. **Upgrade to Walter Taylor Bridge to four lanes – 15-20 years**
5. Upgrade Intersections between Sherwood Road and Walter Taylor Bridge – 15-20 years
6. Consider the need for four Lane Upgrade between Sherwood Road and Walter Taylor Bridge once capacity is reached following the other upgrades – 20-25 years

Figure 2: Extract from Draft Oxley Rd Corridor Planning Transport Assessment Report (2015)

2.2.3 Witton Barracks Transport Corridor Protection (2016)

Related to Council's purchase of the Witton Barracks site, the investigation identified options and a recommended corridor (based on a four-lane bridge) to inform any subsequent redevelopment of the Witton Barracks site.

This investigation also considered southern alignment options and a series of high-level drawings developed, with examples shown below.

PROPOSED PROTECTION CORRIDOR (OPTION 1)

This scheme includes the following:

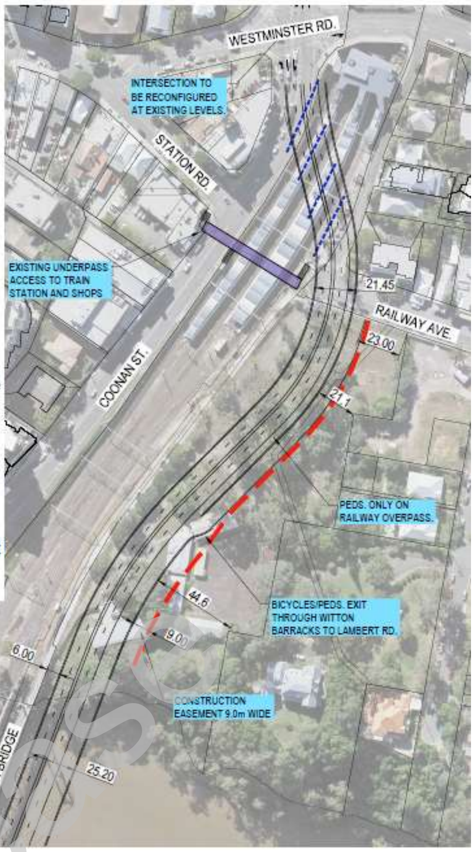
- 4 traffic lanes;
- Segregated bicycle/pedestrian path on eastern side on the proposed bridge over the Brisbane river;
- Pedestrian only path on proposed bridge over the Indooroopilly Railway Station on eastern side;
- Bicycle/pedestrian path exit on-grade through proposed Witton Barracks Park to Railway Avenue;
- Jack Pesch bridge may be demolished near construction completion of the new bridge;
- The intersection of Coonan St and Westminster Rd will need to be upgraded at grades and levels similar to existing;
- The 9m construction corridor may be used for future pathways through the proposed Witton Barracks Park, parallel to the traffic corridor. Alternatively, there may be opportunity for the pathway through Witton Barracks Park to travel beneath the overpass, where headroom is sufficient; and
- This corridor alignment is generally in accordance with the proposed road planning notes.

<u>Benefits:</u>

- Improved traffic flows would be expected due to no additional signalised intersections, and the increase from 2 lanes to 4 lanes across the river;
- Improved safety for the active transport network by increasing the existing shared 4m wide route to a segregated 7.5m facility; and
- Opportunity for the parkland to extend beneath the overpass after construction (where the overpass rises up to pass over the Indooroopilly Railway Station).

<u>Issues:</u>

- Impacts on existing buildings within Witton Barracks;
- Limitations and difficulties when constructing a bridge over the Queensland Rail (QR) corridor.
- Project reliant on QR; and
- The intersection at Coonan St and Westminster Rd requires careful attention to ensure sufficient corridor space is available and to ensure that major changes to level are not required.



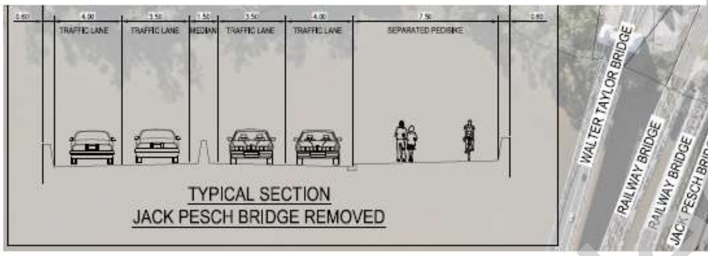


Figure 3: Witton Barracks Corridor Protection (Option 1)

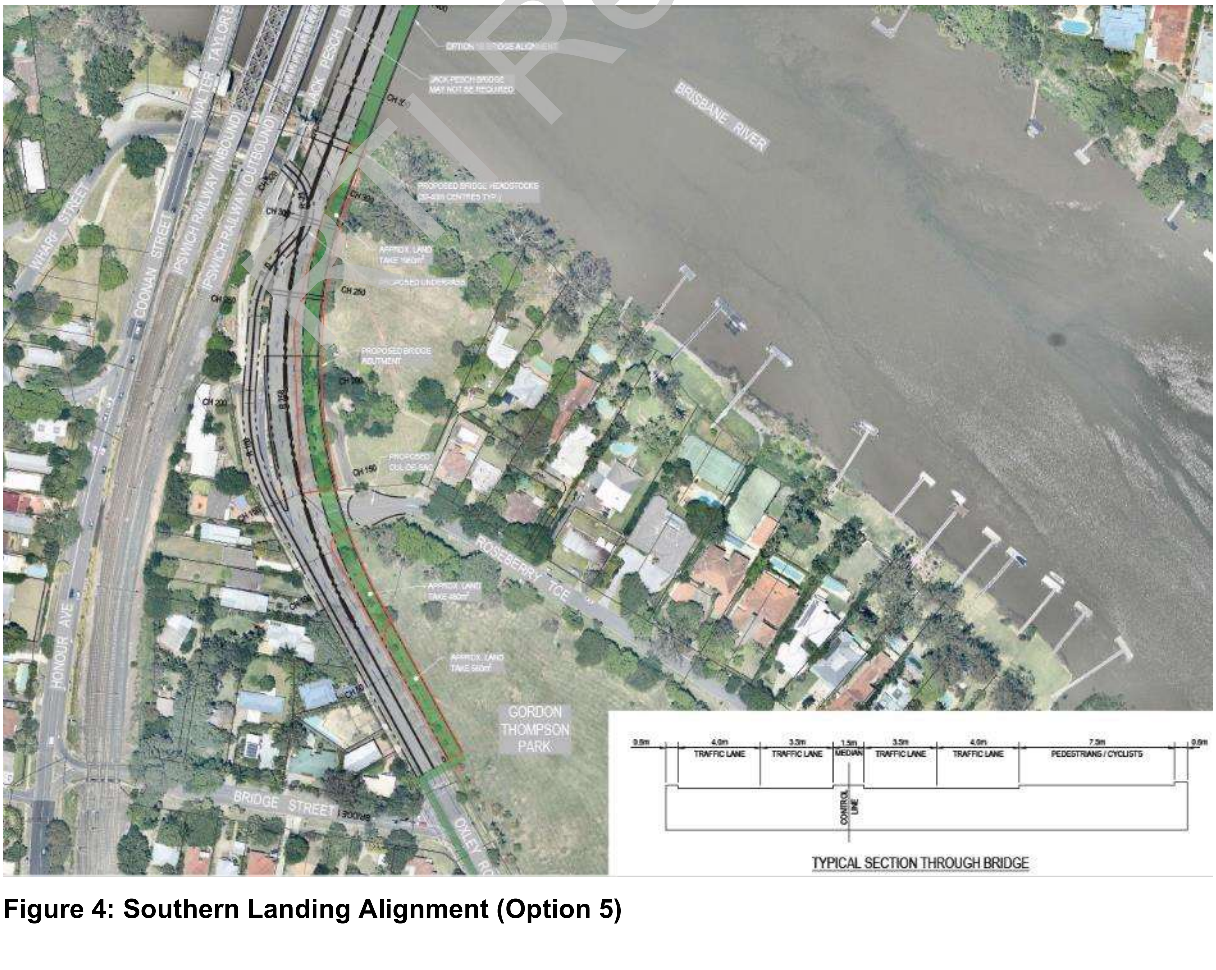


Figure 4: Southern Landing Alignment (Option 5)

2.3 LOCAL AREA CONSIDERATIONS

There are a number of significant constraints and opportunities for a new river crossing based on the general topography, scale of existing adjacent transport infrastructure, open spaces, undeveloped land, as well as existing and redeveloping residential and mixed-use sites. Consideration of the following will have to be made to inform the Study:

- Indooroopilly Roundabout upgrade project.
- Indooroopilly Riverwalk.
- Witton Barracks masterplan.
- Planned public transport infrastructure and services.
- Planned upgrades to major road network e.g. Ipswich Motorway, Centenary Highway.
- Walter Taylor Bridge remaining life and long-term maintenance requirements, including the current Walter Taylor Bridge bearing replacement project.
- Local connectivity to cross the river.
- Land requirements.

3 STUDY PROPOSAL

3.1 STUDY OBJECTIVES

The pre-feasibility study (herein known as the Study) will develop existing traffic modelling and high-level options to determine the strategic merit of a new river crossing and the order of benefits to costs. The Study will be able to inform the required next stages of planning.

The Study will undertake the following tasks:

- Define the problem and the project objectives for a new river crossing.
- Collate previous studies for a new crossing and related transport and development proposals in the area.
- Update existing traffic models to identify high level benefits and impacts on the local transport network. See Appendix A for model area extents.
- Confirm the future role and function of the Oxley Road corridor at a high level to understand its long-term functional requirements.
- Undertake high level concept design development of existing options and consider if there are new potential solutions for a river crossing and related approach road works.
- Determine high level estimates of costs for new capital works and maintenance costs (for new and existing river crossings).
- Identify key future bottlenecks on the surrounding transport network focussing on the Oxley Road corridor and high-level solutions and order of cost estimates.
- Provide high level recommendation for future associated function and upgrades of the Oxley Road corridor and Coonan Street.
- Undertake a high-level benefit cost assessment.
- Summarise at a high level the key risks and issues including inter-disciplinary commentary on:
    - Environment including Heritage
    - Structural and Architectural
    - Geotechnical
    - Hydraulics and hydrology
    - Public Utility Plant
    - Constructability
    - Land requirements
- Recommend the next stage of investigations.
- Provide a concise pre-feasibility report. See Appendix B for indicative Table of Contents.

3.2 KEY STUDY ASSUMPTIONS

The following key assumptions are made:

- All traffic modelling will make use of the existing multi-modal Brisbane Strategic Transport Model (BSTM-MM) and existing local network transport model, the Brisbane Western Area Saturn Model (BWASM), for the forecast year of 2031 only. The BWASM was last fully calibrated and validated prior to opening of the Legacy Way Road Tunnel. Longer term models (2041 onwards) based on updated base case models will be required in subsequent studies.
- All river crossing options will be within the immediate vicinity of the existing Walter Taylor Bridge, on the downstream side.

- Existing data (e.g. traffic, survey), will be used where available. Any notable gaps will be documented in the report.
- Indooroopilly Rail Station will remain in its current location and not expand its width or height extents. However, the Study will address risks, issues and opportunities related to rail infrastructure.
- No tolling and no road user charging will be assumed given the local connectivity function any new crossing will have.
- Tunnel crossing(s) is not feasible due to:
  - Impact on surface features due to portals particularly within Principal Regional Activity Centre of Indooroopilly and the associated requirement for access to the local road network.
  - Excessive cost and inefficiency (due to the relatively short length (less than 1km).

Critical items to be confirmed:

- Timing and form of major upgrades on the surrounding transport network (particularly motorway network upgrades)
- Walter Taylor Bridge (existing road bridge) and Albert Bridge (existing rail bridge) will be maintained.
- The existing pedestrian and cyclist bridge (Jack Pesch Bridge) can be considered for removal should this be required or advantageous.
- The Indooroopilly Riverwalk will be maintained, however realigning its access path to Jack Pesch bridge approach may be considered.

3.3 Study Exclusions

The following exclusions are made from the Study:

- External communications including public consultation.
- Development of direct materials for any future consultation i.e. Project Plans.
- New data collection e.g. no new topographical survey or traffic count surveys.

3.4 Proposed Timeframes and Study Estimate

The indicative timeframes for the Study are shown below in Table 1. The timeframes are based on commencement from 9 November 2020 and account for Council's Christmas shutdown period.

Table 1: Indicative Timeframe and Study Estimate

Task	Timing	Cost (Incl. COH)
Strategic Planning Report	Nov – Dec 2020	Sch 4(7) [redacted]
Transport Modelling Base Case	Nov – Dec 2020	
Transport Modelling Scenarios (Two) & Project Cases (Two)	Dec 2020 – Jan 2021	
Bridge and Approach Works Design and Estimates	Nov 2020 – Jan 2021	
Existing Bridge Retrofit/Removal Estimates	Dec 2020	
Constructability Review	Feb 2021	
Inter-disciplinary Input and Review	Dec 2020 and Feb 2021	
High Level Design: Associated Oxley Rd Corridor	Jan – Feb 2021	
Cost Benefit Assessment	Feb 2021	

Task	Timing	Cost (Incl. COH)
Transport Assessment Report (as Appendix)	Feb – Mar 2021	Sch 4(7) [redacted]
Draft and Final Pre-feasibility Report	Mar 2021	
Project Management and Internal Stakeholder Workshops	Nov 2020 – Mar 2021	
Total Cost (Incl. COH)		

3.5 PROJECT GOVERNANCE

A Project Control Group (PCG) will be the key governance body and will provide governance throughout the entire life cycle of the Project (Study). The PCG will be accountable for the achievement of project outcomes / outputs (pre-feasibility report).

3.6 FUNDING

To be determined.

APPENDIX A – PROPOSED TRAFFIC MODELLING EXTENTS

The figure below outlines the extents of the BWAMS traffic model (developed for the Oxley Rd Corridor Planning Transport Assessment (2015).

The existing model will be used and refined.

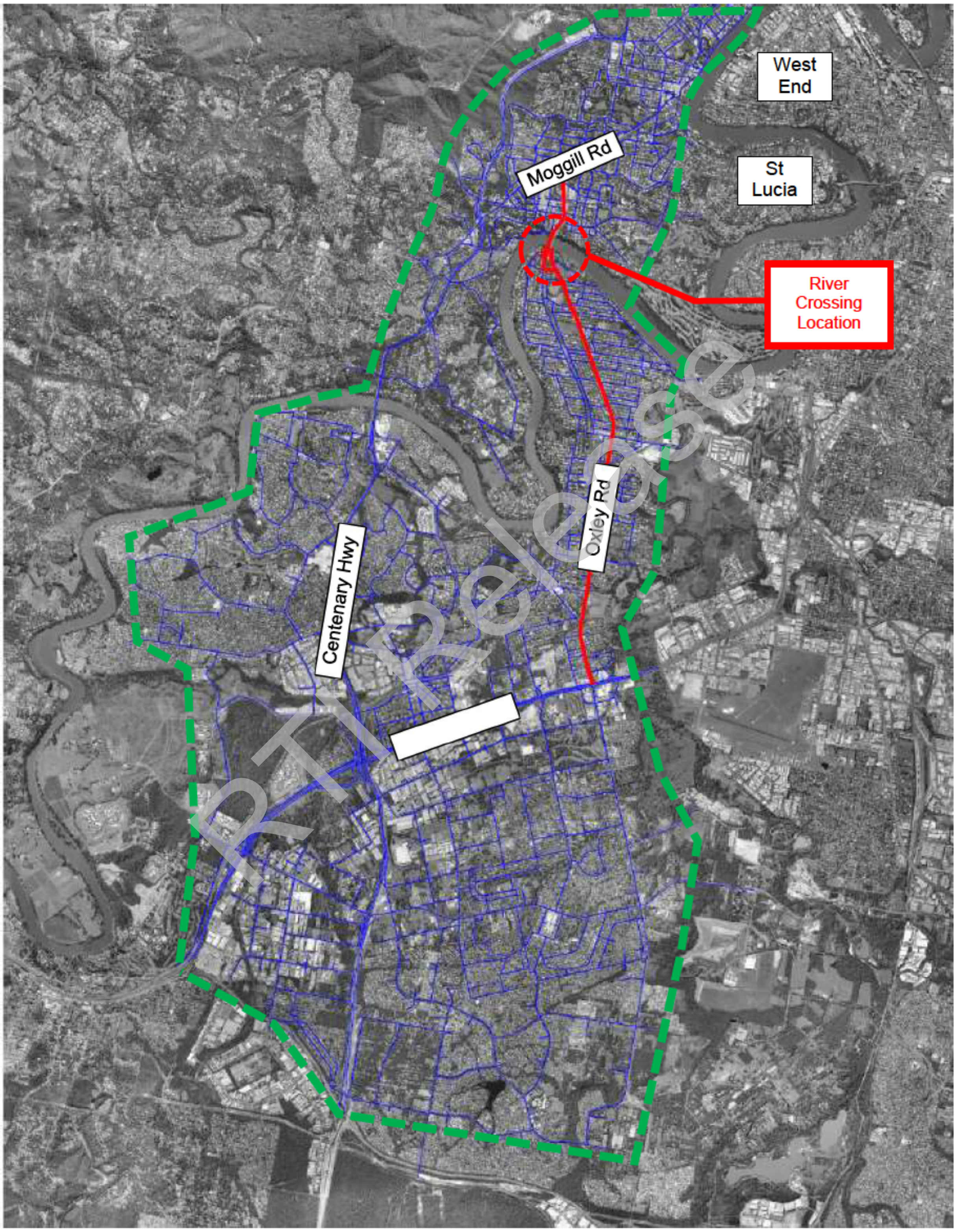


Figure A1: Traffic Modelling Extents (green) and Oxley Road Corridor (red) (from Oxley Rd Corridor Planning Transport Assessment (2015)

APPENDIX B – INDICATIVE TABLE OF CONTENTS

Pre-feasibility Study Table of Contents:

1. Executive Summary
2. Project Objectives (including Need)
3. Potential Benefits of an Improving River Crossing
   a) Transport Demand
   b) Broader Transport Network Considerations
   c) City Planning Considerations
   d) Public Transport
   e) Active Transport
   f) Freight Transport
4. Derive Options and assess Costs and Impacts (desktop assessment)
   a) Review Previous Planning
   b) Capacity requirements
   c) Capacity and longevity of WTB
   d) Hydraulics
   e) PUP
   f) Geotechnical
   g) Environment
   h) Urban Planning
   i) Rail corridor requirements
   j) Derive Options, costs, impacts and benefits
5. Preferred Option/s
   a) Multi-criteria Analysis
   b) Land requirements
   c) Key risks and opportunities
6. Broader Network Impacts and Mitigations
7. Key Recommendations and Future Investigations

A. Appendices