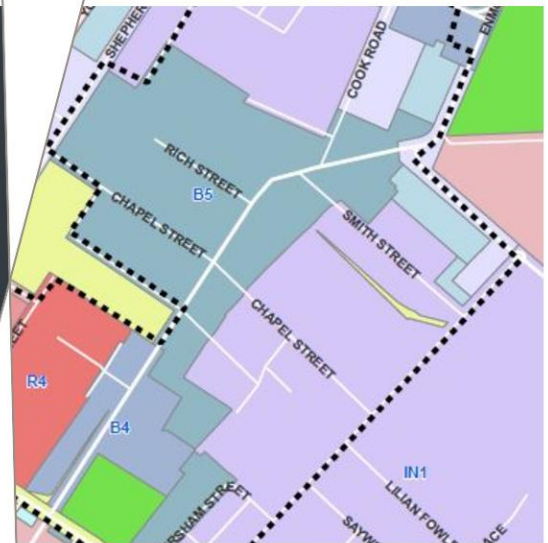


Precinct 47 - Victoria Road Precinct

Traffic and Transport Needs Analysis

80019016



Prepared for
Inner West Council

9 November 2018

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Table of Contents

1	Introduction	1
1.1	Background	1
1.2	Location and context	1
1.3	Report structure	4
2	Background document review	5
2.1	State context	5
2.2	Local government area context	6
2.3	Precinct context	7
2.4	Other data	10
3	Existing conditions	12
3.1	Land use	12
3.2	Land zoning	12
3.3	Travel context	14
3.4	Road network	21
3.5	Public transport	21
3.6	Active transport	23
4	Future conditions	25
4.1	Precinct vision and objectives	25
4.2	Land use schedule	26
4.3	Parking requirements	29
4.4	Traffic modelling	30
4.5	Public transport and active transport	30
4.6	Major projects	32
5	Traffic modelling	34
5.1	Modelling assumptions	34
5.2	Base model performance	38
5.3	Future base model performance	39
5.4	Future development model performance without upgrades	39
5.5	Future development model with upgrades	39
5.6	Change in intersection flow	43
5.7	Modelling limitations	43
6	Infrastructure Schedule	44
6.1	General transport network upgrades	44
6.2	Infrastructure upgrades	45
7	Cost estimate	47
7.1	General transport infrastructure upgrades	47
7.2	Infrastructure upgrades	47
8	Conclusion	49

Appendices

Appendix A Cost estimates

Tables

Table 3-1	Household Travel Survey summary	14
Table 3-2	HTS trip summary by mode	15
Table 3-3	HTS trip summary by purpose	16
Table 3-4	Census data summary for SA2	18
Table 3-5	Driver destination	20
Table 3-6	Driver directionality assumptions	20
Table 3-7	Overview of key roads	21
Table 3-8	Train service overview	22
Table 3-9	Bus service overview	23
Table 4-1	Transport network principles	25
Table 4-2	Development schedule	26
Table 4-3	Apartment mix	29
Table 4-4	Scale of residential buildings	29
Table 4-5	Commercial space assumptions	29
Table 4-6	Minimum vehicular parking rates	30
Table 4-7	Travel times from Sydenham	31
Table 5-1	RMS traffic volume viewer statistics	34
Table 5-2	Localised growth statistics	34
Table 5-3	Traffic generation rates	36
Table 5-4	Future traffic generation	36
Table 5-5	Directional splits	36
Table 5-6	Directionality and net change in traffic per land use type	37
Table 5-7	Modelled vehicle access points	37
Table 5-8	Level of Service criteria for intersections	38
Table 5-9	Existing conditions traffic assessment	38
Table 5-10	Description of issue	39
Table 5-11	Future conditions with existing network	39
Table 5-12	Intersection upgrades	40
Table 5-13	Future conditions with upgraded network	41
Table 5-14	Comparison of existing and future network with upgrade	42
Table 5-15	Intersection volumes	43
Table 6-1	Infrastructure renewal schedule	44
Table 6-2	Bicycle infrastructure	44
Table 7-1	Cost estimation for unit items	47

Table 7-2 Cost estimate of infrastructure

48

Figures

Figure 1-1	Regional context	2
Figure 1-2	Location context	3
Figure 2-1	Relationship between regional, district, and local plans	6
Figure 2-2	Indicative movement masterplan	9
Figure 2-3	TPA population forecast for TZ 305	11
Figure 2-4	TPA workforce forecast for TZ 305	11
Figure 3-1	Current land zoning	13
Figure 3-2	SA3 Marrickville – Sydenham - Petersham	14
Figure 3-3	Trip mode by distance (in km)	16
Figure 3-4	Trip purpose (by number of trips)	17
Figure 3-5	Marrickville Statistical Area 2 location	18
Figure 3-6	Mode choice for residents of Marrickville SA2	19
Figure 3-7	Mode choice for workers in Marrickville SA2	20
Figure 3-8	Strava Heat Map	24
Figure 4-1	Development map	28
Figure 4-2	Marrickville bike plan	32
Figure 5-1	Existing intersection layout	40
Figure 5-2	Proposed intersection layout	40
Figure 5-3	Concept plan for intersection upgrade	41
Figure 6-1	Schematic indication of major work	46

1 Introduction

1.1 Background

Inner West Council has engaged Cardno to prepare a traffic and transport needs analysis for the Victoria Road precinct in Marrickville (generally known as Precinct 47). Precinct 47 has been subject to a land rezoning, and a development control plan (DCP) has been adopted. Among key objectives, the adopted DCP outlines that the future vision involves a long term transition of the precinct into a vibrant and sustainable mixed use precinct. This report will inform a developer contributions plan for transport infrastructure for the site.

A land use schedule provided by Council indicates that Precinct 47 will be subject to considerable uplift in the medium-to-long term. It is envisioned that the site will be subject to development of approximately 257,000sq.m of commercial and residential floor space. This will be comprised of approximately 133,000 sq.m of commercial floor space and 124,000sq.m of residential floor space. A more detailed development schedule is described in **Section 4.2**.

This report has been commissioned to assess and evaluate traffic and transport needs for the precinct with consideration of the forecast uplift. This includes a review of documentation, an assessment of the existing transport network surrounding the precinct, and the net change in traffic conditions with the forecast land use schedule.

An infrastructure schedule and strategic costing exercise has been undertaken to identify additional transport network requirements to satisfy Council's directive that "as a minimum, the current level of service should be maintained within the Precinct with the increased development ... [and that] ...the Precinct should be no worse off, from a traffic and transport viewpoint, with the increased development¹". The costs have also need to be apportioned between Government and the respective developers to draft a developer contributions plan.

1.2 Location and context

Precinct 47 is located wholly within Fitzroy Street to the east, Illawarra Road to the west, Sydenham Road to the south and Addison Road to the north. The study area is predominantly light industrial land use purposes. An regional context image of the precinct is shown in **Figure 1-1** and a localised image of the precinct is shown in **Figure 1-2**.

¹ Feedback received from IWC Engineers

Figure 1-1 Regional context

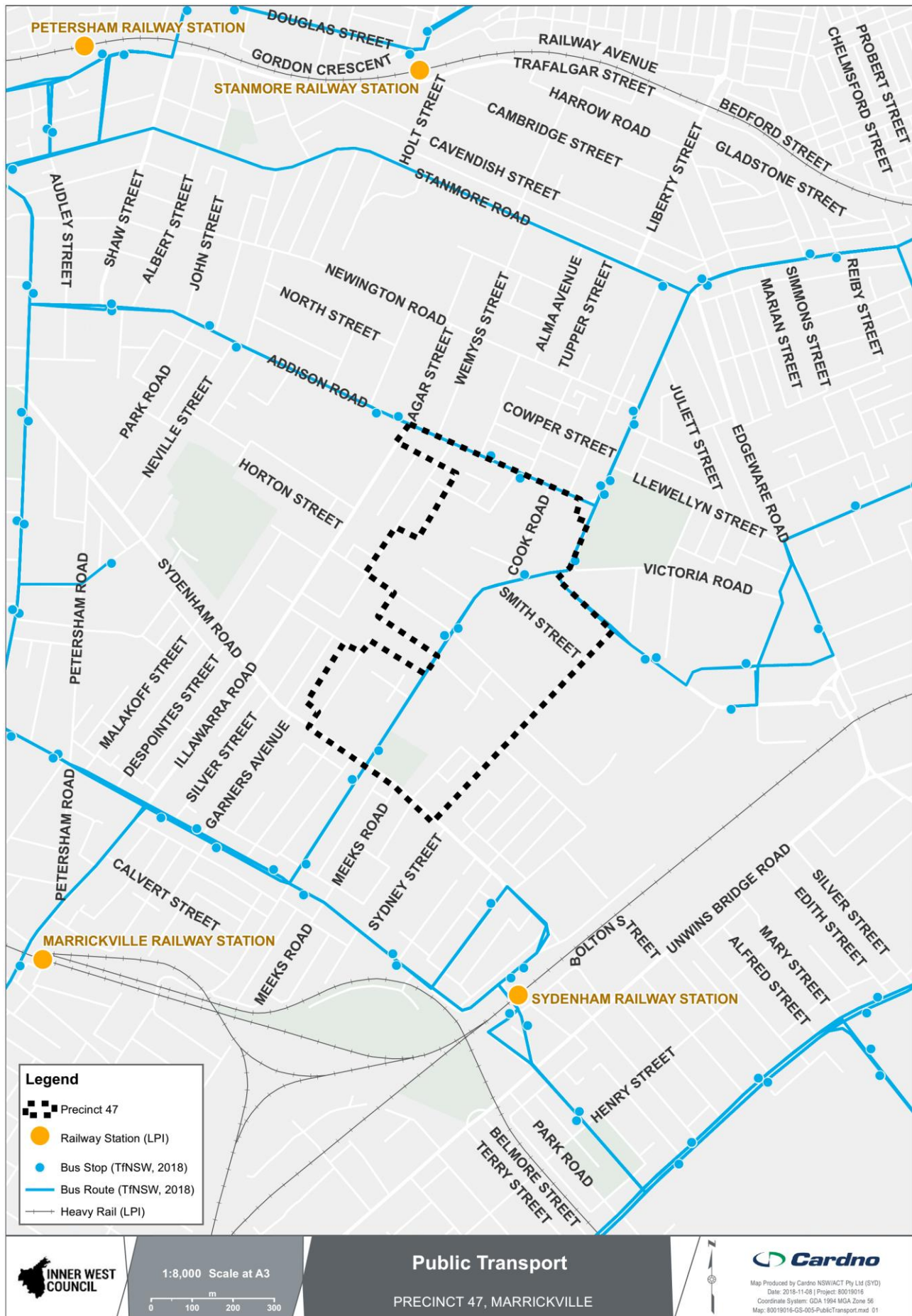
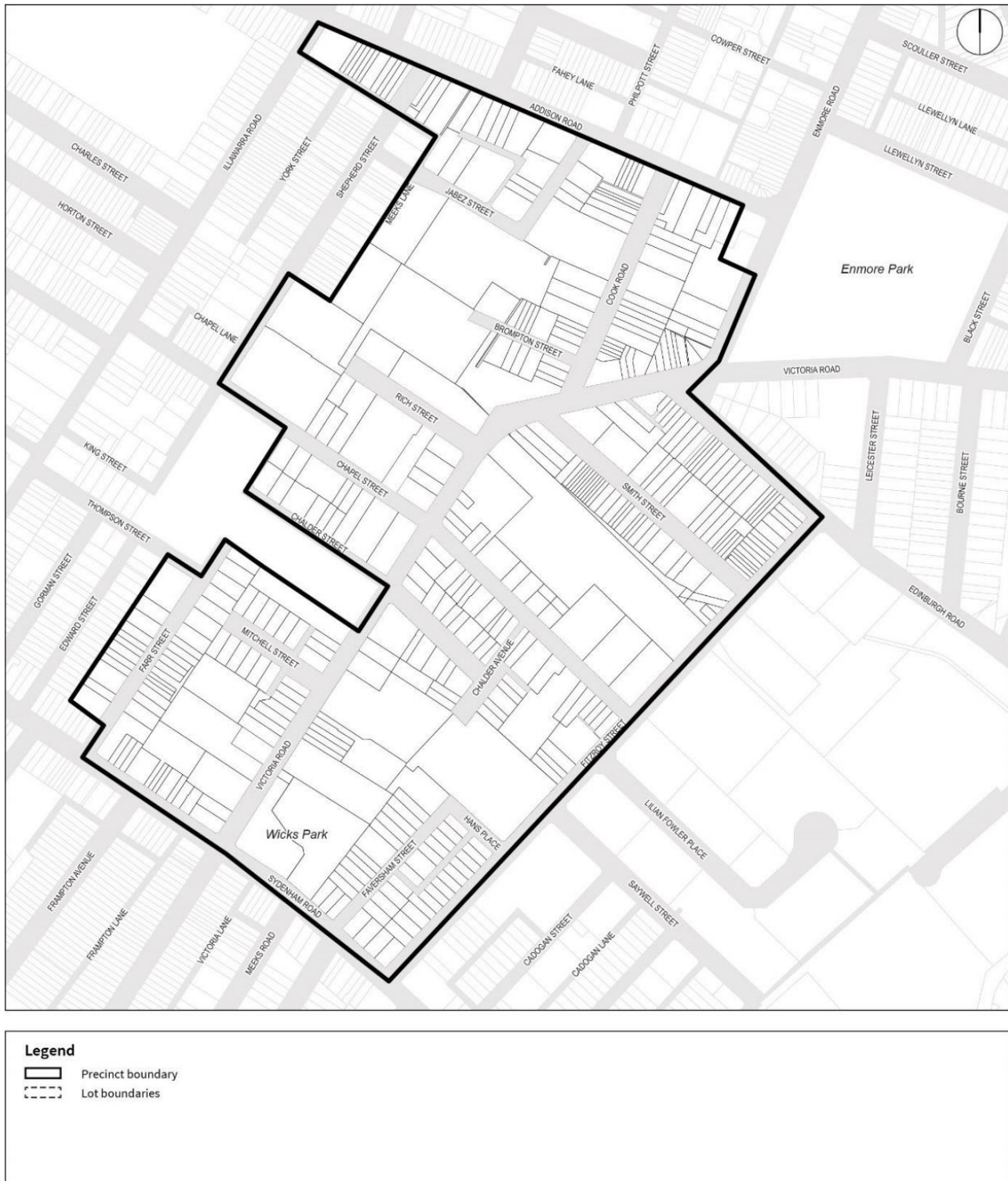


Figure 1-2 Location context



Source: Victoria Road Precinct DCP, pg. 1, IWC, April 2018

1.3 Report structure

The report is structured as follows:

- > **Section 1:** Introduction: an overview of the study area, study purpose and objectives,
- > **Section 2:** Background document review: an overview of existing key policy and planning documents,
- > **Section 3:** Existing conditions: an overview of existing traffic and transport conditions for the site,
- > **Section 4:** Future conditions: an overview of the future development proposal,
- > **Section 5:** Scenario modelling: an assessment of the traffic and transport implications for the development proposal,
- > **Section 6:** Infrastructure schedule: outline of the traffic and transport infrastructure schedule which satisfies the place making and transport vision
- > **Section 7:** Cost estimation: a strategic cost estimate of works, including the apportionment of the schedule, and
- > **Section 8:** Conclusion.

2 Background document review

2.1 State context

The following State Government documents were reviewed for relevance and policy strategy to the Precinct 47 transport network.

2.1.1 Future Transport 2056, Transport for New South Wales

Future Transport 2056 (Future Transport) was released in early 2018, with the objective of ensuring that the Greater Sydney area is prepared for rapid changes in technology and innovation, in order to create and maintain a world class, safe, efficient, and reliable transport system over the next 40 years. It outlines a comprehensive strategy that focuses on how people and goods will be transported around the state, including details of the proposed infrastructure and initiatives.

The vision is built on six outcomes:

- > Customer Focus;
- > Successful Places;
- > A Strong Economy;
- > Safety and Performance;
- > Accessible Services; and
- > Sustainability.

With respect to tying land use and transport planning, Future Transport notes that *‘The best places take time and strong partnerships to develop and flourish. Integrated land use and transport planning can activate public spaces, corridors and networks, and positively impact the delivery of health, education and local government services. Transport can improve the liveability and character of places across the state, achieve wider benefits from investment and encourage more desirable patterns of development’* (p. 6).

An initiative for investigation within ten years for the LGA is the Eastern Suburbs to Inner West rapid bus link, but it is unclear as to whether this would serve the site.

Key Outcomes

- The integration of transport planning and land use planning can enhance the livability of areas; and
- New rapid bus links are proposed between the eastern suburbs and inner west.

2.1.2 A Metropolis of Three Cities, Greater Sydney Commission

The Greater Sydney Region Plan, *A Metropolis of Three Cities*, is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. This is consistent with the 10 Directions in *Directions for a Greater Sydney*, which establish the aspirations for the region over the next 40 years. The vision brings new thinking to land use and transport patterns to boost Greater Sydney’s liveability, productivity and sustainability by spreading the benefits of growth.

The plan states that residents will have quick and easy access to jobs and essential services, and that housing supply and choice will increase to meet the growing and changing needs of the community. Importantly for this study, infrastructure will be sequenced to support growth and delivered concurrently with new homes and jobs. The plan also aims to develop a Greater Sydney Green Grid, a network of walking and cycling links that will become increasingly important in improving sustainability and wellbeing of residents. The plan promotes collaboration between all levels of government and key stakeholders in order to achieve its vision.

Key Outcomes

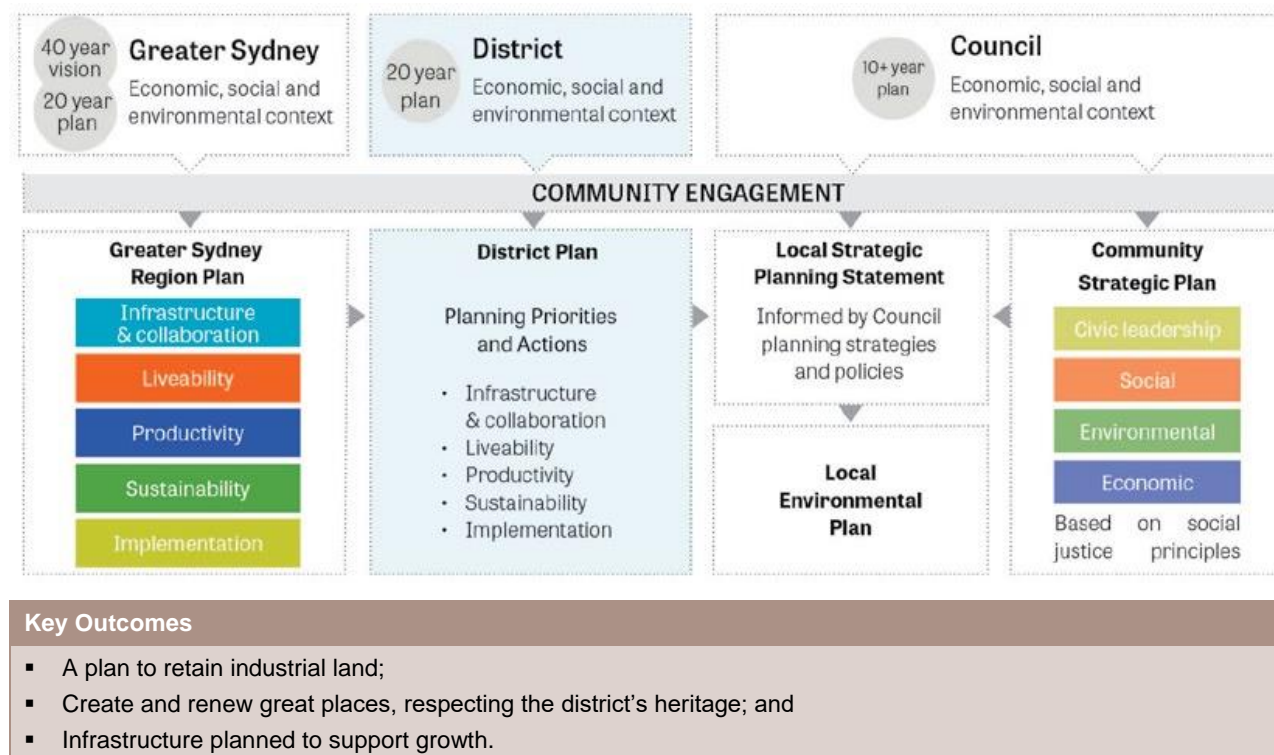
- Concept of living and working within 30 minute cities;
- Infrastructure will be delivered alongside the development of housing; and
- Development of walking and cycling green grid.

2.1.3 Eastern City District Plan, Greater Sydney Commission

In the Commission's vision for a *Metropolis of Three Cities*, the Eastern City is positioned as Australia's global gateway, playing a key role in the creation of knowledge jobs in professional services, finance, health and education. The District Plan provides the Eastern City with a 20-year economic, social, and environmental plan to inform growth and realise the vision for Greater Sydney.

The District Plan is designed to support councils in managing growth and change, and informs local strategic plans as well Local Environmental Plans (LEPs). It also provides the private sector and broader community with an understanding of how this growth and change will be managed. An overview of the hierarchy and relationship between regional, district, and local plans is shown in **Figure 2-1**.

Figure 2-1 Relationship between regional, district, and local plans



2.2 Local government area context

The following Local Government documents were reviewed for relevance to the Precinct 47 transport network.

2.2.1 Our Inner West 2036 Community Strategic Plan, June 2018

The Inner West Council Community Strategic Plan is a high level vision for the future of the LGA. The Plan is structured around five strategic directions which include ecological sustainability, liveable, networked neighbourhoods, strong economy and healthy communities.

Transport Strategies to achieve these directions include:

- > Developing a transport network that runs on clean renewable energy;
- > Investigate innovative and creative solutions to existing transport issues;
- > Plan for and provide public transport infrastructure that aligns with population growth; and
- > Deliver integrated and safe public and active transport infrastructure.

A major challenge for the LGA is population growth. It is forecast that by 2036, the current population will grow by 20 per cent to 228,000 people, and the number of dwellings will increase by 8,500 to 98,198. Another challenge is limited public transport links within the LGA itself, and public transport accessibility.

Key relevance of the Plan

- Transport strategies include a move to renewable energy sourced public transport, innovation, safety and catering for population growth; and
- Key challenges for the study area are increased population growth and number of dwellings, and public transport accessibility within the Inner West LGA.

2.2.2 Marrickville Council Integrated Transport Strategy, 2007

The Marrickville Integrated Transport Strategy was published in August 2007 and details a holistic overview of all transport modes and transport requirements. It details the concept of promoting sustainable transport by reducing car use and increasing public transport, walking and cycling. Important trends are also identified in the document such as public transport use being high by Sydney standards, high walking and cycling mode share (and the need to fund these equitably), public transport use tends to be highest in high density areas and car ownership does not always correlate with car use.

Key transport actions from Strategy

- The document is strongly oriented towards promoting sustainable transport options;
- The location of Marrickville means a high prevalence of through traffic from external LGAs;
- Sustainable transport “threatened by traffic growth and inadequate public transport [in some instances]”;
- The need to “develop public domain plans that promote sustainable transport in accessible areas”;
- “Review Council’s S94 Contributions Plan to increase funding for sustainable transport”; and
- Manage parking supply in accessible areas.

2.3 Precinct context

The following site specific plans and documents were reviewed for relevance to the Precinct 47 transport network.

2.3.1 Gazettal of Victoria Road Precinct LEP Amendment No. 14, Greater Sydney Commission, December 2017

This amendment to the Marrickville LEP refers to development on certain land on Victoria Road, Marrickville. The objective is to manage the transition from industrial to residential and commercial land uses. Consent for this new development can only be granted if a development control plan is created that acknowledges road and intersection upgrades, cycle infrastructure and other transport connections.

Key relevance of the document

- Proposed development applications in Precinct 47 must also consider road and intersection upgrades, cycle infrastructure and other connections.

2.3.2 Traffic and Transport Assessment, Hyder, May 2014 and July 2015

2.3.2.1 May 2014 Report

A preliminary traffic and transport assessment was prepared by Hyder Consulting. The development was forecast to yield 3,080 dwellings and 66,842sq.m of mixed use GFA. Based on the development yield, 2,505 gross peak hour trips were forecast. In net terms, a traffic generation of 904 vehicles per peak hour was concluded. The report proposed utilising Victoria Road as the main access corridor.

2.3.2.2 July 2015 Report

A traffic and transport assessment was prepared by Hyder Consulting. The development was forecast to yield 1,312 dwellings and 120,751sq.m of mixed use GFA. Based on the development yield, 2,664 gross peak hour trips were forecast. In net terms, a traffic generation of 1,063 vehicles per peak hour was concluded. The report proposed utilising Victoria Road as the main access corridor.

Key relevance of the assessment

- The precinct has been subject to various iterations of traffic and transport reports.
- The reports propose utilising Victoria Road as the main access road.
- The July 2015 report suggests that WestConnex may divert traffic from Victoria Road.
- The July 2015 report proposes an intersection upgrade at Victoria Road/Sydenham Road which is not feasible.

2.3.3 Victoria Road Precinct Remodelling Report, PTC, May 2018

PTC prepared a Traffic and Transport Assessment Study to inform discussions about required transport network upgrades to support the uplift of Precinct 47 to mixed business and residential uses. The key objectives of this study were to:

- > Identify traffic and transport issues the proposed rezoning is likely to experience;
- > Identify accessibility of the site considering public and active transport;
- > Predict and assess future traffic generation; and
- > Identify appropriate traffic management and network improvements.

Key relevance of the assessment

Some key findings from this assessment include:

- The proposed development would generate approximately 2,664 vehicle trips in a peak hour period, resulting in a net increase of 1,063 vehicle movements per peak hour; and
- A more detailed modelling assessment is required for further progression of development applications.

2.3.4 Preliminary Review of Planning Proposal, McLaren Traffic Engineering

- > McLaren Traffic Engineering provided a peer review of the Hyder Traffic and Transport Assessment for the Precinct 47 Rezoning Proposal.

Key relevance of the review

Some key issues addressed include:

- Calibration of SIDRA modelling base case, including provisions of on-street parking that may affect results;
- Accurate references to the RMS Guide for Traffic Generation for future growth; and
- More information is required for a comprehensive assessment.

2.3.5 Victoria Road Precinct 47 Amendment to Marrickville DCP 2011

The Victoria Road DCP Amendment 2011 establishes a framework to guide development of Precinct 47. The desired character of the future transport network includes higher pedestrian activity, shared traffic zones, green pathways, upgrades of intersections and good access to public and active transport facilities.

Future transport developments are provided, which indicate locations of future shared zones, intersection upgrades, new laneways and pedestrian and cycle links.

A development control is to exclude site access to Victoria Road and Sydenham Road, “except in exceptional circumstances”.

The indicative masterplan framework for the precinct is shown in **Figure 2-2**.

Figure 2-2 Indicative movement masterplan



Source: Victoria Road Precinct DCP, pg. 11, IWC, April 2018

Key relevance of the amendment

The main issues for the Precinct are described as:

- Conflicts between large vehicles accessing industrial sites and through traffic, particularly where loading zones are not provided;
- Amenity for pedestrians and cyclists are poor, and conflicts occur with vehicles;
- Footpaths are narrow, and in poor condition, and often are interrupted by lay backs; and
- On-street parking is limited, causing cars to conflict with pedestrians to access off-street parking.
- “Development should avoid vehicle entry points along Victoria Road and Sydenham Road, except under exceptional circumstances” (9.47.6.1 Controls point 4, pg. 13)

2.3.6 Comments on Victoria Road Precinct DCP Memorandum (28 May 2018)

Comments were made on the Victoria Road Precinct DCP by Joseph Bertacco, the Coordinator of Development Engineering at Inner West Council.

Key relevance of the document

Main comments on the DCP involving the transport network are:

- Additional traffic works and measures are required in certain locations;
- Road widening is to occur on various roads to allow for additional parking provision; and
- Additional pedestrian links and shared zones are proposed on various streets and lanes.

2.3.7 Traffic Impact Assessment Report for Rich Street Precinct, PTC

PTC provided a Traffic Impact Assessment to accompany a Development Application to Inner West Council for the redevelopment of industrial land into commercial land at Rich Street within Precinct 47.

Key relevance of the report

Main findings of the Traffic Impact Assessment are:

- AM and PM peak hour trip generation for the development is 158 and 118 respectively;
- SIDRA results indicate that development generated traffic will have minimal impacts on the adjoining State and Regional Roads;
- Future traffic volumes within the vicinity of the site are likely to decrease due to the construction of major transport projects such as WestConnex and Sydney Metro South West; and
- Proposed parking provisions for 173 parking spaces.

2.3.8 Draft Amendments to Marrickville Local Environmental Plan 2011 – Victoria Road Precinct in Marrickville, Roads and Maritime Services, December 2016

“Roads and Maritime Services does not support the planning proposal... due to the nature and scale of the proposal. The LEP should not be gazetted until such time that the cumulative transport impacts are identified with associated mitigation measures and incorporated into an appropriate funding mechanism”. It states that the existing traffic and transport reports to date are preliminary and do not appropriately analyse the cumulative impacts.

2.3.9 Notice of Draft Amendments to Marrickville LEP 2011 – Victoria Road Precinct, Transport for NSW, February 2017

Transport for NSW supports Roads and Maritime Services in saying that the rezoning should not occur until an appropriate funding mechanism for transport upgrades is identified. Victoria Road/Chapel Street and Victoria Road/Rich St are forecast to operate at a Level of Service F and may impact bus services. There is a requirement for site access points to not impact bus operations on Victoria Road.

2.4 Other data

2.4.1 Transport Performance and Analytics

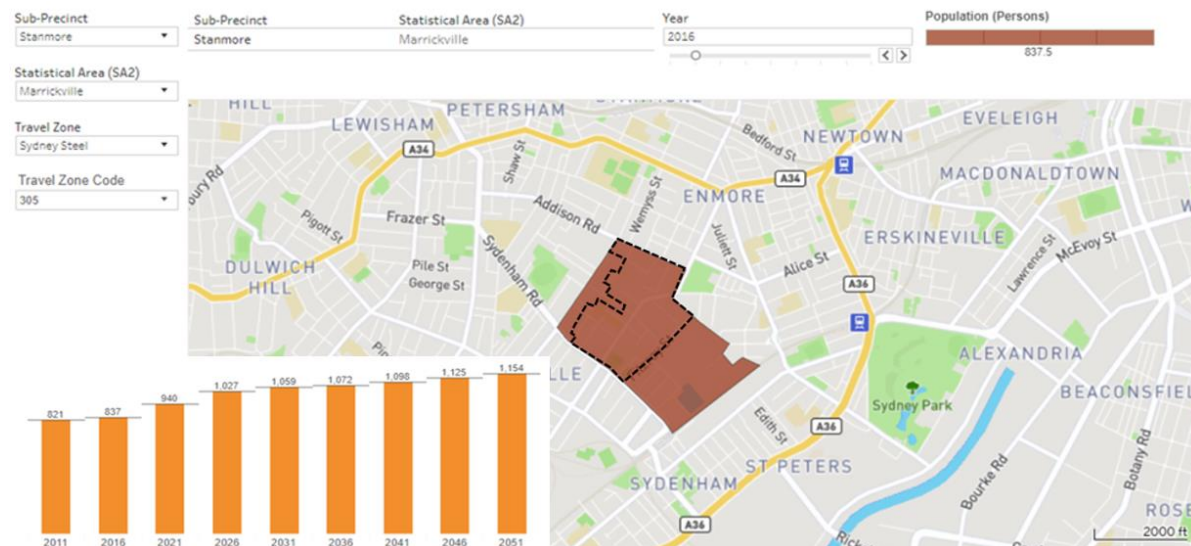
The Transport Performance and Analytics (TPA) division of Transport for NSW (TfNSW) maintains a number of projections for population and workforce by travel zone. These projections are based on five year increments to the year 2051. Outputs from these databases are reported in the following sub-sections, and focused on the travel zone(TZ) TZ305 (Sydney Steel). Precinct 47 is wholly located within this TZ. The future

population projections are shown in **Figure 2-3** and the future workforce projections are shown in **Figure 2-4**.

2.4.1.1 Residential population projections

TPA estimates that by 2036, the population of the TZ will grow to 1,072, an increase of 235 people from 2016, as shown in **Figure 2-3**. This represents an increase of 28 per cent.

Figure 2-3 TPA population forecast for TZ 305

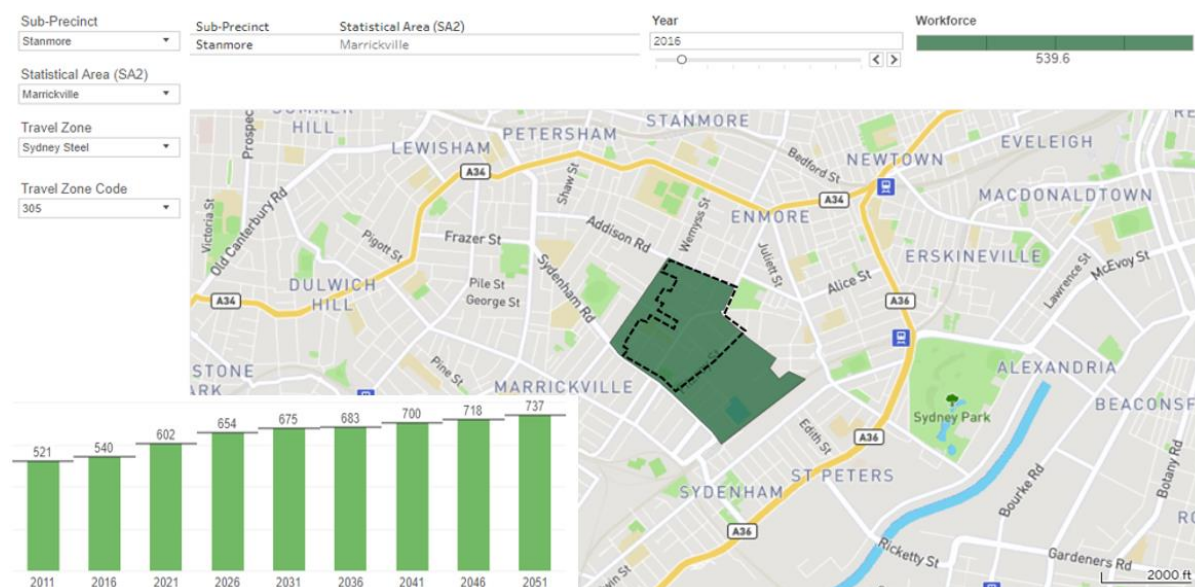


Source: <https://www.transport.nsw.gov.au/data-and-research/forecasts-and-projections>, accessed 28 September 2018

2.4.1.2 Workforce projection

TPA estimates that by 2036, the workforce of the TZ will grow to 683, an increase of 143 people from 2016, as shown in **Figure 2-4**. This represents an increase of 26 per cent.

Figure 2-4 TPA workforce forecast for TZ 305



Source: <https://www.transport.nsw.gov.au/data-and-research/forecasts-and-projections>, accessed 28 September 2018

By way of comparison, assumptions developed with Council for the development schedule project approximately 2,000 residents and 6,000 employees (see **Section 4.2**).

TPA's projections are strategic and less accurate at a localised level, as such the proposed development of Precinct 47 has not been considered by the population and workforce projections by TPA.

3 Existing conditions

3.1 Land use

The land use within the precinct is predominantly warehouse and low intensity industrial. This is focused around Fitzroy Street at the end of the precinct. The boundary of Precinct 47, land is typically zoned for low density residential uses.

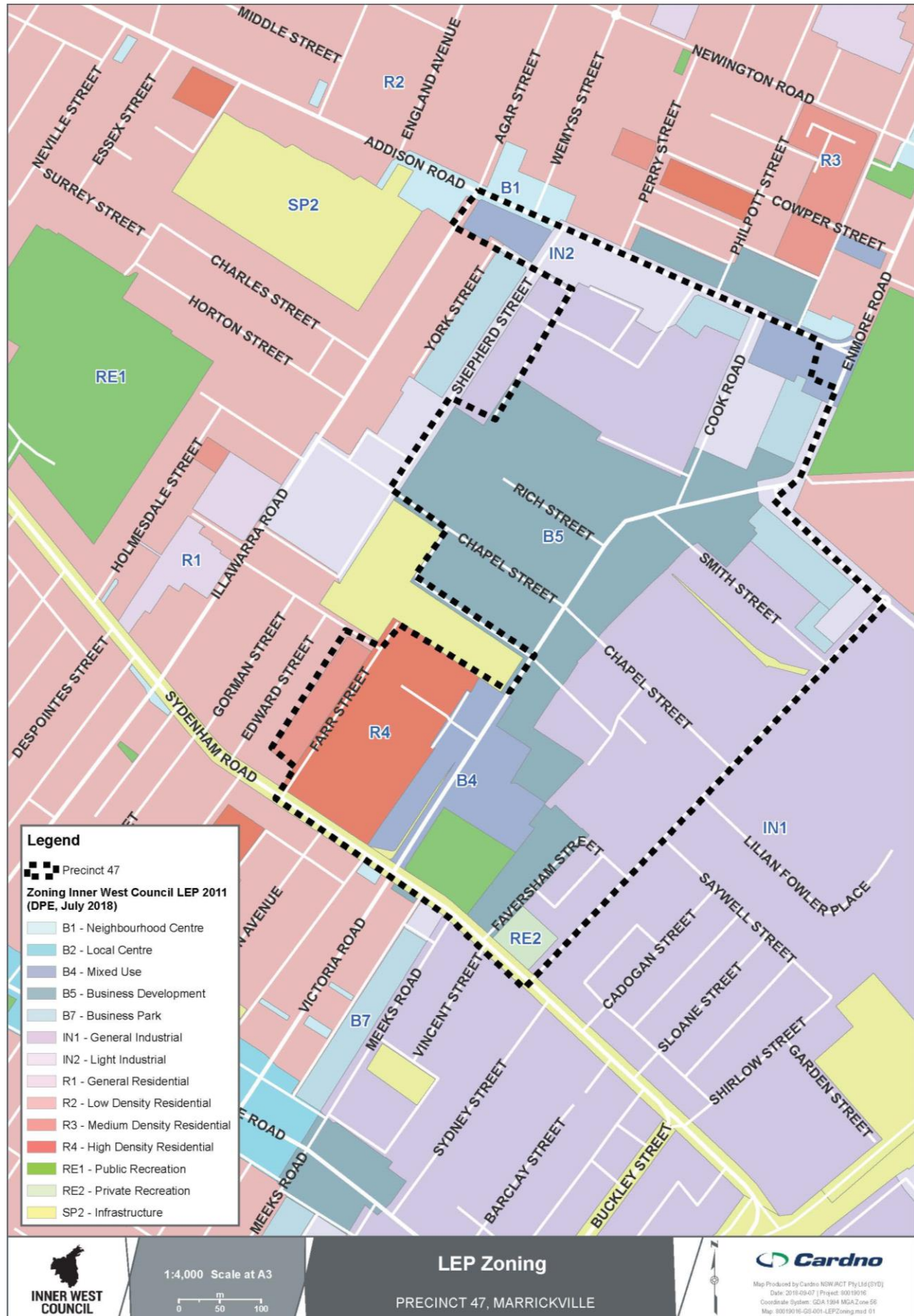
3.2 Land zoning

Under the most recent LEP maps dated 1 December 2017, Precinct 47 is primarily land zonings IN1 (general industrial) and B5 (business development). There are smaller pockets of other land uses including R3 (medium density residential), R4 (high density residential), SP2 (special purpose infrastructure), B4 (mixed use), B7 (business park) and IN2 (light industrial).

Notably from a road infrastructure perspective is the reservation of the northern corner of Sydenham Road and Victoria Road, for slip left turn lane for southbound vehicles on Sydenham Road to turn left into Victoria Road.

The existing land zoning for the precinct and its surrounding area is shown in **Figure 3-1**.

Figure 3-1 Current land zoning

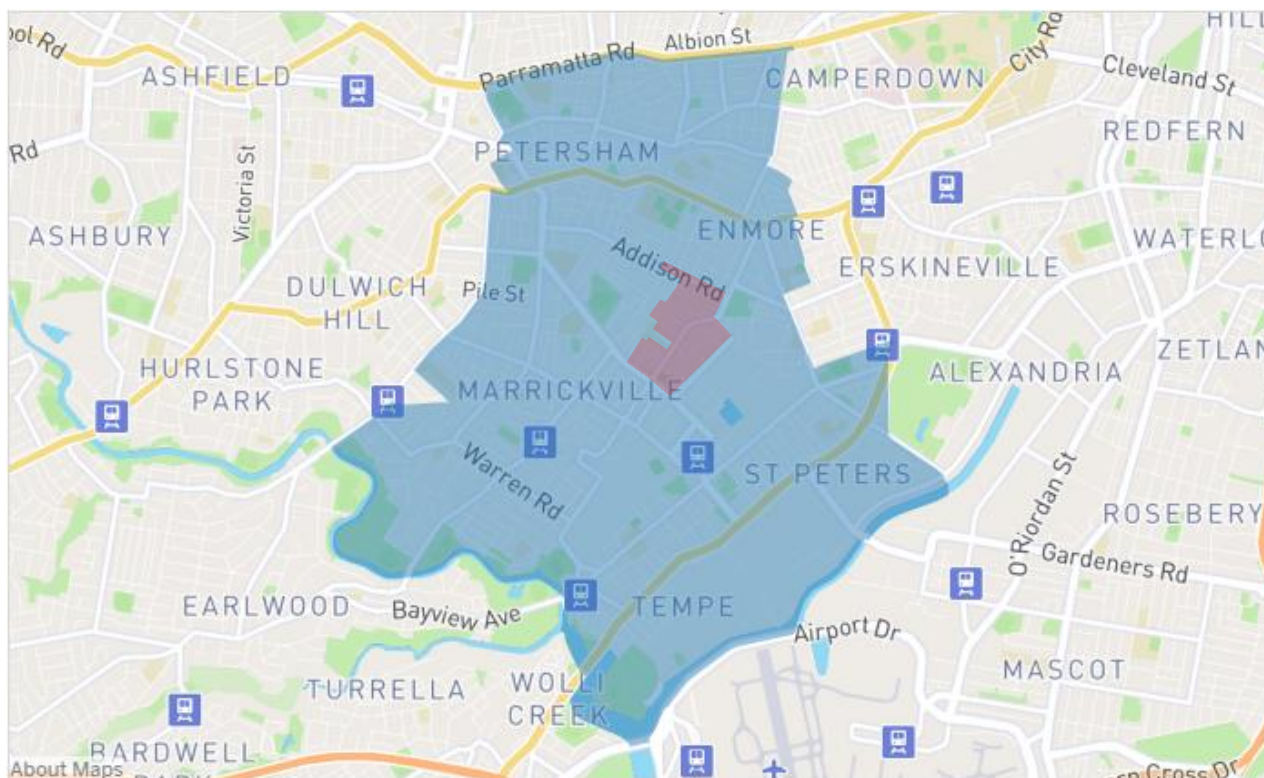


3.3 Travel context

3.3.1 Household Travel Survey

The Household Travel Survey (HTS)² gathers travel behaviour information from dwellings across the Sydney Greater Metropolitan Area (GMA), which comprises Sydney, Illawarra and the Hunter. The selected Statistical Area includes Marrickville, Sydenham and Petersham, is shown in **Figure 3-2**, and associated data is presented in **Table 3-1**.

Figure 3-2 SA3 Marrickville – Sydenham - Petersham



Source: <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts/household-travel-survey-hts>, accessed 27 September 2018

Household data is also presented for a comparative SA3 (Eastern Suburbs - South) and for the Sydney Greater Metropolitan Area (GMA). The Eastern Suburbs – South SA3 is broadly comparable to Marrickville-Sydenham-Petersham with a mix of commercial, industrial and residential lands, as well as being a comparable distance to the Sydney CBD. Population density and the people per household is nearly identical, however, vehicle ownership in the inner west region is lower than in the eastern suburbs.

Table 3-1 Household Travel Survey summary

	SA3 - Marrickville-Sydenham-Petersham	SA3 Eastern Suburbs - South (for comparison)	Sydney GMA
Population	55,501	138,337	4,864,790
Households	21,648	54,379	1,789,722
Vehicles	30,093	84,116	3,214,555
Area (km ²)	13	32	13,112

² <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts/household-travel-survey-hts>

	SA3 - Marrickville-Sydenham-Petersham	SA3 Eastern Suburbs - South (for comparison)	Sydney GMA
People per household	2.56	2.54	2.72
Population density (people per km ²)	4,269	4,323	371
Vehicles per household	1.39	1.55	1.80
Vehicles per person	0.54	0.61	0.66

Source: <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts/household-travel-survey-hts>, accessed 27 September 2018

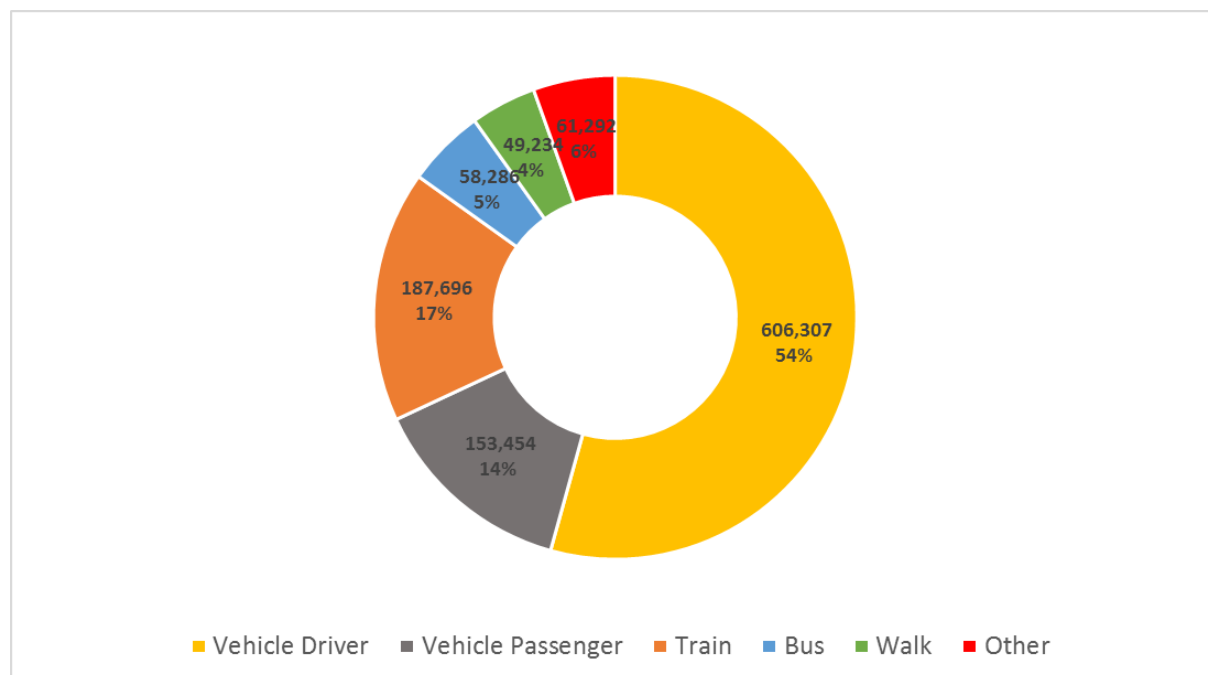
A trip summary by various transport modes for the selected SA3 is shown in **Table 3-2**. Comparison to the Sydney GMA is also provided. Proportionally, residents of the subject SA3 drive significantly less than the Sydney average. Residents of the Marrickville-Sydenham-Petersham SA3 also catch the train and walk twice as much compared to the broader Sydney average. Journeys taken by 'other' mode (typically cycling and light rail) are more than 3 times higher than the broader Sydney average. This is broadly consistent with some of the observations documented in the Marrickville Integrated Transport Strategy described in **Section 2.2.2**. A pie chart illustrating journey distance by mode is shown in **Figure 3-3**.

Table 3-2 HTS trip summary by mode

SA3 (M-S-P) [Sydney GMA]	Number of trips	% Of total trips	Trip distance (km)	% of total distance	Average distance (km)
Vehicle driver	61,288 [8,915,318]	30 [48]	606,307 [83,929,771]	54 [56]	10 [9.4]
Vehicle passenger	23,813 [3,989,461]	12 [21]	153,454 [31,564,571]	14 [21]	6 [7.9]
Train	24,605 [1,060,647]	12 [6]	187,696 [18,456,902]	17 [12]	8 [17.4]
Bus	12,460 [1,152,121]	6 [6]	58,286 [9,589,560]	5 [6]	5 [8.3]
Walk only	65,870 [3,223,176]	33 [17]	49,234 [2,585,787]	4 [2]	1 [0.8]
Other	14,331 [337,984]	7 [2]	61,292 [2,465,295]	5 [2]	4 [7.3]
Total	202,367 [18,678,707]		1,116,269 [148,591,886]		

Source: <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts/household-travel-survey-hts>, accessed 27 September 2018

Figure 3-3 Trip mode by distance (in km)



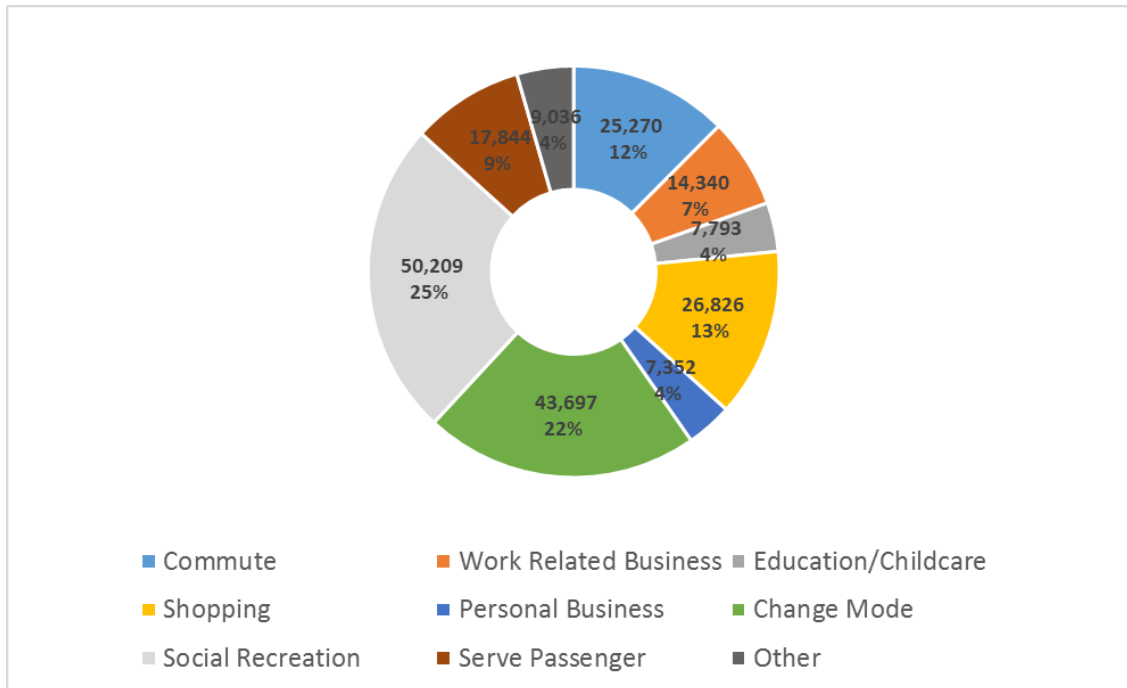
A summary of the purpose of trips in the SA3 and a comparison to the Sydney GMA is shown in **Table 3-3**. All trips made from the SA3 are generally shorter in length than the average for the Sydney GMA. A pie chart illustrating journey modes for all trip types is shown in **Figure 3-4**.

Table 3-3 HTS trip summary by purpose

SA3 (M-P-S) [Sydney GMA]	Number of trips	% Of total trips	Trip distance (km)	% of total distance	Average distance (km)
Commute	25,270 [2,291,150]	12 [12]	217,975 [26,729,148]	20 [18]	9 [11.7]
Work related business	14,340 [1,295,351]	7 [7]	110,481 [18,769,101]	10 [13]	8 [14.5]
Education/ childcare	7,793 [1,460,264]	4 [8]	12,725 [7,046,934]	1 [5]	2 [4.8]
Shopping	26,826 [2,644,633]	13 [14]	110,961 [11,829,971]	10 [8]	4 [4.8]
Personal business	7,352 [833,763]	4 [4]	17,041 [5,253,871]	2 [4]	2 [6.3]
Change mode of travel	43,697 [2,544,226]	22 [14]	287,099 [31,064,105]	26 [21]	7 [12.2]
Social/ recreation	50,209 [4,065,916]	25 [22]	304,060 [29,123,665]	27 [20]	6 [7.2]
Serve passenger	17,844 [3,084,529]	9 [17]	41,913 [16,944,949]	4 [11]	2 [5.5]
Other	9,036 [458,876]	4 [2]	14,011 [1,830,139]	1 [1]	2 [4]
Total	202,367 [18,678,708]		1,116,266 [148,591,883]		

Source: <https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts/household-travel-survey-hts>, accessed 27 September 2018

Figure 3-4 Trip purpose (by number of trips)

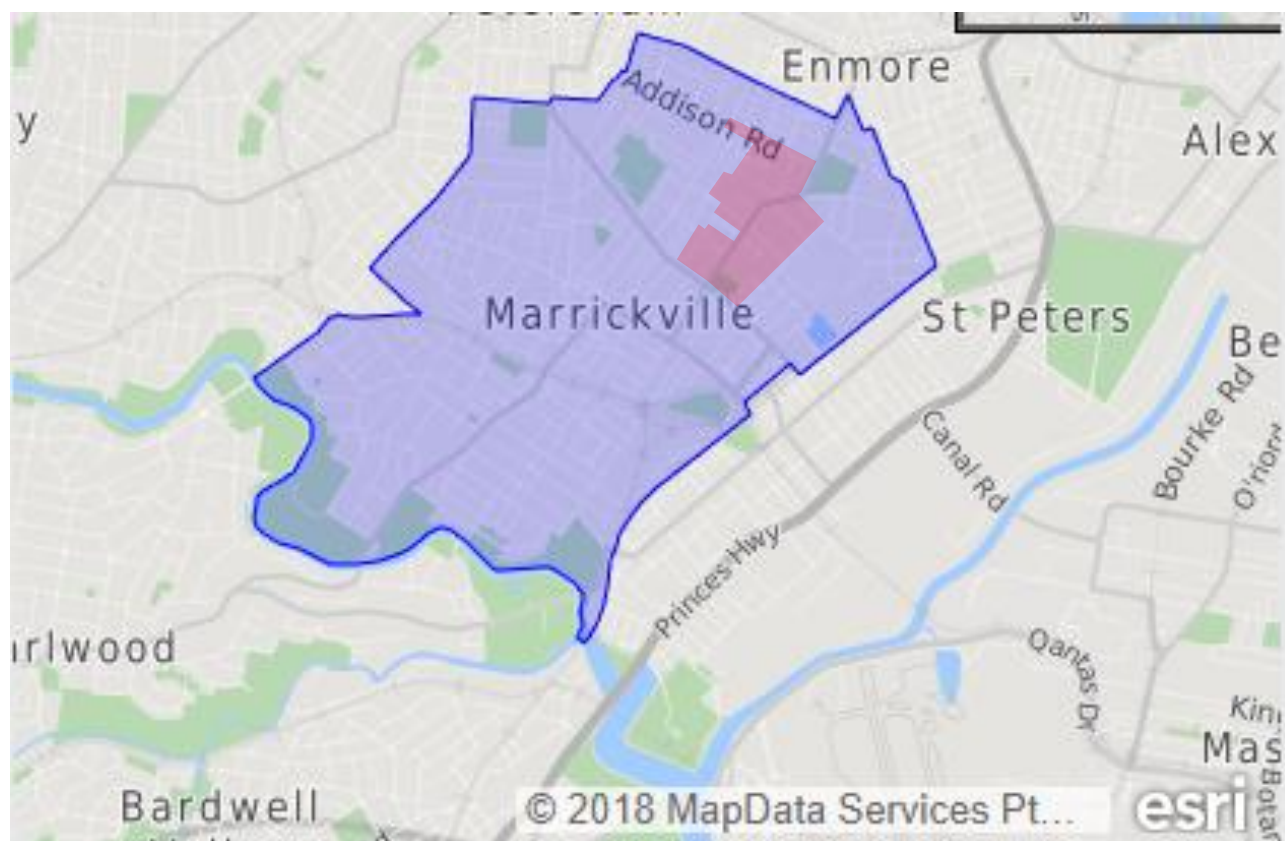


3.3.2 Census data³

Data from the 2011 and 2016 Australian Census has been analysed to determine household characteristics. The Marrickville Statistical Area (SA) analysed is shown in **Figure 3-5**, and encompasses the entirety of Marrickville, including Precinct 47.

³ http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/117021326?opendocument, accessed 28 September 2018

Figure 3-5 Marrickville Statistical Area 2 location



Basemap source:

http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/117021326?opendocument, accessed 28 September 2018

A summary of the Census data for population, dwellings and vehicle ownership in the study area is shown in **Table 3-4**.

Table 3-4 Census data summary for SA2

	Census data 2011	Census data 2016	Change between 2011 and 2016
Population	24,614	26,533	+1,919 (+7.8%)
Private dwellings	10,428	11,274	+846 (+8.1%)
Average motor vehicles per dwelling	1.2	1.2	No change
Travel to work by public transport	4,204 (34.5%)	5,543 (39.9%)	+1,339 (+31.9%)
Travel to work by car (driver or passenger)	5,110 (41.9%)	5,579 (40.1%)	+469 (+9.2%)

Source: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/117021326?opendocument, accessed 28 September 2018

Census data shows that all characteristics of Marrickville SA2 experienced growth between 2011 and 2016. The growth in population by 7.8 per cent shows that significant housing transformation has already occurred, with an additional 846 private dwellings constructed. Between 2011 and 2016 the percentage of people travelling to work by public transport increased 31.9 per cent. No change in the average number of motor vehicles per dwelling was found.

<http://www.abs.gov.au/websitedbs/D3310114.nsf/Home/Census?OpenDocument&ref=topBar>, accessed 28 September 2018

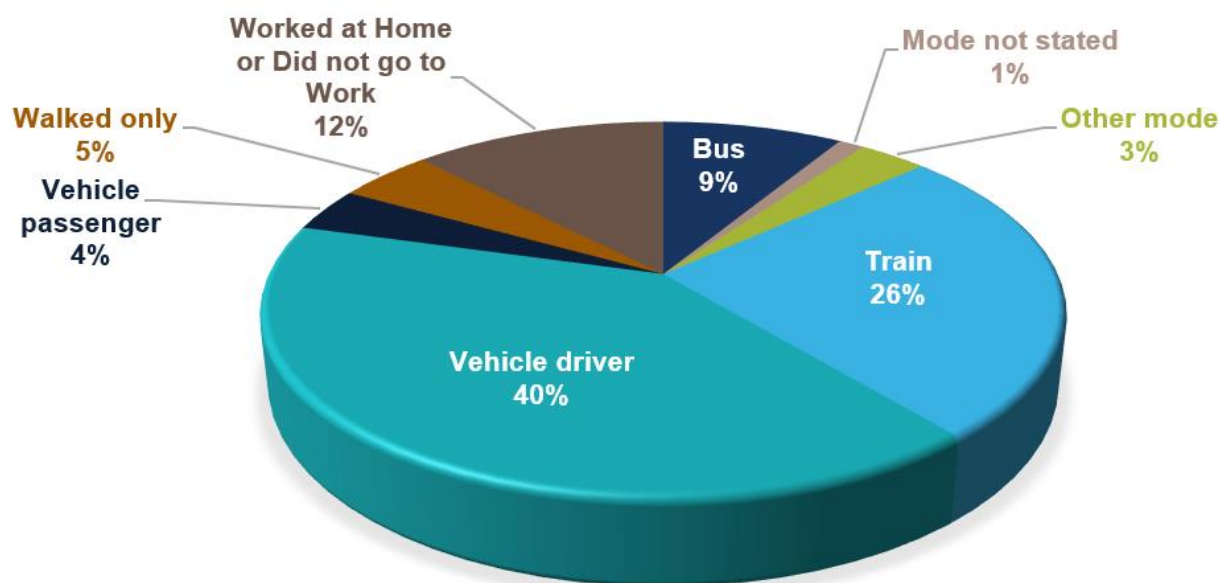
The rate of public transport use for journey to work grew at more than four times the rate of the population growth. This has significant implications for public transport service planning. The increase in public transport journeys to work over the five-year period equates to nearly 1.5 trains or 22 buses for this SA2 alone⁵. Most of this demand occurs in a relatively short 1 to 1.5-hour peak period.

3.3.2.2 Journey to Work

Journey to Work data from the 2011 Census⁶ was analysed as it is the most recent data available. The mode share for both workers of the SA and residents in the SA is predominantly as a vehicle driver, with 58 per cent and 40 per cent respectively.

The most common destinations for workers living in the SA are Sydney-Haymarket-The Rocks, Marrickville, Newtown-Camperdown-Darlington, Pyrmont, Surry Hills and North Sydney. Mode share for workers living in the SA is given in **Figure 3-6**.

Figure 3-6 Mode choice for residents of Marrickville SA2



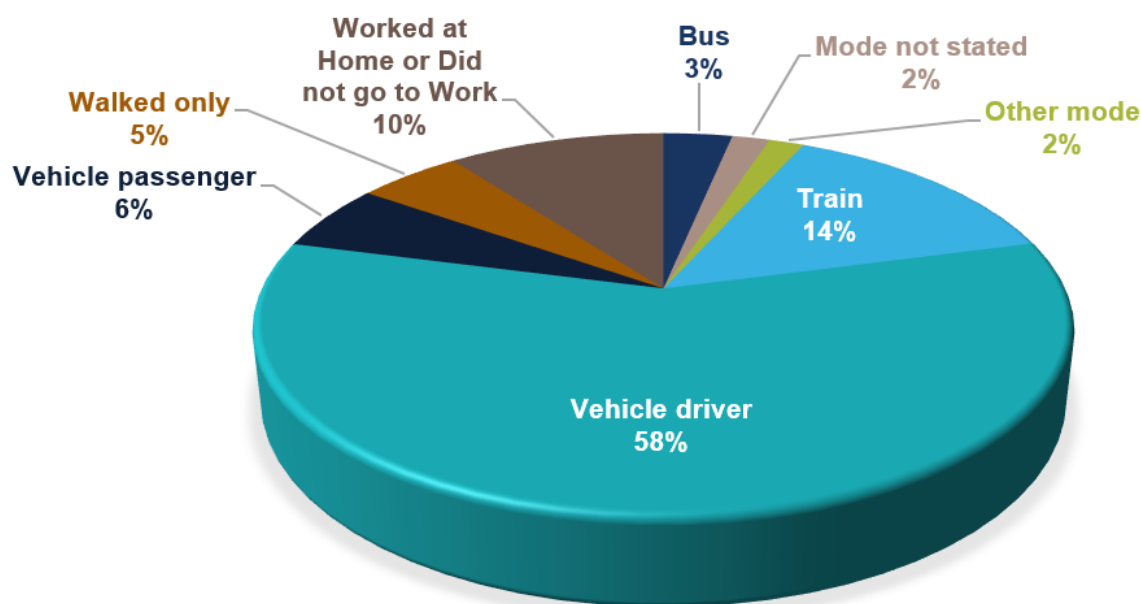
Source: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/117021326?opendocument, accessed 28 September 2018

The most common places that workers in the SA live in are Marrickville, Canterbury, Strathfield-Burwood, Kogarah-Rockdale, Hurstville and Sydney Inner City. Mode share for workers of the SA is shown in **Figure 3-7**.

⁵ Assuming an occupancy capacity of 1,000 people for a train and 60 people for a bus

⁶ <https://opendata.transport.nsw.gov.au/dataset/journey-work-jtw-2011>, accessed 17 October 2018

Figure 3-7 Mode choice for workers in Marrickville SA2



Source: http://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/117021326?opendocument, accessed 28 September 2018

For the Marrickville SA2, there are 20 SA4s that residents drive to for work. These trips are apportioned as shown in **Table 3-5** and **Table 3-6**.

Table 3-5 Driver destination

Destination	Driving Trips	Direction
Sydney - City and Inner South	2023	North
Sydney - Inner West	516	Various – Split equally
Sydney - Inner South West	425	West
Sydney - Eastern Suburbs	313	East
Sydney - Parramatta	305	West
Sydney - North Sydney and Hornsby	278	North
No fixed work address (GMA)	231	Split
Sydney - Ryde	187	West
Sydney - Sutherland	82	South
Sydney - South West	77	West
Other	244	Various – but assessed
Total	4,681	

Source: Journey to Work, 2011 Census

Table 3-6 Driver directionality assumptions

Direction	Overall	Apportion Spilt 25%	% of trips
North	2,409	2,596	55%
South	95	282	6%
East	313	500	11%
West	1,117	1,304	28%
Various	747 (split equally 25% each)		
Total	4,681	4,681	

3.4 Road network

The precinct is influenced by state and regional roads as follows:

- > Sydenham Road (State Road 664),
- > Victoria Road (Regional Road 2021), and
- > Addison Road (Regional Road 7018).

Key roads surrounding the precinct, as well as an outline of some characteristics of the roads are described in **Table 3-7**.

Table 3-7 Overview of key roads

Road	Characteristics
Victoria Road	Victoria Road is classified as a regional road and is generally aligned in a north-south orientation through the precinct. It is an undivided road, and typically has a parking lane and traffic lane in both directions. It also has footpaths on both sides of the road. It typically has a posted speed limit of 60km/h.
Sydenham Road	Sydenham Road is classified as a state road and is generally aligned in an east-west orientation through the precinct. It is an undivided road, and typically has a parking lane and traffic lane in both directions. It also has footpaths on both sides of the road. It has a posted speed limit of 60km/h.
Chapel Street	Chapel Street is a local road and is generally aligned in an east-west orientation through the precinct. It is an undivided road, and typically has a traffic lane in both directions, with informal parking which may partially occupy footpaths. It typically has a posted speed limit of 50km/h.
Fitzroy Street	Fitzroy Street is a local road and is generally aligned in a north-south orientation through the precinct. It is an undivided road, and typically has a parking lane and traffic lane in both directions. It also has footpaths on both sides of the road. It typically has a posted speed limit of 50km/h.
Addison Road	Addison Road is classified as a regional road and is generally aligned in an east-west orientation through the precinct. It is an undivided road, and typically has a parking lane and traffic lane in both directions. It also has footpaths on both sides of the road. It has a posted speed limit of 50km/h.
Rich Street	Rich Street is a local road and is generally aligned in an east-west orientation through the precinct. It is an undivided road, and generally has perpendicular parking on the northern aspect of the road and a traffic lane in both directions. It has an informal site access/footpath on the southern aspect. It typically has a posted speed limit of 50km/h.
Farr Street	Farr Street is a local road and is generally aligned in a north-south orientation through the precinct. It is an undivided road, and typically has a traffic lane and parking lane in both directions. There are typically footpaths on both sides of the road. It typically has a posted speed limit of 50km/h.
Mitchell Street	Mitchell Street is a local road and is generally aligned in an east-west orientation through the precinct. It is an undivided road, and typically has a traffic lane and parking lane in both directions. There are typically footpaths on both sides of the road as far as the unnamed cross-street. It typically has a posted speed limit of 50km/h.

A base case for the existing function of the road network is extensively described in **Section 5.1**.

3.5 Public transport

Precinct 47 is located centrally between three stations (Sydenham, Marrickville and Newtown), with each of these being approximately 1.5 kilometres walk from the precinct. Access distances of up to 1.5 kilometres are well greater than traditionally accepted 800 metre walking catchments of stations, and therefore, buses may be more appealing, albeit with slower journey times (see **Figure 1-1**).

3.5.1 Trains

Precinct 47 is located centrally between numerous stations, and mostly on different lines, so there are various destinations and service frequencies. Various parts of Precinct 47 would have accessibility to stations including Newtown, St Peters, Sydenham and Marrickville.

In the north and eastbound direction, all services pass through the Sydney CBD.

In the outbound direction (from the CBD), train services provide direct links to a range of satellite centres including Hurstville, Bankstown, Liverpool, Burwood, Epping and Parramatta.

An overview of existing train services is shown in **Table 3-8**.

Table 3-8 Train service overview

Rail Station	Line	Route Description	Peak Frequency (7.30-8.30am)	Off-peak Frequency (12-1pm)	Time to Central
Newtown	T2 Inner West Line	Inner West Line (Newtown to Town Hall)	14	8	8-10 minutes
Marrickville	T3 Bankstown Line	Bankstown Line (Marrickville to Town Hall)	6	6	15-16 minutes
St Peters	T3 Bankstown Line	Bankstown Line (Marrickville to Town Hall)	6	6	8-10 minutes
Sydenham	T3 Bankstown Line	Bankstown Line (Sydenham to Town Hall)	6	6	11-13 minutes
	T4 Eastern Suburbs/ Illawarra Line	Waterfall or Cronulla to Bondi Junction (Sydenham to Martin Place)	13	6	14 minutes
	T8 Airport and South Line	South Line (Sydenham to Central, direct)	4	N/A	10 minutes
	T8 Airport and South Line	Airport Line (Wolli Creek to Central via Airport)	10	8	15 minutes

Source: TripView iPhone app, accessed 18 September 2018

The CBD and southwest metro is forecast to be operational by 2024. This is well before the development horizon for the precinct. Future metro services are described in **Section 4.5.1**. This metro will be in-lieu of the T3 Bankstown services listed above.

3.5.2 Buses

Existing city-bound bus services pass mostly pass through Enmore, Newtown or Camperdown on their way to Martin Place, Town Hall or Pitt Street. One service goes beyond the CBD to the North Shore and Taronga Zoo. Another avoids the CBD entirely and heads east, to Bondi Junction via Green Square, Randwick and UNSW.

In the opposite direction to the CBD, bus services provide links to a number of regional centres.

An overview of bus services around Precinct 47 is shown in **Table 3-9**.

Table 3-9 Bus service overview

Route	Route Description	Location of stop	Number of services per day	Peak Frequency (7.30-8.30am)	Off-peak Frequency (12-1pm)	Indicative time to CBD
M30	Opal only – Sydenham to Taronga Zoo	Victoria Road and Chapel Street: 220473	140	6	5	32minutes (Town Hall)
423	Kingsgrove to City Martin Place	Victoria Rd and Chapel St: 220473	168	7	4	34 minutes (Martin Place)
426	Dulwich Hill to City Martin Place	Victoria Road and Chapel Street: 220473	154	6	4	33 minutes (Martin Place)
428	Canterbury to City Martin Place	Enmore Road after Addison (near Enmore Park): 2204100	158	7	4	33 minutes (Martin Place)
L23	Opal only – Kingsgrove to City Martin Place (limited stops)	Enmore Rd after Addison Rd: 2204100	8	8	4	33 minutes (Martin Place)
308	Marrickville Metro to City Gresham St via Redfern	Marrickville Metro Shopping Centre, Smidmore St: 220411	52	5	2	34 minutes (Gresham Street)
348	Wolli Creek to Bondi Junction	Princes Hwy at George St: 204431	86	5	2	47 minutes (Bondi Junction)

Source: TripView iPhone app, accessed 18 September 2018

3.6 Active transport

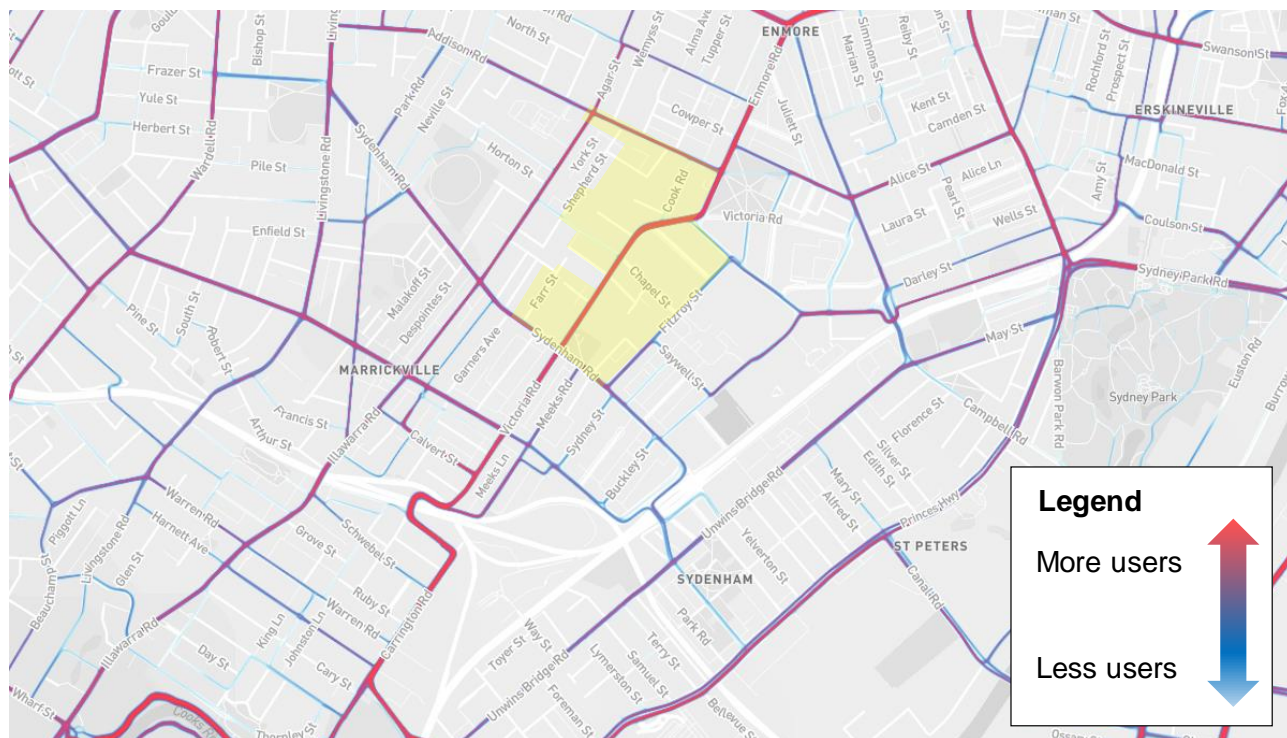
Active transport is the provision of infrastructure to support journeys by walking and cycling.

As a general rule, footpaths are present on both sides of the road throughout Precinct 47, except on some local laneways where there may be one (or no) footpaths. Footpaths vary in terms of width and condition throughout the study area. Due to parking demand, observations show that vehicles may block footpaths, particularly around the general industrial areas.

Strava is a popular recreational tool which allows individuals to map their riding routes and patterns. These travel patterns are aggregated into a 'heat map'. Only users of the application contribute to the data set.

The heat map does not include volume data in gross terms, but colouring is proportional. Light blue routes are low volume cycling routes and red routes are high volume cycling routes, this is shown in **Figure 3-8**.

Figure 3-8 Strava Heat Map



Basemap source: <https://www.strava.com/heatmap#15.57/151.16482/-33.90845/hot/ride>, accessed 18 October 2018

Victoria Road is the highest volume cycling route in the immediate vicinity of the precinct. This alignment is described as Regional Route 5 in the Marrickville Bike Plan. The Marrickville Bike Plan map is shown in **Figure 4-2**.

Other major cycling corridors include Illawarra Road (Regional Route 4), Marrickville Road (Regional Route 9), Sydenham Road and Edinburgh Road (Regional Route 10).

4 Future conditions

4.1 Precinct vision and objectives

A broad vision for Precinct 47 is outlined in the adopted DCP. It outlines that the vision for the precinct is:

“To support the long term transition of the precinct into a vibrant and sustainable mixed use precinct, that provides interesting and appropriate built form, high quality public spaces, improved connectivity and increased employment opportunities that will make the precinct a highly desirable place to work and live.”

- Victoria Road Precinct DCP April 2018 pg. 6

This is supported by 16 supplementary statements which discuss the desired future character of the precinct. These are wide-ranging statements which include the support of ground floor activation, the development of new streets and a fine grain transport network, balancing land uses, protecting heritage land uses and ensuring compatibility of development with Sydney airport and the provision of social infrastructure, among others.

A detailed review of the existing community strategic plan, the 2018-2022 delivery program and the Victoria Road Precinct DCP was undertaken. It was identified that a bespoke transport vision for the precinct needed to be developed to better guide the traffic and transport needs analysis. After review of the documentation, the following transport vision was established in collaboration with Council.

“A highly accessible precinct that supports and encourages movement and access through a proportionally high use of sustainable transport modes while providing for the need of a good level of service for vehicle movement and access.”

Further discussions were had with Council to establish guiding principles for the precinct, this included points outlines in **Table 4-1**.

Table 4-1 Transport network principles

Discussion Point	Why is it important	Direction provided ⁷
Provision of minimum or maximum parking rates	Maximum parking rates are increasingly being adopted (City of Sydney, City of Parramatta Council) as a way of discouraging car use and car ownership.	“Existing parking rates already have an inbuilt reduction in parking requirements to help reduce dependence on the usage of private motor vehicles. Accordingly, IWC Engineers do not support any further reduction in parking requirements within the Precinct.”
Mode share goals	The vision statement alludes to the concept of a modal equilibrium between sustainable transport modes and vehicular movement.	“Recommend that the two LATMs that cover the Precinct should be consulted on this matter”
Target/minimum Level of Service outcome for intersections	One of the major objectives of this report is to identify road network upgrades, but without a minimum service level, it is unknown at what point an intersection (a road) would require upgrading.	“As a minimum, the current level of service should be maintained within the Precinct with the increased development, now permitted under the rezoning. The Precinct should be no worse off, from a traffic and transport viewpoint, with the increased development.”

⁷ Feedback received from IWC Engineers

Discussion Point	Why is it important	Direction provided ⁷
Movement and place framework	A top down assessment of the road network is increasingly being considered with regards to the function and form of roads. This guides street form, traffic volumes and vehicular speeds.	"Agree it would be desirable to make contact with the RMS and or TfNSW on this issue"
Access points	Conflicting control directions about where development access points will be located.	"Agree with Cardno there should be no access from this new road to Victoria Road"

4.2 Land use schedule

For study purposes, the rezoned area of the precinct was divided into 19 sub-areas. Cumulatively, these 19 sub-areas cover 126,941sqm, with a forecast GFA of 257,681sqm, including 133,092sqm of commercial floor space and 124,589sqm of residential floor space. Overall, the development is of mid-intensity, with an FSR of 2.03 across all sites. The precinct map is shown in The land use schedule is shown below in **Table 4-2** and illustrated in **Figure 4-1**.

Council directed that the ratio of business and retail space as a proportion of commercial space should be consistent with the Rich Street Precinct proposal (land reference 11). This proposal has 12.8% business/retail as a proportion of the total commercial GFA.

Table 4-2 Development schedule

Land Reference	Development	Block Size sq.m	Office GFA~ sq.m	Business premises/ retail~ sq.m	Total Commercial GFA sq.m	Residential GFA sq.m	Total GFA sq.m	Indicative FSR
1	Residential	5,538	-	-	-	6,903	6,903	1.25
2A	Residential	19,989	-	-	-	59,774	59,774	2.99
2B	Residential	6,181	-	-	-	9,866	9,866	1.60
3A	Mixed	6,450	-	3,438	3,438	17,178	20,616	3.20
3B	Mixed	9,291	-	2,061	2,061	30,868	32,929	3.54
4	Commercial	6,236	11,171	1,638	12,809	-	12,809	2.05
5	Green Space	-	-	-	-	-	-	-
6	Commercial	7,548	13,921	2,042	15,963	-	15,963	2.11
7	Commercial	2,422	4,295	630	4,925	-	4,925	2.03
8	Commercial	7,514	13,177	1,933	15,110	-	15,110	2.01
9	Commercial	4,403	7,680	1,126	8,806	-	8,806	2.00
10	Commercial	5,100	8,998	1,320	10,318	-	10,318	2.02
11	Commercial	12,591	12,064	1,770	13,834	-	13,834	1.10
12A	Commercial	2,429	4,762	698	5,460	-	5,460	2.25
12B	Commercial	7,594	7,041	1,033	8,074	-	8,074	1.06
12C	Commercial	9,458	8,423	1,235	9,658	-	9,658	1.02
13A	Commercial	6,308	6,229	914	7,143	-	7,143	1.13
13B	Commercial	3,034	5,173	759	5,932	-	5,932	1.96
14	Commercial	4,855	8,338	1,223	9,561	-	9,561	1.97
TOTAL		126,941	111,272	21,820	133,092	124,589	257,681	

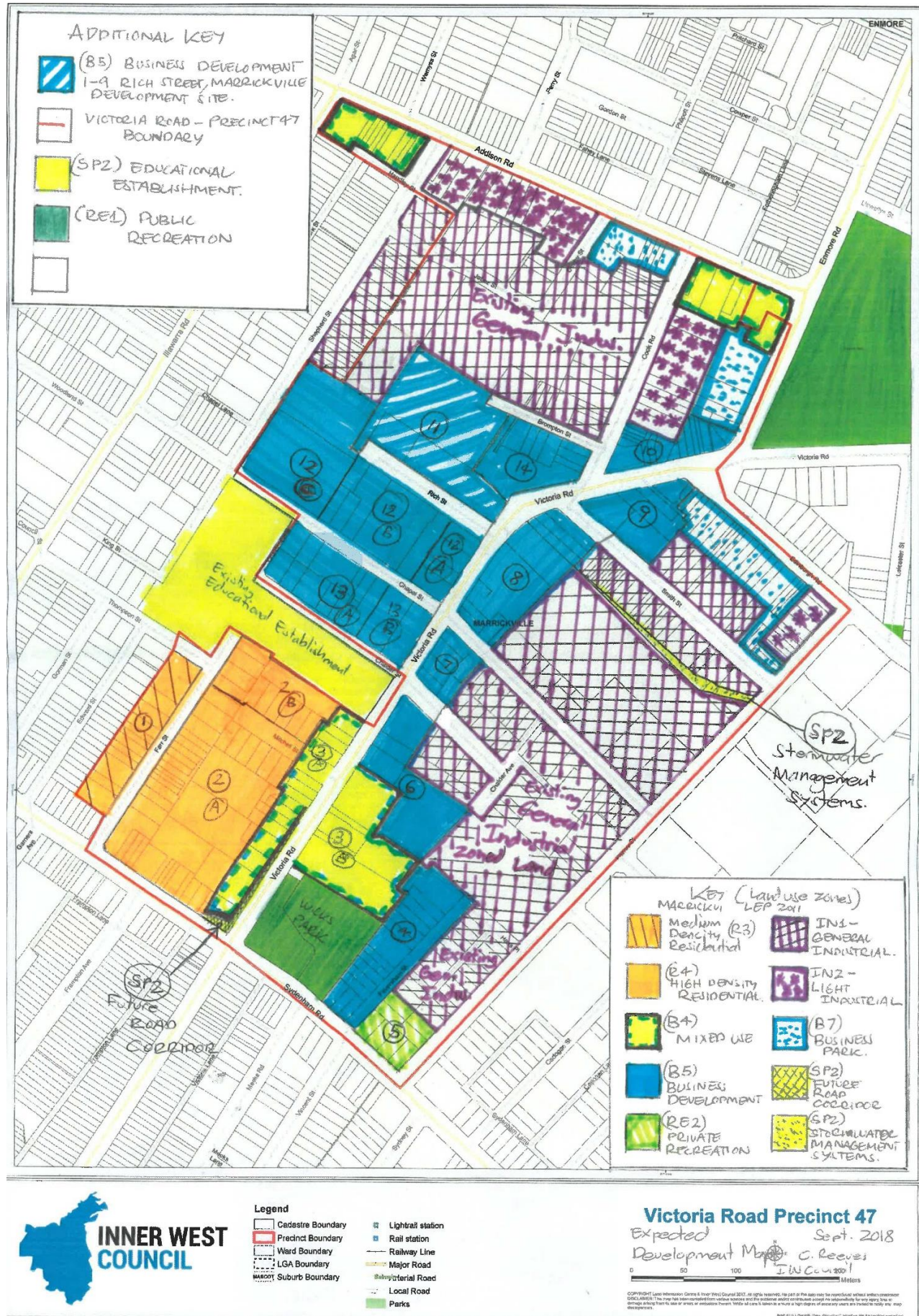
* All values shown in square metres

~ FSR (Floor Space Ratio) is a calculation derived by dividing the Total GFA by the Block Size

Source: Provided by Inner West Council, modified by Cardno. Subject to nominal rounding errors.

For residential land uses, additional information was provided by Council about a gross number of dwellings, and the potential proportions of different apartment sizes, these are summarised in **Table 4-3** and **Table 4-4**.

Figure 4-1 Development map



Source: Provided by Inner West Council

Table 4-3 Apartment mix

Dwelling Type	% of mix	Number of Dwellings	Assumed occupancy rate (Source: Marrickville S94 Plan)	Number of people
Studio	10%	110	1.31	144
1 Bedroom	30%	330	1.31	432
2 Bedrooms	50%	550	2.02	1,111
3 Bedrooms	10%	110	2.88	317
TOTAL		1,100	1.82 (Weighted average)	2,004

Table 4-4 Scale of residential buildings

Land Reference	Residential GFA sq.m	Total Apartments	Apartment Split
1	6,903	60	Studio 10% 1 Bedroom 30% 2 Bedrooms 50% 3 Bedrooms 10%
2A	59,774	528	
2B	9,866	87	
3A	17,178	152	
3B	30,868	273	
TOTAL	124,589	1,100	

Road and Maritime Services typically guides 4.75 employees/100sq.m GFA (21sq.m/employee)⁸ for office floor space. Based on this assumption and the content of **Table 4-2**, 111,272sq.m of office floor space would yield approximately 5,300 employees.

With respect to the indicative 21,820sq.m of retail space, it is assumed to be apportioned 70% retail and 30% hospitality, with assumed employee densities as shown in **Table 4-5**, it is expected that the retail space would accommodate a further 700 employees.

Table 4-5 Commercial space assumptions

	Proportion of GFA	GFA sq.m	Employee Density	Employees
Retail	70%	15,274	1/40sq.m	382
Hospitality	30%	6,546	1/20sq.m	327
Sub-Total		21,820		709
Office		111,272	4.75/100sq.m	5,285
			TOTAL	5,994

Based on the assumptions outlined above, the precinct is expected to accommodate approximately 2,000 residents and 6,000 employees.

4.3 Parking requirements

Required car parking provisions for Precinct 47 are described in the Marrickville Development Control Plan (DCP) 2011 Section 2.10 (Generic Provisions – Parking). The Marrickville DCP has three parking areas which seeks to constrain parking in highly accessible areas due to the prevalence of public transport services and the ability to utilise active transport modes for (as an example) shopping trips. In less accessible areas, parking is least constrained as car ownership will be expected to be higher to maintain mobility requirements.

Precinct 47 is generally designated Parking Area 2 (the intermediate parking area), it is defined as an area 200 metres around parking area 1, 200 metres around light rail stops and strategic bus corridor routes and

⁸ <http://www.rms.nsw.gov.au/business-industry/partners-suppliers/documents/guides-manuals/guide-to-generating-traffic-developments.pdf>, pg. 3-4, accessed 28 September

all business zones not within parking area 1. The minimum parking requirements for the land uses defined in the development schedule are shown in **Table 4-6**.

Table 4-6 Minimum vehicular parking rates

Land Use		Rate	Development	Minimum Requirement
Residential (non-adaptable units)	Studio	0.4/dwelling	110 dwellings	44
	1 Bedroom	0.5/dwelling	330 dwellings	165
	2 Bedrooms	1/dwelling	550 dwellings	550
	3 Bedrooms	1.2/dwelling	110 dwellings	132
	Visitors	0.1/dwelling	1,100 dwellings	110
Residential Sub-Total				1,001
Commercial	Office Premises	1/80sqm GFA	111,272 sq.m GFA	1,391
	Business and Retail Premises	(Over 1,000sq.m) 20+1/30sq.m over 1,000 sq.m ⁹	21,820sq.m	581
Commercial Sub-Total				1,972
Development Total				<u>2,973</u>
Motorbike parking		5% of development total		149

In line with the development schedule, the precinct would be required to provide a minimum of 2,973 car parking spaces and 149 motorcycle spaces. Included in this requirement is the need for disabled parking, but it excludes loading bays and bicycle parking.

4.4 Traffic modelling

The future conditions base model is described in **Section 5.4** and the future development model with road network upgrades is described in **Section 5.5**.

4.5 Public transport and active transport

4.5.1 Public transport

The repurposing of Sydenham station from a heavy rail station to a dual heavy-rail station and metro station may impact mode share choice around the precinct. It will enhance connectivity to major employment hubs around Waterloo (Australian Technology Park), and major employment nodes through the Sydney CBD, the lower north shore and Macquarie Park. Precinct 47 will also become a major area of employment in its own right and potentially thousands of employees could use rail stations to access the commercial lands of the precinct. The benefits the Sydney Metro will bring to Sydenham are further elaborated in **Section 4.5.1**.

It is understood that “no changes are proposed to public transport servicing the precinct¹⁰”. As outlined in **Section 2.1.1**, Future Transport 2056 outlines that a rapid bus link be established between the inner west and the eastern suburbs within 10 years, however, it is unclear at this time whether such a route would materially impact Precinct 47. As the redevelopment of the land commences, it would be prudent to further evaluate whether improved public transport services (particularly bus services) would be justified (in collaboration with Transport for NSW).

4.5.1 Sydney CBD and Southwest Metro

The Sydney Metro is forecast to be operational in 2024. From a service perspective, the metro is expected to deliver benefits to Sydenham station. These include¹¹:

⁹ Note that the business and retail aspect of the development is comprised of a fixed and variable component. If individual DAs are submitted, this will be revised upwards. There is precedent with multiple development sites being served by a shared single car park as has been approved for the Parramatta Square development

¹⁰ Email received from Council dated 25 September 2018

¹¹ https://www.sydneymetro.info/sites/default/files/document-library/Sydenham_to_Bankstown_Preferred_Infrastructure_Report_Overview.pdf, accessed 22 October 2018

- > Service frequencies of up to 15 per hour during peak times (every 4 minutes);
- > Fully accessible stations including potential new northern concourse at Sydenham station;
- > Improved interchange facilities; and
- > Reduced travel times to key education and employment districts including Martin Place, Barangaroo, North Sydney, Chatswood and Macquarie Park (comparative travel times are shown in **Table 4-7**).

Table 4-7 Travel times from Sydenham¹²

Sydenham to:	Existing Travel Time~	Sydney Metro	Travel Time Saving
Central	10 minutes	7 minutes	3 minutes
Pitt Street	21 minutes	9 minutes	12 minutes
Barangaroo	40 minutes	13 minutes	27 minutes
Victoria Cross (North Sydney)	26 minutes	16 minutes	10 minutes
Chatswood	39 minutes	22 minutes	17 minutes
Macquarie University	53 minutes	33 minutes	20 minutes

~Including interchange and walk

Source: https://www.sydneymetro.info/sites/default/files/document-library/Sydenham_to_Bankstown_Prefered_Infrastructure_Report_Overview.pdf, accessed 23 October 2018

4.5.2 Active transport

Council has directed that all footpaths may be potentially renewed as part of the development uplift. All footpaths have been documented as part of the costing exercise undertaken in **Section 6**. It is estimated that there are approximately 8,000 metres of footpath in the precinct, and it is considered that improved crossing facilities (for example refuge islands) would also support improved mobility within the precinct. As the development will lead to a finer grain urban form, a number of pedestrian links will also be established. These include a new link between Wicks Park and a new road extension to be established near Hans Place, as well as between Victoria Road and Farr Street. They are more fully described in **Section 6**.

The Marrickville Bike Plan is the current plan which outlines a future bicycle network within the former Marrickville Council LGA boundaries. The plan outlines a number of regional and local routes. Council provided project updates for bicycle routes around the precinct. For the purposes of this report, given the development horizon, it is assumed that all bicycle corridors nominated in the plan will be complete by 2028 (the modelling horizon), noting that the development horizon is later than this. The bike plan around Precinct 47 is shown in **Figure 4-2**. Among others, routes identified in the plan include:

Regional routes

- > Illawarra Road;
- > Meeks Road - Fitzroy Street – Juliett Street; and
- > Railway Parade - Shirlow Street – Sydney Steel Road – Edinburgh Road.

Local routes

- > Farr Street – Shepherd Street;
- > Addison Road; and
- > Chapel Street – Saywell Street.

¹² <https://www.sydneymetro.info/station/sydenham-station>, accessed 22 October 2018

Figure 4-2 Marrickville bike plan



Blue links show 'regional route'
Green links show 'local routes'
Source: Marrickville Bike Plan, 2007

4.6 Major projects

Council nominated the upgrade to (signalisation of) the Victoria Road and Chapel Street intersection as a major project which may impact Precinct 47. Council further advised, "there are no other infrastructure changes planned within the precinct or within the immediate area outside the precinct¹³".

There are a range of major infrastructure projects are to be completed in the medium-to-long term which may impact the precinct directly, or have supplementary infrastructure delivered as part of the project with the ability to impact Precinct 47. Such major infrastructure and redevelopment projects include:

- > WestConnex (all stages), as well as ancillary (e.g. western harbour tunnel) and integration works (e.g. Campbell Street widening)
- > Carrington Road precinct (feeds directly into Victoria Road)
- > Sydney Metro Southwest
- > Parramatta Road Corridor Urban Transformation Strategy
- > Sydenham station precinct/Marrickville Road East streetscape program
- > Sydenham to Bankstown Urban Renewal Corridor
- > Marrickville Metro shopping centre upgrade

¹³ Email received from Council dated 25 September 2018

> Inner Sydney Regional Bicycle Network

Impacts resulting from these projects is not understood and therefore has not been considered in the development of the traffic modelling.

5 Traffic modelling

5.1 Modelling assumptions

5.1.1 Background traffic growth

In addition to the trips contributed by the proposed development in Precinct 47, background traffic; i.e. external trips not associated with the development, constitute a significant portion of the traffic flow along the road network. It is necessary to establish the growth pattern in the road network surrounding the precinct to be considered for future analysis.

There is minimal information from the RMS Traffic Volume Viewer website for the immediate roads in Marrickville; count data from the nearest three traffic counters were reviewed to understand patterns of traffic growth rates in the Inner West.

Table 5-1 summarises the findings of the RMS Traffic Volume counters. The data indicates generally static traffic demands in the Inner West region for the decade 2008 - 2018.

Table 5-1 RMS traffic volume viewer statistics

Location	Counting Periods	AM Period Average Growth	PM Period Average Growth
Enmore Road (West of King Street)	2009-2018	1.1%	1.1%
King Street (Near Newman Street)	2007-2018	-1.4%	-1.3%
Canterbury Road (Cooks River)	2009-2017	1.1%	0.4%

Source: Roads and Maritime traffic volume viewer 2008 – 2018, viewed October 2018

Victoria Road Precinct Rezoning Proposal (Hyder Consulting 2015), Victoria Road, and Chapel Street Blackspot Assessment (Bitzios 2016) include traffic counts along Victoria Road undertaken in April 2014 and June 2016, respectively. **Table 5-2** summarises the growth rate calculations between the traffic counts conducted for this project against those from the previous studies.

Table 5-2 Localised growth statistics

Location	Study and Period				Growth	
	Hyder Study (2014)		Cardno Survey (2018)		Difference	
	AM	PM	AM	PM	AM	PM
Victoria Road/ Sydenham Road	2,449	2,716	2,186	2,537	-3.7%	-2.2%
	Hyder Study (2014)		Bitzios Study (2016)		Difference	
	AM	PM	AM	PM	AM	PM
Victoria Road/ Chapel Street	1,376	1,558	1,240	1,560	-9.9%	0.1%

The figures indicate a general declination of traffic volumes along Victoria Road from 2014. A background traffic growth rate of 0% is proposed for the modelling horizon year, which will be 10 years in the future (i.e. 2028). This is considered conservative with regard to traffic volume reductions.

5.1.2 Existing traffic generation

Roads and Maritime Guide to Traffic Generating Development indicates that 0.52 and 0.56/100sq.m GFA are typically generated for business parks and industrial estate land uses in a peak AM and PM hour respectively¹⁴. Assuming a development floorplate of 126,941sq.m as outlined in **Table 4-2** and a near full

¹⁴ <https://www.rms.nsw.gov.au/trafficinformation/downloads/td13-04a.pdf>, pg.2 accessed 8 October 2018

development of the FSR permissible in the DCP (typically 0.9-0.95:1), the following points outline estimated traffic generation for the existing land uses.

- > AM Peak Hour – $(126,941 \times 0.95) / (100) \times 0.52 = \mathbf{627 \text{ vehicle movements}}$
- > PM Peak Hour – $(126,941 \times 0.95) / (100) \times 0.56 = \mathbf{675 \text{ vehicle movements}}$

5.1.3 Future traffic generation

The Roads and Maritime Guide to Traffic Generating Development also estimates traffic generation for residential and commercial spaces. Ranges of rates and proposed assumptions for modelling purposes are shown in **Table 5-3**.

- > For residential land uses, there are well-recognised metrics of traffic generation where a gross number of dwellings is known.
- > With respect to the commercial office traffic generation rate, the Roads and Maritime traffic generation rate (1.6 and 1.2/100sq.m GFA) multiplies out to 1,785 movements in an AM peak hour, far exceeding the minimum provision of 1,391 spaces. Given the mismatch between parking provision and traffic generation, a traffic generation rate of 80% and 70% of the number of parking spaces having a movement in any respective AM or PM peak hour has been adopted.
- > Commercial retail and hospitality rates are not defined for AM peak periods; it is assumed that employees of retail and hospitality space would arrive at the precinct broadly comparable with commercial office space. This is a reasonable assumption considering employment density is similar (see **Table 4-5**).
- > Commercial retail and hospitality rates in PM peak periods are defined in the Roads and Maritime Guide to traffic generating developments. Assumptions have been made about the apportionment of retail floor space (see **Table 4-5**). It is assumed that retail floor space is consistent with 'slow trade' floor spaces. The Victoria Road Precinct DCP (pg. 6), outlines "...showrooms will enhance and develop the theme of home improvement offerings...". It is assumed all hospitality space is consistent with 'specialty shop' (takeaway food and general shopping stores) designation. Traffic generation rates for commercial retail and hospitality are undertaken on a GLFA basis. The Guide to Traffic Generating Development guides a GLFA/ GFA ratio of 75%.

Table 5-3 Traffic generation rates

Land Use	Development	Traffic Generation		
		Range	AM Adopted Rate	PM Adopted Rate
Residential ¹⁵	1,100 dwellings	0.06-0.41/ dwelling	0.19/ dwelling	0.15/ dwelling
Commercial office ¹⁶	111,593sq.m	1.2-1.6/100sq.m GFA	1.6/100sq.m GFA 80% of spaces	1.2/100sq.m GFA 70% of spaces
Commercial retail	15,274sq.m	Variable	1.6/100sq.m GFA	2/100sq.m GLFA
Commercial hospitality	6,546sq.m	Variable	1.6/100sq.m GFA	5.6/100sq.m GLFA

Utilising the rates outlined in **Table 5-3**, **Table 5-4** outlines an indicative assessment of the traffic generating potential of the land uses and the net change in traffic. Calculations are shown in the footnotes at the bottom of the page.

Table 5-4 Future traffic generation

Land Use	AM Traffic Generation	PM Traffic Generation
Residential	209 ¹⁷	165 ¹⁸
Commercial office	1,116 ¹⁹	977 ²⁰
Commercial retail	244 ²¹	229 ²²
Commercial hospitality	105 ²³	275 ²⁴
TOTAL	1,674	1,646
Existing traffic generation	-627	-675
Net change in traffic generation	+1,047	+971

Using a range of traffic generation assumptions, it is estimated that the development schedule will result in an additional 1,047 vehicle movements in an AM peak hour, and an additional 971 vehicle movements in a PM peak hour.

5.1.4 Distribution of trips

The research of the distribution of trips is not well documented and requires a distribution split for the purposes of supporting the traffic modelling. **Table 5-5** shows the directionality assumptions made to support the traffic modelling.

Table 5-5 Directional splits

Land Use		AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
Existing	Industrial (Warehouse)	30%	70%	50%	50%
Future	Commercial office	90%	10%	10%	90%
	Commercial retail	50%	50%	50%	50%
	Commercial hospitality	60%	40%	60%	40%
	Residential	20%	80%	70%	30%

¹⁵ <http://www.rms.nsw.gov.au/trafficinformation/downloads/td13-04a.pdf>, pg. 2, accessed 2 October 2018

¹⁶ <http://www.rms.nsw.gov.au/trafficinformation/downloads/td13-04a.pdf>, pg. 2, accessed 2 October 2018

¹⁷ 209 = 0.19*1,100

¹⁸ 165 = 0.15*1,100

¹⁹ 1,116 = 1,395*0.8

²⁰ 977 = 1,395*0.7

²¹ 244 = (15,274*1.6)/100

²² 229 = ((15,274*0.75)*2)/100

²³ 105 = (6,546*1.6)/100

²⁴ 275 = ((6,546*0.75)*5.6)/100

Table 5-6 combines the traffic generation calculations with directionality assumptions. For the purposes of traffic modelling, **Table 5-6** is further supplemented by the trip orientation assumptions shown in **Table 3-5**.

Table 5-6 Directionality and net change in traffic per land use type²⁵

Land Use		AM Peak		PM Peak	
		In	Out	In	Out
Existing	Industrial (Warehouse)	188	439	338	338
Future	Residential	42	167	116	50
	Commercial Office	1,004	112	98	879
	Commercial Retail	122	122	115	115
	Commercial Hospitality	63	42	165	110
Future		1,231	443	494	1,154
Existing		188	439	338	338
Net Change		+1,043	+4	+156	+816
			+1,047		+971

5.1.5 Access points

Primary site access points for the development sites to the surrounding road network are shown in **Table 5-7**.

Table 5-7 Modelled vehicle access points

Development Site	Assumed Existing	Assumed Future
1	Farr St	Farr St
2A	Victoria Rd	Farr St
2B	Mitchell St	Mitchell St/Farr St
3A	Victoria Rd	Mitchell St/Farr St
3B	Victoria Rd	Faversham St
4	Sydenham Rd	Faversham St
6	Chalder St (east)	Chalder St (east)
7	Chapel St (east)	Chapel St (east)
8	Chapel St (east)	Chapel St (east)
9	Smith St	Smith St
10	Victoria Rd	Cook Rd
11	Rich St	Rich St
12A	Chapel St (west)	Chapel St (west)
12B	Chapel St (west)	Chapel St (west)
12C	Chapel St (west)	Chapel St (west)
13A	Chalder St (west)	Chapel St (west)
13B	Chalder St (west)	Chapel St (west)
14	Brompton Street	Rich St

²⁵ Subject to nominal rounding errors

5.2 Base model performance

The performance of the existing road network is largely dependent on the operating performance of intersections which form critical capacity control points. The 'Level of Service' (LoS) is the standard measure used to assess the operational performance of the network and intersections. Level of Service is ranked from LoS A to LoS F, with LoS A representing the best performance and LoS F the worst. The assessment of intersection operation is based on criteria defined by Roads and Maritime in the *RTA Guide to Traffic Generating Development 2002*, and outlined in **Table 5-8**. The *RTA Guide to Traffic Generating Development 2002*, considers intersections to be operating well at LoS metrics of D or better (A, B, C or D).

The existing intersection assessment is presented in **Table 5-9**. It shows that most of the surveyed intersections operate at a level of service A or B. There are some capacity issues at Sydenham Road and Fitzroy St in the AM where it operates 'over capacity'. There is also an issue at Victoria Road and Chapel St in the PM period, with the intersection 'operating near capacity'.

The peak traffic generation of the precinct is expected to be on weekdays. The traffic attributable to commercial office would be negligible during weekend periods (noting that commercial office generates up to 67% of all traffic during weekday periods).

Table 5-8 Level of Service criteria for intersections

Level of Service (LoS)	Average Delay per Vehicle (sec)	Traffic Signals, Roundabouts	Give way, Stop Sign
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; incidents would cause excessive delays at signals. Roundabouts require other control modes	At capacity, requires other control mode
F	>70	Over capacity; unstable operation	Over capacity; unstable operation

Table 5-9 Existing conditions traffic assessment

Intersection	Control	AM Period		PM Period	
		Average Delay (seconds)	LoS	Average Delay (seconds)	LoS
Chapel St/Fitzroy St	Priority Control	8.7	A	7.9	A
Sydenham Rd/Farr St	Signalised	6.7	A	4.7	A
Sydenham Rd/Fitzroy St	Priority Control	110	F	35.5	C
Addison Rd/Illawarra Rd	Signalised	21.7	B	20.1	B
Sydenham Rd/Victoria Rd	Signalised	18.6	B	16.7	B
Victoria Rd/Edinburgh Rd	Signalised	10.9	A	10.5	A
Victoria Rd/Chapel St	Priority	32.3	C	45.9	D

Table 5-10 Description of issue

Intersection	Capacity Issue
Sydenham Rd/Fitzroy St	In the AM, there were 140 and 40 vehicles turning left and right respectively from Fitzroy Street into Victoria Road. Due to the constant traffic flow along Victoria Road, minimal gaps in traffic flow are available to safely complete turns.
Victoria Rd/Chapel St	In the PM period, substantial delays were observed for the north west approach leg for through and right turns (noting that there were only 14 and 8 movements for each respectively). This was due to the constant traffic along Victoria Road.

5.3 Future base model performance

As a result of the 0% growth rate has been agreed with Council, the base model and the future base model result in the same outputs as described above in **Section 5.2**.

5.4 Future development model performance without upgrades

Based on the development schedule outlined in **Table 4-2**, and as noted in the modelling assumptions (culminating in **Table 5-6**), the full development model yields an additional 1,047 and 971 vehicle movements in each AM and PM peak hour respectively. When these are distributed across the network as described in **Table 5-7**, a future model with the existing road network can be assessed. This operational function of the future road network is described in **Table 5-11**.

The road network comes under considerable demand pressures, Addison Road and Illawarra Road fails in the PM peak period, Sydenham Road and Victoria Road fails in both AM and PM peak periods, as does Victoria Road and Chapel Street. These intersections need upgrades to improve the forecast level of service relative to its existing operation.

Table 5-11 Future conditions with existing network

Intersection	Control	AM Period		PM Period	
		Average Delay (seconds)	LoS	Average Delay (seconds)	LoS
Chapel St/Fitzroy St	Priority Control	10.2	A	8.4	A
Sydenham Rd/Farr St	Signalised	6.2	A	3.9	A
Sydenham Rd/Fitzroy St	Priority Control	109.6	F	44.9	D
Addison Rd/Illawarra Rd	Signalised	23.6	B	109.5	F*
Sydenham Rd/Victoria Rd	Signalised	158	F*	71.1	F*
Victoria Rd/Edinburgh Rd	Signalised	13.6	A	13.3	A
Victoria Rd/Chapel St	Priority	82.2	F*	603.8	F*

* Indicates a deterioration of at least 2 levels of service (i.e. A->C, B-> D etc., or a deterioration to F from any service level)

5.5 Future development model with upgrades

There are three intersections which fail as a result of the development uplift and need to be subject to upgrades to meet one of the project objectives, which is that “as a minimum, the current level of service should be maintained within the Precinct with the increased development, now permitted under the rezoning. The Precinct should be no worse off, from a traffic and transport viewpoint, with the increased development”.

Intersection upgrades can be undertaken through soft or hard measures. A soft measure is better utilising the existing infrastructure at an intersection, which typically involves measures such as optimising signal phasing. Hard upgrades typically change the control of the intersection (for example from priority to roundabout, or priority to signalisation), or the construction of new lanes to increase the capacity of an intersection.

The intersections which need level of service improvements and the proposed rectification are described in **Table 5-12**.

Table 5-12 Intersection upgrades

Intersection	Rectification
Addison Rd/Illawarra Rd	SIDRA modelling shows that with future traffic volumes, the signal timing can be optimised in the PM and this will result in a Level of Service C outcome.
Victoria Rd/Chapel St	There is an existing midblock crossing south of Chapel Street which is currently subject to a blackspot funding upgrade. With the implementation of AM clearways, after the midblock crossing is relocated to Chapel Street, and the broader signalisation of the legs of the intersection, it is forecast to operate at a level of Service A in the AM peak hour and D in the PM peak hour.
Sydenham Rd/Victoria Rd	A 90 metre right turn lane is proposed on Victoria Road on the north east approach to Sydenham Road. This is to be supplemented by a left turn slip lane linking the Sydenham Road north west approach with the Victoria Road north east leg departure. Such a proposal requires a land dedication. at&I has drafted a concept plan requiring a 619.6sq.m reservation to provide this infrastructure. The existing and proposed intersection layout is shown in Figure 5-1 and Figure 5-2 respectively. The draft concept plan for the intersection is shown in Figure 5-3 .

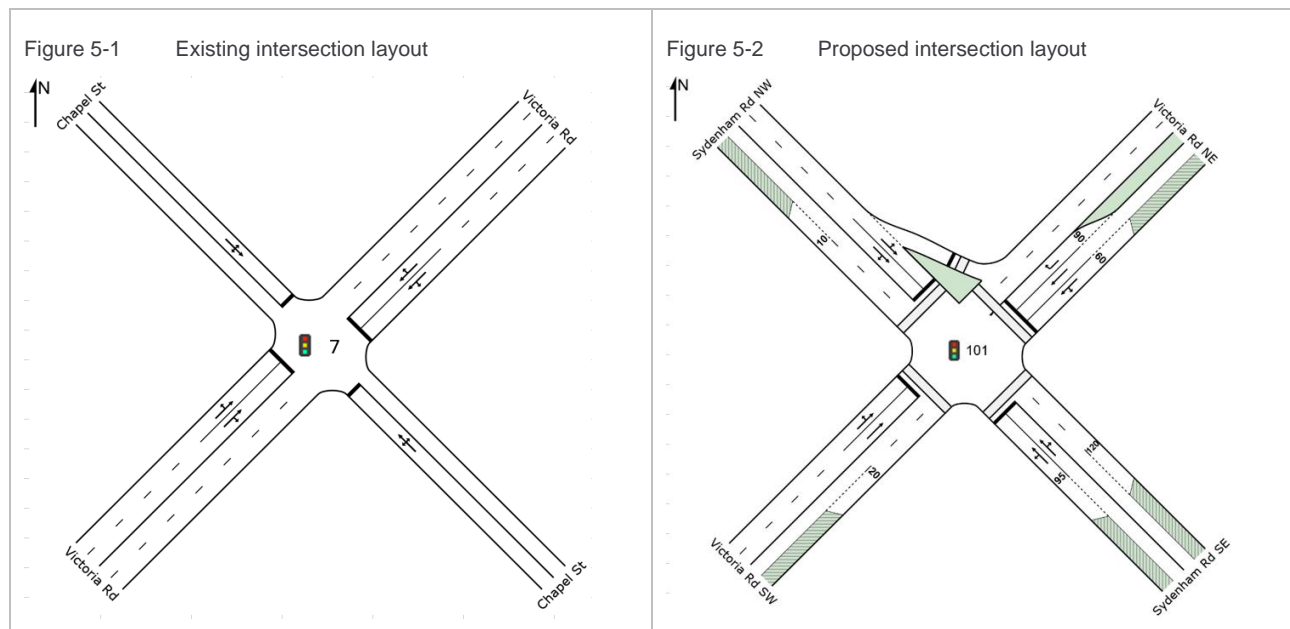
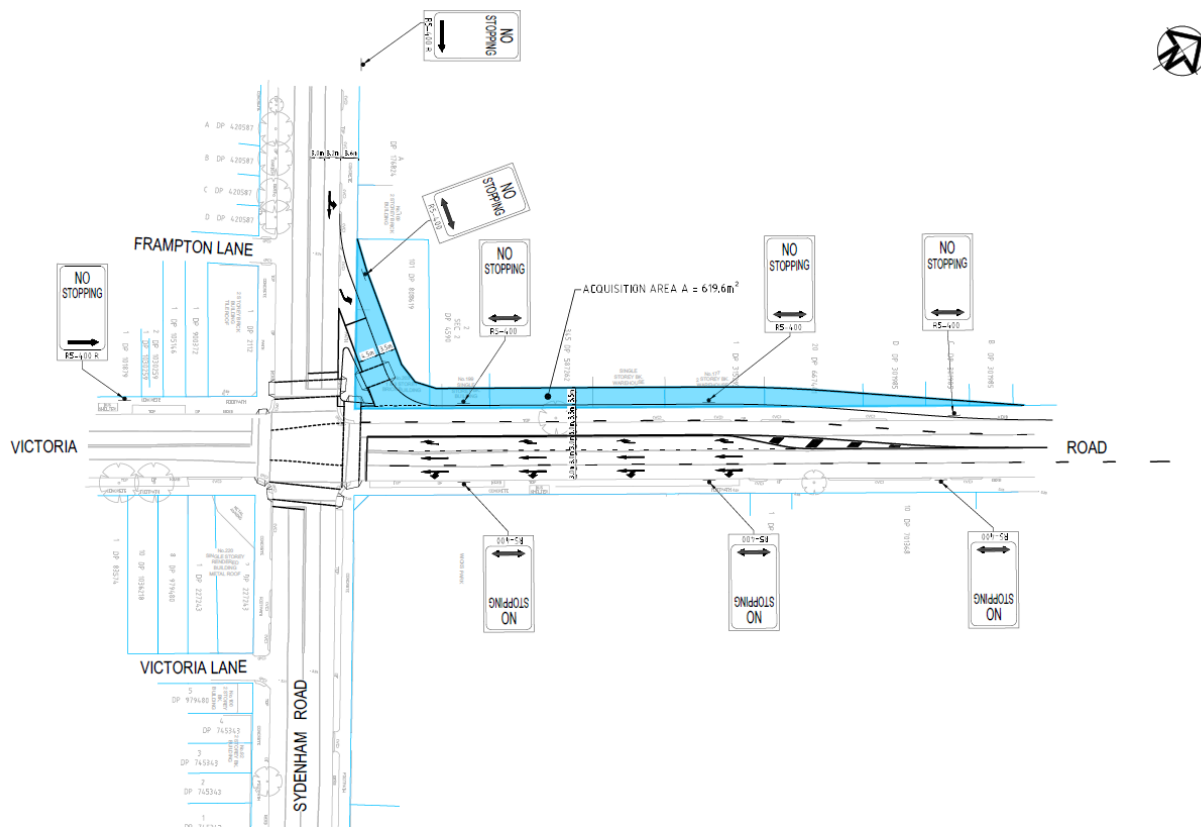


Figure 5-3 Concept plan for intersection upgrade



Source: at&I drawing SKC02 dated 21 August 2018

Table 5-13 Future conditions with upgraded network

Intersection	Control	AM Period		PM Period	
		Average Delay (seconds)	LoS	Average Delay (seconds)	LoS
Chapel St/Fitzroy St	Priority Control	10.2	A (no change)	8.4	A (no change)
Sydenham Rd/Farr St	Signalised	6.2	A (no change)	3.9	A (no change)
Sydenham Rd/Fitzroy St	Priority Control	109.6	F (no change)	44.9	D (no change)
Addison Rd/Illawarra Rd	Signalised	23.6	B (no change)	30.5	C
Sydenham Rd/Victoria Rd	Signalised	36.5	C	27.0	B
Victoria Rd/Edinburgh Rd	Signalised	13.6	A (no change)	13.3	A (no change)
Victoria Rd/Chapel St	Signalised	9.9	A	41.8	C

The modelling suggests that the intersection of Sydenham Road and Fitzroy Street is already, and will continue to be under capacity constraints. Whilst this intersection has not been modelled in terms of an upgrade, it has been strategically costed as an infrastructure line item as outlined in **Section 7.2**. There are various levels of intersection function improvement at Addison Road/Illawarra Road, Sydenham Road/Victoria Road and Victoria Road/Chapel Street which result from the infrastructure upgrades described in **Table 5-12**.

Table 5-14 compares the existing levels of service with the future network with upgrades. The data shows that of the seven surveyed intersections, in the AM period, one intersection gets marginally worse, and one

intersection gets significantly better. In the PM period, two intersections get marginally worse, and one intersection gets marginally better.

Table 5-14 Comparison of existing and future network with upgrade

Intersection	Control	AM Period		PM Period	
		Existing conditions base model	Future with upgrade scenario	Existing conditions base model	Future with upgrade scenario
Chapel St/Fitzroy St	Priority Control	A	A	A	A
Sydenham Rd/Farr St	Signalised	A	A	A	A
Sydenham Rd/Fitzroy St	Priority Control	F	F	C	D
Addison Rd/Illawarra Rd	Signalised	B	B	B	C
Sydenham Rd/Victoria Rd	Signalised	B	C	B	B
Victoria Rd/Edinburgh Rd	Signalised	A	A	A	A
Victoria Rd/Chapel St	Existing: Priority Control Future: Signalised	C	A	D	C

* Orange cells show an intersection which deteriorates (existing compared to future with upgrade scenario). Green cells show an intersection which improves (existing compared to future with upgrade scenario)

Table 5-14 shows that on balance, whilst there is some minor increase in delays at some intersections, there are improvements at other intersections. At a road network level, it is considered that there is no net deterioration in the function of the network as a whole. The modelling therefore satisfies Council's requirement that, "as a minimum, the current level of service should be maintained within the Precinct with the increased development, now permitted under the rezoning. The Precinct should be no worse off, from a traffic and transport viewpoint, with the increased development."

5.6 Change in intersection flow

Table 5-15 summarises the overall change in flow through the study intersections. At a network level, increase there is expected to be a 20.8% increase in traffic in the AM peak and an increase of 17.0% in the PM peak. A single vehicle may impact several intersections in the study area.

Table 5-15 Intersection volumes

	AM Period			PM Period		
	Existing	Future with Upgrade	Change	Existing	Future with Upgrade	Change
Chapel St/ Fitzroy St	569	680	+111 (+19.5%)	594	719	+125 (+21.0%)
Sydenham Rd/ Farr St	1,435	1,577	+142 (+9.9%)	1,597	1,680	+83 (+5.2%)
Sydenham Rd/ Fitzroy St	1,501	1,529	+28 (+1.9%)	1,621	1,672	+51 (+3.1%)
Addison Rd/ Illawarra Rd	1,156	1,235	+79 (+6.8%)	1,249	1,395	+146 (+11.7%)
Sydenham Rd/ Victoria Rd	2,186	2,596	+410 (18.8%)	2,536	2,854	+318 (+12.5%)
Victoria Rd/ Edinburgh Rd	1,398	2,091	+693 (+49.6%)	1,817	2,444	+627 (+34.5%)
Victoria Rd/ Chapel St	1,376	1,912	+536 (+39.0%)	1,544	2,058	+514 (+33.3%)
TOTAL	9,621	11,620	+1,999 (+20.8%)	10,958	12,822	+1,864 (+17.0%)

5.7 Modelling limitations

Modelling relies on a number of underlying assumptions. At a broader regional level, the modelling does not include any of the major infrastructure projects discussed in **Section 4.6**. It also relies on the development, parking, traffic generation and traffic distribution rates discussed in **Section 5.1**.

6 Infrastructure Schedule

6.1 General transport network upgrades

A strategic desktop assessment of transport infrastructure needs has been undertaken of Precinct 47, identifying infrastructure which may need to be renewed to accommodate the development uplift. A condition audit of infrastructure falls outside of the scope of this report, and therefore, infrastructure has been documented as if it needs to be renewed throughout the precinct, this can be considered a worst case scenario.

More detailed investigations will be required to validate the desktop assessment. **Table 6-1** summarises the infrastructure renewal or additional infrastructure proposed as part of the development uplift.

Table 6-1 Infrastructure renewal schedule

Infrastructure	Number of items/links	Distance (if linear)
Footpath (linear metres)	75	7,950m
Kerb and gutter renewal ²⁶	41	2,307m
Kerb ramp	95	
Pedestrian refuge/splitter island	11	

To support bicycle use, bicycle network provisions should be provided in alignment with the Marrickville Bike Plan. The includes the provision of local routes on the following roads:

- > Derby Street;
- > Jabez Street;
- > Shepherd Street;
- > Thompson Street;
- > Farr Street; and
- > Chapel Street.

Local routes are assumed to consist of bicycle stencil markings at intersections and each 50 metres to reinforce the priority of these as key bicycle routes. The assessment of these roads/ routes indicates 66 stencils will be required.

Developments are expected to provide on-site bicycle parking facilities. On-street bicycle parking provisions should be provided to support visitor access by bicycle. Indicatively, it is estimated 100 bicycle hoops could be provided in prominent kerbside locations throughout the precinct. Bicycle specific infrastructure provisions are summarised in **Table 6-2**.

Table 6-2 Bicycle infrastructure

Infrastructure	Number of items/links
Bicycle stencils	66
Bicycle parking hoops	100

²⁶ Due to the highly industrial nature of the site, kerb and gutters are not well formed in all locations, a highly strategic assessment of locations where kerb and gutter upgrades might be required has been assessed

6.2 Infrastructure upgrades

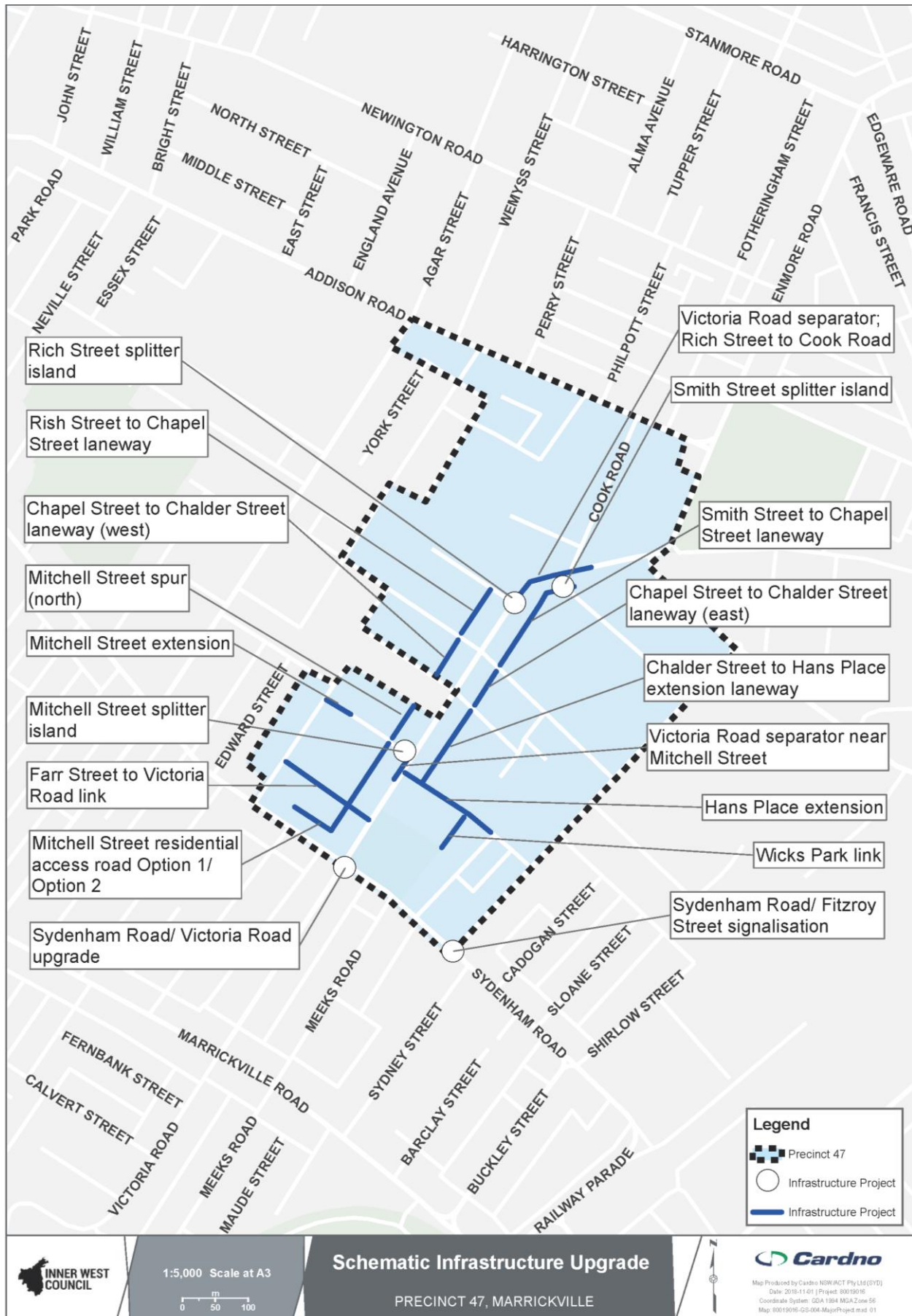
Section 9.47.5 of the Victoria Road Precinct DCP outlines an indicative masterplan as is shown in **Figure 2-2**. Some changes have been made, but it remains broadly indicative of the streetscape vision for the precinct. It is understood that some of the projects are not likely feasible due to heritage constraints, and whilst in some instances, the heritage constraints preclude the development of the masterplan, in other instances, the works may be able to be accommodated. One such example of this is the road link between Rich Street and Chapel Street.

Working collaboratively with Council, the following 19 projects were identified and agreed to, generally comprising of the following:

- > **Farr Street to Victoria Road Link:** An 18m wide, 150m long green reserve linking Farr Street and Victoria Road.
- > **Victoria Road separator at Mitchell Street:** An 80m long raised concrete separator on Victoria Road near Mitchell Street.
- > **Mitchell Street splitter island:** A splitter island at the eastern end of Mitchell Street at Victoria Road.
- > **Hans Place extension:** A 165m long, 20m wide road reserve extension of Hans Place to Victoria Road, including the installation of bollards at Victoria Road and approximately 85sq.m of land acquisition from an allotment which has not been rezoned.
- > **Wicks Park link:** An 80m long, 5m wide pedestrian link between the Hans Place extension (as described above) and Wicks Park.
- > **Victoria Road separator; Rich Street to Cook Road:** A 140m long raised concrete separator on Victoria Road from Cook Road to Mitchell Street.
- > **Smith Street splitter island:** A splitter island at the northern end of Smith Street at Victoria Road.
- > **Rich Street splitter island:** A splitter island at the eastern end of Rich Street at Victoria Road.
- > **Chapel Street to Chalder Street laneway:** A 60m long, 12m wide road reserve linking Chalder Street to Chapel Street (west of Victoria Road).
- > **Rich Street to Chapel Street laneway:** A 70m long, 12m wide road reserve linking Chapel Street to Rich Street.
- > **Mitchell Street extension:** A 40m long, 18m wide extension of Mitchell Street to Farr Street.
- > **Sydenham Road/Fitzroy Street signalisation:** Removal of existing pedestrian zebra crossing and installation of traffic lights at intersection of Sydenham Road and Fitzroy Street.
- > **Chalder Street to Hans Place extension laneway:** A 130m long, 12m wide road reserve between the Hans Place extension at Chalder Street.
- > **Chapel Street to Chalder Street laneway:** A 60m long, 12m wide road reserve between Chalder Street and Chapel Street (east of Victoria Road).
- > **Smith Street to Chapel Street laneway:** A 150m long, 12m wide road reserve between Chapel Street and Smith Street.
- > **Sydenham Road and Victoria Road intersection upgrade:** Reconfiguration of the intersection located at Sydenham Road and Victoria Road as shown in **Figure 5-3**, including a land acquisition of approximately 620sq.m.
- > **Mitchell Street spur (north):** A 50m long, 12m wide road reserve spur north off Mitchell Street.
- > **Mitchell Street residential access road option 1:** A 220m long, 12m wide road reserve linking Mitchell Street to a development entry point near the intersection of Farr Street and Sydenham Road.
- > **Mitchell Street residential access road option 2:** A 220m long, 20m wide road reserve linking Mitchell Street to a development entry point near the intersection of Farr Street and Sydenham Road.

The location of the infrastructure upgrades and their scope have been schematically drafted and shown in **Figure 6-1**.

Figure 6-1 Schematic indication of major work



7 Cost estimate

Infrastructure upgrades have been strategically costed based on unit rates provided by Council and a specialist quantity surveying sub-consultant. Importantly, the cost estimations need to be reasonably apportioned between Council and the developer, and it is expected that the liability will be funded by a developer contributions plan or voluntary planning agreement.

7.1 General transport infrastructure upgrades

Council provided its unit rate costing sheet for infrastructure. Based on the content of **Table 6-1**, **Table 7-1** estimates costs for infrastructure renewal. The document recommends a 15% contingency be applied at the planning stage and 10% at the detailed design stage.

Table 7-1 Cost estimation for unit items²⁷

Infrastructure	Number	Rate/Unit	Cost
Existing footpath demolition	7,950 metres	\$40/m ² (up to 100mm thick)	\$636,000 ²⁸
Footpath renewal	7,950 metres	\$110/m ² (100mm reinforced concrete)	\$1,749,000 ²⁹
Kerb and gutter	2,307 metres	\$160/m (concrete 150mm high by machine)	\$369,120
Kerb ramp	95	\$1,025 each	\$97,375
Pedestrian splitter island	11	\$33,000 each ³⁰	\$363,000
On-road bicycle stencil	66	\$100 each ³¹	\$6,600
Bicycle parking loop ³²	100 (Indicative)	\$245 each	\$24,500
TOTAL			\$3,245,595

7.2 Infrastructure upgrades

Table 7-2 shows the projects nominated in **Section 6.2** and the estimated project cost. The table also apportions costs between the developer and Council.

The costs assume that Council will not bear any demolition costs (to be completed separately by developer) and will take occupation of land free of any encumbrances. It is noted that the costs are strategic and exclude any utility relocation costs (water, sewer, power), and it is understood these costs are being considered as part of a separate investigation. The costs include a range of contingencies including a construction contingency (20%) and design development allowance (10%).

See **Appendix A** for the quantity surveying report.

²⁷ As per Inner West Council Unit Rates for estimation purposes only document dated 16 October 2018

²⁸ Council directed the assumption of 2 metre wide footpaths (7,950m*2m wide*40/sq.m)

²⁹ Council directed the assumption of 2 metre wide footpaths (7,950m*2m wide*110/sq.m)

³⁰ Cost of splitter island as per Muller Partnership cost estimate

³¹ Email received from Council 7 November 2018

³² Additional bicycle parking is to be provided in accordance with the Marrickville DCP for each DA

Table 7-2 Cost estimate of infrastructure

Project	Cost (incl. GST)	Indicative apportionment to developers	Indicative cost to Government	Indicative cost to developers
Infrastructure upgrades				
Farr Street to Victoria Road Link	\$1,167,100	100%	\$-	\$1,167,100
Victoria Road separator at Mitchell Street	\$60,500	100%	\$-	\$60,500
Mitchell Street splitter island	\$33,000	100%	\$-	\$33,000
Hans Place extension	\$2,327,600	100%	\$-	\$2,327,600
Wicks Park link	\$103,400	100%	\$-	\$103,400
Victoria Road separator; Rich Street to Cook Road	\$102,300	100%	\$-	\$102,300
Smith Street splitter island	\$33,000	100%	\$-	\$33,000
Rich Street splitter island	\$33,000	100%	\$-	\$33,000
Chapel Street to Chalder Street laneway (west)	\$457,600	100%	\$-	\$457,600
Rich Street to Chapel Street laneway	\$508,200	100%	\$-	\$508,200
Mitchell Street extension	\$364,100	100%	\$-	\$364,100
Sydenham Road/Fitzroy Street signalisation	\$737,000	20%	\$589,600	\$147,400
Chalder Street to Hans Place extension laneway	\$842,600	100%	\$-	\$842,600
Chapel Street to Chalder Street laneway (east)	\$441,100	100%	\$-	\$441,100
Smith Street to Chapel Street laneway	\$957,000	100%	\$-	\$957,000
Sydenham Road and Victoria Road intersection upgrade	\$2,487,100	100%	\$-	\$2,487,100
Mitchell Street spur (north)	\$305,800	100%	\$-	\$305,800
Mitchell Street residential access road option 1 ³³	\$1,298,000	100%	\$-	\$1,298,000
Mitchell Street residential access road option 2	\$1,786,400	100%	\$-	\$1,786,400
SUB-TOTAL (inclusive of contingency)	\$12,746,800		\$589,600	\$12,157,200
General transport infrastructure upgrades				
Footpath demolition	\$636,000	50%	\$318,000	\$318,000
Footpath renewal	\$1,749,000	50%	\$874,500	\$874,500
Kerb and gutter renewal	\$369,120	100%	\$-	\$369,120
Kerb ramp renewal	\$97,375	50%	\$48,688	\$48,688
Pedestrian splitter island	\$363,000	50%	\$181,500	\$181,500
On-road bicycle stencil	\$6,600	50%	\$3,300	\$3,300
Bicycle parking loop	\$24,500	50%	\$12,250	\$12,250
SUB-TOTAL	\$3,245,595		\$1,438,238	\$1,807,358
Assumed contingency	15%		15%	15%
SUB-TOTAL including contingency	\$3,732,434		\$1,653,973	\$2,078,461
TOTAL including contingency	\$16,479,234		\$2,243,573	\$14,235,661

* Note that all apportionment figures are indicative only and subject to consultation with Council

* Sums subject to nominal rounding errors

³³ As the Mitchell St residential access road has two options, the projects are mutually exclusive and should not be both counted. For the purposes of aggregating costs, the more expensive option 2 has been considered in the total cost

8 Conclusion

Due to a recent rezoning of land in Precinct 47 within Marrickville, the traffic and transport requirements of the area will change. The precinct is generally light industrial and warehouse uses at present, but is to undergo significant uplift to accommodate commercial, retail and residential land uses. The following points summarise the traffic and transport implications for the precinct:

- > Precinct 47 will be subject to considerable uplift in the medium-to-long term. In total, it is envisioned that the site will be subject to development of approximately 257,000sq.m of commercial and residential floor space. This will be comprised of approximately 133,000 sq.m of commercial floor space and 124,000sq.m of residential floor space.
- > Precinct 47 is generally well served by public transport services, and this will improve with the commencement of Sydney Metro operations and new bus services.
- > Active transport provisions are limited due to existing land use but will be improved with the progression of the development uplift associated with Precinct 47.
- > Precinct 47 will be expected to accommodate approximately 2,000 residents and 6,000 employees.
- > For the development schedule specified, a minimum of 2,973 parking spaces will be required to be provided for Precinct 47. This does not include loading bays and excludes bicycle parking.
- > It is expected that upon full development, Precinct 47 will generate (approximately) an additional 1,050 vehicle movements in an AM peak hour, and an additional 970 vehicle movements in a PM peak hour.
- > Once site access points, directionality (in/out) and the orientation (north/south/east/west) of these trips are considered, the trips are quickly dispersed across the broader road network with varying, but overall moderate impacts. Gross traffic flow through the seven study area intersections will be expected to increase by up to approximately 20% compared to existing conditions.
- > The intersection of Sydenham Road and Fitzroy Street fails under existing AM peak periods, it will continue to fail in AM peak periods the future with the development of Precinct 47.
- > The development will result in the following intersections failing during either the AM or PM peak, and the failure can be rectified by:
 - Addison Road/Illawarra Road (Forecast PM fail) – Reconfigure signal phasing,
 - Victoria Road/Chapel Street (Forecast AM and PM fail) – Existing blackspot signal relocation proposal from midblock pedestrian crossing, and
 - Victoria Road/Sydenham Road (Forecast AM and PM fail) – Intersection upgrade incorporating new turning lanes and slip lanes.
- > The rectifications outlined above are forecast to improve the level of service of the intersections to broadly in line with existing conditions, meaning that with the uplift and the intersection improvements, it is expected there should be negligible net change in the function of the road network.
- > 19 transport infrastructure projects have been costed, these generally include new streets to support the uplift, intersection upgrades and facilities to enhance pedestrian safety.
- > Cumulatively, these projects have been strategically costed at **\$16,479,234**, noting that the costs can be shared with developers by way of a developer contributions plan.
- > It is expected that approximately **\$14,235,661** can be reasonably apportioned to developers, leaving a gap of **\$2,243,573** to be funded by Government.

APPENDIX

A

COST ESTIMATES

MULLER *partnership*

TRAFFIC INFRASTRUCTURE UPGRADES

ORDER OF COST ESTIMATES [19 NO.]

Newcastle :: Sydney :: Melbourne
1 NOVEMBER 2018

1 November 2018

Cardno
Level 9, The Forum
203 Pacific Highway
ST LEONARDS NSW 2065

ATTENTION: DEAN RANCE

**RE: TRAFFIC INFRASTRUCTURE UPGRADES
ORDER OF COST ESTIMATES [19 NO.]**

As per your request dated 30th October 2018, Muller Partnership has prepared the Order of Cost Estimates for the above project and enclose our report.

Please note the attached Order of Cost Estimates have been prepared based on the current preliminary information and should be updated if additional information becomes available. Please take note of our Assumptions (Item 3.0) and Exclusions (Item 4.0).

Should you wish to discuss any of the above please do not hesitate to contact either *Harley Gleeson* or the undersigned.

Yours faithfully

MULLER PARTNERSHIP



CAMERON BEARD
DIRECTOR

CB:HG 18347 Transport Infrastructure Upgrades - Order of Cost Estimate Report

Disclaimer

Muller Partnership have prepared this report in part on the basis of information supplied to it in the ordinary course of business by Dean Rance of Cardno.

Whilst all reasonable professional care and skill have been exercised to validate its accuracy and authenticity, Muller Partnership is unable to provide any Guarantee in that regard, and will not be liable to any party for any loss arising as a result of any such information subsequently being found to be inaccurate, lacking authenticity or having been withheld.

This report is only intended for use by Cardno and Muller Partnership accepts no responsibility to other parties who use opinions or information contained herein. They do so at their own risk.

In acting as Quantity Surveyor for Cardno, Muller Partnership's liability is limited to the scope of services and value limit, as defined in their Professional indemnity insurance cover. A copy is available on request.

This report covers only the items as contained in this report. Should the Cardno require additional items or areas of assessment, these should be specifically requested and will be actioned as agreed between the parties.

The construction costs are current as at the date of this assessment only. The values assessed herein may change significantly and unexpectedly over a relatively short period (including as a result of general market movements or factors specific to the particular property). We do not accept liability for losses arising from such subsequent changes in values.

Document history & status

Revision	Date	Description	By	Review	Approved
1	26/10/2018	Order of Cost Estimates [10 No.]	TH	CB	CB
2	01/11/2018	Order of Cost Estimates [19 No.]	HG	CB	CB

CONTENTS

1.0	Executive Summary.....	5
2.0	Schedule Of Information	7
3.0	Assumptions.....	8
4.0	Exclusions	13
	Appendix A – ORDER OF COST ESTIMATES [19 NO.]	16

Glossary of Key Terms

Construction Contingency

The Construction Contingency is a contingency allowance made for unknowns that may occur during construction due to latent conditions or issues with the documentation.

Design Development Allowance

The Design Development Allowance is a contingency included within our estimate to allow for the unknown costs associated with progressing the development from the initial concept through until the 'For Construction'. At the time of For Construction documentation this contingency should be 0% as all of the project will have been designed and costed accordingly.

Preliminaries & Margin

The Preliminaries and Margin Allowance is an allowance for the builder margin and their establishment and management of the site. This item will therefore include for items such as site fencing & amenities, site foreman, head office overheads, insurances, scaffolding & hoarding, craneage, site cleaning, OH&S management, QA, etc.

1.0 EXECUTIVE SUMMARY

Project Description

The works considered by the Order of Cost Estimates and report are for the proposed Infrastructure Upgrades located in Marrickville. The scope of works to each site is generally as follows:-

- New pavements;
- Footpaths;
- Kerbs, medians and islands;
- Verge;
- Revegetation;
- Drainage including subsoil and Kerb Inlet Pits;
- Metalwork and Linemarking;
- Lighting;
- Traffic Control;
- Parking meters;

Cost Overview

A summary of the scope and project totals for the Order of Cost Estimates is as follows:

Order of Cost Estimates Cost Summary			
Ref	Project Name	Description	Project Total [Excl GST]
1.0	Farr St to Victoria Road Link	150m long x 18m wide reserve (12m carriageway, 2 x 2m footpaths and 2 x 1m verge);	\$1,061,000
2.0	Victoria Rd separator at Mitchell St	80m long raised concrete separator near Mitchell St;	\$55,000
3.0	Mitchell St Splitter Island	Installation of Splitter Island at eastern end of Mitchell St;	\$30,000
4.0	Hans Place Extension	165m of 20m wide road reserve between Victoria Rd and Hans Pl (12m carriageway, 2 x 1m utility zone, 2 x 2m footpath, 2 x 1m green space). 85m2 land acquisition, 8 bollards at Victoria Road and retaining of heritage façade at Hans Place;	\$2,116,000
5.0	Wicks Park Link	80m long x 5m wide pedestrian link between Hans Pl and Wicks Park;	\$94,000
6.0	Victoria Rd separator (Rich Rd to Cook Rd)	140m long raised concrete separator from Rich St to Cook St;	\$93,000
7.0	Smith St Splitter Island	Installation of Splitter Island at northern end of Smith St;	\$30,000
8.0	Rich St Splitter Island	Installation of Splitter Island at eastern end of Rich St;	\$30,000
9.0	Chapel St to Chalder Laneway	60m long x 12m road reserve (6m carriageway, 2m property buffer, 2m plantation and 2m footpath);	\$416,000
10.0	Rich St to Chapel St	70m long x 12m road reserve (6m carriageway, 2m property buffer, 2m plantation and 2m footpath);	\$462,000
11.0	Mitchell St Extension	40m long x 18m road reserve (12m carriageway, 2 x 3m footpath);	\$331,000
12.0	Sydenham Rd/ Fitzroy St Signalisation	Removal of pedestrian crossing and installation of traffic signals;	\$670,000
13.0	Chalder St to Hans Pl Laneway	130m long x 12m road reserve (6m carriageway, 2m buffer, 2m plantation, 2m footpath);	\$766,000
14.0	Chapel St to Chalder St Laneway	60m long x 12m road reserve (6m carriageway, 2m buffer, 2m plantation, 2m footpath);	\$401,000
15.0	Smith St to Chapel St Laneway	150m long x 12m road reserve (6m carriageway, 2m buffer, 2m plantation, 2m footpath);	\$870,000
16.0	Sydenham Rd to Victoria Rd Signalisation	Intersection Upgrade to allow for turning lane;	\$2,261,000
17.0	Mitchell St Spur (North)	50m long x 12m wide road reserve (6m carriageway, 2 x 2m footpath, 2 x 1m verge)	\$278,000
18.0	Mitchell St Residential Access Road 01	220m long x 12m wide road reserve (6m carriageway, 2 x 2m footpath, 2 x 1m verge)	\$1,180,000
19.0	Mitchell St Residential Access Road 02	220m long x 20m wide road reserve (12m carriageway, 2 x 2m footpath, 2 x 2m verge)	\$1,624,000

* We note the attached estimates are for construction costs only and do **not** allow for items such as finance costs, escalation or planning & authority fees & charges or Client Side Project Management. Please refer to the Qualification, Assumptions and Exclusions sections of this report for further details.

2.0 SCHEDULE OF INFORMATION

Muller Partnership has used the following information in compiling our Order of Cost Estimates:

1. Cardno Options Sketches titled 'P47 Transport Infrastructure', received 30 October 2018;
2. Email and telephone correspondence with Dean Rance and Chris Slenders of Cardno in relation to scope (numerous);

All rates used within our Order of Cost Estimates have been gathered from our in-house databases as well as being constructed from first principles namely labour, materials and waste to reflect current market and project specific value.

3.0 ASSUMPTIONS

We have made the following assumptions in the preparation of our Order of Cost Estimates:-

Generally

1. The works be competitively tendered to a suitable number of qualified Contractors;
2. Works have been priced as individual projects, no allowance has been included for potential cost savings by undertaking multiple stages at once;
3. A construction contingency of 20% has been included for each option;
4. A design development allowance of 10% has been included for each option;
5. Excavation is assumed to be 550 deep for road profile;
6. Disposal is assumed to be at a location approximately 25km away from site location;
7. Generally 600 dia Reinforced Concrete Pipes have been assumed;
8. Road pavement is assumed to be 150 thick lower selected material zone, 350 thick heavily bound subbase and 50 thick AC14 layer;
9. Concrete paths are assumed to be 100 thick;
10. Subsoil soil drainage has been allowed below concrete kerbs
11. Kerb inlet pits have been spaced at 1 every 50 meters;

Farr St to Victoria Road Link

12. The 18m wide reserve is assumed to be comprised of 12m carriageway, 2 x 2m footpaths and 2 x 1m verge;
13. A provisional allowance of \$45,000 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
14. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
15. An out of hours work allowance of 10% has been included;

Victoria Rd separator at Mitchell St

16. No demolition is required;
17. Raise separator dimensions have been assumed 300 wide x 200 high;
18. 2 No. sign has been assumed to island;
19. A provisional allowance of 3 weeks has been included for traffic control;
20. An out of hours work allowance of 50% has been included;

Mitchell St Splitter Island

21. No demolition is required;
22. Splitter island dimensions have been assumed 10,000 long x 1,000 wide x 150 high with a brick paving finish;
23. 1 No. sign has been assumed to island;
24. A provisional allowance of 2 weeks has been included for traffic control;
25. An out of hours work allowance of 50% has been included;

Hans Place Extension

26. No connection to Victoria Road has been included;
27. A provisional allowance of \$150,000 Excl GST has been included to work around heritage facade to be retained;
28. A provisional allowance of \$52,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
29. A provisional allowance of 4 weeks has been included for traffic control;
30. An out of hours work allowance of 10% has been included;
31. An allowance of \$666,425 Excl GST has been included based on the advice provided by Cardno;

Wicks Park Link

32. Footpath is assumed to the full 5m wide extent of the pedestrian link;
33. 2 No. sign has been assumed to link;
34. A provisional allowance of \$15,000 Excl GST has been included for pedestrian lights [Assuming 1 every 30m];
35. A shared path centre line has been assumed;

Victoria Rd separator (Rich Rd to Cook Rd)

36. No demolition is required;
37. Raise separator dimensions have been assumed 300 wide x 200 high;
38. 2 No. sign has been assumed to island;
39. A provisional allowance of 5 weeks has been included for traffic control;
40. An out of hours work allowance of 50% has been included;

Smith St Splitter Island

41. No demolition is required;
42. Splitter island dimensions have been assumed 10,000 long x 1,000 wide x 150 high with a brick paving finish;
43. 1 No. sign has been assumed to island;
44. A provisional allowance of 2 weeks has been included for traffic control;

45. An out of hours work allowance of 50% has been included;

Rich St Splitter Island

46. No demolition is required;
47. Splitter island dimensions have been assumed 10,000 long x 1,000 wide x 150 high with a brick paving finish;
48. 1 No. sign has been assumed to island;
49. A provisional allowance of 2 weeks has been included for traffic control;
50. An out of hours work allowance of 50% has been included;

Chapel St to Chalder Laneway

51. The 2m plantation area is assumed to be 50% pavement for parking and 50% planting;
52. A provisional allowance of \$22,000 Excl GST has been included for parking meters;
53. A provisional allowance of \$1,200 Excl GST has been included for signage;
54. A provisional allowance of \$22,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
55. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
56. An out of hours work allowance of 10% has been included;

Rich St to Chapel St

57. The 2m plantation area is assumed to be 50% pavement for parking and 50% planting;
58. A provisional allowance of \$22,000 Excl GST has been included for parking meters;
59. A provisional allowance of \$1,400 Excl GST has been included for signage;
60. A provisional allowance of \$22,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
61. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
62. An out of hours work allowance of 10% has been included;

Mitchell St Extension

63. A provisional allowance of \$15,000 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
64. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
65. An out of hours work allowance of 10% has been included;

Sydenham Rd/ Fitzroy St Signalisation

- 66. A provisional allowance of \$302,500 Excl GST has been included for a new 3 way signalised intersection;
- 67. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
- 68. An out of hours work allowance of 25% has been included;

Chalder St to Hans Pl Laneway

- 69. The 2m plantation area is assumed to be 50% pavement for parking and 50% planting;
- 70. A provisional allowance of \$33,000 Excl GST has been included for parking meters;
- 71. A provisional allowance of \$2,600 Excl GST has been included for signage;
- 72. A provisional allowance of \$45,000 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
- 73. A provisional allowance of 2 weeks has been included for traffic control [Assumes 2 weeks at tie in only];
- 74. An out of hours work allowance of 10% has been included;

Chapel St to Chalder St Laneway

- 75. The 2m plantation area is assumed to be 50% pavement for parking and 50% planting;
- 76. A provisional allowance of \$22,000 Excl GST has been included for parking meters;
- 77. A provisional allowance of \$1,200 Excl GST has been included for signage;
- 78. A provisional allowance of \$22,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
- 79. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
- 80. An out of hours work allowance of 10% has been included;

Smith St to Chapel St Laneway

- 81. The 2m plantation area is assumed to be 50% pavement for parking and 50% planting;
- 82. A provisional allowance of \$33,000 Excl GST has been included for parking meters;
- 83. A provisional allowance of \$3,000 Excl GST has been included for signage;
- 84. A provisional allowance of \$45,000 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];

- 85. A provisional allowance of 4 weeks has been included for traffic control [Assumes 2 weeks at each tie in only];
- 86. An out of hours work allowance of 10% has been included;

Sydenham Rd to Victoria Rd Signalisation

- 87. A provisional allowance of \$3,000 Excl GST has been included for the relocation of an existing red light camera;
- 88. A provisional allowance of \$50,000 Excl GST has been included for adjustments to the existing signalised intersection;
- 89. A provisional allowance of 10 weeks has been included for traffic control;
- 90. An out of hours work allowance of 50% has been included;

Mitchell St Spur (North)

- 91. A provisional allowance of \$15,000 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
- 92. A provisional allowance of 2 weeks has been included for traffic control [Assumes 2 weeks at tie in only];
- 93. An out of hours work allowance of 10% has been included;

Mitchell St Residential Access Road 01

- 94. A provisional allowance of \$67,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
- 95. A provisional allowance of 2 weeks has been included for traffic control [Assumes 2 weeks at tie in only];
- 96. An out of hours work allowance of 10% has been included;

Mitchell St Residential Access Road 02

- 97. A provisional allowance of \$67,500 Excl GST has been included for street lighting [Assuming 1 every 50m to both sides of the road];
- 98. A provisional allowance of 2 weeks has been included for traffic control [Assumes 2 weeks at tie in only];
- 99. An out of hours work allowance of 10% has been included;

4.0 EXCLUSIONS

Within the following Order of Cost Estimates the acronym 'EXCL' means work that has **not** been included in our estimate. We specifically note the following exclusions from the estimated cost:

1. GST;
2. Escalation;
3. Authority's fees and charges & legal fees;
4. Property/ Land Acquisitions [NB: Unless Otherwise Provided];
5. Client Side Project Management;
6. Delay costs including latent conditions;
7. Works outside the specified site area;
8. Finance costs;
9. Staging of works [NB: Unless Otherwise Noted];
10. Building demolition works are excluded;
11. Removal or treatment of hazardous/ contaminated materials;
12. Relocation/ Alterations/ Protection to services [Sewer, Water, Communications, Electrical, Hydrants, Gas];
13. Soft Spots;
14. Exclude impacts of existing construction projects in the area;
15. Bus stop shelters / seats are excluded;
16. Traffic signals;

Farr St to Victoria Road Link

17. Nil;

Victoria Rd separator at Mitchell St

18. Demolition works to the road is excluded;
19. Any work other than the construction of the separator is excluded;

Mitchell St Splitter Island

- 20. Demolition works to the road is excluded;
- 21. Any work other than the construction of the splitter island is excluded;

Hans Place Extension

- 22. Connection to Victoria Road;

Wicks Park Link

- 23. Traffic Control is excluded
- 24. Out of Hours works are excluded;

Victoria Rd separator (Rich Rd to Cook Rd)

- 25. Demolition works to the road is excluded;
- 26. Any work other than the construction of the separator is excluded;

Smith St Splitter Island

- 27. Demolition works to the road is excluded;
- 28. Any work other than the construction of the splitter island is excluded;

Rich St Splitter Island

- 29. Demolition works to the road is excluded;
- 30. Any work other than the construction of the splitter island is excluded;

Chapel St to Chalder Laneway

- 31. Nil;

Rich St to Chapel St

- 32. Nil;

Mitchell St Extension

33. Nil;

Sydenham Rd/ Fitzroy St Signalisation

34. Nil;

Chalder St to Hans Pl Laneway

35. Nil;

Chapel St to Chalder St Laneway

36. Nil;

Smith St to Chapel St Laneway

37. Nil;

Sydenham Rd to Victoria Rd Signalisation

38. New signalised intersection;

39. Replacement of in ground sensors;

Mitchell St Spur (North)

40. Parking Meters;

41. Signage;

Mitchell St Residential Access Road 01

42. Parking Meters;

43. Signage;

Mitchell St Residential Access Road 02

44. Parking Meters;

45. Signage;

APPENDIX A – ORDER OF COST ESTIMATES [19 NO.]

**TRANSPORT INFRASTRUCTURE UPGRADES
FARR STREET TO VICTORIA ROAD LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.26	1.04	2,800	2,800
2.0	BULK EARTHWORKS	7.46	29.33	79,200	79,200
3.0	DRAINAGE	11.24	44.17	119,250	119,250
4.0	PAVEMENTS	18.58	73.00	197,100	197,100
5.0	CONCRETE WORKS	7.21	28.33	76,500	76,500
6.0	SUBSOIL DRAINAGE	2.48	9.74	26,310	26,310
7.0	REVEGETATION	0.99	3.89	10,500	10,500
8.0	METALWORK, SIGNAGE & LINE MARKING	0.36	1.41	3,795	3,795
9.0	SERVICES	4.24	16.67	45,000	45,000
10.0	TRAFFIC CONTROL	1.51	5.93	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.47	21.48	58,000	58,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.03	23.70	64,000	64,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.87	30.94	83,545	83,545
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>782,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.80	58.15	157,000	157,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.43	17.41	47,000	47,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.07	27.78	75,000	75,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>1,061,000</u>
		100.00	392.96	1,061,000	1,061,000

GFA: 2,700 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
FARR STREET TO VICTORIA ROAD LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	40.00	m	20.00	800.00
4	Ditto concrete path complete	80.00	m2	25.00	2,000.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					2,800.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	990.00	m3	65.00	64,350.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	990.00	m3	15.00	14,850.00
Total :					79,200.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	450.00	m3	65.00	29,250.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	300.00	m	240.00	72,000.00
3	Supply and install kerb inlet pits	6.00	No	3,000.00	18,000.00
Total :					119,250.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	2,700.00	m2	5.00	13,500.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	270.00	m3	110.00	29,700.00
3	Allow for 350 thick heavily bound subbase	630.00	m3	140.00	88,200.00

**TRANSPORT INFRASTRUCTURE UPGRADES
FARR STREET TO VICTORIA ROAD LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	1,800.00	m2	35.00	63,000.00
	<u>MISCELLANEOUS</u>				
5	Allowance to make smooth connection between new and existing road pavement	36.00	m	75.00	2,700.00
Total :					197,100.00
5.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	600.00	m2	85.00	51,000.00
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter	300.00	m	85.00	25,500.00
	<u>MEDIANS</u>				
3	300 wide 200 high reinforced concrete raised medians		m		NIL
4	150 high splitter island at end of mitchell street		No		NIL
5	Brick paving finish to last		m2		NIL
Total :					76,500.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	300.00	m	85.00	25,500.00
3	Flushing points to last	6.00	No	135.00	810.00
Total :					26,310.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds	300.00	m2	10.00	3,000.00
2	Planting to plant beds		m2		NIL
3	Turf to verges	300.00	m2	20.00	6,000.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					10,500.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				

**TRANSPORT INFRASTRUCTURE UPGRADES
FARR STREET TO VICTORIA ROAD LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
1	Allowance for parking meter systems :[NB: Provisional; Allowance every 100m] <u>SIGNAGE</u>		No		EXCL
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	13.00	No	15.00	195.00
3	Allowance for miscellaneous signage [Provisional] <u>LINE MARKING</u>		Item		EXCL
4	Dashed/solid lane line marking to new pavement	450.00	m	8.00	3,600.00
Total :					3,795.00

9.0 SERVICES

RELOCATION

1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional] <u>ELECTRICAL SERVICES</u>		Item		EXCL
2	Allowance for street light poles :[NB: Provisional] <u>TELECOMMUNICATION SERVICES</u>	6.00	No	7,500.00	45,000.00
3	Allowance for telecommunications services works <u>WATER SERVICES</u>				EXCL
4	Allowance for water services works <u>GAS SERVICE</u>				EXCL
5	Allowance for works to the existing gas service		Item		EXCL
Total :					45,000.00

10.0 TRAFFIC CONTROL

1	Traffic control	4.00	Weeks	4,000.00	16,000.00
Total :					16,000.00

11.0 OUT OF HOURS WORK (10%)

Total :

12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)

1

Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
FARR STREET TO VICTORIA ROAD LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
13.0 PRELIMINARIES AND MARGIN (12%)					
1					
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA RD SEPERATOR AT MITCHELL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	16.00		8,800	8,800
2.0	METALWORK, SIGNAGE & LINE MARKING	1.64		900	900
3.0	TRAFFIC CONTROL	21.82		12,000	12,000
4.0	OUT OF HOURS WORK (50%)	20.00		11,000	11,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	5.45		3,000	3,000
6.0	PRELIMINARIES AND MARGIN (12%)	7.82		4,300	4,300
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>40,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	14.55		8,000	8,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	5.45		3,000	3,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.27		4,000	4,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>55,000</u>
		100.00		55,000	55,000

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA RD SEPERATOR AT MITCHELL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road		m2		NIL
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter		m		NIL
	<u>MEDIANS</u>				
3	300 wide x 200 high reinforced concrete raised medians	80.00	m	110.00	8,800.00
				Total :	8,800.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork		Item		NIL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	2.00	No	450.00	900.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		NIL
				Total :	900.00
3.0 TRAFFIC CONTROL					
1	Traffic control	3.00	Weeks	4,000.00	12,000.00
				Total :	12,000.00
4.0 OUT OF HOURS WORK (50%)					
				Total :	
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
6.0 PRELIMINARIES AND MARGIN (12%)					
1					
				Total :	

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA RD SEPERATOR AT MITCHELL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
					Total :
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	8.00		2,400	2,400
2.0	METALWORK, SIGNAGE & LINE MARKING	1.50		450	450
3.0	TRAFFIC CONTROL	26.67		8,000	8,000
4.0	OUT OF HOURS WORK (50%)	20.00		6,000	6,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.67		2,000	2,000
6.0	PRELIMINARIES AND MARGIN (12%)	7.17		2,150	2,150
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>21,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	16.67		5,000	5,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	6.67		2,000	2,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	6.67		2,000	2,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>30,000</u>
		100.00		30,000	30,000

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road		m2		NIL
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter		m		NIL
	<u>MEDIANS</u>				
3	Approx 10000 long x 1000 wide x 150 high splitter island at end of mitchell street	1.00	No	1,500.00	1,500.00
4	Brick paving finish to last	10.00	m2	90.00	900.00
				Total :	2,400.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork		Item		NIL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	1.00	No	450.00	450.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		NIL
				Total :	450.00
3.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
				Total :	8,000.00
4.0 OUT OF HOURS WORK (50%)					
				Total :	
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
6.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
					Total :
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
HANS PLACE EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.04	0.27	900	900
2.0	BULK EARTHWORKS	2.83	18.15	59,895	59,895
3.0	DRAINAGE	6.26	40.11	132,375	132,375
4.0	PAVEMENTS	17.41	111.66	368,490	368,490
5.0	CONCRETE WORKS	3.98	25.50	84,150	84,150
6.0	SUBSOIL DRAINAGE	1.37	8.79	28,995	28,995
7.0	REVEGETATION	1.31	8.41	27,750	27,750
8.0	METALWORK, SIGNAGE & LINE MARKING	0.65	4.17	13,770	13,770
9.0	SERVICES	2.48	15.91	52,500	52,500
10.0	TRAFFIC CONTROL	0.76	4.85	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	3.73	23.94	79,000	79,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	4.11	26.36	87,000	87,000
13.0	PRELIMINARIES AND MARGIN (12%)	5.40	34.60	114,175	114,175
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>1,065,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	10.07	64.55	213,000	213,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	3.02	19.39	64,000	64,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	5.08	32.60	107,575	107,575
19.0	PROPERTY ACQUISITION	31.49	201.95	666,425	666,425
20.0	PROJECT TOTAL (Excl GST)				<u>2,116,000</u>
		100.00	641.21	2,116,000	2,116,000

GFA: 3,300 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
HANS PLACE EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	20.00	m	20.00	400.00
4	Ditto concrete path complete	20.00	m2	25.00	500.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					900.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	1,089.00	m3	40.00	43,560.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	1,089.00	m3	15.00	16,335.00
Total :					59,895.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	495.00	m3	65.00	32,175.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	330.00	m	240.00	79,200.00
3	Supply and install kerb inlet pits	7.00	No	3,000.00	21,000.00
Total :					132,375.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	3,300.00	m2	5.00	16,500.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	297.00	m3	110.00	32,670.00
3	Allow for 350 thick heavily bound subbase	693.00	m3	140.00	97,020.00

**TRANSPORT INFRASTRUCTURE UPGRADES
HANS PLACE EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	1,980.00	m2	35.00	69,300.00
MISCELLANEOUS					
5	Allowance to work around facade to be retained :[NB: Provisional]	1.00	Item	150,000.00	150,000.00
6	Allowance to make smooth connection between new and existing road pavement	40.00	m	75.00	3,000.00
Total :					368,490.00
5.0 CONCRETE WORKS					
FOOTPATHS					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	660.00	m2	85.00	56,100.00
KERBS					
2	150 high mass concrete kerb and gutter	330.00	m	85.00	28,050.00
MEDIANS					
3	300 wide x 200 high reinforced concrete raised medians		m		EXCL
Total :					84,150.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	330.00	m	85.00	28,050.00
3	Flushing points to last	7.00	No	135.00	945.00
Total :					28,995.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds	660.00	m2	10.00	6,600.00
2	Planting to plant beds	330.00	m2	35.00	11,550.00
3	Turf to verges	330.00	m2	20.00	6,600.00
4	Landscape maintenance (3 months)	1.00	Item	3,000.00	3,000.00
Total :					27,750.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
METALWORK					
1	Allowance for supply and install of bollards	8.00	No	1,200.00	9,600.00

**TRANSPORT INFRASTRUCTURE UPGRADES
HANS PLACE EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	14.00	No	15.00	210.00
3	Allowance for miscellaneous signage [Provisional]		Item		EXCL
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement	495.00	m	8.00	3,960.00
				Total :	13,770.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	7.00	No	7,500.00	52,500.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
				Total :	52,500.00
10.0 TRAFFIC CONTROL					
1	Traffic control	4.00	Weeks	4,000.00	16,000.00
				Total :	16,000.00
11.0 OUT OF HOURS WORK (10%)					
				Total :	
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
13.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
HANS PLACE EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
13.0 PRELIMINARIES AND MARGIN (12%)					
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition provided by Cardno :[NB: Provisional]	437.00	m2	1,525.00	666,425.00
					Total : 666,425.00
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
WEST PARK LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	36.17	85.00	34,000	34,000
2.0	METALWORK, SIGNAGE & LINE MARKING	6.74	15.85	6,340	6,340
3.0	SERVICES	15.96	37.50	15,000	15,000
4.0	TRAFFIC CONTROL				
5.0	OUT OF HOURS WORK (10%)				
6.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.38	15.00	6,000	6,000
7.0	PRELIMINARIES AND MARGIN (12%)	8.15	19.15	7,660	7,660
8.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>69,000</u>
9.0	CONSTRUCTION CONTINGENCY (20%)	14.89	35.00	14,000	14,000
10.0	CONCEPT DEVELOPMENT COSTS (5%)	4.26	10.00	4,000	4,000
11.0	COMMUNITY LIAISON				
12.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.45	17.50	7,000	7,000
13.0	PROPERTY ACQUISITION				
14.0	PROJECT TOTAL (Excl GST)				<u>94,000</u>
		100.00	235.00	94,000	94,000

GFA: 400 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
WEST PARK LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path	400.00	m2	85.00	34,000.00
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter		m		NIL
	<u>MEDIANS</u>				
3	300 wide x 200 high reinforced concrete raised medians		m		NIL
				Total :	34,000.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for supply and install of bollards :[Assumed 2 each end]	4.00	No	1,200.00	4,800.00
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	2.00	Item	450.00	900.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement	80.00	m	8.00	640.00
				Total :	6,340.00
3.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]		No		EXCL
3	Allowance for pedestrian lights [NB: Provisional]	3.00	No	5,000.00	15,000.00
	<u>TELECOMMUNICATION SERVICES</u>				
4	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
5	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
6	Allowance for works to the existing gas service		Item		EXCL
				Total :	15,000.00

**TRANSPORT INFRASTRUCTURE UPGRADES
WEST PARK LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0	TRAFFIC CONTROL				
1	Traffic control		Weeks		NIL
Total :					
5.0	OUT OF HOURS WORK (10%)				
Total :					
6.0	DESIGN DEVELOPMENT ALLOWANCE (10%)				
1					
Total :					
7.0	PRELIMINARIES AND MARGIN (12%)				
1					
Total :					
8.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
Total :					
9.0	CONSTRUCTION CONTINGENCY (20%)				
1					
Total :					
10.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
Total :					
11.0	COMMUNITY LIAISON				
1					
Total :					
12.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
Total :					

**TRANSPORT INFRASTRUCTURE UPGRADES
WEST PARK LINK
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
13.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
14.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA ROAD SEPERATOR (RICH RD TO COOK RD)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	16.56		15,400	15,400
2.0	METALWORK, SIGNAGE & LINE MARKING	0.97		900	900
3.0	TRAFFIC CONTROL	21.51		20,000	20,000
4.0	OUT OF HOURS WORK (50%)	19.35		18,000	18,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.45		6,000	6,000
6.0	PRELIMINARIES AND MARGIN (12%)	8.28		7,700	7,700
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>68,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	15.05		14,000	14,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	4.30		4,000	4,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.53		7,000	7,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>93,000</u>
		100.00		93,000	93,000

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA ROAD SEPERATOR (RICH RD TO COOK RD)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>MEDIANS</u>				
1	300 wide 200 high reinforced concrete raised medians	140.00	m	110.00	15,400.00
Total :					15,400.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork		Item		NIL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	2.00	No	450.00	900.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		NIL
Total :					900.00
3.0 TRAFFIC CONTROL					
1	Traffic control	5.00	Weeks	4,000.00	20,000.00
Total :					20,000.00
4.0 OUT OF HOURS WORK (50%)					
Total :					
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
Total :					
6.0 PRELIMINARIES AND MARGIN (12%)					
1					
Total :					
7.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
Total :					

**TRANSPORT INFRASTRUCTURE UPGRADES
VICTORIA ROAD SEPERATOR (RICH RD TO COOK RD)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	8.00		2,400	2,400
2.0	METALWORK, SIGNAGE & LINE MARKING	1.50		450	450
3.0	TRAFFIC CONTROL	26.67		8,000	8,000
4.0	OUT OF HOURS WORK (50%)	20.00		6,000	6,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.67		2,000	2,000
6.0	PRELIMINARIES AND MARGIN (12%)	7.17		2,150	2,150
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>21,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	16.67		5,000	5,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	6.67		2,000	2,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	6.67		2,000	2,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>30,000</u>
		100.00		30,000	30,000

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road		m2		NIL
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter		m		NIL
	<u>MEDIANS</u>				
3	Approx 10000 long x 1000 wide x 150 high splitter island at end of mitchell street	1.00	No	1,500.00	1,500.00
4	Brick paving finish to last	10.00	m2	90.00	900.00
				Total :	2,400.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork		Item		NIL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	1.00	No	450.00	450.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		NIL
				Total :	450.00
3.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
				Total :	8,000.00
4.0 OUT OF HOURS WORK (50%)					
				Total :	
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
6.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
					Total :
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	CONCRETE WORKS	8.00		2,400	2,400
2.0	METALWORK, SIGNAGE & LINE MARKING	1.50		450	450
3.0	TRAFFIC CONTROL	26.67		8,000	8,000
4.0	OUT OF HOURS WORK (50%)	20.00		6,000	6,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.67		2,000	2,000
6.0	PRELIMINARIES AND MARGIN (12%)	7.17		2,150	2,150
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>21,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	16.67		5,000	5,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	6.67		2,000	2,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	6.67		2,000	2,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>30,000</u>
		100.00		30,000	30,000

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road		m2		NIL
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter		m		NIL
	<u>MEDIANS</u>				
3	Approx 10000 long x 1000 wide x 150 high splitter island at end of mitchell street	1.00	No	1,500.00	1,500.00
4	Brick paving finish to last	10.00	m2	90.00	900.00
				Total :	2,400.00
2.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork		Item		NIL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		NIL
3	Allowance for miscellaneous signage [Provisional]	1.00	No	450.00	450.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		NIL
				Total :	450.00
3.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
				Total :	8,000.00
4.0 OUT OF HOURS WORK (50%)					
				Total :	
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
6.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST SPLITTER ISLAND
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
					Total :
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.40	2.33	1,680	1,680
2.0	BULK EARTHWORKS	5.08	29.33	21,120	21,120
3.0	DRAINAGE	11.90	68.75	49,500	49,500
4.0	PAVEMENTS	11.44	66.13	47,610	47,610
5.0	CONCRETE WORKS	5.88	34.00	24,480	24,480
6.0	SUBSOIL DRAINAGE	2.55	14.73	10,605	10,605
7.0	REVEGETATION	1.88	10.83	7,800	7,800
8.0	METALWORK, SIGNAGE & LINE MARKING	5.58	32.22	23,200	23,200
9.0	SERVICES	5.41	31.25	22,500	22,500
10.0	TRAFFIC CONTROL	3.85	22.22	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.53	31.94	23,000	23,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.01	34.72	25,000	25,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.81	45.15	32,505	32,505
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>305,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.66	84.72	61,000	61,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.57	26.39	19,000	19,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.45	43.06	31,000	31,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>416,000</u>
		100.00	577.78	416,000	416,000

GFA: 720 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	24.00	m	20.00	480.00
4	Ditto concrete path complete	48.00	m2	25.00	1,200.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					1,680.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	264.00	m3	65.00	17,160.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	264.00	m3	15.00	3,960.00
Total :					21,120.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	180.00	m3	65.00	11,700.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	120.00	m	240.00	28,800.00
3	Supply and install kerb inlet pits	3.00	No	3,000.00	9,000.00
Total :					49,500.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	720.00	m2	5.00	3,600.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	63.00	m3	110.00	6,930.00
3	Allow for 350 thick heavily bound subbase	147.00	m3	140.00	20,580.00

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	420.00	m2	35.00	14,700.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	24.00	m	75.00	1,800.00
Total :					47,610.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	120.00	m2	85.00	10,200.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	168.00	m	85.00	14,280.00
<u>MEDIANS</u>					
3	300 wide 200 high reinforced concrete raised medians		m		NIL
Total :					24,480.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	120.00	m	85.00	10,200.00
3	Flushing points to last	3.00	No	135.00	405.00
Total :					10,605.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds	180.00	m2	10.00	1,800.00
2	Planting to plant beds	60.00	m2	35.00	2,100.00
3	Turf to buffers	120.00	m2	20.00	2,400.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					7,800.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems	2.00	No	11,000.00	22,000.00
<u>SIGNAGE</u>					

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for signage [Provisional]	60.00	m	20.00	1,200.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		EXCL
				Total :	23,200.00

9.0 SERVICES

RELOCATION

1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
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ELECTRICAL SERVICES

2	Allowance for street light poles :[NB: Provisional]	3.00	No	7,500.00	22,500.00
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TELECOMMUNICATION SERVICES

3	Allowance for telecommunications services works				EXCL
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WATER SERVICES

4	Allowance for water services works				EXCL
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GAS SERVICE

5	Allowance for works to the existing gas service		Item		EXCL
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Total : 22,500.00

10.0 TRAFFIC CONTROL

1	Traffic control	4.00	Weeks	4,000.00	16,000.00
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Total : 16,000.00

11.0 OUT OF HOURS WORK (10%)

Total :

12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)

1

Total :

13.0 PRELIMINARIES AND MARGIN (12%)

1

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST TO CHAPEL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.36	2.33	1,680	1,680
2.0	BULK EARTHWORKS	5.33	34.22	24,640	24,640
3.0	DRAINAGE	12.18	78.13	56,250	56,250
4.0	PAVEMENTS	11.98	76.90	55,370	55,370
5.0	CONCRETE WORKS	6.18	39.67	28,560	28,560
6.0	SUBSOIL DRAINAGE	2.66	17.09	12,305	12,305
7.0	REVEGETATION	1.92	12.29	8,850	8,850
8.0	METALWORK, SIGNAGE & LINE MARKING	5.06	32.50	23,400	23,400
9.0	SERVICES	4.87	31.25	22,500	22,500
10.0	TRAFFIC CONTROL	3.46	22.22	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.41	34.72	25,000	25,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.06	38.89	28,000	28,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.89	50.62	36,445	36,445
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>339,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.72	94.44	68,000	68,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.55	29.17	21,000	21,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.36	47.22	34,000	34,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>462,000</u>
		100.00	641.67	462,000	462,000

GFA: 720 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST TO CHAPEL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	24.00	m	20.00	480.00
4	Ditto concrete path complete	48.00	m2	25.00	1,200.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					1,680.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	308.00	m3	65.00	20,020.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	308.00	m3	15.00	4,620.00
Total :					24,640.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	210.00	m3	65.00	13,650.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	140.00	m	240.00	33,600.00
3	Supply and install kerb inlet pits	3.00	No	3,000.00	9,000.00
Total :					56,250.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	840.00	m2	5.00	4,200.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	74.00	m3	110.00	8,140.00
3	Allow for 350 thick heavily bound subbase	172.00	m3	140.00	24,080.00

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST TO CHAPEL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	490.00	m2	35.00	17,150.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	24.00	m	75.00	1,800.00
Total :					55,370.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	140.00	m2	85.00	11,900.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	196.00	m	85.00	16,660.00
<u>MEDIANS</u>					
3	300 wide 200 high reinforced concrete raised medians		m		NIL
Total :					28,560.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	140.00	m	85.00	11,900.00
3	Flushing points to last	3.00	No	135.00	405.00
Total :					12,305.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds	210.00	m2	10.00	2,100.00
2	Planting to plant beds	70.00	m2	35.00	2,450.00
3	Turf to buffers	140.00	m2	20.00	2,800.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					8,850.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems	2.00	No	11,000.00	22,000.00
<u>SIGNAGE</u>					

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST TO CHAPEL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for signage [Provisional]	70.00	m	20.00	1,400.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		EXCL
				Total :	23,400.00

9.0 SERVICES

RELOCATION

1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
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ELECTRICAL SERVICES

2	Allowance for street light poles :[NB: Provisional]	3.00	No	7,500.00	22,500.00
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TELECOMMUNICATION SERVICES

3	Allowance for telecommunications services works				EXCL
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WATER SERVICES

4	Allowance for water services works				EXCL
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GAS SERVICE

5	Allowance for works to the existing gas service		Item		EXCL
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Total : 22,500.00

10.0 TRAFFIC CONTROL

1	Traffic control	4.00	Weeks	4,000.00	16,000.00
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Total : 16,000.00

11.0 OUT OF HOURS WORK (10%)

Total :

12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)

1

Total :

13.0 PRELIMINARIES AND MARGIN (12%)

1

**TRANSPORT INFRASTRUCTURE UPGRADES
RICH ST TO CHAPEL ST
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	1.03	4.75	3,420	3,420
2.0	BULK EARTHWORKS	6.38	29.33	21,120	21,120
3.0	DRAINAGE	9.97	45.83	33,000	33,000
4.0	PAVEMENTS	16.48	75.75	54,540	54,540
5.0	CONCRETE WORKS	8.22	37.78	27,200	27,200
6.0	SUBSOIL DRAINAGE	2.14	9.82	7,070	7,070
7.0	REVEGETATION				
8.0	METALWORK, SIGNAGE & LINE MARKING	0.31	1.42	1,020	1,020
9.0	SERVICES	4.53	20.83	15,000	15,000
10.0	TRAFFIC CONTROL	4.83	22.22	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.44	25.00	18,000	18,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.04	27.78	20,000	20,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.74	35.60	25,630	25,630
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>242,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.80	68.06	49,000	49,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.53	20.83	15,000	15,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.55	34.72	25,000	25,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>331,000</u>
		100.00	459.72	331,000	331,000

GFA: 720 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	36.00	m	20.00	720.00
4	Ditto concrete path complete	108.00	m2	25.00	2,700.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					3,420.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	264.00	m3	65.00	17,160.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 500 deep]	264.00	m3	15.00	3,960.00
Total :					21,120.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	120.00	m3	65.00	7,800.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	80.00	m	240.00	19,200.00
3	Supply and install kerb inlet pits	2.00	No	3,000.00	6,000.00
Total :					33,000.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	720.00	m2	5.00	3,600.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	72.00	m3	110.00	7,920.00
3	Allow for 350 thick heavily bound subbase	168.00	m3	140.00	23,520.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	480.00	m2	35.00	16,800.00
	<u>MISCELLANEOUS</u>				
5	Allowance to make smooth connection between new and existing road pavement	36.00	m	75.00	2,700.00
Total :					54,540.00
5.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	240.00	m2	85.00	20,400.00
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter	80.00	m	85.00	6,800.00
Total :					27,200.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	80.00	m	85.00	6,800.00
3	Flushing points to last	2.00	No	135.00	270.00
Total :					7,070.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds		m2		NIL
2	Planting to plant beds		m2		NIL
3	Turf to verges		m2		NIL
4	Landscape maintenance (3 months)		Item		NIL
Total :					
8.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for metalwork				EXCL
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	4.00	No	15.00	60.00
3	Allowance for miscellaneous signage [Provisional]		Item		EXCL
	<u>LINE MARKING</u>				

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
4	Dashed/solid lane line marking to new pavement	120.00	m	8.00	960.00
Total :					1,020.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	2.00	No	7,500.00	15,000.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
Total :					15,000.00
10.0 TRAFFIC CONTROL					
1	Traffic control	4.00	Weeks	4,000.00	16,000.00
Total :					16,000.00
11.0 OUT OF HOURS WORK (10%)					
Total :					
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
Total :					
13.0 PRELIMINARIES AND MARGIN (12%)					
1					
Total :					
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST EXTENSION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD/ FITZROY ST SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.39		2,585	2,585
2.0	SERVICES	45.15		302,500	302,500
3.0	TRAFFIC CONTROL	2.39		16,000	16,000
4.0	OUT OF HOURS WORK (25%)	11.94		80,000	80,000
5.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	5.97		40,000	40,000
6.0	PRELIMINARIES AND MARGIN (12%)	7.90		52,915	52,915
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>494,000</u>
8.0	CONSTRUCTION CONTINGENCY (20%)	14.78		99,000	99,000
9.0	CONCEPT DEVELOPMENT COSTS (5%)	4.48		30,000	30,000
10.0	COMMUNITY LIAISON				
11.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.01		47,000	47,000
12.0	PROPERTY ACQUISITION				
13.0	PROJECT TOTAL (Excl GST)				<u>670,000</u>
		100.00		670,000	670,000

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD/ FITZROY ST SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing Roadway				
1	Sawcut existing wearing course to remove the existing asphalt layer and crosswalk complete	38.00	m	20.00	760.00
2	Break up, remove and dispose of existing wearing course	73.00	m2	25.00	1,825.00
				Total :	2,585.00
2.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]		No		EXCL
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
	<u>TRAFFIC CONTROL SIGNALS</u>				
6	Supply and installation of complete 3 way signalised intersection :[NB: Provisional]	1.00	No	302,500.00	302,500.00
				Total :	302,500.00
3.0 TRAFFIC CONTROL					
1	Traffic control	4.00	Weeks	4,000.00	16,000.00
				Total :	16,000.00
4.0 OUT OF HOURS WORK (25%)					
				Total :	
5.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD/ FITZROY ST SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
6.0	PRELIMINARIES AND MARGIN (12%)				
1					
					Total :
7.0	CONSTRUCTION SUBTOTAL (Excl GST)				
1					
					Total :
8.0	CONSTRUCTION CONTINGENCY (20%)				
1					
					Total :
9.0	CONCEPT DEVELOPMENT COSTS (5%)				
1					
					Total :
10.0	COMMUNITY LIAISON				
1					
					Total :
11.0	DETAILED DESIGN AND INVESTIGATION (8%)				
1					
					Total :
12.0	PROPERTY ACQUISITION				
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
13.0	PROJECT TOTAL (Excl GST)				
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
CHALDER ST TO HANS PLACE LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.11	0.54	840	840
2.0	BULK EARTHWORKS	3.60	17.66	27,555	27,555
3.0	DRAINAGE	13.81	67.79	105,750	105,750
4.0	PAVEMENTS	13.09	64.28	100,280	100,280
5.0	CONCRETE WORKS	6.92	34.00	53,040	53,040
6.0	SUBSOIL DRAINAGE	2.99	14.69	22,910	22,910
7.0	REVEGETATION	1.98	9.71	15,150	15,150
8.0	METALWORK, SIGNAGE & LINE MARKING	4.65	22.82	35,600	35,600
9.0	SERVICES	5.87	28.85	45,000	45,000
10.0	TRAFFIC CONTROL	1.04	5.13	8,000	8,000
11.0	OUT OF HOURS WORK (10%)	5.48	26.92	42,000	42,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.01	29.49	46,000	46,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.82	38.38	59,875	59,875
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>562,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.75	72.44	113,000	113,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.44	21.79	34,000	34,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.44	36.54	57,000	57,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>766,000</u>
		100.00	491.03	766,000	766,000

GFA: 1,560 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
CHALDER ST TO HANS PLACE LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to demolish existing building including retention of building facade		m2		EXCL
3	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
4	Demolish and remove concrete kerb and gutter	12.00	m	20.00	240.00
5	Ditto concrete path complete	24.00	m2	25.00	600.00
	Services				
6	Allowance to demolish/relocate services				EXCL
Total :					840.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	501.00	m3	40.00	20,040.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	501.00	m3	15.00	7,515.00
Total :					27,555.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	390.00	m3	65.00	25,350.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	260.00	m	240.00	62,400.00
3	Supply and install kerb inlet pits	6.00	No	3,000.00	18,000.00
Total :					105,750.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	1,560.00	m2	5.00	7,800.00

**TRANSPORT INFRASTRUCTURE UPGRADES
CHALDER ST TO HANS PLACE LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
2	Allow for 150 thick lower selected material zone - CBR > 15%	137.00	m3	110.00	15,070.00
3	Allow for 350 thick heavily bound subbase	319.00	m3	140.00	44,660.00
4	Allow for 50 thick AC14	910.00	m2	35.00	31,850.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	12.00	m	75.00	900.00
				Total :	100,280.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	260.00	m2	85.00	22,100.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	364.00	m	85.00	30,940.00
				Total :	53,040.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	260.00	m	85.00	22,100.00
3	Flushing points to last	6.00	No	135.00	810.00
				Total :	22,910.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds	390.00	m2	10.00	3,900.00
2	Planting to plant beds	130.00	m2	35.00	4,550.00
3	Turf to buffers	260.00	m2	20.00	5,200.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
				Total :	15,150.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems :[NB: Provisional; Allowance every 50m]	3.00	No	11,000.00	33,000.00
<u>SIGNAGE</u>					

**TRANSPORT INFRASTRUCTURE UPGRADES
CHALDER ST TO HANS PLACE LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for signage [Provisional]	130.00	m	20.00	2,600.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		EXCL
				Total :	35,600.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	6.00	No	7,500.00	45,000.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
				Total :	45,000.00
10.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
				Total :	8,000.00
11.0 OUT OF HOURS WORK (10%)					
				Total :	
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
13.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
CHALDER ST TO HANS PLACE LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.42	2.33	1,680	1,680
2.0	BULK EARTHWORKS	3.17	17.65	12,705	12,705
3.0	DRAINAGE	12.34	68.75	49,500	49,500
4.0	PAVEMENTS	11.87	66.13	47,610	47,610
5.0	CONCRETE WORKS	6.10	34.00	24,480	24,480
6.0	SUBSOIL DRAINAGE	2.64	14.73	10,605	10,605
7.0	REVEGETATION	1.95	10.83	7,800	7,800
8.0	METALWORK, SIGNAGE & LINE MARKING	5.79	32.22	23,200	23,200
9.0	SERVICES	5.61	31.25	22,500	22,500
10.0	TRAFFIC CONTROL	3.99	22.22	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.49	30.56	22,000	22,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	5.99	33.33	24,000	24,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.96	44.33	31,920	31,920
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>294,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.71	81.94	59,000	59,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.49	25.00	18,000	18,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.48	41.67	30,000	30,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>401,000</u>
		100.00	556.94	401,000	401,000

GFA: 720 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to demolish existing building including retention of building facade		m2		EXCL
3	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
4	Demolish and remove concrete kerb and gutter	24.00	m	20.00	480.00
5	Ditto concrete path complete	48.00	m2	25.00	1,200.00
	Services				
6	Allowance to demolish/relocate services				EXCL
Total :					1,680.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	231.00	m3	40.00	9,240.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	231.00	m3	15.00	3,465.00
Total :					12,705.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	180.00	m3	65.00	11,700.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	120.00	m	240.00	28,800.00
3	Supply and install kerb inlet pits	3.00	No	3,000.00	9,000.00
Total :					49,500.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	720.00	m2	5.00	3,600.00

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
2	Allow for 150 thick lower selected material zone - CBR > 15%	63.00	m3	110.00	6,930.00
3	Allow for 350 thick heavily bound subbase	147.00	m3	140.00	20,580.00
4	Allow for 50 thick AC14	420.00	m2	35.00	14,700.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	24.00	m	75.00	1,800.00
Total :					47,610.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	120.00	m2	85.00	10,200.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	168.00	m	85.00	14,280.00
Total :					24,480.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	120.00	m	85.00	10,200.00
3	Flushing points to last	3.00	No	135.00	405.00
Total :					10,605.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds	180.00	m2	10.00	1,800.00
2	Planting to plant beds	60.00	m2	35.00	2,100.00
3	Turf to buffers	120.00	m2	20.00	2,400.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					7,800.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems :[NB: Provisional; Allowance every 50m]	2.00	No	11,000.00	22,000.00
<u>SIGNAGE</u>					

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for signage [Provisional]	60.00	m	20.00	1,200.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		EXCL
				Total :	23,200.00

9.0 SERVICES

RELOCATION

1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
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ELECTRICAL SERVICES

2	Allowance for street light poles :[NB: Provisional]	3.00	No	7,500.00	22,500.00
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TELECOMMUNICATION SERVICES

3	Allowance for telecommunications services works				EXCL
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WATER SERVICES

4	Allowance for water services works				EXCL
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GAS SERVICE

5	Allowance for works to the existing gas service		Item		EXCL
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Total : 22,500.00

10.0 TRAFFIC CONTROL

1	Traffic control	4.00	Weeks	4,000.00	16,000.00
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Total : 16,000.00

11.0 OUT OF HOURS WORK (10%)

Total :

12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)

1

Total :

13.0 PRELIMINARIES AND MARGIN (12%)

1

**TRANSPORT INFRASTRUCTURE UPGRADES
CHAPEL ST TO CHALDER ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST TO CHAPEL ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.19	0.93	1,680	1,680
2.0	BULK EARTHWORKS	3.65	17.66	31,790	31,790
3.0	DRAINAGE	13.71	66.25	119,250	119,250
4.0	PAVEMENTS	13.39	64.69	116,450	116,450
5.0	CONCRETE WORKS	7.03	34.00	61,200	61,200
6.0	SUBSOIL DRAINAGE	3.02	14.62	26,310	26,310
7.0	REVEGETATION	1.98	9.58	17,250	17,250
8.0	METALWORK, SIGNAGE & LINE MARKING	4.14	20.00	36,000	36,000
9.0	SERVICES	5.17	25.00	45,000	45,000
10.0	TRAFFIC CONTROL	1.84	8.89	16,000	16,000
11.0	OUT OF HOURS WORK (10%)	5.40	26.11	47,000	47,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	5.98	28.89	52,000	52,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.82	37.82	68,070	68,070
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>638,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.71	71.11	128,000	128,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.48	21.67	39,000	39,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.47	36.11	65,000	65,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>870,000</u>
		100.00	483.33	870,000	870,000

GFA: 1,800 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST TO CHAPEL ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to demolish existing building including retention of building facade		m2		EXCL
3	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
4	Demolish and remove concrete kerb and gutter	24.00	m	20.00	480.00
5	Ditto concrete path complete	48.00	m2	25.00	1,200.00
	Services				
6	Allowance to demolish/relocate services				EXCL
Total :					1,680.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	578.00	m3	40.00	23,120.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	578.00	m3	15.00	8,670.00
Total :					31,790.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	450.00	m3	65.00	29,250.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	300.00	m	240.00	72,000.00
3	Supply and install kerb inlet pits	6.00	No	3,000.00	18,000.00
Total :					119,250.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	1,800.00	m2	5.00	9,000.00

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST TO CHAPEL ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
2	Allow for 150 thick lower selected material zone - CBR > 15%	158.00	m3	110.00	17,380.00
3	Allow for 350 thick heavily bound subbase	368.00	m3	140.00	51,520.00
4	Allow for 50 thick AC14	1,050.00	m2	35.00	36,750.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	24.00	m	75.00	1,800.00
Total :					116,450.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	300.00	m2	85.00	25,500.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	420.00	m	85.00	35,700.00
Total :					61,200.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	300.00	m	85.00	25,500.00
3	Flushing points to last	6.00	No	135.00	810.00
Total :					26,310.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds	450.00	m2	10.00	4,500.00
2	Planting to plant beds	150.00	m2	35.00	5,250.00
3	Turf to buffers	300.00	m2	20.00	6,000.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					17,250.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems :[NB: Provisional; Allowance every 50m]	3.00	No	11,000.00	33,000.00
<u>SIGNAGE</u>					

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST TO CHAPEL ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for signage [Provisional]	150.00	m	20.00	3,000.00
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement		m		EXCL
				Total :	36,000.00

9.0 SERVICES

RELOCATION

1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
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ELECTRICAL SERVICES

2	Allowance for street light poles :[NB: Provisional]	6.00	No	7,500.00	45,000.00
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TELECOMMUNICATION SERVICES

3	Allowance for telecommunications services works				EXCL
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WATER SERVICES

4	Allowance for water services works				EXCL
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GAS SERVICE

5	Allowance for works to the existing gas service		Item		EXCL
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Total : 45,000.00

10.0 TRAFFIC CONTROL

1	Traffic control	4.00	Weeks	4,000.00	16,000.00
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Total : 16,000.00

11.0 OUT OF HOURS WORK (10%)

Total :

12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)

1

Total :

13.0 PRELIMINARIES AND MARGIN (12%)

1

**TRANSPORT INFRASTRUCTURE UPGRADES
SMITH ST TO CHAPEL ST LANEWAY
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD TO VICTORIA RD SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.24	10.70	5,520	5,520
2.0	BULK EARTHWORKS	0.99	43.41	22,400	22,400
3.0	DRAINAGE	1.22	53.58	27,645	27,645
4.0	PAVEMENTS	2.46	107.93	55,690	55,690
5.0	CONCRETE WORKS	3.26	142.76	73,665	73,665
6.0	SUBSOIL DRAINAGE	0.18	7.84	4,045	4,045
7.0	REVEGETATION				
8.0	METALWORK, SIGNAGE & LINE MARKING	0.26	11.51	5,940	5,940
9.0	SERVICES	2.34	102.71	53,000	53,000
10.0	TRAFFIC CONTROL	1.77	77.52	40,000	40,000
11.0	OUT OF HOURS WORK (50%)	6.37	279.07	144,000	144,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	1.90	83.33	43,000	43,000
13.0	PRELIMINARIES AND MARGIN (12%)	2.53	110.65	57,095	57,095
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>532,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	4.73	207.36	107,000	107,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	1.42	62.02	32,000	32,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	2.40	105.16	54,260	54,260
19.0	PROPERTY ACQUISITION	67.92	2,976.24	1,535,740	1,535,740
20.0	PROJECT TOTAL (Excl GST)				<u>2,261,000</u>
		100.00	4,381.78	2,261,000	2,261,000

GFA: 516 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD TO VICTORIA RD SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings as required		m2		EXCL
2	Allowance to make good to site with demolished buildings as required		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	43.00	m	20.00	860.00
4	Ditto concrete path complete	80.00	m2	25.00	2,000.00
	Line Marking				
5	Allowance to black out existing linemarking to allow for new line marking	133.00	m	20.00	2,660.00
	Services				
6	Allowance to demolish/relocate services				EXCL
Total :					5,520.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	280.00	m3	65.00	18,200.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	280.00	m3	15.00	4,200.00
Total :					22,400.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	69.00	m3	65.00	4,485.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	59.00	m	240.00	14,160.00
3	Supply and install kerb inlet pits	3.00	No	3,000.00	9,000.00
Total :					27,645.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	509.00	m2	5.00	2,545.00

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD TO VICTORIA RD SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
2	Allow for 150 thick lower selected material zone - CBR > 15%	77.00	m3	110.00	8,470.00
3	Allow for 350 thick heavily bound subbase	179.00	m3	140.00	25,060.00
4	Allow for 50 thick AC14	509.00	m2	35.00	17,815.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	24.00	m	75.00	1,800.00
Total :					55,690.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	82.00	m2	85.00	6,970.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter including kerbs around plant boxes	767.00	m	85.00	65,195.00
3	Approx 2000 long x 5000 wide x 150 high splitter island	1.00	No	1,500.00	1,500.00
Total :					73,665.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	46.00	m	85.00	3,910.00
3	Flushing points to last	1.00	No	135.00	135.00
Total :					4,045.00
7.0 REVEGETATION					
1	50 thick topsoil to property buffers and Plant beds		m2		NIL
2	Planting to plant beds		m2		NIL
3	Turf to buffers		m2		NIL
4	Landscape maintenance (3 months)		Item		NIL
Total :					
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems :[NB: Provisional; Allowance every 100m]		No		NIL

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD TO VICTORIA RD SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
<u>SIGNAGE</u>					
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]		No		EXCL
3	Allowance for no stopping signage	9.00	No	500.00	4,500.00
<u>LINE MARKING</u>					
4	Dashed/solid lane line marking to new pavement	180.00	m	8.00	1,440.00
Total :					5,940.00
9.0 SERVICES					
<u>RELOCATION</u>					
1	Provisional allowance for the relocation of the existing red light camera's :[NB: Provisional]	1.00	No	3,000.00	3,000.00
2	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]	1.00	Item		EXCL
<u>ELECTRICAL SERVICES</u>					
3	Allowance for street light poles :[NB: Provisional]		No		EXCL
<u>TELECOMMUNICATION SERVICES</u>					
4	Allowance for telecommunications services works				EXCL
<u>WATER SERVICES</u>					
5	Allowance for water services works				EXCL
<u>GAS SERVICE</u>					
6	Allowance for works to the existing gas service		Item		EXCL
<u>TRAFFIC CONTROL SIGNALS</u>					
7	Allowance to adjust existing signalised intersection to suit road adjustment :[NB: Provisional]	1.00	No	50,000.00	50,000.00
Total :					53,000.00
10.0 TRAFFIC CONTROL					
1	Traffic control	10.00	Weeks	4,000.00	40,000.00
Total :					40,000.00
11.0 OUT OF HOURS WORK (50%)					
Total :					
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
SYDENHAM RD TO VICTORIA RD SIGNALISATION
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
Total :					
13.0 PRELIMINARIES AND MARGIN (12%)					
1					
Total :					
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
Total :					
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
Total :					
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
Total :					
17.0 COMMUNITY LIAISON					
1					
Total :					
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
Total :					
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	620.00	m2	2,477.00	1,535,740.00
Total : 1,535,740.00					
20.0 PROJECT TOTAL (Excl GST)					
Total :					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPUR (NORTH)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.30	1.40	840	840
2.0	BULK EARTHWORKS	4.75	22.00	13,200	13,200
3.0	DRAINAGE	14.30	66.25	39,750	39,750
4.0	PAVEMENTS	12.25	56.75	34,050	34,050
5.0	CONCRETE WORKS	9.17	42.50	25,500	25,500
6.0	SUBSOIL DRAINAGE	3.15	14.62	8,770	8,770
7.0	REVEGETATION	1.62	7.50	4,500	4,500
8.0	METALWORK, SIGNAGE & LINE MARKING	0.46	2.13	1,275	1,275
9.0	SERVICES	5.40	25.00	15,000	15,000
10.0	TRAFFIC CONTROL	2.88	13.33	8,000	8,000
11.0	OUT OF HOURS WORK (10%)	5.40	25.00	15,000	15,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.12	28.33	17,000	17,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.96	36.86	22,115	22,115
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>205,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.75	68.33	41,000	41,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.32	20.00	12,000	12,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.19	33.33	20,000	20,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>278,000</u>
		100.00	463.33	278,000	278,000

GFA: 600 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPUR (NORTH)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	12.00	m	20.00	240.00
4	Ditto concrete path complete	24.00	m2	25.00	600.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					840.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	165.00	m3	65.00	10,725.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	165.00	m3	15.00	2,475.00
Total :					13,200.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	150.00	m3	65.00	9,750.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	100.00	m	240.00	24,000.00
3	Supply and install kerb inlet pits	2.00	No	3,000.00	6,000.00
Total :					39,750.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	600.00	m2	5.00	3,000.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	45.00	m3	110.00	4,950.00
3	Allow for 350 thick heavily bound subbase	105.00	m3	140.00	14,700.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPUR (NORTH)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	300.00	m2	35.00	10,500.00
	<u>MISCELLANEOUS</u>				
5	Allowance to make smooth connection between new and existing road pavement	12.00	m	75.00	900.00
Total :					34,050.00
5.0 CONCRETE WORKS					
	<u>FOOTPATHS</u>				
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	200.00	m2	85.00	17,000.00
	<u>KERBS</u>				
2	150 high mass concrete kerb and gutter	100.00	m	85.00	8,500.00
	<u>MEDIANS</u>				
3	300 wide 200 high reinforced concrete raised medians		m		NIL
4	150 high splitter island at end of mitchell street		No		NIL
5	Brick paving finish to last		m2		NIL
Total :					25,500.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	100.00	m	85.00	8,500.00
3	Flushing points to last	2.00	No	135.00	270.00
Total :					8,770.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds	100.00	m2	10.00	1,000.00
2	Planting to plant beds		m2		NIL
3	Turf to verges	100.00	m2	20.00	2,000.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					4,500.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
	<u>METALWORK</u>				
1	Allowance for parking meter systems		No		EXCL

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPUR (NORTH)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
	<u>SIGNAGE</u>				
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	5.00	No	15.00	75.00
3	Allowance for miscellaneous signage [Provisional]		Item		EXCL
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement	150.00	m	8.00	1,200.00
				Total :	1,275.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]		Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	2.00	No	7,500.00	15,000.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
				Total :	15,000.00
10.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
				Total :	8,000.00
11.0 OUT OF HOURS WORK (10%)					
				Total :	
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
				Total :	
13.0 PRELIMINARIES AND MARGIN (12%)					
1					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST SPUR (NORTH)
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
13.0 PRELIMINARIES AND MARGIN (12%)					
					Total :
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 01
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.07	0.32	840	840
2.0	BULK EARTHWORKS	4.92	22.00	58,080	58,080
3.0	DRAINAGE	14.87	66.48	175,500	175,500
4.0	PAVEMENTS	13.66	61.05	161,160	161,160
5.0	CONCRETE WORKS	9.51	42.50	112,200	112,200
6.0	SUBSOIL DRAINAGE	3.27	14.63	38,615	38,615
7.0	REVEGETATION	1.25	5.57	14,700	14,700
8.0	METALWORK, SIGNAGE & LINE MARKING	0.47	2.11	5,565	5,565
9.0	SERVICES	5.72	25.57	67,500	67,500
10.0	TRAFFIC CONTROL	0.68	3.03	8,000	8,000
11.0	OUT OF HOURS WORK (10%)	5.42	24.24	64,000	64,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	6.02	26.89	71,000	71,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.87	35.17	92,840	92,840
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>870,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.75	65.91	174,000	174,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.41	19.70	52,000	52,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.12	31.82	84,000	84,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>1,180,000</u>
		100.00	446.97	1,180,000	1,180,000

GFA: 2,640 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 01
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	12.00	m	20.00	240.00
4	Ditto concrete path complete	24.00	m2	25.00	600.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					840.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	726.00	m3	65.00	47,190.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	726.00	m3	15.00	10,890.00
Total :					58,080.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	660.00	m3	65.00	42,900.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	440.00	m	240.00	105,600.00
3	Supply and install kerb inlet pits	9.00	No	3,000.00	27,000.00
Total :					175,500.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	2,640.00	m2	5.00	13,200.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	198.00	m3	110.00	21,780.00
3	Allow for 350 thick heavily bound subbase	462.00	m3	140.00	64,680.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 01
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	1,320.00	m2	35.00	46,200.00
MISCELLANEOUS					
5	Allowance to make smooth connection between new and existing road pavement	12.00	m	75.00	900.00
6	Extra over allowance for raised pavement [Provisional]	144.00	m2	100.00	14,400.00
Total :					161,160.00
5.0 CONCRETE WORKS					
FOOTPATHS					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	880.00	m2	85.00	74,800.00
KERBS					
2	150 high mass concrete kerb and gutter	440.00	m	85.00	37,400.00
Total :					112,200.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	440.00	m	85.00	37,400.00
3	Flushing points to last	9.00	No	135.00	1,215.00
Total :					38,615.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds	440.00	m2	10.00	4,400.00
2	Planting to plant beds		m2		NIL
3	Turf to verges	440.00	m2	20.00	8,800.00
4	Landscape maintenance (3 months)	1.00	Item	1,500.00	1,500.00
Total :					14,700.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
METALWORK					
1	Allowance for parking meter systems		No		EXCL
SIGNAGE					
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	19.00	No	15.00	285.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 01
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
3	Allowance for miscellaneous signage [Provisional]		Item		EXCL
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement	660.00	m	8.00	5,280.00
Total :					5,565.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]		Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	9.00	No	7,500.00	67,500.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
Total :					67,500.00
10.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
Total :					8,000.00
11.0 OUT OF HOURS WORK (10%)					
Total :					
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
Total :					
13.0 PRELIMINARIES AND MARGIN (12%)					
1					
Total :					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 01
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
1					
					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 02
ORDER OF COST ESTIMATE
NOVEMBER 2018**

MAIN COST SUMMARY

<i>Ref</i>	<i>Description</i>	<i>%</i>	<i>Cost/ m2</i>	<i>Sub Total</i>	<i>Total</i>
1.0	DEMOLITION	0.09	0.32	1,400	1,400
2.0	BULK EARTHWORKS	7.15	26.40	116,160	116,160
3.0	DRAINAGE	10.81	39.89	175,500	175,500
4.0	PAVEMENTS	20.25	74.73	328,820	328,820
5.0	CONCRETE WORKS	6.91	25.50	112,200	112,200
6.0	SUBSOIL DRAINAGE	2.38	8.78	38,615	38,615
7.0	REVEGETATION	1.81	6.68	29,400	29,400
8.0	METALWORK, SIGNAGE & LINE MARKING	0.34	1.26	5,565	5,565
9.0	SERVICES	4.16	15.34	67,500	67,500
10.0	TRAFFIC CONTROL	0.49	1.82	8,000	8,000
11.0	OUT OF HOURS WORK (10%)	5.48	20.23	89,000	89,000
12.0	DESIGN DEVELOPMENT ALLOWANCE (10%)	5.97	22.05	97,000	97,000
13.0	PRELIMINARIES AND MARGIN (12%)	7.87	29.05	127,840	127,840
14.0	CONSTRUCTION SUBTOTAL (Excl GST)				<u>1,197,000</u>
15.0	CONSTRUCTION CONTINGENCY (20%)	14.78	54.55	240,000	240,000
16.0	CONCEPT DEVELOPMENT COSTS (5%)	4.43	16.36	72,000	72,000
17.0	COMMUNITY LIAISON				
18.0	DETAILED DESIGN AND INVESTIGATION (8%)	7.08	26.14	115,000	115,000
19.0	PROPERTY ACQUISITION				
20.0	PROJECT TOTAL (Excl GST)				<u>1,624,000</u>
		100.00	369.09	1,624,000	1,624,000

GFA: 4,400 m2.

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 02
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
1.0 DEMOLITION					
	<u>DEMOLITION</u>				
	Existing buildings				
1	Allowance to demolish the existing buildings		m2		EXCL
2	Allowance to make good to site with demolished buildings		m2		EXCL
	Concrete Works				
3	Demolish and remove concrete kerb and gutter	20.00	m	20.00	400.00
4	Ditto concrete path complete	40.00	m2	25.00	1,000.00
	Services				
5	Allowance to demolish/relocate services				EXCL
Total :					1,400.00
2.0 BULK EARTHWORKS					
1	Bulk excavation from natural surface to subgrade in roads and footpaths [Provisional] :[Allowed for 550 deep]	1,452.00	m3	65.00	94,380.00
2	Extra over allowance to cart to nominated disposal location (NB: Assumed within 25km) :[Allowed for 550 deep]	1,452.00	m3	15.00	21,780.00
Total :					116,160.00
3.0 DRAINAGE					
	<u>Drainage</u>				
	<u>Detailed Excavation</u>				
1	Allowance for detailed excavation to stormwater pipework	660.00	m3	65.00	42,900.00
	<u>Pipework</u>				
2	Allow for new / extension to existing 600 dia Reinforced concrete stormwater pipe including excavation, supply, bed, lay, joint and backfill complete	440.00	m	240.00	105,600.00
3	Supply and install kerb inlet pits	9.00	No	3,000.00	27,000.00
Total :					175,500.00
4.0 PAVEMENTS					
	<u>ROAD PAVEMENT</u>				
1	Trim and compact existing subgrade	4,400.00	m2	5.00	22,000.00
2	Allow for 150 thick lower selected material zone - CBR > 15%	396.00	m3	110.00	43,560.00
3	Allow for 350 thick heavily bound subbase	924.00	m3	140.00	129,360.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 02
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
4.0 PAVEMENTS					(Continued)
4	Allow for 50 thick AC14	2,640.00	m2	35.00	92,400.00
<u>MISCELLANEOUS</u>					
5	Allowance to make smooth connection between new and existing road pavement	20.00	m	75.00	1,500.00
6	Extra over allowance for raised pavement [Provisional]	400.00	m2	100.00	40,000.00
Total :					328,820.00
5.0 CONCRETE WORKS					
<u>FOOTPATHS</u>					
1	100 thick reinforced concrete slabs with SL62 mesh to shared path on both sides of road	880.00	m2	85.00	74,800.00
<u>KERBS</u>					
2	150 high mass concrete kerb and gutter	440.00	m	85.00	37,400.00
Total :					112,200.00
6.0 SUBSOIL DRAINAGE					
1	Note: Subsoil drainage assumed - no details provided		Note		
2	300 wide x approx. 750 deep subsoil drainage including detailed excavation, clean draining filter sand wrapped in Bidim A24 geofabric and 100 dia socked subsoil pipe	440.00	m	85.00	37,400.00
3	Flushing points to last	9.00	No	135.00	1,215.00
Total :					38,615.00
7.0 REVEGETATION					
1	50 thick topsoil to verges and plant beds	880.00	m2	10.00	8,800.00
2	Planting to plant beds		m2		NIL
3	Turf to verges	880.00	m2	20.00	17,600.00
4	Landscape maintenance (3 months)	1.00	Item	3,000.00	3,000.00
Total :					29,400.00
8.0 METALWORK, SIGNAGE & LINE MARKING					
<u>METALWORK</u>					
1	Allowance for parking meter systems		No		EXCL
<u>SIGNAGE</u>					
2	Retroreflective pavement markers to centre line [NB: Assumed 12m spacings]	19.00	No	15.00	285.00

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 02
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
8.0 METALWORK, SIGNAGE & LINE MARKING					(Continued)
3	Allowance for miscellaneous signage [Provisional]		Item		EXCL
	<u>LINE MARKING</u>				
4	Dashed/solid lane line marking to new pavement	660.00	m	8.00	5,280.00
Total :					5,565.00
9.0 SERVICES					
	<u>RELOCATION</u>				
1	Provisional allowance for the relocation of the existing services as required :[NB: Provisional]		Item		EXCL
	<u>ELECTRICAL SERVICES</u>				
2	Allowance for street light poles :[NB: Provisional]	9.00	No	7,500.00	67,500.00
	<u>TELECOMMUNICATION SERVICES</u>				
3	Allowance for telecommunications services works				EXCL
	<u>WATER SERVICES</u>				
4	Allowance for water services works				EXCL
	<u>GAS SERVICE</u>				
5	Allowance for works to the existing gas service		Item		EXCL
Total :					67,500.00
10.0 TRAFFIC CONTROL					
1	Traffic control	2.00	Weeks	4,000.00	8,000.00
Total :					8,000.00
11.0 OUT OF HOURS WORK (10%)					
Total :					
12.0 DESIGN DEVELOPMENT ALLOWANCE (10%)					
1					
Total :					
13.0 PRELIMINARIES AND MARGIN (12%)					
1					
Total :					

**TRANSPORT INFRASTRUCTURE UPGRADES
MITCHELL ST RESIDENTIAL ACCESS ROAD 02
ORDER OF COST ESTIMATE
NOVEMBER 2018**

ESTIMATE DETAILS

<i>Ref</i>	<i>Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>
14.0 CONSTRUCTION SUBTOTAL (Excl GST)					
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					Total :
15.0 CONSTRUCTION CONTINGENCY (20%)					
1					
					Total :
16.0 CONCEPT DEVELOPMENT COSTS (5%)					
1					
					Total :
17.0 COMMUNITY LIAISON					
1					
					Total :
18.0 DETAILED DESIGN AND INVESTIGATION (8%)					
1					
					Total :
19.0 PROPERTY ACQUISITION					
1	Allowance for acquisition as per price provided by Cardno :[NB: Provisional]	1.00	Item		EXCL
					Total :
20.0 PROJECT TOTAL (Excl GST)					
					Total :