LOCAL GOVERNMENT INFRASTRUCTURE PLAN
SUPPORTING DOCUMENT
TRANSPORT (ROADS)

UPDATE 2016

PREFACE

FULL TITLE:	ICC Local Government Infrastructure Plan Supporting Document – Transport (Roads) Update 2016
SUMMARY:	This document provides supporting information in relation to the road network that forms part of Ipswich City Council's Local Government Infrastructure Plan (LGIP).
PREPARED BY:	Infrastructure Planning Branch

TABLE OF CONTENTS

1. INTRODUCTION

1.1 PURPOSE

This document provides supporting information (extrinsic material) in relation to the development of the transport trunk infrastructure network (specifically trunk roads) as part of Ipswich City Council's Local Government Infrastructure Plan (LGIP). This document is referenced as extrinsic material under Section 15 of the Statutory Instruments Act 1992. It should be read in conjunction with the other LGIP supporting information including the LGIP Schedule of Works.

1.2 DEVELOPMENT PROCESS

Council's transport trunk infrastructure network for road infrastructure in the LGIP has been prepared generally in accordance with the process outlined in Figure 1. Subsequent sections of this document outline this process in more detail.

FIGURE 1
DEVELOPMENT PROCESS

STEP	INPUT TOOL
1 Determine Planning Horizon	*Ipswich Planning Scheme*
2 Determine Demands for Planning Horizons (Base & Future Years)	*Ipswich Population Modeller*
3 Identify Future Year Road Networks Required	*City of Ipswich Transport Plan (iGO)*
4 Determine LGIP Road Projects	*Ipswich Strategic Traffic Model (ISTM)* *City of Ipswich Transport Plan (iGO)* *Site Inspections & Road Safety Audits* *Crash Records* *Community Feedback & Local Knowledge* *Feedback from the Department of Transport & Main Roads*
5 Identify a Cost Estimate for Each Road Project	*Costing Benchmarks* *Unit Rate Estimates* *Corridor Planning Studies* *Final Project Costs* *LGIP Land Valuation Study*
6 Identify Road Service Catchments	*Regulatory Requirements* *Local Knowledge* *Ripley Priority Infrastructure Area*
7 Determine Network Usage Across Each Service Catchment	*Ipswich Strategic Traffic Model*
8 Determine Vehicle Trips Ends for Each Service Catchment	*Ipswich Strategic Traffic Model*

2. SCOPE

2.1 2016 UPDATE

This LGIP Supporting Document – Transport (Roads) Update 2016 has been prepared as the supporting strategy (extrinsic material) for the trunk road network for the LGIP in accordance with the LGIP Guideline. It should be read in conjunction with other LGIP supporting documents and the LGIP Schedule of Works.

2.2 TRANSPORT INFRASTRUCTURE ITEMS

With regards to transport, the LGIP relates to trunk roads only. Trunk roads are those that are primarily used for through traffic movements being arterial and sub-arterial roads. Refer to Figure 2 for further information.

FIGURE 2
TRANSPORT INFRASTRUCTURE ITEMS

ITEM	FUNCTION	TRAFFIC USE	ALTERNATE NAME*
Arterial Roads	Provide cross city links between major activity centres; and/or Facilitate traffic movements across a number of suburbs or between townships; and/or Link with highways and motorways. *NOTE: Some highway service roads function as arterial roads.*	Primarily used for through traffic movements (>50% of the road's traffic will ultimately not have an origin or destination within the adjacent traffic zone).	Inter-suburban Link
Sub-arterial Roads	Facilitate traffic movement across a suburb or from one suburb to another; and/or Link with local streets and arterial roads. *NOTE: Some highway service roads function as sub-arterial roads.*		Suburban Link Distributor Road

** Some of Council's strategic planning documents use these names*

It should be noted that the trunk road network included in the LGIP includes not only the infrastructure required for traffic movements along each road but also infrastructure relating to pedestrian and cyclists movements along each road (concrete paths and on-carriageway bicycle lanes) and bus stops and associated infrastructure.

The LGIP trunk transport network does not include the transport infrastructure items outlined in Figure 3 (over). Further, it should be noted that the future road network identified as part of the LGIP is based on a reduced use of private vehicles as outlined in the City of Ipswich Transport Plan (iGO), adopted by Council in June 2016, which aims to promotes a shift of trips to public and active transport modes.

FIGURE 3
OUT OF SCOPE LGIP TRANSPORT (ROADS) INFRASTRUCTURE ITEMS

ITEM	COMMENT
Ripley Valley Trunk Roads	Trunk roads planned for the Ripley Valley Priority Development Area and included in the Ripley Valley Local Infrastructure Plan dated July 2014 (Version 16).
Lower Order Streets	Local streets whose primary function is to provide access to/from adjacent land uses. This includes major collector streets, collector streets, access streets and laneways.
National Highways	Major roads that provide for inter-regional and inter-state traffic movements. These roads are owned by the Australian Government and operated by the Queensland Government.
State-controlled Roads	Major roads with an arterial or sub-arterial function but which are owned and operated by the Queensland Government.
Off-road Pathways	Pathways provided for dedicated use by cyclists and pedestrians that are located outside road corridors through public spaces such as unformed road reserves, parks and open space areas.
Cycle Tracks	Facilities for dedicated use by cyclists that are located within road reserves but with more separation from traffic and pedestrians than regular bicycle lanes and pathways.
Pedestrian Bridges, Overpasses and Underpasses	Bridges for dedicated use by pedestrians and cyclists located over or under highways, roads, railways, creeks, rivers and between buildings.
Bus and Higher Occupancy Vehicle Lanes.	Travel lanes on the road carriageway provided for dedicated use by buses and higher occupancy vehicles (including intersection 'queue jump' lanes).
Off-street Car Parks	Off-street vehicle parking facilities provided for general use by the public at schools, hospitals, activity centres, railway stations, bus stops and community and recreation areas.
Major Public Transport Interchanges	Including major bus stops, bus-rail interchange points, passenger drop-off / pick-up areas and taxi ranks.
Line Haul Public Transport Infrastructure	Railways and busways including operating infrastructure and associated facilities (including stations, interchanges, passenger loading and waiting areas and parking).
Intelligent Transport Systems	Installation of advanced technology and innovative facilities to assist with the operation of a road including parking meters, variable speed limit signs, motorist advisory and awareness signs, motorway ramp metering facilities and vehicle - infrastructure telemetry systems. NOTE: Traditional traffic signal hardware is included in the scope and cost of some specific trunk road projects in the LGIP.
Cyclist / Walker End of Trip Facilities	Facilities for cyclists and walkers to use at the end of their journey including parking infrastructure, change rooms, showers, toilets and lockers.

2.3 PLANNING HORIZON

The LGIP identifies the 'ultimate' trunk infrastructure networks required to cater for the demands generated by the demographic (population and employment) capacity of Ipswich in accordance with the land-use outcomes of the Ipswich Planning Scheme. The *Local Government Infrastructure Plan Supporting Document – Planning Assumptions Summary Report June 2016* provides further details on the assumptions about population and employment growth.

It should be noted that the LGIP does not include the additional employment 'densification' figures outlined in the *Springfield Town Centre Concept Plan*.

The LGIP (and associated demand modeling) includes the population and employment forecasts for the Ripley Valley Priority Infrastructure Area (PDA) to determine the surrounding road network requirements, but trunk roads planned for the Ripley Valley PDA are not included as LGIP road projects.

2.4 DEMOGRAPHIC PROJECTIONS

The demographic projections used in the LGIP traffic modeling process are outlined in Figure 4. These were derived from the Ipswich Population Model.

FIGURE 4
SUMMARY OF DEMOGRAPHIC PROJECTIONS [(1)]

YEAR	POPULATION	EMPLOYMENT
2016	202,167	68,593
2021	270,777	93,052
2026	354,171	118,089
2031	435,850	153,334
2036	470,611	193,909
LGIP 'Ultimate'	518,670	292,523 [(2)]
New Development (2016 to Ultimate)	**316,503**	**223,930**

[(1)] *The Planning Assumptions Summary Report contains updated figures that are slightly different from those above as a result of work timing. The differences are minor and are considered to have no effect on the transport modeling and network outcomes of this report.*

[(2)] *The 'ultimate' employment capacity for Ebenezer Regional Industrial Area (ERIA) is estimated to be in the order of 80,000 jobs. However a significant portion of this employment will service the longer term regional jobs demand from beyond the Ipswich LGA. As such, for the purposes of the LGIP, employment forecasts for the ERIA were capped a 13,000 jobs to align with the 2041 growth demand horizon for areas outside of the Ipswich LGA.*

For further details of the forecast demand assumptions for the Ipswich LGA refer to the *Local Government Infrastructure Plan Supporting Document – Planning Assumptions Summary Report June 2016.*

3. FUTURE YEAR ROAD NETWORK

3.1 ROAD NETWORK IDENTIFICATION

To identify the 'ultimate' future trunk road network included in the LGIP, the following tools were used:

(a) City of Ipswich Transport Plan (iGO);

(b) Council land use planning documents including:

  (i) Ipswich Planning Scheme;
  (ii) Springfield Infrastructure Agreement;
  (iii) Land use master plans prepared for various areas including Ebenezer Regional Industrial Area, Swanbank / New Chum Enterprise Park, Brassall, Yamanto, Redbank Plains South, Bellbird Park etc.

(c) Ripley Valley Urban Development Area Development Scheme as prepared by the Queensland Government dated October 2011;

(d) Ipswich Strategic Traffic Model (ISTM);

3.2 CITY OF IPSWICH TRANSPORT PLAN (iGO)

The City of Ipswich Transport Plan (branded as iGO) is Council's strategic transport plan which was adopted by Council in June 2016. It is a longer term high level document that outlines Council's aspirations and master plan to advance the city's transport system to a sustainable future.

The key message from iGO is that whilst private vehicle use will continue to play a role in our daily lives, adding more and more road space just for cars is not a sustainable practice from an economic, financial, social or environmental perspective.

As such, the key outcomes of iGO are:

(a) Facilitating travel mode choices

iGO aims to reduce Ipswich resident's dependency on the car by facilitating meaningful travel mode choices through the provision of quality transport infrastructure and incentives/disincentives (particularly for white collar commuter and school trips).

(b) Transport and land use integration

iGO outlines the need to foster the development of:

- Strong, compact and connected mixed use activity centres ("20 minute city" idea);
- Complete communities ("10 minute neighbourhood" idea); and
- Higher density living in proximity to public transport nodes and corridors.

(c) Culture Shift

Clever new thinking and strong leadership to make sustainable transport decisions. This includes new 'non-traditional' attitudes such as:

- Promoting travel behavior change for certain trips;
- Taking a demand management approach to parking, road network performance and traffic congestion (not demand satisfaction);
- Balancing the needs of all users in the design and management of roads;
- Embracing the development and uptake of new transport related technology;
- Influencing institutional frameworks (i.e. employee core work hours and locations);
- Using innovation in regards to the cost, affordability, funding and financing of new infrastructure.

It should be noted that iGO's planning horizon is a future citywide population of 435,000. The LGIP 'Ultimate' population is nearly 520,000. Whilst iGO does provide the core framework for the trunk road projects identified in the LGIP, due to these different planning horizons, the iGO and LGIP future road network do not completely correlate.

3.3 IPSWICH STRATEGIC TRAFFIC MODEL (ISTM)

The ISTM, developed using the 'EMME/3' computer software program, was used as a tool to identify the future road network, specific projects, timings and to estimate the proportion each service catchment uses each project.

For the purposes of the LGIP, the ISTM was calibrated with traffic volumes recorded in 2011 and then forecast scenarios were undertaken for 2016 (LGIP base year), 2021, 2026, 2031, 2036 and the LGIP Ultimate based on the demographic figures outlined in Figure 4.

For further detailed information on the development of the ISTM, as prepared for the LGIP, refer to *Appendix A.*

3.4 MODE SHARE TARGETS

The ISTM is not a multi-modal model and as such, non-private vehicle trips (based on the mode share targets outlined in iGO) were removed in order to determine the future road network requirements (refer Figure 5).

FIGURE 5
ADOPTED MODE SHARES

YEAR	Non-Private Vehicle Mode Share
2016	15.5%
2021	19%
2026	22%
2031	25%
2036	
LGIP 'Ultimate'	

It should be noted that the iGO aspiration of a reduction in the use of private vehicles will require a significant investment in non-car based infrastructure, systems, programs and reforms that are not included in the LGIP. The use of the adopted iGO mode shares will necessitate ongoing review of the achievement of the shift away from private vehicle trips as part of future LGIP reviews and may result in future changes to the trunk road network.

4. PROJECTS

4.1 PROJECTS

The trunk road projects included in the LGIP are outlined in the LGIP Schedule of Works and the project maps are included in Part 13 of the LGIP.

4.2 PROJECT CATEGORIES & TYPES

The trunk road project categories and types included in the LGIP are outlined in Figure 6.

FIGURE 6
PROJECT CATEGORIES & TYPES

CATEGORY	TYPE	COMMENT
Road Link	Connectivity	**New roads** identified as part of iGO and land use planning documents outlined in Part 3. The ISTM was then used to validate the need for these new links to support the future road network required to service 'ultimate' travel demands.
	Capacity	**Upgrade an existing road with additional lanes** to maintain a level of efficiency in accordance with Council's desired standards of service. These projects were identified by undertaking a deficiency analysis process in the ISTM that involved comparing the model outputs with the link deficiency volumes described in Section 5.1(a) of this document. Where an intersection requires upgrading based on a capacity, operational and/or safety reason as part of a road link project, the costs of these works are included in the road link project.
	Urban Standards	**Upgrade an existing road to urban standards**. These projects are identified by local knowledge, crash records, site inspections and road safety audits. Works include geometry and safety improvements and the installation of kerb & channel, cycle lanes, pedestrian crossing points, route lighting and signage.
Intersection	Capacity	**Increasing the capacity of an existing isolated intersection** that does not form part of an overall road link project. These projects were identified by undertaking a deficiency analysis process in the ISTM that involved comparing the model outputs with the intersection deficiency volumes described in Section 5.1(b) of this document. Works include additional through lanes or adding dedicated turning lanes to an existing intersection.
	Safety	**Improve road user safety** at an isolated intersection that does not form part of an overall road link project. These projects are identified by feedback from the community, local knowledge, crash records, site inspections and road safety audits. Works include improved traffic control measures (e.g. traffic signals, roundabout etc), signage, channelisation and lighting.
Existing	Existing Roads	Existing trunk roads across Ipswich will form part of the 'ultimate' road network. The cost of replacing an existing trunk road using modern design standards and construction techniques is included in the LGIP.

5. DESIRED STANDARDS OF SERVICE

5.1 CAPACITY

As previously outlined, the transport (roads) component of the LGIP has been based on the aspirations and desired outcomes of iGO. This includes road network performance where Council's future investment and management focus will be on safe, reliable and resilient road network but one that is not necessarily efficient during peak times. Some level of 'tolerable' congestion is required to encourage shifts to public and active travel modes and to promote clever new thinking in terms of travel and land use decisions.

With regards to strategic road planning, a Level Of Service (LOS) is used to measure road operating conditions (speed, travel times, delays, queuing and freedom to manoeuvre and change lanes) based on the driving experience/comfort of motorists.

There are six levels of service designated 'A' to 'F', with LOS 'A' representing the best operating condition (i.e. free flow) and LOS 'F' the worst (i.e. forced or breakdown flow). Figure 7 provides a description of each LOS.

Council's aim as outlined in iGO is to have the future road network operating at or better than a LOS of 'D.' Roads has been listed in iGO and the LGIP for capacity upgrades if and when it is forecast to reach a LOS 'D.' As such, motorists can expect some level of congestion, delay and queuing on the city's road network in the future. From a capacity perspective, both iGO and the LGIP are not promoting a 'gold plated' road network.

FIGURE 7
LEVEL OF SERVICE DESCRIPTION

RATING	CHARACTERISTIC	AVERAGE SPEED	AVERAGE SPEED ON 60KM/H ROAD
A	Traffic flows at or above the posted speed limit and motorists have complete mobility between lanes.	> 85% of speed limit	> 50km/h
B	Reasonably unimpeded operation with the ability to manoeuvre and change lanes only slightly restricted.	Between 60% and 85% of speed limit	35-50km/h
C	Stable operation with the ability to manoeuvre and change lanes only slightly restricted. Longer queues at some intersections contribute to lower travel speeds.	Between 50% and 60% of speed limit	30-35km/h
D	Less stable conditions in which small increases in flow may cause substantial increases in delay and decreases in travel speed.	Between 40% and 50% of speed limit	25-30km/h
E	Unstable operation and significant delay and queuing at intersections.	Between 30% and 40% of speed limit	20-25km/h
F	Flow at extremely low speed with high degrees of delay and queuing at intersections.	< 30% of speed limit	<20km/h

The desired standards of service with regards to the capacity of the trunk road network in the LGIP are outlined below:

(a) Road Links

Within the ISTM, the following target deficiency capacities were used:

(i) Level of Service (LOS) 'D' for rural roads, urban motorways, highways and regional arterial roads (i.e. roads with uninterrupted flow characteristics);

(ii) 90% of LOS 'E' was used for urban arterial roads, sub-arterial roads and major collectors (i.e. roads with interrupted flow characteristics). This deficiency capacity was used as a proxy for LOS 'D', since it is not possible to determine LOS 'D' capacities for roads exhibiting interrupted flow characteristics;

Figure 8 (over) outlines the performance indicators used for the analysis of road link capacity deficiencies.

FIGURE 8
ROAD NETWORK KEY PERFORMANCE INDICATORS – ROAD LINKS

Link Function	Carriageway Configuration	Operational Environment	Performance Targets					
			Deficiency Capacity	Average Travel Speed (km/h)	Lane Capacity			
					Vehicles / Hour		Vehicles / Day	
					Single	Dual	Single	Dual
Motorway / Highway	Divided	Uninterrupted	LOS D	70	1,560	3,370	15,600	33,700
	Undivided				1,400	3,030	14,000	30,300
Regional Arterial (urban)	Divided	Uninterrupted	LOS D	40	1,320	2,840	13,200	28,400
	Undivided				1,250	2,650	12,500	26,500
Regional Arterial (rural)	Undivided	Uninterrupted	LOS D	60	720	2,710	7,200	27,100
Arterial	Divided	Interrupted	LOS D (90% LOS E)[1]	25	1,080	2,340	10,800	23,400
	Undivided				900	1,980	9,000	19,800
Sub-Arterial	Divided	Interrupted	LOS D (90% LOS E)[1]	20	900	1,980	9,000	19,800
	Undivided				810	1,710	8,100	17,100

1. For roads with uninterrupted flow characteristics (i.e. rural roads), the target deficiency capacity is LOS 'D'. For roads with interrupted flow characteristics (i.e. urban roads), a target deficiency capacity of 90% of LOS 'E' is being used as a proxy for LOS 'D', since it is not possible to determine LOS 'D' capacities for roads exhibiting interrupted flow characteristics.

(b) Intersections

The degree of saturation (volume to capacity ratio) is used as a measure of the level of service for intersections. Within the ISTM, the maximum degree of saturation (DOS) that is considered acceptable for various intersection types are as follows:

(i) Traffic signals – 0.9;

(ii) Roundabout – 0.85; and

(iii) Priority controlled – 0.8.

The process to identify capacity intersection projects was based on applying 'filters' to the ISTM output volumes. The filters were set-up to identify any intersection where:

(i) The 'ultimate' year AM and PM peak volumes (two-hour average) met the Manual of Uniform Traffic Control Devices (MUTCD) warrants for signalisation; or

(ii) DOS thresholds were exceeded. The DOS thresholds included in the ISTM filters were:

- One peak hour leg of an intersection with a DOS > 0.8;
- Two or more peak hour legs of an intersection with a DOS > 0.7 and one or more additional peak hour legs with a DOS > 0.5; and
- All peak hour legs with a DOS > 0.6.

5.2 DESIGN

The desired standard of service for the design of roads and intersections included in the LGIP use the following parameters:

(a) Council standard drawing SR04;

(b) Austroads Guidelines (for an 80km/h design speed); and

(c) Ipswich Planning Scheme Part 3 – General Works.

6. PROJECT COST ESTIMATES

The cost estimate for each road project included in the LGIP is outlined in LGIP Schedule of Works (based on 2016 unit rates). Most of these are an 'order of cost' based on rudimentary linear metre rates. Where more detailed cost estimates have been determined as part of road planning studies, concept or detailed design work, these have been included in the LGIP Schedule of Works.

6.1 'ORDER OF COST' ESTIMATE CALCULATION

The 'order of cost' estimates were calculated using the following formula:

A = [(B + C) x D] + E - F

Where:

A	=	Project 'Order of Cost'
B	=	Construction Cost *(refer Section 6.3)*
C	=	Project Owner Cost *(refer Section 6.4)*
D	=	Risk Management Cost *(refer Section 6.5)*
E	=	Land Acquisition Cost *(refer Section 6.6)*
F	=	Grant *(refer Section 6.7)*

6.2 CONSTRUCTION COST

The construction cost item for each project was calculated using the following formula:

B = G + H + I

Where:

B	=	Construction Cost
G	=	Base Construction Cost *(refer Section 6.4a)*
H	=	Structure Cost *(refer Section 6.4b)*
I	=	Major Intersection Cost *(refer Section 6.4c)*

The order of cost estimates include the construction cost items outlined in Figure 9.

FIGURE 9
CONSTRUCTION COST ITEMS

ITEM		NOTE
Base Construction Cost (G)	Earthworks	
	Pavement	Including asphalt surfacing
	Islands & Medians	
	Kerb & Channel	
	Pavement Marking & Signs	
	Paths	For use by pedestrians and cyclists
	Route Lighting	
	Roadside Furniture	Seating, guard rails, fencing, driveways etc.
	Landscaping	Street trees, turf and mulch (and associated establishment)
	Service Relocations	Water, sewer, gas, electricity, telecommunication, oil, bus stops
	Drainage	Associated with the drainage of the road surface
	Supplementary Items	Allowance to cover small items that have not been measured
	Contractor Site Facilities	Site office establishment, equipment storage, parking, security
	Traffic control and management	
Structures (H)		Bridges and culverts. Does not include fauna crossing structures.
Major Intersections (I)		Traffic signals, roundabout or channelisation

The unit rates for each construction cost item were based on a benchmarking exercise undertaken on some constructed projects. The results of this benchmarking exercise were then recalculated to cover additional road project types to give an overall rate per linear metre per road type. All rates are based on 2016 values. Further information on this benchmarking exercise is outlined in *Appendix B.*

6.3 PROJECT OWNER COSTS

Project owner costs are those costs not associated directly with the construction of the project but form part of the overall cost of a project. This includes survey, design and project management costs. Figure 10 outlines the allowance includes in the order of cost estimate for new and existing projects.

FIGURE 10
PROJECT OWNER COST ALLOWANCE FOR NEW PROJECTS

ITEM	ALLOWANCE *	
	New	Existing
Planning	3%	0%
Survey	2%	2%
Geotechnical Investigations	3%	1%
Detailed Design	8%	5%
Project Management	6%	6%
Environmental	1%	1%
TOTAL	**23%**	**15%**

** % of construction cost*

6.4 RISK MANAGEMENT

The cost estimate for each project includes an allowance for risk management. This is a contingency to cover any unidentified items or unforeseen events that may occur during the design and construction of a project.

The level of risk involved with each project will depend on the phase in which the project is in its delivery cycle. For example, a project simply identified as a line on a map in iGO with no detailed planning or design work having been undertaken will have a higher risk than a project that is nearing construction and in which detailed design and other technical investigations have been undertaken.

The level of risk management allocated to each project is outlined in Figure 11.

FIGURE 11
RISK MANAGEMENT ALLOWANCE FOR EACH PROJECT PHASE

PROJECT PHASE	ALLOWANCE *
Project Identification	30%
Concept Planning	25%
Preliminary Design	20%
Detail Design	10%
Constructed	0%

** percentage of construction and project owner costs*

6.5 LAND ACQUISITIONS

Many trunk road projects included in the LGIP will involve some form of private land to facilitate the required footprint and configuration. The approximate amount of land required to be acquired for each project is identified in the LGIP Schedule of Works.

The value of this land was identified using the *Local Government Infrastructure Plan – Land Valuation Study May 2015*. The land acquisition cost does not include a compensation amount to the land owner associated with injurious affection which can sometimes be more that the actual value of the land as part of a property resumption process.

6.6 GRANTS

An item has been included in the cost estimates within the LGIP Schedule of Works where it has been identified that a project has or will be receiving a grant from the Australian Government or Queensland Government. Where a grant has been identified, the overall project cost has been reduced accordingly. Where an unforeseen grant is received in the future, the overall project cost will be adjusted in the next review of the LGIP.

7. SERVICE CATCHMENTS

The ISTM consists of 592 traffic zones. To enable easier referencing, calculation and administration of road infrastructure contributions, these traffic zones have been amalgamated into 32 service catchments across the city.

The LGIP road service catchments are outlined in Figure 12 and mapped in *Appendix C*. They follow natural geographic and traffic catchment boundaries as much as possible. The proportional traffic zone use of each link in the 'ultimate' future year road network is then averaged over their respective catchment.

FIGURE 12
SERVICE CATCHMENT

NO.	NAME
1	Carole Park Industrial
2	Camira
3	Springfield
4	Goodna - Gailes
5	Bellbird Park
6	Redbank Industrial
7	Redbank - Riverview
8	Collingwood Park - Redbank Plains North
9	Redbank Plains South
10	New Chum Industrial
11	Swanbank Industrial
12	Ripley Valley - Deebing Creek (Non-PDA)
13	Karalee - Chuwar
14	Bundamba Industry
15	Basin Pocket - East Ipswich - North Booval - Bundamba North
16	Dinmore - Bundamba South - Blackstone - Booval - Silkstone
17	Yamanto - Raceview - Flinders View - Churchill
18	North Ipswich (North) - Tivoli - Raymonds Hill
19	North Ipswich (South) - Ipswich Central - West Ipswich
20	Leichhardt-One Mile
21	Woodend - Sadliers Crossing - Coalfalls
22	Brassall - Wulkuraka
23	Pine Mountain-Muirlea-Blacksoil North
24	Walloon - Karrabin
25	Karrabin - Wulkuraka Industry
26	Amberley
27	Purga - Peak Crossing
28	Marburg - Ironbark - Haigslea
29	Rosewood East - Thagoona
30	Willowbank - Ebenezer
31	Grandchester - Rosewood West
32	Ripley Valley (Priority Development Area)

8. COST ALLOCATION

8.1 METHODOLOGY

The allocation of costs of the road projects included in the LGIP is based on the total establishment cost of the ultimate road network apportioned across all ultimate users of the network. Establishment costs associated with 'external' road network users are funded outside the LGIP charging process.

Existing Users = trips generated by the existing population in 2016 within the City of Ipswich

External Users = trips ends that have an origin or destination outside of the City of Ipswich

New Users = trips generated by development after 30 June 2016 with either an origin or destination trip end in the City of Ipswich

8.2 PROCESS

The ISTM was used to determine the use of each identified project by the future demographics forecast for each traffic zone and then apportioned across each service catchment. This process (known as a 'select zone assignment') was undertaken within the EMME/3 program to identify the number of trip ends from each traffic zone using each link in the ISTM in the 'ultimate' future year and then determining whether each trip was generated by an existing, external or new user.

The process used to calculate the asset usage of each service catchment was:

(a) A series of select zone assignments was carried out simultaneously for all traffic zones within each service catchment resulting in total trip origins and destinations for each service catchment in the model. Intersections were treated by considering all traffic leaving the intersection via all intersection legs.

(b) The select zone assignment data was imported into an MS Access database along with base and future year forecast total trip ends by model zone and sector definitions.

(c) A series of relational queries were carried out that distributed project usage to future forecast trip ends. Heavy commercial vehicle trip ends were weighted by a factor of three. The service catchment at each end of the trip is therefore attributed with half of the respective use of each link along the route.

For each road project, the estimated asset usage of each road project by each service catchment is outlined in the LGIP Schedule of Works. These proportions were then translated into a cost allocation.

9. PROJECT TIMINGS

The indicative timeframe (in five year increments – 2021, 2026, 2031, 2036 and 2041) in which each project is estimated to be required to be open to traffic to meet the desired standards of services assigned to the ISTM is outlined in the LGIP Schedule of Works.

Projects that are required to service the ultimate forecast development have been assigned a 2041 delivery year for financial modeling purposes. These project timings will be used by Council to:

- Develop the annual *Ten Year Transport Infrastructure Investment Plan*;
- Prepare annual *capital works portfolios* and budgets;
- Determine the benefits of entering into an *Infrastructure Agreement* with a developer to construct trunk roadworks; and
- Calculate project 'bring forward costs' when preparing an Infrastructure Agreement.

10. OTHER MATTERS

There are a number of matters outlined below that need to be included in this document for noting.

10.1 BEST INFORMATION AT THE TIME

The transport (road) component of the LGIP was prepared using the best information available at the time. This includes information relating to regional and local land use planning, demographics, future regional road network projects, cost estimates, regional travel patterns and state government policies and initiatives. If and when more detailed and up-to-date information becomes available, the transport (roads) component of the LGIP will be amended accordingly.

10.2 PROJECT FEASIBILITY

The LGIP is a citywide document and its transport (road) component is based on strategic network planning. Many of the trunk road projects identified in the LGIP are simply a 'line on a map' showing its high level network intent. These projects will require further detailed corridor planning, route analysis, feasibility investigations and stakeholder consultation to be undertaken before the project is considered practical and suitable for further investment programming.

There are also a number of trunk road projects included in the LGIP where the preferred cross section or scope of works may be difficult or impractical to achieve from a community, economic, engineering or environmental perspective and some design and/or delivery compromises may need to be made.

However, due to the long term nature of the LGIP, and until more detailed planning is undertaken on a project by project basis to identify their feasibility, all road projects have been listed in the LGIP with the knowledge that funds charged for some projects may need to be diverted to more practical transport projects such as an alternative but as yet unidentified road corridor, public transport services / facilities, a commuter bikeway or a travel demand management initiative. These matters will be picked up in future amendments of the LGIP accordingly.

10.3 STATE-CONTROLLED ROAD NETWORK ASSUMPTIONS

The assumed future road network upgrades on the State controlled network align with those outlined in iGO which was developed in consultation with the Queensland Government.

However, to ensure the ISTM could be made to work properly in the 'LGIP Ultimate', Council had to make some assumptions on the future State-controlled road network which are outlined in *Appendix F.*

10.4 CORRIDOR PRESERVATION

As previously outlined, the road projects included in the LGIP form the 'ultimate' future road network required to service the travel demands generated by the land-use outcomes of the current Ipswich Planning Scheme and associated demographic projections.

As more detailed land-use and transport planning activities are undertaken by Council and other levels of government, the land-use designations and the demographic carrying capacity of the Ipswich Planning Scheme may change. These may include the future designation of land for urban purposes that currently lie outside the SEQ Regional Plan 'urban footprint' and the intensification of development opportunities in major centres and areas designated for 'transit orientated development'.

As such, there are a number of transport corridors that will be preserved by Council and other levels of Government that do not form part of the 'ultimate' road network included in the LGIP. It would be prudent for Council to preserve these corridors to ensure they are not precluded from any future road network required to service an amended SEQ Regional Plan or the Ipswich Planning Scheme.

Appendix A - MODELLING TECHNICAL NOTE

ICC Local Government Infrastructure Plan Road Network Modelling & Construction Rates Update

Ipswich City Council

LGIP Road Network Modelling Technical Note

IH094200-0001-CT-RP-0001 | 0

28 January 2017

14-15-218

ICC Local Government Infrastructure Plan Road Network Modelling & Construction Rates Update

Project No:	IH094200
Document Title:	LGIP Road Network Modelling Technical Note
Document No.:	IH094200-0001-CT-RP-0001
Revision:	0
Date:	28 January 2017
Client Name:	Ipswich City Council
Client No:	14-15-218
Project Manager:	Matt Ryan
Author:	Matt Ryan
File Name:	F:\IE\Projects\05_Northern\IH094200\21 Deliverables\Reports\IH094200-0001-CT-RP-0001-ICC LGIP Road Network Modelling_Rev0.docx

Jacobs Group (Australia) Pty Limited
ABN 37 001 024 095
32 Cordelia Street
PO Box 3848
South Brisbane QLD 4101 Australia
T +61 7 3026 7100
F +61 7 3026 7300
www.jacobs.com

Document history and status

Revision	Date	Description	By	Review	Approved
A	25/01/2017	Initial draft.	M. Ryan		
B	27/01/2017	Updated draft	M. Ryan	A. Pollock	
0	28/01/2017	Technical Note for client issue	M. Ryan	A. Pollock	J. McEvoy

Contents

Important note about your report

The sole purpose of this report and the associated services performed by Jacobs is to undertake road network modelling to inform the Ipswich Local Government Infrastructure Plan, in accordance with the scope of services set out in the contract between Jacobs and the Client. That scope of services, as described in this report, was developed with the Client.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs derived the data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

This report has been prepared on behalf of, and for the exclusive use of, Jacobs's Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

1. Introduction

Ipswich City Council (Council) is currently preparing the Ipswich Local Government Infrastructure Plan (LGIP) and has identified the need to undertake strategic road network modelling for a series of forecast years (Ultimate development, 2036 and 2031) to identify the future strategic road network/s required to support the forecast population and employment growth.

Jacobs was commissioned by Ipswich City Council (ICC) to undertake transport modelling to inform the LGIP. This technical note summarises the work undertaken as part of this project.

The Ipswich Strategic Transport Model (ISTM) was used to perform the analysis, along with a custom built Microsoft Access Database for processing model results and analysis of road network usage by contribution sectors. This database had been previously prepared for the LGIP work carried out in 2009 by Jacobs (formerly Sinclair Knight Merz), and was simply updated with new model outputs and road network upgrade details for the 2016 study.

For further details on the Microsoft Access Database tool, the reader is referred to the user guide produced by Sinclair Knight Merz (SKM) in 2010 entitled *"Road Infrastructure Contributions Policy – Charges Calculation Process*".

The ISTM was recently updated by Jacobs for the preparation of Ipswich's Transport Plan 'iGO', and this model was used as the basis for the LGIP modelling. The ISTM had been validated to a 2011 base year; and future year models for 2021, 2026 and 2031 had also been previously developed. New demographic data has been produced since the iGO modelling was undertaken, and this data was to be incorporated into the LGIP modelling in order to understand future network upgrade requirements for 2031, 2036 and also for an Ultimate development horizon.

2. Transport Modelling Methodology

A number of tasks were required to be undertaken as part of the LGIP Road Network Modelling. A brief outline of these tasks is provided below.

2.1.1 Review of demographic forecasts

ICC recently undertook a review of demographic forecasts for the Ipswich Local Government Area (LGA). This data was reviewed to confirm that it was suitable for input to the ISTM, particularly data related to household workers and dependants.

2031, 2036 and Ultimate datasets supplied by ICC were reviewed to check for suitability. Following review of the Ultimate demographic dataset it was found that the employment forecasts were largely imbalanced with the population forecasts. This was due to the fact that Ultimate population forecasts (based on existing land supplies within the Ipswich Planning Scheme) were due to be reached by around 2046, however Ultimate job growth could continue with ultimate forecasts not expected to be reached until approximately 2060. This represents a substantial increase in total jobs for the Ipswich Local Government Area (LGA), which is expected to be balanced by continued population growth across the entire South East Queensland (SEQ) region.

The demographic totals forecast for the Ipswich LGA, as originally supplied, are presented below.

Table 2.1: ISTM Ipswich LGA demographic totals forecast

Demographic Totals	Population	Employment
2011	172,009	49,815
2016	202,167	68,593
2021	270,777	93,052
2026	354,171	118,089
2031	435,850	153,334
2036	470,611	193,909
Ultimate	518,670	356,774

Given the discrepancy in growth at the Ultimate horizon, and the timing of this expected growth, a revised Ultimate dataset was produced. Population for 2041 was produced, along with job totals for 2041. A 2046 dataset was then produced for both population and jobs to reflect Ultimate development for the purposes of LGIP modelling. Population for 2046 was taken as the ultimate population (as originally supplied), and job growth was capped at 2041 levels for Ebenezer, with other areas increasing to ultimate levels. Data beyond 2041 was not available for SEQ LGA's outside Ipswich, and therefore growth needed to be capped to allow for more robust and reliable testing in the ISTM. The 2046 time horizon therefore became the Ultimate time horizon for LGIP scenario testing.

The demographic totals from the additional datasets produced are provided below.

Table 2.2: ISTM Ipswich LGA demographic totals forecast

Demographic Totals	Population	Employment
2041	495,959	260,457
2046 (LGIP Ultimate)	518,670	292,523
Ultimate	*518,670*	*356,774*

It should be noted that despite this adjustment, there is still a very substantial growth in employment within Ipswich compared with population over time, and this will have significant impacts on future trip distribution patterns compared with current travel behaviours and distribution, including a large increase in external trips coming into the region for employment opportunities.

The ISTM does also cover a large component of network outside the Ipswich LGA, and demographics to 2041 were provided by TMR (based on Queensland Government Statistician's Office 2015 edition projections) for zones outside the Ipswich LGA. Since 2046 data was not available from TMR, the 2041 forecasts were used in the Ultimate network scenarios tested. Whilst this is not ideal from a strategic modelling point of view, the approach was considered acceptable for the purposes of this study, given the reasonably small difference in population growth for Ipswich between 2041 and 2046.

2.1.2 Review of ISTM traffic zone system

Strong future development areas such as Ripley and Springfield previously contained quite large zones in some instances within the ISTM. A review of zone sizes in these and other strong growth areas (guided by the demographic forecast updates) was undertaken including a review of trip generation by zone for the longer term horizons. Following this analysis, it was determined that several zones should be split (as well as supporting road network added) to allow more refined modelling of access to the transport network, and to avoid major gridlock from occurring on the network due to insufficient local link capacity.

This update also involved a change to zone sector systems, with a new sector 32 added to the Infrastructure Charging Schedule (ICS) zone sector system for determining infrastructure contributions by link in the network.

A map of the ISTM zones is provided below showing where zones were split compared to the previous version of the model. Note, some zones were realigned to better match latest development plans for future development areas. Total zones in the ISTM increased from 2102 to 2174, an increase of 72 zones within the Ipswich LGA.

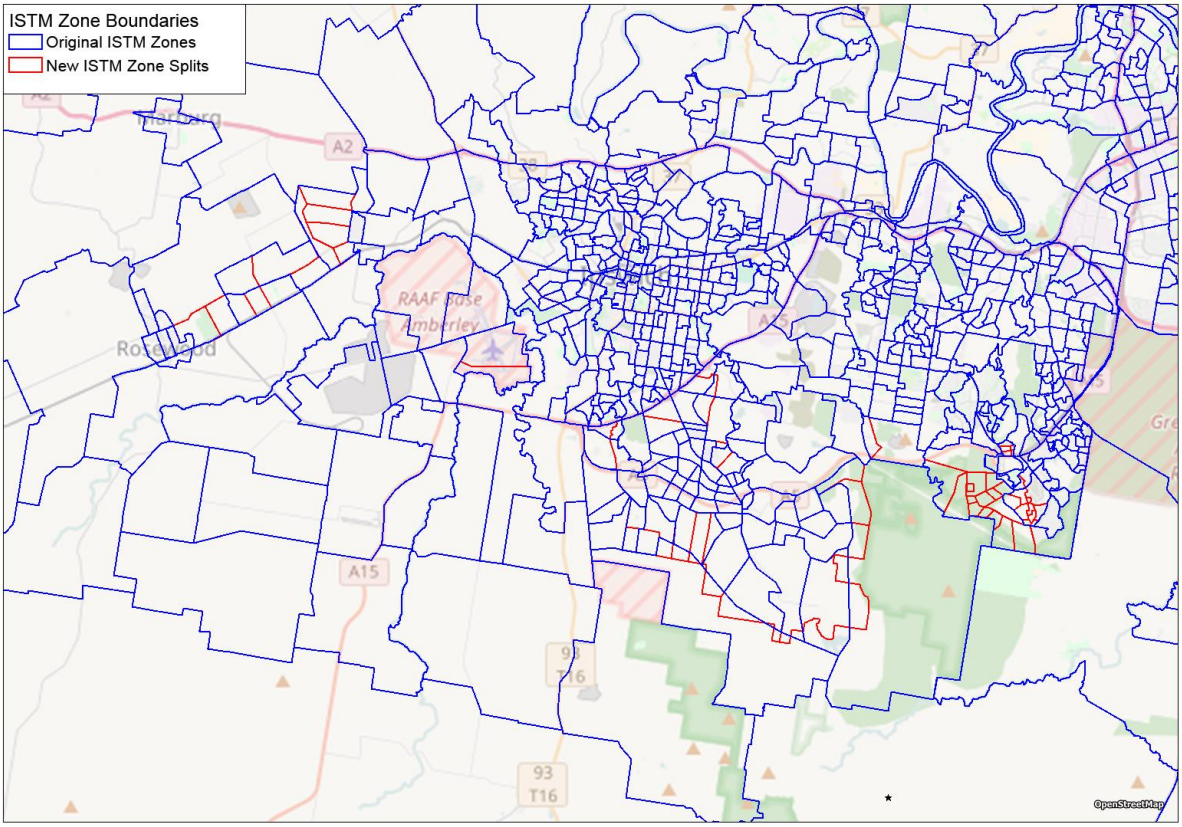


Figure 2-1: New ISTM zone splits

2.1.3 Ultimate development scenario

In order to prepare and run an ultimate development scenario for the purposes of the LGIP, demographic inputs were required (discussed in Section 2.1.1), along with associated model inputs for the agreed ultimate time horizon (2046). This allowed updates to be made to external traffic flows and special generator inputs. Mode shares used in the model were based on the iGO mode share targets at 2031 (25% of trips on average by public or active transport, with target mode shares differing by activity precinct type).

A model scenario was produced to determine network level of service against the ultimate demographic inputs, and based on these outputs a number of iterations were undertaken to determine the road upgrade requirements in order to achieve a desired Level of Service (LOS) D across the network. Note, LOS D is calculated through the ISTM as any link with a volume/capacity ratio lower than 0.9. The ultimate network included a range of assumed upgrades to the State Controlled Road Network, as detailed in the table below.

Table 2.3 Assumed State Controlled Road Network upgrades for ultimate network

Road Name	Description of Upgrade
Cunningham Highway	6 lanes Dinmore to Yamanto
Cunningham Highway	8 lanes Yamanto to Western Ipswich Bypass (WIB)
Cunningham Highway	4 lanes west of WIB
Warrego Highway	6 lanes Dinmore to Brisbane Valley Highway
Warrego Highway	4 lanes west of Brisbane Valley Highway
Western Ipswich Bypass	4 lanes Warrego Highway to Cunningham Highway (including Centenary Highway connection – see below)
Centenary Highway	6 lanes ICC boundary to Yamanto (Ipswich Boonah Road) *Note Centenary Highway also extended to connect with WIB
Ipswich Motorway	8 lanes from ICC boundary to Dinmore
Moggill Pocket Arterial	2 lanes Warrego Highway to ICC boundary
Warrego to Cunningham Connection	4 lanes
River Road – Dinmore	2 lanes Warrego Highway to Cunningham Highway
Brisbane Road	6 lanes Ipswich Motorway to South Station Road
Brisbane Road	4 lanes South Station Road to Chermside Road
Warwick Road	6 lanes Cunningham Highway to Salisbury Road
Warwick Road	4 lanes from Salisbury Road to Churchill Street
Mount Crosby Road	4 lanes Brisbane River to Downs Street
Downs Street / Pine Mountain Road / Fernvale Road	4 lanes David Trumpy Bridge to Warrego Highway
Karrabin Rosewood Road	4 lanes Dixon Street Wulkuraka to John Street Rosewood

Based on the State network assumptions and the agreed demographic inputs, a list of ultimate network Ipswich City Council controlled road network upgrades was developed.

This project list is included at **Appendix A**. Model outputs (Level of Service plots) are provided at **A.2**.

2.1.4 Ultimate development scenario with current mode shares

The ultimate scenario was also tested with current (base) mode shares, not the aspirational target mode shares identified in iGO. Current mode shares for public and active transport combined based on the South East Queensland Travel Survey (2011) are 17%. It was important to test this scenario to understand what the network impacts would be if these target mode shares are not attained. Level of Service outputs from this scenario are also provided in **Appendix B**.

2.1.5 Proportional use of upgraded/new road links for the ultimate network

A key part of the LGIP process was to determine the proportional usage of links by agreed traffic contribution sectors across the Ipswich LGA. This task involved the use of a database processing tool previously established by Jacobs for the LGIP work undertaken in 2010. The traffic contribution sectors were defined by ICC and included a total of 32 internal sectors. These sectors are included in **Figure 2-2** (source ICC).

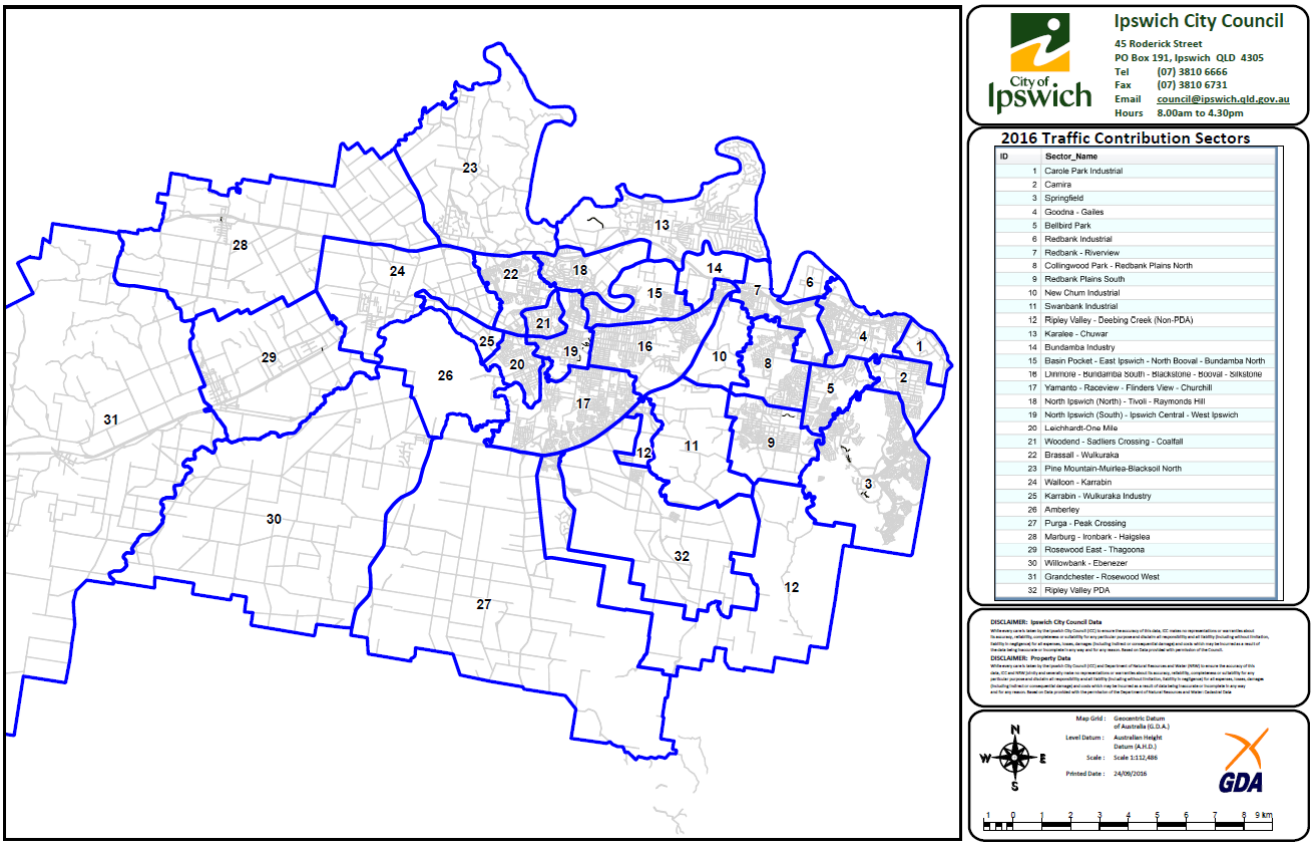


Figure 2-2: ICC traffic contribution sectors for infrastructure charging schedule

The process developed is capable of being easily re-run when additional links are included as requiring upgrade or new construction (however this does also require a transport model re-run to include the new or upgraded links and the resulting impact of these inclusions).

Outputs from this process showing sector contributions by new road construction project are included at **Appendix C**.

2.1.6 Interim year model runs

A range of interim year models were also developed with updated model inputs including latest demographics from ICC and the State Government using Queensland Government Statistician's Office 2015 edition projections. Models developed included 2021, 2026, 2031 and 2036. Road network upgrades included in these

forecast years for the Ipswich region are listed in **Appendix A** within the “Indicative Timing” column of the table. Further detail is also provided in the ISTM model log spreadsheet supplied with the model.

Models were run for each of these horizons with current mode shares and also with the iGO mode share targets as previously developed through the iGO study. Level of Service outputs for the AM and PM peaks for each of these forecast model runs are provided in **Appendix B**.

3. Summary

Strategic transport modelling was undertaken using the Ipswich Strategic Transport Model (ISTM) to inform the Ipswich City Council (ICC) Local Government Infrastructure Plan (LGIP).

A range of network scenarios were tested including forecast model runs for 2021, 2026, 2031, 2036 and 2046 (Ultimate), applying both the iGO mode share targets along with current mode share targets at each time horizon. The ultimate network scenario was used to determine road network upgrade requirements for the ICC network, and these upgrades were analysed to produce summary tables which provide the proportional usage of each road project by traffic contribution sectors across the ICC Local Government Area.

Appendix A. ICC Ultimate Network Upgrades

A.1 ICC New Road Links

Legend

Ripley PDA Boundary Roads or Ripley Sub-Regional infrastructure

Ripley PDA Roads

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
1	Springfield-Greenbank Arterial (D-F-G)	Springfield Parkway (D) to Main Street (G)	Springfield	New 2 lane road	2006
2	Springfield-Greenbank Arterial (D-F-G)	Springfield Parkway (D) to Main Street (G)	Springfield	Upgrade to 4 lanes	2020
3	Springfield-Greenbank Arterial (G-M)	Main Street (G) to Sinnathamby Boulevard (M)	Springfield Lakes	New 2 lane road	2006
4	Springfield Greenbank Arterial (G-M)	Main Street (G) to Sinnathamby Boulevard (M)	Springfield Lakes	Upgrade from 2 lanes to 6 lanes	2022
5	Springfield-Greenbank Arterial (M - ICC boundary)	Sinnathamby Boulevard (M) to ICC Boundary	Springfield Lakes	New 2 lane road	2006
6	Springfield-Greenbank Arterial	Sinnathamby Boulevard (M) to Springfield Central Boulevard	Springfield Lakes	Upgrade to 4 lanes	2016
7	Springfield-Greenbank Arterial	Springfield Central Boulevard to Grande Avenue	Springfield Lakes	Upgrade to 4 lanes	2031
8	Springfield-Greenbank Arterial	Grande Avenue to ICC Boundary	Springfield Lakes	Upgrade to 4 lanes	2041
9	Centenary Highway (B-C)	Logan Motorway (B) to Springfield Lakes off ramp (C1)	Springfield	New 2 lane road	2006
10	Centenary Highway (C-L-I)	Springfield Lakes off ramp (C1) to Augusta Parkway (I)	Springfield	New 2 lane road	2006
11	Springfield Parkway (E-D)	Old Logan Road (E) to Springfield-Greenbank Arterial (D)	Springfield	New 2 lane road	2006
12	Springfield Parkway (E-D)	Old Logan Road (E) to Springfield-Greenbank Arterial (D)	Springfield	Upgrade to 4 lanes	2021
13	Springfield Parkway (D-C)	Springfield Greenbank Arterial (D) to Centenary Highway (C)	Springfield	New 2 lane road	2006
14	Springfield Parkway (D-C)	Springfield Greenbank Arterial (D) to Centenary Highway (C)	Springfield	Upgrade to 4 lanes	2023
15	Springfield Lakes Interchange	Centenary Highway Interchange at Springfield Parkway	Springfield Lakes	On / off ramps	2006
16	Springfield Town Centre Eastern Interchange - Westbound Off ramp	Centenary Highway to Springfield-Greenbank Arterial (G)	Springfield Lakes	Off ramp	2006
17	Eden Station Drive	Augusta Parkway (J) to Springfield Greenbank Arterial (F)	Springfield	New 2 lane road	2014
18	Eden Station Drive	Augusta Parkway (J) to Springfield Greenbank Arterial	Springfield	Upgrade to 4 lanes	2031

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
		(F)			
19	Augusta Parkway & Jones Road (K-J-I)	Redbank Plains Rd (K) to Centenary Highway (I)	Augustine Heights	New 2 lane road	2006
20	Jones Road (K-K1)	Redbank Plains Road to Augusta Parkway	Bellbird Park	Upgrade to 4 lanes	2007
21	Augusta Parkway	Jones Road (K1) to Tournament Drive	Augustine Heights	Upgrade to 4 lanes	2008
22	Augusta Parkway	Tournament Drive to Centenary Highway (J)	Augustine Heights	Upgrade to 4 lanes	2008
23	Sinnathamby Boulevard (M-H)	Springfield Greenbank Arterial (M) to Main Street (H)	Springfield Central	New 4 lane road	2006
24	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	Main Street (H) to Eden Station Drive (J)	Springfield Central	New 2 lane road	2006
25	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	Main Street (H) to Eden Station Drive (J)	Springfield Central	Upgrade to 4 lanes	2024
26	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	Main Street (H) to Eden Station Drive (J)	Springfield Central	Upgrade to 6 lanes	2041
27	Springfield Town Centre Western Interchange "Southern Loop Road"	Centenary Highway to Sinnathamby Boulevard (H)	Springfield Central	Off ramp	2006
28	Springfield Town Centre Western Interchange	Sinnathamby Boulevard (H) to Centenary Highway	Springfield Central	New west facing on ramp	2011
29	Springfield Town Centre Western Interchange	Centenary Highway to Augusta Parkway (J)	Springfield Central	New east facing off ramp	2011
30	Main Street / Southern Cross Circuit (G)-(H)	Springfield Greenbank Arterial (G) to Sinnathamby Boulevard (H)	Springfield Central	New 2-4 lane road	2006
31	Southern Cross Circuit	Main Street to North Star Crossing	Springfield Central	Footpath works	2015
32	Nev Smith Drive	Old Logan Road to Woodcrest Way	Springfield	New 2 lane road	2006
33	Redbank Plains Road - Queen Street	Alice Street to Brennan Street	Goodna	Upgrade to 2 lane urban road standard	2031
34	Redbank Plains Road	Kruger Parade to Jansen Street	Redbank Plains	Upgrade to 4 lanes	2019
35	Redbank Plains Road	Jones Road to West Street	Redbank Plains	Upgrade to 4 lanes	2016
36	Redbank Plains Road - Stage 1	West Street to Cedar Road	Redbank Plains	Upgrade to 4 lanes	2016
37	Redbank Plains Road - Stage 2	Cedar Road to School Road	Redbank Plains	Upgrade to 4 lanes	2017
38	Redbank Plains Road	Six Mile Creek	Redbank Plains	New 2 lane bridge and approach works	2015
39	Redbank Plains Road	New Hill Drive to Storey Street	Swanbank	Upgrade to 2 lane urban road standard	2023
40	Redbank Plains Road	Cunningham Highway to New Hill Drive	Redbank Plains	New 2 lane road	2012
41	Redbank Plains Road	Cunningham Highway to Greenwood Village Road	Redbank Plains	Upgrade to 4 lanes	2031
42	Redbank Plains Road	Greenwood Village Road to Collingwood Drive	Redbank Plains	Upgrade to 4 lanes	2036
43	Redbank Plains Road	Cunningham Highway to New Hill Drive	Redbank Plains	Upgrade to 6 lanes	2041
44	Mount Juillerat Drive	First 80m from Augusta Parkway	Augustine Heights	New 2 lane road	2015
45	Mount Juillerat Drive	Augusta Parkway to St Augustines Drive	Augustine Heights	New 2 lane road	2015

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
46	Mount Juillerat Drive	Santa Monica Drive to Woogaroo Creek	Augustine Heights	Land dedication	2010
47	Mount Juillerat Drive	St Augustines Drive to Santa Monica Drive	Augustine Heights	New 2 lane road	2024
48	Mount Juillerat Drive	Santa Monica Drive to Keidges Road	Augustine Heights	New 2 lane road (4 lane corridor)	2031
49	Mount Juillerat Drive	Keidges Road to Cedar Road	Redbank Plains	New 2 lane road (4 lane corridor)	2031
50	Mount Juillerat Drive	Cedar Road to Saddleback Avenue	Redbank Plains	New 2 lane road (4 lane corridor)	2014
51	Mount Juillerat Drive	Saddleback Avenue to School Road	Redbank Plains	New 2 lane road	2016
52	Mount Juillerat Drive	School Road to western boundary of Mountview shopping centre	Redbank Plains	New 2 lane road (4 lane corridor)	2012
53	Mount Juillerat Drive	Western boundary of Mountview shopping centre to Regents Drive (G-H)	Redbank Plains	New 2 lane road (4 lane corridor)	2016
54	Mount Juillerat Drive	Stage 5 northern boundary to Edens Crossing Major Collector	Redbank Plains	land dedication & bulk earthworks	2016
55	Mount Juillerat Drive	Regents Drive to Swanbank Boulevard	Redbank Plains	New 2 lane road (4 lane corridor)	2021
56	Centenary Highway Link Road "temporary"	Mount Juillerat Drive to Centenary Highway	Swanbank	"Interim" 2 lane road	2021
57	Swanbank Boulevard	Mount Juillerat Drive to Centenary Highway	Swanbank	New 4 lane road "Ultimate"	2036
58	School Road	Redbank Plains Road to Alawoona Street	Redbank Plains	Property Acquisition	2008
59	School Road	Redbank Plains Road to Alawoona Street	Redbank Plains	Upgrade to 2 lane urban road standard (4 lane corridor)	2024
60	School Road	Alawoona Street to Fernbrooke Boulevard	Redbank Plains	New 4 lane road - Partial Construction	2011
61	School Road	Alawoona Street to Fernbrooke Boulevard	Redbank Plains	New 4 lane road - Partial Construction	2010
62	School Road	Fernbrooke Boulevard to Mount Juillerat Drive	Redbank Plains	New 3 lane road	2012
63	School Road	Fernbrooke Boulevard to Mount Juillerat Drive	Redbank Plains	Upgrade to from 3 to 4 lanes	2036
64	Keidges Road	Lillian Street to Brittians Road	Redbank Plains	Upgrade to 4 lanes	2026
65	Keidges Road	Brittians Road to Mount Juillerat Drive	Redbank Plains	Upgrade to 4 lanes	2031
66	Keidges Road Extension	Mount Juillerat Drive to Centenary Highway	Redbank Plains	New 2 lane road	2041
67	Jones Road	15 Rockford Drive to 30 Jeff Collins Circuit (eastern side)	Bellbird Park	Upgrade to urban road standard (eastern side)	2010
68	Jones Road	107 Jones Road (eastern side)	Bellbird Park	Upgrade to urban road standard (eastern side)	2015
69	Jones Road	Harris Street to Happy Jack Gully (eastern side)	Bellbird Park	Upgrade to urban road standard (eastern side)	2016

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
70	Jones Road	248-272 Jones Road (western side)	Bellbird Park	Upgrade to urban road standard (western side)	2016
71	Jones Road	Augusta Parkway to Happy Jack gully (western side)	Bellbird Park	Upgrade to urban road standard (western side)	2031
72	Jones Road / Church Street	Happy Jack Gully to Alice Street	Bellbird Park	Upgrade to 2 lane urban road standard	2031
73	Brennan Street	Redbank Plains Road to Jones Road	Bellbird Park	Upgrade to 2 lane urban road standard	2031
74	Alice Street	Parker Street to Old Logan Road	Gailes	New 2 lane road	2006
75	Smiths Road Extension	Stuart Street to Collingwood Drive	Goodna	New 2 lane road	2011
76	Smiths Road	Doyle Street (Cunningham Rise)	Goodna	Property, Kerb & Channel and Widening	2013
77	Monash Road	Brisbane Terrace to Ipswich Motorway Northern Alternative	Redbank	New 2 lane road	2014
78	Old Ipswich Road Extension	Duncan Street to Collingwood Drive	Riverview	New 2 lane road	2006
79	Pottery Road / Jacob Street	Aberdare Street to Old Ipswich Road	Riverview	Upgrade to 2 lane urban road standard	2031
80	Collingwood Drive	Drysdale Avenue to Duncan Street	Collingwood Park	Upgrade to 4 lanes	2009
81	Collingwood Drive	Goss Drive to Eagle Street	Collingwood Park	Upgrade to 2 lane urban road standard	2031
82	Collingwood Drive Extension - Stage 1	Eagle Street to Woodlinks Way	Collingwood Park	New 2 lane road	2013
83	Collingwood Drive Extension - Stage 1	Eagle Street to Woodlinks Way	Collingwood Park	Upgrade to 4 lanes	2041
84	Collingwood Drive Extension - Stage 2	Woodlinks Way to Redbank Plains Road	Collingwood Park	New 2 lane road	2015
85	Collingwood Drive Extension - Stage 2	Woodlinks Way to Ted Magee Drive	Collingwood Park	Upgrade to 4 lanes	2036
86	Eagle Street	Collingwood Drive to Kruger Parade	Collingwood Park	New 2 lane road	2028
87	Eagle Street	Kruger Parade to Elkhorn Street	Collingwood Park	New 2 lane road	2008
88	Kruger Parade	Eagle Street to Namatjira Drive	Redbank Plains	Upgrade to 2 lane urban road standard	2031
89	Mary Street	Thomas Street to William Street	Blackstone	Upgrade to 4 lanes	2031
90	Mary Street	William Street to Cunningham Highway	Blackstone	Upgrade to 4 lanes	2031
91	Mary Street	William Street to Cunningham Highway	Blackstone	Upgrade to 6 lanes	2041
92	Thomas Street	Mary Street to Creek Street	Silkstone	Upgrade to 4 lanes	2041
93	Robertson Road Extension	South Station Road to Thomas Street	Blackstone	New 2 lane road	2028
94	Robertson Road	Chermside Road to South Station Road	Raceview	Upgrade to 4 lanes	2036
95	South Station Road	Robertson Road to Cascade Street	Raceview	Upgrade to 4 lanes	2041
96	South Station Road	Cascade Street to Owen Street	Raceview	Upgrade to 4 lanes	2036

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
97	Thorn Street	Brisbane Street to Gray Street	Ipswich	Upgrade to 4 lanes	2041
98	Brisbane Street	Keogh Street to northern boundary of Home HQ	West Ipswich	Road widening, kerb & channel and land dedication	2010
99	Brisbane Street	Clay Street to Burnett Street	West Ipswich	Road widening, kerb & channel and land dedication	2015
100	Brisbane Street	Hooper Street to Clay Street	West Ipswich	Upgrade to 3 lanes	2018
101	Brisbane Street - Burnett Street	Hooper Street to Darling Street	West Ipswich	Upgrade to 4 lanes	2031
102	Old Toowoomba Road	Hooper Street to Lobb Street	One Mile	Upgrade to 4 lanes	2006
103	Old Toowoomba Road	Lobb Street to Toongarra Road	One Mile	Property Acquisition	2016
104	Old Toowoomba Road	Lobb Street to Toongarra Road	One Mile	Upgrade to 4 lanes	2017
105	Toongarra Road	Old Toowoomba Road to Samford Road	Leichhardt	Upgrade to 4 lanes	2031
106	Toongarra Road	May Street to Beirne Street	Wulkuraka	Upgrade to 4 lanes cross section	2016
107	Toongarra Road	Bernie Street to Dixon Street	Wulkuraka	Upgrade to 2 lane urban road standard	2016
108	Toongarra Road	Bernie Street to Dixon Street	Wulkuraka	Upgrade to 4 lanes	2031
109	Lobb Street Realignment	Lobb Street to Old Toowoomba Road	Churchill	Realign to Old Toowoomba Road	2041
110	Lobb Street	Warwick Road to Old Toowoomba Road	Churchill	Upgrade to 4 lanes	2036
111	Waterworks Road	Pine Mountain Road to Holdsworth Road	North Ipswich	Upgrade to 4 lanes	2026
112	Junction Road	Albatross Avenue to Torrens Street	Karalee	Upgrade to 2 lane urban road standard	2012
113	Junction Road	Torrens Street to Arthur Summervilles Road	Karalee	Upgrade to 2 lane urban road standard	2024
114	Junction Road	Mount Crosby To Essex Street	Karalee	Upgrade to 4 lanes	2036
115	Moggill Pocket Arterial Link Road	Junction Road to Moggill Pocket Arterial	Karalee	New 2 lane road	2041
116	Bayley Road Extension	Glenross Drive to Pine Mountain Road	Pine Mountain	New 2 lane road	2022
117	Pine Mountain Road	Warrego Highway to Bayley Road	Pine Mountain	Upgrade to 2 lane urban road standard	2016
118	Raceview Street	Cascade Street to Cemetery Road	Raceview	Upgrade to 4 lanes	2041
119	Sydney Street	Vogel Road to Gregory Street	Brassall	New 2 lane road	2006
120	Diamantina Boulevard	Fernvale Road to Aramac Street	Brassall	New 2 lane road	2011
121	Diamantina Boulevard Extension	Keswick Road to Aramac Street	Brassall	New 2 lane road	2027
122	Wulkuraka Connection Road	Karrabin - Rosewood Road - Warrego Highway	Karrabin	Upgrade to 2 lane urban road standard	2036
123	Hunter Street	Pine Mountain Road to Haig Street	Brassall	Upgrade to 4 lanes	2031
124	Pine Street	Delacey Street to The Terrace	North Ipswich	Upgrade to 4 lanes	2041

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
125	Roderick Street	Gordon Street to Burnett Street	Ipswich	Upgrade to 4 lanes	2041
126	Marsden Parade Realignment	Rail line to Gordon Street	Ipswich	Property Acquisition	2006
127	Marsden Parade Realignment	Rail line to Gordon Street	Ipswich	2 lane realignment	2019
128	Marsden Parade - Gordon Street	Bremer Street to Warwick Road	Ipswich	Upgrade to 4 lanes	2036
129	Olga Street	East Street to Bremer Street	Ipswich	Upgrade to 4 lanes	2036
130	Darling Street East	Ellenborough Street to Burnett Street	Ipswich	Upgrade to 4 lanes	2041
131	Burnett Street	Darling Street East to Brisbane Street	Ipswich	Upgrade to 6 lanes	2036
132	Burnett Street	Brisbane Street to Limestone Street	Ipswich	Upgrade to 4 lanes	2036
133	Chermside Road	Jacaranda Street to Brisbane Road	East Ipswich	Upgrade to 4 lanes	2036
134	Chermside Road	Brisbane Road to Blackstone Road	Eastern Heights	Upgrade to 4 lanes	2031
135	Chermside Road	Griffith Road to Salisbury Road	Eastern Heights	Upgrade to 4 lanes	2041
136	Lawrence Street - Norman Street	Downs Street to Jacaranda Street	North Ipswich / East Ipswich	Property Acquisition	2016
137	Lawrence Street - Norman Street	Downs Street to Jacaranda Street	North Ipswich / East Ipswich	New 4 lane road / bridge	2024
138	Jacaranda Street - Wattle Street	Chermside Road to Dudleigh Street	East Ipswich	Upgrade to 4 lanes	2036
139	Hamilton Street Extension	Dudliegh Street - Brisbane Road	Booval	New 4 lane road	2036
140	Salisbury Road Extension	Warwick Road to Moffatt Street	Ipswich	New 2 lane road	2031
141	Salisbury Road Extension - Moffatt Street - Hooper Street	Warwick Road to Brisbane Street	Ipswich	Upgrade to 4 lanes	2041
142	Hooper Street Extension	Brisbane Street to Grace Street	West Ipswich	New 2 lane road	2041
143	Sydney Street Extension	Grace Street to Gregory Street	Wulkuraka	New 2 lane road	2041
144	Ripley Road / Cunningham Highway Interchange	Cunningham Highway to Ripley Road (north facing ramps)	Ripley	On / off ramps	2006
145	Newhill Drive	Redbank Plains Road to Rob Roy Way	Swanbank	New 2 lane road	2014
146	Newhill Drive	Rob Roy Way to Swanbank Road	Swanbank	New 2 lane road	2026
147	Swanbank Boulevard (Southern Section)	Swanbank Road to Mount Juillerat Drive	Swanbank	New 2 lane road	2031
148	Swanbank Boulevard (Southern Section)	Swanbank Road to Mount Juillerat Drive	Swanbank	Upgrade to 4 lanes	2041
149	Swanbank Enterprise Park "East-West' Road	Swanbank Boulevard to Bundamba Creek	Swanbank	New 2 lane road	2036
150	North Station Road Extension	Winifred Street to Mount Crosby Road	North Booval	New 2 lane road	2041
151	Francis Street	Brisbane Road to Brisbane Terrace	Redbank	New 2 lane road	2014

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
152	Albion Street	Bremer River to Workshops Street	Brassall	Upgrade to 4 lanes	2022
153	Bertha Street	Mill Street to Alice Street	Goodna	Upgrade to 4 lanes	2031
154	Ebenezer Road 1	Cunningham Highway to Paynes Road	Ebenezer	New 2 lane road / 4 lane corridor	2041
155	Ebenezer Road 2	Paynes Road to Coopers Road	Ebenezer	New 2 lane road / 4 lane corridor	2041
156	Ebenezer Road 3	Coopers Road to Ipswich Rosewood Road	Ebenezer	New 2 lane road / 4 lane corridor	2041
157	Ebenezer Road 4 (Coopers Road)	Ebenezer Road 3 to Ebenezer Road 5	Ebenezer	New 2 lane road / 4 lane corridor	2041
158	Ebenezer Road 5	Cunningham Highway to Coopers Road	Ebenezer	New 2 lane road / 4 lane corridor	2041
159	Briggs Road	Parrott Street to Huxham Street	Raceview	Upgrade to 2 lane urban road standard	2016
160	Briggs Road	Huxham Street to Edwards Street	Raceview	Upgrade to 2 lane urban road standard	2021
161	Brisbane Terrace	Bridge Street to Woogaroo Creek	Goodna	Upgrade to 2 lane urban road standard	2031
162	Edwards Street Extension	Briggs Road to Warwick Road (Section A)	Raceview	New 2 lane road	2026
163	Edwards Street	Ripley Road to Briggs Road (Section B)	Raceview	Upgrade to 2 lane urban road standard	2026
164	Edwards Street	Ripley Road to Briggs Road (Section B)	Raceview	Upgrade to 4 lanes	2031
165	Ripley Road	Edwards Street to Cunningham Highway (Section C)	Raceview	Upgrade to 4 lanes	2031
166	Fischers Road	Swanbank Road to Scotts Road	Ripley	Upgrade to 2 lane urban road standard	2031
167	Pisasale Drive	Warwick Road to Cunningham Highway	Yamanto	New 2 lane road	2012
168	Pisasale Drive	Warwick Road to Cunningham Highway	Yamanto	Upgrade to 4 lanes	2036
169	Pisasale Drive	Cunningham Highway to Lakeview Drive	Deebing Heights	Sovereign Drive Intersection	2015
170	Pisasale Drive	Cunningham Highway to Lakeview Drive	Deebing Heights	Upgrade to 2 lane urban road standard	2031
171	Pisasale Drive	Cunningham Highway to Lakeview Drive	Deebing Heights	Upgrade to 4 lanes	2036
172	Grampian Drive	Lakeview Drive to Centenary Highway	Deebing Heights	Land Dedication	2015
173	Grampian Drive	Lakeview Drive to Centenary Highway	Deebing Heights	Upgrade to 2 lane urban road standard	2031
174	Grampian Drive	Lakeview Drive to Centenary Highway	Deebing Heights	Upgrade to 4 lanes	2036
175	Grampian Drive	Centenary Highway to Winland Drive	Deebing Heights	Upgrade to 2 lane urban road standard	2031
176	Grampian Drive	Centenary Highway to Winland Drive	Deebing Heights	Upgrade to 4 lanes	2041
177	Grampian Drive - Ipswich Boonah Road Link	Grampian Drive to Ipswich Boonah Road	Deebing Heights	New 2 lane road	2041
	Ripley Road	Cunningham Highway to Fishers Road	Ripley	Upgrade to 2 lane urban road standard	N/A
	Ripley Road	Cunningham Highway to Fishers Road	Ripley	Upgrade to 4 lane road	N/A
	Ripley Road	Cunningham Highway to Fishers Road	Ripley	Upgrade to 6 lanes	N/A
	Ripley Road	Fishers Road (G) to Point (I)	Ripley	Upgrade to 2 lane urban road standard	N/A

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
	Ripley Road	Fishers Road (G) to Point (I)	Ripley	Upgrade to 4 lanes	N/A
	Road 1	Lakeview Drive (A) to Daleys Road (B)	Ripley	New 2 lane road	N/A
	Road 1	Lakeview Drive (A) to Daleys Road (B)	Ripley	Upgrade to 4 lanes	N/A
	Road 2	Daleys Road (B) to Ripley Road (C)	Ripley	New 2 lane road	N/A
	Road 3	Binnies Road (B) to point (D)	Ripley	New 2 lane road	N/A
	Road 3	Binnies Road (B) to point (D)	Ripley	Upgrade to 4 lanes	N/A
	Road 4	Daleys Road (E) to Wensley Road (F)	Ripley	New 2 lane road	N/A
	Road 4	Daleys Road (E) to Wensley Road (F)	Ripley	Upgrade to 4 lanes	N/A
	Road 5	Ripley Road (G) to point (H)	Ripley	New 2 lane road	N/A
	Road 5	Ripley Road (G) to point (H)	Ripley	Upgrade to 4 lanes	N/A
	Road 6	Winland Drive to point (D)	Ripley	New 2 lane road	N/A
	Road 6	Winland Drive to point (D)	Ripley	Upgrade to 4 lanes	N/A
	Road 7	Point (D) to point (H)	Ripley	New 2 lane road	N/A
	Road 7	Point (D) to point (H)	Ripley	Upgrade to 4 lanes	N/A
	Road 8	Point H to Ripley Road (I)	Ripley	New 2 lane road	N/A
	Road 8	Point H to Ripley Road (I)	Ripley	Upgrade to 4 lanes	N/A
	Road 9	Ripley Road (I) to Coleman Road (K)	Ripley	New 2 lane road	N/A
	Road 9	Ripley Road (I) to Coleman Road (K)	Ripley	Upgrade to 4 lanes	N/A
	Road 10	Coleman Road (K) to point (L)	Ripley	New 2 lane road	N/A
	Road 10	Coleman Road (K) to point (L)	Ripley	Upgrade to 4 lanes	N/A
	Road 11	Point (L) to point (M)	Ripley	New 2 lane road	N/A
	Road 12	Point (M) to Centenary Highway (N)	Ripley	New 2 lane road	N/A
	Road 13	Ripley Road to point (J)	Ripley	New 2 lane road	N/A
	Road 13	Ripley Road to point (J)	Ripley	Upgrade to 4 lanes	N/A
	Road 14	Point (L) to point (O)	Ripley South	New 2 lane road	N/A
	Road 14	Point (L) to Centenary Highway	Ripley South	Upgrade to 4 lanes	N/A
	Road 15	Ripley Road (C) to Fishers Road (P)	Ripley	New 2 lane road	N/A
	Road 17	Ripley Road to Point (O)	Ripley	New 2 lane road	N/A
	Road 18	Point (K) to Bundamba Creek (Dayley Lagoon)	South Ripley	New 2 lane road	N/A
	Road 18	Point (K) to Bundamba Creek (Dayley Lagoon)	South Ripley	Upgrade to 4 lanes	N/A

A.2 ICC Intersections Projects

LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
301	Cobalt Street / Johnson Road	Intersection	Carole Park	Traffic Signals	2023
302	Cobalt Street / Mica Street	Intersection	Carole Park	Traffic Signals	2007
303	Old Logan Road / Addison Road	Intersection	Camira	Capacity Enhancement	2031
304	Old Logan Road / Moss Road / Meier Road	Intersection	Camira	Traffic Signals	2023
305	Old Logan Road / Mur Boulevard / Kertes Road	Intersection	Camira	Capacity enhancement (dual lane roundabout)	2031
306	Augusta Parkway / Mount Juillerat Drive	Intersection	Augustine Heights	Traffic Signals	2031
307	Redbank Plains Road / School Road	Intersection	Redbank Plains	Traffic Signals	2007
308	Redbank Plains Road / Eagle Street	Intersection	Bellbird Park	Traffic Signals	2021
309	Smith Road / Church Street	Intersection	Goodna	Traffic Signals	2036
310	Bertha Street / Mill Street	Intersection	Goodna	Traffic Signals	2011
311	Bertha Street / Alice Street	Intersection	Goodna	Capacity Enhancement	2019
312	Alice Street / Church Street	Intersection	Goodna	Traffic Signals	2016
313	Alice Street / Queen Street	Intersection	Goodna	Capacity Enhancement	2020
314	Smiths Road / Albert Street	Intersection	Goodna	Capacity Enhancement	2010
315	Smiths Road / Stuart Street	Intersection	Goodna	Capacity Enhancement	2012
316	Smiths Road / William Street	Intersection	Goodna	Capacity Enhancement	2010
317	Woogaroo Street / Layard Street	Intersection	Goodna	Traffic Signals	2008
318	Layard Street / Brisbane Terrace	Intersection	Goodna	Traffic Signals	2036
319	Collingwood Drive / Old Ipswich Road	Intersection	Collingwood Park	Traffic Signals	2009
320	Collingwood Drive / Duncan Street	Intersection	Collingwood Park	Traffic Signals	2009
321	Kruger Parade / Namatjira Drive / Duncan Street	Intersection	Collingwood Park	Traffic Signals	2025

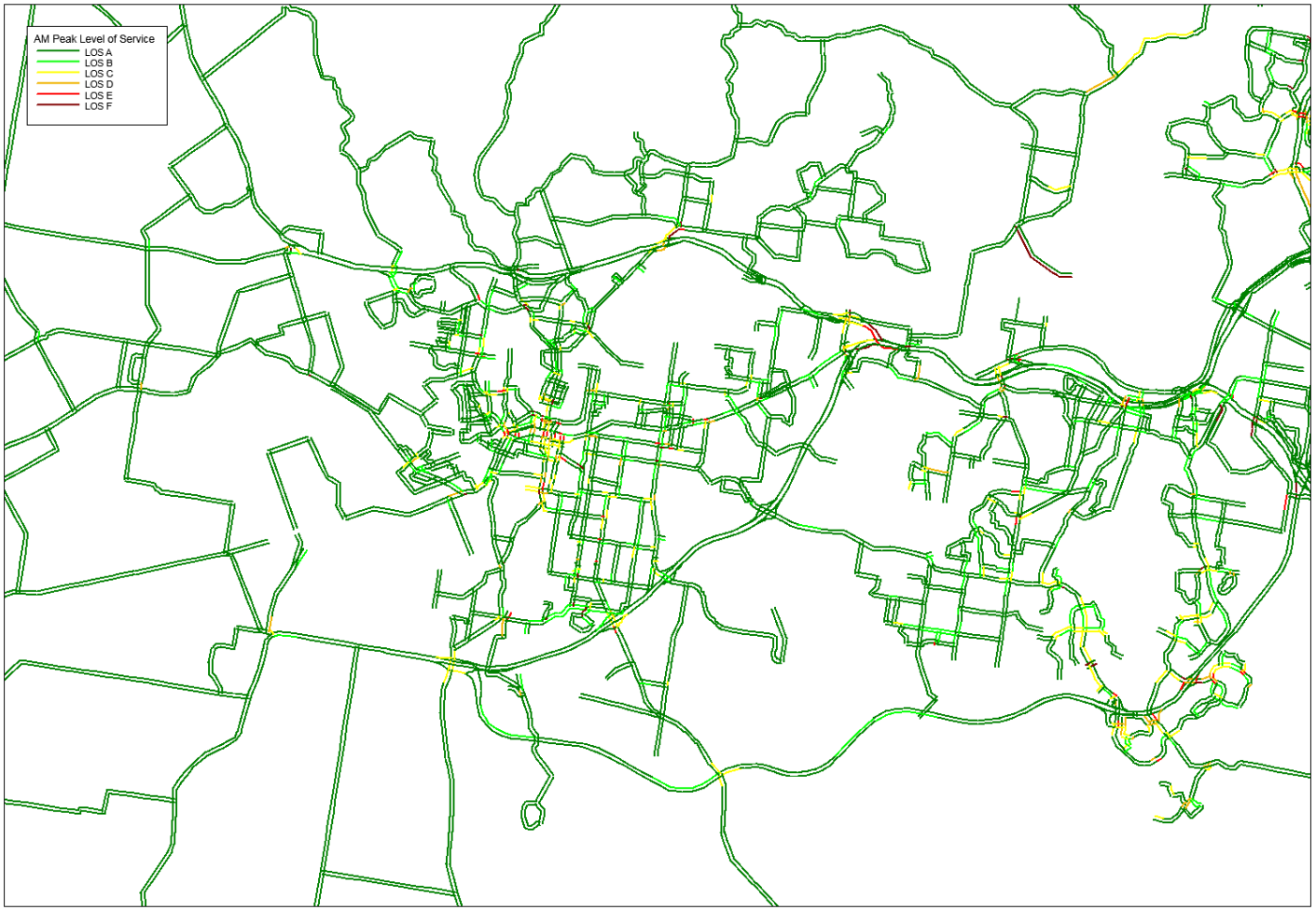
LGIP PROJECT ID	ROAD(S)	SECTION	SUBURB	DESCRIPTION OF WORKS	INDICATIVE TIMING
322	Kruger Parade / Eagle Street	Intersection	Bellbird Park	Traffic Signals	2009
323	Blackstone Road / South Station Road	Intersection	Silkstone	Capacity Enhancement	2018
324	South Station Road / Swanbank Road	Intersection	Raceview	Traffic Signals	2031
325	Robertson Road / Chermside Road	Intersection	Eastern Heights	Traffic Signals	2016
326	Chermside Road / Salisbury Road	Intersection	Eastern Heights	Traffic Signals	2031
327	Chermside Road / Griffith Road	Intersection	Eastern Heights	Traffic Signals	2006
328	Kingsmill Road / Marcae Street	Intersection	Coalfalls	Capacity Enhancement	2036
329	Salisbury Road / Briggs Road	Intersection	Ipswich	Traffic Signals	2020
330	Blackstone Road / Creek Street / Sealy Street	Intersection	Silkstone	Roundabout	2023
331	Mary Street / William Street	Intersection	Blackstone	Traffic Signals	2024
332	Thorn Street / Garden Street	Intersection	Ipswich	Traffic Signals	2024
333	Jacaranda Street / Cook Street	Intersection	North Booval	Traffic Signals	2026
334	Jacaranda Street / Cotton Street / Leslie Street	Intersection	East Ipswich	Traffic Signals	2031
335	Burnett Street / Herbet Street / Woodend Road	Intersection	Sadliers Crossing	Capacity Enhancements	2031
336	Wattle Street / Dudleigh Street	Intersection	North Booval	Roundabout	2031
337	Darling Street / Waghorn Street	Intersection	Ipswich	Traffic Signals	2031
338	Redbank Plains Road / Stuart Street	Intersection	Goodna	Traffic Signals	2031
339	Redbank Plains Road / Queen Street / Albert Street	Intersection	Goodna	Traffic Signals	2031
340	Robertson Road / Grange Road	Intersection	Raceview	Traffic Signals	2031
341	Redbank Plains Road / Argyle Street	Intersection	Redbank Plains	Traffic Signals	2010
342	Collingwood Drive / Eagle Street	Intersection	Collingwood Park	Traffic Signals	2016

Appendix B. ISTM Level of Service Outputs

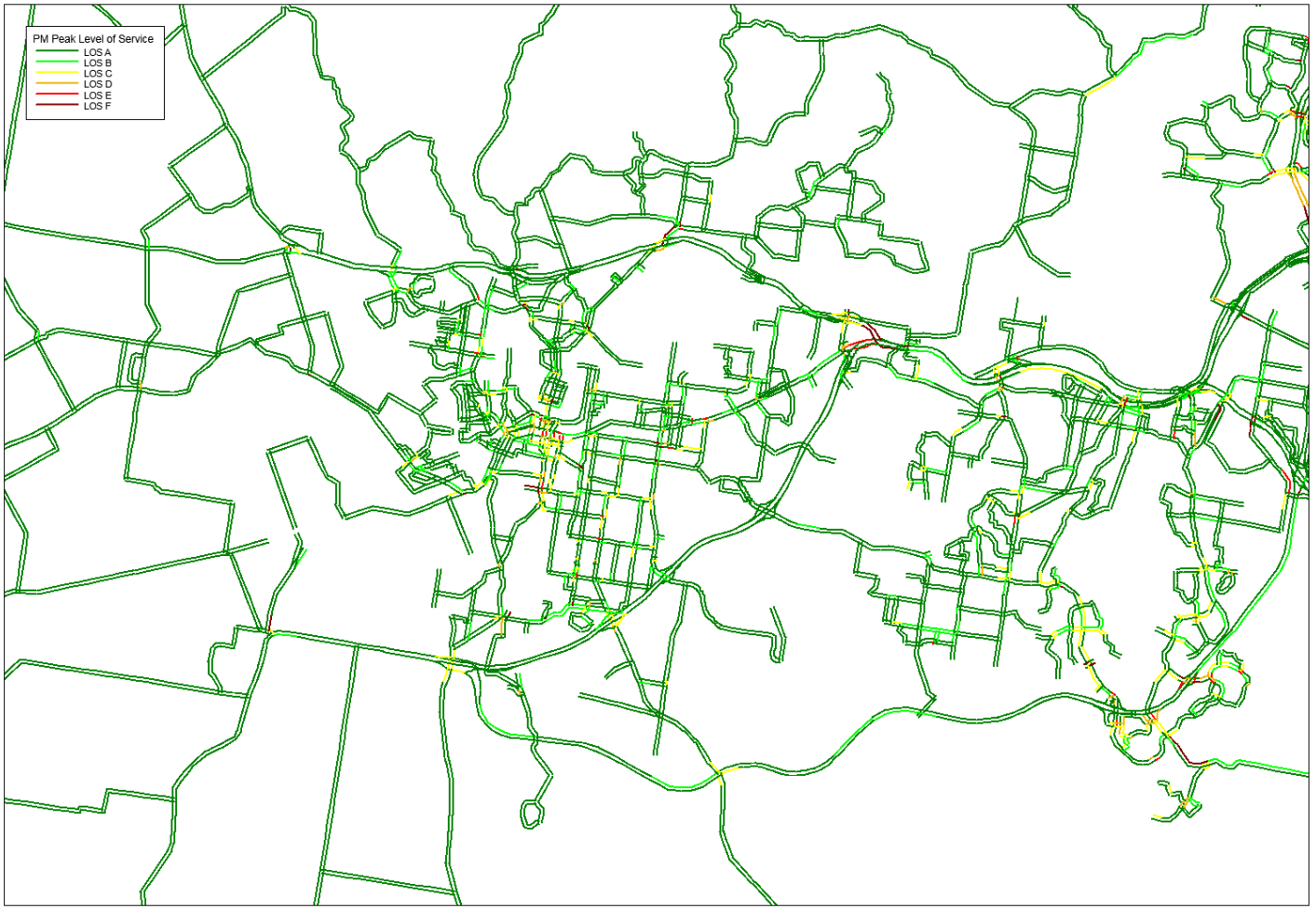
B.1 Ultimate Network Level of Service (2046) – iGO Mode Shares - AM

B.2 Ultimate Network Level of Service (2046) – iGO Mode Shares - PM

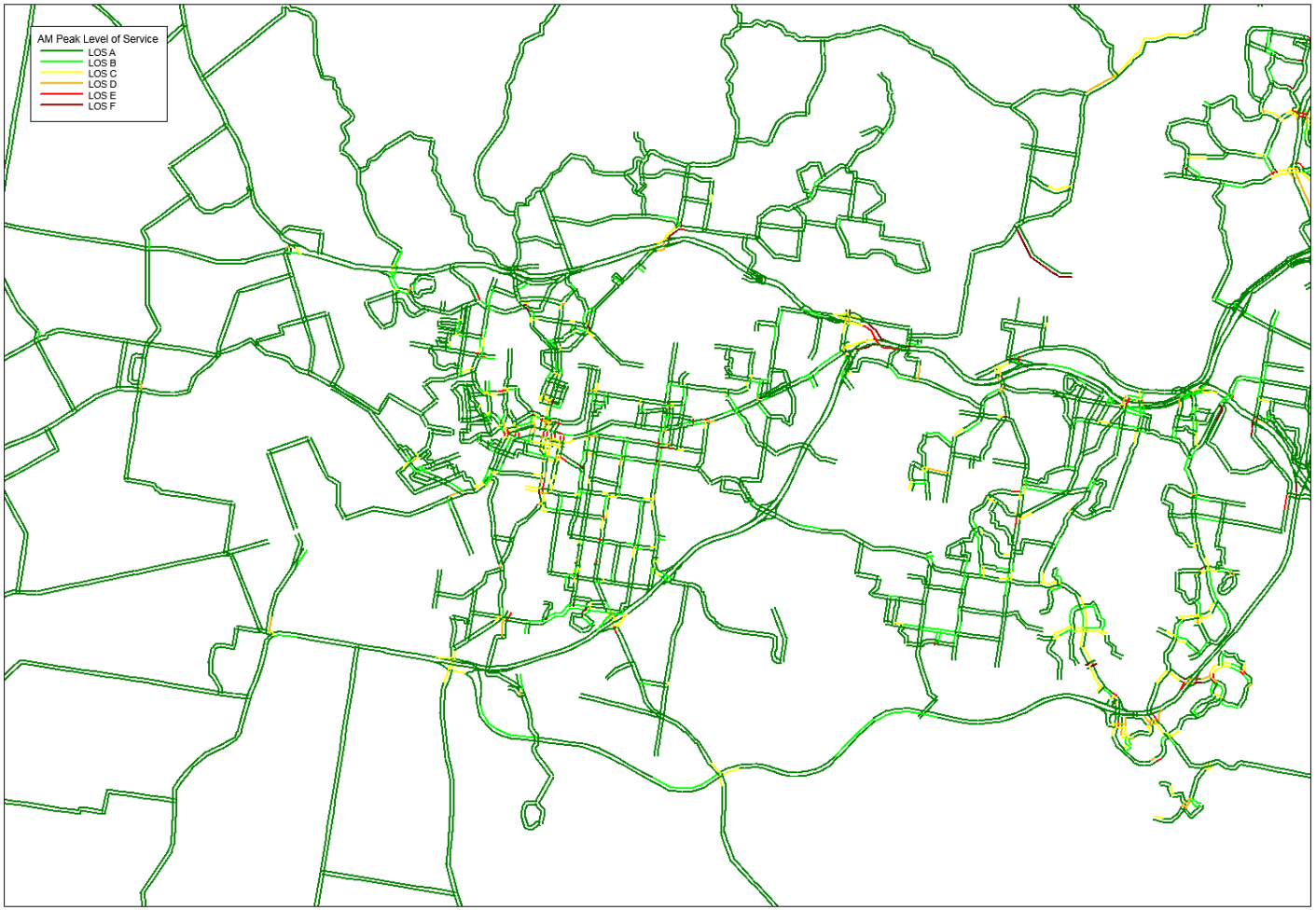
B.3 Ultimate Network Level of Service (2046) – Current Mode Shares - AM



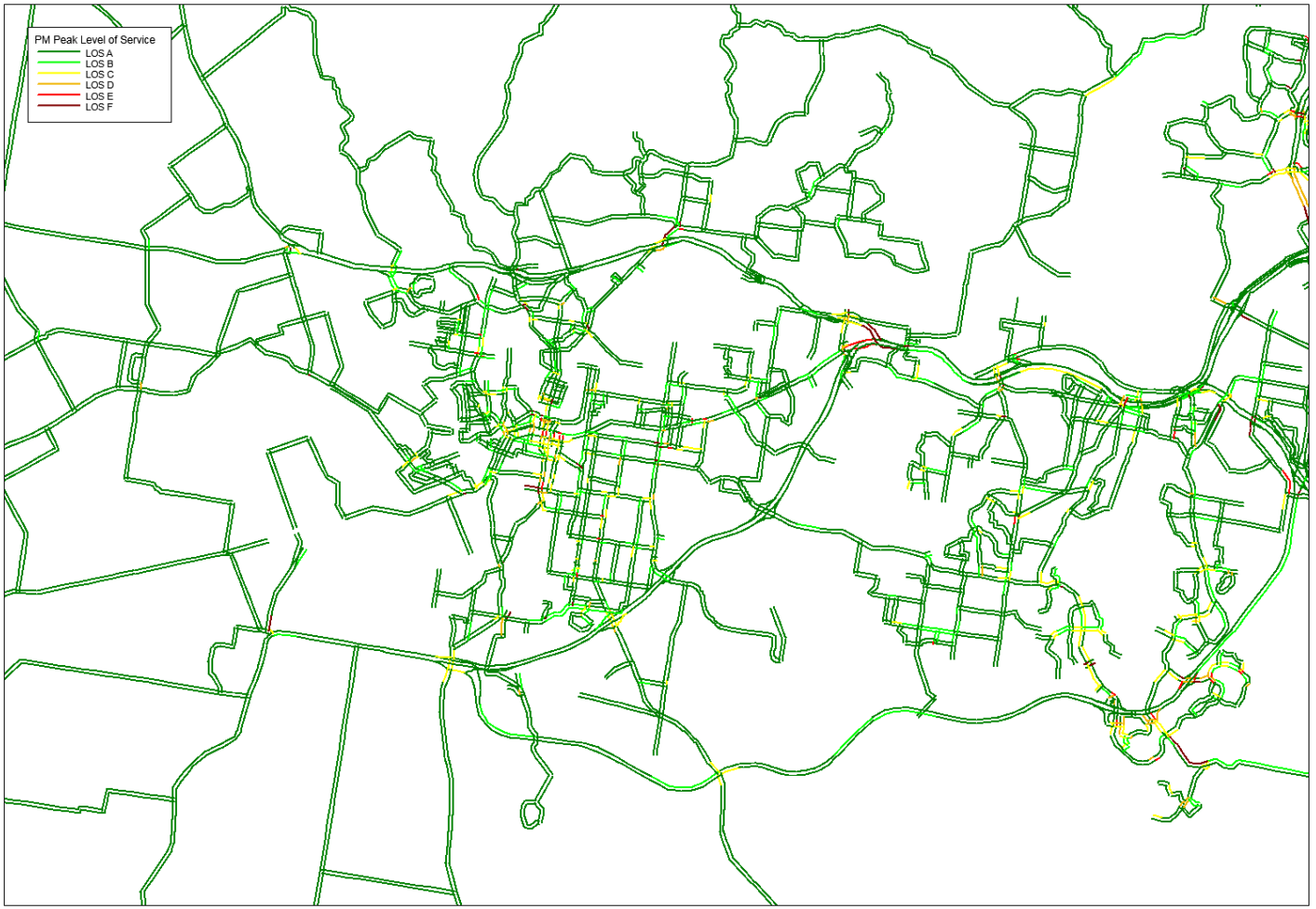
B.4 Ultimate Network Level of Service (2046) – Current Mode Shares - PM



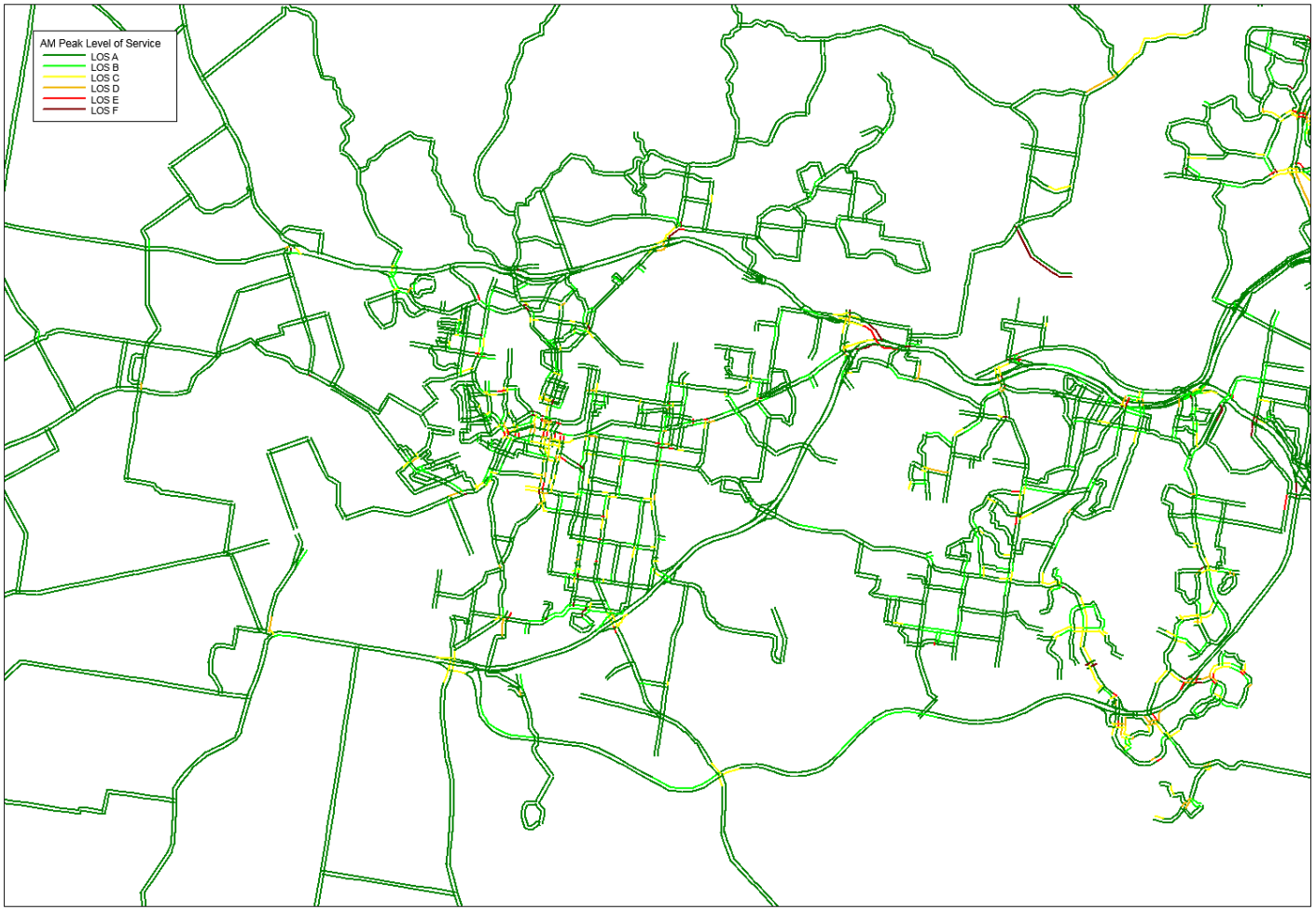
B.5 Ultimate Network Level of Service (2036) – iGO Mode Shares - AM



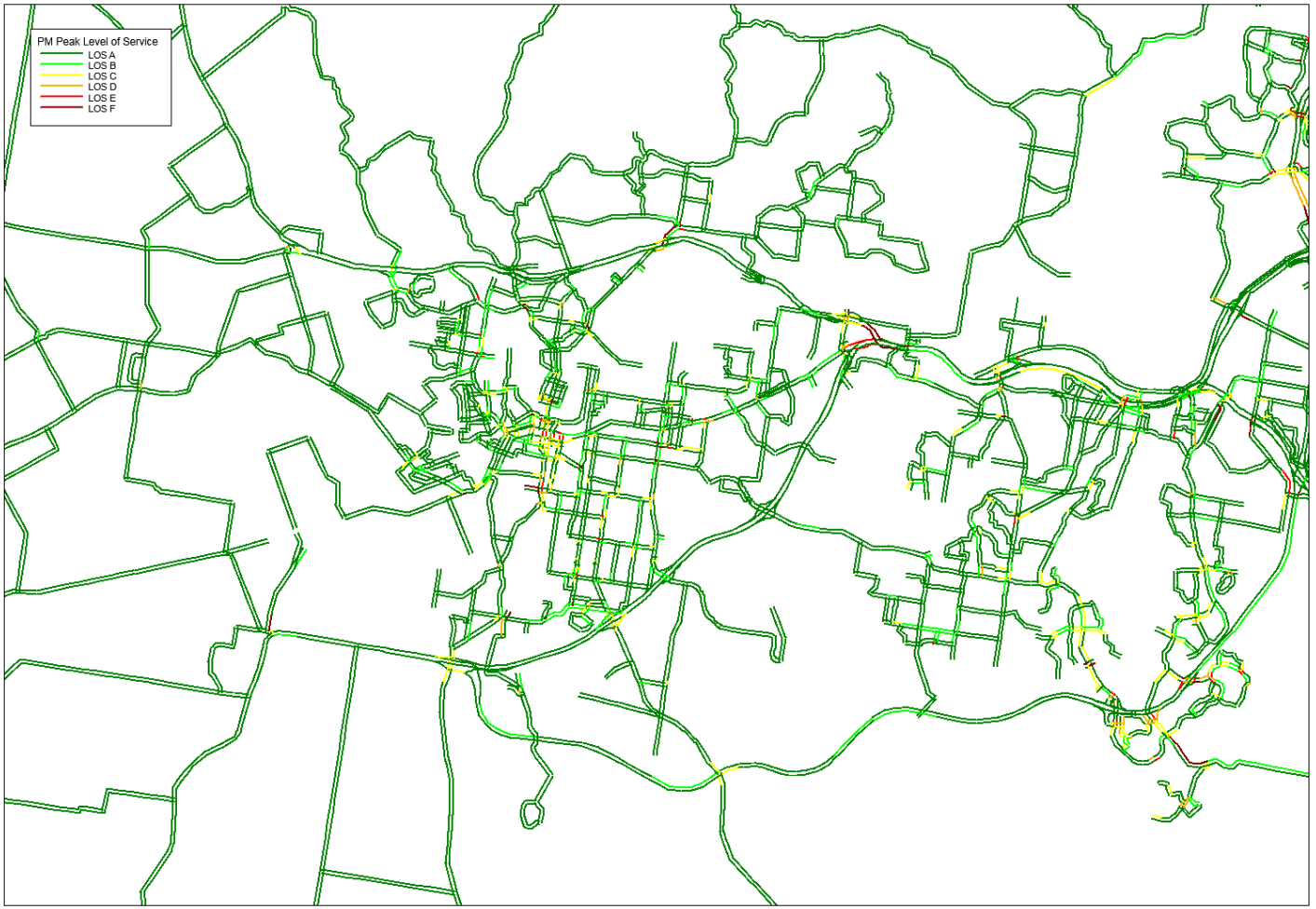
B.6 Ultimate Network Level of Service (2036) – iGO Mode Shares - PM



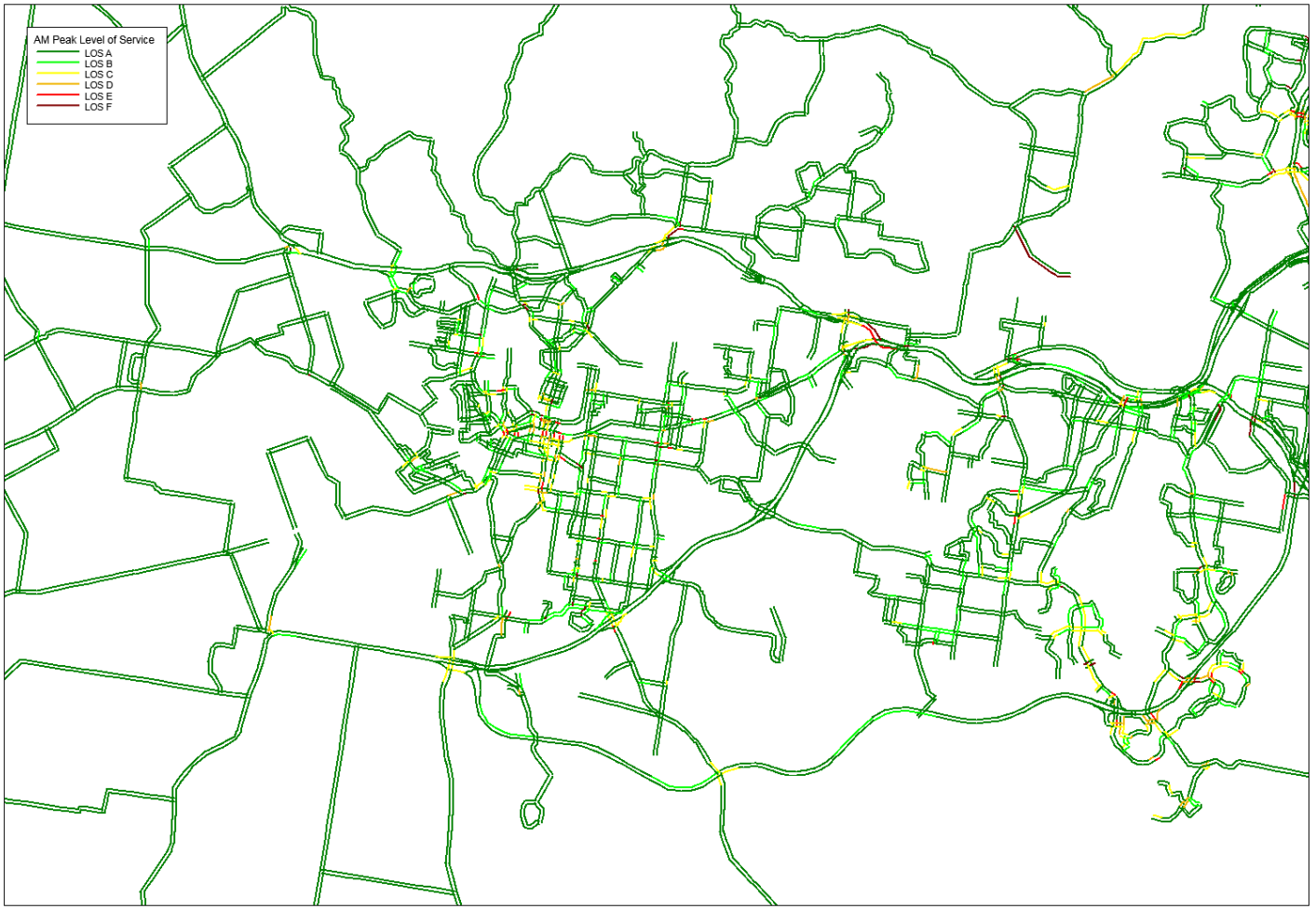
B.7 Ultimate Network Level of Service (2036) – Current Mode Shares - AM



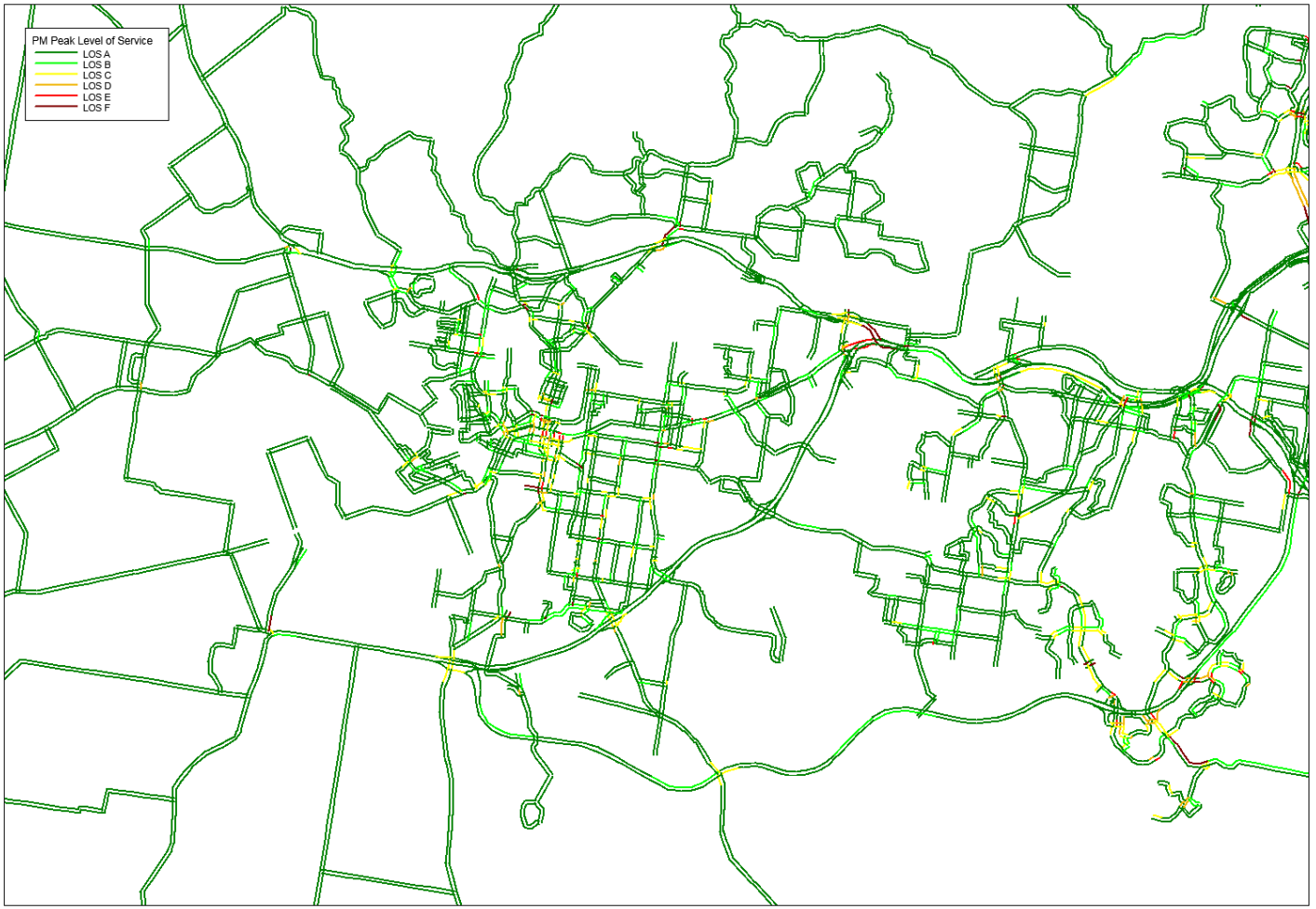
B.8 Ultimate Network Level of Service (2036) – Current Mode Shares - PM



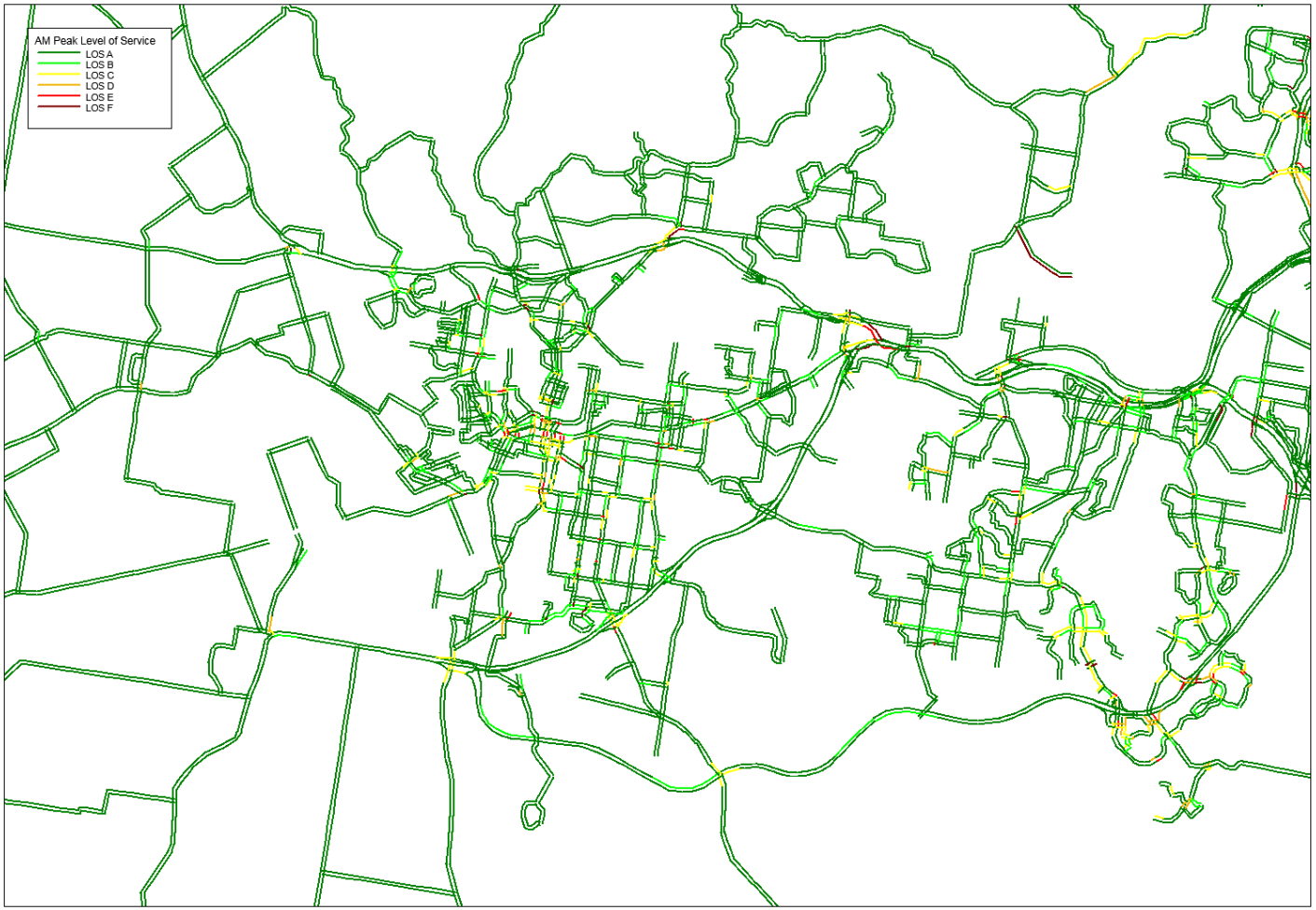
B.9 Ultimate Network Level of Service (2031) – iGO Mode Shares – AM



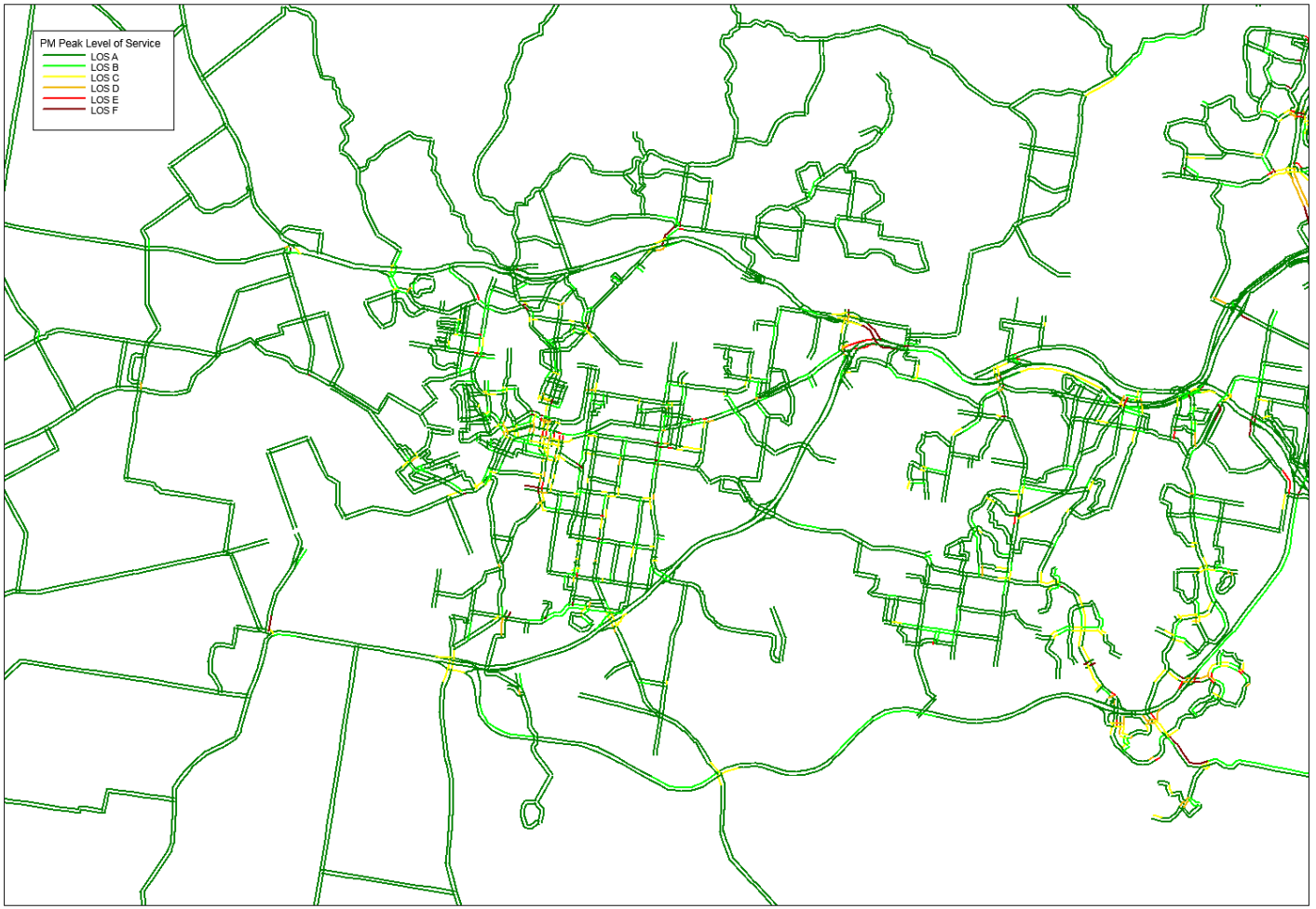
B.10 Ultimate Network Level of Service (2031) – iGO Mode Shares – PM



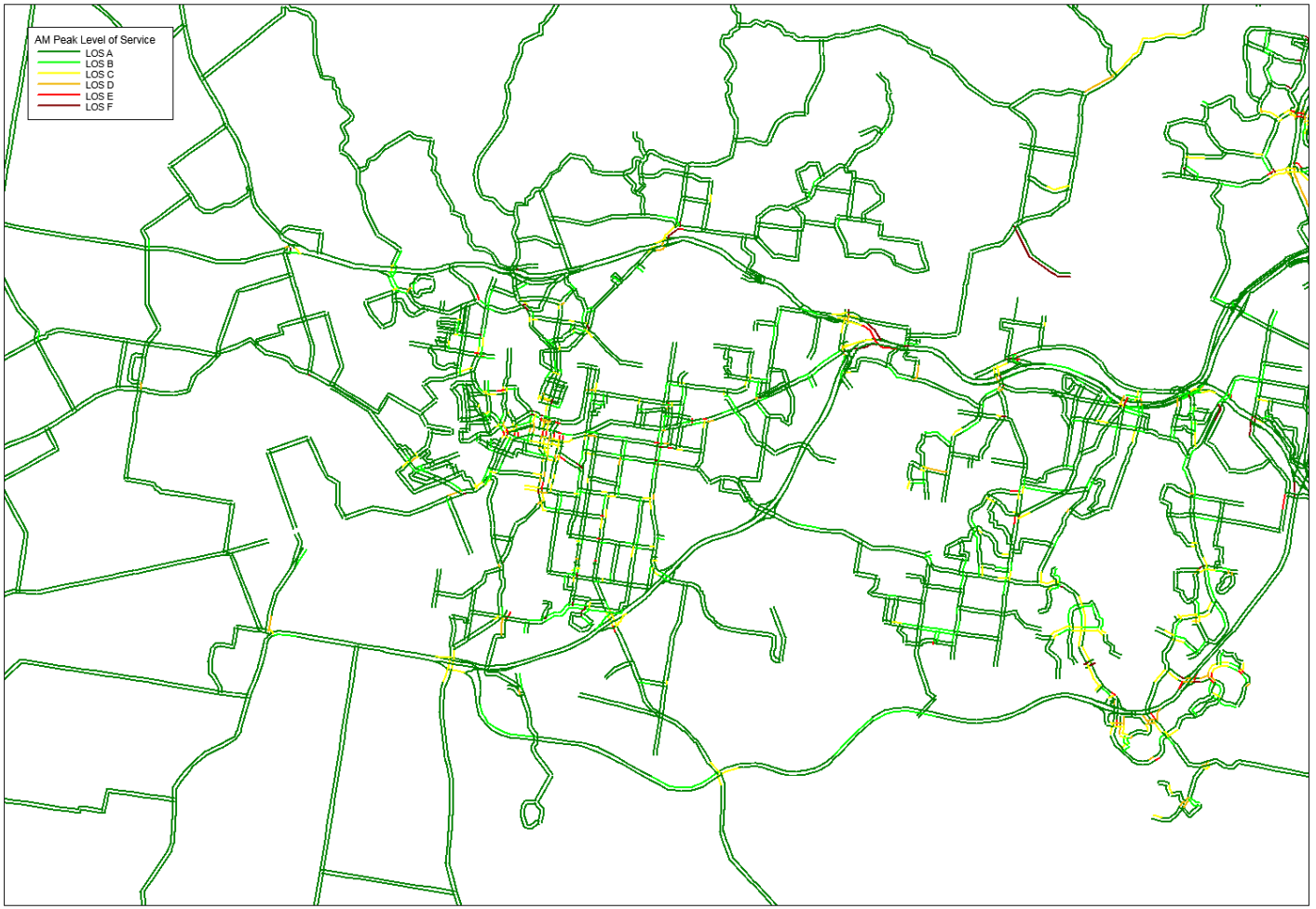
B.11 Ultimate Network Level of Service (2031) – Current Mode Shares - AM



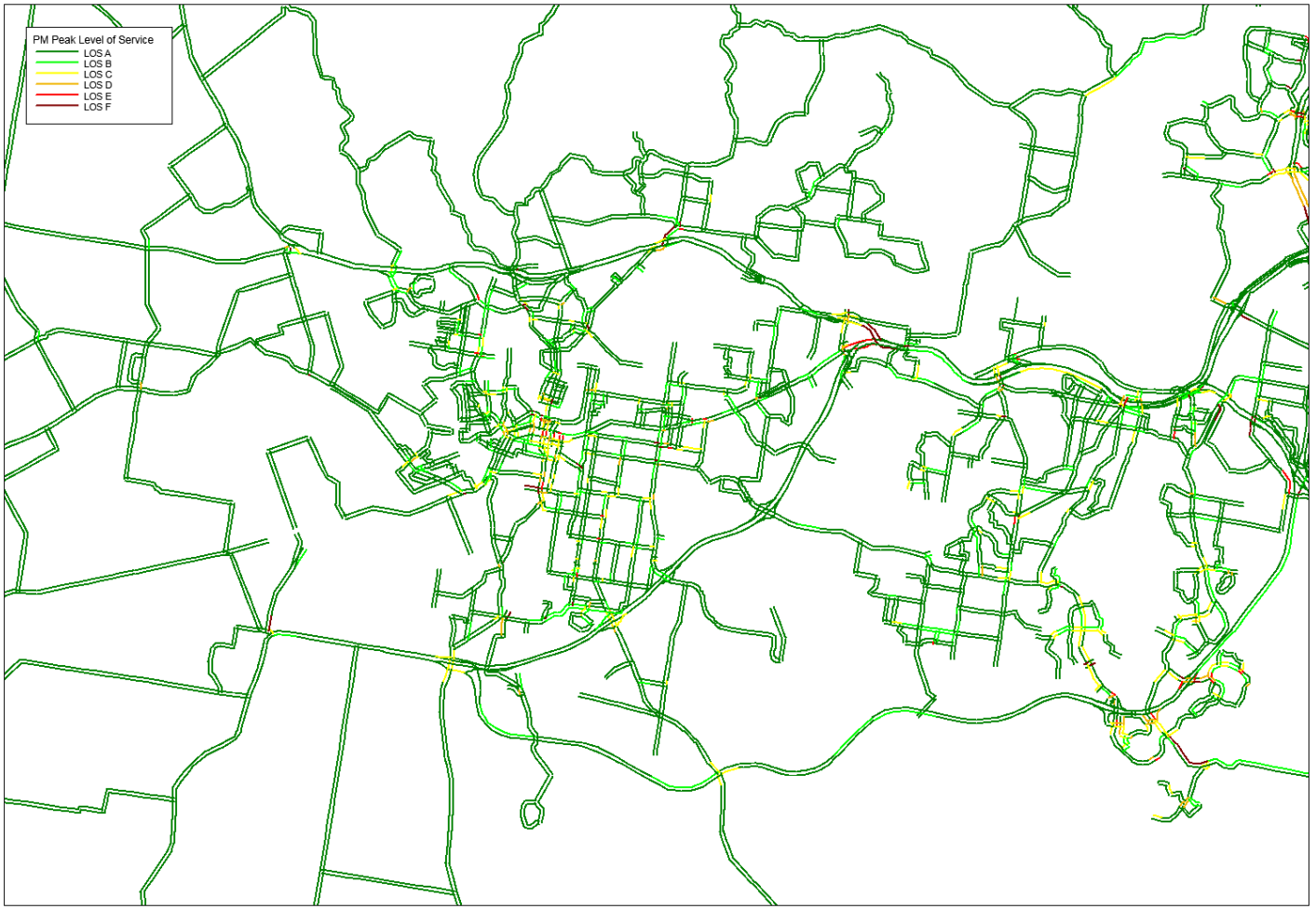
B.12 Ultimate Network Level of Service (2031) – Current Mode Shares - PM



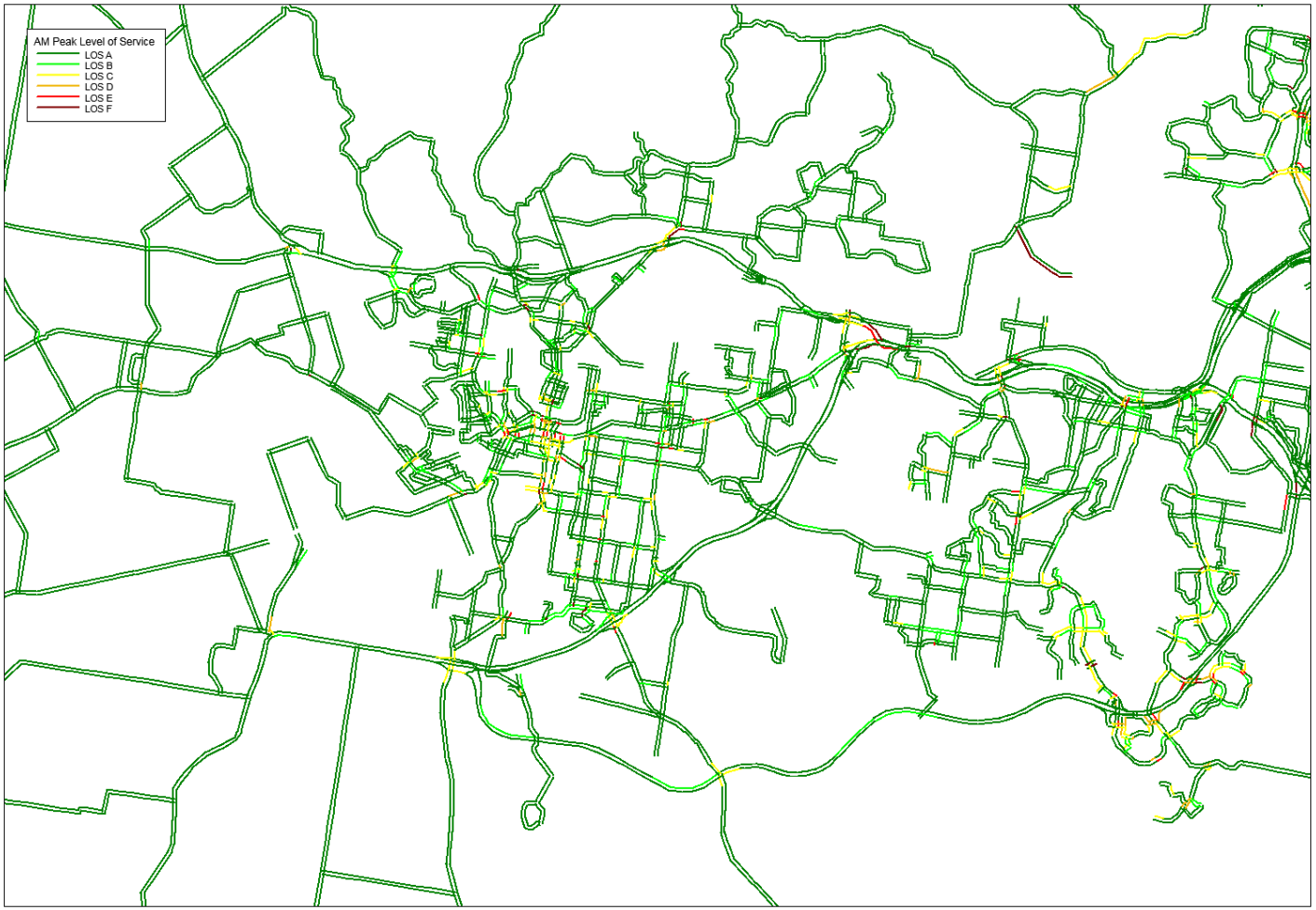
B.13 Ultimate Network Level of Service (2026) – iGO Mode Shares – AM



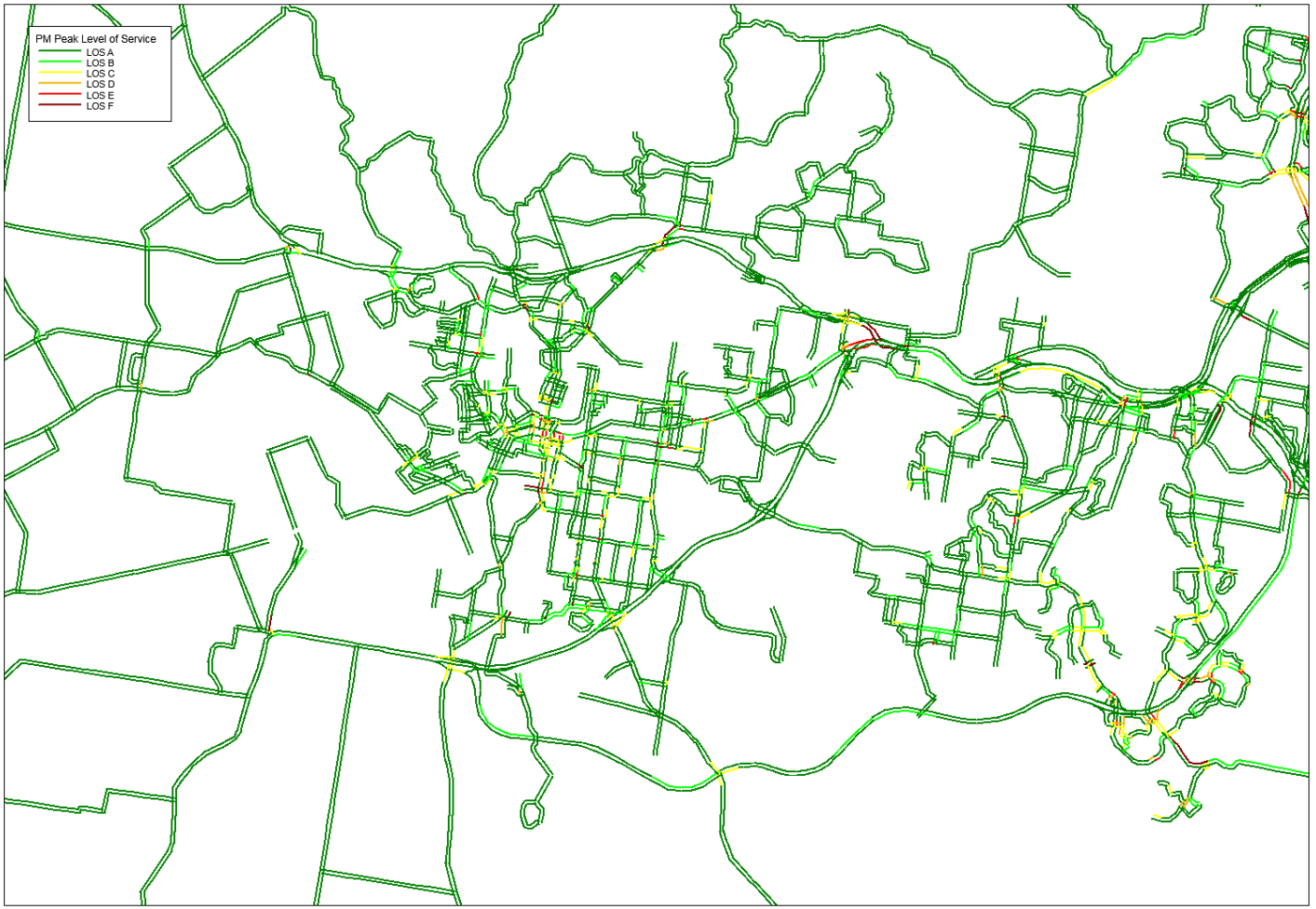
B.14 Ultimate Network Level of Service (2026) – iGO Mode Shares - PM



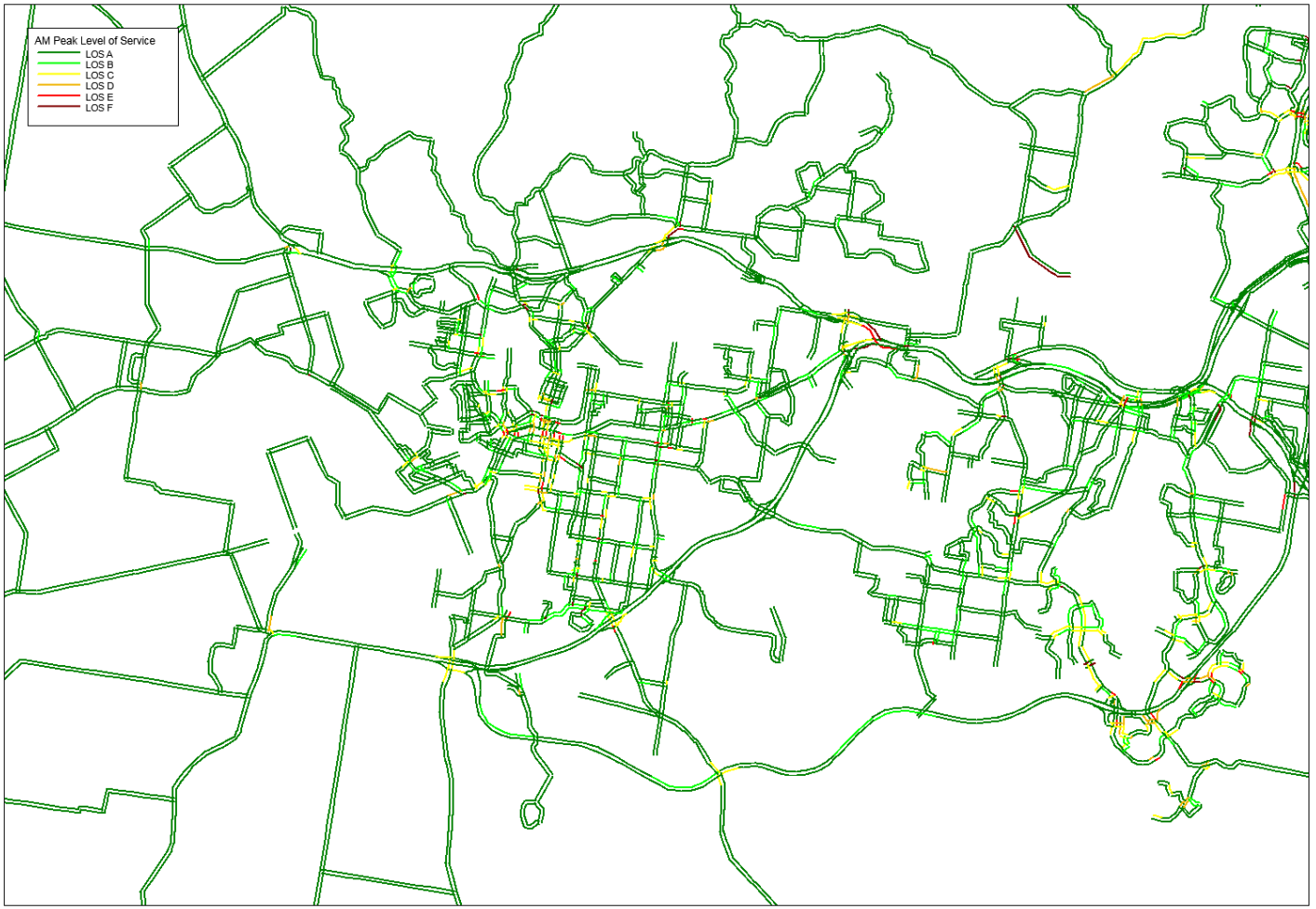
B.15 Ultimate Network Level of Service (2026) – Current Mode Shares - AM



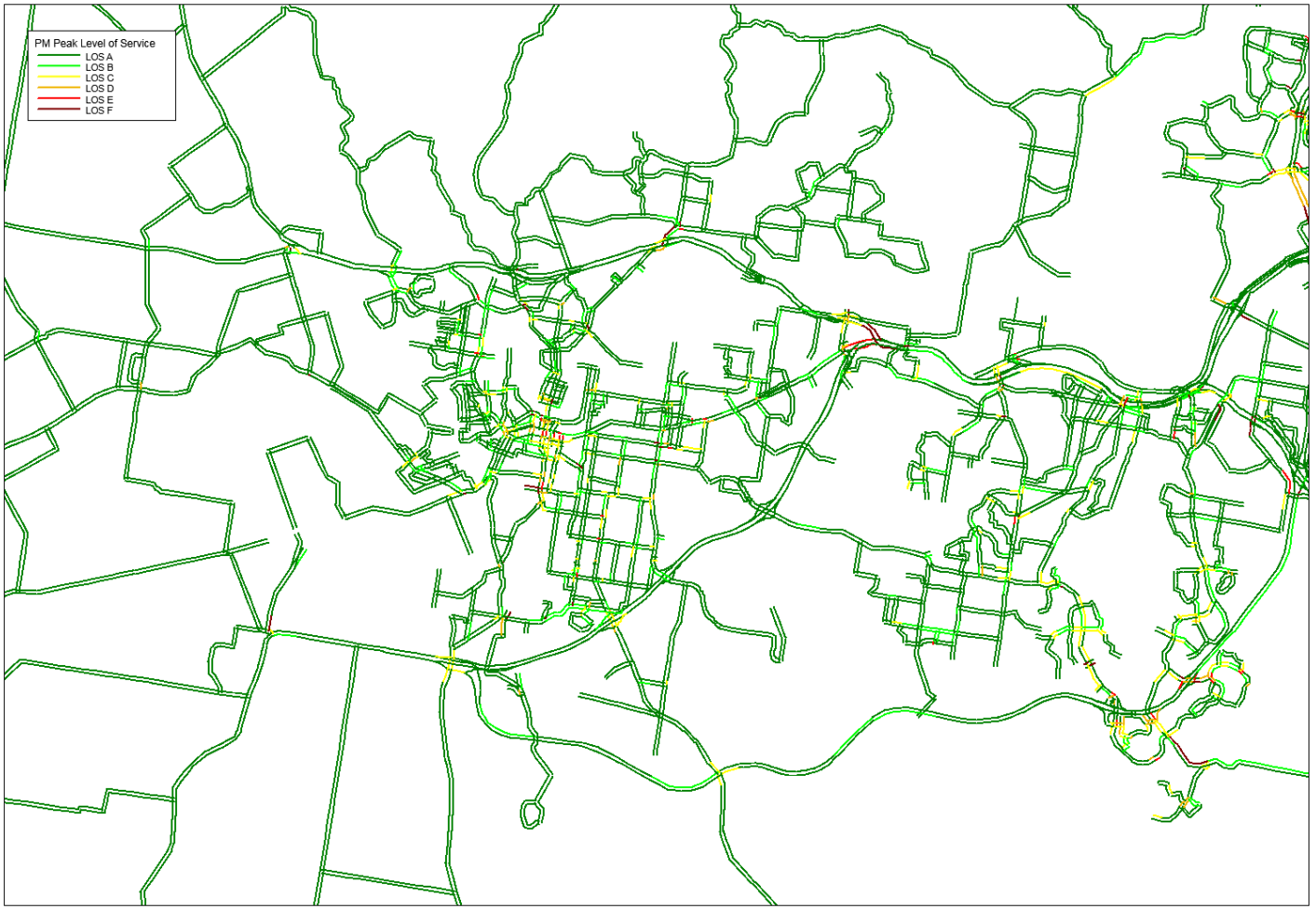
B.16 Ultimate Network Level of Service (2026) – Current Mode Shares - PM



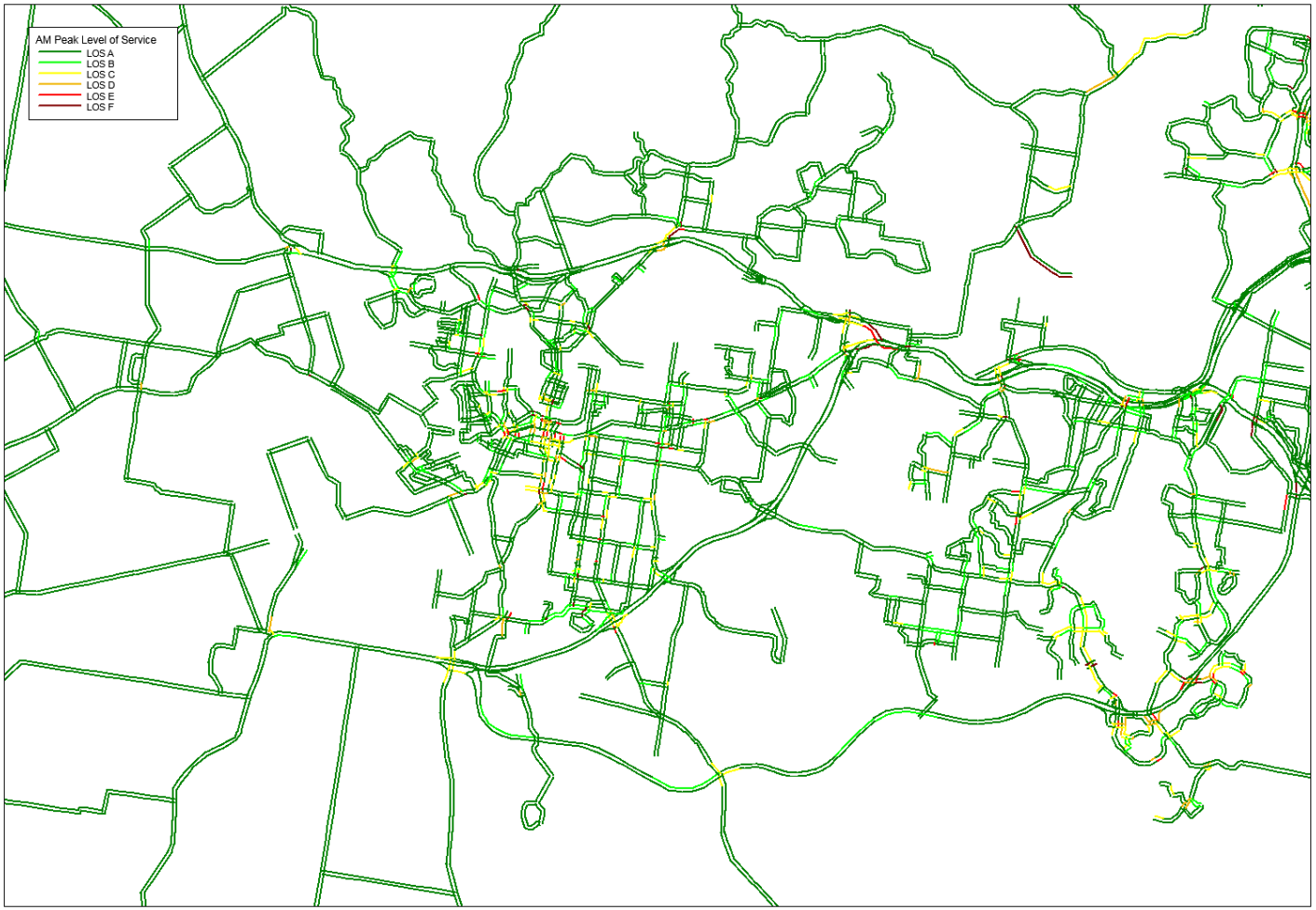
B.17 Ultimate Network Level of Service (2021) – iGO Mode Shares – AM



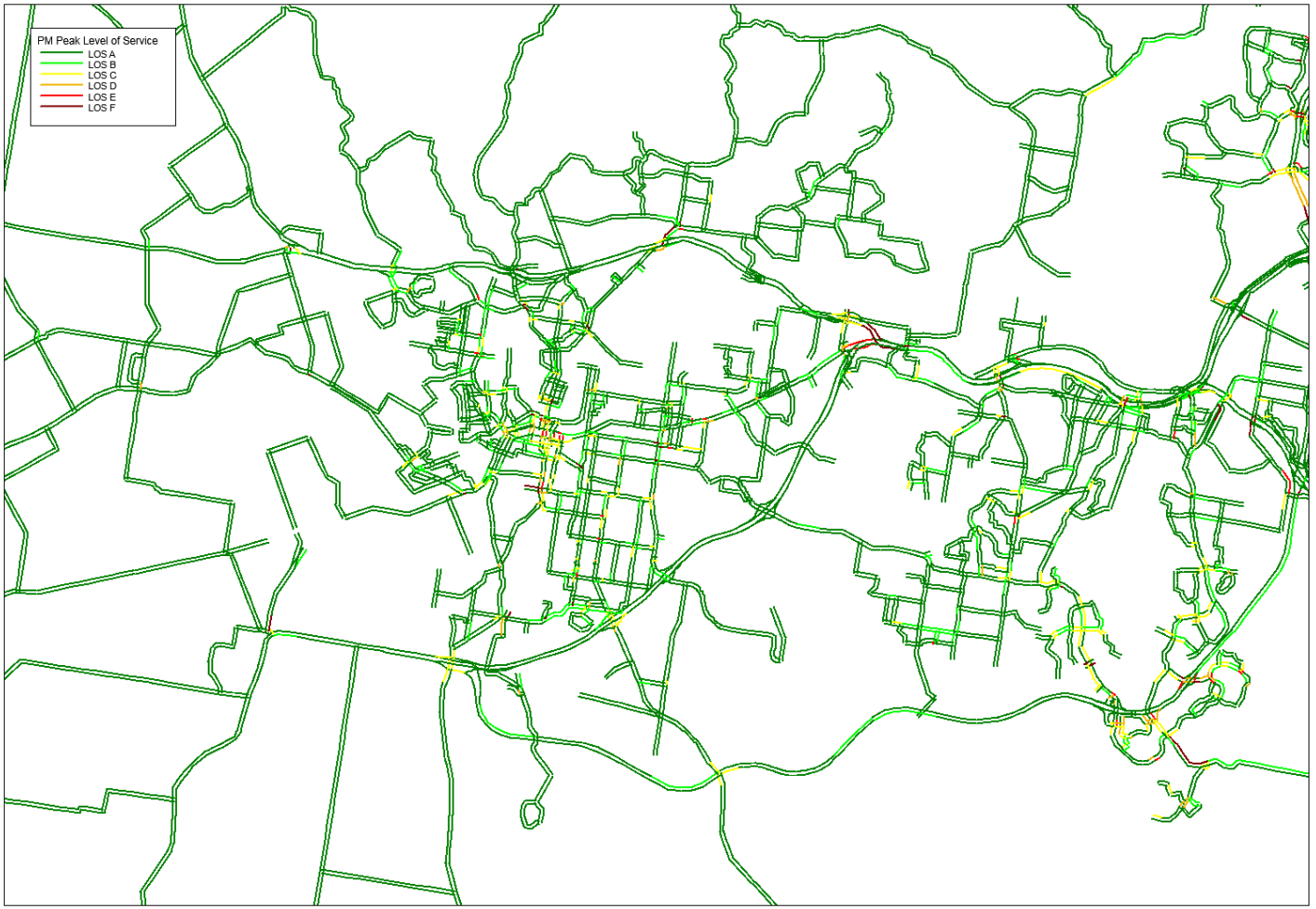
B.18 Ultimate Network Level of Service (2021) – iGO Mode Shares - PM



B.19 Ultimate Network Level of Service (2021) – Current Mode Shares - AM



B.20 Ultimate Network Level of Service (2021) – Current Mode Shares - PM



Appendix C. Project Usage Apportionment by Contribution Sector

C.1 New Road Links Proportions by Contribution Sector

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
1	Springfield-Greenbank Arterial (D-F-G)	100.00%	1.84%	1.64%	38.08%	1.15%	0.86%	0.21%	0.26%	0.64%	0.71%	0.62%	1.73%	0.16%	0.12%	0.63%	0.38%	1.60%	0.86%	0.10%	3.78%	0.07%	0.13%	0.07%	0.03%	0.15%	0.20%	0.46%	0.09%	0.04%	0.28%	0.57%	0.01%	1.36%	37.57%	3.58%
2	Springfield-Greenbank Arterial (D-F-G)	100.00%	1.84%	1.64%	38.08%	1.15%	0.86%	0.21%	0.26%	0.64%	0.71%	0.62%	1.73%	0.16%	0.12%	0.63%	0.38%	1.60%	0.86%	0.10%	3.78%	0.07%	0.13%	0.07%	0.03%	0.15%	0.20%	0.46%	0.09%	0.04%	0.28%	0.57%	0.01%	1.36%	37.57%	3.58%
3	Springfield-Greenbank Arterial (G-M)	100.00%	0.95%	0.41%	37.20%	0.84%	0.46%	0.32%	0.31%	0.40%	0.46%	0.59%	0.74%	0.06%	0.19%	0.81%	0.43%	1.12%	0.35%	0.14%	2.10%	0.03%	0.07%	0.10%	0.05%	0.08%	0.08%	0.18%	0.04%	0.02%	0.11%	0.23%	0.01%	0.55%	47.82%	2.77%
4	Springfield Greenbank Arterial (G-M)	100.00%	0.95%	0.41%	37.20%	0.84%	0.46%	0.32%	0.31%	0.40%	0.46%	0.59%	0.74%	0.06%	0.19%	0.81%	0.43%	1.12%	0.35%	0.14%	2.10%	0.03%	0.07%	0.10%	0.05%	0.08%	0.08%	0.18%	0.04%	0.02%	0.11%	0.23%	0.01%	0.55%	47.82%	2.77%
5	Springfield-Greenbank Arterial (M - ICC boundary)	100.00%	0.75%	0.23%	25.62%	0.51%	0.31%	0.28%	0.24%	0.34%	0.39%	0.61%	1.80%	0.16%	0.17%	0.82%	0.43%	1.22%	0.86%	0.13%	2.98%	0.07%	0.12%	0.08%	0.04%	0.16%	0.19%	0.50%	0.09%	0.04%	0.29%	0.59%	0.01%	1.31%	54.84%	3.80%
6	Springfield-Greenbank Arterial	100.00%	0.75%	0.23%	25.62%	0.51%	0.31%	0.28%	0.24%	0.34%	0.39%	0.61%	1.80%	0.16%	0.17%	0.82%	0.43%	1.22%	0.86%	0.13%	2.98%	0.07%	0.12%	0.08%	0.04%	0.16%	0.19%	0.50%	0.09%	0.04%	0.29%	0.59%	0.01%	1.31%	54.84%	3.80%
7	Springfield-Greenbank Arterial	100.00%	0.55%	0.08%	11.27%	0.27%	0.28%	0.16%	0.18%	0.42%	0.45%	0.73%	2.36%	0.20%	0.17%	0.95%	0.48%	1.55%	1.12%	0.13%	3.83%	0.09%	0.15%	0.07%	0.03%	0.20%	0.25%	0.66%	0.12%	0.06%	0.39%	0.77%	0.02%	1.70%	65.84%	4.46%
8	Springfield-Greenbank Arterial	100.00%	0.44%	0.05%	5.59%	0.18%	0.19%	0.12%	0.14%	0.35%	0.35%	0.82%	2.54%	0.20%	0.19%	0.98%	0.51%	1.69%	1.21%	0.12%	3.90%	0.10%	0.15%	0.06%	0.02%	0.18%	0.26%	0.72%	0.13%	0.06%	0.42%	0.81%	0.02%	1.69%	71.01%	4.80%
9	Centenary Highway (B-C)	100.00%	4.74%		23.33%	0.89%	0.09%	0.54%	0.37%	0.07%	2.11%	0.19%	2.08%	0.72%	0.16%	0.50%	0.23%	0.13%	0.42%	0.11%	0.15%	0.00%	0.00%	0.08%	0.05%	0.09%	0.00%	0.22%	0.20%	0.04%	0.63%	1.15%	0.05%	10.75 %	43.22%	6.71%
10	Centenary Highway (C-L-I)	100.00%	6.15%	0.26%	20.89%	0.70%	0.19%	0.41%	0.28%	0.28%	3.62%	0.09%	3.35%	1.14%	0.08%	0.22%	0.10%	0.14%	0.89%	0.07%	0.75%	0.01%	0.04%	0.05%	0.03%	0.21%	0.06%	0.45%	0.31%	0.09%	0.97%	1.76%	0.08%	16.42 %	31.77%	8.14%
11	Springfield Parkway (E-D)	100.00%	4.07%	4.63%	64.54%	1.90%	1.50%	0.02%	0.06%	0.00%	2.09%	0.02%	0.65%	0.31%	0.06%	0.08%	0.03%	0.01%	0.53%	0.05%	0.44%	0.02%	0.03%	0.02%	0.00%	0.21%	0.10%	0.22%	0.05%	0.07%	0.20%	0.31%	0.02%	3.43%	11.95%	2.39%
12	Springfield Parkway (E-D)	100.00%	4.07%	4.63%	64.54%	1.90%	1.50%	0.02%	0.06%	0.00%	2.09%	0.02%	0.65%	0.31%	0.06%	0.08%	0.03%	0.01%	0.53%	0.05%	0.44%	0.02%	0.03%	0.02%	0.00%	0.21%	0.10%	0.22%	0.05%	0.07%	0.20%	0.31%	0.02%	3.43%	11.95%	2.39%
13	Springfield Parkway (D-C)	100.00%	1.62%	1.30%	37.56%	0.40%	0.42%	0.48%	0.24%	0.01%	1.63%	0.16%	1.17%	0.36%	0.14%	0.49%	0.23%	0.41%	0.78%	0.14%	1.83%	0.03%	0.09%	0.09%	0.05%	0.29%	0.15%	0.41%	0.10%	0.08%	0.26%	0.60%	0.02%	3.78%	40.71%	3.96%
14	Springfield Parkway (D-C)	100.00%	1.62%	1.30%	37.56%	0.40%	0.42%	0.48%	0.24%	0.01%	1.63%	0.16%	1.17%	0.36%	0.14%	0.49%	0.23%	0.41%	0.78%	0.14%	1.83%	0.03%	0.09%	0.09%	0.05%	0.29%	0.15%	0.41%	0.10%	0.08%	0.26%	0.60%	0.02%	3.78%	40.71%	3.96%
15	Springfield Lakes Interchange	100.00%	1.49%	1.58%	55.75%	0.43%	1.18%	0.49%	0.24%	0.86%	2.43%	0.07%	1.01%	0.61%	0.05%	0.16%	0.08%	0.18%	1.00%	0.05%	1.50%	0.04%	0.07%	0.03%	0.03%	0.41%	0.17%	0.43%	0.09%	0.14%	0.37%	0.51%	0.03%	6.59%	17.79%	4.13%
16	Springfield Town Centre Eastern Interchange - Westbound Off ramp	100.00%	0.59%		30.65%	1.06%		0.47%	0.37%			0.45%			0.30%	1.17%	0.51%	0.35%		0.19%	0.18%			0.15%	0.09%	0.05%				0.00%					60.28%	3.13%
17	Eden Station Drive	100.00%	0.87%	0.42%	47.65%	0.40%	1.61%	0.54%	0.75%	2.11%	4.31%	0.81%	1.94%	0.29%	0.04%	0.44%	0.25%	1.58%	1.17%	0.04%	5.74%	0.08%	0.19%	0.05%	0.01%	0.27%	0.30%	0.52%	0.09%	0.08%	0.33%	0.54%	0.02%	2.79%	19.65%	4.11%
18	Eden Station Drive	100.00%	0.87%	0.42%	47.65%	0.40%	1.61%	0.54%	0.75%	2.11%	4.31%	0.81%	1.94%	0.29%	0.04%	0.44%	0.25%	1.58%	1.17%	0.04%	5.74%	0.08%	0.19%	0.05%	0.01%	0.27%	0.30%	0.52%	0.09%	0.08%	0.33%	0.54%	0.02%	2.79%	19.65%	4.11%
19	Augusta Parkway & Jones Road (K-J-I)	100.00%	0.25%	0.08%	51.64%	1.12%	7.17%	0.34%	2.31%	8.20%	13.52 %	1.20%	0.36%	0.01%	0.08%	0.46%	0.40%	1.97%	0.04%	0.07%	3.44%	0.00%	0.05%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	6.62%	0.59%
20	Jones Road (K-K1)	100.00%	0.41%	0.45%	28.94%	0.72%	16.84 %	0.65%	3.95%	13.54 %	5.18%	2.48%	0.96%	0.23%	0.14%	0.81%	0.69%	3.75%	0.65%	0.16%	10.40 %	0.04%	0.33%	0.09%	0.02%	0.06%	0.12%	0.15%	0.02%	0.02%	0.08%	0.14%	0.01%	1.81%	5.19%	0.98%
21	Augusta Parkway	100.00%	0.10%	0.01%	43.52%	2.44%	12.33 %	0.52%	4.20%	14.13 %	0.57%	2.26%	0.34%	0.01%	0.11%	0.58%	0.67%	3.51%	0.07%	0.13%	7.14%	0.01%	0.17%	0.06%	0.01%	0.01%	0.03%	0.02%	0.00%	0.00%	0.00%	0.01%		0.01%	6.71%	0.36%
22	Augusta Parkway	100.00%	0.25%	0.08%	51.64%	1.12%	7.17%	0.34%	2.31%	8.20%	13.52 %	1.20%	0.36%	0.01%	0.08%	0.46%	0.40%	1.97%	0.04%	0.07%	3.44%	0.00%	0.05%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	6.62%	0.59%
23	Sinnathamby Boulevard (M-H)	100.00%	0.66%	0.09%	53.90%	0.68%	1.75%	0.49%	0.92%	2.30%	3.58%	0.49%	1.39%	0.49%	0.11%	0.32%	0.27%	0.78%	1.33%	0.08%	5.06%	0.09%	0.24%	0.11%	0.04%	0.86%	0.38%	0.55%	0.11%	0.30%	0.62%	0.57%	0.06%	4.93%	12.79%	3.64%
24	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	100.00%	0.66%	0.09%	55.93%	0.99%	3.33%	0.41%	1.34%	3.74%	7.22%	0.49%	0.67%	0.40%	0.12%	0.33%	0.28%	0.77%	0.82%	0.10%	3.47%	0.04%	0.15%	0.10%	0.03%	0.58%	0.22%	0.28%	0.06%	0.20%	0.36%	0.30%	0.04%	4.06%	10.42%	1.99%
25	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	100.00%	0.66%	0.09%	55.93%	0.99%	3.33%	0.41%	1.34%	3.74%	7.22%	0.49%	0.67%	0.40%	0.12%	0.33%	0.28%	0.77%	0.82%	0.10%	3.47%	0.04%	0.15%	0.10%	0.03%	0.58%	0.22%	0.28%	0.06%	0.20%	0.36%	0.30%	0.04%	4.06%	10.42%	1.99%
26	Augusta Parkway / Sinnathamby Boulevard (H-I-J)	100.00%	0.66%	0.09%	55.93%	0.99%	3.33%	0.41%	1.34%	3.74%	7.22%	0.49%	0.67%	0.40%	0.12%	0.33%	0.28%	0.77%	0.82%	0.10%	3.47%	0.04%	0.15%	0.10%	0.03%	0.58%	0.22%	0.28%	0.06%	0.20%	0.36%	0.30%	0.04%	4.06%	10.42%	1.99%
27	Springfield Town Centre Western Interchange "Southern Loop Road"	100.00%	1.99%	0.09%	51.88%	2.13%	0.04%	1.23%	0.54%	0.00%	0.04%	0.21%	0.01%	0.01%	0.21%	0.53%	0.24%	0.15%	0.02%	0.15%	0.25%	0.00%	0.00%	0.11%	0.08%	0.04%	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.06%	36.53%	3.42%
28	Springfield Town Centre Western Interchange	100.00%			42.05%	0.08%	0.10%	0.03%	0.12%	0.32%	0.70%	0.25%	3.45%	1.47%	0.01%	0.02%	0.14%	0.91%	3.39%	0.01%	10.73 %	0.22%	0.57%	0.13%	0.03%	2.00%	0.94%	1.54%	0.29%	0.69%	1.49%	1.53%	0.15%	14.75 %	6.42%	5.48%
29	Springfield Town Centre Western Interchange	100.00%			42.62%		0.04%		0.01%		1.77%	0.08%	3.45%	1.45%	0.00%	0.03%	0.09%	0.60%	3.51%	0.07%	10.74 %	0.21%	0.55%	0.21%	0.03%	1.97%	0.95%	1.25%	0.27%	0.69%	1.43%	1.39%	0.15%	14.50 %	5.40%	6.53%
30	Main Street / Southern Cross Circuit (G)-(H)	100.00%	0.49%		60.76%	1.19%	2.83%	0.32%	1.05%	2.90%	6.80%	0.24%	0.62%	0.54%	0.08%	0.21%	0.20%	0.60%	0.86%	0.09%	3.14%	0.04%	0.13%	0.09%	0.03%	0.55%	0.20%	0.29%	0.07%	0.19%	0.36%	0.31%	0.04%	5.44%	8.43%	0.90%
31	Southern Cross Circuit	100.00%	0.49%		60.76%	1.19%	2.83%	0.32%	1.05%	2.90%	6.80%	0.24%	0.62%	0.54%	0.08%	0.21%	0.20%	0.60%	0.86%	0.09%	3.14%	0.04%	0.13%	0.09%	0.03%	0.55%	0.20%	0.29%	0.07%	0.19%	0.36%	0.31%	0.04%	5.44%	8.43%	0.90%
32	Nev Smith Drive	100.00%	4.60%	5.56%	50.53%	9.49%		2.44%	3.74%	0.07%		0.55%			0.52%	1.54%	0.59%	0.81%		0.31%	2.13%	0.00%	0.15%	0.31%	0.09%	0.07%	0.20%			0.01%					14.76%	1.54%
33	Redbank Plains Road - Queen Street	100.00%	4.88%	1.70%	4.42%	20.64 %	8.23%	0.13%	0.34%	20.63 %	12.52 %	0.11%	0.95%	0.18%	0.01%			0.00%		0.01%	0.01%	0.00%	0.00%	0.01%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	2.51%	20.79%	1.88%
34	Redbank Plains Road	100.00%	1.60%	0.67%	14.33%	7.20%	10.65 %	3.21%	8.18%	20.74 %	12.49 %	0.87%	0.71%	0.39%	0.24%	1.56%	0.03%	0.63%	0.20%	0.13%	1.35%	0.01%	0.05%	0.11%	0.05%	0.04%	0.05%	0.07%	0.02%	0.01%	0.03%	0.08%	0.00%	4.76%	8.26%	1.29%
35	Redbank Plains Road	100.00%	0.68%	0.38%	22.68%	0.88%	13.35 %		0.07%	10.33 %	8.21%	3.43%	1.61%	0.18%	0.20%	0.31%	1.41%	5.96%	1.22%	0.22%	18.51 %	0.08%	0.61%	0.11%	0.02%	0.05%	0.22%	0.25%	0.03%	0.01%	0.06%	0.21%	0.00%	0.34%	7.63%	0.78%
36	Redbank Plains Road - Stage 1	100.00%	0.54%	0.30%	17.29%	0.70%	10.28 %		0.07%	19.47 %	9.85%	3.23%	1.59%	0.22%	0.25%	0.40%	1.32%	5.50%	1.52%	0.22%	17.29 %	0.10%	0.62%	0.15%	0.03%	0.11%	0.28%	0.27%	0.04%	0.02%	0.17%	0.29%	0.01%	0.58%	6.13%	1.16%
37	Redbank Plains Road - Stage 2	100.00%	0.33%	0.24%	16.45%	0.40%	9.66%		0.07%	18.58 %	9.43%	3.45%	1.77%	0.27%	0.30%	0.54%	1.45%	5.96%	1.84%	0.27%	19.23 %	0.12%	0.71%	0.19%	0.04%	0.14%	0.33%	0.33%	0.04%	0.03%	0.19%	0.34%	0.02%	0.66%	5.39%	1.22%
38	Redbank Plains Road	100.00%	0.37%	0.08%	9.16%	0.45%	6.54%	0.17%	0.79%	16.84 %	12.87 %	4.04%	2.69%	0.43%	0.39%	1.00%	1.66%	6.71%	2.72%	0.38%	22.51 %	0.16%	0.81%	0.26%	0.07%	0.26%	0.42%	0.56%	0.10%	0.05%	0.33%	0.59%	0.03%	1.02%	3.80%	1.74%
39	Redbank Plains Road	100.00%	0.35%	0.07%	8.56%	0.24%	6.09%	0.05%	0.60%	15.48 %	14.77 %	3.97%	3.30%	0.45%	0.42%	1.08%	1.67%	6.71%	2.88%	0.41%	22.38 %	0.17%	0.82%	0.29%	0.08%	0.29%	0.44%	0.61%	0.11%	0.06%	0.35%	0.64%	0.03%	1.10%	3.79%	1.76%

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
40	Redbank Plains Road	100.00%	1.30%	0.03%	6.76%	0.32%	4.58%	0.45%	0.62%	11.48 %	11.43 %	5.07%	9.27%	0.53%	0.65%	1.57%	1.82%	6.98%	2.87%	0.52%	19.51 %	0.18%	0.71%	0.34%	0.09%	0.30%	0.39%	0.78%	0.11%	0.06%	0.38%	0.70%	0.03%	3.09%	5.20%	1.89%
41	Redbank Plains Road	100.00%	1.30%	0.03%	6.76%	0.32%	4.58%	0.45%	0.62%	11.48 %	11.43 %	5.07%	9.27%	0.53%	0.65%	1.57%	1.82%	6.98%	2.87%	0.52%	19.51 %	0.18%	0.71%	0.34%	0.09%	0.30%	0.39%	0.78%	0.11%	0.06%	0.38%	0.70%	0.03%	3.09%	5.20%	1.89%
42	Redbank Plains Road	100.00%	0.37%	0.08%	9.16%	0.45%	6.54%	0.17%	0.79%	16.84 %	12.87 %	4.04%	2.69%	0.43%	0.39%	1.00%	1.66%	6.71%	2.72%	0.38%	22.51 %	0.16%	0.81%	0.26%	0.07%	0.26%	0.42%	0.56%	0.10%	0.05%	0.33%	0.59%	0.03%	1.02%	3.80%	1.74%
43	Redbank Plains Road	100.00%	1.30%	0.03%	6.76%	0.32%	4.58%	0.45%	0.62%	11.48 %	11.43 %	5.07%	9.27%	0.53%	0.65%	1.57%	1.82%	6.98%	2.87%	0.52%	19.51 %	0.18%	0.71%	0.34%	0.09%	0.30%	0.39%	0.78%	0.11%	0.06%	0.38%	0.70%	0.03%	3.09%	5.20%	1.89%
44	Mount Juillerat Drive	100.00%	0.11%	0.03%	51.19%	0.22%	3.21%	0.04%	0.06%	0.54%	37.35 %	0.10%	0.67%	0.05%	0.14%	0.66%	0.50%	0.83%	0.15%	0.01%	0.42%	0.00%	0.02%	0.01%	0.00%	0.01%	0.02%	0.02%	0.00%	0.00%	0.02%	0.02%	0.00%	0.33%	2.83%	0.42%
45	Mount Juillerat Drive	100.00%	0.11%	0.03%	51.19%	0.22%	3.21%	0.04%	0.06%	0.54%	37.35 %	0.10%	0.67%	0.05%	0.14%	0.66%	0.50%	0.83%	0.15%	0.01%	0.42%	0.00%	0.02%	0.01%	0.00%	0.01%	0.02%	0.02%	0.00%	0.00%	0.02%	0.02%	0.00%	0.33%	2.83%	0.42%
46	Mount Juillerat Drive	100.00%	0.00%		48.38%	0.33%	1.00%	0.25%	0.54%	1.23%	36.86 %	0.29%	0.99%	0.23%	0.15%	0.70%	0.55%	0.91%	0.47%	0.06%	1.80%	0.01%	0.04%	0.03%	0.02%	0.18%	0.08%	0.12%	0.03%	0.06%	0.11%	0.13%	0.01%	2.00%	1.61%	0.82%
47	Mount Juillerat Drive	100.00%	0.14%	0.03%	51.09%	0.22%	2.25%	0.20%	0.43%	1.13%	34.71 %	0.29%	0.76%	0.09%	0.14%	0.67%	0.53%	0.94%	0.27%	0.05%	1.45%	0.01%	0.03%	0.03%	0.02%	0.14%	0.06%	0.05%	0.01%	0.05%	0.07%	0.05%	0.01%	0.75%	2.72%	0.61%
48	Mount Juillerat Drive	100.00%	0.00%		48.38%	0.33%	1.00%	0.25%	0.54%	1.23%	36.86 %	0.29%	0.99%	0.23%	0.15%	0.70%	0.55%	0.91%	0.47%	0.06%	1.80%	0.01%	0.04%	0.03%	0.02%	0.18%	0.08%	0.12%	0.03%	0.06%	0.11%	0.13%	0.01%	2.00%	1.61%	0.82%
49	Mount Juillerat Drive	100.00%	1.85%	0.24%	25.80%	1.19%	2.17%		0.10%	1.01%	49.22 %	0.31%	2.34%	0.18%	0.02%	0.20%	0.24%	0.47%	0.48%	0.02%	3.02%	0.01%	0.11%	0.04%	0.01%	0.00%	0.01%	0.01%	0.00%					0.51%	8.68%	1.76%
50	Mount Juillerat Drive	100.00%	1.81%	0.26%	24.24%	1.30%	2.37%		0.11%	1.81%	49.27 %	0.33%	2.75%	0.22%	0.02%	0.21%	0.26%	0.51%	0.58%	0.02%	3.42%	0.01%	0.13%	0.05%	0.01%	0.00%	0.02%	0.01%				0.00%		0.64%	8.02%	1.60%
51	Mount Juillerat Drive	100.00%	1.81%	0.26%	24.24%	1.30%	2.37%		0.11%	1.81%	49.27 %	0.33%	2.75%	0.22%	0.02%	0.21%	0.26%	0.51%	0.58%	0.02%	3.42%	0.01%	0.13%	0.05%	0.01%	0.00%	0.02%	0.01%				0.00%		0.64%	8.02%	1.60%
52	Mount Juillerat Drive	100.00%	0.42%	0.08%	5.76%	0.64%	1.09%	0.63%	1.35%	7.25%	44.26 %	0.25%	6.46%	1.86%	0.03%	0.18%	0.08%	0.29%	2.10%	0.03%	3.10%	0.05%	0.15%	0.07%	0.00%	0.55%	0.19%	0.34%	0.10%	0.17%	0.37%	0.48%	0.04%	19.45 %	0.71%	1.48%
53	Mount Juillerat Drive	100.00%	0.42%	0.08%	5.76%	0.64%	1.09%	0.63%	1.35%	7.25%	44.26 %	0.25%	6.46%	1.86%	0.03%	0.18%	0.08%	0.29%	2.10%	0.03%	3.10%	0.05%	0.15%	0.07%	0.00%	0.55%	0.19%	0.34%	0.10%	0.17%	0.37%	0.48%	0.04%	19.45 %	0.71%	1.48%
54	Mount Juillerat Drive	100.00%	0.42%	0.08%	5.76%	0.64%	1.09%	0.63%	1.35%	7.25%	44.26 %	0.25%	6.46%	1.86%	0.03%	0.18%	0.08%	0.29%	2.10%	0.03%	3.10%	0.05%	0.15%	0.07%	0.00%	0.55%	0.19%	0.34%	0.10%	0.17%	0.37%	0.48%	0.04%	19.45 %	0.71%	1.48%
55	Mount Juillerat Drive	100.00%	0.27%	0.03%	2.57%	0.17%	0.37%	0.37%	0.78%	5.66%	39.82 %	0.23%	7.59%	2.28%	0.04%	0.19%	0.09%	0.41%	2.93%	0.03%	5.19%	0.09%	0.24%	0.11%	0.01%	0.63%	0.28%	0.56%	0.14%	0.20%	0.45%	0.68%	0.05%	23.92 %	1.66%	1.97%
56	Centenary Highway Link Road "temporary"	100.00%	2.64%	0.06%	21.88%	0.01%		0.10%	0.23%	1.31%	8.22%	0.65%	15.59 %	2.08%	0.07%	0.27%	0.35%	2.29%	2.75%	0.13%	17.82 %	0.01%	0.03%	0.01%	0.00%	0.30%	0.04%	0.18%	0.08%	0.09%	0.21%	0.32%	0.02%	10.04 %	10.12%	2.10%
57	Swanbank Boulevard	100.00%	2.64%	0.06%	21.88%	0.01%		0.10%	0.23%	1.31%	8.22%	0.65%	15.59 %	2.08%	0.07%	0.27%	0.35%	2.29%	2.75%	0.13%	17.82 %	0.01%	0.03%	0.01%	0.00%	0.30%	0.04%	0.18%	0.08%	0.09%	0.21%	0.32%	0.02%	10.04 %	10.12%	2.10%
58	School Road	100.00%	0.56%	0.29%	1.31%	1.05%	1.50%	2.13%	4.59%	14.59 %	41.30 %	2.34%	2.11%	0.49%	0.40%	1.39%	0.87%	3.07%	0.61%	0.36%	11.00 %	0.05%	0.42%	0.26%	0.10%	0.10%	0.25%	0.15%	0.02%	0.01%	0.04%	0.15%	0.00%	6.01%	1.78%	0.67%
59	School Road	100.00%	0.56%	0.29%	1.31%	1.05%	1.50%	2.13%	4.59%	14.59 %	41.30 %	2.34%	2.11%	0.49%	0.40%	1.39%	0.87%	3.07%	0.61%	0.36%	11.00 %	0.05%	0.42%	0.26%	0.10%	0.10%	0.25%	0.15%	0.02%	0.01%	0.04%	0.15%	0.00%	6.01%	1.78%	0.67%
60	School Road	100.00%	0.35%	0.11%	4.59%	0.48%	0.33%	1.50%	3.19%	10.65 %	44.62 %	1.80%	3.67%	0.85%	0.30%	1.15%	0.87%	2.78%	0.27%	0.27%	7.03%	0.01%	0.27%	0.17%	0.08%	0.11%	0.09%	0.06%	0.02%	0.02%	0.05%	0.12%	0.00%	11.51 %	1.61%	1.06%
61	School Road	100.00%	0.35%	0.11%	4.59%	0.48%	0.33%	1.50%	3.19%	10.65 %	44.62 %	1.80%	3.67%	0.85%	0.30%	1.15%	0.87%	2.78%	0.27%	0.27%	7.03%	0.01%	0.27%	0.17%	0.08%	0.11%	0.09%	0.06%	0.02%	0.02%	0.05%	0.12%	0.00%	11.51 %	1.61%	1.06%
62	School Road	100.00%	0.43%	0.10%	5.86%	0.44%	0.43%	1.32%	2.80%	9.47%	46.41 %	1.58%	3.67%	0.86%	0.27%	1.01%	0.76%	2.44%	0.31%	0.23%	6.17%	0.01%	0.23%	0.15%	0.07%	0.11%	0.08%	0.08%	0.03%	0.02%	0.06%	0.13%	0.00%	11.23 %	2.08%	1.16%
63	School Road	100.00%	0.43%	0.10%	5.86%	0.44%	0.43%	1.32%	2.80%	9.47%	46.41 %	1.58%	3.67%	0.86%	0.27%	1.01%	0.76%	2.44%	0.31%	0.23%	6.17%	0.01%	0.23%	0.15%	0.07%	0.11%	0.08%	0.08%	0.03%	0.02%	0.06%	0.13%	0.00%	11.23 %	2.08%	1.16%
64	Keidges Road	100.00%	1.60%	0.50%	11.59%	5.59%	13.41 %	2.69%	4.43%	13.31 %	20.64 %	0.92%	0.88%	0.81%	0.24%	0.90%	0.46%	1.27%	0.23%	0.14%	3.36%	0.02%	0.11%	0.09%	0.04%	0.08%	0.06%	0.09%	0.03%	0.02%	0.10%	0.10%	0.01%	9.83%	4.80%	1.61%
65	Keidges Road	100.00%	1.59%	0.39%	10.82%	5.04%	11.55 %	2.26%	3.44%	10.97 %	25.90 %	0.70%	1.05%	1.13%	0.20%	0.77%	0.41%	0.91%	0.18%	0.10%	1.99%		0.04%	0.05%	0.03%	0.13%	0.01%	0.11%	0.05%	0.04%	0.17%	0.16%	0.01%	13.73 %	3.62%	2.47%
66	Keidges Road Extension	100.00%	1.85%	0.06%	11.31%	2.75%	6.86%	1.31%	1.87%	7.01%	25.83 %	0.06%	1.35%	1.57%	0.01%	0.04%	0.01%	0.03%	0.83%	0.00%	0.06%	0.02%	0.01%	0.01%	0.00%	0.38%	0.21%	0.39%	0.12%	0.12%	0.38%	0.47%	0.03%	19.23 %	10.54%	5.26%
67	Jones Road	100.00%	1.06%	0.99%	20.84%	2.95%	38.97 %	0.41%	0.93%	3.91%	8.20%	1.09%	1.23%	0.37%	0.09%	0.61%	0.27%	1.60%	1.00%	0.10%	8.44%	0.06%	0.32%	0.07%	0.02%	0.09%	0.17%	0.22%	0.04%	0.02%	0.13%	0.20%	0.01%	2.89%	1.46%	1.26%
68	Jones Road	100.00%	1.06%	0.99%	20.84%	2.95%	38.97 %	0.41%	0.93%	3.91%	8.20%	1.09%	1.23%	0.37%	0.09%	0.61%	0.27%	1.60%	1.00%	0.10%	8.44%	0.06%	0.32%	0.07%	0.02%	0.09%	0.17%	0.22%	0.04%	0.02%	0.13%	0.20%	0.01%	2.89%	1.46%	1.26%
69	Jones Road	100.00%	1.06%	0.99%	20.84%	2.95%	38.97 %	0.41%	0.93%	3.91%	8.20%	1.09%	1.23%	0.37%	0.09%	0.61%	0.27%	1.60%	1.00%	0.10%	8.44%	0.06%	0.32%	0.07%	0.02%	0.09%	0.17%	0.22%	0.04%	0.02%	0.13%	0.20%	0.01%	2.89%	1.46%	1.26%
70	Jones Road	100.00%	1.06%	0.99%	20.84%	2.95%	38.97 %	0.41%	0.93%	3.91%	8.20%	1.09%	1.23%	0.37%	0.09%	0.61%	0.27%	1.60%	1.00%	0.10%	8.44%	0.06%	0.32%	0.07%	0.02%	0.09%	0.17%	0.22%	0.04%	0.02%	0.13%	0.20%	0.01%	2.89%	1.46%	1.26%
71	Jones Road	100.00%	1.06%	0.99%	20.84%	2.95%	38.97 %	0.41%	0.93%	3.91%	8.20%	1.09%	1.23%	0.37%	0.09%	0.61%	0.27%	1.60%	1.00%	0.10%	8.44%	0.06%	0.32%	0.07%	0.02%	0.09%	0.17%	0.22%	0.04%	0.02%	0.13%	0.20%	0.01%	2.89%	1.46%	1.26%
72	Jones Road / Church Street	100.00%	3.14%	0.97%	4.63%	23.03 %	31.53 %	1.79%	0.78%	0.62%	0.49%	0.24%	0.02%	0.03%	0.24%	0.78%	0.30%	0.31%	0.11%	0.17%	0.74%	0.01%	0.04%	0.14%	0.05%	0.11%	0.08%	0.02%	0.01%	0.03%	0.02%	0.03%	0.00%	0.31%	25.67%	3.54%
73	Brennan Street	100.00%	0.95%	0.47%	20.53%	17.83 %	27.73 %	0.79%	10.73 %	10.12 %	1.79%	1.42%	0.28%	0.10%	0.13%	0.63%	0.23%	0.30%	0.19%	0.20%	1.20%	0.01%	0.08%	0.17%	0.06%	0.11%	0.16%	0.06%	0.01%	0.02%	0.02%	0.05%	0.00%	1.00%	2.16%	0.50%
74	Alice Street	100.00%	22.28 %	14.01 %	10.23%	12.08 %	3.72%	2.01%	3.66%	4.53%	2.60%	0.79%	1.12%	0.21%	0.65%	1.39%	0.57%	1.27%	0.48%	0.68%	5.73%	0.04%	0.39%	0.33%	0.20%	0.98%	1.08%	0.20%	0.03%	0.35%	0.13%	0.50%	0.03%	0.35%	4.73%	2.62%
75	Smiths Road Extension	100.00%	1.74%	2.52%	1.71%	38.13 %	0.47%	2.21%	22.91 %	2.91%	0.26%	4.23%	0.23%	0.18%	0.42%	2.43%	0.70%	2.06%	0.88%	0.40%	4.26%	0.05%	0.31%	0.34%	0.10%	0.31%	0.25%	0.19%	0.03%	0.08%	0.11%	0.21%	0.01%	0.61%	5.66%	3.07%
76	Smiths Road	100.00%	2.55%	3.19%	2.62%	38.34 %	0.74%	1.13%	20.61 %	2.50%	0.15%	4.30%	0.11%	0.10%	0.21%	2.31%	0.42%	1.41%	0.47%	0.26%	2.21%	0.03%	0.26%	0.22%	0.06%	0.20%	0.16%	0.11%	0.02%	0.05%	0.07%	0.12%	0.00%	0.31%	12.28%	2.51%
77	Monash Road	100.00%	0.68%	0.45%	3.47%	2.06%	0.82%	50.00 %	1.51%	2.11%	1.56%	1.29%	0.43%	0.33%	0.43%	3.28%	1.08%	2.40%	1.14%	1.52%	3.75%	0.09%	0.20%	0.32%	0.07%	0.40%	0.31%	0.45%	0.08%	0.10%	0.44%	0.67%	0.04%	2.62%	9.11%	6.78%
78	Old Ipswich Road Extension	100.00%	1.10%	0.46%	5.70%	3.70%	3.31%	0.26%	33.74 %	13.51 %	2.36%	18.89 %	0.05%	0.08%	0.30%	0.54%	0.36%	0.42%	0.37%	0.47%	1.09%	0.04%	0.15%	0.35%	0.11%	0.33%	0.33%	0.14%	0.02%	0.10%	0.05%	0.11%	0.00%	0.37%	9.16%	2.03%
79	Pottery Road / Jacob Street	100.00%	0.27%	0.04%	1.38%	0.54%	1.53%	0.23%	25.11 %	8.10%	0.48%	22.27 %	0.59%	0.66%	1.15%	1.55%	1.73%	5.29%	3.04%	1.06%	8.88%	0.18%	0.50%	1.00%	0.24%	0.82%	0.51%	0.35%	0.08%	0.22%	0.41%	0.48%	0.04%	3.81%	3.26%	4.19%
80	Collingwood Drive	100.00%	0.93%	0.10%	2.74%	2.20%	1.58%	4.67%	17.37 %	33.87 %	8.37%	5.37%	0.71%	0.11%	0.43%	1.65%	0.47%	0.72%	0.17%	0.42%	1.09%	0.02%	0.15%	0.33%	0.10%	0.27%	0.26%	0.07%	0.01%	0.08%	0.03%	0.05%	0.00%	1.03%	11.79%	2.85%
81	Collingwood Drive	100.00%	0.82%	0.07%	2.91%	1.93%	0.83%	4.76%	14.08 %	38.27 %	11.50 %	1.92%	1.20%	0.16%	0.29%	1.42%	0.28%	0.66%	0.24%	0.28%	1.43%	0.02%	0.14%	0.23%	0.08%	0.18%	0.18%	0.04%	0.01%	0.06%	0.03%	0.06%	0.00%	1.76%	11.50%	2.66%
82	Collingwood Drive Extension - Stage 1	100.00%	1.72%	0.22%	2.55%	2.77%	2.39%	3.33%	9.27%	36.01 %	13.73 %	1.77%	3.65%	0.49%	0.03%	0.34%	0.22%	1.52%	1.68%	0.05%	6.75%	0.09%	0.18%	0.04%	0.01%	0.12%	0.10%	0.41%	0.07%	0.03%	0.25%	0.39%	0.02%	3.32%	4.79%	1.71%

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
83	Collingwood Drive Extension - Stage 1	100.00%	1.72%	0.22%	2.55%	2.77%	2.39%	3.33%	9.27%	36.01%	13.73%	1.77%	3.65%	0.49%	0.03%	0.34%	0.22%	1.52%	1.68%	0.05%	6.75%	0.09%	0.18%	0.04%	0.01%	0.12%	0.10%	0.41%	0.07%	0.03%	0.25%	0.39%	0.02%	3.32%	4.79%	1.71%
84	Collingwood Drive Extension - Stage 2	100.00%	0.92%	0.08%	5.26%	1.35%	2.05%	2.16%	5.43%	39.42%	12.96%	1.83%	3.55%	0.66%	0.04%	0.15%	0.39%	2.14%	2.19%	0.06%	8.86%	0.12%	0.26%	0.05%	0.01%	0.22%	0.14%	0.52%	0.12%	0.05%	0.34%	0.56%	0.03%	4.62%	1.65%	1.82%
85	Collingwood Drive Extension - Stage 2	100.00%	0.92%	0.08%	5.26%	1.35%	2.05%	2.16%	5.43%	39.42%	12.96%	1.83%	3.55%	0.66%	0.04%	0.15%	0.39%	2.14%	2.19%	0.06%	8.86%	0.12%	0.26%	0.05%	0.01%	0.22%	0.14%	0.52%	0.12%	0.05%	0.34%	0.56%	0.03%	4.62%	1.65%	1.82%
86	Eagle Street	100.00%	4.16%	1.31%	8.16%	7.31%	8.61%		4.22%	42.23%	3.42%	1.93%	3.73%	0.21%	0.05%	0.31%	0.11%	1.19%	1.51%	0.07%	5.73%	0.09%	0.16%	0.03%	0.01%	0.03%	0.11%	0.47%	0.04%	0.00%	0.25%	0.34%	0.01%	0.43%	2.66%	1.09%
87	Eagle Street	100.00%	4.53%	2.23%	8.52%	11.06%	22.75%	0.43%	10.23%	21.07%	1.93%	1.59%	1.58%	0.04%	0.11%	0.63%	0.26%	0.39%	0.21%	0.14%	1.48%	0.01%	0.08%	0.11%	0.04%	0.11%	0.12%	0.06%	0.01%	0.02%	0.02%	0.05%	0.00%	0.12%	8.69%	1.37%
88	Kruger Parade	100.00%	0.66%	0.06%	12.58%	1.74%	10.02%	8.28%	24.15%	16.61%	4.86%	2.91%	0.94%	0.23%	0.76%	3.97%	0.50%	1.31%	0.07%	0.49%	1.26%	0.01%	0.08%	0.44%	0.16%	0.27%	0.30%	0.02%	0.00%	0.06%	0.01%	0.01%	0.00%	2.83%	2.68%	1.72%
89	Mary Street	100.00%	1.64%	0.14%	6.37%	0.84%	3.77%	0.60%	1.28%	7.90%	8.38%	1.30%	2.41%	0.15%	0.02%	0.33%	1.08%	12.29%	1.37%	0.27%	34.23%	1.01%	0.86%	0.15%	0.00%	0.03%	0.40%	0.34%	0.02%	0.00%	0.05%	0.09%	0.00%	1.36%	9.98%	1.33%
90	Mary Street	100.00%	1.45%	0.13%	6.37%	0.75%	3.60%	0.54%	1.16%	7.70%	8.23%	3.48%	2.58%	0.44%	0.02%	0.29%	2.18%	13.01%	1.67%	0.23%	29.12%	0.79%	0.73%	0.11%	0.00%	0.07%	0.31%	0.39%	0.06%	0.01%	0.21%	0.27%	0.01%	3.27%	9.27%	1.52%
91	Mary Street	100.00%	1.45%	0.13%	6.37%	0.75%	3.60%	0.54%	1.16%	7.70%	8.23%	3.48%	2.58%	0.44%	0.02%	0.29%	2.18%	13.01%	1.67%	0.23%	29.12%	0.79%	0.73%	0.11%	0.00%	0.07%	0.31%	0.39%	0.06%	0.01%	0.21%	0.27%	0.01%	3.27%	9.27%	1.52%
92	Thomas Street	100.00%	0.19%	0.03%	8.87%	0.11%	4.31%	0.09%	0.40%	9.41%	10.93%	0.60%	2.95%	0.19%	0.02%	0.21%	2.03%	18.25%	0.58%	0.53%	32.33%		1.34%	0.03%	0.00%	0.01%	0.00%	0.03%	0.02%	0.00%	0.05%	0.09%	0.00%	1.77%	4.16%	0.46%
93	Robertson Road Extension	100.00%	3.45%	0.28%	2.37%	1.65%	2.77%	1.09%	2.12%	5.21%	4.19%	1.92%	1.30%	0.08%	0.01%	0.72%	0.02%	6.92%	3.60%	0.00%	39.13%	2.38%	0.31%	0.39%	0.00%	0.07%	1.00%	0.69%			0.00%			0.35%	16.11%	1.87%
94	Robertson Road	100.00%	1.99%	0.16%	3.97%	0.92%	1.56%	0.58%	1.15%	2.89%	2.86%	0.95%	1.29%	0.92%	0.03%	0.46%	0.39%	5.33%	7.21%	0.22%	43.96%	1.70%	0.34%	0.49%	0.02%	0.18%	0.73%	0.62%	0.08%	0.00%	0.02%	0.29%	0.00%	7.68%	9.36%	1.66%
95	South Station Road	100.00%		0.00%	8.81%	0.00%	0.01%		0.00%	0.04%	0.91%	0.04%	3.02%	4.50%	0.03%	0.04%	3.75%	19.99%	4.57%	1.86%	24.03%	0.00%	0.08%	0.01%	0.00%	0.07%	0.01%	0.71%	0.18%	0.01%	0.62%	1.08%	0.04%	22.38%	0.91%	2.29%
96	South Station Road	100.00%	0.42%	0.03%	10.83%	0.26%	0.11%	0.18%	0.39%	0.30%	2.41%	0.20%	3.37%	4.80%	0.05%	0.27%	1.92%	10.35%	11.73%	0.98%	25.59%	0.10%	0.38%	0.24%	0.00%	0.09%	0.12%	0.54%	0.13%	0.02%	0.42%	0.75%	0.03%	16.31%	4.17%	2.52%
97	Thorn Street	100.00%	0.23%	0.01%	4.34%	0.08%	0.38%	0.04%	0.11%	0.62%	1.25%	0.07%	0.99%	1.40%	0.17%	0.16%	0.45%	2.54%	9.93%	0.21%	58.73%	0.64%	0.75%	0.34%	0.05%	0.59%	0.24%	0.71%	0.10%	0.03%	0.54%	0.52%	0.03%	9.33%	2.70%	1.70%
98	Brisbane Street	100.00%	0.22%	0.01%	2.80%	0.06%	0.08%	0.08%	0.06%	0.10%	0.15%	0.05%	0.28%	1.46%	0.12%	0.01%	0.10%	0.19%	7.81%	0.20%	45.40%	6.96%	9.46%	0.58%	0.02%	2.17%	1.13%	1.25%	0.32%	0.02%	1.75%	1.58%	0.09%	10.94%	0.99%	3.55%
99	Brisbane Street	100.00%	0.14%	0.00%	1.76%	0.02%	0.00%	0.04%	0.03%	0.00%	0.02%	0.12%	0.15%	1.10%	0.38%	0.25%	0.67%	0.58%	5.55%	0.64%	52.39%	5.21%	11.95%	1.29%	0.07%	1.09%	0.73%	1.04%	0.25%	0.07%	1.01%	1.29%	0.05%	8.25%	1.00%	2.84%
100	Brisbane Street	100.00%	0.45%	0.02%	2.96%	0.10%	0.11%	0.12%	0.10%	0.18%	0.24%	0.10%	0.30%	1.48%	0.06%	0.07%	0.03%	0.39%	8.14%	0.08%	43.38%	7.15%	8.24%	0.79%	0.06%	2.35%	1.21%	1.24%	0.33%	0.06%	1.90%	1.59%	0.10%	11.19%	1.38%	4.10%
101	Brisbane Street - Burnett Street	100.00%	0.45%	0.02%	2.96%	0.10%	0.11%	0.12%	0.10%	0.18%	0.24%	0.10%	0.30%	1.48%	0.06%	0.07%	0.03%	0.39%	8.14%	0.08%	43.38%	7.15%	8.24%	0.79%	0.06%	2.35%	1.21%	1.24%	0.33%	0.06%	1.90%	1.59%	0.10%	11.19%	1.38%	4.10%
102	Old Toowoomba Road	100.00%	0.16%	0.01%	1.18%	0.07%	0.23%	0.10%	0.14%	0.46%	0.50%	0.23%	0.37%	0.56%	0.13%	0.12%	0.55%	1.87%	4.44%	0.39%	36.64%	20.38%	3.07%	1.98%	0.10%	4.77%	5.38%	2.88%	0.14%	0.13%	3.41%	0.62%	0.18%	4.19%	1.75%	2.85%
103	Old Toowoomba Road	100.00%	0.16%	0.01%	1.22%	0.07%	0.21%	0.10%	0.13%	0.40%	0.60%	0.20%	0.36%	0.55%	0.07%	0.11%	0.47%	1.64%	7.41%	0.18%	25.90%	21.73%	0.90%	0.64%	0.25%	6.19%	10.66%	5.60%	0.10%	0.17%	3.59%	0.57%	0.21%	3.64%	1.71%	4.23%
104	Old Toowoomba Road	100.00%	0.16%	0.01%	1.22%	0.07%	0.21%	0.10%	0.13%	0.40%	0.60%	0.20%	0.36%	0.55%	0.07%	0.11%	0.47%	1.64%	7.41%	0.18%	25.90%	21.73%	0.90%	0.64%	0.25%	6.19%	10.66%	5.60%	0.10%	0.17%	3.59%	0.57%	0.21%	3.64%	1.71%	4.23%
105	Toongarra Road	100.00%	0.03%	0.00%	1.42%	0.02%	0.22%	0.03%	0.03%	0.44%	0.73%	0.15%	0.23%	0.52%	0.02%	0.02%	0.41%	1.34%	8.16%	0.01%	22.82%	12.19%	0.37%	0.38%	0.43%	9.52%	17.47%	4.72%	0.10%	0.33%	5.56%	0.46%	0.34%	3.72%	0.70%	7.13%
106	Toongarra Road	100.00%	0.02%	0.00%	1.26%	0.02%	0.20%	0.01%	0.03%	0.39%	0.66%	0.10%	0.16%	0.44%	0.07%	0.01%	0.31%	0.96%	7.72%	0.18%	19.73%	8.44%	0.42%	1.13%	0.60%	11.88%	20.39%	4.18%	0.08%	0.47%	6.40%	0.44%	0.40%	3.27%	0.52%	9.11%
107	Toongarra Road	100.00%	0.26%	0.03%	0.75%	0.20%	0.11%	0.13%	0.20%	0.25%	0.36%	0.07%	0.09%	0.24%	0.15%	0.08%	0.13%	0.56%	5.72%	0.03%	15.62%	6.61%	0.17%	0.80%	0.63%	12.15%	24.54%	4.35%	0.04%	0.58%	7.18%	0.24%	0.50%	1.81%	3.61%	11.81%
108	Toongarra Road	100.00%	0.26%	0.03%	0.75%	0.20%	0.11%	0.13%	0.20%	0.25%	0.36%	0.07%	0.09%	0.24%	0.15%	0.08%	0.13%	0.56%	5.72%	0.03%	15.62%	6.61%	0.17%	0.80%	0.63%	12.15%	24.54%	4.35%	0.04%	0.58%	7.18%	0.24%	0.50%	1.81%	3.61%	11.81%
109	Lobb Street Realignment	100.00%	0.10%	0.00%	4.27%	0.01%	0.02%	0.01%	0.02%	0.03%	0.22%	0.00%	0.35%	2.05%	0.12%		0.00%	0.00%	17.25%	0.54%	24.92%	4.49%	5.49%	4.40%	0.26%	1.36%	5.37%	4.21%	0.50%	0.05%	0.15%	2.39%	0.00%	15.91%	1.16%	4.36%
110	Lobb Street	100.00%	0.15%	0.01%	4.23%	0.06%	0.05%	0.04%	0.07%	0.10%	0.29%	0.06%	0.56%	2.11%	0.10%	0.07%	0.10%	0.40%	19.83%	0.50%	22.27%	4.12%	5.04%	4.03%	0.23%	1.08%	4.98%	4.06%	0.52%	0.03%	0.24%	2.47%	0.01%	16.05%	1.94%	4.20%
111	Waterworks Road	100.00%	1.02%	0.07%	0.31%	0.44%	0.10%	0.32%	0.61%	0.21%	0.07%	0.11%	0.03%	0.02%	4.45%	0.53%	1.37%	4.07%	0.59%	7.04%	34.15%	0.25%	3.12%	4.43%	2.22%	1.73%	0.03%	0.12%	0.01%	2.53%	2.29%	0.10%	0.34%	0.10%	7.50%	19.76%
112	Junction Road	100.00%	0.29%	0.18%	0.71%	0.33%	0.13%	0.13%	0.32%	0.32%	0.30%	0.12%	0.40%	0.15%	47.98%	0.32%	0.88%	1.91%	0.37%	1.65%	26.90%	0.02%	0.62%	0.29%	0.04%	0.22%	0.07%	0.05%	0.08%	0.06%	0.13%	0.20%	0.01%	0.91%	12.94%	0.97%
113	Junction Road	100.00%	0.32%	0.19%	0.76%	0.36%	0.15%	0.16%	0.38%	0.35%	0.32%	0.15%	0.42%	0.16%	47.95%	0.40%	0.84%	1.84%	0.38%	1.56%	25.74%	0.02%	0.59%	0.28%	0.05%	0.25%	0.08%	0.06%	0.08%	0.06%	0.13%	0.21%	0.01%	0.96%	13.65%	1.12%
114	Junction Road	100.00%	0.27%	0.13%	0.58%	0.30%	0.12%	0.16%	0.38%	0.29%	0.25%	0.15%	0.27%	0.11%	47.37%	0.34%	1.41%	2.41%	0.72%	2.19%	30.06%	0.11%	0.78%	0.90%	0.11%	0.58%	0.20%	0.08%	0.05%	0.15%	0.29%	0.16%	0.03%	0.69%	7.14%	1.18%
115	Moggill Pocket Arterial Link Road	100.00%	1.07%	0.31%	1.85%	1.28%	0.46%	0.81%	2.10%	1.09%	0.83%	0.84%	0.94%	0.40%	48.85%	2.27%	0.92%	1.27%	1.17%	0.74%	1.87%	0.10%	0.35%	1.52%	0.23%	0.94%	0.40%	0.21%	0.13%	0.20%	0.35%	0.44%	0.04%	2.38%	20.01%	3.66%
116	Bayley Road Extension	100.00%	2.37%	0.09%	1.36%	0.62%	0.30%	0.33%	0.77%	0.61%	0.53%	0.33%	0.19%	0.11%	0.99%	0.78%	1.03%	1.29%	0.36%	2.02%	17.00%	0.03%	1.12%	5.25%	50.36%	0.20%	0.20%	0.01%	0.00%	0.01%	0.01%	0.00%	0.00%	0.42%	10.07%	1.24%
117	Pine Mountain Road	100.00%	2.17%	0.07%	1.27%	0.56%	0.26%	0.34%	0.72%	0.54%	0.46%	0.33%	0.20%	0.11%	0.87%	0.80%	1.00%	1.26%	0.58%	1.96%	18.72%	0.02%	1.16%	4.92%	50.02%	0.33%	0.15%	0.08%	0.01%	0.04%	0.12%	0.05%	0.01%	0.43%	9.16%	1.31%
118	Raceview Street	100.00%	0.40%	0.02%	7.62%	0.15%	0.04%	0.09%	0.18%	0.09%	2.28%	0.11%	1.85%	2.90%	0.02%	0.10%	0.71%	3.13%	18.65%	0.27%	37.18%	0.22%	0.76%	0.51%	0.01%	0.07%	0.25%	0.45%	0.15%	0.01%	0.09%	0.72%	0.01%	15.78%	3.41%	1.79%
119	Sydney Street	100.00%			0.36%		0.01%			0.05%	0.20%	0.03%	0.26%	0.43%	0.98%		0.09%	0.64%	3.31%	3.05%	26.45%	2.77%	10.88%	24.01%	0.08%	11.89%	2.28%	0.59%	0.09%		4.61%	0.43%	0.18%	2.39%	0.81%	3.14%
120	Diamantina Boulevard	100.00%	6.38%	0.14%	0.57%	1.06%	0.29%	0.58%	0.96%	0.55%	0.19%	0.35%	0.10%	0.04%	1.14%	0.72%	0.72%	1.17%	0.15%	1.68%	8.27%	0.34%	0.49%	14.77%	0.41%	18.03%	20.68%	0.02%	0.00%	0.14%	0.25%	0.02%	0.02%	0.13%	17.32%	2.33%
121	Diamantina Boulevard Extension	100.00%	7.10%	0.15%	0.52%	1.13%	0.31%	0.59%	0.95%	0.56%	0.17%	0.30%	0.05%	0.03%	1.06%	0.64%	0.69%	0.72%	0.20%	1.53%	3.74%	0.54%	0.24%	8.59%	0.23%	23.19%	24.58%	0.13%	0.01%	0.03%	0.65%	0.09%	0.03%	0.15%	18.84%	2.25%
122	Wulkuraka Connection Road	100.00%	3.49%	0.03%	0.28%	0.29%	0.09%	0.23%	0.28%	0.26%	0.08%	0.16%	0.03%	0.08%	0.49%	0.34%	0.10%	0.23%	4.10%	0.23%	5.99%	4.04%		0.98%	4.03%	16.25%	16.79%	1.51%	0.03%	3.56%	1.17%	0.40%	0.46%	0.85%	6.06%	27.09%
123	Hunter Street	100.00%	1.21%	0.06%	0.27%	0.46%	0.12%	0.30%	0.60%	0.24%	0.11%	0.15%	0.03%	0.04%	2.71%	0.66%	0.49%	1.32%	0.42%	5.00%	26.06%	0.81%	9.31%	23.87%	2.19%	1.64%	0.28%	0.21%	0.01%	1.59%	1.86%	0.07%	0.22%	0.21%	6.83%	10.63%
124	Pine Street	100.00%	0.14%	0.02%	0.13%	0.09%	0.09%	0.07%	0.19%	0.17%	0.26%	0.16%	0.19%	0.15%	7.64%	0.39%	2.28%	5.85%	1.42%	9.36%	43.06%	0.05%	0.67%	2.75%	0.88%	0.92%	0.11%	0.04%	0.04%	1.12%	0.38%	0.09%	0.12%	0.92%	9.09%	11.15%
125	Roderick Street	100.00%	0.86%	0.04%	1.58%	0.26%	0.24%	0.16%	0.28%	0.40%	0.77%	0.31%	0.40%	0.87%	0.44%	0.47%	1.24%	2.56%	6.33%	0.62%	62.19%	0.13%	4.74%	3.40%	0.11%	0.14%	0.02%	0.32%	0.06%	0.02%	0.15%	0.37%	0.00%	6.13%	3.42%	0.96%

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
126	Marsden Parade Realignment	100.00%	0.32%	0.03%	2.23%	0.10%	1.12%	0.04%	0.14%	2.42%	2.43%	0.14%	0.62%	0.44%	0.26%	0.83%	8.88%	5.95%	1.59%	0.86%	59.25 %	0.13%	6.76%	0.12%	0.21%	0.11%	0.05%	0.04%	0.01%	0.13%	0.00%	0.06%	0.02%	1.74%	1.74%	1.23%
127	Marsden Parade Realignment	100.00%	0.32%	0.03%	2.23%	0.10%	1.12%	0.04%	0.14%	2.42%	2.43%	0.14%	0.62%	0.44%	0.26%	0.83%	8.88%	5.95%	1.59%	0.86%	59.25 %	0.13%	6.76%	0.12%	0.21%	0.11%	0.05%	0.04%	0.01%	0.13%	0.00%	0.06%	0.02%	1.74%	1.74%	1.23%
128	Marsden Parade - Gordon Street	100.00%	1.16%	0.07%	1.31%	0.44%	0.31%	0.18%	0.45%	0.61%	0.71%	0.26%	0.41%	0.69%	0.42%	0.49%	1.88%	3.58%	3.84%	0.46%	66.90 %	0.84%	1.02%	1.10%	0.04%	0.71%	0.21%	0.55%	0.14%	0.04%	0.58%	0.65%	0.03%	3.65%	4.57%	1.64%
129	Olga Street	100.00%	0.40%	0.04%	0.05%	0.17%	0.02%	0.11%	0.23%	0.03%		0.10%	0.02%	0.26%	1.92%	0.39%	0.59%	0.50%	0.74%	2.07%	78.13 %	0.66%	2.81%	0.73%	0.17%	0.86%	0.12%	0.10%	0.03%	0.20%	0.46%	0.14%	0.04%	1.87%	3.91%	2.13%
130	Darling Street East	100.00%	0.00%	0.00%	0.85%	0.00%	0.01%	0.00%	0.00%	0.02%	0.06%	0.02%	0.10%	0.78%	0.12%	0.03%	0.19%	0.29%	3.89%	1.10%	46.87 %	3.09%	15.61 %	10.50 %	0.61%	1.66%	0.35%	0.70%	0.15%	0.38%	1.56%	0.90%	0.12%	5.91%	0.51%	3.63%
131	Burnett Street	100.00%	0.07%	0.00%	1.08%	0.01%	0.02%	0.00%	0.02%	0.03%	0.13%	0.02%	0.14%	0.99%	0.48%	0.13%	0.05%	0.37%	5.34%	1.04%	42.32 %	3.47%	19.06 %	7.79%	0.55%	0.41%	0.34%	0.79%	0.18%	0.47%	0.75%	1.08%	0.08%	7.06%	0.88%	4.83%
132	Burnett Street	100.00%	0.32%	0.00%	0.62%	0.04%	0.06%	0.04%	0.06%	0.07%	0.32%	0.17%	0.15%	0.37%	0.80%	0.19%	0.45%	1.25%	2.50%	1.58%	51.27 %	0.52%	13.78 %	13.28 %	0.89%	0.68%	0.08%	0.24%	0.04%	0.72%	0.65%	0.17%	0.10%	2.21%	1.31%	5.05%
133	Chermside Road	100.00%	0.03%	0.01%	0.81%	0.06%	0.05%	0.02%	0.11%	0.11%	0.22%	0.03%	0.62%	1.15%	1.28%	0.79%	10.23 %	7.64%	9.42%	2.59%	48.96 %	0.55%	0.32%	0.49%	0.17%	0.10%	0.17%	0.30%	0.18%	0.21%	0.01%	0.73%	0.02%	7.53%	1.52%	3.55%
134	Chermside Road	100.00%		0.00%	5.26%	0.00%	1.85%		0.08%	3.78%	4.30%	0.17%	1.75%	1.38%	0.30%	0.17%	3.03%	7.97%	8.45%	1.25%	46.10 %	0.55%	0.99%	0.19%	0.03%	0.03%	0.13%	0.23%	0.12%	0.01%	0.01%	0.48%	0.00%	9.06%	1.02%	1.29%
135	Chermside Road	100.00%	0.03%	0.01%	3.65%	0.04%	0.27%	0.01%	0.05%	0.39%	1.01%	0.05%	0.87%	1.44%	0.40%	0.54%	3.94%	6.66%	14.99 %	1.44%	45.92 %	1.17%	0.11%	0.28%	0.03%	0.15%	0.35%	0.57%	0.23%	0.01%	0.04%	0.94%	0.00%	10.82 %	1.98%	1.63%
136	Lawrence Street - Norman Street	100.00%	1.75%	0.15%	1.08%	0.86%	0.34%	0.49%	1.15%	0.86%	0.96%	0.64%	0.45%	0.46%	0.67%	1.77%	7.49%	11.59 %	3.30%	2.02%	44.33 %	0.10%	1.64%	1.45%	0.19%	0.30%	0.03%	0.07%	0.07%	0.19%	0.05%	0.28%	0.02%	3.16%	8.19%	3.92%
137	Lawrence Street - Norman Street	100.00%	1.75%	0.15%	1.08%	0.86%	0.34%	0.49%	1.15%	0.86%	0.96%	0.64%	0.45%	0.46%	0.67%	1.77%	7.49%	11.59 %	3.30%	2.02%	44.33 %	0.10%	1.64%	1.45%	0.19%	0.30%	0.03%	0.07%	0.07%	0.19%	0.05%	0.28%	0.02%	3.16%	8.19%	3.92%
138	Jacaranda Street - Wattle Street	100.00%	2.34%	0.19%	1.08%	1.18%	0.47%	0.76%	1.64%	1.21%	1.26%	0.95%	0.30%	0.02%	0.11%	2.92%	14.77 %	12.82 %	0.36%	0.73%	39.35 %	0.08%	2.08%	1.27%	0.09%	0.24%	0.08%	0.03%	0.00%	0.08%	0.01%	0.01%	0.01%	0.31%	10.60%	2.65%
139	Hamilton Street Extension	100.00%	3.56%	0.29%	1.82%	1.82%	0.75%	1.21%	2.48%	1.95%	2.11%	1.81%	0.61%	0.01%	0.30%	0.19%	7.45%	13.24 %		1.21%	36.60 %		2.13%	0.77%	0.04%	0.12%	0.01%			0.04%	0.01%		0.01%	0.19%	16.71%	2.57%
140	Salisbury Road Extension	100.00%	0.77%	0.03%	0.28%	0.19%	0.40%	0.25%	0.31%	0.81%	1.01%	0.43%	0.71%	0.43%	0.45%	0.22%	0.56%	3.11%	4.13%	0.47%	62.51 %	4.74%	2.01%	3.83%	0.24%	2.09%	1.73%	0.71%	0.00%	0.22%	0.84%	0.00%	0.07%	1.21%	3.05%	2.22%
141	Salisbury Road Extension - Moffatt Street - Hooper Street	100.00%	0.84%	0.03%	0.29%	0.21%	0.43%	0.27%	0.34%	0.88%	1.09%	0.48%	0.77%	0.47%	0.35%	0.25%	0.66%	3.51%	5.26%	0.48%	46.48 %	8.40%	2.34%	5.10%	0.34%	5.26%	2.83%	1.00%		0.29%	2.77%		0.15%	1.27%	3.30%	3.84%
142	Hooper Street Extension	100.00%	0.12%	0.01%	0.42%	0.03%	0.03%	0.02%	0.03%	0.11%	0.24%	0.11%	0.41%	0.57%	1.02%	0.04%	0.09%	1.52%	6.54%	2.10%	33.70 %	6.19%	0.60%	18.73 %	0.86%	7.79%	0.58%	0.83%	0.11%	0.51%	3.26%	0.45%	0.16%	3.02%	1.84%	7.94%
143	Sydney Street Extension	100.00%	0.29%	0.01%	0.59%	0.09%	0.03%	0.09%	0.09%	0.12%	0.30%	0.07%	0.59%	0.91%	2.17%	0.22%	0.01%	1.22%	8.97%	4.56%	22.18 %	5.99%	1.32%	31.74 %	1.01%		1.73%	1.22%	0.18%	0.33%		0.70%	0.00%	5.01%	4.32%	3.90%
144	Ripley Road / Cunningham Highway Interchange	100.00%	0.22%	0.02%	0.28%	0.18%	0.10%	0.17%	0.22%	0.25%	0.24%	0.21%	0.66%	1.95%	0.04%	0.20%	0.18%	0.44%	17.31 %	0.12%	28.77 %	0.29%	0.64%	0.41%		0.22%	0.42%	0.65%	0.09%	0.06%	0.23%	0.63%	0.02%	41.61 %	2.12%	1.05%
145	Newhill Drive	100.00%	5.40%	0.13%	2.14%	1.18%	0.79%	0.99%	1.41%	2.59%	1.76%	3.41%	41.14 %	0.54%	1.15%	2.55%	1.72%	5.86%	1.36%	0.67%	5.13%	0.12%	0.17%	0.36%	0.09%	0.17%	0.07%	0.89%	0.08%	0.03%	0.24%	0.61%	0.02%	8.30%	7.33%	1.60%
146	Newhill Drive	100.00%	4.28%	0.02%	4.70%	0.52%	0.23%	0.65%	0.84%	1.20%	2.48%	3.10%	43.46 %	1.47%	0.89%	2.26%	1.36%	4.49%	1.38%	0.47%	1.70%	0.01%	0.04%	0.12%	0.05%	0.15%	0.03%	0.26%	0.54%	0.03%	0.24%	1.47%	0.03%	15.24 %	5.06%	1.22%
147	Swanbank Boulevard (Southern Section)	100.00%	2.21%	0.04%	19.00%	0.02%	0.13%		0.16%	0.07%	6.05%	0.93%	23.12 %	1.79%	0.20%	0.68%	0.61%	3.14%	3.04%	0.29%	18.86 %	0.03%	0.15%	0.06%	0.01%	0.04%	0.10%	0.11%	0.01%	0.01%	0.03%	0.05%	0.00%	10.08 %	7.98%	0.99%
148	Swanbank Boulevard (Southern Section)	100.00%	2.21%	0.04%	19.00%	0.02%	0.13%		0.16%	0.07%	6.05%	0.93%	23.12 %	1.79%	0.20%	0.68%	0.61%	3.14%	3.04%	0.29%	18.86 %	0.03%	0.15%	0.06%	0.01%	0.04%	0.10%	0.11%	0.01%	0.01%	0.03%	0.05%	0.00%	10.08 %	7.98%	0.99%
149	Swanbank Enterprise Park "East-West' Road	100.00%	0.03%	0.00%	0.15%	0.27%	0.29%	0.45%	1.21%	4.57%	17.67 %	1.12%	27.71 %	1.22%	0.36%	1.16%	0.82%	2.86%	0.63%	0.44%	3.07%		0.01%	0.02%	0.00%					0.00%					35.43 %	0.37%	0.13%
150	North Station Road Extension	100.00%			0.54%		0.10%			0.25%	0.65%	0.93%	0.48%	0.34%	10.53 %	0.34%	15.89 %	22.88 %	1.24%	19.41 %	2.84%	0.00%	0.04%	0.93%	0.36%	0.81%	0.13%	0.81%	0.04%	0.35%	0.20%	0.24%	0.05%	3.34%	8.50%	7.78%
151	Francis Street	100.00%	0.13%		2.21%	8.75%	0.95%	42.90 %	3.70%	3.54%	2.40%	2.03%	0.84%	0.50%	0.48%	2.99%	1.05%	2.71%	1.31%	1.43%	4.42%	0.09%	0.25%	0.36%	0.09%	0.54%	0.30%	0.36%	0.15%	0.16%	0.49%	0.69%	0.05%	3.47%	4.70%	5.94%
152	Albion Street	100.00%	1.07%	0.03%	0.09%	0.25%	0.03%	0.19%	0.27%	0.06%	0.03%	0.04%	0.04%	0.09%	1.58%	0.41%	0.05%	0.22%	0.69%	3.85%	35.92 %	0.58%	10.37 %	24.92 %	1.70%	0.98%	0.19%	0.16%	0.02%	1.20%	1.53%	0.10%	0.19%	0.53%	3.83%	8.80%
153	Bertha Street	100.00%	7.09%	6.18%	6.67%	10.66 %	13.43 %	2.70%	2.65%	5.95%	3.04%	0.85%	0.43%	0.13%	0.49%	1.25%	0.49%	1.01%	0.45%	0.55%	4.85%	0.03%	0.27%	0.24%	0.11%	0.50%	0.61%	0.14%	0.03%	0.17%	0.10%	0.33%	0.02%	0.26%	23.48%	4.84%
154	Ebenezer Road 1	100.00%	10.37 %	0.09%	3.07%	0.54%	0.28%	0.53%	0.43%	0.45%	0.98%	0.25%	2.18%	1.03%	0.16%	0.34%	0.13%	0.65%	0.61%	0.08%	0.25%	0.00%	0.04%					0.02%	0.91%		0.01%	50.07 %	0.00%	10.41 %	12.25%	3.86%
155	Ebenezer Road 2	100.00%	10.37 %	0.09%	3.07%	0.54%	0.28%	0.53%	0.43%	0.45%	0.98%	0.25%	2.18%	1.03%	0.16%	0.34%	0.13%	0.65%	0.61%	0.08%	0.25%	0.00%	0.04%					0.02%	0.91%		0.01%	50.07 %	0.00%	10.41 %	12.25%	3.86%
156	Ebenezer Road 3	100.00%	0.69%	0.01%	0.58%	0.00%	0.03%			0.01%	0.22%		0.18%	0.23%	0.06%						0.11%	0.18%	0.01%	0.03%	0.14%	0.05%	2.49%	0.22%	0.65%	1.46%	0.38%	26.01 %	49.39 %	2.85%	2.37%	1.28%	10.38 %
157	Ebenezer Road 4 (Coopers Road)	100.00%	0.79%	0.01%	0.00%	0.23%	0.06%	0.10%	0.16%	0.22%	0.07%	0.11%	2.11%	0.34%	0.06%	0.10%	0.11%	0.41%	0.98%	0.01%	1.39%	0.05%	0.07%	0.03%		0.64%		1.17%	0.11%	0.28%	22.42 %	53.38 %	2.51%	0.57%	2.17%	9.36%
158	Ebenezer Road 5	100.00%	1.28%	0.03%	0.00%	0.45%	0.11%	0.42%	0.51%	0.43%	0.15%	0.24%	1.86%	0.35%	0.21%	0.29%	0.33%	0.85%	4.66%	0.19%	7.24%	0.37%	0.49%	0.57%	0.11%	3.53%	0.43%	4.99%	0.17%	0.38%	3.22%	56.31 %	0.31%	1.15%	5.27%	3.13%
159	Briggs Road	100.00%	0.06%	0.00%	0.13%	0.07%	0.02%	0.05%	0.07%	0.06%	0.07%	0.23%	0.14%	0.54%	0.34%	0.72%	1.31%	2.45%	43.42 %	0.44%	35.54 %	0.07%	0.83%	0.12%	0.02%	0.09%	0.09%	0.31%	0.14%	0.01%	0.07%	0.90%	0.00%	10.30 %	0.73%	0.65%
160	Briggs Road	100.00%	0.06%	0.00%	0.13%	0.07%	0.02%	0.05%	0.07%	0.06%	0.07%	0.23%	0.14%	0.54%	0.34%	0.72%	1.31%	2.45%	43.42 %	0.44%	35.54 %	0.07%	0.83%	0.12%	0.02%	0.09%	0.09%	0.31%	0.14%	0.01%	0.07%	0.90%	0.00%	10.30 %	0.73%	0.65%
161	Brisbane Terrace	100.00%	3.08%	1.92%	9.04%	23.70 %	1.68%	33.03 %	2.10%	0.38%	0.16%	0.43%	0.04%	0.03%	0.02%	0.15%	0.04%	0.14%	0.06%	0.04%	0.16%	0.00%	0.01%	0.02%	0.00%	0.02%	0.03%	0.01%	0.00%	0.00%	0.01%	0.02%	0.00%	0.33%	21.81%	1.54%
162	Edwards Street Extension	100.00%	0.29%	0.03%	0.24%	0.27%	0.14%	0.16%	0.22%	0.29%	0.36%	0.14%	0.71%	0.81%	0.01%	0.22%	0.00%	0.04%	23.81 %	0.05%	35.00 %	1.09%	1.52%	0.95%	0.04%	0.41%	1.30%	0.54%	0.01%	0.01%	0.02%	0.26%	0.00%	27.33 %	2.98%	0.74%
163	Edwards Street	100.00%	0.32%	0.03%	0.39%	0.28%	0.14%	0.20%	0.25%	0.30%	0.39%	0.16%	0.73%	0.87%	0.02%	0.24%	0.01%	0.17%	27.51 %	0.04%	32.72 %	0.83%	1.26%	0.71%	0.02%	0.30%	0.98%	0.57%	0.05%	0.01%	0.11%	0.54%	0.01%	25.34 %	3.47%	1.04%
164	Edwards Street	100.00%	0.32%	0.03%	0.39%	0.28%	0.14%	0.20%	0.25%	0.30%	0.39%	0.16%	0.73%	0.87%	0.02%	0.24%	0.01%	0.17%	27.51 %	0.04%	32.72 %	0.83%	1.26%	0.71%	0.02%	0.30%	0.98%	0.57%	0.05%	0.01%	0.11%	0.54%	0.01%	25.34 %	3.47%	1.04%
165	Ripley Road	100.00%	0.34%	0.03%	0.29%	0.29%	0.16%	0.30%	0.40%	0.40%	0.33%	0.40%	0.79%	1.26%	0.08%	0.41%	0.36%	0.84%	20.43 %	0.16%	27.40 %	0.24%	0.53%	0.34%	0.00%	0.13%	0.36%	0.89%	0.21%	0.04%	0.25%	1.28%	0.02%	35.18 %	3.25%	2.60%
166	Fischers Road	100.00%	0.66%	0.03%	0.05%	0.65%	0.15%	1.23%	1.44%	0.64%	0.56%	1.50%	3.57%	12.95 %	0.67%	2.04%	2.12%	9.18%	3.32%	1.08%	13.94 %	0.02%	0.32%	0.25%	0.05%	0.03%	0.02%	0.03%	0.01%	0.01%	0.04%	0.07%	0.00%	39.23 %	3.42%	0.72%
167	Pisasale Drive	100.00%	0.14%	0.02%	4.19%	0.01%	0.06%	0.03%	0.03%	0.01%	0.56%	0.03%	0.61%	6.41%	0.01%	0.04%	0.06%	0.15%	20.74 %	0.12%	22.51 %	0.84%	1.64%	1.05%	0.01%	0.14%	1.43%	0.66%	0.02%	0.01%	0.03%	0.31%	0.00%	35.63 %	1.60%	0.90%
168	Pisasale Drive	100.00%	0.14%	0.02%	4.19%	0.01%	0.06%	0.03%	0.03%	0.01%	0.56%	0.03%	0.61%	6.41%	0.01%	0.04%	0.06%	0.15%	20.74 %	0.12%	22.51 %	0.84%	1.64%	1.05%	0.01%	0.14%	1.43%	0.66%	0.02%	0.01%	0.03%	0.31%	0.00%	35.63 %	1.60%	0.90%

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
169	Pisasale Drive	100.00%	0.11%	0.01%	3.67%	0.01%	0.05%	0.03%	0.03%	0.01%	0.51%	0.03%	0.57%	6.62%	0.01%	0.04%	0.07%	0.16%	21.33 %	0.14%	22.16 %	0.90%	1.58%	0.92%	0.02%	0.13%	1.17%	0.67%	0.02%	0.01%	0.04%	0.36%	0.00%	36.64 %	1.15%	0.80%
170	Pisasale Drive	100.00%	0.11%	0.01%	3.67%	0.01%	0.05%	0.03%	0.03%	0.01%	0.51%	0.03%	0.57%	6.62%	0.01%	0.04%	0.07%	0.16%	21.33 %	0.14%	22.16 %	0.90%	1.58%	0.92%	0.02%	0.13%	1.17%	0.67%	0.02%	0.01%	0.04%	0.36%	0.00%	36.64 %	1.15%	0.80%
171	Pisasale Drive	100.00%	0.11%	0.01%	3.67%	0.01%	0.05%	0.03%	0.03%	0.01%	0.51%	0.03%	0.57%	6.62%	0.01%	0.04%	0.07%	0.16%	21.33 %	0.14%	22.16 %	0.90%	1.58%	0.92%	0.02%	0.13%	1.17%	0.67%	0.02%	0.01%	0.04%	0.36%	0.00%	36.64 %	1.15%	0.80%
172	Grampian Drive	100.00%	0.41%	0.04%	6.27%	0.05%	0.17%	0.02%	0.04%	0.16%	1.03%	0.03%	1.04%	9.41%	0.01%	0.04%	0.05%	0.14%	14.88 %	0.09%	19.50 %	0.71%	1.47%	0.87%	0.01%	0.43%	1.32%	0.52%	0.17%	0.09%	0.38%	0.49%	0.03%	34.45 %	3.49%	2.21%
173	Grampian Drive	100.00%	0.41%	0.04%	6.27%	0.05%	0.17%	0.02%	0.04%	0.16%	1.03%	0.03%	1.04%	9.41%	0.01%	0.04%	0.05%	0.14%	14.88 %	0.09%	19.50 %	0.71%	1.47%	0.87%	0.01%	0.43%	1.32%	0.52%	0.17%	0.09%	0.38%	0.49%	0.03%	34.45 %	3.49%	2.21%
174	Grampian Drive	100.00%	0.41%	0.04%	6.27%	0.05%	0.17%	0.02%	0.04%	0.16%	1.03%	0.03%	1.04%	9.41%	0.01%	0.04%	0.05%	0.14%	14.88 %	0.09%	19.50 %	0.71%	1.47%	0.87%	0.01%	0.43%	1.32%	0.52%	0.17%	0.09%	0.38%	0.49%	0.03%	34.45 %	3.49%	2.21%
175	Grampian Drive	100.00%	1.16%	0.11%	3.53%	0.24%	0.48%	0.15%	0.19%	0.55%	1.03%	0.22%	0.97%	11.16 %	0.06%	0.25%	0.19%	0.70%	7.38%	0.15%	12.00 %	0.23%	0.50%	0.44%	0.07%	0.99%	0.50%	1.54%	0.70%	0.26%	0.94%	2.21%	0.07%	36.97 %	3.75%	10.33 %
176	Grampian Drive	100.00%	1.16%	0.11%	3.53%	0.24%	0.48%	0.15%	0.19%	0.55%	1.03%	0.22%	0.97%	11.16 %	0.06%	0.25%	0.19%	0.70%	7.38%	0.15%	12.00 %	0.23%	0.50%	0.44%	0.07%	0.99%	0.50%	1.54%	0.70%	0.26%	0.94%	2.21%	0.07%	36.97 %	3.75%	10.33 %
177	Grampian Drive - Ipswich Boonah Road Link	100.00%	1.74%	0.23%	8.06%	0.44%	1.57%	0.00%	0.06%	0.95%	2.05%		0.78%	2.45%	0.00%	0.00%	0.00%	0.00%	0.00%		1.61%	0.10%	0.24%	0.09%			0.07%	0.07%	2.76%					22.76 %	2.66%	51.29 %
201	Alice Street	100.00%	12.42 %	5.84%	4.22%	19.13 %	10.05 %	0.46%	3.02%	10.52 %	5.72%	0.53%	1.00%	0.09%	0.17%	0.24%	0.15%	0.38%	0.10%	0.16%	1.30%	0.01%	0.13%	0.12%	0.09%	0.49%	0.47%	0.09%	0.01%	0.18%	0.04%	0.18%	0.02%	0.30%	19.19%	3.18%
202	Ash Street / Reif Street	100.00%	0.31%	0.04%	0.15%	0.35%	0.24%	0.33%	0.59%	0.61%	0.55%	0.56%	1.24%	2.08%	0.17%	0.48%	0.77%	4.03%	57.03 %	0.28%	16.88 %	0.03%	0.31%	0.05%	0.01%	0.06%	0.07%	0.17%	0.11%	0.01%	0.15%	0.35%	0.01%	7.54%	3.41%	1.05%
203	Bertha Street	100.00%	6.20%	4.83%	6.29%	14.82 %	12.69 %	2.75%	2.56%	5.78%	2.93%	0.78%	0.41%	0.12%	0.43%	1.00%	0.46%	0.92%	0.39%	0.45%	3.95%	0.02%	0.18%	0.19%	0.09%	0.44%	0.50%	0.13%	0.02%	0.15%	0.09%	0.30%	0.01%	0.25%	25.08%	4.77%
204	Old Logan Road	100.00%	0.87%	13.74 %	14.70%	24.06 %	0.30%	0.80%	1.21%	0.43%	0.19%	0.30%	0.15%	0.04%	0.06%	0.23%	0.12%	0.25%	0.17%	0.07%	1.13%	0.01%	0.04%	0.05%	0.01%	0.05%	0.06%	0.05%	0.01%	0.01%	0.02%	0.05%	0.00%	0.39%	38.33%	2.09%
205	Boundary Street / Cobalt Street	100.00%	49.97 %	0.01%	4.11%	0.49%	0.22%	0.17%	0.25%	0.38%	1.36%	0.13%	3.40%	0.48%	0.13%	0.37%	0.15%	0.64%	0.56%	0.87%	7.95%	0.02%	0.64%	0.15%	0.13%	0.71%	1.50%	0.56%	0.59%	0.46%	1.21%	4.30%	0.09%	5.36%	7.98%	4.66%
206	Briggs Road	100.00%											0.00%	0.60%					36.99 %	0.00%	49.32 %	0.00%	0.65%	0.02%	0.00%			0.35%	0.20%		0.04%	0.88%		10.59 %		0.35%
207	Brisbane Road	100.00%	1.35%	0.33%	2.94%	4.51%	0.63%	11.93 %	41.26 %	1.50%	0.72%	5.08%	0.21%	0.10%	0.12%	3.53%	0.41%	1.17%	0.29%	0.33%	1.81%	0.01%	0.17%	0.11%	0.03%	0.13%	0.10%	0.07%	0.02%	0.04%	0.04%	0.09%	0.00%	0.54%	18.14%	2.29%
208	Cascade Street	100.00%	0.82%	0.05%	13.17%	0.47%	0.21%	0.31%	0.69%	0.54%	4.13%	0.35%	3.57%	4.93%	0.10%	0.42%	0.17%	1.16%	19.65 %	0.03%	29.65 %	0.23%	0.82%	0.55%	0.00%	0.07%	0.29%	0.19%	0.04%	0.03%	0.12%	0.22%	0.01%	7.77%	7.27%	1.97%
209	Cemetery Road / Carr Street	100.00%	0.53%	0.02%	10.51%	0.13%	0.02%	0.06%	0.11%	0.04%	2.71%	0.04%	2.40%	3.58%	0.04%	0.08%	0.28%	0.54%	19.24 %	0.24%	41.91 %	0.43%	1.33%	0.93%	0.02%	0.20%	0.48%	0.17%	0.04%	0.00%	0.01%	0.26%	0.00%	8.51%	4.23%	0.90%
210	Chermside Road	100.00%		0.00%	5.26%	0.00%	1.85%		0.08%	3.78%	4.30%	0.17%	1.75%	1.38%	0.30%	0.17%	3.03%	7.97%	8.45%	1.25%	46.10 %	0.55%	0.99%	0.19%	0.03%	0.03%	0.13%	0.23%	0.12%	0.01%	0.01%	0.48%	0.00%	9.06%	1.02%	1.29%
211	Collingwood Drive	100.00%	0.93%	0.10%	2.74%	2.20%	1.58%	4.67%	17.37 %	33.87 %	8.37%	5.37%	0.71%	0.11%	0.43%	1.65%	0.47%	0.72%	0.17%	0.42%	1.09%	0.02%	0.15%	0.33%	0.10%	0.27%	0.26%	0.07%	0.01%	0.08%	0.03%	0.05%	0.00%	1.03%	11.79%	2.85%
212	Duncan Street	100.00%	0.73%	0.09%	9.74%	1.70%	6.47%	1.17%	25.82 %	24.66 %	1.91%	12.43 %	0.11%	0.06%	0.36%	0.94%	0.37%	0.27%	0.28%	0.45%	1.66%	0.03%	0.12%	0.29%	0.08%	0.26%	0.25%	0.08%	0.01%	0.07%	0.03%	0.07%	0.00%	0.28%	7.37%	1.83%
213	Ellenborough Street	100.00%	0.04%	0.00%	0.16%	0.01%	0.02%	0.01%	0.01%	0.10%	0.06%	0.02%	0.06%	0.59%	0.03%	0.01%	0.35%	0.46%	3.14%	0.69%	56.59 %	3.02%	14.39 %	6.09%	0.37%	1.74%	0.35%	0.69%	0.11%	0.30%	1.49%	0.63%	0.12%	4.59%	0.41%	3.35%
214	Grange Road	100.00%	0.07%	0.01%	3.16%	0.06%	0.07%	0.07%	0.10%	0.12%	0.45%	0.62%	1.24%	0.94%	0.17%	0.91%	3.74%	37.49 %	20.15 %	0.95%	21.53 %	0.16%	0.43%	0.34%	0.05%	0.03%	0.00%	0.03%	0.00%	0.02%	0.01%	0.01%	0.00%	5.11%	0.72%	1.26%
215	Gray Street	100.00%			1.03%	0.08%	0.20%	0.01%	0.07%	0.26%	0.44%	0.01%	0.23%	1.42%	0.06%	0.03%	0.23%	0.69%	4.28%	0.33%	59.21 %	3.12%	1.72%	3.10%	0.37%	3.08%	1.06%	1.15%	0.10%	0.28%	2.33%	0.70%	0.13%	4.22%	5.59%	4.48%
216	Griffith Road / Garden Street	100.00%	0.34%	0.03%	8.26%	0.17%	1.00%	0.06%	0.29%	1.69%	3.05%	0.15%	2.01%	2.26%	0.08%	0.10%	0.40%	5.75%	5.90%	0.15%	50.13 %	0.05%	0.19%	0.11%	0.02%	0.03%	0.00%	0.34%	0.07%	0.02%	0.06%	0.40%	0.00%	10.70 %	5.17%	1.03%
217	Hunter Street	100.00%	1.17%	0.05%	0.16%	0.39%	0.08%	0.26%	0.46%	0.17%	0.06%	0.10%	0.03%	0.09%	2.37%	0.56%	0.30%	0.73%	0.80%	5.60%	29.30 %	1.00%	9.74%	23.30 %	2.00%	1.21%	0.26%	0.23%	0.02%	1.46%	1.72%	0.10%	0.21%	0.47%	5.95%	9.66%
218	King Edward Parade / Blackall Street	100.00%	4.42%	0.22%	0.14%	1.45%	0.09%	0.58%	1.75%	0.16%		0.58%		0.00%	0.24%	2.35%	15.39 %	4.88%	0.03%	0.44%	45.40 %	0.05%	4.65%	0.07%	0.18%	0.07%	0.04%	0.02%	0.00%	0.11%		0.01%	0.01%	0.00%	15.13%	1.54%
219	Law Street South	100.00%	1.52%	1.00%	4.54%	7.68%	2.69%		22.57 %	13.14 %	1.74%	2.98%	0.06%	0.14%	0.71%	13.01 %	2.65%	8.89%	0.69%	0.52%	4.80%	0.05%	0.59%	0.49%	0.14%	0.30%	0.26%	0.26%	0.03%	0.06%	0.15%	0.21%	0.01%	0.43%	5.96%	1.75%
220	Layard Street	100.00%	1.68%	7.49%	11.80%	27.61 %	11.62 %	23.23 %	0.20%	1.16%	1.71%	0.18%	0.06%	0.02%	0.04%	0.17%	0.07%	0.14%	0.10%	0.03%	0.90%	0.00%	0.02%	0.02%	0.01%	0.02%	0.03%	0.02%	0.00%	0.00%	0.01%	0.03%	0.00%	0.33%	10.84%	0.45%
221	Mine Street	100.00%	1.07%	0.39%	4.07%	4.73%	2.10%		61.21 %	5.49%	2.70%	0.20%	0.30%	0.11%	0.12%	0.70%	0.20%	0.46%	0.28%	0.09%	1.73%	0.01%	0.05%	0.06%	0.02%	0.06%	0.06%	0.06%	0.01%	0.01%	0.03%	0.06%	0.00%	0.90%	11.51%	1.20%
222	Moffatt Street	100.00%	0.84%	0.03%	0.29%	0.21%	0.43%	0.27%	0.34%	0.88%	1.09%	0.48%	0.77%	0.47%	0.35%	0.25%	0.66%	3.51%	5.26%	0.48%	46.48 %	8.40%	2.34%	5.10%	0.34%	5.26%	2.83%	1.00%		0.29%	2.77%		0.15%	1.27%	3.30%	3.84%
223	Namatjira Drive	100.00%	0.40%	0.04%	8.82%	1.18%	8.10%	9.35%	29.23 %	15.69 %	3.95%	0.32%	0.12%	0.23%	0.84%	4.44%	0.67%	1.62%	0.12%	0.54%	2.00%	0.01%	0.11%	0.48%	0.17%	0.32%	0.35%	0.04%	0.01%	0.07%	0.01%	0.04%	0.01%	2.60%	5.63%	2.48%
224	Naomai Street / Barclay Street / Bergins Hill Road	100.00%	0.64%	0.06%	0.57%	1.13%	0.17%	0.83%	1.12%	0.54%	0.58%	17.69 %	0.23%	0.07%	0.37%	0.84%	5.83%	35.92 %	0.83%	1.12%	20.51 %	0.06%	1.10%	0.90%	0.03%	0.18%	0.05%	0.04%	0.01%	0.05%	0.10%	0.08%	0.01%	0.70%	6.30%	1.31%
225	Redbank Plains Road	100.00%	4.52%	1.32%	3.81%	17.06 %	6.48%		0.23%	21.47 %	16.07 %	0.01%	0.77%	0.27%			0.00%	0.03%	0.04%		0.19%	0.00%	0.01%	0.00%		0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0.02%	0.00%	3.65%	22.08%	1.93%
226	Salisbury Road	100.00%	1.59%	0.12%	5.13%	0.66%	0.97%	0.42%	0.82%	1.86%	2.65%	0.67%	1.27%	1.49%	0.12%	0.55%	1.28%	5.70%	10.98 %	0.22%	45.65 %	2.09%	0.86%	0.95%	0.01%	0.32%	0.94%	0.43%	0.01%	0.00%	0.01%	0.04%	0.00%	3.95%	7.31%	0.92%
227	Smiths Road	100.00%	1.45%	0.88%	4.36%	53.77 %	0.23%	1.22%	4.08%	0.32%		1.19%	0.06%	0.07%	0.17%	0.61%	0.20%	0.45%	0.41%	0.12%	2.02%	0.02%	0.14%	0.11%	0.03%	0.10%	0.10%	0.04%	0.01%	0.03%	0.08%	0.10%	0.01%	0.33%	25.23%	2.06%
228	South Station Road	100.00%	0.42%	0.03%	10.83%	0.26%	0.11%	0.18%	0.39%	0.30%	2.41%	0.20%	3.37%	4.80%	0.05%	0.27%	1.92%	10.35 %	11.73 %	0.98%	25.59 %	0.10%	0.38%	0.24%	0.00%	0.09%	0.12%	0.54%	0.13%	0.02%	0.42%	0.75%	0.03%	16.31 %	4.17%	2.52%
229	Stafford Street / Creek Street	100.00%	0.01%	0.01%	7.03%	0.01%	2.57%	0.01%	0.05%	6.87%	9.12%	1.00%	2.80%	0.34%	0.06%	2.03%	5.22%	30.88 %	3.04%	1.26%	19.79 %	0.30%	0.01%	0.17%	0.01%	0.04%	0.06%	0.07%	0.05%	0.00%	0.12%	0.17%	0.01%	3.06%	3.23%	0.62%
230	Harlin Road - Burnett Street	100.00%	0.08%	0.00%	0.14%	0.01%	0.02%	0.00%	0.04%	0.03%	0.08%	0.05%	0.04%	0.09%	0.67%	0.16%	0.14%	0.45%	0.66%	2.25%	47.20 %	0.11%	13.48 %	20.94 %	1.30%	1.79%	0.04%	0.09%	0.01%	0.95%	1.51%	0.08%	0.17%	0.47%	0.70%	6.20%
231	Macrae Street / Kingsmill Road	100.00%	0.84%	0.03%	0.02%	0.22%	0.02%	0.14%	0.23%	0.05%	0.00%	0.02%	0.00%	0.00%	1.18%	0.33%	0.02%	0.14%	0.01%	2.75%	38.87 %	0.09%	11.88 %	23.72 %	1.58%	2.87%	0.21%	0.08%	0.00%	1.15%	2.14%	0.04%	0.21%	0.00%	3.01%	8.14%
232	Toongarra Road	100.00%	0.02%	0.00%	1.40%	0.01%	0.22%	0.02%	0.02%	0.42%	0.72%	0.13%	0.21%	0.51%	0.01%	0.02%	0.39%	1.24%	8.32%	0.01%	22.65 %	10.66 %	0.27%	0.38%	0.48%	10.47 %	17.74 %	4.66%	0.09%	0.36%	5.82%	0.44%	0.36%	3.65%	0.63%	7.66%
233	Woogaroo Street	100.00%	3.85%	5.95%	8.73%	43.63 %	3.13%		1.10%			0.92%	0.12%	0.14%	0.54%	1.90%	0.93%	1.53%	0.72%	0.28%	5.31%	0.04%	0.23%	0.23%	0.06%	0.22%	0.41%	0.14%	0.02%	0.04%	0.07%	0.16%	0.01%	0.33%	16.57%	2.69%
234	Old Logan Road - Formation Street	100.00%	12.19 %	19.70 %	17.42%	9.98%	1.15%	1.86%	2.99%	2.15%	0.53%	0.59%	0.32%	0.11%	0.53%	1.18%	0.45%	0.96%	0.41%	0.59%	4.79%	0.03%	0.31%	0.25%	0.13%	0.46%	0.73%	0.15%	0.02%	0.16%	0.11%	0.41%	0.02%	0.14%	16.54%	2.64%

ID	Project Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
235	Blackstone Road - Thomas Street	100.00%	0.16%	0.02%	7.78%	0.07%	3.08%	0.06%	0.26%	6.31%	7.06%	0.52%	2.57%	1.39%	0.02%	0.62%	0.63%	13.20 %	2.64%	0.20%	41.61 %	0.38%	1.49%	0.21%	0.01%	0.08%	0.10%	0.04%	0.01%	0.00%	0.01%	0.03%	0.00%	6.78%	2.21%	0.45%
236	Bremer Street	100.00%	1.42%	0.12%	0.93%	0.60%	0.46%	0.25%	0.68%	0.92%	0.94%	0.35%	0.20%	0.28%	1.93%	0.95%	3.91%	4.17%	1.26%	1.95%	59.05 %		9.95%	0.84%	0.03%	0.05%	0.00%	0.03%	0.02%	0.19%	0.06%	0.10%	0.02%	1.33%	5.60%	1.39%
237	Darling Street East	100.00%	0.00%	0.00%	0.85%	0.00%	0.01%	0.00%	0.00%	0.02%	0.06%	0.02%	0.10%	0.78%	0.12%	0.03%	0.19%	0.29%	3.89%	1.10%	46.87 %	3.09%	15.61 %	10.50 %	0.61%	1.66%	0.35%	0.70%	0.15%	0.38%	1.56%	0.90%	0.12%	5.91%	0.51%	3.63%
238	Gordon Street	100.00%	1.52%	0.08%	0.36%	0.50%	0.18%	0.25%	0.51%	0.26%	0.30%	0.39%	0.14%	0.70%	0.00%	0.77%	1.62%	3.89%	5.20%	0.15%	61.01 %	1.47%	2.19%	2.34%	0.04%	1.41%	0.42%	0.91%	0.16%	0.02%	1.12%	0.87%	0.05%	4.46%	4.80%	1.91%
239	Junction Road	100.00%	0.27%	0.13%	0.58%	0.30%	0.12%	0.16%	0.38%	0.29%	0.25%	0.15%	0.27%	0.11%	47.37 %	0.34%	1.41%	2.41%	0.72%	2.19%	30.06 %	0.11%	0.78%	0.90%	0.11%	0.58%	0.20%	0.08%	0.05%	0.15%	0.29%	0.16%	0.03%	0.69%	7.14%	1.18%
240	Kruger Parade	100.00%	0.19%	0.07%	12.33%	1.13%	8.51%	7.50%	18.47 %	25.69 %	4.72%	2.80%	0.33%	0.26%	0.69%	3.60%	0.41%	1.39%	0.41%	0.43%	2.06%	0.03%	0.10%	0.38%	0.14%	0.22%	0.27%	0.14%	0.01%	0.05%	0.09%	0.10%	0.01%	2.76%	3.16%	1.53%
241	Old Ipswich Road	100.00%	0.22%	0.02%	1.19%	0.43%	1.76%	0.39%	27.74 %	9.12%	0.32%	19.59 %	0.56%	0.65%	1.16%	1.45%	1.74%	5.34%	3.01%	1.09%	9.06%	0.18%	0.51%	1.02%	0.25%	0.82%	0.52%	0.37%	0.08%	0.22%	0.38%	0.47%	0.04%	3.63%	2.42%	4.27%
242	Olga Street	100.00%	0.40%	0.04%	0.05%	0.17%	0.02%	0.11%	0.23%	0.03%		0.10%	0.02%	0.26%	1.92%	0.39%	0.59%	0.50%	0.74%	2.07%	78.13 %	0.66%	2.81%	0.73%	0.17%	0.86%	0.12%	0.10%	0.03%	0.20%	0.46%	0.14%	0.04%	1.87%	3.91%	2.13%
243	Raceview Street	100.00%	0.40%	0.02%	7.62%	0.15%	0.04%	0.09%	0.18%	0.09%	2.28%	0.11%	1.85%	2.90%	0.02%	0.10%	0.71%	3.13%	18.65 %	0.27%	37.18 %	0.22%	0.76%	0.51%	0.01%	0.07%	0.25%	0.45%	0.15%	0.01%	0.09%	0.72%	0.01%	15.78 %	3.41%	1.79%
244	Redbank Plains Road	100.00%	1.60%	0.67%	14.33%	7.20%	10.65 %	3.21%	8.18%	20.74 %	12.49 %	0.87%	0.71%	0.39%	0.24%	1.56%	0.03%	0.63%	0.20%	0.13%	1.35%	0.01%	0.05%	0.11%	0.05%	0.04%	0.05%	0.07%	0.02%	0.01%	0.03%	0.08%	0.00%	4.76%	8.26%	1.29%
245	Redbank Plains Road / Queen Street	100.00%	4.88%	1.70%	4.42%	20.64 %	8.23%	0.13%	0.34%	20.63 %	12.52 %	0.11%	0.95%	0.18%	0.01%			0.00%		0.01%	0.01%	0.00%	0.00%	0.01%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	2.51%	20.79%	1.88%
246	Robertson Road	100.00%	1.99%	0.16%	3.97%	0.92%	1.56%	0.58%	1.15%	2.89%	2.86%	0.95%	1.29%	0.92%	0.03%	0.46%	0.39%	5.33%	7.21%	0.22%	43.96 %	1.70%	0.34%	0.49%	0.02%	0.18%	0.73%	0.62%	0.08%	0.00%	0.02%	0.29%	0.00%	7.68%	9.36%	1.66%
247	Roderick Street	100.00%	0.86%	0.04%	1.58%	0.26%	0.24%	0.16%	0.28%	0.40%	0.77%	0.31%	0.40%	0.87%	0.44%	0.47%	1.24%	2.56%	6.33%	0.62%	62.19 %	0.13%	4.74%	3.40%	0.11%	0.14%	0.02%	0.32%	0.06%	0.02%	0.15%	0.37%	0.00%	6.13%	3.42%	0.96%
248	Thorn Street	100.00%	0.23%	0.01%	4.34%	0.08%	0.38%	0.04%	0.11%	0.62%	1.25%	0.07%	0.99%	1.40%	0.17%	0.16%	0.45%	2.54%	9.93%	0.21%	58.73 %	0.64%	0.75%	0.34%	0.05%	0.59%	0.24%	0.71%	0.10%	0.03%	0.54%	0.52%	0.03%	9.33%	2.70%	1.70%
249	Warwick Road	100.00%	0.00%	0.00%	0.64%	0.00%	0.10%	0.00%	0.01%	0.07%	0.22%	0.02%	0.29%	1.56%		0.01%	0.32%	0.06%	11.60 %		58.51 %	2.88%	0.48%	0.45%		2.70%	0.80%	1.74%	0.34%	0.01%	2.03%	1.72%	0.08%	10.21 %	0.53%	2.61%
250	Waterworks Road	100.00%	1.02%	0.07%	0.31%	0.44%	0.10%	0.32%	0.61%	0.21%	0.07%	0.11%	0.03%	0.02%	4.45%	0.53%	1.37%	4.07%	0.59%	7.04%	34.15 %	0.25%	3.12%	4.43%	2.22%	1.73%	0.03%	0.12%	0.01%	2.53%	2.29%	0.10%	0.34%	0.10%	7.50%	19.76 %

C.2 Intersection Upgrades Proportion by Contribution Sector

Emme Node	Intersection Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
6091	Chermside Road / Salisbury Road	100.00%	1.47%	0.11%	4.74%	0.62%	0.91%	0.40%	0.76%	1.75%	2.46%	0.66%	1.20%	1.53%	0.20%	0.62%	1.92%	6.35%	13.20%	0.60%	43.30%	1.93%	0.76%	0.87%	0.02%	0.29%	0.86%	0.48%	0.07%	0.00%	0.01%	0.31%	0.00%	3.54%	6.85%	1.22%
6140	Blackstone Road / South Station Road	100.00%	0.11%	0.02%	6.54%	0.06%	2.25%	0.04%	0.23%	4.53%	5.10%	0.39%	2.18%	1.87%	0.06%	0.46%	2.63%	22.13%	4.23%	1.09%	28.53%	0.21%	1.07%	0.12%	0.00%	0.08%	0.06%	0.40%	0.10%	0.00%	0.33%	0.58%	0.02%	11.05%	2.20%	1.34%
6151	Collingwood Drive / Duncan Street	100.00%	0.91%	0.10%	2.72%	2.18%	1.57%	4.62%	17.55%	34.04%	8.36%	5.33%	0.75%	0.11%	0.42%	1.64%	0.47%	0.71%	0.17%	0.41%	1.09%	0.02%	0.15%	0.32%	0.10%	0.27%	0.26%	0.06%	0.01%	0.08%	0.03%	0.05%	0.00%	1.02%	11.66%	2.82%
6154	Kruger Parade / Namatjira Drive / Duncan Street	100.00%	0.33%	0.03%	10.05%	1.01%	8.55%	8.22%	28.10%	16.14%	3.89%	2.88%	0.12%	0.21%	0.78%	3.97%	0.61%	1.42%	0.14%	0.54%	1.83%	0.01%	0.12%	0.47%	0.16%	0.32%	0.34%	0.04%	0.01%	0.07%	0.02%	0.04%	0.01%	2.34%	5.07%	2.19%
6165	South Station Road / Swanbank Road	100.00%	0.48%	0.04%	9.80%	0.33%	0.17%	0.23%	0.49%	0.42%	2.45%	0.29%	4.88%	4.76%	0.07%	0.36%	1.71%	9.17%	14.56%	0.87%	22.47%	0.22%	0.33%	0.21%	0.01%	0.19%	0.15%	0.96%	0.22%	0.05%	0.54%	1.15%	0.04%	14.86%	4.79%	2.71%
6172	Robertson Road / Chermside Road	100.00%	1.44%	0.12%	2.74%	0.68%	1.15%	0.43%	0.84%	2.13%	2.13%	0.73%	0.89%	0.83%	0.23%	0.67%	2.31%	7.42%	10.58%	0.81%	43.75%	1.94%	0.24%	0.52%	0.02%	0.23%	0.73%	0.61%	0.13%	0.00%	0.02%	0.52%	0.00%	6.44%	7.09%	1.63%
6179	Jacaranda Street / Cook Street	100.00%	2.33%	0.19%	1.07%	1.17%	0.47%	0.76%	1.64%	1.20%	1.26%	0.95%	0.30%	0.02%	0.15%	2.92%	14.82%	13.19%	0.42%	0.78%	38.86%	0.08%	2.06%	1.26%	0.09%	0.24%	0.07%	0.03%	0.00%	0.08%	0.01%	0.01%	0.01%	0.31%	10.62%	2.62%
6185	Robertson Road / Grange Road	100.00%	2.28%	0.18%	4.98%	1.09%	1.84%	0.70%	1.36%	3.41%	3.25%	1.23%	1.75%	0.97%	0.01%	0.55%	0.69%	8.91%	9.02%	0.13%	38.70%	1.75%	0.30%	0.41%	0.01%	0.13%	0.76%	0.49%	0.00%	0.00%	0.01%	0.02%	0.00%	2.68%	11.03%	1.35%
7435	Woogaroo Street / Layard Street	100.00%	3.58%	7.12%	10.00%	33.60%	7.22%	10.14%	0.96%	0.46%	0.72%	0.72%	0.10%	0.11%	0.42%	1.49%	0.73%	1.20%	0.56%	0.22%	4.16%	0.03%	0.18%	0.18%	0.05%	0.17%	0.32%	0.11%	0.02%	0.03%	0.05%	0.13%	0.00%	0.42%	12.71%	2.09%
7437	Smith Road / Church Street	100.00%	3.78%	1.41%	3.01%	35.74%	5.25%	1.20%	2.72%	4.48%	2.48%	1.10%	0.20%	0.13%	0.43%	0.97%	0.41%	0.80%	0.55%	0.38%	3.51%	0.03%	0.25%	0.28%	0.13%	0.54%	0.55%	0.12%	0.03%	0.18%	0.12%	0.26%	0.02%	0.63%	24.65%	3.66%
7443	Alice Street / Queen Street	100.00%	7.04%	3.67%	2.78%	22.89%	7.62%	0.37%	3.08%	13.44%	7.50%	0.58%	0.91%	0.10%	0.14%	0.35%	0.20%	0.42%	0.16%	0.08%	0.95%	0.01%	0.03%	0.06%	0.03%	0.12%	0.09%	0.08%	0.01%	0.06%	0.05%	0.17%	0.01%	0.67%	23.44%	2.90%
7445	Smiths Road / Stuart Street	100.00%	2.59%	3.27%	2.67%	38.05%	0.74%	1.02%	20.99%	2.52%	0.15%	4.18%	0.10%	0.10%	0.23%	2.16%	0.44%	1.51%	0.47%	0.27%	2.17%	0.03%	0.23%	0.23%	0.07%	0.20%	0.17%	0.11%	0.02%	0.05%	0.07%	0.12%	0.00%	0.30%	12.26%	2.51%
7447	Redbank Plains Road / Stuart Street	100.00%	5.35%	1.72%	4.15%	21.06%	7.64%	0.14%	1.91%	19.46%	11.64%	0.12%	1.41%	0.17%	0.01%			0.00%		0.01%	0.01%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	2.34%	20.84%	1.98%
7448	Redbank Plains Road / Queen Street / Albert Street	100.00%	5.51%	1.78%	2.90%	21.36%	7.04%	0.10%	2.49%	19.38%	11.42%	0.19%	1.40%	0.16%	0.02%	0.03%	0.02%	0.06%	0.03%	0.03%	0.12%	0.00%	0.01%	0.03%	0.01%	0.02%	0.02%	0.01%	0.00%	0.00%	0.01%	0.01%	0.00%	2.13%	21.62%	2.09%
7450	Bertha Street / Alice Street	100.00%	12.15%	7.49%	6.31%	15.82%	11.48%	1.66%	2.95%	6.83%	3.70%	0.69%	0.74%	0.13%	0.39%	0.90%	0.39%	0.83%	0.33%	0.42%	3.66%	0.02%	0.24%	0.21%	0.12%	0.57%	0.63%	0.13%	0.02%	0.20%	0.08%	0.30%	0.02%	0.29%	16.90%	3.42%
7635	Old Logan Road / Mur Boulevard / Kertes Road	100.00%	9.54%	14.69%	37.91%	5.44%	3.10%	1.17%	1.32%	0.89%	1.34%	0.27%	0.55%	0.09%	0.25%	0.52%	0.22%	0.34%	0.11%	0.16%	1.20%	0.00%	0.07%	0.13%	0.04%	0.12%	0.12%	0.06%	0.02%	0.04%	0.05%	0.16%	0.00%	1.27%	17.51%	1.30%
7636	Old Logan Road / Addison Road	100.00%	16.60%	13.44%	23.91%	8.08%	1.37%	1.61%	2.22%	1.49%	0.40%	0.51%	0.37%	0.14%	0.47%	1.04%	0.39%	0.82%	0.32%	0.58%	4.31%	0.02%	0.29%	0.22%	0.12%	0.48%	0.74%	0.14%	0.03%	0.17%	0.12%	0.46%	0.02%	0.53%	15.84%	2.74%
7987	Kingsmill Road / Marcae Street	100.00%	0.75%	0.02%	0.02%	0.21%	0.02%	0.12%	0.22%	0.04%	0.00%	0.02%	0.00%	0.00%	1.08%	0.32%	0.02%	0.14%	0.01%	2.69%	38.25%	0.10%	12.65%	24.02%	1.61%	2.98%	0.23%	0.07%	0.00%	1.17%	2.10%	0.03%	0.20%	0.01%	2.73%	8.13%
8011	Wattle Street / Dudleigh Street	100.00%	2.80%	0.23%	1.53%	1.43%	0.61%	0.95%	1.98%	1.58%	1.73%	1.42%	0.53%	0.13%	0.32%	1.14%	13.61%	14.69%	0.66%	1.71%	32.87%	0.03%	1.77%	0.85%	0.05%	0.14%	0.02%	0.08%	0.01%	0.05%	0.02%	0.07%	0.01%	1.08%	13.30%	2.58%
8030	Redbank Plains Road / School Road	100.00%	0.24%	0.17%	11.91%	0.37%	6.89%	0.76%	1.68%	16.77%	18.14%	3.33%	1.73%	0.36%	0.36%	0.89%	1.36%	5.39%	1.57%	0.32%	17.90%	0.10%	0.67%	0.23%	0.06%	0.14%	0.34%	0.30%	0.04%	0.03%	0.16%	0.30%	0.01%	2.36%	4.04%	1.08%
8281	Cobalt Street / Johnson Road	100.00%	39.17%	5.58%	8.52%	1.38%	1.86%	0.10%	0.22%	1.00%	0.46%	0.12%	0.66%	0.18%	0.05%	0.14%	0.05%	0.18%	0.08%	0.15%	0.75%	0.01%	0.03%	0.03%	0.03%	0.26%	0.13%	0.04%	0.08%	0.09%	0.13%	0.25%	0.02%	1.47%	34.79%	1.98%
8995	Mary Street / William Street	100.00%	1.42%	0.12%	6.22%	0.73%	3.51%	0.53%	1.13%	7.51%	8.02%	3.95%	2.52%	0.43%	0.02%	0.29%	2.16%	13.63%	1.89%	0.22%	28.92%	0.85%	0.72%	0.12%	0.00%	0.08%	0.34%	0.39%	0.06%	0.01%	0.21%	0.26%	0.01%	3.20%	9.03%	1.48%
11403	Old Logan Road / Moss Road / Meier Road	100.00%	12.99%	19.13%	19.16%	9.22%	1.05%	1.84%	2.77%	1.94%	0.34%	0.59%	0.36%	0.13%	0.52%	1.18%	0.44%	0.93%	0.39%	0.61%	4.83%	0.02%	0.31%	0.24%	0.13%	0.49%	0.75%	0.15%	0.03%	0.18%	0.11%	0.43%	0.02%	0.27%	15.87%	2.61%
11406	Cobalt Street / Mica Street	100.00%	54.38%	1.26%	4.49%	0.85%	0.80%	0.21%	0.34%	0.61%	0.66%	0.26%	1.65%	0.43%	0.20%	0.45%	0.18%	0.66%	0.32%	0.85%	3.94%	0.03%	0.45%	0.11%	0.11%	0.84%	0.56%	0.09%	0.17%	0.24%	0.31%	0.50%	0.05%	2.99%	19.72%	1.29%
11450	Blackstone Road / Creek Street / Sealy Street	100.00%	0.18%	0.03%	8.16%	0.11%	3.96%	0.09%	0.37%	8.65%	10.04%	0.76%	2.72%	0.18%	0.03%	0.85%	2.11%	20.65%	1.34%	0.51%	31.45%	0.13%	1.26%	0.07%	0.00%	0.02%	0.03%	0.04%	0.02%	0.00%	0.05%	0.08%	0.00%	1.67%	3.93%	0.52%
11509	Chermside Road / Griffith Road	100.00%	0.13%	0.01%	3.16%	0.06%	0.38%	0.02%	0.11%	0.64%	1.16%	0.09%	0.78%	1.28%	0.42%	0.55%	3.81%	7.94%	14.14%	1.38%	46.22%	1.08%	0.11%	0.26%	0.04%	0.13%	0.30%	0.49%	0.20%	0.01%	0.03%	0.85%	0.00%	10.40%	2.23%	1.60%
11606	Jacaranda Street / Cotton Street / Leslie Street	100.00%	2.29%	0.19%	1.04%	1.14%	0.46%	0.73%	1.59%	1.17%	1.22%	0.92%	0.29%	0.02%	0.09%	2.85%	15.44%	12.36%	0.39%	0.77%	39.70%	0.08%	2.11%	1.31%	0.10%	0.27%	0.08%	0.03%	0.00%	0.09%	0.02%	0.01%	0.01%	0.26%	10.28%	2.70%
14985	Salisbury Road / Briggs Road	100.00%	1.59%	0.12%	5.13%	0.66%	0.97%	0.42%	0.82%	1.86%	2.66%	0.66%	1.28%	1.49%	0.12%	0.55%	1.28%	5.69%	10.99%	0.22%	45.65%	2.09%	0.86%	0.95%	0.01%	0.32%	0.94%	0.43%	0.01%	0.00%	0.01%	0.04%	0.00%	3.96%	7.30%	0.92%
15008	Darling Street / Waghorn Street	100.00%	0.00%	0.00%	0.58%	0.00%	0.01%	0.00%	0.00%	0.03%	0.08%	0.02%	0.07%	0.53%	0.20%	0.03%	0.27%	0.43%	2.82%	1.02%	48.32%	2.23%	20.69%	10.23%	0.57%	1.30%	0.26%	0.51%	0.09%	0.36%	1.19%	0.59%	0.10%	4.05%	0.49%	2.91%
15226	Bertha Street / Mill Street	100.00%	6.24%	5.45%	6.42%	15.11%	12.27%	2.57%	2.78%	5.60%	2.85%	0.86%	0.37%	0.11%	0.44%	1.12%	0.44%	0.91%	0.41%	0.48%	4.33%	0.02%	0.24%	0.21%	0.10%	0.43%	0.53%	0.13%	0.02%	0.15%	0.09%	0.29%	0.01%	0.24%	24.18%	4.59%
15228	Alice Street / Church Street	100.00%	9.64%	4.63%	4.39%	22.05%	12.87%	0.67%	2.65%	9.34%	5.20%	0.47%	0.77%	0.09%	0.20%	0.43%	0.21%	0.38%	0.11%	0.17%	1.19%	0.01%	0.11%	0.14%	0.08%	0.40%	0.37%	0.07%	0.01%	0.14%	0.03%	0.14%	0.01%	0.43%	19.58%	3.02%
15234	Smiths Road / William Street	100.00%	1.22%	1.03%	1.98%	47.90%	0.22%	1.47%	10.91%	1.38%	0.03%	3.50%	0.19%	0.15%	0.47%	2.01%	0.54%	1.45%	0.78%	0.31%	2.80%	0.05%	0.19%	0.27%	0.07%	0.27%	0.22%	0.12%	0.03%	0.05%	0.17%	0.21%	0.02%	0.72%	15.91%	3.36%
15236	Smiths Road / Albert Street	100.00%	1.40%	1.39%	2.78%	48.61%	1.04%	0.79%	12.70%	2.28%	0.57%	2.85%	0.12%	0.10%	0.21%	1.61%	0.33%	0.90%	0.43%	0.20%	1.83%	0.03%	0.20%	0.16%	0.05%	0.16%	0.13%	0.09%	0.02%	0.04%	0.07%	0.11%	0.00%	0.52%	15.57%	2.71%
20007	Thorn Street / Garden Street	100.00%	0.26%	0.02%	4.30%	0.10%	0.41%	0.05%	0.14%	0.69%	1.29%	0.10%	0.98%	1.38%	0.16%	0.18%	0.47%	2.80%	9.66%	0.20%	58.60%	0.70%	0.73%	0.34%	0.05%	0.62%	0.24%	0.70%	0.10%	0.03%	0.55%	0.50%	0.03%	8.96%	2.96%	1.70%
20059	Augusta Parkway / Mount Juillerat Drive	100.00%	0.19%	0.06%	50.51%	1.25%	7.72%	0.40%	2.44%	8.48%	13.86%	1.23%	0.42%	0.04%	0.09%	0.45%	0.43%	1.99%	0.09%	0.06%	3.56%	0.00%	0.06%	0.03%	0.00%	0.01%	0.02%	0.02%	0.00%	0.00%	0.01%	0.02%	0.00%	0.32%	5.57%	0.65%
20083	Collingwood Drive / Eagle Street	100.00%	2.15%	0.49%	2.70%	3.95%	3.20%	3.24%	10.97%	39.23%	9.09%	1.86%	2.37%	0.21%	0.20%	0.96%	0.21%	0.92%	0.81%	0.19%	3.45%	0.05%	0.14%	0.16%	0.05%	0.13%	0.14%	0.23%	0.03%	0.04%	0.12%	0.19%	0.01%	1.50%	8.81%	2.20%
20113	Collingwood Drive / Old Ipswich Road	100.00%	1.19%	0.26%	2.48%	3.22%	1.31%	3.92%	22.93%	27.69%	6.84%	7.65%	0.58%	0.09%	0.35%	1.35%	0.40%	0.59%	0.14%	0.34%	0.90%	0.02%	0.12%	0.27%	0.08%	0.22%	0.21%	0.06%	0.01%	0.07%	0.02%	0.04%	0.00%	0.84%	13.09%	2.73%
20118	Kruger Parade / Eagle Street	100.00%	1.42%	0.47%	11.49%	3.19%	9.82%	5.95%	17.81%	24.89%	4.33%	2.61%	1.20%	0.22%	0.56%	2.95%	0.39%	1.24%	0.44%	0.37%	2.33%	0.03%	0.10%	0.32%	0.12%	0.20%	0.25%	0.14%	0.01%	0.05%	0.08%	0.10%	0.01%	2.16%	3.26%	1.49%
140083	Redbank Plains Road / Argyle Street	100.00%	1.38%	0.56%	15.94%	6.01%	9.70%	2.68%	6.82%	25.57%	11.92%	0.72%	0.63%	0.46%	0.20%	1.30%	0.02%	0.52%	0.17%	0.11%	1.12%	0.01%	0.04%	0.09%	0.04%	0.04%	0.05%	0.06%	0.02%	0.01%	0.04%	0.07%	0.00%	5.34%	7.11%	1.23%
140204	Burnett Street / Herbet Street / Woodend Road	100.00%	0.08%	0.00%	0.18%	0.03%	0.02%	0.01%	0.06%	0.04%	0.08%	0.05%	0.04%	0.12%	0.65%	0.16%	0.13%	0.44%	0.85%	2.18%	44.87%	0.23%	16.23%	20.03%	1.27%	1.80%	0.05%	0.11%	0.02%	0.93%	1.48%	0.09%	0.17%	0.69%	0.78%	6.15%
140370	Redbank Plains Road / Eagle Street	100.00%	4.58%	1.62%	4.69%	15.80%	11.54%	0.16%	3.00%	20.85%	11.64%	0.46%	0.93%	0.19%	0.03%	0.19%	0.08%	0.12%	0.07%	0.05%	0.47%	0.00%	0.03%	0.04%	0.01%	0.03%	0.04%	0.02%	0.01%	0.01%	0.01%	0.03%	0.00%	2.50%	19.01%	1.81%

Emme Node	Intersection Description	Total PCU Usage %	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	100	500
207432	Layard Street / Brisbane Terrace	100.00%	3.22%	1.78%	10.09%	19.06%	3.22%	31.84%	0.51%	0.27%	0.42%	0.07%	0.04%	0.03%	0.01%	0.06%	0.03%	0.05%	0.03%	0.01%	0.31%	0.00%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.37%	27.03%	1.49%

Appendix B - COST ESTIMATE BENCHMARKING REPORT

Ipswich City Council

Baseline Construction Estimates

July 2016

Project No:	IH094200
Document Title:	Ipswich City Council Baseline Construction Estimates
Revision:	02
Date:	15 July 2016
Client Name:	Ipswich City Council

Jacobs Group (Australia) Pty Limited
ABN 37 001 024 095
32 Cordelia Street
PO Box 3848
South Brisbane QLD 4101 Australia
T +61 7 3026 7100
F +61 7 3026 7300
www.jacobs.com

Document history and status

Revision	Date	Description	By	Review	Approved
01	14/06/2016	Issued for client review and comments	LL	DW	MR
02	15/07/2016	Amended with additional site classification, for client approval	LL	DW	MR

Contents

1. Introduction

1.1 Purpose

This report is prepared by Jacobs Group for Ipswich City Council. The purpose of this report with its appendices is to provide detailed information of the baseline construction cost estimates that are generated to support Ipswich City Council's Priority Infrastructure Plans.

1.2 Scope and Assumptions

The baseline construction estimates are prepared for road and infrastructure works within Ipswich City Council area, and the scope of estimates is limited to the road types as outlined in Section 2 Methodology. The costs are provided as linear metre costs for typical road sections in Greenfield site and Brownfield site, and separate costs are provided for additional and road related work items such as bridge works, intersection traffic signals and so on. All estimation quantities and assumptions are based on the standard drawings and specifications for Ipswich City Council works.

The baseline estimates should be applied to projects at the project identification phase, for construction estimate including contractor's direct and indirect costs, but excluding project owner's or the Principal's costs. Contingencies are not included in the baseline estimates.

After the project identification phase, these costs should be reviewed and a more detailed project cost estimate should be developed at the project scoping phase.

All costs in this report are based on typical industry rates between 2011 and 2015, and all costs shown are excluding GST components.

2. Methodology

The process of calculating construction costs involves identifying elements of construction for each road type to determine the quantity of work and applying a unit rate for each element of works. The quantities used for each road type is per linear metre and have been calculated based on the typical cross sections as shown on the Ipswich City Council Standard Drawing attached in Appendix A.

2.1 Road Types

Estimates have been prepared for several road types for new infrastructure and upgrades to the existing road networks. The road types are outlined in Table 1 below.

Table 1: Priority Infrastructure Plan Road Types

Item	Road Type	Works	No. Lanes	Median Divided	Max Volume	Pavement Width	Pavement Depth + Asphalt	Site Classif-ication	Drainage	Shared Pathways	Route Lighting
1A	Sub-Arterial	New Road	2	No	14800	11.0m	600mm + 50mm	Green-field	Drainage designed in accordance with QUDM – Minor System Design – Major Road o Kerb & Channel Flow ARI – 10 years o Cross Drainage (Culverts) – 50 years	2.5m both sides	AS1158-V5
1B	Sub-Arterial	New Road	4	No	31000	18.0m	600mm + 50mm	Green-field		2.5m both sides	AS1158-V5
1C	Sub-Arterial	New Road	4	Yes	36000	2x9.0m carriageways	600mm + 50mm	Green-field		2.5m both sides	AS1158-V5
1D	Sub-Arterial	Upgrade 2 to 4 lanes	4	No	31000	18.0m	600mm + 50mm	Brown-field		2.5m both sides	AS1158-V5
1E	Sub-Arterial	Upgrade 2 to 4 lanes	4	Yes	36000	2x9.0m carriageways	600mm + 50mm	Brown-field		2.5m both sides	AS1158-V5
R1A	Sub-Arterial	Replace 2 lanes	2	No	14800	11.0m	600mm + 50mm	Brown-field		2.5m both sides	AS1158-V5
R1B	Sub-Arterial	Replace 4 lanes	4	No	31000	18.0m	600mm + 50mm	Brown-field		2.5m both sides	AS1158-V5
2A	Arterial	New Road	2	No	16400	11.0m	650mm + 50mm	Green-field		2.5m both sides	AS1158-V4
2B	Arterial	New Road	4	No	36000	18.0m	650mm + 50mm	Green-field		2.5m both sides	AS1158-V4
2C	Arterial	New Road	4	Yes	42600	2x9.0m carriageways	650mm + 50mm	Green-field		2.5m both sides	AS1158-V4
2D	Arterial	Upgrade 2 to 4 lanes	4	No	36000	18.0m	650mm + 50mm	Brown-field		2.5m both sides	AS1158-V4
2E	Arterial	Upgrade 2 to 4 lanes	4	Yes	42600	2x9.0m carriageways	650mm + 50mm	Brown-field		2.5m both sides	AS1158-V4
2F	Arterial	Upgrade 4 to 6 lanes	6	Yes	65400	2x12.5m carriageways	650mm + 50mm	Brown-field		2.5m both sides	AS1158-V3
R2A	Arterial	Replace 2 lanes	2	No	16400	11.0m	650mm + 50mm	Brown-field		2.5m both sides	AS1158-V4
R2B	Arterial	Replace 4 lanes	4	No	36000	18.0m	650mm + 50mm	Brown-field		2.5m both sides	AS1158-V4
3A	Service Road – One Way	New Road	1	No	7400	5.5m	600mm + 50mm	Green-field		2.0m one sides	AS1158-V5
3B	Service Road – Two Way	New Road	2	No	14800	9.0m	600mm + 50mm	Green-field		2.0m one sides	AS1158-V5

2.2 Project Elements

The project elements are the items of work required to construct a road infrastructure project. The project elements identified for the road types are typical for new road in an urban area. Typical cross sections of the road types are shown in the Ipswich City Council standard drawing in Appendix A. The elements provided for the linear metre cost of roads are:

- earthworks
  - Minor - average 1.0m earthwork depth

    (Adopted for Brownfield and/or minor Greenfield conditions)
  - Moderate - average 2.0m earthwork depth

    (Adopted for Greenfield condition and/or Brownfield with consideration for high level earthwork requirement)
  - Major - average 3.0m earthwork depth

    (Adopted for Greenfield condition with consideration for high level earthwork requirement)
- drainage
- unbound pavements
- plant-mixed stabilised pavements
- road furniture and pavement marking
- landscape works
- bituminous surfacing
- asphalt works
- street lighting
- supplementary and unmeasured items

Additional items to be considered and if required for individual projects are:

- noise fences
- major culverts
- bridges
- road approaches to new bridge for bridge project
- temporary side track and culvert for bridge project
- reinforced earth structures
- traffic signals at intersections

2.3 Calculation of Unit Rates

The rates represent tendered construction unit rates from 2011 to 2015, and included all direct and indirect costs. The rates have been calculated from the average (with the most occurrences for similar types of works) of tenders for seven (7) transport projects tendered from late 2011 to late 2015:

- 4 x tenders were in 2015
- 1 x tender was in mid-2014
- 1 x tender was in late 2013
- 1 x tender was in late 2011

There were a total of 52 tenderers for above mentioned 7 projects, which are summarised as follows:

- 3 x road construction/upgrade works on arterial roads, with mixture of 2-lane & 2-way and 4-lane & 2-way
- 1 x road rehabilitation (Toongarra Road Rehabilitation), 2-lane & 2-way
- 2 x deck unit bridge construction, of which one project included works on road approaches
- 1 x kerb & channel upgrade only project
- the longest project extent was about 2km

The analysed tenders did not include the following components which were identified as "additional items" in 2009 base line estimate. The updated rates for below components were based on the assumption of 20% increase since 2009 estimate:

- noise fence component is not available in 2016 analysis
- major culverts (> 2100mm dia.) are not available in 2016 analysis
- precast tee roff's bridge is not available in 2016 analysis
- reinforced earth structure is not available in 2016 analysis
- traffic signals for "4 way" intersection is not available in 2016 analysis

Compared with 2009 base line estimate, the following considerations have been added into 2016 update:

- detailing of site classification in Greenfield and Brownfield
- replacement/rehabilitation type of road works is included
- estimate of road approaches for bridge project is included
- estimate of temporary side track for bridge project is included
- environmental management % is removed, however, the analysed % rates for 2016 update are still available if this item was required to be revisited by the council at a later stage

The rates shall be applied to projects at the project identification phase, and these rates should be reviewed and a more detailed project cost estimate should be developed at the project scoping phase.

2.4 Cost Inflation / Reduction

For projects that are relatively smaller in size (<1km length) or in built up brownfield urban environments, the rates applied should be estimated at 15-20% above those scheduled.

For projects that are considered relatively larger in size (>5km length) or in Greenfield / rural environments the rates may be estimated at 10-15% below those scheduled.

2.5 Estimation of Quantities

The road types have been based on Ipswich City Council typical cross sections drawing SR.04 (Revision C) and altered to suit the road types shown in Table 1.

2.5.1 Sub-Arterial Road Types

- Road type 1A has been estimated using the "two lane two way road" in drawing SR.04.
- Road type 1B has been estimated using the "multi lane road" in drawing SR.04 without the median and associated elements.

- Road type 1C has been estimated using the “multi lane road” in drawing SR.04. A one metre wide landscaping strip on the median has also been included.
- Road type 1D has been estimated using the “multi lane road” in drawing SR.04 without the median and associated elements. It is assumed that the existing road is utilised in the new works with only an asphalt overlay required. The estimate includes removal of the kerb and channel at the interface of the existing and new road.
- Road type 1E has been estimated using the “multi lane road” in drawing SR.04. It is assumed that the existing road is utilised in the new works with only an asphalt overlay required. The estimate includes removal of the kerb and channel at the interface of the existing and new road. A one metre wide landscaping strip on the median has also been included.
- Road type R1A has been estimated using the “two lane two way road” in drawing SR.04, for dull depth pavement replacement with partial road side works.
- Road type R1B has been estimated using the “multi lane road” in drawing SR.04, for dull depth pavement replacement with partial road side works.

2.5.2 Arterial Road Types

- Road type 2A has been estimated using the “two lane two way road” in drawing SR.04.
- Road type 2B has been estimated using the “multi lane road” in drawing SR.04 without the median and associated elements.
- Road type 2C has been estimated using the “multi lane road” in drawing SR.04. A one metre wide landscaping strip on the median has also been included.
- Road type 2D has been estimated using the “multi lane road” in drawing SR.04 without the median and associated elements. It is assumed that the existing road is utilised in the new works with only an asphalt overlay required. The estimate includes removal of the kerb and channel at the interface of the existing and new road.
- Road type 2E has been estimated using the “multi lane road” in drawing SR.04. It is assumed that the existing road is utilised in the new works with only an asphalt overlay required. The estimate includes removal of the kerb and channel at the interface of the existing and new road. A one metre wide landscaping strip on the median has also been included.
- Road type 2F has been estimated using the “multi lane road” in drawing SR.04 with the two carriageways widened to 12.5 metres into the verge on either side. It is assumed that the existing road is utilised in the new works with only an asphalt overlay required. The estimate includes removal of the kerb and channel at the interface of the existing and new road. A one metre wide landscaping strip on the median has also been included.
- Road type R2A has been estimated using the “two lane two way road” in drawing SR.04, for dull depth pavement replacement with partial road side works.
- Road type R2B has been estimated using the “multi lane road” in drawing SR.04, for dull depth pavement replacement with partial road side works.

2.5.3 Service Road Types

- Road type 3A has been estimated using a single carriageway from the multilane road in drawing SR.04. This road type only has one lane and is 5.5 metres wide, with a footpath on one side only.
- Road type 3B has been estimated using the “two lane two way road” in drawing SR.04 with a footpath on one side only.

2.5.4 Road Pavement Assumptions

With reference to the Ipswich City Council Planning Scheme Policy 3 for Flexible Pavement Design, and Austroads Guide to Pavement Technology Part 2, the following has been adopted in order to estimate quantities for the baseline construction cost estimates.

- Subgrade CBR value for all road types – CBR 3

- 600mm unbound pavement with 50mm asphalt surfacing for sub-arterial roads except replacement works
- 650mm unbound pavement with 50mm asphalt surfacing for arterial roads except replacement works

- Road type R1A and R1B require 600mm full depth replacement with 150mm plant-mixed stabilised pavement layer on top of 450mm unbound gravels, finished with 50mm asphalt surfacing
- Road type R2A and R2B require 650mm full depth replacement with 200mm plant-mixed stabilised pavement layer on top of 450mm unbound gravels, finished with 50mm asphalt surfacing

- 600mm pavement with 50mm asphalt surfacing for both types of service roads

Table 2: Pavement Thickness Assumptions (Excludes Asphalt)

Road Type	Road Class	ESA's	Minimum Pavement Thickness (mm)	Adopt Pavement Thickness (mm)
Sub – Arterial	Class D	2×10^6	560mm	600mm
Arterial	Class F	1×10^7	640mm	650mm
Service Road	Class D	2×10^6	560mm	600mm

2.6 Calculation of Construction Costs

The construction cost for each road type is calculated by applying the unit rate for each project element to the quantity calculated on each road type, in order to develop a linear metre rate. The calculations, inclusions and exclusions for the construction costs are shown in Appendix B and Appendix C.

It should be noted that, a Microsoft Excel Spreadsheet that was developed in 2009 baseline estimate works, now has been updated for 2016 baseline estimate works. The electronic spreadsheet (last modified 15 July 2016) has also included the original data and statistics details captured from the analysed tenders, for future reference and minor modification purpose.

3. Conclusion

The baseline construction cost estimates in this report have been prepared to be used for Ipswich City Council's Priority Infrastructure Plan. The cost estimate schedules for all road types are attached in Appendix C. The construction costs schedules are summarised in Table 3 below.

Table 3: Baseline Construction Cost Estimates (2016) Summary

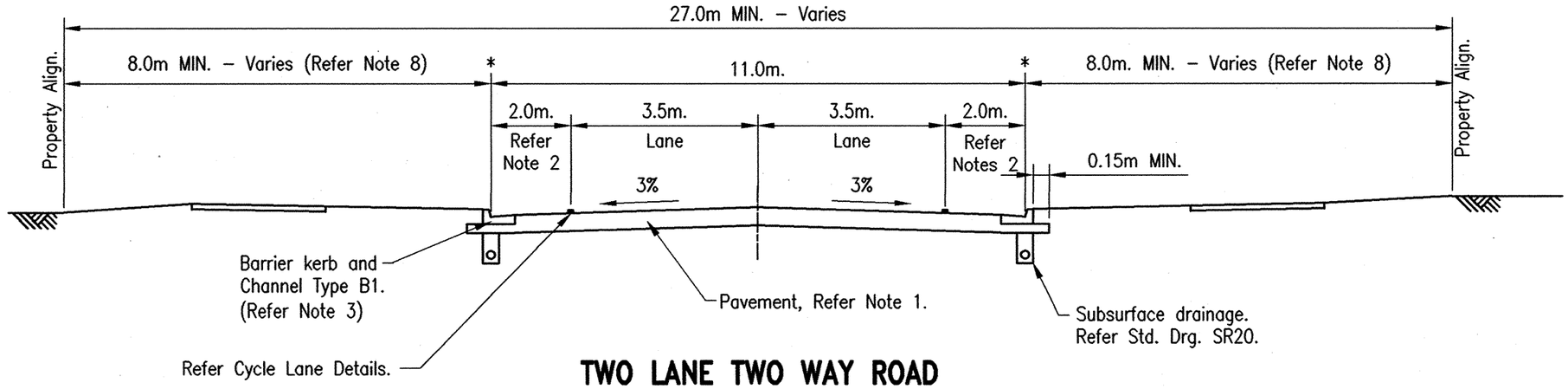
Item	Road Type	Works	No. Lanes	Median Divided	Construction Cost ($/m) [Normal]	Greenfield with Minor or Major Earthworks		Brownfield with High Level Earthworks
						Minor (eg.1.0m)	Major (eg.3.0m)	Moderate – High Level (eg.2.0m)
1A	Sub-Arterial	New Road	2	No	$4,186	$3,742	$4,631	-
1B	Sub-Arterial	New Road	4	No	$5,927	$5,361	$6,493	-
1C	Sub-Arterial	New Road	4	Yes	$6,426	$5,780	$7,072	-
1D	Sub-Arterial	Upgrade 2 to 4 lanes	4	No	$3,140	-	-	$3,430
1E	Sub-Arterial	Upgrade 2 to 4 lanes	4	Yes	$3,693	-	-	$4,093
R1A	Sub-Arterial	Replacement 2 lanes	2	No	$2,439	-	-	-
R1B	Sub-Arterial	Replacement 4 lanes	4	No	$3,921	-	-	-
2A	Arterial	New Road	2	No	$4,245	$3,800	$4,690	-
2B	Arterial	New Road	4	No	$6,079	$5,513	$6,646	-
2C	Arterial	New Road	4	Yes	$6,522	$5,875	$7,168	-
2D	Arterial	Upgrade 2 to 4 lanes	4	No	$3,179	-	-	$3,468
2E	Arterial	Upgrade 2 to 4 lanes	4	Yes	$3,742	-	-	$4,143
2F	Arterial	Upgrade 4 to 6 lanes	6	Yes	$3,422	-	-	-
R2A	Arterial	Replacement 2 lanes	2	No	$2,564	-	-	-
R2B	Arterial	Replacement 4 lanes	4	No	$4,125	-	-	-
3A	Service Road – One Way	New Road	1	No	$2,537	$2,288	$2,786	-
3B	Service Road – Two Way	New Road	2	No	$3,272	$2,990	$3,553	-

Notes:

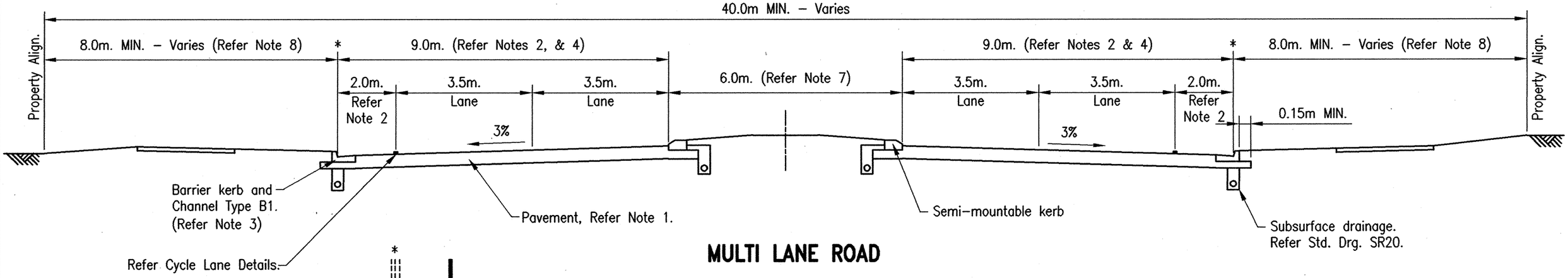
Greenfield	*Brownfield*

1. *For Major Greenfield Site, recommend to use the adopted rate "For Major Earthworks".*
2. *For Minor Greenfield Site or Semi-Brownfield Site (eg. upgrade of area which has pre-existent but very narrow road, no PUPs or not much existing drainage), recommend to use the adopted rate "For Minor Earthworks".*
3. *For other greenfield site with moderate earthwork, recommend to use the adopted rate for "Construction Cost Normal".*
4. *For Brownfield Site with consideration of high level earthworks (eg. average 2m earthwork depth), recommend to use the adopted rate "For Moderate – High Level Earthwork".*
5. *For other brownfield site with minor earthwork, recommend to use the adopted rate for "Construction Cost Normal".*

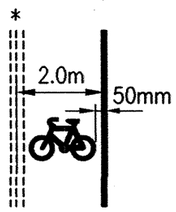
Appendix A – Ipswich City Council Standard Drawing



TWO LANE TWO WAY ROAD



MULTI LANE ROAD



CYCLE LANE DETAILS

LEGEND

* Extent of carriageway – invert of kerb and channel.

NOTES

1. For pavement design requirements refer to Planning Scheme Policy 3 – General Works.
2. Where on road parking is permitted, road shoulders are to be replaced with 4.2m MIN. wide shared parking/cycle lanes. Carriageway and reserve widths to be increased accordingly.
3. Mountable kerb and channel type M1 to be used where road design speed is greater than 60Km/h.
4. If an ultimate multi–lane road is to be constructed to initially operate as an undivided two lane road, then minimum width for initial stage carriageway shall be 11.0m.
5. A concrete shared path shall be provided on both verges of sub–arterial and arterial roads unless directed otherwise by Council's Engineer.
6. Auxiliary lanes are to provided at all accesses to permitted frontage development, bus bays and at all intersections including channelisation. Reserve width to be increased accordingly.
7. The median width may be varied to suit difficult or existing situations with the approval of Council's Engineer.
8. Refer SR.07 for Standard Verge Profile and SR.11 for Standard Kerb Types.
9. A minimum 2.0m wide cycle lane shall be provided on Sub–Arterial Roads. White bicycle symbols to be installed 50mm from edge line. Symbol size and spacing in accordance with AS1742.9.
10. All dimensions are in metres unless noted otherwise.

REVISIONS

	AMENDMENT	INITIALS	DATE		AMENDMENT	INITIALS	DATE
F				L			
E				K			
D				J			
C	Revised to include cycle lanes			I			
B	Increased carriageway width. Notes amended.			H			
A	ORIGINAL ISSUE			G			

IPSWICH CITY COUNCIL

50 SOUTH STREET
IPSWICH 4305
P.O. BOX 191

Ipswich

Phone (07) 3810 7894
(07) 3810 7927
Fax (07) 3810 7950

APPROVED
WORKS MANAGER
DATE 19-3-97

STANDARD DRAWING

TYPICAL CROSS SECTIONS
SUB–ARTERIAL AND ARTERIAL ROADS
WITH KERB AND CHANNEL

ROADWORKS

SR.04

REV: C | DRAWER: 100

Appendix B – Unit Rate Calculations

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	General
	The rates represent tendered construction unit rates from 2011 to 2015, and have included all direct and indirect costs. All rates exclude GST components. For detailed 2016 rate analysis, refer tab "Rate Analysis" in 2016 Base Line Estimate spreadsheet.
	The rates have been calculated from the average of tenders for 7 transport projects tendered from late 2011 to late 2015: • 4 x tenders were in 2015 • 1 x tender was in mid-2014 • 1 x tender was in late 2013 • 1 x tender was in late 2011 There were a total of 52 tenderers for above mentioned 7 projects, which are summarised as follows: • 3 x road construction/upgrade works on arterial roads, mixture of 2-lane & 2-way and 4-lane & 2-way upgrade • 1 x road rehabilitation (Toongarra Road Rehabilitation), 2-lane & 2-way • 2 x deck unit bridge construction, of which one project included works on road approaches • 1 x kerb & channel upgrade only project • The longest project extent was about 2km • Redbank Plains project flood mitigation/wet land portion was not used as it was irrelevant to road upgrade scope
	The analysed tenders did not include the following components which were identified as "additional items" in 2009 base line estimate. The rates for below components were based on the assumption of 20% increase since 2009 estimate: • Noise fence component is not available in 2016 analysis • Major culverts (> 2100mm dia.) are not available in 2016 analysis • Precast tee roff's bridge is not available in 2016 analysis • Reinforced earth structure is not available in 2016 analysis • Traffic signals for "4 way" intersection is not available in 2016 analysis Compared with 2009 base line estimate, the following considerations have been added into 2016 update: • Detailing of site classification between greenfield and brownfield • Replacement/rehabilitation type of road works is included • Estimate of road approaches for bridge project is included • Estimate of temporary side track for bridge project is included • Environmental management % is removed, however, the analysed % rates for 2016 dollars are still available if this item was required to be put back
	The rates represent a middle of the range price (average with the most occurrences for similar types of works) and shall be applied to projects at the project identification phase. These costs should be reviewed and a more detailed project cost estimate should be prepared at the project scoping phase.
	Cost reduction / inflation
	For projects that are small in size (<1km length) or in a built up urban / city environment the rates could be up to 15-20% above those listed.
	For projects that are large in size (>5km length) or in Greenfield / rural environment the rates could be up to 10-15% less than those listed.

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	Earthworks Excavation
	• In moderate cases it is assumed 45% of the cross section road reserve width is in (2m) cut. • In minor cases it is assumed 45% of the cross section road reserve width is in (1m) cut. • In major cases it is assumed 45% of the cross section road reserve width is in (3m) cut. Earthworks cut to fill rates for the above projects ranged from $4.40 to $19.88 for 41,650m3, and for replacement type of projects ranged from $9.40 to $43.29 for 5,314m3. Refer detailed calculations for greenfield/brownfield, minor/moderate/major earthworks in each individual sheet.
	Adopted rate $10.50/m3 (for replacement, adopt $21.50/m3)
	Earthworks Imported fill = embankment qty - cut qty.
	Ranged from $19.72 to $50.55, with an average of $33.19, for Collingwood Drive Extension project stage 1, which was tendered in late 2011.
	Adopted rate $33.50/m3
	Earthworks embankment from cut material.
	Assumed 55% of road reserve cross section: • In moderate cases it is assumed 55% of the cross section road reserve width is in (2m) fill. • In minor cases it is assumed 55% of the cross section road reserve width is in (1m) fill. • In major cases it is assumed 55% of the cross section road reserve width is in (3m) fill. Refer detailed calculations for greenfield/brownfield, minor/moderate/major earthworks in each individual sheet.
	Ranged from $2.26 to $26.50, with an average of $11.07.
	Adopted rate $11.00/m3
	Earthworks, clearing, stripping & ground surface treatment
	This item includes all clearing, topsoil stripping, and ground surface treatments likely. The rate has been derived by summing all the clearing, stripping and ground surface treatment item amounts and dividing by the pavement area to obtain a universal rate proportional to the pavement area.
	Ranged from $0.07 to $11.88, and rate for replacement project was in a lower range from $0.90 to $3.49.
	Adopted rate $5.00/m2 of pavement area (for replacement, adopt $2.00/m2)

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	Other earthworks items, subgrade etc.
	This item includes all types of subgrade treatments likely. It includes normal trimming and compaction preparation, plus any subgrade replacement treatments e.g. excavate and replace with gravel. The rate has been derived by summing all the subgrade item amounts and dividing by the pavement area to obtain a universal rate proportional to the pavement area.
	Ranged from $0.21 to $64.28, with an overall average of $8.52, average of normal road works of $7.00, but an average of $12 for Redbank Plains Road Upgrade – stage 1 (floodplain area).
	Adopted rate $7.00/m2 of pavement area
	Earthworks unsuitable allowance
	This item includes all items associated with removal and replacement of unsuitable material, generally replacement material is rock fill. The rate has been derived by summing all the clearing, stripping and ground surface treatment item amounts and dividing by the pavement area to obtain a universal rate proportional to the pavement area.
	Ranged from $0.36 to $44.76, with an average of $12.04.
	Adopted rate $12.00/m2 of pavement area
	Unbound Pavement all types 600 - 650mm
	Assume the 600 - 650mm layer is made up of Main roads type 2.1, 2.2, 2.3, 2.4 and 2.5 gravels. Detailed rates are shown below if required:
	・ Type 2.1 = $100/m3
	・ Type 2.2 = $85/m3
	・ Type 2.3 = $90/m3
	・ Type 2.4 = $76/m3
	・ Type 2.5 = $77/m3 ($86 is average of all types)
	Adopted rate $86.00/m3 for all types
	Plant-Mixed Stabilised Pavement all types 150mm
	Assume the 150mm - 200mm layer to be used for replacement type of projects, and including supply of cement, on top of the un-stabilised gravels.
	Ranged from $90.00 to $200.86, with an average of $141.31.
	Adopted rate $145.00/m3 (for replacement)
	Prime AMC00 @ 1.0 L/m2
	Ranged from $1.45 to $3.41 including supply but no allowance for prime cover material.
	Adopted rate $2.00/m2
	Kerb & channel
	Ranged from $30.00 to $69.88, with an average of $43.51.
	Adopted rate $45.00/m (for replacement, adopt $63.00/m including removal cost)
	Concrete (median) Kerb
	Very similar to kerb and channel althought an average was not calculated, and different types were seen with different prices, and some of them were even higher than the kerb and channel item. Adopt $42.00 per metre.
	Adopted rate $42.00/m (for replacement, adopt $62.00/m inc. removal cost)
	Sub soil drains
	Ranged from $12.72 to $48.13, with an average of $29.77, including all associated works for connections, clean-out etc.
	Adopted rate $35.00/m

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	Concrete footpath
	As per ICC standard drawing SR19. 100mm thick reinforced with 50mm bedding sand.
	Ranged from $54.12 to $100.38, with an average of $72.91. Not including the rehab project as the concrete qty for the given tender sample was considered a little high.
	Adopted rate $73.00/m2 of footpath (for replacement, adopt $90.00/m2 including removal cost)
	Concrete gullies
	Assumed roadway gullies with 2.4m lintel.
	Ranged from $1,772.14 to $5,245.13, with an average of $3,505.48.
	Adopted rate $3,500/each (for replacement, adopt $4,300/each including removal cost)
	Drainage pipes see below diameters
	Assume class 2 RCP. Average of tender prices for different sizes. Including end structure costs.
	Adopted rate for 225mm dia. = $150/m
	Adopted rate for 300mm dia. = $270/m
	Adopted rate for 375mm dia. = $230/m
	Adopted rate for 450mm dia. = $260/m
	Adopted rate for 525mm dia. = $300/m
	Adopted rate for 600mm dia. = $360/m
	Adopted rate for 675mm dia. = $360/m
	Adopted rate for 750mm dia. = $420/m
	Adopted rate for 825mm dia. = $450/m
	Adopted rate for 900mm dia. = $530/m
	Adopted rate for 1050mm dia. = $800/m
	Adopted rate for 1200mm dia. = $900/m
	Concrete manholes
	Assumed 1050 diameter manholes.
	Ranged from $1,118.20 to $27,765.00, with an average of $7,205.21 each, for all manholes analysed including precast and cast in-situ types. After removing extreme high rate, the average was about $4,100.
	Adopted rate $4,100/each (for replacement, adopt $5,800/each including removal cost)
	Landscaping assumptions - 2 lane carriageway
	For 2 lane carriageway - it is assumed that a 1m strip on either side of the carriageway would be landscaped.
	The remaining section of footpath / verge would be grassed ie. Turf. Thus 8m wide verge - 1m landscaping strip - 2.5m wide path leaves 4.5m wide turfed area on both sides of the carriageway.
	Topsoil assumed 300mm deep. Therefore 1.35m3 on either side of the carriageway.
	Landscaping assumptions - 4 lane carriageway
	For 4 lane carriageway - it is assumed that a 1m strip on either side of the carriageway would be landscaped, plus a 1m wide strip in the median.

Item	Description
	The remaining section of footpath / verge would be grassed ie. Turf. Thus 8m wide verge - 1m landscaping strip - 2.5m wide path leaves 4.5m wide turfed area on both sides of the carriageway plus 5m strip in the median.
	Topsoil assumed 300mm deep. Therefore 1.35m3 on either side of the carriageway, 1.5m3 in the median.
	Topsoil
	As per the design brief 300mm depth has been used and it is assumed topsoil is won from site.
	Ranged from $4.18 to $19.43, with an overall average of $10.75, and an average of $14.00 for Redbank Plains Road Upgrade – stage 1.
	Adopted rate $11.00/m3
	Turfing to verges and median as applicable
	Ranged from $2.53 to $9.42, with an overall average of $6.57, and an average of $8.00 for Collingwood Drive Extension – stage 2.
	Adopted rate $7.00/m2 of verge area - (conc path & landscape area).
	Landscape area 1 m wide
	As per the design brief a 1 m wide landscape strip is to be provided on either side of the carriageways and in the central median where applicable. Assumed a 20L tree @ 20m centres with associated grasses and shrubs, topsoil and mulch.
	Ranged from $11.44 to $146.09, with an overall average of $40.28, and an average of $35.00 for Redbank Plains Road Upgrade – stage 1.
	Adopted rate $22.00/m2 of landscape area
	Asphalt prep of surface
	Ranged from $0.06 to $3.28, with an average of $0.30.
	Adopted rate $0.30/m2 of pavement
	Asphalt tack coat
	Assumed tack @ 0.2L/m2.
	Ranged from $0.29 to $0.75, with an average of $0.43. The highest range was adopted although it was still $0.24 lower than the 2009 rate.
	Adopted rate $0.75/m2 of pavement
	Asphalt 50mm
	Assumed DG14 mix.
	Ranged from $40.00 to $248.62 with an average of $176.40. Asphalt overlay can be calculated using similar rate for 50mm.
	Adopted rate $177.00/tonne
	Street lighting
	This item includes all items associated with supply and installation of streetlights including ducts, pits and cables. The rate has been derived by summing all the street lighting costs and dividing by number of poles to obtain a rate based on number of streetlights. Compared with 2009 rate, this item was found much lower in 2016 analysis, ranged from $2,000.25 to $8,081.94, with an average of $4,187.87 for 3 projects, about a total of 120 lightings. Previous 2009 rate was $12500 per pole.
	Adopted rate $10,000/pole
	Road Furniture (barriers, Fencing, Guardrail)
	Where fencing, guardrail and other road barriers are unknown, this item is derived (from previous projects) by adding all the road furniture items and dividing by the pavement area to obtain a universal rate proportional to the pavement area.

Item	Description
	Ranged from $0.25 to $9.39, suggest remain as previous rate.
	Adopted rate $7.50/m2 of pavement
	Signs and Linemarking
	Where details of signs and linemarking are unknown, this item is derived (from previous projects) by adding all the pavement marking and sign items and dividing by the pavement area to obtain a universal rate proportional to the pavement area. Ranged from $0.65 to $9.50, with an average of $4.00.
	Adopted rate $4.00/m2 of pavement
	Public utility plant relocations
	This item was detailed into the following components in 2016 analysis:
	・ Oil / gas main protection – 0.7% in an average range
	・ Water main / pip laying / piping works – 7.5% in an average range
	・ Telecommunication works – 1.6% in an average range
	・ Sewer works – 0.1% in an average range
	Services: where services are unknown at the early stages of a project then costs can be based on historical data. Major relocations 10 to 20 % of job costs, (if full length of project) includes large structural Telstra, underground Energex 110Kva, 33Kva, sewers, and Gas mains.
	Adopted rate 10.0% of construction cost (15% for replacement project)
	Supplementary and unmeasured items
	The above items may not cover every item likely within a project. This item is an allowance to cover non-standard items or small items that have not been measured. At concept stage it is normally about 5% of the construction cost and reduces as design detail becomes more defined. No change to this assumption and allowance in 2016 analysis.
	Adopted rate 5.0% of construction costs
	Contractors Site facilities
	This item is for the contractors site facilities required to run the project. It includes camp establishment, disestablishment, site sheds etc. The rate is expressed as a percentage of construction costs.
	Ranged from 0.32% to 12.24%, with an average of 3.79%.
	Adopted rate 4.0% of construction costs
	Provision for traffic
	This item is for all traffic control required to carry out the project. The rate is expressed as a percentage of construction costs and represents a middle of the range rate for traffic control in a urban environment.
	Ranged from 0.46% to 22.77%, with an average of 5.88% for new road/upgrade works. A range of 10 - 18% for reconstruction type of projects, for condition with heavy traffic, detour or side track.
	Adopted rate 5.0% of construction costs (for replacement type, adopt 12%, for medium level control - brownfield, adopt 8%)
	Environmental Management
	It should be noted that this item was required by ICC to be removed from the base line estimate in 2016, as this item would be included within Project Owner Costs. However, in some situations when the construction contractors are required for preparing environmental management plan and implementation of environmental management plan, the following % could be adopted, based on 2016 analysis, ranged from 0.06% to 2.86%, with an average of 0.72%.

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	Where details of environmental management are unknown. It includes such items as implement environmental management plans, noise, dust and water quality monitoring and cultural heritage management etc.
	Adopted rate 1.0% of construction costs
	Other additional items
	The following items should be added to the road costs where required to obtain a total project construction cost.
	Noise fence
	Where noise fences are required this item should be added to the project cost. Rates will vary depending on type of material and height of wall i.e.. Timber, concrete or glass. There was no data available for 2016 analysis, adopted rate below was assumed with an 20% increase since 2009 base line estimate.
	Adopted rate of $480/m2 of wall.
	Major cross drainage culverts > 2.1m dia.
	For culverts with a span width > 2.1m or pipes of a diameter > 2.1m. Rate is per m2 of floor area covered by the culvert/s.
	There was no data available for 2016 analysis, adopted rate below was assumed with an 20% increase since 2009 base line estimate.
	Adopted rate of $672/m2 of culvert area
	Bridges deck units
	Rates have been taken from tender prices at the time for deck unit bridges.
	Rates include all bridge construction related works. For estimate purpose, directly multiple the new bridge area by the adopted rate. Excluding road or side track works.
	Adopted rate of $3,500/m2 of bridge deck
	Bridges Tee roff girders
	Rates have been taken from tender prices at the time for Tee roff girders bridges.
	There was no data available for 2016 analysis, adopted rate below was assumed with an 25% increase since 2009 base line estimate.
	Adopted rate of $3,600/m2 of bridge deck
	Road approaches to new bridge for bridge project
	Including all civil works at bridge approaches for a bridge construction project. For estimate purpose, directly multiple the length of the proposed approaches upgrade by the adopted rate. Excluding temporary side track works.
	Adopted rate of $4,000/m of bridge approach length
	Temporary Side Track and Culvert for bridge project
	Including all civil works for a temporary side track for a bridge construction project. For estimate purpose, directly multiple the length of the proposed side track by the adopted rate. Including temporary culverts and drainage works.
	Adopted rate of $600/m of side track length
	Reinforced earth wall
	Rates have been taken from tender prices at the time for plain concrete reinforced earth walls.
	There was no data available for 2016 analysis, adopted rate below was assumed with an 20% increase since 2009 base line estimate.
	Adopted rate of $1,020/m2 of wall
	Traffic signals "T" intersection

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update_20160715)

Item	Description
	This item when required includes the ducting, cable and hardware for traffic signals. It does not include kerbing, islands or additional pavement for the works.
	Ranged from $116,360.3 to $197,412.50.
	Adopted rate $160,000 per each signalised T intersection
	Traffic signals "4 way" intersection
	This item when required includes the ducting, cable and hardware for traffic signals. It does not include kerbing, islands or additional pavement for the works.
	There was no data available for 2016 analysis, adopted rate below was assumed with an 20% increase since 2009 base line estimate.
	Adopted rate $194,400 per each signalised 4 way intersection

Appendix C – Cost Estimate Schedules

BASELINE CONSTRUCTION UNIT RATES - ROAD TYPOLOGIES (2016 UPDATE_20160715)

						Greenfield with Minor or Major Earthworks		Brownfield with High Level Earthwork
ROAD TYPE	ROAD NUMBER	FUNCTION	Field Classification	DESCRIPTION	TOTAL NORMAL CONDITION (REFER INDIVIDUAL SHEETS FOR OTHER ALLOWANCES)	For Minor Earthworks (eg. 1m earthwork depth) [Semi - Brownfield]	For Major Earthworks (eg. 3m earthwork depth)	For Moderate - High Level Earthworks (eg. 2m earthwork depth)
1A	1	Sub-arterial	Greenfield	New road (2) lanes 11m	$4,186	$3,742	$4,631	n/a
1B	2		Greenfield	New road (4) lanes no median	$5,927	$5,361	$6,493	n/a
1C	3		Greenfield	New road (4) lanes with median	$6,426	$5,780	$7,072	n/a
1D	4		Brownfield	Upgrade (2) to(4) lanes no median	$3,140	n/a	n/a	$3,430
1E	5		Brownfield	Upgrade (2) to(4) lanes with median	$3,693	n/a	n/a	$4,093
R1A	14		Brownfield	Replacement (2) lanes 11m	$2,439	n/a	n/a	n/a
R1B	15		Brownfield	Replacement (4) lanes no median	$3,921	n/a	n/a	n/a
2A	6	Arterial	Greenfield	New road (2) lanes 11m pavement	$4,245	$3,800	$4,690	n/a
2B	7		Greenfield	New road (4) lanes no median	$6,079	$5,513	$6,646	n/a
2C	8		Greenfield	New road (4) lanes with median	$6,522	$5,875	$7,168	n/a
2D	9		Brownfield	Upgrade (2) to(4) lanes no median	$3,179	n/a	n/a	$3,468
2E	10		Brownfield	Upgrade (2) to(4) lanes with median	$3,742	n/a	n/a	$4,143
2F	11		Brownfield	Upgrade (4) to(6) lanes with median	$3,422	n/a	n/a	n/a
R2A	16		Brownfield	Replacement (2) lanes 11m	$2,564	n/a	n/a	n/a
R2B	17		Brownfield	Replacement (4) lanes no median	$4,125	n/a	n/a	n/a
3A	12	Service Road	Greenfield	one way	$2,537	$2,288	$2,786	n/a
3B	13		Greenfield	two way	$3,272	$2,990	$3,553	n/a

Notes:

Greenfield Site

Brownfield Site

1. For Major Greenfield Site, recommend to use the adopted rate "For Major Earthworks".

2. For Minor Greenfield Site or Semi-Brownfield Site (eg. upgrade of area which has pre-existent but very narrow road, no PUPs or not much existing drainage), recommend to use the adopted rate "For Minor Earthworks".

3. For other greenfield site with moderate earthwork, recommend to use the adopted rate for "Total Normal Condition".

4. For Brownfield Site with consideration of high level earthworks (eg. average 2m earthwork depth), recommend to use the adopted rate "For Moderate – High Level Earthwork".

5. For other brownfield site with minor earthwork, recommend to use the adopted rate for "Total Normal Condition".

BASELINE CONSTRUCTION UNIT RATES - ROAD TYPOLOGIES (2016 UPDATE_20160715)

																			Greenfield with Minor or Major Earthworks		Brownfield with High Level Earthwork
ROAD TYPE	ROAD NUMBER	FUNCTION	Field Classification	DESCRIPTION	EARTHWORKS (REFER INDIVIDUAL SHEETS FOR OTHER ALLOWANCES)	PAVEMENT & ASPHALT	ISLANDS & MEDIANS	KERB & CHANNEL	PAVEMENT MARKING & SIGNS	PATHWAYS	LIGHTING	ROAD SIDE FURNITURE	LANDSCAPING	SERVICE RELOCATIONS	DRAINAGE	SUPPLEMENTARY & UNMEASURED ITEMS	CONTRACTOR SITE FACILITIES	PROVISION FOR TRAFFIC	TOTAL NORMAL CONDITION (REFER INDIVIDUAL SHEETS FOR OTHER ALLOWANCES)	For Minor Earthworks (eg. 1m earthwork depth) [Semi - Brownfield]	For Major Earthworks (eg. 3m earthwork depth)	For Moderate - High Level Earthworks (eg. 2m earthwork depth)
1A	1	Sub-arterial	Greenfield	New road (2) lanes 11m	$981.00	$844.53	$0.00	$160.00	$44.00	$365.00	$181.82	$82.50	$136.70	$337.61	$580.56	$168.80	$135.04	$168.80	$4,186	$3,742	$4,631	n/a
1B	2		Greenfield	New road (4) lanes no median	$1,345.00	$1,381.95	$0.00	$160.00	$72.00	$365.00	$363.64	$135.00	$136.70	$477.98	$820.56	$238.99	$191.19	$238.99	$5,927	$5,361	$6,493	n/a
1C	3		Greenfield	New road (4) lanes with median	$1,474.00	$1,381.95	$0.00	$314.00	$72.00	$365.00	$363.64	$135.00	$210.20	$518.19	$866.11	$259.09	$207.28	$259.09	$6,426	$5,780	$7,072	n/a
1D	4		Brownfield	Upgrade (2) to(4) lanes no median	$396.25	$868.23	$0.00	$98.00	$72.00	$182.50	$181.82	$52.50	$68.35	$247.27	$553.06	$123.63	$98.91	$197.82	$3,140	n/a	n/a	$3,430
1E	5		Brownfield	Upgrade (2) to(4) lanes with median	$531.50	$925.43	$0.00	$252.00	$72.00	$182.50	$181.82	$67.50	$141.85	$290.76	$553.06	$145.38	$116.31	$232.61	$3,693	n/a	n/a	$4,093
R1A	14		Brownfield	Replacement (2) lanes 11m	$384.73	$1,185.25	$0.00	$70.00	$44.00	$0.00	$36.36	$41.25	$32.10	$269.05	$0.00	$89.68	$71.75	$215.24	$2,439	n/a	n/a	n/a
R1B	15		Brownfield	Replacement (4) lanes no median	$629.55	$1,939.50	$0.00	$70.00	$72.00	$0.00	$72.73	$67.50	$32.10	$432.51	$0.00	$144.17	$115.34	$346.01	$3,921	n/a	n/a	n/a
2A	6	Arterial	Greenfield	New road (2) lanes 11m pavement	$981.00	$891.83	$0.00	$160.00	$44.00	$365.00	$181.82	$82.50	$136.70	$342.34	$580.56	$171.17	$136.94	$171.17	$4,245	$3,800	$4,690	n/a
2B	7		Greenfield	New road (4) lanes no median	$1,345.00	$1,459.35	$0.00	$160.00	$72.00	$365.00	$363.64	$135.00	$136.70	$490.28	$866.11	$245.14	$196.11	$245.14	$6,079	$5,513	$6,646	n/a
2C	8		Greenfield	New road (4) lanes with median	$1,474.00	$1,459.35	$0.00	$314.00	$72.00	$365.00	$363.64	$135.00	$210.20	$525.93	$866.11	$262.96	$210.37	$262.96	$6,522	$5,875	$7,168	n/a
2D	9		Brownfield	Upgrade (2) to(4) lanes no median	$396.25	$898.33	$0.00	$98.00	$72.00	$182.50	$181.82	$52.50	$68.35	$250.28	$553.06	$125.14	$100.11	$200.22	$3,179	n/a	n/a	$3,468
2E	10		Brownfield	Upgrade (2) to(4) lanes with median	$531.50	$964.13	$0.00	$252.00	$72.00	$182.50	$181.82	$67.50	$141.85	$294.63	$553.06	$147.32	$117.85	$235.71	$3,742	n/a	n/a	$4,143
2F	11		Brownfield	Upgrade (4) to(6) lanes with median	$318.50	$1,036.43	$0.00	$196.00	$100.00	$365.00	$181.82	$52.50	$44.00	$269.48	$400.56	$134.74	$107.79	$215.58	$3,422	n/a	n/a	n/a
R2A	16		Brownfield	Replacement (2) lanes 11m	$396.55	$1,265.00	$0.00	$70.00	$44.00	$0.00	$36.36	$41.25	$32.10	$282.79	$0.00	$94.26	$75.41	$226.23	$2,564	n/a	n/a	n/a
R2B	17		Brownfield	Replacement (4) lanes no median	$648.90	$2,070.00	$0.00	$70.00	$72.00	$0.00	$72.73	$67.50	$32.10	$454.98	$0.00	$151.66	$121.33	$363.99	$4,125	n/a	n/a	n/a
3A	12	Service Road	Greenfield	one way	$533.50	$422.26	$0.00	$160.00	$22.00	$146.00	$181.82	$41.25	$105.80	$204.57	$433.06	$102.28	$81.83	$102.28	$2,537	$2,288	$2,786	n/a
3B	13		Greenfield	two way	$670.00	$690.98	$0.00	$160.00	$36.00	$146.00	$181.82	$67.50	$105.80	$263.86	$580.56	$131.93	$105.55	$131.93	$3,272	$2,990	$3,553	n/a

Notes:

Greenfield Site

Brownfield Site

1. For Major Greenfield Site, recommend to use the adopted rate "For Major Earthworks".

2. For Minor Greenfield Site or Semi-Brownfield Site (eg. upgrade of area which has pre-existent but very narrow road, no PUPs or not much existing drainage), recommend to use the adopted rate "For Minor Earthworks".

3. For other greenfield site with moderate earthwork, recommend to use the adopted rate for "Total Normal Condition".

4. For Brownfield Site with consideration of high level earthworks (eg. average 2m earthwork depth), recommend to use the adopted rate "For Moderate – High Level Earthwork".

5. For other brownfield site with minor earthwork, recommend to use the adopted rate for "Total Normal Condition".

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 1A)
Road: Sub-arterial new road (2) lanes 11m
Based on std. drawing SR.04 (2007)

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Moderate Earthworks	Minor Earthworks	Major Earthworks
	Earthworks (27m road reserve)				Moderate Earthworks	Minor Earthworks	Major Earthworks	
	Earthworks Excavation (road reserve x 45% x 2)	24	m3	10.50	252	126	378	
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	6	m3	33.50	201	101	302	
	Earthworks embankment (from cut)	24	m3	11.00	264	132	396	
	Earthworks, clearing, stripping & ground surface treatment	11.00	m²	5.00	55	55	55	
	Other earthworks items, subgrade etc.	11.00	m²	7.00	77	77	77	
	Earthworks unsuitable allowance	11.00	m²	12.00	132	132	132	
					-	-	-	
	Drainage				-	-	-	
	Kerb & channel	2.00	m	45.00	90	90	90	
	Subsoil drains	2.00	m	35.00	70	70	70	
	Concrete footpath (100mm thick + 50mm sand bed)	5.00	m²	73.00	365	365	365	
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175	
	Drainage pipes assume 600 dia	1.00	m	360.00	360	360	360	
	Manhole @ 90m	0.01	each	4,100.00	46	46	46	
					-	-	-	
	Unbound Pavements				-	-	-	
	Unbound Pavement all types 600mm	6.60	m3	86.00	568	568	568	
					-	-	-	
	Road Furniture				-	-	-	
	Road Furniture (barriers, Fencing, Guardrail)	11.00	m²	7.50	83	83	83	
	Signs and Linemarking	11.00	m²	4.00	44	44	44	
					-	-	-	
	Landscape works				-	-	-	
	Topsoil to grass areas 300mm thick (1.35m3) either side	2.70	m3	11.00	30	30	30	
	Turf footpath (8 -2.5 -1) = 4.5m either side)	9.00	m²	7.00	63	63	63	
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44	
					-	-	-	
	Bituminous Surfacing				-	-	-	
	Assume prime on gravel (no aggregate)	11.00	m²	2.00	22	22	22	
					-	-	-	
	Asphalt				-	-	-	
	Asphalt prep of surface	11.00	m²	0.30	3	3	3	
	Asphalt tack coat	11.00	m²	0.75	8	8	8	
	Asphalt 50mm	1.38	tonne	177.00	243	243	243	
					-	-	-	
	Street lighting				-	-	-	
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182	182	
					-	-	-	
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$338	$302	$373	
					-	-	-	
	Supplementary items				-	-	-	
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$169	$151	$187	
		Interim summary			**$3,883**	**$3,470**	**$4,295**	
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$135	$121	$149	
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$169	$151	$187	
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-	included within Project Owner Costs
	Contract construction Cost (per m)				**$4,186**	**$3,742**	**$4,631**	
					For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**	
	Additional items if required							
	Noise Fence		m²	480.00	-			
	major culverts > 2100mm dia. (based on floor area)		m²	672.00	-			
	Bridges Precast Deck Units		m²	3,500.00	-			
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-			
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-			
	Bridges Precast Tee roff's		m²	3,600.00	-			
	Reinforced Earth Structure		m²	1,020.00	-			
	Traffic signals "T" intersection		each	160,000.00	-			
	Traffic signals "4 way" intersection		each	194,400.00	-			

EARTHWORKS	$	981	23%
PAVEMENT & ASPHALT	$	845	20%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	160	4%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	44	1%
PATHWAYS	$	365	9%
LIGHTING	$	182	4%
ROAD SIDE FURNITURE	$	83	2%
LANDSCAPING	$	137	3%
PUBLIC UTILITY RELOCATIONS	$	338	8%
DRAINAGE	$	581	14%
SUPPLEMENTARY &	$	169	4%
CONTRACTOR SITE FACILITIES	$	135	3%
PROVISION FOR TRAFFIC	$	169	4%
	$	4,186	100%

23%	**increase on 2009 rate (moderate ew)**	$	3,395.00
10%	**increase on 2009 rate (minor ew)**	$	3,395.00
36%	**increase on 2009 rate (major ew)**	$	3,395.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 1B)
Road: Sub-arterial new road (4) lanes — 18 m pavement width
Based on std. drawing SR.04 (2007) — no median

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks (34m Road reserve)						
	Earthworks Excavation (road reserve x 45% x 2)	30	m3	10.50	315	158	473
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	8	m3	33.50	268	134	402
	Earthworks embankment (from cut)	30	m3	11.00	330	165	495
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	5.00	90	90	90
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126	126	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216	216	216
					-	-	-
	Drainage					-	-
	Kerb & channel	2.00	m	45.00	90	90	90
	Subsoil drains	2.00	m	35.00	70	70	70
	Concrete footpath (100mm thick + 50mm sand bed)	5.00	m²	73.00	365	365	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	Drainage pipes assume 525 dia	2.00	m	300.00	600	600	600
	Manhole @ 90m	0.01	each	4,100.00	46	46	46
					-	-	-
	Unbound Pavements					-	-
	Unbound Pavement all types 600mm	10.80	m3	86.00	929	929	929
					-	-	-
	Road Furniture					-	-
	Road Furniture (barriers, Fencing, Guardrail)	18.00	m²	7.50	135	135	135
	Signs and Linemarking	18.00	m²	4.00	72	72	72
					-	-	-
	Landscape works					-	-
	Topsoil to grass areas 300mm thick (1.35m3) either side	2.70	m3	11.00	30	30	30
	Turf footpath (8 -2.5 -1) = 4.5m either side)	9.00	m²	7.00	63	63	63
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44
					-	-	-
	Bituminous Surfacing					-	-
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36	36	36
					-	-	-
	Asphalt					-	-
	Asphalt prep of surface	18.00	m²	0.30	5	5	5
	Asphalt tack coat	18.00	m²	0.75	14	14	14
	Asphalt 50mm	2.25	tonne	177.00	398	398	398
					-	-	-
	Street lighting					-	-
	Street lighting (assume (2) light every 55m)	0.04	each	10,000.00	364	364	364
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$478	$432	$524
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$239	$216	$262
		Interim summary			**$5,497**	**$4,972**	**$6,022**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$191	$173	$209
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$239	$216	$262
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$5,927**	**$5,361**	**$6,493**
					For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**
	Additional items if required						
	Noise Fence		m²	480.00	-		
	major culverts > 2100mm dia. (based on floor area)		m²	672.00	-		
	Bridges Precast Deck Units		m²	3,500.00	-		
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-		
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-		
	Bridges Precast Tee roff's		m²	3,600.00	-		
	Reinforced Earth Structure		m²	1,020.00	-		
	Traffic signals "T" intersection		each	160,000.00	-		
	Traffic signals "4 way" intersection		each	194,400.00	-		

		%
EARTHWORKS	$ 1,345	23%
PAVEMENT & ASPHALT	$ 1,382	23%
ISLANDS & MEDIANS		0%
KERB & CHANNEL	$ 160	3%
STRUCTURES		0%
PAVEMENT MARKING & SIGNS	$ 72	1%
PATHWAYS	$ 365	6%
LIGHTING	$ 364	6%
ROAD SIDE FURNITURE	$ 135	2%
LANDSCAPING	$ 137	2%
PUBLIC UTILITY RELOCATIONS	$ 478	8%
DRAINAGE	$ 821	14%
SUPPLEMENTARY &	$ 239	4%
CONTRACTOR SITE FACILITIES	$ 191	3%
PROVISION FOR TRAFFIC	$ 239	4%
	$ 5,927	100%

included within Project Owner Costs

23%	**increase on 2009 rate (moderate ew)**	$ 4,800.00
12%	**increase on 2009 rate (minor ew)**	$ 4,800.00
35%	**increase on 2009 rate (major ew)**	$ 4,800.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 1C)
Road: Sub-arterial new road (4) lanes — **18 m pavement width**
Based on std. drawing SR.04 (2007) — **2 x 9m carriageways median divided**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks (40m Road reserve)						
	Earthworks Excavation (road reserve x 45% x 2)	36	m3	10.50	378	189	567
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	8	m3	33.50	268	134	402
	Earthworks embankment (from cut)	36	m3	11.00	396	198	594
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	5.00	90	90	-
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126	126	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216	216	216
						-	
	Drainage					-	
	Kerb & channel	2.00	m	45.00	90	90	90
	Kerb (median)	2.00	m	42.00	84	84	84
	Subsoil drains	4.00	m	35.00	140	140	140
	Concrete footpath	5.00	m²	73.00	365	365	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	Drainage pipes assume 525 dia	2.00	m	300.00	600	600	600
	Manhole @ 90m x 2	0.02	each	4,100.00	91	91	91
						-	-
	Unbound Pavements					-	-
	Unbound Pavement all types 600mm	10.80	m3	86.00	929	929	929
						-	-
	Road Furniture					-	-
	Road Furniture (barriers, Fencing, Guardrail)	18.00	m²	7.50	135	135	135
	Signs and Linemarking	18.00	m²	4.00	72	72	72
						-	-
	Landscape works					-	-
	Topsoil to grass areas 300mm thick (1.35m3 either side + 1.5m3 median)	4.20	m3	11.00	46	46	46
	Turf footpath (8 -2.5 -1) = 4.5m either side + 5m median)	14.00	m²	7.00	98	98	98
	landscape area 1 m wide either side + 1m median	3.00	m²	22.00	66	66	66
						-	-
	Bituminous Surfacing					-	-
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36	36	36
						-	-
	Asphalt					-	-
	Asphalt prep of surface	18.00	m²	0.30	5	5	5
	Asphalt tack coat	18.00	m²	0.75	14	14	14
	Asphalt 50mm	2.25	tonne	177.00	398	398	398
						-	-
	Street lighting					-	-
	Street lighting (assume (2) light every 55m)	0.04	each	10,000.00	364	364	364
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$518	$466	$570
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$259	$233	$285
		Interim summary			**$5,959**	**$5,360**	**$6,558**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$207	$186	$228
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$259	$233	$285
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$6,426**	**$5,780**	**$7,072**
						For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**

included within Project Owner Costs

			%
EARTHWORKS	$	1,474	23%
PAVEMENT & ASPHALT	$	1,382	22%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	314	5%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	1%
PATHWAYS	$	365	6%
LIGHTING	$	364	6%
ROAD SIDE FURNITURE	$	135	2%
LANDSCAPING	$	210	3%
PUBLIC UTILITY RELOCATIONS (PUP)	$	518	8%
DRAINAGE	$	866	13%
SUPPLEMENTARY & UNMEASURED ITEMS	$	259	4%
CONTRACTOR SITE FACILITIES	$	207	3%
PROVISION FOR TRAFFIC	$	259	4%
	$	6,426	100%

22%	**increase on 2009 rate (moderate ew)**	$ 5,284.00		
9%	**increase on 2009 rate (minor ew)**	$ 5,284.00		
34%	**increase on 2009 rate (major ew)**	$ 5,284.00		

	Additional items if required			
	Noise Fence		m²	480.00 -
	Major cross drainage > 2.1m dia.		m²	672.00 -
	Bridges Precast Deck Units		m²	3,500.00 -
	Road approaches to new bridge for bridge project	per m road	m	4,000.00 -
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00 -
	Bridges Precast Tee roff's		m²	3,600.00 -
	Reinforced Earth Structure		m²	1,020.00 -
	Traffic signals "T" intersection		each	160,000.00 -
	Traffic signals "4 way" intersection		each	194,400.00 -

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 1D)
Road: Sub-arterial Upgrade (2) to(4) lanes — 18 m pavement width
Based on std. drawing SR.04 (2007) — no median

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Moderate Earthworks
	The assumptions are as follows: It is assumed that the existing 2 lanes are utilised in the new works, with only an asphalt overlay required. If the existing 2 lanes cannot be utilised then use the cost for equivalent new road type.					
	Earthworks					
	Earthworks Excavation (1/2 road reserve x 45% x 1)	8	m3	10.50	79	158
	Earthworks imported fill (1/2 road reserve x 55% x 1) - cut qty.	2	m3	33.50	67	134
	Earthworks embankment (from cut)	8	m3	11.00	83	165
	Earthworks, clearing, stripping & ground surface treatment 1/2 side	7.00	m²	5.00	35	35
	Other earthworks items, subgrade etc. 1/2 side only	7.00	m²	7.00	49	49
	Earthworks unsuitable allowance 1/2 side only	7.00	m²	12.00	84	84
						-
	Drainage					-
	Removal demolition K & C	1.00	m	18.00	18	18
	Kerb & channel	1.00	m	45.00	45	45
	Kerb (median)	0.00	m	42.00	-	-
	Subsoil drains	1.00	m	35.00	35	35
	Concrete footpath	2.50	m²	73.00	183	183
	Concrete gullies 1 @ 40m	0.03	each	3,500.00	88	88
	RCP assume 750 dia (new location)	1.00	m	420.00	420	420
	Manhole @ 90m	0.01	each	4,100.00	46	46
						-
	Unbound Pavements					-
	Unbound Pavement all types 600mm (half)	4.20	m3	86.00	361	361
						-
	Road Furniture					-
	Road Furniture (barriers, Fencing, Guardrail)	7.00	m²	7.50	53	53
	Signs and Linemarking (both carriageways)	18.00	m²	4.00	72	72
						-
	Landscape works					-
	Topsoil to grass areas 300mm thick (1.35m3 one side)	1.35	m3	11.00	15	15
	Turf footpath (8 -2.5 -1) = 4.5m one side	4.50	m²	7.00	32	32
	landscape area 1 m wide	1.00	m²	22.00	22	22
						-
	Bituminous Surfacing					-
	Assume prime on gravel (no aggregate)	7.00	m²	2.00	14	14
						-
	Asphalt					-
	Asphalt prep of surface both carriageways	18.00	m²	0.30	5	5
	Asphalt tack coat both carriageways	18.00	m²	0.75	14	14
	Asphalt 50mm	1.13	tonne	177.00	199	199
	asphalt overlay on existing carriageways	11.00	m²	25.00	275	275
						-
	Street lighting					-
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182
						-
	Public Utility Relocation (PUP) – % of construction costs		%	10.00	$247	$270
						-
	Supplementary items					-
	Supplementary & unmeasured items – 5% of construction costs		%	5.00	$124	$135
		Interim summary			**$2,844**	**$3,106**
	Contractors site facilities – % of construction cost excl. PUP & supplementary items		%	4.00	$99	$108
	Provision for Traffic – % of construction cost excl. PUP & supplementary items		%	8.00	$198	$216
	Environmental management – % of construction cost excl. PUP & supplementary items		%	0	$0	-
	Contract construction Cost (per m)	Upgrade 2 to 4 lanes (no median)			**$3,140**	**$3,430**
	Assumes existing 2 lanes can remain				**For Minor Earthworks**	**For Moderate Earthworks**
	Additional items if required					
	Noise Fence		m²	480.00	-	
	Major cross drainage > 2.1m dia.		m²	672.00	-	
	Bridges Precast Deck Units		m²	3,500.00	-	
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-	
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-	
	Bridges Precast Tee roff's		m²	3,600.00	-	
	Reinforced Earth Structure		m²	1,020.00	-	
	Traffic signals "T" intersection		each	160,000.00	-	
	Traffic signals "4 way" intersection		each	194,400.00		

			%
EARTHWORKS	$	396	13%
PAVEMENT & ASPHALT	$	868	28%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	98	3%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	2%
PATHWAYS	$	183	6%
LIGHTING	$	182	6%
ROAD SIDE FURNITURE	$	53	2%
LANDSCAPING	$	68	2%
PUBLIC UTILITY RELOCATIONS (PUP)	$	247	8%
DRAINAGE	$	553	18%
SUPPLEMENTARY & UNMEASURED	$	124	4%
CONTRACTOR SITE FACILITIES	$	99	3%
PROVISION FOR TRAFFIC	$	198	6%
	$	3,140	100%

included within Project Owner Costs

16% **increase on 2009 rate (minor 1m ew)** $ 2,717.00

26% **increase on 2009 rate (moderate 2m ew)** $ 2,717.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : **Ipswich City Council**
Project: **Priority infrastructure plans**
Task: **Baseline construction cost estimates (2016 Update)**

(Road 1E)
Road: **Sub-arterial Upgrade (2) to(4) lanes** **18 m pavement width**
Based on std. drawing SR.04 (2007) **2 x 9 m with median**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Moderate Earthworks
	The assumptions are as follows: It is assumed that the existing 2 lanes are utilised in the new works, with only a asphalt overlay required. If the existing 2 lanes cannot be utilised then use the cost for equivalent new road type.					
	Earthworks					
	Earthworks Excavation (40m - 17m reserve x 45% x 1)	10	m3	10.50	105	210
	Earthworks imported fill (40m - 17m reserve x 55% x 1) - cut qty.	3	m3	33.50	101	201
	Earthworks embankment (from cut)	10	m3	11.00	110	220
	Earthworks, clearing, stripping & ground surface treatment 1/2 side	9.00	m²	5.00	45	45
	Other earthworks items, subgrade etc. 1/2 side only	9.00	m²	7.00	63	63
	Earthworks unsuitable allowance 1/2 side only	9.00	m²	12.00	108	108
	Drainage					
	Removal demolition K & C	1.00	m	18.00	18	18
	Kerb & channel	1.00	m	45.00	45	45
	Kerb	2.00	m	42.00	84	84
	Subsoil drains	3.00	m	35.00	105	105
	Concrete footpath	2.50	m²	73.00	183	183
	Concrete gullies 1 @ 40m	0.03	each	3,500.00	88	88
	RCP assume 750 dia (new location)	1.00	m	420.00	420	420
	Manhole @ 90m	0.01	each	4,100.00	46	46
						-
	Unbound Pavements					-
	Unbound Pavement all types 600mm (half)	5.40	m3	86.00	464	464
						-
	Road Furniture					-
	Road Furniture (barriers, Fencing, Guardrail)	9.00	m²	7.50	68	68
	Signs and Linemarking (both carriageways)	18.00	m²	4.00	72	72
						-
	Landscape works					-
	Topsoil to grass areas 300mm thick (1.35m3 one side + 1.5m3 median)	2.85	m3	11.00	31	31
	Turf footpath (8 -2.5 -1) = 4.5m one side + 5m median	9.50	m²	7.00	67	67
	landscape area 1 m wide (median & 1 side)	2.00	m²	22.00	44	44
						-
	Bituminous Surfacing					-
	Assume prime on gravel (no aggregate)	9.00	m²	2.00	18	18
						-
	Asphalt					-
	Asphalt prep of surface both carriageways	18.00	m²	0.30	5	5
	Asphalt tack coat both carriageways	18.00	m²	0.75	14	14
	Asphalt 50mm	1.13	tonne	177.00	199	199
	asphalt overlay	9.00	m²	25.00	225	225
						-
	Street lighting					-
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182
	Public Utility Relocation (PUP) – % of construction costs		%	10.00	$291	$322
	Supplementary items					
	Supplementary & unmeasured items – 5% of construction costs		%	5.00	$145	$161
		Interim summary			**$3,344**	**$3,707**
	Contractors site facilities – % of construction cost excl. PUP & supplementary items		%	4.00	$116	$129
	Provision for Traffic – % of construction cost excl. PUP & supplementary items		%	8.00	$233	$258
	Environmental management – % of construction cost excl. PUP & supplementary items		%	0	$0	-
	Contract construction Cost (per m)	Upgrade 2 to 4 lanes (median)			**$3,693**	**$4,093**
		Assumes existing 2 lanes can remain			**For Minor Earthworks**	**For Moderate Earthworks**

	Additional items if required			
	Noise Fence		m²	480.00 -
	Major cross drainage > 2.1m dia.		m²	672.00 -
	Bridges Precast Deck Units		m²	3,500.00 -
	Road approaches to new bridge for bridge project	per m road	m	4,000.00 -
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00 -
	Bridges Precast Tee roff's		m²	3,600.00 -
	Reinforced Earth Structure		m²	1,020.00 -
	Traffic signals "T" intersection		each	160,000.00 -
	Traffic signals "4 way" intersection		each	194,400.00 -

		%
EARTHWORKS	$ 532	14%
PAVEMENT & ASPHALT	$ 925	25%
ISLANDS & MEDIANS		0%
KERB & CHANNEL	$ 252	7%
STRUCTURES		0%
PAVEMENT MARKING & SIGNS	$ 72	2%
PATHWAYS	$ 183	5%
LIGHTING	$ 182	5%
ROAD SIDE FURNITURE	$ 68	2%
LANDSCAPING	$ 142	4%
PUBLIC UTILITY RELOCATIONS (PUP)	$ 291	8%
DRAINAGE	$ 553	15%
SUPPLEMENTARY & UNMEASURED ITEMS	$ 145	4%
CONTRACTOR SITE FACILITIES	$ 116	3%
PROVISION FOR TRAFFIC	$ 233	6%
	$ 3,693	100%

included within Project Owner Costs

13% **increase on 2009 rate (minor 1m ew)** $ 3,274.00

25% **increase on 2009 rate (moderate 2m ew)** $ 3,274.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : **Ipswich City Council**
Project: **Priority infrastructure plans**
Task: **Baseline construction cost estimates (2016 Update)**

(Road R1A)
Road: **Replacement Sub-arterial road (2) lanes 11m**
Based on std. drawing SR.04 (2007)

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Earthworks (27m road reserve)				
	Earthworks Excavation (assuming full depth replacement)	7	m3	21.50	154
	Earthworks imported fill (no fill for pavement replacement)	0	m3	33.50	-
	Earthworks embankment (no fill for pavement replacement)	0	m3	11.00	-
	Earthworks, clearing, stripping & ground surface treatment	11.00	m²	2.00	22
	Other earthworks items, subgrade etc.	11.00	m²	7.00	77
	Earthworks unsuitable allowance	11.00	m²	12.00	132
	Drainage				
	Kerb & channel	0.00	m	63.00	-
	Subsoil drains	2.00	m	35.00	70
	Concrete footpath (100mm thick + 50mm sand bed) assuming partial repair only - 50%	0.00	m²	90.00	-
	Concrete gullies 2 @ 40m assuming partial replacement only - 50%	0.00	each	4,300.00	-
	Drainage pipes assume 600 dia assuming partial replacement only - 50%	0.00	m	360.00	-
	Manhole @ 90m assuming partial replacement only - 50%	0.00	each	5,800.00	-
	Unbound Pavements				
	Unbound Pavement all types 450mm	4.95	m3	86.00	426
	Plant-Mixed Stabilised Pavements				
	Cement stabilised Pavement all types 150mm including cement, as a part of the full 600mm pavement to increase strength for traffic growth	1.65	m3	145.00	239
	Road Furniture				
	Road Furniture (barriers, Fencing, Guardrail) assuming 50% upgrade or repair or replacement	5.50	m²	7.50	41
	Signs and Linemarking	11.00	m²	4.00	44
	Landscape works				
	Topsoil to grass areas 300mm thick (1.35m3) either side assuming no work required for replacement project	0.00	m3	11.00	-
	Turf footpath (8 -2.5 -1) = 4.5m either side) assuming minor repair/upgrade only for replacement project - 30%	2.70	m²	7.00	19
	landscape area 1 m wide either side assuming minor repair/upgrade only for replacement project - 30%	0.60	m²	22.00	13
	Bituminous Surfacing				
	Assume prime on gravel (no aggregate)	11.00	m²	2.00	22
	Asphalt				
	Asphalt prep of surface	11.00	m²	0.30	3
	Asphalt tack coat	11.00	m²	0.75	8
	Asphalt 50mm, plus shape correction layer assuming + 50mm	2.75	tonne	177.00	487
	Street lighting				
	Street lighting (assume (1) light every 55m) assuming lighting upgrade only - 20% possibility	0.004	each	10,000.00	36
	Public Utility Relocation (PUP) ~ % of construction costs		%	15.00	$269
	Supplementary items				
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$90
		Interim summary			**$2,152**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$72
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items Increased % amount for replacement project for situation where construction under heavy traffic or detour or side track.		%	12.00	$215
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0
	Contract construction Cost (per m)				**$2,439**

EARTHWORKS	$	385	16%
PAVEMENT & ASPHALT	$	1,185	49%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	70	3%
STRUCTURES			0%
PAVEMENT MARKING &	$	44	2%
PATHWAYS	$	-	0%
LIGHTING	$	36	1%
ROAD SIDE FURNITURE	$	41	2%
LANDSCAPING	$	32	1%
PUBLIC UTILITY RELOCATIONS (PUP)	$	269	11%
DRAINAGE	$	-	0%
SUPPLEMENTARY & UNMEASURED ITEMS	$	90	4%
CONTRACTOR SITE FACILITIES	$	72	3%
PROVISION FOR TRAFFIC	$	215	9%
	$	2,439	100%

-28% **difference compared with non-replacement work** $ 3,395.00

Additional items if required				
Noise Fence		m²	480.00	-
major culverts > 2100mm dia. (based on floor area)		m²	750.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	N/A	-
Traffic signals "4 way" intersection		each	N/A	-

*Notes * Does not include Property Resumptions*
** Does not include GST*

** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*

** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road R1B)
Road: Replacement Sub-arterial road (4) lanes — **18 m pavement width**
Based on std. drawing SR.04 (2007) — **no median**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Earthworks (34m Road reserve)				
	Earthworks Excavation (assuming full depth replacement)	12	m3	21.50	252
	Earthworks imported fill (no fill for pavement replacement)	0	m3	33.50	-
	Earthworks embankment (no fill for pavement replacement)	0	m3	11.00	-
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	2.00	36
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216
	Drainage				
	Kerb & channel	0.00	m	63.00	-
	Subsoil drains	2.00	m	35.00	70
	Concrete footpath (100mm thick + 50mm sand bed) assuming partial repair only - 50%	0.00	m²	90.00	-
	Concrete gullies 2 @ 40m assuming partial replacement only - 50%	0.00	each	4,300.00	-
	Drainage pipes assume 525 dia assuming partial replacement only - 50%	0.00	m	300.00	-
	Manhole @ 90m assuming partial replacement only - 50%	0.00	each	5,800.00	-
	Unbound Pavements				
	Unbound Pavement all types 450mm	8.10	m3	86.00	697
	Plant-Mixed Stabilised Pavements				
	Cement stabilised Pavement all types 150mm including cement, as a part of the full 600mm pavement to increase strength for traffic growth	2.70	m3	145.00	392
	Road Furniture				
	Road Furniture (barriers, Fencing, Guardrail) assuming 50% upgrade or repair or replacement	9.00	m²	7.50	68
	Signs and Linemarking	18.00	m²	4.00	72
	Landscape works				
	Topsoil to grass areas 300mm thick (1.35m3) either side assuming no work required for replacement project	0.00	m3	11.00	-
	Turf footpath (8 -2.5 -1) = 4.5m either side) assuming minor repair/upgrade only for replacement project - 30%	2.70	m²	7.00	19
	landscape area 1 m wide either side assuming minor repair/upgrade only for replacement project - 30%	0.60	m²	22.00	13
	Bituminous Surfacing				
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36
	Asphalt				
	Asphalt prep of surface	18.00	m²	0.30	5
	Asphalt tack coat	18.00	m²	0.75	14
	Asphalt 50mm, plus shape correction layer assuming + 50mm	4.50	tonne	177.00	797
	Street lighting				
	Street lighting (assume (2) light every 55m) assuming lighting upgrade only - 20% possibility	0.007	each	10,000.00	73
	Public Utility Relocation (PUP) ~ % of construction costs		%	15.00	$433
	Supplementary items				
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$144
		Interim summary			**$3,460**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$115
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items Increased % amount for replacement project for situation where construction under heavy traffic or detour or side track.		%	12.00	$346
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0
	Contract construction Cost (per m)				**$3,921**

EARTHWORKS	$	630	0.1605424
PAVEMENT & ASPHALT	$	1,940	49%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	70	2%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	2%
PATHWAYS	$	-	0%
LIGHTING	$	73	2%
ROAD SIDE FURNITURE	$	68	2%
LANDSCAPING	$	32	1%
PUBLIC UTILITY RELOCATIONS (PUP)	$	433	11%
DRAINAGE	$	-	0%
SUPPLEMENTARY & UNMEASURED ITEMS	$	144	4%
CONTRACTOR SITE FACILITIES	$	115	3%
PROVISION FOR TRAFFIC	$	346	9%
	$	3,921	100%

-18% **difference compared with non-replaceme** $ 4,800.00

Additional items if required				
Noise Fence		m²	480.00	-
Major cross drainage > 2.1m dia.		m²	750.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	N/A	-
Traffic signals "4 way" intersection		each	N/A	-

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 2A)

Road: **Arterial new road (2) lanes 11m** **11 m**
Based on std. drawing SR.04 (2007) **0.65 pavement depth**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks (27m road reserve)						
	Earthworks Excavation (road reserve x 45% x 2)	24	m3	10.50	252	126	378
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	6	m3	33.50	201	101	302
	Earthworks embankment (from cut)	24	m3	11.00	264	132	396
	Earthworks, clearing, stripping & ground surface treatment	11.00	m²	5.00	55	55	55
	Other earthworks items, subgrade etc.	11.00	m²	7.00	77	77	77
	Earthworks unsuitable allowance	11.00	m²	12.00	132	132	132
					-		
	Drainage						
	Kerb & channel	2.00	m	45.00	90	90	90
	Subsoil drains	2.00	m	35.00	70	70	70
	Concrete footpath	5.00	m²	73.00	365	365	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	Drainage pipes assume 600 dia	1.00	m	360.00	360	360	360
	Manhole @ 90m	0.01	each	4,100.00	46	46	46
					-		
	Unbound Pavements				-		
	Unbound Pavement all types 650mm	7.15	m3	86.00	615	615	615
					-		
	Road Furniture				-		
	Road Furniture (barriers, Fencing, Guardrail)	11.00	m²	7.50	83	83	83
	Signs and Linemarking	11.00	m²	4.00	44	44	44
					-		
	Landscape works				-		
	Topsoil to grass areas 300mm thick (1.35m3) either side	2.70	m3	11.00	30	30	30
	Turf footpath (8 -2.5 -1) = 4.5m either side)	9.00	m²	7.00	63	63	63
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44
					-		
	Bituminous Surfacing				-		
	Assume prime on gravel (no aggregate)	11.00	m²	2.00	22	22	22
					-		
	Asphalt				-		
	Asphalt prep of surface	11.00	m²	0.30	3	3	3
	Asphalt tack coat	11.00	m²	0.75	8	8	8
	Asphalt 50mm	1.38	tonne	177.00	243	243	243
					-		
	Street lighting				-		
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182	182
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$342	$306	$378
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$171	$153	$189
		Interim summary			**$3,937**	**$3,525**	**$4,349**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$137	$123	$151
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$171	$153	$189
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$4,245**	**$3,800**	**$4,690**
					For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**

included within Project Owner Costs

EARTHWORKS	$	981	23%	
PAVEMENT & ASPHALT	$	892	21%	
ISLANDS & MEDIANS			0%	
KERB & CHANNEL	$	160	4%	
STRUCTURES			0%	
PAVEMENT MARKING & SIGNS	$	44	1%	
PATHWAYS	$	365	9%	
LIGHTING	$	182	4%	
ROAD SIDE FURNITURE	$	83	2%	
LANDSCAPING	$	137	3%	
PUBLIC UTILITY RELOCATIONS (PUP)	$	342	8%	
DRAINAGE	$	581	14%	
SUPPLEMENTARY & UNMEASURED ITEMS	$	171	4%	
CONTRACTOR SITE FACILITIES	$	137	3%	
PROVISION FOR TRAFFIC	$	171	4%	
	$	4,245	100%	

23%	**increase on 2009 rate (moderate ew)**	$ 3,444.00
10%	**increase on 2009 rate (minor ew)**	$ 3,444.00
36%	**increase on 2009 rate (major ew)**	$ 3,444.00

Additional items if required				
Noise Fence		m²	480.00	-
Major cross drainage > 2.1m dia.		m²	672.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	160,000.00	-
Traffic signals "4 way" intersection		each	194,400.00	-

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 2B)

Road: **Arterial new road (4) lanes** **18 m pavement width** **no median**
Based on std. drawing SR.04 (2007) **0.65 pavement depth**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks						
	Earthworks Excavation (road reserve x 45% x 2)	30	m3	10.50	315	158	473
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	8	m3	33.50	268	134	402
	Earthworks embankment (from cut)	30	m3	11.00	330	165	495
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	5.00	90	90	90
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126	126	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216	216	216
						-	
	Drainage					-	
	Kerb & channel	2.00	m	45.00	90	90	90
	Subsoil drains	2.00	m	35.00	70	70	70
	Concrete footpath	5.00	m²	73.00	365	365	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	Drainage pipes assume 525 dia	2.00	m	300.00	600	600	600
	Manhole @ 90m x 2	0.02	each	4,100.00	91	91	91
						-	
	Unbound Pavements					-	
	Unbound Pavement all types 650mm	11.70	m3	86.00	1,006	1,006	1,006
						-	
	Road Furniture					-	
	Road Furniture (barriers, Fencing, Guardrail)	18.00	m²	7.50	135	135	135
	Signs and Linemarking	18.00	m²	4.00	72	72	72
						-	
	Landscape works					-	
	Topsoil to grass areas 300mm thick (1.35m3) either side	2.70	m3	11.00	30	30	30
	Turf footpath (8 -2.5 -1) = 4.5m either side)	9.00	m²	7.00	63	63	63
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44
						-	
	Bituminous Surfacing					-	
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36	36	36
						-	
	Asphalt					-	
	Asphalt prep of surface	18.00	m²	0.30	5	5	5
	Asphalt tack coat	18.00	m²	0.75	14	14	14
	Asphalt 50mm	2.25	tonne	177.00	398	398	398
						-	
	Street lighting					-	
	Street lighting (assume (2) light every 55m)	0.04	each	10,000.00	364	364	364
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$490	$445	$536
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$245	$222	$268
		Interim summary			**$5,638**	**$5,113**	**$6,163**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$196	$178	$214
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$245	$222	$268
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$6,079**	**$5,513**	**$6,646**
					For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**

included within Project Owner Costs

			%
EARTHWORKS	$	1,345	22%
PAVEMENT & ASPHALT	$	1,459	24%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	160	3%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	1%
PATHWAYS	$	365	6%
LIGHTING	$	364	6%
ROAD SIDE FURNITURE	$	135	2%
LANDSCAPING	$	137	2%
PUBLIC UTILITY RELOCATIONS (PUP)	$	490	8%
DRAINAGE	$	866	14%
SUPPLEMENTARY & UNMEASURED ITEMS	$	245	4%
CONTRACTOR SITE FACILITIES	$	196	3%
PROVISION FOR TRAFFIC	$	245	4%
	$	6,079	100%

21%	**increase on 2009 rate (moderate ew)**	$ 5,006.00
10%	**increase on 2009 rate (minor ew)**	$ 5,006.00
33%	**increase on 2009 rate (major ew)**	$ 5,006.00

Additional items if required				
Noise Fence		m²	480.00	-
Major cross drainage > 2.1m dia.		m²	672.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	160,000.00	-
Traffic signals "4 way" intersection		each	194,400.00	-

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

Road: (Road 2C) — Arterial new road (4) lanes — Based on std. drawing SR.04 (2007)

0.65 m pavement depth
18 m pavement width
2 x 9 m with median

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks						
	Earthworks Excavation (road reserve x 45% x 2)	36	m3	10.50	378	189	567
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	8	m3	33.50	268	134	402
	Earthworks embankment (from cut)	36	m3	11.00	396	198	594
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	5.00	90	90	90
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126	126	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216	216	216
					-		
	Drainage						
	Kerb & channel	2.00	m	45.00	90	90	90
	Kerb (median)	2.00	m	42.00	84	84	84
	Subsoil drains	4.00	m	35.00	140	140	140
	Concrete footpath	5.00	m²	73.00	365	365	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	RCP assume 525 dia	2.00	m	300.00	600	600	600
	Manhole @ 90m x2	0.02	each	4,100.00	91	91	91
					-	-	
	Unbound Pavements						
	Unbound Pavement all types 650mm	11.70	m3	86.00	1,006	1,006	1,006
					-	-	
	Road Furniture						
	Road Furniture (barriers, Fencing, Guardrail)	18.00	m²	7.50	135	135	135
	Signs and Linemarking (both carriageways)	18.00	m²	4.00	72	72	72
					-	-	
	Landscape works						
	Topsoil to grass areas 300mm thick (1.35m3 either side + 1.5m3 median)	4.20	m3	11.00	46	46	46
	Turf footpath (8 -2.5 -1) = 4.5m either side + 5m median)	14.00	m²	7.00	98	98	98
	landscape area 1 m wide either side + 1m median	3.00	m²	22.00	66	66	66
					-	-	
	Bituminous Surfacing						
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36	36	36
					-	-	
	Asphalt						
	Asphalt prep of surface both carriageways	18.00	m²	0.30	5	5	5
	Asphalt tack coat both carriageways	18.00	m²	0.75	14	14	14
	Asphalt 50mm	2.25	tonne	177.00	398	398	398
					-	-	
	Street lighting						
	Street lighting (assume (2) light every 55m)	0.04	each	10,000.00	364	364	364
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	526	$474	$578
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	**$263**	$237	$289
		Interim summary			$6,048	**$5,449**	**$6,647**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$210	$190	$231
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$263	$237	$289
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0.00	$0	-	-
	Contract construction Cost (per m)	new arterial 2 x 9m carriageways			**$6,522**	**$5,875**	**$7,168**
					For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**
	Additional items if required						
	Noise Fence		m²	480.00	-		
	Major cross drainage > 2.1m dia.		m²	672.00	-		
	Bridges Precast Deck Units		m²	3,500.00	-		
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-		
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-		
	Bridges Precast Tee roff's		m²	3,600.00	-		
	Reinforced Earth Structure		m²	1,020.00	-		
	Traffic signals "T" intersection		each	160,000.00	-		
	Traffic signals "4 way" intersection		each	194,400.00	-		

			%
EARTHWORKS	$	1,474	23%
PAVEMENT & ASPHALT	$	1,459	22%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	314	5%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	1%
PATHWAYS	$	365	6%
LIGHTING	$	364	6%
ROAD SIDE FURNITURE	$	135	2%
LANDSCAPING	$	210	3%
PUBLIC UTILITY RELOCATIONS (PUP)	$	526	8%
DRAINAGE	$	866	13%
SUPPLEMENTARY & UNMEASURED ITEMS	$	263	4%
CONTRACTOR SITE FACILITIES	$	210	3%
PROVISION FOR TRAFFIC	$	263	4%
	$	6,522	100%

included within Project Owner Costs

21%	**increase on 2009 rate (moderate ew)**	$ 5,395.00
9%	**increase on 2009 rate (minor ew)**	$ 5,395.00
33%	**increase on 2009 rate (major ew)**	$ 5,395.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 2D) 0.65 m pavement depth
Road: Arterial Upgrade (2) to(4) lanes 18 m pavement width
Based on std. drawing SR.04 (2007) no median

JACOBS Job No. IH094200						
	# Rates are from 2016 baseline estimate and analysis.			#		
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
	The assumptions are as follows: It is assumed that the existing 2 lanes are utilised in the new works, with only an asphalt overlay required. If the existing 2 lanes cannot be utilised then use the cost for equivalent new road type.					
	Earthworks					Moderate Earthworks
	Earthworks Excavation (1/2 road reserve x 45% x 1)	8	m3	10.50	79	158
	Earthworks imported fill (1/2 road reserve x 55% x 1) - cut qty.	2	m3	33.50	67	134
	Earthworks embankment (from cut)	8	m3	11.00	83	165
	Earthworks, clearing, stripping & ground surface treatment 1/2 side	7.00	m²	5.00	35	35
	Other earthworks items, subgrade etc. 1/2 side only	7.00	m²	7.00	49	49
	Earthworks unsuitable allowance 1/2 side only	7.00	m²	12.00	84	84
	Drainage					
	Removal demolition K & C	1.00	m	18.00	18	18
	Kerb & channel	1.00	m	45.00	45	45
	Kerb (median)	0.00	m	42.00	-	
	Subsoil drains	1.00	m	35.00	35	35
	Concrete footpath	2.50	m²	73.00	183	183
	Concrete gullies 1 @ 40m	0.03	each	3,500.00	88	88
	RCP assume 750 dia (new location)	1.00	m	420.00	420	420
	Manhole @ 90m	0.01	each	4,100.00	46	46
	Unbound Pavements					
	Unbound Pavement all types 650mm (half)	4.55	m3	86.00	391	391
	Road Furniture					
	Road Furniture (barriers, Fencing, Guardrail)	7.00	m²	7.50	53	53
	Signs and Linemarking (both carriageways)	18.00	m²	4.00	72	72
	Landscape works					
	Topsoil to grass areas 300mm thick (1.35m3 one side)	1.35	m3	11.00	15	15
	Turf footpath (8 -2.5 -1) = 4.5m one side	4.50	m²	7.00	32	32
	landscape area 1 m wide	1.00	m²	22.00	22	22
	Bituminous Surfacing					
	Assume prime on gravel (no aggregate)	7.00	m²	2.00	14	14
	Asphalt					
	Asphalt prep of surface both carriageways	18.00	m²	0.30	5	5
	Asphalt tack coat both carriageways	18.00	m²	0.75	14	14
	Asphalt 50mm	1.13	tonne	177.00	199	199
	asphalt overlay on existing carriageways	11.00	m²	25.00	275	275
	Street lighting					
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$250	$273
	Supplementary items					
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$125	$137
		Interim summary			**$2,878**	**$3,141**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$100	$109
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	8.00	$200	$218
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-
	Contract construction Cost (per m)	Upgrade 2 to 4 lanes (no median)			**$3,179**	**$3,468**
		Assumes existing 2 lanes can remain			**For Minor Earthworks**	**For Moderate Earthworks**

	Additional items if required			
	Noise Fence		m²	480.00 -
	Major cross drainage > 2.1m dia.		m²	672.00 -
	Bridges Precast Deck Units		m²	3,500.00 -
	Road approaches to new bridge for bridge project	per m road	m	4,000.00 -
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00 -
	Bridges Precast Tee roff's		m²	3,600.00 -
	Reinforced Earth Structure		m²	1,020.00 -
	Traffic signals "T" intersection		each	160,000.00 -
	Traffic signals "4 way" intersection		each	194,400.00 -

		%
EARTHWORKS	$ 396	12%
PAVEMENT & ASPHALT	$ 898	28%
ISLANDS & MEDIANS		0%
KERB & CHANNEL	$ 98	3%
STRUCTURES		0%
PAVEMENT MARKING & SIGNS	$ 72	2%
PATHWAYS	$ 183	6%
LIGHTING	$ 182	6%
ROAD SIDE FURNITURE	$ 53	2%
LANDSCAPING	$ 68	2%
PUBLIC UTILITY RELOCATIONS (PUP)	$ 250	8%
DRAINAGE	$ 553	17%
SUPPLEMENTARY & UNMEASURED	$ 125	4%
CONTRACTOR SITE FACILITIES	$ 100	3%
PROVISION FOR TRAFFIC	$ 200	6%
	$ 3,179	100%

included within Project Owner Costs

15% **increase on 2009 rate (minor 1m ew)** $ 2,770.00

25% **increase on 2009 rate (moderate 2m ew)** $ 2,770.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : **Ipswich City Council**
Project: **Priority infrastructure plans**
Task: **Baseline construction cost estimates (2016 Update)**

(Road 2E) **0.65 m pavemnt thickness**
Road: **Arterial Upgrade (2) to(4) lanes** **18 m pavement width**
Based on std. drawing SR.04 (2007) **2 x 9 m with median**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
	The assumptions are as follows: It is assumed that the existing 2 lanes are utilised in the new works, with only a asphalt overlay required. If the existing 2 lanes cannot be utilised then use the cost for equivalent new road type.					
	Earthworks					Moderate Earthworks
	Earthworks Excavation (1/2 road reserve x 45% x 1)	10	m3	10.50	105	210
	Earthworks imported fill (1/2 road reserve x 55% x 1) - cut qty.	3	m3	33.50	101	201
	Earthworks embankment (from cut)	10	m3	11.00	110	220
	Earthworks, clearing, stripping & ground surface treatment 1/2 side	9.00	m²	5.00	45	45
	Other earthworks items, subgrade etc. 1/2 side only	9.00	m²	7.00	63	63
	Earthworks unsuitable allowance 1/2 side only	9.00	m²	12.00	108	108
						-
	Drainage					-
	Removal demolition K & C	1.00	m	18.00	18	18
	Kerb & channel	1.00	m	45.00	45	45
	Kerb	2.00	m	42.00	84	84
	Subsoil drains	3.00	m	35.00	105	105
	Concrete footpath	2.50	m²	73.00	183	183
	Concrete gullies 1 @ 40m	0.03	each	3,500.00	88	88
	RCP assume 750 dia (new location)	1.00	m	420.00	420	420
	Manhole @ 90m	0.01	each	4,100.00	46	46
						-
	Unbound Pavements					-
	Unbound Pavement all types 650mm (half ~ 9m)	5.85	m3	86.00	503	503
						-
	Road Furniture					-
	Road Furniture (barriers, Fencing, Guardrail)	9.00	m²	7.50	68	68
	Signs and Linemarking (both carriageways)	18.00	m²	4.00	72	72
						-
	Landscape works					-
	Topsoil to grass areas 300mm thick (1.35m3 one side + 1.5m3 median)	2.85	m3	11.00	31	31
	Turf footpath (8 -2.5 -1) = 4.5m one side + 5m median	9.50	m²	7.00	67	67
	landscape area 1 m wide (median & 1 side)	2.00	m²	22.00	44	44
						-
	Bituminous Surfacing					-
	Assume prime on gravel (no aggregate)	9.00	m²	2.00	18	18
						-
	Asphalt					-
	Asphalt prep of surface both carriageways	18.00	m²	0.30	5	5
	Asphalt tack coat both carriageways	18.00	m²	0.75	14	14
	Asphalt 50mm	1.13	tonne	177.00	199	199
	asphalt overlay	9.00	m²	25.00	225	225
						-
	Street lighting					-
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182
						-
	Public Utility Relocation (PUP) – % of construction costs		%	10.00	$295	$326
						-
	Supplementary items					-
	Supplementary & unmeasured items – 5% of construction costs		%	5.00	$147	$163
		Interim summary			**$3,388**	**$3,751**
	Contractors site facilities – % of construction cost excl. PUP & supplementary items		%	4.00	$118	$130
	Provision for Traffic – % of construction cost excl. PUP & supplementary items		%	8.00	$236	$261
	Environmental management – % of construction cost excl. PUP & supplementary items		%	0	$0	-
	Contract construction Cost (per m)	Upgrade 2 to 4 lanes (median)			**$3,742**	**$4,143**
		Assumes existing 2 lanes can remain			**For Minor Earthworks**	**For Moderate Earthworks**

included within Project Owner Costs

13% **increase on 2009 rate (minor 1m ew)** $ 3,314.00
25% **increase on 2009 rate (moderate 2m ew)** $ 3,314.00

Additional items if required				
Noise Fence		m²	480.00	-
Major cross drainage > 2.1m dia.		m²	672.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	160,000.00	-
Traffic signals "4 way" intersection		each	194,400.00	-

EARTHWORKS	$	532	14%
PAVEMENT & ASPHALT	$	964	26%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	252	7%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	2%
PATHWAYS	$	183	5%
LIGHTING	$	182	5%
ROAD SIDE FURNITURE	$	68	2%
LANDSCAPING	$	142	4%
PUBLIC UTILITY RELOCATIONS (PUP)	$	295	8%
DRAINAGE	$	553	15%
SUPPLEMENTARY & UNMEASURED ITEMS	$	147	4%
CONTRACTOR SITE FACILITIES	$	118	3%
PROVISION FOR TRAFFIC	$	236	6%
	$	3,742	100%

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

Road: (Road 2F) — Arterial Upgrade (4) to(6) lanes — Assume 40m road reserve

0.65 m pavemnt thickness
25 m pavement width
2 x 12.5 m with median

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	The assumptions are as follows: It is assumed that the existing 4 lanes are utilised as much as possible in the new works, with only a asphalt overlay required. Widen into verge.				
	Earthworks				
	Earthworks Excavation (7 m x 1 m cut) widen into verge	7	m3	10.50	74
	Earthworks imported fill (assume no imported fill)	0	m3	33.50	-
	Earthworks embankment (from cut)	7	m3	11.00	77
	Earthworks, clearing, stripping & ground surface treatment	7.00	m²	5.00	35
	Other earthworks items, subgrade etc.	7.00	m²	7.00	49
	Earthworks unsuitable allowance	7.00	m²	12.00	84
	Drainage				
	Removal demolition K & C	2.00	m	18.00	36
	Kerb & channel	2.00	m	45.00	90
	Kerb (median)	0.00	m	42.00	-
	Subsoil drains	2.00	m	35.00	70
	Concrete footpath (widen into verge ~ new both sides)	5.00	m²	73.00	365
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175
	RCP assume 600 dia (new location) partial	0.50	m	360.00	180
	Manhole @ 90m	0.01	each	4,100.00	46
	Unbound Pavements				
	Unbound Pavement all types 650mm	4.55	m3	86.00	391
	Road Furniture				
	Road Furniture (barriers, Fencing, Guardrail)	7.00	m²	7.50	53
	Signs and Linemarking (both carriageways)	25.00	m²	4.00	100
	Landscape works				
	Topsoil to grass areas (assume untouched)	0.00	m3	11.00	-
	Turf footpath (assume untouched)	0.00	m²	7.00	-
	landscape area 1 m wide either side new alignment	2.00	m²	22.00	44
	Bituminous Surfacing				
	Assume prime on gravel (no aggregate)	7.00	m²	2.00	14
	Asphalt				
	Asphalt prep of surface both carriageways	25.00	m²	0.30	8
	Asphalt tack coat both carriageways	25.00	m²	0.75	19
	Asphalt 50mm	0.88	tonne	177.00	155
	asphalt overlay	18.00	m²	25.00	450
	Street lighting				
	Street lighting (assume (2) light every 55m)	0.02	each	10,000.00	182
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$269
	Supplementary items				
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$135
		Interim summary			**$3,099**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$108
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	8.00	$216
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0
	Contract construction Cost (per m)	Upgrade 4 to 6 lanes (median)			**$3,422**
	Assumes existing 4 lanes can remain				

Included within Project Owner Costs

EARTHWORKS	$	319	9%	
PAVEMENT & ASPHALT	$	1,036	30%	
ISLANDS & MEDIANS			0%	
KERB & CHANNEL	$	196	6%	
STRUCTURES			0%	
PAVEMENT MARKING & SIGNS	$	100	3%	
PATHWAYS	$	365	11%	
LIGHTING	$	182	5%	
ROAD SIDE FURNITURE	$	53	2%	
LANDSCAPING	$	44	1%	
PUBLIC UTILITY RELOCATIONS (PUP)	$	269	8%	
DRAINAGE	$	401	12%	
SUPPLEMENTARY & UNMEASURED ITEMS	$	135	4%	
CONTRACTOR SITE FACILITIES	$	108	3%	
PROVISION FOR TRAFFIC	$	216	6%	
	$	3,422	100%	

28% **increase on 2009 rate (minor 1m ew)** $ 2,670.00

Additional items if required				
Noise Fence		m²	480.00	-
Major cross drainage > 2.1m dia.		m²	672.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	160,000.00	-
Traffic signals "4 way" intersection		each	194,400.00	-

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road R2A)
Road: Replacement Arterial road (2) lanes 11m — 11 m
Based on std. drawing SR.04 (2007) — 0.65 pavement depth

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Earthworks (27m road reserve)				
	Earthworks Excavation (assuming full depth replacement)	8	m3	21.50	166
	Earthworks imported fill (no fill for pavement replacement)	0	m3	33.50	-
	Earthworks embankment (no fill for pavement replacement)	0	m3	11.00	-
	Earthworks, clearing, stripping & ground surface treatment	11.00	m²	2.00	22
	Other earthworks items, subgrade etc.	11.00	m²	7.00	77
	Earthworks unsuitable allowance	11.00	m²	12.00	132
	Drainage				
	Kerb & channel	0.00	m	63.00	-
	Subsoil drains	2.00	m	35.00	70
	Concrete footpath (100mm thick + 50mm sand bed) assuming partial repair only - 50%	0.00	m²	90.00	-
	Concrete gullies 2 @ 40m assuming partial replacement only - 50%	0.00	each	4,300.00	-
	Drainage pipes assume 600 dia assuming partial replacement only - 50%	0.00	m	360.00	-
	Manhole @ 90m assuming partial replacement only - 50%	0.00	each	5,800.00	-
	Unbound Pavements				
	Unbound Pavement all types 450mm	4.95	m3	86.00	426
	Plant-Mixed Stabilised Pavements				
	Cement stabilised Pavement all types 200mm including cement, as a part of the full 650mm pavement to increase strength for traffic growth	2.20	m3	145.00	319
	Road Furniture				
	Road Furniture (barriers, Fencing, Guardrail) assuming 50% upgrade or repair or replacement	5.50	m²	7.50	41
	Signs and Linemarking	11.00	m²	4.00	44
	Landscape works				
	Topsoil to grass areas 300mm thick (1.35m3) either side assuming no work required for replacement project	0.00	m3	11.00	-
	Turf footpath (8 -2.5 -1) = 4.5m either side) assuming minor repair/upgrade only for replacement project - 30%	2.70	m²	7.00	19
	landscape area 1 m wide either side assuming minor repair/upgrade only for replacement project - 30%	0.60	m²	22.00	13
	Bituminous Surfacing				
	Assume prime on gravel (no aggregate)	11.00	m²	2.00	22
	Asphalt				
	Asphalt prep of surface	11.00	m²	0.30	3
	Asphalt tack coat	11.00	m²	0.75	8
	Asphalt 50mm, plus shape correction layer assuming + 50mm	2.75	tonne	177.00	487
	Street lighting				
	Street lighting (assume (1) light every 55m) assuming lighting upgrade only - 20% possibility	0.004	each	10,000.00	36
	Public Utility Relocation (PUP) ~ % of construction costs		%	15.00	$283
	Supplementary items				
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$94
		Interim summary			**$2,262**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$75
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items Increased % amount for replacement project for situation where construction under heavy traffic or detour or side track.		%	12.00	$226
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0
	Contract construction Cost (per m)				**$2,564**

	Additional items if required			
	Noise Fence	m²	480.00	-
	Major cross drainage > 2.1m dia.	m²	750.00	-
	Bridges Precast Deck Units	m²	3,500.00	-
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
	Bridges Precast Tee roff's	m²	3,600.00	-
	Reinforced Earth Structure	m²	1,020.00	-
	Traffic signals "T" intersection	each	N/A	-
	Traffic signals "4 way" intersection	each	N/A	-

EARTHWORKS	$	397	0.1546632
PAVEMENT & ASPHALT	$	1,265	49%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	70	3%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	44	2%
PATHWAYS	$	-	0%
LIGHTING	$	36	1%
ROAD SIDE FURNITURE	$	41	2%
LANDSCAPING	$	32	1%
PUBLIC UTILITY RELOCATIONS (PUP)	$	283	11%
DRAINAGE	$	-	0%
SUPPLEMENTARY & UNMEASURED ITEMS	$	94	4%
CONTRACTOR SITE FACILITIES	$	75	3%
PROVISION FOR TRAFFIC	$	226	9%
	$	2,564	100%

-26% **difference compared with non-replacement work** $ 3,444.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : **Ipswich City Council**
Project: **Priority infrastructure plans**
Task: **Baseline construction cost estimates (2016 Update)**

(Road R2B)
Road: **Replacement Arterial road (4) lanes** **18 m pavement width** **no median**
Based on std. drawing SR.04 (2007) **0.65 pavement depth**

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Earthworks				
	Earthworks Excavation (assuming full depth replacement)	13	m3	21.50	271
	Earthworks imported fill (no fill for pavement replacement)	0	m3	33.50	-
	Earthworks embankment (no fill for pavement replacement)	0	m3	11.00	-
	Earthworks, clearing, stripping & ground surface treatment	18.00	m²	2.00	36
	Other earthworks items, subgrade etc.	18.00	m²	7.00	126
	Earthworks unsuitable allowance	18.00	m²	12.00	216
	Drainage				
	Kerb & channel	0.00	m	63.00	-
	Subsoil drains	2.00	m	35.00	70
	Concrete footpath (100mm thick + 50mm sand bed) assuming partial repair only - 50%	0.00	m²	90.00	-
	Concrete gullies 2 @ 40m assuming partial replacement only - 50%	0.00	each	4,300.00	-
	Drainage pipes assume 525 dia assuming partial replacement only - 50%	0.00	m	300.00	-
	Manhole @ 90m assuming partial replacement only - 50%	0.00	each	5,800.00	-
	Unbound Pavements				
	Unbound Pavement all types 450mm	8.10	m3	86.00	697
	Plant-Mixed Stabilised Pavements				
	Cement stabilised Pavement all types 200mm including cement, as a part of the full 650mm pavement to increase strength for traffic growth	3.60	m3	145.00	522
	Road Furniture				
	Road Furniture (barriers, Fencing, Guardrail) assuming 50% upgrade or repair or replacement	9.00	m²	7.50	68
	Signs and Linemarking	18.00	m²	4.00	72
	Landscape works				
	Topsoil to grass areas 300mm thick (1.35m3) either side assuming no work required for replacement project	0.00	m3	11.00	-
	Turf footpath (8 -2.5 -1) = 4.5m either side) assuming minor repair/upgrade only for replacement project - 30%	2.70	m²	7.00	19
	landscape area 1 m wide either side assuming minor repair/upgrade only for replacement project - 30%	0.60	m²	22.00	13
	Bituminous Surfacing				
	Assume prime on gravel (no aggregate)	18.00	m²	2.00	36
	Asphalt				
	Asphalt prep of surface	18.00	m²	0.30	5
	Asphalt tack coat	18.00	m²	0.75	14
	Asphalt 50mm, plus shape correction layer assuming + 50mm	4.50	tonne	177.00	797
	Street lighting				
	Street lighting (assume (2) light every 55m) assuming lighting upgrade only - 20% possibility	0.007	each	10,000.00	73
	Public Utility Relocation (PUP) ~ % of construction costs		%	15.00	$455
	Supplementary items				
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$152
		Interim summary			**$3,640**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$121
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items Increased % amount by 4% for replacement project for situation where construction under heavy traffic or detour or side track.		%	12.00	$364
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0
	Contract construction Cost (per m)				**$4,125**
	Additional items if required				
	Noise Fence		m²	480.00	-
	Major cross drainage > 2.1m dia.		m²	750.00	-
	Bridges Precast Deck Units		m²	3,500.00	-
	Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
	Bridges Precast Tee roff's		m²	3,600.00	-
	Reinforced Earth Structure		m²	1,020.00	-
	Traffic signals "T" intersection		each	N/A	-
	Traffic signals "4 way" intersection		each	N/A	-

			%
EARTHWORKS	$	649	16%
PAVEMENT & ASPHALT	$	2,070	50%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	70	2%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	72	2%
PATHWAYS	$	-	0%
LIGHTING	$	73	2%
ROAD SIDE FURNITURE	$	68	2%
LANDSCAPING	$	32	1%
PUBLIC UTILITY RELOCATIONS (PUP)	$	455	11%
DRAINAGE	$	-	0%
SUPPLEMENTARY & UNMEASURED ITEMS	$	152	4%
CONTRACTOR SITE FACILITIES	$	121	3%
PROVISION FOR TRAFFIC	$	364	9%
	$	4,125	100%

-18% **difference compared with non-replacement work** $ 5,006.00

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 3A)
Road: Service road - one way — 0.6 m pavement depth
Assume 15.5m road reserve — 5.5 m width with kerbs

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks (15.5m Road reserve)						
	Earthworks Excavation (road reserve x 45% x 2)	14	m3	10.50	147	74	221
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	3	m3	33.50	101	50	151
	Earthworks embankment (from cut)	14	m3	11.00	154	77	231
	Earthworks, clearing, stripping & ground surface treatment	5.50	m²	5.00	28	28	28
	Other earthworks items, subgrade etc.	5.50	m²	7.00	39	39	39
	Earthworks unsuitable allowance	5.50	m²	12.00	66	66	66
					-		
	Drainage				-		
	Kerb & channel	2.00	m	45.00	90	90	90
	Subsoil drains	2.00	m	35.00	70	70	70
	Concrete footpath (2.0m one side)	2.00	m²	73.00	146	146	146
	Concrete gullies 1 @ 40m	0.03	each	3,500.00	88	88	88
	Drainage pipes assume 525 dia	1.00	m	300.00	300	300	300
	Manhole @ 90m	0.01	each	4,100.00	46	46	46
					-		
	Unbound Pavements				-		
	Unbound Pavement all types 600mm	3.30	m3	86.00	284	284	284
					-		
	Road Furniture				-		
	Road Furniture (barriers, Fencing, Guardrail)	5.50	m²	7.50	41	41	41
	Signs and Linemarking	5.50	m²	4.00	22	22	22
					-		
	Landscape works (assume 5m verge either side)				-		
	Topsoil to grass areas 300mm thick (2 x 5m verge - 2m path - 2 x 1m landscape area)	1.80	m3	11.00	20	20	20
	Turf footpath (10 -2.0 -2)	6.00	m²	7.00	42	42	42
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44
					-		
	Bituminous Surfacing				-		
	Assume prime on gravel (no aggregate)	5.50	m²	2.00	11	11	11
					-		
	Asphalt				-		
	Asphalt prep of surface	5.50	m²	0.30	2	2	2
	Asphalt tack coat	5.50	m²	0.75	4	4	4
	Asphalt 50mm	0.69	tonne	177.00	122	122	122
					-		
	Street lighting				-		
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182	182
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$205	$184	$225
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$102	$92	$112
		Interim summary			**$2,353**	**$2,122**	**$2,583**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$82	$74	$90
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$102	$92	$112
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$2,537**	**$2,288**	**$2,786**
						For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**

included within Project Owner Costs

				%
EARTHWORKS	$	534	21%	
PAVEMENT & ASPHALT	$	422	17%	
ISLANDS & MEDIANS			0%	
KERB & CHANNEL	$	160	6%	
STRUCTURES			0%	
PAVEMENT MARKING & SIGNS	$	22	1%	
PATHWAYS	$	146	6%	
LIGHTING	$	182	7%	
ROAD SIDE FURNITURE	$	41	2%	
LANDSCAPING	$	106	4%	
PUBLIC UTILITY RELOCATIONS (PUP)	$	205	8%	
DRAINAGE	$	433	17%	
SUPPLEMENTARY & UNMEASURED ITEMS	$	102	4%	
CONTRACTOR SITE FACILITIES	$	82	3%	
PROVISION FOR TRAFFIC	$	102	4%	
	$	2,537	100%	

21%	**increase on 2009 rate (moderate ew)**	$ 2,097.00		
9%	**increase on 2009 rate (minor ew)**	$ 2,097.00		
33%	**increase on 2009 rate (major ew)**	$ 2,097.00		

	Additional items if required			
	Noise Fence		m²	480.00 -
	Bridges Precast Deck Units		m²	3,500.00 -
	Road approaches to new bridge for bridge project	per m road	m	4,000.00 -
	Temporary Side Track and Culvert for bridge project	per m track	m	600.00 -
	Bridges Precast Tee roff's		m²	3,600.00 -
	Reinforced Earth Structure		m²	1,020.00 -
	Traffic signals "T" intersection		each	160,000.00 -
	Traffic signals "4 way" intersection		each	194,400.00 -

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Client : Ipswich City Council
Project: Priority infrastructure plans
Task: Baseline construction cost estimates (2016 Update)

(Road 3B)
Road: Service road - two way — 0.6 m pavement depth
assume 19m road reserve — 9 m width

JACOBS Job No. IH094200

Rates are from 2016 baseline estimate and analysis.

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	Minor Earthworks	Major Earthworks
	Earthworks (19m Road reserve)						
	Earthworks Excavation (road reserve x 45% x 2)	18	m3	10.50	189	95	284
	Earthworks imported fill (Road reserve x 55% x 2) - cut qty.	2	m3	33.50	67	34	101
	Earthworks embankment (from cut)	18	m3	11.00	198	99	297
	Earthworks, clearing, stripping & ground surface treatment	9.00	m²	5.00	45	45	45
	Other earthworks items, subgrade etc.	9.00	m²	7.00	63	63	63
	Earthworks unsuitable allowance	9.00	m²	12.00	108	108	108
					-	-	-
	Drainage					-	-
	Kerb & channel	2.00	m	45.00	90	90	90
	Subsoil drains	2.00	m	35.00	70	70	70
	Concrete footpath (2.0m one side)	2.00	m²	73.00	146	146	146
	Concrete gullies 2 @ 40m	0.05	each	3,500.00	175	175	175
	Drainage pipes assume 600 dia	1.00	m	360.00	360	360	360
	Manhole @ 90m	0.01	each	4,100.00	46	46	46
					-	-	-
	Unbound Pavements				-	-	-
	Unbound Pavement all types 600mm	5.40	m3	86.00	464	464	464
					-	-	-
	Road Furniture				-	-	-
	Road Furniture (barriers, Fencing, Guardrail)	9.00	m²	7.50	68	68	68
	Signs and Linemarking	9.00	m²	4.00	36	36	36
					-	-	-
	Landscape works				-	-	-
	Topsoil to grass areas 300mm thick (2 x 5m verge - 2m path - 2 x 1m landscape area)	1.80	m3	11.00	20	20	20
	Turf footpath (10 -2.0 -2)	6.00	m²	7.00	42	42	42
	landscape area 1 m wide either side	2.00	m²	22.00	44	44	44
					-	-	-
	Bituminous Surfacing				-	-	-
	Assume prime on gravel (no aggregate)	9.00	m²	2.00	18	18	18
					-	-	-
	Asphalt				-	-	-
	Asphalt prep of surface	9.00	m²	0.30	3	3	3
	Asphalt tack coat	9.00	m²	0.75	7	7	7
	Asphalt 50mm	1.13	tonne	177.00	199	199	199
					-	-	-
	Street lighting				-	-	-
	Street lighting (assume (1) light every 55m)	0.02	each	10,000.00	182	182	182
					-	-	-
	Public Utility Relocation (PUP) ~ % of construction costs		%	10.00	$264	$241	$287
	Supplementary items						
	Supplementary & unmeasured items ~ 5% of construction costs		%	5.00	$132	$121	$143
		Interim summary			**$3,034**	**$2,773**	**$3,295**
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items		%	4.00	$106	$96	$115
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items		%	5.00	$132	$121	$143
	Environmental management ~ % of construction cost excl. PUP & supplementary items		%	0	$0	-	-
	Contract construction Cost (per m)				**$3,272**	**$2,990**	**$3,553**
						For Moderate Earthworks	**For Minor Earthworks**	**For Major Earthworks**

included within Project Owner Costs

24%	**increase on 2009 rate (moderate ew)**	$ 2,648.00
13%	**increase on 2009 rate (minor ew)**	$ 2,648.00
34%	**increase on 2009 rate (major ew)**	$ 2,648.00

Additional items if required				
Noise Fence		m²	480.00	-
Bridges Precast Deck Units		m²	3,500.00	-
Road approaches to new bridge for bridge project	per m road	m	4,000.00	-
Temporary Side Track and Culvert for bridge project	per m track	m	600.00	-
Bridges Precast Tee roff's		m²	3,600.00	-
Reinforced Earth Structure		m²	1,020.00	-
Traffic signals "T" intersection		each	160,000.00	-
Traffic signals "4 way" intersection		each	194,400.00	-

EARTHWORKS	$	670	20%
PAVEMENT & ASPHALT	$	691	21%
ISLANDS & MEDIANS			0%
KERB & CHANNEL	$	160	5%
STRUCTURES			0%
PAVEMENT MARKING & SIGNS	$	36	1%
PATHWAYS	$	146	4%
LIGHTING	$	182	6%
ROAD SIDE FURNITURE	$	68	2%
LANDSCAPING	$	106	3%
PUBLIC UTILITY RELOCATIONS (PUP)	$	264	8%
DRAINAGE	$	581	18%
SUPPLEMENTARY & UNMEASURED ITEMS	$	132	4%
CONTRACTOR SITE FACILITIES	$	106	3%
PROVISION FOR TRAFFIC	$	132	4%
	$	3,272	100%

*Notes * Does not include Property Resumptions*
** Does not include GST*
** Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
** No provision for ITS network*

Appendix D – Previous Tender and Rate Analysis

Client : **Ipswich City Council**
Project: **Priority Infrastructure Plans**
Task: **Baseline Construction Cost Estimates - Rate Analysis Summary (2016 Update_15/07/2016)**
ALL EXCLUDING GST.

JACOBS Job No. IH094200

	1	2	3
Work Length (m)	na	1100	2000
Pavement Area (m2)	6620	14045	27502
	• Project - Alice Street Kerb & Channel Upgrade • *late 2015* • 2-lane & 2-way • sub-arterial road • kerb & channel upgrade	• Project - Collingwood Drive Extension - Stage 1 • *late 2011* • 2-lane & 2-way • arterial road • road construction/upgrade	• Project - Collingwood Drive Extension - Stage 2 (2 phases included at this stage) • *mid 2014* • 2-lane & 2-way combined with 4-lane & 2-way section • arterial road • road construction/upgrade

ITEM	DESCRIPTION	UNIT	OLD RATE (2009)	ADOPTED RATE (2016)	REPLACEMENT WORK (2016)	New or Upgrade Works Minimum	New or Upgrade Works Maximum	New or Upgrade Works Average	Replacement Works Minimum	Replacement Works Maximum	Replacement Works Average	1 Tenderer 1	2 Tenderer 1	2 Tenderer 2	2 Tenderer 3	2 Tenderer 4	2 Tenderer 5	2 Tenderer 6	3 Tenderer 1	3 Tenderer 2	3 Tenderer 3	3 Tenderer 4	3 Tenderer 5	3 Tenderer 6	3 Tenderer 7	3 Tenderer 8	3 Tenderer 9	3 Tenderer 10	3 Tenderer 11
	Tender Price											$2,239,384.41	$5,086,748.18	$5,899,351.09	$7,750,000.05	$4,912,268.94	$5,126,283.00	$7,393,832.00	$6,112,329.46	$5,921,709.15	$6,146,693.58	$6,110,840.00	$5,268,880.45	$6,585,240.83	$6,779,175.00	$6,787,406.37	$5,390,641.91	$6,488,176.57	$6,441,327.08
	Earthworks																												
	Earthworks Excavation	m3	12.00	$ 10.50	$ 21.50	$ 4.40	$ 19.88	$ 10.32	$ 9.40	$ 43.29	$ 26.69	$ 37.17	$ 4.44	$ 8.03	$ 12.94	$ 4.40	$ 5.50	$ 19.88	$ 17.70	$ 10.42	$ 9.00	$ 13.92	$ 7.69	$ 7.86	$ 12.71	$ 9.86	$ 6.33	$ 10.33	$ 11.13
	Earthworks imported fill	m3	35.00	$ 33.50	-	$ 19.72	$ 50.55	$ 33.19	-	-	-	$ 27.70	$ 30.88	$ 19.72	$ 50.55	$ 24.26	$ 27.00	$ 46.74	na	na	na	na	na	na	na	na	na	na	na
	Earthworks embankment - reuse of excavated materials	m3	7.00	$ 11.00	-	$ 2.26	$ 26.50	$ 11.07	-	-	-	na	$ 4.71	$ 5.67	$ 14.06	$ 2.26	$ 2.70	$ 8.51	$ 8.70	$ 5.16	$ 10.89	$ 16.16	$ 22.73	$ 16.06	$ 18.91	$ 26.50	$ 11.94	$ 8.30	$ 12.77
	Earthworks, clearing, stripping & ground surface treatment	m²	5.00	$ 5.00	$ 2.00	$ 0.07	$ 11.88	$ 3.14	$ 0.90	$ 3.49	$ 1.87	na	$ 1.90	$ 5.28	$ 3.31	$ 2.58	$ 3.40	$ 11.88	$ 0.18	$ 0.48	$ 0.32	$ 0.86	$ 0.48	$ 0.07	$ 0.94	$ 1.09	$ 0.42	$ 0.77	$ 0.67
	Other earthworks items, subgrade etc.	m²	3.50	$ 7.00	-	$ 0.21	$ 64.28	$ 8.52	-	-	-	na	$ 0.31	$ 5.99	$ 64.28	$ 0.21	$ 0.29	$ 2.90	$ 1.52	$ 3.05	$ 1.72	$ 1.72	$ 1.49	$ 4.99	$ 3.62	$ 1.95	$ 2.73	$ 1.21	$ 2.30
	Earthworks unsuitable allowance	m²	11.50	$ 12.00	-	$ 0.36	$ 44.76	$ 12.04	-	-	-	na	$ 38.16	$ 28.73	$ 44.76	$ 35.29	$ 41.58	$ 43.92	$ 1.02	$ 0.36	$ 1.01	$ 2.63	$ 1.28	$ 0.71	$ 1.05	$ 1.22	$ 0.59	$ 0.98	$ 1.42
	Drainage																												
	Kerb & channel	m	48.00	$ 45.00	-	$ 30.00	$ 69.88	$ 43.51	-	-	-	$ 44.25	$ 36.50	$ 36.98	$ 36.79	$ 34.52	$ 30.00	$ 61.13	$ 39.70	$ 38.53	$ 39.43	$ 51.39	$ 34.89	$ 52.34	$ 48.10	$ 39.93	$ 37.57	$ 42.07	$ 69.88
	For replacement, including removal	m	na	-	$ 63.00	$ 37.60	$ 100.58	$ 63.08	-	-	-	$ 69.00	$ 47.25	$ 75.22	$ 66.05	$ 92.49	$ 37.60	$ 67.50	na	na	na	na	na	na	na	na	na	na	na
	Subsoil drains	m	33.00	$ 35.00	-	$ 12.72	$ 48.13	$ 29.77	-	-	-	$ 36.51	$ 20.39	$ 48.13	$ 27.02	$ 28.40	$ 38.90	$ 44.26	$ 21.81	$ 15.22	$ 30.61	$ 38.11	$ 27.21	$ 12.72	$ 22.39	$ 32.90	$ 20.09	$ 34.15	$ 45.31
	Concrete footpath (100mm thick + 50mm sand bed)	m²	55.00	$ 73.00	-	$ 54.12	$ 100.38	$ 72.91	-	-	-	$ 76.18	$ 60.91	$ 85.66	$ 100.38	$ 63.58	$ 65.80	$ 75.48	$ 85.25	$ 88.22	$ 90.91	$ 58.22	$ 54.12	$ 88.89	$ 65.68	$ 62.65	$ 63.06	$ 58.12	$ 68.69
	For replacement, including removal	m²	na	-	$ 90.00	$ 67.48	$ 102.49	$ 89.60	-	-	-	$ 95.92	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Concrete gullies 2400mm lintel	each	2600.00	$ 3,500.00	-	$ 1,772.14	$ 5,245.13	$ 3,505.48	-	-	-	$ 1,772.14	$ 3,386.25	$ 2,945.00	$ 2,941.24	$ 3,842.30	$ 3,214.00	$ 4,232.95	$ 3,707.10	$ 3,234.32	$ 3,641.56	$ 2,808.50	$ 3,316.82	$ 3,680.15	$ 3,960.77	$ 3,894.18	$ 3,008.64	$ 4,385.81	$ 3,968.26
	For replacement, including removal	each	na	-	$ 4,300.00	$ 2,011.05	$ 8,672.22	$ 4,381.15	-	-	-	$ 2,266.43	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Drainage pipes assume 300mm dia	m	na	$ 270.00	-	$ 271.54	$ 271.54	$ 271.54	-	-	-	$ 271.54	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Drainage pipes assume 375mm dia	m	na	$ 230.00	-	$ 148.75	$ 398.98	$ 226.54	-	-	-	$ 334.97	$ 164.06	$ 261.58	$ 305.36	$ 196.29	$ 159.00	$ 214.67	$ 261.40	$ 192.24	$ 200.64	$ 243.65	$ 156.26	$ 196.23	$ 226.80	$ 184.79	$ 148.75	$ 232.12	$ 209.59
	Drainage pipes assume 450mm dia	m	na	$ 260.00	-	$ 163.34	$ 427.37	$ 254.73	-	-	-	$ 299.46	$ 235.70	$ 346.17	$ 395.07	$ 278.83	$ 188.00	$ 245.20	$ 315.40	$ 212.91	$ 221.99	$ 257.21	$ 163.64	$ 207.47	$ 225.26	$ 224.91	$ 163.34	$ 250.31	$ 201.23
	Drainage pipes assume 525mm dia	m	205.00	$ 300.00	-	$ 181.14	$ 606.59	$ 303.83	-	-	-	na	$ 267.27	$ 396.32	$ 497.90	$ 316.20	$ 259.00	$ 606.59	$ 391.00	$ 244.66	$ 243.24	$ 296.20	$ 181.14	$ 246.47	$ 278.30	$ 255.90	$ 193.27	$ 293.18	$ 218.10
	Drainage pipes assume 600mm dia	m	230.00	$ 360.00	-	$ 248.37	$ 471.80	$ 358.48	-	-	-	$ 464.65	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Drainage pipes assume 675mm dia	m	na	$ 360.00	-	$ 212.03	$ 355.77	$ 294.15	-	-	-	na	na	na	na	na	na	na	$ 318.70	$ 275.15	$ 279.19	$ 348.81	$ 221.10	$ 291.10	$ 355.77	$ 334.31	$ 212.03	$ 323.21	$ 276.32
	Drainage pipes assume 750mm dia	m	300.00	$ 420.00	-	$ 339.01	$ 602.85	$ 416.62	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Drainage pipes assume 825mm dia	m	na	$ 450.00	-	$ 289.71	$ 552.05	$ 431.09	-	-	-	na	$ 480.99	$ 552.05	$ 517.17	$ 534.03	$ 319.00	$ 510.31	$ 421.50	$ 419.30	$ 384.22	$ 483.92	$ 289.71	$ 390.44	$ 467.85	$ 427.71	$ 290.24	$ 459.69	$ 380.36
	Drainage pipes assume 900mm dia	m	na	$ 530.00	-	$ 319.58	$ 1,116.44	$ 528.26	-	-	-	$ 513.39	na	na	na	na	na	na	$ 536.00	$ 582.13	$ 410.04	$ 523.59	$ 319.58	$ 418.47	$ 505.78	$ 509.45	$ 339.19	$ 457.28	$ 405.88
	Drainage pipes assume 1050mm dia	m	na	$ 800.00	-	$ 486.61	$ 1,163.80	$ 782.65	-	-	-	$ 666.78	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Drainage pipes assume 1200mm dia	m	na	$ 900.00	-	$ 540.00	$ 1,264.80	$ 880.09	-	-	-	na	$ 578.60	$ 1,104.51	$ 783.14	$ 679.20	$ 540.00	$ 731.57	$ 937.81	$ 879.28	$ 1,136.93	$ 1,264.80	$ 1,108.29	$ 804.62	$ 981.53	$ 886.92	$ 700.50	$ 1,028.13	$ 815.76
	Drainage pipes assume 225mm dia	m	na	$ 150.00	-	$ 99.29	$ 195.07	$ 142.85	-	-	-	na	$ 99.29	$ 175.69	$ 195.07	$ 123.00	$ 105.10	$ 158.94	na	na	na	na	na	na	na	na	na	na	na
	Manhole 1050mm diametre	each	3400.00	$ 4,100.00	-	$ 1,118.20	$ 27,765.00	$ 7,205.21	-	-	-	$ 2,215.60	$ 2,150.00	$ 3,478.20	$ 4,185.00	$ 2,372.00	$ 3,362.00	$ 4,844.26	$ 7,010.00	$ 3,768.05	$ 3,629.63	$ 10,894.50	$ 13,576.39	$ 23,634.68	$ 18,898.50	$ 27,765.00	$ 6,323.70	$ 20,753.18	$ 15,676.50
	For replacement, including removal	each	na	-	$ 5,800.00	$ 1,353.60	$ 16,540.76	$ 5,874.57	-	-	-	$ 2,953.56	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Unbound Pavements																												
	Unbound Pavement all types 600 - 650mm	m3	75.50	$ 86.00	-																								
	Type 2.1	m3	78.00	$ 100.00	-	$ 75.53	$ 121.60	$ 100.04	-	-	-	na	$ 111.26	$ 89.19	$ 119.01	$ 98.43	$ 102.00	$ 121.60	$ 103.75	$ 75.53	$ 89.01	$ 100.48	$ 84.96	$ 112.86	$ 105.57	$ 104.12	$ 90.23	$ 101.49	$ 108.82
	Type 2.2	m3	na	$ 85.00	-	$ 70.54	$ 104.04	$ 84.69	-	-	-	$ 191.58	na	na	na	na	na	na	$ 79.55	$ 75.71	$ 89.01	$ 99.34	$ 70.54	$ 78.46	$ 88.05	$ 86.02	$ 76.35	$ 84.55	$ 104.04
	Type 2.3	m3	na	$ 90.00	-	$ 73.78	$ 114.56	$ 90.42	-	-	-	na	$ 73.78	$ 90.11	$ 103.70	$ 77.55	$ 92.00	$ 114.56	na	na	na	na	na	na	na	na	na	na	na
	Type 2.4	m3	na	$ 76.00	-	$ 66.35	$ 87.78	$ 75.99	-	-	-	$ 184.37	na	na	na	na	na	na	$ 73.85	$ 70.75	$ 87.45	$ 82.11	$ 66.35	$ 72.63	$ 74.82	$ 70.94	$ 67.77	$ 81.46	$ 87.78
	Type 2.5	m3	73.00	$ 77.00	-	$ 58.00	$ 94.32	$ 76.18	-	-	-	$ 168.19	$ 68.40	$ 87.58	$ 86.24	$ 71.63	$ 89.00	$ 92.71	na	na	na	na	na	na	na	na	na	na	na
	Plant-Mixed Stabilised Pavements																												
	Plant-Mixed stabilised pavements 150 - 200mm inc. cement	m3	na	-	$ 145.00	-	-	-	$ 90.00	$ 200.86	$ 141.31																		
	Road Furniture																												
	Road Furniture (barriers, Fencing, Guardrail)	m²	7.50	$ 7.50	-	$ 0.25	$ 9.39	$ 3.87	-	-	-	$ 1.03	$ 3.74	$ 4.67	$ 3.94	$ 4.23	$ 4.11	$ 4.77	$ 0.55	$ 0.50	$ 0.25	$ 0.68	$ 0.32	$ 0.39	$ 0.73	$ 0.37	$ 0.57	$ 1.23	$ 0.74
	Signs and Linemarking	m²	3.30	$ 4.00	-	$ 0.65	$ 9.50	$ 4.00	-	-	-	$ 3.59	$ 2.71	$ 2.42	$ 2.99	$ 2.05	$ 2.37	$ 3.02	$ 4.15	$ 4.34	$ 5.31	$ 5.66	$ 5.08	$ 5.01	$ 5.57	$ 4.30	$ 5.03	$ 2.18	$ 5.16
	Landscape works																												
	Topsoil to grass areas 300mm thick either side	m3	9.70	$ 11.00	-	$ 4.18	$ 19.43	$ 10.75	-	-	-	$ 10.30	na	na	na	na	na	na	$ 6.15	$ 4.18	$ 6.72	$ 6.35	$ 5.93	$ 4.59	$ 6.58	$ 5.56	$ 5.72	$ 6.36	$ 18.83
	Turf footpath	m²	5.50	$ 7.00	-	$ 2.53	$ 9.42	$ 6.57	-	-	-	$ 6.38	$ 9.20	$ 5.85	$ 9.19	$ 5.93	$ 7.60	$ 8.33	$ 5.32	$ 7.91	$ 9.42	$ 2.53	$ 7.09	$ 5.58	$ 8.65	$ 6.94	$ 8.19	$ 7.00	$ 8.88
	landscape area 1 m wide either side	m²	14.60	$ 22.00	-	$ 11.44	$ 146.09	$ 40.28	-	-	-	na	$ 101.43	$ 90.31	$ 113.47	$ 91.58	$ 96.38	$ 146.09	$ 15.12	$ 16.53	$ 13.57	$ 14.05	$ 14.90	$ 25.50	$ 16.53	$ 11.44	$ 14.40	$ 16.07	$ 21.54
	Bituminous Surfacing																												
	Assume prime on gravel (no aggregate)	m²	1.40	$ 2.00	-	$ 1.45	$ 3.41	$ 1.96	-	-	-	$ 1.83	$ 1.76	$ 1.84	$ 2.13	$ 2.35	$ 1.54	$ 2.05	$ 1.94	$ 2.02	$ 2.06	$ 2.10	$ 1.85	$ 2.04	$ 2.17	$ 2.01	$ 1.93	$ 2.34	$ 2.14
	Asphalt																												
	Asphalt prep of surface	m²	0.08	$ 0.30	-	$ 0.06	$ 3.28	$ 0.30	-	-	-	$ 0.21	$ 0.06	$ 0.06	$ 0.07	$ 0.06	$ 0.14	$ 0.07	$ 0.10	$ 3.28	$ 0.06	$ 0.21	$ 0.06	$ 0.06	$ 0.22	$ 0.20	$ 0.19	$ 0.62	$ 0.14
	Asphalt tack coat	m²	0.99	$ 0.75	-	$ 0.29	$ 0.75	$ 0.43	-	-	-	$ 0.75	$ 0.37	$ 0.38	$ 0.45	$ 0.37	$ 0.36	$ 0.43	$ 0.42	$ 0.70	$ 0.32	$ 0.50	$ 0.29	$ 0.32	$ 0.52	$ 0.48	$ 0.46	$ 0.55	$ 0.45
	Asphalt 50mm new road or upgrade, various depth replacement	tonne	147.00	$ 177.00	-	$ 40.00	$ 248.62	$ 176.40	-	-	-	$ 313.98	$ 178.45	$ 207.43	$ 248.62	$ 200.81	$ 222.00	$ 220.27	$ 190.10	$ 207.43	$ 203.70	$ 198.77	$ 182.99	$ 211.69	$ 206.07	$ 190.90	$ 182.76	$ 207.61	$ 207.82
	Street lighting																												
	Street lighting (assume (1) light every 55m)	each	12500.00	$ 10,000.00	-	$ 2,000.25	$ 8,081.94	$ 4,187.87	-	-	-	na	$ 3,979.05	$ 4,357.23	$ 5,027.92	$ 4,470.68	$ 4,356.56	$ 4,415.24	$ 2,000.25	$ 2,995.57	$ 2,662.00	$ 2,745.62	$ 2,408.03	$ 2,506.45	$ 2,332.49	$ 2,268.44	$ 2,326.56	$ 2,126.44	$ 2,177.53
	Public Utility Relocation (PUP) ~ % of construction costs	%	5.00	10.00																									
	oil / gas main protection	%	na	0.70	-	0.06%	5.87%	0.69%	-	-	-	na	1.35%	0.87%	0.06%	5.87%	0.08%	0.26%	0.16%	0.35%	0.95%	0.28%	0.13%	0.12%	0.32%	0.24%	0.31%	0.12%	0.20%
	water main pipe laying / piping works	%	na	7.50	-	0.05%	13.68%	7.47%	-	-	-	na	13.40%	12.77%	10.50%	13.29%	13.18%	9.98%	9.93%	12.18%	9.98%	10.42%	11.94%	12.49%	12.93%	10.37%	12.33%	13.68%	10.14%
	telecommunication works	%	na	1.60	-	1.09%	2.05%	1.53%	-	-	-	na	1.84%	1.61%	1.56%	2.05%	2.01%	1.11%	1.14%	1.46%	1.38%	1.56%	1.30%	1.53%	1.09%	1.41%	1.78%	1.83%	1.36%
	sewer works	%	na	0.10	-	0.01%	0.14%	0.07%	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Supplementary items																												
	Supplementary & unmeasured items ~ % of construction costs	%	5.00	5.00																									
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	%	3.00	4.00	-	0.32%	12.24%	3.79%	-	-	-	4.69%	5.81%	10.41%	2.40%	1.00%	2.54%	6.10%	0.32%	1.27%	2.12%	1.46%	1.22%	1.05%	2.28%	6.85%	1.16%	1.19%	0.91%
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	%	3.50	5.00	12.00	0.46%	22.77%	4.62%	6.06%	18.67%	10.73%	18.67%	1.27%	1.20%	1.27%	0.46%	2.52%	3.17%	5.19%	1.13%	1.05%	1.31%	1.74%	4.90%	4.42%	5.81%	2.72%	4.25%	1.44%
	Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	%	not required in 2016 estimate	1.00	-	0.06%	2.86%	0.72%	-	-	-	na	0.36%	1.57%	0.96%	0.77%	0.96%	1.09%	1.04%	0.46%	0.25%	1.07%	0.74%	1.94%	1.27%	0.26%	0.61%	0.30%	0.85%
	Additional items if required																												
	Noise Fence	m²	400.00	$ 480.00	-	-	-	-	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	major culverts > 2100mm dia. (based on floor area)	m²	560.00	$ 672.00	-	-	-	-	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Bridges Precast Deck Units	m²	2500.00	$ 3,500.00	-	$2,454.51	$3,786.28	$3,156.97	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Bridges Precast Tee roff's	m²	2800.00	$ 3,600.00	-	-	-	-	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Road approaches to new bridge for bridge project	per m road	na	$ 4,000.00	-	$2,946.87	$4,561.64	$3,445.74	-	-	-								na	na	na	na	na	na	na	na	na	na	na
	Temporary Side Track and Culvert for bridge project	per m track	na	$ 600.00	-	$397.52	$837.03	$545.71	-	-	-								na	na	na	na	na	na	na	na	na	na	na
	Reinforced Earth Structure	m²	850.00	$ 1,020.00	-	-	-	-	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Traffic signals "T" intersection	each	155000.00	$ 160,000.00	-	$116,360.30	$197,412.50	$157,493.14	-	-	-	na	na	na	na	na	na	na	$ 155,068.70	$ 154,010.03	$ 142,294.96	$ 139,447.00	$ 145,129.86	$ 133,931.22	$ 160,955.00	$ 136,664.30	$ 124,317.69	$ 143,592.93	$ 116,360.30
	Traffic signals "4 way" intersection	each	162000.00	$ 194,400.00	-	-	-	-	-	-	-	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

*Notes * na = rates not available for 2016 analysis*
*Notes * Does not include Property Resumptions*
*Notes * Does not include GST*
*Notes * Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
*Notes * No provision for ITS network*
*Notes * Adopted rates are not necessarily based on the average due to the variance of the project individuals. Extreme high or low rates may have been excluded in analysis under certain circumstances. Adopted rates are also based on type of construction, consideration of greenfield and brownfield etc.*

Client : **Ipswich City Council**
Project: **Priority Infrastructure Plans**
Task: **Baseline Construction Cost Estimates - Rate Analysis Summary (2016 Update_15/07/2016)**

ALL EXCLUDING GST.

JACOBS Job No. IH094200

DESCRIPTION	UNIT	OLD RATE (2009)	ADOPTED RATE (2016)	REPLACEMENT WORK (2016)	New or Upgrade Works: Minimum	Maximum	Average	Replacement Works: Minimum	Maximum	Average
Earthworks										
Earthworks Excavation	m3	12.00	$10.50	$21.50	$4.40	$19.88	$10.32	$9.40	$43.29	$26.69
Earthworks imported fill	m3	35.00	$33.50	-	$19.72	$50.55	$33.19	-	-	-
Earthworks embankment - reuse of excavated materials	m3	7.00	$11.00	-	$2.26	$26.50	$11.07	-	-	-
Earthworks, clearing, stripping & ground surface treatment	m²	5.00	$5.00	$2.00	$0.07	$11.88	$3.14	$0.90	$3.49	$1.87
Other earthworks items, subgrade etc.	m²	3.50	$7.00	-	$0.21	$64.28	$8.52	-	-	-
Earthworks unsuitable allowance	m²	11.50	$12.00	-	$0.36	$44.76	$12.04	-	-	-
Drainage										
Kerb & channel	m	48.00	$45.00	-	$30.00	$69.88	$43.51	-	-	-
For replacement, including removal	m	na	-	$63.00	$37.60	$100.58	$63.08	-	-	-
Subsoil drains	m	33.00	$35.00	-	$12.72	$48.13	$29.77	-	-	-
Concrete footpath (100mm thick + 50mm sand bed)	m²	55.00	$73.00	-	$54.12	$100.38	$72.91	-	-	-
For replacement, including removal	m²	na	-	$90.00	$67.48	$102.49	$89.60	-	-	-
Concrete gullies 2400mm lintel	each	2600.00	$3,500.00	-	$1,772.14	$5,245.13	$3,505.48	-	-	-
For replacement, including removal	each	na	-	$4,300.00	$2,011.05	$8,672.22	$4,381.15	-	-	-
Drainage pipes assume 300mm dia	m	na	$270.00	-	$271.54	$271.54	$271.54	-	-	-
Drainage pipes assume 375mm dia	m	na	$230.00	-	$148.75	$398.98	$226.54	-	-	-
Drainage pipes assume 450mm dia	m	na	$260.00	-	$163.34	$427.37	$254.73	-	-	-
Drainage pipes assume 525mm dia	m	205.00	$300.00	-	$181.14	$606.59	$303.83	-	-	-
Drainage pipes assume 600mm dia	m	230.00	$360.00	-	$248.37	$471.80	$358.48	-	-	-
Drainage pipes assume 675mm dia	m	na	$360.00	-	$212.03	$355.77	$294.15	-	-	-
Drainage pipes assume 750mm dia	m	300.00	$420.00	-	$339.01	$602.85	$416.62	-	-	-
Drainage pipes assume 825mm dia	m	na	$450.00	-	$289.71	$552.05	$431.09	-	-	-
Drainage pipes assume 900mm dia	m	na	$530.00	-	$319.58	$1,116.44	$528.26	-	-	-
Drainage pipes assume 1050mm dia	m	na	$800.00	-	$486.61	$1,163.80	$782.65	-	-	-
Drainage pipes assume 1200mm dia	m	na	$900.00	-	$540.00	$1,264.80	$880.09	-	-	-
Drainage pipes assume 225mm dia	m	na	$150.00	-	$99.29	$195.07	$142.85	-	-	-
Manhole 1050mm diametre	each	3400.00	$4,100.00	-	$1,118.20	$27,765.00	$7,205.21	-	-	-
For replacement, including removal	each	na	-	$5,800.00	$1,353.60	$16,540.76	$5,874.57	-	-	-
Unbound Pavements										
Unbound Pavement all types 600 - 650mm	m3	75.50	$86.00	-						
Type 2.1	m3	78.00	$100.00	-	$75.53	$121.60	$100.04	-	-	-
Type 2.2	m3	na	$85.00	-	$70.54	$104.04	$84.69	-	-	-
Type 2.3	m3	na	$90.00	-	$73.78	$114.56	$90.42	-	-	-
Type 2.4	m3	na	$76.00	-	$66.35	$87.78	$75.99	-	-	-
Type 2.5	m3	73.00	$77.00	-	$58.00	$94.32	$76.18	-	-	-
Plant-Mixed Stabilised Pavements										
Plant-Mixed stabilised pavements 150 - 200mm inc. cement	m3	na	-	$145.00	-	-	-	$90.00	$200.86	$141.31
Road Furniture										
Road Furniture (barriers, Fencing, Guardrail)	m²	7.50	$7.50	-	$0.25	$9.39	$3.87	-	-	-
Signs and Linemarking	m²	3.30	$4.00	-	$0.65	$9.50	$4.00	-	-	-
Landscape works										
Topsoil to grass areas 300mm thick either side	m3	9.70	$11.00	-	$4.18	$19.43	$10.75	-	-	-
Turf footpath	m²	5.50	$7.00	-	$2.53	$9.42	$6.57	-	-	-
landscape area 1 m wide either side	m²	14.60	$22.00	-	$11.44	$146.09	$40.28	-	-	-
Bituminous Surfacing										
Assume prime on gravel (no aggregate)	m²	1.40	$2.00	-	$1.45	$3.41	$1.96	-	-	-
Asphalt										
Asphalt prep of surface	m²	0.08	$0.30	-	$0.06	$3.28	$0.30	-	-	-
Asphalt tack coat	m²	0.99	$0.75	-	$0.29	$0.75	$0.43	-	-	-
Asphalt 50mm new road or upgrade, various depth replacement	tonne	147.00	$177.00	-	$40.00	$248.62	$176.40	-	-	-
Street lighting										
Street lighting (assume (1) light every 55m)	each	12500.00	$10,000.00	-	$2,000.25	$8,081.94	$4,187.87	-	-	-
Public Utility Relocation (PUP) ~ % of construction costs	%	5.00	10.00							
oil / gas main protection	%	na	0.70	-	0.06%	5.87%	0.69%	-	-	-
water main pipe laying / piping works	%	na	7.50	-	0.05%	13.68%	7.47%	-	-	-
telecommunication works	%	na	1.60	-	1.09%	2.05%	1.53%	-	-	-
sewer works	%	na	0.10	-	0.01%	0.14%	0.07%	-	-	-
Supplementary items										
Supplementary & unmeasured items ~ % of construction costs	%	5.00	5.00							
Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	%	3.00	4.00	-	0.32%	12.24%	3.79%	-	-	-
Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	%	3.50	5.00	12.00	0.46%	22.77%	4.62%	6.06%	18.67%	10.73%
Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	%	not required in 2016 estimate	1.00	-	0.06%	2.86%	0.72%	-	-	-
Additional items if required										
Noise Fence	m²	400.00	$480.00	-	-	-	-	-	-	-
major culverts > 2100mm dia. (based on floor area)	m²	560.00	$672.00	-	-	-	-	-	-	-
Bridges Precast Deck Units	m²	2500.00	$3,500.00	-	$2,454.51	$3,786.28	$3,156.97	-	-	-
Bridges Precast Tee roff's	m²	2800.00	$3,600.00	-	-	-	-	-	-	-
Road approaches to new bridge for bridge project	per m road	na	$4,000.00	-	$2,946.87	$4,561.64	$3,445.74	-	-	-
Temporary Side Track and Culvert for bridge project	per m track	na	$600.00	-	$397.52	$837.03	$545.71	-	-	-
Reinforced Earth Structure	m²	850.00	$1,020.00	-	-	-	-	-	-	-
Traffic signals "T" intersection	each	155000.00	$160,000.00	-	$116,360.30	$197,412.50	$157,493.14	-	-	-
Traffic signals "4 way" intersection	each	162000.00	$194,400.00	-	-	-	-	-	-	-

Project 4 — Work Length (m): 60; Pavement Area (m2): 1000

- Project - Mountain Creek Bridge
- ***late 2013***
- 3 x 20m span, 2-lane & 2-way with marked median, and concrete footpath on side
- 60 x 550mm dia Octagonal prestressed concrete piles
- concrete deck unit bridge
- bridge construction project
- no works tendered for approaches in this analysis

DESCRIPTION	Tenderer 1	Tenderer 2	Tenderer 3	Tenderer 4	Tenderer 5	Tenderer 6	Tenderer 7	Tenderer 8	Tenderer 9
Tender Price	$3,579,556.00	$3,786,282.71	$3,284,540.00	$3,590,815.91	$3,533,721.34	$3,556,394.00	$3,499,098.66	$3,535,737.00	$3,132,994.00
Earthworks									
Earthworks Excavation	na	na	na	na	na	na	na	na	na
Earthworks imported fill	na	na	na	na	na	na	na	na	na
Earthworks embankment - reuse of excavated materials	na	na	na	na	na	na	na	na	na
Earthworks, clearing, stripping & ground surface treatment	na	na	na	na	na	na	na	na	na
Other earthworks items, subgrade etc.	na	na	na	na	na	na	na	na	na
Earthworks unsuitable allowance	na	na	na	na	na	na	na	na	na
Drainage									
Kerb & channel	na	na	na	na	na	na	na	na	na
For replacement, including removal	na	na	na	na	na	na	na	na	na
Subsoil drains	na	na	na	na	na	na	na	na	na
Concrete footpath (100mm thick + 50mm sand bed)	na	na	na	na	na	na	na	na	na
For replacement, including removal	na	na	na	na	na	na	na	na	na
Concrete gullies 2400mm lintel	na	na	na	na	na	na	na	na	na
For replacement, including removal	na	na	na	na	na	na	na	na	na
Drainage pipes assume 300mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 375mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 450mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 525mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 600mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 675mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 750mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 825mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 900mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 1050mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 1200mm dia	na	na	na	na	na	na	na	na	na
Drainage pipes assume 225mm dia	na	na	na	na	na	na	na	na	na
Manhole 1050mm diametre	na	na	na	na	na	na	na	na	na
For replacement, including removal	na	na	na	na	na	na	na	na	na
Unbound Pavements									
Unbound Pavement all types 600 - 650mm									
Type 2.1	na	na	na	na	na	na	na	na	na
Type 2.2	na	na	na	na	na	na	na	na	na
Type 2.3	na	na	na	na	na	na	na	na	na
Type 2.4	na	na	na	na	na	na	na	na	na
Type 2.5	na	na	na	na	na	na	na	na	na
Plant-Mixed Stabilised Pavements									
Plant-Mixed stabilised pavements 150 - 200mm inc. cement									
Road Furniture									
Road Furniture (barriers, Fencing, Guardrail)	na	na	na	na	na	na	na	na	na
Signs and Linemarking	na	na	na	na	na	na	na	na	na
Landscape works									
Topsoil to grass areas 300mm thick either side	na	na	na	na	na	na	na	na	na
Turf footpath	na	na	na	na	na	na	na	na	na
landscape area 1 m wide either side	na	na	na	na	na	na	na	na	na
Bituminous Surfacing									
Assume prime on gravel (no aggregate)	na	na	na	na	na	na	na	na	na
Asphalt									
Asphalt prep of surface	na	na	na	na	na	na	na	na	na
Asphalt tack coat	na	na	na	na	na	na	na	na	na
Asphalt 50mm new road or upgrade, various depth replacement	na	na	na	na	na	na	na	na	na
Street lighting									
Street lighting (assume (1) light every 55m)	na	na	na	na	na	na	na	na	na
Public Utility Relocation (PUP) ~ % of construction costs									
oil / gas main protection	na	na	na	na	na	na	na	na	na
water main pipe laying / piping works	na	na	na	na	na	na	na	na	na
telecommunication works	na	na	na	na	na	na	na	na	na
sewer works	na	na	na	na	na	na	na	na	na
Supplementary items									
Supplementary & unmeasured items ~ % of construction costs									
Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	na	na	na	na	na	na	na	na	na
Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	na	na	na	na	na	na	na	na	na
Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	na	na	na	na	na	na	na	na	na
Additional items if required									
Noise Fence	na	na	na	na	na	na	na	na	na
major culverts > 2100mm dia. (based on floor area)	na	na	na	na	na	na	na	na	na
Bridges Precast Deck Units	$3,579.56	$3,786.28	$3,284.54	$3,590.82	$3,533.72	$3,556.39	$3,499.10	$3,535.74	$3,132.99
Bridges Precast Tee roff's	na	na	na	na	na	na	na	na	na
Road approaches to new bridge for bridge project	na	na	na	na	na	na	na	na	na
Temporary Side Track and Culvert for bridge project	na	na	na	na	na	na	na	na	na
Reinforced Earth Structure	na	na	na	na	na	na	na	na	na
Traffic signals "T" intersection	na	na	na	na	na	na	na	na	na
Traffic signals "4 way" intersection	na	na	na	na	na	na	na	na	na

Project 5 — Work Length (m): 900; Pavement Area (m2): 18841

- Redbank Plains Road Upgrade - Stage 1
- ***mid 2015***
- from 2-lane & 2-way to 4-lane & 2-way
- arterial road
- road construction/upgrade *(separable portion 1, included in this analysis)*
- construction of a detention basin for flood mitigation *(separable portion 2, not included in this analysis, works over wetland area)*
- storm water works *(separable portion 3, not included in this analysis, not for road network)*

DESCRIPTION	Tenderer 1	Tenderer 2	Tenderer 3	Tenderer 4	Tenderer 5	Tenderer 6	Tenderer 7	Tenderer 8	Tenderer 9	Tenderer 10
Tender Price	$4,650,035.33	$4,680,793.63	$4,990,873.80	$4,821,580.87	$5,213,717.00	$5,495,728.99	$6,242,631.15	$4,947,629.58	$5,337,095.20	$4,695,878.29
Earthworks										
Earthworks Excavation	$6.07	$7.09	$10.09	$5.02	$10.25	$15.05	$15.00	$6.38	$19.20	$12.41
Earthworks imported fill	na	na	na	na	na	na	na	na	na	na
Earthworks embankment - reuse of excavated materials	$5.59	$6.89	$12.89	$22.32	$10.61	$10.50	$11.00	$5.88	$2.36	$14.91
Earthworks, clearing, stripping & ground surface treatment	$5.08	$4.37	$6.24	$10.28	$3.86	$4.46	$4.64	$3.34	$2.98	$5.01
Other earthworks items, subgrade etc.	$11.83	$12.06	$17.43	$12.15	$12.23	$11.09	$12.33	$13.11	$12.78	$14.87
Earthworks unsuitable allowance	na	na	na	na	na	na	na	na	na	na
Drainage										
Kerb & channel	$37.32	$36.22	$63.06	$44.95	$47.81	$39.64	$40.00	$31.00	$35.99	$43.76
For replacement, including removal	$55.26	$49.42	$100.58	$63.88	$71.70	$47.47	$81.00	$50.35	$49.46	$61.15
Subsoil drains	$19.25	$26.61	$27.36	$23.65	$34.43	$32.09	$31.00	$23.64	$18.67	$22.02
Concrete footpath (100mm thick + 50mm sand bed)	$75.99	$69.38	$70.50	$75.71	$69.85	$73.02	$82.37	$86.83	$57.74	$68.42
For replacement, including removal	$88.32	$78.46	$89.58	$90.21	$100.56	$81.25	$99.37	$102.49	$67.48	$91.97
Concrete gullies 2400mm lintel	$3,475.67	$3,320.52	$5,098.82	$3,635.47	$2,999.98	$4,425.20	$2,722.22	$2,881.18	$5,163.10	$3,958.47
For replacement, including removal	$3,620.73	$3,946.55	$5,451.17	$4,724.47	$3,411.98	$4,840.20	$8,672.22	$4,198.14	$5,489.10	$4,709.10
Drainage pipes assume 300mm dia	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 375mm dia	$194.22	$189.55	$176.05	$245.44	$339.19	$227.48	$323.00	$191.30	$398.98	$169.64
Drainage pipes assume 450mm dia	$244.65	$210.43	$201.01	$282.60	$334.43	$231.12	$365.00	$210.12	$427.37	$193.61
Drainage pipes assume 525mm dia	$261.27	$237.46	$235.62	$329.52	$398.90	$252.88	$373.00	$256.36	$446.71	$226.97
Drainage pipes assume 600mm dia	$314.94	$287.91	$272.21	$336.50	$445.60	$430.30	$379.00	$292.03	$471.80	$248.37
Drainage pipes assume 675mm dia	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 750mm dia	$352.61	$342.20	$344.62	$412.33	$602.85	$446.21	$441.00	$339.01	$539.80	$345.52
Drainage pipes assume 825mm dia	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 900mm dia	$544.78	$441.50	$433.12	$542.87	$1,116.44	$871.95	$548.00	$436.89	$728.01	$437.37
Drainage pipes assume 1050mm dia	$844.72	$722.82	$807.58	$1,163.80	$1,100.40	$962.00	$542.00	$486.61	$773.70	$538.77
Drainage pipes assume 1200mm dia	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 225mm dia	na	na	na	na	na	na	na	na	na	na
Manhole 1050mm diametre	$5,220.50	$5,936.10	$9,303.51	$3,836.94	$4,876.75	$4,678.58	$4,825.00	$3,284.43	$7,016.50	$5,548.15
For replacement, including removal	$5,370.49	$6,569.17	$9,773.31	$4,925.94	$5,359.75	$5,093.58	$10,775.00	$16,540.76	$7,342.50	$6,298.78
Unbound Pavements										
Unbound Pavement all types 600 - 650mm										
Type 2.1	$89.29	$98.85	$104.91	$77.80	$113.93	$89.57	$99.00	$112.23	$99.95	$97.25
Type 2.2	na	na	na	na	na	na	na	na	na	na
Type 2.3	$83.61	$79.70	$97.15	$91.59	$105.06	$89.37	$77.00	$110.81	$77.32	$83.48
Type 2.4	na	na	na	na	na	na	na	na	na	na
Type 2.5	$69.62	$66.23	$80.40	$68.84	$94.32	$66.02	$58.00	$76.68	$72.60	$70.67
Plant-Mixed Stabilised Pavements										
Plant-Mixed stabilised pavements 150 - 200mm inc. cement										
Road Furniture										
Road Furniture (barriers, Fencing, Guardrail)	$5.04	$7.39	$7.96	$7.85	$7.90	$8.84	$6.20	$9.39	$6.75	$8.30
Signs and Linemarking	$4.79	$4.99	$6.09	$5.35	$6.32	$9.50	$4.33	$4.59	$3.84	$5.94
Landscape works										
Topsoil to grass areas 300mm thick either side	$15.25	$12.21	$16.82	$15.84	$15.69	$15.77	$16.42	$8.55	$13.25	$19.43
Turf footpath	$4.68	$5.00	$5.16	$5.33	$5.09	$4.83	$5.34	$8.20	$4.42	$5.87
landscape area 1 m wide either side	$26.30	$28.73	$38.56	$16.36	$26.29	$24.96	$31.54	$26.33	$30.08	$19.38
Bituminous Surfacing										
Assume prime on gravel (no aggregate)	$1.82	$1.81	$1.91	$2.02	$1.89	$2.02	$1.71	$1.90	$1.82	$1.70
Asphalt										
Asphalt prep of surface	$0.23	$0.24	$0.25	$0.27	$0.25	$0.26	$0.30	$0.28	$0.24	$0.23
Asphalt tack coat	$0.41	$0.41	$0.44	$0.46	$0.37	$0.41	$0.39	$0.32	$0.37	$0.39
Asphalt 50mm new road or upgrade, various depth replacement	$189.29	$205.17	$203.72	$214.80	$200.80	$187.61	$200.00	$186.02	$173.86	$181.15
Street lighting										
Street lighting (assume (1) light every 55m)	$4,432.62	$7,225.13	$4,388.07	$4,612.84	$7,491.39	$4,870.43	$7,204.00	$8,081.94	$6,692.67	$4,917.48
Public Utility Relocation (PUP) ~ % of construction costs										
oil / gas main protection	na	na	na	na	na	na	na	na	na	na
water main pipe laying / piping works	0.15%	0.27%	0.37%	0.10%	0.08%	0.18%	0.64%	0.05%	0.06%	0.26%
telecommunication works	na	na	na	na	na	na	na	na	na	na
sewer works	0.07%	0.11%	0.08%	0.01%	0.04%	0.08%	0.10%	0.04%	0.03%	0.14%
Supplementary items										
Supplementary & unmeasured items ~ % of construction costs										
Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	1.80%	1.19%	1.50%	1.21%	1.40%	10.67%	4.58%	6.80%	12.24%	1.04%
Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	8.75%	8.27%	3.86%	5.43%	5.61%	11.63%	22.77%	4.73%	4.31%	5.58%
Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	0.81%	2.86%	0.43%	0.69%	0.90%	0.47%	0.31%	0.58%	0.24%	0.93%
Additional items if required										
Noise Fence	na	na	na	na	na	na	na	na	na	na
major culverts > 2100mm dia. (based on floor area)	na	na	na	na	na	na	na	na	na	na
Bridges Precast Deck Units	na	na	na	na	na	na	na	na	na	na
Bridges Precast Tee roff's	na	na	na	na	na	na	na	na	na	na
Road approaches to new bridge for bridge project	na	na	na	na	na	na	na	na	na	na
Temporary Side Track and Culvert for bridge project	na	na	na	na	na	na	na	na	na	na
Reinforced Earth Structure	na	na	na	na	na	na	na	na	na	na
Traffic signals "T" intersection	$158,772.92	$188,258.64	$176,834.98	$186,341.06	$197,412.50	$148,576.21	$174,759.38	$188,055.98	$172,965.41	$163,606.97
Traffic signals "4 way" intersection	na	na	na	na	na	na	na	na	na	na

*Notes * na = rates not available for 2016 analysis*
*Notes * Does not include Property Resumptions*
*Notes * Does not include GST*
*Notes * Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
*Notes * No provision for ITS network*
*Notes * Adopted rates are not necessarily based on the average due to the variance of the project individuals. Extreme high or low rates may have been excluded in analysis under certain circumstances. Adopted rates are also based on type of construction, consideration of greenfield and brownfield etc.*

Client : **Ipswich City Council**
Project: **Priority Infrastructure Plans**
Task: **Baseline Construction Cost Estimates - Rate Analysis Summary (2016 Update_15/07/2016)**
ALL EXCLUDING GST.

JACOBS Job No. IH094200

ITEM	DESCRIPTION	UNIT	OLD RATE (2009)	ADOPTED RATE (2016)	REPLACEMENT WORK (2016)	New or Upgrade Works Minimum	New or Upgrade Works Maximum	New or Upgrade Works Average	Replacement Works Minimum	Replacement Works Maximum	Replacement Works Average
	Earthworks										
	Earthworks Excavation	m3	12.00	$ 10.50	$ 21.50	$ 4.40	$ 19.88	$ 10.32	$ 9.40	$ 43.29	$ 26.69
	Earthworks imported fill	m3	35.00	$ 33.50	-	$ 19.72	$ 50.55	$ 33.19	-	-	-
	Earthworks embankment - reuse of excavated materials	m3	7.00	$ 11.00	-	$ 2.26	$ 26.50	$ 11.07	-	-	-
	Earthworks, clearing, stripping & ground surface treatment	m²	5.00	$ 5.00	$ 2.00	$ 0.07	$ 11.88	$ 3.14	$ 0.90	$ 3.49	$ 1.87
	Other earthworks items, subgrade etc.	m²	3.50	$ 7.00	-	$ 0.21	$ 64.28	$ 8.52	-	-	-
	Earthworks unsuitable allowance	m²	11.50	$ 12.00	-	$ 0.36	$ 44.76	$ 12.04	-	-	-
	Drainage										
	Kerb & channel	m	48.00	$ 45.00	-	$ 30.00	$ 69.88	$ 43.51	-	-	-
	For replacement, including removal	m	na	-	$ 63.00	$ 37.60	$ 100.58	$ 63.08	-	-	-
	Subsoil drains	m	33.00	$ 35.00	-	$ 12.72	$ 48.13	$ 29.77	-	-	-
	Concrete footpath (100mm thick + 50mm sand bed)	m²	55.00	$ 73.00	-	$ 54.12	$ 100.38	$ 72.91	-	-	-
	For replacement, including removal	m²	na	-	$ 90.00	$ 67.48	$ 102.49	$ 89.60	-	-	-
	Concrete gullies 2400mm lintel	each	2600.00	$ 3,500.00	-	$ 1,772.14	$ 5,245.13	$ 3,505.48	-	-	-
	For replacement, including removal	each	na	-	$ 4,300.00	$ 2,011.05	$ 8,672.22	$ 4,381.15	-	-	-
	Drainage pipes assume 300mm dia	m	na	$ 270.00	-	$ 271.54	$ 271.54	$ 271.54	-	-	-
	Drainage pipes assume 375mm dia	m	na	$ 230.00	-	$ 148.75	$ 398.98	$ 226.54	-	-	-
	Drainage pipes assume 450mm dia	m	na	$ 260.00	-	$ 163.34	$ 427.37	$ 254.73	-	-	-
	Drainage pipes assume 525mm dia	m	205.00	$ 300.00	-	$ 181.14	$ 606.59	$ 303.83	-	-	-
	Drainage pipes assume 600mm dia	m	230.00	$ 360.00	-	$ 248.37	$ 471.80	$ 358.48	-	-	-
	Drainage pipes assume 675mm dia	m	na	$ 360.00	-	$ 212.03	$ 355.77	$ 294.15	-	-	-
	Drainage pipes assume 750mm dia	m	300.00	$ 420.00	-	$ 339.01	$ 602.85	$ 416.62	-	-	-
	Drainage pipes assume 825mm dia	m	na	$ 450.00	-	$ 289.71	$ 552.05	$ 431.09	-	-	-
	Drainage pipes assume 900mm dia	m	na	$ 530.00	-	$ 319.58	$ 1,116.44	$ 528.26	-	-	-
	Drainage pipes assume 1050mm dia	m	na	$ 800.00	-	$ 486.61	$ 1,163.80	$ 782.65	-	-	-
	Drainage pipes assume 1200mm dia	m	na	$ 900.00	-	$ 540.00	$ 1,264.80	$ 880.09	-	-	-
	Drainage pipes assume 225mm dia	m	na	$ 150.00	-	$ 99.29	$ 195.07	$ 142.85	-	-	-
	Manhole 1050mm diametre	each	3400.00	$ 4,100.00	-	$ 1,118.20	$ 27,765.00	$ 7,205.21	-	-	-
	For replacement, including removal	each	na	-	$ 5,800.00	$ 1,353.60	$ 16,540.76	$ 5,874.57	-	-	-
	Unbound Pavements										
	Unbound Pavement all types 600 - 650mm	m3	75.50	$ 86.00	-						
	Type 2.1	m3	78.00	$ 100.00	-	$ 75.53	$ 121.60	$ 100.04	-	-	-
	Type 2.2	m3	na	$ 85.00	-	$ 70.54	$ 104.04	$ 84.69	-	-	-
	Type 2.3	m3	na	$ 90.00	-	$ 73.78	$ 114.56	$ 90.42	-	-	-
	Type 2.4	m3	na	$ 76.00	-	$ 66.35	$ 87.78	$ 75.99	-	-	-
	Type 2.5	m3	73.00	$ 77.00	-	$ 58.00	$ 94.32	$ 76.18	-	-	-
	Plant-Mixed Stabilised Pavements										
	Plant-Mixed stabilised pavements 150 - 200mm inc. cement	m3	na	-	$ 145.00	-	-	-	$ 90.00	$ 200.86	$ 141.31
	Road Furniture										
	Road Furniture (barriers, Fencing, Guardrail)	m²	7.50	$ 7.50	-	$ 0.25	$ 9.39	$ 3.87	-	-	-
	Signs and Linemarking	m²	3.30	$ 4.00	-	$ 0.65	$ 9.50	$ 4.00	-	-	-
	Landscape works										
	Topsoil to grass areas 300mm thick either side	m3	9.70	$ 11.00	-	$ 4.18	$ 19.43	$ 10.75	-	-	-
	Turf footpath	m²	5.50	$ 7.00	-	$ 2.53	$ 9.42	$ 6.57	-	-	-
	landscape area 1 m wide either side	m²	14.60	$ 22.00	-	$ 11.44	$ 146.09	$ 40.28	-	-	-
	Bituminous Surfacing										
	Assume prime on gravel (no aggregate)	m²	1.40	$ 2.00	-	$ 1.45	$ 3.41	$ 1.96	-	-	-
	Asphalt										
	Asphalt prep of surface	m²	0.08	$ 0.30	-	$ 0.06	$ 3.28	$ 0.30	-	-	-
	Asphalt tack coat	m²	0.99	$ 0.75	-	$ 0.29	$ 0.75	$ 0.43	-	-	-
	Asphalt 50mm new road or upgrade, various depth replacement	tonne	147.00	$ 177.00	-	$ 40.00	$ 248.62	$ 176.40	-	-	-
	Street lighting										
	Street lighting (assume (1) light every 55m)	each	12500.00	$ 10,000.00	-	$ 2,000.25	$ 8,081.94	$ 4,187.87	-	-	-
	Public Utility Relocation (PUP) ~ % of construction costs	%	5.00	10.00							
	oil / gas main protection	%	na	0.70	-	0.06%	5.87%	0.69%	-	-	-
	water main pipe laying / piping works	%	na	7.50	-	0.05%	13.68%	7.47%	-	-	-
	telecommunication works	%	na	1.60	-	1.09%	2.05%	1.53%	-	-	-
	sewer works	%	na	0.10	-	0.01%	0.14%	0.07%	-	-	-
	Supplementary items										
	Supplementary & unmeasured items ~ % of construction costs	%	5.00	5.00							
	Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	%	3.00	4.00	-	0.32%	12.24%	3.79%	-	-	-
	Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	%	3.50	5.00	12.00	0.46%	22.77%	4.62%	6.06%	18.67%	10.73%
	Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	%	not required in 2016 estimate	1.00	-	0.06%	2.86%	0.72%	-	-	-
	Additional items if required										
	Noise Fence	m²	400.00	$ 480.00	-	-	-	-	-	-	-
	major culverts > 2100mm dia. (based on floor area)	m²	560.00	$ 672.00	-	-	-	-	-	-	-
	Bridges Precast Deck Units	m²	2500.00	$ 3,500.00	-	$2,454.51	$3,786.28	$3,156.97	-	-	-
	Bridges Precast Tee roff's	m²	2800.00	$ 3,600.00	-	-	-	-	-	-	-
	Road approaches to new bridge for bridge project	per m road	na	$ 4,000.00	-	$2,946.87	$4,561.64	$3,445.74	-	-	-
	Temporary Side Track and Culvert for bridge project	per m track	na	$ 600.00	-	$397.52	$837.03	$545.71	-	-	-
	Reinforced Earth Structure	m²	850.00	$ 1,020.00	-	-	-	-	-	-	-
	Traffic signals "T" intersection	each	155000.00	$ 160,000.00	-	$116,360.30	$197,412.50	$157,493.14	-	-	-
	Traffic signals "4 way" intersection	each	162000.00	$ 194,400.00	-	-	-	-	-	-	-

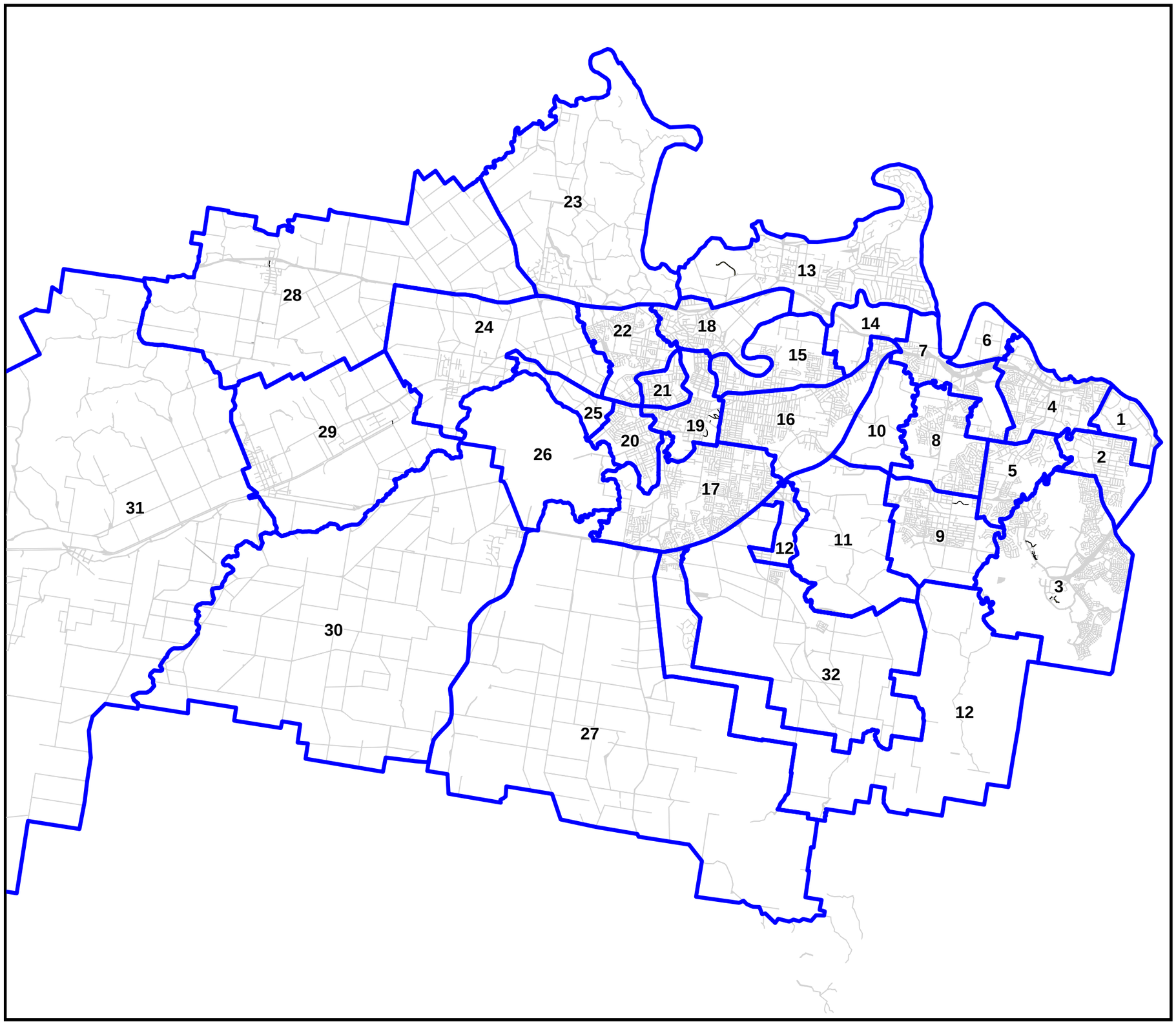
Project 6 — Work Length (m): 50; Pavement Area (m2): 600
- Project - Six Mile Creek Bridge
- ***early 2015***
- 2 x 25m span, 2-lane & 2-way, with concrete footpath on side
- concrete deck unit bridge
- bridge construction project
- as a part of the flood mitigation works by raising bridge level
- road approaches and temporary side track works also included in this analysis

Project 7 — Work Length (m): 700; Pavement Area (m2): 11915
- Toongarra Road Rehabilitation/Realignment
- ***late 2015***
- 2-lane & 2-way
- sub-arterial road
- road rehabilitation/upgrade, with a new drive way formalising a T-intersection (non-signalised)
- including temporary side track using the existing road

DESCRIPTION	P6 Tenderer 1	P6 Tenderer 2	P6 Tenderer 3	P6 Tenderer 4	P6 Tenderer 5	P6 Tenderer 6	P6 Tenderer 7	P6 Tenderer 8	P6 Tenderer 9	P7 Tenderer 1	P7 Tenderer 2	P7 Tenderer 3	P7 Tenderer 4	P7 Tenderer 5	P7 Tenderer 6
Tender Price	$4,217,997.07	$3,691,348.02	$3,261,762.02	$4,150,686.37	$4,139,896.44	$3,643,447.04	$3,606,373.00	$3,642,013.38	$3,728,460.00	$1,650,804.82	$1,263,839.39	$3,135,042.15	$1,788,080.00	$1,567,994.89	$1,477,171.64
Earthworks															
Earthworks Excavation	na	na	na	na	na	na	na	na	na	$ 9.40	$ 21.71	$ 43.29	$ 24.88	$ 26.87	$ 23.54
Earthworks imported fill	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Earthworks embankment - reuse of excavated materials	na	na	na	na	na	na	na	na	na	$ 20.00	$ 28.50	$ 106.82	$ 48.44	$ 43.47	$ 30.95
Earthworks, clearing, stripping & ground surface treatment	na	na	na	na	na	na	na	na	na	$ 1.20	$ 3.49	$ 1.32	$ 2.19	$ 2.12	$ 0.90
Other earthworks items, subgrade etc.	na	na	na	na	na	na	na	na	na	$ 7.00	$ 8.50	$ 11.57	$ 7.78	na	na
Earthworks unsuitable allowance	na	na	na	na	na	na	na	na	na	$ 0.53	$ 1.92	$ 4.54	$ 1.17	na	na
Drainage															
Kerb & channel	na	na	na	na	na	na	na	na	na	$ 50.00	$ 44.00	$ 38.39	$ 54.67	$ 43.80	$ 54.59
For replacement, including removal	na	na	na	na	na	na	na	na	na	$ 56.50	$ 64.10	$ 46.84	$ 69.33	$ 56.36	$ 72.40
Subsoil drains	na	na	na	na	na	na	na	na	na	$ 29.67	$ 42.56	$ 44.44	$ 28.81	$ 36.84	$ 27.03
Concrete footpath (100mm thick + 50mm sand bed)	na	na	na	na	na	na	na	na	na	$ 103.47	$ 134.07	$ 117.52	$ 104.78	$ 110.57	$ 84.00
For replacement, including removal	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Concrete gullies 2400mm lintel	na	na	na	na	na	na	na	na	na	$ 5,245.13	$ 3,371.88	$ 2,644.54	$ 3,236.03	$ 3,292.43	$ 1,775.75
For replacement, including removal	na	na	na	na	na	na	na	na	na	$ 5,585.63	$ 3,721.88	$ 4,255.13	$ 3,617.52	$ 3,958.23	$ 2,011.05
Drainage pipes assume 300mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 375mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 450mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 525mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 600mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 675mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 750mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 825mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 900mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 1050mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 1200mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Drainage pipes assume 225mm dia	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Manhole 1050mm diametre	na	na	na	na	na	na	na	na	na	$ 7,500.00	$ 2,350.00	$ 1,690.05	$ 1,333.63	$ 1,921.50	$ 1,118.20
For replacement, including removal	na	na	na	na	na	na	na	na	na	$ 7,789.70	$ 2,600.00	$ 2,691.19	$ 1,828.29	$ 2,602.00	$ 1,353.60
Unbound Pavements															
Unbound Pavement all types 600 - 650mm															
Type 2.1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Type 2.2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Type 2.3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Type 2.4	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Type 2.5	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Plant-Mixed Stabilised Pavements															
Plant-Mixed stabilised pavements 150 - 200mm inc. cement										$ 152.46	$ 90.00	$ 200.86	$ 140.33	$ 144.44	$ 119.74
Road Furniture															
Road Furniture (barriers, Fencing, Guardrail)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Signs and Linemarking	na	na	na	na	na	na	na	na	na	$ 1.82	$ 1.91	$ 2.34	$ 1.06	$ 1.48	$ 0.65
Landscape works															
Topsoil to grass areas 300mm thick either side	na	na	na	na	na	na	na	na	na	$ 60.53	$ 95.00	$ 135.87	$ 54.45	$ 56.37	$ 63.60
Turf footpath	na	na	na	na	na	na	na	na	na	$ 7.20	$ 6.90	$ 14.37	$ 10.37	$ 4.05	$ 5.81
landscape area 1 m wide either side	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bituminous Surfacing															
Assume prime on gravel (no aggregate)	na	na	na	na	na	na	na	na	na	$ 1.45	$ 2.00	$ 3.41	$ 1.82	$ 1.50	$ 1.86
Asphalt															
Asphalt prep of surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Asphalt tack coat	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Asphalt 50mm new road or upgrade, various depth replacement	na	na	na	na	na	na	na	na	na	$ 75.00	$ 40.00	$ 125.24	$ 47.34	$ 68.42	$ 55.51
Street lighting															
Street lighting (assume (1) light every 55m)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Public Utility Relocation (PUP) ~ % of construction costs															
oil / gas main protection	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
water main pipe laying / piping works	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
telecommunication works	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
sewer works	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Supplementary items															
Supplementary & unmeasured items ~ % of construction costs															
Contractors site facilities ~ % of construction cost excl. PUP & supplementary items	na	na	na	na	na	na	na	na	na	2.42%	3.28%	11.44%	2.91%	3.11%	10.48%
Provision for Traffic ~ % of construction cost excl. PUP & supplementary items	na	na	na	na	na	na	na	na	na	6.06%	7.32%	12.96%	14.03%	8.42%	7.67%
Environmental management ~ % of construction cost excl. PUP & supplementary items (can be included within Project Owner Costs)	na	na	na	na	na	na	na	na	na	0.14%	0.06%	0.36%	0.12%	0.29%	0.13%
Additional items if required															
Noise Fence	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
major culverts > 2100mm dia. (based on floor area)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Bridges Precast Deck Units	$ 3,260.25	$ 2,718.26	$ 2,454.51	$ 2,511.20	$ 3,277.15	$ 2,640.84	$ 2,535.63	$ 2,736.29	$ 3,192.13	na	na	na	na	na	na
Bridges Precast Tee roff's	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Road approaches to new bridge for bridge project	$ 3,519.25	$ 3,400.04	$ 3,068.65	$ 4,561.64	$ 3,706.26	$ 3,265.08	$ 3,179.80	$ 3,364.04	$ 2,946.87	na	na	na	na	na	na
Temporary Side Track and Culvert for bridge project	$ 837.03	$ 600.62	$ 424.55	$ 605.25	$ 534.13	$ 459.07	$ 397.52	$ 530.37	$ 522.84	na	na	na	na	na	na
Reinforced Earth Structure	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Traffic signals "T" intersection	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Traffic signals "4 way" intersection	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

*Notes * na = rates not available for 2016 analysis*
*Notes * Does not include Property Resumptions*
*Notes * Does not include GST*
*Notes * Does not include Principal costs, such as design fees, WHS PLSL levey, contract administration*
*Notes * No provision for ITS network*
*Notes * Adopted rates are not necessarily based on the average due to the variance of the project individuals. Extreme high or low rates may have been excluded in analysis under certain circumstances. Adopted rates are also based on type of construction, consideration of greenfield and brownfield etc.*

Appendix C – SERVICE CATCHMENT MAP



Ipswich City Council

45 Roderick Street
PO Box 191, Ipswich QLD 4305
Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Hours 8.00am to 4.30pm

2016 Traffic Service Catchments

ID	Sector_Name
1	Carole Park Industrial
2	Camira
3	Springfield
4	Goodna - Gailes
5	Bellbird Park
6	Redbank Industrial
7	Redbank - Riverview
8	Collingwood Park - Redbank Plains North
9	Redbank Plains South
10	New Chum Industrial
11	Swanbank Industrial
12	Ripley Valley - Deebing Creek (Non-PDA)
13	Karalee - Chuwar
14	Bundamba Industry
15	Basin Pocket - East Ipswich - North Booval - Bundamba North
16	Dinmore - Bundamba South - Blackstone - Booval - Silkstone
17	Yamanto - Raceview - Flinders View - Churchill
18	North Ipswich (North) - Tivoli - Raymonds Hill
19	North Ipswich (South) - Ipswich Central - West Ipswich
20	Leichhardt-One Mile
21	Woodend - Sadliers Crossing - Coalfall
22	Brassall - Wulkuraka
23	Pine Mountain-Muirlea-Blacksoil North
24	Walloon - Karrabin
25	Karrabin - Wulkuraka Industry
26	Amberley
27	Purga - Peak Crossing
28	Marburg - Ironbark - Haigslea
29	Rosewood East - Thagoona
30	Willowbank - Ebenezer
31	Grandchester - Rosewood West
32	Ripley Valley PDA

N W E S

Map Grid : Geocentric Datum of Australia (G.D.A.)

Level Datum : Australian Height Datum (A.H.D.)

Scale : Scale 1:112,486

Printed Date : 24/09/2016

GDA

1 0 1 2 3 4 5 6 7 8 9 km

Appendix D - ASSUMED STATE CONTROLLED NETWORK UPGRADES

Ipswich City Council LGIP - Assumed Department of Transport & Main Roads Road Network Upgrades

Road Capacity & Connectivity Projects Required by 2021 (275,000 Population)

Road	Suburb	From	To	Works
Downs Street - Pine Mountain Road	North Ipswich	Lowry Street	Waterworks Road	Upgrade to 4 lanes
Mount Crosby Road	Chuwar / Karalee / Tivoli	Junction Road	Warrego Highway	Upgrade to 4 lanes
Pine Mountain Road / Holt Street / Hunter Street	Brassall	Intersection		Add auxiliary lanes at existing traffic signals
Brisbane Road / Chermside Road / Glebe Road / Queen Victoria Parade	Newtown	Intersection		Reconfigure Intersection
Pine Street / Delacy Street	North Ipswich	Intersection		Install traffic signals

Road Capacity & Connectivity Projects Required by 2026 (350,000 Population)

Road	Suburb	From	To	Works
Ipswich Motorway	Dinmore to Goodna	Brisbane Road	Logan Motorway	Upgrade to 8 lanes
Centenary Highway	Springfield Central to Carole Park	Augusta Parkway	Logan Motorway	Upgrade to 6 lanes
Cunningham Highway (including Amberley Interchange)	Yamanto to Willowbank	Warwick Road	Coopers Road	Upgrade to 4 lanes
Cunningham Highway / Mary Street / Redbank Plains Road	Blackstone	Intersection		Upgrade highway interchange
Warrego Highway / Mount Crosby Road	Tivoli	Intersection		Upgrade highway interchange

Road Capacity & Connectivity Projects Required by 2031 (435,000 Population)

Road	Suburb	From	To	Works
Brisbane Road	East Ipswich / Newtown	Queen Victoria Parade	Montauban Street	Upgrade to 6 lanes
Centenary Highway	Springfield to Yamanto	Augusta Parkway	Cunningham Highway	Upgrade to 4 lanes
Cunningham Highway	Ripley to Yamanto	Ripley Road	Warwick Road	Upgrade to 4 lanes
Ipswich - Rosewood Road	Amberley	Cunningham Highway	Haigslea - Amberley Road	Upgrade to 4 lanes
Karrabin - Rosewood Road	Thagoona / Walloon / Karrabin	Thagoona - Haigslea Road	Toongarra Road	Upgrade to 4 lanes
Warwick Road	Churchill / Yamanto	Pisasale Drive	Deebing Creek	Upgrade to 4 lanes
Brisbane Road / River Road / Aberdare Street	Dinmore	Intersection		Add auxiliary lanes at existing traffic signals
Warwick Road / Ash Street / Saleyards Road	Yamanto	Intersection		Add auxiliary lanes at existing traffic signals
Cunningham Highway / Ripley Road	Flinders View	Intersection		Upgrade highway interchange
Warrego Highway / River Road	Dinmore	Intersection		Install traffic signals
Pine Street / The Terrace	North Ipswich	Intersection		Reconfigure with traffic signals
Warwick Road / Salisbury Road	Ipswich Central	Intersection		Reconfigure with traffic signals

Road Capacity & Connectivity Projects Required by Ultimate Development (520,000 Population)

Road	Suburb	From	To	Works
Cunningham Highway	Dinmore to Yamanto	Ipswich Motorway	Warwick Road	Upgrade to 6 lanes
Cunningham Highway	Willowbank to ICC boundary	Coopers Road	ICC boundary	Upgrade to 4 lanes
Centenary Highway	Springfield Central to Yamanto	Augusta Parkway	Ipswich - Boonah Road	Upgrade to 6 lanes
Centenary Highway / Keidges Road	Redbank Plains	Intersection		New highway interchange
Centenary Highway Extension	Yamanto to Amberley	Grampian Drive	Western Ipswich Bypass	New 4 lane road
Western Ipswich Bypass	Amberley to Haigslea	Cunningham Highway	Warrego Highway	New 4 lane road
Warrego Highway	Dinmore to Blacksoil	Ipswich Motorway	Brisbane Valley Highway	Upgrade to 6 lanes
Warrego Highway to Cunningham Highway Connection	Dinmore	Warrego Highway	Cunningham Highway	New 4 lane road
Moggill Pocket Arterial	Karalee to ICC boundary	Warrego Highway	ICC boundary	New 2 lane road
Warwick Road	Yamanto to Ipswich Central	Cunningham Highway	Salisbury Road	Upgrade to 6 lanes
Brisbane Road	Dinmore to Booval	River Road	South Station Road	Upgrade to 6 lanes
Mount Crosby Road / Tantivy Street	Karalee to North Ipswich	Warrego Highway	Downs Street	Upgrade to 4 lanes
Karrabin - Rosewood Road	Thagoona / Rosewood	Thagoona - Haigslea Road	John Street	Upgrade to 4 lanes
Ipswich - Boonah Road	Yamanto to Purga	Cunningham Highway	Centenary Highway Extension	Upgrade to 4 lanes
Pine Mountain Road / Waterworks Road	North Ipswich / Brassall	Waterworks Road	Warrego Highway	Upgrade to 4 lanes

NOTE: Project listed for 2021, 2026 and 2031 are from iGO - City of Ipswich Transport Plan