MID Assessment Report

Ipswich Wellness and Health Centre

Lot 1 on SP331207, 50 South Street, Ipswich QLD 4305

Document History

Version	Date	Status	Key changes	Author	Reviewer
1.0	06.03.2023	Draft	Document development	SR	
1.1	30.03.2023	Draft for review		TP	NW
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2.1	20.09.2023	Final		NW	
2.2	20.12.2023	Final	Appendix 1 – Proposal Plans	NW	

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PART A – INTRODUCTION

1 Ministerial Infrastructure Designation

Queensland Health (QH) is seeking a Ministerial Infrastructure Designation (MID) from the Minister for Housing, Local Government and Planning and Minister for Public Works in accordance with:

- The *Planning Act 2016* (PA 2016), Chapter 2 Part 5;
- The 'Minister's Guidelines and Rules under the PA 2016*'* (MGR), Version 1, Chapter 7 Chapter 7 — Process for environmental assessment and consultation for making or amending a Ministerial infrastructure designation; and
- The 'Making or Amending a Ministerial Infrastructure Designation (MID) Operational Guidance'.

This MID proposal relates to the delivery of the proposed Ipswich Wellness and Health Centre Precinct, to be located at 50 South Street, Ipswich QLD 4305 and otherwise described as Lot 1 on SP331207 and Lot 2 on SP330201. The site is located within the Ipswich City Council (ICC) local government area.

The PA 2016, Chapter 2, Part 5 prescribes that a Minister, before designating land for infrastructure, must be satisfied that:

- the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or
- there is or will be a need for the efficient and timely supply of the infrastructure.

To make a designation the Minister must also be satisfied that adequate environmental assessment, including adequate consultation, has been carried out in relation to the development that is the subject of the designation.

One way in which the requirements for adequate environmental assessment and public consultation may be met is for the assessment of the proposal to be carried out in accordance with the guidelines made by the chief executive under the PA 2016, section 36(3). The applicable guideline is the *Minister's Guidelines and Rules* (September 2020), Chapter 7—Guidelines for the process for environmental assessment and consultation for making or amending a Ministerial designation.

The effect of a MID is described in s 44(6)(b) of the PA 2016. No further planning approvals are required for the scope of works approved in the MID.

1.1 Infrastructure Proposed

The types of community supporting infrastructure that can be designated are set out in Schedule 5 of the *Planning Regulation 2017* (PR 2017). The proposed MID for the new Ipswich Wellness and Health Centre comprises the following infrastructure types as described in Schedule 5, Part 2:

Infrastructure type	Proposed activities
12 Hospitals and health care services	The primary purpose of the site is for health care services.
20 Storage and works depots and similar facilities, including administrative facilities relating to the provision or maintenance of infrastructure stated in this part	To address related supporting activities including parking and services associated with the primary use for health care services.

1.2 MID Proposal

1.2.1 Ipswich Health Precinct Master Plan

The West Moreton Health population in 2016 was 274,800 and will have further substantial growth to 2036, at which point the population is anticipated to be 593,500 persons. The West Moreton population growth rate has been consistently higher than the Queensland growth rate. The region will grow from 5% of the Queensland population to 8.7% in 2036. The growth requires investment by QH to ensure health services are able to meet the demands of the Region.

A Strategic Business Case for Stage 2 of the Ipswich Health Precinct was approved in November 2018. Since then, West Moreton Health acquired a number of sites close to the main hospital site within the Ipswich Central Business District (CBD) which are suitable for re-development for health services. This is a critical new aspect of the planning, to which the Ipswich Health Precinct Master Plan was prepared to identify and evaluate feasible re-development options that make the best use of the new sites and the current hospital site.

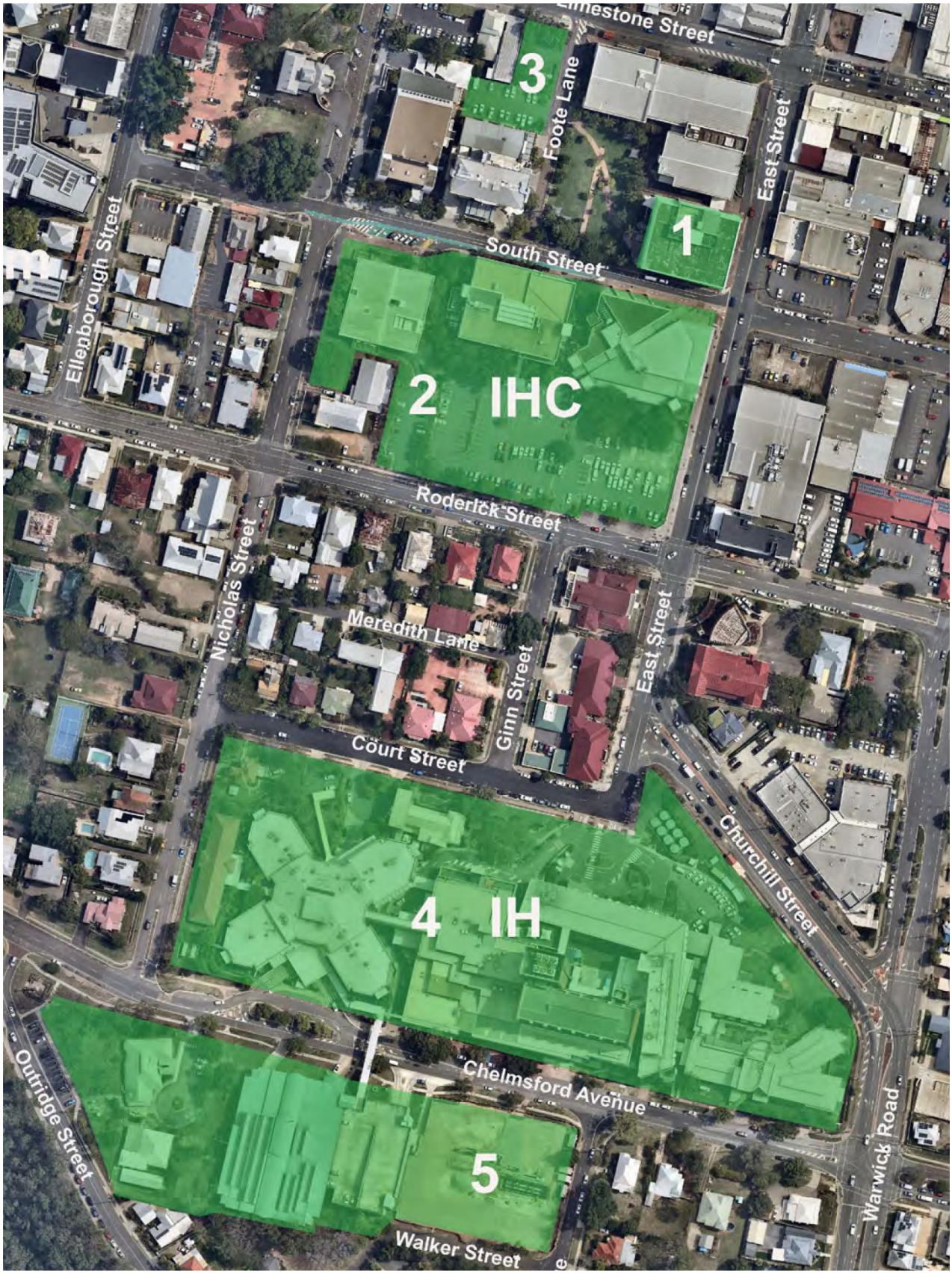
The key objectives of the Ipswich Health Precinct Master Plan are to:

- Respond to the priorities of the West Moreton Health Strategic Plan 2017-21 (2020 update) and the 2020 Clinical Services Plan
- Transform services for a sustainable future to increase capability and capacity to meet future demand while improving safety for patients, families, and carers, and staff
- Improve access to services delivered in WMH while reducing the need for acute infrastructure by providing care in alternative settings and avoiding hospitalisations
- Enhance digital technology to transform care and support decision making
- Increase workforce performance, staff morale, and retention
- Increase community wellness within West Moreton
- Maximise the return on existing and future resources through planning, partnering, research and funding and avoid duplication of services in the community
- Ensure services are provided in environments that are fit for purpose, patient-centered, family-friendly, and of high quality
- Provide infrastructure solutions that are sustainable and able to be adapted as needs change
- Enable compliance with contemporary models of care and the Australasian Health Facility Guideline.

As a summary, the West Moreton Health owns property and land across five (5) sites within the Ipswich CBD, per the table below and as illustrated in *Figure 1*.

Site Reference		Details
1	Hayden Centre	37 South Street, Ipswich (Lot 2 SP330201)
2	Former ICC site	South Street, Ipswich (Lot 1 SP331207)
3	Foot Lane (car park)	Foot Lane, Ipswich (Lot 1 RP2868 and Lot 3 SP197463)
4	Ipswich Hospital	81 East Street, Ipswich (Lot 410 SL8080)
5	Car Park and Mental Health Unit	7 Chelmsford Avenue and 1 Kallara Street (Lot 38 I16270 and Lot 100 SP304379)

Figure 1 – New Ipswich Wellness and Health Centre Site Context



Source: Ipswich Health Precinct Master Plan

1.2.2 Ipswich Wellness and Health Centre and Hayden Centre

The proposal as part of this MID forms part of a broader re-development and expansion to the Ipswich Hospital campus at Chelmsford Avenue, Ipswich, and referred as the Ipswich Hospital Stage 2. The MID seeks to encompass Site 1 (Hayden Centre) and Site 2 (Former ICC site).

The Hayden Centre currently operates as administration and office space for West Moreton Health staff. The building is five storeys in height and includes basement car parking for 20 spaces. Whilst no works are proposed to the Hayden Centre, its inclusion as part of this MID proposal is to ensure its intended future use as Administration and Virtual Care and Digital Health centre is formalised.

The proposed Ipswich Wellness and Health Centre (IWHC) Precinct includes provision for the expansion of hospital and health care services uses to support the existing Ipswich Hospital. The IWHC Precinct seeks to provide services that include ambulatory care, same-day procedural and treatments, radiation oncology, sub-acute car accommodation, education and research and car parking. Development of the IWHC Precinct is to be staged, and includes the following scope of works:

- Stage 1 (funded) – demolition of existing on-site infrastructure, which is progressing as early works under State exemption and not part of this MID proposal;
- Stage 2.1 (funded) – creation of site compounds for project construction, establishment of multi-storey car park development footprint and landscape areas and construction of multi-storey carpark comprising seven (7) storeys and approximately 875 spaces, end of trip facilities and retail space and a supporting at-grade car park with 49 spaces constructed on adjacent land;
- Stage 2.2 (unfunded) – construction of IWHC comprising eight (8) storeys and approximately 13,200m^2 of gross floor area (GFA);
- Stage 2.3 (unfunded) – expansion adjacent to proposed IWHC comprising six (6) storeys and approximately 11,500m^2 GFA; and
- Future Stages (unfunded) – vertical expansion of building infrastructure that includes:
    - three (3) additional storeys to the multi-storey car park with approximately 447 additional spaces, expanding to 10 storeys total and approximately 1,322 spaces
    - two (2) additional storeys, IWHC and adjoining future building development

1.3 MID Assessment Report

This MID Assessment Report has been prepared to address the material required for the MID proposal in accordance with Schedule 3 of the MGR.

Reference should be made to *Part H – Appendices* which includes the proposal plans in ***Appendix 1***. Supporting technical assessments as part of this MID application include:

- **Appendix 2** – Car Parking Demand Assessment
- **Appendix 3** – Traffic Assessment
- **Appendix 4** – Stormwater Management Plan
- **Appendix 5** – Heritage Impact Assessment
- **Appendix 6** – Acoustic Impact Assessment
- **Appendix 7** – State Interest Mapping
- **Appendix 8** – EPBC Protected Matters Search and NCA Wildlife Online database

- **Appendix 9** – Contaminated Land Register and Environmental Management Register Search
- **Appendix 10** – Property Information
- **Appendix 11** – Extracts from the Planning Act 2016
- **Appendix 12** – MID Flowchart

2 Overview of MID Proposal

The relevant matters about the MID proposal are set out below and addressed further in this MID Assessment Report.

Matter	Proposal details	
The site description including the location of the premises proposed to be designated	Real property description:	Lot 1 on SP331207 and Lot 2 on SP330201
	Property address:	South Street, Ipswich QLD 4305
	Registered owner:	West Moreton Hospital and Health Services
	Tenure:	Freehold
	Site area:	Lot 1 SP331207 – 1.6480 hectares (ha) Lot 2 SP330201 – 0.1421 ha
	Property information at ***Appendix 10***	
Any existing uses on the premises proposed to be designated	The IWHC Precinct was the location of the former Ipswich Library and Ipswich City Council Administration Centre and associated car parking. These functions have relocated to the nearby Nicholas Street Precinct which provided opportunity for the site to contribute to the expansion of the Ipswich Hospital.	
Existing uses on adjoining sites	The site is adjoined by: • South Street to the north, • East Street to the east, • Roderick Street to the south, and • Nicholas Street and the Masonic Lodge to the west. The surrounding area comprises a mix of residential development, commercial/ retail buildings and community uses, due its location within the Ipswich CBD.	
The type of infrastructure	*Item 12*	*Hospital and Health Care Services*
	Item 20	*Storage and works depots and similar facilities, including administrative facilities relating to the provision or maintenance of infrastructure stated in this part.*
Information about the nature, scale and intensity of the infrastructure and each use proposed	Proposal Plans at ***Appendix 1.***	
The intended outcomes of the proposed uses on the site	The MID proposal seeks to deliver infrastructure identified as part of the West Moreton Health's Ipswich Health Precinct Master Plan, which includes:	

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The Hayden Centre, to formalise its current use as administration and office space for West Moreton Health staff and to accommodate for its intended future use as an Administration and Virtual Care and Digital Health.
The proposed IWHC Precinct, which seeks to provide services that include ambulatory care, same-day procedural and treatments, radiation oncology, sub-acute car accommodation, education and research and car parking. Development is to be staged, and includes the following scope of works:

Stage 1 (funded) – demolition of existing on-site infrastructure, which is progressing as early works under State exemption and not part of this MID proposal;
Stage 2.1 (funded) – creation of site compounds for project construction, establishment of multi-storey car park development footprint and landscape areas and construction of multi-storey carpark comprising seven (7) storeys and approximately 875 spaces, end of trip facilities and retail space and a supporting at-grade car park with 49 spaces constructed on adjacent land;
Stage 2.2 (unfunded) – construction of IWHC comprising eight (8) storeys and approximately 13,200m^2 of gross floor area (GFA);
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three (3) additional storeys to the multi-storey car park with approximately 447 additional spaces, expanding to 10 storeys total and approximately 1,322 spaces
two (2) additional storeys, IWHC and adjoining future building development

</td></tr>
<tr><td rowspan="3">A list of the applicable state interests as identified by the infrastructure entity and a statement about how they relate to the infrastructure proposal</td><td colspan="2">State Planning Policy (SPP) Report at Appendix 7</td></tr>
<tr><td>WATER QUALITY
• Water resource catchment</td><td>The subject site is within the water resource catchments mapping layer.

A site-based stormwater management plan has been prepared and included in Appendix 4.

Details on how the proposed development manages stormwater impacts are discussed in Part E – Environmental Assessment.</td></tr>
<tr><td>NATURAL HAZARDS, RISK AND RESILIENCE
• Flood hazard area – local government flood mapping area</td><td>The SPP flags that the site is subject to local government mapping as a flood hazard area.

The site is not mapped within a flooding area under the Ipswich City Council Planning Scheme.

No further assessment is considered necessary.</td></tr>
</table>

	TRANSPORT INFRASTRUCTURE • State-controlled road	The site adjoins East Street to the east which is identified as a state-controlled road and under the jurisdiction of the Department of Transport and Main Road (DTMR). Vehicle access to the site will be via Nicholas Street and Roderick Street to the carpark. Pedestrian access will be available from all frontages with the main pedestrian entry into the wellness center located on the corner of Roderick and East Street. A traffic impact assessment plan has been prepared and is provided in ***Appendix 3*.** Details on how the proposed development manages traffic impacts are discussed in *Part E – Environmental Assessment*.
	STRATEGIC AIRPORTS AND AVIATION FACILITIES • Light restriction zone • Lighting area buffer 6km • Wildlife hazard buffer zone • Height restriction zone 45m • Aviation facility	The site is located within the listed areas including the 45m Height Restriction Zone. The Assessment Benchmarks within the State Planning Policy require the below: *'Development and associated activities do not create a permanent or temporary physical or transient intrusion into a strategic airport's operational airspace, unless the intrusion is approved in accordance with the relevant federal legislation'.* Importantly, the proposed building height across stages 1 and 2 is a maximum of 8 storeys and 41.7m sitting at RL 61.5m. As such additional approvals under section 68C are not required.
A statement about any relevant regional plans and state development areas that are applicable to the site and how they are relevant to the infrastructure proposal	The relevant regional plan is the South East Queensland Regional Plan 2011. The site is located within the Urban Footprint under the current Regional Plan. The site is not included in a State Development Area or Priority development area.	
A proposed consultation strategy for the proposed designation	Refer to *Part F – Consultation* of this MID Assessment Report.	

PART B – EXISTING SITE AND CONTEXT

3 Site Information

3.1 Property Details and Ownership

Property snapshot	
Street address	South Street, Ipswich QLD 4305
Real property description	Lot 1 on SP331207 and Lot 2 on SP330201
Registered landowner	West Moreton Hospital and Health Services
Tenure	Freehold
Site area	Lot 1 SP331207 – 1.6480 ha Lot 2 SP330201 – 0.1421 ha
Local Government Authority	Ipswich City Council (ICC)

With reference to *Figure 1*, the site is located within the ICC local government area and consists of two (2) separate lots.

Lot 1 SP3301207 is bounded by South, East, Roderick and Nicholas Streets and is currently improved by a series of buildings which were formally occupied by the ICC, including the Council Administration Building, Ipswich Library and Humanities Centre. The balance of the site comprises the former at-grade Roderick Street car park which previously provided car parking to support the Council buildings on the site.

Lot 2 SP330201 contains the Hayden Centre which accommodates the offices of the West Moreton Health and is located on the corner of East and South Street.

Property information concerning the subject site is included in ***Appendix 10***.

3.2 Easements and Encumbrances

Lot 1 and Lot 2 are not affected by easements or encumbrances as documented on the relevant property titles provided in ***Appendix 10***.

3.3 Surrounding Land Uses

The site is located within the Ipswich CBD approximately 130 metres to the north of the existing Ipswich Hospital and 400m south of the Ipswich Railway Line.

The main site of the proposed IWHC Precinct adjoins two lots (Lot 32 onl122421 and Lot 2 on RP2872) at 82 and 82A Nicholas Street comprising the 'Masonic Temple', which is identified as a place of local heritage significance and entered in schedule 2 ('Character Places') of the *Ipswich Planning Scheme 2006*.

Existing and neighbouring land uses to the site include:

- Market Square park and the heritage state-listed Old Ipswich Courthouse (QHR 600575) is also located directly opposite.
- Detached houses, attached multiple dwellings and offices to the west.
- Detached character houses comprising residents and commercial uses to the south; and
- Multiple dwellings and commercial activities including the Centrelink office to the east.

Figure 2 – Aerial

Legend

Site Boundary

Source: SARA

3.4 Topography

The existing site is a developed land parcel with existing buildings and hardstand and landscape garden beds. The existing site levels at Lot 1 range from RL 36 in the south-west to RL 26m to the north-east.

The topography of Lot 2 which is also currently developed is at RL 20m.

3.5 Development Approval History

Based on a desktop review of Council's PD online system, the site is not subject to any previous development approvals relevant to this MID.

4 Infrastructure Characteristics

The below provides a description of the existing infrastructure characteristics relating to the subject site. Further discussion on potential impacts and mitigation measures from the proposed development are discussed in further detail in *Part E – Environmental Assessment*.

4.1 Transport Network

4.1.1 Existing Road Network

All frontages of the site are comprised of constructed roads with kerb and channel and pedestrian footpaths. The below table provides a summary of the existing road network in proximity to the site.

Road	Speed Limit	Road Classification	Road Configuration
East Street	50km/h	State Controlled Arterial	• Two-lane, two-way, undivided road • 20m reserve width and 12m carriageway width • Pedestrian paths (both frontages) – 3.3m wide path
South Street	50km/h	Council Controlled Local	• One lane, one-way, undivided-way road • 12/20m reserve width and 8m carriageway width • Site frontage includes pedestrian path integrated with development and a shared path for a portion of the South Street frontage.
Roderick Street	60km/h	Council Controlled Sub-arterial	• Two-lane, two-way, undivided road • 20m reserve width and 8 – 14m carriageway width • Pedestrian paths (both frontages) – 1.5m wide path
Nicholas Street	50km/h	Council Controlled Local	• 20m reserve width and 12m carriageway width • Pedestrian paths (both frontages) – 1.2m wide path

4.1.2 Existing Public Transport Network

The subject site is considered well serviced by public transport. Ipswich Station is located within 400m of the South Street frontage, with additional bus stops located on East Street, Limestone Street, and Churchill Street within a 400m radius. During peak hours, rail services operate approximately every 5 minutes and bus services operate every 15 minutes in each direction.

4.1.3 Existing Active Transport

The site has the following connections to existing active transport infrastructure.

Pedestrian Infrastructure

The site is located within the established Ipswich CBD and has good access to pedestrian paths and crossing points. Pedestrian paths are located as follows:

- East Street (both frontages) – 3.3m wide path
- Nicholas Street (both frontages) – 1.2m wide path
- Roderick Street (both frontages) – 1.5m wide path
- South Street – site frontage includes pedestrian path integrated with development and a shared path for a portion of the South Street frontage.

Safe crossing points in the vicinity of the site include the following pedestrian crossings:

- All legs of the East Street/ Roderick Street signalised intersection (south-east corner of the existing West Moreton Health carpark)
- All legs of the East Street/ Limestone Street signalised intersection (100m north-east of the existing West Moreton Health carpark).

Cycle Infrastructure

A 2.5m shared path extends from the East Street/ South Street intersection along South Street for approximately 60m. Following this, the shared path converts into a 1.5m wide cycle lane along the South Street frontage for approximately 150m and terminates west of the Nicholas Street/ South Street intersection.

4.2 Services

4.2.1 Water Infrastructure

The site is serviced by water infrastructure.

4.2.2 Sewer Infrastructure

The site is serviced by sewerage infrastructure.

4.2.3 Stormwater Infrastructure

Based on topography of the region, it is established that the site forms part of a larger regional catchment, with the site having several points of discharge. Flows from the development site currently utilise a pipe network for minor events while major events utilise nearby overland flow routes, via existing roadways, and subsequently discharge into the Bremer River, along with a series of other catchments locally.

The Site has several existing points of discharge located on the northern and north-east boundaries.

4.2.4 Electricity Infrastructure

The site is serviced by electricity infrastructure.

4.2.5 Telecommunications Infrastructure

The site is serviced by telecommunications infrastructure.

4.2.6 Gas Infrastructure

The site is serviced by gas infrastructure.

PART C – MID PROPOSAL

5 Proposal Details

5.1 Designation Purpose

The designation will facilitate delivery of the proposed IWHC Precinct to provide new health care services for the Ipswich catchment area. A supporting multi-storey car park forms part of the immediate works which will directly service the additional parking demands for the proposed development (and broader Ipswich Health Precinct).

As noted previously, the Hayden Centre is also included as part of the MID. The building is five storeys in height and includes basement car parking for 20 spaces. Whilst no works are proposed to the Hayden Centre, its inclusion as part of this MID proposal is to ensure its intended future use as an Administration and Virtual Care and Digital Health centre is formalised.

Hospital and health care services are defined as community infrastructure under Schedule 5 of the PR 2017, being assets necessary to support the community and for the public benefit.

The proposed infrastructure will facilitate the efficient and timely supply of infrastructure; and satisfy statutory requirements and budgetary commitments of the State for the supply of infrastructure.

5.2 Proposal Description and Details

The project forms part of the Ipswich Health Precinct Master Plan and represents Stage 2 of the project. The works comprise the major re-development and expansion of the former ICC site to accommodate for the proposed IWHC Precinct and is to be delivered in a multi-staged manner that comprises:

- Stage 1 (funded) – demolition of existing on-site infrastructure, which is progressing as early works under State exemption and not part of this MID proposal;
- Stage 2.1 (funded) – creation of site compounds for project construction, establishment of multi-storey car park development footprint and landscape areas and construction of multi-storey carpark comprising seven (7) storeys and approximately 875 spaces, end of trip facilities and retail space and a supporting at-grade car park with 49 spaces constructed on adjacent land;
- Stage 2.2 (unfunded) – construction of IWHC comprising eight (8) storeys and approximately 13,200m^2 of gross floor area (GFA);
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- Future Stages (unfunded) – vertical expansion of building infrastructure that includes:
    - three (3) additional storeys to the multi-storey car park with approximately 447 additional spaces, expanding to 10 storeys total and approximately 1,322 spaces
    - two (2) additional storeys, IWHC and adjoining future building development

The proposed IWHC Precinct includes provision for the expansion of hospital and health care services to support the existing Ipswich Hospital and West Moreton community. The IWHC Precinct seeks to provide services that include ambulatory care, same-day procedural and treatments, radiation oncology, sub-acute care accommodation, education and research and car parking.

The master planning for the IWHC Precinct also includes additional future stages that involves additional buildings and height. Notwithstanding, the detail to these have not yet been defined and these future works will be subject to separate future funding, application and approval processes.

In addition to the proposed IWHC Precinct, the Hayden Centre comprises an existing five storey building which currently operates as administration and office space for West Moreton Health staff. The building is five storeys in height and includes basement car parking for 20 spaces. Whilst no works are proposed to the Hayden Centre, its inclusion as part of this MID proposal is to ensure its intended future use as Administration and Virtual Care and Digital Health centre is formalised.

As no further works are proposed regarding the Hayden Centre, the following sections of this MID Assessment Report will focus on the proposed IWHC Precinct only.

5.2.1 Building Design and Heights

It is acknowledged the Ipswich Planning Scheme seeks an outcome in the city centre whereby building heights and intensities increase towards the centre core and decrease outwards from the core.

Notwithstanding, the delivery of suitable health care services is a necessary consideration as part of the Ipswich Hospital Master Plan. Given the size of the site, the building heights within the IWHC Precinct have been considered to ensure service delivery can be accommodated without having to expand into other areas, or land, within the CBD. This would have other implications such as loss of ground level landscaping and public open space areas, potential removal of local heritage buildings etc, in order to maximise site availability.

The IWHC Precinct sits in context with an extensive area of character residential zones to the west and south-west of the site. This will mean that this adjacent context will not significantly grow upwards as the CBD expands and as such the IWHC Precinct will always contain tall buildings in a context of smaller mixed use stock when approached from the west. The buildings within the IWHC Precinct have been designed with consideration of the rising topography to ensure its perception of height in the CBD context can be managed and in line with community expectations.

Discussions have been undertaken from QH with both ICC and the Office of the Queensland Government Architect and there has been in-principal support for the design of taller buildings so long as the principles of the Planning Scheme are generally observed. It is expected this will also allow preservation of heritage buildings/ vegetation on the site, delivery of publicly accessible pedestrian connections through the precincts, public open spaces areas, and landscaping to be maximised in the design. Of importance is that the health facility standards require floor to floor heights will be minimum 4.5m as compared with 3.2m for residential or 3.6m for commercial.

For the purposes of this MID proposal, the IWHC Precinct will include a range of building heights up to eight (8) storeys. The below provides a summary of the proposed heights for each building:

- Multi-storey car park (funded) – up to seven (7) storeys and maximum RL 49.70 in the interim and 10 storeys and RL 58.70 in the ultimate.
- IWHC (unfunded) – up to eight (8) storeys, 37.2m and RL 61.5m

Given the topography of the site, the first stage of the proposed multi-storey car park will present as approximately 1.5 storeys in height from Roderick Street and full height from South Street. Reference should be made to *Figure 3* and *Figure 4* for indicative perspective views of the development.

The mass and form of the buildings within the IWHC Precinct is arranged to provide greater permeability between the southern and northern parts of the CBD. It also provides an articulated address along the walkable grades of South Street and Roderick Street that is more in keeping with the current pattern of built form. The connections through the IWHC Precinct are more critical given the strategic importance of the site as a linking site connecting the Ipswich City Mall and health services to the east of the CBD.

Figure 3 – IWHC (Stage 2.2 – unfunded) – Indicative Roderick Street/ East Street intersection view

Source: Ipswich Health Precinct Master Plan

Figure 4 – Multi-storey car park (Stage 2.1 – funded) – Indicative view from South Street (from Nicholas Street)

Source: Ipswich Health Precinct Master Plan

5.2.2 Vegetation Removal and Landscaping

The site is currently largely developed with some existing landscape trees planted as part of the former ICC development. With reference to *Figure 5*, the site is located within proximity to a public park, Market Square Park on Foote Lane and South Street, which provides some limited green space.

Figure 5 – Existing green spaces

Source: Ipswich Health Precinct Master Plan

The design of the IWHC Precinct will require the removal of existing landscape areas within the site area.

The proposal intends to complete the proposed buildings and provide a series of landscape area between the building and the main address to the IWHC Precinct on Roderick Street. The landscape strategy focusses on specific characteristics and references endemic species within the Ipswich region, using the regional landscape and culture to derive strong landscape theme, strong landscape identity and strong sense of place.

The landscape design includes a range of surface treatment paths, palter beds and gardens complemented by a mixture of vegetation types and sizes. A landscape promenade is also proposed between the IWHC (currently unfunded) and multi-storey car park (currently funded) to provide an avenue between the two buildings and also promote pedestrian connectivity between Roderick Street and South Street. The promenade also forms part of a key requirement of the Ipswich Health Precinct Master Plan and will assist in linking the IWHC Precinct to the Ipswich Hospital to the south, via Ginn Street and East Street/ Churchill Street.

The proposed landscaping for the IWHC Precinct aims to improve public health and wellbeing by:

- Providing shade and protection from weather elements (i.e. sun and rain)
- Creating environments which encourage nature
- Providing safe, accessible and connected spaces
- Creating welcoming spaces and areas for respite
- Providing a landscape spine that links through to the broader Ipswich Health Precinct Master Plan

Landscaping associated with the multi-storey car park will be limited to grassing and soft landscaping along the three (3) road frontages. The main landscaping elements as described above will be provided as part of the ultimate precinct development and aligns with delivery of the IWHC infrastructure.

5.2.3 Operational Hours and Staff Numbers

Whilst currently unfunded, the IWHC is intended to be staffed and operated across standard hours, being 7:00am to 6:00pm. As the delivery of services increases within IWHC, there is the possibility in the future for the facility to have extended hours, which is anticipated to be from 6:00am to 11:00pm, with the long-term option to potentially progress to 24 hours operation.

Of note is that the proposed multi-storey car park within the IWHC Precinct is to be used by staff at both the IWHC (when funded and delivered) and the Ipswich Hospital. Given this, the car park will operate 24 hours to support staff car parking demands as necessary.

The projected number of full-time equivalent positions for the future IWHC, once funded and delivered, is expected to be in the order of 677 staff, once fully operational.

5.2.4 Operational Management

West Moreton Hospital and Health Service will be responsible for the development and implementation of an operational management plan for the IWHC Precinct. The management plan will address general site issues such as security, water management, waste management and refuse, parking management, lighting, and site maintenance.

Current carparking facilities are managed by the Ipswich Hospital Foundation. The proposed multi-storey car park will be delivered under the Government Portfolio Management process and car parking management will be determined at a later date.

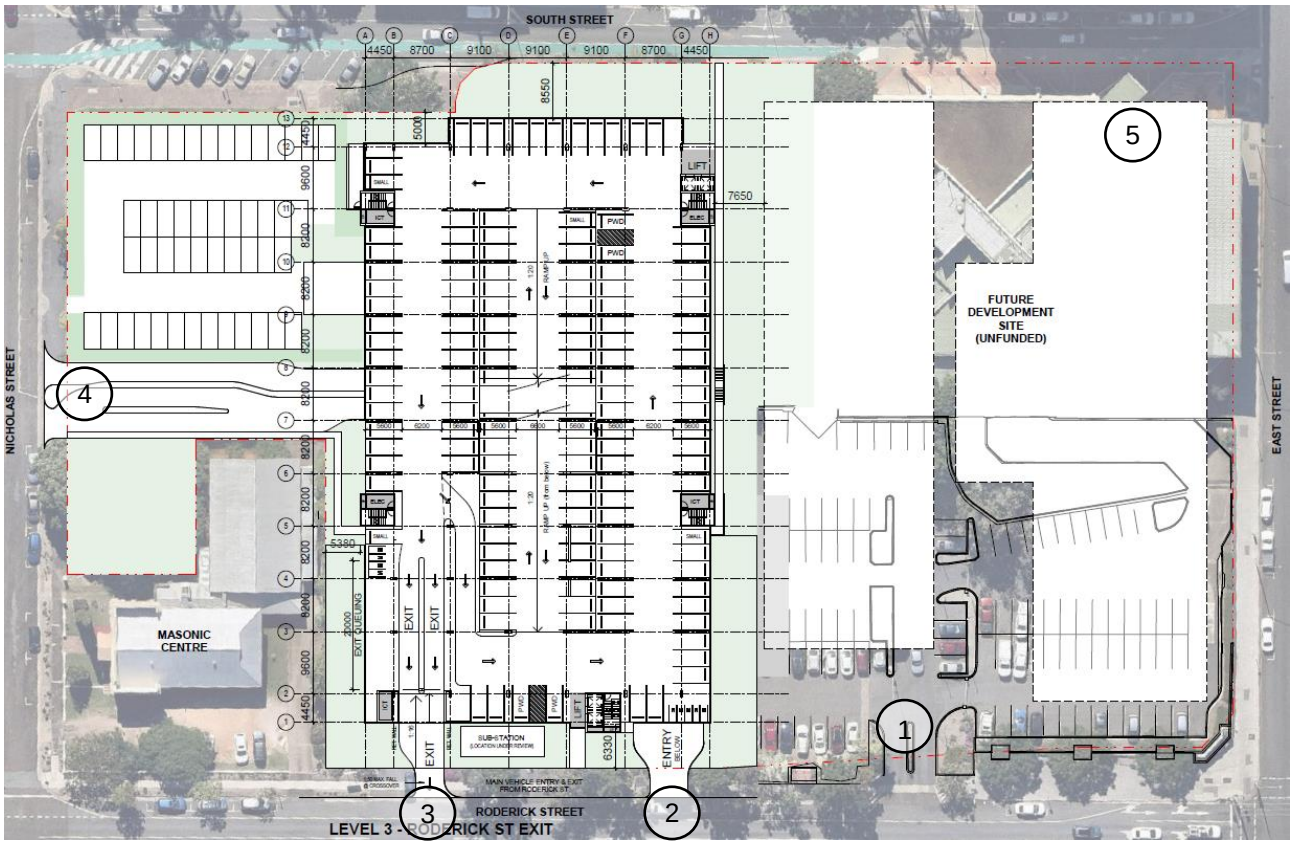
5.2.5 Vehicle and Pedestrian Access

The below table and *Figure 6* provide a summary of the vehicle access points for the IWHC Precinct. Reference should also be made to ***Appendix 1*** proposal plans.

Access	Proposal
1. Existing main public vehicle entry to car park	• The main vehicle site entry point for the existing carpark is from Roderick Street. • The existing car park provides for 90 on-grade car parks. • No change proposed as part of the funded aspect of the development. However, it will be removed as part of the future ultimate development of the IWHC.
2. Main vehicle and pedestrian entry to car park	• The main vehicle entry point to the car park is from Roderick Street into level 2. • The main pedestrian access into the building is provided from Roderick Street, adjacent to the vehicle entry point, into level 2 parking space. • From level 2, there is one (1) fire escape passage provided from the car park to South Street.
3. Main vehicle exit to car park	• The main vehicle exit point from the car park is onto Roderick Street, from level 3.
4. Secondary vehicle and pedestrian entry and exit to car park	• The secondary vehicle entry and exit to the car park, is from Nicholas Street into level 1. • No pedestrian access into the building is provided at this location. • From level 1, there is one (1) fire escape passage provided from the car park to Nicholas Street.

5. Service vehicle access to IWHC (unfunded)	• All service vehicles will gain access to the IWHC via South Street. To be delivered as part of the future ultimate development of the IWHC and informed by further detailed design. • The proposed car park will not initially require service vehicle access. Therefore, service vehicle entry and parking bays will only be provided as part of the future development site (unfunded) stage.

Figure 6 – Access locations



Source: Proposal Plans, Appendix 1

5.2.6 Service Vehicle Access/ Arrangements

It is acknowledged the proposed multi-storey car park (funded) does not include any provisions for service vehicles. The intention is to accommodate the IWHC precinct's service vehicles within the proposed future development site (unfunded).

As referenced within section 5.2.5, all future service vehicles will access the IWHC precinct via South Street and will be accommodated within the future (unfunded) development site.

Details of the service vehicle entry/ exit and the loading and refuse collection arrangements will be further developed and provided in the subsequent stages of the design, as part of the development of the precinct to the west of the car park.

5.2.7 Car Parking

Delivery of the funded multi-storey car park will be to initially support staff parking demands from the Acute Services Building at the Ipswich Hospital. This will involve construction of the multi-storey (7 levels) car park which provides for approximately 844 parking spaces and located towards the site's western boundary. The multi-storey car park would extend to the width of the site from north to south and be accommodated by landscaped areas to improve its amenity and outlook from the streetscape environment.

Furthermore, the existing at-grade car park located to the south-east portion of the site is proposed to be retained in Stage 1, to enable its use for temporary on-grade parking for the main Ipswich Hospital site. A landscaped edge of trees is also proposed along the East Street boundary and temporary grass finishes would be provided over the areas subject to building demolition. This will be delivered as part of the future development of the western portion of the site.

When funding is obtained for development for the IWHC, the temporary at-grade car park would be removed. Where parking demands permit, the multi-storey car park would be extended to ten (10) levels to include additional car parking spaces (approximately 456 spaces) to support the West Moreton Health population.

The proposed multi-storey car park has been located in the central area of the site. This location has been chosen for the following reasons:

- The location provides the necessary visibility to aid wayfinding and links through to the Ipswich Hospital.
- It is located directly adjacent to the unfunded IWHC building servicing parking demands from that use in conjunction with the Ipswich Hospital nearby.

The car parking strategy for the Hospital is based on a car parking demand assessment as provided in ***Appendix 2***. The assessment has considered the parking demands required to service the Ipswich Hospital Precinct Master Plan broadly, whilst recognising the multi-storey car park within the IWHC Precinct is to service staff from the Acute Services Building at the Ipswich Hospital and the future staff associated with the IWHC (which is currently unfunded).

The proposed provision is considered to be in line with expectations and needs of the existing Ipswich Hospital and proposed IWHC Precinct, including private expansion are therefore considered adequate.

5.2.8 Public Transport

With reference to *Figure 7*, the site is considered well serviced by public transport. Ipswich Station is located within 400m of the South Street frontage, with additional bus stops located on East Street, Limestone Street, and Churchill Street within a 400m radius.

During peak hours, rail services operate approximately every 5 minutes and bus services operate every 15 minutes in each direction.

The proposed IWHC Precinct does not include any changes to the existing public transport network or public transport infrastructure. It is understood the existing bus stop on the East Street frontage will be retained as part of the proposed development.

Figure 7 – Public Transport Provision

Source: Traffic Assessment, Appendix 4

5.2.9 Pedestrian Facilities

Pedestrian access to the site is proposed via high-quality connections to the external pedestrian network which includes footpaths along Roderick Street, South Street, and East Street.

Existing footpaths along Roderick Street, South Street, and East Street are to be maintained, with significant cross-block links proposed through the second level of the proposed development to prioritise the movement of pedestrians throughout the site.

The minimum footpath widths based on the current planning are proposed to be at least 2m wide, in accordance with the relevant Austroads Guidelines.

Planning has been completed to prioritise the movement of pedestrians throughout the site, including consideration of the following:

- Prioritising connection points between the IWHC Precinct and the existing Ipswich Hospital for pedestrians (i.e. the south-eastern portion of the site)
- Providing generous north-south cross block links
- Providing dedicated pedestrian pathways between car parking areas and demand generators, such as the IWHC Precinct and the existing Ipswich Hospital
- Locating vehicle access points away from prioritised pedestrian facilities, particularly the vehicle access is limited to Roderick Street.

These provisions are considered appropriate to optimise the user experience and allow for the safe movement of pedestrians (staff, patients and visitors) to, from and through the site.

External to the site, it is recommended the signalised crossing of East Street and South Street in the north-east corner of the subject site be investigated further with collaboration with ICC and Department of Transport and Main Roads (DTMR) as part of subsequent phases of design and in alignment with the engagement to date under the *Healthy People, Heathy Places Ipswich Central Pilot project*. It is noted that this is a key crossing location for the east-west active travel link through the CBD and a priority for the safe and efficient movement of pedestrians and cyclists. This connection will also assist in providing a safe connection towards the Ipswich Train Station and broader CBD attractions from the IWHC Precinct, as well as the existing bus stop pair on East Street.

5.2.10 Bicycle Parking and End-of-Trip Facilities

The statutory bicycle parking requirements for different development types are set out in ICC's Parking Code. Notwithstanding, it is noted that bicycle and end-of-trip facilities are not specified for hospital uses.

Guidance has therefore been sought from the *Cycling Aspects of Austroads Guides* (2014). Application of these guidelines notes the identified land uses generate an increased bicycle parking requirements of 62 staff spaces and 124 visitor spaces.

It is recommended that end-of-trip facilities within the IWHC Precinct be designed such that showers and lockers are based on the following rates:

- Number of lockers – one (1) per staff bicycle space
- Showers – four (4) showers (2 male, 2 female) for the first 20 staff bicycle spaces, plus two (2) showers (1 male, 1 female) for every 20 staff bicycle spaces provided thereafter.

Application of the above rates to the estimated staff numbers generates requirement as follows:

- 76 lockers
- 10 showers (5 male, 5 female).

With reference to the Proposal Plans in ***Appendix 1***, on-site parking for a total of 99m^2 GFA has been allocated to accommodate bicycle parking and 140m^2 GFA to accommodate end-of-trip facilities. Provision of bicycle parking and end-of-trip facilities will be considered further as detailed design for the IWHC Precinct progresses. It is anticipated the facilities will be established within the multi-storey car park.

As noted previously, whilst the IWHC Precinct seeks to accommodate provisions for staff at the Ipswich Hospital, the provision bicycle parking and end-of-trip facilities for staff relating to the Acute Services Building will be facilitated through facilities within the Ipswich Hospital. This will ensure staff have direct accessibility and not have to rely on bicycle parking at the IWHC Precinct, and then walking to the Ipswich Hospital.

5.2.11 Acoustic Impacts

The proposed IWHC building, when funded and delivered, will be designed to ensure noise emissions meets the acoustic quality objectives outlined by the *Environmental Protection Act 1994* (EPA 1994) and *Environmental Protection (Noise) Policy 2019* (EPP 2019), with findings having influence in the design of the location of mechanical plants, car parking areas, and outdoor activity areas.

Further details are included in the noise impact assessment in ***Appendix 6.***

5.3 Project Benefits

The proposed IWHC Precinct will provide support to the existing Ipswich Hospital to the south of the site. The project will provide an improved range of health services and amenities to support the growing Ipswich region. The IWHC Precinct forms part of the Ipswich Health Precinct Master Plan, with the project meeting the following key objectives:

- Respond to the priorities of the West Moreton Health Strategic Plan 2017-21 (2020 update) and the 2020 Clinical Services Plan
- Transform services for a sustainable future to increase capability and capacity to meet future demand while improving safety for patients, families, and carers, and staff
- Improve access to services delivered in WMH while reducing the need for acute infrastructure by providing care in alternative settings and avoiding hospitalisations
- Enhance digital technology to transform care and support decision making
- Increase workforce performance, staff morale, and retention
- Increase community wellness within West Moreton
- Maximise the return on existing and future resources through planning, partnering, research and funding and avoid duplication of services in the community
- Ensure services are provided in environments that are fit for purpose, patient-centered, family-friendly, and of high quality
- Provide infrastructure solutions that are sustainable and able to be adapted as needs change
- Enable compliance with contemporary models of care and the Australasian Health Facility Guideline.

PART D – LOCAL & STATE PLANNING PROVISIONS

6 Planning Assessment

In terms of development under the PA 2016, the designation is proposed to be undertaken in accordance with Chapter 2, Part 5 of the Act. The effect of the designation, if made, is that the use of the site for the designated infrastructure and service will be accepted development.

Building works are accepted development in accordance with Schedule 7, Part 1, item 2 of the PR 2017.

6.1 Local Planning Framework

Although not assessable against the local planning instrument, development subject to a designation should have regard to the requirements of the relevant local planning instrument/s.

The *Ipswich Planning Scheme 2005 (*the Planning Scheme) is the relevant planning scheme for the land.

6.2 Planning Scheme Provisions

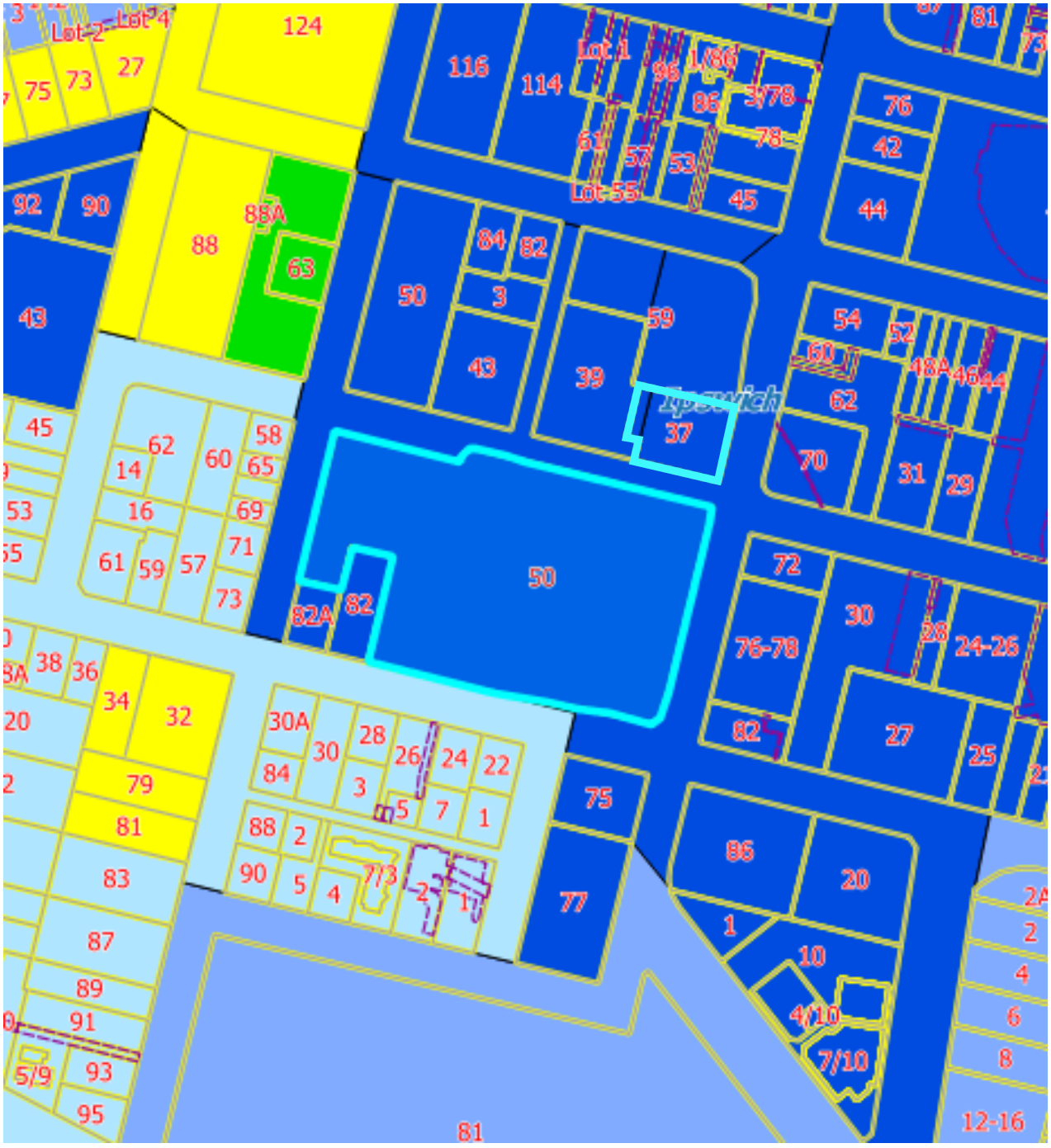
The below table provides a summary of the key Planning Scheme provisions relevant to the site.

Planning scheme information	
Planning scheme	*Ipswich Planning Scheme 2005*
Zoning	CBD Primary Commercial
Local area plan	N/A
Overlays	• Building Height Restriction Area 45m • Transitional Surface • 8km Existing Committed Urban Townships Buffer
Existing use definition	The existing site previously contained the Ipswich City Council offices and was defined as *Business Use.*
Proposed use definition	The proposed use of premises is described as *Community Use (Hospital).*

6.3 Zoning

Under the planning scheme the site is identified within the CBD Primary Commercial Zone as indicated in *Figure 3*.

Figure 3 – Planning Scheme – Zone Map



Legend

Source: Ipswich City Council

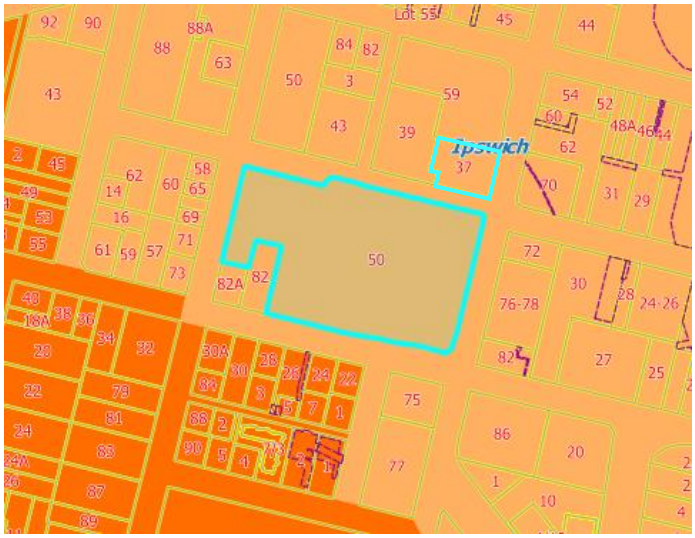
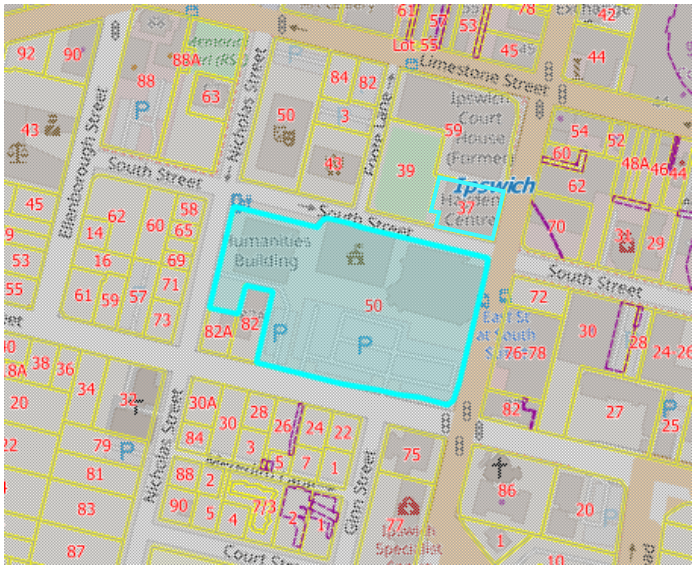
URBAN AREAS

- Business Incubator - BI
- Bundamba Racecourse Stables Area - BRS
- Character Housing Low Density - CHL
- Character Housing Mixed Density - CHM
- Character Mixed Use - CMU
- Conservation - CON
- Future Urban - FU
- Local Business and Industry - LB
- Local Business and Industry Buffer - LBB
- Local Business and Industry Investigation - LBIA
- Local Retail and Commercial - LC
- Limited Development (Constrained) - LDC
- Large Lot Residential - LLR
- Major Centres - MC
- Recreation - REC
- Residential Low Density - RL
- Residential Medium Density - RM
- Special Opportunity - SA
- Special Uses - SU

6.4 Overlays

The Planning Scheme identifies physical constraints affecting development through the inclusion of overlays. Where a site is affected by an overlay, additional development limitations may be placed over the property by the Planning Scheme.

The site is affected by the following overlays:

Overlay	Overlay Map
Defence (Area Control) Regulations and Obstruction Clearance Surfaces (OSC) • Building height restriction area 45m • Transitional surface The site is identified on the overlay map as being subject to a building height of 45m above the ground level. The proposed buildings have a maximum height of 41.7m sitting at RL 61.5m. The proposal complies with the overlay and the building height does not require assessment by the Department of Defence for intrusions into the operational airspace of Amberley Airbase.	
Operational Airspace, Wildlife Attraction and Lighting Issues • 8km Existing Committed Urban Townships Buffer The site is subject to constraints associated with operational airspace, wildlife attraction and lighting. The proposed development will not: • Emit light in a manner which impacts on Amberley Airbase • Attract wildlife which could interfere with aircraft • Be of a height which impacts on the operation or Amberley Airbase, given the ultimate height of future building will sit below 40m. Given the above, the proposal satisfies the requirements of the Overlay.	

7 State Planning Framework

7.1 The Planning Act 2016

Under Schedule 2 of the PA 2016, a state interest means an interest that the Minister considers—

- affects an economic or environmental interest of the state or a part of the state' or
- affects the interest of ensuring that the purpose of the Act is achieved.

The State Planning Policy (SPP) is the overarching document which promotes the state's interests in land use planning and development. Under section 8(4) (a) of the PA 2016 the SPP has effect throughout Queensland and sits above regional plans and planning schemes in the hierarchy of planning instruments.

7.2 State Planning Policy

The SPP applies to the extent relevant when designating premises for infrastructure. When making or amending a designation, the Planning Minister must have regard to the relevant parts of the SPP as shown in the table below.

Application of the SPP	Who is responsible	Parts of the SPP that are applicable						
		Part A, B & C	Part D	Part E: State interest policies	Part E: Assessment benchmarks	Part F	Part G: Appendix 1	Part G: Appendix 2
Designating premises for infrastructure	State and local government	✓	✓	✓	✓	✓	✓	✓

Consideration of how the proposal meets the relevant parts of the SPP are discussed in further detail below:

7.2.1 The Guiding Principles

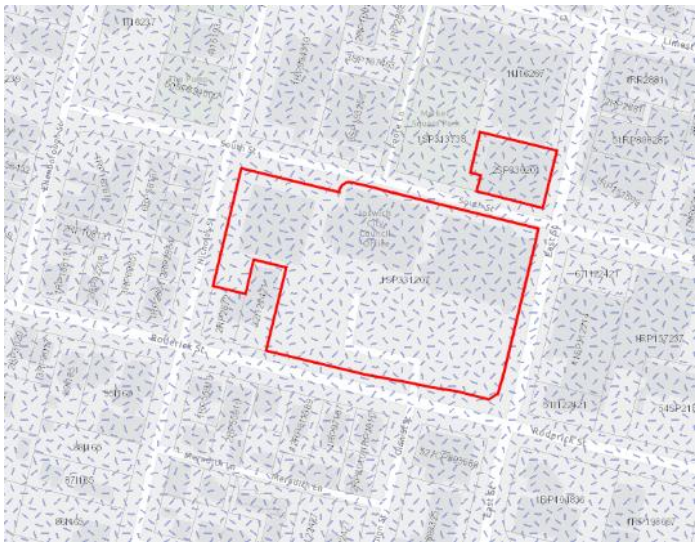
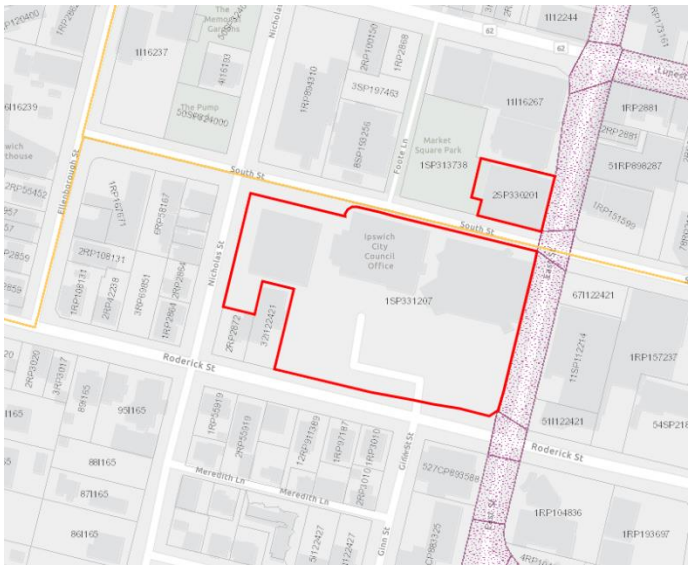
OUTCOME FOCUSSES
The proposal seeks to designate the site for the purposes of a new health service facility. The designation considers economic, environmental and social needs of current and future generations through the delivery of the infrastructure.
INTEGRATED
Not applicable as the proposal is for an Infrastructure Designation and not for plan making
EFFICIENT
The proposal seeks to designate the site for the purposes of delivering the proposed IWHC Precinct. The designation forwards the efficient and timely delivery of infrastructure while ensuring that subsequent works on the site can proceed without assessment against the *Ipswich City Planning Scheme 2006.*
POSITIVE
Not applicable as the proposal is for an Infrastructure Designation and not for plan making.
ACCOUNTABLE
The infrastructure designation process is proposed in accordance with Chapter 2 of the PA 2016. Development of plans and assessment of impacts has had due consideration to relevant State and local plans and mapping and consultation with relevant State agency stakeholders, political representatives, and the local government will occur as part of this process.

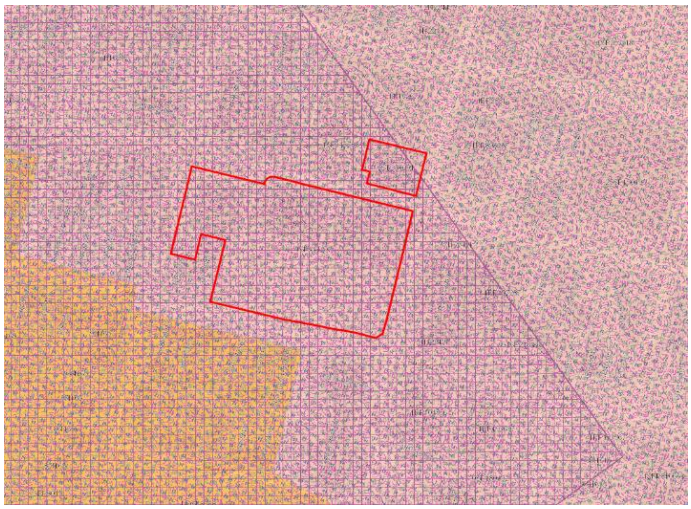
7.2.2 State Interest Statements

The following table lists the State interests contained in the SPP relevant to the subject site.

State Planning Policy	Applicability
Planning for Liveable Communities and Housing	
Liveable Communities	N/A
Housing Supply and Diversity	N/A
Planning for Economic Growth	
Agriculture	N/A
Development and Construction	N/A
Mining and Extractive Resources	N/A
Tourism	N/A
Planning for the Environment and Heritage	
Biodiversity	N/A
Coastal Environment	N/A
Cultural Heritage	N/A
Water Quality	Yes
Planning for Safety and Resilience to Hazards	
Emissions and Hazardous Activities	N/A
Natural Hazards Risk and Resilience	Yes
Planning for Infrastructure	
Energy and Water Supply	N/A
Infrastructure Integration	N/A
Transport Infrastructure	Yes
Strategic Airports and Aviation Facilities	Yes
Strategic Ports	N/A

Relevant state interests are further described in the following table, as obtained from the SPP Interactive Mapping System:

State Interest	State Interest Map
Water Quality The site is within the water resources catchments mapping layer and reference should be made with the SPP, including the SPP Code: Water Quality. A stormwater management plan has been prepared for the site and included in ***Appendix 4*****.** Details on how the proposed development manages stormwater impacts are discussed in *Part E – Environmental Assessment*.	
Natural Hazards Risk and Resilience - Flood • Flood hazard area - Local Government flood mapping area* With reference to the Planning Scheme Overlay Mapping the site is not subject to impacts from flooding, including having the site located above the Adopted Flood Regulation Line. As such, the proposal satisfies the assessment benchmarks of the SPP and no further assessment is considered necessary.	
Transport Infrastructure • State-controlled road • Active transport corridor Vehicle access to the site will be via Nicholas Street and Roderick Street. Pedestrian access will be available from all frontages with the main pedestrian entry into the Precinct located on the corner of Roderick and East Street. A traffic impact assessment plan has been prepared and is provided in ***Appendix 3*****.** Details on how the proposed development manages traffic impacts are discussed in *Part E – Environmental Assessment*.	

State Interest	State Interest Map
Strategic Airports and Aviation Facilities • Light restriction zone • Lighting area buffer 6km • Wildlife hazard buffer zone • Height restriction zone 45m • Aviation facility Building Height Restriction Zones identified on the SPP Mapping set the operational airspace with respect to the nearby RAAF Amberley facility. Under the *Defence Act 1903*, section 68C of the *Defence Regulation 2016* confirms it is an offence to construct a building or structure in a defence aviation area above the specified height restrictions, without a valid approval under section 68F. Importantly, the proposed building height across Stages 1 and 2 is a maximum of 8 storeys and 41.7m sitting at RL 61.5m. As such additional approvals under section 68C are not required.	

7.3 Regional Planning

The site is included within the Urban Footprint of the South East Queensland Regional Plan 2017.

South East Queensland Regional Plan 2017 The Urban Footprint identifies land within which the region's urban development needs to 2041 can be accommodated in a way consistent with the goals, elements and strategies of the Regional Plan. The Urban Footprint identifies land that can meet the Region's urban development needs seeks to incorporate the full range of urban uses including housing, industry, business, infrastructure, community facilities and other integral components of well-planned urban environments, such as local areas for sport and recreation and urban open space. The proposed development is located in an established urban area undergoing redevelopment and will provide necessary supporting community infrastructure that supports the existing and future residential community in the Ipswich region.	

PART E – ENVIRONMENTAL ASSESSMENT

8 Planning Assessment

Before designating land for infrastructure, the Minister must be satisfied that adequate environmental assessment, including adequate consultation, has been carried out in relation to the development that is subject to the designation.

The environmental assessment must have regard to—

- all planning instruments that relate to the premises; and
- any assessment benchmarks, other than in planning instruments, that relate to the development that is the subject of the designation or amendment; and
- if the premises are in a State Development Area under the State Development Act—any approved development scheme for the premises under that Act; and
- if the premises are in a priority development area under the Economic Development Act 2012—any development scheme for the priority development area under that Act; and
- any properly made submissions made as part of the consultation carried out under section 37; and
- the written submissions of any local government.

This section of the Report provides an environmental assessment of impacts the development or use may generate, and ways in which those environmental impacts are being managed or mitigated. Regard is given to natural and physical resources, as well as short and long-term effects and impacts on the environment and community from both the construction and operational phase of the proposal. The range of matters considered includes:

- soils and geology;
- natural resources and hazards;
- conservation and heritage values;
- health, safety, amenity and social impacts;
- infrastructure, traffic and transport.

Reference should also be made to *Part D – Local and State Planning Provisions* with regards to mapping relevant to the subject site.

8.1 Road Infrastructure

8.1.1 Site Access

Context

The site of the proposed IWHC Precinct is bounded by roads to all frontages and includes South, East, Roderick and Nicholas Streets.

Proposal

As noted previously in section 5.2.5 of this MID Assessment Report, and with reference to the proposal plans in ***Appendix 1***, vehicle access for the proposed multi-storey car par includes:

Access	Proposal
1. Existing main public vehicle entry to car park	• The main vehicle site entry point for the existing carpark is from Roderick Street. • The existing car park provides for 90 on-grade car parks. • No change proposed as part of the funded aspect of the development. However, it will be removed as part of the future ultimate development of the IWHC.
2. Main vehicle and pedestrian entry to car park	• The main vehicle entry point to the car park is from Roderick Street into level 2. • The main pedestrian access into the building is provided from Roderick Street, adjacent to the vehicle entry point, into level 2 parking space. • From level 2, there is one (1) fire escape passage provided from the car park to South Street.
3. Main vehicle exit to car park	• The main vehicle exit point from the car park is onto Roderick Street, from level 3.
4. Secondary vehicle and pedestrian entry and exit to car park	• The secondary vehicle entry and exit to the car park, is from Nicholas Street into level 1. • No pedestrian access into the building is provided at this location. • From level 1, there is one (1) fire escape passage provided from the car park to Nicholas Street.
5. Service vehicle access to IWHC (unfunded)	• All service vehicles will gain access to the IWHC via South Street. To be delivered as part of the future ultimate development of the IWHC and informed by further detailed design. • The proposed car park will not initially require service vehicle access. Therefore, service vehicle entry and parking bays will only be provided as part of the future development site (unfunded) stage.

A turn warrant assessment has been completed for the car park access locations on Roderick Street and Nicholas Street. The turn warrant assessment provides information on the minimum turn treatments required on the major road to satisfy traffic operation, road safety, and physical conditions at the site. The turn warrant assessment has been undertaken in accordance with the methodology provided in the relevant Austroads Guidelines (AGRD 04A), with Section 5.4.1 of the Traffic Assessment in ***Appendix 3*** noting the following recommendations:

- Roderick Street Access Location –
    - Channelised Right (CHR) Turn Treatment
    - Basic Left (BAL) turn treatments
- Nicholas Street Access Location –
    - Basic Right (BAR) turn treatment
    - Basic Left (BAL) turn treatment.

It is recommended that concept designs be prepared for each of the Roderick Street channelised right-turn treatments to confirm it form and function, as well as identifying any associated loss of car parking.

8.1.2 Traffic Generation

Context

An assessment of the anticipated traffic impacts of the proposed IWHC Precinct on the surrounding road network has been completed for the following intersections:

- Roderick Street and East Street (signalised intersection)
- Churchill Street and Warwick Road (signalised intersection)
- Chelmsford Avenue and Warwick Road (signalised intersection)
- Roderick Street and Warwick Road
- East Street and Churchill Street
- Roderick Street and Nicholas Street
- South Street and Nicholas Street
- South Street and East Street
- Roderick Street and Ginn Street
- Roderick Street Carpark Access
- Nicholas Street Carpark Access.

This includes consideration of the traffic impacts at the interim scenario and the ultimate scenario for the development. In particular, this has been prepared to determine whether mitigating road works are expected to be required to accommodate the IWHC Precinct, or if the existing conditions are still adequate to accommodate additional vehicle trips associated with the IWHC Precinct.

Traffic impact analysis has been completed by stage to understand when the necessary mitigating road works may be required to be delivered. The funded multi-storey car park is expected to be delivered by 2025, with the Acute Services Building (at the Ipswich Hospital) expected to be delivered in 2027, with this triggering the additional car parking demands. A ‘year of opening’ has therefore been adopted as 2027 and 2037 projected as the ‘10-year design horizon’.

The delivery of the IWHC building development, whilst currently unfunded, is expected to follow shortly after completion of the multi-storey car park. Whilst the final delivery schedule has not yet been finalised, the vehicle movements associated with the IWHC (currently unfunded) has been incorporated into the 2037 assessment scenario.

Proposal

With reference to the Traffic Assessment in ***Appendix 3***, the interim scenario of the IWHC Precinct will result in approximately 314 and 288 vehicle generation trips during the AM and PM peak hours, respectively. In the ultimate design scenario, the proposal is anticipated to result in 493 and 452 vehicle trips during the AM and PM peak hours, respectively.

The results of the intersection assessment note that:

- For the interim scenario, all intersections are expected to operate within their practical performance limits during ‘year of opening’ for both the ‘base’ and ‘with IWHC’ scenarios.
- For the ultimate scenario, East Street/ Roderick Street and East Street/ Churchill Street intersections are expected to operate beyond their practical performance limits during ’10-year design horizon’ for the ‘with IWHC’ scenarios and require mitigation works that will include:

- East Street/ Roderick Street intersection – extended storage capacity in the order of 50m to this approach leg to mitigate identified queuing issues and allow the intersection to operate within their practical performance limits.
- East Street/ Churchill Street intersection – signalisation of the intersection and provision of additional Churchill Street right-turn lane to mitigate the identified queuing issues and allow the intersection to operate within its practical performance limits.

It is noted that delivery of the above mitigation road works will ensure adequate capacity in the surrounding road network to cater for the vehicle trips generated by the proposed development. As noted previously, the intent is for these external works to be investigated further with collaboration with ICC and DTMR as part of subsequent phases of design and in alignment with the engagement to date under the *Healthy People, Heathy Places Ipswich Central Pilot project*.

8.1.3 Car Parking Provision

Context

With reference to ***Appendix 2***, a Car Parking Demand Assessment has been prepared to assess the car parking demands of the Ipswich Hospital and anticipated car parking implications of the proposed Stage 2 expansion works relating to the IWHC Precinct. The intent of this assessment is to inform the car parking supply required to be accommodated within the new multi-storey car park and includes consideration of:

- Existing transport network and car parking conditions surrounding the site
- Suitability of the existing car parking facilities to cater for the current hospital demand
- The car parking characteristics of the proposed hospital expansion
- Suitability of the proposed car parking facilities to cater for the future hospital demand
- Summary of travel demand and car parking management strategies to assist in mitigating onsite car parking demand.
- This report also provides high-level consideration of the ‘ultimate’ scenario incorporating the overall car parking supply requirements the IWHC Precinct.

Proposal

With consideration to the above, the Car Parking Demand Assessment (refer ***Appendix 2***) noted the following:

- A new multi-storey car park is proposed to support the hospital expansion, including an interim (seven-storeys) and ultimate (ten-storeys) scenario to accommodate additional car parking demands associated with the new Acute Services Building and future IWHC (currently unfunded), respectively
- A car parking inventory has been compiled of available car parking within the vicinity of the hospital to capture on-street and off-street car parking areas understood to be utilised by staff, patients and visitors of the hospital
- Car parking occupancy survey was undertaken on Wednesday 27th July 2022 between the hours of 6:00am and 9:00pm and indicate that car parking demands peak at 2:00pm, with 1,316 vehicles located within the survey extents, comprising 909 vehicles in off-street car parking areas, 219 vehicles in on-street long term parking areas and 188 vehicles in on-street short term parking areas
- The peak in car parking demand occurring at 2:00pm reflects the overlap between the hospital shift changeover which occurs generally around 2pm, prior to the departure of the morning shift and following the arrival of the afternoon shift.

- Comparing this car parking demand against the existing 338 total inpatient and critical care beds results in a car parking demand rate of 3.89 parking spaces per bed
- Comparing this car parking demand against the existing 360 total inpatient, critical care and emergency department beds results in a car parking demand rate of 3.65 parking spaces per bed
- Application of these rates to the proposed additional 200 inpatient and critical care beds and 16 emergency department beds results in an additional car parking demand of approximately 780 to 790 spaces
- Consideration is also given to the loss of existing parking associated with the Roderick Street off-street car park and the existing Court Street car parking areas, with these two (2) areas accommodating a combined car parking demand of 164 vehicles (156 vehicles and 8 vehicles respectively) during the peak hospital parking demand
- To ensure a 'no net worsening' scenario for on-street car parking demands, the project seeks to deliver:
    - 875 car parking spaces within the interim seven (7) storey multi-storey car park
    - 79 car parking spaces within the Ipswich Hospital campus
    - expansion of the multi-storey car park to ten (10) storeys with an additional 447 car parking spaces.
- At the ultimate scenario the car parking provision could be expected to provide up to 1,322 car parking spaces.

8.1.4 Travel Demand Management

Context

Travel Demand Management (TDM) initiatives are designed to manage travel to and from specific sites with proven results contributing to reducing private motor vehicle demands. The major tenets to influence travel behaviour change include:

- Retime – avoid travelling during the peak periods
- Remode – use alternative methods of travel
- Reroute – utilise a route that avoids congestion
- Reduce – minimise the number of times you have to travel, especially by private vehicle.

With respect to hospitals, the key focus is on 'remode' given that it has the largest opportunity to be influenced.

There are a number of key drivers in a person's decision-making process when choosing a preferred mode of travel. These are likely to be the cause of the identified challenges which are resulting in the identified car dependency. The opportunities to address decision-making are described in the table below.

Observed challenges	Likely cause	Identified opportunities
High reliance on private motor vehicle	Feeling of safety	• Extension of the *Safe City Program, the Healthy Places Healthy People Program*, and public safety surveillance cameras to include the hospital • Provide (or extend) shuttle services to and from key destinations (including public transport interchanges) after typical business hours

		• Engage with relevant authorities to increase visibility of staff and security at transport interchanges and within the hospital precinct
	Accessibility, frequency and integration of alternative modes	• Enhance pedestrian connections to increase attractiveness and connectivity to alternative transport modes • Enhance cycling connections into and through the hospital precinct • Provide high-quality end-of-trip facilities that are integrated within the hospital (close proximity to demand generators) • Work with Translink to optimise public transport network frequency • Reduce ease of access to on-street car parking through removing unrestricted on-street car parking • Prioritise on-site car parking for those users most in need (i.e. night shift staff and short-term car parking for Emergency Department)
	Cost of parking vs. cost of alternative transport modes	• Review opportunities to incentivise the public transport trips through salary sacrificing or other means • Consider increasing cost to park on-site and onstreet, particularly for long-term (i.e. greater than 4hrs) car parking • Consider variable pricing for on-site car parking
	Available information regarding available travel modes	• Provide further information with respect to available travel modes • Advertise and encourage participation in community initiatives, such as Ride 2 Work day
Low car parking occupancy	All of the above – this is the default ‘comfortable’ option	• Establish a carpooling initiative, noting that this can be supported by a third-party provider for ease • Consider the use of shared and ‘on-demand’ mobility options to fill gaps within the existing transport network
Inefficient use of existing car parking provisions	Available information about car parking availability	• Implement smart parking, including vehicle occupancy detection and dynamic signage to inform user of current availability

It is recommended these opportunities be further considered as part of a Sustainable Transport Plan, noting that this also contributes to the Green Star ratings of the project. Further utilisation of these positive strategies could be expected to reduce the car parking demand rates associated with the hospital.

Further to the above, the WMH shuttle service currently provides a key connection for staff, visitors and patients between the Ipswich Hospital and a number of external car parking areas, including the Limestone Park Car Park, and another car park located at the Ipswich Health Plaza. The provision of this service is

understood to alleviate car parking demands which would otherwise be required to park at the Ipswich Hospital.

It is recommended that this service continue and expanded to include the new multi-deck car park for those staff members arriving at or departing the hospital in the early hours of the morning or late at night.

8.1.5 Loading Zone

Context

Provision of separated loading zones will ensure conflicts with vehicles are minimised and allow for appropriate vehicle parking to assist with service delivery and loading.

Proposal

The IWHC Precinct is proposed to be serviced by an on-site loading facility accommodating service vehicles and refuse collection. Details of the loading and refuse collection arrangements will be further developed in subsequent stages of the design.

The loading zone areas will be designed generally in accordance with the requirements as set out in Council's Planning Scheme and relevant Australian Standards (AS2890.1, AS2890.2 and AS 2890.6).

8.1.6 Public Transport Infrastructure

Context

The subject site is considered well serviced by public transport. Ipswich Station is located within 400m of the South Street frontage, with additional bus stops located on East Street, Limestone Street, and Churchill Street within a 400m radius. During peak hours, rail services operate approximately every 5 minutes and bus services operate every 15 minutes in each direction.

Proposal

The IWHC Precinct does not include any changes to the existing public transport network or public transport infrastructure. It is understood that the existing bus stop on the East Street frontage will be retained as part of the proposed development.

8.1.7 Active Transport Infrastructure

Context

Pedestrian access to the site is proposed via high-quality connections to the external pedestrian network which includes footpaths along Roderick Street, South Street, and East Street.

Existing footpaths along Roderick Street, South Street, and East Street are to be maintained, with significant cross-block links proposed through the ground level of the proposed development to prioritise the movement of pedestrians throughout the site.

A 2.5m shared path extends from the East Street/ South Street intersection along South Street for approximately 60m. Following this, the shared path converts into a 1.5m wide cycle lane along the South Street frontage for approximately 150m and terminates west of the Nicholas Street/ South Street intersection.

Proposal

With reference to the Traffic Assessment in ***Appendix 3***, the minimum footpath widths based on the current planning are proposed to be at least 2m wide, in accordance with the relevant Austroads Guidelines. Planning has been completed to prioritise the movement of pedestrians throughout the site, including consideration of the following:

- Prioritising connection points between the IWHC Precinct and the existing Ipswich Hospital for pedestrians (i.e. the south-eastern portion of the site)

- Providing generous north-south cross block links
- Providing dedicated pedestrian pathways between car parking areas and demand generators, such as the IWHC Precinct and the existing Ipswich Hospital

These provisions are considered appropriate to optimise the user experience and allow for the safe movement of pedestrians (staff, patients and visitors) to, from and through the site. Details of the pedestrian access and connection arrangements will be further developed in subsequent stages of the design.

External to the site, it is recommended the signalised crossing of East Street and South Street in the north-east corner of the subject site be investigated further with collaboration with ICC and DTMR as part of subsequent phases of design and in alignment with the engagement to date under the *Healthy People, Heathy Places Ipswich Central Pilot project*. It is noted that this is a key crossing location for the east-west active travel link through the CBD and a priority for the safe and efficient movement of pedestrians and cyclists. This connection will also assist in providing a safe connection towards the Ipswich Train Station and broader CBD attractions from the IWHC Precinct, as well as the existing bus stop pair on East Street.

With regards to the provision of bicycle infrastructure, the project has been identified to require 62 staff spaces and 124 visitor spaces. Furthermore, end-of-trip facilities within the IWHC Precinct should accommodate for a minimum of 76 lockers and 10 showers (5 male, 5 female). With reference to the Proposal Plans in ***Appendix 1***, on-site parking for a total of 99m^2 GFA has been allocated to accommodate bicycle parking and 140m^2 GFA to accommodate end-of-trip facilities. Provision of bicycle parking and end-of-trip facilities will be considered further as detailed design for the IWHC Precinct progresses. It is anticipated the facilities will be established within the multi-storey car park.

As noted previously, whilst the IWHC Precinct seeks to accommodate provisions for staff at the Ipswich Hospital, the provision bicycle parking and end-of-trip facilities for staff relating to the Acute Services Building will be facilitated through facilities within the Ipswich Hospital. This will ensure staff have direct accessibility and not have to rely on bicycle parking at the IWHC Precinct, and then walking to the Ipswich Hospital.

8.2 Services Infrastructure

8.2.1 Water and Sewer Infrastructure

Context

The site is currently serviced by a water infrastructure.

Proposal

QH will engage with the relevant service provider as development progresses and confirm the adequacy, capability and location of the existing infrastructure prior to construction phase.

8.2.2 Stormwater Infrastructure

Context

Based on topography of the Region, it is established that the site forms part of a larger regional catchment, with the site having several points of discharge. Flows from the development site currently utilise a pipe network for minor events while major events utilise nearby overland flow routes, via existing roadways, and subsequently discharge into the Bremer River, along with a series of other catchments locally.

The site has several existing points of discharge located on the northern and north-east boundaries.

Proposal

With reference to the Stormwater Management Plan in ***Appendix 4***, the proposed development will seek to maintain the existing lawful point of discharges located on the northern and north-east boundaries.

The primary point of discharge from the site will be located on the northern boundary, with detention and proprietary treatment devices included to attenuate the flows into the existing pipe infrastructure network. The surface flow into the existing overland flow paths will maintain the existing routes to the Bremer River.

A comparison of the stormwater discharging from the site to the various points of discharge in the pre-development and post-development scenario conditions has been undertaken using the Rational Method The flow comparisons undertaken for the proposed development demonstrates that peak flow rates towards the existing legal point of discharge are generally worsened in the post-development conditions for Catchments 1 and 2, with an overall increase in flows in all storm events, while post-development catchment 3 remains consistent with pre-development conditions.

This overall increase is a direct result of the introduced impervious areas as part of the development and changes to the times in concentration in flows. It is therefore proposed to provide stormwater detention tanks to mitigate the increase in stormwater runoff from the subject development for Catchments 1 and 2. This includes a 330m^3 detention tank for Catchment 1 and a 210m^3 for Catchment 2.

It is intended that flows out of the proposed detention tank will be released by the detention tank outlet structure and high-level weir. These released flows are intended to be conveyed by proposed infrastructure and discharge into existing infrastructure along South Street.

DRAINS modelling undertaken confirms that the proposed stormwater quantity management strategy ensures the post-development peak flow rates do not exceed the pre-development peak flow rates.

With regards to stormwater quality, the proposed post-development pervious area will result in no change to the pre-development pervious area. Given this, no additional stormwater quality treatments are considered necessary for the proposed development works.

8.2.3 Electricity, Telecommunications and Gas Infrastructure

Context

The site has access to electricity, telecommunications and gas infrastructure.

Proposal

QH will engage with the relevant service providers as development progresses and confirm the adequacy, capability and location of the existing infrastructure prior to construction phase.

8.3 Flora and Fauna

8.3.1 Environmental Protection and Biodiversity Conservation Act 1999

Context

The purpose of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is to ensure the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places as defined in the EPBC Act.

Proposal

The EPBC Protected Matters Search (refer to ***Appendix 8***) identified a number of flora and fauna species which may be present within a 1km radius of the site.

The proposed development footprint is not mapped as containing significant flora or fauna under State or Local biodiversity mapping. The proposed development is located over areas that are currently hardstand or areas largely void of vegetation. Minimal vegetation is required to be removed, which makes it an area that is unlikely to support any EPBC species, or their habitats.

8.3.2 Nature Conservation Act 1992

Context

The *Nature Conservation Act 1992* (NCA 1992) protects all plants that are native to Australia. The *Nature Conservation (Wildlife Management) Regulation 2006* regulates the clearing of protected plants in Queensland.

Proposal

The Department of Environment and Science (DES) Protected Plants Flora Survey Trigger Map notes the site is not mapped as a 'high risk' area for protected plants (refer to ***Appendix 8***).

The NCA Wildlife Online database (refer to ***Appendix 8***) does not show records of any listed flora and fauna species within a 1km radius of the subject site. It is noted QH will ensure the Construction Environmental Management Plan for the development includes the following provisions:

- Trees to be removed should be confirmed and inspected for hollows and nests by a suitably qualified person prior to clearing. If hollows, nests or other potential breeding places are present, they must be assessed by a suitably qualified person to determine if they are breeding places in accordance with the NCA 1992.
- Under the NCA 1992, any onsite activities that are required to tamper with a confirmed native animal breeding place in order to complete the scope of works must be undertaken in accordance with a Species Management Program (SMP) or Damage Mitigation Permit (DMP) approved by DES.

8.3.3 Vegetation Management Act 1999

Context

Vegetation clearing is predominantly regulated under the *Vegetation Management Act 1999* (VMA 1999) and the PA 2016. A development permit is required to clear where the clearing is not exempt clearing work through the PR 2017, or where it cannot be carried out under a self-assessable vegetation clearing code or an area management plan under the VMA 1999.

Many routine vegetation management activities can be carried out as exempt clearing work listed in the PR 2017, or through a self-assessable vegetation clearing code or an area management plan (AMP). The need for a development approval depends on the type of vegetation; the land tenure of the land (e.g. freehold or Indigenous land); the location, extent and purpose of the proposed clearing; and who is proposing to do the clearing (e.g. state government body, landholder).

Proposal

With reference to the State Interest Mapping in ***Appendix 7***, the proposed development area includes Category X vegetation.

DoE will also ensure the Construction Environmental Management Plan includes provisions to ensure vegetation that is not required to be cleared for the proposed development will be protected from construction impacts in accordance with the *AS 4970-2009 Protection of Trees on Development Sites*.

8.3.4 Invasive Species

Context

The Queensland *Biosecurity Act 2014* refers to 'Designated Biosecurity Matter' which includes pest plants and animals. These are further classified as either 'Prohibited' or 'Restricted':

- Prohibited Matter is biosecurity matter not currently present or known to be present in Queensland. It is prohibited because it may have a significant adverse effect on a biosecurity consideration if it did enter Queensland.

- Restricted Matter is biosecurity matter found in Queensland that may have adverse effects on biosecurity consideration if conditions or restrictions under the Act were not imposed.

Prohibited Plants are listed in Schedule 1 Part 3 and Prohibited Animals are listed in Schedule 1 Part 4 of the *Biosecurity Act 2014*. Restricted Plants and Restricted Animals are also listed in Schedule 2 Part 2 of the *Biosecurity Act 2014*.

Proposal

The site is a developed site in an urban setting. The presence of invasive species is highly unlikely and further action in this regard is not required.

8.4 Soils and Geology

8.4.1 Erosion Risk

Context

The release of sediments or other contaminants to water is an offence under the EPA 1994. All activities that expose soil have the potential to result in release of sediment to waterways or stormwater systems.

Proposal

To minimise the risk of releasing sediment (and other contaminants) to waters during construction and to the meet the General Environmental Duty under the EPA 1994, a site Erosion and Sediment Control Plan (ESCP) is to be prepared in accordance with the IECA Best Practice Erosion and Sediment Control prior to commencing construction.

QH will ensure preparation of an ESCP will appropriately address the erosion risks identified for the site, and that the Plan is implemented and monitored throughout the construction phase for the proposed development.

8.4.2 Contaminated Land

Context

With reference to ***Appendix 9****,* the site is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR).

Proposal

The Project will not involve any EMR activities nor involve uses which could contaminate the land.

8.5 Heritage and Native Title

8.5.1 Local Heritage

Context

The site is identified in Schedule 2 of the Planning Scheme as being located immediately adjacent to a Character Place, being the Masonic Temple.

Proposal

A Heritage Impact Assessment has been prepared and included in ***Appendix 5*** to consider the impact of the proposed development on the character values of the adjacent Masonic Temple. As a summary, the proposed IWHC Precinct is considered to provide a beneficial inner-city development that demonstrates no more than minimal impact on the adjacent 'Masonic Temple', and character housing and state heritage place situated in the Roderick Street vicinity.

The proposed development and design of the unfunded IWHC building considers its surrounding context and is respectful of the nearby heritage-listed places and traditional character areas. The proposed gradual

height setbacks, façade articulation and landscaped elements of the design are sympathetic to the surrounding context, whilst also being a distinctively contemporary design response. These considerations contribute to ensure the proposed development meets with the identified view and amenity outcomes related to the backdrop of character housing and listed heritage places, whilst also providing new health facilities meeting Ipswich Hospital's future operational requirements.

8.5.2 Cultural Heritage

Context

The *Aboriginal Cultural Heritage Act 2003* (ACHA) requires that a person must exercise Due Diligence and reasonable precaution before undertaking an activity which may harm Aboriginal Cultural Heritage. The ACHA – Duty of Care Guidelines (the Guidelines) was gazetted in April 2004 to provide guidance on actions required to demonstrate compliance with this Act.

Proposal

The site is a developed site and subject to significant ground disturbance. The proposed activity is likely to be classified as 'area previously subject to significant disturbance' – Category 4, under the ACHA, Section 28 Duty of Care Guidelines. Subject to measures set out in paragraph 5.6 **–** 5.12 under Category 4 of the Duty of Care Guidelines, the proposed activates can proceed without further cultural heritage assessment.

The nature of the proposed development activities on the site is likely to be classified as 'area previously subject to significant disturbance' – Category 4 under the ACHA, Section 28 Duty of Care Guidelines and it is generally unlikely that development activities will harm Aboriginal cultural heritage and the activity will comply with the guidelines. Subject to measures set out in paragraph 5.6 – 5.12 under Category 4 of the Duty of Care Guidelines under the ACHA, the proposed activity can proceed without further cultural heritage assessment.

Furthermore, any Aboriginal cultural heritage, if found, is protected under the ACHA even if DES has not recorded it. Contract documents should include provisions for works to cease and the relevant Aboriginal Party to be contacted if evidence of Aboriginal cultural heritage is encountered during site works.

8.5.3 Native Title

Context

Native title recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people in accordance with the *Native Title Act 1993*.

Proposal

Native title has been investigated for the site and has been confirmed to be wholly extinguished as per s23B (2) (c) (ii) of the *Native Title Act 1993*.

8.6 Socio-economic Impacts

8.6.1 Socio-economic Profile

Context

Consideration should be given to the social and economic impacts from the proposed development, which includes matters such as employment opportunities, access to services, quality of education and the demographics profile.

Proposal

The proposed IWHC Precinct will provide positive socio-economic benefits that are essential to the community within the Ipswich Region, including:

- continued long-term health and education services
- health service and other associated (i.e. trades) employment opportunities;
- an investment of funds and associated benefits to the economy;
- improved facilities that meets population demands; and
- providing the community with infrastructure that improves access to health services.

8.7 Construction Impacts

8.7.1 Construction Management

Context

Environmental management plans describe how an action might impact on the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimised and managed so that they are environmentally acceptable.

Proposal

Construction impacts may arise during the development. The project construction is to be in accordance with the Construction Environmental Management Plan to be prepared as part of the project.

8.8 Operational Impacts

8.8.1 Traffic

Context

Traffic associated with the hospital has potential to cause impacts to the continuing operation of the road network, in addition to nearby properties and amenity.

Proposal

As noted in section 8.1 of this Report, a number of recommendations have been outlined to assist with the proposed development and to ensure impacts to the road and traffic network are mitigated accordingly.

8.8.2 Noise

Context

Nearby sensitive receptors, being residential properties, has the potential to be impacted by noise emissions from the proposed IWHC (currently unfunded) and associated multi-storey car park (funded). Sensitive receivers include:

- 65 – 73 Nicholas Street, Ipswich (zoned Character Mixed Use);
- 43 South Street, Ipswich (Aged Care Facility – zoned CBD Primary Commercial); and
- 22 – 30A Roderick Street, Ipswich (zoned Character Mixed Use).

The site is also impacted by the site's location adjacent to East Street and is mapped within Transport Noise Corridors – State-controlled Roads (up to Category 4: >=73 dB (A).

Proposal

A Noise Impact Assessment has been prepared and included in ***Appendix 6*** with consideration to both external emissions and emissions generated by the IWHC Precinct. The table below provides a summary of the emission sources and proposed recommendations to address the noise impacts.

Source	Recommendations
External Environment	

Transport Noise	• The eastern portion of the site where development is to be located is located within the Transport Noise Corridors – State-controlled Roads (up to Category 3: 63 – 73dB(A).
	• The proposed IWHC (currently unfunded) is located partially within the mapped area and will be impacted by road traffic noise.
	• The proposal has been designed to comply with the minimum acoustic performance requirements specified by the QH Guidelines are outlined in the following sections.
	  o Australian Standard AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS 2107);
	  o Association of Australasian Acoustical Consultants *Guideline for Healthcare Facilities* v2.0 (AAAC Guidelines).
	• Recommendations to address compliance are as documented in Section 5.2.3.

Internal Use Environment	
Building Services Plant	<u>Mechanical Plant</u> • Noise emissions from all building services plant is required to comply with the relevant environmental noise limits outlined in Section 5 of the Noise Impact Assessment. • At this stage, specific details regarding mechanical plant selections and finalised locations are not available. In lieu of this, preliminary calculations have been conducted on first principles formulation to estimate maximum permissible sound power levels (Lw) for the combined plant which is expected to comply with the environmental noise criteria at each noise sensitive receptor identified. • The preliminary assessment has been based on the minimum distance between the nearest noise sensitive locations and midpoint of each proposed development. • Reference should be made to Table 11 of the Noise Impact Assessment which details the maximum permissible sound power level of combined plant during each defined time period, with additional consideration to the cumulative effects of noise emissions from each building to the location of the nearest noise sensitive receptor. <u>Emergency Backup Generators</u> • Due to the infrequent operation of generators, it is considered unreasonable to assess noise emissions against the noise limits established in the *Environmental Protection (Noise) Policy 2019*, which would normally apply since there are no specific requirements pertaining to emergency generators under EPA 1994. • It is assumed that any emergency backup generator/s provided as a part of this project will primarily operate during testing regimes within daytime hours (i.e., 7 AM – 6 PM) and only operate during night-time periods (i.e., 10 PM – 7 AM) in emergency situations (i.e., power-loss following bushfire / storm / flood etc.), Stantec considers that a reasonable environmental noise impact outcome is to assess all hours against the daytime noise limit of Leq 54 dB(A) (i.e., daytime measured background noise level LA90 49 dB(A) + 5 dB) at the boundary of the nearest noise sensitive receptor. • Noise control devices, such as silencers / mufflers and plant space acoustic attenuators and louvres, as well as vibration isolation treatments to reduce structure-

	borne noise impacts to be investigated as the design progresses and plant selection details are provided.
Car Parks	Multi-storey Car Park • Whilst the acoustic-related impacts on adjacent noise sensitive receptors are likely negligible when compared to the existing acoustic environment, impacts from the car park will depend on the expected frequency of use and operating hours. Impulsive noise from car parking activity and vehicle movement within the carpark may be audible at noise sensitive locations; however, not expected to be obtrusive. • In addition, further noise generation can be expected from the traffic generation due to the capacity. Sensitive receptors along roadways with access points to the carpark will likely to be impacted by the additional noise. • The following noise control measures are also generally recommended: o General slab gradings shall be constructed as flat as is practicable to minimise engine noise/ strain. o Minimise speed bumps where in proximity to noise sensitive uses. o Ensure gutter drain covers are sufficiently recessed to the grade of the driveway/ slab and well fabricated to minimise additional noise as vehicles drive over. o Consider application of sound absorptive linings to the underside of the carpark soffits to minimise reverberant noise build up. o Screening / acoustic louvres / barriers to the perimeter of the carpark which interrupt the direct line of sight to all noise sensitive receivers will generally assist with noise emissions from site vehicle operations.
Loading Dock	• A loading dock is proposed for the lower level of the IWHC (currently unfunded). • Noise associated with activities occurring within the loading are generally expected to be contained by the proposed building structure and hence, not expected to significantly contribute to the existing acoustic environment at noise sensitive locations. • To assist reduction of noise emissions from the loading dock, the project design shall: o Consider application of sound absorptive linings to the underside of the soffit to minimise reverberant noise build up; o Encourage use of the loading dock during daytime hours to minimise potential disturbance to the residents.

8.8.3 Light

Context

Design of interior lighting for health facility and healthcare buildings shall be provided primarily based on the recommendations of the Australian standards (AS/NZS1680 and AS/NZS 1158) and the National Construction Code (NCC).

Proposal

The IWHC Precinct will provide lighting per relevant standards, with design requirements to include:

- lighting selections shall be standardised across a facility and the different types of light, fitting and source shall be rationalised to minimise recurrent costs
- all lighting shall be maintainable and accessible. Particular attention shall be given to lighting in public spaces, atria and associated health and safety requirements

- lighting shall be zoned for energy efficiency and based on use of areas
- the selection of lighting sources, luminaires and their control gear shall comply with the regulatory limits prescribed in the NCC.

All associated lighting will be used 24 hours a day/ 7 days a week to align with the operational needs of the IWHC Precinct and associated infrastructure. A Light Management Plan will be developed by a lighting expert in association with West Moreton Health and Hospital Services to minimise any impacts on the surrounding areas.

PART F – CONSULTATION

9 Consultation Strategy

9.1 Stakeholders

The stakeholders relevant for consultation with regards to the proposed designation includes:

Local Government

Ipswich City Council

State Government Departments

Department of Housing, Local Government and Planning and Minister for Public Works (DHLGPPW), representing relevant State Agencies.

Office of the Queensland Government Architect

Elected Representatives

Mayor Teresa Harding – Mayor

Councillor Marnie Doyle – Division 3

Councillor Andrew Fechner – Division 3

Ms Jennifer Howard – State Electoral District of Ipswich

Mr Shayne Neuman MP – Federal Electoral District of Blair

Community

Adjoining and surrounding landowners and residents.

Cultural Heritage Party

Yuggera Ugarapul People

Project Stakeholders

WMHHS staff

9.2 Community Engagement Plan

The following community engagement plan has been adopted as part of this MID proposal.

Activity		Stakeholder Group	Action
Prior to Public Notification			
Email	Email seeking advice about infrastructure requirements.	• State Government Departments • Local Government	Email Telephone call
Preliminary community engagement	Release of proposal flyer seeking feedback on proposal concept.	• State Government Departments • Local Government Departments • Elected representatives • Community	Media release Website publication Flyer

Meeting	If stakeholder requests a meeting, a meeting will be conducted to present the project and discuss matters of interest to the stakeholder—in particular impacts on local government infrastructure.	• State Government Departments • Local Government • Elected representatives	Meet if requested.
During Public Notification			
Public notice	Place public notice in state (Courier Mail)	• State Government Departments • Local Government • Elected Representatives • Community • Cultural Heritage Party	Prepare and book public notice
Street signage	Place street signage to the site frontages.	• State Government Departments • Local Government • Elected Representatives • Community • Cultural Heritage Party	Prepare and erect public notice signage to street
DHLGPPW web content	Update DHLGPPW web page with information about the MID, including the MID Assessment Report and details about the engagement process.	• Community	Prepare content and provide to DSDILGP for website publication
Letters to stakeholders	Prepare letters that outline the Infrastructure Designation proposal and the engagement process. Distribute the letters.	• Elected Representatives • Community • Cultural Heritage Party	Prepare letter Distribute letter
Email address and telephone contact	Email: infrastructuredesignation@dsdilgp.qld.gov.au Phone: 1300 967 433 Submissions during public notification can be made online or by	• State Government Departments • Local Government • Elected Representatives • Community • Cultural Heritage Party	Publish contact information in relevant public notices, signs, and letters

9.3 Initial Consultation

A number of consultation activities took place prior to, and during, preparation of the designation reporting materials. The below table provides a summary of the activities in accordance with the community engagement plan.

Stakeholder Group	Date	Description
Local Government	21/07/2022 05/08/2022	• Provide correspondence to DSDLGIP with information on MID proposal. • Response provided acknowledging existing Design Working Group collaboration and that formal comments will continue via the Design Working Group.

DHLGPPW	10/02/2022	• Provide correspondence to DSDLGIP with information on MID proposal.

	23/03/2022	• Pre-lodgement meeting was undertaken with DSDILGP.
		• Confirm technical reporting requirements, including:
		  ○ Transport impact assessment
		  ○ Stormwater management plan
		  ○ Landscape plans
		  ○ Site servicing
		• Confirm entity-led preliminary engagement activities undertaken to date align with MID requirements.

	04/10/2022	• Provided summary of proposal and engagement activities undertaken to date and seek DSDLGIP endorsement to proceed through the MID.

	02/11/2022	• Endorsement received from DSDILGP to proceed the project through the MID assessment process.
		• Ensure the project aligns with:
		  ○ the required material for making a MID specified in Schedule 3 of the Minister's Guidelines and Rules
		  ○ the matters raised in pre-lodgement minutes.

Local Government, , Office of the Queensland Government Architect, Department of Transport and Main Roads	26/05/2022 27/06/2022	• Design Working Groups with ICC and OQGA to discuss proposed development
	06/05/2022 03/02/2023	• Meeting with Office of the Queensland Government Architect with regards to the *Healthy People Healthy Places* and applicability to the proposed development
	06/10/2022	• Meeting with DTMR with regards to the *Ipswich Hospital Walking Network* and applicability to the proposed development.

Community pre-engagement	20/07/2022 – 05/08/2022	• Provide correspondence to adjoining and surrounding properties with information regarding the proposed development.
		• A total of six (6) submissions received, with comments raised relating to:
		  ○ traffic and parking
		  ○ safety
		  ○ operational hours of the new facility
		  ○ consideration of street environment improvements

PART G – CONCLUSION

10 Conclusion and Recommendations

This MID Assessment Report has been prepared by QBuild, seeking an Infrastructure Designation of land for the proposed IWHC Precinct. The proposed designation applies to land located at 50 South Street, Ipswich QLD 4305 and described as Lot 1 on SP331207 and Lot 2 on SP330201.

The PA 2016, Chapter 2, Part 5 prescribes that a Minister, before designating land for infrastructure, must be satisfied that:

- the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or
- there is or will be a need for the efficient and timely supply of the infrastructure.

The proposed development is defined as infrastructure under Schedule 5, Part 2 of the PR 2017:

Item 12 ***Hospital and Health Care Services***

Item 18 ***Storage and works depots and similar facilities, including administrative facilities relating to the provision or maintenance of infrastructure stated in this part.***

The designation will facilitate delivery of the proposed development and designation of the site ensures the efficient and timely supply of infrastructure; and satisfy statutory requirements and budgetary commitments of the State for the supply of the infrastructure.

The assessment provided within this MID Assessment Report provides details with respect to the proposed works and has undertaken an assessment of the proposed infrastructure against the relevant statutory frameworks, incorporating local and state assessment criteria and Commonwealth legislation.

The proposed development of the land for the proposed IWHC Precinct is to be subject to the recommendations as listed identified in *Part E – Environmental Assessment* of this Report.

PART H – APPENDICES

The following is a list of appendices to this MID Assessment Report:

Appendix 1	Proposal Plans
Appendix 2	Car Parking Demand Assessment
Appendix 3	Traffic Assessment
Appendix 4	Stormwater Management Plan
Appendix 5	Heritage Assessment
Appendix 6	Acoustic Assessment
Appendix 7	State Interest Mapping
Appendix 8	EPBC Protected Matters Search and NCA Wildlife Online database
Appendix 9	Contaminated Land Register and Environmental Management Register Search
Appendix 10	Property Information
Appendix 11	Extracts from the *Planning Act 2016*
Appendix 12	Designation Flowchart

Appendix 1 – Proposal Plans

VEHICLE ACCESS

PROPOSED CROSS SITE LINKS

SECONDARY PEDESTRIAN ACCESS ROUTE FROM PROPOSED MSCP TO IPSWICH HOSPITAL (ALONG GINN ST.)

PRIMARY PEDESTRIAN ACCESS ROUTE FROM PROPOSED MSCP TO IPSWICH HOSPITAL (ALONG EAST ST.)

IPSWICH HOSPITAL CAR PARK

Drawing: **SITE CONTEXT PLAN**
Drawing no: A.SK.CD.00
Issue: P.13
Scale@A1: 1 : 1000
Date: 19.03.2024

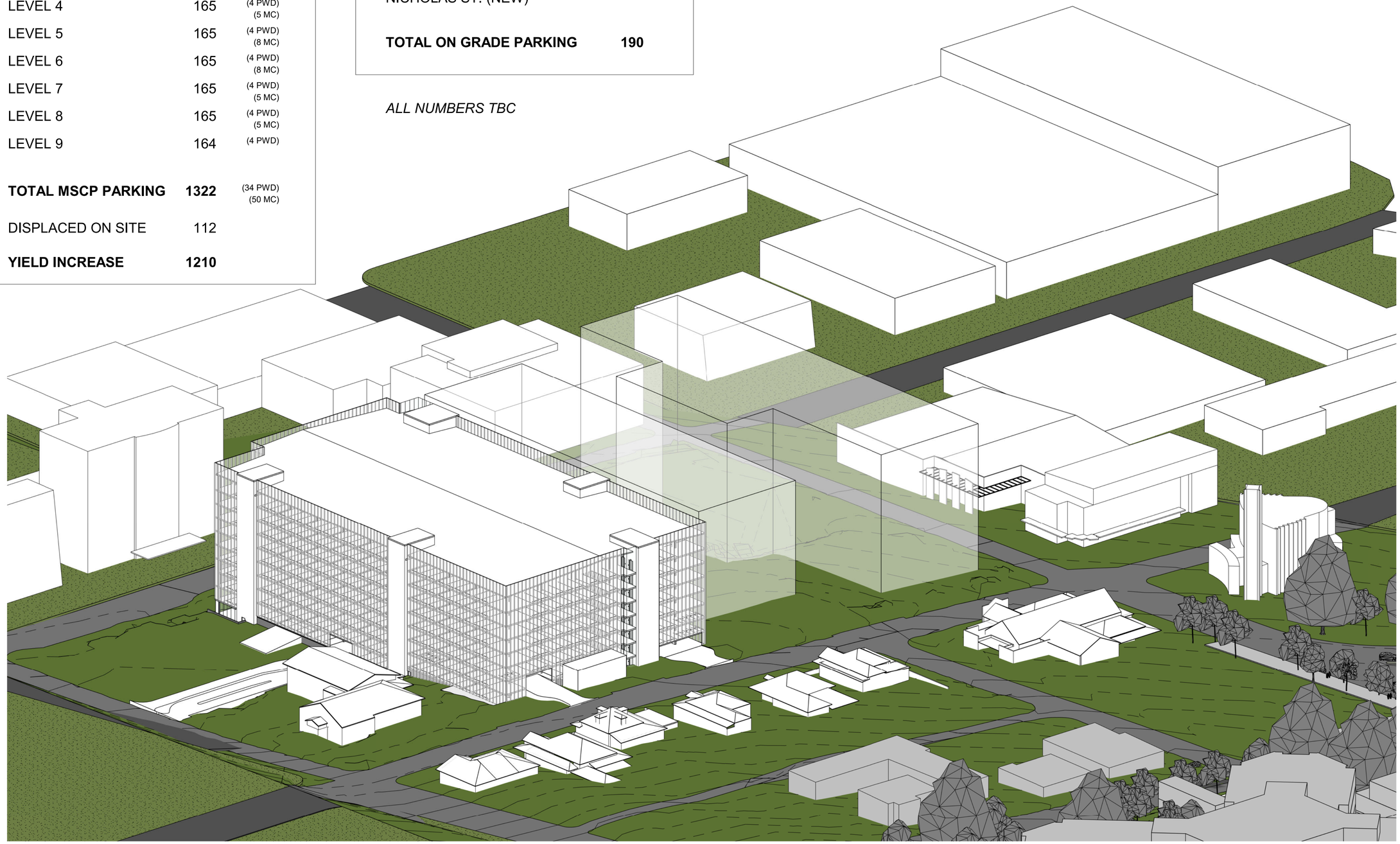
SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

architectus™ Conrad Gargett

IPSWICH MSCP - A10.2 FUTURE 10 STOREY	NO. (APPROX.)	
GROUND LEVEL	0	(0 PWD)
LEVEL 1	96	(2 PWD)
LEVEL 2	92	(4 PWD) (10 MC)
LEVEL 3	145	(4 PWD) (9 MC)
LEVEL 4	165	(4 PWD) (5 MC)
LEVEL 5	165	(4 PWD) (8 MC)
LEVEL 6	165	(4 PWD) (8 MC)
LEVEL 7	165	(4 PWD) (5 MC)
LEVEL 8	165	(4 PWD) (5 MC)
LEVEL 9	164	(4 PWD)
TOTAL MSCP PARKING	**1322**	(34 PWD) (50 MC)
DISPLACED ON SITE	112	
YIELD INCREASE	**1210**	

ON GRADE PARKING	NO. (APPROX.)
CORNER OF RODERICK & EAST ST. (RETAINED)	90
LIBRARY UNDERGROUND (RETAINED)	51
CORNER OF SOUTH & NICHOLAS ST. (NEW)	49
TOTAL ON GRADE PARKING	**190**

ALL NUMBERS TBC



IPSWICH HOSPITAL CAR PARK

Drawing: **SITE CONTEXT 3D & COUNT**
Drawing no: A.SK.CD.01
Issue: P.13
Scale@A1: 1 : 500
Date: 19.03.2024

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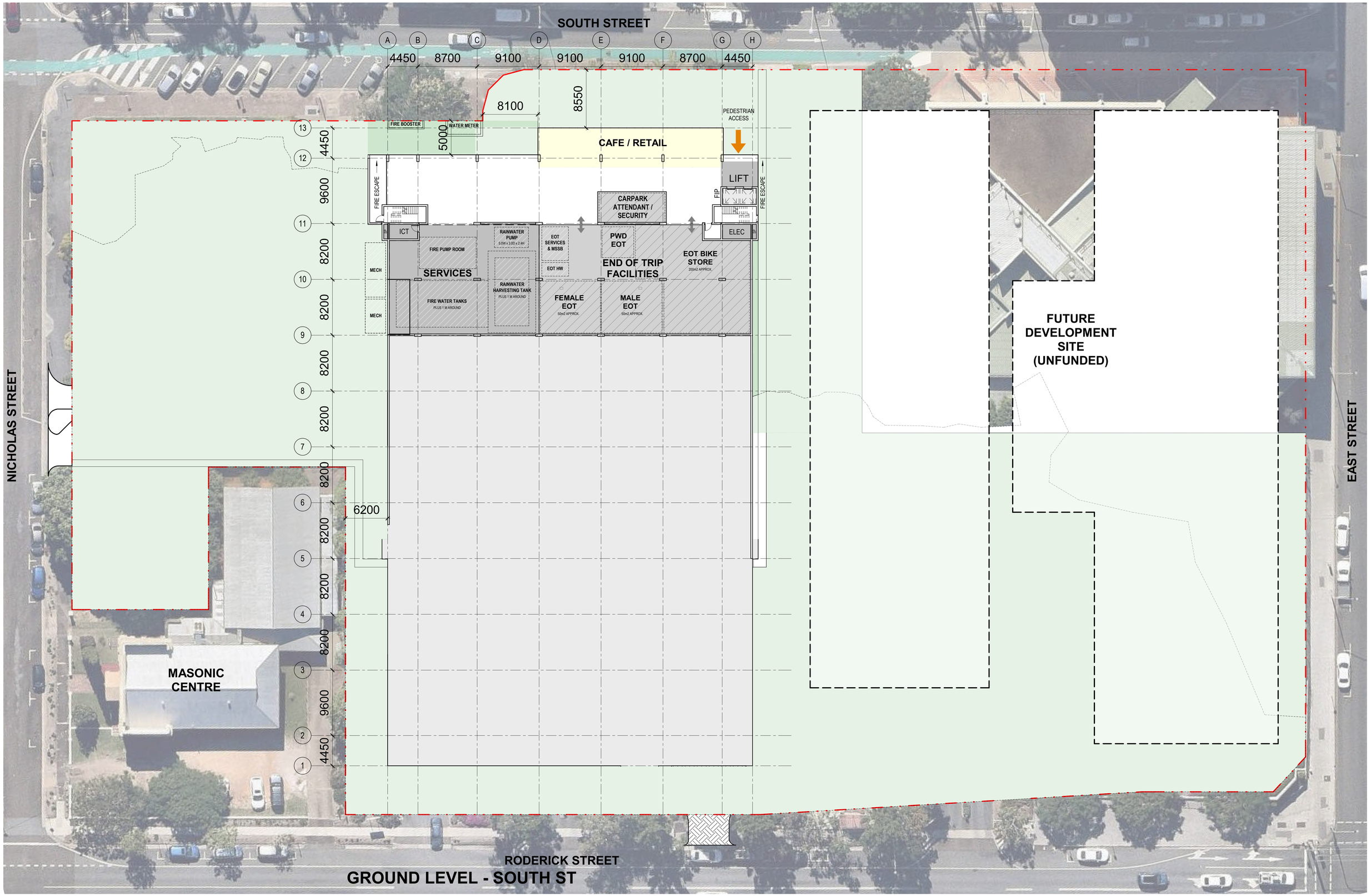

IPSWICH HOSPITAL CAR PARK

Drawing: **GROUND LEVEL PLAN (SOUTH ST.)**
Drawing no: A.SK.CD.02
Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

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ISSUED TO CONSULTANTS FOR REVEW & INPUT

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SOUTH STREET

A B C D E F G H

4450 8700 9100 9100 9100 8700 4450

8550

5000 900

13 12 11 10 9 8 7 6 5 4 3 2 1

4450 9600 8200 8200 8200 8200 8200 8200 9600 4450

ON GRADE CARPARK
49 NEW PARKING SPACES

RET. WALL

SMALL

ICT

LIFT

ELEC

FIRE ESCAPE

7650

SMALL PWD PWD

625 2400 2400 2400

1:8 RAMP

5600 5600 6600 5600 5600 6200 5600

45400
ENTRY QUEUING

150 MAX. FALL @ CROSSOVER

RET. WALL

CANOPY OVER

ENTRY RAMP UP

ENTRY

EXIT RAMP UP

EXIT

CANOPY OVER

EXIT RAMP UP

FIRE ESCAPE

RET. WALL

150 MAX. FALL @ CROSSOVER

RET. WALL

FIRE ESCAPE

6500

ELEC

ICT

RET. WALL

FIRE ESCAPE

RET. WALL

5380

RAMP UP

STAIRS UP

RET. WALL

FUTURE
DEVELOPMENT
SITE
(UNFUNDED)

NICHOLAS STREET

SECONDARY VEHICLE ENTRY & EXIT FROM NICHOLAS ST

EAST ST

MASONIC
CENTRE

RODERICK STREET

LEVEL 1 NICHOLAS ST - SECONDARY ENTRY/EXIT

IPSWICH HOSPITAL CAR PARK

Drawing: **LEVEL 1 PLAN (NICHOLAS ST.)**
Drawing no: A.SK.CD.03
Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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SOUTH STREET
NICHOLAS STREET
EAST STREET
RODERICK STREET
4450 8700 9100 9100 9100 8700 4450
8550
5000
LIFT
SMALL
ICT
ELEC
1:20 RAMP UP
5600 6200 5600 5600 6600 5600 5600 6200 5600
VOID TO LEVEL BELOW
6500
5380
LV SWITCH ROOM
SERVICES
MECH
1:8
RAMP UP FROM BELOW
ICT COMMS ROOM
UPS ROOM
PEDESTRIAN ACCESS
ENTRY
PEDESTRIAN LINK
21230
ENTRY QUEUING
NEW AILSE
PWD
SUB-STATION
(LOCATION UNDER REVIEW)
TEMP GENE
7010
EXIT ABOVE
1:12
MASONIC CENTRE
EXCAVATION & RENTENTION ZONE FOR NATURAL VENTILATION
1:50 MAX. FALL @ CROSSOVER
MAIN VEHICLE ENTRY & EXIT FROM RODERICK ST
FUTURE DEVELOPMENT SITE (UNFUNDED)
UNDERGROUND CARPARK
51 PARKING SPACES RETAINED
ON GRADE CARPARK
90 PARKING SPACES RETAINED
EXIT
ALTERNATIVE ENTRY / EXIT CONFIGURATION (4 PARKING SPACES LOST)
LEVEL 2 - RODERICK ST ENTRY

IPSWICH HOSPITAL CAR PARK

Drawing:	LEVEL 2 PLAN (RODERICK ST. LOWER)
Drawing no:	A.SK.CD.04
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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SOUTH STREET

A B C D E F G H

4450 8700 9100 9100 9100 8700 4450

8550

5000

13 12 11 10 9 8 7 6 5 4 3 2 1

4450 9600 8200 8200 8200 8200 8200 8200 9600 4450

SMALL

ICT

LIFT

ELEC

7650

SMALL

PWD

PWD

1:20 RAMP UP

5600 6200 5600 5600 6600 5600 5600 6200 5600

RAMP UP (from below) 1:20

ELEC

ICT

SMALL

SMALL

5380

20000 EXIT QUEUING

EXIT

EXIT

ICT

PWD

PWD

LIFT

RET. WALL

1:16

RET. WALL

SUB-STATION
(LOCATION UNDER REVIEW)

6330

ENTRY BELOW

1:50 MAX. FALL @ CROSSOVER

EXIT

MAIN VEHICLE ENTRY & EXIT FROM RODERICK ST

RODERICK STREET

NICHOLAS STREET

EAST ST

MASONIC CENTRE

FUTURE DEVELOPMENT SITE (UNFUNDED)

LEVEL 3 - RODERICK ST EXIT

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVEL 3 PLAN (RODERICK ST. UPPER)**
Drawing no:	A.SK.CD.05
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

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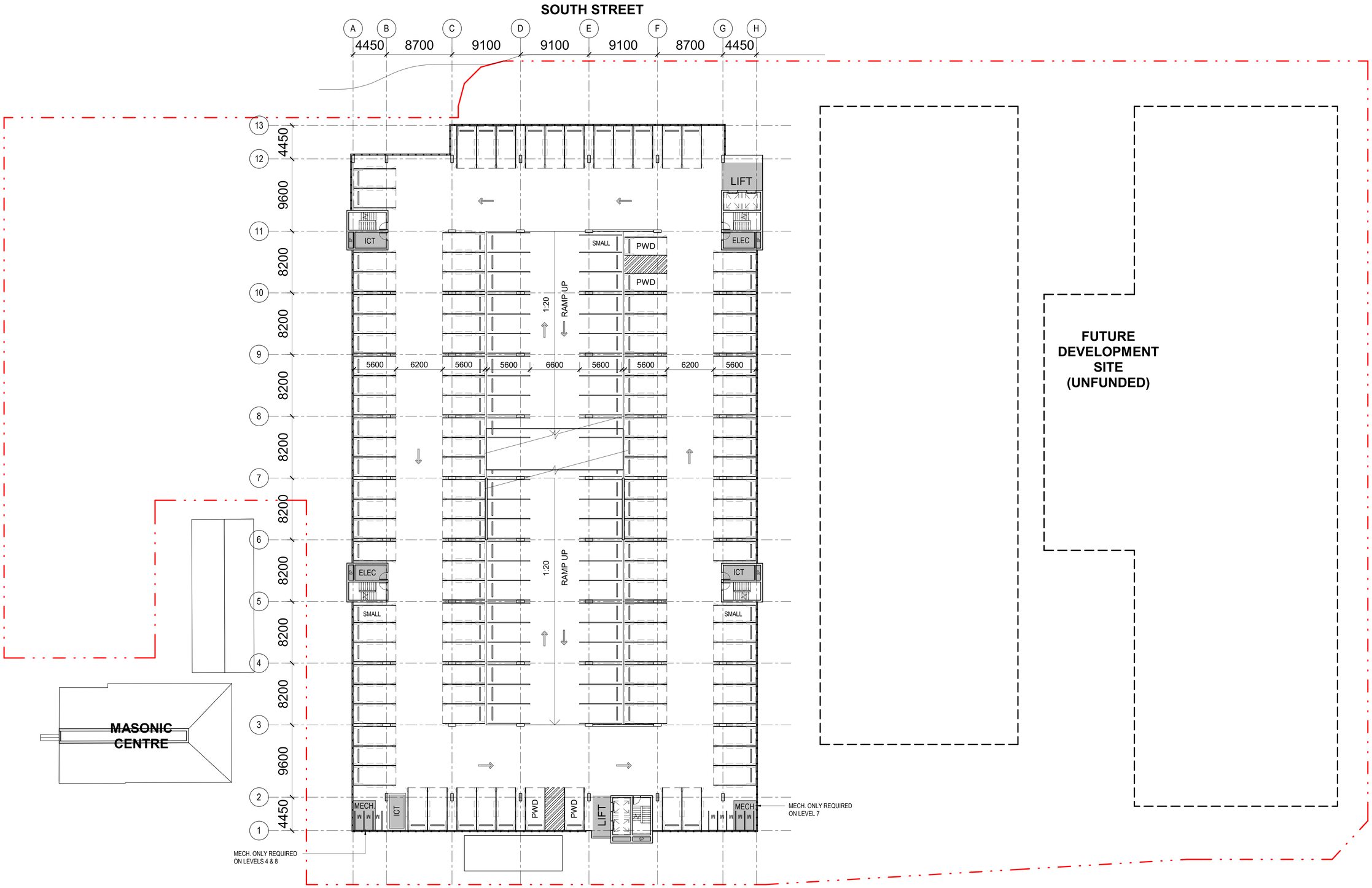
SOUTH STREET

NICHOLAS STREET

EAST STREET

RODERICK STREET



LEVELS 4 - 8 (TYPICAL)

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVELS 4-8 PLAN (TYPICAL)**
Drawing no:	A.SK.CD.06
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

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SOUTH STREET

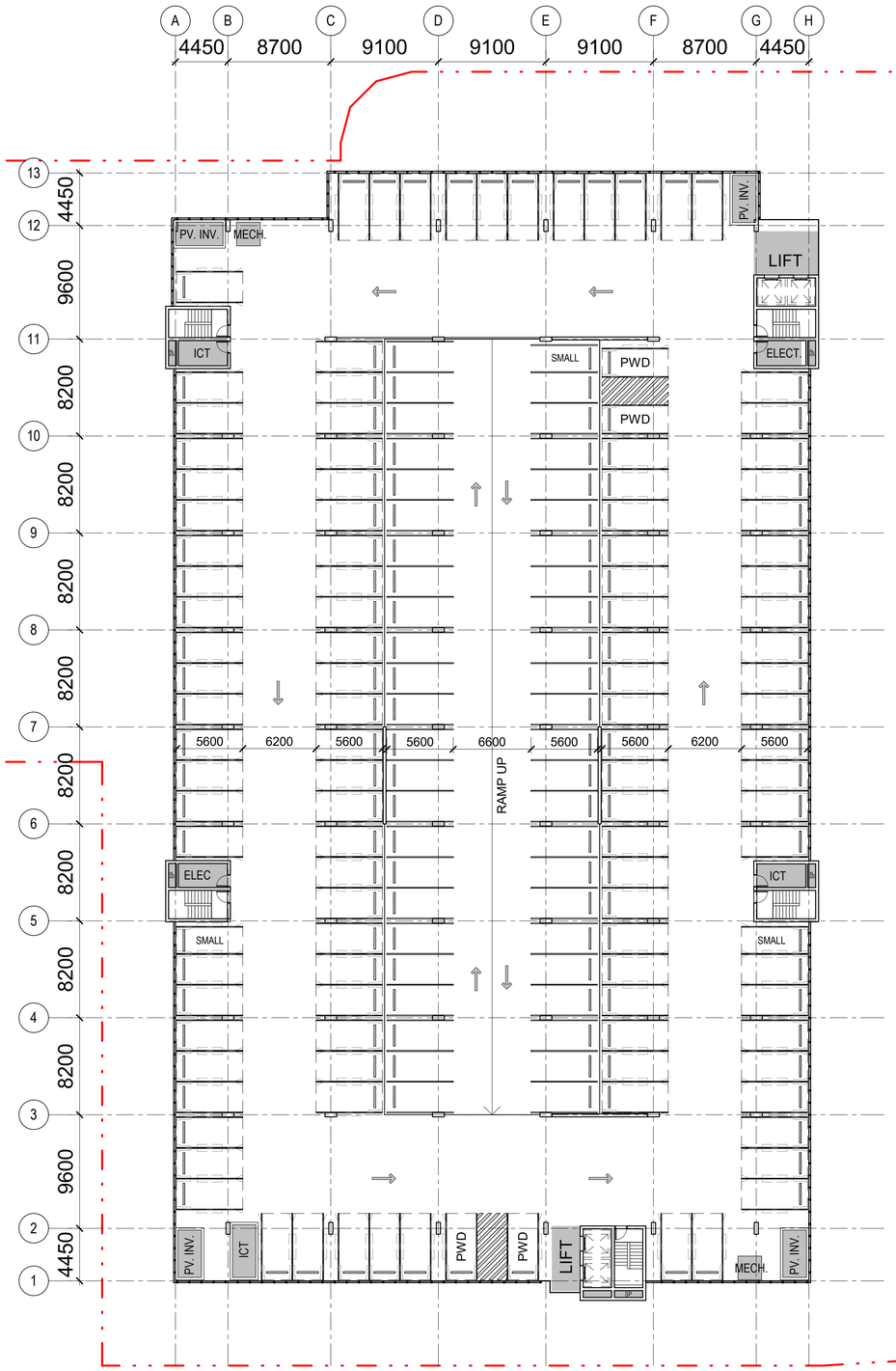
NICHOLAS STREET

MASONIC CENTRE

FUTURE DEVELOPMENT SITE (UNFUNDED)

EAST STREET

RODERICK STREET



LEVEL 9

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVEL 9 PLAN (TOP LEVEL)**
Drawing no:	A.SK.CD.07
Issue:	P.13
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Date:	19.03.2024

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SOUTH STREET

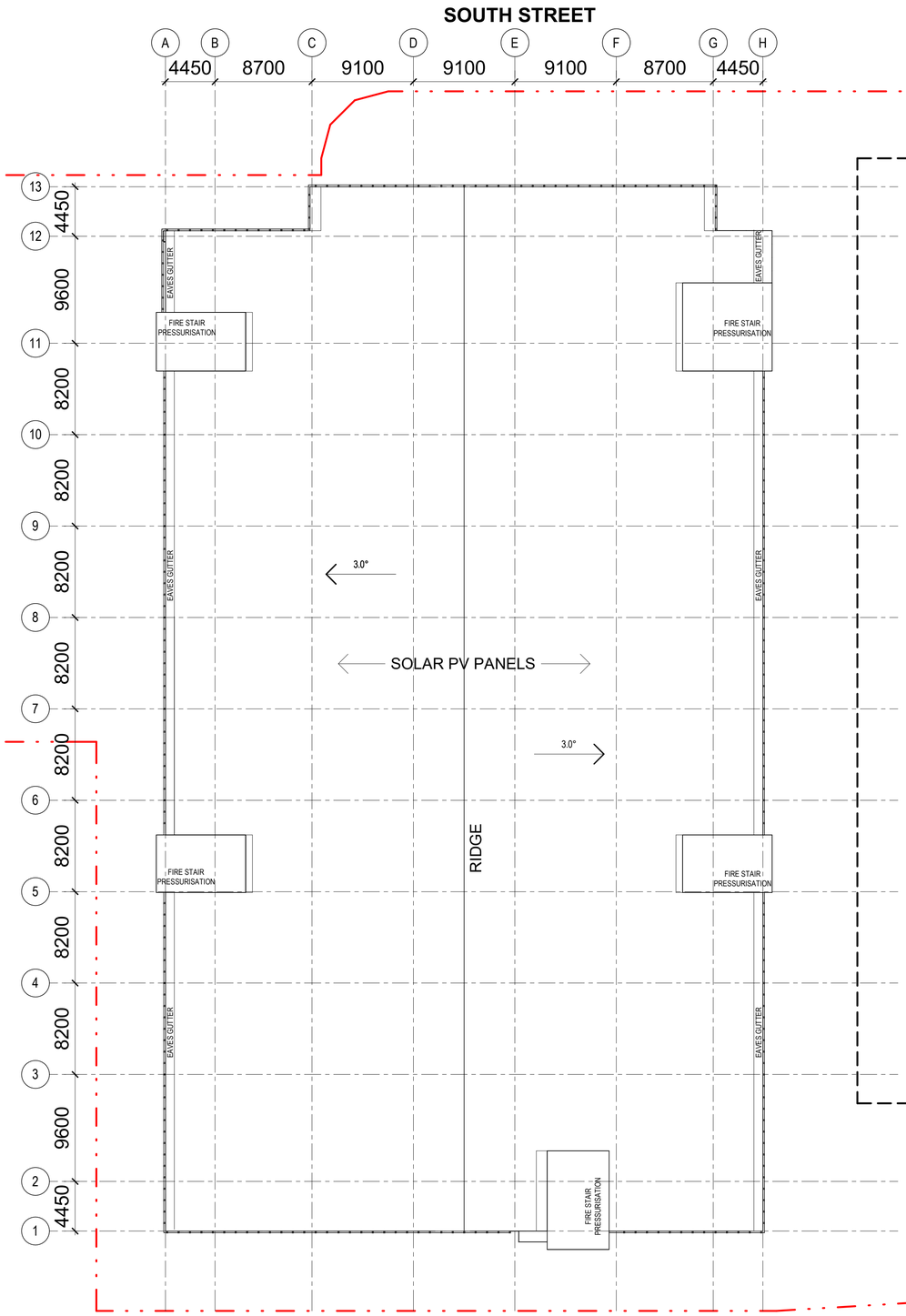
NICHOLAS STREET

MASONIC CENTRE

FUTURE DEVELOPMENT SITE (UNFUNDED)

EAST STREET

RODERICK STREET



ROOF LEVEL

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVEL 10 PLAN (ROOF)**
Drawing no:	A.SK.CD.08
Issue:	P.13
Scale @A1:	1 : 250
Date:	19.03.2024

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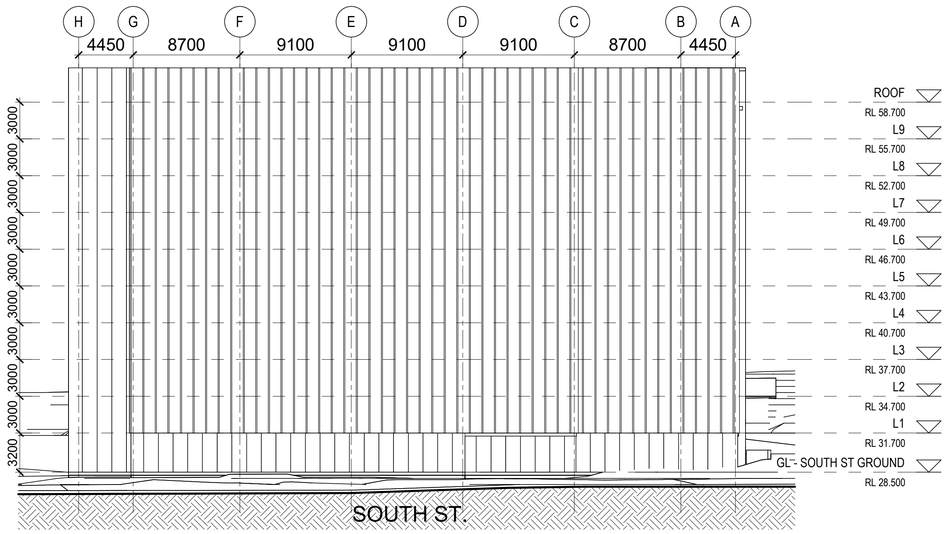
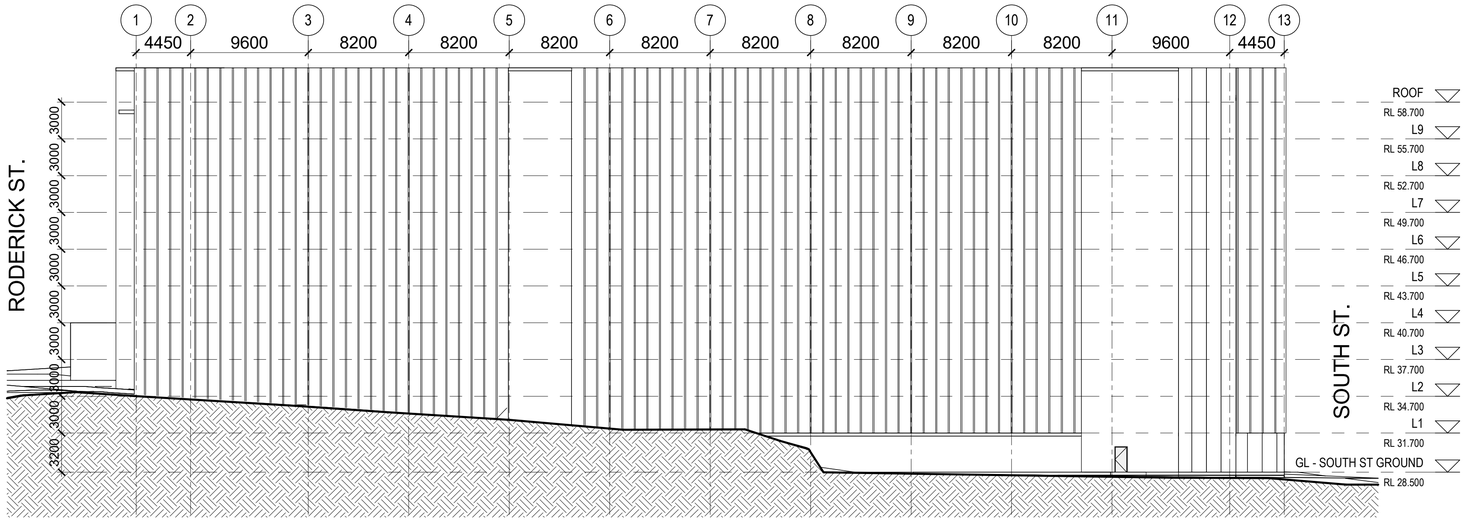


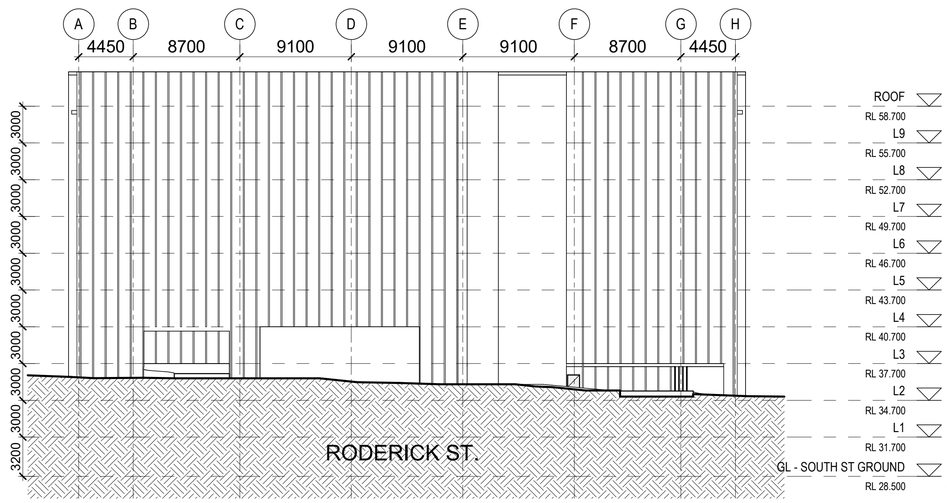
1 ELEVATION NORTH

SCALE: 1 : 250



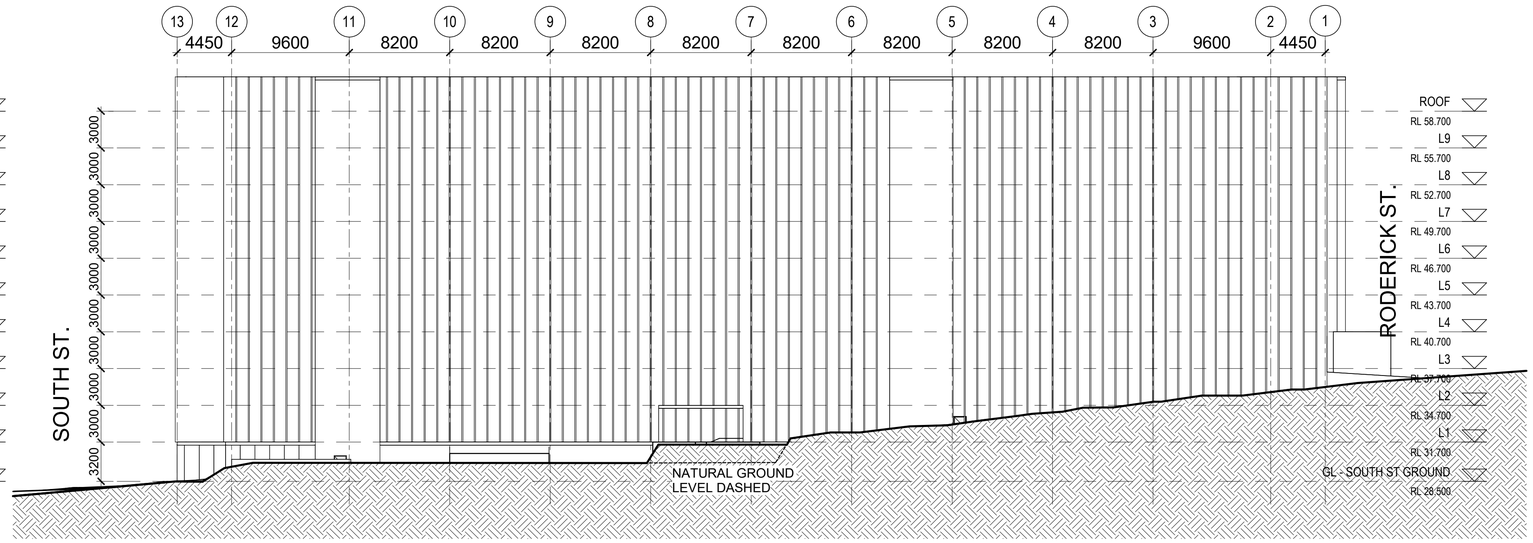
2 ELEVATION EAST

SCALE: 1 : 250



3 ELEVATION SOUTH

SCALE: 1 : 250



4 SK10.1 ELEVATION WEST

SCALE: 1 : 250

IPSWICH HOSPITAL CAR PARK

Drawing: **ELEVATIONS**
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Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

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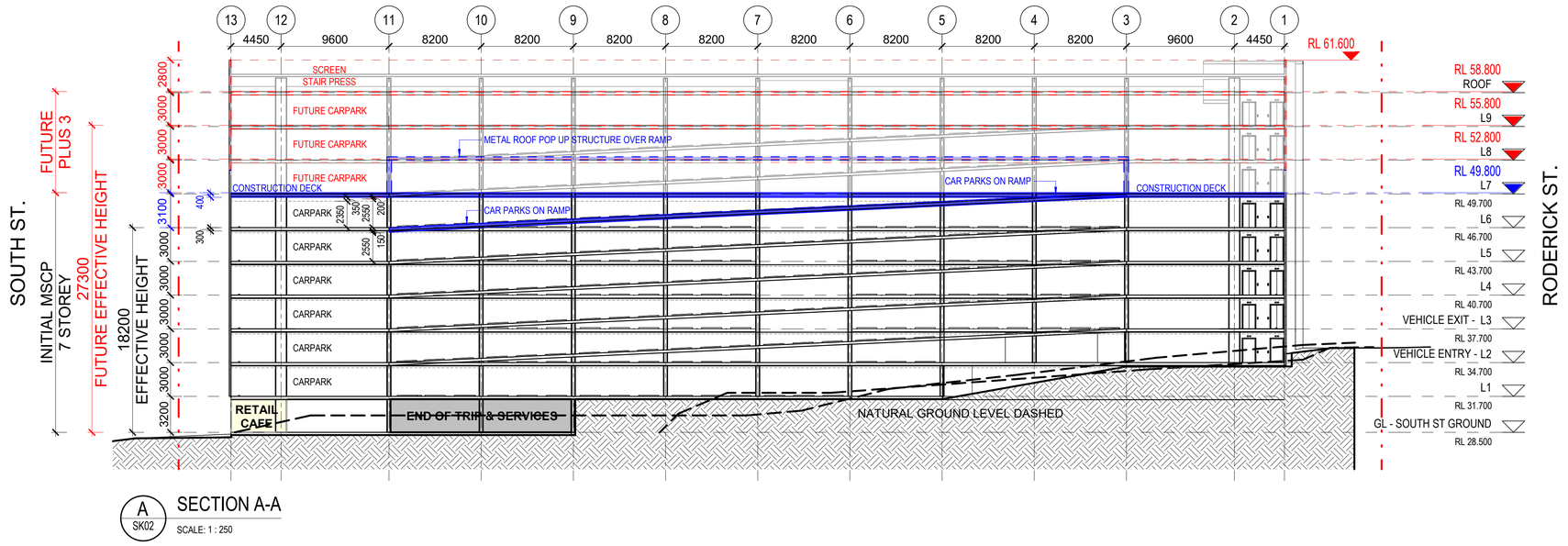

A SK02 SECTION A-A
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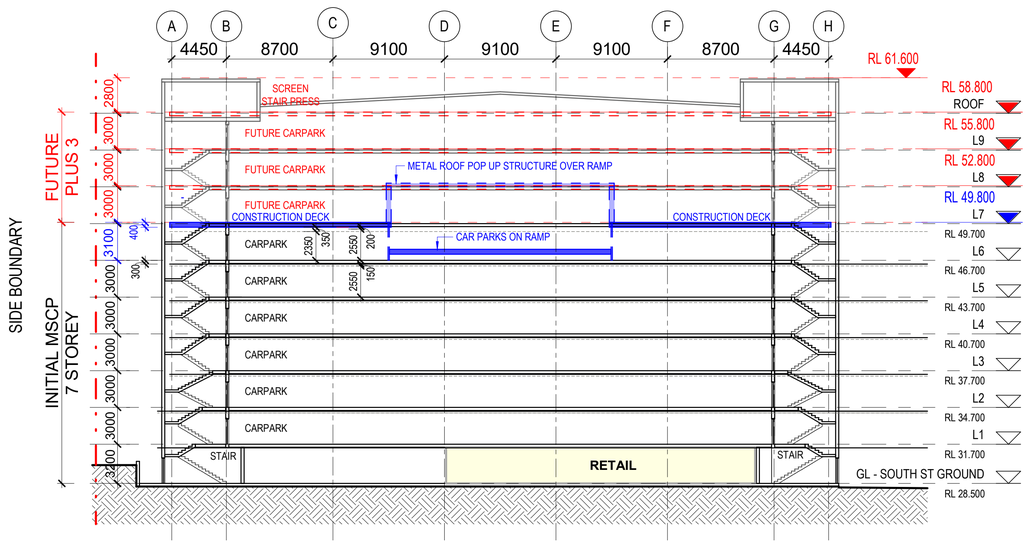
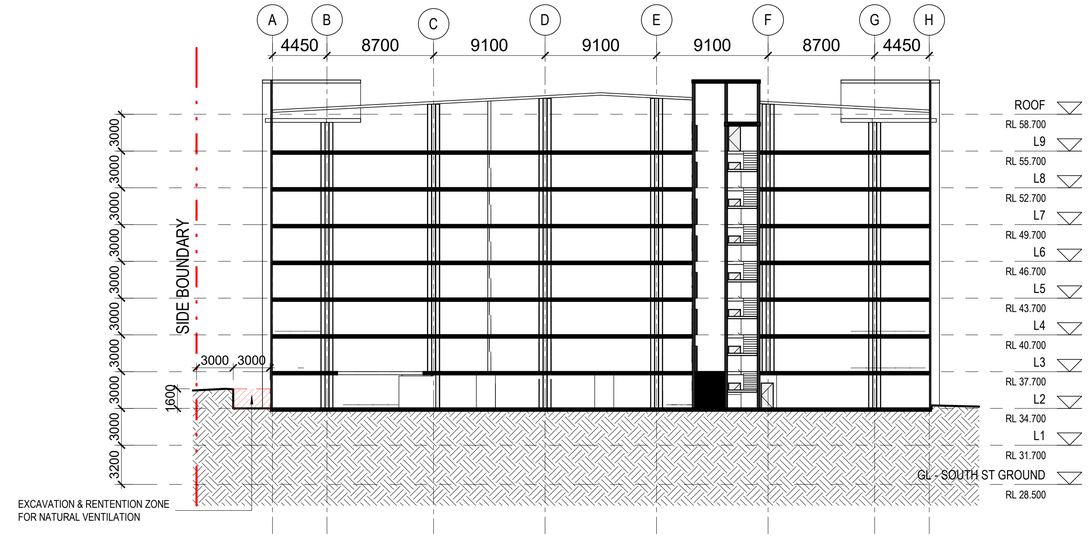


B SK02 SECTION B-B
SCALE: 1 : 250



C SK02 SECTION C-C
SCALE: 1 : 250

IPSWICH MSCP - STAGING MARK UP

INITIAL MSCP = 7 STOREY
OPTION A7.2 (GROUND + 6)

FUTURE MSCP = 10 STOREY
OPTION A10.2 (GROUND + 9)

IPSWICH HOSPITAL CAR PARK

Drawing: **SECTIONS**
Drawing no: A.SK.CD.10
Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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Appendix 2 – Car Parking Demand Assessment

Stantec

IPSWICH HOSPITAL EXPANSION STAGE 2

Car Parking Demand Assessment

04 November 2022

Prepared for:
West Moreton Health

Prepared by:
Stantec

Project Number:
301050416

Revision	Description	Author	Date	Quality Check	Date	Approved for Issue	Date
A-Dr	A Draft	A.Tierney	28/07/2022	A.Tierney	26/08/2022	T.Williams	26/08/2022
A	A Final	A.Tierney	04/11/2022	P.Robertson	04/11/2022	T.Williams	04/11/2022

The conclusions in the Report titled 'Ipswich Hospital Expansion Stage 2 – Car Parking Demand Assessment' are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from West Moreton Health (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: 

Signature

Andrew Tierney

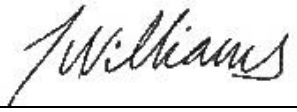
Printed Name

Reviewed by: 

Signature

Patrizia Robertson

Printed Name

Approved by: 

Signature

Trent Williams

Printed Name

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INTRODUCTION

1 Introduction

1.1 Preamble

The Ipswich Hospital (herein referred to as the 'hospital') is a major acute metropolitan facility, providing a range of both inpatient and outpatient service for the West Moreton region. The hospital is located within the Ipswich Central Business District and is proposed to be expanded, with the Stage 2 Detailed Business Case (DBC) currently underway.

A new multi-deck car park is proposed to be provided to support the hospital expansion. Based on information provided by DWP, delivery of this multi-deck carpark is to be undertaken through a two-stage delivery strategy: an 'interim' delivery scenario and an 'ultimate' delivery scenario. The 'interim' scenario includes delivery of a multi-deck carpark to accommodate additional car parking demands associated with the delivery of a new Acute Services Building (ASB), and an 'ultimate' scenario which includes delivery of an expanded multi-deck carpark (additional levels added) to accommodate additional car parking demands associated with the delivery of the unfunded Ipswich Wellness and Health Centre (IWHC).

It is understood that a Ministerial Infrastructure Designation (MID) is to be submitted by West Moreton Health (WMH) to the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) for the multi-deck carpark associated with servicing the ASB. This report also provides high-level consideration of the future car parking supply requirements of the ultimate facility.

Stantec has been engaged by DWP in July 2022 to undertake a Car Parking Demand Assessment of the existing car parking associated with the hospital and to estimate the likely car parking demands generated by the proposed Stage 2 expansion.

1.2 Ipswich Hospital Stage 2 Expansion

Based on information provided by the project team, the bed and staff numbers for the existing and proposed expansion of the hospital are summarised in Table 1.1.

Table 1.1: Proposed Hospital Expansion

Description	Existing [1][2]	Stage 2 Expansion (ASB) [2]
Inpatient & Critical Care Beds	338 beds (305 inpatient beds and 33 critical care beds)	+200 beds (+192 inpatient beds and +8 critical care beds)
Emergency Department (Short Stay)	22 beds	+16 beds
Total Overnight Beds	360 beds	+216 beds

[1] Based on information provided by DWP.
[2] Based on Option 2.1 which is understood to be the preferred option at the time of preparation of this report.

It is noted that an existing 2,773 FTE hospital staff (based on staff profile database from 2020) work across 3 shifts and the peak number of staff on-site at any one time was not available at the time of preparing this assessment. The different bed types and the staffing requirements per bed type was

also not available at the time of preparing this assessment. These are identified as limitations of this study in Section 1.4.

In addition, current planning for the future unfunded IWHC facility includes 27,500sqm GFA (of which 685sqm is public waiting area) and 677 staff (based on information provided by DWP). The unfunded IWHC is proposed to operate as a day centre only with no overnight patients. Overnight services may be delivered in a future stage of the hospital expansion.

1.3 Purpose of this Report

This report sets out an assessment of the car parking demand of the hospital and anticipated car parking implications of the proposed Stage 2 expansion to inform the car parking supply required to be accommodated within the new multi-deck car park. This includes consideration of the following:

- Existing transport network and car parking conditions surrounding the site
- Suitability of the existing car parking facilities to cater for the current hospital demand
- The car parking characteristics of the proposed hospital expansion
- Suitability of the proposed car parking facilities to cater for the future hospital demand
- Summary of travel demand and car parking management strategies to assist in mitigating on-site car parking demand.

This report also provides high-level consideration of the 'ultimate' scenario incorporating the overall car parking supply requirements the unfunded IWHC.

1.4 Limitations of this Report

While Stantec has undertaken every effort to undertake a detailed and robust car parking demand assessment, there are a number of assumptions and limitations included within this report, including:

- Peak number of staff on-site at any one time (i.e. broken down by shifts) were not available at the time of preparing this report
- The different bed types and the staffing requirements per bed type were not available at the time of preparing this report
- Details of existing travel mode data from staff, patients and visitors accessing the hospital were not available at the time of preparing this report
- Extracts from the previous car parking demand assessments have been provided. However, without provision of the complete previous car parking demand assessments (inclusive of appendices), details and outcomes of these reports cannot used for comparison purposes.
- It is assumed that the WMH shuttle will remain operational and continue to deliver the same level of benefit for the on-site (and surrounding on-street) car parking demands

- As per standard industry practice, car parking demand surveys were conducted on a single day and it is assumed that the demands on this day are representative of typical operating conditions for the hospital.

Where relevant, these assumptions and limitations are detailed within subsequent sections of the report.

1.5 References

In preparing this report, reference has been made to the following:

- An inspection of the hospital site and its surrounds, undertaken on Wednesday 27 July 2022
- Plans for the proposed Ipswich Hospital Stage 2 Expansion prepared by DWP architects, dated 23 August 2022
- Ipswich City Council's 'Ipswich Planning Scheme – Part 12 Div 9 – Parking Code'
- Other documents and data as referenced in this report.

EXISTING CONDITIONS

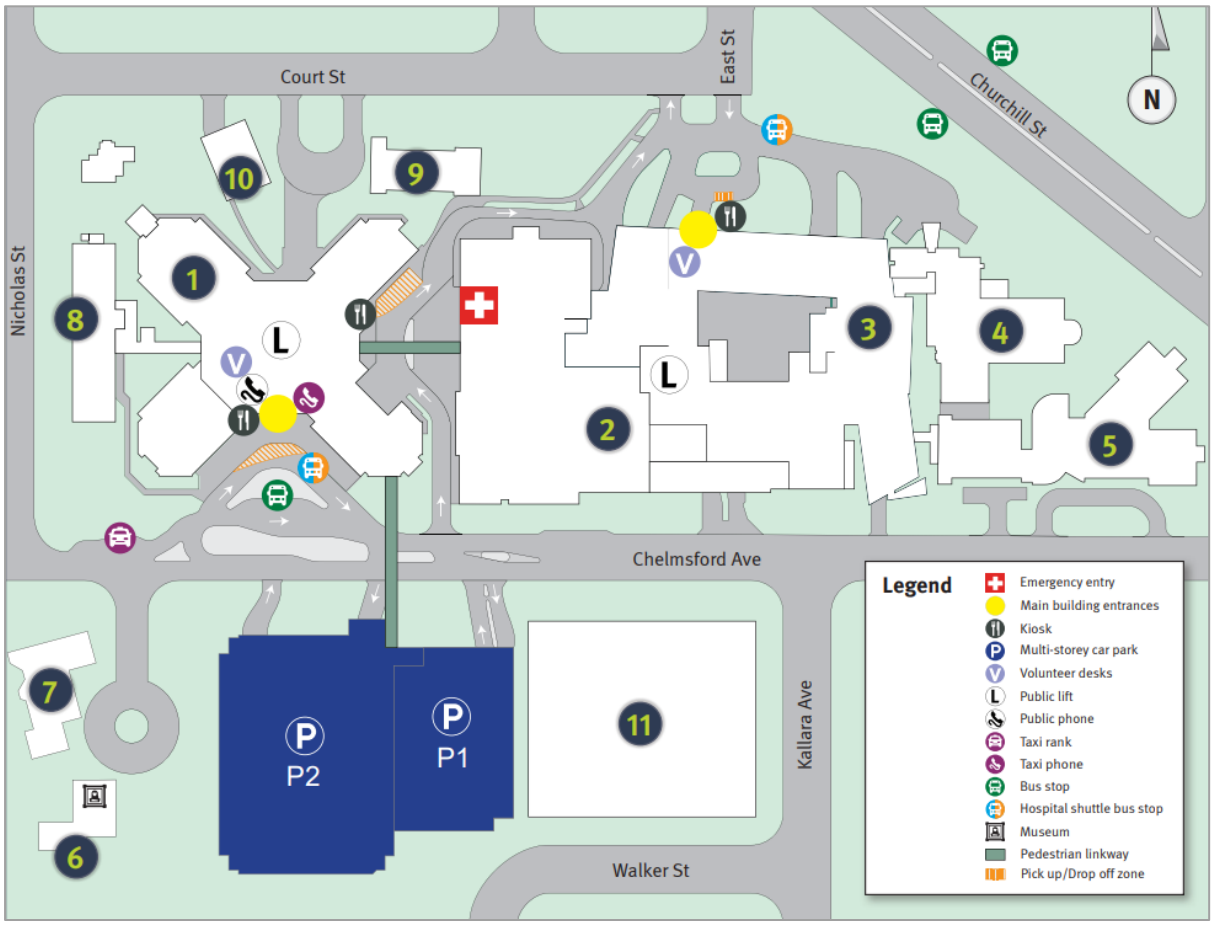
2 Existing Conditions

2.1 Site Details

2.1.1 Existing Ipswich Hospital

The hospital maintains frontages to Chelmsford Avenue, Churchill Street, Nicholas Street and Court Street. The primary, publicly available, off-street car parking facilities are the multi-deck car parks accessed via Chelmsford Avenue, and the West Moreton Health (WMH) on-grade carpark on Roderick Street. These sites comprise Lot 1 on SP331207, Lot 2 on SP330201, Lot 3 on SP197463, Lot 2 on RP100150. An overview of the hospital is shown in Figure 2.1.

Figure 2.1: Existing Ipswich Hospital Campus Map



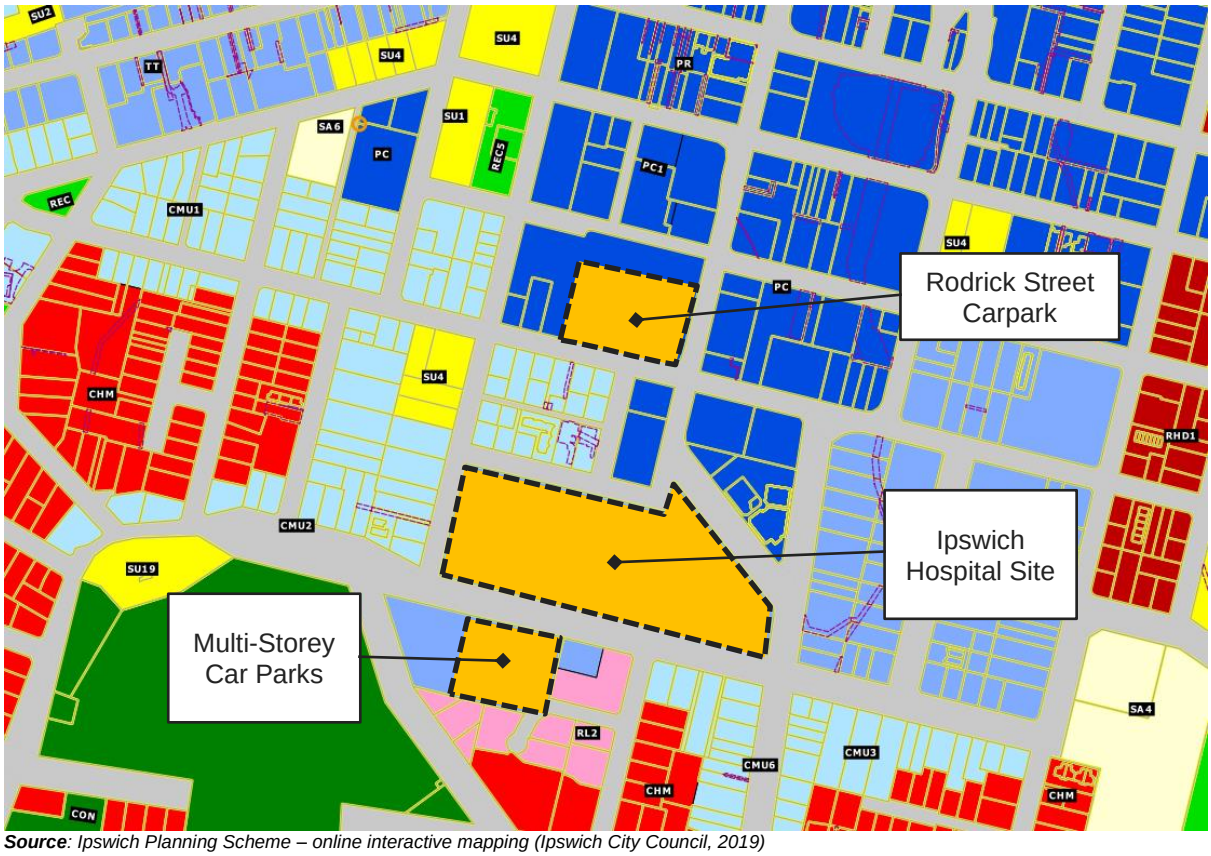
***Source**: Ipswich Hospital Campus Map (West Moreton Health, 2021)*

The Ipswich Hospital campus map includes the multi-storey car park (denoted as P1 and P2) accessible from Chelmsford Avenue.

2.1.2 Surrounding Area

The surrounding land is primarily zoned as 'Character Mixed Use' to the west, 'CBD Primary Commercial' to the north, 'CBD Medical Services' to the east and 'Character Mixed Use' and 'Residential low Density' to the south.

Figure 2.2: Ipswich Hospital Surrounding Land Uses (Council Planning Scheme)



***Source**: Ipswich Planning Scheme – online interactive mapping (Ipswich City Council, 2019)*

2.2 Existing Travel Behaviours

Existing travel behaviours are important to understand holistically how staff, patients and visitors travel to, from and within the hospital, noting that car parking demands are a result of the travel mode choice of those people who choose (or are required) to drive and park at the hospital.

A review of available Australian Bureau of Statistics (ABS) 2016 Census Data for Ipswich – Central indicated that approximately **64% of workers travelled to work by car as the driver and approximately 5% of workers travelled to work by car as a passenger** (either carpooled or dropped-off). This indicates that a large portion of workers to Ipswich – Central travelled by other modes of transport.

It is desirable that the existing travel modes of staff (and patients and visitors to a lesser extent) be reviewed to understand how they compare with the ABS Census Data and whether opportunity exists to influence these mode choices through travel demand management initiatives.

2.3 Previous Car Parking Demand Assessments

It is understood that a previous Car Parking Demand Assessment was undertaken in 2014, with extracts provided to Stantec. The report extract identified a car parking demand rate of between 2.60 and 2.82 spaces per bed. The nominated range was associated with the shuttle service (discussed in Section 2.7), with suspension of the shuttle service resulting in the higher rate. This shuttle service is currently in operation.

Based on the standard industry approach, car parking demands for hospitals typically fall within the 3 to 4 car parking spaces per bed range. The demands identified in 2014 for the Ipswich Hospital are below the typical range and it is unclear whether there were any factors which may have resulted in the lower than typical industry practice car parking demand.

It is recommended that the previous Car Parking Demand Assessment be provided in its entirety such that a detailed comparison with this report can be undertaken.

2.4 Existing Road Network

Characteristics of existing roads within vicinity of the subject site are outlined in Table 2.1. These are considered to be important for this assessment given the extensive on-street car parking provisions located within walking distance of the hospital.

Table 2.1: Existing Road Network

Road Name	Roderick Street	East Street	South Street	Nicholas Street	Churchill Street	Warwick Street
Jurisdiction	Council controlled	State controlled	Council controlled	Council controlled	State controlled	State controlled
Class Type	Sub-arterial	Arterial	Local	Local	Arterial	Arterial
Lane Formation	Two-lane, two-way, undivided	Two-lane, two-way, undivided	One-lane, one-way, undivided	Two-lane, two-way, undivided	Four-lane, two-way, divided	Four-lane, two-way, undivided
Carriageway Width	12m	12m	8m	12m	20m	23m
Reserve Width	20m	20m	12m / 20m[1]	20m	30m	30m
Kerbside Parking	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions

[1] Varies along site frontage

2.5 Car Parking Study Area

A car parking inventory of available car parking within the vicinity of the hospital (extents agreed with DWP) has been compiled to capture on-street and off-street car parking areas understood to be utilised by staff, patients and visitors of the hospital. This includes a number of off-street and on-street parking areas, including both metered (paid) and unmetered (unpaid) locations.

A total supply of 933 off-street car parking spaces were identified, including:

- 792 general parking spaces
- 141 spaces with other restrictions.

A total supply of 460 on-street car parking spaces were identified, including:

- 186 unrestricted (no limit) parking spaces
- 41 long term (9-hour metered) parking spaces
- 210 short term (2-hour metered, 3-hour metered, 3-hour unmetered) parking spaces
- 23 parking spaces with other restrictions (taxi zone, loading zone).

This equates to a **total car parking supply 1,393 spaces** within the identified study area.

2.5.1 Off-Street Parking Inventory

The off-street parking areas servicing the hospital are shown in Figure 2.3 and include:

- Multi-storey car park (Chelmsford Avenue) – 752 spaces for staff, patient and visitor use
- West Moreton Health car park (Roderick Street) – 50 spaces for staff use and 123 spaces for authorised vehicle use only
- Fleet Vehicle Parking (Court Street) – 8 spaces (currently) for use by Queensland Government Fleet Vehicles only.

It is noted that the fleet vehicle parking on Court Street (supply of 8 spaces) is often utilised for purposes other than car parking such as site works and temporary clinical space. During data collection these spaces were utilised by fleet vehicle parking.

Figure 2.3: Ipswich Hospital Off-Street Parking Areas

***Source**: Nearmap.com*

A breakdown of the off-street parking supply by intended allocation is provided in Table 2.2.

Table 2.2: Parking Inventory – Off-Street Car Parking

Location	General	Staff Only	Reserved	Fleet Parking	PWD	Motor-cycle	Total
Multi-storey car park (Chelmsford Avenue)	709 [1]	-	38	-	10	5	**752**
Roderick Street car park	123	50	-	-	-	-	**173**
Court Street Fleet Parking [2]	-	-	-	8	-	-	**8**
SUBTOTAL	**792**	**50**	**38**	**8**	**10**	**5**	**933**

[1] 30 Parking spaces reserved on the roof of Multi-storey Carpark (P1) intended for use as staff parking. This portion of parking is closed between the hours of 2AM and 1:30PM daily.
[2] Based on information provided by Client representatives, the Court Street fleet parking may be temporarily removed to support site works or for other purposes on an 'as required' basis. During data collection, the Court Street fleet parking location was operational and has been included in the parking inventory.

2.5.2 On-Street Car Parking Inventory

The on-street parking areas within the hospital precinct are shown in Figure 2.4 and includes a number of short term (2P and 3P parking), long term (9P parking) and unrestricted (no limit) parking areas. A breakdown of the off-street parking supply by intended allocation is provided in Appendix A (Table A.1).

Figure 2.4: Ipswich Hospital Precinct On-Street Parking

2.6 Future Transport Network Planning

A review of Queensland's Department of Transport and Main Roads' *Queensland Transport and Roads Investment Program for 2021-22 to 2024-25* did not indicate any proposed projects scheduled within the study area up to the year 2025.

A review of the Ipswich City Council 'Local Government Infrastructure Plan' identified a future road trunk infrastructure upgrade planned for Roderick Street the within the vicinity of the development site. The planned works include the upgrade to 4 lanes (current 2 lanes) on Roderick Street between Gordon Street and Burnett Street. The Roderick Street upgrade works are currently planned to be delivered by 2039. The Roderick Street upgrade works may result in the loss of up to 72 parking spaces on Roderick Street within the study area, which includes the following:

- Long term parking – 17 spaces
- Short term parking – 12 spaces
- Unrestricted parking – 43 spaces

The consideration of the loss of up to 60 long term and unrestricted parking spaces has not been included within the future car parking requirements detailed within section 4 of this report as design details of this project are not currently available.

It is understood that the Council's *Ipswich Inner CBD Cycle Network Corridor Plan* seeks to improve cycling connections within the Ipswich CBD, specifically impacting South Street (east of Nicholas Street) and Nicholas Street (proximate to South Street). It is expected that these improvement works may result in an impact to on-street parking supply.

These locations are beyond the extents of the captured car parking demand survey and the expected results to the Ipswich Hospital parking demand are considered to be minimal.

2.7 Shuttle Service & External Parking

A shuttle service is currently operated by WMH providing a connection between the hospital and a number of external parking locations including the Limestone Park car park and a multi-storey car park located at the Ipswich Health Plaza. Based on intercept surveys undertaken during the site visit and data collection, this shuttle service is utilised by a number of staff, patients, and visitors to travel to the hospital. This shuttle service provides a connection between the hospital and a number of external parking locations including the Limestone Park car park and a multi-storey car park located at the Ipswich Health Plaza.

It is noted that the Ipswich Health Plaza multi-storey car park is operated and managed by the Ipswich Hospital Foundation (IHF), which also operates / manages the existing hospital multi-deck car parks at Ipswich Hospital (Chelmsford Avenue).

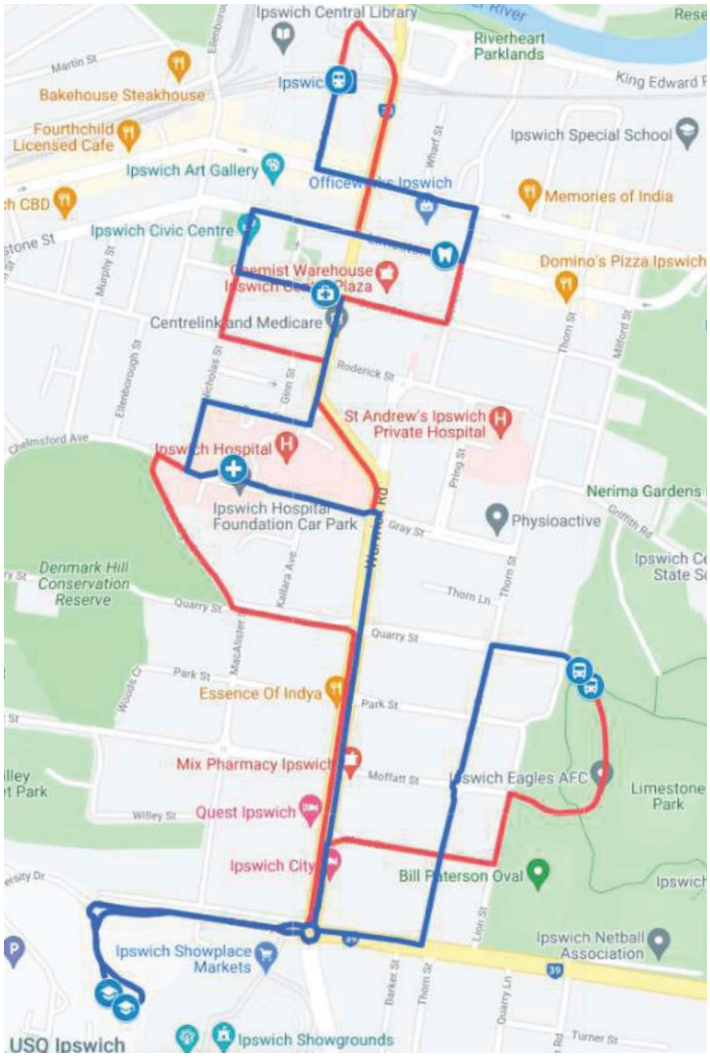
The WMH shuttle service route map is provided in Figure 2.5. The shuttle currently operates the following Monday to Friday services:

- Limestone Carpark to Ipswich Hospital (Red Service) – operating half hourly from 6am to 2pm, beginning at Limestone Park car park and stopping at USQ Ipswich Campus, Ipswich Hospital, the Hayden Centre, Ipswich Community Dental, and Ipswich Health Plaza
- Ipswich Hospital to Limestone Park (Blue Service) – operating half hourly between 2pm and 6pm, beginning at the Ipswich Health Plaza, and stopping at Ipswich Community Dental, the Hayden Centre, Ipswich Hospital, USQ Ipswich Campus, and Limestone Park car park
- Night Service (Limestone Park to Ipswich Hospital) – operating half hourly between 6pm and 11pm, beginning at the Limestone Park car park and ending at Ipswich Hospital
- On-demand Night Service - operating between 6pm and 11:30pm, the on-demand service operates from both the hospital or the Limestone Park car park and provides a connection to any of the following destinations: Ipswich Health Plaza, and stopping at Ipswich Community Dental, the Hayden Centre, Ipswich Hospital, USQ Ipswich Campus, and Limestone Park car park.

Per the provided extracts of the previous Car Parking Demand Assessment completed in 2014, this shuttle could be expected to reduce the on-site (and surrounding on-street) car parking demand by in the order of 0.22 spaces per bed when operational. For the purpose of this assessment, it is

assumed that the shuttle will remain operational and continue to deliver the same level of benefit into the future. Opportunities to increase the shuttle services are also identified.

Figure 2.5: West Moreton Health Shuttle Service – Route Map



CAR PARKING SURVEY AND ANALYSIS

3 Car Parking Survey and Analysis

3.1 Preamble

A car parking occupancy survey was undertaken for on-street and off-street car parking areas within the hospital precinct (extents identified in Figure 2.4) on Wednesday 27th July 2022 between the hours of 6am and 9pm. These surveys were intended to capture and provide insights into the car parking demands and characteristics proximate to the Ipswich Hospital.

In support of these surveys, observations of the on-street car parking areas were conducted to assist in estimating the demand attributable to the hospital. Intercept surveys were also conducted for the Chelmsford Avenue multi-deck car parks to understand the percentage of staff using these facilities. Findings of these observations are referenced in the following sections of this report as required.

The day of survey was selected as representative of a typical weekday, including typical parking demands. Whilst it is expected that the survey results may have minor day-to-day fluctuations, they are not expected to materially vary in volume or temporal profile. The period of survey was selected as a representation of peak demands within on-site and on-street parking provisions.

Details of the survey findings are outlined within this section of the report. A summary of the parking occupancy surveys are provided in Attachment B.

3.2 Assumptions and Limitations

The car parking survey undertaken as part of this assessment has been undertaken in an effort to assess the existing parking demand of the hospital. As part of the survey and analysis, several key assumptions had to be considered to establish the base parking demands.

3.2.1 Survey Location & External Parking Demand

The extent of car parking demand survey was determined based on our understanding of the on-street parking conditions, typical parking behaviours, and information provided by WMH.

It is possible that the occupancy survey has not captured the entire on-street car parking demand associated with the hospital and a portion of hospital car parking demand could be expected to be located outside of survey extents. Notwithstanding, any such additional demand could be expected to be minimal and is likely to be offset by the conservative background car parking demand assumptions (Section 3.2.2).

The findings or the occupancy surveys are therefore considered to be a suitable and accurate representation of the hospital car parking demands.

3.2.2 Background Car Parking

It is expected that the majority of on-street and off-street car parking surrounding the hospital is likely to be associated with the hospital. However, the location of car parking is proximate to a number of residential and commercial land uses likely to maintain their own car parking demand. While it is

acknowledged that a portion of the car parking surveyed is likely to be associated with other uses, it is expected that the significant majority is generated by hospital staff, patient or visitor use. This was also evident from on-site observations completed at the same time as the occupancy surveys.

3.3 Car Parking Demand & Occupancy

3.3.1 Off-street parking

The surveyed off-street hospital car parking demand is summarised in Figure 3.1, with car parking utilisation profiles for the 4 off-street car parking facilities provided in Figure 3.2.

Figure 3.1: Ipswich Hospital Off-Street Parking Demand Summary

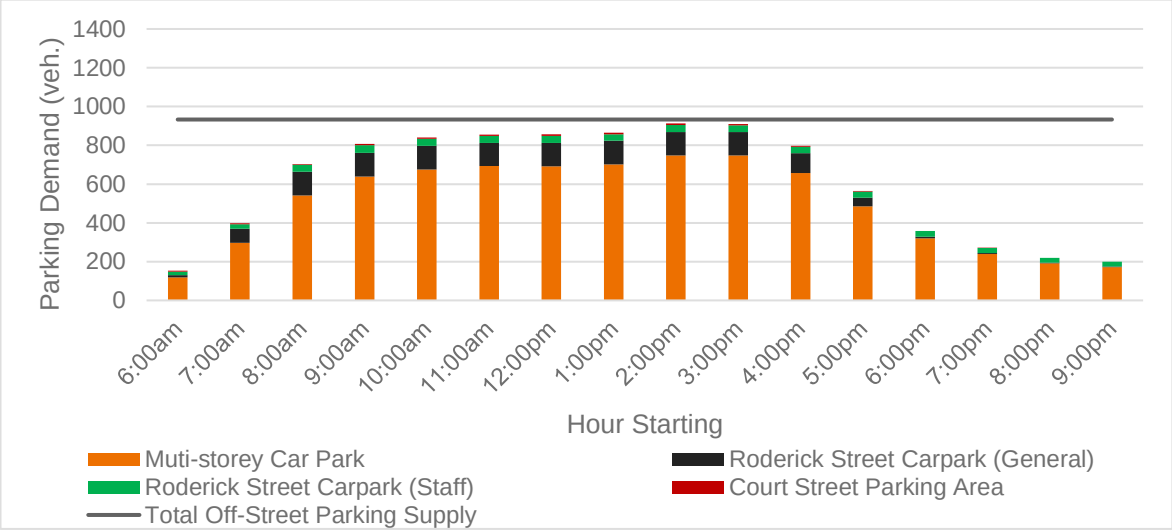
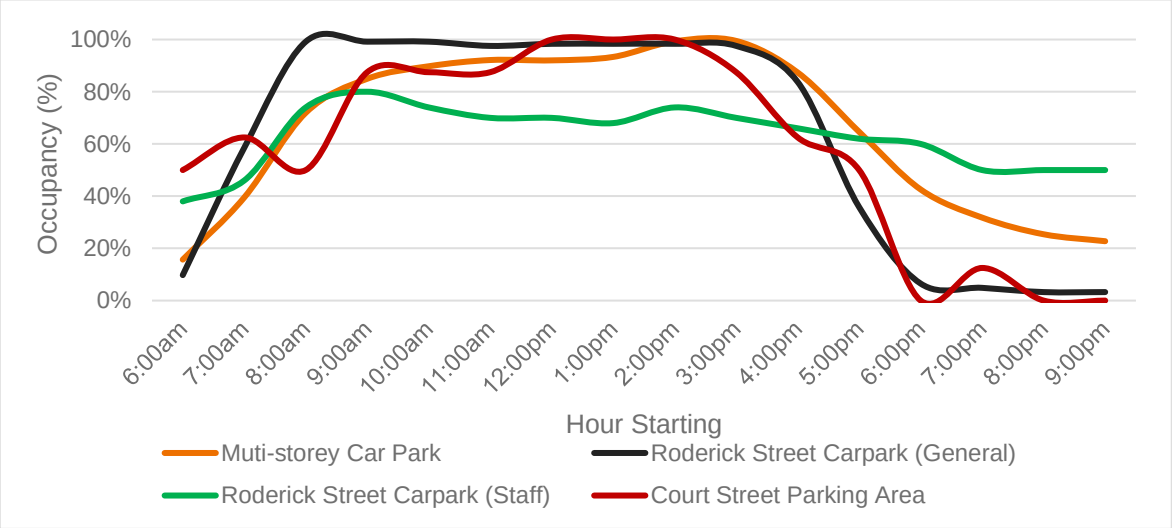


Figure 3.2: Ipswich Hospital Off-Street Parking Occupancy Summary



A summary of the car parking utilisation and observations for the off-street car parking facilities is provided as follows:

Chelmsford Street Multi-Deck Car Parks

- The multi-deck car parks were approximately 15% utilised at 6am, and reached approximately 75% utilisation by 8am, and approximately 90% by 11am
- The multi-deck car parks reached approximately 100% occupancy by 1:30pm, lasting for approximately 1 hour
- It is noted that the 2 facilities have no internal connections and vehicles were observed driving between the car parks in search of a vacant car parking space
- The multi-deck car parks retain approximately 40 reserved car parking spaces, for uses such as specialists and clinical personnel, and approximately 30 reserved parking spaces for staff arriving after 1:30pm As such, the available capacity within the multi-storey car park is likely to be less than is represented within the above graphs.

Roderick Street Carpark (former ICC site and future site of the Ipswich Wellness and Health Centre)

- The Roderick Street carpark is comprised of two areas, 123 parking spaces within publicly accessible areas, and 50 parking spaces within a secure area provided for fleet vehicles (accessible through internal traffic control point)
- The publicly accessible car parking area was approximately 10% utilised at 6am and reached approximately 100% utilisation by 8am
- The secure fleet parking area was approximately 40% utilised at 6am and reached a peak utilisation of approximately 80% by 8:30am
- Based on the car parking demands and on-site observations, the car parking demand within the Roderick Street publicly accessible carpark is expected to be primarily associated with the hospital.

Court Street Fleet Parking Area

- Court Street Fleet Parking occupancy varies over the duration of the observation period.

3.3.2 On-street parking

The surveyed on-street hospital car parking demand is summarised in Figure 3.3, with parking utilisation profiles provided in Figure 3.4.

Figure 3.3: Ipswich Hospital On-Street Parking Demand Summary

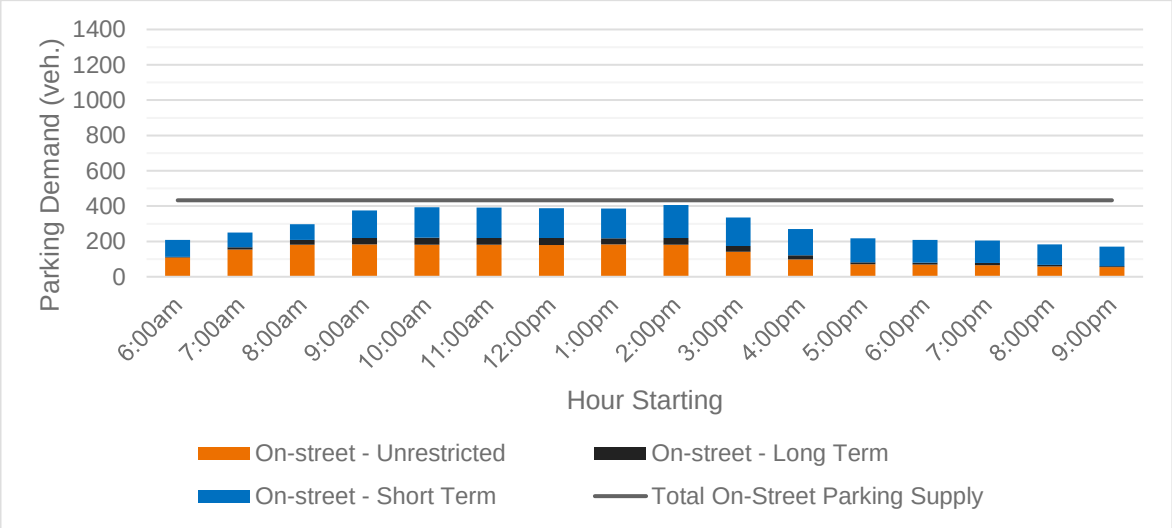
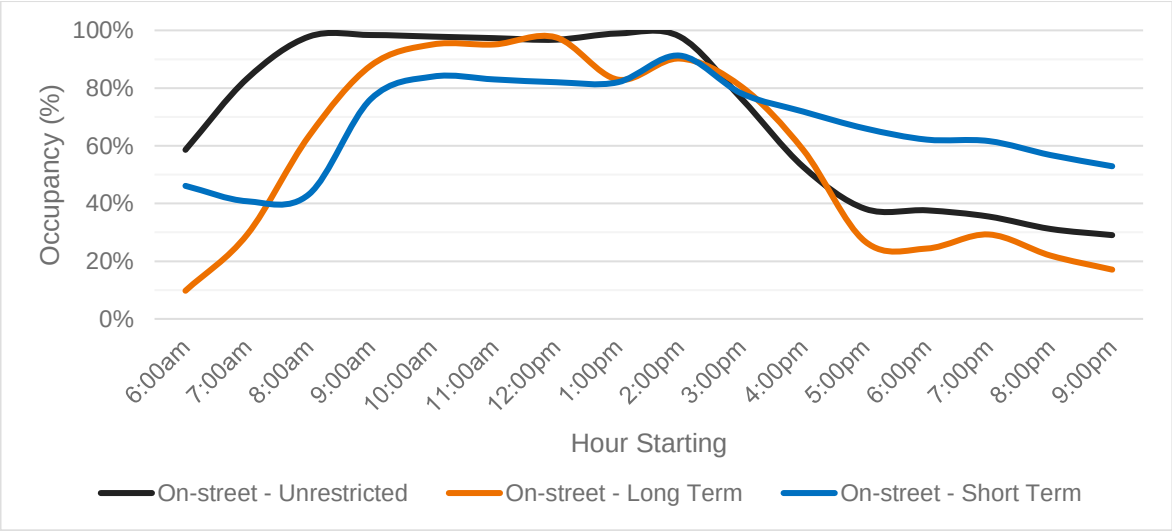


Figure 3.4: Ipswich Hospital On-Street Parking Occupancy Summary



A summary of the parking utilisation and observations on-street car parking surrounding the Ipswich Hospital is as follows:

- Unrestricted (unmetered, unrestricted) parking is approximately 60% occupied at 6am (the start of survey / observations), and reaches approximately 100% occupancy by 8am
- Long term (9-hour metered) parking is approximately 60% occupied at 6am (the start of survey / observations), approaches approximately 90% occupancy by 9am, 95% occupancy by 10am and reaches approximately 100% occupancy by 12pm
- Short term parking (2-hour / 3-hour, metered and unmetered) fluctuates over the course of the observation period, peaking at 90% occupancy at 2pm

- The on-street unrestricted car parking and on-street long term car parking (as well as the off-street car parking) appears to be heavily utilised by staff arriving at the hospital for the day shift
- On-street unrestricted car parking is utilised prior to off-street car parking and on-street long term (metered) car parking – it is expected that this is due to the unrestricted parking having no cost
- The on-street car parking utilisation profile is inconsistent and varied throughout the observation period and is likely a reflection of the unscheduled requirements of visitors and patients
- It is noted that within the on-street survey extents, there were 208 vehicles parked at 6am and 170 vehicles parked at 9pm
- Based on the location and volume of this car parking demand, it is considered highly likely that a significant portion of these vehicles are associated with the hospital and the portion of vehicles which are likely to be considered 'background demand' could be expected to be minimal.

For the purposes of this assessment (and to be conservative on the high-side), it is assumed that the on-street car parking demands within the surveyed extents are generated by the hospital.

3.3.3 Overall Car Parking Summary

Car parking demands surrounding the hospital were observed to peak at 2pm, with **1,316 vehicles** located within the survey extents. The **surveyed demand of 1,316 vehicles comprises 909 vehicles in off-street car parking areas, 219 vehicles in on-street long term parking areas and 188 vehicles in on-street short term parking areas**.

The peak in car parking demand occurring at 2pm is a reflection of the overlap between the hospital shift changeover which occurs generally around 2pm – prior to the departure of the morning shift and following the arrival of the afternoon shift.

The surveyed hospital parking demand is summarised in Figure 3.5, with parking utilisation profiles provided in Figure 3.6.

Figure 3.5: Ipswich Hospital Total Parking Demand Summary

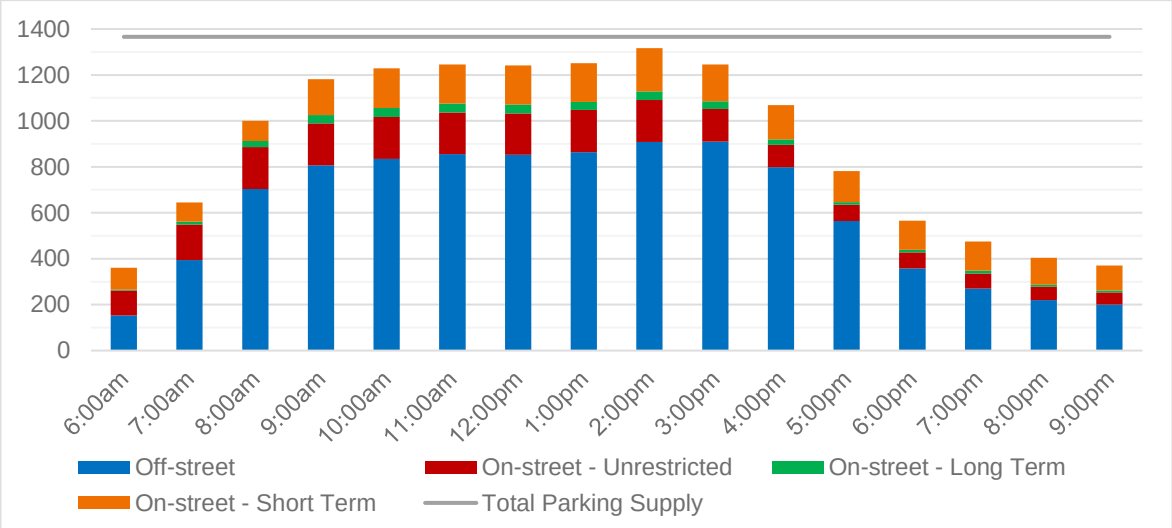
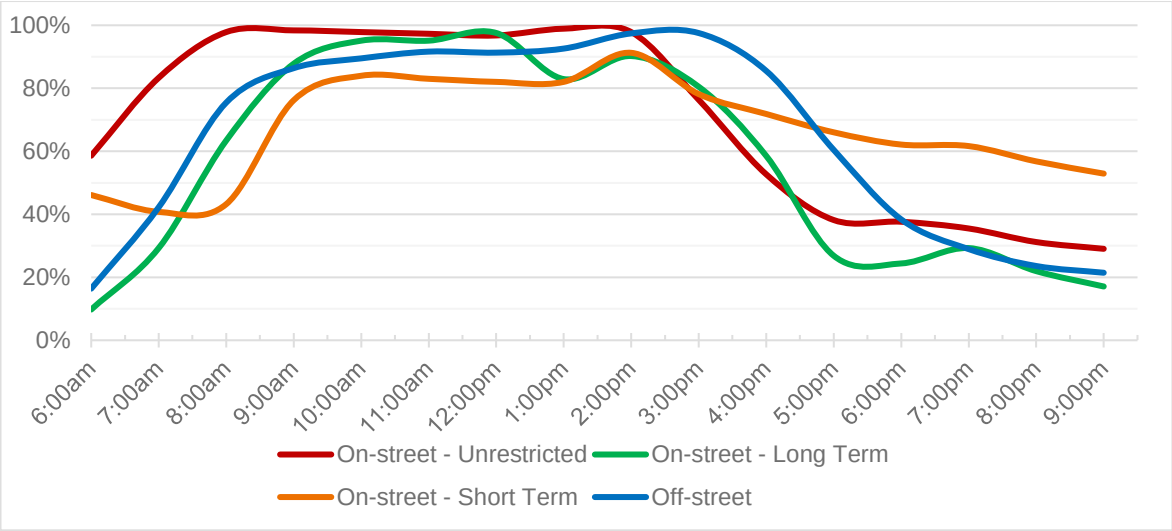


Figure 3.6: Ipswich Hospital Total Parking Utilisation Profile



3.4 Multi-Deck Carpark Intercept Survey

Intercept surveys were undertaken on the day of the occupancy survey (on 27 July 2022) between the hours of 6am and 9am, corresponding with the peak entry demand of the multi-deck carpark. The intercept surveys sought to confirm the following details with multi-deck carpark users:

- Is the user a staff member, patient, or visitor?
- How many persons travelled in the users vehicle on the day of survey?

The timeframes were chosen based on the occupancy of the car park, with the majority of people arriving and parking vehicles during this time. The results of the survey are provided in Table 3.1 and Table 3.2.

Table 3.1: Person Intercept Survey Results – User Type

Time	User Type – Count (Percentage) [1]		
	Staff	Patient	Visitor
6:00 AM – 6:30 AM	65 (100%)	0 (0%)	1 (0%)
6:30 AM – 7:00 AM	71 (96%)	2 (3%)	1 (1%)
7:00 AM – 7:30 AM	95 (96%)	2 (2%)	2 (2%)
7:30 AM – 8:00 AM	137 (95%)	1 (1%)	7 (5%)
8:00 AM – 8:30 AM	65 (87%)	3 (4%)	7 (9%)
8:30 AM – 9:00 AM	23 (68%)	6 (18%)	5 (15%)
Total	456 (93%)	14 (3%)	22 (5%)

[1] Combined Arrival and Departure demands.

The results of the person intercept survey indicates that between 6am and 8am, person movements are primarily related to staff (95% to 100%). However, following this period the number of staff movements significantly decreases and the number of patient / visitor movements increase.

The surveys indicate that the existing **car parking demands within the Chelmsford Avenue multi-deck car parking facilities are in the order of 90% staff car parking**.

Table 3.2: Person Intercept Survey Results – Vehicle Occupancy

Time	Vehicle Occupancy [1]			
	1	2	3+	Occupancy (persons / veh.)
6:00 AM – 6:30 AM	61	4	0	1.06
6:30 AM – 7:00 AM	57	5	1	1.11
7:00 AM – 7:30 AM	81	2	1	1.05
7:30 AM – 8:00 AM	129	3	0	1.02
8:00 AM – 8:30 AM	67	3	0	1.04
8:30 AM – 9:00 AM	24	4	1	1.21
Total	419	21	3	1.06

[1] Combined Arrival and Departure demands.

The results of the person intercept survey indicates that between 6am and 9am, vehicle occupancy was very low. This equated to a **vehicle occupancy of parking cars in the order of 1.06 person per vehicle**. This is generally consistent with the 2016 ABS Census data for staff, noting that during this time staff made up the majority of the car parking demand.

3.5 Existing Set-Down Demands

In addition to the car parking demands, Stantec has reviewed the existing set-down demands based on the the Chelmsford Avenue set-down. This existing facility has capacity for approximaty 3 vehicles, plus storage for another 1-2 vehicles clear of the external road network. The location of the Chelmsford Avenue set-down is shown in Figure 3.7.

Based on the data collected on Wednesday 27th July 2022, the following peak set-down demands were determined:

- 15-minute peak of 21 vehicles (1:30pm-1:45pm)
- 60-minute peak of 60 vehicles (1:15pm-2:15pm).

Similar demands were also surveyed between 2:30pm to 3:30pm. This is considered to be a high demand for 3 set-down spaces.

During network peak operations, the following set-down demands were determined:

- AM peak demand of 39 vehicles (8:00am-9:00am)
- PM peak demand 39 vehicles (3:45pm-4:45pm).

Based on observations undertaken during the site visit, these vehicles were not observed to recirculate to the multi-deck carpark.

Figure 3.7: Ipswich Hospital set-down location

FUTURE CAR PARKING REQUIREMENTS

4 Car Parking Requirements

4.1 Ipswich Planning Scheme

The statutory car parking requirements for different development types are set out in Council's 'Ipswich Planning Scheme: Part 12, Division 9 – Parking Code'. A summary of the statutory car parking rates are provided in Table 4.1.

Table 4.1: Ipswich Planning Scheme – Statutory Car Parking Rates

Location	Parking Rate
Hospital	1 spaces per doctor or staff member (FTE) plus 1 space per 3 hospital beds for visitors.
Clinics and Outpatients	1 space per 4 seats; or 1 space per 5sqm GFA of public waiting area

The proposed increase in staff numbers, including the peak number that would be on-site at any one time, is required to complete the statutory car parking assessment. Notwithstanding, these rates are generic and the existing car parking demand is likely to provide a more accurate representation of the car parking needs of this facility.

4.2 Existing Car Parking Demand Rate

Based on information presented within Section 3 of this report, the Ipswich Hospital generates a car parking demand of 1,316 vehicles. Comparing this car parking demand against the characteristics of the Ipswich Hospital (i.e. existing beds) generates the following car parking demands on a 'per bed' basis.

Table 4.2: Existing Car Parking Demands Rates

Scenario	Existing Yield	Parking Rate
Inpatient & Critical Care Beds Only	338 beds	3.89 parking spaces per bed
Inpatient Beds, Critical Care Beds and Emergency Department	360 beds	3.65 parking spaces per bed

On 'per bed' basis, the existing Ipswich Hospital generates a car parking demand rate of **between 3.65 to 3.89 parking spaces per bed**.

4.3 Car Parking Rate Benchmarking

Stantec has undertaken a review of sites of a similar nature. This is due to car parking demands for hospitals being typically in the order of 3 – 4 car parking spaces per bed. Our review includes data for both the Redcliffe and QEII Hospitals from 2017 and 2019, respectively. These hospitals generated the following car parking demands:

- QEII Hospital (2019) = 4.1 spaces per bed (235 beds and car parking demand of 975 spaces)

- Redcliffe Hospital (2017) = 3.8 spaces per bed (324 beds and car parking demand of 1,233 spaces).

Each of these hospitals are known as being heavily car dependent with over 90% of staff travelling to work via car (as the driver). The mode share for the hospital is currently not known but could be expected to be similar.

The identified car parking demand of 3.64 to 3.89 parking spaces per bed falls within the typical industry range and is marginally lower than similar car dependent hospital locations.

4.4 Sensitivity Assessment

It is recommended that a sensitivity assessment be completed to test the appropriateness of the existing hospital car parking demands to the proposed expansion. In particular, this is to include consideration of the bed types and staffing requirements of the new facilities given that these are the primary factors in car parking demands.

4.5 Set-Down Benchmarking

Stantec has undertaken a benchmarking exercise to estimate the future set-down (drop-off and pick-up activity) requirements for the hospital. This is based on a desktop review of 7 existing hospitals, including:

- Ipswich Hospital
- Redcliffe Hospital
- The Prince Charles Hospital
- Royal Brisbane Women's Hospital
- Princess Alexandra Hospital
- Caboolture Hospital
- Queen Elizabeth II Hospital.

The benchmarking exercise indicated that set-down provisions at the existing hospitals range from approximately 0.01 to 0.05 set-down bays per bed. It is noted that Ipswich Hospital is an outlier with the provision of 3 set-down spaces, equating to 0.01 set-down bays per bed. The typical range is in the order of 0.02-0.03 set-down bays per bed.

4.6 Recommended Car Parking Provisions

4.6.1 Acute Services Building

The car parking rate of 3.64 – 3.89 spaces per bed is proposed to be adopted to estimate the future car parking requirements of the ASB. Application of this rate to the hospital and ASB expansion bed numbers is provided in Table 4.3

Table 4.3: Ipswich Hospital Car Parking Demand – Ipswich Hospital and ASB

Scenario	Hospital Provisions	Parking Rate	Car Parking Demand
Inpatient & Critical Care Beds Only			
Existing Hospital	338 beds	3.89 spaces per bed	1,316 parking spaces
ASB Expansion	+200 beds		778 parking spaces
Future Hospital	538 beds		2,094 parking spaces
Inpatient Beds, Critical Care Beds and Emergency Department			
Existing Hospital	360 beds	3.65 spaces per bed	1,316 parking spaces
ASB Expansion	+216 beds		789 parking spaces
Future Hospital	576 beds		2,103 parking spaces

Application of the determined parking rate to the proposed +200 inpatient / critical care beds and +16 emergency department beds within the ASB results in an anticipated additional car parking demand in the order of +780 to +790 vehicles, resulting in an overall peak car parking demand for the hospital (including the ASB) of 2,103 car parking spaces.

Consideration is also to be given to the loss of existing parking associated with the Roderick Street off-street car park and the existing Court Street car parking areas. These two areas accommodate a combined car parking demand of 164 vehicles (156 vehicles and 8 vehicles respectively) of their 181 vehicle capacity (173 vehicles and 8 vehicles respectively) during the peak hospital parking demand.

To ensure a 'no net worsening' scenario, this total demand of 953 spaces is to be accommodated within the car parking provisions within the proposed ASB basement and the proposed multi-deck carpark to be located on the IWHC (unfunded) site. This is summarised as follows:

- 80 car parking spaces to be accommodated within the basement of the ASB
- 873 car parking spaces to be accommodated within the IWHC (unfunded) site, including 823 spaces within the new funded multi-deck car park and the existing 50 at-grade car parking spaces (approximately) that will temporarily remain.

Travel demand and car parking demand opportunities to use these provisions efficiently are provided within Section 5 of this report.

4.6.2 Future Ipswich Wellness and Health Centre

The car parking requirements for the future unfunded IWHC will be considered as part of a separate process in the future. Notwithstanding, it has been considered at a high-level within this report to identify the potential future state car parking requirements of the new multi-deck car park on the IWHC site.

Based on information provided by DWP, the unfunded IWHC is proposed to operate during the daytime with no overnight beds and serviced by up to 677 FTE staff. This means that the car parking rate for the existing hospital is not considered to be appropriate.

Application of the statutory car parking rates (provided in Table 4.1) for the unfunded IWHC are outlined in Table 4.4.

Table 4.4: Ipswich Hospital Car Parking Demand – Unfunded IWHC

Scenario	Provisions	Parking Rate	Car Parking Demand
IWHC	+685sqm of public waiting area	1 space per 5sqm GFA of public waiting area	137 spaces

Application of the statutory car parking rate to the proposed +685sqm of public waiting area within the unfunded IWHC results in an anticipated additional car parking requirement of 137 spaces.

However, this is considered to be very low considering the 24,700 GFA and the identified 677 FTE staff that could be expected to be working in the unfunded IWHC. A car parking rate in the order of 2 spaces per 100sqm, resulting in an anticipated car parking requirement of 494 spaces, may be more appropriate given the use.

This equates to an ultimate multi-deck car parking requirement of between 1,010 spaces to 1,369 spaces (given the 50 at-grade spaces will be removed) to accommodate the IWHC.

It is recommended that these car parking requirements be confirmed as part of the future development of the IWHC.

Figure 4.1: Ipswich Hospital Stage 2 Expansion – ASB and IWHC locations

4.6.3 Set-Down Provisions

Based on the identified benchmarking exercise, a set-down provision in the order of 0.02 – 0.03 set-down bays per bed is considered to be appropriate. This equates to the following set-down provisions:

- Between 4 – 6 set down spaces for the ASB
- Between 12 – 17 set-down spaces for the overall hospital.

Opportunities to maximise the use of the set-down provisions for the ASB are provided within Section 5 of this report.

TRAVEL DEMAND AND CAR PARKING MANAGEMENT OPPORTUNITIES

5 Existing Challenges

There are a number of key challenges identified within this report that contribute to the car parking demands and issues at the hospital, including:

- High reliance on private motor vehicle use
- Low car parking occupancy by staff
- Inefficient use of existing car parking provisions.

There are a number of opportunities to address these challenges, as outlined within this section of the report.

5.1 Travel Demand Management Opportunities

Travel Demand Management (TDM) initiatives are designed to manage travel to and from specific sites with proven results contributing to reducing private motor vehicle demands. The major tenets to influence travel behaviour change include:

- **Retime** – avoid travelling during the peak periods
- **Remode** – use alternative methods of travel
- **Reroute** – utilise a route that avoids congestion
- **Reduce** – minimise the number of times you have to travel, especially by private vehicle.

With respect to hospitals, the key focus is on 'remode' given that it has the largest opportunity to be influenced.

There are a number of key drivers in a person's decision-making process when choosing a preferred mode of travel. These are likely to be the cause of the identified challenges which are resulting in the identified car dependency. The opportunities to address decision-making are outlined in Table 5.1.

Table 5.1: Challenges and Opportunities

Observed Challenges	Likely Cause	Identified Opportunities
High reliance on private motor vehicle	Feeling of safety	• Extension of the Safe City Program, the Healthy Places Healthy People Program, and public safety surveillance cameras to include the hospital • Provide (or extend) shuttle services to and from key destinations (including public transport interchanges) after typical business hours • Engage with relevant authorities to increase visibility of staff and security at transport interchanges and within the hospital precinct
	Accessibility, frequency and integration of alternative modes	• Enhance pedestrian connections to increase attractiveness and connectivity to alternative transport modes

Observed Challenges	Likely Cause	Identified Opportunities
		• Enhance cycling connections into and through the hospital precinct • Provide high-quality end-of-trip facilities that are integrated within the hospital (close proximity to demand generators) • Work with Translink to optimise public transport network frequency • Reduce ease of access to on-street car parking through removing unrestricted on-street car parking • Prioritise on-site car parking for those users most in need (i.e. night shift staff and short-term car parking for ED)
	Cost of parking vs. cost of alternative transport modes	• Review opportunities to incentivise the public transport trips through salary sacrificing or other means • Consider increasing cost to park on-site and on-street, particularly for long-term (i.e. greater than 4hrs) car parking • Consider variable pricing for on-site car parking
	Available information regarding available travel modes	• Provide further information with respect to available travel modes • Advertise and encourage participation in community initiatives, such as Ride 2 Work day
Low car parking occupancy	All of the above – this is the default 'comfortable' option	• Establish a carpooling initiative, noting that this can be supported by a third-party provider for ease • Consider the use of shared and 'on-demand' mobility options to fill gaps within the existing transport network
Inefficient use of existing car parking provisions	Available information about car parking availability	• Implement smart parking, including vehicle occupancy detection and dynamic signage to inform user of current availability

It is recommended that these opportunities be further considered as part of a Sustainable Transport Plan, noting that this also contributes to the Green Star ratings of the project. Further utilisation of these positive strategies could be expected to reduce the car parking demand rates associated with the hospital.

5.2 Car Parking Management Opportunities

Based on the information provided within this report, the key opportunities identified to improve the car parking management for the hospital include:

- Implementation of smart parking technology to efficiently utilise available car parking supply
- Prioritise car parking within Chelmsford Avenue multi-deck car parking for night shift staff to improve the safety (or feeling of safety) for these users
- Prioritise car parking within the basement level of the ASB for short-term car parking related to the ED

It is noted that a portion of the Chelmsford Avenue multi-deck car parking is already set aside and made available at 1:30pm for night shift staff. This car parking location provides the most direct access for staff through the Chelmsford Avenue pedestrian overpass which assists from a connectivity and safety perspective. It is recommended that this provision be increased in line with the increased night shift staff numbers.

The disconnect between the multi-deck car parking facilities and the new ED set-down provisions is likely to create challenges for unfamiliar users. The available size of the facility is also likely to be less than the recommended 12 set-down spaces (for the overall hospital). Reducing dwell time for users is therefore essential and can be supported by alternative opportunity in the form of short-term car parking.

As such, the car parking within the basement level of the ASB should be prioritised for short-term car parking related to the ED and on-call clinical staff. This is to be managed by the way of car parking allocations and potentially variable car park pricing.

5.3 West Moreton Health Shuttle Bus

The WMH shuttle service currently provides a key connection for staff, visitors and patients between the Ipswich Hospital and a number of external car parking areas, including the Limestone Park Car Park, and another IHF car park located at the Ipswich Health Plaza. The provision of this service is understood to alleviate car parking demands which would otherwise be required to park at the Ipswich Hospital.

It is recommended that this service continue and expanded to include the new multi-deck car park for those staff members arriving at or departing the hospital in the early hours of the morning or late at night.

SUMMARY

6 Summary

Based on the analysis and discussions presented within this report, the following summary is provided:

- A new multi-deck car park is proposed to be provided to support the hospital expansion, including an interim and ultimate scenario of the new multi-deck carpark facility to accommodate additional car parking demands associated with the new ASB and unfunded IWHC, respectively
- A car parking inventory has been compiled of available car parking within the vicinity of the hospital (study area agreed with the project team) to capture on-street and off-street car parking areas understood to be utilised by staff, patients and visitors of the hospital
- Car parking occupancy survey was undertaken for on Wednesday 27th July 2022 between the hours of 6am and 9pm
- The surveys indicated that car parking demands peak at 2pm, with 1,316 vehicles located within the survey extents, comprising 909 vehicles in off-street car parking areas, 219 vehicles in on-street long term parking areas and 188 vehicles in on-street short term parking areas
- Comparing this car parking demand against the existing 338 total inpatient and critical care beds results in a car parking demand rate of 3.89 parking spaces per bed.
- Comparing this car parking demand against the existing 360 total inpatient, critical care and emergency department beds results in a car parking demand rate of 3.65 parking spaces per bed.
- Application of these rates to the proposed additional 200 inpatient and critical care beds and 16 emergency department beds results in an additional car parking demand of approximately 780 to 790 spaces.
- Consideration is also to be given to the loss of existing parking associated with the Roderick Street off-street car park and the existing Court Street car parking areas, with these two areas accommodating a combined car parking demand of 164 vehicles (156 vehicles and 8 vehicles respectively) during the peak hospital parking demand
- To ensure a ‘no net worsening’ scenario for on-street car parking demands, this demand is to be accommodated as follows:
    - 80 car parking spaces to be accommodated within the basement of the ASB
    - 873 car parking spaces to be accommodated within the IWHC site, including 823 spaces within the new multi-deck car park and the existing 50 at-grade car parking spaces (approximately) that will remain.

- The ultimate multi-deck car parking requirement could be expected to be between 1,012 spaces to 1,369 spaces (given the 50 at-grade spaces will be removed) to accommodate the car parking demands of the unfunded IWHC.
- Travel demand measures have been identified to 'remode' trips to and from the hospital and it is recommended that these opportunities be further considered as part of a Sustainable Transport Plan
- Opportunities have also been identified to improve car parking management and efficiency.

Appendix A: Car Parking Inventory

Table A.1: Parking Inventory – On-street parking

Location	No limit Unrestricted	9P Meter	3P Meter	3P	2P Meter	2P	1/4P	PWD	MC (no limit)	Loading / Taxi Zone	Total
Chelmsford Avenue	27	-	29	9	-	-	-	2	-	4	**71**
Churchill Street	-	11	7	-	-	-	-	-	-	1	**19**
Court Street	-	-	35	-	-	-	-	-	-	-	**35**
East Street	-	-	12	-	-	-	-	1	3	-	**16**
Ellenborough Street	21	-	-	-	-	-	-	-	-	-	**21**
Gray Street	16	-	-	-	-	-	-	-	4	-	**20**
Ginn Street	-	-	16	-	-	-	-	-	2	-	**18**
Kallara Avenue	-	-	-	15	-	-	-	-	-	-	**15**
Nicholas Street	28	-	-	9	-	-	-	-	-	2	**39**
Meredith Lane	-	-	-	-	-	5	-	-	-	-	**5**
Outridge Street	-	-	27	19	-	-	-	-	-	-	**46**
Roderick Street	43	17	-	-	12	-	3	-	2	-	**77**
Quarry Street	32	-	-	-	-	-	-	-	-	-	**32**
Warwick Road	19	13	7	4	-	-	1	-	-	2	**46**
SUBTOTAL	**186**	**41**	**133**	**56**	**12**	**5**	**4**	**3**	**11**	**9**	**460**

Appendix B: Car Parking Demand Survey Results

Appendix 3 – Traffic Assessment

Stantec

IPSWICH WELLBEING AND HEALTH CENTRE

Traffic Impact Assessment

24 April 2024

Prepared for:
West Moreton Health

Prepared by:
Stantec

Project Number:
301050416

Revision	Description	Author	Date	Quality Check	Date	Approved for Issue	Date
A-Dr	A Draft	A.Tierney	30/08/2022	A.Tierney	30/08/2022	T.Williams	30/08/2022
A	A Final	A.Tierney	04/11/2022	P.Robertson	04/11/2022	T.Williams	04/11/2022
B	B Final	A.Tierney	15/11/2022	P.Robertson	15/11/2022	T.Williams	15/11/2022
C	C Final	A.Tierney	02/02/2023	A.Tierney	02/02/2023	T.Williams	02/02/2023
D	D Final	A.Tierney	24/04/2024	A.Tierney	24/04/2024	T.Williams	24/04/2024

The conclusions in the Report titled 'Ipswich Wellbeing and Health Centre – Traffic Impact Assessment' are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Prepared by: 

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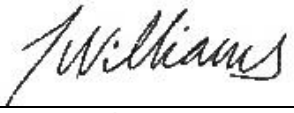
Approved by: 

Signature

Trent Williams

Printed Name

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INTRODUCTION

1 Introduction

1.1 Preamble

The Ipswich Hospital (herein referred to as the 'hospital') is a major acute metropolitan facility, providing a range of both inpatient and outpatient service for the West Moreton region. The hospital is located within the Ipswich Central Business District and is proposed to be expended, with the Stage 2 Detailed Business Case (DBC) currently underway.

The new Ipswich Wellness and Health Centre (IWHC), including a health care centre and a multi-storey carpark, is proposed to be provided to support the hospital. Based on information provided by DWP, the IWHC masterplan includes the delivery of up to 6 stages described as follows:

- Stage 2.1 – Delivery of 'interim' multi-storey carpark.
- Stage 2.2 – Delivery of IWHC and an 'expanded' multi-storey carpark.
- Stage 3 – Delivery of IWHC / private development expansion.
- Stages 4, 5 and 6 – Further IWHC / private development expansions.

Delivery of the multi-deck carpark is proposed to be provided over a two-stage delivery: an 'interim' multi-storey carpark and an 'expanded' multi-storey carpark. The 'interim' multi-storey carpark is to be provided to accommodate additional car parking demands associated with the delivery of a new Acute Services Building (ASB), and an 'expanded' multi-storey carpark (additional levels added) to accommodate additional car parking demands associated with the delivery of the Stage 2.2 and Stage 3 of the IWHC.

It is understood that a Ministerial Infrastructure Designation (MID) is to be submitted by West Moreton Health Services (WMH) to the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) for the multi-deck carpark associated with the IWHC. This report also provides high-level consideration of the future car parking supply requirements of IWHC (including demands of Stage 3) and the car parking facility required to support the Stage 3 demands.

Stantec has been engaged by WMH via DWP in July 2022 to undertake a Transport Impact Assessment of the proposed IWHC and to estimate the likely traffic and transportation impacts generated by the facility.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed IWHC, including consideration of the following:

- Pedestrian and bicycle requirements
- Existing public transport connections
- Existing traffic and transport conditions within and surrounding the site

- Suitability of the proposed car parking supply
- Recommended design guidance for the proposed layouts for the vehicle access and car parking provisions
- Recommended design guidance for on-site service vehicle provisions and access arrangements
- The vehicle trip generating characteristics of the proposed development
- The transport impact of the proposed IWHC on the surrounding road network.

1.3 References

In preparing this report, reference has been made to the following:

- An inspection of the existing Ipswich Hospital site and its surrounds, undertaken on Wednesday 27 July 2022
- Ipswich City Council's 'Ipswich Planning Scheme – Part 12 Div 9 – Parking Code'
- Relevant Australian Standards (AS/ NZS 2890.1, AS 2890.2, and AS2890.6) and Guidelines (Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections).
- Plans for the proposed IWHC prepared by Architectus Conrad Gargett, dated 19 March 2024
- Other documents and data as referenced in this report.

EXISTING CONDITIONS

2 Existing Conditions

2.1 Subject Site

The subject site is located on a land parcel located across 45 Roderick Street, 40 South Street and 44 South Street, Ipswich and comprises Lot 1 on SP331207. The site of approximately 14,000sqm has site frontages to East Street, South Street and Roderick Street. The IWHC site is currently zoned as 'PC – CBD Primary Commercial'.

The location of the subject site and its surrounding environs (relative to the hospital) is shown in Figure 2.1.

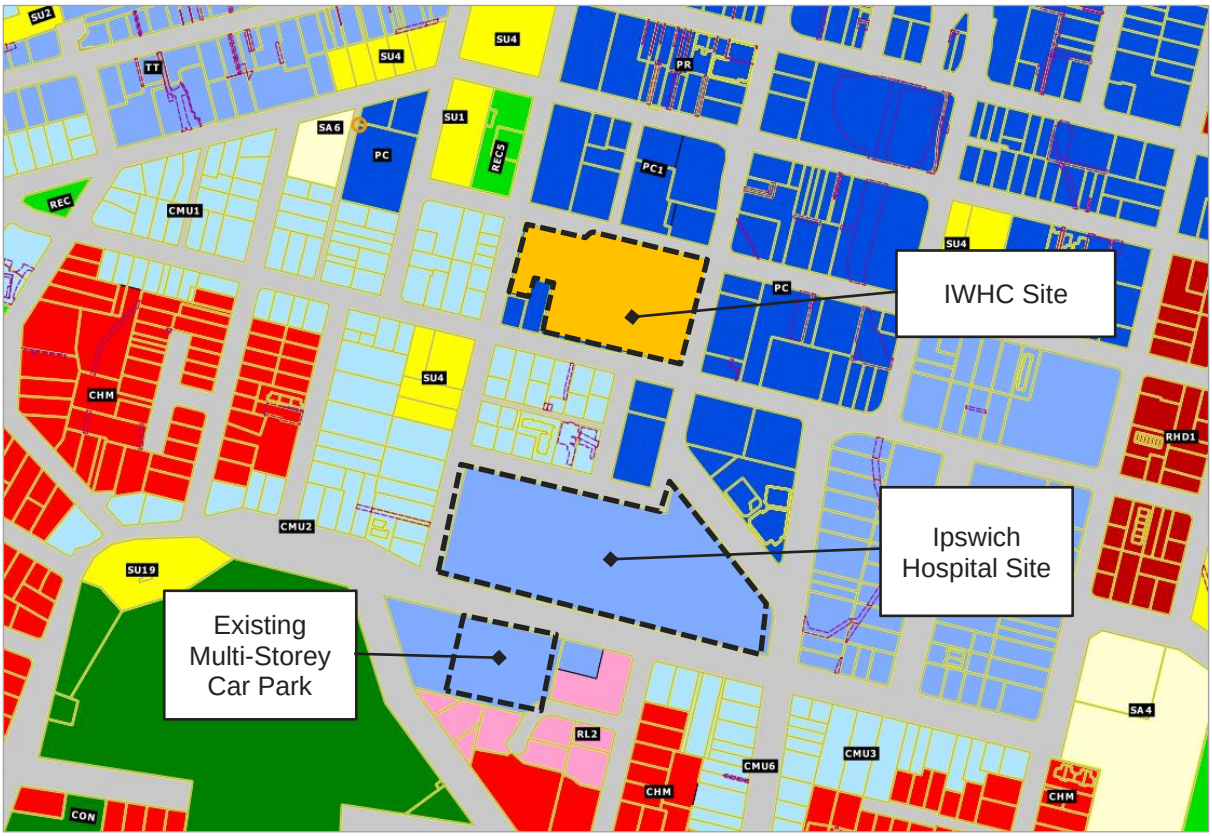
Figure 2.1: Subject Site and Its Environs

***Source**: Nearmap.com*

2.2 Surrounding Area

The surrounding land is primarily zoned as 'CMU01 – Character Mixed Use' to the west, 'PC – CBD Primary Commercial' to the north, 'MED – CBD Medical Services' to the east and 'CMU06 – Character Mixed Use' and 'RL02 – Residential low Density' to the south.

Figure 2.2: IWHC Surrounding Land Uses (Ipswich City Council Planning Scheme)



***Source**: Council's 'Ipswich City Planning Scheme' Interactive Mapping*

2.3 Active and Public Transport Infrastructure

2.3.1 Pedestrian Infrastructure

Pedestrian paths are located as follows:

- East Street (both frontages) – 3.3m wide path
- Nicholas Street (both frontages) – 1.2m wide path
- Roderick Street (both frontages) – 1.5m wide path
- South Street – site frontage includes pedestrian path integrated with development and a shared path for a portion of the South Street frontage.

Safe crossing points in the vicinity of the site include the following pedestrian crossings:

- All legs of the East Street / Roderick Street signalised intersection (south-east corner of the existing WMH carpark)
- All legs of the East Street / Limestone Street signalised intersection (100m north-east of the existing WMH carpark)

2.3.2 Cycle Infrastructure

A 2.5m shared path extends from the East Street / South Street intersection along South Street for approximately 60m. Following this, the shared path converts into a 1.5m wide cycle lane along the South Street frontage for approximately 150m and terminates west of the Nicholas Street / South Street intersection.

2.3.3 Public Transport

A review of the public transport in the vicinity of the site is summarised in Table 2.1.

Table 2.1: Public Transport Provisions

Service	Route #	Route Description	Location of Stop	Distance to nearest Stop	Service Frequency (on-peak / off-peak)
Bus	503	Bundamba to Riverlink Shopping Centre via Eastern Heights	East St Frontage	0m	30 min / 60 min
Bus	509	Yamanto to Riverlink Shopping Centre	East St Frontage	0m	30 min / 60 min
Bus	515	Brassall to Yamanto / Willowbank	East St Frontage	0m	15 min / 15 min
Bus	500	Riverlink Shopping Centre to Goodna station	Limestone St	250m (approx.)	30 min / 60 min
Bus	502	Bundamba to Riverlink Shopping Centre via Blackstone	Limestone St	250m (approx.)	30 min / 60 min
Bus	506	Riverlink Shopping Centre to Leichhardt / One Mile	Limestone St	250m (approx.)	30 min / 30 min
Train	Ipswich Station	Ipswich Train Station	North of site	400m	5 min / 20 min

Figure 2.3 shows the proximity of public transport infrastructure to the proposed IWHC site.

Figure 2.3: Public Transport Provision

Source: Nearmap.com

To facilitate public transport use, it is generally desirable for developments to be located within 400m of a bus stop or within 800m of a train station or major bus interchange. Based on this guideline and considering the frequency of services, the subject site is considered to be well serviced by existing public transport provisions.

2.4 Existing Road Network

The subject site maintains primary site access from Roderick Street, with road frontages to Roderick Street, East Street, South Street and Nicholas Street. The subject site is proximate to the state controlled roads of Churchill Street and Warwick Street. Characteristics of existing roads within vicinity of the subject site are outlined in Table 2.2.

Table 2.2: Existing Road Network

Road Name	Roderick Street	East Street	South Street	Nicholas Street	Churchill Street	Warwick Street
Jurisdiction	Council controlled	State controlled	Council controlled	Council controlled	State controlled	State controlled
Class Type	Sub-arterial	Arterial	Local	Local	Arterial	Arterial
Posted Speed	60km/h	50km/h	50km/h	50km/h	60km/h	60km/h
Lane Formation	Two-lane, two-way, undivided	Two-lane, two-way, undivided	one-lane, one-way, undivided	Two-lane, two-way, undivided	Four-lane, two-way, divided	Four-lane, two-way, undivided
Carriageway Width	12m	12m	8m	12m	20m	23m
Reserve Width	20m	20m	12m / 20m[1]	20m	30m	30m
Kerbside Parking	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions	Various Restrictions

[1] Varies along site frontage

2.4.1 Vehicle Movement Data

Vehicle movements counts have been sourced (via Austraffic) for Tuesday, 21 June 2022. This included collection at the following locations:

- Nicholas Street / Roderick Street
- Roderick Street / Ginn Street / WMH Roderick Street carpark access
- Roderick Street / East Street
- Roderick Street / Warwick Road
- East Street / Churchill Street
- Churchill Street / Warwick Road
- Warwick Road / Chelmsford Avenue / Gray Street
- Nicholas Street / South Street
- East Street / South Street
- WMH Roderick Street carpark access.

This included data collection between 7AM to 9AM and 2PM to 5PM. Vehicle movement counts are contained at Appendix B.

2.4.2 Road Safety

Analysis of road crash data for the Ipswich Hospital precinct was undertaken to assess current levels of road safety. Road crash data for the precinct was sourced from the Department of Transport and Main Roads (TMR) (obtained August 2022) for a five-year period between 1 January 2017 – 31

December 2021. This crash data provides information on the number of crashes on the surrounding road network, categorised into the following:

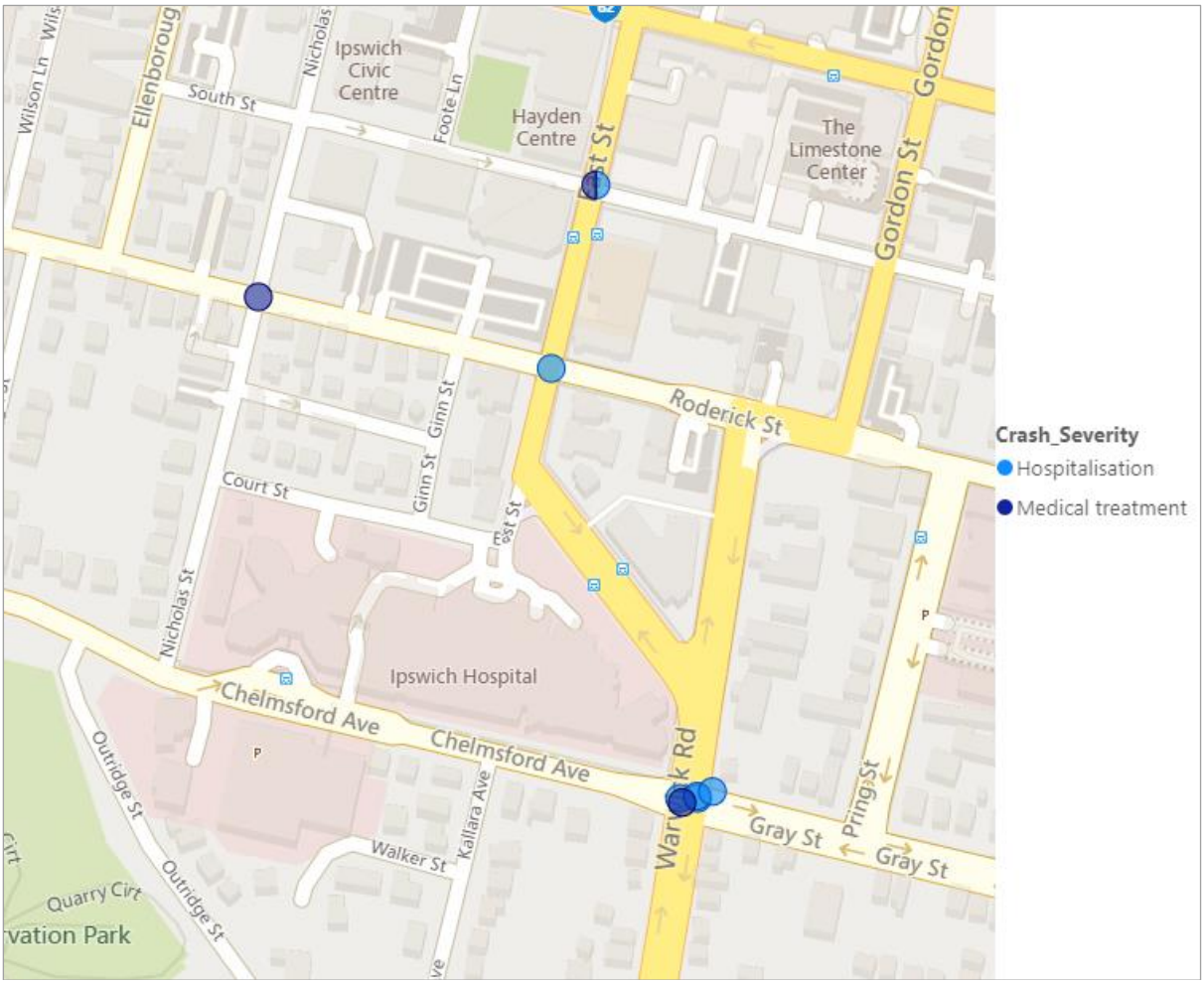
- Crash resulting in fatality
- Crash resulting in hospitalisation
- Crash resulting medical treatment
- Crash resulting in minor injury
- Crash resulting in property damage only (not shown in Figure 2.4).

A review of the recorded crashes found that 9 crashes occurred on the surrounding road network within proximity of the site, with none of those being fatalities. A breakdown of the crash incidence by severity is shown in Table 2.3, with locations shown in Figure 2.4.

Table 2.3: Road Crash Statistics by Severity (2017 - 2021) – Ipswich Hospital Road Network

Location	Crash Severity	Number of Crashes (Years)
Ipswich Hospital Road Network	Fatal	-
	Hospitalisation	6 (2017, 2018, 2018, 2019, 2019, 2021)
	Medical Treatment	3 (2017, 2018, 2019)
	Minor Injury	-
	Total	9

Figure 2.4: Road Crash Locations (2017 - 2021) – Ipswich Hospital Road Network



Source: 'Crash data from Queensland Roads', Queensland Government Open Data Portal (Accessed 24 August 2022)

Based on the information presented in this section of the report, it is observed that there were 6 incidents (approximately 1.2 incidents per year) clustered around the Chelmsford Avenue / Warwick Road intersection, proximate to the Ipswich Hospital. Given the frequency of these incidents, it is consistent with the expected demand associated with conflicting movements associated with this intersection. It is also observed that crashes for the preceding five-year period were evenly distributed throughout the surrounding road network.

It is therefore considered that this crash history is typical for the use, type and function of the surrounding road network, and therefore the crash data suggests that the surrounding road network proximate to the Ipswich Hospital does not appear to pose any atypical safety risks or hazards that need to be factored into any assessment of parking or traffic conditions.

2.5 Future Road Network Planning

A review of Queensland's Department of Transport and Main Roads' *Queensland Transport and Roads Investment Program for 2021-22 to 2024-25* did not indicate any proposed projects scheduled within the study area up to the year 2025.

A review of the Ipswich City Council 'Local Government Infrastructure Plan' identified a future road trunk infrastructure upgrade planned for Roderick Street the within the vicinity of the development site. The planned works include the upgrade to 4 lanes (current 2 lanes) on Roderick Street between Gordon Street and Burnett Street. These works are currently planned to be delivered by 2039. The Roderick Street upgrade works may result in the loss of up to 72 parking spaces on Roderick Street within the study area, which includes the following:

- Long term parking – 17 spaces
- Short term parking – 12 spaces
- Unrestricted parking – 43 spaces.

The consideration of the loss of up to 60 long term and unrestricted parking spaces has not been included within the future car parking requirements detailed within section 5.1 of this report as design details of this project are not currently available.

It is understood that the Council's *Ipswich Inner CBD Cycle Network Corridor Plan* seeks to improve cycling connections within the Ipswich CBD, specifically impacting South Street (east of Nicholas Street) and Nicholas Street (proximate to South Street). It is expected that these improvement works may result in an impact to on-street parking supply.

2.6 Shuttle Service

A shuttle service is currently operated by WMH providing connection between the existing Ipswich Hospital and a number of external parking locations including the Limestone Park car park and a multi-storey car park located at the Ipswich Health Plaza. Based on intercept surveys undertaken during the site visit and data collection, this shuttle service is utilised by a number of staff, patients, and visitors to travel to the hospital.

It is noted that the Ipswich Health Plaza multi-storey car park is operated and managed by the Ipswich Hospital Foundation (IHF), which also operates / manages the existing hospital multi-deck car parks at Ipswich Hospital (Chelmsford Avenue).

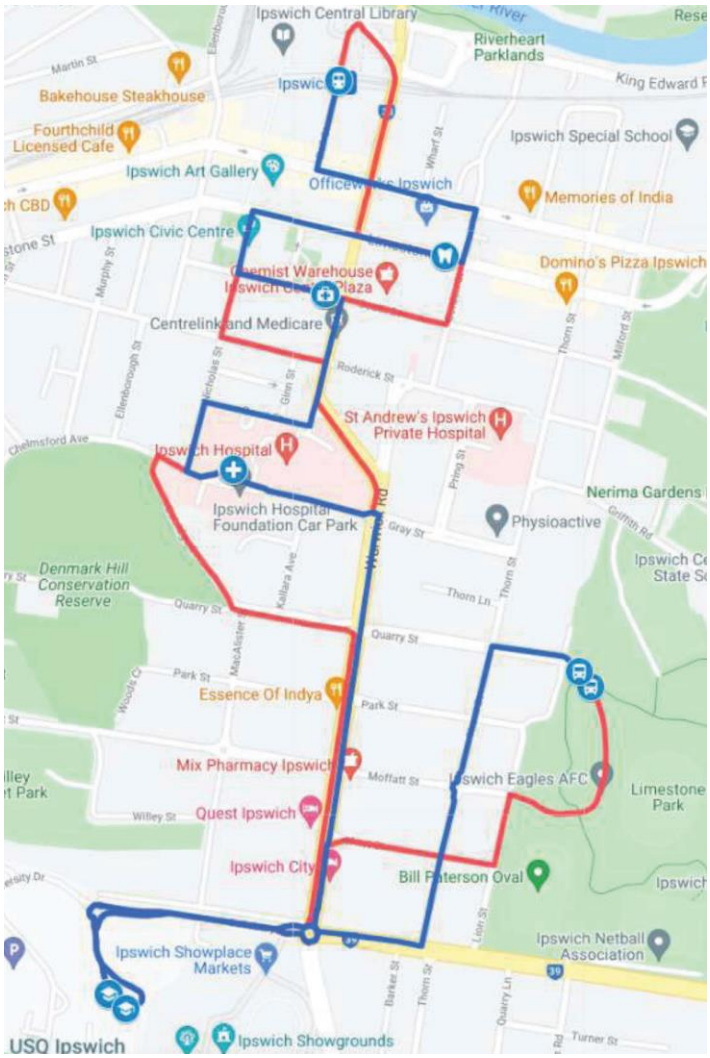
The WMH shuttle service route map is provided in Figure 2.5. The shuttle currently operates the following Monday to Friday services:

- Limestone Carpark to Ipswich Hospital (Red Service) – operating half hourly from 6am to 2pm, beginning at Limestone Park car park and stopping at USQ Ipswich Campus, Ipswich Hospital, the Hayden Centre, Ipswich Community Dental, and Ipswich Health Plaza
- Ipswich Hospital to Limestone Park (Blue Service) – operating half hourly between 2pm and 6pm, beginning at the Ipswich Health Plaza, and stopping at Ipswich Community Dental, the Hayden Centre, Ipswich Hospital, USQ Ipswich Campus, and Limestone Park car park
- Night Service (Limestone Park to Ipswich Hospital) – operating half hourly between 6pm and 11pm, beginning at the Limestone Park car park and ending at Ipswich Hospital
- On-demand Night Service - operating between 6pm and 11:30pm, the on-demand service operates from both the hospital or the Limestone Park car park and provides a connection to

any of the following destinations: Ipswich Health Plaza, and stopping at Ipswich Community Dental, the Hayden Centre, Ipswich Hospital, USQ Ipswich Campus, and Limestone Park car park.

It is recommended that this service continue and expanded to include the new multi-deck car park for those staff members arriving at or departing the hospital in the early hours of the morning or late at night.

Figure 2.5: West Moreton Health Shuttle Service – Route Map



Source: Google Maps

DEVELOPMENT PROPOSAL

3 Ipswich Wellness and Health Centre

3.1 Land Uses

The new IWHC includes the delivery of a health care centre, private development and a multi-storey carpark. Based on information provided by DWP, delivery of this multi-deck carpark is to be undertaken over a two-stage delivery: an 'interim' delivery scenario and an 'expanded' delivery scenario. The 'interim' scenario includes delivery of a multi-deck carpark to accommodate additional car parking demands associated with the delivery of a new Acute Services Building (ASB), and an 'expanded' scenario which includes delivery of an expanded multi-deck carpark (additional levels added) to accommodate additional car parking demands associated with the delivery of up to Stage 3 of the IWHC. The Ipswich Hospital multistorey car park site context plan is provided in Figure 3.1.

Interim Scenario

The interim scenario of the proposed IWHC consists of the delivery of the interim car park to accommodate the ASB car parking demands, as outlined in the Car Parking Demand Assessment (prepared by Stantec, dated Friday 26 August 2022).

A summary of the key traffic and transport elements of the IWHC site for the interim scenario is provided as follows:

- Bicycle parking
- End-of-trip facilities
- Provision of 875 car parking spaces (including accessible parking spaces and electric vehicle charging spaces)
- Vehicle access points to Roderick Street and Nicholas Street.

Expanded Scenario

The expanded scenario of the proposed IWHC (up to Stage 3) consists of the delivery of the following development yield:

- Health Centre Functional Space (approx. 13,200 sqm)
- Future Private Development (approx. 11,500 sqm)
- Additional facilities as required by future health services demands.

A summary of the key traffic and transport elements of the IWHC site under the expanded scenario is provided as follows:

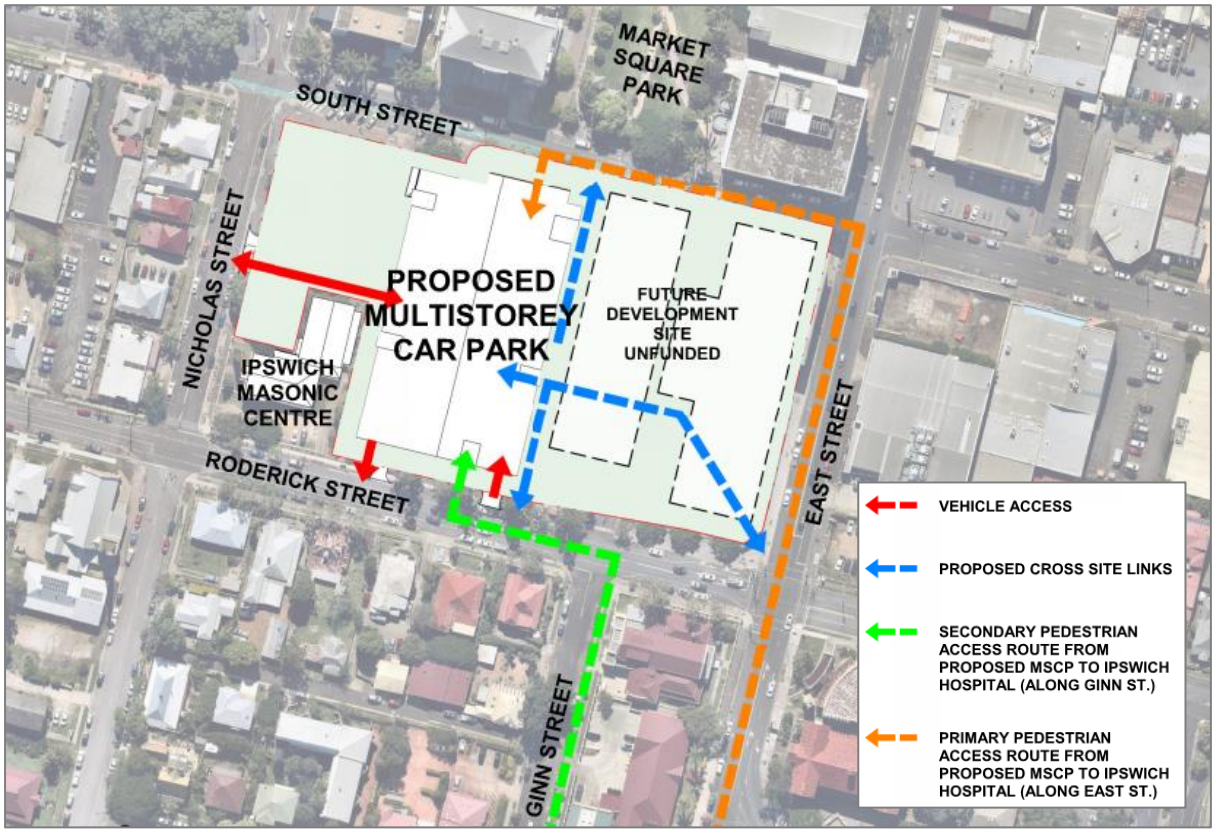
- Provision of an additional 447 car parking spaces (1,322 total), including accessible parking spaces and electric vehicle charging spaces
- Loading dock with vehicle access via South Street.

3.1.1 Future Private Development

Details of the land uses associated with the 'future private development' (approx. 11,500sqm GFA) have not been provided. However, it is expected that these land uses will likely be associated with the health centre functional space. For this traffic impact assessment, vehicle trip generation and car parking demands associated with the future private development have been assumed to reflect those of the health centre functional space (i.e. health care centre clinics and outpatient area).

Should further details of the 'future private development' land uses be available, the expected traffic impacts and car parking demands could be further refined.

Figure 3.1: IWHC Site Context Layout



Source: Ipswich Hospital Car Park 'Site Context Plan', drawing A.SK.CD.00-P.13, prepared by Architectus Conrad Gargett (dated 19/03/2024).

3.2 Pedestrian Facilities

Pedestrian access to the site is proposed via high-quality connections to the external pedestrian network which includes footpaths along Roderick Street, South Street, and East Street.

In addition, generous cross-block links are proposed through the ground level of the proposed development to prioritise the movement of pedestrians throughout the site.

The suitability of the proposed pedestrian facilities is discussed in Section 4 of this report.

3.3 Bicycle Facilities

The architectural plans show on-site parking for a total of 99sqm GFA to accommodate bicycle parking and 140sqm GFA to accommodate end-of-trip facilities.

Recommendations for the proposed bicycle provisions, including consideration of staging, is discussed in Section 4.2 of this report.

3.4 Car Parking

The proposed IWHC development includes the provision of on-site carparking accommodating a total yield of at least 1,322 car parking spaces. Allocation of these car parking spaces is summarised as follows:

- Interim Scenario – 875 spaces
- Expanded Scenario – 1,322 spaces.

Of these spaces, a number are proposed to be provided as accessible spaces for people with disabilities (PWD) and electric vehicle (EV) charging parking spaces.

Recommendations for the proposed car parking arrangements, including consideration of staging, is discussed in Section 5 of this report.

3.5 Loading Areas

A loading dock is proposed at basement level of the development, providing a consolidated location to accommodate refuse collection activity and deliveries for each of the proposed land uses within the IWHC. The loading dock is to be delivered as part of the expanded scenario and will connect onto South Street.

Recommendations for the proposed loading arrangements are discussed in Section 5.3 of this report.

3.6 Vehicle Access

Vehicle access is proposed to be provided as follows:

- Primary Vehicle Access – Separate vehicle entry and exit vehicle access crossovers to Roderick Street for the multi-storey carpark
- Secondary Vehicle Access – A combined entry and exit vehicle access to Nicholas Street for the multi-storey carpark
- Loading Dock Access – A combined entry and exit vehicle access to South Street for the basement level loading dock.

The suitability of the proposed access arrangements is discussed in Section 5.4 of this report.

ACTIVE AND PUBLIC TRANSPORT

4 Active and Public Transport

4.1 Pedestrian Access

As identified in Section 3, pedestrian access to the site is proposed via high-quality connections to the external pedestrian network which includes footpaths along Roderick Street, South Street, and East Street. Existing footpaths along Roderick Street, South Street, and East Street are to be maintained, with significant cross-block links are proposed through the ground level of the proposed development to prioritise the movement of pedestrians throughout the site.

The minimum footpath widths based on the current planning are proposed to be at least 2m wide, in accordance with the relevant Austroads Guidelines. These arrangements are considered to be acceptable.

Planning has been completed to prioritise the movement of pedestrians throughout the site, including consideration of the following:

- Prioritising connection points between the IWHC site and the existing Ipswich Hospital for pedestrians (i.e. the south-eastern portion of the site)
- Providing generous north-south cross block links
- Providing dedicated pedestrian pathways between car parking areas and demand generators (i.e. the IWHC and the existing Ipswich Hospital)
- Locating vehicle access points away from these prioritised pedestrian facilities, particularly the primary vehicle access to Roderick Street and the vehicle access to South Street providing access to the loading dock.

These provisions are considered appropriate to optimise the user experience and allow for the safe movement of pedestrians (staff, patients and visitors) to, from and through the site. Such arrangements considered to be acceptable.

External to the site, it is recommended that coordination between WMH, Council and TMR be undertaken to develop a coordinated streetscape development strategy for improved pedestrian access connecting to the IWHC site from the existing Ipswich Hospital and surrounding pedestrian network. It is recommended that the signalised crossing of East Street and South Street in the northeast corner of the subject site be investigated by the project team through collaboration with Council and TMR as part of subsequent phases of design.

It is noted that this is a key crossing location for the east-west active travel link through the CBD and a priority for the safe and efficient movement of pedestrians and cyclists. This connection will also assist in providing a safe connection towards the Ipswich Train Station and broader CBD attractions from the IWHC site, as well as the existing bus stop pair on East Street.

4.2 Bicycle Parking and End of Trip Facilities

4.2.1 Statutory Bicycle Parking Requirements

The statutory bicycle parking requirements for different development types are set out in Ipswich City Council's Parking Code. However, bicycle and end-of-trip facilities are not specified for hospital uses.

Guidance has therefore been sought from the Cycling Aspects of Austroads Guides (2014). These are provided in Table 4.1 and assume that the proposed future / private development will also be a Health Centre use. Application of these requirements to each of the proposed land uses is summarised in below.

Table 4.1: Statutory Bicycle Parking Requirements

Use	Yield	Residents / Staff	Visitors	Statutory Parking Requirement
Clinics and Outpatients	24,700sqm GFA	1 per 400sqm GFA	1 per 200sqm GFA	Staff: 62 bicycle parking bays Visitors: 124 bicycle parking bays
Total				**Staff: 62 bicycle parking bays** **Visitors: 124 bicycle parking bays**

The identified IWHC land uses generate an increased bicycle parking requirements of 62 staff bicycle parking bays and 124 visitor bicycle parking bays.

It is recommended that end-of-trip facilities within the IWHC site be designed to accommodate the bicycle parking requirements identified in Table 4.1. In addition, showers and lockers are also to be provided for staff at the following rates:

- Number of lockers – 1 per staff bicycle space
- Showers – 4 showers (2 male, 2 female) for the first 20 staff bicycle spaces, plus 2 showers (1 male, 1 female) for every 20 staff bicycle spaces provided thereafter.

Application of these rates to the estimated staff numbers generates requirement as follows:

- 76 lockers
- 10 showers (5 male, 5 female).

These provisions will be further developed in the subsequent design stages of the project. These arrangements are considered to be acceptable.

It is noted that bicycle parking and end-of-trip facilities are also proposed within the ASB to accommodate active travel users to the main hospital site.

4.3 Public Transport Access

The proposed IWHC does not include any changes to the existing public transport network or public transport infrastructure. It is understood that the existing bus stop on the East Street frontage will be retained as part of the proposed development.

The subject site is considered well serviced by public transport. Ipswich Station is located within 400m of the South Street frontage, with additional bus stops located on East Street, Limestone Street, and Churchill Street within a 400m radius. During peak hours, rail services operate approximately every 5 minutes and bus services operate every 15 minutes in each direction.

CAR PARKING, LOADING AND VEHICLE ACCESS

5 Car Parking, Loading and Vehicle Access

5.1 Car Parking Demand Assessment

5.1.1 Existing Hospital Car Parking Demands

A Car Parking Demand Assessment has been undertaken for the existing Ipswich Hospital to help inform the car parking demand and vehicle trip generation associated with the existing on-street and off-street car parking facilities surrounding and servicing the hospital.

The results of the assessment found that the existing hospital generates a car parking demand rate of 3.65 spaces per bed. The assessment recommended an interim provision of **at least 873 car parking spaces** to be accommodated within the IWHC site. This comprises 789 spaces to support the 216 beds, an additional 164 spaces to replace the existing carparking which will be lost, and less 80 spaces which are to be provided in the new ASB carpark.

Parking profiles and observations of the existing car parking areas indicated that the formal car parking areas were primarily utilised by staff, with minimal available capacity for visitor demand. During peak hour operations it is expected that set-down provisions are primarily utilised as drop-off for staff and visitors, with minimal circulation between the set-down provisions and the carparking areas. Regardless, travel between the proposed ASB set-down on Court Street and the Roderick Street carpark is expected to be via Ginn Street. It is expected that any future network planning for Ginn Street and Court Street fully considers this connection.

5.1.2 Future Ipswich Wellness and Health Centre

The car parking requirements for the future IWHC will be considered as part of a separate process in the future. Notwithstanding, it has been considered at a high-level within the Car Parking Demand Assessment report to estimate the expected car parking requirements of the new multi-storey car park on the IWHC site (up to Stage 3).

The IWHC is proposed to be a operate during the daytime with no overnight beds. This means that the car parking rate for the existing hospital is not considered to be appropriate.

Application of the statutory car parking rates for the IWHC are outlined in Table 5.1.

Table 5.1: Statutory Car Parking Requirements – IWHC

Zoning	Land Use	Provisions	Parking Rate	Car Parking Requirement
CBD Primary Commercial – Business Use (Commercial)	Health Centre	13,200 sqm	1 space per 100sqm GFA	132 spaces
CBD Primary Commercial – Business Use (Commercial)	Future Private Development	11,500 sqm	1 space per 100sqm GFA	115 spaces
Total		**24,700 sqm**		**247 spaces**

Application of the statutory car parking rate to the proposed 24,700 sqm GFA within the IWHC results in an anticipated additional car parking requirement of **at least 247 spaces**.

However, this is considered to be very low considering the identified 677 FTE staff that could be expected to be working in IWHC. A car parking rate in the order of 2 spaces per 100sqm, resulting in an anticipated car parking requirement of **up to 494 spaces**, may be more appropriate given the use and anticipated staffing.

This equates to an expanded multi-storey car parking requirement in the order of **between 1,122 spaces and 1,369 spaces** (given the at-grade car parking spaces that will be removed) to accommodate the IWHC.

It is recommended that the proposed multi-storey carpark implement parking ticket validation to ensure car spaces are utilised by visitors of the IWHC and the Ipswich Hospital ASB rather than accommodating demands from other uses within the Ipswich CBD.

5.2 Car Parking Design Compliance

It is understood that the proposed parking layout is to be provided generally in accordance with the requirements of the Ipswich Planning Scheme, relevant Australian Standards (AS2890.1, AS2890.2 and AS2890.6) and good transport engineering practice.

5.3 Loading Provisions and Refuse Collection Arrangements

Information provided by the Ipswich Hospital Supply Departments indicates that Medium Rigid Vehicles (MRV), Heavy Rigid Vehicles (HRV) and Refuse Collection Vehicles (RCV) could be expected to be required to be serviced within the loading dock.

It is understood that the loading provisions be provided in generally accordance with the requirements of the Ipswich Planning Scheme, relevant Australian Standards (AS2890.2) and good transport engineering. The loading provisions and configuration of the loading dock provision is currently being investigated and are yet to be finalised. These provisions include the following:

- bay and aisle width
- turnaround facilities
- circulation roads and ramps
- ramp grades
- internal queuing
- loading facilities.

Refuse collection is to be undertaken on-site within the loading dock. It is expected that a waste management plan will be prepared as part of subsequent stages of development to determine the storage capacity and servicing requirements.

5.4 Vehicle Access Arrangements

Vehicle accesses are currently proposed from Roderick Street and Nicholas Street for multi-storey carpark access and from South Street for loading dock access.

It is understood that the vehicle accesses be designed generally in accordance with the requirements of the Ipswich Planning Scheme, relevant Australian Standards (AS890.1 and AS2890.2) and good transport engineering practice. This includes the design of the following elements:

- Access configurations and form, including swept path assessment where required
- Intersection / driveway crossover spacings
- Sight distance requirements
- Pedestrian visibility.

5.4.1 Turn Warrant Assessment

A turn warrant assessment has been completed for the carpark access locations on Roderick Street and Nicholas Street. The turn warrant assessment provides information on the minimum turn treatments required on the major road to satisfy traffic operation, road safety, and physical conditions at the site.

The turn warrant assessment has been undertaken in accordance with the methodology provided in the relevant Austroads Guidelines (AGRD 04A) and the turn warrant graphs presented within the relevant sections of the Road Planning Design Manual (RPDM).

The turn warrant assessment has been undertaken for a 10-year design horizon based on the vehicle trip generation presented in Table 6.1, in / out splits presented in Table 6.2 and turning movement diagrams provided in Appendix C. The results of the assessment (provided in Appendix C) conclude the following:

- Roderick Street Access Location –
    - Channelised Right (CHR) Turn Treatment
    - Basic Left (BAL) turn treatments
- Nicholas Street Access Location –
    - Basic Right (BAR) turn treatment
    - Basic Left (BAL) turn treatment.

It is recommended that concept designs be prepared for each of the Roderick Street channelised right-turn treatments to confirm it form and function, as well as identifying any associated loss of car parking.

5.4.2 Sight Distance Requirements

Based on the relevant Australian Standards (AS2890.1) and Austroads Guidelines (AGRD 04A), a minimum Stopping Sight Distance (SSD) of up to 81m is required along the frontage road for a design speed of 70kmh (frontage posted speed of 60kmh). These distances are able to be comfortably achieved along Roderick Street, Nicholas Street and South Street frontages which is considered to be acceptable, noting that the desirable SSD (adopting a coefficient of deceleration of 0.36 instead of 0.46) of up to 92m is also demonstrated to be available.

Consideration has also been given to the proximity of vehicle accesses to adjacent intersections in line with good transport engineering practice. This is due to the lower speed of vehicles travelling around the corners (expected to be a design speed in the order of 20km/hr-30km/hr) which results in a reduced SSD requirement of 15m to 25m. These sight distances are able to be comfortably achieved at each of the vehicle egress points proximate to intersections (i.e., Nicholas Street vehicle egress and vehicles approaching from each direction on South Street and Roderick Street).

5.4.3 Pedestrian Visibility

Pedestrian sight triangles measuring 2.5m (along the accessway) by 2.0m are to be provided at all vehicle egresses in accordance with requirements of the relevant Australian Standards (AS2890.1).

TRAFFIC IMPACT ANALYSIS

6 Traffic Impact Analysis

6.1 Preamble

An assessment of the anticipated traffic impacts of the Ipswich Wellness and Health Centre (IWHC) development on the surrounding road network has been completed for the following intersections:

- Roderick Street and East Street (signalised intersection)
- Churchill Street and Warwick Road (signalised intersection)
- Chelmsford Avenue and Warwick Road (signalised intersection)
- Roderick Street and Warwick Road
- East Street and Churchill Street
- Roderick Street and Nicholas Street
- South Street and Nicholas Street
- South Street and East Street
- Roderick Street and Ginn Street
- Roderick Street Carpark Access
- Nicholas Street Carpark Access.

This includes consideration of the traffic impacts at the interim scenario and the expanded scenario for the development. In particular, this has been prepared to determine whether mitigating road works are expected to be required to accommodate the IWHC development or if the existing conditions are still adequate to accommodate additional vehicle trips associated with the IWHC development.

Traffic impact analysis has been completed by stage to understand when the necessary mitigating road works may be required to be delivered. Based on information provided by the project team, the multi-storey carpark is expected to be delivered by 2025. The ASB is expected to be delivered in 2027, with this triggering the additional car parking demands. A ‘year of opening’ has therefore been adopted as 2027 and 2037 projected as the ‘10-year design horizon’.

The delivery of the IWHC building development is expected to follow shortly after completion of the multi-storey car park, however delivery schedule has not yet been finalised. In lieu of this assessment scenario, the vehicle movements associated with the IWHC has been incorporated into the 2037 assessment scenario.

Based on observations within the car parking demand assessment, the set-down provisions are not heavily utilised during network peak hour operations. It is acknowledged that whilst recirculation of vehicles departing the set-down areas have not been considered within the traffic modelling, the impacts of these movements are expected to be negligible when distributed throughout the external road network.

6.2 Modelling Methodology

6.2.1 Methodology

The operation of the nominated intersections has been assessed using SIDRA Intersection (v9.0), a computer-based modelling package which calculates intersection performance.

To assess the traffic impact of the proposed development yield, it is appropriate to have consideration to a relevant 'base case' against which to test the impact of the proposal. A 'base case' examines the performance of the road network without the proposed development at key points in time.

A 'with IWHC' is then used to examine the performance of the road network with the additional IWHC traffic at the same key points in time to understand the impact and the potential need for mitigating road works to address.

It is understood that the car parking provisions of the interim and expanded scenarios may change as aspects of the IWHC design develops. As such, a conservative assessment has been undertaken based on the greater of either the proposed or recommended of car parking provisions for each of the interim and expanded scenarios. The interim scenario has been based on the proposed car parking provision of 875 spaces, and the expanded scenario has been based on the upper limit of the recommended car parking provisions of 1,369 spaces.

6.3 Background Traffic Growth

6.3.1 Anticipated Background Traffic Growth

In order to inform the anticipated background traffic growth for the road network surrounding the IWHC, a review of available population growth data has been undertaken. A review of the 'Community Profile' provided on Council's website has demonstrated that the City of Ipswich has experienced annual population growth in the order of 3% over the last 5 to 10 years, with Central Ipswich (including the CBD) experiencing less than 1% growth over the same period.

As such, a linear annual growth rate of 3% has been applied to the background traffic for the road network surrounding the IWHC.

6.4 Vehicle Trip Generation

Vehicle trip generation for the IWHC has been estimated with guidance from survey of the existing multi-storey carpark. The adopted vehicle trip generation rates have been determined on the 'per space' trip generation rate observed during the corresponding peak periods. The trip generation rates included in this assessment are set out in Table 6.1.

Table 6.1: Vehicle Trip Generation Rates

Scenario	Yield	Trip Generation Rate		Vehicle Trips	
		AM	PM	AM	PM
Interim	875 spaces	0.36	0.33	315	289
Expanded	1,369 spaces	0.36	0.33	493	452

The anticipated vehicle trip generation expected during the interim scenario of approximately 314 and 288 vehicle trips during the AM and PM peak hours respectively, and a vehicle trip generation during the expanded scenario a of 493 and 452 vehicle trips during the AM and PM peak hours, respectively.

6.5 Distribution and Assignment

6.5.1 In / Out Splits

Vehicle in / out splits for the IWHC has been applied to the estimated vehicle trip generation based on the peak hour in / out splits observed during survey of the existing multi-storey carpark. The adopted in / out splits included in this assessment are set out in Table 6.2.

Table 6.2: Vehicle Trip Generation Rates

Scenario	AM Peak		PM Peak	
	In	Out	In	Out
Interim / Expanded	90%	10%	10%	90%

6.5.2 Directional Distribution

The directional distribution and assignment of vehicle trips generated by the IWHC will be influenced by the configuration of the adjacent transport network and the accessibility of travel routes. The adopted vehicle trip distributions and assignment of vehicle trips on the external road network are summarised as follows for the AM and PM peak hours:

- 30% to / from the north of the site via East Street
- 35% to / from the south of the site via Warwick Road and East Street
- 10% to / from the east of the site via Roderick Street
- 25% to / from the west of the site via Nicholas Street, South Street and Roderick Street.

The directional distribution of IWHC vehicle trips have included consideration of the following factors:

- Likely movements to access the site based on surrounding network restrictions including the rail corridor, Limestone Park and Denmark Hill.
- Likely movements to access the site and restricted movements on Limestone Street
- Likely directional demands and accessibility based on proximity to residential surroundings.

The existing network traffic demand and anticipated distribution of development vehicle trips has been provided in Appendix D.

6.6 Intersection Operation

The operation of key intersections has been assessed using SIDRA. This assessment has been completed to compare the operation of the key intersections adjacent to the IWHC site under the

existing conditions, 'base case' and 'with IWHC' scenarios for the year of opening (2027) and for a 10-year design horizon (2037).

The commonly used measures of intersection performance are the Degree of Saturation (DOS), the Level of Service (LOS), Average Delay experienced by the worst performing leg of the intersection and the 95th percentile queue of the worst performing movement of the intersection. Detailed results of the SIDRA assessment are provided in Appendix E.

6.6.1 Existing Conditions (2022)

The existing operating conditions of the intersections have been assessed to establish the baseline conditions based on on-site observations. The result of this assessment has been provided in Table 6.3.

Table 6.3: Intersection Operations – Existing Conditions (2022)

Intersection	Peak Hour	Base Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Roderick St / East St	AM Peak	0.39	B	13	49
	PM Peak	0.43	B	15	53
Churchill St / Warwick Rd	AM Peak	0.51	B	15	24
	PM Peak	0.47	B	13	21
Chelmsford Ave / Warwick Rd	AM Peak	0.41	B	12	24
	PM Peak	0.39	B	14	28
Roderick St / Warwick Rd	AM Peak	0.17	A	6	7
	PM Peak	0.16	A	7	5
East St / Churchill St	AM Peak	0.57	A	6	38
	PM Peak	0.50	A	5	25
Roderick St / Nicholas St	AM Peak	0.12	A	3	2
	PM Peak	0.11	A	2	2
South St / Nicholas St	AM Peak	0.07	A	4	2
	PM Peak	0.03	A	4	< 1
South St / East St	AM Peak	0.27	B	2	3
	PM Peak	0.28	B	2	4
Roderick St / Ginn St	AM Peak	0.12	A	2	1
	PM Peak	0.13	A	1	< 1
Roderick St Carpark Access	AM Peak	0.12	A	< 1	< 1
	PM Peak	0.11	A	< 1	< 1

Intersection	Peak Hour	Base Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Nicholas St Carpark Access	AM Peak	0.03	A	< 1	< 1
	PM Peak	0.01	A	2	< 1

The results of the assessment indicates that all intersections operate within their practical performance limits during 'existing (2022)' scenarios.

6.6.2 Year of Opening (2027)

The comparison between intersection performance between the 'Base' scenario and the 'With IWHC' scenarios for the 'year of opening' at the completion of the interim scenario (IWHC multi-storey carpark) is provided in Table 6.4.

Table 6.4: Intersection Operations – Year of Opening (2027) – Interim Scenario

Intersection	Peak Hour	Base Scenario				Interim Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)	DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Roderick St / East St	AM Peak	0.46	B	13	59	0.51 (+0.05)	B	14 (+1)	59 (-)
	PM Peak	0.52	B	15	65	0.74 (+0.22)	B	19 (+4)	75 (+10)
Churchill St / Warwick Rd	AM Peak	0.59	B	14	32	0.62 (+0.03)	B	14 (-)	37 (+5)
	PM Peak	0.54	B	13	27	0.55 (+0.05)	B	13 (-)	27 (-)
Chelmsford Ave / Warwick Rd	AM Peak	0.47	B	12	30	0.64 (+0.17)	B	12 (-)	30 (-)
	PM Peak	0.47	B	15	35	0.54 (+0.07)	B	15 (-)	40 (+5)
Roderick St / Warwick Rd	AM Peak	0.20	B	7	8	0.23 (+0.03)	B	7 (-)	10 (+2)
	PM Peak	0.19	A	7	6	0.19 (+0.06)	A	7 (-)	6 (+5)
East St / Churchill St	AM Peak	0.71	B	8	62	0.85 (+0.14)	C	10 (+2)	114 (+52)
	PM Peak	0.64	B	7	40	0.66 (+0.02)	B	7 (-)	43 (+3)
Roderick St / Nicholas St	AM Peak	0.14	B	3	2	0.14 (-)	B	3 (-)	3 (+1)
	PM Peak	0.12	A	2	2	0.12 (-)	A	2 (-)	2 (-)
South St / Nicholas St	AM Peak	0.08	A	4	2	0.08 (-)	A	5 (+1)	2 (-)
	PM Peak	0.04	A	4	1	0.04 (-)	A	4 (-)	1 (-)

Intersection	Peak Hour	Base Scenario				Interim Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)	DOS	LOS	Average Delay (sec)	95th percentile queue (m)
South St / East St	AM Peak	0.31	C	2	4	0.33 (+0.02)	C	2 (-)	5 (+1)
	PM Peak	0.32	C	2	7	0.35 (+0.03)	C	3 (+1)	8 (+1)
Roderick St / Ginn St [1]	AM Peak	0.14	B	2	1	0.25 (+0.11)	B	< 1 (-)	1 (-)
	PM Peak	0.15	A	1	1	0.26 (+0.11)	B	< 1 (+1)	< 1 (-1)
Roderick St Carpark Access	AM Peak	0.14	A	< 1	< 1	0.29 (+0.15)	A	2 (+2)	11 (+11)
	PM Peak	0.13	A	< 1	1	0.19 (+0.06)	A	3 (+3)	6 (+5)
Nicholas St Carpark Access	AM Peak	0.04	A	< 1	< 1	0.05 (+0.01)	A	2 (+2)	1 (+1)
	PM Peak	0.02	A	2	< 1	0.04 (+0.02)	A	3 (+1)	1 (+1)

[1] The 'with development' scenario results in the modification of the Roderick Street / Ginn Street intersection layout, removing the Roderick Street carpark access from this location.

The results of the assessment indicates that all intersections are expected to operate within their practical performance limits during 'year of opening' for both the 'Base' and 'With IWHC' scenarios.

6.6.3 10-Year Design horizon (2037)

The comparison between intersection performance between the 'Base' scenario and the 'With IWHC' scenarios for a '10-year design horizon' following completion of the expanded scenario is provided in Table 6.5.

Table 6.5: Intersection Operations – 10-year Design Horizon (2037) – Expanded Scenario

Intersection	Peak Hour	Base Scenario				Expanded Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)	DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Roderick St / East St	AM Peak	0.64	B	15	85	0.96 (+0.32)	C	26 (+11)	118 (+34)
	PM Peak	0.75	B	18	88	**1.09** (+0.34)	E	70 (+52)	276 (+188)
Churchill St / Warwick Rd	AM Peak	0.71	B	15	48	0.80 (+0.09)	B	16 (+1)	65 (+17)
	PM Peak	0.75	B	15	39	0.92 (+0.17)	C	23 (+8)	75 (+36)
Chelmsford Ave / Warwick Rd	AM Peak	0.69	B	13	39	0.84 (+0.15)	B	13 (-)	57 (+18)
	PM Peak	0.63	B	16	50	0.70 (+0.07)	B	16 (-)	62 (+12)

Intersection	Peak Hour	Base Scenario				Expanded Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)	DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Roderick St / Warwick Rd	AM Peak	0.26	B	7	12	0.32 (+0.06)	B	7 (-)	15 (+3)
	PM Peak	0.25	B	7	9	0.29 (+0.02)	B	7 (-)	10 (+1)
East St / Churchill St	AM Peak	**1.00**	E	26	266	**1.24** (+0.24)	F	127 (+101)	900 (+634)
	PM Peak	0.95	E	16	146	**1.09** (+0.14)	F	39 (+23)	326 (+180)
Roderick St / Nicholas St	AM Peak	0.18	B	3	3	0.19 (+0.01)	B	4 (+1)	5 (+2)
	PM Peak	0.15	A	2	3	0.16 (+0.01)	B	3 (+1)	3 (-)
South St / Nicholas St	AM Peak	0.10	A	5	3	0.10 (-)	A	5 (-)	3 (-)
	PM Peak	0.05	A	4	1	0.05 (-)	A	4 (-)	2 (+1)
South St / East St	AM Peak	0.40	D	4	10	0.50 (+0.10)	E	4 (-)	14 (+4)
	PM Peak	0.57	E	4	17	0.81 (+0.24)	F	7 (+3)	28 (+11)
Roderick St / Ginn St [1]	AM Peak	0.17	B	2	2	0.35 (+0.18)	B	1 (-1)	2 (-)
	PM Peak	0.19	B	1	2	0.36 (+0.17)	B	< 1 (-1)	1 (-1)
Roderick St Carpark Access	AM Peak	0.17	A	< 1	< 1	0.43 (+0.26)	A	3 (+3)	23 (+23)
	PM Peak	0.16	A	< 1	< 1	0.32 (+0.16)	A	3 (+3)	10 (+10)
Nicholas St Carpark Access	AM Peak	0.05	A	< 1	< 1	0.07 (+0.02)	A	2 (+2)	2 (+2)
	PM Peak	0.02	A	2	< 1	0.06 (+0.04)	A	3 (+1)	2 (+2)

[1] The 'with development' scenario results in the modification of the Roderick Street / Ginn Street intersection, removing the Roderick Street carpark access from this location.

The results of the assessment indicates that the intersection of Roderick Street / East Street (during 'Base' and 'With IWHC' scenarios) and East Street / Churchill Street (during the 'With IWHC' scenario) could be expected to operate beyond their practical performance limits during the '10-year design horizon'.

On this basis, further mitigating road works are required at these intersections to accommodate the additional vehicle trips generated by the IWHC.

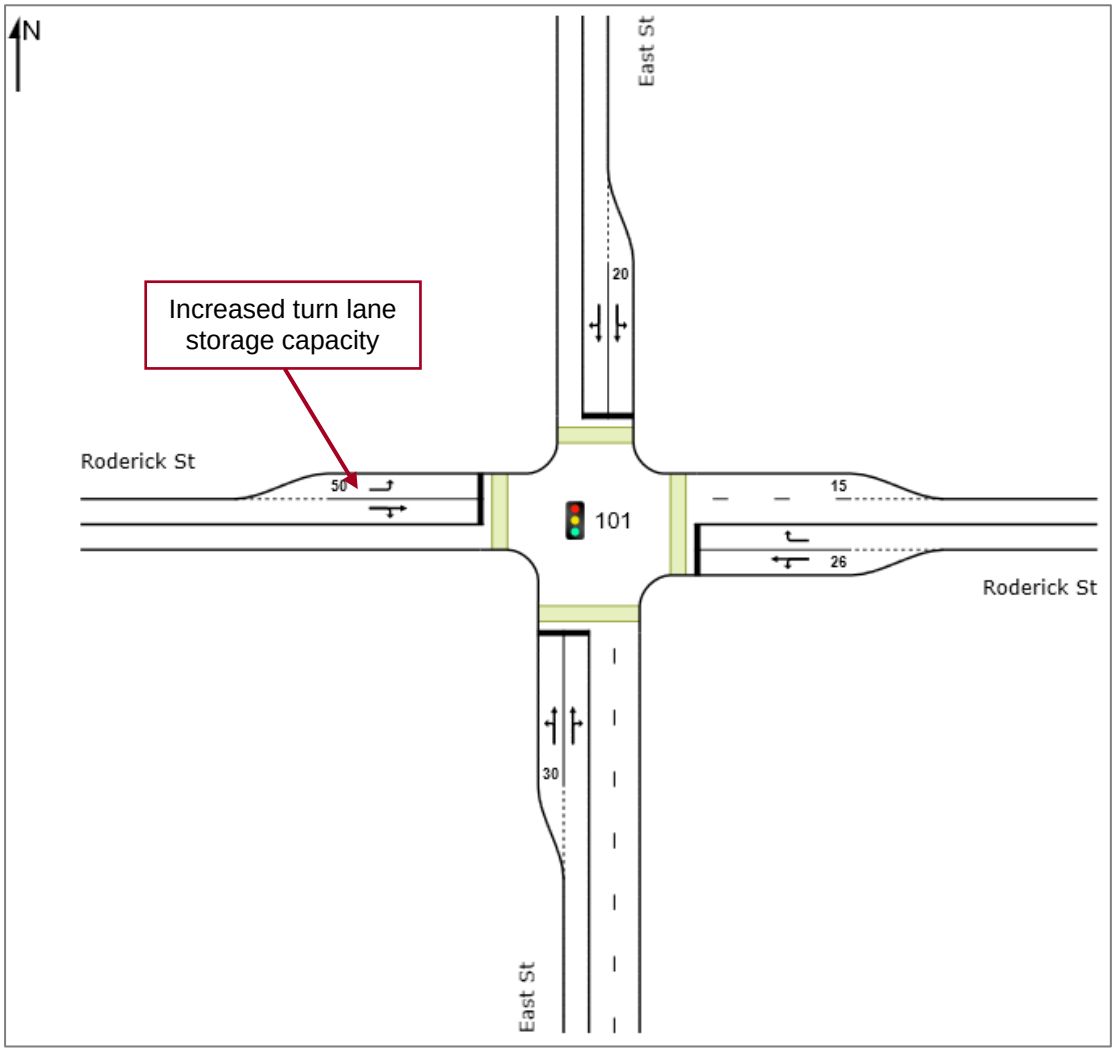
6.6.4 Required Mitigation Works

In order to mitigate the performance of the intersections of Roderick Street / East Street and East Street / Churchill Street during the '10-year design horizon' during the 'with IWHC' scenarios, a number of mitigation works have been proposed. The results of the mitigation works is provided in Table 6.7 and Table 6.7. These mitigation works have been based on the available road reserve, benefit of the treatment and our experience in what could be expected by the relevant Authorities for their approval.

Roderick Street / East Street Signalised Intersection

The results of Roderick Street / East Street intersection assessment indicates that the Roderick Street west approach queue lengths extend beyond the existing turn lane capacity. Provision of an extended storage capacity in the order of 50m total on this approach could be expected to mitigate the identified queuing issues. The layout associated with the assessment of the Roderick Street / East Street mitigation works has been provided in Figure 6.1.

Figure 6.1: Roderick Street / East Street Mitigation Works – Increased Turn Lane Storage



It is recommended that concept designs be prepared for this location to confirm the intersections form and function, as well as identifying any associated loss of car parking.

Table 6.6: Intersection Operations – 10-year Design Horizon (2037) – Roderick St / East St Mitigation Works

Intersection	Peak Hour	Base Scenario				Development Scenario			
		DOS	LOS	Average Delay (sec)	95th percentile queue (m)	DOS	LOS	Average Delay (sec)	95th percentile queue (m)
Roderick St / East St	AM Peak	0.63	B	16	93	0.96	C	26	118
	PM Peak	0.75	B	19	89	1.09	E	70	276
Roderick St / East St – Mitigation (West Approach turn lane storage)	AM Peak	-	-	-	-	0.94	C	23	108
	PM Peak	-	-	-	-	0.95	C	29	150

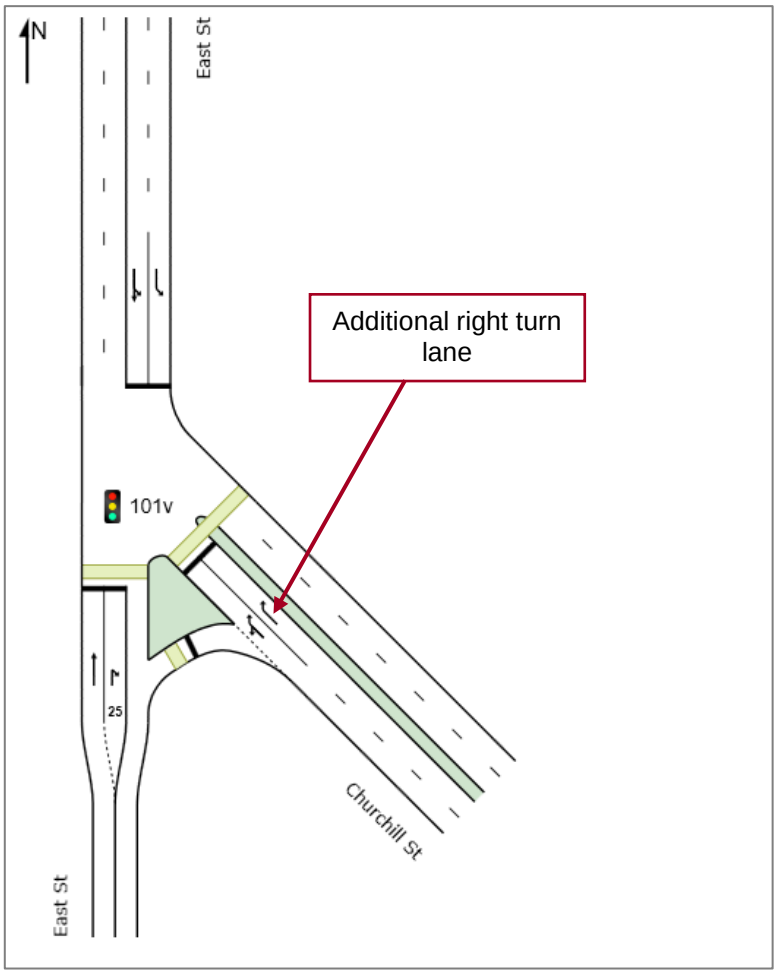
The results indicated that the proposed mitigation works could be expected to significantly improve the performance of the intersections of Roderick St / East St and East St / Churchill St to within their practical performance limits.

East Street / Churchill Street Priority-Controlled Intersection

The performance of the East Street / Churchill Street priority-controlled intersection can be expected to operate beyond its practical performance limits under the 'Base' scenario incorporating background growth only. This can be seen to result from the significant movement on the Churchill Street (south-east) approach being reduced to a single right-turn lane and this movement being required to give way to all movements from the East Street approaches (north and south).

In order to reduce the intersection performance to within the practical limits, the signalisation and the provision of an additional Churchill Street right turn lane was assessed. The layouts associated with these assessments have been provided in Figure 6.2.

Figure 6.2: East Street / Churchill Street Mitigation Works – Signalisation and Additional Right Turn Lane



The results indicated that the signalisation and additional Churchill Street right turn capacity could be expected to significantly improve the performance of the intersection to within practical performance limits.

Pedestrian crossing provisions have generally been provided in accordance with the TMR safety policy, however pedestrian crossing on the East Street north approach has been excluded, noting its proximity to the East Street / Roderick Street intersection and its associated pedestrian crossing.

It is recommended that concept designs be prepared for this location to confirm the intersections form and function, as well as identifying any associated loss of car parking. Given that the base case exceeds the practical degree of saturation for this intersection, it is also recommended that an equitable contribution to the intersection upgrade works be agreed to by WMH and TMR for the upgrade of the intersection.

Table 6.7: Intersection Operations – 10-year Design Horizon (2037) – East St / Churchill St Mitigation Works

Intersection	Peak Hour	Base Scenario				Development Scenario			
		DOS	LOS [1]	Average Delay (sec)	95th percentile queue (m)	DOS	LOS [1]	Average Delay (sec)	95th percentile queue (m)
East St / Churchill St	AM Peak	1.00	E	26	266	1.24	F	127	900
	PM Peak	0.95	E	16	146	1.09	F	39	326
East St / Churchill St – Mitigation (Signalisation)	AM Peak	-	-	-	-	0.55	B	15	74
	PM Peak	-	-	-	-	0.53	B	16	72

The results indicated that the proposed mitigation works could be expected to significantly improve the performance of the intersections of Roderick St / East St and East St / Churchill St to within their practical performance limits.

6.6.5 Traffic Impact Assessment Summary

The following summary is provided based on the analysis completed and presented in this section of the report:

- The traffic analysis results indicate that all of the assessed intersections could all be expected to operate within their practical performance limits for the ‘year of opening (2027)’ scenario
- The traffic analysis results indicate that the intersections of Roderick St / East St and East St / Churchill St could all be expected to operate beyond their practical performance limits for the’10-year design horizon (2037)’ at the completion of the expanded IWHC development (including delivery of up to Stage 3 of IWHC).
- Mitigating road works are required to accommodate the additional vehicle trips generated by the expanded IWHC development.
- The right-turn lane extension at the west approach of the East Street / Roderick Street intersection is required following the delivery of the interim IWHC development, but prior to the delivery of the expanded IWHC development.
- The signalisation of East St / Churchill St Intersection is required following the delivery of the interim IWHC development, but prior to the delivery of the expanded IWHC development.
- A turn warrant assessment has been completed and indicated that a channelised right turn lane is required for the Roderick Street vehicle access points.

With the delivery of the nominated mitigation road works, there is expected to be adequate capacity in the surrounding road network to cater for the vehicle trips generated by the IWHC.

CONCLUSION

7 Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. The IWHC includes the delivery of health care functional space, future private development and a multi-deck carpark.

2. The bicycle parking rates detailed by the Austroads Guidelines recommend 62 staff bicycle parking spaces and 124 visitor bicycle parking spaces, plus end-of-trip facilities in the order of 76 lockers and 10 showers.

3. Based on the results of the Car Parking Demand Assessment, the IWHC is recommended to provide at least 873 car parking spaces in the interim scenario and between 1,122 and 1,369 car parking spaces in the expanded scenario of the IWHC delivery (including up to Stage 3).

4. The proposed IWHC carparking provisions of 875 spaces in the interim scenario and 1,322 spaces in the expanded scenario meet the car parking provisions recommendations.

5. The IWHC is proposed to be serviced by an on-site loading facility accommodating service vehicles and refuse collection. Details of the loading and refuse collection arrangements will be further developed in subsequent stages of the design.

6. The proposed car parking layout, loading facilities and vehicle access arrangements are expected to be delivered generally in accordance with the requirements as set out in Council's Planning Scheme Plan, relevant Australian Standards (AS2890.1, AS2890.2 and AS2890.6), and good transport engineering practice.

7. The IWHC has an anticipated vehicle trip generation expected during the interim scenario of approximately 315 and 289 vehicle trips during the AM and PM peak hours respectively, and a vehicle trip generation during the expanded scenario a of 493 and 452 vehicle trips during the AM and PM peak hours, respectively.

8. The results of the intersection assessment for the interim scenario, all intersections are expected to operate within their practical performance limits during 'year of opening' for both the 'Base' and 'With IWHC' scenarios.

9. The results of the intersection assessment for the expanded scenario, East Street / Roderick Street and East Street / Churchill Street intersections are expected to operate beyond their practical performance limits during '10-year design horizon' for the 'With IWHC' scenarios and require mitigation works

10. For the East Street / Roderick Street intersection, provision of an extended storage capacity in the order of 50m total on this approach could be expected to mitigate the identified queuing issues and allow the intersection to operate within their practical performance limits.

11. For the East Street / Churchill Street intersection, signalisation of the intersection and the provision of an additional Churchill Street right turn lane could be expected to mitigate the

identified queuing issues and allow the intersection to operate within its practical performance limits.

12. With the delivery of the nominated mitigation road works, there is expected to be adequate capacity in the surrounding road network to cater for the vehicle trips generated by the proposed development.

Appendix A: Development Plans

VEHICLE ACCESS

PROPOSED CROSS SITE LINKS

SECONDARY PEDESTRIAN ACCESS ROUTE FROM PROPOSED MSCP TO IPSWICH HOSPITAL (ALONG GINN ST.)

PRIMARY PEDESTRIAN ACCESS ROUTE FROM PROPOSED MSCP TO IPSWICH HOSPITAL (ALONG EAST ST.)

IPSWICH HOSPITAL CAR PARK

Drawing: **SITE CONTEXT PLAN**
Drawing no: A.SK.CD.00
Issue: P.13
Scale@A1: 1 : 1000
Date: 19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

architectus™ Conrad Gargett

SOUTH STREET

A B C D E F G H

4450 8700 9100 9100 9100 8700 4450

8550

5000 900

13 12 11 10 9 8 7 6 5 4 3 2 1

4450 9600 8200 8200 8200 8200 8200 8200 9600 4450

ON GRADE CARPARK
49 NEW PARKING SPACES

RET. WALL

SMALL

ICT

LIFT

ELEC

FIRE ESCAPE

7650

SMALL PWD PWD

625 2400 2400 2400

1:8 RAMP

5600 5600 6600 5600 5600 6200 5600

45400
ENTRY QUEUING

150 MAX. FALL @ CROSSOVER

RET. WALL

CANOPY OVER

ENTRY RAMP UP

ENTRY

EXIT RAMP UP

EXIT

CANOPY OVER

EXIT RAMP UP

FIRE ESCAPE

RET. WALL

150 MAX. FALL @ CROSSOVER

RET. WALL

FIRE ESCAPE

6500

ELEC

ICT

RET. WALL

FIRE ESCAPE

RET. WALL

5380

RAMP UP

STAIRS UP

RET. WALL

FUTURE
DEVELOPMENT
SITE
(UNFUNDED)

NICHOLAS STREET

SECONDARY VEHICLE ENTRY & EXIT FROM NICHOLAS ST

EAST ST

MASONIC
CENTRE

RODERICK STREET

LEVEL 1 NICHOLAS ST - SECONDARY ENTRY/EXIT

IPSWICH HOSPITAL CAR PARK

Drawing: **LEVEL 1 PLAN (NICHOLAS ST.)**
Drawing no: A.SK.CD.03
Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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SOUTH STREET
RODERICK STREET
NICHOLAS STREET
EAST STREET
MASONIC CENTRE
FUTURE DEVELOPMENT SITE (UNFUNDED)
UNDERGROUND CARPARK
51 PARKING SPACES RETAINED
ON GRADE CARPARK
90 PARKING SPACES RETAINED
NEW AILSE
PEDESTRIAN LINK
21230 ENTRY QUEUING
PEDESTRIAN ACCESS
SUB-STATION (LOCATION UNDER REVIEW)
MAIN VEHICLE ENTRY & EXIT FROM RODERICK ST
EXCAVATION & RENTENTION ZONE FOR NATURAL VENTILATION
1:50 MAX. FALL @ CROSSOVER
ALTERNATIVE ENTRY / EXIT CONFIGURATION (4 PARKING SPACES LOST)
EXIT ABOVE
ENTRY
EXIT
LIFT
ICT
ELEC
SMALL
PWD
VOID TO LEVEL BELOW
RAMP UP
1:20
RAMP UP FROM BELOW
1:8
1:12
SERVICES
PEDESTRIAN ACCESS
4450 8700 9100 9100 9100 8700 4450
5600 6200 5600 5600 6600 5600 5600 6200 5600
8550
5000
6500
5380
7010

LEVEL 2 - RODERICK ST ENTRY

IPSWICH HOSPITAL CAR PARK

Drawing: LEVEL 2 PLAN (RODERICK ST. LOWER)
Drawing no: A.SK.CD.04
Issue: P.13
Scale@A1: 1 : 250
Date: 19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

architectus Conrad Gargett

SOUTH STREET

A B C D E F G H

4450 8700 9100 9100 9100 8700 4450

8550

5000

13 12 11 10 9 8 7 6 5 4 3 2 1

4450 9600 8200 8200 8200 8200 8200 8200 9600 4450

SMALL

ICT

LIFT

ELEC

7650

SMALL

PWD

PWD

1:20 RAMP UP

5600 6200 5600 5600 6600 5600 5600 6200 5600

RAMP UP (from below) 1:20

ELEC

ICT

SMALL

SMALL

5380

20000 EXIT QUEUING

EXIT

EXIT

ICT

PWD

PWD

LIFT

RET. WALL

1:16

RET. WALL

SUB-STATION
(LOCATION UNDER REVIEW)

6330

ENTRY BELOW

1:50 MAX. FALL @ CROSSOVER

EXIT

MAIN VEHICLE ENTRY & EXIT FROM RODERICK ST

RODERICK STREET

NICHOLAS STREET

EAST ST

MASONIC CENTRE

FUTURE DEVELOPMENT SITE (UNFUNDED)

LEVEL 3 - RODERICK ST EXIT

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVEL 3 PLAN (RODERICK ST. UPPER)**
Drawing no:	A.SK.CD.05
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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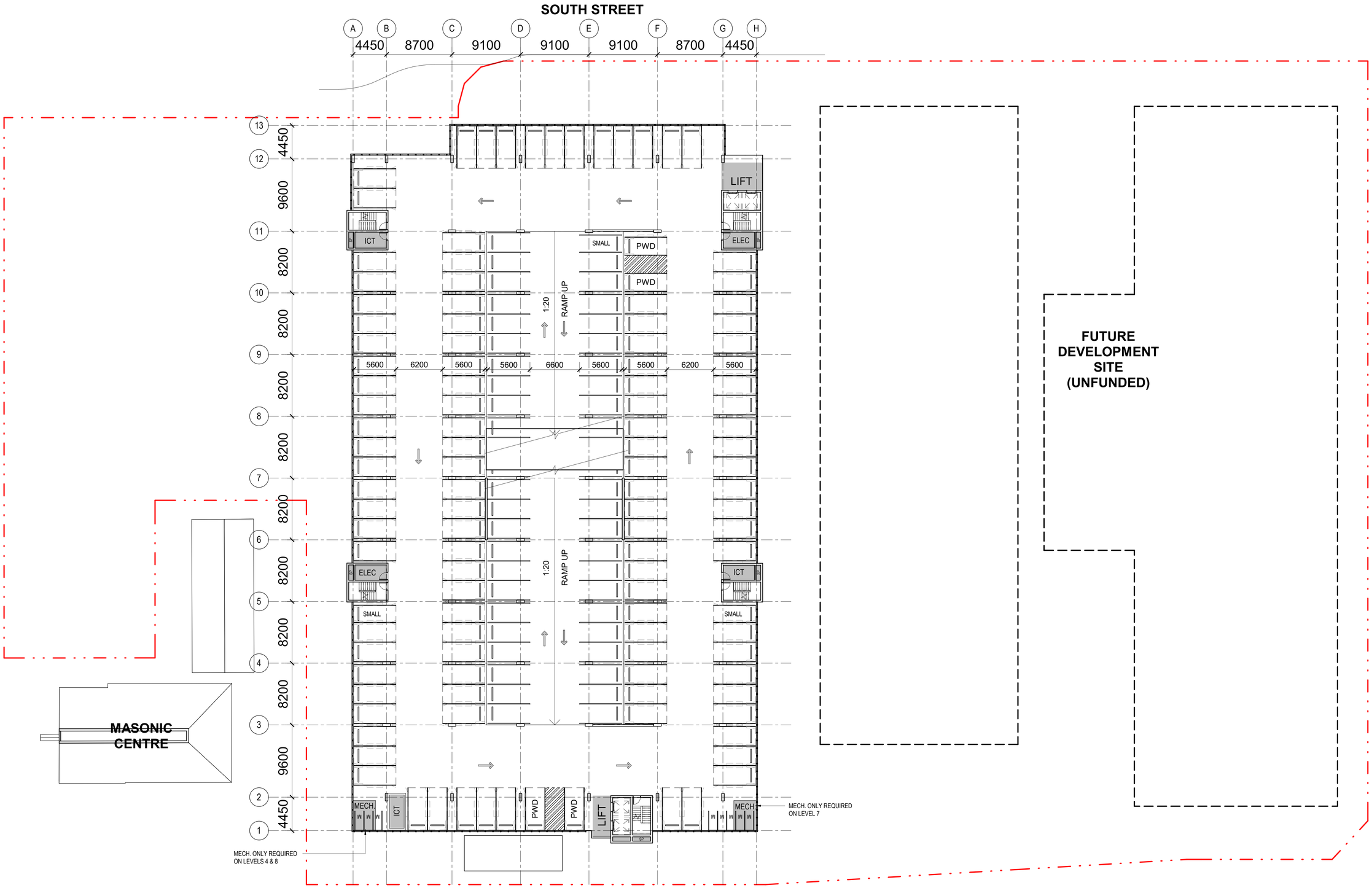
SOUTH STREET

NICHOLAS STREET

EAST STREET

RODERICK STREET



LEVELS 4 - 8 (TYPICAL)

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVELS 4-8 PLAN (TYPICAL)**
Drawing no:	A.SK.CD.06
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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SOUTH STREET

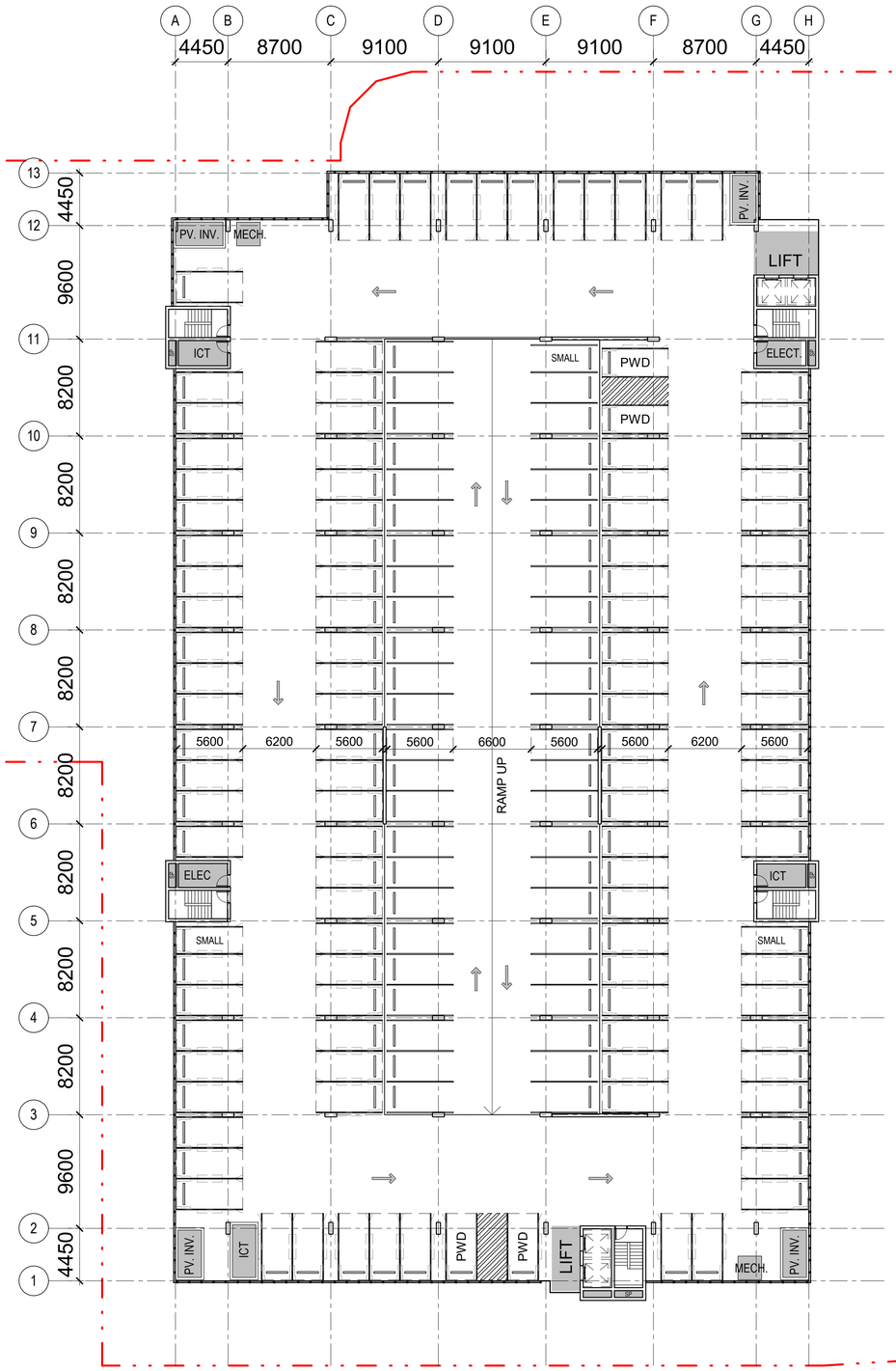
NICHOLAS STREET

MASONIC CENTRE

FUTURE DEVELOPMENT SITE (UNFUNDED)

EAST STREET

RODERICK STREET



LEVEL 9

IPSWICH HOSPITAL CAR PARK

Drawing:	**LEVEL 9 PLAN (TOP LEVEL)**
Drawing no:	A.SK.CD.07
Issue:	P.13
Scale@A1:	1 : 250
Date:	19.03.2024

SITE BOUNDARY, ALL DIMENSIONS, COUNTS, BUILDING HEIGHTS INDICATIVE ONLY - TO BE VERIFIED
ISSUED TO CONSULTANTS FOR REVEW & INPUT

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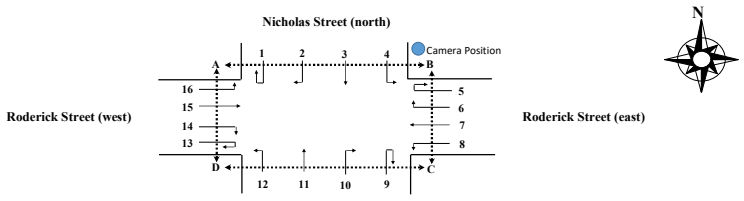
Appendix B: Traffic Survey

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine
Location: Nicholas Street/Roderick Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 3:00 PM*

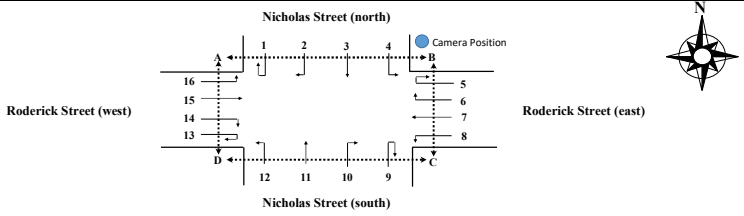


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*
7:15 AM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	5	0	**5**	0	0	0	**0**	0	3	1	**4**	0	24	2	**26**	1	1	0	**1**	0
7:30 AM	0	0	**0**	0	2	1	**3**	0	1	0	**1**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	28	0	**28**	0	1	0	**1**	0
7:45 AM	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	2	0	**2**	0	3	0	**3**	0	4	1	**5**	0	33	1	**34**	0	6	0	**6**	0
8:00 AM	0	0	**0**	0	5	0	**5**	0	3	0	**3**	0	2	0	**2**	0	0	0	**0**	0	11	0	**11**	0	56	0	**56**	1	3	0	**3**	0
8:15 AM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	1	1	**2**	0	51	0	**51**	0	2	0	**2**	0
8:30 AM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	5	0	**5**	0	49	0	**49**	0	4	0	**4**	0
8:45 AM	0	0	**0**	0	5	0	**5**	0	3	0	**3**	0	7	0	**7**	0	0	0	**0**	0	4	1	**5**	0	33	3	**36**	0	3	0	**3**	0
9:00 AM	0	0	**0**	0	12	1	**13**	0	5	0	**5**	0	10	0	**10**	0	0	0	**0**	0	9	0	**9**	0	46	0	**46**	0	1	0	**1**	0
2 hr Total	**0**	**0**	**0**	**0**	**31**	**2**	**33**	**0**	**17**	**0**	**17**	**0**	**33**	**0**	**33**	**0**	**3**	**0**	**3**	**0**	**39**	**4**	**43**	**0**	**320**	**6**	**326**	**2**	**21**	**0**	**21**	**0**
AM Peak	**0**	**0**	**0**	**0**	**21**	**1**	**22**	**0**	**10**	**0**	**10**	**0**	**20**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**19**	**2**	**21**	**0**	**179**	**3**	**182**	**0**	**10**	**0**	**10**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*
2:15 PM	0	0	**0**	0	2	0	**2**	0	12	1	**13**	0	7	0	**7**	0	0	0	**0**	0	9	1	**10**	0	57	3	**60**	1	5	0	**5**	0
2:30 PM	0	0	**0**	0	1	0	**1**	0	6	1	**7**	0	19	1	**20**	0	0	0	**0**	0	6	0	**6**	0	56	1	**57**	0	5	0	**5**	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	28	0	**28**	0	2	0	**2**	0
3:00 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	4	0	**4**	0	29	0	**29**	0	1	0	**1**	0
3:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	2	0	**2**	0	43	1	**44**	0	4	0	**4**	0
3:30 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	29	0	**29**	0	1	0	**1**	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	29	2	**31**	0	1	0	**1**	0
4:00 PM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	32	0	**32**	1	1	0	**1**	0
4:15 PM	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	4	0	**4**	0	0	0	**0**	0	4	0	**4**	0	27	0	**27**	0	1	0	**1**	0
4:30 PM	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	48	0	**48**	0	1	0	**1**	0
4:45 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	34	0	**34**	0	2	0	**2**	0
5:00 PM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	2	0	**2**	1	0	0	**0**	0	1	0	**1**	0	31	0	**31**	0	1	0	**1**	0
3 hr Total	**0**	**0**	**0**	**0**	**9**	**0**	**9**	**0**	**28**	**2**	**30**	**0**	**64**	**1**	**65**	**1**	**0**	**0**	**0**	**0**	**41**	**1**	**42**	**0**	**443**	**7**	**450**	**2**	**25**	**0**	**25**	**0**
PM Peak	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**19**	**2**	**21**	**0**	**32**	**1**	**33**	**0**	**0**	**0**	**0**	**0**	**21**	**1**	**22**	**0**	**170**	**4**	**174**	**1**	**13**	**0**	**13**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine
Location: Nicholas Street/Roderick Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 3:00 PM*

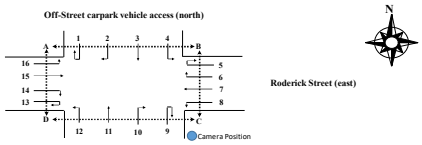


TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
7:15 AM	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	20	2	**22**	0	2	1	**3**	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
7:30 AM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	2	1	**3**	0	0	0	**0**	0	4	0	**4**	0	11	2	**13**	2	2	0	**2**	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
7:45 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	2	0	**2**	0	34	0	**34**	1	2	0	**2**	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
8:00 AM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	5	1	**6**	0	0	0	**0**	0	2	0	**2**	0	38	0	**38**	0	4	0	**4**	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
8:15 AM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	4	0	**4**	0	0	0	**0**	0	4	0	**4**	0	37	0	**37**	0	4	0	**4**	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0
8:30 AM	0	0	**0**	0	3	0	**3**	0	4	0	**4**	0	9	0	**9**	0	0	0	**0**	0	7	0	**7**	0	40	0	**40**	0	1	0	**1**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
8:45 AM	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	38	1	**39**	0	5	0	**5**	0	0	0	1	0	1	0	2	0	2	0	1	0	0	0
9:00 AM	0	0	**0**	0	2	0	**2**	0	6	0	**6**	0	10	0	**10**	0	0	0	**0**	0	4	0	**4**	0	29	1	**30**	0	6	0	**6**	0	0	0	4	0	0	0	8	0	0	0	0	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**16**	**0**	**16**	**0**	**16**	**0**	**16**	**0**	**42**	**2**	**44**	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**28**	**0**	**247**	**6**	**253**	**3**	**26**	**1**	**27**	**0**	**2**	**0**	**7**	**0**	**0**	**0**	**11**	**0**	**3**	**0**	**8**	**0**	**4**	**0**	**2**	**0**
AM Peak	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**0**	**13**	**0**	**13**	**0**	**28**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**18**	**0**	**144**	**2**	**146**	**0**	**16**	**0**	**16**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**11**	**0**	**2**	**0**	**2**	**0**	**2**	**0**	**2**	**0**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
2:15 PM	0	0	**0**	0	3	0	**3**	0	5	0	**5**	0	11	0	**11**	0	0	0	**0**	0	7	0	**7**	0	39	0	**39**	0	0	0	**0**	0	1	0	0	1	0	0	0	0	2	0	3	0	0	0	0	0
2:30 PM	0	0	**0**	0	4	0	**4**	0	3	0	**3**	0	3	0	**3**	0	0	0	**0**	0	12	0	**12**	0	37	0	**37**	0	2	0	**2**	0	2	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	**0**	0	4	0	**4**	0	2	0	**2**	0	5	0	**5**	0	0	0	**0**	0	5	0	**5**	0	29	0	**29**	0	4	0	**4**	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
3:00 PM	0	0	**0**	0	5	0	**5**	0	2	0	**2**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	53	0	**53**	0	3	0	**3**	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0
3:15 PM	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	6	0	**6**	0	0	0	**0**	0	6	0	**6**	0	60	3	**63**	0	0	0	**0**	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	**0**	0	5	0	**5**	0	4	0	**4**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	49	0	**49**	0	2	0	**2**	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0
3:45 PM	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	8	0	**8**	0	0	0	**0**	0	7	0	**7**	0	27	0	**27**	0	3	0	**3**	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0
4:00 PM	0	0	**0**	0	2	0	**2**	0	3	0	**3**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	33	0	**33**	0	0	0	**0**	0	1	0	0	0	3	0	0	0	1	0	0	0	0	0	1	0
4:15 PM	0	0	**0**	0	7	0	**7**	0	4	0	**4**	0	4	0	**4**	0	0	0	**0**	0	4	0	**4**	0	56	0	**56**	0	1	0	**1**	0	2	0	1	0	1	1	0	0	3	1	0	0	0	0	0	0
4:30 PM	0	0	**0**	0	5	0	**5**	0	2	0	**2**	0	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	39	0	**39**	0	1	0	**1**	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	**0**	0	5	0	**5**	0	1	0	**1**	0	7	0	**7**	0	0	0	**0**	0	6	0	**6**	0	42	0	**42**	0	1	0	**1**	0	1	0	1	0	0	0	0	0	2	0	0	1	0	0	0	0
5:00 PM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	11	0	**11**	0	42	0	**42**	0	2	0	**2**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
3 hr Total	**0**	**0**	**0**	**0**	**47**	**0**	**47**	**0**	**30**	**0**	**30**	**0**	**68**	**0**	**68**	**0**	**0**	**0**	**0**	**0**	**65**	**0**	**65**	**0**	**506**	**3**	**509**	**0**	**19**	**0**	**19**	**0**	**9**	**1**	**9**	**1**	**11**	**1**	**1**	**0**	**12**	**1**	**4**	**1**	**0**	**0**	**4**	**0**
PM Peak	**0**	**0**	**0**	**0**	**16**	**0**	**16**	**0**	**12**	**0**	**12**	**0**	**26**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**25**	**0**	**158**	**0**	**158**	**0**	**9**	**0**	**9**	**0**	**3**	**0**	**3**	**1**	**5**	**0**	**0**	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**1**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 2 **Weather:** Fine
Location: Roderick Street/Ginn Street/Off-Street carpark vehicle access, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:00 PM*

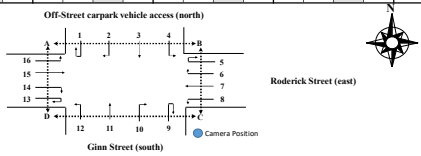


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
7:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	15	0	**15**	0	31	3	**34**	0	0	0	**0**	1
7:30 AM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	41	0	**41**	0	0	0	**0**	0
7:45 AM	0	0	**0**	0	5	0	**5**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	11	0	**11**	0	45	2	**47**	0	1	0	**1**	0
8:00 AM	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	64	0	**64**	1	3	0	**3**	0
8:15 AM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	3	0	**3**	0	55	1	**56**	0	2	0	**2**	0
8:30 AM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	50	0	**50**	0	1	1	**2**	0
8:45 AM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	1	0	**1**	0	33	4	**37**	0	3	0	**3**	0
9:00 AM	0	0	**0**	0	2	0	**2**	0	5	0	**5**	0	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	56	0	**56**	0	3	0	**3**	0
2 hr Total	**0**	**0**	**0**	**0**	**13**	**0**	**13**	**0**	**12**	**0**	**12**	**0**	**8**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**43**	**0**	**43**	**0**	**375**	**10**	**385**	**1**	**13**	**1**	**14**	**1**
AM Peak	**0**	**0**	**0**	**0**	**10**	**0**	**10**	**0**	**6**	**0**	**6**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**17**	**0**	**214**	**3**	**217**	**1**	**7**	**1**	**8**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
2:15 PM	0	0	**0**	0	3	0	**3**	0	5	0	**5**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	58	5	**63**	0	3	0	**3**	0
2:30 PM	0	0	**0**	0	3	0	**3**	0	3	0	**3**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	52	0	**52**	0	3	0	**3**	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	2	0	**2**	0	31	0	**31**	0	2	0	**2**	0
3:00 PM	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	5	0	**5**	0	0	0	**0**	0	1	0	**1**	0	32	0	**32**	0	0	0	**0**	0
3:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	2	0	**2**	0	42	1	**43**	0	1	0	**1**	0
3:30 PM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	26	0	**26**	0	0	0	**0**	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	24	2	**26**	0	2	0	**2**	0
4:00 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	28	0	**28**	1	2	0	**2**	0
4:15 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	1	0	**1**	0	30	0	**30**	0	0	0	**0**	0
4:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	0	0	**0**	0	37	0	**37**	0	1	0	**1**	0
4:45 PM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	31	0	**31**	0	0	0	**0**	0
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	32	0	**32**	0	0	0	**0**	0
3 hr Total	**0**	**0**	**0**	**0**	**8**	**0**	**8**	**0**	**16**	**0**	**16**	**0**	**58**	**0**	**58**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**9**	**0**	**423**	**8**	**431**	**1**	**14**	**0**	**14**	**0**
PM Peak	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**	**11**	**0**	**11**	**0**	**9**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**173**	**5**	**178**	**0**	**8**	**0**	**8**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 2 **Weather:** Fine
Location: Roderick Street/Ginn Street/Off-Street carpark vehicle access, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:00 PM*

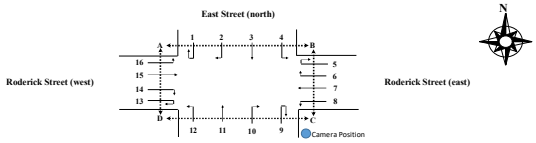


TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
7:15 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	0	1	**1**	0	15	1	**16**	0	1	0	**1**	0	0	0	0	0	2	0	0	0	1	0	2	0	0	0	1	0
7:30 AM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	13	2	**15**	1	0	0	**0**	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	3	0
7:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	23	0	**23**	0	3	0	**3**	0	2	0	1	0	0	0	0	0	1	0	1	0	0	0	2	0
8:00 AM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	9	0	**9**	0	0	0	**0**	0	1	0	**1**	0	37	0	**37**	0	0	0	**0**	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:15 AM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	4	0	**4**	0	38	0	**38**	0	1	0	**1**	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	40	0	**40**	0	0	0	**0**	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	3	0	**3**	0	40	1	**41**	0	0	0	**0**	0	1	0	0	0	1	0	0	0	1	0	2	0	1	0	0	0
9:00 AM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	36	1	**37**	0	2	0	**2**	0	0	0	1	0	2	0	0	0	1	0	3	0	0	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**13**	**0**	**13**	**0**	**3**	**0**	**3**	**0**	**43**	**0**	**43**	**0**	**0**	**0**	**0**	**0**	**14**	**1**	**15**	**0**	**242**	**5**	**247**	**1**	**7**	**0**	**7**	**0**	**5**	**0**	**3**	**0**	**4**	**0**	**9**	**0**	**3**	**0**	**6**	**0**	**8**	**0**
AM Peak	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**1**	**0**	**1**	**0**	**27**	**0**	**27**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**10**	**0**	**138**	**0**	**138**	**0**	**4**	**0**	**4**	**0**	**3**	**0**	**2**	**0**	**1**	**0**	**6**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**3**	**0**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
2:15 PM	0	0	**0**	0	3	0	**3**	0	7	0	**7**	0	8	0	**8**	1	0	0	**0**	0	4	0	**4**	0	44	0	**44**	0	1	0	**1**	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0
2:30 PM	0	0	**0**	0	4	0	**4**	0	3	0	**3**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	55	1	**56**	0	1	0	**1**	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	**0**	0	2	0	**2**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	40	0	**40**	0	0	0	**0**	0	0	0	3	0	1	0	0	0	0	0	2	0	0	0	0	0
3:00 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	6	0	**6**	0	0	0	**0**	0	4	0	**4**	0	58	1	**59**	0	0	0	**0**	0	0	0	1	0	1	0	2	0	0	0	0	0	4	0	0	0
3:15 PM	0	0	**0**	0	3	0	**3**	0	1	0	**1**	0	6	0	**6**	0	0	0	**0**	0	6	0	**6**	0	65	2	**67**	0	0	0	**0**	0	2	0	2	0	1	0	4	0	1	0	0	0	6	0	1	1
3:30 PM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	58	0	**58**	0	0	0	**0**	0	0	0	1	0	0	0	3	0	1	0	2	0	2	0	0	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	32	0	**32**	0	0	0	**0**	0	1	0	2	0	1	0	6	0	1	0	0	0	1	0	1	0
4:00 PM	1	0	**1**	0	3	0	**3**	0	1	0	**1**	0	4	0	**4**	1	0	0	**0**	0	0	0	**0**	0	39	0	**39**	0	0	0	**0**	0	0	0	1	0	1	0	2	0	1	0	0	0	1	0	0	0
4:15 PM	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	1	0	**1**	0	76	0	**76**	0	0	0	**0**	0	0	0	1	0	0	0	1	0	1	0	1	0	5	0	0	0
4:30 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	54	0	**54**	0	1	0	**1**	0	0	0	1	0	0	0	2	0	1	0	0	0	2	0	1	0
4:45 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	68	0	**68**	0	0	0	**0**	0	1	0	2	0	1	0	3	0	1	0	0	0	0	0	0	0
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	52	0	**52**	1	0	0	**0**	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
3 hr Total	**1**	**0**	**1**	**0**	**24**	**0**	**24**	**0**	**15**	**0**	**15**	**0**	**49**	**0**	**49**	**2**	**0**	**0**	**0**	**0**	**22**	**0**	**22**	**0**	**641**	**4**	**645**	**1**	**3**	**0**	**3**	**0**	**4**	**0**	**15**	**0**	**8**	**0**	**25**	**0**	**8**	**0**	**4**	**1**	**23**	**0**	**5**	**1**
PM Peak	**0**	**0**	**0**	**0**	**10**	**0**	**10**	**0**	**12**	**0**	**12**	**0**	**23**	**0**	**23**	**1**	**0**	**0**	**0**	**0**	**9**	**0**	**9**	**0**	**197**	**2**	**199**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**3**	**0**	**1**	**0**	**1**	**0**	**6**	**0**	**2**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine
Location: East Street/Roderick Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:45 AM*
PM Peak: *Hour ending - 4:45 PM*

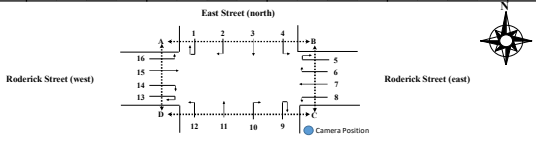


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
7:15 AM	0	0	0	0	17	1	18	0	62	11	73	0	4	0	4	0	0	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0
7:30 AM	0	0	0	0	20	0	20	0	74	3	77	0	4	0	4	0	0	0	0	0	1	0	1	0	10	0	10	0	0	0	0	0
7:45 AM	0	0	0	0	15	0	15	0	104	4	108	0	6	0	6	0	0	0	0	0	4	0	4	0	12	0	12	0	1	0	1	0
8:00 AM	0	0	0	0	15	0	15	0	83	4	87	0	13	0	13	0	0	0	0	0	4	0	4	0	22	0	22	0	2	0	2	0
8:15 AM	0	0	0	0	11	0	11	0	80	8	88	0	9	0	9	0	0	0	0	0	7	1	8	0	19	0	19	0	1	0	1	0
8:30 AM	0	0	0	0	9	0	9	0	76	7	83	0	8	0	8	0	0	0	0	0	3	0	3	0	19	1	20	0	1	0	1	0
8:45 AM	0	0	0	0	7	0	7	0	75	9	84	0	7	0	7	0	0	0	0	0	8	0	8	0	14	0	14	0	8	0	8	0
9:00 AM	0	0	0	0	22	0	22	0	55	11	66	0	9	0	9	0	0	0	0	0	8	0	8	0	15	0	15	0	5	0	5	0
2 hr Total	**0**	**0**	**0**	**0**	**116**	**1**	**117**	**0**	**609**	**57**	**666**	**0**	**60**	**0**	**60**	**0**	**0**	**0**	**0**	**0**	**35**	**1**	**36**	**0**	**116**	**1**	**119**	**0**	**18**	**0**	**18**	**0**
AM Peak	**0**	**0**	**0**	**0**	**42**	**0**	**42**	**0**	**314**	**28**	**342**	**0**	**37**	**0**	**37**	**0**	**0**	**0**	**0**	**0**	**22**	**1**	**23**	**0**	**74**	**1**	**75**	**0**	**12**	**0**	**12**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
2:15 PM	0	0	0	0	9	0	9	0	13	0	13	0	0	0	0	0	0	0	0	0	10	0	10	0	35	3	38	0	6	0	6	0
2:30 PM	0	0	0	0	13	0	13	0	30	4	34	0	4	1	5	0	0	0	0	0	3	0	3	0	21	0	21	0	9	0	9	0
2:45 PM	0	0	0	0	9	0	9	0	105	5	110	0	10	1	11	0	0	0	0	0	8	0	8	0	14	0	14	0	4	0	4	0
3:00 PM	0	0	0	0	11	0	11	0	92	6	98	0	10	0	10	0	0	0	0	0	7	0	7	0	9	0	9	0	3	0	3	0
3:15 PM	0	0	0	0	16	0	16	0	111	8	119	0	12	0	12	0	0	0	0	0	4	1	5	0	15	0	15	0	4	0	4	0
3:30 PM	0	0	0	0	4	0	4	0	101	5	106	0	4	0	4	0	0	0	0	0	7	0	7	0	9	0	9	0	4	0	4	0
3:45 PM	0	0	0	0	6	0	6	0	97	5	102	0	10	0	10	0	0	0	0	0	7	1	8	0	13	0	13	0	2	0	2	0
4:00 PM	0	0	0	0	12	0	12	0	101	4	105	0	8	0	8	0	0	0	0	0	6	1	7	0	10	0	10	0	1	0	1	0
4:15 PM	0	0	0	0	4	0	4	0	105	2	107	0	3	0	3	0	0	0	0	0	9	1	10	0	9	0	9	0	3	0	3	0
4:30 PM	0	0	0	0	7	0	7	0	105	6	111	0	7	0	7	0	0	0	0	0	6	0	6	0	12	0	12	0	4	0	4	0
4:45 PM	0	0	0	0	3	0	3	0	126	2	128	0	8	0	8	0	0	0	0	0	7	2	9	0	17	0	17	0	1	0	1	0
5:00 PM	0	0	0	0	11	0	11	0	109	3	112	0	6	0	6	0	0	0	0	0	5	0	5	0	12	0	12	0	1	0	1	0
3 hr Total	**0**	**0**	**0**	**0**	**105**	**0**	**105**	**0**	**1095**	**50**	**1145**	**0**	**82**	**2**	**84**	**0**	**0**	**0**	**0**	**0**	**79**	**6**	**85**	**0**	**176**	**3**	**179**	**0**	**42**	**0**	**42**	**0**
PM Peak	**0**	**0**	**0**	**0**	**26**	**0**	**26**	**0**	**437**	**14**	**451**	**0**	**26**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**28**	**4**	**32**	**0**	**48**	**0**	**48**	**0**	**9**	**0**	**9**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine
Location: East Street/Roderick Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:45 AM*
PM Peak: *Hour ending - 4:45 PM*

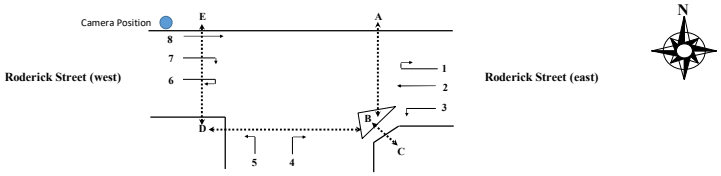


TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
7:15 AM	0	0	0	0	1	0	1	0	51	6	57	0	22	2	24	0	0	0	0	0	4	0	4	0	10	0	10	0	6	1	7	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	70	8	78	0	23	0	23	0	0	0	0	0	4	1	5	0	6	0	6	1	5	1	6	0	0	0	1	0	0	0	0	0	1	0	0	1	0	1
7:45 AM	0	0	0	0	1	0	1	0	80	5	85	0	29	2	31	0	0	0	0	0	11	0	11	0	9	0	9	0	3	0	3	0	0	1	1	1	3	1	0	0	4	0	0	0	1	0	4	0
8:00 AM	0	0	0	0	0	0	0	0	76	5	81	0	34	0	34	1	0	0	0	0	8	0	8	0	12	0	12	0	13	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	1	0
8:15 AM	0	0	0	0	1	0	1	0	83	4	87	0	31	1	32	0	0	0	0	0	21	0	21	0	13	0	13	0	5	0	5	0	0	0	1	0	2	0	0	0	1	0	0	0	1	0	4	1
8:30 AM	0	0	0	0	0	0	0	0	98	4	102	0	24	0	24	0	0	0	0	0	16	0	16	0	14	0	14	0	14	0	14	0	2	0	0	0	1	0	1	0	1	0	0	0	5	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	91	9	100	0	17	4	21	0	0	0	0	0	8	0	8	0	21	0	21	0	19	1	20	0	0	0	0	0	0	0	1	0	0	0	10	0	3	0
9:00 AM	0	0	0	0	0	0	0	0	97	N	99	0	23	0	23	0	0	0	0	0	11	0	11	0	14	1	15	0	14	0	14	0	0	0	2	0	0	0	0	0	0	0	1	0	1	0	3	0
2 hr Total	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**0**	**646**	**43**	**689**	**0**	**203**	**9**	**212**	**1**	**0**	**0**	**0**	**0**	**83**	**1**	**84**	**0**	**99**	**1**	**100**	**1**	**79**	**3**	**82**	**0**	**2**	**1**	**6**	**1**	**6**	**1**	**1**	**0**	**9**	**0**	**1**	**0**	**23**	**0**	**15**	**3**
AM Peak	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**348**	**22**	**370**	**0**	**106**	**5**	**111**	**1**	**0**	**0**	**0**	**0**	**53**	**0**	**53**	**0**	**60**	**0**	**60**	**0**	**51**	**1**	**52**	**0**	**2**	**0**	**2**	**0**	**3**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**19**	**0**	**9**	**2**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
2:15 PM	0	0	0	0	4	0	4	0	51	2	53	0	17	2	19	0	0	0	0	0	24	0	24	0	16	0	16	0	7	0	7	0	0	0	3	0	1	0	3	0	0	0	1	0	4	0	2	1
2:30 PM	0	0	0	0	9	0	9	0	38	3	41	0	23	0	23	0	0	0	0	0	27	1	28	0	22	0	22	0	11	0	11	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	3	0
2:45 PM	0	0	0	0	0	0	0	0	70	3	73	0	12	0	12	0	0	0	0	0	18	0	18	0	17	0	17	0	7	0	7	0	0	0	1	0	1	0	0	0	0	0	0	0	5	0	2	0
3:00 PM	0	0	0	0	0	0	0	0	67	5	72	0	9	0	9	0	0	0	0	0	27	0	27	0	19	0	19	0	12	0	12	0	1	0	0	0	1	0	2	1	0	0	0	0	2	0	3	0
3:15 PM	0	0	0	0	0	0	0	0	88	4	92	0	16	1	17	0	0	0	0	0	38	3	41	0	24	0	24	0	20	0	20	0	2	0	0	0	2	0	0	0	0	0	1	0	8	1	3	0
3:30 PM	0	0	0	0	0	0	0	0	93	3	96	0	14	0	14	0	0	0	0	0	31	0	31	0	17	0	17	0	16	0	16	0	1	1	1	0	1	0	2	0	0	0	2	0	5	0	1	0
3:45 PM	0	0	0	1	0	1	1	0	77	5	82	0	8	2	10	0	0	0	0	0	15	0	15	0	13	0	13	0	12	0	12	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	3	0
4:00 PM	0	0	0	0	0	0	0	0	86	2	88	0	8	0	8	1	0	0	0	0	17	0	17	0	18	0	18	0	12	0	12	0	2	0	0	0	2	0	1	0	0	0	0	0	5	0	4	0
4:15 PM	0	0	0	0	0	0	0	0	97	2	99	0	16	0	16	0	0	0	0	0	29	0	29	0	25	0	25	0	34	0	34	0	2	0	0	0	2	0	0	0	0	0	0	0	3	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	83	1	84	1	18	0	18	0	0	0	0	0	20	0	20	0	25	0	25	0	15	0	15	0	0	0	0	0	0	0	1	0	0	0	1	0	6	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	72	4	76	1	10	0	10	0	0	0	0	0	22	0	22	0	29	0	29	0	25	0	25	0	6	0	1	0	0	0	1	0	1	0	1	0	5	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	64	1	65	0	9	0	9	0	0	0	0	0	22	0	22	0	15	0	15	1	19	0	19	0	1	0	1	0	0	0	1	0	0	0	0	0	2	0	1	1
3 hr Total	**0**	**0**	**0**	**0**	**14**	**0**	**14**	**0**	**896**	**35**	**931**	**2**	**160**	**5**	**165**	**1**	**0**	**0**	**0**	**0**	**290**	**4**	**294**	**0**	**240**	**0**	**240**	**1**	**190**	**0**	**190**	**0**	**15**	**1**	**7**	**0**	**16**	**0**	**11**	**1**	**2**	**0**	**9**	**1**	**48**	**3**	**27**	**2**
PM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**338**	**9**	**347**	**2**	**52**	**0**	**52**	**1**	**0**	**0**	**0**	**0**	**88**	**0**	**88**	**0**	**97**	**0**	**97**	**0**	**86**	**0**	**86**	**0**	**10**	**0**	**1**	**0**	**4**	**0**	**3**	**0**	**1**	**0**	**2**	**1**	**17**	**1**	**9**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine
Location: Roderick Street/Warwick Road, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 3:00 PM*

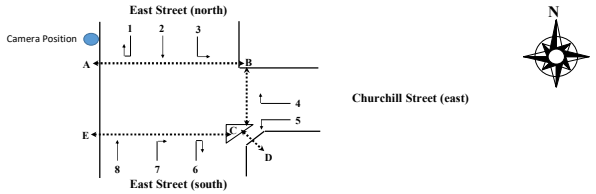


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																															A - B		B - A		B - C		C - B		B - D		D - B		D - E		E - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
7:15 AM	0	0	**0**	0	7	0	**7**	0	11	1	**12**	1	12	1	**13**	0	3	0	**3**	0	0	0	**0**	0	3	0	**3**	0	8	0	**8**	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	**0**	0	12	0	**12**	0	18	0	**18**	0	14	2	**16**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	5	0	**5**	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	**0**	0	19	0	**19**	1	13	0	**13**	0	17	0	**17**	0	7	0	**7**	0	0	0	**0**	0	3	0	**3**	0	13	0	**13**	0	0	0	0	0	0	0	0	0	2	0	0	0
8:00 AM	0	0	**0**	0	22	0	**22**	0	23	1	**24**	0	18	0	**18**	0	14	0	**14**	0	0	0	**0**	0	6	0	**6**	0	20	0	**20**	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	**0**	0	24	1	**25**	0	29	1	**30**	0	27	1	**28**	0	12	0	**12**	0	0	0	**0**	0	4	0	**4**	0	18	0	**18**	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	**0**	0	20	1	**21**	0	31	1	**32**	0	21	0	**21**	0	15	0	**15**	0	1	0	**1**	0	8	0	**8**	0	16	0	**16**	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	**0**	0	19	0	**19**	0	29	3	**32**	0	26	1	**27**	0	17	0	**17**	0	0	0	**0**	0	5	0	**5**	0	21	0	**21**	0	0	0	0	0	0	0	0	0	2	0	0	0
9:00 AM	0	0	**0**	0	23	0	**23**	0	27	1	**28**	0	38	1	**39**	0	10	0	**10**	0	0	0	**0**	0	7	0	**7**	0	22	1	**23**	0	0	0	0	0	1	0	0	0	2	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**146**	**2**	**148**	**1**	**181**	**8**	**189**	**1**	**173**	**6**	**179**	**0**	**80**	**0**	**80**	**0**	**1**	**0**	**1**	**0**	**38**	**0**	**38**	**0**	**123**	**1**	**124**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**6**	**0**	**0**	**0**
AM Peak	**0**	**0**	**0**	**0**	**86**	**2**	**88**	**0**	**116**	**6**	**122**	**0**	**112**	**3**	**115**	**0**	**54**	**0**	**54**	**0**	**1**	**0**	**1**	**0**	**24**	**0**	**24**	**0**	**77**	**1**	**78**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**4**	**0**	**0**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																															A - B		B - A		B - C		C - B		B - D		D - B		D - E		E - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
2:15 PM	0	0	**0**	0	46	3	**49**	0	73	3	**76**	0	17	1	**18**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	23	0	**23**	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0
2:30 PM	0	0	**0**	0	27	0	**27**	0	51	0	**51**	0	17	1	**18**	0	3	0	**3**	0	0	0	**0**	0	5	0	**5**	0	30	1	**31**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	**0**	0	17	0	**17**	0	29	1	**30**	0	38	0	**38**	0	9	0	**9**	0	0	0	**0**	0	4	0	**4**	0	26	1	**27**	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	**0**	0	17	0	**17**	0	30	1	**31**	0	26	0	**26**	0	10	0	**10**	0	0	0	**0**	0	3	0	**3**	0	24	0	**24**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	**0**	0	17	1	**18**	0	34	0	**34**	0	44	0	**44**	0	7	0	**7**	0	0	0	**0**	0	8	0	**8**	0	31	0	**31**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	**0**	0	14	0	**14**	0	34	1	**35**	0	23	2	**25**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	18	0	**18**	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
3:45 PM	0	0	**0**	0	15	1	**16**	0	40	2	**42**	0	23	1	**24**	1	1	1	**2**	0	0	0	**0**	0	4	0	**4**	0	25	0	**25**	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:00 PM	0	0	**0**	0	12	0	**12**	0	41	1	**42**	0	24	0	**24**	0	7	0	**7**	0	0	0	**0**	0	7	0	**7**	0	25	0	**25**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	**0**	0	13	1	**14**	0	34	0	**34**	0	29	1	**30**	0	9	0	**9**	0	0	0	**0**	0	6	0	**6**	0	31	0	**31**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	**0**	0	13	0	**13**	0	33	1	**34**	0	15	0	**15**	0	7	0	**7**	0	0	0	**0**	0	7	0	**7**	0	23	0	**23**	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0
4:45 PM	0	0	**0**	0	16	1	**17**	0	43	2	**45**	0	23	0	**23**	0	8	1	**9**	0	0	0	**0**	0	4	0	**4**	0	40	0	**40**	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0
5:00 PM	0	0	**0**	0	12	0	**12**	0	28	0	**28**	0	18	0	**18**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	23	0	**23**	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 hr Total	**0**	**0**	**0**	**0**	**219**	**7**	**226**	**0**	**470**	**12**	**482**	**0**	**297**	**6**	**303**	**1**	**79**	**2**	**81**	**0**	**0**	**0**	**0**	**0**	**54**	**0**	**54**	**0**	**319**	**2**	**321**	**1**	**4**	**0**	**1**	**0**	**6**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**6**	**0**	**1**	**0**
PM Peak	**0**	**0**	**0**	**0**	**107**	**3**	**110**	**0**	**183**	**5**	**188**	**0**	**98**	**2**	**100**	**0**	**26**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**14**	**0**	**103**	**2**	**105**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 5 **Weather:** Fine
Location: East Street/Churchill Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 4:00 PM*

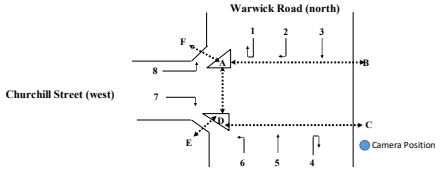


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		C - E		E - C	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
7:15 AM	0	0	**0**	0	15	3	**18**	0	47	8	**55**	0	71	8	**79**	0	7	0	**7**	0	0	0	**0**	0	5	1	**6**	0	6	0	**6**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	**0**	0	22	1	**23**	0	59	3	**62**	0	88	7	**95**	0	7	0	**7**	0	0	0	**0**	0	7	0	**7**	0	5	1	**6**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	**0**	0	24	0	**24**	1	84	4	**88**	0	98	7	**105**	0	11	0	**11**	0	0	0	**0**	0	5	0	**5**	0	12	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	**0**	0	25	2	**27**	0	74	2	**76**	0	106	5	**111**	1	21	0	**21**	0	0	0	**0**	0	7	0	**7**	0	5	0	**5**	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0
8:15 AM	0	0	**0**	0	12	2	**14**	0	87	6	**93**	0	112	5	**117**	0	14	0	**14**	0	0	0	**0**	0	4	0	**4**	0	7	0	**7**	0	0	0	0	0	1	0	0	0	2	0	2	0	2	0
8:30 AM	0	0	**0**	0	10	3	**13**	0	89	4	**93**	0	116	3	**119**	0	14	0	**14**	0	0	0	**0**	0	10	0	**10**	0	5	1	**6**	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
8:45 AM	0	0	**0**	0	16	3	**19**	0	70	4	**74**	0	100	13	**113**	0	13	0	**13**	0	0	0	**0**	0	1	0	**1**	0	8	0	**8**	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
9:00 AM	0	0	**0**	0	14	3	**17**	0	61	10	**71**	0	114	2	**116**	0	7	1	**8**	0	0	0	**0**	0	2	0	**2**	0	7	0	**7**	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**138**	**17**	**155**	**1**	**571**	**41**	**612**	**0**	**805**	**50**	**855**	**1**	**94**	**1**	**95**	**0**	**0**	**0**	**0**	**0**	**41**	**1**	**42**	**0**	**55**	**2**	**57**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**7**	**0**	**7**	**0**	**1**	**1**
AM Peak	**0**	**0**	**0**	**0**	**71**	**7**	**78**	**1**	**334**	**16**	**350**	**0**	**432**	**20**	**452**	**1**	**60**	**0**	**60**	**0**	**0**	**0**	**0**	**0**	**26**	**0**	**26**	**0**	**29**	**1**	**30**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**6**	**0**	**6**	**0**	**1**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		C - E		E - C	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
2:15 PM	0	0	**0**	0	12	0	**12**	0	35	0	**35**	0	62	4	**66**	0	14	0	**14**	0	0	0	**0**	0	8	1	**9**	0	9	0	**9**	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
2:30 PM	0	0	**0**	0	12	2	**14**	0	49	3	**52**	0	66	3	**69**	0	12	0	**12**	0	0	0	**0**	0	10	0	**10**	0	8	0	**8**	0	0	0	1	0	3	0	0	0	3	0	0	0	0	0
2:45 PM	0	0	**0**	0	17	0	**17**	0	108	5	**113**	0	69	3	**72**	0	12	0	**12**	0	0	0	**0**	0	9	1	**10**	0	12	0	**12**	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
3:00 PM	0	0	**0**	0	7	4	**11**	0	118	2	**120**	0	66	5	**71**	0	13	1	**14**	0	0	0	**0**	0	12	0	**12**	0	7	0	**7**	0	0	0	0	0	1	0	0	0	2	0	0	0	1	0
3:15 PM	0	0	**0**	0	11	1	**12**	0	137	7	**144**	0	90	5	**95**	0	6	0	**6**	0	0	0	**0**	0	9	0	**9**	0	16	0	**16**	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
3:30 PM	0	0	**0**	0	14	3	**17**	0	130	5	**135**	0	89	3	**92**	0	7	0	**7**	0	0	0	**0**	0	7	0	**7**	0	16	0	**16**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	**0**	0	7	1	**8**	0	100	4	**104**	0	74	7	**81**	0	5	0	**5**	0	0	0	**0**	0	11	0	**11**	0	15	0	**15**	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0
4:00 PM	0	0	**0**	0	16	3	**19**	0	111	1	**112**	0	88	2	**90**	0	11	0	**11**	0	0	0	**0**	0	10	0	**10**	0	7	0	**7**	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	**0**	0	12	1	**13**	0	109	1	**110**	0	95	2	**97**	1	2	0	**2**	0	0	0	**0**	0	4	1	**5**	0	17	0	**17**	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
4:30 PM	0	0	**0**	0	10	3	**13**	0	133	3	**136**	0	93	1	**94**	0	6	0	**6**	0	0	0	**0**	0	9	0	**9**	0	11	0	**11**	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:45 PM	0	0	**0**	0	13	1	**14**	0	126	1	**127**	1	67	4	**71**	0	4	0	**4**	0	0	0	**0**	0	5	0	**5**	0	13	0	**13**	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0
5:00 PM	0	0	**0**	0	14	2	**16**	0	131	1	**132**	0	59	1	**60**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	12	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 hr Total	**0**	**0**	**0**	**0**	**145**	**21**	**166**	**0**	**1287**	**33**	**1320**	**1**	**918**	**40**	**958**	**1**	**92**	**1**	**93**	**0**	**0**	**0**	**0**	**0**	**97**	**3**	**100**	**0**	**143**	**0**	**143**	**2**	**0**	**0**	**2**	**0**	**5**	**0**	**2**	**0**	**7**	**0**	**6**	**3**	**5**	**3**	**3**	**0**
PM Peak	**0**	**0**	**0**	**0**	**48**	**8**	**56**	**0**	**478**	**17**	**495**	**0**	**341**	**17**	**358**	**0**	**29**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**37**	**0**	**37**	**0**	**54**	**0**	**54**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	**2**	**3**	**1**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 6 **Weather:** Fine
Location: Churchill Street/Warwick Road, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:45 AM*
PM Peak: *Hour ending - 3:30 PM*

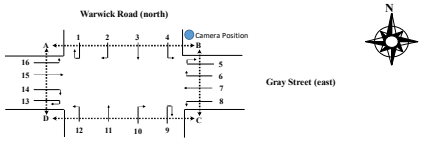


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																																	A - B		B - A		C - D		D - C		D - E		E - D		D - A		A - D		A - F		F - A	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
7:15 AM	0	0	**0**	0	0	0	**0**	0	10	1	**11**	1	0	0	**0**	0	19	1	**20**	0	84	9	**93**	0	49	9	**58**	0	1	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	**0**	0	2	0	**2**	0	12	0	**12**	0	0	0	**0**	0	18	2	**20**	0	87	7	**94**	0	66	3	**69**	0	1	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	**0**	0	1	0	**1**	0	11	0	**11**	0	0	0	**0**	0	26	0	**26**	0	112	7	**119**	0	86	4	**90**	0	4	0	**4**	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
8:00 AM	0	0	**0**	0	4	0	**4**	0	24	1	**25**	0	0	0	**0**	0	38	0	**38**	0	122	6	**128**	1	66	2	**68**	0	4	0	**4**	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0
8:15 AM	0	0	**0**	0	1	0	**1**	0	32	1	**33**	0	0	0	**0**	0	44	1	**45**	0	127	4	**131**	0	78	6	**84**	0	4	0	**4**	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
8:30 AM	0	0	**0**	0	4	0	**4**	0	29	1	**30**	0	0	0	**0**	0	42	0	**42**	0	121	3	**124**	0	85	4	**89**	0	5	0	**5**	0	0	0	0	0	0	0	1	0	3	0	3	0	1	0	3	0	1	0
8:45 AM	0	0	**0**	0	3	0	**3**	0	34	3	**37**	0	0	0	**0**	0	40	1	**41**	0	124	13	**137**	0	61	6	**67**	0	10	0	**10**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	**0**	0	2	0	**2**	0	32	1	**33**	0	0	0	**0**	0	42	0	**42**	0	105	3	**108**	0	55	8	**63**	0	6	1	**7**	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
2hr Total	**0**	**0**	**0**	**0**	**17**	**0**	**17**	**0**	**184**	**8**	**192**	**1**	**0**	**0**	**0**	**0**	**269**	**5**	**274**	**0**	**882**	**52**	**934**	**1**	**546**	**42**	**588**	**0**	**35**	**1**	**36**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**5**	**0**	**5**	**0**	**1**	**1**	**5**	**0**	**2**	**1**
AM Peak	**0**	**0**	**0**	**0**	**12**	**0**	**12**	**0**	**119**	**6**	**125**	**0**	**0**	**0**	**0**	**0**	**164**	**2**	**166**	**0**	**494**	**26**	**520**	**1**	**290**	**18**	**308**	**0**	**23**	**0**	**23**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**4**	**0**	**1**	**0**	**5**	**0**	**2**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements													
																																	A - B		B - A		C - D		D - C		D - E		E - D		D - A		A - D		A - F		F - A	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
2:15 PM	0	0	**0**	0	2	0	**2**	0	75	3	**78**	0	0	0	**0**	0	20	1	**21**	0	72	4	**76**	0	37	0	**37**	0	2	1	**3**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0
2:30 PM	0	0	**0**	0	1	0	**1**	0	50	0	**50**	0	0	0	**0**	0	25	0	**25**	0	76	3	**79**	0	58	3	**61**	0	3	0	**3**	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	37	0	**37**	0	0	0	**0**	0	37	0	**37**	0	81	4	**85**	0	109	6	**115**	0	5	0	**5**	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	4	0	0	0
3:00 PM	0	0	**0**	0	0	1	**1**	0	40	1	**41**	0	0	0	**0**	0	25	0	**25**	0	79	4	**83**	0	145	2	**147**	0	3	0	**3**	0	2	0	2	1	0	0	0	0	2	0	0	0	0	0	2	0	2	1	4	0
3:15 PM	0	0	**0**	0	2	0	**2**	0	45	0	**45**	0	0	0	**0**	0	51	0	**51**	0	96	5	**101**	0	144	10	**154**	0	2	0	**2**	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
3:30 PM	0	0	**0**	0	2	0	**2**	0	36	1	**37**	0	0	0	**0**	0	27	2	**29**	0	98	5	**103**	0	122	2	**124**	0	4	0	**4**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
3:45 PM	0	0	**0**	0	2	0	**2**	0	49	1	**50**	0	0	0	**0**	0	21	1	**22**	0	68	5	**73**	0	116	3	**119**	0	5	1	**6**	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
4:00 PM	0	0	**0**	0	3	0	**3**	0	47	2	**49**	0	0	0	**0**	0	30	0	**30**	0	98	2	**100**	0	111	1	**112**	0	3	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	**0**	0	1	0	**1**	0	43	0	**43**	0	0	0	**0**	0	27	0	**27**	0	98	2	**100**	0	124	1	**125**	0	3	1	**4**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	**0**	0	4	0	**4**	0	47	1	**48**	0	0	0	**0**	0	17	0	**17**	0	87	1	**88**	0	126	3	**129**	0	3	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	**0**	0	2	0	**2**	0	50	2	**52**	0	0	0	**0**	0	18	1	**19**	0	71	4	**75**	0	142	1	**143**	0	2	0	**2**	0	0	0	0	0	0	0	1	0	3	0	3	0	1	0	5	0	1	0
5:00 PM	0	0	**0**	0	3	0	**3**	0	35	0	**35**	0	0	0	**0**	0	22	0	**22**	0	59	1	**60**	0	123	1	**124**	0	3	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 hr Total	**0**	**0**	**0**	**0**	**22**	**1**	**23**	**0**	**554**	**11**	**565**	**0**	**0**	**0**	**0**	**0**	**320**	**5**	**325**	**0**	**983**	**40**	**1023**	**0**	**1357**	**33**	**1390**	**0**	**38**	**3**	**41**	**0**	**6**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**7**	**1**	**7**	**1**	**5**	**0**	**11**	**2**	**11**	**0**
PM Peak	**0**	**0**	**0**	**0**	**4**	**1**	**5**	**0**	**158**	**2**	**160**	**0**	**0**	**0**	**0**	**0**	**140**	**2**	**142**	**0**	**354**	**18**	**372**	**0**	**520**	**20**	**540**	**0**	**14**	**0**	**14**	**0**	**5**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**0**	**4**	**0**	**2**	**0**	**6**	**1**	**7**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 7 **Weather:** Fine
Location: Warwick Road/Chelmsford Avenue/Gray Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:30 PM*

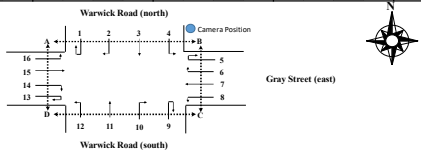


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
7:15 AM	0	0	0	0	9	0	9	0	48	9	57	1	1	1	2	0	0	0	0	0	8	0	8	0	29	0	29	0	10	1	11	0
7:30 AM	0	0	0	0	7	0	7	0	70	2	72	0	3	1	4	0	0	0	0	0	6	0	6	0	52	0	52	0	4	1	5	0
7:45 AM	0	0	0	0	8	0	8	0	80	4	84	0	6	0	6	0	0	0	0	0	7	0	7	0	62	0	62	0	3	0	3	0
8:00 AM	0	0	0	0	11	0	11	0	74	3	77	0	4	0	4	0	0	0	0	0	12	0	12	0	62	0	62	0	4	0	4	0
8:15 AM	0	0	0	0	12	0	12	0	86	7	93	0	8	0	8	0	0	0	0	0	15	0	15	0	38	3	41	0	3	0	3	0
8:30 AM	0	0	0	0	9	0	9	0	93	6	99	0	16	0	16	0	0	0	0	0	9	0	9	0	44	1	45	0	2	0	2	0
8:45 AM	0	0	0	0	8	0	8	0	76	8	84	0	10	0	10	0	0	0	0	0	16	1	17	0	40	1	41	0	5	0	5	0
9:00 AM	0	0	0	0	10	0	10	0	67	9	76	0	2	0	2	0	0	0	0	0	10	0	10	0	41	2	43	0	5	0	5	0
2 hr Total	0	0	0	0	74	0	74	0	594	48	642	1	50	2	52	0	0	0	0	0	83	1	84	0	368	7	375	0	36	2	38	0
AM Peak	0	0	0	0	40	0	40	0	333	20	353	0	34	0	34	0	0	0	0	0	43	0	43	0	206	4	210	0	12	0	12	0

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
2:15 PM	0	0	0	0	11	0	11	0	95	3	98	0	12	0	12	0	0	0	0	0	5	0	5	0	41	1	42	0	17	0	17	0
2:30 PM	0	0	0	0	12	0	12	0	87	3	90	0	10	0	10	0	0	0	0	0	8	0	8	0	34	0	34	0	17	0	17	0
2:45 PM	0	0	0	0	9	0	9	0	130	6	136	0	14	0	14	1	0	0	0	0	8	0	8	0	29	0	29	0	10	0	10	0
3:00 PM	0	0	0	0	7	0	7	0	146	3	149	0	15	0	15	0	0	0	0	0	10	0	10	0	26	2	28	0	17	0	17	0
3:15 PM	0	0	0	0	5	0	5	0	179	10	189	0	8	0	8	0	0	0	0	0	18	0	18	0	34	0	34	0	13	0	13	0
3:30 PM	0	0	0	0	10	0	10	0	123	3	126	0	17	0	17	0	0	0	0	0	7	0	7	0	22	0	22	0	12	0	12	0
3:45 PM	0	0	0	0	9	0	9	0	139	4	143	0	18	0	18	0	0	0	0	0	6	0	6	0	21	0	21	0	10	0	10	0
4:00 PM	0	0	0	0	2	0	2	0	144	3	147	0	10	0	10	0	0	0	0	0	6	0	6	0	23	0	23	0	9	0	9	1
4:15 PM	0	0	0	0	5	0	5	0	153	1	154	0	13	0	13	0	0	0	0	0	12	0	12	0	30	0	30	0	8	0	8	0
4:30 PM	0	0	0	0	6	0	6	0	153	4	157	0	13	0	13	0	0	0	0	0	8	0	8	0	25	0	25	0	8	0	8	0
4:45 PM	0	0	0	0	4	0	4	0	168	3	171	0	15	0	15	0	0	0	0	0	9	0	9	0	26	0	26	0	6	0	6	0
5:00 PM	0	0	0	0	11	0	11	0	144	1	145	0	13	0	13	0	0	0	0	0	3	0	3	0	24	0	24	0	2	0	2	0
3 hr Total	0	0	0	0	91	0	91	0	1661	44	1705	0	158	0	158	1	0	0	0	0	100	0	100	0	335	3	338	0	129	0	129	1
PM Peak	0	0	0	0	31	0	31	0	578	22	600	0	54	0	54	1	0	0	0	0	43	0	43	0	111	2	113	0	52	0	52	0

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 7 **Weather:** Fine
Location: Warwick Road/Chelmsford Avenue/Gray Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:30 PM*

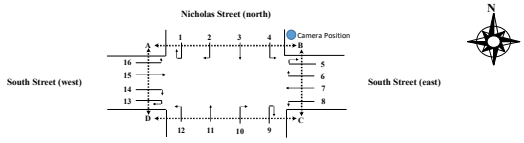


TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
7:15 AM	1	0	1	0	9	0	9	0	84	7	91	0	21	0	21	0	0	0	0	0	6	1	7	0	22	1	23	0	5	2	7	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0
7:30 AM	0	0	0	0	6	0	6	0	104	8	112	0	30	0	30	0	0	0	0	0	5	1	6	0	12	0	12	0	8	1	9	0	0	1	2	0	0	0	1	0	0	0	1	0	0	0
7:45 AM	0	0	0	0	7	1	8	0	132	5	137	0	39	0	39	0	0	0	0	0	6	0	6	0	21	0	21	0	3	1	4	0	0	0	1	0	0	0	1	0	0	0	3	0	0	1
8:00 AM	0	0	0	0	6	0	6	0	138	5	143	1	24	1	25	0	0	0	0	0	4	1	5	0	10	0	10	0	6	1	7	0	0	0	5	1	0	0	3	0	2	0	0	0	2	0
8:15 AM	0	0	0	0	8	0	8	0	143	3	146	0	21	0	21	0	0	0	0	0	4	1	5	0	13	2	15	0	8	2	10	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	8	0	8	0	150	2	152	0	18	0	18	0	0	0	0	0	7	2	9	0	20	1	21	0	6	1	7	0	1	0	2	0	0	0	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	7	0	7	0	143	12	155	0	15	0	15	0	0	0	0	0	6	1	7	0	20	1	21	0	8	1	9	0	1	0	2	0	0	0	3	0	0	0	1	0	0	0
9:00 AM	0	0	0	0	6	2	8	0	125	3	128	0	15	0	15	0	0	0	0	0	4	2	6	0	26	0	26	0	4	1	5	0	1	0	0	0	0	0	0	0	1	0	3	0	0	1
2 hr Total	1	0	1	0	57	3	60	0	1010	45	1054	1	183	1	184	0	0	0	0	0	42	9	51	0	144	5	149	0	48	10	58	0	4	2	17	1	1	0	9	0	5	0	15	0	1	3
AM Peak	0	0	0	0	29	1	30	0	563	15	578	1	102	1	103	0	0	0	0	0	21	4	25	0	64	3	67	0	23	5	28	0	1	1	12	1	1	0	5	0	4	0	14	0	1	2

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
2:15 PM	0	0	0	0	11	0	11	0	69	3	72	0	20	0	20	0	0	0	0	0	14	1	15	0	36	1	37	0	20	2	22	0	7	0	1	0	1	0	1	0	1	0	0	1	1	1
2:30 PM	0	0	0	0	13	1	14	0	78	2	80	0	26	0	26	0	0	0	0	0	14	3	17	0	20	0	20	0	17	1	18	0	9	0	3	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	15	0	15	0	95	3	98	0	29	0	29	0	0	0	0	0	11	0	11	0	34	1	35	0	16	1	17	0	2	0	0	0	1	0	0	0	0	0	3	0	0	0
3:00 PM	0	0	0	0	9	0	9	0	87	4	91	0	13	0	13	0	0	0	0	0	13	3	16	0	42	1	43	0	11	0	11	0	4	0	0	0	2	0	1	1	0	0	0	0	2	0
3:15 PM	0	0	0	0	7	0	7	0	121	3	124	0	16	0	16	0	0	0	0	0	18	1	19	0	40	1	41	0	15	2	17	0	3	0	0	0	2	0	0	0	2	0	2	0	1	0
3:30 PM	1	0	1	0	7	0	7	0	94	7	101	0	9	0	9	0	0	0	0	0	23	1	24	0	34	2	36	0	13	0	13	0	2	0	0	0	1	0	0	0	1	0	0	0	1	0
3:45 PM	0	0	0	0	9	0	9	0	74	3	77	0	7	0	7	0	0	0	0	0	17	2	19	0	44	0	44	0	10	3	13	0	4	0	0	0	1	0	2	0	0	0	2	0	1	0
4:00 PM	0	0	0	0	4	0	4	0	104	2	106	0	10	0	10	0	0	0	0	0	11	2	13	0	32	1	33	0	17	0	17	0	5	0	0	0	1	0	2	0	0	0	2	0	0	0
4:15 PM	0	0	0	0	7	0	7	0	106	0	106	0	11	0	11	0	0	0	0	0	18	1	19	0	44	1	45	0	8	2	10	0	4	0	0	0	2	0	0	0	0	0	1	0	0	0
4:30 PM	0	0	0	0	7	0	7	0	85	2	87	0	10	0	10	0	0	0	0	0	19	2	21	0	50	2	52	0	9	0	9	0	3	0	1	0	0	0	0	0	1	0	1	0	2	0
4:45 PM	0	0	0	0	8	0	8	0	69	2	71	0	9	0	9	0	0	0	0	0	17	2	19	0	60	0	60	0	8	2	10	0	3	1	0	0	1	0	1	0	1	0	3	0	2	0
5:00 PM	0	0	0	0	5	0	5	0	77	0	77	0	8	0	8	0	0	0	0	0	19	2	21	0	41	1	42	0	3	1	4	0	2	0	2	0	0	0	0	0	0	0	0	0	1	1
3 hr Total	1	0	1	0	102	1	103	0	1099	31	1090	0	168	0	168	0	0	0	0	0	194	20	214	0	477	11	488	0	147	14	161	0	48	1	7	2	14	0	3	1	6	0	12	0	12	3	17	2
PM Peak	1	0	1	0	38	0	38	0	397	17	414	0	67	0	67	0	0	0	0	0	65	5	70	0	150	5	155	0	55	3	58	0	11	0	0	0	6	0	1	1	3	0	5	0	5	1	4	0

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 8 **Weather:** Fine
Location: Nicholas Street/South Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 3:00 PM*

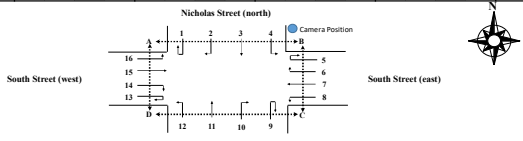


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
7:15 AM	0	0	0	0	1	0	1	0	7	0	7	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	3	0	3	0	5	1	6	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	1	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	4	0	4	0	6	0	6	0	10	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	3	0	3	0	4	0	4	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	1	0	7	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	6	0	6	0	10	0	10	0	19	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	3	0	3	0	12	1	13	0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**22**	**0**	**22**	**0**	**55**	**2**	**57**	**0**	**66**	**1**	**67**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AM Peak	**0**	**0**	**0**	**0**	**13**	**0**	**13**	**0**	**33**	**1**	**34**	**0**	**46**	**0**	**46**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
2:15 PM	0	0	0	0	1	0	1	0	19	1	20	0	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	2	0	2	0	23	2	25	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
2:45 PM	0	0	0	0	0	0	0	0	5	0	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	2	0	2	0	2	0	2	0	8	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	3	0	3	0	5	0	5	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	4	0	4	0	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	1	0	1	0	2	0	2	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0
4:00 PM	0	0	0	0	1	0	1	0	3	0	3	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	5	0	5	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	1	0	4	0	4	0	7	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	2	0	2	0	5	0	5	0	5	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	1	0	3	0	3	1	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 hr Total	**0**	**0**	**0**	**0**	**14**	**0**	**14**	**0**	**80**	**3**	**83**	**1**	**53**	**5**	**58**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**
PM Peak	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**49**	**3**	**52**	**0**	**28**	**1**	**29**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 8 **Weather:** Fine
Location: Nicholas Street/South Street, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 3:00 PM*

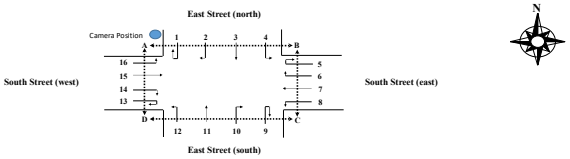


TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																															A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
7:15 AM	0	0	0	0	6	1	7	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	0	7	0	7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0		
7:45 AM	0	0	0	0	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0		
8:00 AM	0	0	0	0	12	0	12	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	0	3	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	3	0		
8:15 AM	1	0	1	0	3	1	4	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	0	8	0	8	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0		
8:30 AM	0	0	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	7	0	7	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0		
8:45 AM	0	0	0	0	6	1	7	0	0	0	0	0	3	0	3	0	0	0	0	0	5	0	5	0	11	0	11	0	0	0	0	0	4	0	4	0	1	0	2	0	1	0	4	0	2	0
9:00 AM	0	0	0	0	8	0	8	0	0	0	0	0	13	0	13	0	0	0	0	0	19	0	19	0	21	0	21	0	0	0	0	0	0	0	6	0	1	0	0	0	8	0	0	0	1	0
2 hr Total	**1**	**0**	**1**	**0**	**51**	**4**	**55**	**0**	**0**	**0**	**0**	**0**	**22**	**1**	**23**	**0**	**0**	**0**	**0**	**0**	**32**	**0**	**32**	**0**	**64**	**0**	**64**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**12**	**0**	**1**	**0**	**2**	**0**	**13**	**0**	**3**	**0**	**15**	**1**	**5**	**0**
AM Peak	**1**	**0**	**1**	**0**	**25**	**2**	**27**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**27**	**0**	**47**	**0**	**47**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**11**	**0**	**1**	**0**	**0**	**0**	**12**	**0**	**1**	**0**	**7**	**0**	**4**	**0**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																															A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
2:15 PM	0	0	0	0	8	0	8	0	0	0	0	0	5	1	6	0	0	0	0	0	3	0	3	0	6	0	6	0	0	0	0	0	2	0	0	0	3	0	4	0	0	0	1	0		
2:30 PM	0	0	0	0	5	0	5	0	0	0	0	0	6	0	6	0	0	0	0	0	2	0	2	0	5	0	5	0	0	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0	1	0
2:45 PM	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	4	0	0	0	0	0	2	0	0	0	2	0
3:00 PM	0	0	0	0	5	0	5	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	7	0	7	0	0	0	0	0	3	0	0	0	2	0	0	0	1	0	1	0		
3:15 PM	0	0	0	0	2	0	2	0	0	0	0	2	3	0	3	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0		
3:30 PM	0	0	0	0	7	0	7	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0		
3:45 PM	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	2	0	2	0	1	0		
4:00 PM	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	1	0		
4:15 PM	0	0	0	0	7	0	7	0	0	0	0	0	3	0	3	0	1	0	1	0	2	0	2	0	10	0	10	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0		
4:30 PM	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	10	0	10	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0		
4:45 PM	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	8	0	8	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	0	0		
5:00 PM	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	3	0	3	1	0	0	0	0	3	0	0	0	3	0	0	0	0	0	1	0		
3 hr Total	**0**	**0**	**0**	**0**	**56**	**0**	**56**	**0**	**0**	**0**	**0**	**2**	**36**	**1**	**37**	**0**	**2**	**0**	**2**	**0**	**15**	**0**	**15**	**0**	**67**	**0**	**67**	**1**	**0**	**0**	**0**	**0**	**15**	**0**	**6**	**0**	**41**	**0**	**8**	**0**	**8**	**0**	**2**	**0**	**7**	**0**	**14**	**0**
PM Peak	**0**	**0**	**0**	**0**	**20**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**15**	**1**	**16**	**0**	**1**	**0**	**1**	**0**	**6**	**0**	**6**	**0**	**22**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**4**	**0**	**7**	**0**	**6**	**0**	**2**	**0**	**2**	**0**	**2**	**0**	**5**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 9 **Weather:** Fine
Location: East Street/South Street, Ipsiwch
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 4:45 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
7:15 AM	0	0	0	0	0	0	0	0	80	12	92	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	94	4	98	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	116	3	119	0	12	0	12	0	0	0	0	0	4	2	6	0	0	0	0	0	6	0	6	0
8:00 AM	0	0	0	0	0	0	0	0	106	3	109	0	15	0	15	0	0	0	0	0	3	0	3	0	0	0	0	0	11	0	11	0
8:15 AM	0	0	0	0	0	0	0	0	105	8	113	0	13	0	13	0	1	0	1	0	4	0	4	0	0	0	0	0	6	0	6	0
8:30 AM	0	0	0	0	0	0	0	0	90	7	97	0	14	0	14	0	0	0	0	0	5	0	5	0	0	0	0	0	10	0	10	0
8:45 AM	0	0	0	0	0	0	0	0	83	9	92	0	12	0	12	0	0	0	0	0	8	0	8	0	0	0	0	0	8	0	8	0
9:00 AM	0	0	0	0	0	0	0	0	74	11	85	0	10	0	10	0	0	0	0	0	3	1	4	0	0	0	0	0	15	0	15	0
2 hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**748**	**67**	**805**	**0**	**83**	**0**	**83**	**0**	**1**	**0**	**1**	**0**	**31**	**3**	**34**	**0**	**0**	**0**	**0**	**0**	**60**	**0**	**60**	**0**
AM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**352**	**35**	**387**	**0**	**49**	**0**	**49**	**0**	**1**	**0**	**1**	**0**	**20**	**1**	**21**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**39**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
2:15 PM	0	0	0	0	0	0	0	0	3	0	3	0	2	0	2	0	1	0	1	0	3	0	3	0	0	0	0	0	16	0	16	0
2:30 PM	0	0	0	0	0	0	0	0	22	3	25	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	14	2	16	0
2:45 PM	0	1	1	0	0	0	0	0	109	6	115	0	8	0	8	0	0	0	0	0	4	0	4	0	0	0	0	0	10	0	10	0
3:00 PM	0	0	0	0	0	0	0	0	102	5	107	0	14	0	14	0	0	0	0	0	4	0	4	0	0	0	0	0	9	0	9	0
3:15 PM	0	0	0	0	0	0	0	0	118	7	125	0	10	0	10	0	0	0	0	0	7	0	7	0	0	0	0	0	15	0	15	0
3:30 PM	0	0	0	0	0	0	0	0	108	5	113	0	20	0	20	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	0
3:45 PM	0	0	0	0	0	0	0	0	96	5	101	0	11	0	11	0	0	0	0	0	4	0	4	0	0	0	0	0	7	0	7	0
4:00 PM	0	0	0	0	0	0	0	0	116	3	119	0	12	0	12	0	0	0	0	0	5	0	5	0	0	0	0	0	7	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	98	2	100	0	15	0	15	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	4	0
4:30 PM	0	0	0	0	0	0	0	0	120	5	125	0	12	0	12	0	0	0	0	0	11	0	11	0	0	0	0	0	5	0	5	0
4:45 PM	0	0	0	0	0	0	0	0	113	2	115	0	8	0	8	0	0	0	0	0	4	0	4	0	0	0	0	0	9	0	9	0
5:00 PM	0	0	0	0	0	0	0	0	117	2	119	0	15	0	15	0	0	0	0	0	8	0	8	0	0	0	0	0	11	0	11	0
3 hr Total	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1122**	**45**	**1167**	**0**	**130**	**0**	**130**	**0**	**1**	**0**	**1**	**0**	**55**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**112**	**2**	**114**	**0**
PM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**447**	**12**	**459**	**0**	**47**	**0**	**47**	**0**	**0**	**0**	**0**	**0**	**23**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**25**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

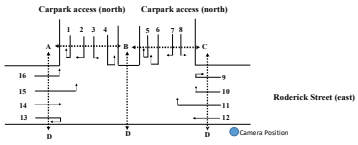
Site No.: 9 **Weather:** Fine
Location: East Street/South Street, Ipsiwch
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 9:00 AM*
PM Peak: *Hour ending - 4:45 PM*

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
7:15 AM	0	0	0	0	0	0	0	0	62	9	71	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	7	0	2	0	2	0	0	0	0	0	0	0	2	0	0	0	1	0	3	1
7:30 AM	0	0	0	0	2	0	2	0	68	9	77	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1
7:45 AM	0	0	0	0	6	0	6	0	85	5	90	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	3	0	2	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0
8:00 AM	0	0	0	0	5	0	5	0	80	4	84	0	0	0	0	0	0	0	0	0	1	1	2	0	5	0	5	0	1	0	1	0	0	0	4	0	1	0	3	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	7	0	7	0	93	6	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	6	0	6	0	0	0	1	0	0	0	0	0	0	0	1	0	3	1
8:30 AM	0	0	0	0	5	0	5	0	107	4	111	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	6	0	6	0	0	0	1	0	1	0	2	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	6	0	6	0	106	11	117	0	0	0	0	0	0	0	0	0	1	0	1	0	6	0	6	0	9	0	9	0	0	0	3	0	1	0	3	0	2	0	0	0	5	0
9:00 AM	0	0	0	0	10	0	10	0	110	2	112	0	0	0	0	0	0	0	0	0	5	0	5	0	9	1	10	0	12	0	12	0	1	0	2	0	1	0	0	0	0	0	1	0	0	0
2 hr Total	**0**	**0**	**0**	**0**	**41**	**0**	**41**	**0**	**711**	**50**	**761**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**1**	**15**	**0**	**30**	**4**	**34**	**0**	**40**	**0**	**40**	**0**	**1**	**0**	**11**	**0**	**4**	**0**	**11**	**0**	**2**	**0**	**2**	**0**	**11**	**4**
AM Peak	**0**	**0**	**0**	**0**	**28**	**0**	**28**	**0**	**416**	**23**	**439**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**0**	**17**	**2**	**19**	**0**	**33**	**0**	**33**	**0**	**1**	**0**	**7**	**0**	**3**	**0**	**5**	**0**	**2**	**0**	**1**	**0**	**8**	**0**	**4**	**2**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements															
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists	Pedestrians	Cyclists
2:15 PM	2	0	2	0	40	3	43	0	20	0	20	0	0	0	0	0	0	0	0	0	3	0	3	0	16	0	16	0	0	0	0	0	1	0	2	0	0	0	7	0	1	0	2	0	0	1
2:30 PM	2	0	2	0	19	0	19	0	29	2	31	0	0	0	0	0	0	0	0	0	9	0	9	0	6	0	6	0	4	0	4	0	4	0	1	0	0	0	5	0	0	0	1	0	2	0
2:45 PM	0	0	0	0	8	0	8	0	75	4	79	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2	0	3	0	3	0	0	0	1	0	0	0	4	0	0	0	0	0	4	0
3:00 PM	0	0	0	0	0	1	1	0	81	4	85	0	0	0	0	0	0	0	0	0	3	1	4	0	5	0	5	0	7	0	7	0	0	0	0	0	0	0	4	0	0	0	1	0	3	0
3:15 PM	2	0	2	0	7	0	7	0	103	5	108	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	7	0	7	0	3	0	0	0	0	0	8	0	3	0	0	0	7	1
3:30 PM	0	0	0	0	4	0	4	0	117	3	120	0	0	0	0	0	0	0	0	0	1	1	2	1	7	0	7	0	3	0	3	0	0	0	0	0	0	0	2	0	4	0	0	0	2	0
3:45 PM	1	0	1	0	3	0	3	0	95	6	101	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	7	0	7	0	0	0	0	0	2	0	3	0	0	0	2	0	0	1
4:00 PM	0	0	0	0	5	0	5	0	97	3	100	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	8	0	8	0	1	0	0	0	4	0	3	0	0	0	3	0	4	0
4:15 PM	0	0	0	0	6	0	6	0	124	3	127	0	0	0	0	0	0	0	0	0	5	0	5	0	5	0	5	0	15	0	15	0	1	0	0	0	1	0	1	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	6	0	6	1	107	1	108	0	0	0	0	0	0	0	0	0	3	1	4	0	11	0	11	0	7	0	7	0	1	0	0	0	0	0	5	0	0	0	0	0	4	0
4:45 PM	0	0	0	0	5	0	5	0	99	6	105	1	0	0	0	0	0	0	0	0	3	0	3	0	4	0	4	0	9	0	9	0	0	0	0	0	3	0	0	0	0	0	1	0	1	0
5:00 PM	0	0	0	0	5	0	5	0	84	0	84	0	0	0	0	0	0	0	0	0	0	1	1	0	6	0	6	0	5	0	5	0	1	1	0	0	3	0	4	0	0	0	1	0	1	1
3 hr Total	**7**	**0**	**7**	**0**	**108**	**4**	**112**	**1**	**1031**	**37**	**1068**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**5**	**34**	**1**	**74**	**0**	**74**	**0**	**75**	**0**	**75**	**0**	**12**	**1**	**2**	**0**	**42**	**0**	**43**	**0**	**4**	**2**	**7**	**0**	**30**	**2**	**19**	**2**
PM Peak	**0**	**0**	**0**	**0**	**22**	**0**	**22**	**1**	**427**	**13**	**440**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**2**	**13**	**0**	**21**	**0**	**21**	**0**	**39**	**0**	**39**	**0**	**3**	**0**	**0**	**0**	**8**	**0**	**9**	**0**	**0**	**0**	**3**	**0**	**11**	**0**	**6**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 10 **Weather:** Fine
Location: Roderick Street/Two Carpark accesses, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:15 PM*

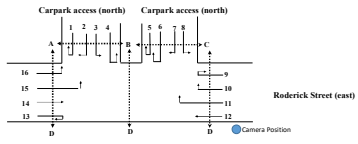


TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*
7:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
7:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0
7:45 AM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	2	0	**2**	0
8:00 AM	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	1	0	**1**	0
8:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	3	0	**3**	0
8:30 AM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0
8:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0
9:00 AM	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	1	0	**1**	0
2 hr Total	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**3**	**0**	**3**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**	**7**	**0**	**7**	**0**	**8**	**0**	**8**	**0**
AM Peak	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	**0**	**6**	**0**	**6**	**0**	**7**	**0**	**7**	**0**

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*
2:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0
2:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	1	0	**1**	0
3:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0
3:15 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	3	0	**3**	0
3:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	3	0	**3**	0
4:00 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	1	0	**1**	0
4:15 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	9	0	**9**	0
4:30 PM	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	7	0	**7**	0
4:45 PM	0	0	**0**	0	1	0	**1**	0	8	0	**8**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	8	0	**8**	0
5:00 PM	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0
3 hr Total	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**15**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**0**	**26**	**0**	**35**	**0**	**35**	**0**
PM Peak	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**0**	**6**	**0**	**6**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 10 **Weather:** Fine
Location: Roderick Street/Two Carpark accesses, Ipswich
Day/Date: Tuesday, 21 June 2022
AM Peak: *Hour ending - 8:30 AM*
PM Peak: *Hour ending - 3:15 PM*



TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements																	
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D		B - D		D - B	
	Light Vehicles	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
7:15 AM	0	0	**0**	0	3	0	**3**	0	3	0	**3**	0	29	3	**32**	0	0	0	**0**	0	19	2	**21**	0	7	0	**7**	0	1	0	**1**	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
7:30 AM	1	0	**1**	0	8	0	**8**	0	7	0	**7**	0	30	0	**30**	0	0	0	**0**	0	11	2	**13**	1	4	0	**4**	0	2	0	**2**	0	0	0	1	0	1	0	4	0	1	0	0	0	1	0	4	0	0	0
7:45 AM	0	0	**0**	0	2	0	**2**	0	9	0	**9**	0	45	2	**47**	0	0	0	**0**	0	28	0	**28**	1	3	0	**3**	0	8	0	**8**	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	6	0	1	0
8:00 AM	0	0	**0**	0	1	0	**1**	0	6	0	**6**	0	69	0	**69**	1	1	0	**1**	0	35	0	**35**	0	6	0	**6**	0	2	0	**2**	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	0
8:15 AM	0	0	**0**	0	1	0	**1**	0	2	0	**2**	0	53	1	**54**	0	0	0	**0**	0	38	0	**38**	0	1	0	**1**	0	1	0	**1**	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
8:30 AM	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	57	0	**57**	0	0	0	**0**	0	43	0	**43**	0	2	0	**2**	0	0	0	**0**	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
8:45 AM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	42	4	**46**	0	0	0	**0**	0	46	1	**47**	0	1	0	**1**	0	1	0	**1**	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0
9:00 AM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	52	0	**52**	0	2	0	**2**	0	35	1	**36**	0	4	0	**4**	0	1	0	**1**	0	0	0	6	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0
2 hr Total	**2**	**0**	**2**	**0**	**17**	**0**	**17**	**0**	**28**	**0**	**28**	**0**	**377**	**10**	**387**	**1**	**3**	**0**	**3**	**0**	**255**	**6**	**261**	**2**	**28**	**0**	**28**	**0**	**15**	**0**	**15**	**0**	**2**	**0**	**9**	**0**	**4**	**0**	**7**	**0**	**6**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**14**	**0**	**5**	**0**
AM Peak	**1**	**0**	**1**	**0**	**3**	**0**	**3**	**0**	**18**	**0**	**18**	**0**	**224**	**3**	**227**	**1**	**1**	**0**	**1**	**0**	**144**	**0**	**144**	**1**	**12**	**0**	**12**	**0**	**11**	**0**	**11**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**8**	**0**	**3**	**0**

TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements																	
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D		B - D		D - B	
	Light Vehicles	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	**Total**	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
2:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	68	4	**72**	0	0	0	**0**	0	48	0	**48**	0	3	0	**3**	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:30 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	64	1	**65**	0	0	0	**0**	0	60	1	**61**	0	1	0	**1**	0	1	0	**1**	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	30	0	**30**	0	0	0	**0**	0	37	0	**37**	0	0	0	**0**	0	1	0	**1**	0	0	0	0	0	3	0	1	0	4	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	32	0	**32**	0	0	0	**0**	0	57	0	**57**	0	3	0	**3**	0	0	0	**0**	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
3:15 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	47	1	**48**	0	0	0	**0**	0	69	3	**72**	0	1	0	**1**	0	0	0	**0**	0	1	1	2	0	3	0	2	0	1	0	0	0	1	0	0	0	1	0
3:30 PM	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	32	0	**32**	0	0	0	**0**	0	58	0	**58**	0	1	0	**1**	0	0	0	**0**	0	0	0	0	0	1	1	0	0	2	0	0	0	1	0	0	0	0	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	28	2	**30**	0	0	0	**0**	0	32	0	**32**	0	1	0	**1**	0	0	0	**0**	0	1	0	2	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
4:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	32	0	**32**	1	0	0	**0**	0	40	0	**40**	0	0	0	**0**	0	0	0	**0**	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0
4:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	32	0	**32**	0	0	0	**0**	0	65	0	**65**	0	1	0	**1**	0	0	0	**0**	0	0	0	1	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	40	0	**40**	0	0	0	**0**	0	45	0	**45**	0	1	0	**1**	0	0	0	**0**	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0
4:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	34	0	**34**	0	0	0	**0**	0	53	0	**53**	0	1	0	**1**	0	0	0	**0**	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	33	0	**33**	0	0	0	**0**	0	49	1	**49**	1	0	0	**0**	0	0	0	**0**	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
3 hr Total	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**472**	**8**	**480**	**2**	**0**	**0**	**0**	**0**	**613**	**4**	**617**	**1**	**13**	**0**	**13**	**0**	**1**	**0**	**1**	**0**	**3**	**2**	**9**	**2**	**9**	**2**	**14**	**1**	**2**	**0**	**10**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**9**	**1**
PM Peak	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**173**	**2**	**175**	**0**	**0**	**0**	**0**	**0**	**223**	**4**	**227**	**0**	**5**	**0**	**5**	**0**	**1**	**0**	**1**	**0**	**1**	**2**	**7**	**0**	**7**	**1**	**8**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

Appendix C: Turn Warrant Assessment

Roderick Street Site Access

AM Peak

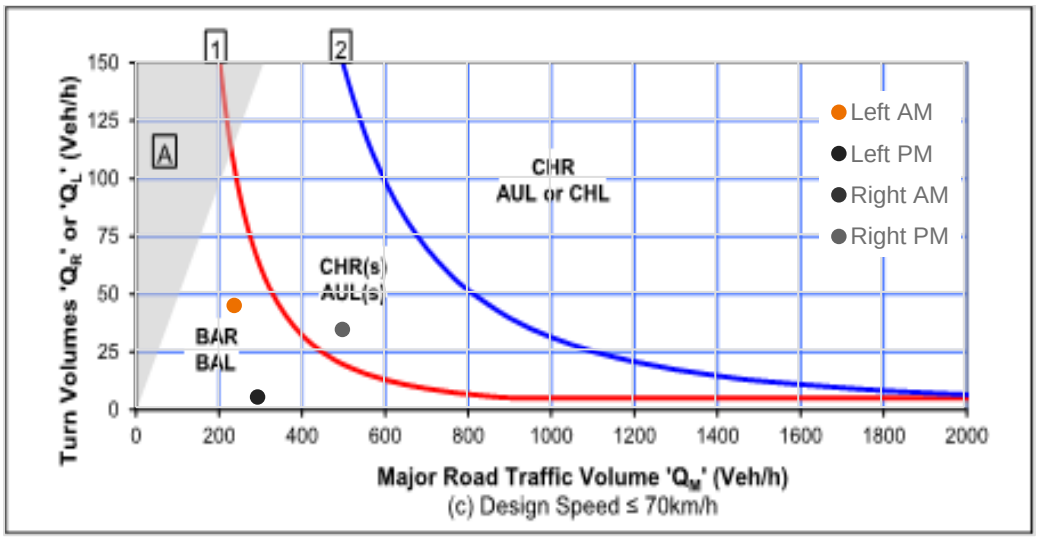
44	↱		
238	→	5 ↵	37 ↳
Roderick St		↰	332
		←	307

	QL/QR	QM
Left	44	238
Right	332	589

PM Peak

5	↱		
294	→	41 ↵	304 ↳
Roderick St		↰	34
		←	200

	QL/QR	QM
Left	5	294
Right	34	499



Nicholas Street Site Access

AM Peak

Nicholas St

		88 ↓	21 ↳
↑ 73	↱ 42	↰	2
		↲	5

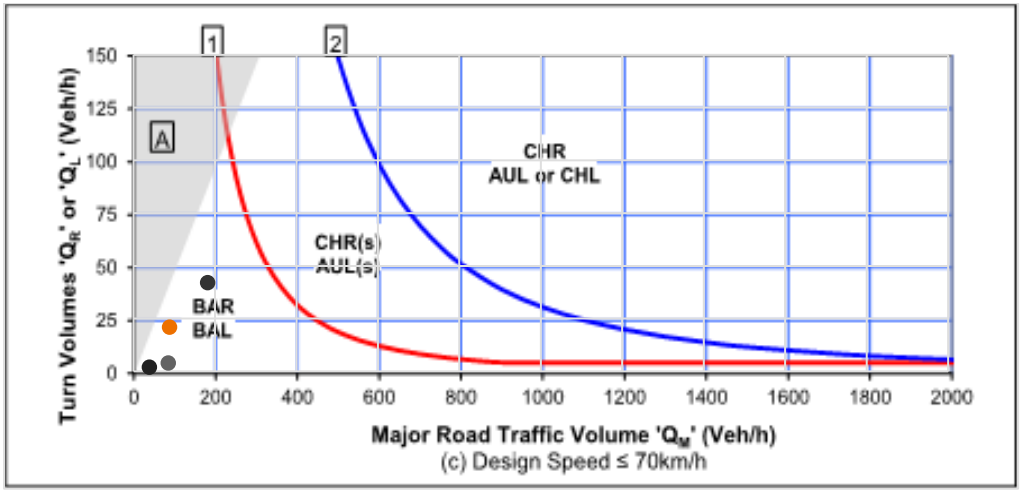
	QL/QR	QM
Left	21	88
Right	42	182

PM Peak

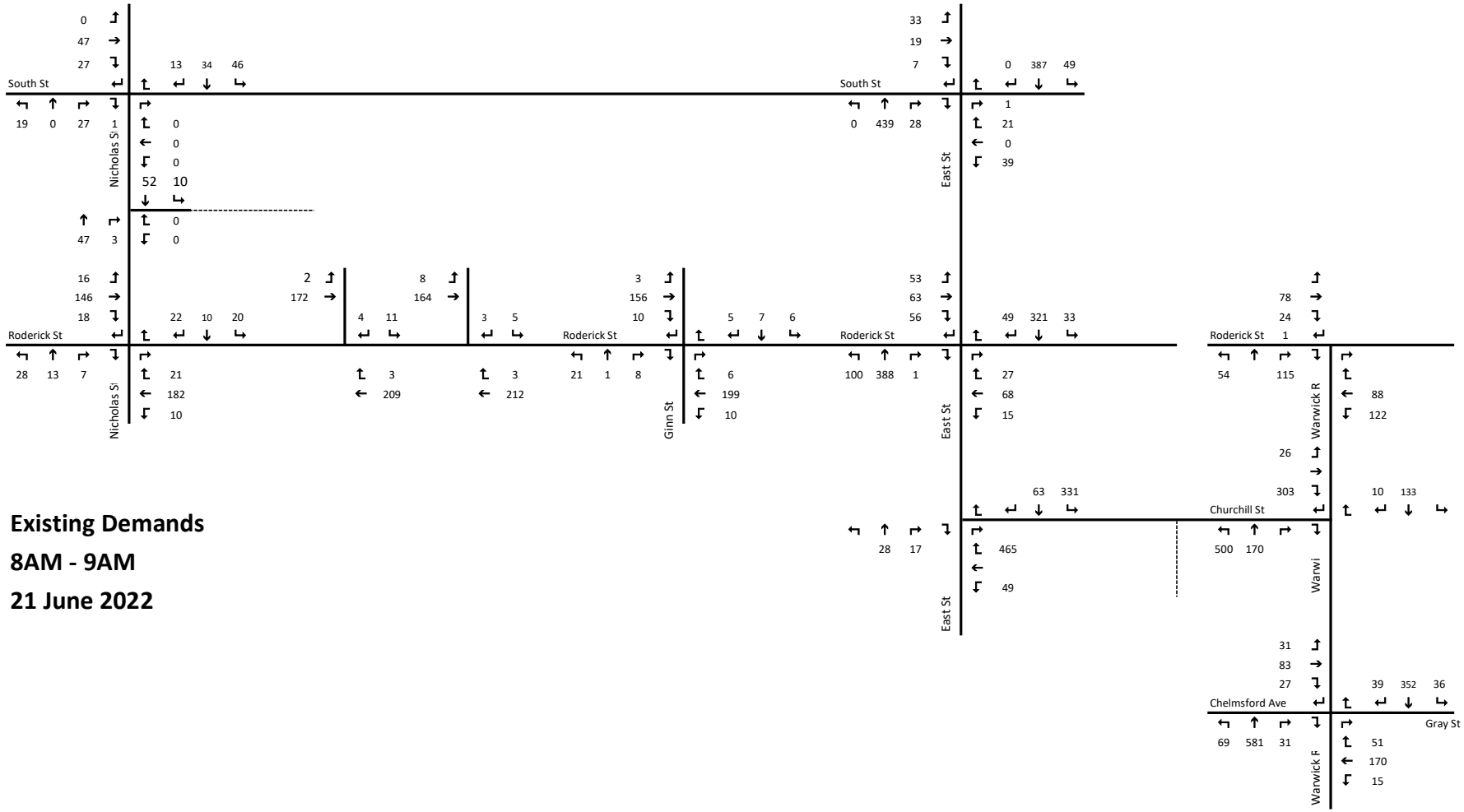
Nicholas St

		39 ↓	2 ↳
↑ 44	↱ 4	↰	19
		↲	39

	QL/QR	QM
Left	2	39
Right	4	85



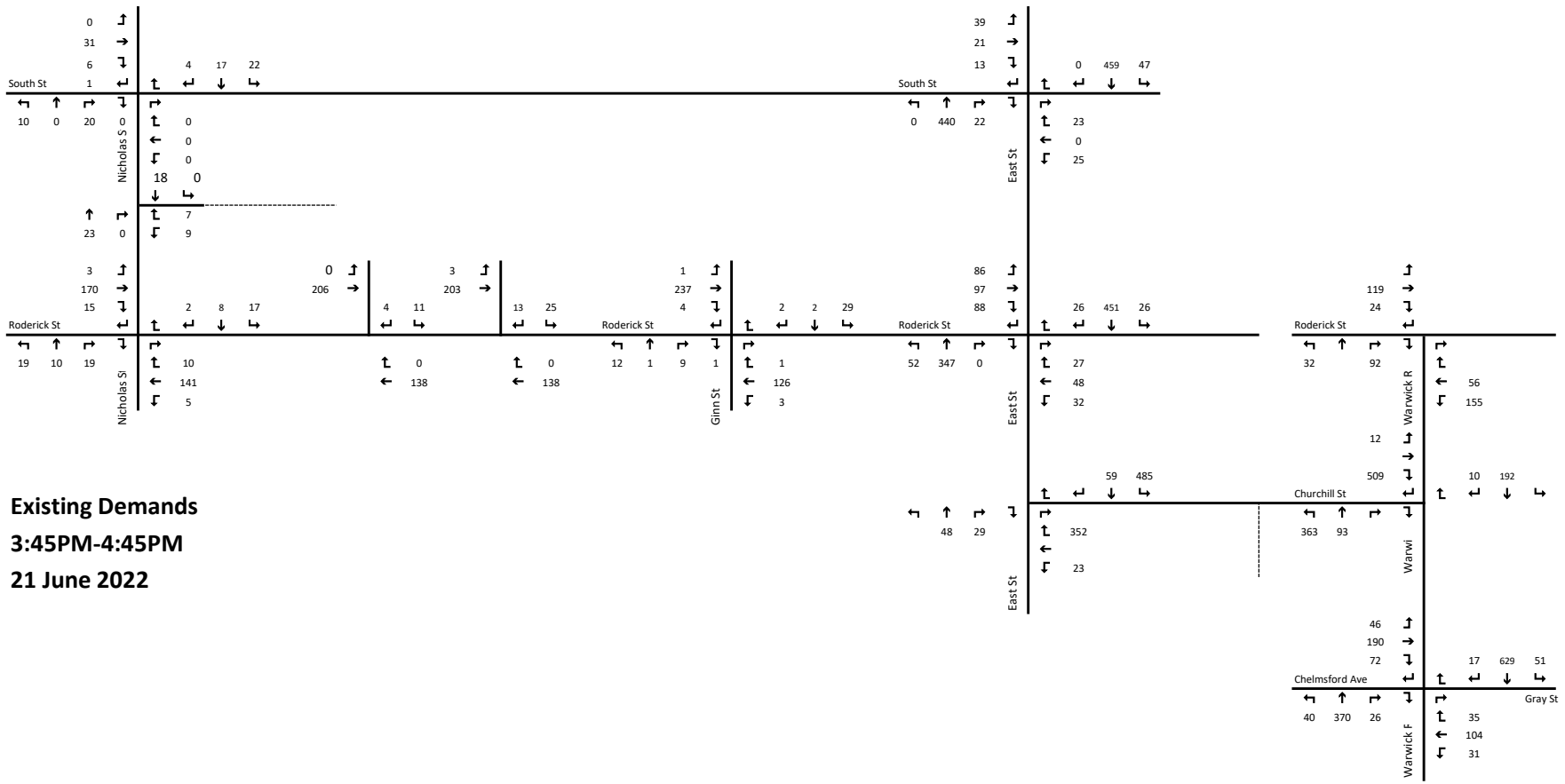
Appendix D: Traffic Turn Movement Diagrams



Existing Demands

8AM - 9AM

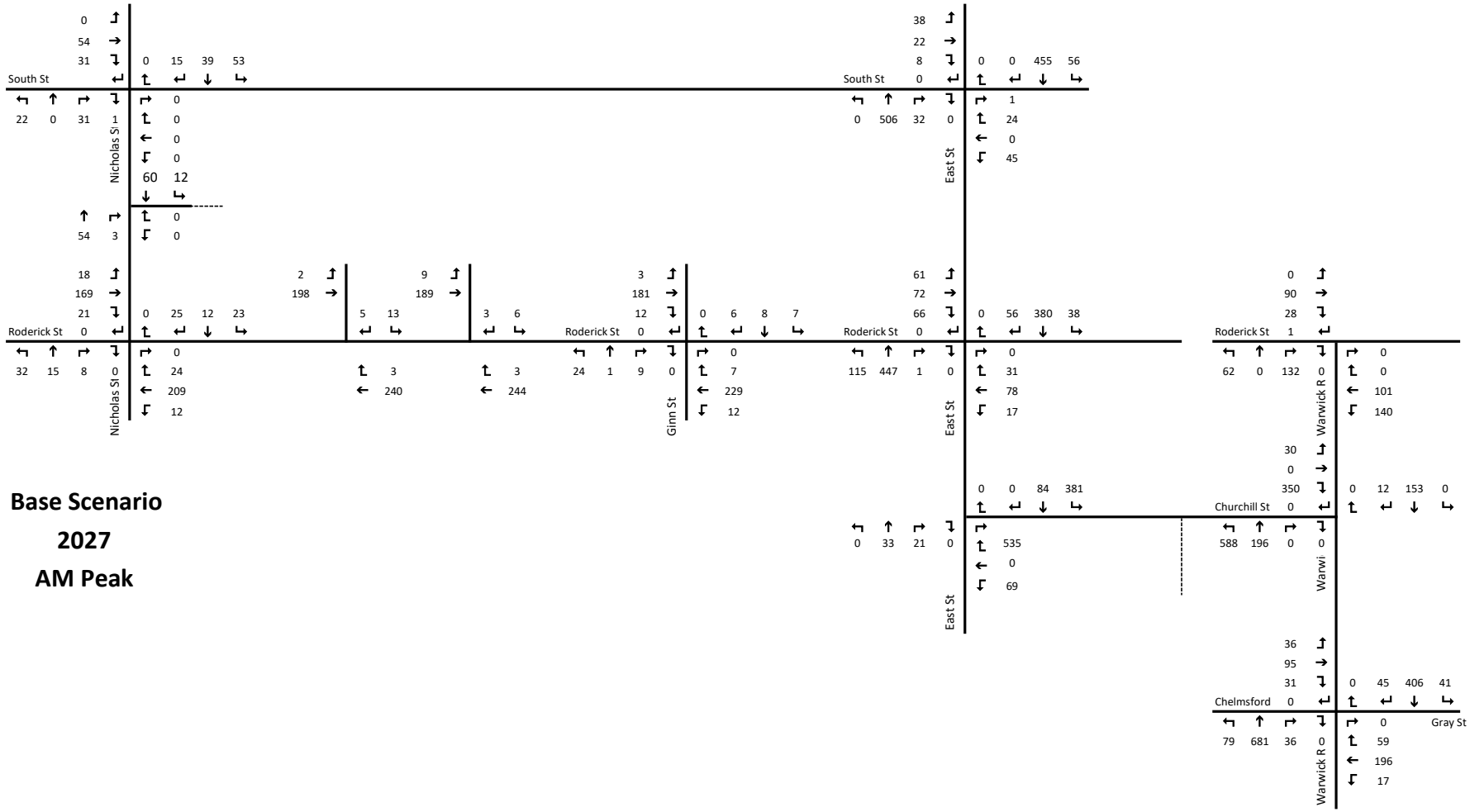
21 June 2022



Existing Demands

3:45PM-4:45PM

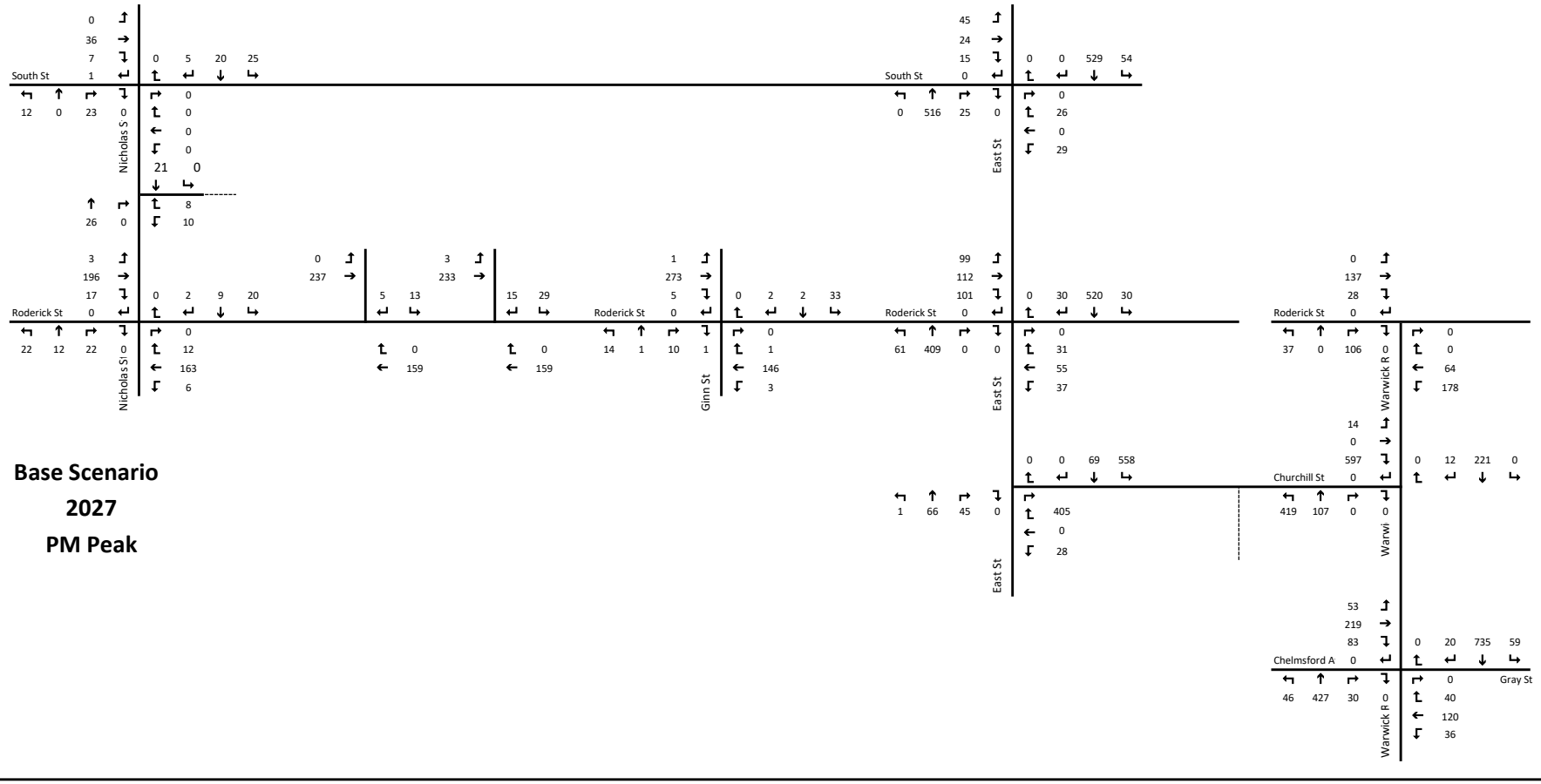
21 June 2022



Base Scenario

2027

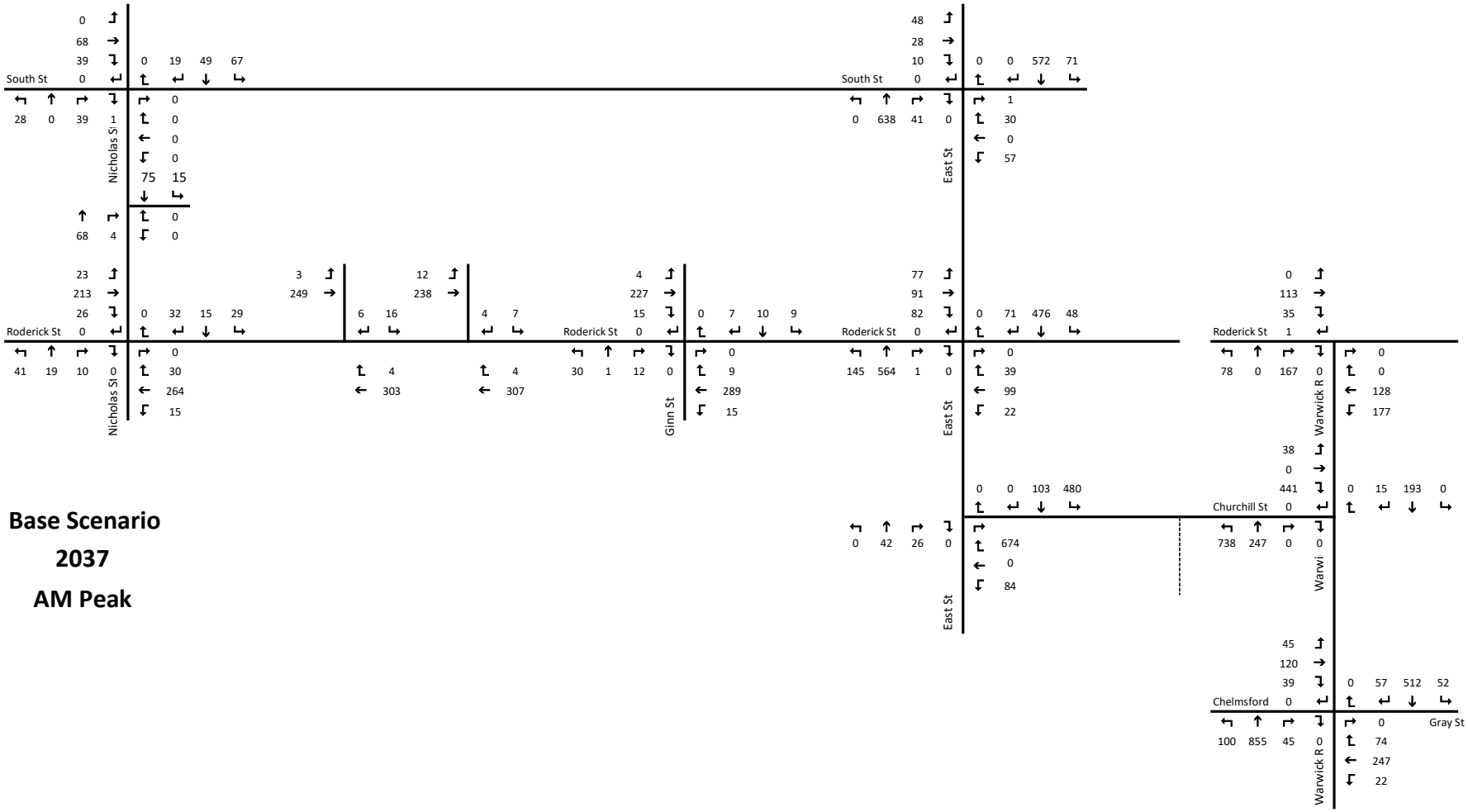
AM Peak



Base Scenario

2027

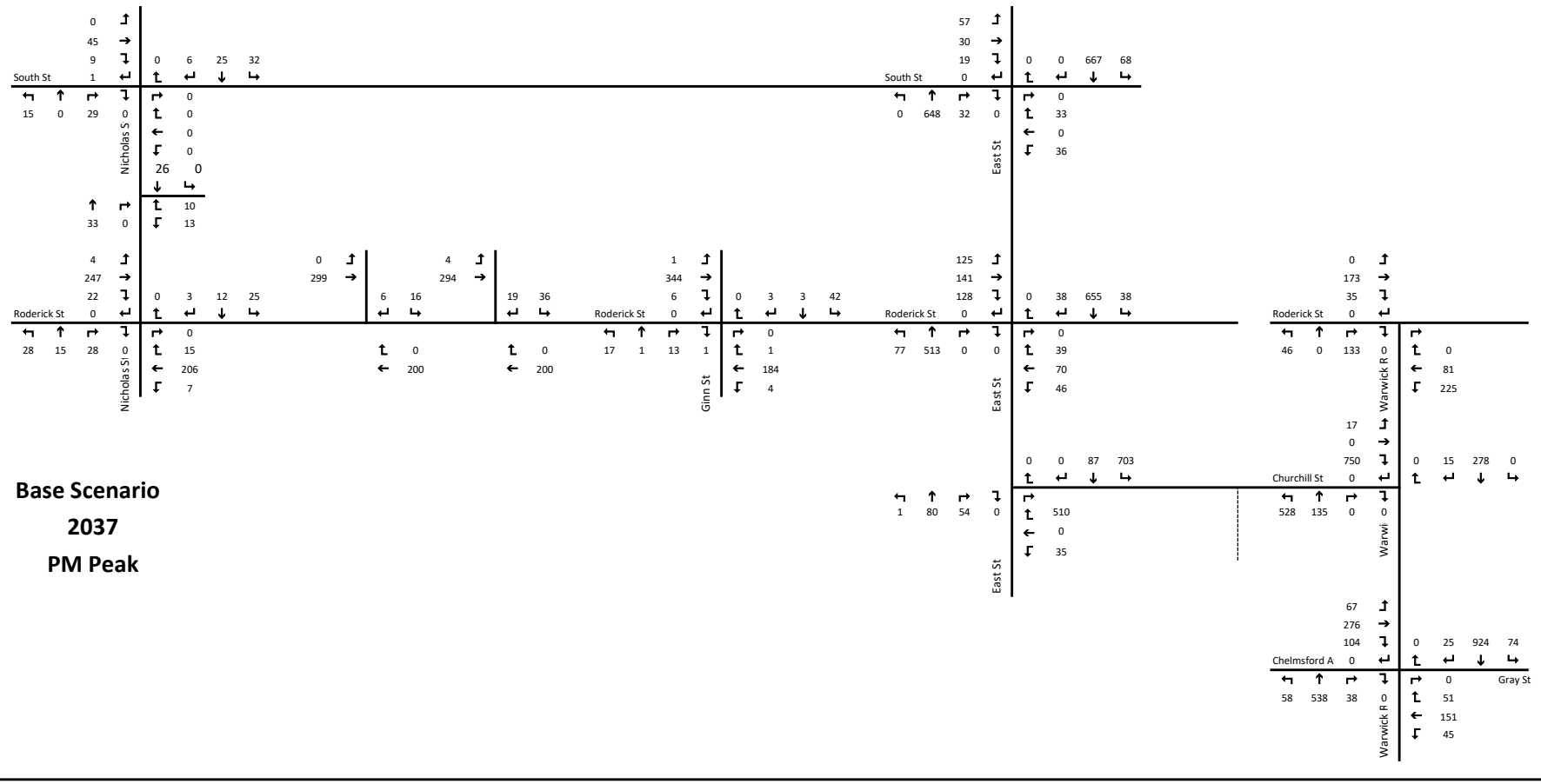
PM Peak

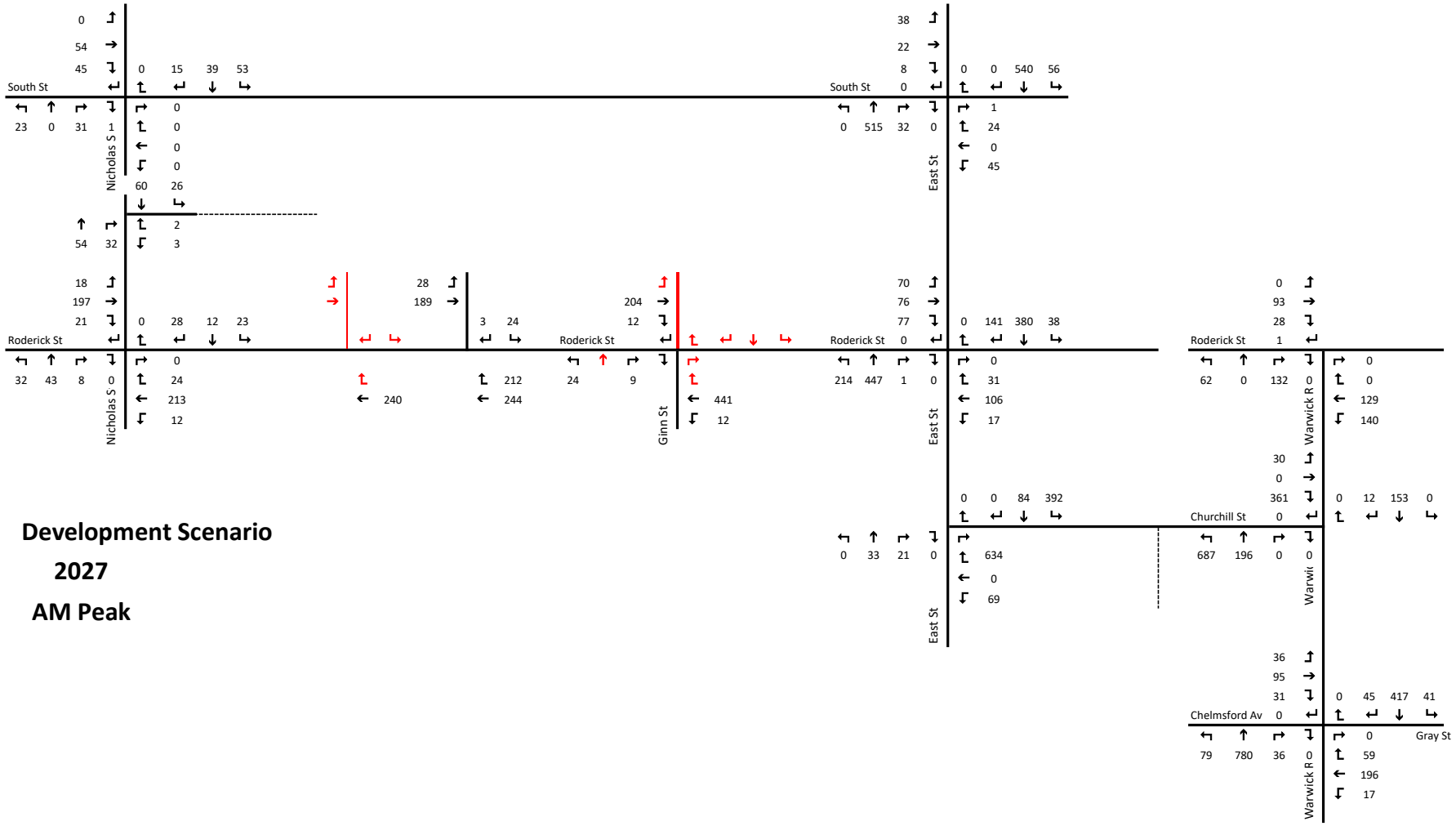


Base Scenario

2037

AM Peak

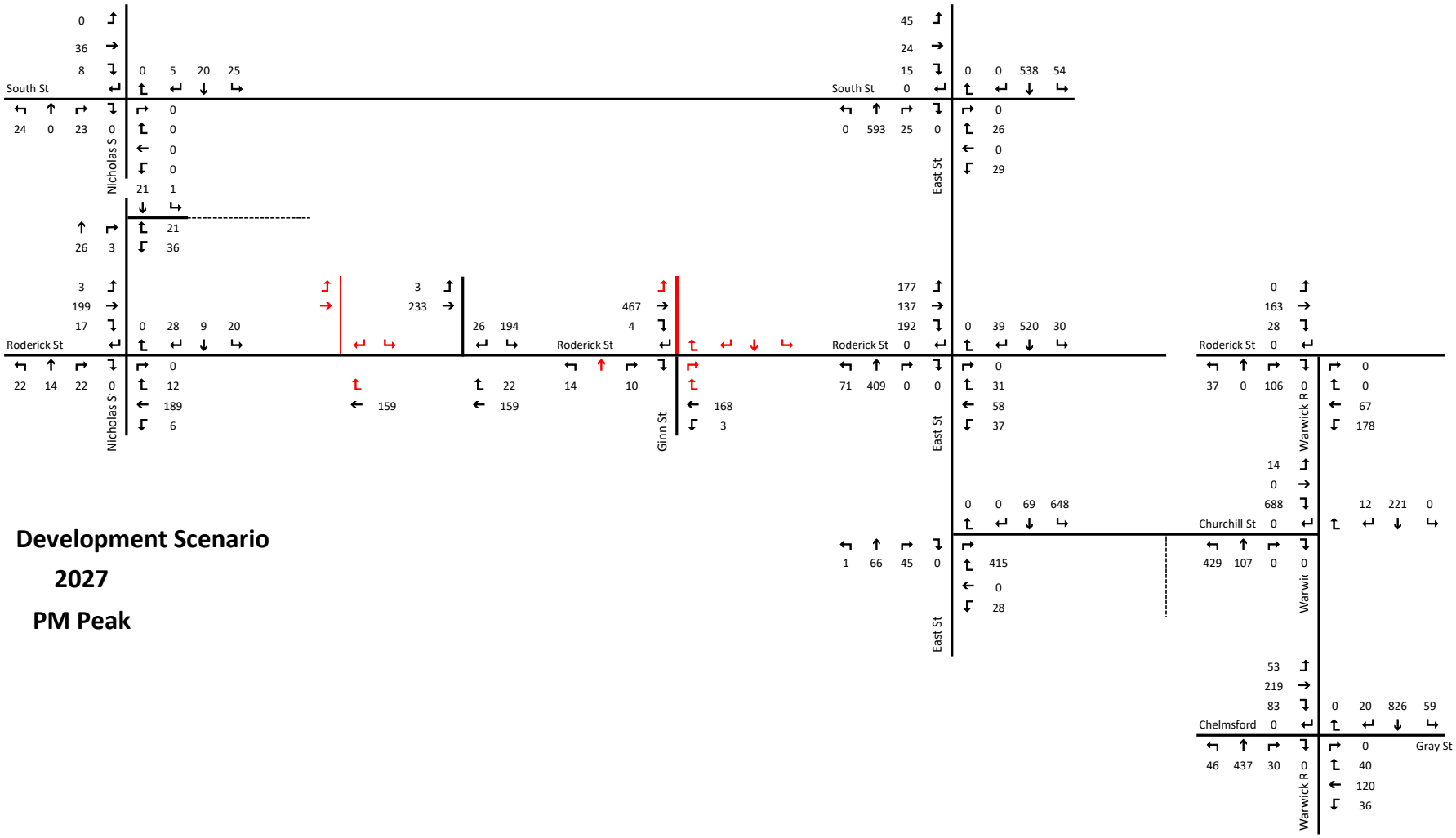

South St
Nicholas St
Roderick St
Ginn St
East St
Churchill St
Warwick Rd
Chelmsford A
Gray St
Base Scenario
2037
PM Peak



Development Scenario

2027

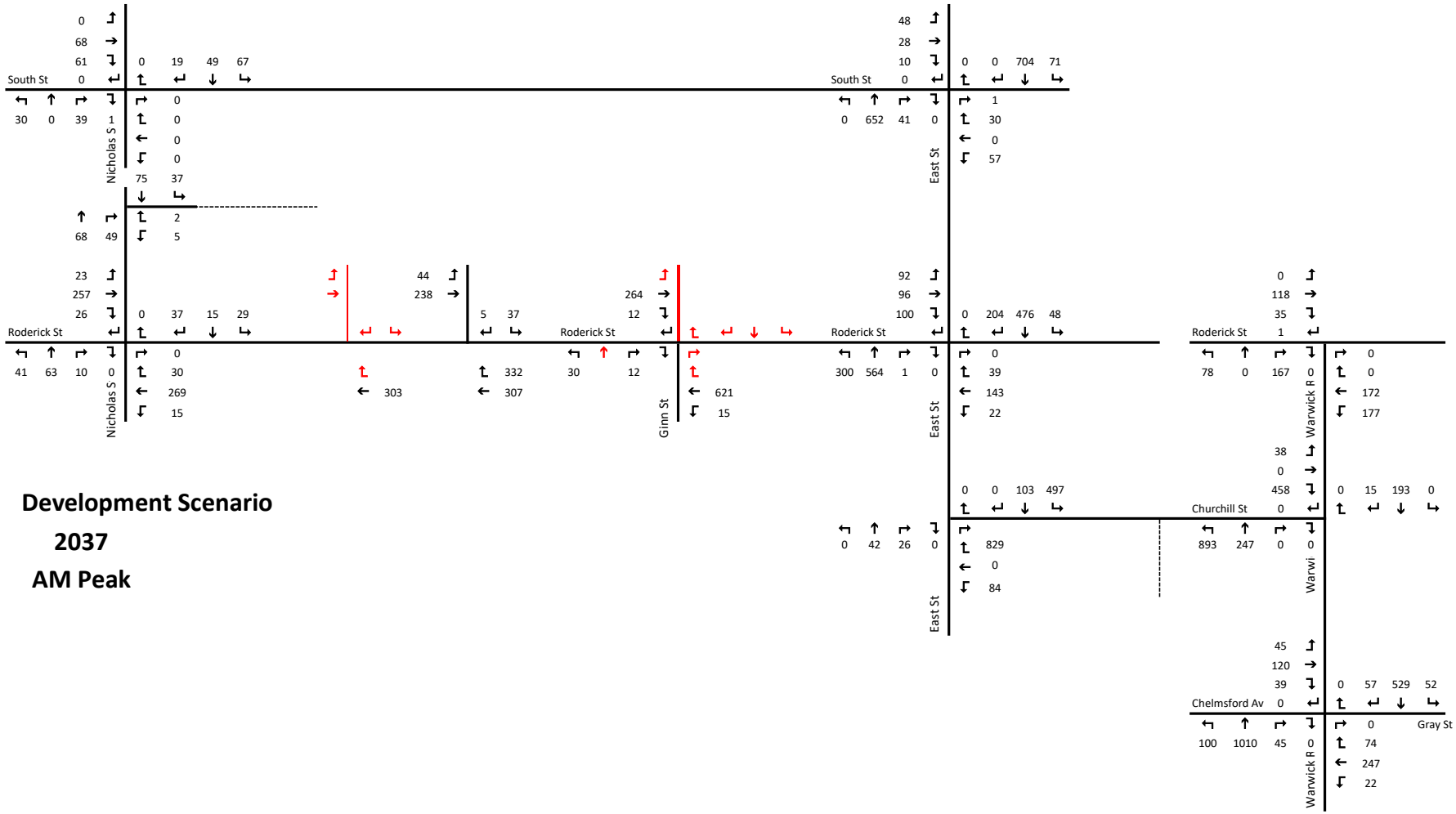
AM Peak



Development Scenario

2027

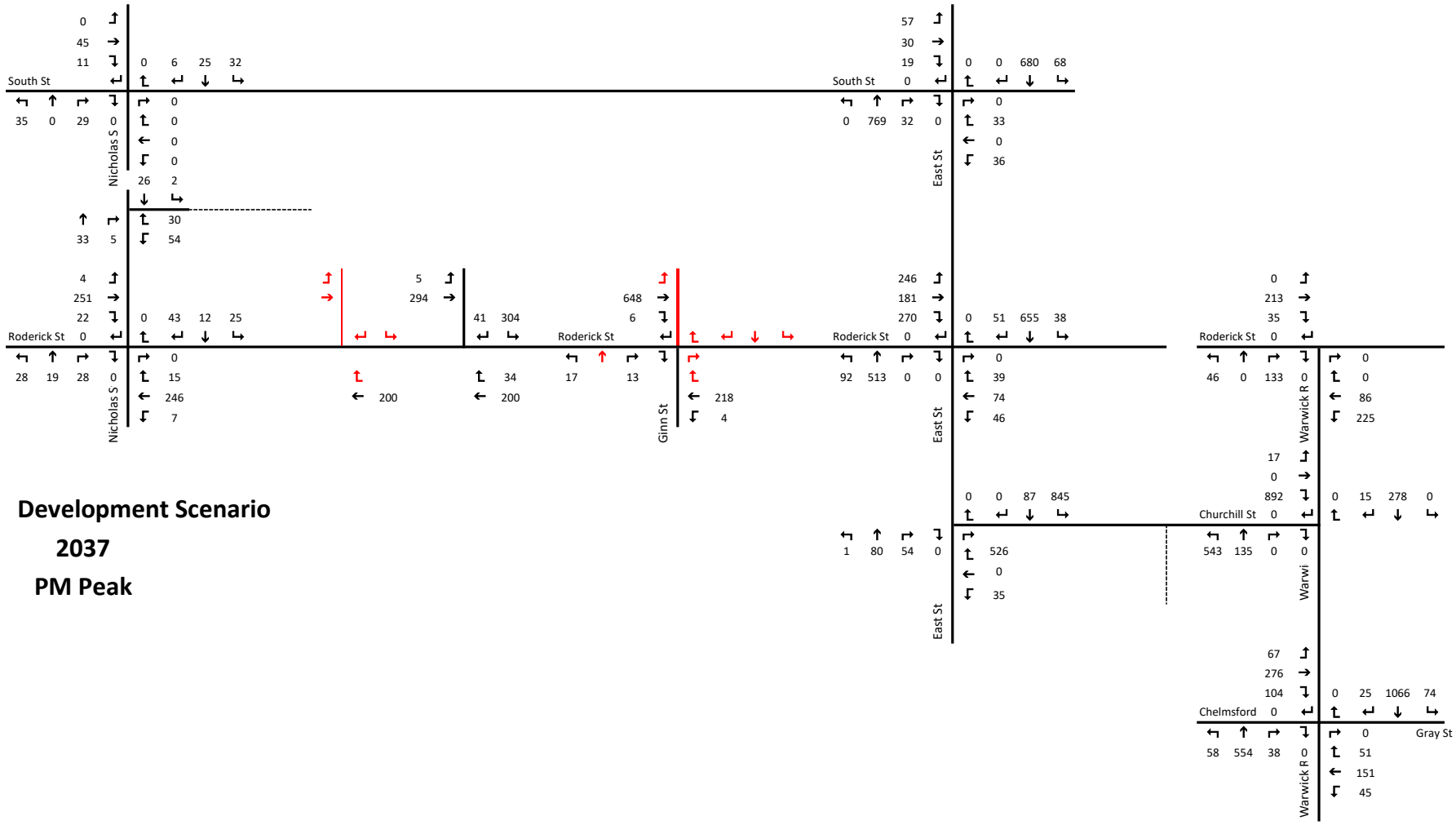
PM Peak



Development Scenario

2037

AM Peak



Development Scenario

2037

PM Peak

Appendix E: SIDRA Results Summary

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - AM (Existing 2022) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	47	2.0	49	2.0	0.028	0.0	LOS A	0.0	0.1	0.02	0.04	0.02	59.6
3	R2	3	2.0	3	2.0	0.028	5.7	LOS A	0.0	0.1	0.02	0.04	0.02	57.2
Approach		50	2.0	53	2.0	0.028	0.4	NA	0.0	0.1	0.02	0.04	0.02	59.4
East: Carpark Access														
4	L2	1	2.0	1	2.0	0.002	5.7	LOS A	0.0	0.0	0.14	0.54	0.14	53.1
6	R2	1	2.0	1	2.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.6
Approach		2	2.0	2	2.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.9
North: Nicholas St														
7	L2	10	2.0	11	2.0	0.034	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
8	T1	52	2.0	55	2.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.1
Approach		62	2.0	65	2.0	0.034	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.8
All Vehicles		114	2.0	120	2.0	0.034	0.7	NA	0.0	0.1	0.01	0.08	0.01	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	19	2.0	20	2.0	0.038	5.6	LOS A	0.1	1.1	0.24	0.54	0.24	28.7
3	R2	27	2.0	28	2.0	0.038	6.7	LOS A	0.1	1.1	0.24	0.54	0.24	39.9
Approach		46	2.0	48	2.0	0.038	6.3	LOS A	0.1	1.1	0.24	0.54	0.24	35.3
North: Nicholas St														
7	L2	46	2.0	48	2.0	0.069	5.7	LOS A	0.3	1.9	0.14	0.54	0.14	42.5
8	T1	34	2.0	36	2.0	0.069	4.4	LOS A	0.3	1.9	0.14	0.54	0.14	39.4
9	R2	13	2.0	14	2.0	0.069	6.1	LOS A	0.3	1.9	0.14	0.54	0.14	28.9
Approach		93	2.0	98	2.0	0.069	5.3	LOS A	0.3	1.9	0.14	0.54	0.14	39.4
West: South St														
11	T1	47	2.0	49	2.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	53.8
12	R2	27	2.0	28	2.0	0.041	5.4	LOS A	0.0	0.0	0.00	0.22	0.00	44.6
Approach		74	2.0	78	2.0	0.041	2.0	NA	0.0	0.0	0.00	0.22	0.00	50.7
All Vehicles		213	2.0	224	2.0	0.069	4.3	NA	0.3	1.9	0.11	0.43	0.11	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	28	2.0	29	2.0	0.055	7.5	LOS A	0.2	1.4	0.34	0.91	0.34	28.3
2	T1	13	2.0	14	2.0	0.055	8.8	LOS A	0.2	1.4	0.34	0.91	0.34	32.6
3	R2	7	2.0	7	2.0	0.055	9.2	LOS A	0.2	1.4	0.34	0.91	0.34	26.8
Approach		48	2.0	51	2.0	0.055	8.1	LOS A	0.2	1.4	0.34	0.91	0.34	29.3
East: Roderick Rd														
4	L2	10	2.0	11	2.0	0.120	5.0	LOS A	0.2	1.3	0.08	0.08	0.08	42.1
5	T1	182	2.0	192	2.0	0.120	0.1	LOS A	0.2	1.3	0.08	0.08	0.08	54.9
6	R2	21	2.0	22	2.0	0.120	5.0	LOS A	0.2	1.3	0.08	0.08	0.08	46.2
Approach		213	2.0	224	2.0	0.120	0.8	NA	0.2	1.3	0.08	0.08	0.08	53.2
North: Nicholas St														
7	L2	20	2.0	21	2.0	0.069	8.7	LOS A	0.2	1.8	0.35	0.92	0.35	29.9
8	T1	10	2.0	11	2.0	0.069	10.1	LOS B	0.2	1.8	0.35	0.92	0.35	29.5
9	R2	22	2.0	23	2.0	0.069	10.7	LOS B	0.2	1.8	0.35	0.92	0.35	31.1
Approach		52	2.0	55	2.0	0.069	9.8	LOS A	0.2	1.8	0.35	0.92	0.35	30.4
West: Roderick Rd														
10	L2	16	2.0	17	2.0	0.102	6.0	LOS A	0.2	1.2	0.09	0.11	0.09	48.0
11	T1	146	2.0	154	2.0	0.102	0.1	LOS A	0.2	1.2	0.09	0.11	0.09	52.4
12	R2	18	2.0	19	2.0	0.102	6.1	LOS A	0.2	1.2	0.09	0.11	0.09	41.4
Approach		180	2.0	189	2.0	0.102	1.2	NA	0.2	1.2	0.09	0.11	0.09	50.6
All Vehicles		493	2.0	519	2.0	0.120	2.6	NA	0.2	1.8	0.14	0.26	0.14	44.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	439	2.0	462	2.0	0.267	0.3	LOS A	0.4	2.5	0.09	0.04	0.09	56.8
3	R2	28	2.0	29	2.0	0.267	7.9	LOS A	0.4	2.5	0.09	0.04	0.09	50.6
Approach		467	2.0	492	2.0	0.267	0.7	NA	0.4	2.5	0.09	0.04	0.09	56.3
East: South St														
4	L2	39	2.0	41	2.0	0.106	7.1	LOS A	0.4	2.6	0.51	0.72	0.51	36.7
6	R2	21	2.0	22	2.0	0.106	15.0	LOS B	0.4	2.6	0.51	0.72	0.51	30.3
6u	U	1	2.0	1	2.0	0.106	7.1	LOS A	0.4	2.6	0.51	0.72	0.51	38.8
Approach		61	2.0	64	2.0	0.106	9.8	LOS A	0.4	2.6	0.51	0.72	0.51	34.3
North: East St														
7	L2	49	2.0	52	2.0	0.240	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	52.3
8	T1	387	2.0	407	2.0	0.240	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	57.2
Approach		436	2.0	459	2.0	0.240	0.6	NA	0.0	0.0	0.00	0.07	0.00	56.4
West: South St														
10	L2	33	2.0	35	2.0	0.126	10.5	LOS B	0.4	3.1	0.59	0.97	0.59	28.9
11	T1	19	2.0	20	2.0	0.126	17.2	LOS C	0.4	3.1	0.59	0.97	0.59	36.9
12	R2	7	2.0	7	2.0	0.126	19.0	LOS C	0.4	3.1	0.59	0.97	0.59	33.5
Approach		59	2.0	62	2.0	0.126	13.7	LOS B	0.4	3.1	0.59	0.97	0.59	32.0
All Vehicles		1023	2.0	1077	2.0	0.267	2.0	NA	0.4	3.1	0.11	0.14	0.11	50.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	100	2.0	105	2.0	0.105	10.8	LOS B	1.5	10.4	0.50	0.68	0.50	20.7
2	T1	388	2.0	408	2.0	0.388	8.4	LOS A	6.9	49.1	0.61	0.53	0.61	33.1
3	R2	1	2.0	1	2.0	* 0.388	12.3	LOS B	6.9	49.1	0.61	0.53	0.61	31.0
Approach		489	2.0	515	2.0	0.388	8.9	LOS A	6.9	49.1	0.59	0.56	0.59	30.4
East: Roderick St														
4	L2	15	2.0	16	2.0	0.211	27.0	LOS C	2.2	15.4	0.86	0.68	0.86	18.3
5	T1	68	2.0	72	2.0	0.211	21.5	LOS C	2.2	15.4	0.86	0.68	0.86	19.6
6	R2	27	2.0	28	2.0	0.093	27.5	LOS C	0.7	5.0	0.85	0.71	0.85	19.5
Approach		110	2.0	116	2.0	0.211	23.7	LOS C	2.2	15.4	0.86	0.69	0.86	19.4
North: East St														
7	L2	33	2.0	35	2.0	0.240	13.2	LOS B	3.8	27.3	0.55	0.50	0.55	35.0
8	T1	321	2.0	338	2.0	0.240	8.2	LOS A	3.8	27.3	0.57	0.53	0.57	31.5
9	R2	49	2.0	52	2.0	0.240	14.8	LOS B	2.9	20.7	0.60	0.57	0.60	23.0
Approach		403	2.0	424	2.0	0.240	9.4	LOS A	3.8	27.3	0.57	0.53	0.57	30.5
West: Roderick St														
10	L2	53	2.0	56	2.0	0.141	25.0	LOS C	1.4	9.7	0.84	0.73	0.84	16.6
11	T1	63	2.0	66	2.0	0.376	22.7	LOS C	3.3	23.4	0.90	0.75	0.90	18.4
12	R2	56	2.0	59	2.0	* 0.376	26.5	LOS C	3.3	23.4	0.90	0.75	0.90	12.2
Approach		172	2.0	181	2.0	0.376	24.7	LOS C	3.3	23.4	0.88	0.74	0.88	15.9
All Vehicles		1174	2.0	1236	2.0	0.388	12.8	LOS B	6.9	49.1	0.65	0.59	0.65	25.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	54	2.0	57	2.0	0.031	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	115	2.0	121	2.0	0.033	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		169	2.0	178	2.0	0.033	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.5
East: Roderick St														
4	L2	122	2.0	128	2.0	0.167	5.1	LOS A	0.9	6.5	0.34	0.45	0.34	42.2
5	T1	88	2.0	93	2.0	0.167	5.8	LOS A	0.9	6.5	0.34	0.45	0.34	37.0
Approach		210	2.0	221	2.0	0.167	5.4	NA	0.9	6.5	0.34	0.45	0.34	40.1
West: Roderick St														
11	T1	78	2.0	82	2.0	0.121	9.5	LOS A	0.5	3.7	0.33	0.88	0.33	25.8
12	R2	24	2.0	25	2.0	0.121	11.5	LOS B	0.5	3.7	0.33	0.88	0.33	36.4
12u	U	1	2.0	1	2.0	0.121	9.4	LOS A	0.5	3.7	0.33	0.88	0.33	33.7
Approach		103	2.0	108	2.0	0.121	10.0	LOS A	0.5	3.7	0.33	0.88	0.33	28.6
All Vehicles		482	2.0	507	2.0	0.167	6.4	NA	0.9	6.5	0.22	0.59	0.22	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	28	2.0	29	2.0	0.036	1.2	LOS A	0.2	1.1	0.35	0.26	0.35	40.6
3b	R3	17	2.0	18	2.0	0.036	6.2	LOS A	0.2	1.1	0.35	0.26	0.35	42.2
Approach		45	2.0	47	2.0	0.036	3.1	NA	0.2	1.1	0.35	0.26	0.35	41.5
SouthEast: Churchill St														
21b	L3	49	2.0	52	2.0	0.034	6.9	LOS A	0.1	1.0	0.15	0.55	0.15	36.1
23a	R1	465	2.0	489	2.0	0.574	9.3	LOS A	5.3	37.5	0.61	0.86	0.88	31.6
Approach		514	2.0	541	2.0	0.574	9.1	LOS A	5.3	37.5	0.57	0.83	0.81	32.0
North: East St														
7a	L1	331	2.0	348	2.0	0.110	3.0	LOS A	0.0	0.0	0.00	0.45	0.00	44.1
8	T1	63	2.0	66	2.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	45.3
Approach		394	2.0	415	2.0	0.110	2.5	NA	0.0	0.0	0.00	0.44	0.00	44.2
All Vehicles		953	2.0	1003	2.0	0.574	6.1	NA	5.3	37.5	0.32	0.64	0.45	36.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	212	2.0	223	2.0	0.118	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.4
6	R2	3	2.0	3	2.0	0.118	4.6	LOS A	0.0	0.2	0.01	0.01	0.01	45.5
Approach		215	2.0	226	2.0	0.118	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.1
North: Carpark Access														
7	L2	5	2.0	5	2.0	0.007	6.0	LOS A	0.0	0.2	0.28	0.56	0.28	31.7
9	R2	3	2.0	3	2.0	0.007	7.0	LOS A	0.0	0.2	0.28	0.56	0.28	32.5
Approach		8	2.0	8	2.0	0.007	6.4	LOS A	0.0	0.2	0.28	0.56	0.28	32.0
West: Roderick St														
10	L2	8	2.0	8	2.0	0.094	4.9	LOS A	0.0	0.0	0.00	0.03	0.00	38.5
11	T1	164	2.0	173	2.0	0.094	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.4
Approach		172	2.0	181	2.0	0.094	0.2	NA	0.0	0.0	0.00	0.03	0.00	56.6
All Vehicles		395	2.0	416	2.0	0.118	0.3	NA	0.0	0.2	0.01	0.03	0.01	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 110 [Roderick St & Ginn St - AM (Existing) (Site Folder: Existing (2022) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	21	2.0	22	2.0	0.034	8.9	LOS A	0.1	0.9	0.34	0.87	0.34	51.2
2	T1	1	2.0	1	2.0	0.034	10.0	LOS B	0.1	0.9	0.34	0.87	0.34	51.0
3	R2	8	2.0	8	2.0	0.034	10.4	LOS B	0.1	0.9	0.34	0.87	0.34	50.8
Approach		30	2.0	32	2.0	0.034	9.4	LOS A	0.1	0.9	0.34	0.87	0.34	51.1
East: Roderick St														
4	L2	10	2.0	11	2.0	0.119	5.8	LOS A	0.1	0.4	0.02	0.04	0.02	57.8
5	T1	199	2.0	209	2.0	0.119	0.0	LOS A	0.1	0.4	0.02	0.04	0.02	59.5
6	R2	6	2.0	6	2.0	0.119	6.1	LOS A	0.1	0.4	0.02	0.04	0.02	57.2
Approach		215	2.0	226	2.0	0.119	0.5	NA	0.1	0.4	0.02	0.04	0.02	59.3
North: Carpark Access														
7	L2	6	2.0	6	2.0	0.023	8.7	LOS A	0.1	0.6	0.35	0.90	0.35	51.1
8	T1	7	2.0	7	2.0	0.023	10.0	LOS A	0.1	0.6	0.35	0.90	0.35	50.8
9	R2	5	2.0	5	2.0	0.023	10.4	LOS B	0.1	0.6	0.35	0.90	0.35	50.6
Approach		18	2.0	19	2.0	0.023	9.7	LOS A	0.1	0.6	0.35	0.90	0.35	50.8
West: Roderick St														
10	L2	3	2.0	3	2.0	0.095	6.2	LOS A	0.1	0.6	0.05	0.05	0.05	57.7
11	T1	156	2.0	164	2.0	0.095	0.1	LOS A	0.1	0.6	0.05	0.05	0.05	59.4
12	R2	10	2.0	11	2.0	0.095	6.2	LOS A	0.1	0.6	0.05	0.05	0.05	57.0
Approach		169	2.0	178	2.0	0.095	0.5	NA	0.1	0.6	0.05	0.05	0.05	59.2
All Vehicles		432	2.0	455	2.0	0.119	1.5	NA	0.1	0.9	0.07	0.14	0.07	58.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCG1]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - AM (Existing) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 102 [Churchill St & Warwick Rd - AM (Existing)]														
South: Warwick Rd														
1a	L1	526	2.0	526	2.0	0.508	8.5	LOS A	3.3	23.8	0.38	0.67	0.38	34.6
2	T1	179	2.0	179	2.0	* 0.398	14.1	LOS B	2.1	14.7	0.66	0.53	0.66	30.1
Approach		705	2.0	705	2.0	0.508	9.9	LOS A	3.3	23.8	0.45	0.63	0.45	33.4
North: Warwick Rd														
8	T1	140	2.0	140	2.0	0.062	5.8	LOS A	0.5	3.8	0.45	0.35	0.45	38.5
9b	R3	11	2.0	11	2.0	0.026	24.9	LOS C	0.1	1.0	0.78	0.68	0.78	26.0
Approach		151	2.0	151	2.0	0.062	7.1	LOS A	0.5	3.8	0.48	0.38	0.48	36.2
NorthWest: Churchill St														
27b	L3	27	2.0	27	2.0	0.419	28.7	LOS C	2.8	19.8	0.90	0.79	0.90	26.4
29a	R1	319	2.0	319	2.0	* 0.419	26.9	LOS C	2.8	19.8	0.90	0.79	0.90	17.0
Approach		346	2.0	346	2.0	0.419	27.0	LOS C	2.8	19.8	0.90	0.79	0.90	17.9
All Vehicles		1202	2.0	1202	2.0	0.508	14.5	LOS B	3.3	23.8	0.58	0.65	0.58	27.6
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - AM (Existing)]														
South: Warwick Rd														
1	L2	73	2.0	73	2.0	0.328	13.6	LOS B	3.4	24.2	0.59	0.56	0.59	38.4
2	T1	612	2.0	612	2.0	0.328	8.0	LOS A	3.4	24.2	0.58	0.52	0.58	35.9
3	R2	33	2.0	33	2.0	0.058	13.0	LOS B	0.3	2.0	0.50	0.67	0.50	32.9
Approach		717	2.0	717	2.0	0.328	8.8	LOS A	3.4	24.2	0.58	0.53	0.58	36.0
East: Gray St														
4	L2	16	2.0	16	2.0	0.406	26.7	LOS C	3.0	21.5	0.88	0.73	0.88	27.0
5	T1	179	2.0	179	2.0	* 0.406	20.9	LOS C	3.0	21.5	0.88	0.73	0.88	24.0
6	R2	54	2.0	54	2.0	0.171	28.0	LOS C	0.8	5.9	0.86	0.73	0.86	12.4
Approach		248	2.0	248	2.0	0.406	22.8	LOS C	3.0	21.5	0.88	0.73	0.88	21.8
North: Warwick Rd														
7	L2	38	2.0	38	2.0	0.038	9.5	LOS A	0.2	1.4	0.31	0.62	0.31	28.3
8	T1	371	2.0	371	2.0	0.175	5.1	LOS A	1.1	7.9	0.34	0.28	0.34	45.8
9	R2	41	2.0	41	2.0	0.105	9.9	LOS A	0.2	1.7	0.33	0.63	0.33	29.9
Approach		449	2.0	449	2.0	0.175	5.9	LOS A	1.1	7.9	0.33	0.34	0.33	42.7
West: Chelmsford Ave														
10	L2	33	2.0	33	2.0	0.253	25.5	LOS C	1.8	12.6	0.84	0.69	0.84	16.5
11	T1	87	2.0	87	2.0	0.253	20.0	LOS C	1.8	12.6	0.84	0.69	0.84	23.9
12	R2	28	2.0	28	2.0	0.109	29.5	LOS C	0.5	3.2	0.88	0.71	0.88	23.1
Approach		148	2.0	148	2.0	0.253	23.0	LOS C	1.8	12.6	0.85	0.70	0.85	22.4
All Vehicles		1563	2.0	1563	2.0	0.406	11.5	LOS B	3.4	24.2	0.58	0.52	0.58	32.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		ped	m			sec	m	m/sec
Site: 102 [Churchill St & Warwick Rd - AM (Existing)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - AM (Existing)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - PM (Existing 2022) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	23	2.0	24	2.0	0.013	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.7
3	R2	1	2.0	1	2.0	0.013	5.5	LOS A	0.0	0.0	0.01	0.03	0.01	57.4
Approach		24	2.0	25	2.0	0.013	0.2	NA	0.0	0.0	0.01	0.03	0.01	59.6
East: Carpark Access														
4	L2	9	2.0	9	2.0	0.012	5.6	LOS A	0.0	0.3	0.07	0.56	0.07	53.3
6	R2	7	2.0	7	2.0	0.012	5.6	LOS A	0.0	0.3	0.07	0.56	0.07	52.8
Approach		16	2.0	17	2.0	0.012	5.6	LOS A	0.0	0.3	0.07	0.56	0.07	53.1
North: Nicholas St														
7	L2	1	2.0	1	2.0	0.010	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.0
8	T1	18	2.0	19	2.0	0.010	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		19	2.0	20	2.0	0.010	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		59	2.0	62	2.0	0.013	1.7	NA	0.0	0.3	0.02	0.17	0.02	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	52	2.0	55	2.0	0.066	14.0	LOS B	0.9	6.5	0.59	0.68	0.59	17.9
2	T1	347	2.0	365	2.0	0.425	12.2	LOS B	7.4	52.5	0.72	0.62	0.72	27.4
3	R2	1	2.0	1	2.0	* 0.425	16.1	LOS B	7.4	52.5	0.72	0.62	0.72	26.2
Approach		400	2.0	421	2.0	0.425	12.5	LOS B	7.4	52.5	0.71	0.63	0.71	26.1
East: Roderick St														
4	L2	32	2.0	34	2.0	0.141	21.6	LOS C	1.8	12.7	0.75	0.65	0.75	20.7
5	T1	48	2.0	51	2.0	0.141	16.0	LOS B	1.8	12.7	0.75	0.65	0.75	22.4
6	R2	27	2.0	28	2.0	0.072	22.9	LOS C	0.6	4.5	0.76	0.70	0.76	21.8
Approach		107	2.0	113	2.0	0.141	19.4	LOS B	1.8	12.7	0.75	0.66	0.75	21.7
North: East St														
7	L2	26	2.0	27	2.0	0.343	17.2	LOS B	5.2	37.0	0.68	0.59	0.68	30.3
8	T1	451	2.0	475	2.0	0.343	11.9	LOS B	5.2	37.0	0.69	0.60	0.69	27.1
9	R2	26	2.0	27	2.0	0.343	17.9	LOS B	5.1	36.0	0.71	0.62	0.71	21.4
Approach		503	2.0	529	2.0	0.343	12.5	LOS B	5.2	37.0	0.69	0.60	0.69	26.9
West: Roderick St														
10	L2	86	2.0	91	2.0	0.156	20.1	LOS C	1.9	13.8	0.75	0.73	0.75	19.2
11	T1	97	2.0	102	2.0	0.425	17.8	LOS B	4.6	32.8	0.83	0.73	0.83	21.3
12	R2	88	2.0	93	2.0	* 0.425	21.7	LOS C	4.6	32.8	0.83	0.73	0.83	14.2
Approach		271	2.0	285	2.0	0.425	19.8	LOS B	4.6	32.8	0.80	0.73	0.80	18.4
All Vehicles		1281	2.0	1348	2.0	0.425	14.6	LOS B	7.4	52.5	0.73	0.64	0.73	24.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	32	2.0	34	2.0	0.018	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	92	2.0	97	2.0	0.026	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		124	2.0	131	2.0	0.026	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.2
East: Roderick St														
4	L2	155	2.0	163	2.0	0.148	4.6	LOS A	0.6	4.6	0.23	0.45	0.23	43.4
5	T1	56	2.0	59	2.0	0.148	5.6	LOS A	0.6	4.6	0.23	0.45	0.23	38.1
Approach		211	2.0	222	2.0	0.148	4.8	NA	0.6	4.6	0.23	0.45	0.23	42.0
West: Roderick St														
11	T1	119	2.0	125	2.0	0.155	9.3	LOS A	0.7	5.0	0.28	0.88	0.28	26.1
12	R2	24	2.0	25	2.0	0.155	11.3	LOS B	0.7	5.0	0.28	0.88	0.28	36.8
12u	U	1	2.0	1	2.0	0.155	9.1	LOS A	0.7	5.0	0.28	0.88	0.28	34.1
Approach		144	2.0	152	2.0	0.155	9.6	LOS A	0.7	5.0	0.28	0.88	0.28	28.1
All Vehicles		479	2.0	504	2.0	0.155	6.5	NA	0.7	5.0	0.19	0.61	0.19	36.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	48	2.0	51	2.0	0.068	2.1	LOS A	0.3	2.3	0.43	0.28	0.43	36.9
3b	R3	29	2.0	31	2.0	0.068	7.3	LOS A	0.3	2.3	0.43	0.28	0.43	40.1
Approach		77	2.0	81	2.0	0.068	4.1	NA	0.3	2.3	0.43	0.28	0.43	38.5
SouthEast: Churchill St														
21b	L3	23	2.0	24	2.0	0.016	6.9	LOS A	0.1	0.4	0.14	0.55	0.14	36.2
23a	R1	352	2.0	371	2.0	0.498	9.9	LOS A	3.6	25.4	0.63	0.91	0.89	30.9
Approach		375	2.0	395	2.0	0.498	9.7	LOS A	3.6	25.4	0.60	0.89	0.85	31.2
North: East St														
7a	L1	485	2.0	511	2.0	0.152	3.0	LOS A	0.0	0.0	0.00	0.47	0.00	43.9
8	T1	59	2.0	62	2.0	0.152	0.0	LOS A	0.0	0.0	0.00	0.41	0.00	43.7
Approach		544	2.0	573	2.0	0.152	2.7	NA	0.0	0.0	0.00	0.47	0.00	43.8
All Vehicles		996	2.0	1048	2.0	0.498	5.4	NA	3.6	25.4	0.26	0.61	0.35	37.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	19	2.0	20	2.0	0.060	7.3	LOS A	0.2	1.5	0.33	0.91	0.33	28.0
2	T1	10	2.0	11	2.0	0.060	8.4	LOS A	0.2	1.5	0.33	0.91	0.33	32.4
3	R2	19	2.0	20	2.0	0.060	8.8	LOS A	0.2	1.5	0.33	0.91	0.33	26.6
Approach		48	2.0	51	2.0	0.060	8.2	LOS A	0.2	1.5	0.33	0.91	0.33	28.4
East: Roderick Rd														
4	L2	5	2.0	5	2.0	0.087	5.0	LOS A	0.1	0.6	0.05	0.06	0.05	43.2
5	T1	141	2.0	148	2.0	0.087	0.1	LOS A	0.1	0.6	0.05	0.06	0.05	56.5
6	R2	10	2.0	11	2.0	0.087	5.0	LOS A	0.1	0.6	0.05	0.06	0.05	47.2
Approach		156	2.0	164	2.0	0.087	0.5	NA	0.1	0.6	0.05	0.06	0.05	55.3
North: Nicholas St														
7	L2	17	2.0	18	2.0	0.029	8.8	LOS A	0.1	0.8	0.31	0.89	0.31	30.8
8	T1	8	2.0	8	2.0	0.029	9.7	LOS A	0.1	0.8	0.31	0.89	0.31	30.5
9	R2	2	2.0	2	2.0	0.029	10.1	LOS B	0.1	0.8	0.31	0.89	0.31	32.0
Approach		27	2.0	28	2.0	0.029	9.2	LOS A	0.1	0.8	0.31	0.89	0.31	30.8
West: Roderick Rd														
10	L2	3	2.0	3	2.0	0.105	6.0	LOS A	0.1	0.9	0.06	0.06	0.06	50.0
11	T1	170	2.0	179	2.0	0.105	0.1	LOS A	0.1	0.9	0.06	0.06	0.06	55.7
12	R2	15	2.0	16	2.0	0.105	6.0	LOS A	0.1	0.9	0.06	0.06	0.06	43.5
Approach		188	2.0	198	2.0	0.105	0.6	NA	0.1	0.9	0.06	0.06	0.06	54.4
All Vehicles		419	2.0	441	2.0	0.105	2.0	NA	0.2	1.5	0.10	0.21	0.10	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	10	2.0	11	2.0	0.024	5.6	LOS A	0.1	0.6	0.16	0.56	0.16	29.0
3	R2	20	2.0	21	2.0	0.024	6.1	LOS A	0.1	0.6	0.16	0.56	0.16	40.3
Approach		30	2.0	32	2.0	0.024	5.9	LOS A	0.1	0.6	0.16	0.56	0.16	36.6
North: Nicholas St														
7	L2	22	2.0	23	2.0	0.031	5.6	LOS A	0.1	0.8	0.10	0.54	0.10	42.8
8	T1	17	2.0	18	2.0	0.031	4.2	LOS A	0.1	0.8	0.10	0.54	0.10	39.8
9	R2	4	2.0	4	2.0	0.031	5.9	LOS A	0.1	0.8	0.10	0.54	0.10	29.2
Approach		43	2.0	45	2.0	0.031	5.1	LOS A	0.1	0.8	0.10	0.54	0.10	40.3
West: South St														
11	T1	31	2.0	33	2.0	0.020	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	57.1
12	R2	6	2.0	6	2.0	0.020	5.4	LOS A	0.0	0.0	0.00	0.10	0.00	47.6
Approach		37	2.0	39	2.0	0.020	0.9	NA	0.0	0.0	0.00	0.10	0.00	55.7
All Vehicles		110	2.0	116	2.0	0.031	3.9	NA	0.1	0.8	0.08	0.39	0.08	43.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	440	2.0	463	2.0	0.264	0.3	LOS A	0.3	2.2	0.08	0.03	0.08	57.2
3	R2	22	2.0	23	2.0	0.264	8.5	LOS A	0.3	2.2	0.08	0.03	0.08	50.8
Approach		462	2.0	486	2.0	0.264	0.7	NA	0.3	2.2	0.08	0.03	0.08	56.7
East: South St														
4	L2	25	2.0	26	2.0	0.111	7.5	LOS A	0.4	2.6	0.57	0.77	0.57	34.5
6	R2	23	2.0	24	2.0	0.111	16.4	LOS C	0.4	2.6	0.57	0.77	0.57	28.8
6u	U	1	2.0	1	2.0	0.111	7.0	LOS A	0.4	2.6	0.57	0.77	0.57	36.8
Approach		49	2.0	52	2.0	0.111	11.6	LOS B	0.4	2.6	0.57	0.77	0.57	31.7
North: East St														
7	L2	47	2.0	49	2.0	0.278	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	52.6
8	T1	459	2.0	483	2.0	0.278	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	57.6
Approach		506	2.0	533	2.0	0.278	0.5	NA	0.0	0.0	0.00	0.06	0.00	57.0
West: South St														
10	L2	39	2.0	41	2.0	0.175	10.6	LOS B	0.6	4.3	0.63	0.98	0.63	28.1
11	T1	21	2.0	22	2.0	0.175	19.0	LOS C	0.6	4.3	0.63	0.98	0.63	35.9
12	R2	13	2.0	14	2.0	0.175	20.6	LOS C	0.6	4.3	0.63	0.98	0.63	32.5
Approach		73	2.0	77	2.0	0.175	14.8	LOS B	0.6	4.3	0.63	0.98	0.63	31.1
All Vehicles		1090	2.0	1147	2.0	0.278	2.0	NA	0.6	4.3	0.10	0.14	0.10	50.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 110 [Roderick St & Ginn St - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	12	2.0	13	2.0	0.027	8.6	LOS A	0.1	0.7	0.29	0.89	0.29	51.1
2	T1	1	2.0	1	2.0	0.027	9.9	LOS A	0.1	0.7	0.29	0.89	0.29	50.9
3	R2	9	2.0	9	2.0	0.027	10.5	LOS B	0.1	0.7	0.29	0.89	0.29	50.6
Approach		22	2.0	23	2.0	0.027	9.4	LOS A	0.1	0.7	0.29	0.89	0.29	50.9
East: Roderick St														
4	L2	3	2.0	3	2.0	0.071	5.8	LOS A	0.0	0.1	0.01	0.02	0.01	58.1
5	T1	126	2.0	133	2.0	0.071	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.8
6	R2	1	2.0	1	2.0	0.071	6.3	LOS A	0.0	0.1	0.01	0.02	0.01	57.4
Approach		130	2.0	137	2.0	0.071	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
North: Carpark Access														
7	L2	29	2.0	31	2.0	0.034	9.1	LOS A	0.1	0.9	0.35	0.87	0.35	51.4
8	T1	2	2.0	2	2.0	0.034	10.0	LOS A	0.1	0.9	0.35	0.87	0.35	51.1
9	R2	2	2.0	2	2.0	0.034	10.3	LOS B	0.1	0.9	0.35	0.87	0.35	50.9
Approach		33	2.0	35	2.0	0.034	9.3	LOS A	0.1	0.9	0.35	0.87	0.35	51.3
West: Roderick St														
10	L2	1	2.0	1	2.0	0.133	6.0	LOS A	0.0	0.2	0.01	0.01	0.01	58.1
11	T1	237	2.0	249	2.0	0.133	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.8
12	R2	4	2.0	4	2.0	0.133	5.9	LOS A	0.0	0.2	0.01	0.01	0.01	57.5
Approach		242	2.0	255	2.0	0.133	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.8
All Vehicles		427	2.0	449	2.0	0.133	1.3	NA	0.1	0.9	0.05	0.13	0.05	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - PM (Existing) (Site Folder: Existing (2022) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	138	2.0	145	2.0	0.076	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	59.7
6	R2	1	2.0	1	2.0	0.076	4.7	LOS A	0.0	0.1	0.01	0.00	0.01	45.7
Approach		139	2.0	146	2.0	0.076	0.0	NA	0.0	0.1	0.01	0.00	0.01	59.5
North: Carpark Access														
7	L2	25	2.0	26	2.0	0.035	6.2	LOS A	0.1	0.9	0.31	0.59	0.31	31.5
9	R2	13	2.0	14	2.0	0.035	6.9	LOS A	0.1	0.9	0.31	0.59	0.31	32.3
Approach		38	2.0	40	2.0	0.035	6.4	LOS A	0.1	0.9	0.31	0.59	0.31	31.7
West: Roderick St														
10	L2	3	2.0	3	2.0	0.113	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	38.8
11	T1	203	2.0	214	2.0	0.113	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		206	2.0	217	2.0	0.113	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.8
All Vehicles		383	2.0	403	2.0	0.113	0.7	NA	0.1	0.9	0.03	0.06	0.03	53.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - PM (Existing) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 102 [Churchill St & Warwick Rd - PM (Existing)]														
South: Warwick Rd														
1a	L1	382	2.0	382	2.0	0.468	10.0	LOS A	2.9	20.5	0.44	0.68	0.44	32.7
2	T1	98	2.0	98	2.0	* 0.381	27.1	LOS C	1.6	11.6	0.91	0.71	0.91	20.6
Approach		480	2.0	480	2.0	0.468	13.5	LOS B	2.9	20.5	0.54	0.69	0.54	29.3
North: Warwick Rd														
8	T1	202	2.0	202	2.0	* 0.225	10.8	LOS B	0.8	5.9	0.84	0.65	0.84	29.3
9b	R3	11	2.0	11	2.0	0.066	34.4	LOS C	0.2	1.3	0.93	0.68	0.93	21.7
Approach		213	2.0	213	2.0	0.225	11.9	LOS B	0.8	5.9	0.85	0.66	0.85	28.4
NorthWest: Churchill St														
27b	L3	13	2.0	13	2.0	0.395	14.2	LOS B	1.9	13.7	0.75	0.76	0.75	38.5
29a	R1	536	2.0	536	2.0	* 0.395	12.2	LOS B	2.0	14.3	0.77	0.77	0.77	27.8
Approach		548	2.0	548	2.0	0.395	12.3	LOS B	2.0	14.3	0.77	0.77	0.77	28.1
All Vehicles		1241	2.0	1241	2.0	0.468	12.7	LOS B	2.9	20.5	0.69	0.72	0.69	28.7
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - PM (Existing)]														
South: Warwick Rd														
1	L2	42	2.0	42	2.0	0.260	17.4	LOS B	2.5	17.7	0.68	0.60	0.68	34.3
2	T1	389	2.0	389	2.0	0.260	11.8	LOS B	2.5	17.9	0.68	0.58	0.68	30.5
3	R2	27	2.0	27	2.0	0.090	21.1	LOS C	0.4	2.5	0.72	0.70	0.72	26.6
Approach		459	2.0	459	2.0	0.260	12.9	LOS B	2.5	17.9	0.68	0.59	0.68	30.6
East: Gray St														
4	L2	33	2.0	33	2.0	0.204	20.3	LOS C	1.8	12.6	0.72	0.62	0.72	31.3
5	T1	109	2.0	109	2.0	0.204	14.2	LOS B	1.8	12.6	0.72	0.62	0.72	28.7
6	R2	37	2.0	37	2.0	0.100	23.3	LOS C	0.5	3.6	0.77	0.71	0.77	14.3
Approach		179	2.0	179	2.0	0.204	17.2	LOS B	1.8	12.6	0.73	0.64	0.73	26.4
North: Warwick Rd														
7	L2	54	2.0	54	2.0	0.079	15.0	LOS B	0.6	4.6	0.59	0.66	0.59	16.5
8	T1	662	2.0	662	2.0	0.393	12.2	LOS B	4.0	28.2	0.71	0.61	0.71	34.5
9	R2	18	2.0	18	2.0	0.044	18.0	LOS B	0.2	1.3	0.58	0.66	0.58	22.3
Approach		734	2.0	734	2.0	0.393	12.6	LOS B	4.0	28.2	0.70	0.61	0.70	32.4
West: Chelmsford Ave														
10	L2	48	2.0	48	2.0	0.383	20.7	LOS C	3.3	23.5	0.77	0.67	0.77	20.1
11	T1	200	2.0	200	2.0	0.383	15.2	LOS B	3.3	23.5	0.77	0.67	0.77	28.0
12	R2	76	2.0	76	2.0	0.169	22.0	LOS C	1.0	7.2	0.76	0.73	0.76	27.1
Approach		324	2.0	324	2.0	0.383	17.6	LOS B	3.3	23.5	0.77	0.69	0.77	26.8
All Vehicles		1696	2.0	1696	2.0	0.393	14.1	LOS B	4.0	28.2	0.71	0.62	0.71	30.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 102 [Churchill St & Warwick Rd - PM (Existing)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - PM (Existing)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	54	2.0	57	2.0	0.032	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.6
3	R2	3	2.0	3	2.0	0.032	5.7	LOS A	0.0	0.1	0.02	0.03	0.02	57.3
Approach		57	2.0	60	2.0	0.032	0.3	NA	0.0	0.1	0.02	0.03	0.02	59.5
East: Carpark Access														
4	L2	1	2.0	1	2.0	0.002	5.7	LOS A	0.0	0.0	0.15	0.54	0.15	53.1
6	R2	1	2.0	1	2.0	0.002	5.9	LOS A	0.0	0.0	0.15	0.54	0.15	52.6
Approach		2	2.0	2	2.0	0.002	5.8	LOS A	0.0	0.0	0.15	0.54	0.15	52.8
North: Nicholas St														
7	L2	12	2.0	13	2.0	0.040	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
8	T1	60	2.0	63	2.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.1
Approach		72	2.0	76	2.0	0.040	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.8
All Vehicles		131	2.0	138	2.0	0.040	0.7	NA	0.0	0.1	0.01	0.08	0.01	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	115	2.0	121	2.0	0.120	10.9	LOS B	1.7	12.1	0.51	0.68	0.51	20.6
2	T1	447	2.0	471	2.0	0.460	8.7	LOS A	8.3	59.0	0.64	0.56	0.64	32.5
3	R2	1	2.0	1	2.0	* 0.460	12.6	LOS B	8.3	59.0	0.64	0.56	0.64	30.5
Approach		563	2.0	593	2.0	0.460	9.2	LOS A	8.3	59.0	0.61	0.58	0.61	29.9
East: Roderick St														
4	L2	17	2.0	18	2.0	0.242	27.2	LOS C	2.5	17.8	0.87	0.69	0.87	18.2
5	T1	78	2.0	82	2.0	0.242	21.6	LOS C	2.5	17.8	0.87	0.69	0.87	19.5
6	R2	31	2.0	33	2.0	0.113	28.5	LOS C	0.8	5.9	0.87	0.71	0.87	19.1
Approach		126	2.0	133	2.0	0.242	24.1	LOS C	2.5	17.8	0.87	0.70	0.87	19.2
North: East St														
7	L2	38	2.0	40	2.0	0.290	13.5	LOS B	4.8	34.2	0.57	0.52	0.57	34.7
8	T1	381	2.0	401	2.0	0.290	8.6	LOS A	4.8	34.2	0.59	0.55	0.59	30.9
9	R2	56	2.0	59	2.0	0.290	15.7	LOS B	3.5	24.9	0.64	0.60	0.64	22.2
Approach		475	2.0	500	2.0	0.290	9.9	LOS A	4.8	34.2	0.60	0.55	0.60	29.9
West: Roderick St														
10	L2	61	2.0	64	2.0	0.162	25.1	LOS C	1.6	11.2	0.85	0.73	0.85	16.5
11	T1	72	2.0	76	2.0	0.445	23.1	LOS C	3.9	27.7	0.91	0.76	0.91	18.1
12	R2	66	2.0	69	2.0	* 0.445	27.0	LOS C	3.9	27.7	0.91	0.76	0.91	12.0
Approach		199	2.0	209	2.0	0.445	25.0	LOS C	3.9	27.7	0.89	0.75	0.89	15.7
All Vehicles		1363	2.0	1435	2.0	0.460	13.1	LOS B	8.3	59.0	0.67	0.61	0.67	25.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	62	2.0	65	2.0	0.036	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	132	2.0	139	2.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		194	2.0	204	2.0	0.038	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.5
East: Roderick St														
4	L2	140	2.0	147	2.0	0.196	5.3	LOS A	1.1	7.9	0.37	0.45	0.37	41.6
5	T1	101	2.0	106	2.0	0.196	6.1	LOS A	1.1	7.9	0.37	0.45	0.37	36.4
Approach		241	2.0	254	2.0	0.196	5.6	NA	1.1	7.9	0.37	0.45	0.37	39.5
West: Roderick St														
11	T1	90	2.0	95	2.0	0.146	9.7	LOS A	0.6	4.5	0.36	0.88	0.36	25.5
12	R2	28	2.0	29	2.0	0.146	12.3	LOS B	0.6	4.5	0.36	0.88	0.36	36.1
12u	U	1	2.0	1	2.0	0.146	9.6	LOS A	0.6	4.5	0.36	0.88	0.36	33.4
Approach		119	2.0	125	2.0	0.146	10.3	LOS B	0.6	4.5	0.36	0.88	0.36	28.3
All Vehicles		554	2.0	583	2.0	0.196	6.6	NA	1.1	7.9	0.24	0.59	0.24	36.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	34	2.0	36	2.0	0.046	1.6	LOS A	0.2	1.5	0.39	0.27	0.39	38.8
3b	R3	21	2.0	22	2.0	0.046	6.7	LOS A	0.2	1.5	0.39	0.27	0.39	41.2
Approach		55	2.0	58	2.0	0.046	3.6	NA	0.2	1.5	0.39	0.27	0.39	40.0
SouthEast: Churchill St														
21b	L3	71	2.0	75	2.0	0.050	7.0	LOS A	0.2	1.4	0.18	0.55	0.18	35.9
23a	R1	535	2.0	563	2.0	0.713	12.5	LOS B	8.7	61.9	0.75	1.10	1.38	28.0
Approach		606	2.0	638	2.0	0.713	11.9	LOS B	8.7	61.9	0.68	1.04	1.24	28.8
North: East St														
7a	L1	381	2.0	401	2.0	0.130	3.0	LOS A	0.0	0.0	0.00	0.45	0.00	44.2
8	T1	86	2.0	91	2.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	46.1
Approach		467	2.0	492	2.0	0.130	2.5	NA	0.0	0.0	0.00	0.43	0.00	44.4
All Vehicles		1128	2.0	1187	2.0	0.713	7.6	NA	8.7	61.9	0.38	0.75	0.69	33.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	32	2.0	34	2.0	0.067	7.7	LOS A	0.2	1.7	0.38	0.91	0.38	27.9
2	T1	15	2.0	16	2.0	0.067	9.3	LOS A	0.2	1.7	0.38	0.91	0.38	32.2
3	R2	8	2.0	8	2.0	0.067	9.9	LOS A	0.2	1.7	0.38	0.91	0.38	26.4
Approach		55	2.0	58	2.0	0.067	8.4	LOS A	0.2	1.7	0.38	0.91	0.38	28.9
East: Roderick Rd														
4	L2	12	2.0	13	2.0	0.139	5.1	LOS A	0.2	1.6	0.09	0.08	0.09	42.0
5	T1	209	2.0	220	2.0	0.139	0.1	LOS A	0.2	1.6	0.09	0.08	0.09	54.8
6	R2	24	2.0	25	2.0	0.139	5.1	LOS A	0.2	1.6	0.09	0.08	0.09	46.1
Approach		245	2.0	258	2.0	0.139	0.8	NA	0.2	1.6	0.09	0.08	0.09	53.0
North: Nicholas St														
7	L2	23	2.0	24	2.0	0.086	8.8	LOS A	0.3	2.2	0.39	0.93	0.39	29.4
8	T1	12	2.0	13	2.0	0.086	10.7	LOS B	0.3	2.2	0.39	0.93	0.39	29.0
9	R2	25	2.0	26	2.0	0.086	11.5	LOS B	0.3	2.2	0.39	0.93	0.39	30.6
Approach		60	2.0	63	2.0	0.086	10.3	LOS B	0.3	2.2	0.39	0.93	0.39	29.9
West: Roderick Rd														
10	L2	18	2.0	19	2.0	0.119	6.1	LOS A	0.2	1.5	0.10	0.11	0.10	47.9
11	T1	169	2.0	178	2.0	0.119	0.1	LOS A	0.2	1.5	0.10	0.11	0.10	52.3
12	R2	21	2.0	22	2.0	0.119	6.3	LOS A	0.2	1.5	0.10	0.11	0.10	41.3
Approach		208	2.0	219	2.0	0.119	1.3	NA	0.2	1.5	0.10	0.11	0.10	50.5
All Vehicles		568	2.0	598	2.0	0.139	2.7	NA	0.3	2.2	0.15	0.26	0.15	44.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	22	2.0	23	2.0	0.044	5.6	LOS A	0.2	1.3	0.26	0.53	0.26	28.6
3	R2	31	2.0	33	2.0	0.044	6.9	LOS A	0.2	1.3	0.26	0.53	0.26	39.8
Approach		53	2.0	56	2.0	0.044	6.4	LOS A	0.2	1.3	0.26	0.53	0.26	35.2
North: Nicholas St														
7	L2	53	2.0	56	2.0	0.080	5.7	LOS A	0.3	2.2	0.15	0.54	0.15	42.4
8	T1	39	2.0	41	2.0	0.080	4.4	LOS A	0.3	2.2	0.15	0.54	0.15	39.3
9	R2	15	2.0	16	2.0	0.080	6.2	LOS A	0.3	2.2	0.15	0.54	0.15	28.9
Approach		107	2.0	113	2.0	0.080	5.3	LOS A	0.3	2.2	0.15	0.54	0.15	39.3
West: South St														
11	T1	54	2.0	57	2.0	0.047	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	53.8
12	R2	31	2.0	33	2.0	0.047	5.4	LOS A	0.0	0.0	0.00	0.22	0.00	44.6
Approach		85	2.0	89	2.0	0.047	2.0	NA	0.0	0.0	0.00	0.22	0.00	50.7
All Vehicles		245	2.0	258	2.0	0.080	4.4	NA	0.3	2.2	0.12	0.43	0.12	41.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	506	2.0	533	2.0	0.311	0.4	LOS A	0.5	3.8	0.11	0.04	0.12	56.2
3	R2	32	2.0	34	2.0	0.311	8.8	LOS A	0.5	3.8	0.11	0.04	0.12	50.3
Approach		538	2.0	566	2.0	0.311	0.9	NA	0.5	3.8	0.11	0.04	0.12	55.7
East: South St														
4	L2	45	2.0	47	2.0	0.149	7.5	LOS A	0.5	3.5	0.57	0.77	0.57	34.8
6	R2	24	2.0	25	2.0	0.149	18.8	LOS C	0.5	3.5	0.57	0.77	0.57	29.0
6u	U	1	2.0	1	2.0	0.149	7.1	LOS A	0.5	3.5	0.57	0.77	0.57	37.1
Approach		70	2.0	74	2.0	0.149	11.4	LOS B	0.5	3.5	0.57	0.77	0.57	32.7
North: East St														
7	L2	56	2.0	59	2.0	0.282	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	52.4
8	T1	457	2.0	481	2.0	0.282	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	57.2
Approach		513	2.0	540	2.0	0.282	0.6	NA	0.0	0.0	0.00	0.07	0.00	56.5
West: South St														
10	L2	38	2.0	40	2.0	0.181	11.2	LOS B	0.6	4.3	0.68	0.99	0.68	27.4
11	T1	22	2.0	23	2.0	0.181	21.2	LOS C	0.6	4.3	0.68	0.99	0.68	35.0
12	R2	8	2.0	8	2.0	0.181	23.9	LOS C	0.6	4.3	0.68	0.99	0.68	31.7
Approach		68	2.0	72	2.0	0.181	15.9	LOS C	0.6	4.3	0.68	0.99	0.68	30.4
All Vehicles		1189	2.0	1252	2.0	0.311	2.2	NA	0.6	4.3	0.12	0.15	0.13	50.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 110 [Roderick St & Ginn St - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	24	2.0	25	2.0	0.041	9.1	LOS A	0.1	1.0	0.37	0.88	0.37	51.1
2	T1	1	2.0	1	2.0	0.041	10.5	LOS B	0.1	1.0	0.37	0.88	0.37	50.8
3	R2	9	2.0	9	2.0	0.041	11.0	LOS B	0.1	1.0	0.37	0.88	0.37	50.6
Approach		34	2.0	36	2.0	0.041	9.6	LOS A	0.1	1.0	0.37	0.88	0.37	50.9
East: Roderick St														
4	L2	12	2.0	13	2.0	0.137	5.8	LOS A	0.1	0.5	0.03	0.05	0.03	57.8
5	T1	229	2.0	241	2.0	0.137	0.0	LOS A	0.1	0.5	0.03	0.05	0.03	59.5
6	R2	7	2.0	7	2.0	0.137	6.2	LOS A	0.1	0.5	0.03	0.05	0.03	57.1
Approach		248	2.0	261	2.0	0.137	0.5	NA	0.1	0.5	0.03	0.05	0.03	59.3
North: Carpark Access														
7	L2	7	2.0	7	2.0	0.029	8.8	LOS A	0.1	0.7	0.39	0.91	0.39	50.8
8	T1	8	2.0	8	2.0	0.029	10.5	LOS B	0.1	0.7	0.39	0.91	0.39	50.6
9	R2	6	2.0	6	2.0	0.029	11.0	LOS B	0.1	0.7	0.39	0.91	0.39	50.3
Approach		21	2.0	22	2.0	0.029	10.1	LOS B	0.1	0.7	0.39	0.91	0.39	50.6
West: Roderick St														
10	L2	3	2.0	3	2.0	0.110	6.4	LOS A	0.1	0.8	0.06	0.05	0.06	57.6
11	T1	181	2.0	191	2.0	0.110	0.1	LOS A	0.1	0.8	0.06	0.05	0.06	59.3
12	R2	12	2.0	13	2.0	0.110	6.4	LOS A	0.1	0.8	0.06	0.05	0.06	57.0
Approach		196	2.0	206	2.0	0.110	0.6	NA	0.1	0.8	0.06	0.05	0.06	59.2
All Vehicles		499	2.0	525	2.0	0.137	1.5	NA	0.1	1.0	0.08	0.14	0.08	58.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - AM (Base 2027) (Site Folder: Base (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	244	2.0	257	2.0	0.136	0.0	LOS A	0.0	0.2	0.01	0.01	0.01	59.4
6	R2	3	2.0	3	2.0	0.136	4.8	LOS A	0.0	0.2	0.01	0.01	0.01	45.5
Approach		247	2.0	260	2.0	0.136	0.1	NA	0.0	0.2	0.01	0.01	0.01	59.2
North: Carpark Access														
7	L2	6	2.0	6	2.0	0.008	6.1	LOS A	0.0	0.2	0.30	0.56	0.30	31.5
9	R2	3	2.0	3	2.0	0.008	7.3	LOS A	0.0	0.2	0.30	0.56	0.30	32.3
Approach		9	2.0	9	2.0	0.008	6.5	LOS A	0.0	0.2	0.30	0.56	0.30	31.8
West: Roderick St														
10	L2	9	2.0	9	2.0	0.109	4.9	LOS A	0.0	0.0	0.00	0.03	0.00	38.5
11	T1	189	2.0	199	2.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.4
Approach		198	2.0	208	2.0	0.109	0.2	NA	0.0	0.0	0.00	0.03	0.00	56.7
All Vehicles		454	2.0	478	2.0	0.136	0.3	NA	0.0	0.2	0.01	0.03	0.01	56.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - AM (Dev 2027) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2027)]														
South: Warwick Rd														
1a	L1	723	2.0	723	2.0	* 0.622	8.2	LOS A	5.1	36.5	0.42	0.69	0.42	35.1
2	T1	206	2.0	206	2.0	0.429	15.0	LOS B	2.6	18.2	0.70	0.58	0.70	29.2
Approach		929	2.0	929	2.0	0.622	9.7	LOS A	5.1	36.5	0.49	0.67	0.49	33.6
North: Warwick Rd														
8	T1	161	2.0	161	2.0	0.078	7.3	LOS A	0.7	5.0	0.51	0.40	0.51	35.1
9b	R3	13	2.0	13	2.0	0.043	28.7	LOS C	0.2	1.4	0.85	0.68	0.85	24.1
Approach		174	2.0	174	2.0	0.078	8.9	LOS A	0.7	5.0	0.54	0.42	0.54	33.1
NorthWest: Churchill St														
27b	L3	32	2.0	32	2.0	0.407	26.2	LOS C	3.1	22.1	0.86	0.79	0.86	27.9
29a	R1	380	2.0	380	2.0	0.407	24.3	LOS C	3.1	22.2	0.86	0.79	0.86	18.2
Approach		412	2.0	412	2.0	0.407	24.5	LOS C	3.1	22.2	0.86	0.79	0.86	19.1
All Vehicles		1515	2.0	1515	2.0	0.622	13.6	LOS B	5.1	36.5	0.59	0.67	0.59	28.5
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2027)]														
South: Warwick Rd														
1	L2	83	2.0	83	2.0	0.391	11.8	LOS B	4.2	29.7	0.54	0.52	0.54	41.0
2	T1	821	2.0	821	2.0	0.391	6.2	LOS A	4.2	29.7	0.54	0.49	0.54	39.3
3	R2	38	2.0	38	2.0	0.066	11.5	LOS B	0.3	2.1	0.45	0.66	0.45	34.4
Approach		942	2.0	942	2.0	0.391	6.9	LOS A	4.2	29.7	0.53	0.50	0.53	39.2
East: Gray St														
4	L2	18	2.0	18	2.0	0.638	32.0	LOS C	4.0	28.3	0.98	0.83	1.03	24.0
5	T1	206	2.0	206	2.0	* 0.638	26.1	LOS C	4.0	28.3	0.98	0.83	1.03	20.9
6	R2	62	2.0	62	2.0	0.290	32.6	LOS C	1.1	7.7	0.94	0.75	0.94	11.0
Approach		286	2.0	286	2.0	0.638	27.9	LOS C	4.0	28.3	0.97	0.81	1.01	19.1
North: Warwick Rd														
7	L2	43	2.0	43	2.0	0.038	8.7	LOS A	0.2	1.6	0.30	0.62	0.30	29.4
8	T1	439	2.0	439	2.0	0.185	4.3	LOS A	1.3	9.1	0.33	0.28	0.33	47.6
9	R2	47	2.0	47	2.0	0.138	10.6	LOS B	0.3	2.0	0.34	0.64	0.34	29.2
Approach		529	2.0	529	2.0	0.185	5.2	LOS A	1.3	9.1	0.33	0.34	0.33	44.2
West: Chelmsford Ave														
10	L2	38	2.0	38	2.0	0.396	29.9	LOS C	2.3	16.3	0.92	0.75	0.92	14.4
11	T1	100	2.0	100	2.0	0.396	24.4	LOS C	2.3	16.3	0.92	0.75	0.92	21.2
12	R2	33	2.0	33	2.0	0.206	35.4	LOS D	0.6	4.2	0.96	0.71	0.96	20.7
Approach		171	2.0	171	2.0	0.396	27.7	LOS C	2.3	16.3	0.93	0.74	0.93	19.9
All Vehicles		1928	2.0	1928	2.0	0.638	11.4	LOS B	4.2	29.7	0.58	0.52	0.58	32.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2027)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2027)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	26	2.0	27	2.0	0.015	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	59.8
3	R2	1	2.0	1	2.0	0.015	5.5	LOS A	0.0	0.0	0.01	0.02	0.01	57.4
Approach		27	2.0	28	2.0	0.015	0.2	NA	0.0	0.0	0.01	0.02	0.01	59.7
East: Carpark Access														
4	L2	10	2.0	11	2.0	0.014	5.6	LOS A	0.0	0.3	0.08	0.56	0.08	53.3
6	R2	8	2.0	8	2.0	0.014	5.6	LOS A	0.0	0.3	0.08	0.56	0.08	52.8
Approach		18	2.0	19	2.0	0.014	5.6	LOS A	0.0	0.3	0.08	0.56	0.08	53.1
North: Nicholas St														
7	L2	1	2.0	1	2.0	0.012	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.0
8	T1	21	2.0	22	2.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		22	2.0	23	2.0	0.012	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.7
All Vehicles		67	2.0	71	2.0	0.015	1.7	NA	0.0	0.3	0.02	0.17	0.02	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	61	2.0	64	2.0	0.078	14.0	LOS B	1.1	7.6	0.60	0.68	0.60	17.8
2	T1	410	2.0	432	2.0	0.516	12.8	LOS B	9.1	64.9	0.76	0.66	0.76	26.7
3	R2	1	2.0	1	2.0	0.516	16.7	LOS B	9.1	64.9	0.76	0.66	0.76	25.6
Approach		472	2.0	497	2.0	0.516	13.0	LOS B	9.1	64.9	0.74	0.66	0.74	25.6
East: Roderick St														
4	L2	37	2.0	39	2.0	0.162	21.7	LOS C	2.1	14.8	0.76	0.65	0.76	20.6
5	T1	55	2.0	58	2.0	0.162	16.2	LOS B	2.1	14.8	0.76	0.65	0.76	22.3
6	R2	31	2.0	33	2.0	0.088	23.9	LOS C	0.7	5.3	0.78	0.71	0.78	21.3
Approach		123	2.0	129	2.0	0.162	19.8	LOS B	2.1	14.8	0.76	0.67	0.76	21.5
North: East St														
7	L2	30	2.0	32	2.0	0.477	17.6	LOS B	6.4	45.5	0.71	0.62	0.71	29.9
8	T1	520	2.0	547	2.0	0.477	12.6	LOS B	6.4	45.5	0.72	0.63	0.72	26.3
9	R2	30	2.0	32	2.0	* 0.477	18.9	LOS B	5.9	42.2	0.74	0.65	0.74	20.7
Approach		580	2.0	611	2.0	0.477	13.2	LOS B	6.4	45.5	0.72	0.63	0.72	26.2
West: Roderick St														
10	L2	99	2.0	104	2.0	0.180	20.2	LOS C	2.3	16.0	0.76	0.73	0.76	19.1
11	T1	112	2.0	118	2.0	0.517	18.3	LOS B	5.4	38.8	0.85	0.75	0.85	20.9
12	R2	101	2.0	106	2.0	* 0.517	22.2	LOS C	5.4	38.8	0.85	0.75	0.85	14.0
Approach		312	2.0	328	2.0	0.517	20.2	LOS C	5.4	38.8	0.82	0.74	0.82	18.2
All Vehicles		1487	2.0	1565	2.0	0.517	15.1	LOS B	9.1	64.9	0.75	0.67	0.75	23.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	37	2.0	39	2.0	0.021	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	106	2.0	112	2.0	0.030	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		143	2.0	151	2.0	0.030	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.2
East: Roderick St														
4	L2	178	2.0	187	2.0	0.173	4.7	LOS A	0.8	5.6	0.25	0.44	0.25	43.1
5	T1	64	2.0	67	2.0	0.173	5.8	LOS A	0.8	5.6	0.25	0.44	0.25	37.9
Approach		242	2.0	255	2.0	0.173	5.0	NA	0.8	5.6	0.25	0.44	0.25	41.7
West: Roderick St														
11	T1	137	2.0	144	2.0	0.186	9.5	LOS A	0.9	6.1	0.32	0.88	0.32	25.9
12	R2	28	2.0	29	2.0	0.186	12.0	LOS B	0.9	6.1	0.32	0.88	0.32	36.5
12u	U	1	2.0	1	2.0	0.186	9.2	LOS A	0.9	6.1	0.32	0.88	0.32	33.8
Approach		166	2.0	175	2.0	0.186	9.9	LOS A	0.9	6.1	0.32	0.88	0.32	27.9
All Vehicles		551	2.0	580	2.0	0.186	6.6	NA	0.9	6.1	0.21	0.61	0.21	35.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	67	2.0	71	2.0	0.111	3.0	LOS A	0.6	4.1	0.50	0.33	0.50	33.5
3b	R3	47	2.0	49	2.0	0.111	8.2	LOS A	0.6	4.1	0.50	0.33	0.50	38.0
Approach		114	2.0	120	2.0	0.111	5.1	NA	0.6	4.1	0.50	0.33	0.50	36.0
SouthEast: Churchill St														
21b	L3	28	2.0	29	2.0	0.019	6.9	LOS A	0.1	0.5	0.16	0.55	0.16	36.1
23a	R1	405	2.0	426	2.0	0.642	13.1	LOS B	5.7	40.3	0.73	1.10	1.33	27.3
Approach		433	2.0	456	2.0	0.642	12.7	LOS B	5.7	40.3	0.70	1.06	1.25	27.8
North: East St														
7a	L1	558	2.0	587	2.0	0.175	3.0	LOS A	0.0	0.0	0.00	0.47	0.00	43.9
8	T1	69	2.0	73	2.0	0.175	0.0	LOS A	0.0	0.0	0.00	0.41	0.00	43.7
Approach		627	2.0	660	2.0	0.175	2.7	NA	0.0	0.0	0.00	0.46	0.00	43.9
All Vehicles		1174	2.0	1236	2.0	0.642	6.6	NA	5.7	40.3	0.31	0.67	0.51	35.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	22	2.0	23	2.0	0.075	7.4	LOS A	0.3	1.9	0.37	0.92	0.37	27.6
2	T1	12	2.0	13	2.0	0.075	8.9	LOS A	0.3	1.9	0.37	0.92	0.37	31.9
3	R2	22	2.0	23	2.0	0.075	9.5	LOS A	0.3	1.9	0.37	0.92	0.37	26.1
Approach		56	2.0	59	2.0	0.075	8.5	LOS A	0.3	1.9	0.37	0.92	0.37	28.0
East: Roderick Rd														
4	L2	6	2.0	6	2.0	0.101	5.1	LOS A	0.1	0.8	0.06	0.06	0.06	43.1
5	T1	163	2.0	172	2.0	0.101	0.1	LOS A	0.1	0.8	0.06	0.06	0.06	56.3
6	R2	12	2.0	13	2.0	0.101	5.2	LOS A	0.1	0.8	0.06	0.06	0.06	47.0
Approach		181	2.0	191	2.0	0.101	0.6	NA	0.1	0.8	0.06	0.06	0.06	55.0
North: Nicholas St														
7	L2	20	2.0	21	2.0	0.034	8.9	LOS A	0.1	0.9	0.34	0.89	0.34	30.6
8	T1	9	2.0	9	2.0	0.034	10.1	LOS B	0.1	0.9	0.34	0.89	0.34	30.3
9	R2	2	2.0	2	2.0	0.034	10.7	LOS B	0.1	0.9	0.34	0.89	0.34	31.8
Approach		31	2.0	33	2.0	0.034	9.4	LOS A	0.1	0.9	0.34	0.89	0.34	30.6
West: Roderick Rd														
10	L2	3	2.0	3	2.0	0.121	6.1	LOS A	0.1	1.0	0.06	0.06	0.06	50.0
11	T1	196	2.0	206	2.0	0.121	0.1	LOS A	0.1	1.0	0.06	0.06	0.06	55.7
12	R2	17	2.0	18	2.0	0.121	6.1	LOS A	0.1	1.0	0.06	0.06	0.06	43.5
Approach		216	2.0	227	2.0	0.121	0.6	NA	0.1	1.0	0.06	0.06	0.06	54.4
All Vehicles		484	2.0	509	2.0	0.121	2.1	NA	0.3	1.9	0.11	0.21	0.11	47.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	12	2.0	13	2.0	0.028	5.6	LOS A	0.1	0.7	0.17	0.55	0.17	28.9
3	R2	23	2.0	24	2.0	0.028	6.2	LOS A	0.1	0.7	0.17	0.55	0.17	40.2
Approach		35	2.0	37	2.0	0.028	6.0	LOS A	0.1	0.7	0.17	0.55	0.17	36.4
North: Nicholas St														
7	L2	25	2.0	26	2.0	0.036	5.7	LOS A	0.1	1.0	0.11	0.53	0.11	42.8
8	T1	20	2.0	21	2.0	0.036	4.3	LOS A	0.1	1.0	0.11	0.53	0.11	39.7
9	R2	5	2.0	5	2.0	0.036	5.9	LOS A	0.1	1.0	0.11	0.53	0.11	29.1
Approach		50	2.0	53	2.0	0.036	5.1	LOS A	0.1	1.0	0.11	0.53	0.11	40.2
West: South St														
11	T1	36	2.0	38	2.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	57.1
12	R2	7	2.0	7	2.0	0.024	5.4	LOS A	0.0	0.0	0.00	0.10	0.00	47.6
Approach		43	2.0	45	2.0	0.024	0.9	NA	0.0	0.0	0.00	0.10	0.00	55.7
All Vehicles		128	2.0	135	2.0	0.036	3.9	NA	0.1	1.0	0.09	0.39	0.09	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	517	2.0	544	2.0	0.312	0.4	LOS A	0.5	3.4	0.09	0.03	0.11	56.5
3	R2	25	2.0	26	2.0	0.312	9.6	LOS A	0.5	3.4	0.09	0.03	0.11	50.4
Approach		542	2.0	571	2.0	0.312	0.8	NA	0.5	3.4	0.09	0.03	0.11	56.1
East: South St														
4	L2	29	2.0	31	2.0	0.160	8.0	LOS A	0.5	3.6	0.66	0.83	0.66	32.1
6	R2	26	2.0	27	2.0	0.160	21.0	LOS C	0.5	3.6	0.66	0.83	0.66	27.0
6u	U	1	2.0	1	2.0	0.160	7.1	LOS A	0.5	3.6	0.66	0.83	0.66	34.6
Approach		56	2.0	59	2.0	0.160	14.0	LOS B	0.5	3.6	0.66	0.83	0.66	29.6
North: East St														
7	L2	54	2.0	57	2.0	0.320	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	52.6
8	T1	529	2.0	557	2.0	0.320	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	57.6
Approach		583	2.0	614	2.0	0.320	0.5	NA	0.0	0.0	0.00	0.06	0.00	56.9
West: South St														
10	L2	45	2.0	47	2.0	0.260	12.1	LOS B	0.9	6.6	0.73	1.03	0.82	25.8
11	T1	24	2.0	25	2.0	0.260	24.9	LOS C	0.9	6.6	0.73	1.03	0.82	32.9
12	R2	15	2.0	16	2.0	0.260	27.2	LOS D	0.9	6.6	0.73	1.03	0.82	29.6
Approach		84	2.0	88	2.0	0.260	18.5	LOS C	0.9	6.6	0.73	1.03	0.82	28.5
All Vehicles		1265	2.0	1332	2.0	0.320	2.4	NA	0.9	6.6	0.12	0.14	0.13	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 110 [Roderick St & Ginn St - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	14	2.0	15	2.0	0.032	8.7	LOS A	0.1	0.8	0.31	0.89	0.31	50.9
2	T1	1	2.0	1	2.0	0.032	10.4	LOS B	0.1	0.8	0.31	0.89	0.31	50.7
3	R2	10	2.0	11	2.0	0.032	11.1	LOS B	0.1	0.8	0.31	0.89	0.31	50.4
Approach		25	2.0	26	2.0	0.032	9.7	LOS A	0.1	0.8	0.31	0.89	0.31	50.7
East: Roderick St														
4	L2	3	2.0	3	2.0	0.082	5.8	LOS A	0.0	0.1	0.01	0.02	0.01	58.1
5	T1	146	2.0	154	2.0	0.082	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.8
6	R2	1	2.0	1	2.0	0.082	6.5	LOS A	0.0	0.1	0.01	0.02	0.01	57.5
Approach		150	2.0	158	2.0	0.082	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.8
North: Carpark Access														
7	L2	33	2.0	35	2.0	0.039	9.3	LOS A	0.1	1.1	0.38	0.87	0.38	51.2
8	T1	2	2.0	2	2.0	0.039	10.5	LOS B	0.1	1.1	0.38	0.87	0.38	51.0
9	R2	2	2.0	2	2.0	0.039	11.0	LOS B	0.1	1.1	0.38	0.87	0.38	50.8
Approach		37	2.0	39	2.0	0.039	9.5	LOS A	0.1	1.1	0.38	0.87	0.38	51.2
West: Roderick St														
10	L2	1	2.0	1	2.0	0.153	6.1	LOS A	0.0	0.3	0.01	0.01	0.01	58.1
11	T1	273	2.0	287	2.0	0.153	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.8
12	R2	5	2.0	5	2.0	0.153	6.0	LOS A	0.0	0.3	0.01	0.01	0.01	57.5
Approach		279	2.0	294	2.0	0.153	0.1	NA	0.0	0.3	0.01	0.01	0.01	59.8
All Vehicles		491	2.0	517	2.0	0.153	1.3	NA	0.1	1.1	0.06	0.12	0.06	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - PM (Base 2027) (Site Folder: Base (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	159	2.0	167	2.0	0.088	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	59.7
6	R2	1	2.0	1	2.0	0.088	4.9	LOS A	0.0	0.1	0.01	0.00	0.01	45.7
Approach		160	2.0	168	2.0	0.088	0.0	NA	0.0	0.1	0.01	0.00	0.01	59.6
North: Carpark Access														
7	L2	29	2.0	31	2.0	0.042	6.3	LOS A	0.2	1.1	0.34	0.60	0.34	31.3
9	R2	15	2.0	16	2.0	0.042	7.2	LOS A	0.2	1.1	0.34	0.60	0.34	32.1
Approach		44	2.0	46	2.0	0.042	6.6	LOS A	0.2	1.1	0.34	0.60	0.34	31.6
West: Roderick St														
10	L2	3	2.0	3	2.0	0.129	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	38.8
11	T1	233	2.0	245	2.0	0.129	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		236	2.0	248	2.0	0.129	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.0
All Vehicles		440	2.0	463	2.0	0.129	0.7	NA	0.2	1.1	0.04	0.07	0.04	53.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - PM (Dev 2027) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2027)]														
South: Warwick Rd														
1a	L1	452	2.0	452	2.0	0.553	10.2	LOS B	3.7	26.5	0.48	0.70	0.48	32.5
2	T1	113	2.0	113	2.0	* 0.439	27.4	LOS C	1.9	13.8	0.94	0.73	0.94	20.5
Approach		564	2.0	564	2.0	0.553	13.6	LOS B	3.7	26.5	0.57	0.71	0.57	29.1
North: Warwick Rd														
8	T1	233	2.0	233	2.0	* 0.268	10.9	LOS B	1.0	7.1	0.86	0.67	0.86	29.1
9b	R3	13	2.0	13	2.0	0.079	34.5	LOS C	0.2	1.6	0.93	0.68	0.93	21.6
Approach		245	2.0	245	2.0	0.268	12.2	LOS B	1.0	7.1	0.86	0.67	0.86	28.1
NorthWest: Churchill St														
27b	L3	15	2.0	15	2.0	0.551	14.8	LOS B	2.9	20.4	0.82	0.80	0.82	37.8
29a	R1	724	2.0	724	2.0	* 0.551	12.9	LOS B	2.9	20.4	0.83	0.80	0.83	27.0
Approach		739	2.0	739	2.0	0.551	12.9	LOS B	2.9	20.4	0.83	0.80	0.83	27.3
All Vehicles		1548	2.0	1548	2.0	0.553	13.0	LOS B	3.7	26.5	0.74	0.74	0.74	28.2
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2027)]														
South: Warwick Rd														
1	L2	48	2.0	48	2.0	0.306	17.7	LOS B	3.0	21.3	0.69	0.62	0.69	34.0
2	T1	460	2.0	460	2.0	0.306	12.1	LOS B	3.0	21.5	0.69	0.60	0.69	30.2
3	R2	32	2.0	32	2.0	0.130	23.9	LOS C	0.4	3.2	0.78	0.72	0.78	25.0
Approach		540	2.0	540	2.0	0.306	13.3	LOS B	3.0	21.5	0.70	0.61	0.70	30.1
East: Gray St														
4	L2	38	2.0	38	2.0	0.235	20.7	LOS C	2.1	14.7	0.73	0.63	0.73	31.1
5	T1	126	2.0	126	2.0	0.235	14.4	LOS B	2.1	14.7	0.73	0.63	0.73	28.5
6	R2	42	2.0	42	2.0	0.124	24.3	LOS C	0.6	4.2	0.79	0.72	0.79	13.8
Approach		206	2.0	206	2.0	0.235	17.6	LOS B	2.1	14.7	0.74	0.65	0.74	26.1
North: Warwick Rd														
7	L2	62	2.0	62	2.0	0.106	15.2	LOS B	0.9	6.3	0.61	0.64	0.61	16.6
8	T1	869	2.0	869	2.0	0.529	13.1	LOS B	5.6	40.2	0.76	0.66	0.76	33.5
9	R2	21	2.0	21	2.0	0.057	18.5	LOS B	0.2	1.6	0.59	0.67	0.59	22.0
Approach		953	2.0	953	2.0	0.529	13.3	LOS B	5.6	40.2	0.74	0.66	0.74	31.8
West: Chelmsford Ave														
10	L2	56	2.0	56	2.0	0.465	21.1	LOS C	3.9	27.8	0.79	0.69	0.79	19.8
11	T1	231	2.0	231	2.0	0.465	15.6	LOS B	3.9	27.8	0.79	0.69	0.79	27.6
12	R2	87	2.0	87	2.0	0.203	22.2	LOS C	1.2	8.4	0.77	0.74	0.77	26.9
Approach		374	2.0	374	2.0	0.465	18.0	LOS B	3.9	27.8	0.79	0.70	0.79	26.5
All Vehicles		2073	2.0	2073	2.0	0.529	14.6	LOS B	5.6	40.2	0.74	0.65	0.74	29.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2027)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2027)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	54	2.0	57	2.0	0.051	0.1	LOS A	0.2	1.3	0.14	0.22	0.14	57.5
3	R2	32	2.0	34	2.0	0.051	5.7	LOS A	0.2	1.3	0.14	0.22	0.14	55.3
Approach		86	2.0	91	2.0	0.051	2.2	NA	0.2	1.3	0.14	0.22	0.14	56.7
East: Carpark Access														
4	L2	3	2.0	3	2.0	0.004	5.7	LOS A	0.0	0.1	0.15	0.55	0.15	53.1
6	R2	2	2.0	2	2.0	0.004	6.0	LOS A	0.0	0.1	0.15	0.55	0.15	52.6
Approach		5	2.0	5	2.0	0.004	5.8	LOS A	0.0	0.1	0.15	0.55	0.15	52.9
North: Nicholas St														
7	L2	26	2.0	27	2.0	0.048	5.6	LOS A	0.0	0.0	0.00	0.18	0.00	56.7
8	T1	60	2.0	63	2.0	0.048	0.0	LOS A	0.0	0.0	0.00	0.18	0.00	58.4
Approach		86	2.0	91	2.0	0.048	1.7	NA	0.0	0.0	0.00	0.18	0.00	57.9
All Vehicles		177	2.0	186	2.0	0.051	2.1	NA	0.2	1.3	0.07	0.21	0.07	57.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	214	2.0	225	2.0	0.231	12.0	LOS B	3.5	25.1	0.56	0.71	0.56	19.6
2	T1	447	2.0	471	2.0	0.497	9.4	LOS A	8.6	61.3	0.66	0.58	0.66	31.4
3	R2	1	2.0	1	2.0	0.497	13.3	LOS B	8.6	61.3	0.66	0.58	0.66	29.5
Approach		662	2.0	697	2.0	0.497	10.2	LOS B	8.6	61.3	0.63	0.62	0.63	27.3
East: Roderick St														
4	L2	17	2.0	18	2.0	0.225	26.2	LOS C	2.4	17.4	0.85	0.68	0.85	18.7
5	T1	78	2.0	82	2.0	0.225	20.6	LOS C	2.4	17.4	0.85	0.68	0.85	20.1
6	R2	31	2.0	33	2.0	0.114	28.5	LOS C	0.8	5.9	0.87	0.71	0.87	19.1
Approach		126	2.0	133	2.0	0.225	23.3	LOS C	2.4	17.4	0.85	0.69	0.85	19.6
North: East St														
7	L2	38	2.0	40	2.0	0.515	14.5	LOS B	6.6	46.7	0.62	0.56	0.62	33.5
8	T1	381	2.0	401	2.0	0.515	9.8	LOS A	6.6	46.7	0.65	0.59	0.65	29.1
9	R2	141	2.0	148	2.0	* 0.515	20.9	LOS C	4.8	34.4	0.80	0.77	0.80	17.4
Approach		560	2.0	589	2.0	0.515	12.9	LOS B	6.6	46.7	0.69	0.63	0.69	25.3
West: Roderick St														
10	L2	70	2.0	74	2.0	0.172	24.3	LOS C	1.8	12.6	0.83	0.74	0.83	16.9
11	T1	76	2.0	80	2.0	0.481	23.1	LOS C	4.3	30.7	0.92	0.77	0.92	18.0
12	R2	77	2.0	81	2.0	* 0.481	27.0	LOS C	4.3	30.7	0.92	0.77	0.92	12.0
Approach		223	2.0	235	2.0	0.481	24.8	LOS C	4.3	30.7	0.89	0.76	0.89	15.7
All Vehicles		1571	2.0	1654	2.0	0.515	14.3	LOS B	8.6	61.3	0.70	0.65	0.70	23.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Warwick Rd - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	62	2.0	65	2.0	0.036	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	132	2.0	139	2.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		194	2.0	204	2.0	0.038	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.5
East: Roderick St														
4	L2	140	2.0	147	2.0	0.228	5.5	LOS A	1.4	9.7	0.40	0.47	0.40	41.2
5	T1	129	2.0	136	2.0	0.228	6.2	LOS A	1.4	9.7	0.40	0.47	0.40	36.1
Approach		269	2.0	283	2.0	0.228	5.8	NA	1.4	9.7	0.40	0.47	0.40	38.8
West: Roderick St														
11	T1	90	2.0	95	2.0	0.149	9.7	LOS A	0.6	4.6	0.37	0.89	0.37	25.4
12	R2	28	2.0	29	2.0	0.149	12.8	LOS B	0.6	4.6	0.37	0.89	0.37	36.0
12u	U	1	2.0	1	2.0	0.149	9.8	LOS A	0.6	4.6	0.37	0.89	0.37	33.3
Approach		119	2.0	125	2.0	0.149	10.4	LOS B	0.6	4.6	0.37	0.89	0.37	28.2
All Vehicles		582	2.0	613	2.0	0.228	6.7	NA	1.4	9.7	0.26	0.59	0.26	36.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [East St & Churchill St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	33	2.0	35	2.0	0.046	1.7	LOS A	0.2	1.5	0.40	0.28	0.40	38.4
3b	R3	21	2.0	22	2.0	0.046	6.7	LOS A	0.2	1.5	0.40	0.28	0.40	40.9
Approach		54	2.0	57	2.0	0.046	3.7	NA	0.2	1.5	0.40	0.28	0.40	39.8
SouthEast: Churchill St														
21b	L3	69	2.0	73	2.0	0.048	7.0	LOS A	0.2	1.4	0.18	0.55	0.18	35.9
23a	R1	634	2.0	667	2.0	0.847	17.5	LOS C	16.1	114.3	0.88	1.44	2.18	23.7
Approach		703	2.0	740	2.0	0.847	16.5	LOS C	16.1	114.3	0.81	1.35	1.98	24.5
North: East St														
7a	L1	392	2.0	413	2.0	0.132	3.0	LOS A	0.0	0.0	0.00	0.45	0.00	44.2
8	T1	84	2.0	88	2.0	0.132	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	45.8
Approach		476	2.0	501	2.0	0.132	2.5	NA	0.0	0.0	0.00	0.43	0.00	44.3
All Vehicles		1233	2.0	1298	2.0	0.847	10.5	NA	16.1	114.3	0.48	0.95	1.15	29.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Nicholas St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	32	2.0	34	2.0	0.113	7.7	LOS A	0.4	3.0	0.43	0.96	0.43	27.2
2	T1	43	2.0	45	2.0	0.113	9.7	LOS A	0.4	3.0	0.43	0.96	0.43	31.4
3	R2	8	2.0	8	2.0	0.113	10.5	LOS B	0.4	3.0	0.43	0.96	0.43	25.7
Approach		83	2.0	87	2.0	0.113	9.0	LOS A	0.4	3.0	0.43	0.96	0.43	29.3
East: Roderick Rd														
4	L2	12	2.0	13	2.0	0.141	5.2	LOS A	0.2	1.6	0.09	0.08	0.09	41.9
5	T1	213	2.0	224	2.0	0.141	0.1	LOS A	0.2	1.6	0.09	0.08	0.09	54.7
6	R2	24	2.0	25	2.0	0.141	5.3	LOS A	0.2	1.6	0.09	0.08	0.09	46.1
Approach		249	2.0	262	2.0	0.141	0.9	NA	0.2	1.6	0.09	0.08	0.09	53.0
North: Nicholas St														
7	L2	23	2.0	24	2.0	0.092	9.0	LOS A	0.3	2.3	0.42	0.93	0.42	29.0
8	T1	12	2.0	13	2.0	0.092	11.0	LOS B	0.3	2.3	0.42	0.93	0.42	28.6
9	R2	25	2.0	26	2.0	0.092	12.2	LOS B	0.3	2.3	0.42	0.93	0.42	30.2
Approach		60	2.0	63	2.0	0.092	10.7	LOS B	0.3	2.3	0.42	0.93	0.42	29.5
West: Roderick Rd														
10	L2	18	2.0	19	2.0	0.134	6.1	LOS A	0.2	1.5	0.09	0.10	0.09	48.3
11	T1	197	2.0	207	2.0	0.134	0.1	LOS A	0.2	1.5	0.09	0.10	0.09	53.0
12	R2	21	2.0	22	2.0	0.134	6.3	LOS A	0.2	1.5	0.09	0.10	0.09	41.8
Approach		236	2.0	248	2.0	0.134	1.1	NA	0.2	1.5	0.09	0.10	0.09	51.4
All Vehicles		628	2.0	661	2.0	0.141	3.0	NA	0.4	3.0	0.17	0.28	0.17	43.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & Nicholas St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	23	2.0	24	2.0	0.045	5.6	LOS A	0.2	1.3	0.27	0.53	0.27	28.6
3	R2	31	2.0	33	2.0	0.045	7.1	LOS A	0.2	1.3	0.27	0.53	0.27	39.7
Approach		54	2.0	57	2.0	0.045	6.4	LOS A	0.2	1.3	0.27	0.53	0.27	35.0
North: Nicholas St														
7	L2	53	2.0	56	2.0	0.081	5.7	LOS A	0.3	2.2	0.15	0.54	0.15	42.4
8	T1	39	2.0	41	2.0	0.081	4.5	LOS A	0.3	2.2	0.15	0.54	0.15	39.3
9	R2	15	2.0	16	2.0	0.081	6.2	LOS A	0.3	2.2	0.15	0.54	0.15	28.9
Approach		107	2.0	113	2.0	0.081	5.3	LOS A	0.3	2.2	0.15	0.54	0.15	39.3
West: South St														
11	T1	54	2.0	57	2.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.28	0.00	52.5
12	R2	45	2.0	47	2.0	0.055	5.4	LOS A	0.0	0.0	0.00	0.28	0.00	43.3
Approach		99	2.0	104	2.0	0.055	2.5	NA	0.0	0.0	0.00	0.28	0.00	48.6
All Vehicles		260	2.0	274	2.0	0.081	4.5	NA	0.3	2.2	0.12	0.44	0.12	41.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & East St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	515	2.0	542	2.0	0.320	0.5	LOS A	0.6	4.5	0.12	0.04	0.14	55.5
3	R2	32	2.0	34	2.0	0.320	9.8	LOS A	0.6	4.5	0.12	0.04	0.14	49.8
Approach		547	2.0	576	2.0	0.320	1.1	NA	0.6	4.5	0.12	0.04	0.14	55.0
East: South St														
4	L2	45	2.0	47	2.0	0.172	8.1	LOS A	0.6	4.0	0.64	0.82	0.64	33.4
6	R2	24	2.0	25	2.0	0.172	21.6	LOS C	0.6	4.0	0.64	0.82	0.64	28.0
6u	U	1	2.0	1	2.0	0.172	7.1	LOS A	0.6	4.0	0.64	0.82	0.64	35.8
Approach		70	2.0	74	2.0	0.172	12.7	LOS B	0.6	4.0	0.64	0.82	0.64	31.4
North: East St														
7	L2	56	2.0	59	2.0	0.327	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	52.6
8	T1	540	2.0	568	2.0	0.327	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	57.6
Approach		596	2.0	627	2.0	0.327	0.5	NA	0.0	0.0	0.00	0.06	0.00	56.9
West: South St														
10	L2	38	2.0	40	2.0	0.208	11.5	LOS B	0.7	5.0	0.72	1.01	0.74	26.4
11	T1	22	2.0	23	2.0	0.208	24.7	LOS C	0.7	5.0	0.72	1.01	0.74	33.6
12	R2	8	2.0	8	2.0	0.208	27.5	LOS D	0.7	5.0	0.72	1.01	0.74	30.3
Approach		68	2.0	72	2.0	0.208	17.6	LOS C	0.7	5.0	0.72	1.01	0.74	29.1
All Vehicles		1281	2.0	1348	2.0	0.327	2.3	NA	0.7	5.0	0.12	0.14	0.14	49.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Ginn St - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	24	2.0	25	2.0	0.049	10.4	LOS B	0.2	1.2	0.50	0.92	0.50	50.3
3	R2	9	2.0	9	2.0	0.049	12.3	LOS B	0.2	1.2	0.50	0.92	0.50	49.9
Approach		33	2.0	35	2.0	0.049	11.0	LOS B	0.2	1.2	0.50	0.92	0.50	50.2
East: Roderick St														
4	L2	12	2.0	13	2.0	0.248	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.0
5	T1	441	2.0	464	2.0	0.248	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		453	2.0	477	2.0	0.248	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
West: Roderick St														
11	T1	204	2.0	215	2.0	0.123	0.2	LOS A	0.1	1.0	0.08	0.04	0.08	59.4
12	R2	12	2.0	13	2.0	0.123	7.6	LOS A	0.1	1.0	0.08	0.04	0.08	57.0
Approach		216	2.0	227	2.0	0.123	0.6	NA	0.1	1.0	0.08	0.04	0.08	59.2
All Vehicles		702	2.0	739	2.0	0.248	0.8	NA	0.2	1.2	0.05	0.06	0.05	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St Carpark Access - AM (Dev 2027) (Site Folder: Dev (2027) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	244	2.0	257	2.0	0.291	0.7	LOS A	1.6	11.1	0.35	0.28	0.35	44.8
6	R2	212	2.0	223	2.0	0.291	5.0	LOS A	1.6	11.1	0.35	0.28	0.35	37.6
Approach		456	2.0	480	2.0	0.291	2.7	NA	1.6	11.1	0.35	0.28	0.35	40.8
North: Carpark Access														
7	L2	24	2.0	25	2.0	0.024	6.2	LOS A	0.1	0.6	0.29	0.57	0.29	31.6
9	R2	3	2.0	3	2.0	0.024	9.0	LOS A	0.1	0.6	0.29	0.57	0.29	32.4
Approach		27	2.0	28	2.0	0.024	6.5	LOS A	0.1	0.6	0.29	0.57	0.29	31.7
West: Roderick St														
10	L2	28	2.0	29	2.0	0.119	4.9	LOS A	0.0	0.0	0.00	0.08	0.00	37.6
11	T1	189	2.0	199	2.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	55.7
Approach		217	2.0	228	2.0	0.119	0.6	NA	0.0	0.0	0.00	0.08	0.00	51.7
All Vehicles		700	2.0	737	2.0	0.291	2.2	NA	1.6	11.1	0.24	0.23	0.24	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - AM (Dev 2027) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2027)]														
South: Warwick Rd														
1a	L1	723	2.0	723	2.0	* 0.622	8.2	LOS A	5.1	36.5	0.42	0.69	0.42	35.1
2	T1	206	2.0	206	2.0	0.429	15.0	LOS B	2.6	18.2	0.70	0.58	0.70	29.2
Approach		929	2.0	929	2.0	0.622	9.7	LOS A	5.1	36.5	0.49	0.67	0.49	33.6
North: Warwick Rd														
8	T1	161	2.0	161	2.0	0.078	7.3	LOS A	0.7	5.0	0.51	0.40	0.51	35.1
9b	R3	13	2.0	13	2.0	0.043	28.7	LOS C	0.2	1.4	0.85	0.68	0.85	24.1
Approach		174	2.0	174	2.0	0.078	8.9	LOS A	0.7	5.0	0.54	0.42	0.54	33.1
NorthWest: Churchill St														
27b	L3	32	2.0	32	2.0	0.407	26.2	LOS C	3.1	22.1	0.86	0.79	0.86	27.9
29a	R1	380	2.0	380	2.0	0.407	24.3	LOS C	3.1	22.2	0.86	0.79	0.86	18.2
Approach		412	2.0	412	2.0	0.407	24.5	LOS C	3.1	22.2	0.86	0.79	0.86	19.1
All Vehicles		1515	2.0	1515	2.0	0.622	13.6	LOS B	5.1	36.5	0.59	0.67	0.59	28.5
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2027)]														
South: Warwick Rd														
1	L2	83	2.0	83	2.0	0.391	11.8	LOS B	4.2	29.7	0.54	0.52	0.54	41.0
2	T1	821	2.0	821	2.0	0.391	6.2	LOS A	4.2	29.7	0.54	0.49	0.54	39.3
3	R2	38	2.0	38	2.0	0.066	11.5	LOS B	0.3	2.1	0.45	0.66	0.45	34.4
Approach		942	2.0	942	2.0	0.391	6.9	LOS A	4.2	29.7	0.53	0.50	0.53	39.2
East: Gray St														
4	L2	18	2.0	18	2.0	0.638	32.0	LOS C	4.0	28.3	0.98	0.83	1.03	24.0
5	T1	206	2.0	206	2.0	* 0.638	26.1	LOS C	4.0	28.3	0.98	0.83	1.03	20.9
6	R2	62	2.0	62	2.0	0.290	32.6	LOS C	1.1	7.7	0.94	0.75	0.94	11.0
Approach		286	2.0	286	2.0	0.638	27.9	LOS C	4.0	28.3	0.97	0.81	1.01	19.1
North: Warwick Rd														
7	L2	43	2.0	43	2.0	0.038	8.7	LOS A	0.2	1.6	0.30	0.62	0.30	29.4
8	T1	439	2.0	439	2.0	0.185	4.3	LOS A	1.3	9.1	0.33	0.28	0.33	47.6
9	R2	47	2.0	47	2.0	0.138	10.6	LOS B	0.3	2.0	0.34	0.64	0.34	29.2
Approach		529	2.0	529	2.0	0.185	5.2	LOS A	1.3	9.1	0.33	0.34	0.33	44.2
West: Chelmsford Ave														
10	L2	38	2.0	38	2.0	0.396	29.9	LOS C	2.3	16.3	0.92	0.75	0.92	14.4
11	T1	100	2.0	100	2.0	0.396	24.4	LOS C	2.3	16.3	0.92	0.75	0.92	21.2
12	R2	33	2.0	33	2.0	0.206	35.4	LOS D	0.6	4.2	0.96	0.71	0.96	20.7
Approach		171	2.0	171	2.0	0.396	27.7	LOS C	2.3	16.3	0.93	0.74	0.93	19.9
All Vehicles		1928	2.0	1928	2.0	0.638	11.4	LOS B	4.2	29.7	0.58	0.52	0.58	32.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2027)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2027)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St Carpark Access - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	159	2.0	167	2.0	0.104	0.2	LOS A	0.2	1.3	0.10	0.07	0.10	54.8
6	R2	22	2.0	23	2.0	0.104	4.9	LOS A	0.2	1.3	0.10	0.07	0.10	43.2
Approach		181	2.0	191	2.0	0.104	0.7	NA	0.2	1.3	0.10	0.07	0.10	52.8
North: Carpark Access														
7	L2	194	2.0	204	2.0	0.190	6.5	LOS A	0.8	5.7	0.36	0.62	0.36	31.1
9	R2	26	2.0	27	2.0	0.190	7.6	LOS A	0.8	5.7	0.36	0.62	0.36	31.9
Approach		220	2.0	232	2.0	0.190	6.6	LOS A	0.8	5.7	0.36	0.62	0.36	31.2
West: Roderick St														
10	L2	3	2.0	3	2.0	0.129	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	38.8
11	T1	233	2.0	245	2.0	0.129	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		236	2.0	248	2.0	0.129	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.0
All Vehicles		637	2.0	671	2.0	0.190	2.5	NA	0.8	5.7	0.16	0.24	0.16	42.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	71	2.0	75	2.0	0.111	17.5	LOS B	1.5	10.4	0.69	0.71	0.69	15.5
2	T1	409	2.0	431	2.0	0.647	17.1	LOS B	10.6	75.2	0.87	0.75	0.87	22.5
3	R2	1	2.0	1	2.0	0.647	21.0	LOS C	10.6	75.2	0.87	0.75	0.87	21.9
Approach		481	2.0	506	2.0	0.647	17.2	LOS B	10.6	75.2	0.85	0.75	0.85	21.5
East: Roderick St														
4	L2	37	2.0	39	2.0	0.132	17.9	LOS B	1.9	13.3	0.67	0.61	0.67	23.5
5	T1	58	2.0	61	2.0	0.132	12.4	LOS B	1.9	13.3	0.67	0.61	0.67	25.7
6	R2	31	2.0	33	2.0	0.080	20.7	LOS C	0.7	4.8	0.71	0.70	0.71	23.1
Approach		126	2.0	133	2.0	0.132	16.1	LOS B	1.9	13.3	0.68	0.63	0.68	24.3
North: East St														
7	L2	30	2.0	32	2.0	0.695	23.3	LOS C	8.5	60.4	0.82	0.75	0.90	25.0
8	T1	520	2.0	547	2.0	0.695	18.7	LOS B	8.5	60.4	0.84	0.77	0.93	20.8
9	R2	39	2.0	41	2.0	* 0.695	25.8	LOS C	7.1	50.6	0.87	0.80	0.98	16.7
Approach		589	2.0	620	2.0	0.695	19.4	LOS B	8.5	60.4	0.84	0.77	0.93	20.7
West: Roderick St														
10	L2	177	2.0	186	2.0	0.254	17.0	LOS B	3.7	26.3	0.71	0.74	0.71	21.1
11	T1	137	2.0	144	2.0	0.738	19.1	LOS B	9.1	64.9	0.85	0.85	0.99	20.1
12	R2	192	2.0	202	2.0	* 0.738	23.0	LOS C	9.1	64.9	0.85	0.85	0.99	13.4
Approach		506	2.0	533	2.0	0.738	19.9	LOS B	9.1	64.9	0.80	0.82	0.89	17.9
All Vehicles		1702	2.0	1792	2.0	0.738	18.7	LOS B	10.6	75.2	0.82	0.77	0.88	20.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3 Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St											
P4 Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians	200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Warwick Rd - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	37	2.0	39	2.0	0.021	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	106	2.0	112	2.0	0.030	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		143	2.0	151	2.0	0.030	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.2
East: Roderick St														
4	L2	178	2.0	187	2.0	0.173	4.7	LOS A	0.8	5.6	0.25	0.44	0.25	43.1
5	T1	64	2.0	67	2.0	0.173	5.8	LOS A	0.8	5.6	0.25	0.44	0.25	37.9
Approach		242	2.0	255	2.0	0.173	5.0	NA	0.8	5.6	0.25	0.44	0.25	41.7
West: Roderick St														
11	T1	137	2.0	144	2.0	0.186	9.5	LOS A	0.9	6.1	0.32	0.88	0.32	25.9
12	R2	28	2.0	29	2.0	0.186	12.0	LOS B	0.9	6.1	0.32	0.88	0.32	36.5
12u	U	1	2.0	1	2.0	0.186	9.2	LOS A	0.9	6.1	0.32	0.88	0.32	33.8
Approach		166	2.0	175	2.0	0.186	9.9	LOS A	0.9	6.1	0.32	0.88	0.32	27.9
All Vehicles		551	2.0	580	2.0	0.186	6.6	NA	0.9	6.1	0.21	0.61	0.21	35.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [East St & Churchill St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	66	2.0	69	2.0	0.107	2.9	LOS A	0.6	4.0	0.49	0.33	0.49	33.7
3b	R3	45	2.0	47	2.0	0.107	8.2	LOS A	0.6	4.0	0.49	0.33	0.49	38.1
Approach		111	2.0	117	2.0	0.107	5.1	NA	0.6	4.0	0.49	0.33	0.49	36.1
SouthEast: Churchill St														
21b	L3	28	2.0	29	2.0	0.019	6.9	LOS A	0.1	0.5	0.16	0.55	0.16	36.1
23a	R1	415	2.0	437	2.0	0.655	13.3	LOS B	6.0	42.5	0.74	1.11	1.37	27.1
Approach		443	2.0	466	2.0	0.655	12.9	LOS B	6.0	42.5	0.70	1.07	1.29	27.6
North: East St														
7a	L1	558	2.0	587	2.0	0.175	3.0	LOS A	0.0	0.0	0.00	0.47	0.00	43.9
8	T1	69	2.0	73	2.0	0.175	0.0	LOS A	0.0	0.0	0.00	0.41	0.00	43.7
Approach		627	2.0	660	2.0	0.175	2.7	NA	0.0	0.0	0.00	0.46	0.00	43.9
All Vehicles		1181	2.0	1243	2.0	0.655	6.8	NA	6.0	42.5	0.31	0.68	0.53	35.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Nicholas St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	22	2.0	23	2.0	0.080	7.6	LOS A	0.3	2.0	0.40	0.93	0.40	27.4
2	T1	14	2.0	15	2.0	0.080	9.1	LOS A	0.3	2.0	0.40	0.93	0.40	31.6
3	R2	22	2.0	23	2.0	0.080	9.8	LOS A	0.3	2.0	0.40	0.93	0.40	25.9
Approach		58	2.0	61	2.0	0.080	8.8	LOS A	0.3	2.0	0.40	0.93	0.40	27.9
East: Roderick Rd														
4	L2	6	2.0	6	2.0	0.116	5.1	LOS A	0.1	0.8	0.05	0.05	0.05	43.4
5	T1	189	2.0	199	2.0	0.116	0.1	LOS A	0.1	0.8	0.05	0.05	0.05	56.7
6	R2	12	2.0	13	2.0	0.116	5.2	LOS A	0.1	0.8	0.05	0.05	0.05	47.3
Approach		207	2.0	218	2.0	0.116	0.5	NA	0.1	0.8	0.05	0.05	0.05	55.6
North: Nicholas St														
7	L2	20	2.0	21	2.0	0.083	9.0	LOS A	0.3	2.1	0.41	0.92	0.41	29.4
8	T1	9	2.0	9	2.0	0.083	10.5	LOS B	0.3	2.1	0.41	0.92	0.41	29.1
9	R2	28	2.0	29	2.0	0.083	11.2	LOS B	0.3	2.1	0.41	0.92	0.41	30.7
Approach		57	2.0	60	2.0	0.083	10.3	LOS B	0.3	2.1	0.41	0.92	0.41	30.0
West: Roderick Rd														
10	L2	3	2.0	3	2.0	0.123	6.2	LOS A	0.1	1.0	0.07	0.06	0.07	50.0
11	T1	199	2.0	209	2.0	0.123	0.1	LOS A	0.1	1.0	0.07	0.06	0.07	55.6
12	R2	17	2.0	18	2.0	0.123	6.2	LOS A	0.1	1.0	0.07	0.06	0.07	43.4
Approach		219	2.0	231	2.0	0.123	0.6	NA	0.1	1.0	0.07	0.06	0.07	54.3
All Vehicles		541	2.0	569	2.0	0.123	2.5	NA	0.3	2.1	0.13	0.24	0.13	45.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & Nicholas St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	24	2.0	25	2.0	0.035	5.6	LOS A	0.1	1.0	0.17	0.53	0.17	29.0
3	R2	23	2.0	24	2.0	0.035	6.4	LOS A	0.1	1.0	0.17	0.53	0.17	40.2
Approach		47	2.0	49	2.0	0.035	6.0	LOS A	0.1	1.0	0.17	0.53	0.17	34.5
North: Nicholas St														
7	L2	25	2.0	26	2.0	0.036	5.7	LOS A	0.1	1.0	0.11	0.53	0.11	42.8
8	T1	20	2.0	21	2.0	0.036	4.3	LOS A	0.1	1.0	0.11	0.53	0.11	39.7
9	R2	5	2.0	5	2.0	0.036	6.0	LOS A	0.1	1.0	0.11	0.53	0.11	29.1
Approach		50	2.0	53	2.0	0.036	5.1	LOS A	0.1	1.0	0.11	0.53	0.11	40.2
West: South St														
11	T1	36	2.0	38	2.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	56.8
12	R2	8	2.0	8	2.0	0.024	5.4	LOS A	0.0	0.0	0.00	0.11	0.00	47.3
Approach		44	2.0	46	2.0	0.024	1.0	NA	0.0	0.0	0.00	0.11	0.00	55.2
All Vehicles		141	2.0	148	2.0	0.036	4.1	NA	0.1	1.0	0.10	0.40	0.10	41.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & East St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	593	2.0	624	2.0	0.354	0.4	LOS A	0.5	3.9	0.09	0.03	0.11	56.6
3	R2	25	2.0	26	2.0	0.354	10.0	LOS B	0.5	3.9	0.09	0.03	0.11	50.5
Approach		618	2.0	651	2.0	0.354	0.8	NA	0.5	3.9	0.09	0.03	0.11	56.3
East: South St														
4	L2	29	2.0	31	2.0	0.185	8.0	LOS A	0.6	4.1	0.70	0.85	0.70	30.7
6	R2	26	2.0	27	2.0	0.185	24.3	LOS C	0.6	4.1	0.70	0.85	0.70	26.0
6u	U	1	2.0	1	2.0	0.185	7.1	LOS A	0.6	4.1	0.70	0.85	0.70	33.2
Approach		56	2.0	59	2.0	0.185	15.6	LOS C	0.6	4.1	0.70	0.85	0.70	28.4
North: East St														
7	L2	54	2.0	57	2.0	0.325	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	52.6
8	T1	538	2.0	566	2.0	0.325	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.6
Approach		592	2.0	623	2.0	0.325	0.5	NA	0.0	0.0	0.00	0.05	0.00	57.0
West: South St														
10	L2	45	2.0	47	2.0	0.309	13.8	LOS B	1.1	8.0	0.79	1.05	0.94	24.2
11	T1	24	2.0	25	2.0	0.309	29.2	LOS D	1.1	8.0	0.79	1.05	0.94	30.8
12	R2	15	2.0	16	2.0	0.309	32.7	LOS D	1.1	8.0	0.79	1.05	0.94	27.5
Approach		84	2.0	88	2.0	0.309	21.6	LOS C	1.1	8.0	0.79	1.05	0.94	26.6
All Vehicles		1350	2.0	1421	2.0	0.354	2.6	NA	1.1	8.0	0.12	0.14	0.14	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Ginn St - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	14	2.0	15	2.0	0.033	8.8	LOS A	0.1	0.8	0.33	0.89	0.33	50.7
3	R2	10	2.0	11	2.0	0.033	12.1	LOS B	0.1	0.8	0.33	0.89	0.33	50.2
Approach		24	2.0	25	2.0	0.033	10.1	LOS B	0.1	0.8	0.33	0.89	0.33	50.5
East: Roderick St														
4	L2	3	2.0	3	2.0	0.094	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.1
5	T1	168	2.0	177	2.0	0.094	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		171	2.0	180	2.0	0.094	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: Roderick St														
11	T1	467	2.0	492	2.0	0.258	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.9
12	R2	4	2.0	4	2.0	0.258	6.2	LOS A	0.0	0.3	0.01	0.01	0.01	57.6
Approach		471	2.0	496	2.0	0.258	0.1	NA	0.0	0.3	0.01	0.01	0.01	59.9
All Vehicles		666	2.0	701	2.0	0.258	0.4	NA	0.1	0.8	0.02	0.04	0.02	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - PM (Dev 2027) (Site Folder: Dev (2027) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	26	2.0	27	2.0	0.016	0.0	LOS A	0.0	0.1	0.02	0.06	0.02	59.4
3	R2	3	2.0	3	2.0	0.016	5.5	LOS A	0.0	0.1	0.02	0.06	0.02	57.0
Approach		29	2.0	31	2.0	0.016	0.6	NA	0.0	0.1	0.02	0.06	0.02	59.1
East: Carpark Access														
4	L2	36	2.0	38	2.0	0.042	5.6	LOS A	0.2	1.1	0.08	0.56	0.08	53.3
6	R2	21	2.0	22	2.0	0.042	5.6	LOS A	0.2	1.1	0.08	0.56	0.08	52.8
Approach		57	2.0	60	2.0	0.042	5.6	LOS A	0.2	1.1	0.08	0.56	0.08	53.1
North: Nicholas St														
7	L2	1	2.0	1	2.0	0.012	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.0
8	T1	21	2.0	22	2.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.7
Approach		22	2.0	23	2.0	0.012	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.7
All Vehicles		108	2.0	114	2.0	0.042	3.2	NA	0.2	1.1	0.05	0.32	0.05	55.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - PM (Dev 2027) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2027)]														
South: Warwick Rd														
1a	L1	452	2.0	452	2.0	0.553	10.2	LOS B	3.7	26.5	0.48	0.70	0.48	32.5
2	T1	113	2.0	113	2.0	* 0.439	27.4	LOS C	1.9	13.8	0.94	0.73	0.94	20.5
Approach		564	2.0	564	2.0	0.553	13.6	LOS B	3.7	26.5	0.57	0.71	0.57	29.1
North: Warwick Rd														
8	T1	233	2.0	233	2.0	* 0.268	10.9	LOS B	1.0	7.1	0.86	0.67	0.86	29.1
9b	R3	13	2.0	13	2.0	0.079	34.5	LOS C	0.2	1.6	0.93	0.68	0.93	21.6
Approach		245	2.0	245	2.0	0.268	12.2	LOS B	1.0	7.1	0.86	0.67	0.86	28.1
NorthWest: Churchill St														
27b	L3	15	2.0	15	2.0	0.551	14.8	LOS B	2.9	20.4	0.82	0.80	0.82	37.8
29a	R1	724	2.0	724	2.0	* 0.551	12.9	LOS B	2.9	20.4	0.83	0.80	0.83	27.0
Approach		739	2.0	739	2.0	0.551	12.9	LOS B	2.9	20.4	0.83	0.80	0.83	27.3
All Vehicles		1548	2.0	1548	2.0	0.553	13.0	LOS B	3.7	26.5	0.74	0.74	0.74	28.2
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2027)]														
South: Warwick Rd														
1	L2	48	2.0	48	2.0	0.306	17.7	LOS B	3.0	21.3	0.69	0.62	0.69	34.0
2	T1	460	2.0	460	2.0	0.306	12.1	LOS B	3.0	21.5	0.69	0.60	0.69	30.2
3	R2	32	2.0	32	2.0	0.130	23.9	LOS C	0.4	3.2	0.78	0.72	0.78	25.0
Approach		540	2.0	540	2.0	0.306	13.3	LOS B	3.0	21.5	0.70	0.61	0.70	30.1
East: Gray St														
4	L2	38	2.0	38	2.0	0.235	20.7	LOS C	2.1	14.7	0.73	0.63	0.73	31.1
5	T1	126	2.0	126	2.0	0.235	14.4	LOS B	2.1	14.7	0.73	0.63	0.73	28.5
6	R2	42	2.0	42	2.0	0.124	24.3	LOS C	0.6	4.2	0.79	0.72	0.79	13.8
Approach		206	2.0	206	2.0	0.235	17.6	LOS B	2.1	14.7	0.74	0.65	0.74	26.1
North: Warwick Rd														
7	L2	62	2.0	62	2.0	0.106	15.2	LOS B	0.9	6.3	0.61	0.64	0.61	16.6
8	T1	869	2.0	869	2.0	0.529	13.1	LOS B	5.6	40.2	0.76	0.66	0.76	33.5
9	R2	21	2.0	21	2.0	0.057	18.5	LOS B	0.2	1.6	0.59	0.67	0.59	22.0
Approach		953	2.0	953	2.0	0.529	13.3	LOS B	5.6	40.2	0.74	0.66	0.74	31.8
West: Chelmsford Ave														
10	L2	56	2.0	56	2.0	0.465	21.1	LOS C	3.9	27.8	0.79	0.69	0.79	19.8
11	T1	231	2.0	231	2.0	0.465	15.6	LOS B	3.9	27.8	0.79	0.69	0.79	27.6
12	R2	87	2.0	87	2.0	0.203	22.2	LOS C	1.2	8.4	0.77	0.74	0.77	26.9
Approach		374	2.0	374	2.0	0.465	18.0	LOS B	3.9	27.8	0.79	0.70	0.79	26.5
All Vehicles		2073	2.0	2073	2.0	0.529	14.6	LOS B	5.6	40.2	0.74	0.65	0.74	29.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2027)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2027)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	68	2.0	72	2.0	0.040	0.0	LOS A	0.0	0.2	0.03	0.03	0.03	59.6
3	R2	4	2.0	4	2.0	0.040	5.7	LOS A	0.0	0.2	0.03	0.03	0.03	57.2
Approach		72	2.0	76	2.0	0.040	0.3	NA	0.0	0.2	0.03	0.03	0.03	59.5
East: Carpark Access														
4	L2	1	2.0	1	2.0	0.002	5.8	LOS A	0.0	0.0	0.17	0.54	0.17	53.0
6	R2	1	2.0	1	2.0	0.002	6.0	LOS A	0.0	0.0	0.17	0.54	0.17	52.5
Approach		2	2.0	2	2.0	0.002	5.9	LOS A	0.0	0.0	0.17	0.54	0.17	52.8
North: Nicholas St														
7	L2	15	2.0	16	2.0	0.050	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
8	T1	75	2.0	79	2.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.1
Approach		90	2.0	95	2.0	0.050	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.8
All Vehicles		164	2.0	173	2.0	0.050	0.7	NA	0.0	0.2	0.01	0.08	0.01	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	145	2.0	153	2.0	0.156	11.6	LOS B	2.3	16.2	0.54	0.69	0.54	19.9
2	T1	564	2.0	594	2.0	0.644	10.3	LOS B	11.9	84.6	0.73	0.64	0.73	30.0
3	R2	1	2.0	1	2.0	* 0.644	14.2	LOS B	11.9	84.6	0.73	0.64	0.73	28.4
Approach		710	2.0	747	2.0	0.644	10.6	LOS B	11.9	84.6	0.69	0.65	0.69	27.9
East: Roderick St														
4	L2	22	2.0	23	2.0	0.286	26.6	LOS C	3.2	22.5	0.86	0.70	0.86	18.5
5	T1	99	2.0	104	2.0	0.286	21.0	LOS C	3.2	22.5	0.86	0.70	0.86	19.8
6	R2	39	2.0	41	2.0	0.151	28.8	LOS C	1.1	7.6	0.87	0.73	0.87	18.9
Approach		160	2.0	168	2.0	0.286	23.7	LOS C	3.2	22.5	0.87	0.71	0.87	19.4
North: East St														
7	L2	48	2.0	51	2.0	0.495	14.6	LOS B	6.6	47.0	0.62	0.57	0.62	33.3
8	T1	477	2.0	502	2.0	0.495	10.8	LOS B	6.6	47.0	0.67	0.61	0.67	27.8
9	R2	71	2.0	75	2.0	0.495	20.2	LOS C	5.4	38.4	0.78	0.70	0.78	19.1
Approach		596	2.0	627	2.0	0.495	12.2	LOS B	6.6	47.0	0.68	0.62	0.68	26.9
West: Roderick St														
10	L2	77	2.0	81	2.0	0.190	24.4	LOS C	2.0	14.0	0.84	0.74	0.84	16.9
11	T1	91	2.0	96	2.0	0.591	23.9	LOS C	5.1	36.1	0.94	0.80	0.97	17.7
12	R2	83	2.0	87	2.0	* 0.591	27.8	LOS C	5.1	36.1	0.94	0.80	0.97	11.8
Approach		251	2.0	264	2.0	0.591	25.4	LOS C	5.1	36.1	0.91	0.78	0.93	15.5
All Vehicles		1717	2.0	1807	2.0	0.644	14.5	LOS B	11.9	84.6	0.73	0.66	0.74	23.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	78	2.0	82	2.0	0.045	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	167	2.0	176	2.0	0.048	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		245	2.0	258	2.0	0.048	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.5
East: Roderick St														
4	L2	177	2.0	186	2.0	0.261	5.9	LOS A	1.6	11.5	0.44	0.45	0.44	40.2
5	T1	128	2.0	135	2.0	0.261	6.9	LOS A	1.6	11.5	0.44	0.45	0.44	35.2
Approach		305	2.0	321	2.0	0.261	6.3	NA	1.6	11.5	0.44	0.45	0.44	38.1
West: Roderick St														
11	T1	113	2.0	119	2.0	0.202	10.1	LOS B	0.9	6.3	0.43	0.90	0.43	24.9
12	R2	35	2.0	37	2.0	0.202	14.3	LOS B	0.9	6.3	0.43	0.90	0.43	35.3
12u	U	1	2.0	1	2.0	0.202	10.0	LOS A	0.9	6.3	0.43	0.90	0.43	32.7
Approach		149	2.0	157	2.0	0.202	11.1	LOS B	0.9	6.3	0.43	0.90	0.43	27.6
All Vehicles		699	2.0	736	2.0	0.261	7.1	NA	1.6	11.5	0.29	0.59	0.29	35.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	42	2.0	44	2.0	0.062	2.4	LOS A	0.3	2.2	0.45	0.29	0.45	35.8
3b	R3	26	2.0	27	2.0	0.062	7.6	LOS A	0.3	2.2	0.45	0.29	0.45	39.4
Approach		68	2.0	72	2.0	0.062	4.4	NA	0.3	2.2	0.45	0.29	0.45	37.7
SouthEast: Churchill St														
21b	L3	86	2.0	91	2.0	0.061	7.1	LOS A	0.3	1.8	0.21	0.56	0.21	35.7
23a	R1	674	2.0	709	2.0	1.001	50.5	LOS F	37.4	266.0	1.00	2.56	5.22	11.8
Approach		760	2.0	800	2.0	1.001	45.6	LOS E	37.4	266.0	0.91	2.33	4.65	12.8
North: East St														
7a	L1	480	2.0	505	2.0	0.162	3.0	LOS A	0.0	0.0	0.00	0.45	0.00	44.2
8	T1	104	2.0	109	2.0	0.162	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	45.9
Approach		584	2.0	615	2.0	0.162	2.5	NA	0.0	0.0	0.00	0.43	0.00	44.4
All Vehicles		1412	2.0	1486	2.0	1.001	25.8	NA	37.4	266.0	0.51	1.45	2.52	18.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	41	2.0	43	2.0	0.097	8.0	LOS A	0.4	2.5	0.44	0.93	0.44	27.1
2	T1	19	2.0	20	2.0	0.097	10.6	LOS B	0.4	2.5	0.44	0.93	0.44	31.3
3	R2	10	2.0	11	2.0	0.097	11.6	LOS B	0.4	2.5	0.44	0.93	0.44	25.6
Approach		70	2.0	74	2.0	0.097	9.2	LOS A	0.4	2.5	0.44	0.93	0.44	28.0
East: Roderick Rd														
4	L2	15	2.0	16	2.0	0.176	5.3	LOS A	0.3	2.2	0.10	0.08	0.10	41.8
5	T1	264	2.0	278	2.0	0.176	0.2	LOS A	0.3	2.2	0.10	0.08	0.10	54.5
6	R2	30	2.0	32	2.0	0.176	5.4	LOS A	0.3	2.2	0.10	0.08	0.10	45.9
Approach		309	2.0	325	2.0	0.176	0.9	NA	0.3	2.2	0.10	0.08	0.10	52.8
North: Nicholas St														
7	L2	29	2.0	31	2.0	0.127	9.1	LOS A	0.5	3.2	0.46	0.95	0.46	28.2
8	T1	15	2.0	16	2.0	0.127	12.0	LOS B	0.5	3.2	0.46	0.95	0.46	27.9
9	R2	32	2.0	34	2.0	0.127	13.3	LOS B	0.5	3.2	0.46	0.95	0.46	29.5
Approach		76	2.0	80	2.0	0.127	11.4	LOS B	0.5	3.2	0.46	0.95	0.46	28.7
West: Roderick Rd														
10	L2	23	2.0	24	2.0	0.151	6.3	LOS A	0.3	2.0	0.12	0.11	0.12	47.6
11	T1	213	2.0	224	2.0	0.151	0.2	LOS A	0.3	2.0	0.12	0.11	0.12	51.9
12	R2	26	2.0	27	2.0	0.151	6.6	LOS A	0.3	2.0	0.12	0.11	0.12	41.1
Approach		262	2.0	276	2.0	0.151	1.4	NA	0.3	2.0	0.12	0.11	0.12	50.2
All Vehicles		717	2.0	755	2.0	0.176	3.0	NA	0.5	3.2	0.18	0.27	0.18	43.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	28	2.0	29	2.0	0.058	5.6	LOS A	0.2	1.7	0.30	0.53	0.30	28.4
3	R2	39	2.0	41	2.0	0.058	7.4	LOS A	0.2	1.7	0.30	0.53	0.30	39.5
Approach		67	2.0	71	2.0	0.058	6.6	LOS A	0.2	1.7	0.30	0.53	0.30	35.0
North: Nicholas St														
7	L2	67	2.0	71	2.0	0.103	5.8	LOS A	0.4	2.9	0.18	0.55	0.18	42.2
8	T1	49	2.0	52	2.0	0.103	4.5	LOS A	0.4	2.9	0.18	0.55	0.18	39.1
9	R2	19	2.0	20	2.0	0.103	6.3	LOS A	0.4	2.9	0.18	0.55	0.18	28.8
Approach		135	2.0	142	2.0	0.103	5.4	LOS A	0.4	2.9	0.18	0.55	0.18	39.2
West: South St														
11	T1	68	2.0	72	2.0	0.060	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	53.8
12	R2	39	2.0	41	2.0	0.060	5.4	LOS A	0.0	0.0	0.00	0.22	0.00	44.6
Approach		107	2.0	113	2.0	0.060	2.0	NA	0.0	0.0	0.00	0.22	0.00	50.7
All Vehicles		309	2.0	325	2.0	0.103	4.5	NA	0.4	2.9	0.14	0.43	0.14	41.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	638	2.0	672	2.0	0.402	0.8	LOS A	1.1	7.5	0.15	0.04	0.20	54.3
3	R2	41	2.0	43	2.0	0.402	11.1	LOS B	1.1	7.5	0.15	0.04	0.20	49.1
Approach		679	2.0	715	2.0	0.402	1.4	NA	1.1	7.5	0.15	0.04	0.20	53.8
East: South St														
4	L2	57	2.0	60	2.0	0.289	9.7	LOS A	1.0	7.2	0.73	0.92	0.86	29.4
6	R2	30	2.0	32	2.0	0.289	31.7	LOS D	1.0	7.2	0.73	0.92	0.86	25.0
6u	U	1	2.0	1	2.0	0.289	8.5	LOS A	1.0	7.2	0.73	0.92	0.86	32.0
Approach		88	2.0	93	2.0	0.289	17.2	LOS C	1.0	7.2	0.73	0.92	0.86	27.8
North: East St														
7	L2	71	2.0	75	2.0	0.354	5.6	LOS A	0.0	0.0	0.00	0.07	0.00	52.3
8	T1	573	2.0	603	2.0	0.354	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	57.2
Approach		644	2.0	678	2.0	0.354	0.6	NA	0.0	0.0	0.00	0.07	0.00	56.4
West: South St														
10	L2	48	2.0	51	2.0	0.375	15.9	LOS C	1.4	9.8	0.83	1.07	1.06	22.2
11	T1	28	2.0	29	2.0	0.375	37.0	LOS E	1.4	9.8	0.83	1.07	1.06	28.2
12	R2	10	2.0	11	2.0	0.375	42.1	LOS E	1.4	9.8	0.83	1.07	1.06	25.0
Approach		86	2.0	91	2.0	0.375	25.8	LOS D	1.4	9.8	0.83	1.07	1.06	24.5
All Vehicles		1497	2.0	1576	2.0	0.402	3.4	NA	1.4	9.8	0.16	0.16	0.20	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 10 [Roderick St & Ginn St - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	30	2.0	32	2.0	0.059	9.4	LOS A	0.2	1.5	0.43	0.90	0.43	50.7
2	T1	1	2.0	1	2.0	0.059	11.7	LOS B	0.2	1.5	0.43	0.90	0.43	50.4
3	R2	12	2.0	13	2.0	0.059	12.5	LOS B	0.2	1.5	0.43	0.90	0.43	50.2
Approach		43	2.0	45	2.0	0.059	10.4	LOS B	0.2	1.5	0.43	0.90	0.43	50.5
East: Roderick St														
4	L2	15	2.0	16	2.0	0.174	6.0	LOS A	0.1	0.7	0.03	0.05	0.03	57.7
5	T1	289	2.0	304	2.0	0.174	0.0	LOS A	0.1	0.7	0.03	0.05	0.03	59.4
6	R2	9	2.0	9	2.0	0.174	6.4	LOS A	0.1	0.7	0.03	0.05	0.03	57.1
Approach		313	2.0	329	2.0	0.174	0.5	NA	0.1	0.7	0.03	0.05	0.03	59.3
North: Carpark Access														
7	L2	9	2.0	9	2.0	0.042	9.1	LOS A	0.1	1.0	0.45	0.93	0.45	50.3
8	T1	10	2.0	11	2.0	0.042	11.7	LOS B	0.1	1.0	0.45	0.93	0.45	50.0
9	R2	7	2.0	7	2.0	0.042	12.5	LOS B	0.1	1.0	0.45	0.93	0.45	49.8
Approach		26	2.0	27	2.0	0.042	11.0	LOS B	0.1	1.0	0.45	0.93	0.45	50.1
West: Roderick St														
10	L2	4	2.0	4	2.0	0.139	6.7	LOS A	0.2	1.1	0.07	0.05	0.07	57.6
11	T1	228	2.0	240	2.0	0.139	0.1	LOS A	0.2	1.1	0.07	0.05	0.07	59.3
12	R2	15	2.0	16	2.0	0.139	6.8	LOS A	0.2	1.1	0.07	0.05	0.07	57.0
Approach		247	2.0	260	2.0	0.139	0.6	NA	0.2	1.1	0.07	0.05	0.07	59.1
All Vehicles		629	2.0	662	2.0	0.174	1.7	NA	0.2	1.5	0.09	0.14	0.09	58.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - AM (Base 2037) (Site Folder: Base (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	307	2.0	323	2.0	0.171	0.0	LOS A	0.0	0.3	0.01	0.01	0.01	59.4
6	R2	4	2.0	4	2.0	0.171	5.0	LOS A	0.0	0.3	0.01	0.01	0.01	45.5
Approach		311	2.0	327	2.0	0.171	0.1	NA	0.0	0.3	0.01	0.01	0.01	59.1
North: Carpark Access														
7	L2	7	2.0	7	2.0	0.012	6.3	LOS A	0.0	0.3	0.35	0.59	0.35	31.1
9	R2	4	2.0	4	2.0	0.012	8.0	LOS A	0.0	0.3	0.35	0.59	0.35	31.9
Approach		11	2.0	12	2.0	0.012	6.9	LOS A	0.0	0.3	0.35	0.59	0.35	31.4
West: Roderick St														
10	L2	12	2.0	13	2.0	0.137	4.9	LOS A	0.0	0.0	0.00	0.03	0.00	38.4
11	T1	238	2.0	251	2.0	0.137	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	58.3
Approach		250	2.0	263	2.0	0.137	0.2	NA	0.0	0.0	0.00	0.03	0.00	56.5
All Vehicles		572	2.0	602	2.0	0.171	0.3	NA	0.0	0.3	0.01	0.03	0.01	56.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N103 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - AM (Base 2037) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 102 [Churchill St & Warwick Rd - AM (Base 2037)]														
South: Warwick Rd														
1a	L1	779	2.0	779	2.0	* 0.708	9.2	LOS A	6.7	47.8	0.51	0.73	0.51	33.7
2	T1	260	2.0	260	2.0	0.540	17.4	LOS B	3.7	26.3	0.81	0.67	0.81	27.0
Approach		1039	2.0	1039	2.0	0.708	11.2	LOS B	6.7	47.8	0.59	0.71	0.59	31.8
North: Warwick Rd														
8	T1	203	2.0	203	2.0	0.093	6.4	LOS A	0.8	5.9	0.48	0.38	0.48	37.1
9b	R3	16	2.0	16	2.0	0.045	26.9	LOS C	0.2	1.6	0.82	0.69	0.82	25.0
Approach		219	2.0	219	2.0	0.093	7.8	LOS A	0.8	5.9	0.51	0.41	0.51	34.8
NorthWest: Churchill St														
27b	L3	40	2.0	40	2.0	0.567	28.9	LOS C	4.2	29.6	0.92	0.81	0.92	26.3
29a	R1	464	2.0	464	2.0	0.567	27.0	LOS C	4.2	29.6	0.93	0.81	0.93	16.9
Approach		504	2.0	504	2.0	0.567	27.2	LOS C	4.2	29.6	0.93	0.81	0.93	17.8
All Vehicles		1762	2.0	1762	2.0	0.708	15.4	LOS B	6.7	47.8	0.68	0.70	0.68	26.8
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - AM (Base 2037)]														
South: Warwick Rd														
1	L2	105	2.0	105	2.0	0.518	13.7	LOS B	5.1	36.6	0.64	0.61	0.64	38.2
2	T1	902	2.0	902	2.0	0.518	7.9	LOS A	5.5	39.4	0.63	0.57	0.63	36.0
3	R2	47	2.0	47	2.0	0.098	13.2	LOS B	0.4	3.1	0.52	0.68	0.52	32.7
Approach		1055	2.0	1055	2.0	0.518	8.7	LOS A	5.5	39.4	0.62	0.58	0.62	36.1
East: Gray St														
4	L2	23	2.0	23	2.0	0.692	31.4	LOS C	5.0	35.9	0.97	0.86	1.07	24.4
5	T1	260	2.0	260	2.0	* 0.692	25.4	LOS C	5.0	35.9	0.97	0.86	1.07	21.3
6	R2	78	2.0	78	2.0	0.346	32.8	LOS C	1.4	9.7	0.95	0.76	0.95	10.9
Approach		361	2.0	361	2.0	0.692	27.3	LOS C	5.0	35.9	0.97	0.84	1.04	19.3
North: Warwick Rd														
7	L2	55	2.0	55	2.0	0.051	10.0	LOS B	0.3	2.5	0.37	0.64	0.37	27.7
8	T1	539	2.0	539	2.0	0.240	6.0	LOS A	2.0	14.0	0.42	0.36	0.42	44.1
9	R2	60	2.0	60	2.0	0.219	12.7	LOS B	0.5	3.5	0.45	0.67	0.45	26.9
Approach		654	2.0	654	2.0	0.240	6.9	LOS A	2.0	14.0	0.42	0.41	0.42	40.9
West: Chelmsford Ave														
10	L2	47	2.0	47	2.0	0.454	28.5	LOS C	2.8	20.2	0.91	0.76	0.91	15.0
11	T1	126	2.0	126	2.0	0.454	23.1	LOS C	2.8	20.2	0.91	0.76	0.91	22.0
12	R2	41	2.0	41	2.0	0.252	35.6	LOS D	0.7	5.3	0.97	0.72	0.97	20.6
Approach		215	2.0	215	2.0	0.454	26.7	LOS C	2.8	20.2	0.93	0.75	0.93	20.4
All Vehicles		2284	2.0	2284	2.0	0.692	12.8	LOS B	5.5	39.4	0.65	0.59	0.66	31.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 102 [Churchill St & Warwick Rd - AM (Base 2037)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - AM (Base 2037)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 109 [Roderick St Carpark Access - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	200	2.0	211	2.0	0.110	0.0	LOS A	0.0	0.1	0.01	0.00	0.01	59.7
6	R2	1	2.0	1	2.0	0.110	5.2	LOS A	0.0	0.1	0.01	0.00	0.01	45.7
Approach		201	2.0	212	2.0	0.110	0.0	NA	0.0	0.1	0.01	0.00	0.01	59.6
North: Carpark Access														
7	L2	36	2.0	38	2.0	0.057	6.6	LOS A	0.2	1.5	0.39	0.64	0.39	30.9
9	R2	19	2.0	20	2.0	0.057	7.8	LOS A	0.2	1.5	0.39	0.64	0.39	31.7
Approach		55	2.0	58	2.0	0.057	7.0	LOS A	0.2	1.5	0.39	0.64	0.39	31.2
West: Roderick St														
10	L2	4	2.0	4	2.0	0.163	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	38.8
11	T1	294	2.0	309	2.0	0.163	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.5
Approach		298	2.0	314	2.0	0.163	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.9
All Vehicles		554	2.0	583	2.0	0.163	0.8	NA	0.2	1.5	0.04	0.07	0.04	53.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	77	2.0	81	2.0	0.098	14.2	LOS B	1.4	9.7	0.60	0.69	0.60	17.7
2	T1	514	2.0	541	2.0	0.669	13.8	LOS B	12.4	88.0	0.82	0.72	0.82	25.6
3	R2	1	2.0	1	2.0	0.669	17.7	LOS B	12.4	88.0	0.82	0.72	0.82	24.6
Approach		592	2.0	623	2.0	0.669	13.9	LOS B	12.4	88.0	0.79	0.72	0.79	24.6
East: Roderick St														
4	L2	46	2.0	48	2.0	0.204	22.0	LOS C	2.7	18.9	0.77	0.67	0.77	20.5
5	T1	70	2.0	74	2.0	0.204	16.4	LOS B	2.7	18.9	0.77	0.67	0.77	22.1
6	R2	39	2.0	41	2.0	0.121	25.0	LOS C	1.0	6.9	0.81	0.72	0.81	20.7
Approach		155	2.0	163	2.0	0.204	20.2	LOS C	2.7	18.9	0.78	0.68	0.78	21.2
North: East St														
7	L2	38	2.0	40	2.0	0.754	21.8	LOS C	10.6	75.6	0.77	0.75	0.89	26.2
8	T1	655	2.0	689	2.0	0.754	17.4	LOS B	10.6	75.6	0.78	0.77	0.93	21.8
9	R2	38	2.0	40	2.0	* 0.754	24.8	LOS C	8.4	59.9	0.81	0.80	0.99	17.2
Approach		731	2.0	769	2.0	0.754	18.0	LOS B	10.6	75.6	0.78	0.77	0.93	21.8
West: Roderick St														
10	L2	125	2.0	132	2.0	0.227	20.5	LOS C	2.9	20.6	0.77	0.75	0.77	18.9
11	T1	141	2.0	148	2.0	0.712	21.4	LOS C	7.8	55.3	0.90	0.85	1.02	19.0
12	R2	128	2.0	135	2.0	* 0.712	25.3	LOS C	7.8	55.3	0.90	0.85	1.02	12.7
Approach		394	2.0	415	2.0	0.712	22.4	LOS C	7.8	55.3	0.86	0.82	0.94	16.9
All Vehicles		1872	2.0	1971	2.0	0.754	17.8	LOS B	12.4	88.0	0.80	0.76	0.88	21.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Roderick St & Warwick Rd - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	46	2.0	48	2.0	0.026	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	133	2.0	140	2.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		179	2.0	188	2.0	0.038	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.2
East: Roderick St														
4	L2	225	2.0	237	2.0	0.225	5.1	LOS A	1.1	8.0	0.30	0.43	0.30	42.2
5	T1	81	2.0	85	2.0	0.225	6.5	LOS A	1.1	8.0	0.30	0.43	0.30	37.0
Approach		306	2.0	322	2.0	0.225	5.4	NA	1.1	8.0	0.30	0.43	0.30	40.8
West: Roderick St														
11	T1	173	2.0	182	2.0	0.251	9.8	LOS A	1.2	8.5	0.38	0.89	0.38	25.4
12	R2	35	2.0	37	2.0	0.251	13.9	LOS B	1.2	8.5	0.38	0.89	0.38	36.0
12u	U	1	2.0	1	2.0	0.251	9.4	LOS A	1.2	8.5	0.38	0.89	0.38	33.3
Approach		209	2.0	220	2.0	0.251	10.4	LOS B	1.2	8.5	0.38	0.89	0.38	27.4
All Vehicles		694	2.0	731	2.0	0.251	7.0	NA	1.2	8.5	0.25	0.61	0.25	35.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 105 [East St & Churchill St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	82	2.0	86	2.0	0.154	4.6	LOS A	0.9	6.2	0.59	0.35	0.59	29.2
3b	R3	55	2.0	58	2.0	0.154	10.1	LOS B	0.9	6.2	0.59	0.35	0.59	35.0
Approach		137	2.0	144	2.0	0.154	6.8	NA	0.9	6.2	0.59	0.35	0.59	32.3
SouthEast: Churchill St														
21b	L3	35	2.0	37	2.0	0.025	7.0	LOS A	0.1	0.7	0.18	0.55	0.18	35.9
23a	R1	510	2.0	537	2.0	0.951	38.2	LOS E	20.5	145.6	0.96	2.09	4.33	14.5
Approach		545	2.0	574	2.0	0.951	36.2	LOS E	20.5	145.6	0.91	1.99	4.07	15.1
North: East St														
7a	L1	703	2.0	740	2.0	0.220	3.0	LOS A	0.0	0.0	0.00	0.47	0.00	43.9
8	T1	87	2.0	92	2.0	0.220	0.0	LOS A	0.0	0.0	0.00	0.41	0.00	43.7
Approach		790	2.0	832	2.0	0.220	2.7	NA	0.0	0.0	0.00	0.46	0.00	43.8
All Vehicles		1472	2.0	1549	2.0	0.951	15.5	NA	20.5	145.6	0.39	1.02	1.56	24.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 106 [Roderick St & Nicholas St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	28	2.0	29	2.0	0.108	7.7	LOS A	0.4	2.7	0.43	0.94	0.43	26.7
2	T1	15	2.0	16	2.0	0.108	9.9	LOS A	0.4	2.7	0.43	0.94	0.43	30.8
3	R2	28	2.0	29	2.0	0.108	10.9	LOS B	0.4	2.7	0.43	0.94	0.43	25.2
Approach		71	2.0	75	2.0	0.108	9.4	LOS A	0.4	2.7	0.43	0.94	0.43	27.0
East: Roderick Rd														
4	L2	7	2.0	7	2.0	0.128	5.3	LOS A	0.1	1.1	0.07	0.06	0.07	43.0
5	T1	206	2.0	217	2.0	0.128	0.1	LOS A	0.1	1.1	0.07	0.06	0.07	56.2
6	R2	15	2.0	16	2.0	0.128	5.4	LOS A	0.1	1.1	0.07	0.06	0.07	47.0
Approach		228	2.0	240	2.0	0.128	0.6	NA	0.1	1.1	0.07	0.06	0.07	55.0
North: Nicholas St														
7	L2	25	2.0	26	2.0	0.050	9.2	LOS A	0.2	1.3	0.40	0.90	0.40	30.0
8	T1	12	2.0	13	2.0	0.050	11.1	LOS B	0.2	1.3	0.40	0.90	0.40	29.6
9	R2	3	2.0	3	2.0	0.050	12.0	LOS B	0.2	1.3	0.40	0.90	0.40	31.2
Approach		40	2.0	42	2.0	0.050	10.0	LOS A	0.2	1.3	0.40	0.90	0.40	30.0
West: Roderick Rd														
10	L2	4	2.0	4	2.0	0.154	6.3	LOS A	0.2	1.4	0.07	0.06	0.07	49.8
11	T1	247	2.0	260	2.0	0.154	0.1	LOS A	0.2	1.4	0.07	0.06	0.07	55.3
12	R2	22	2.0	23	2.0	0.154	6.3	LOS A	0.2	1.4	0.07	0.06	0.07	43.2
Approach		273	2.0	287	2.0	0.154	0.7	NA	0.2	1.4	0.07	0.06	0.07	54.0
All Vehicles		612	2.0	644	2.0	0.154	2.3	NA	0.4	2.7	0.14	0.22	0.14	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 108 [South St & East St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	649	2.0	683	2.0	0.403	0.8	LOS A	1.0	7.1	0.14	0.03	0.19	54.3
3	R2	32	2.0	34	2.0	0.403	12.6	LOS B	1.0	7.1	0.14	0.03	0.19	49.1
Approach		681	2.0	717	2.0	0.403	1.4	NA	1.0	7.1	0.14	0.03	0.19	53.9
East: South St														
4	L2	36	2.0	38	2.0	0.345	12.3	LOS B	1.2	8.3	0.83	0.98	1.01	24.3
6	R2	33	2.0	35	2.0	0.345	39.0	LOS E	1.2	8.3	0.83	0.98	1.01	21.2
6u	U	1	2.0	1	2.0	0.345	10.3	LOS B	1.2	8.3	0.83	0.98	1.01	27.0
Approach		70	2.0	74	2.0	0.345	24.9	LOS C	1.2	8.3	0.83	0.98	1.01	22.8
North: East St														
7	L2	68	2.0	72	2.0	0.404	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	52.5
8	T1	667	2.0	702	2.0	0.404	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	57.5
Approach		735	2.0	774	2.0	0.404	0.5	NA	0.0	0.0	0.00	0.06	0.00	56.9
West: South St														
10	L2	57	2.0	60	2.0	0.574	22.7	LOS C	2.4	16.8	0.89	1.14	1.39	18.3
11	T1	30	2.0	32	2.0	0.574	51.4	LOS F	2.4	16.8	0.89	1.14	1.39	23.2
12	R2	19	2.0	20	2.0	0.574	55.0	LOS F	2.4	16.8	0.89	1.14	1.39	20.3
Approach		106	2.0	112	2.0	0.574	36.6	LOS E	2.4	16.8	0.89	1.14	1.39	20.0
All Vehicles		1592	2.0	1676	2.0	0.574	4.4	NA	2.4	16.8	0.16	0.16	0.22	44.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 107 [South St & Nicholas St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	15	2.0	16	2.0	0.036	5.6	LOS A	0.1	1.0	0.20	0.55	0.20	28.8
3	R2	29	2.0	31	2.0	0.036	6.3	LOS A	0.1	1.0	0.20	0.55	0.20	40.1
Approach		44	2.0	46	2.0	0.036	6.1	LOS A	0.1	1.0	0.20	0.55	0.20	36.3
North: Nicholas St														
7	L2	32	2.0	34	2.0	0.046	5.7	LOS A	0.2	1.2	0.13	0.53	0.13	42.6
8	T1	25	2.0	26	2.0	0.046	4.3	LOS A	0.2	1.2	0.13	0.53	0.13	39.6
9	R2	6	2.0	6	2.0	0.046	6.0	LOS A	0.2	1.2	0.13	0.53	0.13	29.0
Approach		63	2.0	66	2.0	0.046	5.2	LOS A	0.2	1.2	0.13	0.53	0.13	40.1
West: South St														
11	T1	45	2.0	47	2.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	57.0
12	R2	9	2.0	9	2.0	0.030	5.4	LOS A	0.0	0.0	0.00	0.10	0.00	47.5
Approach		54	2.0	57	2.0	0.030	0.9	NA	0.0	0.0	0.00	0.10	0.00	55.6
All Vehicles		161	2.0	169	2.0	0.046	4.0	NA	0.2	1.2	0.10	0.39	0.10	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 110 [Roderick St & Ginn St - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	17	2.0	18	2.0	0.046	8.9	LOS A	0.2	1.1	0.38	0.90	0.38	50.4
2	T1	1	2.0	1	2.0	0.046	11.5	LOS B	0.2	1.1	0.38	0.90	0.38	50.2
3	R2	13	2.0	14	2.0	0.046	12.7	LOS B	0.2	1.1	0.38	0.90	0.38	50.0
Approach		31	2.0	33	2.0	0.046	10.6	LOS B	0.2	1.1	0.38	0.90	0.38	50.2
East: Roderick St														
4	L2	4	2.0	4	2.0	0.104	5.9	LOS A	0.0	0.1	0.01	0.02	0.01	58.1
5	T1	184	2.0	194	2.0	0.104	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.8
6	R2	1	2.0	1	2.0	0.104	6.9	LOS A	0.0	0.1	0.01	0.02	0.01	57.5
Approach		189	2.0	199	2.0	0.104	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.8
North: Carpark Access														
7	L2	42	2.0	44	2.0	0.057	9.8	LOS A	0.2	1.5	0.44	0.89	0.44	50.9
8	T1	3	2.0	3	2.0	0.057	11.6	LOS B	0.2	1.5	0.44	0.89	0.44	50.7
9	R2	3	2.0	3	2.0	0.057	12.4	LOS B	0.2	1.5	0.44	0.89	0.44	50.4
Approach		48	2.0	51	2.0	0.057	10.1	LOS B	0.2	1.5	0.44	0.89	0.44	50.9
West: Roderick St														
10	L2	1	2.0	1	2.0	0.193	6.3	LOS A	0.1	0.4	0.02	0.01	0.02	58.1
11	T1	344	2.0	362	2.0	0.193	0.0	LOS A	0.1	0.4	0.02	0.01	0.02	59.8
12	R2	6	2.0	6	2.0	0.193	6.3	LOS A	0.1	0.4	0.02	0.01	0.02	57.5
Approach		351	2.0	369	2.0	0.193	0.1	NA	0.1	0.4	0.02	0.01	0.02	59.8
All Vehicles		619	2.0	652	2.0	0.193	1.4	NA	0.2	1.5	0.06	0.13	0.06	58.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - PM (Base 2037) (Site Folder: Base (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	33	2.0	35	2.0	0.019	0.0	LOS A	0.0	0.0	0.01	0.02	0.01	59.8
3	R2	1	2.0	1	2.0	0.019	5.5	LOS A	0.0	0.0	0.01	0.02	0.01	57.5
Approach		34	2.0	36	2.0	0.019	0.2	NA	0.0	0.0	0.01	0.02	0.01	59.7
East: Carpark Access														
4	L2	13	2.0	14	2.0	0.017	5.6	LOS A	0.1	0.4	0.09	0.56	0.09	53.3
6	R2	10	2.0	11	2.0	0.017	5.7	LOS A	0.1	0.4	0.09	0.56	0.09	52.8
Approach		23	2.0	24	2.0	0.017	5.7	LOS A	0.1	0.4	0.09	0.56	0.09	53.1
North: Nicholas St														
7	L2	1	2.0	1	2.0	0.015	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
8	T1	26	2.0	27	2.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach		27	2.0	28	2.0	0.015	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		84	2.0	88	2.0	0.019	1.7	NA	0.1	0.4	0.03	0.17	0.03	57.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - PM (Base 2037) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 102 [Churchill St & Warwick Rd - PM (Base 2037)]														
South: Warwick Rd														
1a	L1	556	2.0	556	2.0	0.680	10.8	LOS B	5.5	39.1	0.58	0.74	0.58	31.7
2	T1	142	2.0	142	2.0	* 0.554	28.0	LOS C	2.5	18.2	0.98	0.78	0.99	20.2
Approach		698	2.0	698	2.0	0.680	14.3	LOS B	5.5	39.1	0.66	0.75	0.66	28.4
North: Warwick Rd														
8	T1	293	2.0	293	2.0	* 0.422	11.7	LOS B	1.3	9.6	0.89	0.71	0.89	28.2
9b	R3	16	2.0	16	2.0	0.098	34.7	LOS C	0.3	2.0	0.94	0.69	0.94	21.6
Approach		308	2.0	308	2.0	0.422	12.8	LOS B	1.3	9.6	0.89	0.71	0.89	27.4
NorthWest: Churchill St														
27b	L3	18	2.0	18	2.0	0.752	18.7	LOS B	4.2	29.9	0.91	0.89	1.04	33.7
29a	R1	791	2.0	791	2.0	* 0.752	16.8	LOS B	4.2	29.9	0.92	0.89	1.05	23.1
Approach		808	2.0	808	2.0	0.752	16.8	LOS B	4.2	29.9	0.92	0.89	1.05	23.4
All Vehicles		1815	2.0	1815	2.0	0.752	15.2	LOS B	5.5	39.1	0.82	0.81	0.88	26.1
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - PM (Base 2037)]														
South: Warwick Rd														
1	L2	61	2.0	61	2.0	0.400	18.3	LOS B	4.0	28.6	0.73	0.65	0.73	33.4
2	T1	566	2.0	566	2.0	0.400	12.6	LOS B	4.0	28.6	0.72	0.63	0.72	29.5
3	R2	40	2.0	40	2.0	0.195	27.0	LOS C	0.6	4.4	0.84	0.73	0.84	23.3
Approach		667	2.0	667	2.0	0.400	14.0	LOS B	4.0	28.6	0.73	0.64	0.73	29.4
East: Gray St														
4	L2	47	2.0	47	2.0	0.296	21.2	LOS C	2.7	19.0	0.75	0.66	0.75	30.8
5	T1	159	2.0	159	2.0	0.296	14.8	LOS B	2.7	19.0	0.75	0.66	0.75	28.2
6	R2	54	2.0	54	2.0	0.187	26.5	LOS C	0.8	5.8	0.84	0.73	0.84	12.9
Approach		260	2.0	260	2.0	0.296	18.4	LOS B	2.7	19.0	0.77	0.67	0.77	25.4
North: Warwick Rd														
7	L2	78	2.0	78	2.0	0.122	15.6	LOS B	1.1	8.0	0.67	0.68	0.67	16.3
8	T1	974	2.0	974	2.0	0.611	14.0	LOS B	7.0	50.1	0.83	0.73	0.83	32.5
9	R2	26	2.0	26	2.0	0.083	20.7	LOS C	0.3	2.3	0.69	0.69	0.69	20.6
Approach		1078	2.0	1078	2.0	0.611	14.3	LOS B	7.0	50.1	0.82	0.72	0.82	30.7
West: Chelmsford Ave														
10	L2	71	2.0	71	2.0	0.633	22.0	LOS C	5.2	37.0	0.83	0.73	0.84	19.1
11	T1	291	2.0	291	2.0	0.633	16.5	LOS B	5.2	37.0	0.83	0.73	0.84	26.9
12	R2	109	2.0	109	2.0	0.274	23.5	LOS C	1.6	11.1	0.80	0.76	0.80	26.1
Approach		471	2.0	471	2.0	0.633	19.0	LOS B	5.2	37.0	0.83	0.74	0.83	25.8
All Vehicles		2476	2.0	2476	2.0	0.633	15.5	LOS B	7.0	50.1	0.79	0.70	0.79	28.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 102 [Churchill St & Warwick Rd - PM (Base 2037)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 103 [Chelmsford Ave/Gray St & Warwick Rd - PM (Base 2037)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	68	2.0	72	2.0	0.070	0.2	LOS A	0.3	2.0	0.18	0.24	0.18	57.2
3	R2	49	2.0	52	2.0	0.070	5.8	LOS A	0.3	2.0	0.18	0.24	0.18	55.0
Approach		117	2.0	123	2.0	0.070	2.6	NA	0.3	2.0	0.18	0.24	0.18	56.2
East: Carpark Access														
4	L2	5	2.0	5	2.0	0.005	5.8	LOS A	0.0	0.1	0.16	0.54	0.16	53.0
6	R2	2	2.0	2	2.0	0.005	6.2	LOS A	0.0	0.1	0.16	0.54	0.16	52.5
Approach		7	2.0	7	2.0	0.005	5.9	LOS A	0.0	0.1	0.16	0.54	0.16	52.9
North: Nicholas St														
7	L2	37	2.0	39	2.0	0.062	5.6	LOS A	0.0	0.0	0.00	0.20	0.00	56.6
8	T1	75	2.0	79	2.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.20	0.00	58.2
Approach		112	2.0	118	2.0	0.062	1.9	NA	0.0	0.0	0.00	0.20	0.00	57.7
All Vehicles		236	2.0	248	2.0	0.070	2.3	NA	0.3	2.0	0.09	0.23	0.09	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	300	2.0	316	2.0	0.304	11.3	LOS B	4.9	34.6	0.56	0.72	0.56	20.2
2	T1	564	2.0	594	2.0	0.666	8.8	LOS A	11.0	78.4	0.67	0.60	0.67	32.2
3	R2	1	2.0	1	2.0	0.666	12.8	LOS B	11.0	78.4	0.67	0.60	0.67	30.3
Approach		865	2.0	911	2.0	0.666	9.7	LOS A	11.0	78.4	0.63	0.64	0.63	27.9
East: Roderick St														
4	L2	22	2.0	23	2.0	0.454	29.3	LOS C	4.7	33.3	0.93	0.75	0.93	17.3
5	T1	143	2.0	151	2.0	0.454	23.8	LOS C	4.7	33.3	0.93	0.75	0.93	18.5
6	R2	39	2.0	41	2.0	0.201	33.1	LOS C	1.2	8.3	0.94	0.73	0.94	17.3
Approach		204	2.0	215	2.0	0.454	26.1	LOS C	4.7	33.3	0.93	0.75	0.93	18.1
North: East St														
7	L2	48	2.0	51	2.0	0.889	32.0	LOS C	16.6	118.4	0.65	0.85	1.08	19.9
8	T1	476	2.0	501	2.0	0.889	26.3	LOS C	16.6	118.4	0.65	0.85	1.08	16.6
9	R2	204	2.0	215	2.0	* 0.959	67.4	LOS E	10.9	77.8	0.93	1.29	2.09	7.6
Approach		728	2.0	766	2.0	0.959	38.2	LOS D	16.6	118.4	0.73	0.98	1.36	12.7
West: Roderick St														
10	L2	92	2.0	97	2.0	0.264	26.6	LOS C	2.5	17.8	0.88	0.76	0.88	15.9
11	T1	96	2.0	101	2.0	* 0.934	45.8	LOS D	8.4	59.6	1.00	1.18	1.90	11.0
12	R2	100	2.0	105	2.0	0.934	49.7	LOS D	8.4	59.6	1.00	1.18	1.90	7.2
Approach		288	2.0	303	2.0	0.934	41.0	LOS D	8.4	59.6	0.96	1.04	1.57	10.7
All Vehicles		2085	2.0	2195	2.0	0.959	25.6	LOS C	16.6	118.4	0.74	0.82	1.05	16.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Warwick Rd - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	78	2.0	82	2.0	0.045	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	167	2.0	176	2.0	0.048	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		245	2.0	258	2.0	0.048	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.5
East: Roderick St														
4	L2	177	2.0	186	2.0	0.317	6.3	LOS A	2.1	15.1	0.50	0.48	0.51	39.4
5	T1	172	2.0	181	2.0	0.317	7.1	LOS A	2.1	15.1	0.50	0.48	0.51	34.4
Approach		349	2.0	367	2.0	0.317	6.7	NA	2.1	15.1	0.50	0.48	0.51	37.0
West: Roderick St														
11	T1	118	2.0	124	2.0	0.214	10.1	LOS B	0.9	6.7	0.44	0.90	0.44	24.7
12	R2	35	2.0	37	2.0	0.214	15.2	LOS C	0.9	6.7	0.44	0.90	0.44	35.1
12u	U	1	2.0	1	2.0	0.214	10.4	LOS B	0.9	6.7	0.44	0.90	0.44	32.4
Approach		154	2.0	162	2.0	0.214	11.3	LOS B	0.9	6.7	0.44	0.90	0.44	27.3
All Vehicles		748	2.0	787	2.0	0.317	7.3	NA	2.1	15.1	0.32	0.60	0.33	35.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [East St & Churchill St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	42	2.0	44	2.0	0.063	2.5	LOS A	0.3	2.2	0.46	0.29	0.46	35.4
3b	R3	26	2.0	27	2.0	0.063	7.8	LOS A	0.3	2.2	0.46	0.29	0.46	39.2
Approach		68	2.0	72	2.0	0.063	4.5	NA	0.3	2.2	0.46	0.29	0.46	37.4
SouthEast: Churchill St														
21b	L3	84	2.0	88	2.0	0.060	7.1	LOS A	0.2	1.7	0.20	0.56	0.20	35.7
23a	R1	829	2.0	873	2.0	1.245	238.3	LOS F	126.4	899.7	1.00	5.72	13.84	3.0
Approach		913	2.0	961	2.0	1.245	217.0	LOS F	126.4	899.7	0.93	5.24	12.59	3.3
North: East St														
7a	L1	497	2.0	523	2.0	0.167	3.0	LOS A	0.0	0.0	0.00	0.45	0.00	44.2
8	T1	103	2.0	108	2.0	0.167	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	45.7
Approach		600	2.0	632	2.0	0.167	2.5	NA	0.0	0.0	0.00	0.43	0.00	44.3
All Vehicles		1581	2.0	1664	2.0	1.245	126.5	NA	126.4	899.7	0.55	3.21	7.29	5.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Nicholas St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	41	2.0	43	2.0	0.185	8.1	LOS A	0.7	4.9	0.51	0.99	0.51	25.9
2	T1	63	2.0	66	2.0	0.185	11.4	LOS B	0.7	4.9	0.51	0.99	0.51	29.9
3	R2	10	2.0	11	2.0	0.185	12.7	LOS B	0.7	4.9	0.51	0.99	0.51	24.3
Approach		114	2.0	120	2.0	0.185	10.3	LOS B	0.7	4.9	0.51	0.99	0.51	28.0
East: Roderick Rd														
4	L2	15	2.0	16	2.0	0.180	5.5	LOS A	0.3	2.3	0.11	0.08	0.11	41.7
5	T1	269	2.0	283	2.0	0.180	0.2	LOS A	0.3	2.3	0.11	0.08	0.11	54.4
6	R2	30	2.0	32	2.0	0.180	5.7	LOS A	0.3	2.3	0.11	0.08	0.11	45.9
Approach		314	2.0	331	2.0	0.180	1.0	NA	0.3	2.3	0.11	0.08	0.11	52.7
North: Nicholas St														
7	L2	29	2.0	31	2.0	0.154	9.3	LOS A	0.5	3.9	0.51	0.96	0.51	27.2
8	T1	15	2.0	16	2.0	0.154	12.6	LOS B	0.5	3.9	0.51	0.96	0.51	26.9
9	R2	37	2.0	39	2.0	0.154	14.7	LOS B	0.5	3.9	0.51	0.96	0.51	28.6
Approach		81	2.0	85	2.0	0.154	12.4	LOS B	0.5	3.9	0.51	0.96	0.51	27.8
West: Roderick Rd														
10	L2	23	2.0	24	2.0	0.175	6.3	LOS A	0.3	2.1	0.11	0.09	0.11	48.2
11	T1	257	2.0	271	2.0	0.175	0.2	LOS A	0.3	2.1	0.11	0.09	0.11	52.8
12	R2	26	2.0	27	2.0	0.175	6.7	LOS A	0.3	2.1	0.11	0.09	0.11	41.7
Approach		306	2.0	322	2.0	0.175	1.2	NA	0.3	2.1	0.11	0.09	0.11	51.3
All Vehicles		815	2.0	858	2.0	0.185	3.5	NA	0.7	4.9	0.21	0.30	0.21	42.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & Nicholas St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	30	2.0	32	2.0	0.060	5.6	LOS A	0.2	1.8	0.32	0.53	0.32	28.4
3	R2	39	2.0	41	2.0	0.060	7.6	LOS A	0.2	1.8	0.32	0.53	0.32	39.4
Approach		69	2.0	73	2.0	0.060	6.7	LOS A	0.2	1.8	0.32	0.53	0.32	34.7
North: Nicholas St														
7	L2	67	2.0	71	2.0	0.104	5.8	LOS A	0.4	2.9	0.18	0.55	0.18	42.2
8	T1	49	2.0	52	2.0	0.104	4.6	LOS A	0.4	2.9	0.18	0.55	0.18	39.1
9	R2	19	2.0	20	2.0	0.104	6.4	LOS A	0.4	2.9	0.18	0.55	0.18	28.8
Approach		135	2.0	142	2.0	0.104	5.4	LOS A	0.4	2.9	0.18	0.55	0.18	39.1
West: South St														
11	T1	68	2.0	72	2.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.29	0.00	52.3
12	R2	60	2.0	63	2.0	0.072	5.4	LOS A	0.0	0.0	0.00	0.29	0.00	43.1
Approach		128	2.0	135	2.0	0.072	2.6	NA	0.0	0.0	0.00	0.29	0.00	48.3
All Vehicles		332	2.0	349	2.0	0.104	4.6	NA	0.4	2.9	0.14	0.44	0.14	40.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & East St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	652	2.0	686	2.0	0.423	1.2	LOS A	1.4	10.1	0.19	0.04	0.27	52.2
3	R2	41	2.0	43	2.0	0.423	13.6	LOS B	1.4	10.1	0.19	0.04	0.27	47.8
Approach		693	2.0	729	2.0	0.423	2.0	NA	1.4	10.1	0.19	0.04	0.27	51.8
East: South St														
4	L2	57	2.0	60	2.0	0.384	13.1	LOS B	1.4	9.8	0.82	0.99	1.06	25.2
6	R2	30	2.0	32	2.0	0.384	43.4	LOS E	1.4	9.8	0.82	0.99	1.06	21.8
6u	U	1	2.0	1	2.0	0.384	10.7	LOS B	1.4	9.8	0.82	0.99	1.06	27.9
Approach		88	2.0	93	2.0	0.384	23.4	LOS C	1.4	9.8	0.82	0.99	1.06	24.0
North: East St														
7	L2	71	2.0	75	2.0	0.426	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	52.5
8	T1	704	2.0	741	2.0	0.426	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.5
Approach		775	2.0	816	2.0	0.426	0.5	NA	0.0	0.0	0.00	0.05	0.00	56.9
West: South St														
10	L2	48	2.0	51	2.0	0.504	21.2	LOS C	1.9	13.6	0.88	1.11	1.26	18.3
11	T1	28	2.0	29	2.0	0.504	54.5	LOS F	1.9	13.6	0.88	1.11	1.26	23.3
12	R2	10	2.0	11	2.0	0.504	58.9	LOS F	1.9	13.6	0.88	1.11	1.26	20.4
Approach		86	2.0	91	2.0	0.504	36.4	LOS E	1.9	13.6	0.88	1.11	1.26	20.2
All Vehicles		1642	2.0	1728	2.0	0.504	4.2	NA	1.9	13.6	0.17	0.15	0.24	44.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St Carpark Access - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	307	2.0	323	2.0	0.433	1.5	LOS A	3.3	23.4	0.48	0.36	0.54	41.3
6	R2	332	2.0	349	2.0	0.433	5.9	LOS A	3.3	23.4	0.48	0.36	0.54	35.5
Approach		639	2.0	673	2.0	0.433	3.8	NA	3.3	23.4	0.48	0.36	0.54	37.8
North: Carpark Access														
7	L2	37	2.0	39	2.0	0.042	6.4	LOS A	0.2	1.1	0.34	0.60	0.34	31.1
9	R2	5	2.0	5	2.0	0.042	12.0	LOS B	0.2	1.1	0.34	0.60	0.34	31.9
Approach		42	2.0	44	2.0	0.042	7.0	LOS A	0.2	1.1	0.34	0.60	0.34	31.2
West: Roderick St														
10	L2	44	2.0	46	2.0	0.155	4.9	LOS A	0.0	0.0	0.00	0.09	0.00	37.3
11	T1	238	2.0	251	2.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	54.9
Approach		282	2.0	297	2.0	0.155	0.8	NA	0.0	0.0	0.00	0.09	0.00	50.3
All Vehicles		963	2.0	1014	2.0	0.433	3.1	NA	3.3	23.4	0.33	0.29	0.37	40.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Ginn St - AM (Dev 2037) (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	30	2.0	32	2.0	0.088	12.3	LOS B	0.3	2.1	0.63	0.98	0.63	48.8
3	R2	12	2.0	13	2.0	0.088	16.5	LOS C	0.3	2.1	0.63	0.98	0.63	48.4
Approach		42	2.0	44	2.0	0.088	13.5	LOS B	0.3	2.1	0.63	0.98	0.63	48.7
East: Roderick St														
4	L2	15	2.0	16	2.0	0.348	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	58.0
5	T1	621	2.0	654	2.0	0.348	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		636	2.0	669	2.0	0.348	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.6
West: Roderick St														
11	T1	264	2.0	278	2.0	0.160	0.3	LOS A	0.2	1.4	0.08	0.03	0.08	59.3
12	R2	12	2.0	13	2.0	0.160	9.3	LOS A	0.2	1.4	0.08	0.03	0.08	57.0
Approach		276	2.0	291	2.0	0.160	0.7	NA	0.2	1.4	0.08	0.03	0.08	59.2
All Vehicles		954	2.0	1004	2.0	0.348	1.0	NA	0.3	2.1	0.05	0.06	0.05	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - AM (Dev 2037) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2037)]														
South: Warwick Rd														
1a	L1	934	2.0	934	2.0	* 0.803	11.5	LOS B	9.1	65.0	0.60	0.79	0.66	31.0
2	T1	260	2.0	260	2.0	0.540	21.8	LOS C	3.9	27.9	0.86	0.71	0.86	23.7
Approach		1194	2.0	1194	2.0	0.803	13.7	LOS B	9.1	65.0	0.65	0.77	0.70	29.0
North: Warwick Rd														
8	T1	203	2.0	203	2.0	0.099	7.4	LOS A	0.9	6.4	0.52	0.41	0.52	34.9
9b	R3	16	2.0	16	2.0	0.054	28.8	LOS C	0.2	1.7	0.85	0.69	0.85	24.0
Approach		219	2.0	219	2.0	0.099	8.9	LOS A	0.9	6.4	0.54	0.43	0.54	32.9
NorthWest: Churchill St														
27b	L3	40	2.0	40	2.0	0.515	26.9	LOS C	4.1	29.1	0.89	0.80	0.89	27.4
29a	R1	481	2.0	481	2.0	0.515	25.0	LOS C	4.1	29.1	0.89	0.80	0.89	17.9
Approach		521	2.0	521	2.0	0.515	25.2	LOS C	4.1	29.1	0.89	0.80	0.89	18.8
All Vehicles		1934	2.0	1934	2.0	0.803	16.3	LOS B	9.1	65.0	0.71	0.74	0.73	26.0
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2037)]														
South: Warwick Rd														
1	L2	105	2.0	105	2.0	0.667	14.3	LOS B	5.5	38.9	0.70	0.68	0.72	37.3
2	T1	1063	2.0	1063	2.0	0.667	8.0	LOS A	8.0	57.1	0.67	0.62	0.68	36.1
3	R2	47	2.0	47	2.0	0.094	11.7	LOS B	0.4	2.7	0.46	0.67	0.46	34.2
Approach		1216	2.0	1216	2.0	0.667	8.7	LOS A	8.0	57.1	0.67	0.63	0.67	36.1
East: Gray St														
4	L2	23	2.0	23	2.0	0.841	38.2	LOS D	5.8	41.3	1.00	1.01	1.38	21.3
5	T1	260	2.0	260	2.0	* 0.841	32.2	LOS C	5.8	41.3	1.00	1.01	1.38	18.2
6	R2	78	2.0	78	2.0	0.484	36.5	LOS D	1.5	10.4	0.99	0.76	0.99	10.0
Approach		361	2.0	361	2.0	0.841	33.5	LOS C	5.8	41.3	1.00	0.96	1.29	16.8
North: Warwick Rd														
7	L2	55	2.0	55	2.0	0.048	8.7	LOS A	0.3	2.0	0.31	0.63	0.31	29.3
8	T1	557	2.0	557	2.0	0.235	4.5	LOS A	1.7	12.1	0.35	0.29	0.35	47.3
9	R2	60	2.0	60	2.0	0.274	12.8	LOS B	0.5	3.4	0.42	0.66	0.42	26.7
Approach		672	2.0	672	2.0	0.274	5.6	LOS A	1.7	12.1	0.35	0.35	0.35	43.5
West: Chelmsford Ave														
10	L2	47	2.0	47	2.0	0.655	32.5	LOS C	3.2	22.5	0.97	0.85	1.08	13.4
11	T1	126	2.0	126	2.0	0.655	27.1	LOS C	3.2	22.5	0.97	0.85	1.08	19.9
12	R2	41	2.0	41	2.0	0.335	38.2	LOS D	0.8	5.6	1.00	0.71	1.00	19.7
Approach		215	2.0	215	2.0	0.655	30.4	LOS C	3.2	22.5	0.98	0.82	1.07	18.7
All Vehicles		2463	2.0	2463	2.0	0.841	13.4	LOS B	8.0	57.1	0.66	0.62	0.71	30.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - AM (Dev 2037)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - AM (Dev 2037)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St Carpark Access - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Roderick St														
5	T1	200	2.0	211	2.0	0.137	0.3	LOS A	0.3	2.2	0.15	0.09	0.15	53.5
6	R2	34	2.0	36	2.0	0.137	5.2	LOS A	0.3	2.2	0.15	0.09	0.15	42.5
Approach		234	2.0	246	2.0	0.137	1.0	NA	0.3	2.2	0.15	0.09	0.15	51.3
North: Carpark Access														
7	L2	304	2.0	320	2.0	0.322	7.0	LOS A	1.5	10.5	0.45	0.68	0.46	30.5
9	R2	41	2.0	43	2.0	0.322	8.9	LOS A	1.5	10.5	0.45	0.68	0.46	31.4
Approach		345	2.0	363	2.0	0.322	7.2	LOS A	1.5	10.5	0.45	0.68	0.46	30.7
West: Roderick St														
10	L2	5	2.0	5	2.0	0.164	4.9	LOS A	0.0	0.0	0.00	0.01	0.00	38.8
11	T1	294	2.0	309	2.0	0.164	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach		299	2.0	315	2.0	0.164	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.7
All Vehicles		878	2.0	924	2.0	0.322	3.1	NA	1.5	10.5	0.22	0.29	0.22	40.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	92	2.0	97	2.0	0.144	17.8	LOS B	1.9	13.7	0.70	0.72	0.70	15.4
2	T1	513	2.0	540	2.0	0.845	25.6	LOS C	17.2	122.5	0.95	0.99	1.21	17.2
3	R2	1	2.0	1	2.0	0.845	29.5	LOS C	17.2	122.5	0.95	0.99	1.21	17.1
Approach		606	2.0	638	2.0	0.845	24.4	LOS C	17.2	122.5	0.91	0.95	1.13	17.0
East: Roderick St														
4	L2	46	2.0	48	2.0	0.167	18.1	LOS B	2.4	17.1	0.68	0.62	0.68	23.3
5	T1	74	2.0	78	2.0	0.167	12.6	LOS B	2.4	17.1	0.68	0.62	0.68	25.5
6	R2	39	2.0	41	2.0	0.130	24.4	LOS C	1.0	6.8	0.79	0.72	0.79	21.1
Approach		159	2.0	167	2.0	0.167	17.1	LOS B	2.4	17.1	0.70	0.64	0.70	23.4
North: East St														
7	L2	38	2.0	40	2.0	1.038	98.6	LOS F	34.6	246.2	1.00	1.68	2.42	7.7
8	T1	655	2.0	689	2.0	* 1.038	93.2	LOS F	34.6	246.2	1.00	1.63	2.48	5.9
9	R2	51	2.0	54	2.0	1.038	99.8	LOS F	16.1	114.9	1.00	1.52	2.64	5.5
Approach		744	2.0	783	2.0	1.038	94.0	LOS F	34.6	246.2	1.00	1.63	2.49	5.9
West: Roderick St														
10	L2	246	2.0	259	2.0	0.679	19.4	LOS B	5.8	41.2	0.74	0.80	0.84	19.5
11	T1	181	2.0	191	2.0	* 1.091	133.8	LOS F	38.7	275.5	1.00	1.93	2.98	4.4
12	R2	270	2.0	284	2.0	1.091	137.6	LOS F	38.7	275.5	1.00	1.93	2.98	2.8
Approach		697	2.0	734	2.0	1.091	94.9	LOS F	38.7	275.5	0.91	1.53	2.22	5.1
All Vehicles		2206	2.0	2322	2.0	1.091	69.6	LOS E	38.7	275.5	0.92	1.34	1.90	7.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Warwick Rd - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Warwick Rd														
1	L2	46	2.0	48	2.0	0.026	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	41.8
3	R2	133	2.0	140	2.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.59	0.00	36.7
Approach		179	2.0	188	2.0	0.038	5.5	NA	0.0	0.0	0.00	0.58	0.00	38.2
East: Roderick St														
4	L2	225	2.0	237	2.0	0.234	5.2	LOS A	1.2	8.8	0.33	0.43	0.33	41.7
5	T1	86	2.0	91	2.0	0.234	6.7	LOS A	1.2	8.8	0.33	0.43	0.33	36.6
Approach		311	2.0	327	2.0	0.234	5.6	NA	1.2	8.8	0.33	0.43	0.33	40.3
West: Roderick St														
11	T1	213	2.0	224	2.0	0.293	9.8	LOS A	1.5	10.3	0.39	0.88	0.39	25.5
12	R2	35	2.0	37	2.0	0.293	14.3	LOS B	1.5	10.3	0.39	0.88	0.39	36.0
12u	U	1	2.0	1	2.0	0.293	9.5	LOS A	1.5	10.3	0.39	0.88	0.39	33.3
Approach		249	2.0	262	2.0	0.293	10.4	LOS B	1.5	10.3	0.39	0.88	0.39	27.1
All Vehicles		739	2.0	778	2.0	0.293	7.2	NA	1.5	10.3	0.27	0.62	0.27	34.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [East St & Churchill St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	80	2.0	84	2.0	0.177	6.6	LOS A	1.1	7.6	0.68	0.36	0.68	25.3
3b	R3	54	2.0	57	2.0	0.177	12.3	LOS B	1.1	7.6	0.68	0.36	0.68	32.0
Approach		134	2.0	141	2.0	0.177	8.9	NA	1.1	7.6	0.68	0.36	0.68	28.8
SouthEast: Churchill St														
21b	L3	35	2.0	37	2.0	0.025	7.0	LOS A	0.1	0.7	0.18	0.55	0.18	35.9
23a	R1	526	2.0	554	2.0	1.087	113.7	LOS F	45.8	326.2	1.00	3.44	8.78	6.0
Approach		561	2.0	591	2.0	1.087	107.0	LOS F	45.8	326.2	0.95	3.26	8.24	6.3
North: East St														
7a	L1	845	2.0	889	2.0	0.260	3.0	LOS A	0.0	0.0	0.00	0.48	0.00	43.7
8	T1	87	2.0	92	2.0	0.260	0.0	LOS A	0.0	0.0	0.00	0.42	0.00	43.2
Approach		932	2.0	981	2.0	0.260	2.7	NA	0.0	0.0	0.00	0.47	0.00	43.7
All Vehicles		1627	2.0	1713	2.0	1.087	39.2	NA	45.8	326.2	0.38	1.43	2.90	13.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Nicholas St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	28	2.0	29	2.0	0.121	7.9	LOS A	0.4	3.1	0.47	0.96	0.47	26.2
2	T1	19	2.0	20	2.0	0.121	10.4	LOS B	0.4	3.1	0.47	0.96	0.47	30.3
3	R2	28	2.0	29	2.0	0.121	11.5	LOS B	0.4	3.1	0.47	0.96	0.47	24.7
Approach		75	2.0	79	2.0	0.121	9.9	LOS A	0.4	3.1	0.47	0.96	0.47	26.8
East: Roderick Rd														
4	L2	7	2.0	7	2.0	0.150	5.3	LOS A	0.2	1.1	0.06	0.05	0.06	43.4
5	T1	246	2.0	259	2.0	0.150	0.1	LOS A	0.2	1.1	0.06	0.05	0.06	56.7
6	R2	15	2.0	16	2.0	0.150	5.5	LOS A	0.2	1.1	0.06	0.05	0.06	47.3
Approach		268	2.0	282	2.0	0.150	0.5	NA	0.2	1.1	0.06	0.05	0.06	55.6
North: Nicholas St														
7	L2	25	2.0	26	2.0	0.141	9.3	LOS A	0.5	3.5	0.49	0.96	0.49	28.0
8	T1	12	2.0	13	2.0	0.141	11.8	LOS B	0.5	3.5	0.49	0.96	0.49	27.6
9	R2	43	2.0	45	2.0	0.141	13.0	LOS B	0.5	3.5	0.49	0.96	0.49	29.3
Approach		80	2.0	84	2.0	0.141	11.7	LOS B	0.5	3.5	0.49	0.96	0.49	28.7
West: Roderick Rd														
10	L2	4	2.0	4	2.0	0.157	6.5	LOS A	0.2	1.5	0.08	0.06	0.08	49.7
11	T1	251	2.0	264	2.0	0.157	0.1	LOS A	0.2	1.5	0.08	0.06	0.08	55.2
12	R2	22	2.0	23	2.0	0.157	6.5	LOS A	0.2	1.5	0.08	0.06	0.08	43.1
Approach		277	2.0	292	2.0	0.157	0.7	NA	0.2	1.5	0.08	0.06	0.08	53.9
All Vehicles		700	2.0	737	2.0	0.157	2.9	NA	0.5	3.5	0.16	0.25	0.16	44.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & Nicholas St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
1	L2	35	2.0	37	2.0	0.048	5.6	LOS A	0.2	1.4	0.20	0.52	0.20	28.9
3	R2	29	2.0	31	2.0	0.048	6.7	LOS A	0.2	1.4	0.20	0.52	0.20	40.1
Approach		64	2.0	67	2.0	0.048	6.1	LOS A	0.2	1.4	0.20	0.52	0.20	34.0
North: Nicholas St														
7	L2	32	2.0	34	2.0	0.046	5.7	LOS A	0.2	1.2	0.13	0.53	0.13	42.6
8	T1	25	2.0	26	2.0	0.046	4.3	LOS A	0.2	1.2	0.13	0.53	0.13	39.6
9	R2	6	2.0	6	2.0	0.046	6.1	LOS A	0.2	1.2	0.13	0.53	0.13	29.0
Approach		63	2.0	66	2.0	0.046	5.2	LOS A	0.2	1.2	0.13	0.53	0.13	40.1
West: South St														
11	T1	45	2.0	47	2.0	0.031	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	56.5
12	R2	11	2.0	12	2.0	0.031	5.4	LOS A	0.0	0.0	0.00	0.12	0.00	47.0
Approach		56	2.0	59	2.0	0.031	1.1	NA	0.0	0.0	0.00	0.12	0.00	54.8
All Vehicles		183	2.0	193	2.0	0.048	4.2	NA	0.2	1.4	0.11	0.40	0.11	41.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [South St & East St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	769	2.0	809	2.0	0.470	0.9	LOS A	1.2	8.4	0.14	0.03	0.20	54.3
3	R2	32	2.0	34	2.0	0.470	13.8	LOS B	1.2	8.4	0.14	0.03	0.20	49.1
Approach		801	2.0	843	2.0	0.470	1.4	NA	1.2	8.4	0.14	0.03	0.20	54.0
East: South St														
4	L2	36	2.0	38	2.0	0.464	17.4	LOS C	1.6	11.4	0.88	1.03	1.18	19.6
6	R2	33	2.0	35	2.0	0.464	56.3	LOS F	1.6	11.4	0.88	1.03	1.18	17.4
6u	U	1	2.0	1	2.0	0.464	15.3	LOS C	1.6	11.4	0.88	1.03	1.18	22.2
Approach		70	2.0	74	2.0	0.464	35.7	LOS E	1.6	11.4	0.88	1.03	1.18	18.5
North: East St														
7	L2	68	2.0	72	2.0	0.411	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	52.6
8	T1	680	2.0	716	2.0	0.411	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.5
Approach		748	2.0	787	2.0	0.411	0.5	NA	0.0	0.0	0.00	0.05	0.00	56.9
West: South St														
10	L2	57	2.0	60	2.0	0.807	50.7	LOS F	4.0	28.2	0.95	1.29	2.08	11.7
11	T1	30	2.0	32	2.0	0.807	91.5	LOS F	4.0	28.2	0.95	1.29	2.08	14.8
12	R2	19	2.0	20	2.0	0.807	98.7	LOS F	4.0	28.2	0.95	1.29	2.08	12.6
Approach		106	2.0	112	2.0	0.807	70.9	LOS F	4.0	28.2	0.95	1.29	2.08	12.7
All Vehicles		1725	2.0	1816	2.0	0.807	6.7	NA	4.0	28.2	0.16	0.16	0.27	39.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Roderick St & Ginn St - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ginn St														
1	L2	17	2.0	18	2.0	0.055	9.0	LOS A	0.2	1.3	0.43	0.90	0.43	49.5
3	R2	13	2.0	14	2.0	0.055	15.9	LOS C	0.2	1.3	0.43	0.90	0.43	49.0
Approach		30	2.0	32	2.0	0.055	12.0	LOS B	0.2	1.3	0.43	0.90	0.43	49.3
East: Roderick St														
4	L2	4	2.0	4	2.0	0.122	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.1
5	T1	218	2.0	229	2.0	0.122	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		222	2.0	234	2.0	0.122	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: Roderick St														
11	T1	648	2.0	682	2.0	0.359	0.0	LOS A	0.1	0.5	0.01	0.01	0.01	59.9
12	R2	6	2.0	6	2.0	0.359	6.7	LOS A	0.1	0.5	0.01	0.01	0.01	57.5
Approach		654	2.0	688	2.0	0.359	0.1	NA	0.1	0.5	0.01	0.01	0.01	59.9
All Vehicles		906	2.0	954	2.0	0.359	0.5	NA	0.2	1.3	0.02	0.04	0.02	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Nicholas St Carpark Access - PM (Dev 2037) (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Nicholas St														
2	T1	33	2.0	35	2.0	0.021	0.0	LOS A	0.0	0.2	0.03	0.08	0.03	59.2
3	R2	5	2.0	5	2.0	0.021	5.6	LOS A	0.0	0.2	0.03	0.08	0.03	56.9
Approach		38	2.0	40	2.0	0.021	0.7	NA	0.0	0.2	0.03	0.08	0.03	58.9
East: Carpark Access														
4	L2	54	2.0	57	2.0	0.062	5.6	LOS A	0.2	1.7	0.09	0.56	0.09	53.3
6	R2	30	2.0	32	2.0	0.062	5.7	LOS A	0.2	1.7	0.09	0.56	0.09	52.7
Approach		84	2.0	88	2.0	0.062	5.7	LOS A	0.2	1.7	0.09	0.56	0.09	53.1
North: Nicholas St														
7	L2	2	2.0	2	2.0	0.015	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	57.9
8	T1	26	2.0	27	2.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach		28	2.0	29	2.0	0.015	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		150	2.0	158	2.0	0.062	3.4	NA	0.2	1.7	0.06	0.34	0.06	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [CCGName]

Network: N101 [Churchill St & Warwick Rd / Chelmsford Ave & Warwick Rd - PM (Dev 2037) (Network Folder: General)]

EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (CCG User-Given Cycle Time)

Vehicle Movement Performance (CCG)

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2037)]														
South: Warwick Rd														
1a	L1	572	2.0	572	2.0	0.700	9.9	LOS A	5.2	37.4	0.53	0.73	0.54	32.8
2	T1	142	2.0	142	2.0	* 0.554	28.0	LOS C	2.6	18.2	0.98	0.78	1.00	20.2
Approach		714	2.0	714	2.0	0.700	13.5	LOS B	5.2	37.4	0.62	0.74	0.63	29.2
North: Warwick Rd														
8	T1	293	2.0	293	2.0	* 0.651	14.3	LOS B	1.6	11.1	0.95	0.81	1.09	25.1
9b	R3	16	2.0	16	2.0	0.098	34.7	LOS C	0.3	2.0	0.94	0.69	0.94	21.6
Approach		308	2.0	308	2.0	0.651	15.4	LOS B	1.6	11.1	0.95	0.81	1.08	24.7
NorthWest: Churchill St														
27b	L3	18	2.0	18	2.0	0.920	34.4	LOS C	10.4	74.4	1.00	1.10	1.49	23.5
29a	R1	939	2.0	939	2.0	* 0.920	34.6	LOS C	10.4	74.4	1.00	1.11	1.57	14.0
Approach		957	2.0	957	2.0	0.920	34.6	LOS C	10.4	74.4	1.00	1.11	1.57	14.2
All Vehicles		1979	2.0	1979	2.0	0.920	24.0	LOS C	10.4	74.4	0.86	0.93	1.15	19.8
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2037)]														
South: Warwick Rd														
1	L2	61	2.0	61	2.0	0.468	18.9	LOS B	3.9	27.6	0.76	0.68	0.76	32.7
2	T1	583	2.0	583	2.0	0.468	13.0	LOS B	4.4	31.2	0.74	0.65	0.74	29.1
3	R2	40	2.0	40	2.0	0.227	29.2	LOS C	0.7	4.7	0.87	0.74	0.87	22.3
Approach		684	2.0	684	2.0	0.468	14.5	LOS B	4.4	31.2	0.75	0.66	0.75	28.8
East: Gray St														
4	L2	47	2.0	47	2.0	0.296	21.4	LOS C	2.7	19.0	0.75	0.66	0.75	30.8
5	T1	159	2.0	159	2.0	0.296	14.8	LOS B	2.7	19.0	0.75	0.66	0.75	28.2
6	R2	54	2.0	54	2.0	0.195	27.4	LOS C	0.8	5.9	0.85	0.74	0.85	12.6
Approach		260	2.0	260	2.0	0.296	18.6	LOS B	2.7	19.0	0.77	0.67	0.77	25.3
North: Warwick Rd														
7	L2	78	2.0	78	2.0	0.141	16.1	LOS B	1.4	9.7	0.70	0.68	0.70	16.3
8	T1	1122	2.0	1119	2.0	0.703	15.7	LOS B	8.8	62.4	0.89	0.80	0.91	30.7
9	R2	26	2.0	26	2.0	0.089	21.5	LOS C	0.4	2.6	0.78	0.71	0.78	20.1
Approach		1226	2.0	1223 N 1	2.0	0.703	15.9	LOS B	8.8	62.4	0.87	0.79	0.89	29.4
West: Chelmsford Ave														
10	L2	71	2.0	71	2.0	0.671	23.0	LOS C	5.4	38.7	0.85	0.77	0.89	18.4
11	T1	291	2.0	291	2.0	0.671	17.5	LOS B	5.4	38.7	0.85	0.77	0.89	26.1
12	R2	109	2.0	109	2.0	0.274	23.5	LOS C	1.6	11.1	0.80	0.76	0.80	26.1
Approach		471	2.0	471	2.0	0.671	19.7	LOS B	5.4	38.7	0.84	0.76	0.87	25.2
All Vehicles		2641	2.0	2638 N 1	2.0	0.703	16.5	LOS B	8.8	62.4	0.83	0.74	0.84	28.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
Site: 101 [Churchill St & Warwick Rd - PM (Dev 2037)]											
South: Warwick Rd											
P1B	Slip/ Bypass	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	194.0	220.5	1.14
NorthWest: Churchill St											
P7	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
All Pedestrians		158	24.4	LOS C	0.1	0.1	0.90	0.90	189.0	214.0	1.13
Site: 101 [Chelmsford Ave/Gray St & Warwick Rd - PM (Dev 2037)]											
South: Warwick Rd											
P1	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
East: Gray St											
P2	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
North: Warwick Rd											
P3	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	196.5	223.8	1.14
West: Chelmsford Ave											
P4	Full	53	24.4	LOS C	0.1	0.1	0.90	0.90	188.9	213.9	1.13
All Pedestrians		211	24.4	LOS C	0.1	0.1	0.90	0.90	193.3	219.7	1.14

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101v [East St & Churchill St - AM (Dev 2037) - Mitigation Signals (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	42	2.0	44	2.0	0.069	14.8	LOS B	0.9	6.3	0.71	0.53	0.71	18.1
3b	R3	26	2.0	27	2.0	* 0.209	36.4	LOS D	0.8	6.0	0.99	0.69	0.99	15.0
Approach		68	2.0	72	2.0	0.209	23.0	LOS C	0.9	6.3	0.82	0.60	0.82	16.3
SouthEast: Churchill St														
21b	L3	84	2.0	88	2.0	0.555	19.3	LOS B	10.1	72.0	0.77	0.80	0.77	23.9
23a	R1	829	2.0	873	2.0	* 0.555	17.1	LOS B	10.4	74.3	0.77	0.80	0.77	24.1
Approach		913	2.0	961	2.0	0.555	17.3	LOS B	10.4	74.3	0.77	0.80	0.77	24.1
North: East St														
7a	L1	497	2.0	523	2.0	0.416	8.0	LOS A	7.1	50.3	0.50	0.70	0.50	33.8
8	T1	103	2.0	108	2.0	0.481	15.5	LOS B	2.3	16.2	0.74	0.58	0.74	17.6
Approach		600	2.0	632	2.0	0.481	9.3	LOS A	7.1	50.3	0.54	0.68	0.54	31.1
All Vehicles		1581	2.0	1664	2.0	0.555	14.5	LOS B	10.4	74.3	0.68	0.75	0.68	25.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
SouthEast: Churchill St												
P5	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
P5B	Slip/ Bypass	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
All Pedestrians		50	158	24.4	LOS C	0.1	0.1	0.90	0.90	186.8	211.1	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - AM (Dev 2037) - Mitigation (Site Folder: Dev (2037) - AM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	300	2.0	316	2.0	0.296	10.7	LOS B	4.7	33.2	0.54	0.72	0.54	43.8
2	T1	564	2.0	594	2.0	0.638	8.2	LOS A	10.6	75.3	0.65	0.58	0.65	33.4
3	R2	1	2.0	1	2.0	0.638	12.1	LOS B	10.6	75.3	0.65	0.58	0.65	31.3
Approach		865	2.0	911	2.0	0.638	9.1	LOS A	10.6	75.3	0.61	0.62	0.61	39.4
East: Roderick St														
4	L2	22	2.0	23	2.0	0.496	30.4	LOS C	4.8	34.1	0.94	0.77	0.94	16.8
5	T1	143	2.0	151	2.0	0.496	24.9	LOS C	4.8	34.1	0.94	0.77	0.94	35.8
6	R2	39	2.0	41	2.0	0.223	34.3	LOS C	1.2	8.5	0.95	0.73	0.95	16.9
Approach		204	2.0	215	2.0	0.496	27.3	LOS C	4.8	34.1	0.95	0.76	0.95	31.3
North: East St														
7	L2	48	2.0	51	2.0	0.868	27.9	LOS C	15.1	107.6	0.63	0.79	0.98	22.0
8	T1	476	2.0	501	2.0	0.868	22.2	LOS C	15.1	107.6	0.63	0.79	0.98	18.7
9	R2	204	2.0	215	2.0	* 0.935	58.4	LOS E	10.0	71.3	0.91	1.22	1.91	22.8
Approach		728	2.0	766	2.0	0.935	32.7	LOS C	15.1	107.6	0.71	0.91	1.24	21.1
West: Roderick St														
10	L2	92	2.0	97	2.0	0.288	29.4	LOS C	2.6	18.2	0.90	0.76	0.90	32.7
11	T1	96	2.0	101	2.0	* 0.902	40.3	LOS D	7.8	55.6	1.00	1.11	1.71	28.0
12	R2	100	2.0	105	2.0	0.902	45.9	LOS D	7.8	55.6	1.00	1.11	1.71	25.6
Approach		288	2.0	303	2.0	0.902	38.7	LOS D	7.8	55.6	0.97	1.00	1.45	28.5
All Vehicles		2085	2.0	2195	2.0	0.935	23.2	LOS C	15.1	107.6	0.73	0.79	0.98	28.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3 Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St											
P4 Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians	200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Roderick St & East St - PM (Dev 2037) - Mitigation A (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
1	L2	92	2.0	97	2.0	0.151	16.4	LOS B	2.1	14.9	0.67	0.70	0.67	39.4
2	T1	513	2.0	540	2.0	0.754	18.4	LOS B	14.0	99.8	0.88	0.83	0.97	21.4
3	R2	1	2.0	1	2.0	0.754	22.5	LOS C	14.0	99.8	0.89	0.84	0.98	20.9
Approach		606	2.0	638	2.0	0.754	18.1	LOS B	14.0	99.8	0.85	0.81	0.93	25.8
East: Roderick St														
4	L2	46	2.0	48	2.0	0.182	19.6	LOS B	2.5	18.1	0.71	0.64	0.71	22.2
5	T1	74	2.0	78	2.0	0.182	14.1	LOS B	2.5	18.1	0.71	0.64	0.71	42.0
6	R2	39	2.0	41	2.0	0.131	24.4	LOS C	1.0	6.8	0.79	0.72	0.79	21.0
Approach		159	2.0	167	2.0	0.182	18.2	LOS B	2.5	18.1	0.73	0.66	0.73	33.4
North: East St														
7	L2	38	2.0	40	2.0	0.955	52.8	LOS D	21.2	150.9	0.87	1.21	1.65	13.4
8	T1	655	2.0	689	2.0	* 0.955	48.7	LOS D	21.2	150.9	0.88	1.21	1.72	10.3
9	R2	51	2.0	54	2.0	0.955	57.2	LOS E	12.5	88.9	0.90	1.21	1.87	24.3
Approach		744	2.0	783	2.0	0.955	49.5	LOS D	21.2	150.9	0.88	1.21	1.73	11.9
West: Roderick St														
10	L2	246	2.0	259	2.0	0.386	21.0	LOS C	5.7	40.6	0.78	0.78	0.78	37.3
11	T1	181	2.0	191	2.0	* 0.944	46.2	LOS D	21.1	150.2	1.00	1.28	1.72	26.0
12	R2	270	2.0	284	2.0	0.944	51.7	LOS D	21.1	150.2	1.00	1.28	1.72	23.7
Approach		697	2.0	734	2.0	0.944	39.4	LOS D	21.1	150.2	0.92	1.10	1.39	28.1
All Vehicles		2206	2.0	2322	2.0	0.955	35.4	LOS D	21.2	150.9	0.87	1.03	1.33	22.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
East: Roderick St												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	189.9	215.2	1.13
North: East St												

P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
West: Roderick St												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
All Pedestrians		200	211	24.4	LOS C	0.1	0.1	0.90	0.90	188.6	213.6	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101v [East St & Churchill St - PM (Dev 2037) - Mitigation Signals (Site Folder: Dev (2037) - PM)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: East St														
2	T1	80	2.0	84	2.0	0.094	9.6	LOS A	1.4	9.8	0.59	0.46	0.59	24.0
3b	R3	54	2.0	57	2.0	* 0.434	37.1	LOS D	1.8	12.7	1.00	0.73	1.00	14.8
Approach		134	2.0	141	2.0	0.434	20.7	LOS C	1.8	12.7	0.75	0.57	0.75	17.7
SouthEast: Churchill St														
21b	L3	35	2.0	37	2.0	0.475	24.2	LOS C	6.9	49.5	0.84	0.80	0.84	20.7
23a	R1	526	2.0	554	2.0	* 0.475	22.0	LOS C	7.1	50.5	0.84	0.80	0.84	20.9
Approach		561	2.0	591	2.0	0.475	22.2	LOS C	7.1	50.5	0.84	0.80	0.84	20.9
North: East St														
7a	L1	845	2.0	889	2.0	0.532	11.8	LOS B	10.1	72.3	0.63	0.74	0.63	29.3
8	T1	87	2.0	92	2.0	0.532	18.4	LOS B	7.6	54.2	0.86	0.78	0.86	14.1
Approach		932	2.0	981	2.0	0.532	12.4	LOS B	10.1	72.3	0.65	0.75	0.65	27.8
All Vehicles		1627	2.0	1713	2.0	0.532	16.4	LOS B	10.1	72.3	0.73	0.75	0.73	24.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: East St												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	187.4	211.9	1.13
SouthEast: Churchill St												
P5	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	191.4	217.2	1.13
P5B	Slip/ Bypass	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	181.5	204.3	1.13
All Pedestrians		50	158	24.4	LOS C	0.1	0.1	0.90	0.90	186.8	211.1	1.13

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix 4 – Stormwater Management Plan

IPSWICH HOSPITAL STAGE 2 BUSINESS CASE

IPSWICH WELLNESS AND HEALTH CENTRE AND STAND ALONE CAR PARKING FACILITY

Site Based Stormwater Management Plan (SBSMP)

Reconfiguration of a Lot Development Application

Prepared for: DWP

Attention: Department of Health

Date: 22/12/2022

Prepared by: JBentley

Ref: 301050416

Stantec

Revision

Revision	Date	Comment	Prepared By	Approved By
A	22.12.2022	Concept Design	JFB	JFB

Site Address: 35-45 Roderick St, 40-44 South St and 69-73 East St, Ipswich QLD 4305
Real Property Description: Lot 1 on SP33120, Lot 10 on SP324005 and Lot 20 on SP324005

Proposed Development: Ipswich Wellness and Health Centre And Stand Alone Car Parking Facility

Client: DWP
Local Authority: Ipswich City Council
Authority Reference #: N/A
Stantec Reference: 301050416-BRI-C

Jason Bentley (RPEQ 26711)
For and on behalf of
Stantec Australia

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Contents

1. Introduction

Stantec have been commissioned by DWP to prepare this Site Based Stormwater Management Plan (SBSMP) to support the Business Case for the proposed Unfunded Ipswich Wellness and Health Centre (IWHC) and the Funded Stand Alone Car Parking Facility as part of the redevelopment of the Ipswich Hospital; located on properties 35-45 Roderick St, 40-44 South St and 69-73 East St, Ipswich QLD 4305. The site's real property descriptions include Lot 1 on SP33120, Lot 10 on SP324005 and Lot 20 on SP324005.

This SBSMP outlines the concept stormwater servicing strategy to support the proposed development which will demonstrate compliance with relevant standards of the Ipswich City Council (ICC) design specifications, as appropriate. It will outline the stormwater management strategy proposed to meet the runoff quantity and quality objectives outlined in the ICC Planning Scheme for Stormwater and to ensure that the receiving waterways are not adversely affected.

1.1 Purpose

The purpose of this SBSMP is to evaluate the quantity and quality of stormwater associated with the proposed development so as to demonstrate to Ipswich City Council that an appropriate stormwater management strategy can be accommodated.

This SBSMP specifically addresses the following items for both the construction and operational phases of the development:

- An appropriate stormwater quality management strategy can be implemented that meets Water Sensitive Urban Design (WSUD) best management practices, state and local government planning and guideline requirements,
- An appropriate stormwater quantity management strategy can be implemented to that ensure that the developed site's stormwater runoff meets Council requirements, and
- Maintenance of water quality treatment devices.

2. Existing Site Characteristics

2.1 Property Detail

Address:	35-45 Roderick St, 40-44 South St and 69-73 East St, Ipswich QLD 4305
Real Property Description:	Lot 1 on SP33120, Lot 10 on SP324005 and Lot 20 on SP324005
Total Site Area:	17,585 m² (1.76 Ha)

As can be seen in Figure 2-1 below, the development site is bounded by urban development and the Old Court House Gallery & Cultural Association to the South, Ipswich City Civil Centre, Aged Care, parkland and Health Services to the North, Public Service buildings to the East, and the heritage listed Ipswich Masonic Centre to the West.

Figure 2-1: Site Location Plan (Source: Nearmap Australia 2021)

2.2 Existing Site Conditions

Internally the site is currently occupied by various on-ground car parking facilities including vegetated medians and in-ground services, and various building structures for Home Assist Secure, Ipswich Regional Advocacy Service and Ashley Institute of Training.

External to the Site the Northern, Eastern and Southern boundaries of the site feature public road infrastructure. Located within these road networks are various public utilities including water and sewer reticulation, electrical and communication

infrastructure and stormwater drainage infrastructure. To the West of the site is the Ipswich Masonic Centre which is required to be protected during the proposed development works as it is heritage listed.

2.3 Proposed Development

The redevelopment will result in an unfunded 7-story health facility with adjacent funded free standing car parking incorporating approximately 13,200m^2 of functional areas, 2,100m^2 of travel and circulation spaces, 5,400m^2 of engineering spaces and 27,300m^2 of carparking; areas do not include areas nominated as future development space.

2.4 Topography

The ground surface of the Site is predominately built over with existing buildings and hardstands with various small garden beds, grassed areas and isolated trees throughout which are expected to total approximately 15-20% of the Sites area.

The site is situated on a steeply graded site with existing levels ranging between RL36 in the South-West to RL26 to the North-East.

3. Flooding/ Overland Flow Impacts

3.1 Known Existing Flooding/ Overland Flow Paths

Reviewing Ipswich City Council Major Flood Mapping indicates that no flooding impacts or overland flow paths are situated within the development site and the site is not subject to flood assessment planning overlays. The extent of flooding shown in Figure 4.1.

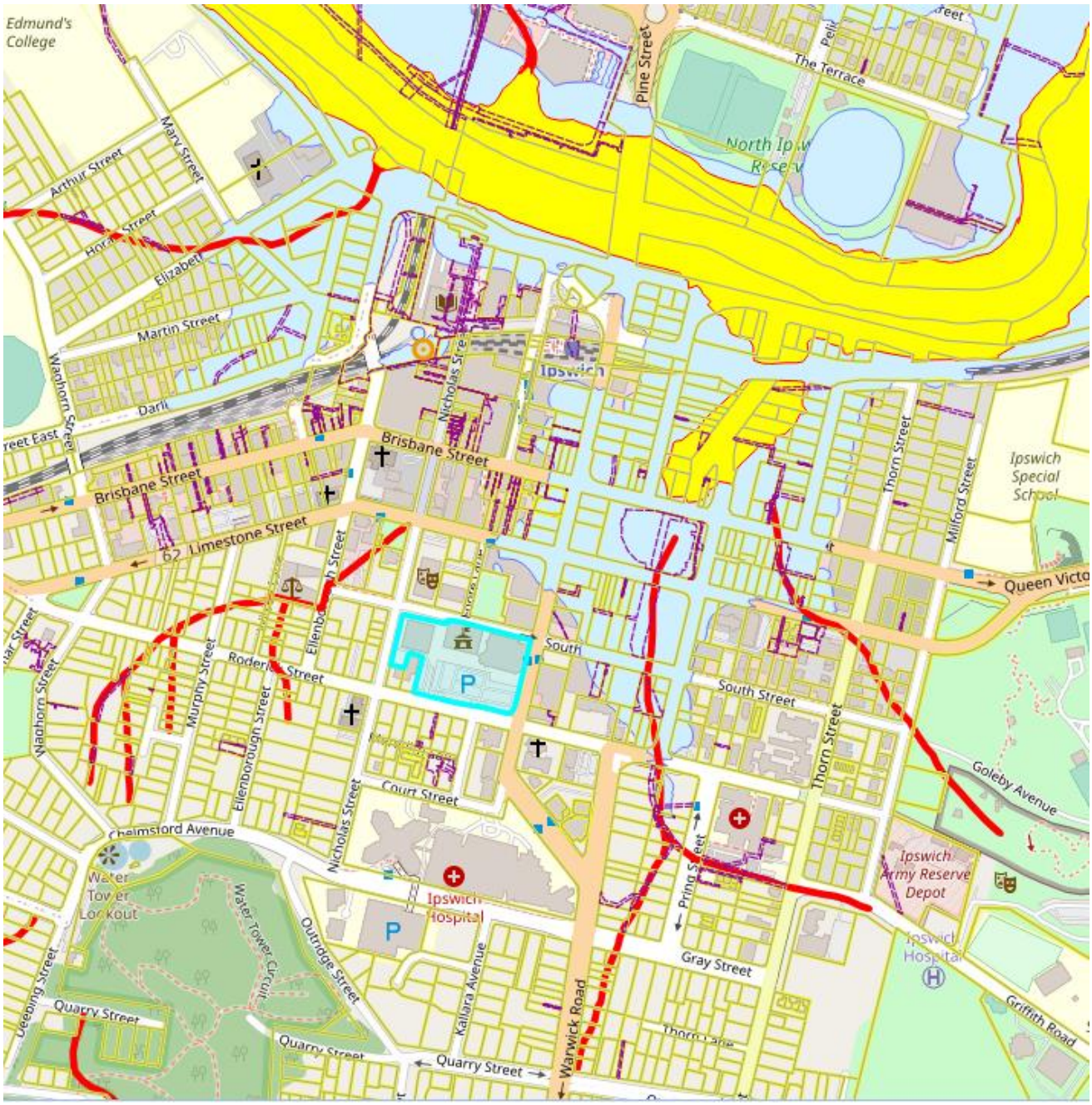

Figure 4-1: Site Location Plan (Source: ICC Interactive Mapping 2022)

Given that there are no flooding impacts or overland flow paths situated within the development site a flood assessment is deemed as not being required. As such floor levels are to adopt those established in the Brisbane River Strategic Floodplain Management Plan - Building Floor Level Heights (dated 16 June 2017)

3.2 External Catchment

The surrounding area has been investigated to determine the likely impact of existing external stormwater catchments on the proposed development site. By examining contours of the surrounding area, it has been established that the development site is part of a larger regional catchment discharging to a waterway downstream (Bremer River) of the site. Consequently, the stormwater quantity investigations have reviewed the impacts of the development site on a regional level, and ensured the conditions or flows applied to the downstream creek are ultimately not worsened. An existing catchment plan depicting the regional catchment area and the contributing catchments to this region is included within the drawing set.

4. Stormwater Quantity

4.1 Existing Stormwater Regime and Points of Discharge

Survey and contours of the existing topography indicates that the IWHC site generally grades from the South-West boundary to the North-Eastern boundary.

Based on topography of the region, it is established that the site forms part of a larger regional catchment, with the site having several points of discharge. Flows from the development site currently utilise a pipe network for minor events while major events utilise nearby overland flow routes, via existing roadways, and subsequently discharge into the Bremer River, along with a series of other catchments as depicted within the Pre-Development catchment plan.

4.2 Stormwater Discharge/Lawful Point of Discharge

It is a requirement that every development must have a lawful point of stormwater discharge.

The Site has several existing points of discharge located on the Northern and North-East boundaries. Post development the Site will maintain these points of discharge as shown in the Post-Development Catchment plan.

A comparison of the stormwater discharging from the site to the various points of discharge in the Pre and Post Development condition has been undertaken and is included within Section 4.5 of this report.

The primary point of discharge from the site will be located on the Northern boundary with detention and proprietary treatment devices included to attenuate the flows into existing pipe network. The surface flow into the existing overland flow paths will maintain the existing routes to the Bremer River.

4.3 Methodology of Modelling

The methodology used to analyse the magnitude of the increase in stormwater runoff from the pre and post-developed site is based on comparing the peak discharge flow rates for each Average Recurrence Interval (ARI) storm event including the Q2, Q5, Q10, Q20, Q50 and Q100 for all storm durations from 5 minutes to 3 hours. Once the increase in stormwater runoff is established, an appropriate stormwater attenuation measure can be proposed.

To assist in clarifying the scenarios and catchments investigated, the following summary is provided in Table 4-1 below, and engineering catchment plans are provided in Appendix 4.

Table 4-1: Catchment Parameters

Scenario	Description
Pre-Development	The predevelopment conditions assess the flows discharging from site only within the defined pre-development catchment areas.
Post Development	The post-development conditions assess the flows discharging from site only within the defined post-development catchment areas.

4.4 Pre-Development Peak Stormwater Condition

Rational Method Calculations (in Appendix 5) have been undertaken to assess peak flow rates for each of the pre-development catchments and the total from site.

The rainfall intensities utilised in the stormwater calculations have been calculated utilising AR&R (2016) extracted from the Australian Government Bureau of Meteorology (BOM) IFD calculator. The 1hr rainfall intensity for a 10% AEP ($^{1hr}I_{10}$) for this site location is 56.1 mm/hr.

By conducting a visual site investigation and examining recent aerial photography, the existing pre-developed site can be generally categorised as rural residential. The pre-development f_i and C_{10} values as per measured site coverage have been evaluated and are listed below in Table 4-2.

Table 4-2: Catchment Pre-development Parameters

Catchment	Fraction Impervious (f_i)	Coefficient of Discharge (C_{10})
Eastern Developed (Pre A)	0.95	0.9
Central Developed (Pre B)	0.95	0.9
West Developed (Pre C)	0.95	0.9

The pre-development peak flows for the Catchments calculated by the Rational Method are summarised in Table 4-3 and the flows provided by DRAINS are summarised in Table 4-4.

Table 4-3: Pre-development Peak Flows – Rational Method

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Pre A)	0.109	0.169	0.210	0.254	0.315	0.350
Central Developed (Pre B)	0.154	0.237	0.296	0.357	0.443	0.493
West Developed (Pre C)	0.033	0.051	0.064	0.077	0.096	0.107

Table 4-4: Pre-development Peak Flows – DRAINS

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Pre A)	0.172	0.227	0.258	0.304	0.349	0.393
Central Developed (Pre B)	0.242	0.319	0.363	0.428	0.491	0.553
West Developed (Pre C)	0.053	0.069	0.79	0.093	0.106	0.120

As demonstrated by Table 4-5, the Rational Method calculations and DRAINS model yield similar values in major events ±10% and can be considered to be validated on this basis. As such, the DRAINS model shall be utilised for subsequent analysis.

Table 4-5: Pre-Development Peak Flows - Comparison of Rational to DRAINS

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Pre A)	63%	74%	81%	84%	90%	89%
Central Developed (Pre B)	64%	74%	82%	83%	90%	89%
West Developed (Pre C)	62%	74%	81%	83%	91%	89%

4.5 Proposed Stormwater Management Strategy

4.5.1 Catchment Description

The pre & post-development catchment areas are summarised in Table 4-6 below and are shown in Appendix 4.

As described in Section 4.1, the development area has been identified as part of a regional catchment, which has been divided into the following pre-development and post-development catchments:

Pre Development Catchment	Post Development Catchment
A	1
B	2
C	3

Table 4-6: Catchments

Catchment Name	Pre Development (Ha)	Post Development (Ha)	Change (Ha)	Change (%)
Eastern Developed	0.7135	0.8660	0.1525	21%
Central Developed	01.0035	0.8500	-0.1535	-15%
West Developed	0.2175	0.2175	0	0%

4.5.2 Level of Serviceability

The following level of serviceability will be provided within the stormwater drainage system as per Ipswich City Plan.

Table 4-7: Stormwater Drainage Serviceability

Development Category	Design Parameter	Design Standard
Residential Area	Minor Drainage System	10 Year ARI (10% AEP)
	Major Drainage System	100 Year ARI (1% AEP)

4.5.3 Post-Development Peak Stormwater Condition

The f_i and C_{10} values have been evaluated based on the site layout and are listed below in Table 4-8.

Table 4-8: Catchment Post-development Parameters

Catchment	Fraction Impervious (f_i)	Coefficient of Discharge (C_{10})
Eastern Developed (Post 1)	1.00	0.9
Central Developed (Post 2)	1.00	0.9
West Developed (Post 3)	0.95	0.9

The Coefficient of Runoff (C_y) for the various ARI events is evaluated by using the frequency factor and C_{10} values established above.

Rational Method Calculations (in Appendix 5) have been undertaken to provide peak flow rates which has been utilised to calculate the unmitigated post-development peak flow rates for each of the catchments and the site's total. The unmitigated post-development peak flows for the catchments analysed by the Rational Method are summarised in Table 5-8 and the unmitigated post-development peak flows for the catchments modelled by DRAINS are summarised in Table 5-9.

Table 4-9: Unmitigated Post-development Peak Flows – Rational Method

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Post 1)	0.206	0.319	0.397	0.482	0.599	0.667
Central Developed (Post 2)	0.202	0.313	0.389	0.473	0.588	0.655
West Developed (Post 3)	0.033	0.051	0.064	0.077	0.096	0.107

Table 4-10: Unmitigated Post-development Peak Flows – DRAINS

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Post 1)	0.342	0.446	0.507	0.586	0.654	0.734
Central Developed (Post 2)	0.336	0.437	0.497	0.576	0.642	0.72
West Developed (Post 3)	0.053	0.069	0.079	0.093	0.106	0.12

As demonstrated by Table 5-5, the Rational Method calculations and DRAINS model yield similar values in major events ±10% and can be considered to be validated on this basis. As such, the DRAINS model shall be utilised for subsequent analysis.

Table 4-11: Pre-Development Peak Flows - Comparison of Rational to DRAINS

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Post 1)	60%	72%	78%	82%	92%	91%
Central Developed (Post 2)	60%	72%	78%	82%	92%	91%
West Developed (Post 3)	62%	74%	81%	83%	91%	89%

4.5.4 Comparison of Pre-Development and Post-Development Conditions

A comparison of the DRAINS results for the pre-development and unmitigated post-development conditions is summarised in **Table 4-11**. This comparison enables an assessment to be made around the impact of the proposed development on the existing conditions to determine whether the quantity of stormwater being discharged from site requires mitigation measures to be implemented.

Table 4-11: Comparison of DRAINS Pre-Development and Unmitigated Post-development Peak Flows (m3/s)

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Post 1)						
Peak Pre-Development Flows (Pre A) (m3/s)	0.172	0.227	0.258	0.304	0.349	0.393
Peak Unmitigated Post Development Flows (Post 1) (m3/s)	0.342	0.446	0.507	0.586	0.654	0.734
Total Increase (+) or Decrease (-)	**0.17**	**0.219**	**0.249**	**0.282**	**0.305**	**0.341**
Central Developed (Post 2)						
Peak Pre-Development Flows (Pre B) (m3/s)	0.242	0.319	0.363	0.428	0.491	0.553

Peak Mitigated Post Development Flows (Post 2) (m3/s)	0.336	0.437	0.497	0.576	0.642	0.72
Total Increase (+) or Decrease (-)	**0.094**	**0.118**	**0.134**	**0.148**	**0.151**	**0.167**
Western Developed (Post 3)						
Peak Pre-Development Flows (Pre B) (m3/s)	**0.053**	**0.069**	**0.079**	**0.093**	**0.106**	**0.12**
Peak Unmitigated Post Development Flows (Post 2) (m3/s)	**0.053**	**0.069**	**0.079**	**0.093**	**0.106**	**0.12**
Total Increase (+) or Decrease (-)	**0**	**0**	**0**	**0**	**0**	**0**

4.5.5 Proposed Stormwater Management Strategy

The flow comparison undertaken in Section 4.5.4 demonstrates that peak flow rates towards the existing legal point of discharge are generally worsened in the post development conditions for post development catchments 1 and 2, with an overall increase in flows in all storm events, while post development catchment 3 remains consistent with pre-development conditions. This overall increase is a direct result of the introduced impervious areas as part of the subject development and changes to the times in concentration in flow. It is therefore proposed to provide a stormwater detention tank to reduce the impact of increased stormwater peak flow rates from the subject development and attenuate these flows prior to discharge from the proposed site.

4.5.6 Proposed Stormwater Attenuation

A stormwater detention tank has been proposed to mitigate the increase in stormwater runoff from the subject development for post development catchments 1 and 2. The proposed stormwater detention basins details are included within the drawing in Appendix 4. The details associated with the proposed basin are summarised subsequently.

A hydraulic assessment has been undertaken to evaluate stormwater detention and outlet control requirements for each storm event to demonstrate that pre-development flow rates (at the existing creek receiving node) have been achieved in the post-development site condition. The DRAINS model established for the unmitigated post-development condition has been utilised to undertake mitigated post-development scenario modelling.

The development provides piped stormwater infrastructure and overland flow paths to direct all minor and major catchment flows into the proposed detention basin. The DRAINS model has been setup to reflect this. It is intended that flows out of the proposed detention tank will be released by the detention tank outlet structure and high-level weir. These released flows are intended to be conveyed by proposed infrastructure and discharge into existing infrastructure along South Street. The proposed conceptual stormwater drainage layout for the subject development has been provided within Appendix 4.

Proposed Detention Tank

The detention tank to service the post development catchment is proposed to have the following properties:

	Eastern Developed (Post 1)	Central Developed (Post 2)
Detention Volume (m^3)	330	210
Detention Depth (m)	1.5	1.5
Detention Area (m^2)	220	140
Detention Tank Invert Level	24.85	23.95m AHD
Orifice 1 Size (WxH)	0.2m x 0.5m	0.2m x 0.5m
Orifice 1 Level	24.85	23.95m AHD
Orifice 2 Size (WxH)	0.15m x 0.3m	0.4m x 0.3m
Orifice 2 Level	25.85	24.85m AHD

4.5.7 Mitigated Post Development Condition

The proposed stormwater quantity management strategy was modelled using a DRAINS model as established in the earlier sections. The model has demonstrated that the mitigated Post development peak flow rates do not exceed the pre-development peak flow rates. The results of the proposed detention basin and stormwater quantity management strategy have been summarised in Table 4-12 below.

Table 4-12: Mitigated Results Summary for Various ARI Events, Critical Durations at Creek

AEP (ARI yrs)	39% (2yr)	18% (5yr)	10% (10yr)	5% (20yr)	2% (50yr)	1% (100yr)
Eastern Developed (Post 1)						
Peak Pre-Development Flows (Pre A) (m^3/s)	0.172	0.227	0.258	0.304	0.349	0.393
Peak Mitigated Post Development Flows (Post 1) (m^3/s)	0.171	0.209	0.229	0.273	0.331	0.376
Total Increase (+) or Decrease (-)	**-0.001**	**-0.018**	**-0.029**	**-0.031**	**-0.018**	**-0.017**
Central Developed (Post 2)						
Peak Pre-Development Flows (Pre B) (m^3/s)	0.242	0.319	0.363	0.428	0.491	0.553
Peak Mitigated Post Development Flows (Post 2) (m^3/s)	0.2	0.275	0.339	0.422	0.465	0.524
Total Increase (+) or Decrease (-)	**-0.042**	**-0.044**	**-0.024**	**-0.006**	**-0.026**	**-0.029**

It has been demonstrated that the proposed stormwater quantity management strategy as depicted in the drawings in Appendix 4 adequately meets the Ipswich City Council requirements in relation to stormwater quantity for the site.

5. Stormwater Quality

5.1 Stormwater Management Strategy

It is a requirement, under the State Planning Policy 2017 and Ipswich City Council Guidelines, that the proposed development manages stormwater in such a way that, in the long term, the development achieves industry standard Water Quality Objectives thus reducing the impact the development has on receiving waters. These requirements are based on development thresholds being triggered as established under Table 5.1 below (as extracted from ICCC Guideline 24).

Table 5-1 - ICC Thresholds for Stormwater Quality and Flow Management

Development Type	Threshold
Material change of use for urban purposes	(a) Includes newly constructed road (previously unformed road) exceeding 30m in total length[1]. (b) Greater than 2500m^2 of land[2]. (c) 6 or more additional dwellings (attached or unattached). (d) Located within an identified sensitive receiver area. (e) Consists of 300m^2 or more uncovered[3] impervious car park area including parking bays and circulation driveways for high pollutant generators such as Business Use - Fast Food Premises and Business Use - Service Station.

	(f)	Consists of 600m^2 or more uncovered[3] impervious car park area including parking bays and circulation driveways for all other uses.
Reconfiguration of a lot for urban purposes	(a)	Includes newly constructed road exceeding 30m in total length[1].
	(b)	Would result in 6 or more residential allotments or that provides for 6 or more dwellings.
	(c)	Involves greater than 2500m^2 of land[2] and will result in six or more lots.
	(d)	Located within an identified sensitive receiver area.
	(e)	Is associated with operational work disturbing greater than 2500m^2 of land[2].
Operational works for urban purposes	(a)	Disturbing greater than 2500m^2 of land.
	(b)	Located within an identified sensitive receiver area.

For the purpose of assessing the threshold triggers the impervious and pervious areas in the pre and post developed scenario have been identified in Table 5.2. The assessment of the impervious and pervious areas are confined to pre development catchments A and D and post development catchments 1 to 4. This is due to the changes resulting from the development being restricted to these catchments with no changes occurring outside of this area as part of the proposed works.

For the purpose of calculating the pervious area for the development site, no planting spaces incorporated within building envelope has been included.

Table 5-2 - Pervious and Impervious Areas

	Fraction Pervious (Ha)
Pre-development	1.934
Post-development	1.934
Difference	0

Based on Table 5-2 the proposed post-development pervious area there will be no change to the pre-development pervious area. As this is less than the threshold identified, for Operational Works for Urban Purposes in Table 5-1, stormwater quality treatment is not required for the project works.

5.2 Acid Sulphate Soils

Acid Sulphate Soils are typically encountered in Holocene sediment and below 5m AHD. The lowest area of the proposed earthworks associated with the development is at an approximate RL24.3m AHD, with the deepest excavation expected to be to approximately RL 23m AHD. As such, acid sulphate soils are identified as not being potential development issue.

5.3 Erosion and Sediment Control (ESC) – Construction

A Conceptual Erosion and Sediment Control (ESC) Management Plan has been prepared and included within Appendix 4. It demonstrates that the proposed development can accommodate the necessary devices to mitigate the sediment and erosion risks associated with the construction phase of the development. The plan has been prepared with reference to the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control. Prior to works commencement on-site, the ESC Plans will be reviewed, amended and endorsed by a Registered Practicing Engineer of Queensland (RPEQ) and a Certified Professional in Erosion and Sediment Control (CPESC).

6. Conclusion

This Site Based Stormwater Management Plan has been prepared for the proposed Unfunded Ipswich Wellness and Health Centre (IWHC) and funded Stand Alone Car Parking Facility as part of the redevelopment of the Ipswich Hospital.

The report has also demonstrated that the proposed development can implement an appropriate Stormwater management strategy with the introduction of a proposed detention basin.

A lawful point of discharge have been identified consistent with the existing with flows to continue to South St and ultimately to the Bremer River.

We therefore recommend that the application for this site be approved.

APPENDIX 1 – Existing Detailed Site Survey

REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
A	Preliminary Issue	23-12-2021	RPS	DF	DL

NOTES
This drawing is a combination of new and old data.
Some information shown may now be obsolete

DO NOT SCALE DRAWINGS. ALL DIMENSIONS TO BE VERIFIED & CHECKED ON SITE

LOCALITY : Ipswich
LOCAL AUTHORITY : Ipswich City Council

DATE 21 Mar 2022
SCALE 1:250
SHEET 1 OF SHEETS 7
HZ DATUM MGA
VRT DATUM AHD
SHEET SIZE A1

PROJECT Ipswich Hospital Business Case
CLIENT West Moreton Health
TITLE Ipswich Hospital Detail & Contour Survey

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5 0 5 10 15 20 25 METRES
SCALE 1 : 250 (BEFORE REDUCTION)

REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
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LOCAL AUTHORITY : Ipswich City Council

DATE: 21 Mar 2022
HZ DATUM: MGA
VRT DATUM: AHD
SCALE: 1:250
SHEET 2 OF SHEETS 7
SHEET SIZE: A1

PROJECT: Ipswich Hospital Business Case
CLIENT: West Moreton Health
TITLE: Ipswich Hospital
Detail & Contour Survey

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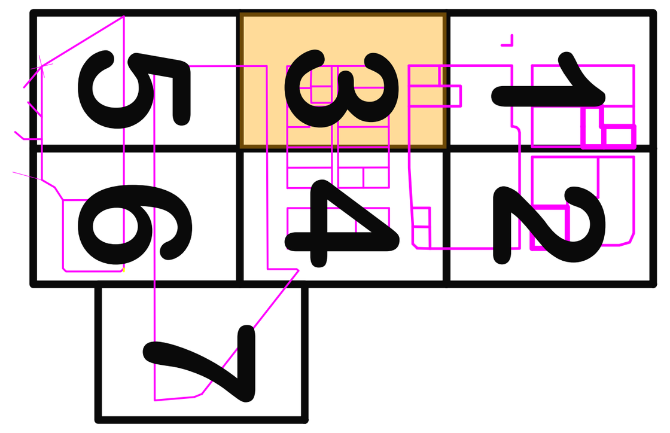
SCALE 1 : 250 (BEFORE REDUCTION)

PLOT FILE : Page 1-2



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DATE	21 Mar 2022
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SHEET 3 OF SHEETS 7	
HZ DATUM	MGA
VRT DATUM	AHD
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REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
A	Preliminary Issue	23-12-2021	RPS	DF	DL

NOTES
This drawing is a combination of new and old data.
Some information shown may now be obsolete

DO NOT SCALE DRAWINGS. ALL DIMENSIONS TO BE VERIFIED & CHECKED ON SITE

LOCALITY : Ipswich
LOCAL AUTHORITY : Ipswich City Council

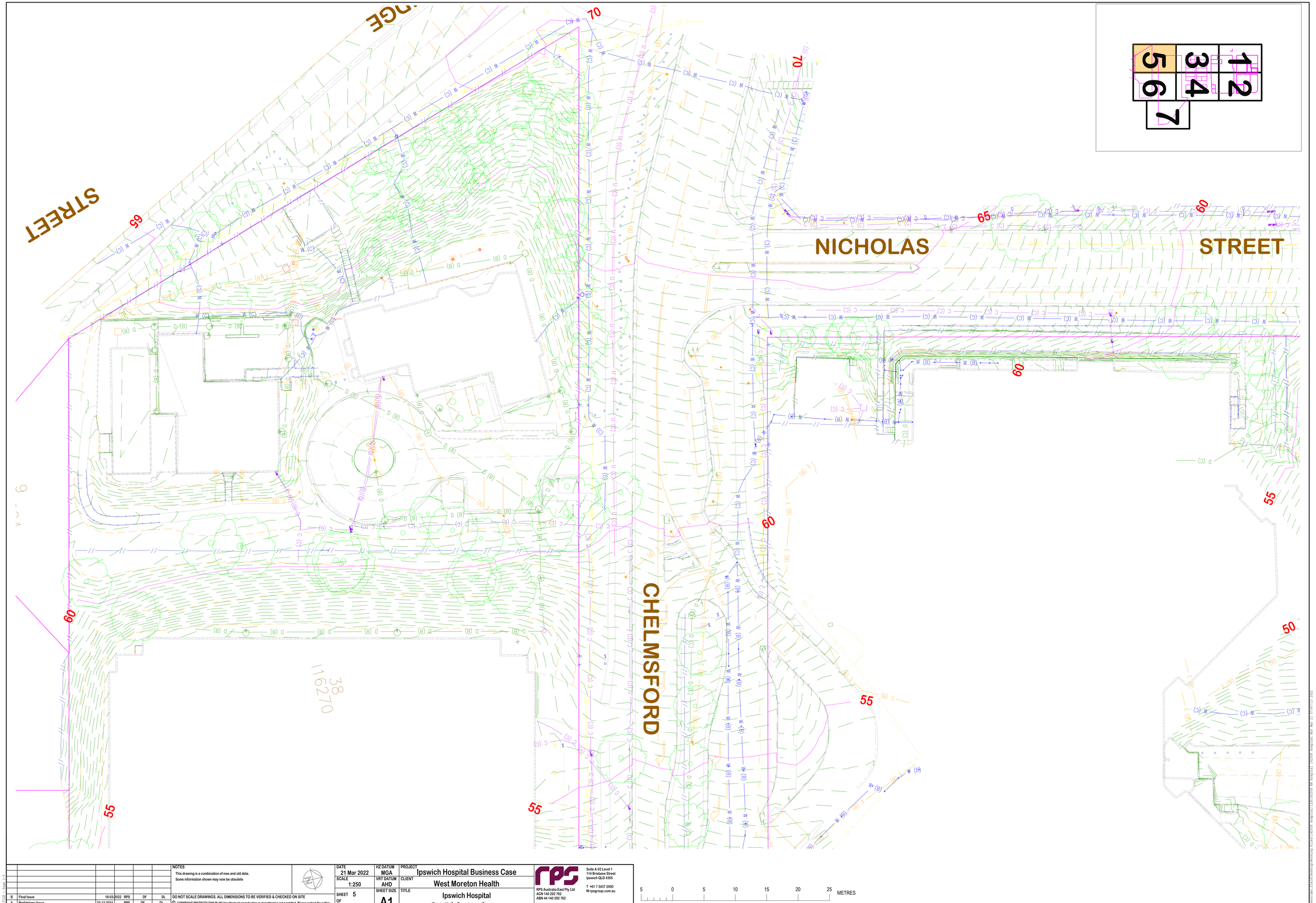
DATE 21 Mar 2022
SCALE 1:250
SHEET 4 OF SHEETS 7
HZ DATUM MGA
VRT DATUM AHD
SHEET SIZE A1

PROJECT Ipswich Hospital Business Case
CLIENT West Moreton Health
TITLE Ipswich Hospital
Detail & Contour Survey

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 762
Suite A.02 Level 1
114 Brisbane Street
Ipswich QLD 4305
T +61 7 3437 2000
W rpsgroup.com.au

DWG NO. 142508-11-001 ISSUE B

PLOT FILE : Page 1-4



REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
A	Preliminary Issue	23-12-2021	RPS	DF	DL

NOTES
This drawing is a combination of new and old data.
Some information shown may now be obsolete

DO NOT SCALE DRAWINGS. ALL DIMENSIONS TO BE VERIFIED & CHECKED ON SITE

LOCALITY : Ipswich
LOCAL AUTHORITY : Ipswich City Council

DATE	21 Mar 2022
SCALE	1:250
SHEET	5
OF SHEETS	7
HZ DATUM	MGA
VRT DATUM	AHD
SHEET SIZE	A1
PROJECT	Ipswich Hospital Business Case
CLIENT	West Moreton Health
TITLE	Ipswich Hospital Detail & Contour Survey

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 762

Suite A.02 Level 1
114 Brisbane Street
Ipswich QLD 4305

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DWG NO. 142508-11-001 ISSUE B

5 0 5 10 15 20 25 METRES
SCALE 1 : 250 (BEFORE REDUCTION)

PLOT FILE : Page 1-5

REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
A	Preliminary Issue	23-12-2021	RPS	DF	DL

NOTES
This drawing is a combination of new and old data.
Some information shown may now be obsolete

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LOCALITY : Ipswich — LOCAL AUTHORITY : Ipswich City Council

DATE	21 Mar 2022
SCALE	1:250
SHEET	6 OF SHEETS 7
HZ DATUM	MGA
VRT DATUM	AHD
SHEET SIZE	A1
PROJECT	Ipswich Hospital Business Case
CLIENT	West Moreton Health
TITLE	Ipswich Hospital Detail & Contour Survey
DWG NO.	142508-11-001
ISSUE	B

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 762
Suite A.02 Level 1
114 Brisbane Street
Ipswich QLD 4305
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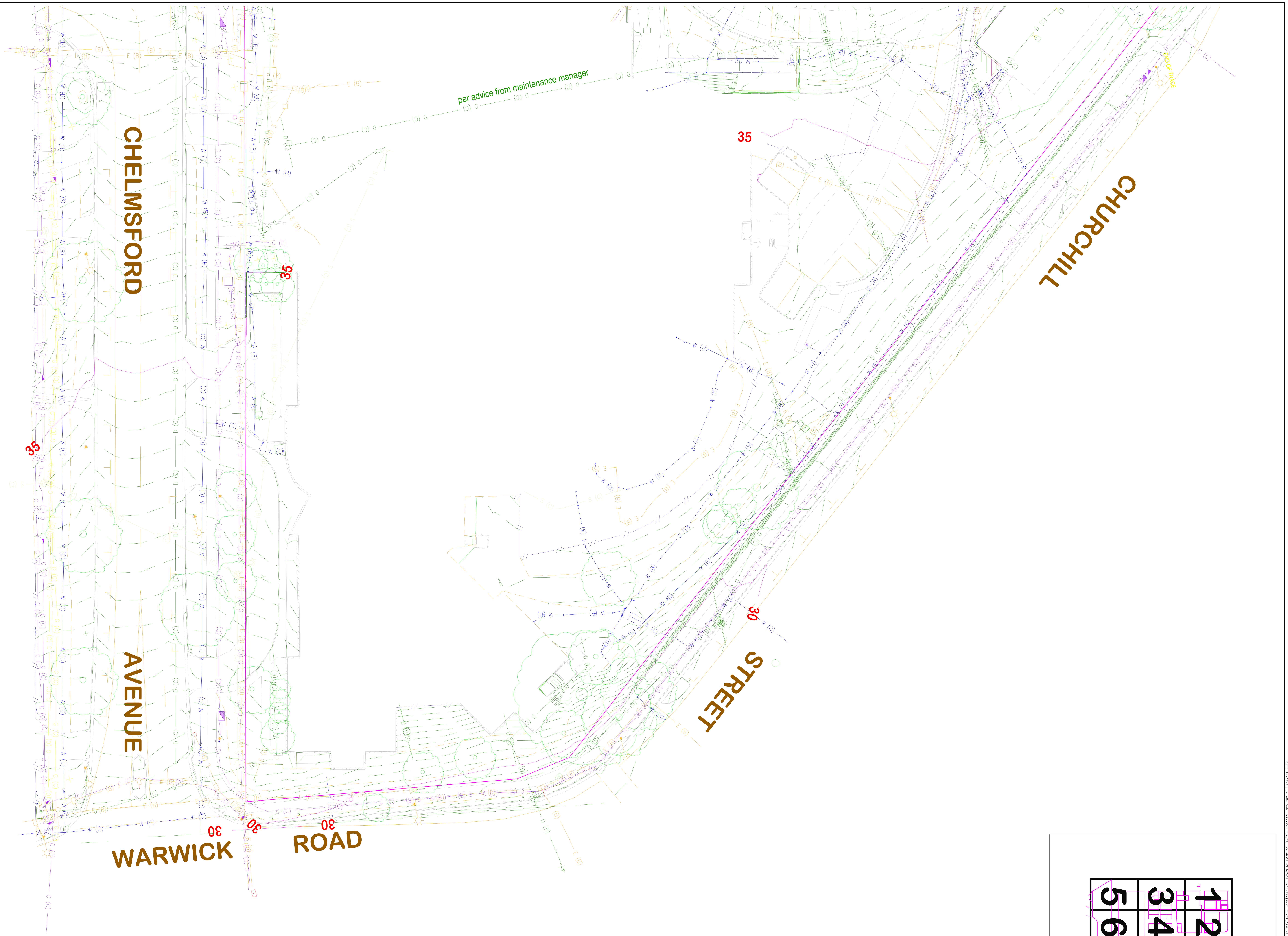
W rpsgroup.com.au

PLOT FILE : Page 1-6



REV	REVISIONS/DESCRIPTIONS	DATE	SURVEYOR	DRAWN	CHECKED
B	Final Issue	18-03-2022	RPS	DF	DL
A	Preliminary Issue	23-12-2021	RPS	DF	DL

NOTES
This drawing is a combination of new and old data.
Some information shown may now be obsolete

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LOCALITY : Ipswich
LOCAL AUTHORITY : Ipswich City Council

DATE 21 Mar 2022
SCALE 1:250
SHEET 7 OF SHEETS 7
HZ DATUM MGA
VRT DATUM AHD
SHEET SIZE A1

PROJECT Ipswich Hospital Business Case
CLIENT West Moreton Health
TITLE Ipswich Hospital Detail & Contour Survey

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 762
Suite A.02 Level 1
114 Brisbane Street
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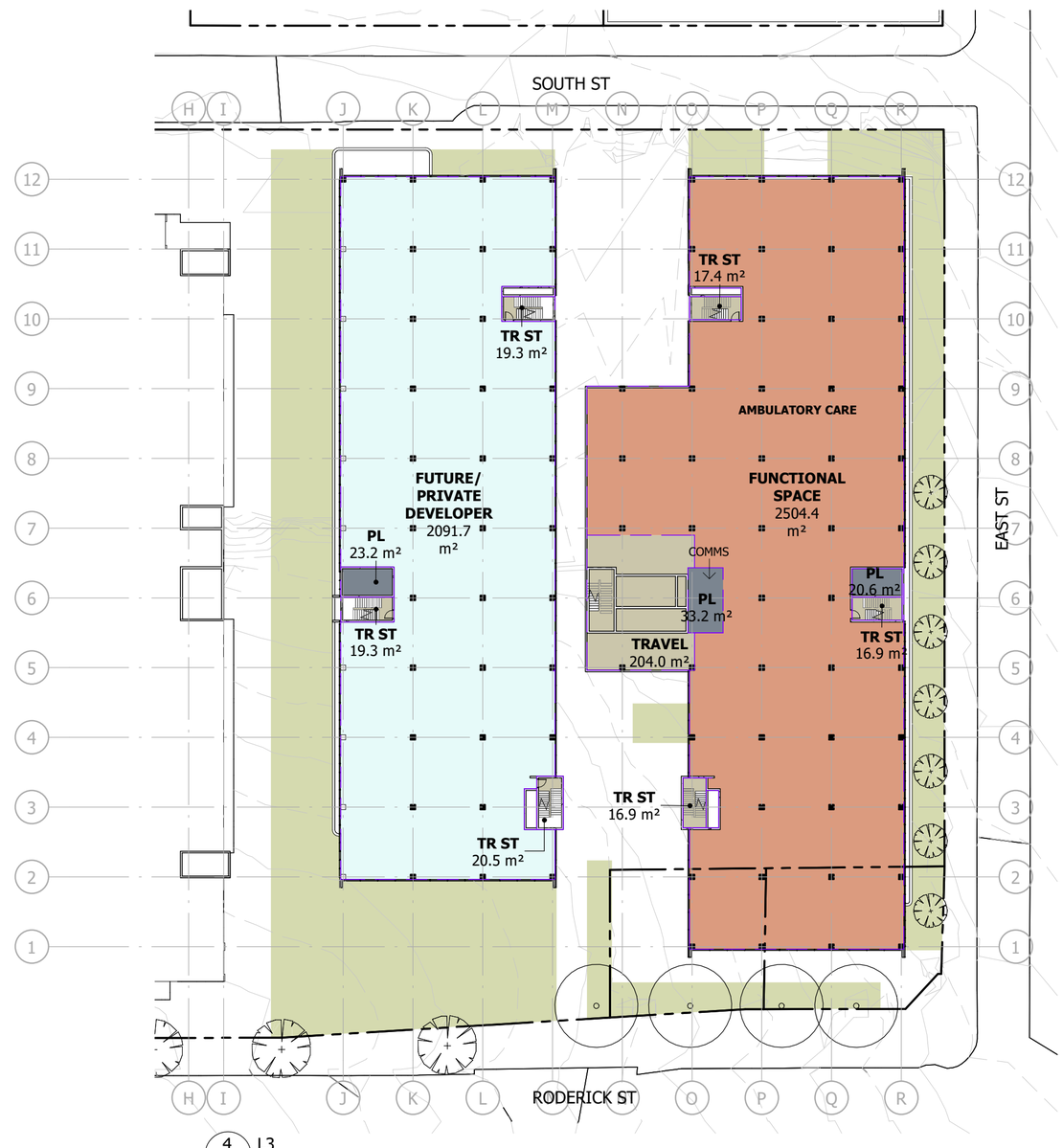
APPENDIX 2 – Proposed Development Layout

1 AA3009 L0 LG
1 : 500

2 AA3009 L1 GL
1 : 500

3 AA3009 L2
1 : 500



4 AA3009 L3
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SCHEMATIC DESIGN

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B	FOR COORDINATION	13.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
D	FOR COORDINATION	21.06.22	RB	FM
E	FOR COORDINATION	28.06.22	RB	FM
F	FOR INFORMATION	06.07.22	RB	FM
G	FOR INFORMATION	11.07.22	RB	FM

Architects In Collaboration
dwp architectus

Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital DBC_IWHC (UNFUNDED)

Drawing
AREA PLAN_L0 LG, L1 GL, L2, L3

Scale (A1)
1 : 500

Date Printed
11/07/2022 2:34:41 PM

Project Number
22-0201

Drawing Number
DWP-SKB1201

Issue
G

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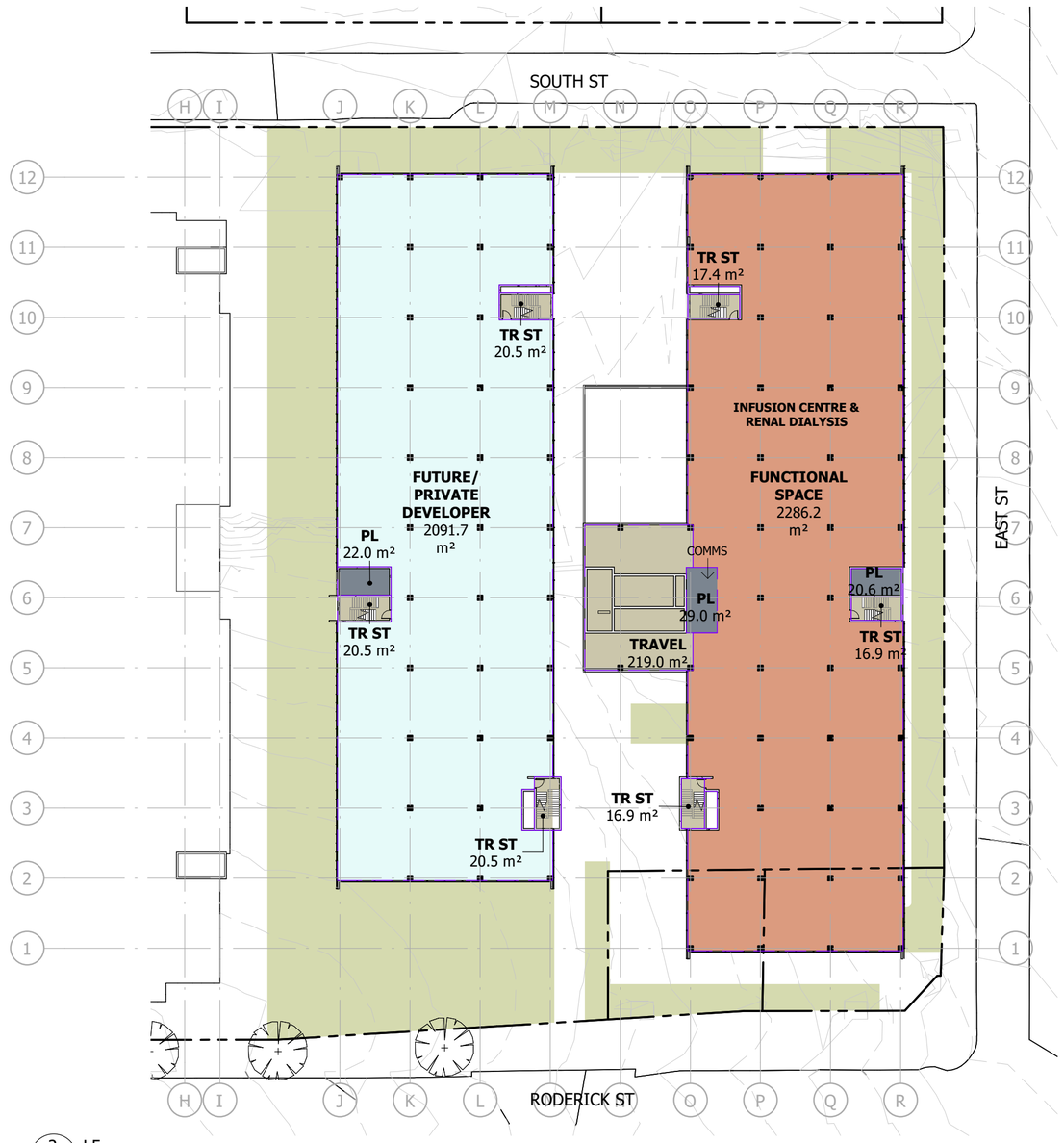
File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt

1 L4
AA3009 1 : 500



2 L5
AA3009 1 : 500

3 L6
AA3009 1 : 500

4 L7
AA3009 1 : 500

AREA SCHEDULE OVERALL_NEW BUILDING		
DESCRIPTOR	Area	Name
AREA IHC		
L0 LG		
BACK OF HOUSE	809.5 m²	AREA IHC
LOADING DOCK	807.1 m²	AREA IHC
PLANT	1175.7 m²	AREA IHC
TRAVEL	129.1 m²	AREA IHC
	2921.5 m²	
L1 GL		
CAFE	84.3 m²	AREA IHC
FUNCTIONAL SPACE	1278.4 m²	AREA IHC
OPERATIONAL SUPPORT	39.2 m²	AREA IHC
PLANT	52.2 m²	AREA IHC
TRAVEL	389.7 m²	AREA IHC
TRAVEL STAIR	53.0 m²	AREA IHC
	1896.9 m²	
L2		
FUNCTIONAL SPACE	2314.9 m²	AREA IHC
PLANT	47.6 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2617.6 m²	
L3		
FUNCTIONAL SPACE	2504.4 m²	AREA IHC
PLANT	53.8 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC

AREA SCHEDULE OVERALL_NEW BUILDING		
DESCRIPTOR	Area	Name
	2813.2 m²	
L4		
FUNCTIONAL SPACE	2508.6 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2813.2 m²	
L5		
FUNCTIONAL SPACE	2286.2 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.9 m²	
L6		
FUNCTIONAL SPACE	2285.9 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.6 m²	
L7		
PLANT	2335.5 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.6 m²	
Grand total: 66	20879.6 m²	

NOTE: EXCLUDES VERTICAL EXPANSION UP TO LEVEL 10

AREA SCHEDULE OVERALL_FUTURE		
DESCRIPTOR	Area	Name
FUTURE		
L1 GL		
FUTURE/ PRIVATE DEVELOPER	661.7 m²	FUTURE
TRAVEL	16.9 m²	FUTURE
L2		
FUTURE/ PRIVATE DEVELOPER	1957.9 m²	FUTURE
L3		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L4		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L5		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L6		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
Grand total: 7	11003.4 m²	

NOTE: EXCLUDES VERTICAL EXPANSION UP TO LEVEL 10

SCHEMATIC DESIGN

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A	FOR COORDINATION	10.06.22	RB	AM
B	FOR COORDINATION	13.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
D	FOR COORDINATION	28.06.22	RB	FM
E	FOR INFORMATION	06.07.22	RB	FM
F	FOR INFORMATION	11.07.22	RB	FM

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Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital
DBC_IWHC
(UNFUNDED)

Drawing
AREA PLAN_L4, L5, L6,
AREA SCHEDULE

Scale (A1)
1 : 500

Date Printed
11/07/2022 2:34:46 PM

Project Number
22-0201

Drawing Number
DWP-SKB1202

Issue
F

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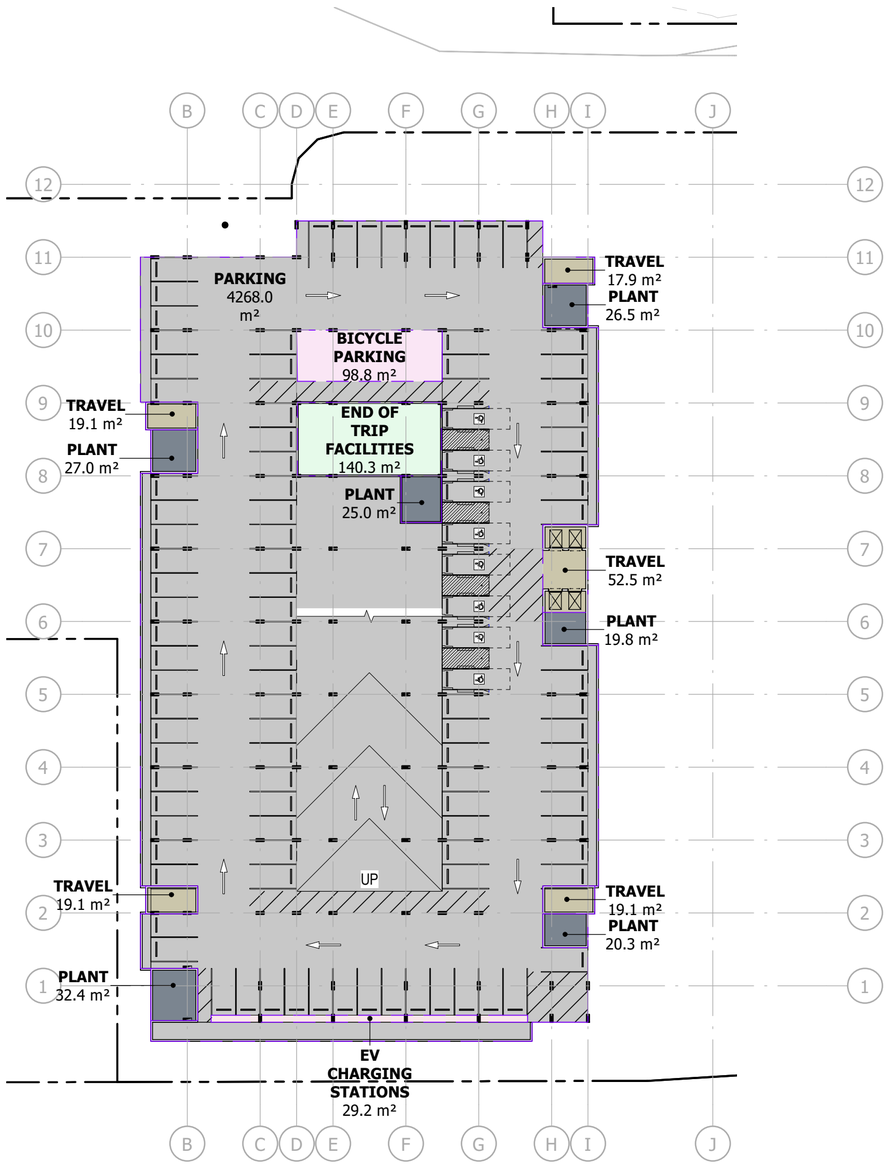
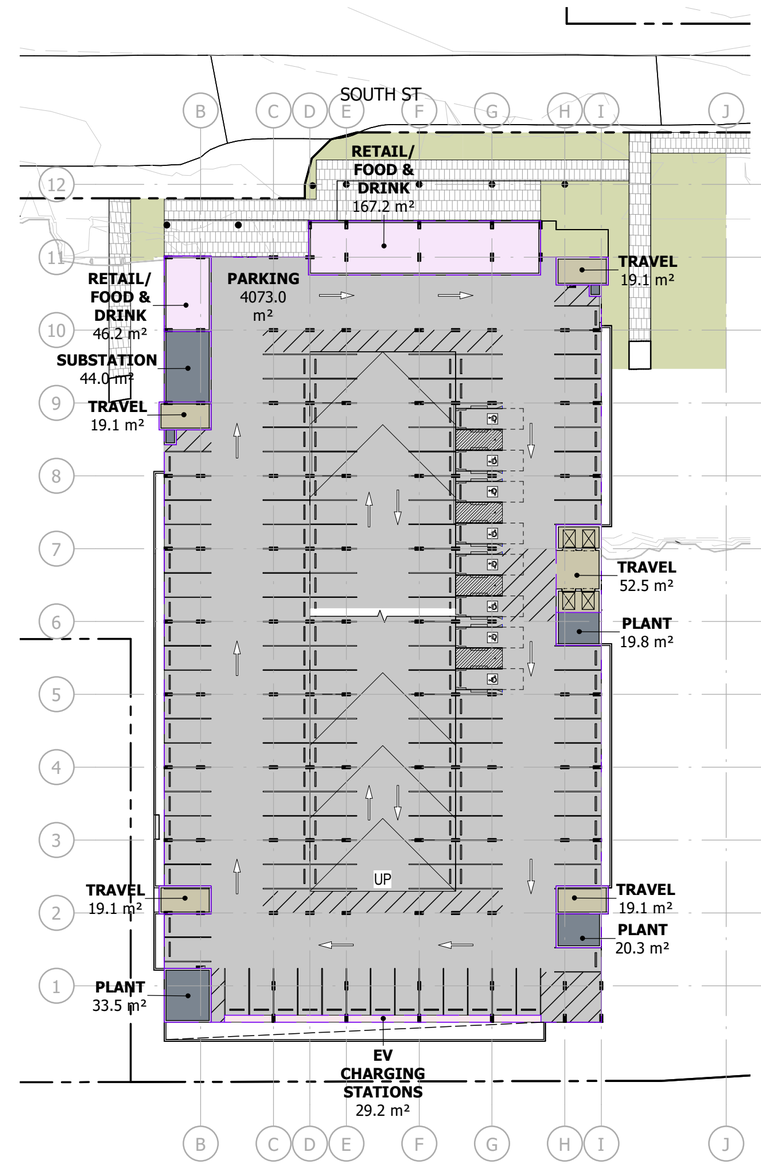
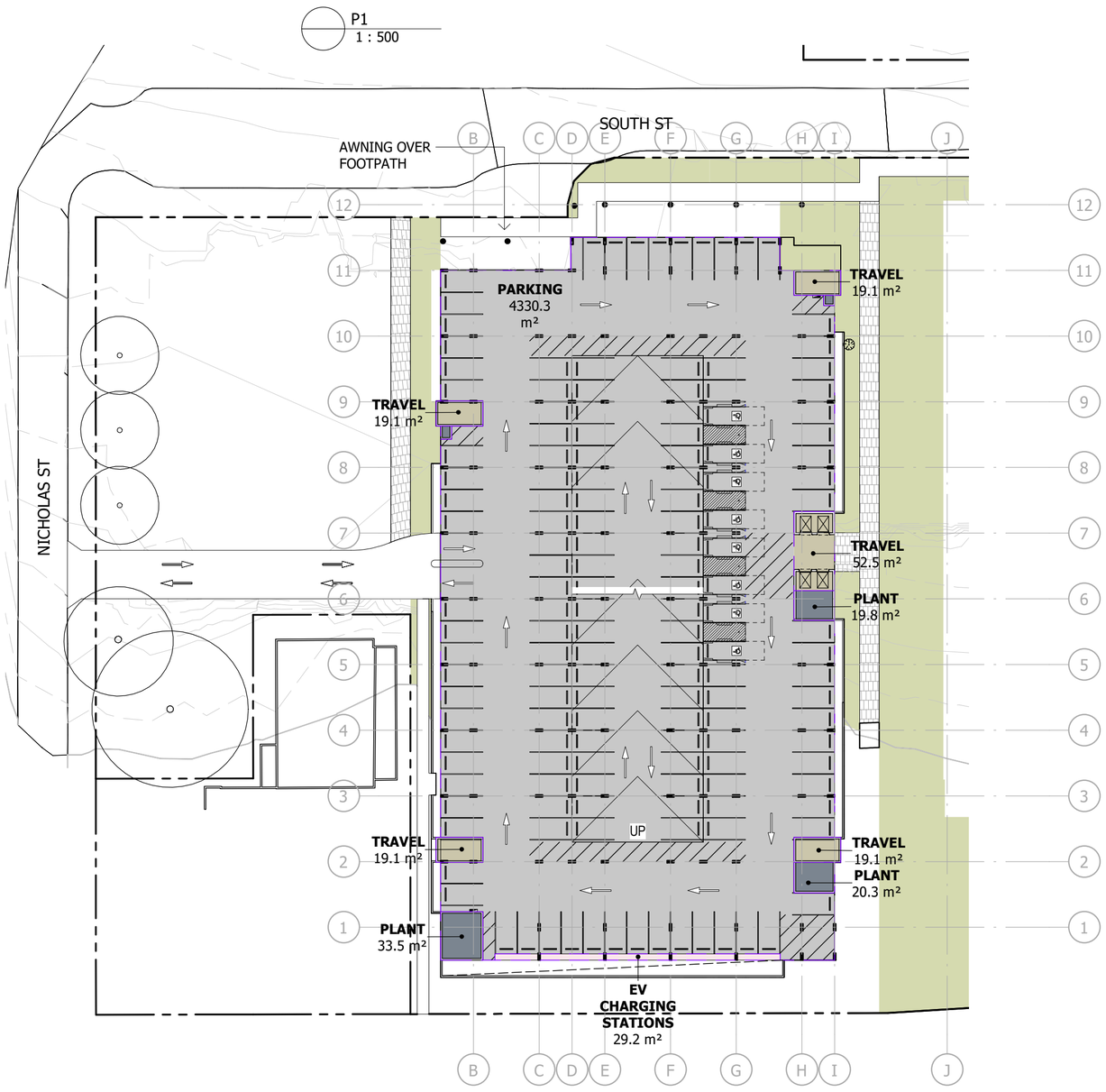
File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt



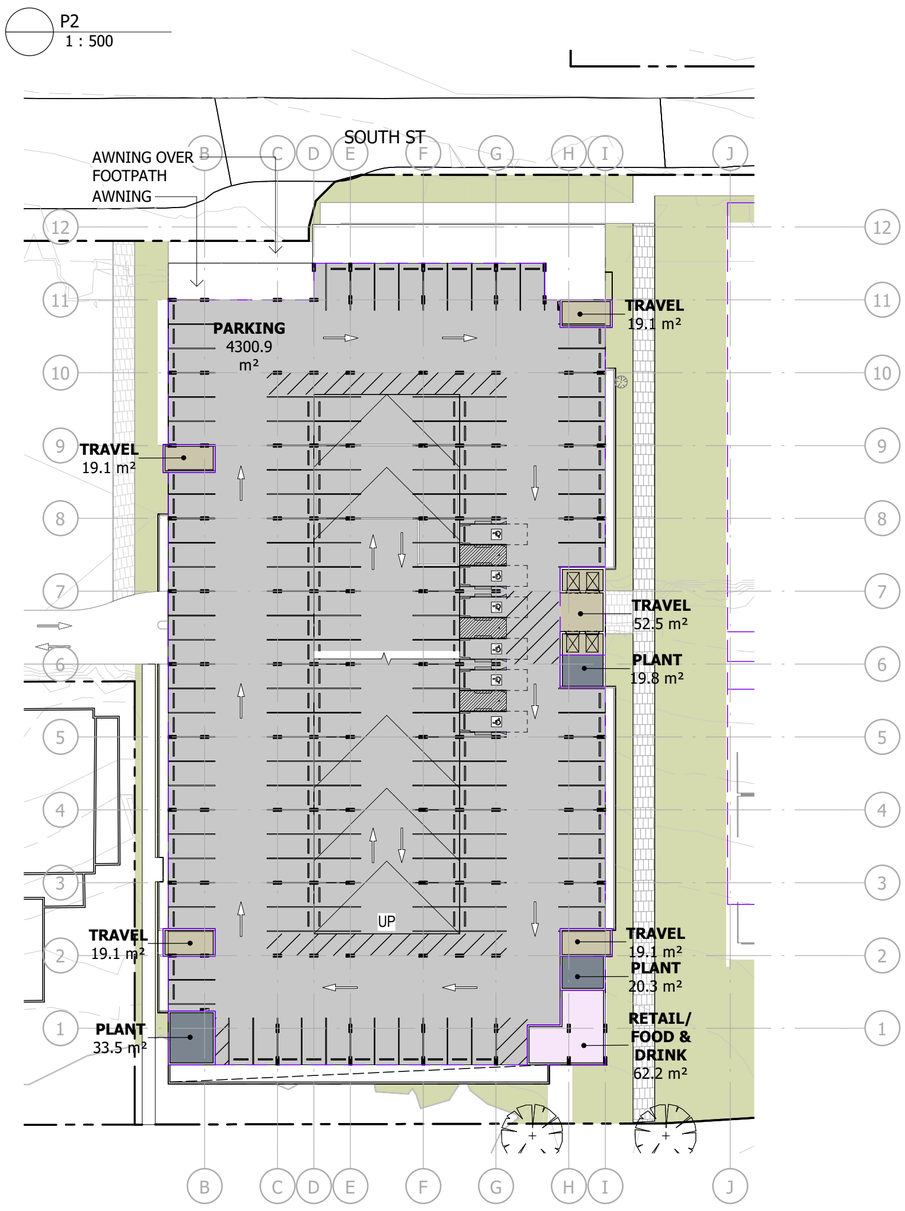
P1
1 : 500



P2
1 : 500



P3
1 : 500



P4
1 : 500

SCHEMATIC DESIGN

NOT TO BE USED DURING CONSTRUCTION

Issue	Description	Date	Chk	Auth
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B	FOR COORDINATION	13.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
D	FOR INFORMATION	17.06.22	RB	FM
E	FOR COORDINATION	21.06.22	RB	FM
F	FOR COORDINATION	28.06.22	RB	FM
G	FOR COORDINATION	05.07.22	RB	CL
H	FOR INFORMATION	06.07.22	RB	FM
J	FOR INFORMATION	11.07.22	RB	FM

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Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital
DBC_IWHC (FUNDED)

Drawing
AREA PLAN_P1, P2, P3, P4

Scale (A1)
1 : 500

Date Printed
11/07/2022 2:34:51 PM

Project Number
22-0201

Drawing Number
DWP-SKB1203

Issue
J

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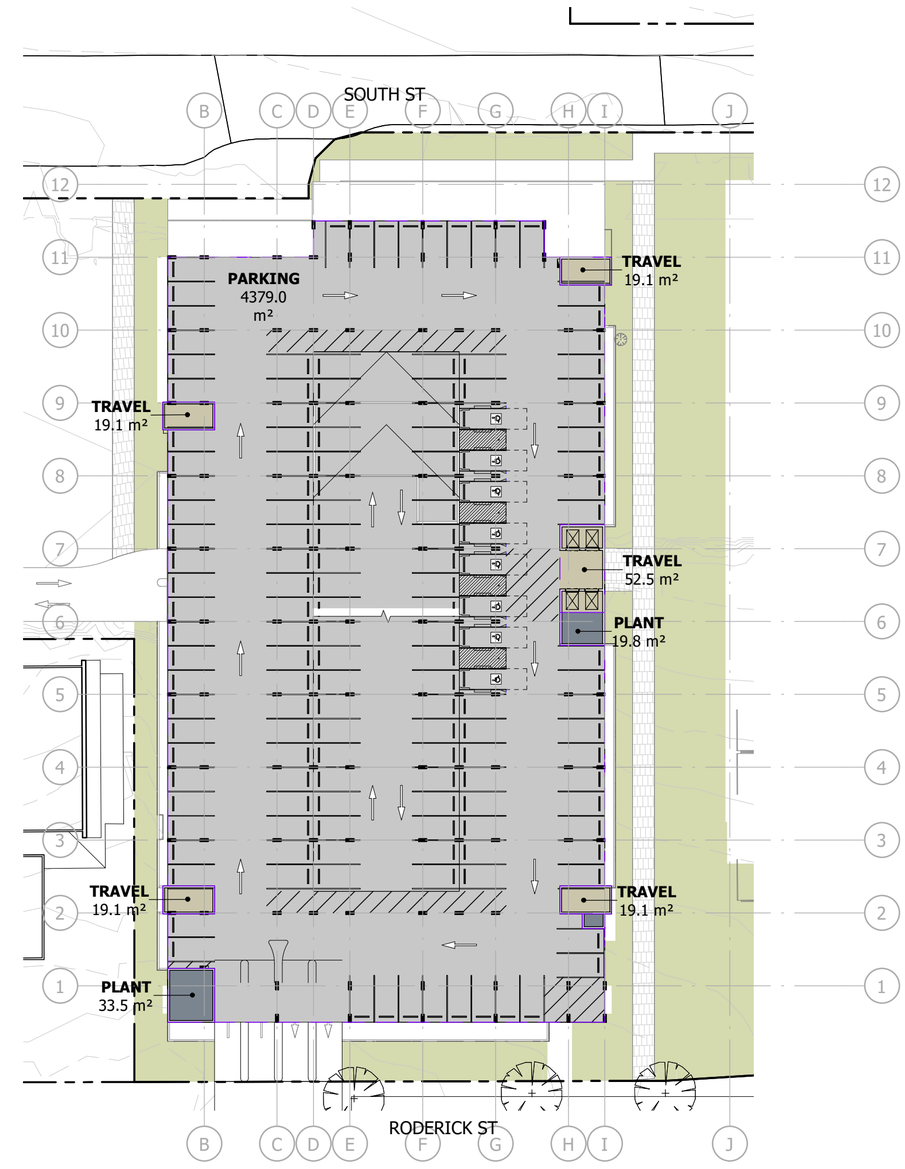
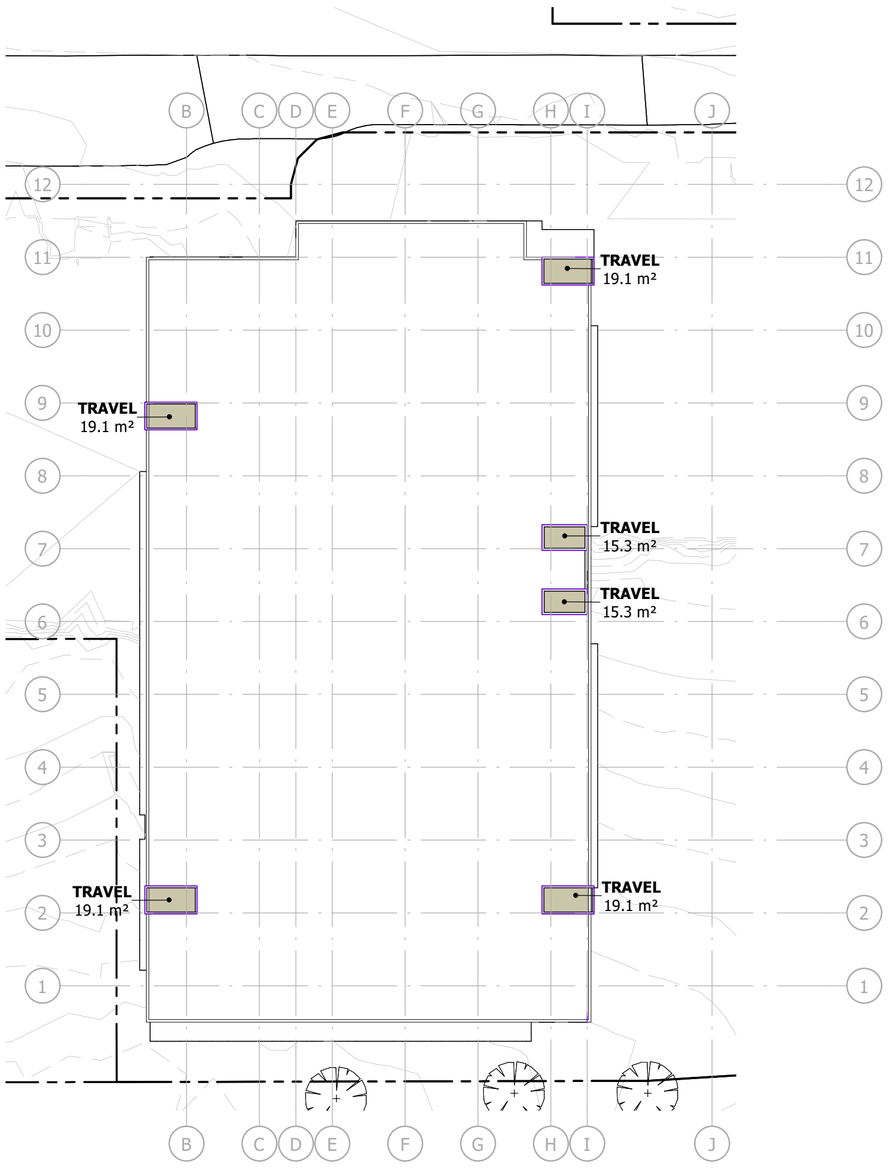
File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt



P5
1 : 500



4 AA3009 P6/ ROOF
1 : 500

AREA SCHEDULE OVERALL_CAR PARK (P1-P5)		
DESCRIPTOR	Area	Name
PARKING		
P1		
BICYCLE PARKING	98.8 m²	PARKING
END OF TRIP FACILITIES	140.3 m²	PARKING
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4268.0 m²	PARKING
PLANT	151.0 m²	PARKING
TRAVEL	127.9 m²	PARKING
P2		
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4073.0 m²	PARKING
PLANT	75.9 m²	PARKING
RETAIL/ FOOD & DRINK	213.4 m²	PARKING
TRAVEL	110.0 m²	PARKING
P3		
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4330.3 m²	PARKING
PLANT	44.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
P4		
PARKING	4300.9 m²	PARKING
PLANT	40.0 m²	PARKING
RETAIL/ FOOD & DRINK	62.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
L2		
PARKING	4300.9 m²	PARKING
TRAVEL	186.5 m²	PARKING
P5		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
L4		
TRAVEL	19.1 m²	PARKING
Grand total	27363.0 m²	

PARKING SCHEDULE_IWHC 2D.A3 (P1-P5)	
Description	Count
P1	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	14
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	84
P2	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	14
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	116
P3	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	13
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	128
P4	
ACCESSIBLE PARKING SPACE	6
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	146
P5	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	142

Grand total: 695

SCHEMATIC DESIGN

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Issue	Description	Date	Chk	Auth
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B	FOR COORDINATION	13.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
D	FOR INFORMATION	17.06.22	RB	FM
E	FOR COORDINATION	21.06.22	RB	FM
F	FOR COORDINATION	28.06.22	RB	FM
G	FOR COORDINATION	05.07.22	RB	CL
H	FOR INFORMATION	06.07.22	RB	FM
J	FOR INFORMATION	11.07.22	RB	FM

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Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital
DBC_IWHC
(FUNDED)

Drawing
AREA PLAN P5, P6,
PARKING SCHEDULE

Scale (A1)
1 : 500

Date Printed
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Project Number
22-0201

Drawing Number
DWP-SKB1204

Issue
J

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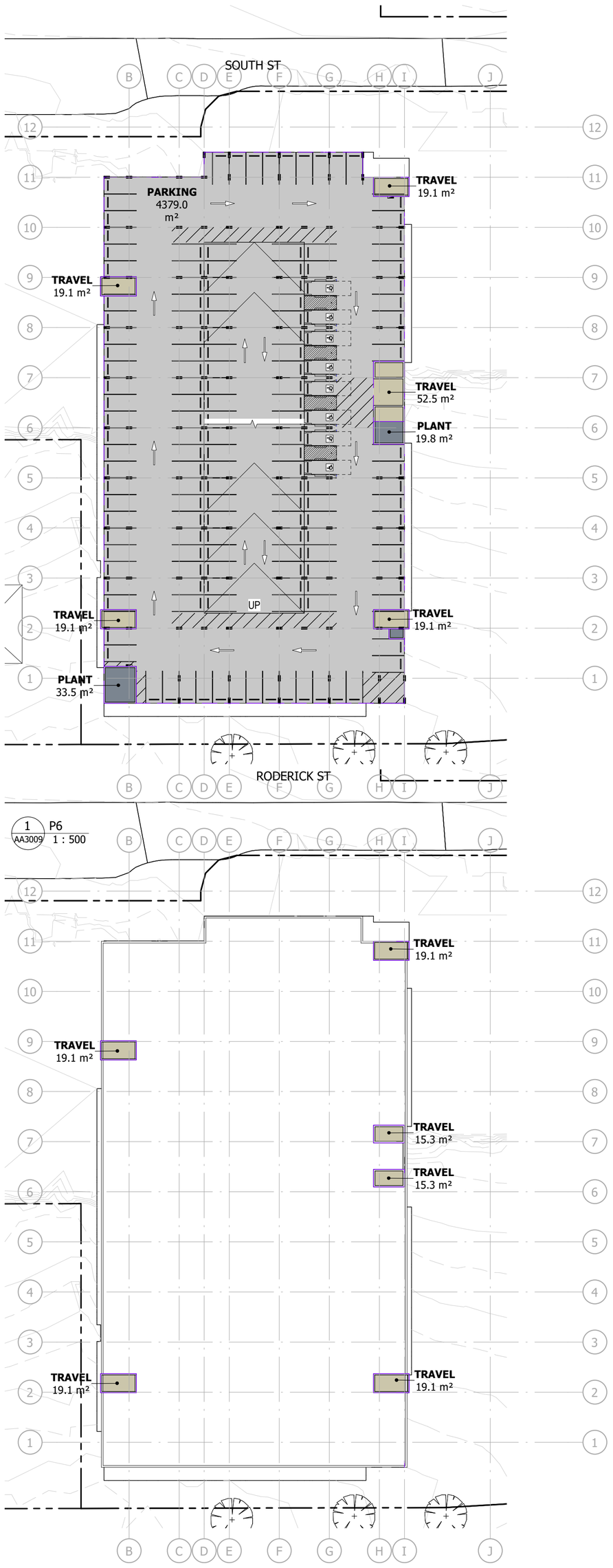
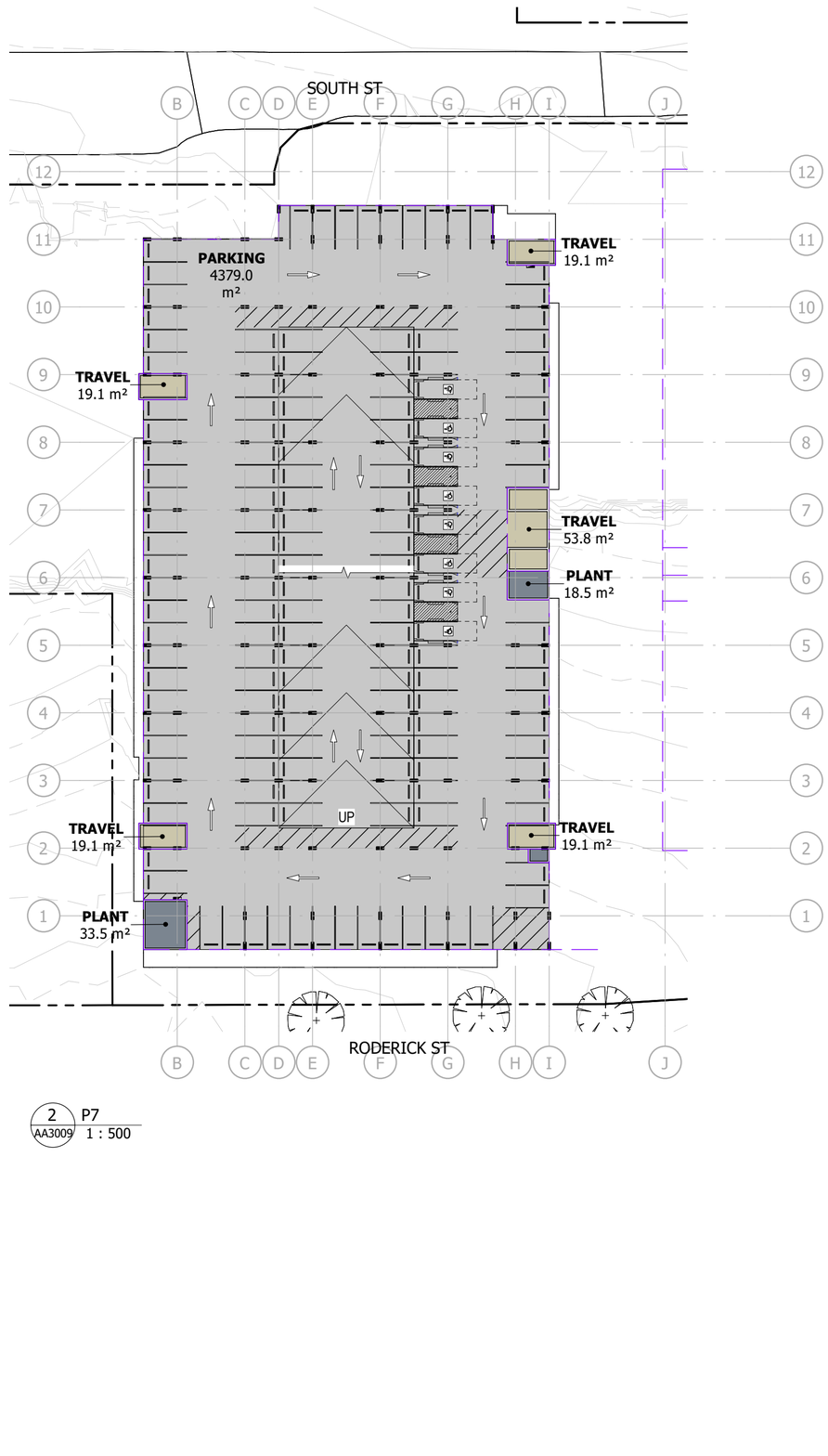
File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt



1 P6 AA3009 1 : 500



2 P7 AA3009 1 : 500

3 P8/ ROOF AA3009 1 : 500

PARKING SCHEDULE_IWHC 2D.A3 (P6-P7)	
Description	Count
P6	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	147
P7	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	146
Grand total: 309	

AREA SCHEDULE OVERALL_CAR PARK (P6-P7)		
DESCRIPTOR	Area	Name
PARKING		
P6		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
L4		
TRAVEL	19.1 m²	PARKING
P7		
PARKING	4379.0 m²	PARKING
PLANT	22.9 m²	PARKING
TRAVEL	111.3 m²	PARKING
Grand total	9045.3 m²	

SCHEMATIC DESIGN

NOT TO BE USED DURING CONSTRUCTION

Issue	Description	Date	Chk	Auth
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B	FOR COORDINATION	05.07.22	RB	CL
C	FOR INFORMATION	06.07.22	RB	FM
D	FOR INFORMATION	11.07.22	RB	FM

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Client

WEST MORETON HEALTH

PROJECT MANAGER

CAPITAL INSIGHT

Location

CHELMSFORD AVENUE, IPSWICH 4305

Project

Ipswich Hospital
DBC_IWHC
(FUNDED)

Drawing

AREA PLAN P7,P8,
PARKING SCHEDULE

Scale (A1)

1 : 500

Date Printed

11/07/2022 2:34:59 PM

Project Number

22-0201

Drawing Number

DWP-SKB1205

Issue

D

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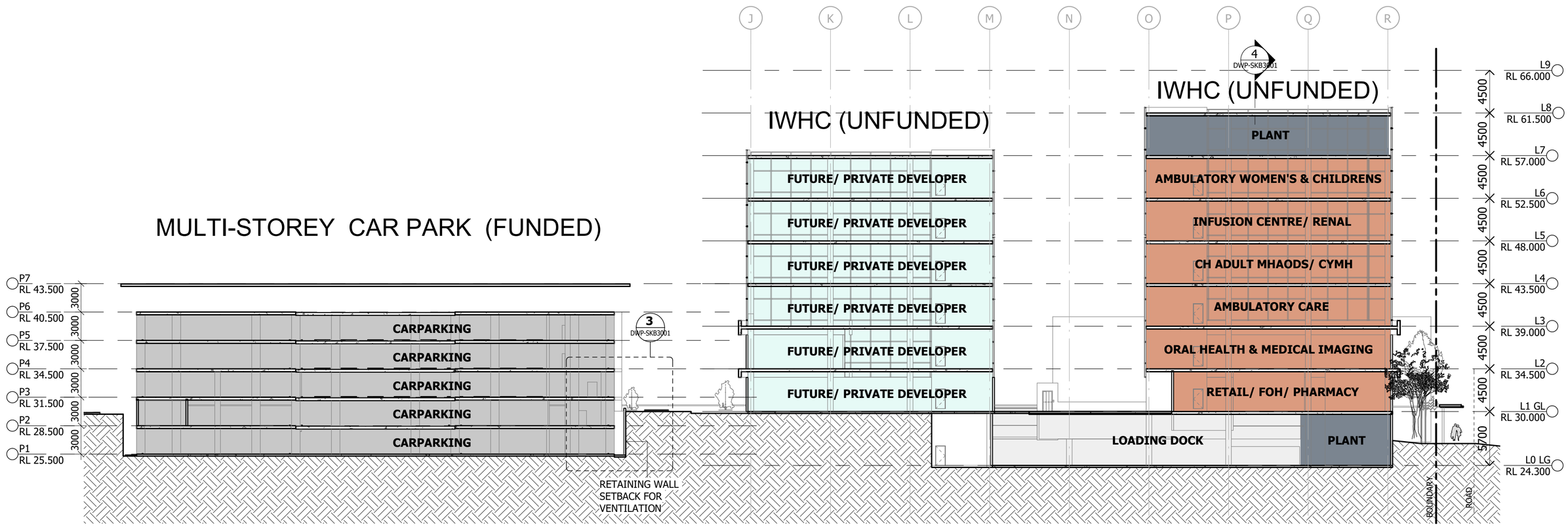

1 SECTION 1 - STAGE 2.3
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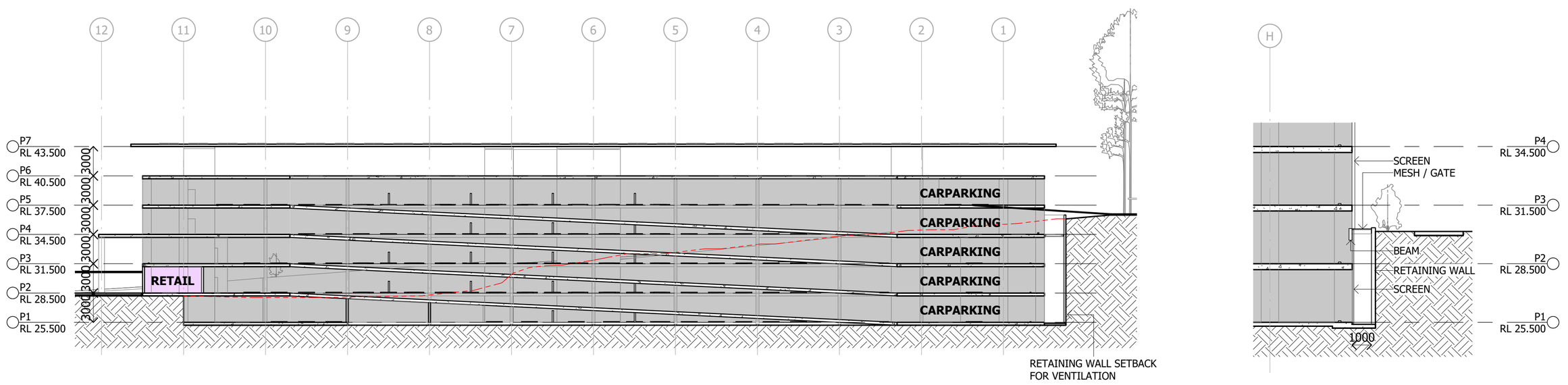

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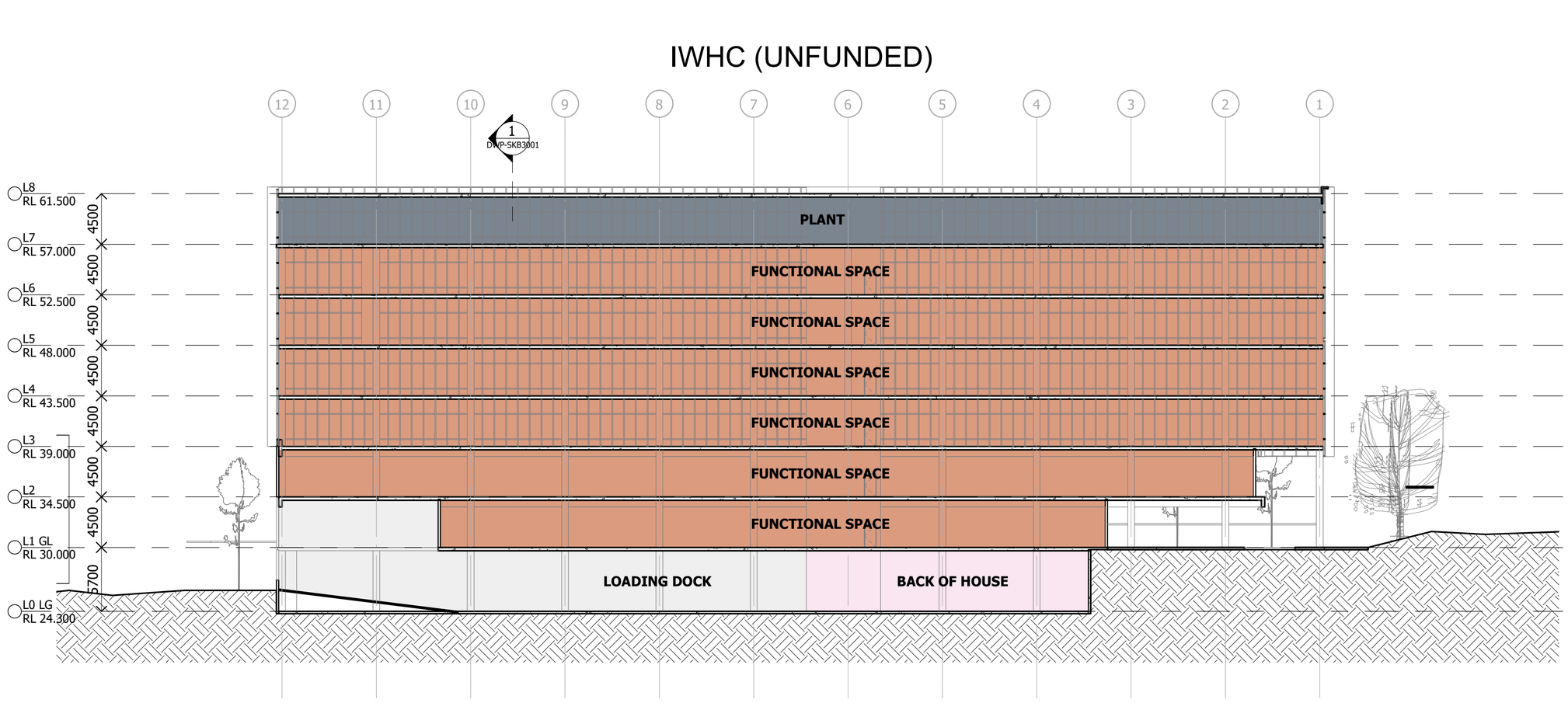
1 : 300

3 SECTION CALLOUT
DWP-SKB3001 1 : 150



4 SECTION 2 - STAGE 2.3
DWP-SKB3001 1 : 300

Notes

Verify all dimensions and levels on site and report any discrepancies to dwp for direction prior to the commencement of work.

Drawings are to be read in conjunction with all other contract documents.

Use figured dimensions only. Do not scale from drawings.
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SCHEMATIC DESIGN

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Issue	Description	Date	Chk	Auth
A	FOR COORDINATION	10.06.22	RB	AM
B	FOR INFORMATION	17.06.22	RB	FM
C	FOR INFORMATION	20.06.22	RB	FM
D	FOR COORDINATION	28.06.22	RB	FM
E	FOR INFORMATION	06.07.22	RB	FM
F	FOR INFORMATION	11.07.22	RB	FM

Architects In Collaboration
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Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital DBC_IWHC

Drawing
SECTIONS IWHC SITE

Scale (A1)
As indicated

Date Printed
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Project Number
22-0201

Drawing Number
DWP-SKB3001

Issue
F

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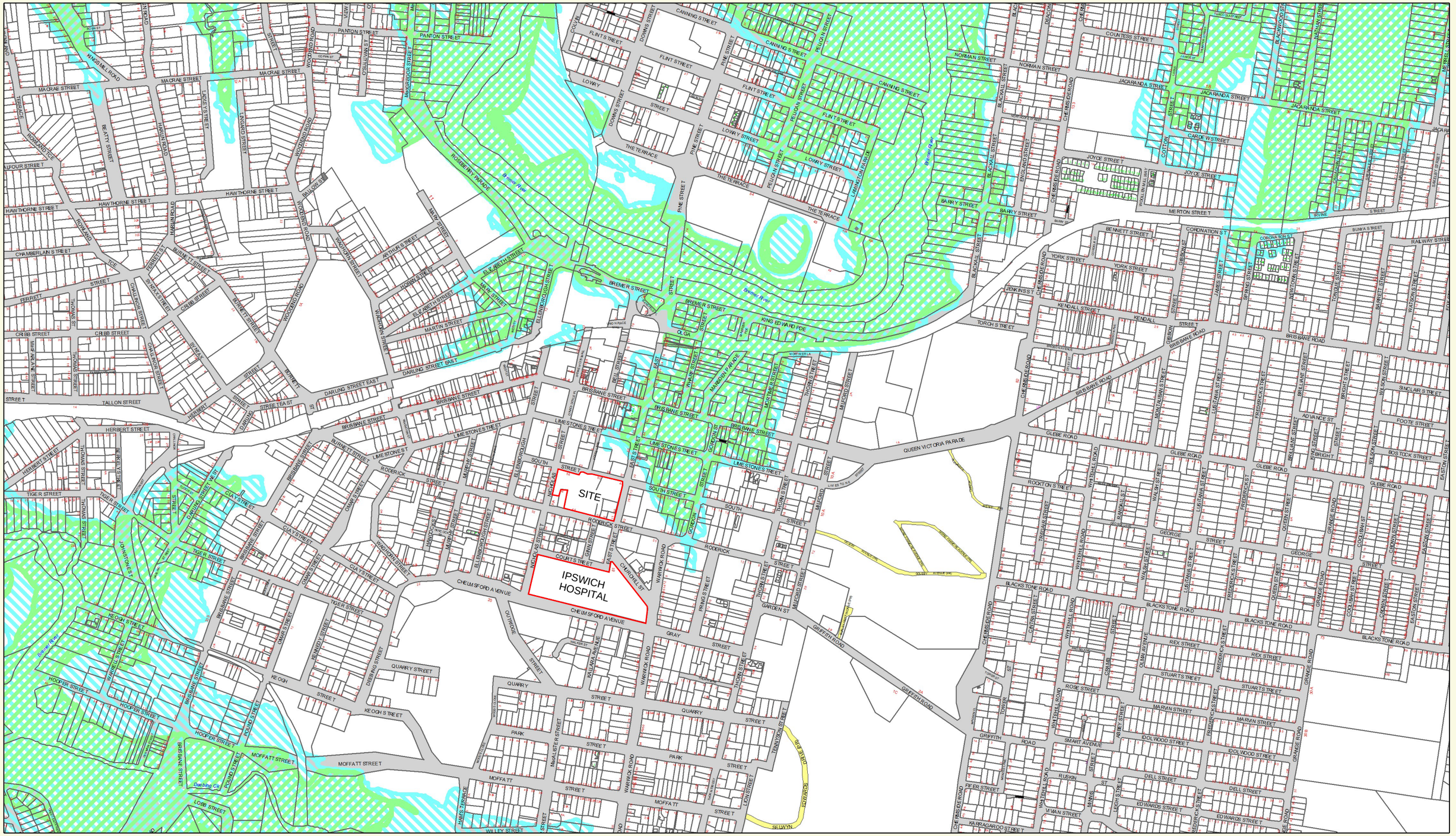
File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt

APPENDIX 3 – Authority Flood Mapping



TITLE

Major Flood Information - Map 49

DISCLAIMER: Ipswich City Council Data

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Data Release 4

DISCLAIMER: Property Data

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LEGEND

- Flood Event January 2011
- Flood Event January 1974
- Both 1974 and 2011 January Flood Events

IPSWICH CITY COUNCIL
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Ipswich QLD 4305
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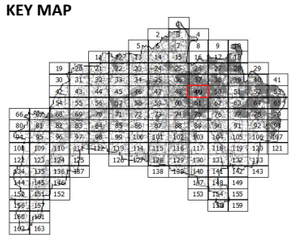
Fax (07) 3810 6731

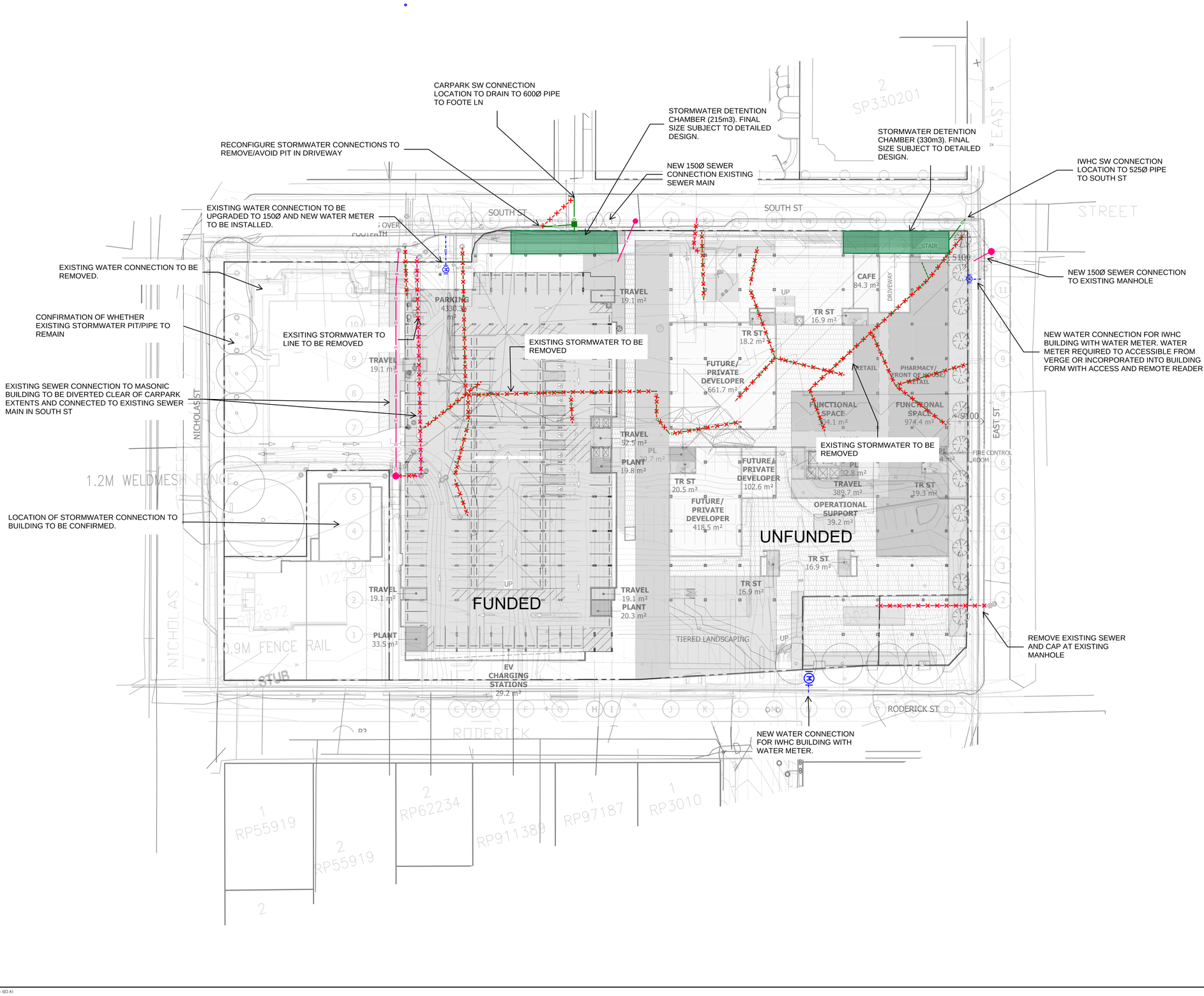
N W E S

Printed Date: 06 Jul 2015 10:08

KEY MAP



APPENDIX 4 – Engineering Drawings



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Issued/Revision	By	Appd	YYYY.MM.DD
50% SCHEMATIC DESIGN	JFB	JFB	2022.09.02

File Name: N/A	Author Dwn.	Designer Dsgn.	Checker Chkd.	YYYY.MM.DD

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Client/Project Logo
CAPITAL INSIGHT

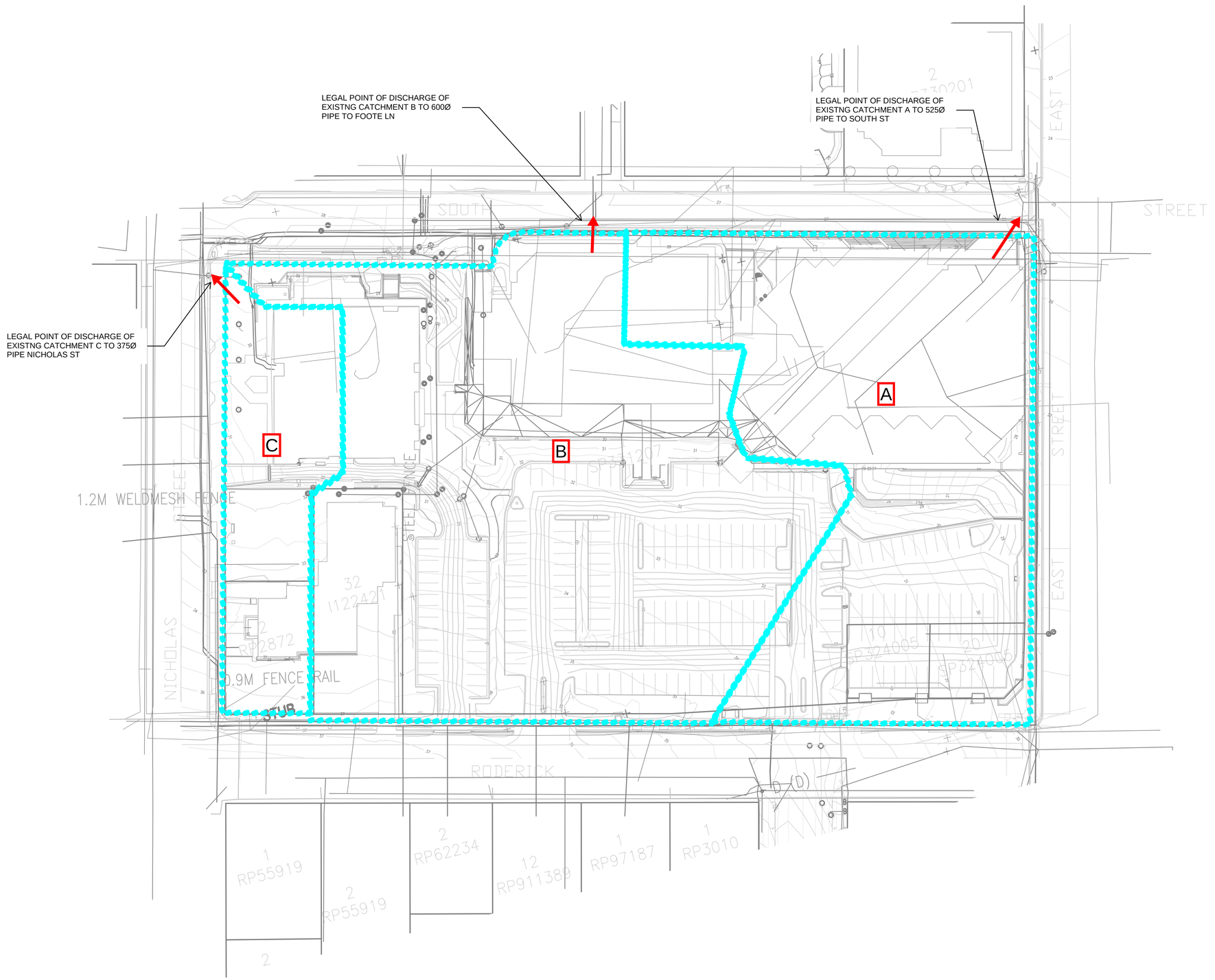
Client/Project
IPSWICH HOSPITAL DBC

Title
CIVIL SERVICE LAYOUT

Project No.	Scale
301050416	1:200
Revision: A	Drawing No.: SD-CI-IWHC-00.01

19/09/22 10:41:31 AM

ORIGINAL SHEET - ISO A1



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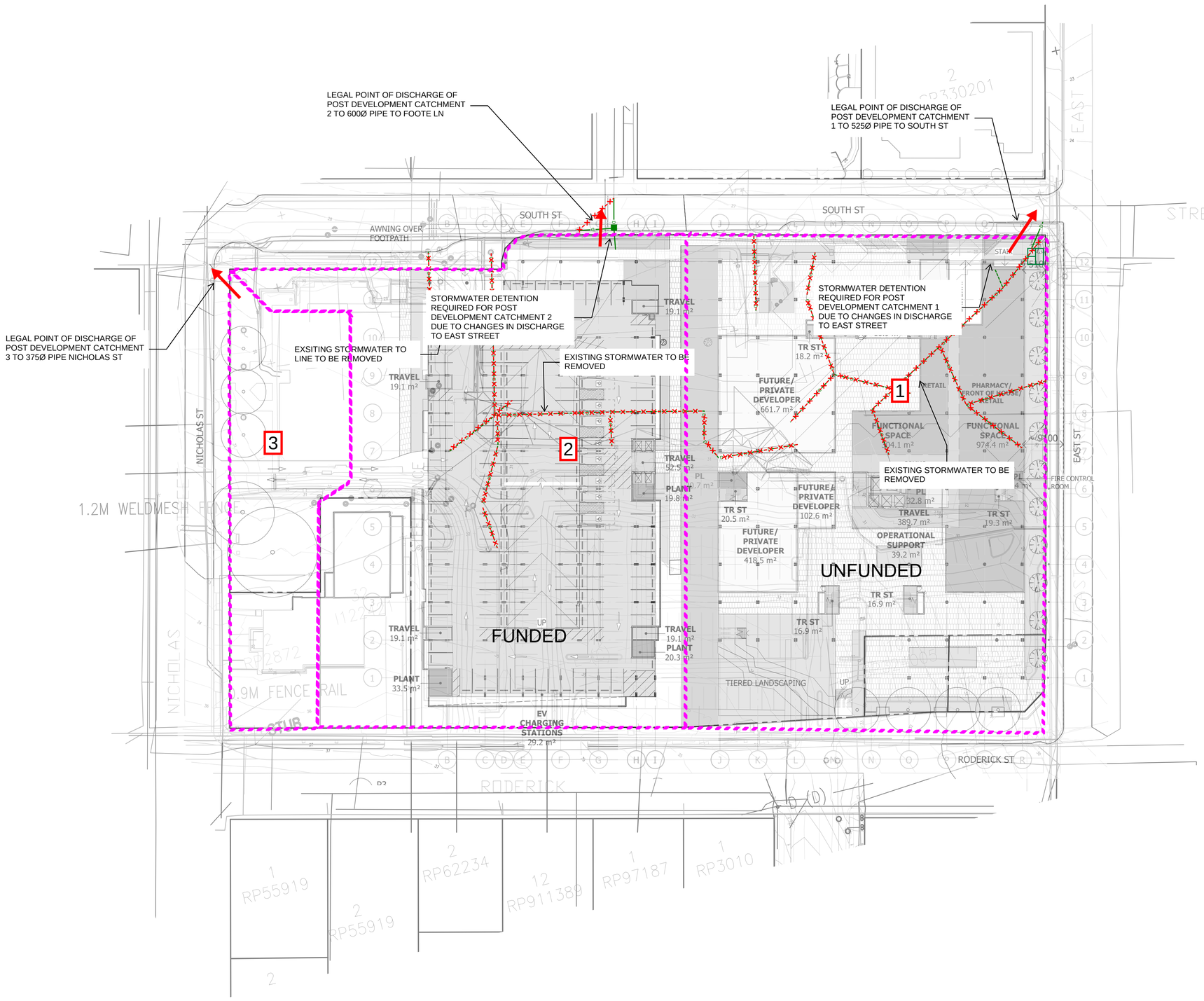
Title
Pre-Developed Site Catchment

Project No.	Scale
301050416	1:200

Revision	Drawing No.
A	SD-CI-IWHC-00.02



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Issued/Revision	By	Appd	
50% SCHEMATIC DESIGN	JFB	JFB	2022.09.02

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Title
POST DEVELOPMENT CATCHMENTS

Project No.	Scale
301050416	1:200
Revision	**Drawing No.**
A	SD-CI-IWHC-00.03

19/09/22 10:41:31 AM

ORIGINAL SHEET - ISO A1

APPENDIX 5 – Stormwater Quantity Calculations

- Rational Method Calculation

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Rational Method Calculation

Brisbane Civil
(07) 3811 4500

Project: Ipswich Hospital Stage 2 - IWHC
Title / Description:

Project No: **301050416**
Revision: A

By: JB
Date: 31/08/2022

Catchment	Description	Catchment Characteristics				Time of Concentration																Tc (min)
						T (Standard Inlet)		T (Overland Sheet - Friends Eq.)				T (Pipe/Channel - Argue86')				T (Kerb Flow - Izzard's)			T (Velocity Based)			
		Area (Ha)	Category/ Fraction impervious (f_i)	Fraction impervious (f_i)	C_{10}	Slope (%)	T (SI)	Horton's 'n'	L (m)	S (%)	T (OS)	Fall (m)	L (m)	Δ	T (P/C) (mins)	L (m)	S (%)	T (Kerb) (mins)	Avg. V (m/s)	L (m)	T (VB) (mins)	
IWHC																						
PRE-DEV																						
SA	PRE-DEV	0.7135	Buildings incl. Roads+Gardens	0.95	0.9		5				13.00											18.00
SB	PRE-DEV	1.0035	Buildings incl. Roads+Gardens	0.95	0.9		5.00				13.00											18.00
SC	PRE-DEV	0.2175	Buildings incl. Roads+Gardens	0.95	0.9		5				13.00											18.00
POST-DEV																						
S1	POST-DEV	0.8660	Buildings incl. Roads+Gardens	1	0.9		5															5.00
S2	POST-DEV	0.8500	Buildings incl. Roads+Gardens	1	0.9		5.00															5.00
S3	POST-DEV	0.2175	Buildings incl. Roads+Gardens	0.95	0.9		5				13.00											18.00

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Rational Method Calculation

Brisbane Civil
(07) 3811 4500

Sheet No. 2 of 3

Project: Ipswich Hospital Stage 2 - IWHC
Title / Description:

Project No: 301050416
Revision: A

By: JB
Date: 31/08/2022

Catchment		Peak Flow Rates by Average Recurrence Interval (ARI)																		
		63% AEP/ 1yr ARI			39% AEP/ 2yr ARI			18% AEP/ 5yr ARI			10% AEP/ 10yr ARI			5% AEP/ 20yr ARI			2% AEP/ 50yr ARI			1% AEP/ 100yr ARI		
Description		C_1	$I_{1yr,\,t_c}$ (mm/hr)	Q_1 (m^3/s)	C_2	$I_{2yr,\,t_c}$ (mm/hr)	Q2 (m^3/s)	C_5	$I_{5yr,\,t_c}$ (mm/hr)	Q_5 (m^3/s)	C_{10}	$I_{10yr,\,t_c}$ (mm/hr)	Q_{10} (m^3/s)	C_{20}	$I_{20yr,\,t_c}$ (mm/hr)	Q_{20} (m^3/s)	C_{50}	$I_{50yr,\,t_c}$ (mm/hr)	Q_{50} (m^3/s)	C_{100}	I_{100yr,t_c} (mm/hr)	Q_{100} (m^3/s)
IWHC																						
PRE-DEV																						
SA	PRE-DEV	0.72	63.14	**0.090**	0.765	71.96	**0.109**	0.855	99.36	**0.169**	0.9	117.80	**0.210**	0.945	135.60	**0.254**	1	158.80	**0.315**	1	176.60	**0.350**
SB	PRE-DEV	0.72	63.14	**0.127**	0.765	71.96	**0.154**	0.855	99.36	**0.237**	0.9	117.80	**0.296**	0.945	135.60	**0.357**	1	158.80	**0.443**	1	176.60	**0.493**
SC	PRE-DEV	0.72	63.14	**0.027**	0.765	71.96	**0.033**	0.855	99.36	**0.051**	0.9	117.80	**0.064**	0.945	135.60	**0.077**	1	158.80	**0.096**	1	176.60	**0.107**
POST-DEV																						
S1	POST-DEV	0.72	98.60	**0.171**	0.765	112.00	**0.206**	0.855	155.00	**0.319**	0.9	183.00	**0.397**	0.945	212.00	**0.482**	1	249.00	**0.599**	1	277.00	**0.667**
S2	POST-DEV	0.72	98.60	**0.168**	0.765	112.00	**0.202**	0.855	155.00	**0.313**	0.9	183.00	**0.389**	0.945	212.00	**0.473**	1	249.00	**0.588**	1	277.00	**0.655**
S3	POST-DEV	0.72	63.14	**0.027**	0.765	71.96	**0.033**	0.855	99.36	**0.051**	0.9	117.80	**0.064**	0.945	135.60	**0.077**	1	158.80	**0.096**	1	176.60	**0.107**
IWHC																						
DIFFERENCE (Post - Pre)		-ve = Less Flows in Post Development +ve = More Flows in Post Development																				
1-A				**0.081**		**0.097**				**0.151**			**0.186**			**0.228**			**0.284**			**0.317**
2-B				**0.041**		**0.049**				**0.076**			**0.093**			**0.116**			**0.145**			**0.162**
3-C																						

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community in mind

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Appendix 5 – Heritage Impact Assessment

EXTENT
PEOPLE-CENTRED
HERITAGE

Ipswich Wellness and Health Centre (IWHC) Site

Heritage Impact Statement

Prepared for West Moreton Health c/- DWP Suters Architects

October 2022—FINAL REV

ECAAS ISO 9001 QUALITY MANAGEMENT CERTIFIED
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Document information

Extent Heritage project no.:	#0722035
Client:	West Moreton Health c/- DWP Suters Architects
Project:	Ipswich Hospital Master Plan Heritage Services – Stage 2 Detailed Business Case
Site location:	South, East, Roderick and Nicholas Streets, Ipswich QLD 4305
Heritage advisor(s):	J Pearce; J Heidrich
Author(s):	J Pearce; J Heidrich; P Thomas

Document control

Version	Internal reviewer	Date	Review type
Draft	P Thomas	21-26 Sep 2022	Technical
Draft	J Pearce	28-29 Sep 2022	Technical QA Review
Draft	J Heidrich	30 Sep 2022	Technical QA Review
Final	J Heidrich J Pearce	30 Sept 2022	QA Review
Final Rev	J Heidrich J Pearce	13 Oct 2022	QA Review

Contents

List of figures

1. Introduction

1.1 Background

Extent Heritage Pty Ltd has been engaged by West Moreton Health (c/- DWP Suters Architects) to prepare a Heritage Impact Statement (HIS) report addressing the proposed development of Lot 1 SP331207, located at 50 South Street and bounded by South, East, Roderick and Nicholas Streets, Ipswich (QLD).

The proposed development concept forms part of Stage 2 of the major redevelopment and expansion of Ipswich Hospital. West Moreton Health has engaged a multi-disciplinary team, led by Capital Insight with DWP Suters and Architectus, to prepare a Detailed Business Case (DBC) for the Stage 2 Concept Design, which contains several expansion options for staging and various building configurations to facilitate the expansion of the Ipswich Hospital's health services. It has been prepared in alignment with the Ipswich Health Precinct Master Plan, and in conjunction with the functional briefs, schedules of accommodation, and associated models of care developed by Capital Insight in consultation with clinical and non-clinical user groups.

The DBC Stage 2 Concept Design involves concepts for development at two sites:

- the main Ipswich Hospital site, bounded by Court, Nicholas and Churchill Streets, Warwick Road, and Chelmsford Avenue; and
- the Ipswich Wellness and Health Centre (IWHC) site, bounded by South, East, Roderick and Nicholas Streets, and located on the land recently purchased by West Moreton Health from Ipswich City Council (ICC).

The component of the DBC Stage 2 Concept Design subject to this HIS report is contained on the aforesaid IWHC site and comprises a concept for a new multi-storey development known as the Ipswich Wellness and Health Centre and an associated car park, at 50 South Street, Ipswich.

The subject property, being Lot 1 SP331207, is not identified to be of cultural heritage significance and does not contain any listed heritage places. However, it is situated directly adjacent to the 'Masonic Temple' (at 82 and 82A Nicholas Street), which is identified as a place of local heritage significance and entered in schedule 2 ('Character Places') of the *Ipswich Planning Scheme 2006*.

The state-listed Old Ipswich Courthouse (QHR 600575) is also located directly opposite the IWHC Site. While the Old Ipswich Courthouse is not identified as an adjacent heritage place and is therefore not assessable under the provisions of SDAP14, it is located in the immediate vicinity of the proposed development on the IWHC Site and therefore, has been generally considered in this report in terms of the subject property's contextual setting and relevant views. The nearby residential properties located opposite the IWHC Site on Roderick Street are zoned as CMU01 – Character Mixed Use under the Ipswich Planning Scheme and are also generally considered in this HIS report in terms of the subject property's contextual setting and relevant views.

On the basis of the above, the proposed development concept for the IWHC Site must be able to demonstrate that there would be no detrimental impact on identified cultural heritage significance aspects, within or adjoining the IWHC Site. To address these assessment requirements, this HIS report:

- investigates the historical development of the subject property to establish its relative cultural heritage significance (if any);
- investigates the cultural heritage significance and context of the adjacent local heritage place, the 'Masonic Temple';
- investigates the context and relevant views associated with the Roderick Street residences and the state-listed Old Ipswich Courthouse, both of which are located in the immediate vicinity of the subject property; and
- describes the conceptual development proposal for the IWHC and car park at 50 South Street and demonstrates that this proposal would be of benefit and would not have more than a minimal impact on the identified cultural heritage significance of the subject property, the adjacent local heritage place, and the nearby character housing and state-heritage place.

1.2 Methodology

The report reviews the relevant statutory heritage controls, outlines the proposed development of the subject property, and provides an analysis that informs a statement of impact on the identified heritage aspects.

The subject property was inspected and photographed by the author(s) of this report in April 2021. The inspection was undertaken as a visual study only.

The methodology used in the preparation of this report accords with the principles and definitions set out in *The Australian ICOMOS Charter for Conservation of Places of Cultural Significance* (Australian ICOMOS 2013) (the *Burra Charter*), and the principles and definitions set out in 'Preparing a Heritage Impact Statement' in *Guideline: State Development Assessment Provisions State Code 14: Queensland Heritage* (SDAP14), prepared by the Queensland Department of Environment and Science (DES 2022).

This report addresses the relevant statutory planning controls and requirements for heritage places as outlined in the *Queensland Heritage Act 1992* and the Ipswich Planning Scheme.

1.3 Limitations

This report relies on the following documents, supplemented with additional research where necessary:

- DWP and Architectus. 2022. 'Ipswich Hospital DBC_IWHC Project No 22-0201SD'. Unpublished architectural drawing set prepared for West Moreton Health. PDF file (see Appendix A).

- Archipelago. 2022. 'Ipswich Hospital BC – Landscape Architecture and Urban Design 50% Schematic Report'. Unpublished report prepared for West Moreton Health. PDF file.
- The University of Queensland (Ipswich Heritage Study Consultancy Team). 1992. 'Ipswich Heritage Study.' Volume 3. St Lucia, Brisbane: The University of Queensland. PDF file.
- DES (Department of Environment and Science). 2022. *Guideline: State Development Assessment Provisions State Code 14: Queensland Heritage*. Brisbane: Heritage Branch, Department of Environment and Science.

Extent Heritage has not been engaged to assess Aboriginal cultural heritage places and values.

No community consultation was undertaken for this report. Therefore, observations made concerning the possible social significance of places are based on publicly accessible, published materials.

The historical overview presented in Part 3 (page 12) provides sufficient historical background to provide an understanding of the place in order to assess the significance and provide relevant recommendations. However, it is not intended as an exhaustive history.

Photographs provided through this report are courtesy of Extent Heritage, unless otherwise cited.

This HIS report only addresses the IWHC site (inclusive of the car park). The proposed concepts for development on the main Ipswich Hospital site, also forming part of the DBC Stage 2 Concept Design, are not considered here and will form the basis of a separate HIS report at a future stage.

1.4 Authorship

The following staff members at Extent Heritage have prepared this report:

- Jacqueline Pearce, architect and senior associate;
- Jessica Heidrich, senior heritage advisor; and
- Patrick Thomas, research assistant.

1.5 Ownership

The subject property is owned by West Moreton Health (WWM).

1.6 Terminology

The terminology in this report follows definitions presented in the *Burra Charter* (Australia ICOMOS 2013). Article 1 provides the following definitions:

> **Adaptation** means changing a *place* to suit the existing *use* or a proposed *use*.

Compatible use means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on *cultural significance*.

Conservation means all the processes of looking after a *place* so as to retain its *cultural significance*.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. *Cultural significance* is embodied in the *place* itself, its fabric, *setting*, *use*, associations, meanings, records, *related places* and related objects. Places may have a range of values for different individuals or groups.

Fabric means all the physical material of the *place* including elements, fixtures, contents, and objects.

Maintenance means the continuous protective care of a *place* and its *setting*. Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Place means a geographically defined area. It may include elements, objects, spaces and views. *Place* may have tangible and intangible dimensions.

Preservation means maintaining a *place* in its existing state and retarding deterioration.

Reconstruction means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material.

Related place means a *place* that contributes to the *cultural significance* of another *place*.

Restoration means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.

Setting means the immediate and extended environment of a *place* that is part of or contributes to its *cultural significance* and distinctive character.

Use means the functions of a *place*, including the activities and traditional and customary practices that may occur at the *place* or are dependent on the *place*.

2. The subject property

2.1 Location

The Stage 2 Ipswich Hospital Expansion encompasses concept design options for facilitates located within the Ipswich Health Precinct (see Figure 1, below), comprising:

- The Hayden Centre, on the corner of South and East Streets.
- The IWHC site (*subject of this HIS report*), bounded by Roderick, Nicholas, South, and East Streets.
- The Foote Lane car park.
- The main Ipswich Hospital site, bounded by Chelmsford Avenue, Warwick Road, and Nicholas, Court, and Churchill Streets. The southern Ipswich Hospital site, bounded by Outridge Street, Chelmsford Avenue, Kallara Street, and existing residential properties.

Figure 1. Extract of plan showing the principal components of the Ipswich Hospital Health Precinct. *Source*: DWP (2022).

The IWHC site, the property subject to this HIS report, is located at 50 South Street in the city of Ipswich and is legally defined as Lot 1 SP331207 (see Figure 1, below). The property is situated within the Ipswich CBD to the south of Limestone Street, one of the CBD's two main thoroughfares and a high pedestrian traffic area.

The approximate area of the subject property is 16,480 m^2 and it has a fall from Roderick Street to the corner of East and South Streets in excess of 10 m. It is bounded by South, East, Roderick and Nicholas Streets, and is currently occupied by the following civic buildings: the Ipswich City Council Administration Building, the Humanities Centre, and the Ipswich Global Information Centre (containing the Ipswich Library, Information Service, and Barry Jones Auditorium). These buildings are situated in the northern aspect the property and predominantly have frontage to South Street, and are accommodated by a bitumen car park that occupies a large portion of the south-eastern aspect of the property.

Figure 2. Aerial view of Ipswich CBD showing the location of the subject property (red shading) bounded by South, East, Roderick and Nicholas Streets. *Source:* Queensland Globe (2022).

2.2 Context

The subject property occupies a majority of a central city block in the Ipswich CBD, bounded by South, East, Roderick and Nicholas Streets. The property's immediate context is characterised by medium-density commercial and community properties towards the Ipswich CBD, to the north and east of the site. The Ipswich Civic Centre, the Hayden Centre (a WMH building) and an aged care facility (Infinite Care) are located opposite on South Street, while Centrelink and Services Australia is located opposite on East Street. Several traditional character residential properties occupy the allotments to the south, across Roderick Street. The main Ipswich Hospital campus is positioned further to the south, beyond these residential properties.

Several places of local and state heritage significance are located in the immediate vicinity (see also Part 4.2, below):

- the Masonic Temple, a place of local heritage significance located adjacent to the south-west of the subject property at 82 and 82A Nicholas Street;.
- the Old Ipswich Courthouse, a place of state heritage significance (QHR 600575) located to the south-east of the subject property at 75 East Street; and
- and the Uniting Church Central Memorial Hall, a place of state heritage significance (QHR 600576) located to the south-east of the subject property, with frontage to Roderick Street (but located at 86 East Street).

Figure 3. Aerial view illustrating the lot boundary of the subject property (dashed red line) in relation to its immediate context. *Source:* Queensland Globe (2022).

Note the residential properties located across Roderick Street to the south and the locally significant Masonic Temple located immediately adjacent to the south-west (on the same block).

1 – Masonic Temple

2 – Old Ipswich Courthouse

3 – United Church Memorial Hall

3. Historical context

This Part provides a succinct overview of the historical development of the subject property within the context of that of of Ipswich, sufficient to provide an understanding of the subject property in order to subsequently assess its significance and the potential impact of the proposed development. It draws on historical information presented in the *Ipswich Heritage Study* (The University of Queensland 1992), augmented by historical research undertaken by Extent Heritage.

3.1 Ipswich

Ipswich was first established in 1827 as a convict out-station known as 'Limestone Hills', following the discovery of limestone deposits by Captain Patrick Logan during an expedition down the Bremer River (Queensland Government 2016a). Following this discovery, a kiln was built and a party of convicts, consisting of an overseer and five convicts, were stationed at the limestone hills to quarry lime and undertake lime-burning for the colony (see Allan Cunningham's *Report to Darling*, 16 December 1828, cited in Queensland Government 2016a).

After free settlement began in 1842, the outstation's name was shortened to 'Limestone', and a township soon developed, becoming an important regional centre due to its location at the head of navigation of the Brisbane and Bremer Rivers and at the junction of key thoroughfares inland through the Brisbane Valley and the Darling Downs (Queensland Government 2016b). Goods and trade from these inland regions were channelled through Ipswich enroute to the coast, which contributed significantly to Ipswich's rapid growth and prosperity in the nineteenth century. In February 1843, the township was renamed 'Ipswich' by Sir George Gipps, Governor of New South Wales (CGoQ 2018). During the 1850s, Ipswich's mercantile, civic and ecclesiastical infrastructure was laid down, and by the end of the decade, it was made a municipality (CoGQ 2018). Cotton and wool production in the Brisbane Valley and the Downs, and the accessibility provided by the railway, also stimulated further economic activity. By the 1860s, Ipswich had grown into a sizeable township with several houses and public buildings being constructed.

From the 1880s onwards, Ipswich's railway workshops became a massive enterprise and this industry generated prosperity. By the early 1930s, an estimated 180 factories were operating in Ipswich, with over 40 working coal mines in the wider district (CGoQ 2018). The expanding managerial class erected grand villas in elevated, sought-after positions near the CBD such as Denmark Hill, as well as enabled the paving of streets, planting of trees and upkeep of parks (either via private funding or via their municipal rates) (CGoQ 2018).

The immediate post-war period saw an expansion of the Ipswich municipal area, with the addition of territory from Bundamba to Goodna to the east and the addition of parts of surrounding shires (e.g., Brassall, Bundamba and Purga) to create a 'greater Ipswich' (CoGQ 2018). However, as commuting via rail or road into Brisbane became increasingly common, Ipswich's nineteenth century identity as Queensland's second city was subsumed into the Brisbane's metropolitan sprawl. The later addition of most of Moreton Shire to Ipswich City in the mid-1990s resulted in a much larger Ipswich municipality, of which the Ipswich CBD formed a small core. This commercial and retail centre, centred on Brisbane Street (west of Nicholas

Street), became colloquially known as the ‘Top of the Town’ (CoGQ 2018; Cook 2010) and included various early churches, business chambers, and hotels.

During the late 1990s, depletion of natural resources and a decline in manufacturing (which had followed a decline in mining industry) heavily impacted Ipswich’s economy (CoGQ 2018). Much of central Ipswich's historical properties and assets survived the city's economic decline. In more recent years, this 'Top of the Town' commercial and retail precinct has progressively undergone urban renewal after a considerable period of deterioration.

3.2 The subject property

The subject property comprising the block bounded by East, South, Nicholas and Roderick Streets historically comprised a series of residential allotments. This intention for residential use can be traced back to as early as 1842, when Henry Wade conducted his landmark survey of the town of Limestone. Figure 4, below, presents an early proposed plan of the town of Limestone (to be later called Ipswich), as surveyed by Wade in 1842. Here, it is evident that the subject block bounded by East, South, Nicholas and Roderick Streets is intended to be subdivided into relatively uniform residential allotments. The township centre, which later became the present-day Ipswich CBD, is intended to be concentrated further to the north, as evident by the designation of land for markets and businesses.

Figure 4. Detail of the proposed plan of the town of Limestone (to be later called Ipswich), as surveyed by Henry Wade in 1842, showing the location of the subject block (dashed green line). Picture Ipswich. QSA Item ID 714310. *Source*: Ipswich City Council (2021a).

Note: The text inscribed within the individual allotments and along the eastern edge of the subject block is not readily legible.

From the establishment of the town of Ipswich through to the 1960s, the subject property continued to predominantly comprise residential allotments and buildings, with the exception of the Masonic Temple building and land in the south-western aspect (see Part 3.3, below). From the late 1960s, however, change to the previously residential nature of the block is evident, first through the construction of several multi-storey structures and a large car park along the East Street boundary and by 1975, the extensive clearing of the site resulting the establishment of temporary car parking areas and commercial building development. By the end of the 1970s, only a few residential properties remain, principally in the south-east corner. By the end of the 1980s, the subject property has been purposefully developed for civic purposes, evident through the formalisation of the previous temporary car parking areas and the construction of the Ipswich City Council Humanities Centre. At the turn of the century, only three residential properties remain on the property (in the south-east corner); however, these were removed by 2010 (at the latest), by which time the major Ipswich City Council Global Information Centre occupied the north-eastern corner of the subject property (at the intersection of South and East Streets). The configuration of the subject property appears to have remained relatively unchanged from 2010 through to present-day.

It is noted that the Masonic Temple in the south-west corner of the subject property appears to have not been impacted by the aforementioned evolution of the site and has remained in situ since the late 1920s.

The immediate surrounding area was historically defined by residential blocks until the mid-1940s, when the area to the north of the subject property, towards the CBD, began to be developed, resulting in the progressive removal of residential properties and their replacement with commercial or civic buildings. The allotments directly south across Roderick Street have remained, however, principally residential.

Figure 5 to Figure 11, below, present a series of historical aerial imagery representative of the evolution of the subject property from the mid-1930s through to 2010.

Historical aerial imagery	Observations
 Figure 5. Historical aerial imagery of the Ipswich CBD, c.1936, showing the location of the subject property (red outline). Picture Ipswich No: WHD-013-Neg-0650. *Source:* Ipswich City Council (2022).	**1935** At this time, the subject property appears to comprise individual residential lots, with the exception of the Masonic Temple building and land in the south-western aspect of the property. The immediate surrounding area is predominantly defined by residential blocks, including the area south across Roderick Street.
 Figure 6. Historical aerial imagery of the Ipswich CBD, January 1946, showing the location of the subject property (dashed red line). Film RAAF0004 Frame 35664. *Source*: QImagery (2022).	**1946** The subject property still comprises residential properties. The area to its north, towards the CBD, shows signs of commercial development resulting in the removal of some residential properties. Note the Old Ipswich Court, situated across Roderick Street to the south-east, has been extended.

Historical aerial imagery	Observations
 Figure 7. Historical aerial imagery of the Ipswich CBD, May 1969, showing the location of the subject property (red outline). Film QAP2004 Frame 075. *Source:* QImagery (2022).	**1969** The subject property predominantly contains residential properties; however, a large development has been constructed along the length of block's eastern street boundary (East Street), including several multi-storey structures and a large car park. Some commercial structures are also now evident elsewhere on the subject property. The area to the north, towards the CBD, has undergone further commercial development. A large structure has been constructed immediately adjacent to the north of the Masonic Temple.
 Figure 8. Historical aerial imagery of the Ipswich CBD area in January 1974, showing the location of the subject property (dashed red line). Film QAP2764 Frame 2343 *Source*: QImagery (2022).	**1975** In contrast to the 1969 aerial imagery, the subject property has been extensively cleared by this time, with only a few residential properties remaining, principally in the south-east corner. The central portion of the subject property, with frontage to Roderick and South Streets, is now occupied by temporary car parking. Some further commercial building development is also evident. The area to the north, towards the CBD, has been commercially developed. An area along Limestone Street, to the north-west of the subject property, has been cleared of its residential dwellings and occupied by temporary car parking.

Historical aerial imagery	Observations
 Figure 9. Historical aerial imagery of the Ipswich CBD, September 1988, showing the location of the subject property (dashed red line). Film QAP4745 Frame 166. *Source*: QImagery (2022).	**1988** The subject property has been significantly developed, with the formalisation of the previous temporary car parking areas and the construction of the Ipswich City Council Humanities Centre in the north-east corner. Car parking areas and civic buildings comprise the majority of the property, although there are a few remaining residential properties on the south-east boundary. Further to the north, the major Ipswich Civic Centre and Hayden Centre have been constructed. Extensive development is also visible further to the north-east, along Limestone Street.
 Figure 10. Historical aerial imagery of the Ipswich CBD, September 2001, showing the location of the subject property (dashed red line). Film QAP5875 Frame 168. *Source*: QImagery (2022).	2001 The subject property has been further developed with the construction of the Ipswich City Council Administration building. However, three residential properties still occupy the south-east corner. To the north-east of the subject property, new development includes Market Square Park on South Street and the new Ipswich Court House and Ipswich City Council buildings on the corner of Limestone and East Streets. The area further to the north, towards the CBD, is now entirely occupied by commercial properties.

Historical aerial imagery	Observations
 Figure 11. Historical aerial imagery of the Ipswich CBD, June 2010, showing the location of the subject property (dashed red line). Film QAP6283 Film 050. *Source*: QImagery (2022).	**2010** The Ipswich City Council Global Information Centre (containing the Ipswich Library, Informative Service and Barry Jones Auditorium) now occupies the north-eastern corner of the subject property (at the intersection of South and East Streets). The residential properties previously in the south-east corner of the subject property have been removed. The subject property closely resembles its current layout in 2022. The multi-storey Ipswich International Hotel has been constructed to the north of the subject property on the northern side of South Street.

3.3 The Masonic Temple

The original Masonic Temple was situated on the corner of Thorn and Brisbane Streets; however, it was condemned in 1868 and a second temple, built by McGregor and Brown, opened on the present Nicholas Street site in 1875 (Ipswich City Council 2021b). In 1928, the third present-day temple was built on the Nicholas Street site (Ipswich City Council 2021b; see Figure 12, below). The latter's foundation stone was laid in August 1928, with the building's official dedication and first meeting occurring in December of the same year (The University of Queensland 1992). The Nicholas Street temple site appears to have remained relatively unchanged from the late 1920s until the late 1960s, when a large structure was constructed immediately adjacent to the north of the temple building (see Figure 7, above).

The foundation stone from the aforesaid second temple building (built c.1875) is preserved at the entrance to the present-day temple, and reads:

> This foundation Stone was laid in the N.E. corner of the Second Masonic temple, Roderick and Nicholas Streets – Ipswich on the 9 November 1875 – Prince of Wales' Birthday – (King Edward VIII) by Rt. Wor. Bro. A C Gregory D.G.M. – E.C. assisted by Rt. Wor. Bro. A Hubbard D.P.G.M. – S.C. and Rt. Wr. Bro. E MacDonnell P.G.M – I.C.'

New Masonic Temple

Dedication at Ipswich

IPSWICH, December 10.

Saturday was a red-letter day in the history of freemasonry in Ipswich, marking as it did the dedication of the fine new temple, erected at the corner of Nicholas and Roderick Streets. Over 200 Freemasons witnessed the simple yet impressive dedication ceremony conducted by Most Wor. Bro. C. Stumm, K.C., Grand Master of the United Grand Lodge of Queensland. The Masters of the seven Ipswich lodges officiated for the opening of lodge, preparatory to the dedication. In this the Grand Master was principally supported by Rt. Wor. Bro. Rev. Molesworth, Assistant Grand Master, Rt. Wor. Bro. T. Kendrick, Senior Grand Warden, Rt. Wor. Bro. M. M. Young, Junior Grand Warden, Very Wor. Bro. W. B. Rev. E. Barstow, Past Grand Chaplain, Very Wor. Bro. Chas. H. Harley, Grand Secretary, and Very Wor. Bro. W. B. Darker, Grand Director of Ceremonies.

Figure 12. Extract from a newspaper article describing the official dedication and opening of a new Masonic Temple in Ipswich on the corner of Nicholas and Roderick Streets. *Source: The Telegraph* (11 December 1928, 6).

Note: This article describes the opening of the third Masonic Temple.

Figure 13. View of the intersection of Roderick and Nicholas Streets, c.1952, showing the principal elevation of the Masonic Temple ta the right of frame. Picture Ipswich No: qips-2010-03-02-001. Photographer Norm Nutley. *Source:* Ipswich City Council (2021b).

4. Heritage status

4.1 Ipswich Planning Scheme 2006

The subject property is not identified as a place of local or state heritage significance, and is not currently mapped under the Character Places heritage overlay of the Ipswich Planning Scheme. Under the Scheme, the subject property is zoned as PC–CBD Primary Commercial (see Figure 14, below).

The subject property is located directly adjacent to a Masonic Temple (located to the south-west at 82 and 82A Nicholas Street), which is identified as a place of local heritage significance (see Figure 15Figure 15, below). The place's local heritage overlay encompasses the whole of Lot L32 I122421 and Lot L2 RP2872.

It is also noted that the subject property is in the vicinity of residential properties zoned as CMU01–Character Mixed, in particular those situated directly opposite on the southern side of Roderick Street (see Figure 14, below) and to the west along Nicholas Street.

The statutory implications of this are discussed in Part 7.2 (page 40) of this report.

Figure 14. Extract of map from the Ipswich Planning Scheme Interactive Online Mapping, showing the subject property (hard light blue line) within the PC–CBD Primary Commercial Zone (dark blue shading). *Source:* Ipswich City Council (2022).

Note: Areas of housing zoned CMU01–Character Mixed Use are in the vicinity of the subject property, south across Roderick Street and west along Nicholas Street (light blue shading).

4.2 Heritage items in the vicinity

Several places identified as being of local or state heritage significance are located in the vicinity of the subject property. These include:

- Ipswich Court House (QHR 600575), located approximately 50 m south at 75 East Street.
- Masonic Temple (Schedule 2 Character Places), located directly adjacent to the south-west of the subject property at 82 and 82A Nicholas Street.
- St John's Lutheran Church (Schedule 2 Character Places), located to the south-west at 32 Roderick Street.
- Uniting Church Central Memorial Hall (QHR 600576), located approximately 100 m south-east at 86 East Street;
- Keiraville (QHR 600597), located approximately 200 m south-east at 20 Roderick Street.

Figure 15. Aerial map view showing the subject property (hard blue line) in relation to places of local and state heritage significance mapped within the Character Places Overlay of the Ipswich Planning Scheme. *Source*: Ipswich City Council (2022).

Note: The red shading indicates areas of local and state heritage significance. Note the two allotments comprising the Masonic Template directly adjacent to the south-west of the subject property.

4.3 Relative heritage significance

All buildings presently located on the subject property, being Lot 1 SP331207, are constructed post-1980s and are not identified to be of cultural heritage significance.

While the subject block, bounded by East, South, Nicholas, and Roderick Streets, is recognised as being an early city block in Ipswich and its origins can be traced back to Wade's landmark 1942 survey (see Figure 4Figure 6, above), the current configuration and fabric of the site is not considered to have any identifiable cultural heritage significance. While the boundaries of this city block has remained consistent since the early development of the Ipswich street network, little, if any, evidence of the original residential lot configuration over the area remains.

While the city block was once divided into several individual residential allotments, these were wholly reconfigured by the 1980s, by which time the property had been purposefully developed for civic purposes, evident through the formalisation of previously temporary car parking areas and the construction of the Ipswich City Council Humanities Centre. By 2010, three remaining residential properties had been removed and the site presents as a single, large lot taking up almost all of the city block, with the exception of the two smaller allotments improved for the Masonic Temple in the south-west corner.

It is recognised, however, that the Masonic Temple located at the intersection of Roderick Street and Nicholas Streets, and adjacent to the subject property, is identified as a place of local heritage significance under Schedule 2 of the Ipswich Planning Scheme.

5. Physical description

In April 2021, Extent Heritage carried out a physical inspection of the subject property (at the time owned by Ipswich City Council), bounded by East, South, Nicholas, and Roderick Streets, which involved an investigation of the built forms contained within that city block and the immediate setting.

This inspection was undertaken as a visual study only and did not involve a detailed investigation of all fabric, but an overview of the elements of the place to assist in determining the significance and assessing the potential impact of the proposal.

5.1 General context

The subject property is situated south of the Ipswich CBD, a few hundred metres walk from one of its primary thoroughfares of Limestone Street. The surrounding properties generally consist of commercial and civic buildings to the north and traditional character residential properties to the south. A local character place, 'Masonic Temple', is located directly adjacent to the south-west. The main Ipswich Hospital campus is located further south on the lower slopes of Denmark Hill.

Figure 16. View facing east along South Street, with the ICC Administration Building located on the subject allotment at the right. *Source*: Google Earth (2022).

Figure 17. View facing north-west at the intersection of East and Roderick Streets looking across the car park area the comprises the majority of the subject property, with the Ipswich Library building visible at the far right (also contained on the subject property). *Source:* Google Earth (2022).

Figure 18. View facing west along Roderick Street with the Old Ipswich Courthouse at the left and the subject property at the right. *Source:* Google Earth (2022).

Figure 19. View facing east along Roderick Street depicting the typical traditional character residences located opposite (to the south) of the subject property. *Source:* Google Earth (2022).

5.2 Site description

The subject property contains three major Ipswich City Council buildings, including the Humanities Centre, the Ipswich City Council Administration Building, and the Ipswich Library and Information Service Centre, supported by an open, landscaped car parking area.

All of the existing buildings are all of contemporary (post-1980) construction and have their principal entrances addressing South Street (at the north of the block). The buildings present with two and three storeys in height to the property's South Street frontage.

The property's ground level rises across the allotment to the south. The ground level at the rear is substantially higher, enabling the upper levels of the aforesaid civic buildings to connect with the car parking area accessed off Roderick Street.

While the boundaries of this city block has remained consistent since the early development of the Ipswich street network, little, if any, evidence of the original residential lot configuration over the area remains.

Figure 20. The existing car park area forming part of the subject property, showing the Roderick Street entrance.

Figure 21. The eastern boundary of the subject property, showing the existing Ipswich Library building at the right and part of the car park area (centre).

Figure 22. *Left*: The existing Ipswich Library and Information Service Centre on the corner of East and South Streets. *Right*: The existing Ipswich City Council Administration Building on South Street.

Figure 23. The existing Humanities Centre on the corner of South and Nicholas Streets.

5.3 Masonic Temple

The Masonic Temple is a single-storey building of face brick construction with painted rendered dressings. The building features a wraparound parapet to the front section. The rendered parapet walls are set on a substantial, projecting cornice also in a rendered finish. A broad, central portion of the parapet is stepped back, finished in face brick with a rendered, recessed panel at the centre, below a smaller string cornice and low pitch gable top. The large cornice at the base of the parapet is supported on expressed, fluted pilasters with capital mouldings, all in a render finish.

A projecting, pedimented gable porch entrance faces Nicholas Street and is supported by columns at each corner. Colonial sash windows are protected by substantial rendered window headers and sills, set between the pilasters. A series of high-level windows are spaced along each side, centrally between the pilasters. Behind the parapet, the roof extends in a long ridge hip to the rear over a rectangular hall area. A small car park accommodating the temple building

is located immediately to the south of the building. A low, stepped brick and render fence matching the building is located at the Nicholas Street frontage.

Figure 24. The principal Nicholas Street entrance of the Masonic Temple. *Source*: Google Earth (2022).

Figure 25. The existing Masonic Temple car parking area situated south near the intersection of Roderick Street and Nicholas Streets. *Source*: Google Earth (2022).

6. Proposed works

6.1 Outline

The proposed concept for the development of the subject property comprises a new unfunded facility, known as the Ipswich Wellness and Health Centre (IWHC), associated with Stage 2 of the redevelopment and expansion of the Ipswich Hospital. It is noted that the proposed IWHC development is located wholly separately to the north of the principal Ipswich Hospital site.

Figure 26. An artist impression of the Unfunded IWHC, as seen from Ginn Street. *Source*: DWP architectus 2022

The IWHC itself is the 19,000 m^2 initial development phase of the broader IWHC site, that is a new dedicated Ambulatory Care and Outpatient facility that delivers a range of ambulatory care services and a multi-storey car parking facility. The overall IWHC site enables a staged redevelopment, with the expansion being realised vertically and horizontally on the site.

The adjacent local heritage place, the Masonic Temple, is to be retained.

The IWHC proposal, as shown on drawings prepared by DWP Architects, dated September 2022 (see Appendix A), encompasses the following scope of works to be constructed over six (6) individual stages, as follows:

- the demolition of the existing civic buildings on the subject property;
- the construction of a new multi-story car park in the site's south-west corner (Stage 1-Funded);
- the construction of a new multi-storey building, unfunded,known as the IWHC on the eastern boundary of the site (Stage 2);
- the construction of a new multi-story building located between the car park and the Stage 1IWHC building, extending the latter (Stage 3);

- the construction of an extension atop the car park (Stage 4);
- the construction of a third multi-storey building, unfunded, in the site's north-west corner (Stage 5); and
- the future expansion of all new buildings, accommodating additional storeys (Stage 6).

6.2 Proposed demolition

The IWHC proposal includes the demolition of the Ipswich Council buildings existing on the subject property (see, including:

- the Ipswich City Council Administration Building,
- the Ipswich City Council Humanities Centre;
- the Ipswich Global Information Centre (containing the Ipswich Library, Information Service and Barry Jones Auditorium); and
- the open car park and grounds (to be removed in stages).

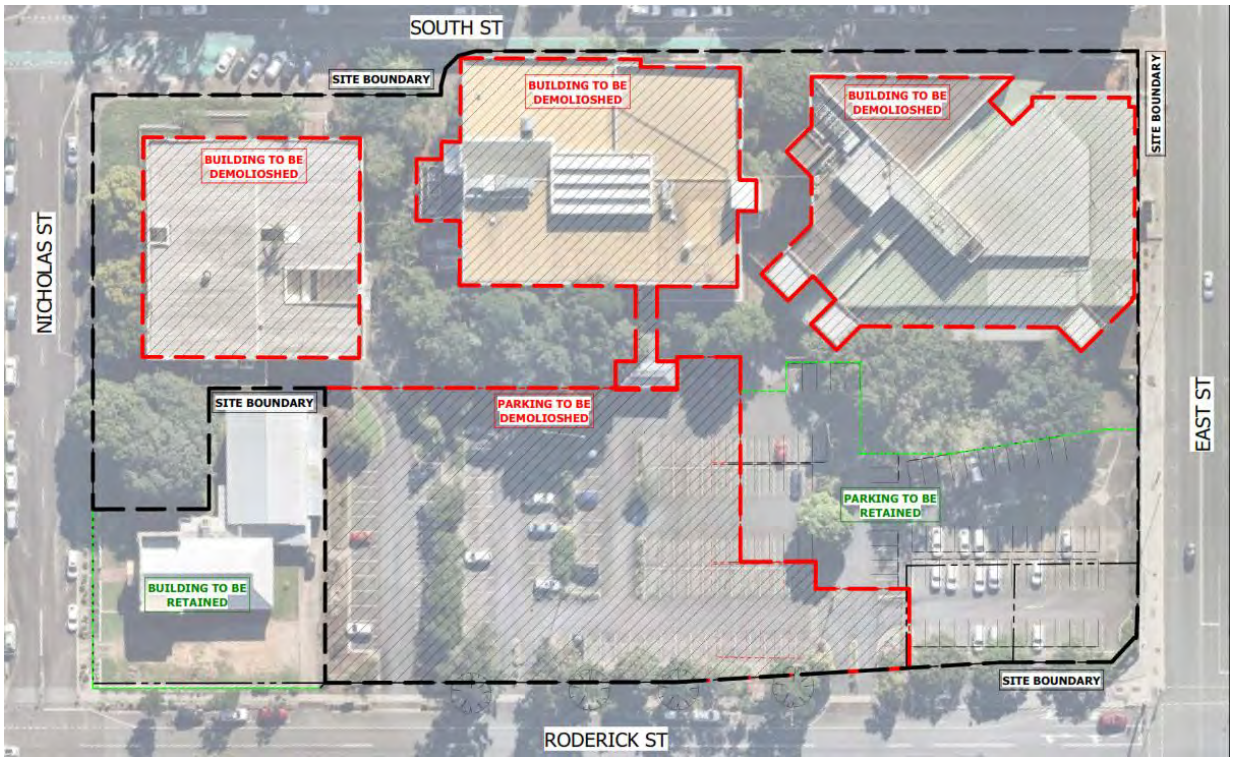

Figure 27. Existing site plan of the subject property, showing elements proposed for demolition (red line). *Source:* Extract from Drawing DWP-SKB1009, Issue A, dated September 2022, prepared by DWP Suters.

Note: The adjacent Masonic Temple is indicated in green text for reference.

6.3 Proposed development

The proposed development for the IWHC ultimately involves the construction of two connected sections of the unfunded IWHC building and a funded multi-storey car park adjacent, as well as the associated site finishes such as landscaping, footpaths, awnings, and associated structures. An overview of the proposed staged development approach is provided below.

Stage 1: The demolition of the three existing Ipswich civic buildings and subsequent construction of a multi-storey car park structure, located towards the site's western boundary. The multi-storey car park would extend to the width of the site from north to south and be accommodated by landscaped areas. Due to the change in ground level, the car park at Stage 1 would present one-and-a-half levels to the site's Roderick Street frontage, while the South Street frontage would present with five storeys. The existing surface car parking located to the south-east portion of the site is proposed to be retained in Stage 1, to enable its use for temporary on-grade parking for the main Ipswich Hospital site. A landscaped edge of trees is also proposed along the East Street boundary and temporary grass finishes would be provided over the areas subject to building demolition.

Stage 2: The removal of the existing surface car park and the construction of the first portion of the unfunded multi-storey IWHC building. The latter building would be located along the site's East Street boundary and contain key health service tenancies. A landscaped courtyard is also proposed between the car park and IWHC building at the northern boundary of the site.

Stage 3: The expansion of the unfunded IWHC through the construction of a second multi-storey building linked to the Stage 1 building at the west, providing for future private tenancies. A welcoming landscaped forecourt is proposed between the two IWHC built forms, accessed from Roderick Street.

Figure 28. Proposed Roderick Street imagery showing the funded multi-storey car park at Stage 1 (left) and the unfunded IWHC building at Stage 3 (right). The existing Masonic Temple is shown at the left for reference. *Source*: Extract from IWHC Presentation, dated 29 June 2022, prepared by dwp and architectus.

The subsequent three stages show the potential, future additions that meet with the full development intentions under the Ipswich Hospital Master Plan. The future development of these stages (4-6) would be dependent upon external timing and funding factors.

Stage 4: The further expansion of the IWHC through the construction of additional levels to the car park structure to accommodate additional, private commercial lease space. While an additional two levels are proposed to the multi-storey car parking facilities, it is important to note that an appropriate setback is proposed to the adjacent Masonic Temple. The additional stories over the car parking levels are set to the eastern side of the building, affording appropriate setbacks and clearances to the local heritage place.

Stage 5: The construction of a third, unfunded multi-storey building dedicated to cancer care at the north-west intersection of South and Nicholas Streets. The development of this centre is noted as being only a possibility at this stage and would be considered separately in a future assessment process.

Stage 6: The development of the vertical expansion to each component of the unfunded IWHC. This component is noted as being only a possibility at this stage and would be considered separately in a future assessment process.

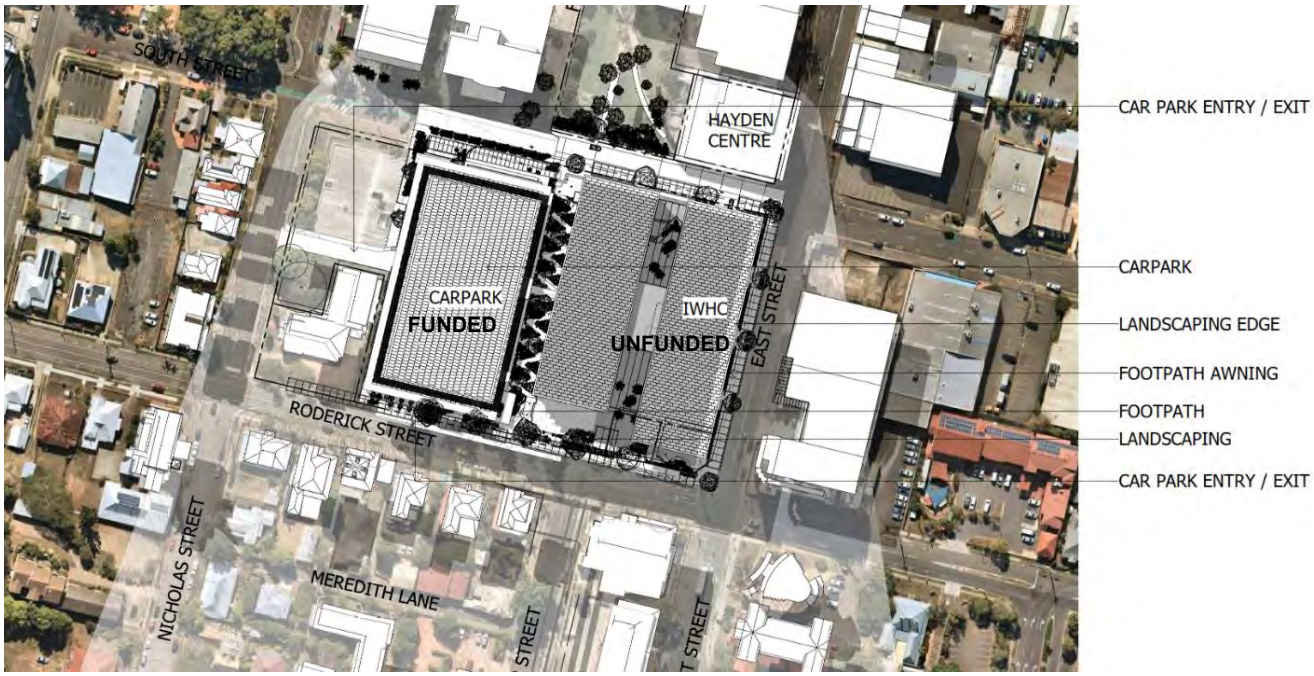

Figure 29. Site plan showing the extent of the proposed IWHC development. *Source:* Extract from Drawing DWP-SKB1113, Issue C, prepared by DWP Suters/Architectus (2022).

Figure 30. Proposed axonometric depicting Stage 1 of the proposed Funded IWHC. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

Figure 31. Proposed axonometric depicting Stage 2 of the proposed Unfunded IWHC. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

Figure 32. Proposed axonometric depicting Stage 3 of the proposed Unfunded IWHC. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

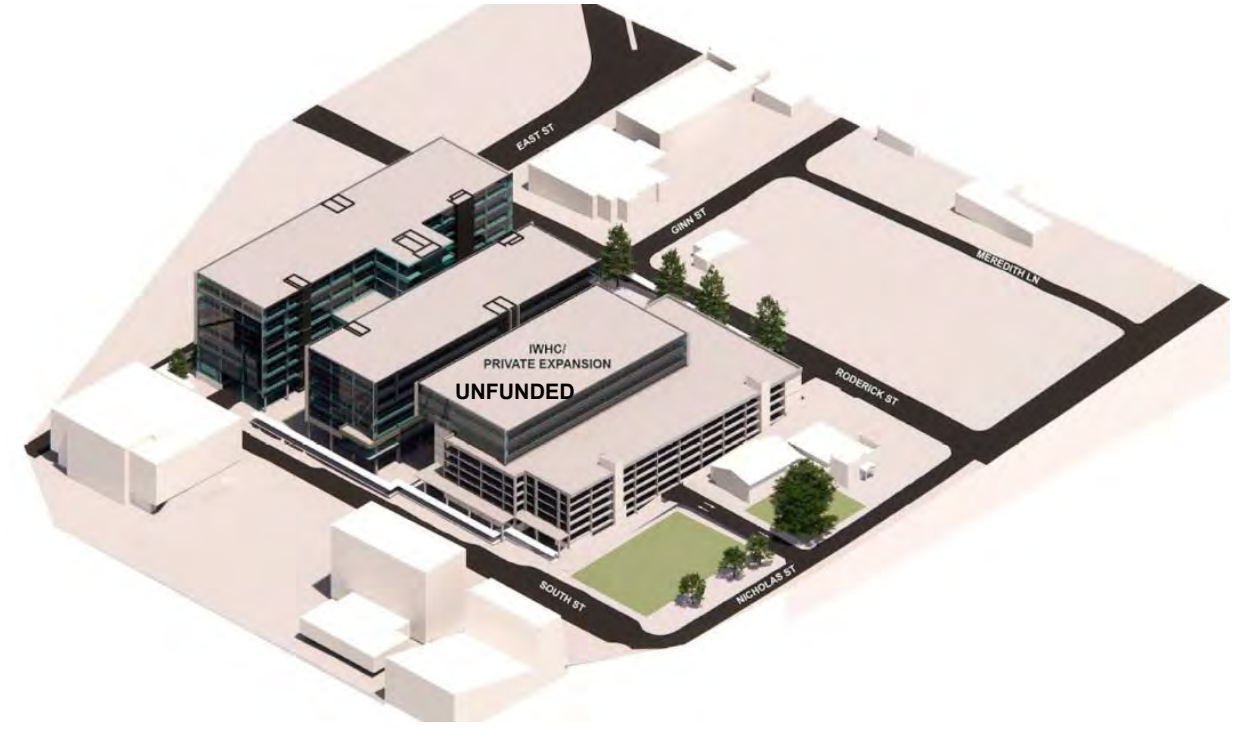

Figure 33. Proposed axonometric depicting Stage 4 of the proposed Unfunded IWHC. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

Figure 34. Proposed axonometric depicting Stage 5 of the proposed unfunded IWHC, depicting the potential addition of the Cancer Care Centre. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

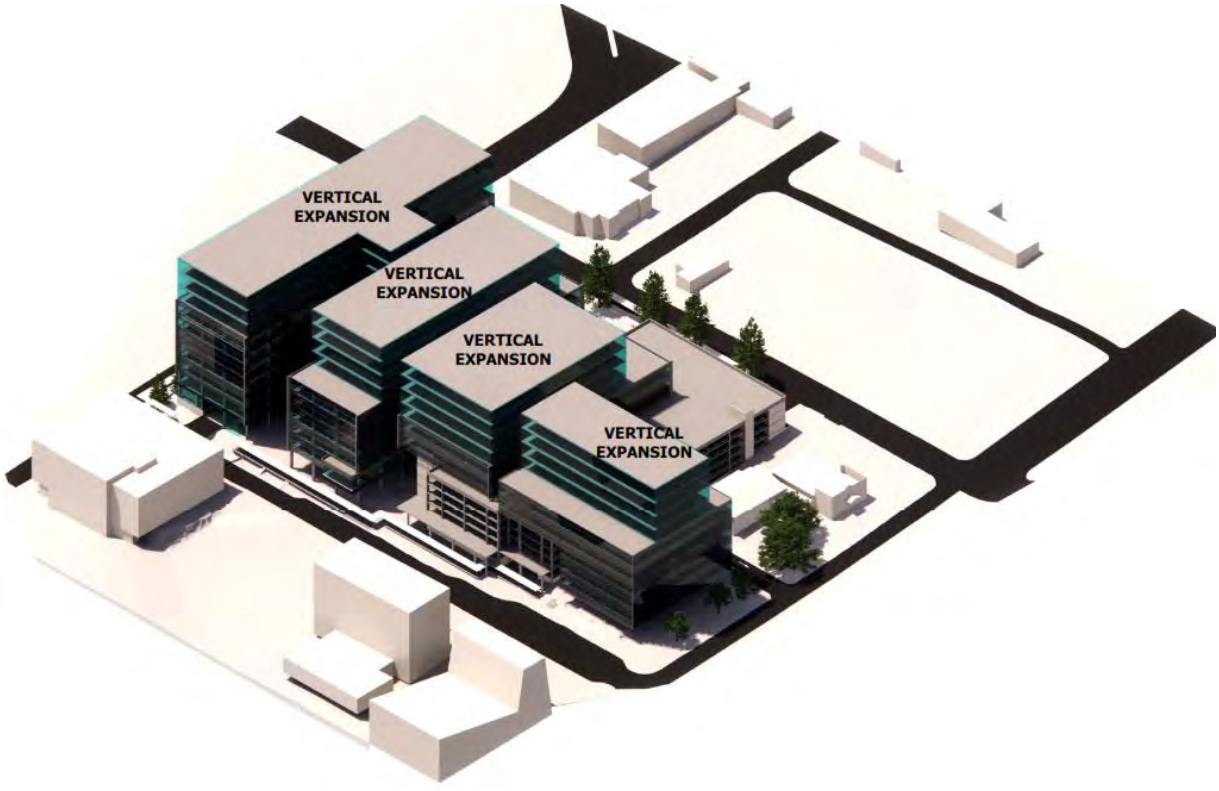

Figure 35. Proposed axonometric depicting stage 6 of the proposed unfunded IWHC, depicting the potential vertical expansion of each component of the IWHC. *Source:* Extract from Drawing DWP-SKB1011, Issue A, prepared by DWP Suters/Architectus (2022).

Figure 36. An artist impression of the landscaped forecourt forming the entrance to the unfunded IWHC from East and Roderick Streets. *Source*: dwp architectus (2022).

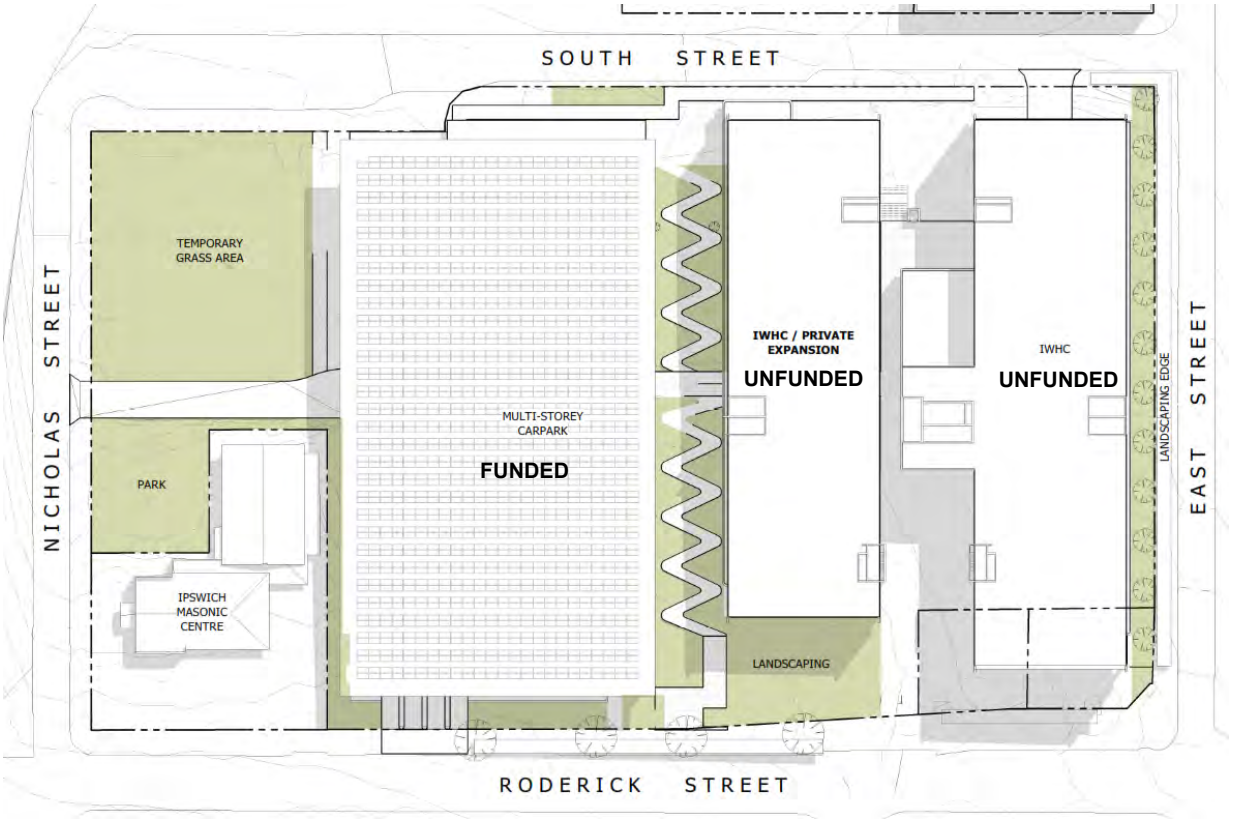

Figure 37. Proposed site plan for the subject property, depicting the Stage 3 built structures of the proposed IWHC. *Source:* Extract from Drawing DWP-SKB1013, Issue A, prepared by DWP Suters/Architectus (2022).

Figure 38. An artist impression of the landscaped South Street plaza and forecourt, and the adjacent multi-storey car parking facility (Funded) as seen from South Street. *Source*: dwp architectus (2022).

6.4 Proposed landscape design

The proposed landscape design for the IWHC site considers the built and environmental context in which it is located and proposes the following design considerations (see Archipelago (2022):

- **1 Stairs** – Broad shallow stairs; 3 flights of 5 risers, pre-cast concrete treads with stone contract nosing.
- **2 Corner Address** – Equitable plaza access from the intersection with integrated seating on the walkway edges guiding pedestrians to the building colonnade.
- **3 East Street Amenity** – Articulated canopy providing all-weather shade and rain protection complemented with colourful canopy shade trees (such as *Handroanthus*) in wide beds of groundcovers.
- **4 East Street Edge** – Kerb build-outs, potential for DDA streetscape parking, canopy trees, canopy-integrated bus stop shelter, and higher capacity bus lay-by.
- **5 South Street Amenity** – Articulated canopy providing built-form shade and rain protection complemented with tall, open canopy trees (such as *Flindersia* and *Agathis*) in narrow beds of groundcovers providing separation between pedestrians and cyclists.
- **6 Roderick Street Amenity Nth** – Articulated canopy providing all weather built form shade and rain protection complemented with a mix of tall and colourful canopy trees (such as *Handroanthus* and *Agathis*) in wide beds of ground covers, providing an amenity buffer to the road edge. Retained mature pine trees underplanted with lush groundcovers and parking rationalised with street trees provided between each bay.

- **7 Roderick Street** – Amenity with rationalised street parking and trees provided between each bay. Existing eucalypts augmented with Kauri pines to strengthen the street edge.
- **8 Retail Plaza** – Organic articulated plaza with landscaped beds and canopy trees providing shade and green relief together with a clear delineation of recreating space and retail space. Terracing cascades down to the IWHC north plaza with access via stairs along building edge.
- **9 IWHC North Plaza** – Generous canopies to the main building entry cast dappled shade onto a plaza with heavily articulated edges featuring seating expressed from the pavement. Coarsely honed concrete and warm natural stone pavements are punctuated by regular islands of green with large colourful shade trees. A series of open and intimate spaces are provided to encourage people out of the building and into the landscape.
- **10 IWHC South Plaza** – Cascading terraces integrated with the wide stairs provide intimate grassy spaces overlooking a lower plaza featuring coarsely honed concrete and warm natural stone pavements. A platform lift to the building edge provides integrated direct DDA access from the IWHC spine to the lower plaza.
- **11 Screen Planting** – Building edges at the ground level featuring a range of small and tall dense foliage planting that will soften the built form in conjunction with planters provided on the building levels with cascading planting to green the facades.
- **12 Parkway** – Open grassy parkland punctuated by direct pathway access to the buildings and from Roderick Street to South Street linking to Foote Lane.

Figure 39. Proposed landscape design site plan for the IWHC site. *Source:* Archipelago (2022, 8).

6.5 Rationale

A Strategic Business Case (SBC) for Stage 2 of the Ipswich Hospital Expansion was approved in November 2018 (DWP 2022). Since then, West Moreton Health has acquired sites close to the main hospital campus suitable for redevelopment for health services. In addition, the need for additional capacity has been identified in updated activity projections provided since 2018.

As a result, the Concept Design for Stage 2 has been revised and re-developed in line with the Ipswich Health Precinct Master Plan developed in February 2021. This process explored a range of redevelopment options and service planning strategies, and involved extensive consultation with internal stakeholders and external participants, including Queensland Health, West Moreton Health, Metro South Health, and Ipswich City Council. An extensive options shortlisting process selected Concept Design Options 2D-A2 and 2D-A3 as the preferred concepts, ultimately providing alternative development strategies for the Ipswich Hospital Expansion Stage 2.

DWP's Concept Design Report (2022) confirms that Option 2B was identified as the preferred master plan option as it provides the following benefits:

- allows redevelopment across both sites [i.e. Ipswich Hospital and IWHC] within the Ipswich Health Precinct;
- improves urban integration with the city centre;
- optimises the development potential of the IWHC site;
- enables site landscape improvements at both sites and within streetscapes;
- reduces the need for decanting at the existing hospital site;
- enables future expansion on both Ipswich Hospital and IWHC sites;
- reinforces the hospital in the city centre; and
- offers flexibility and adaptability.

Specific to this HIS report, the concept for the staged development of the **IWHC site** is considered to be of benefit. It necessarily considers an extensive range of logistical and program requirements to meet with the operational requirements of West Moreton Health. The resulting proposal described in this report is sensitive to its locational context and is of benefit in the site's inner city setting. In particular, the proposal does not propose to change the existing lot configuration and retains the form of the early city block.

The design retains the adjacent heritage-listed Masonic Temple and ensures appropriate setbacks are provided to this significant building, particularly in the initial Stages 1-4 of the proposed IWHC development. The later Stages 5 and 6, are at this stage, conceptually articulated with further setbacks considered and therefore, have potential to remain sympathetic to the setting of the Masonic Temple. It is noted that these later stages depend upon fruition of

the Ipswich Health Precinct Master Plan and supporting timing and/or funding circumstances, which would likely be subject to future assessment processes.

The proposal for the IWHC presents an open, landscaped forecourt with appropriate setbacks at Roderick Street, which contributes positively to the streetscape and provides a respectful setting to the nearby heritage-listed Old Ipswich Courthouse to the south and the existing residential character housing. The development's landscape design elements, architectural fenestration and gradual setbacks as the stories increase assist to reduce an abrupt vertical elevation and impact to significant view corridors of character housing along Roderick Street. The more substantial buildings of the IWHC are also located to the eastern end of the site, providing further clearances to the area of character housing across Roderick Street to the south and along Nicholas Street to the west.

It is also noted that the proposed development height of the buildings remains in accordance with the zoning applied under the Ipswich Planning Scheme.

The proposal for the multi-storey car parking facility allows for the construction of 1.5 levels of car parking above street level at Roderick Street. The form at this elevation allows for an appropriate setback between the car park and the boundary of the existing Masonic Temple without crowding the heritage building. The proposed additional two levels forming part of the design for Stage 4 would also remain proportional, with a three metre boundary setback to the temple building. The proposed inclusion of tenancy areas above this parking facility is also set to the eastern side and retains a volumetric clearance that minimises crowding and would have minimal effect on the Masonic Temple.

The design for the IWHC considers its surrounding context and is respectful of the nearby heritage-listed places and traditional character area. The proposed gradual height setbacks, façade articulation and landscaped elements of the design are sympathetic to the surrounding context, whilst also being a distinctively contemporary design response. These considerations contribute beneficially to ensure the proposed development meets with the identified view and amenity outcomes related to the backdrop of character housing and listed heritage places.

7. Statutory controls

7.1 Queensland Heritage Register

Section 2 of the Queensland Heritage Act states that the object of the Act is to 'provide for the conservation of Queensland's cultural heritage for the benefit of the community and future generations'. The Act thus establishes the Queensland Heritage Council and the Queensland Heritage Register (QHR) as important mechanisms for achieving these objectives. For places entered in the QHR, 'development' refers to all types of work on a place, including reconfiguring a lot, material change of use, operational work, and building work.

The subject property is **not** identified as a place of state heritage significance, nor it is located adjacent to a place of state heritage significance. The closest state heritage place, Old Ipswich Courthouse (QHR 600575), is located across Roderick Street and its allotment does not adjoin the proposal allotment. Therefore, the proposal is **not required** to be assessed under the SDAP14. The SDAP14 provides assessment benchmarks for development on (and adjoining) state heritage places, and development proposals are required to demonstrate that the development would meet these assessment benchmarks.

7.2 Ipswich City Council 2006

The Ipswich Planning Scheme regulates development planning, and was developed in relation to heritage items, within the Ipswich LGA. The Scheme provides for the conservation of heritage places through the establishment of a list of places of local heritage significance, which is described in Schedule 2: Character Places. The Scheme also provides conditions associated with development of places included in the Schedule 2 Character Places Overlay, which are required to address the provisions set out in Part 11, Character Places Overlay Code.

The subject property is **not** covered by the Ipswich Character Places Heritage Overlay and therefore, it is not assessable under the applicable Character Places Overlay Codec provision.

The proposed development is, however, adjacent to a character place (the Masonic Temple) listed under Schedule 2 of the Scheme. However, the Scheme does not presently include provisions relevant to development *adjacent* to heritage places and therefore, is not assessable in this regard. Further, it is noted that the proposal for the IWHC has given appropriate consideration to this local heritage place, which is to be retained and conserved in situ. The proposed design for the new multi-storey forms also demonstrate appropriate setbacks to the adjacent heritage-listed Masonic Temple, particularly in the initial Stages 1, 2, 3 and 4 of the proposed development.

8. Statement of heritage impact

DWP's Concept Design Report for Stage 2 of the Ipswich Hospital Expansion (2022) confirms that Option 2B, identified as the preferred master plan option, provides a range of beneficial outcomes for the Ipswich inner city area. Within that option, the concept for the staged development of the IWHC site described in this report is considered to be of benefit.

The proposed concept for the development of the Ipswich City Council civic site bounded by East, South, Roderick and Nicholas Streets is considered sensitive to its locational context, available views, and streetscape, and makes beneficial contributions to the inner city setting of this early city block. The proposal retains the existing lot configuration and the form of the early city block and therefore, no adverse effects on these aspects of cultural heritage significance are demonstrated.

The design demonstrates appropriate setbacks to the adjacent heritage-listed Masonic Temple, particularly in the initial Stages 1-4 of the proposed IWHC development. The later Stages 5 and 6 are conceptually articulated with further setbacks considered and therefore, have potential to remain sympathetic to the setting of the Masonic Temple. The setbacks from the Masonic Temple to the multi-storey car parking facility and its height are considered to be sympathetic and would not make more than a minimal impact on the local heritage place.

The proposal for the multi-storey car parking facility with 1.5 levels of the building evident above street level at Roderick Street, through the initial stages, is a modest form and resolves in a scale similar in height to the existing Masonic Temple. The building form at this elevation allows for an appropriate setback between the car park and the boundary of the existing Masonic Temple without crowding the heritage building. The proposed design for Stage 4 that includes additional two levels is also considered to remain a sympathetic proportion that is benefited by the three metre boundary setback to the temple building. The proposed later stages that include tenancy areas above the parking facility are proposed at the eastern side and retain a volumetric clearance that minimises crowding, resulting in a minimal effect on the local heritage place.

The proposal for the IWHC presenting an open, landscaped forecourt with articulated setbacks at Roderick Street contributes positively to the streetscape and provides a respectful setting to the nearby heritage-listed Old Ipswich Courthouse to the south. The proposal also presents an interface area facing Ginn Street, which demonstrates an attractive, engaging environment at the streetscape that would have little, if any, adverse impact on the Old Ipswich Courthouse.

The development's landscape design elements, architectural fenestration, and gradual setbacks (as the stories increase) assist to reduce an abrupt vertical elevation and would not impede key view corridors towards the character housing directly opposite along Roderick Street (and to an extent, west along Nicholas Street). The proposed development height of the buildings at the various stages remains sympathetic to the zoning applied under the Ipswich Planning Scheme. The more substantial buildings of the IWHC are located to the eastern end of the site, resulting in no more than a minimal adverse impact on any heritage character aspects. Overall, the proposal is sympathetic in its form, bulk and proximity to the character housing and state heritage place situated in the Roderick Street vicinity and would have no more than a minimal impact on any identified, related aspects of cultural heritage significance.

The proposed development of (and design for) the IWHC considers its surrounding context and is respectful of the nearby heritage-listed places and traditional character areas. The proposed gradual height setbacks, façade articulation and landscaped elements of the design are sympathetic to the surrounding context, whilst also being a distinctively contemporary design response. These considerations contribute beneficially to ensure the proposed development meets with the identified view and amenity outcomes related to the backdrop of character housing and listed heritage places, whilst also providing new health facilities meeting Ipswich Hospital's future operational requirements.

Therefore, the proposed design for the IWHC would be a beneficial inner-city development that demonstrates no more than minimal impact on the identified cultural heritage significance of the adjacent 'Masonic Temple', and character housing and state heritage place situated in the Roderick Street vicinity.

9. References

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Appendix A.

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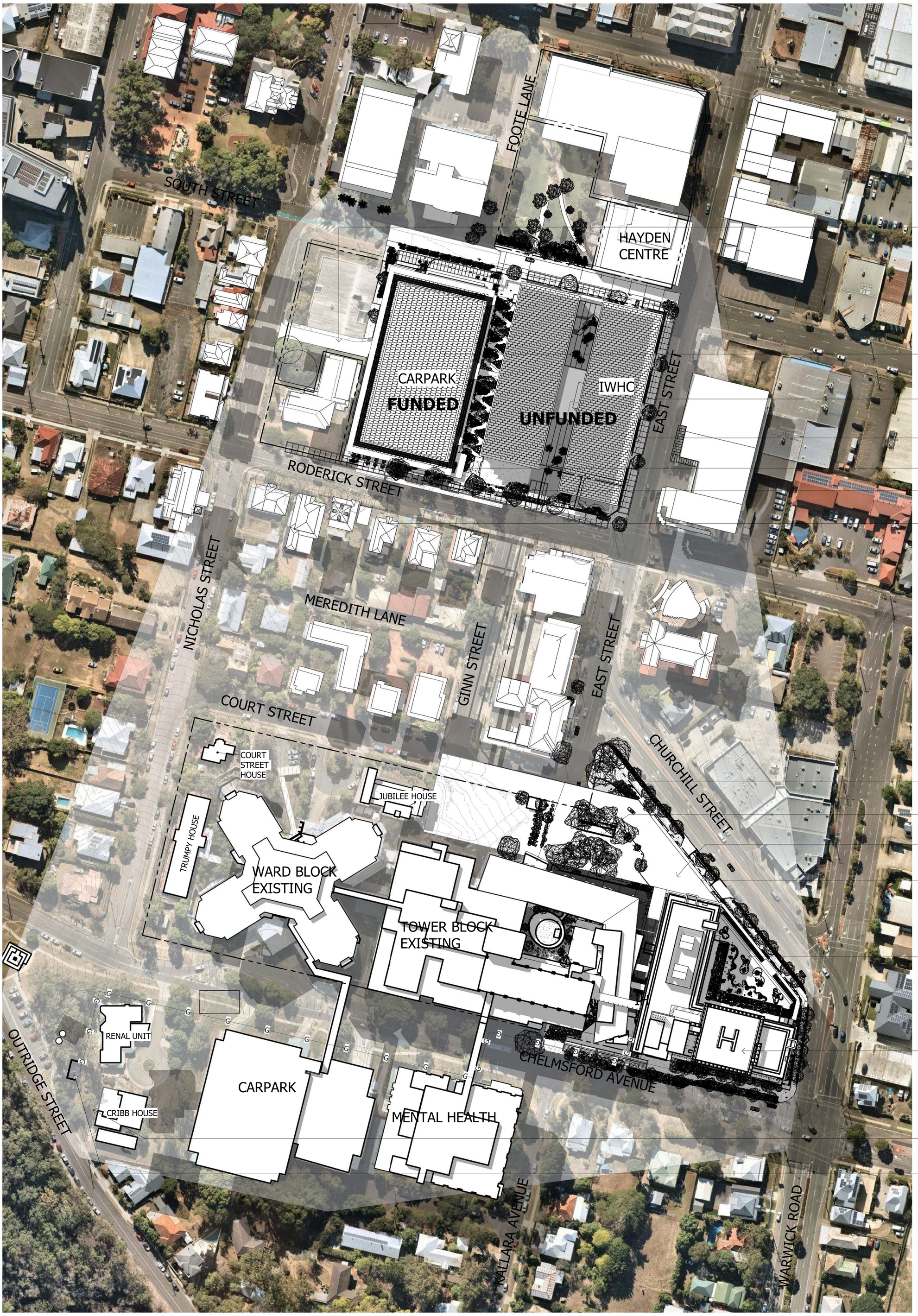

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B	FOR INFORMATION	13.06.22	RB	FM
C	FOR INFORMATION	12.09.22	RB	FM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

PROJECT MANAGER
CAPITAL INSIGHT

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project
Ipswich Hospital Stage 2 Expansion

Drawing
PROPOSED SITE PLAN_STAGE 2.1

Scale (A1)
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Date Printed
12/09/2022 10:02:26 AM

Project Number
22-0201

Drawing Number
DWP-SK1113

Issue
C

dwp architectus™

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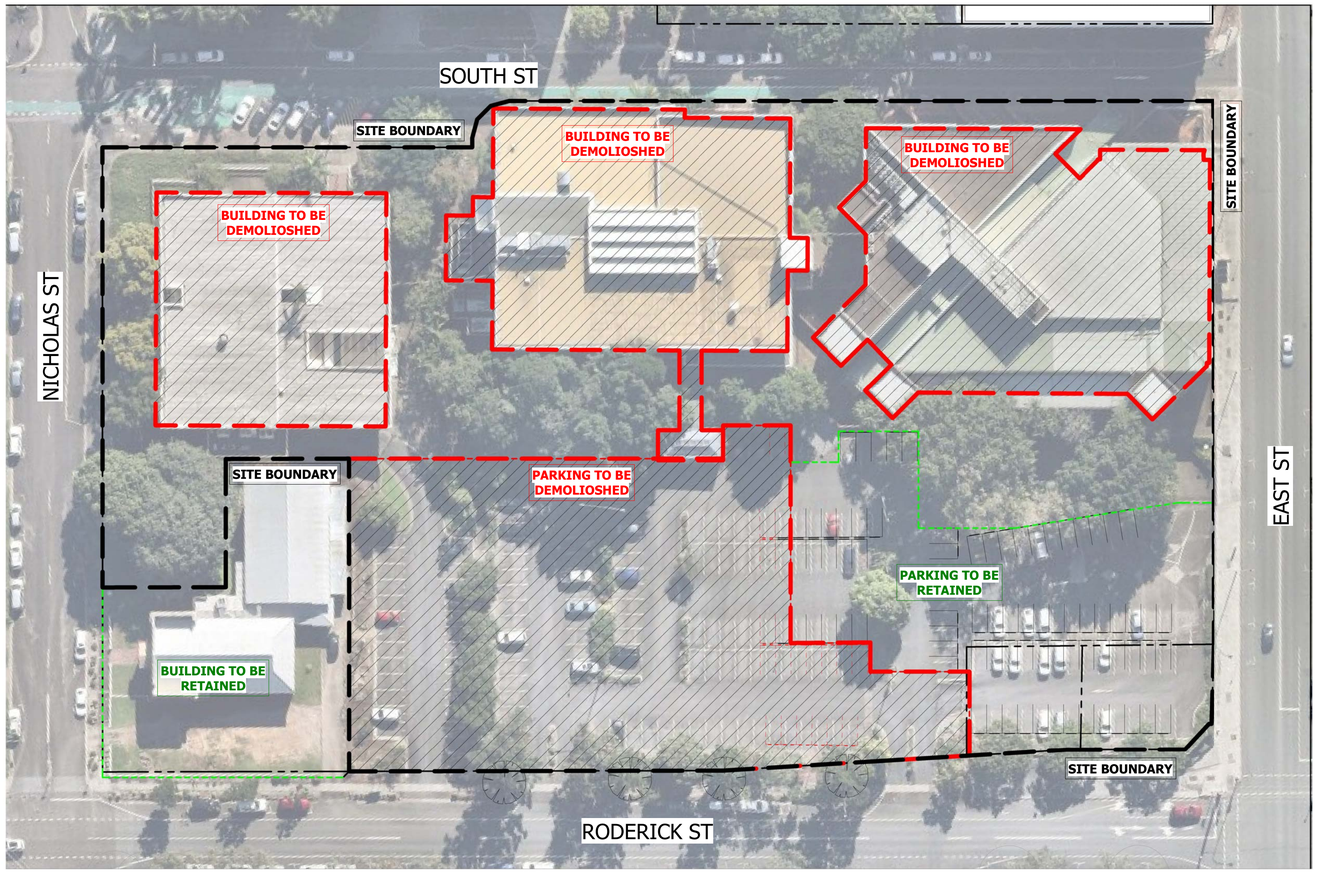

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architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
SITE PLAN - DEMOLITION

Scale (A1) 1 : 500
Date Printed 7/09/2022 12:35:04 PM

Drawing Number DWP-SKB1009
Issue A

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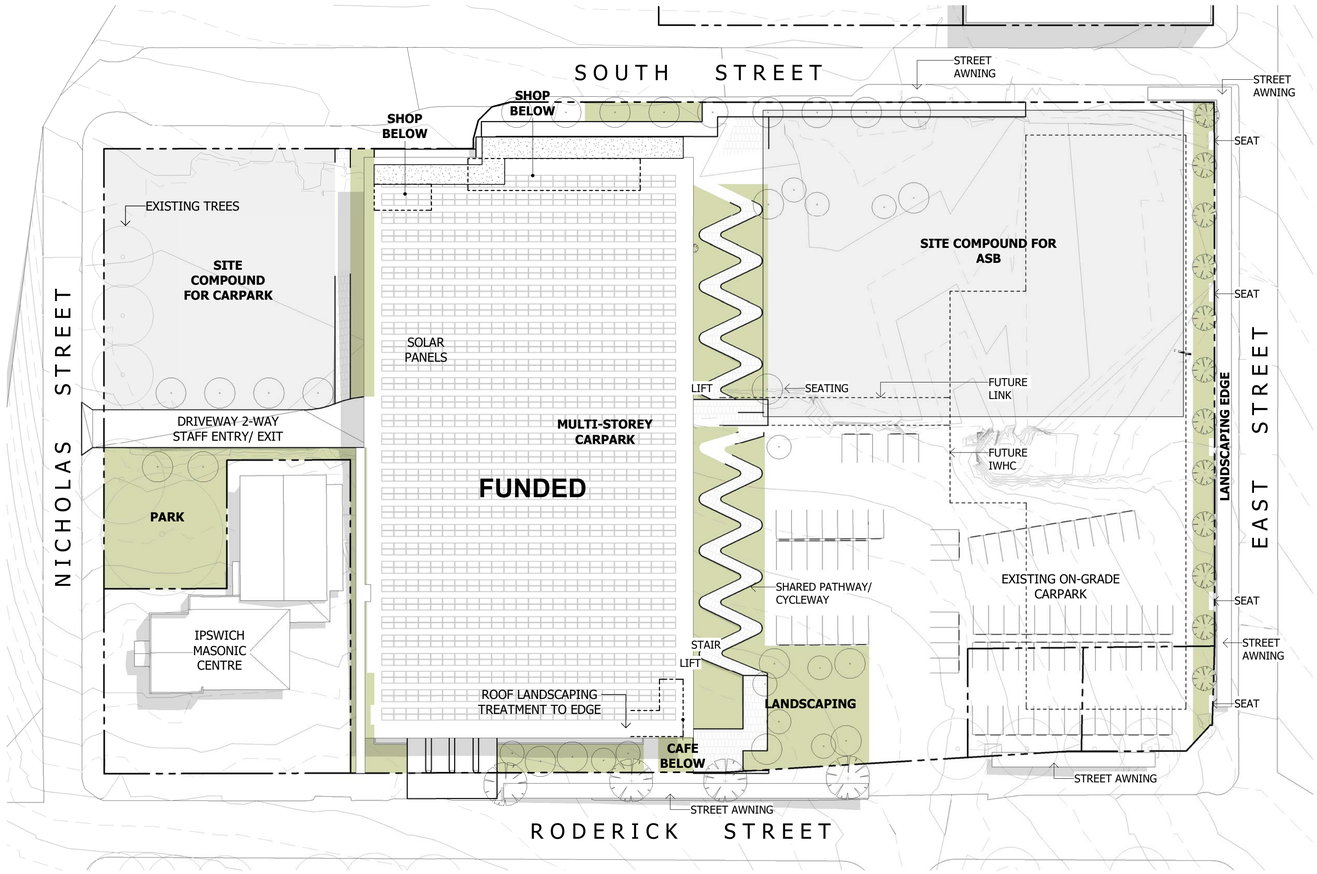

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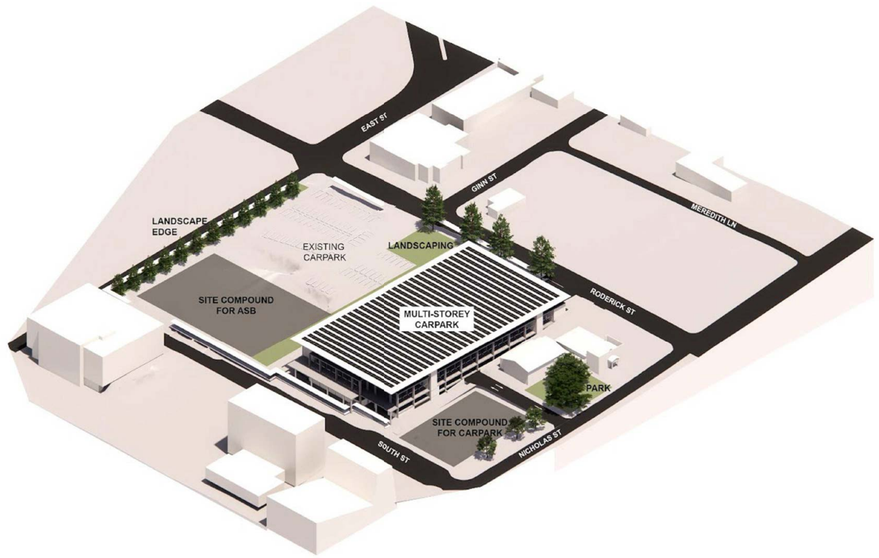

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Architects In Collaboration
dwp architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
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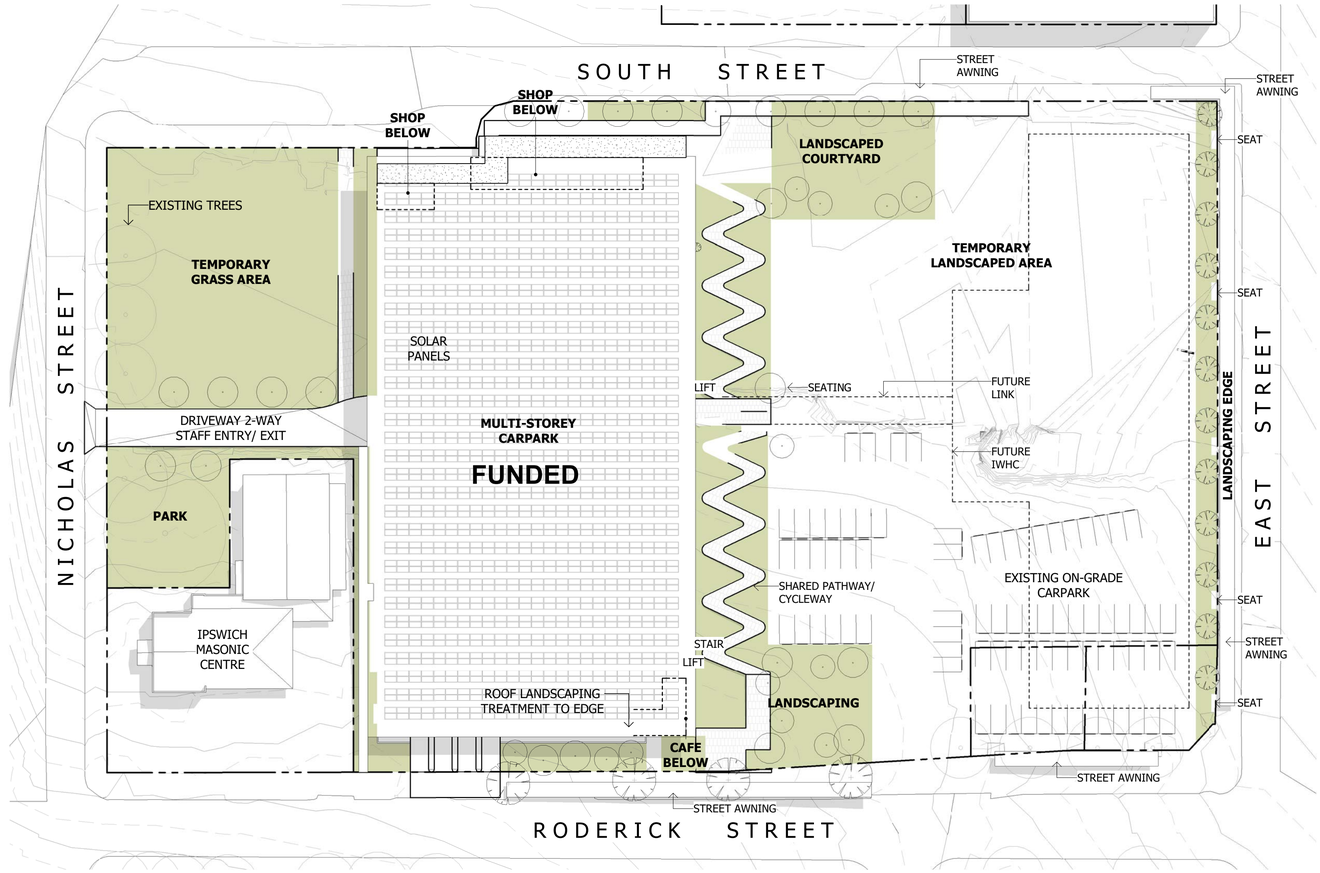

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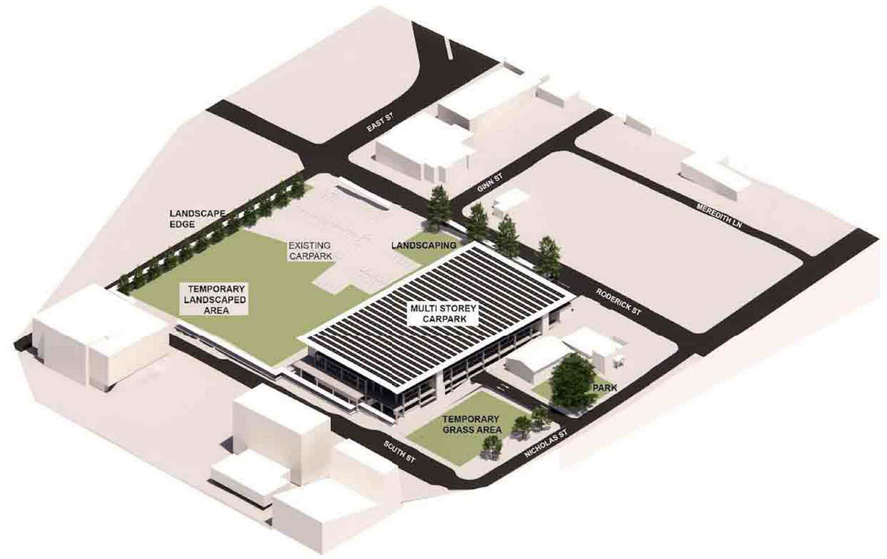

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Issue	Description	Date	Chk	Auth
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Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
SITE PLAN - STAGE 2.1 (AFTER CONSTRUCTION)

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Drawing Number DWP-SKB1011
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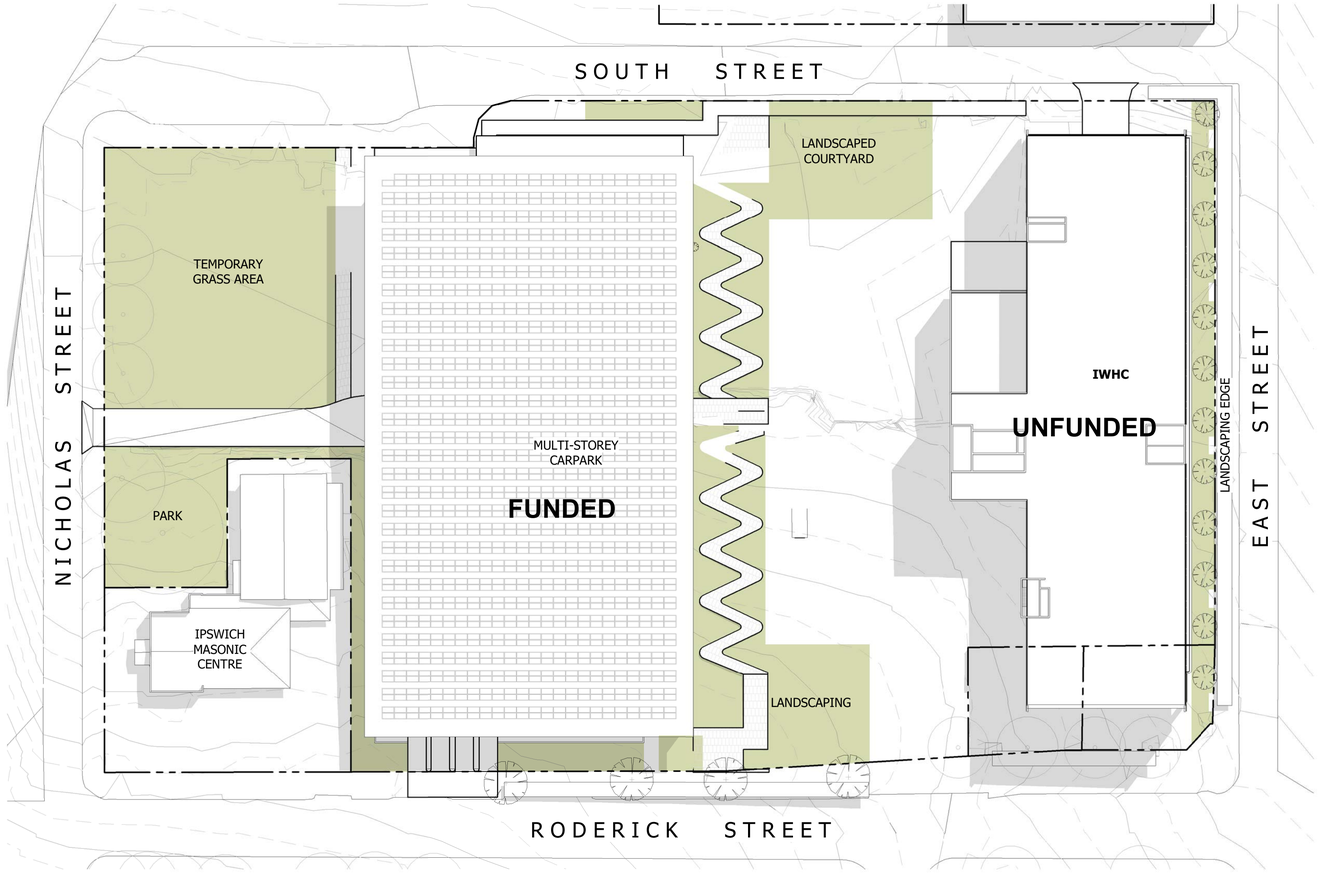

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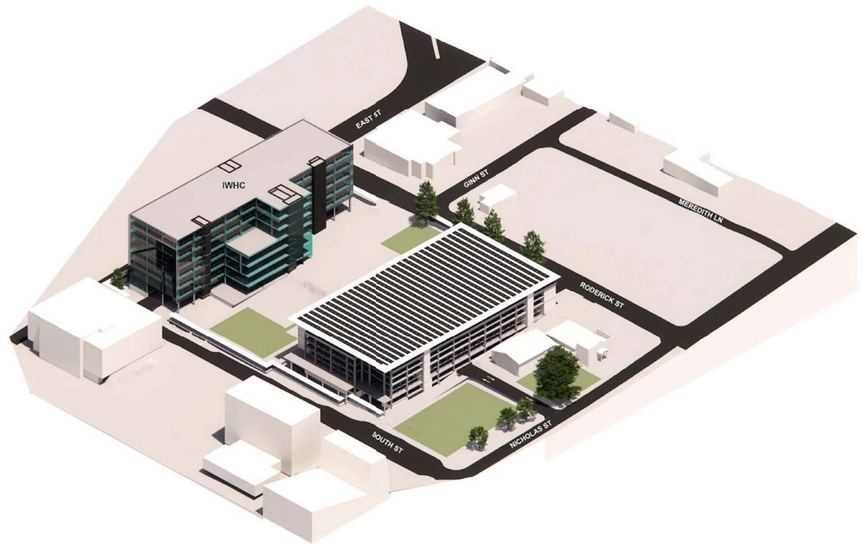

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A	CONCEPT DESIGN REPORT	01.08.22	RB	FM

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Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
SITE PLAN - STAGE 2.2

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Drawing Number DWP-SKB1013
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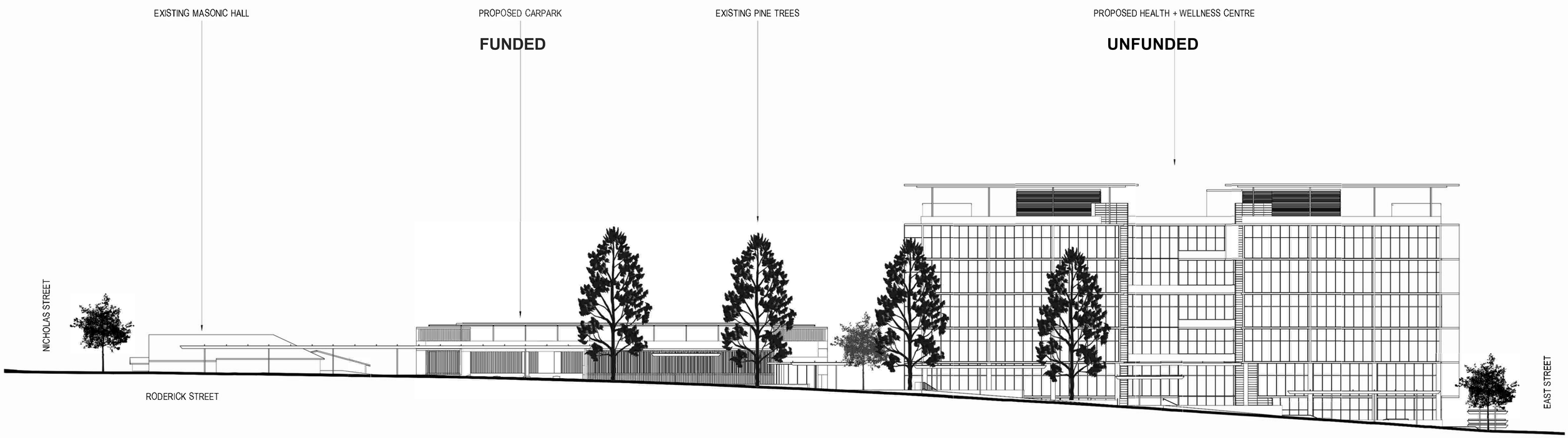

1 Roderick Street Elevation

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Client
CAPITAL INSIGHT

PROJECT MANAGER
CAPITAL INSIGHT

Location
RODERICK STREET, IPSWICH

Project
IPSWICH WELLNESS & HEALTH CENTRE

Drawing
RODERICK STREET ELEVATION

Scale (A1)
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Date Printed
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Project Number
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Drawing Number
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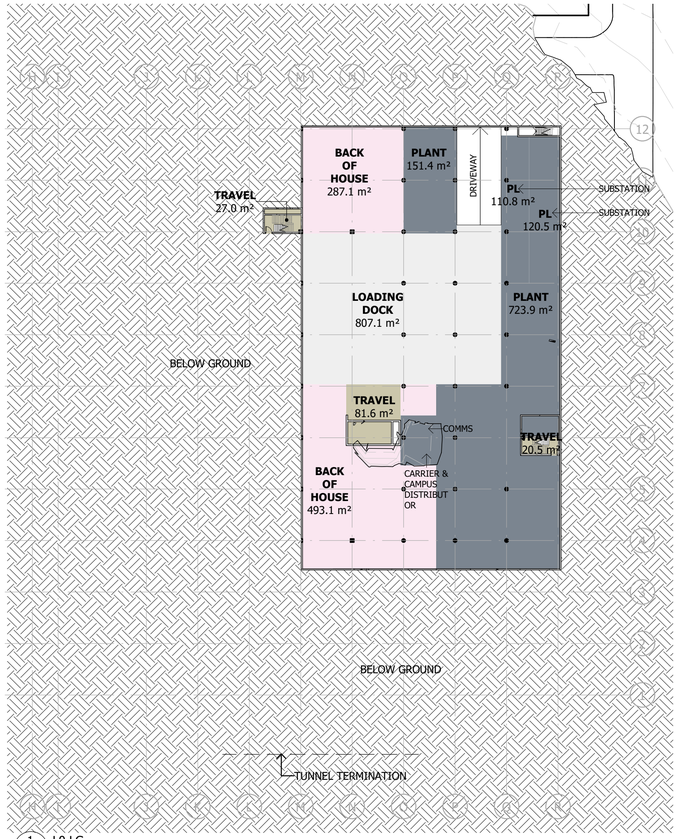

1 L0 LG
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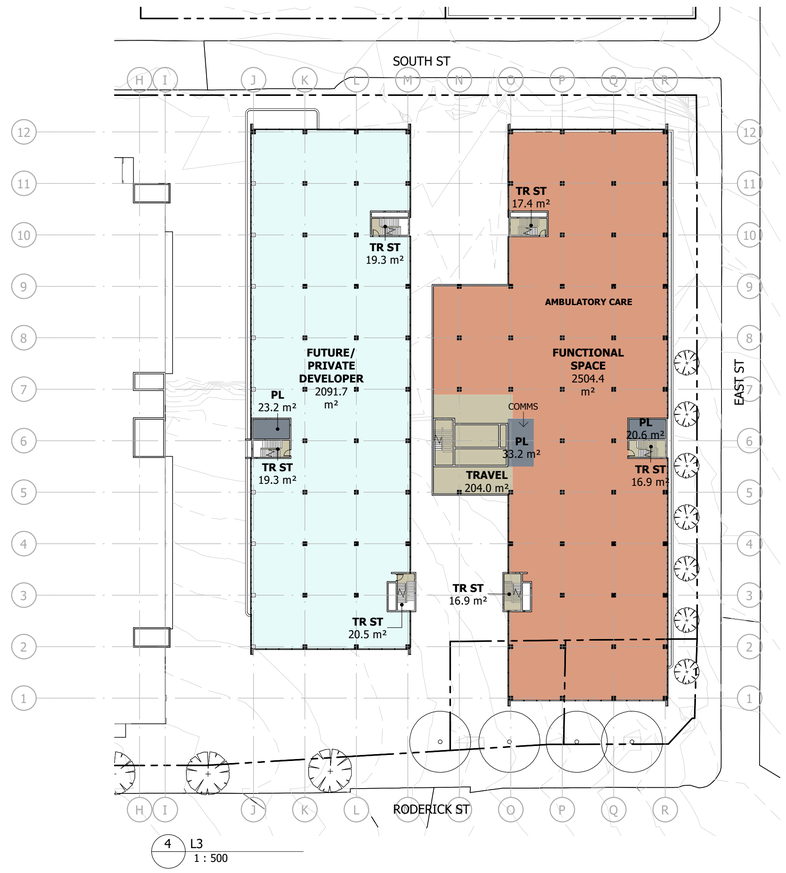
2 L1 GL
1 : 500

3 L2
1 : 500



4 L3
1 : 500

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F	FOR INFORMATION	06.07.22	RB	FM
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D	FOR COORDINATION	21.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
B	FOR COORDINATION	13.06.22	RB	FM
A	FOR COORDINATION	10.06.22	RB	AM

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Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
IWHC (UNFUNDED)
AREA PLAN_L0 LG, L1 GL, L2, L3

Scale (A1) 1 : 500
Date Printed 1/08/2022 12:21:00 PM

Drawing Number DWP-SKB1201
Issue H

File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt

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1 L4
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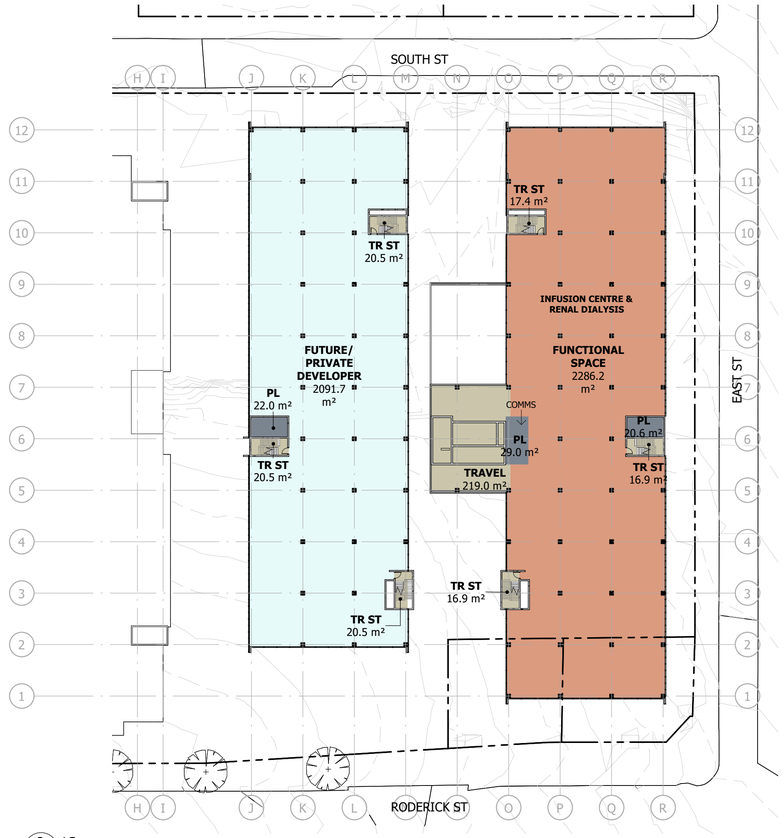

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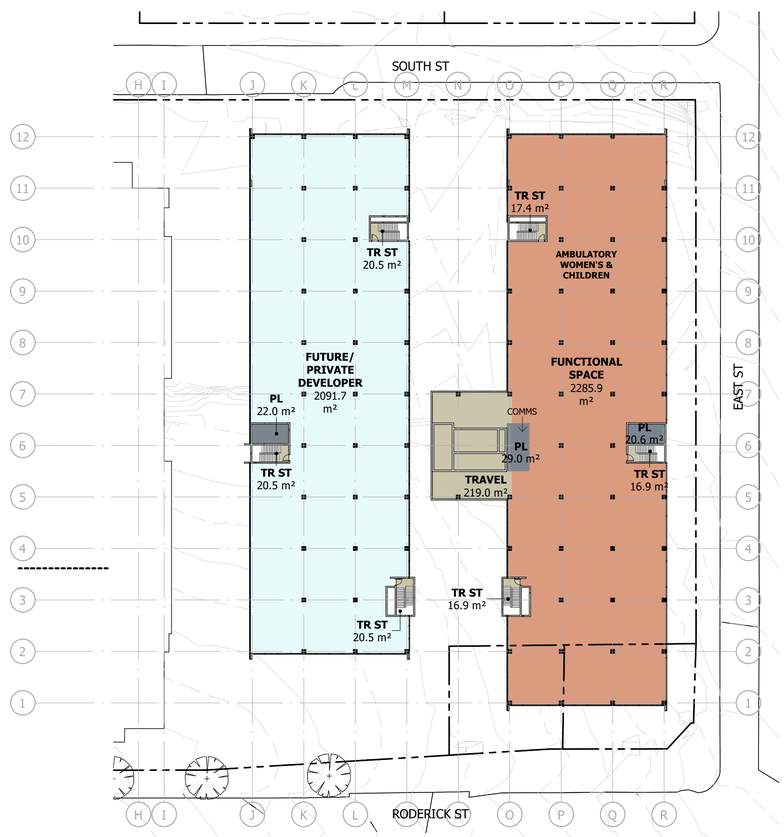

3 L6
1 : 500

4 L7
1 : 500

AREA SCHEDULE OVERALL_NEW BUILDING		
DESCRIPTOR	Area	Name
AREA IHC		
L0 LG		
BACK OF HOUSE	809.5 m²	AREA IHC
LOADING DOCK	807.1 m²	AREA IHC
PLANT	1175.7 m²	AREA IHC
TRAVEL	129.1 m²	AREA IHC
	2921.5 m²	
L1 GL		
CAFE	84.3 m²	AREA IHC
FUNCTIONAL SPACE	1278.4 m²	AREA IHC
OPERATIONAL SUPPORT	39.2 m²	AREA IHC
PLANT	52.2 m²	AREA IHC
TRAVEL	389.7 m²	AREA IHC
TRAVEL STAIR	53.0 m²	AREA IHC
	1896.9 m²	
L2		
FUNCTIONAL SPACE	2314.9 m²	AREA IHC
PLANT	47.6 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2617.6 m²	
L3		
FUNCTIONAL SPACE	2504.4 m²	AREA IHC
PLANT	53.8 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2813.2 m²	
L4		
FUNCTIONAL SPACE	2508.6 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	204.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2813.2 m²	
L5		
FUNCTIONAL SPACE	2286.2 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.9 m²	
L6		
FUNCTIONAL SPACE	2285.9 m²	AREA IHC
PLANT	49.6 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.6 m²	
L7		
PLANT	2335.5 m²	AREA IHC
TRAVEL	219.0 m²	AREA IHC
TRAVEL STAIR	51.1 m²	AREA IHC
	2605.6 m²	
Grand total: 66	20879.6 m²	

NOTE: EXCLUDES VERTICAL EXPANSION UP TO LEVEL 10

AREA SCHEDULE OVERALL_FUTURE		
DESCRIPTOR	Area	Name
FUTURE		
L1 GL		
FUTURE/ PRIVATE DEVELOPER	661.7 m²	FUTURE
TRAVEL	16.9 m²	FUTURE
L2		
FUTURE/ PRIVATE DEVELOPER	1957.9 m²	FUTURE
L3		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L4		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L5		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
L6		
FUTURE/ PRIVATE DEVELOPER	2091.7 m²	FUTURE
Grand total: 7	11003.4 m²	

NOTE: EXCLUDES VERTICAL EXPANSION UP TO LEVEL 10

SCHEMATIC DESIGN
NOT TO BE USED DURING CONSTRUCTION

Issue	Description	Date	Chk	Auth
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F	FOR INFORMATION	11.07.22	RB	FM
E	FOR INFORMATION	06.07.22	RB	FM
D	FOR COORDINATION	28.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
B	FOR COORDINATION	13.06.22	RB	FM
A	FOR COORDINATION	10.06.22	RB	AM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

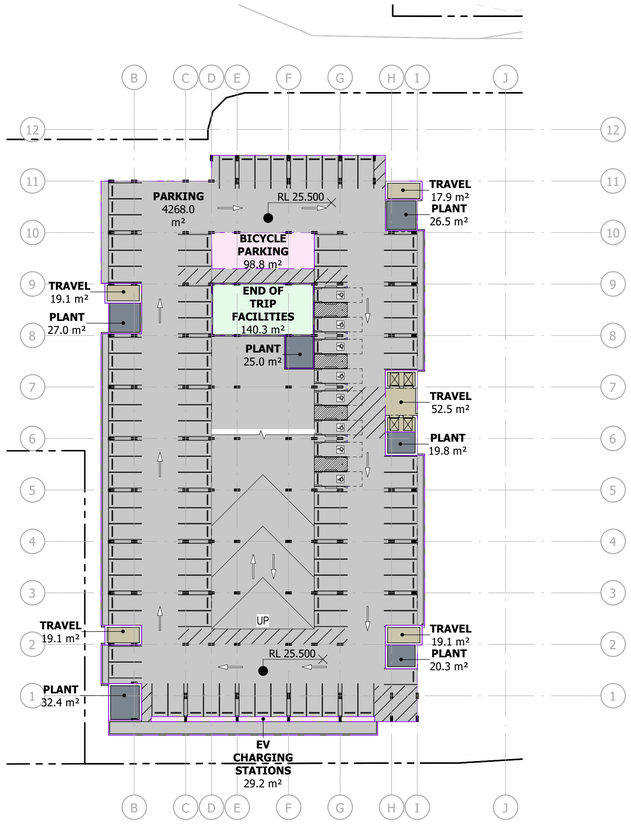
Drawing
IWHC (UNFUNDED0
AREA PLAN_L4, L5, L6,
AREA SCHEDULE

Scale (A1) 1 : 500
Date Printed 1/08/2022 12:21:04 PM

Drawing Number DWP-SKB1202
Issue G

File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R23.rvt

dwp architectus



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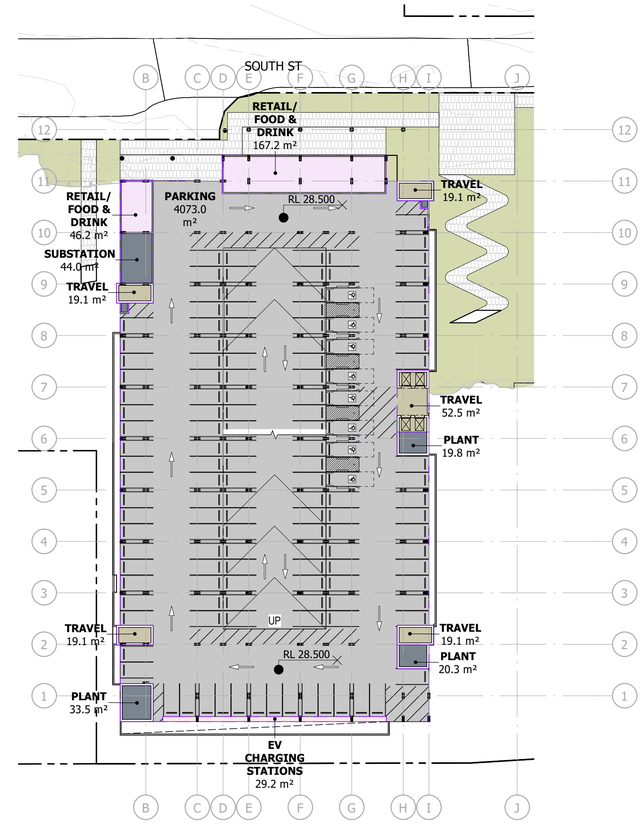

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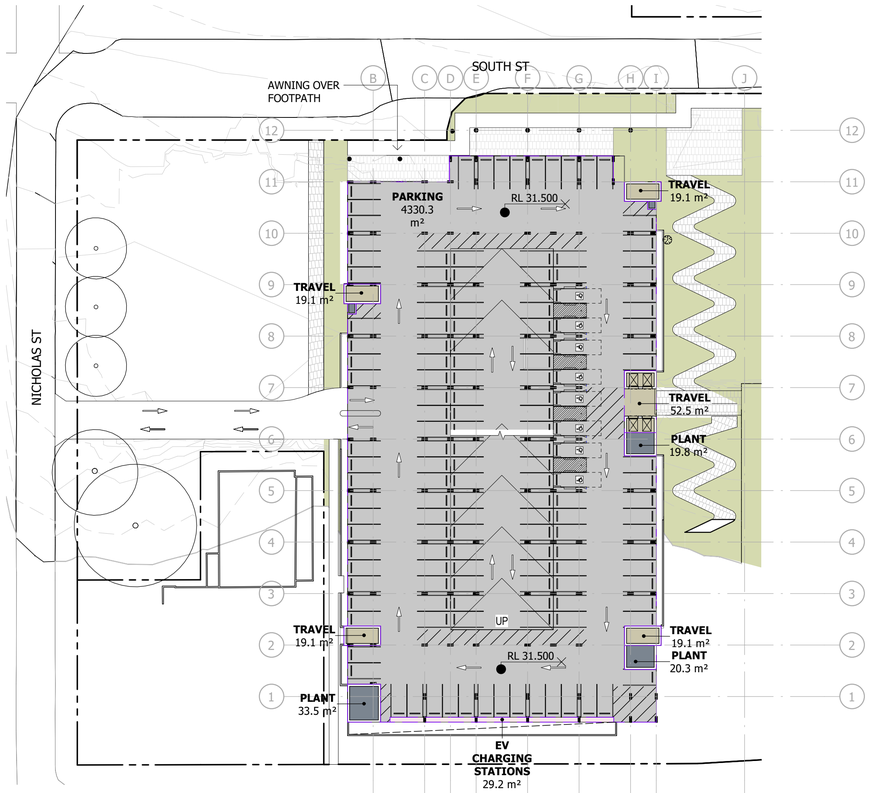

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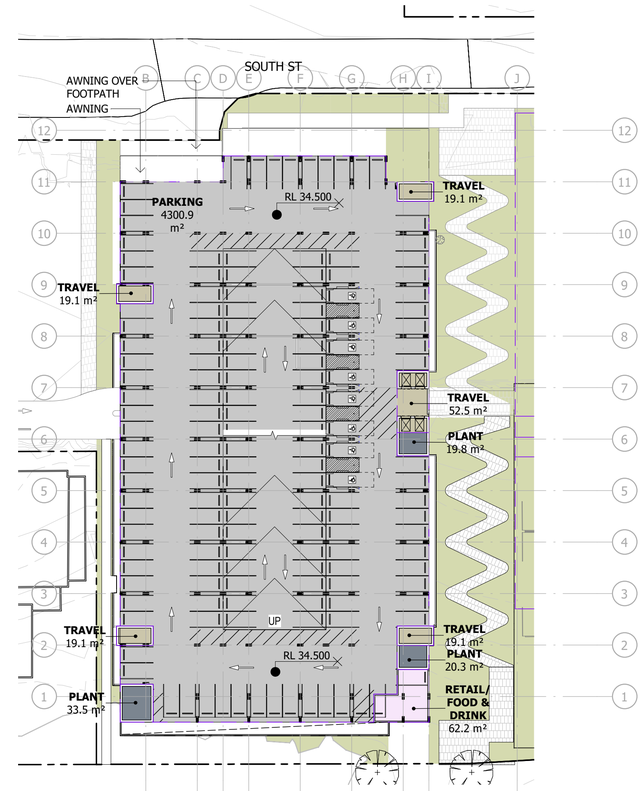

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J	FOR INFORMATION	11.07.22	RB	FM
H	FOR INFORMATION	06.07.22	RB	FM
G	FOR COORDINATION	05.07.22	RB	CL
F	FOR COORDINATION	28.06.22	RB	FM
E	FOR COORDINATION	21.06.22	RB	FM
D	FOR INFORMATION	17.06.22	RB	FM
C	FOR INFORMATION	16.06.22	RB	FM
B	FOR COORDINATION	13.06.22	RB	FM
A	FOR COORDINATION	10.06.22	RB	AM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
MULTI-STOREY CAR PARK (FUNDED)
AREA PLAN_P1, P2, P3, P4

Scale (A1) 1 : 500
Date Printed 5/05/2023 2:43:13 PM

Drawing Number DWP-SKB1203
Issue L

File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IWHC-INT-R23.rvt

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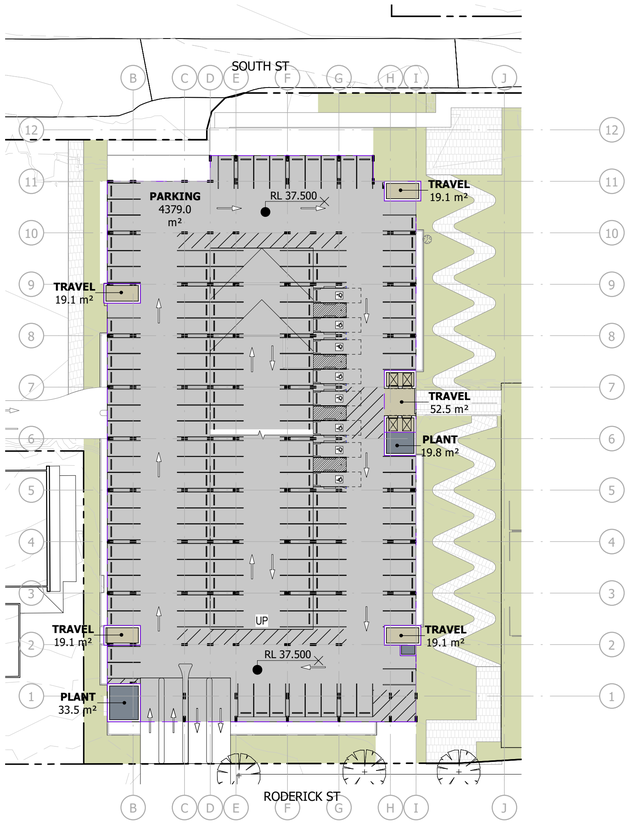
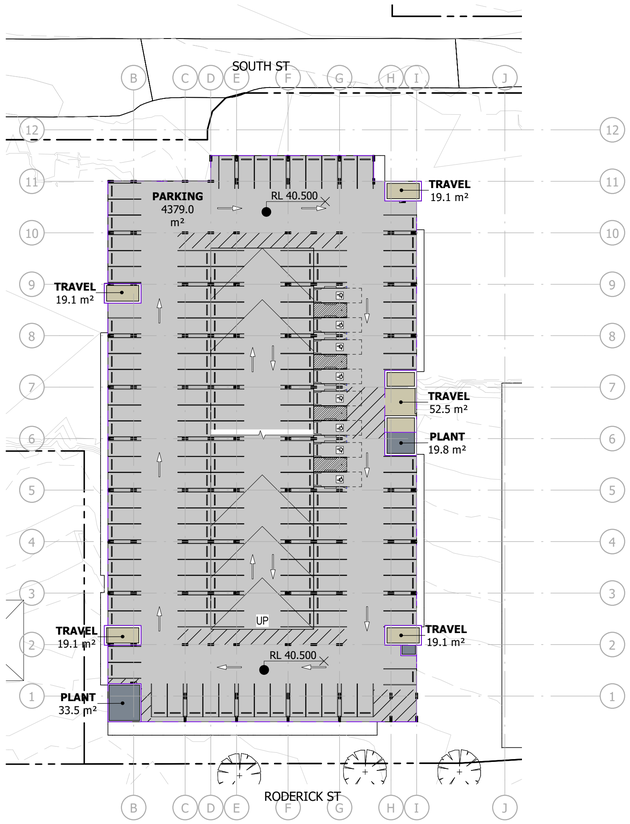


1 P5
1 : 500



2 P6
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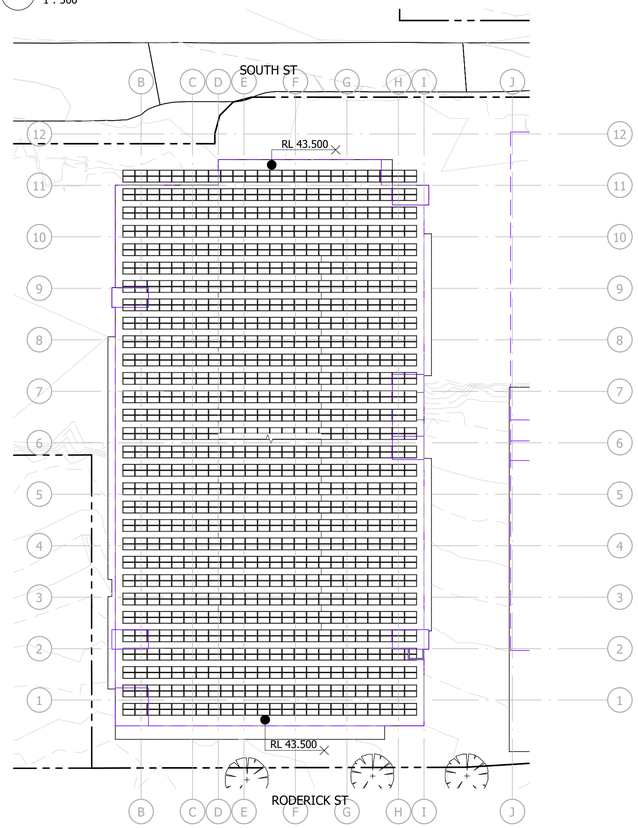

P7/ ROOF
1 : 500

AREA SCHEDULE OVERALL_CAR PARK (P1-P5)		
DESCRIPTOR	Area	Name
PARKING		
P1		
BICYCLE PARKING	98.8 m²	PARKING
END OF TRIP FACILITIES	140.3 m²	PARKING
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4268.0 m²	PARKING
PLANT	151.0 m²	PARKING
TRAVEL	127.9 m²	PARKING
P2		
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4073.0 m²	PARKING
PLANT	75.9 m²	PARKING
RETAIL/ FOOD & DRINK	213.4 m²	PARKING
TRAVEL	110.0 m²	PARKING
P3		
EV CHARGING STATIONS	29.2 m²	PARKING
PARKING	4330.3 m²	PARKING
PLANT	44.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
P4		
PARKING	4300.9 m²	PARKING
PLANT	40.0 m²	PARKING
RETAIL/ FOOD & DRINK	62.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
P5		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
P6		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
Grand total	27369.5 m²	

PARKING SCHEDULE_IWHC 2D.A3 (P1-P5)	
Description	Count
P1	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	13
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	86
P2	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	13
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	116
P3	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	13
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	128
P4	
ACCESSIBLE PARKING SPACE	8
EV PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	13
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	131
P5	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	139
P6	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	144

Grand total: 844

SCHEMATIC DESIGN
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Issue	Description	Date	Chk	Auth
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K	CONCEPT DESIGN REPORT	01.08.22	RB	FM
J	FOR INFORMATION	11.07.22	RB	FM
H	FOR INFORMATION	06.07.22	RB	FM
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C	FOR INFORMATION	16.06.22	RB	FM
B	FOR COORDINATION	13.06.22	RB	FM
A	FOR COORDINATION	10.06.22	RB	AM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
MULTI-STOREY CAR PARK (FUNDED) AREA PLAN P5, P6, PARKING SCHEDULE

Scale (A1) 1 : 500
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Drawing Number DWP-SKB1204
Issue L

File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC INT-R22.rvt

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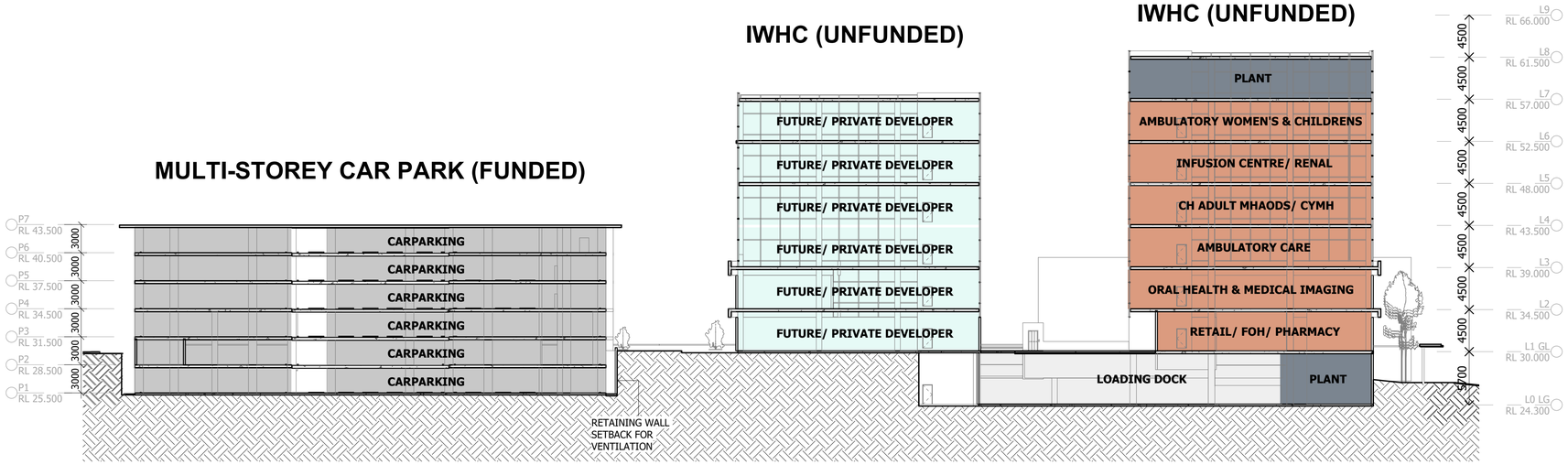

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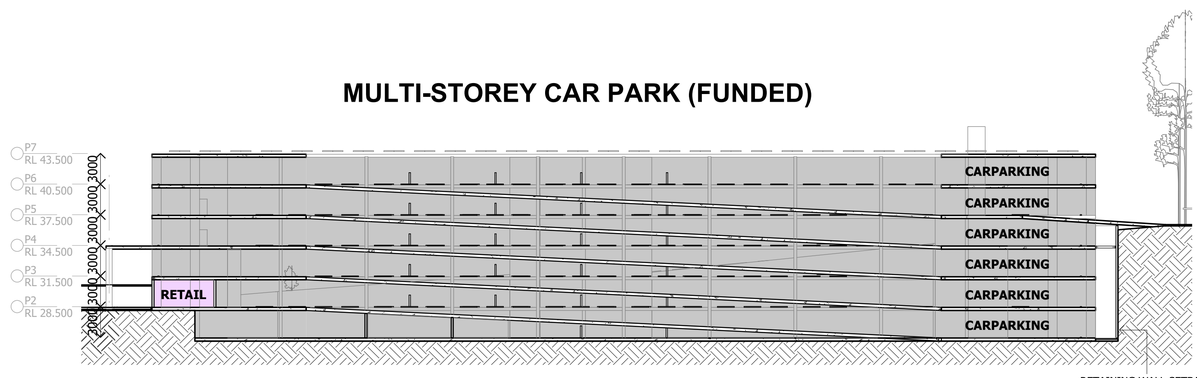

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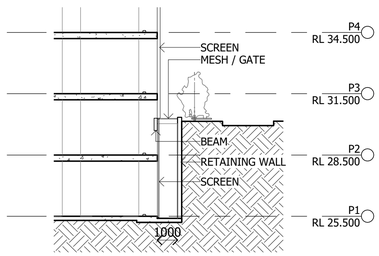

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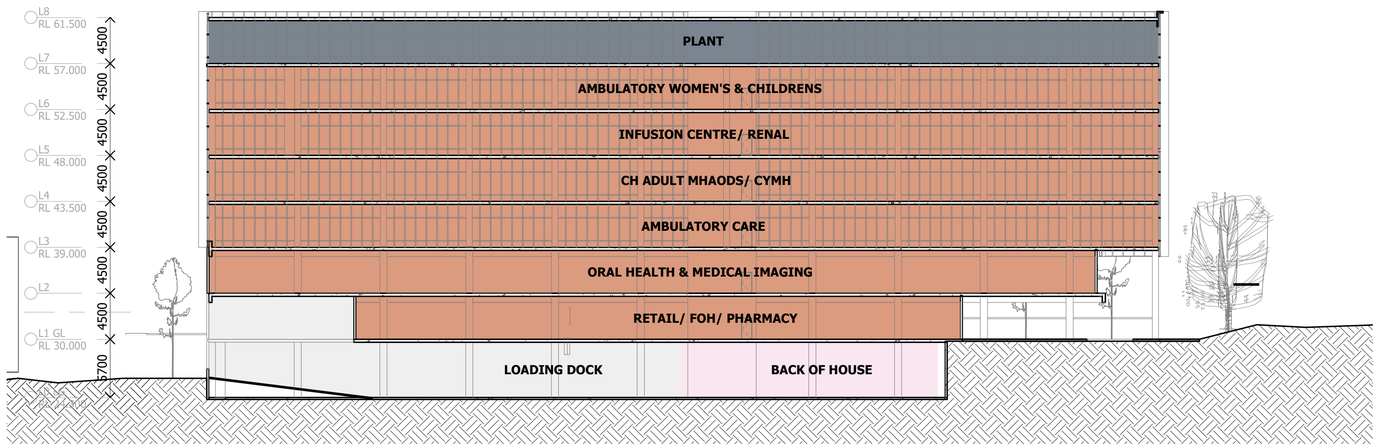

4 SECTION 2 - STAGE 2.3
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SCHEMATIC DESIGN
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G	CONCEPT DESIGN REPORT	01.08.22	RB	FM
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C	FOR INFORMATION	20.06.22	RB	FM
B	FOR INFORMATION	17.06.22	RB	FM
A	FOR COORDINATION	10.06.22	RB	AM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
MULTI-STOREY CAR PARK (FUNDED) SECTIONS IWHC SITE

Scale (A1)
As indicated

Date Printed
5/05/2023 2:43:25 PM

Drawing Number
DWP-SKB3001

Issue
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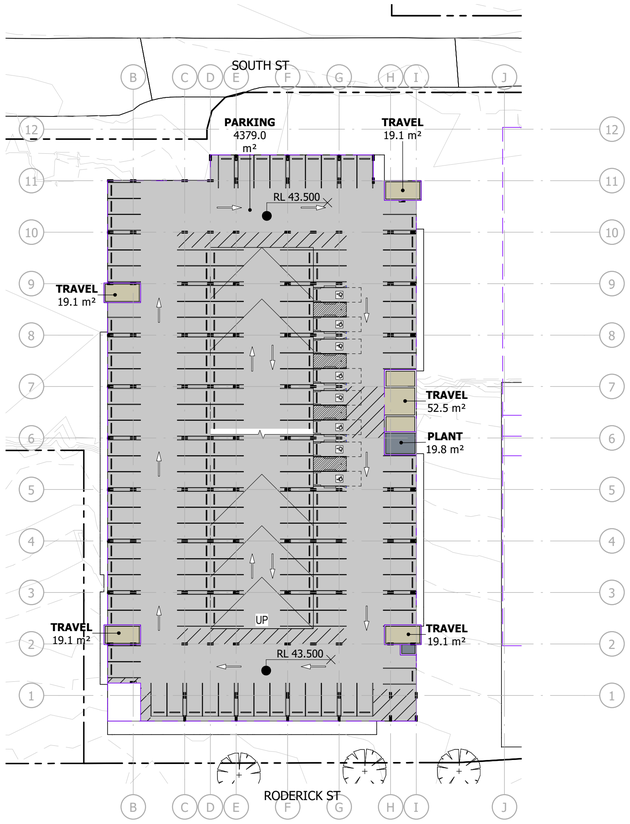
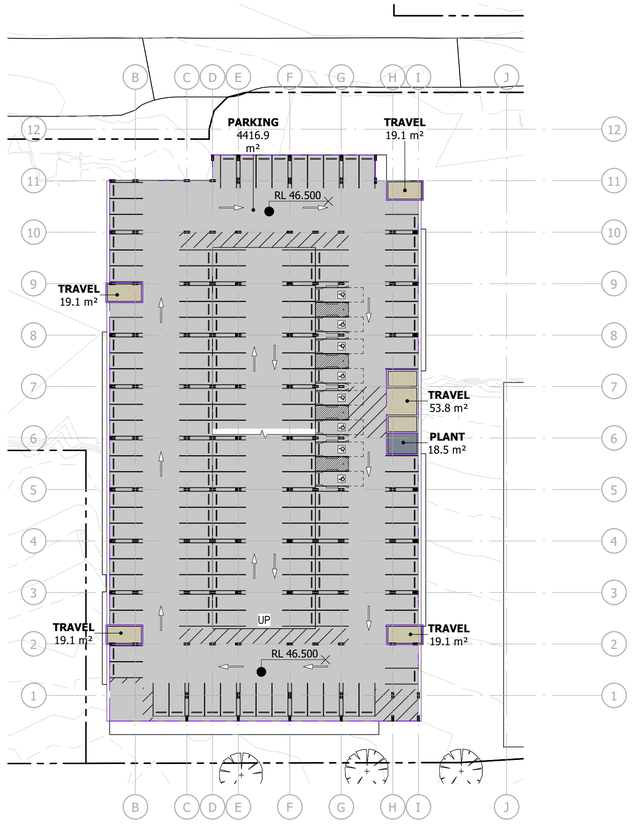


1 P7 STAGE 2.2
1 : 500



2 P8 STAGE 2.2
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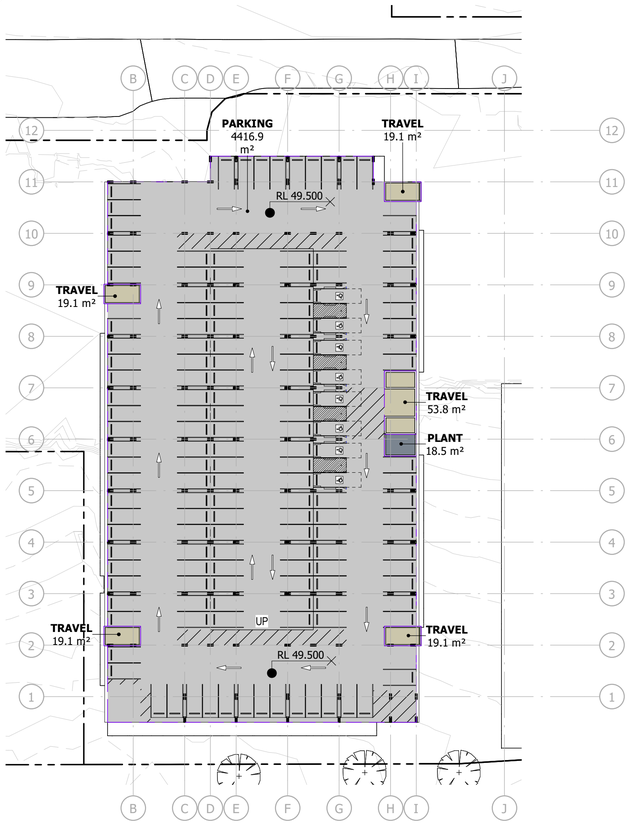

3 P9 STAGE 2.2
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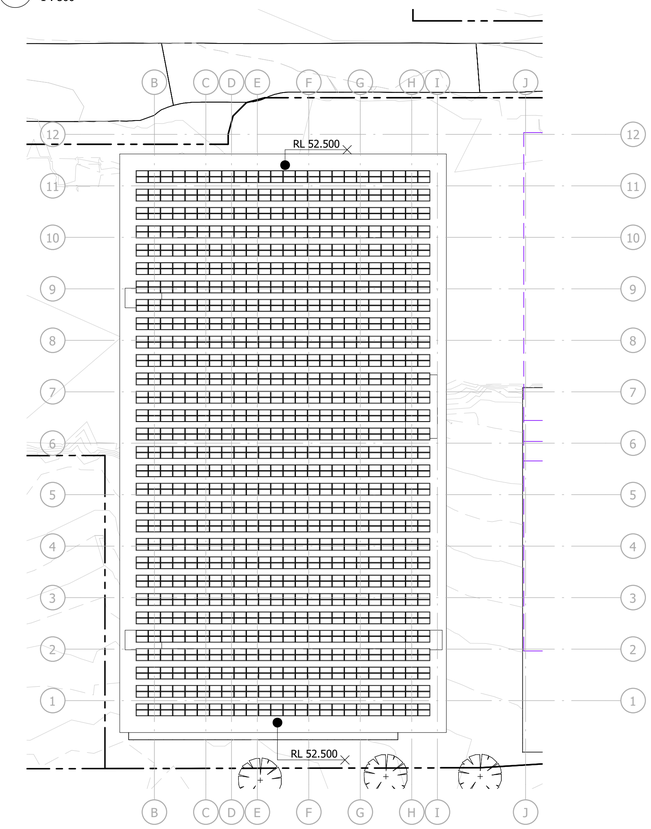

4 P10/ROOF
1 : 500

PARKING SCHEDULE_IWHC 2D.A3 (P7-P9)	
Description	Count
P7	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	144
P8	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	144
P9	
ACCESSIBLE PARKING SPACE	8
PARKING SPACE: 90°/ CLASS 2/ C3/ FRONT-IN/ to kerb lower than 150mm	144

TOTAL: 456

AREA SCHEDULE OVERALL_CAR PARK (P7-P9)		
DESCRIPTOR	Area	Name
PARKING		
P6		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	110.0 m²	PARKING
P7		
PARKING	4379.0 m²	PARKING
PLANT	24.2 m²	PARKING
TRAVEL	129.1 m²	PARKING
P8		
PARKING	4416.9 m²	PARKING
PLANT	18.5 m²	PARKING
TRAVEL	130.4 m²	PARKING
P9		
PARKING	4416.9 m²	PARKING
PLANT	18.5 m²	PARKING
TRAVEL	130.4 m²	PARKING
TOTAL	18176.7 m²	

SCHEMATIC DESIGN
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Issue	Description	Date	Chk	Auth
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E	CONCEPT DESIGN REPORT	01.08.22	RB	FM
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C	FOR INFORMATION	06.07.22	RB	FM
B	FOR COORDINATION	05.07.22	RB	CL
A	FOR COORDINATION	28.06.22	RB	FM

Architects In Collaboration
dwp
architectus

Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
MULTI-STOREY CAR PARK (FUNDED) AREA PLAN P7, P8, P9 PARKING SCHEDULE

Scale (A1) 1 : 500
Date Printed 5/05/2023 2:43:21 PM

Drawing Number DWP-SKB1205
Issue F

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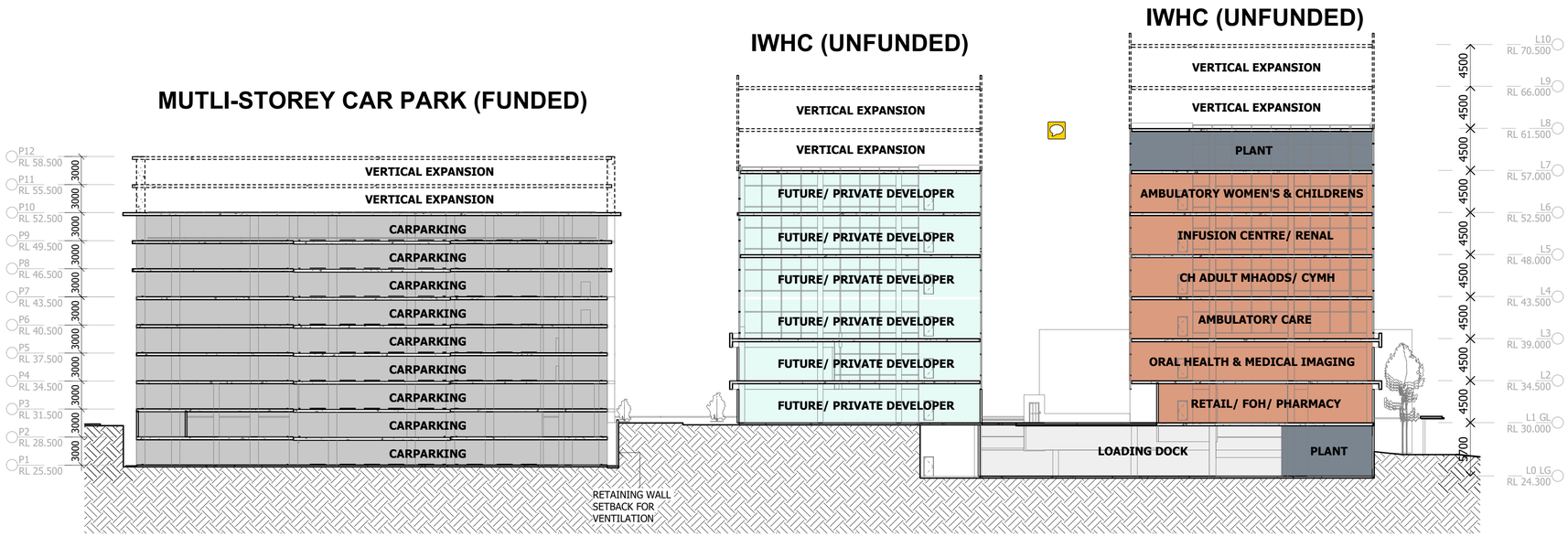
dwp architectus



1 SECTION - FUTURE STAGES
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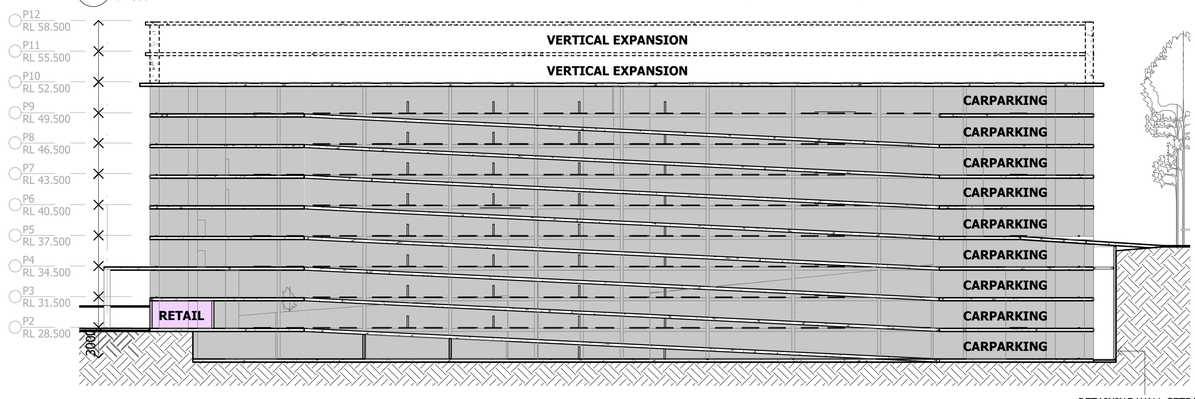

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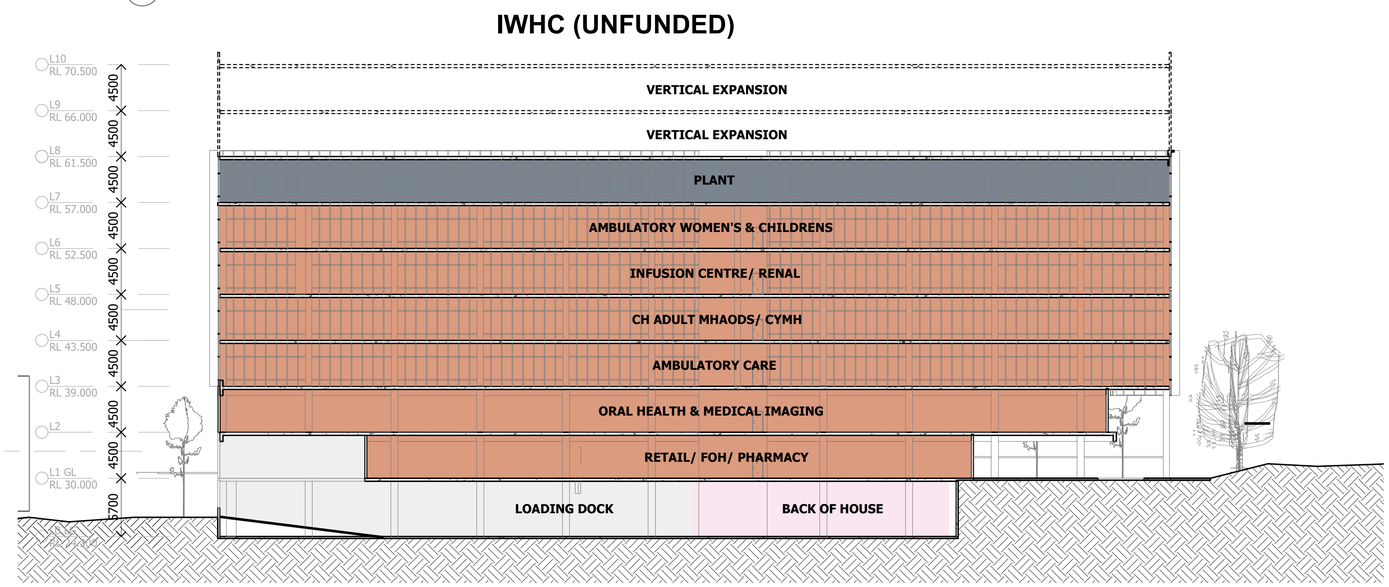

2 SECTION - FUTURE STAGES
1 : 300

Notes

Verify all dimensions and levels on site and report any discrepancies to dwp for direction prior to the commencement of work.

Drawings are to be read in conjunction with all other contract documents.

Use figured dimensions only. Do not scale from drawings.
dwp cannot guarantee the accuracy of content and format for copies of drawings issued electronically. The completion of the Issue Details Checked and Authorised section is confirmation of the status of the drawing. The drawing shall not be used for construction unless endorsed 'For Construction' and authorised for issue.

SCHEMATIC DESIGN
NOT TO BE USED DURING CONSTRUCTION

Issue	Description	Date	Chk	Auth
A	FOR INFORMATION	05.05.23	RB	FM

Architects In Collaboration
dwp
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Client
WEST MORETON HEALTH

Project
Ipswich Hospital DBC_IWHC

Location
CHELMSFORD AVENUE, IPSWICH 4305

Project Number
22-0201

Drawing
SECTIONS IWHC SITE - FUTURE STAGES

Scale (A1) 1 : 300
Date Printed 5/05/2023 2:43:28 PM

Drawing Number DWP-SKB3011
Issue A

File Name: Autodesk Docs://22-0201_Ipswich Hospital DBC/22-0201-AR-IHDBC-IWHC_INT-R22.rvt

dwp architectus

Appendix 6 – Acoustic Assessment

Ipswich Hospital Expansion

Acoustic Report

Noise Impact Assessment for Ministerial Infrastructure Designation

Ipswich Wellness and Health Centre and 5-storey Carpark

28 October 2022

Ref: 301050416

PREPARED FOR:

dwp Australia Pty Ltd
Ron Bridgefoot

PREPARED BY:

Carl Edser

Stantec

Revision

Revision	Date	Comment	Prepared By	Approved By
001	26/08/2022	Draft - for review and comment	CE	MLL
002	28/10/2022	Final	CE	MLL

Contents

Contents

1. Introduction

Stantec Australia Pty Ltd (Stantec) have been engaged by dwp Australia Pty Ltd (dwp) to conduct a noise impact assessment to support the approval of the Ipswich Wellness and Health Centre, Unfunded, (IWHC) and funded 5-storey carpark which forms a part of the Ipswich Hospital Expansion (IHE) project. The project site is located at 50 South Street, Ipswich QLD 4305 (1/SP331207) and is situated within the City of Ipswich Council (CIC).

This report has been prepared to address the requirements for operational noise impacts and addresses the requirements contained within relevant QLD Regulations, Department of Transport and Main Roads Policies (TMR policy) and City of Ipswich Council Policies.

This report addresses the operational noise impacts from the proposal onto noise sensitive receptors external to the project, as well as transportation noise impacts onto the development.

The purpose of this report is to assess the feasibility of the project from a noise perspective and has been based on proposed designs at the time of assessment. Whilst these are subject to change, the overall noise impacts are unlikely to vary significantly; hence, the assessment findings presented in this report are considered representative of the overall noise emissions from the project.

The acoustic assessment contained in this report has been informed based on onsite noise surveys, our understanding of the proposed development, the application of the relevant Regulations, Policies, Australian Standards Design Guidelines, as well as Stantec's professional experience within the acoustic field.

A glossary of acoustic terms used in this report a glossary is included in **Appendix A**.

The recommendations made in this report are specific to the project design at the date of issue of this report. The project design may be subject to change during the following stages. Where this occurs, the assumptions made to inform the recommendations in the report may no longer be valid; therefore, further advice should be sought to ensure that the acoustic outcomes presented in this report are achieved.

The performance of products referred to in this report are made to meet the acoustic requirements only. It does not consider other aspects, including but not limited to thermal, wind, impact, structural, mechanical, national construction code, security and fire requirements. Relevant discipline reports, drawings and specifications should be referred to for conformance.

This report relates to this specific project and must not be applied to any other project without prior consultation with Stantec. Designs and conditions can vary between projects causing significant variations in acoustic performance and relevant subsequent advice to one project may not apply to another.

This report shall not be relied upon as providing any warranties or guarantees of construction quality regarding acoustics.

2. Referenced Documentation

2.1 Applicable Regulations, Policies and Standards

The following acoustic design related documentation pertinent to the project and referenced in this document are outlined in **Table 1**.

Table 1: Applicable acoustic design related documentation referenced in this report

Title	Abbreviation
REGULATIONS AND LOCAL COUNCIL POLICIES	
City of Ipswich – Ipswich Planning Scheme	CIC Planning Scheme
Department of Transport and Main Roads – Road Traffic Noise Management: Code of Practice.	TMR Code
Department of Transport and Main Roads (TMR) – Development Affected by Environmental Emissions from Transport Policy (v.4.0 October 2017)	TMR Policy
Queensland Environmental Protection (Noise) Policy 2019	EPP 2019
Queensland Environmental Protection Act 1994	EPA 1994
State Development Assessment Provisions – State Code 1 v3.0	SDAP SC1
AUSTRALIAN AND INTERNATIONAL STANDARDS	
Australian / New Zealand Standard AS/NZS 2107:2016 – *Acoustics – Recommended design sound levels and reverberation times for building interiors*	AS 2107
Australian Standard AS 1055.1-1997 – *Acoustics – Description and measurement of environmental noise*	AS 1055
OTHER RELEVANT GUIDELINES	
Association of Australasian Acoustical Consultants (AAAC) – *Guideline for Healthcare Facilities (v2.0)*	AAAC Guideline

2.2 Study Inputs

Acoustic assessment and the preparation of this report have been conducted based on the following received documentation detail in **Table 2**.

Table 2: Received documentation

Date Received	Detail	Date Prepared	Prepared by	Format
11/07/2022	IWHC and carpark concept drawings: • *refer to 22-0201 Drawing and Document Register_B_ 220711*	11/07/2022	dwp	pdf

3. Project Details

3.1 Proposed Developments

Ipswich Wellness and Health Centre -Unfunded (IWHC)

- Back Of House
- Functional Spaces
- Loading Dock
- Operational Support
- Plant
- Travel
- Travel Stair

Carpark - Funded

- Bicycle Parking
- End Of Trip Facilities
- EV Charging Stations
- Parking (≈ 700 spaces)
- Plant
- Travel

3.2 Site Description

3.2.1 Project Location

The Ipswich Wellness and Health Centre Unfunded (IWHC) and funded 5-storey carpark project site is located at 50 South Street, Ipswich QLD 4305 (1/SP331207). The project site, in addition to noise monitoring locations are indicated in **Figure 1**.

Source: Nearmap (link) | Annotations by Stantec

3.2.2 Surrounding Land Uses / Zoning

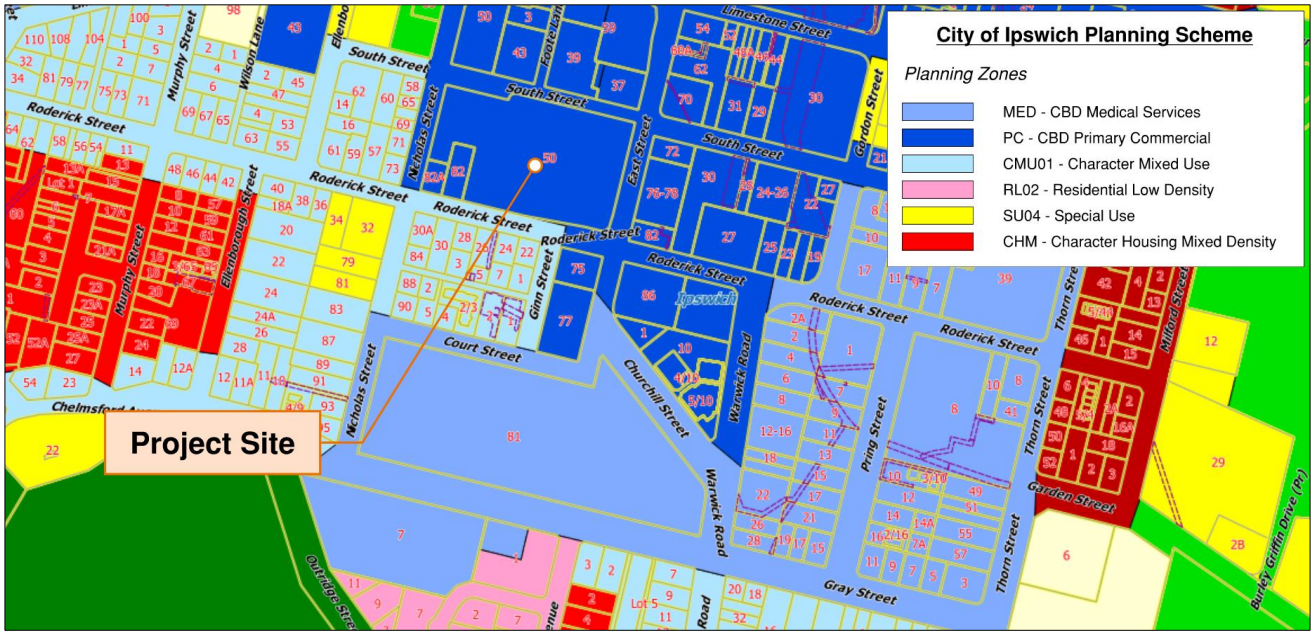
The City of Ipswich Planning Scheme – Interactive Mapping (online) was accessed and reviewed on the 23rd June 2022 to determine existing and proposed land uses for areas surrounding the project site (see **Figure 2**). The following was identified:

- The project site is zoned IWHC / Car park site – PC - CBD Primary Commercial.
- Existing lots surrounding the proposed site generally consist of the following land uses:
    - MED - CBD Medical Services;
    - PC - CBD Primary Commercial;
    - CMU01 – Character Mixed Use;

- RL02 – Residential Low Density;
- SU04 – Special Use; and
- CHM – Character Housing Mixed Density.

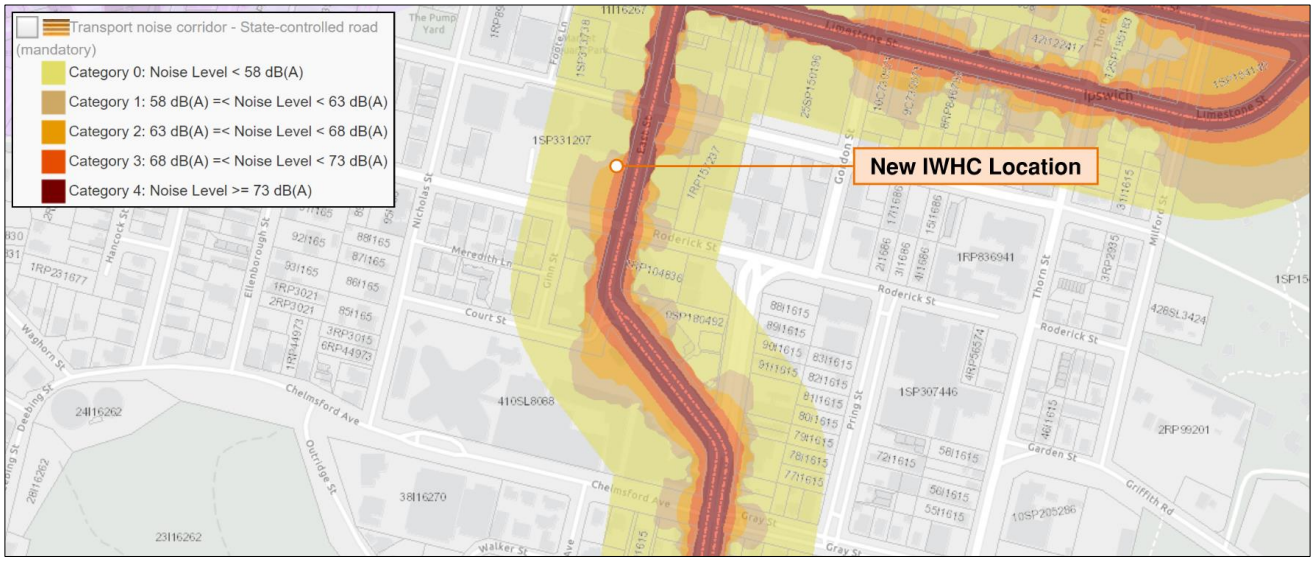
- The project sites are located within noise contours associated with:
  - Transport Noise Corridors – State-controlled Roads (up to Category 3: 68-73 dB(A) – see **Figure 3**);
- The project site is not located within noise contours associated with:
  - Australian Noise Exposure Forecast (ANEF, aircraft); and
  - Transport Noise Corridors – Rail.

Figure 2: City of Ipswich Planning Scheme – Land use zonings



Source: City of Ipswich Planning Scheme – Interactive Mapping (online) | Annotations by Stantec

Figure 3: QLD Government State Planning Policy – Transport Noise Corridors – State-controlled Roads



Source: QLD Government State Planning Policy – Interactive Mapping System – Transport Infrastructure | Annotations by Stantec

3.3 Existing Acoustic Environment

3.3.1 General

As a part of the Ipswich Hospital DBC for Stage 1, Stantec undertook an attended and unattended noise monitoring to establish environmental noise impacts on the previous project. Whilst measurements were conducted in mid-November 2018, site noise levels measured are generally expected have remained unchanged for the following reasons:

- annual average daily traffic volumes (considered as the dominant noise source influence site noise levels) have not generally increased (see link); and
- there have not been any major developments in areas surrounding the project site since the measurements were conducted.

Based on the above, the noise measurements previously conducted by Stantec are considered appropriate for acoustic assessment purposes for the current period.

3.3.2 Attended Noise Measurements

Attended noise measurements were conducted near to the project site at the location shown in **Figure 1** on the 21st November 2018. The measured data, presented in **Table 3**, will be used during subsequent design stages for the purpose of calibrating an acoustic simulation model to determine road traffic noise impacts on the proposed developments.

Table 3: Attended noise measurement summary

Time start	Time stop	$L_{Aeq,T}$	L_{AMax}	L_{Amin}	L_{A1}	L_{A10}	L_{A90}
14:00:00	14:10:00	66	85	50	78	67	54
14:10:00	14:20:00	65	81	51	76	67	55
14:20:00	14:30:00	64	78	51	73	67	56
14:30:00	14:40:00	65	84	53	74	68	57
14:40:00	14:50:00	65	83	51	76	67	54
14:50:00	15:00:00	69	92	51	77	67	55
15:00:00	15:10:00	65	77	52	73	68	55
15:10:00	15:20:00	68	88	53	81	67	57
15:20:00	15:20:00	61	64	57	64	64	58

3.3.3 Unattended Noise Monitoring (Noise Logging)

To quantify the existing noise environment on site and specify noise limits, unattended noise monitoring (noise logging) was conducted from Wednesday 21st November 2018 to Wednesday 28th November 2018 (inclusive).

The indicative location of each noise monitoring location has been shown in **Figure 1**.

Noise measurements were conducted following guidance from Australian Standard AS 1055:2018 – *Acoustics – Description and measurement of environmental noise*, and the instruments were configured as follows:

- A-weighting frequency response;
- FAST time response; and
- 15-minute intervals.

The sound level meter was calibrated before and after the measurement period. The instrument showed a drift less than ±1 dB during the course of monitoring; therefore, measurements are considered valid according to AS 1055:2018.

A summary of relevant of the average unattended noise levels recorded at the measurement location are presented in **Table 4**. For further details and full measured results, refer to **Appendix B**.

Table 4: Summary of relevant noise descriptors used to determine noise limits and inform acoustic assessment

Monitoring Location	Equivalent Continuous Noise Level, L_{eq} dB(A)			Background Noise Level, $L_{90,T}$ dB(A)			Rating Background Level dB(A)			$L_{A10(18hr)}$
	Day [1)]	**Evening** [1)]	**Night** [1)]	**Day**	**Evening**	**Night**	**Day**	**Evening**	**Night**	
001	63	60	57	49	45	42	49	44	41	64
002	58	65	56	48	47	41	47	42	39	60

NOTES:

Day – 7am-6pm | Evening – 6pm-10am | Night – 10pm-7am

4. Acoustic Criteria

4.1 Environmental Noise Emissions

4.1.1 City of Ipswich – Ipswich Planning Scheme

The proposed site is located within the boundaries of the City of Ipswich. To establish allowable noise levels from the proposed developments, the City of Ipswich Planning Scheme refers to the Environmental Protection Act 1994 (EPA 1994).

4.1.2 Queensland Environmental Protection Act 1994

The objective of the Queensland Environmental Protection Act 1994 (EPA 1994) is *"to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends."*

To uphold this intent, and of relevance to Stantec's acoustic assessment for the project, the EPA 1994 defines a series of noise-related standards in Chapter 8, Part 3B Offences relating to noise standards. The following is considered applicable to the project.

Section 440R Building work

(1) A person must not carry out building work in a way that makes an audible noise—
- *(a) on a business day or Saturday, before 6.30a.m. or after 6.30p.m; or*
- *(b) on any other day, at any time.*

(2) The reference in subsection (1) to a person carrying out building work—
- *(a) includes a person carrying out building work under an owner-builder permit; and*
- *(b) otherwise does not include a person carrying out building work at premises used by the person only for residential purposes.*

Section 440T Pumps

(1) This section applies to premises at or for which there is a pump.

(2) An occupier of the premises must not use, or permit the use of, the pump on any day—
- *(a) before 7a.m, if it makes an audible noise; or*
- *(b) from 7a.m. to 7p.m, if it makes a noise of more than 5dB(A) above the background level [1] ; or*
- *(c) from 7p.m. to 10p.m, if it makes a noise of more than 3dB(A) above the background level; or*
- *(d) after 10p.m, if it makes an audible noise.*

(3) Subsection (2) (a), (c) and (d) do not apply to a noise made at an educational institution, that is not more than 5dB(A) above the background level.

(4) In this section—
"pump" —
- *(a) means an electrical, mechanical or pneumatic pump; and*
  Examples—
  liquid pump, air pump, heat pump
- *(b) includes a swimming pool pump and a spa blower.*

Section 440U Air-conditioning equipment

(1) This section applies to premises at or for which there is air-conditioning equipment.

(2) An occupier of the premises must not use, or permit the use of, the equipment on any day:
- *(a) before 7am, if it makes a noise of more than 3dB(A) above the background level; or*

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[1] *NOTE: According to the EPA 1994:*

- *Background level means the background A-weighted sound pressure level under the prescribed standard measured as $L_{A90,\,T}$.*
- *$L_{A90,T}$ means the A-weighted sound pressure level obtained using time weighting 'F' that is exceeded for 90% of the measuring period (T).*

(b) from 7am to 10pm, if it makes a noise of more than 5dB(A) above the background level; or
(c) after 10pm, if it makes a noise of more than 3dB(A) above the background level.

Section 440V Refrigeration equipment

(1) This section applies to a person who is—
(a) an occupier of premises at or for which there is plant or equipment for refrigeration ("refrigeration equipment"); or
(b) an owner of refrigeration equipment that is on or in a vehicle, other than a vehicle used or to be used on a railway.
(2) The person must not use, or permit the use of, the refrigeration equipment on any day—
(a) before 7a.m, if it makes a noise of more than 3dB(A) above the background level; or
(b) from 7a.m. to 10p.m, if it makes a noise of more than 5dB(A) above the background level; or
(c) after 10p.m, if it makes a noise of more than 3dB(A) above the background level.
(3) In this section—
"vehicle" includes a trailer.

4.1.3 Environmental Protection (Noise) Policy 2019

The Environmental Protection (Noise) Policy 2019 (EPP 2019) identifies environmental values to be enhanced or protected, states acoustic quality objectives, and provides a framework for making decisions about the acoustic environment.

Schedule 1 Acoustic Quality Objectives

The acoustic quality objectives are stated in Schedule 1 of the *Queensland Environmental Protection (Noise) Policy 2019.* In accordance with EPP 2019, the acoustic quality objectives are stated for a defined type of noise sensitive use and specified period of the day (reproduced in **Table 5**). The environmental values which EPP 2019 aims to enhance or protect are also stated. It is intended that the acoustic quality objectives be progressively achieved as part of achieving the purpose of EPP 2019 over the long term.

Table 5: Acoustic quality objectives as defined in Schedule 1 of the EPP 2019

Sensitive Receptor	Time of Day	Acoustic Quality Objectives [1] (measured at the receptor) dB(A)			Environmental Value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
residence (for outdoors)	daytime and evening	50	55	65	health and wellbeing
residence (for indoors)	daytime and evening	35	40	45	health and wellbeing
	night-time	30	35	40	health and wellbeing, in relation to the ability to sleep

Notes:
1) The $L_{Aeq,Adj,T}$ noise limits apply to all noise sources, whilst the $L_{A10,Adj,1hr}$ and $L_{A1,Adj,1hr}$ only apply to intermittent noise sources (i.e., excludes air conditioning).

4.2 External Noise Intrusion

4.2.1 QLD State Development Assessment Provisions – State Code 1

Given the project sites are considered affected by the environmental emissions from state transport corridors (refer to **Section 3.2.2**), the applicable performance outcomes and acceptable outcomes defined in Table 1.2.1 of the QLD State Development Assessment Provisions – State Code 1 v3.0 (SDAP SC1) and have been reproduced in **Table 6** and **Table 7**.

Table 6: Performance outcomes and acceptable outcomes pertaining to external noise in SDAP SC1

Performance outcomes	Acceptable outcomes
Ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor	
PO46 Development involving: 3. patient care areas in a hospital achieves the maximum internal acoustic level in reference table 3 (items 3.2-3.4) (see **Table 7**).	No acceptable outcome is provided.
Above ground floor level requirements (childcare centre, educational establishment, hospital) adjacent to a state-controlled road or type 1 multi-modal corridor	
PO48 Development involving: 3. patient care areas in a hospital located above ground level, is designed and constructed to achieve the maximum internal acoustic level in reference table 3 (items 3.2-3.4) (see **Table 7**).	No acceptable outcome is provided.
Air, light and vibration	
PO50 Patient care areas within hospitals are protected from vibration impacts from a state-controlled road or type 1 multi-modal corridor.	**AO50.1** Hospitals are designed and constructed to ensure vibration in the patient treatment area does not exceed a vibration dose value of 0.1m/s$^{1.75}$. AND **AO50.2** Hospitals are designed and constructed to ensure vibration in the ward of a patient care area does not exceed a vibration dose value of 0.4m/s$^{1.75}$.

Table 7: Maximum internal acoustic levels (Table 3 of SDAP SC1)

Applicable use [1)]	Acoustic level
3.4: Patient care areas in a hospital	≤ 35 dB(A) L_{eq} (1 hour) (maximum hour over 24 hours)
Notes: 1) Items 3.2 and 3.3 apply to areas associated with childcare centre; however, the criteria stated is identical.	

4.2.2 External Noise Impacts from Transport (TMR Policy)

The *Development Affected by Environmental Emissions from Transport* (TMR Policy) outlines the Department of Transport and Main Roads policy position on the development of land affected by environmental emissions (noise, vibration, air emissions and particles and light) from linear transport operations and infrastructure.

The TMR Policy also defines suitable internal and external noise limits for varied uses within proximity of state-controlled noise corridors, which are reproduced in **Table 8** and **Table 9**.

Table 8: Primary (external) noise criteria for new sensitive development

State transport corridor	Development type	Location within development	Environmental criteria
State-controlled road or multi-modal corridor (does not include a railway or includes < 15 single railway events	Health care services / hospitals and educational establishments	All facades	≤ 58 dB(A) $L_{A10,1hr}$ façade corrected (maximum hour during normal opening hours)
		Outdoor education areas Passive recreation areas	≤ 63 dB(A) $L_{A10,12hr}$ free field (between 6am and 6pm)

Table 9: Secondary (internal) noise criteria for new sensitive development

State transport corridor	Development type	Location within development	Environmental criteria
State-controlled road, busway, light rail or multi-modal corridor (does not include a railway or includes <15 single railway events)	Health care services, hospitals, accommodation activities and educational establishments	Patient care areas, habitable rooms (at all times) and indoor education areas	$L_{Aeq,1hr}$ ≤ 35 dB(A) (maximum hour during normal opening hours)

4.3 Building Acoustics Design

4.3.1 Queensland Health – Capital Infrastructure Requirements

The aim of the Queensland Health Capital Infrastructure Requirements (QH Guidelines) *"is to provide a consistent and standardised approach to health capital infrastructure planning and design in Queensland Health, which directly links client requirements to the built solution and promotes the application of contemporary and evidenced-based standards."*

The minimum acoustic performance requirements specified by the QH Guidelines are outlined in the following sections. Generally, the criteria established by the QH Guidelines are based on:

- Australian Standard AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS 2107);
- Association of Australasian Acoustical Consultants *Guideline for Healthcare Facilities* v2.0 (AAAC Guidelines).

4.3.2 Internal Noise Levels

The internal noise levels criteria specified by the QH Guidelines are based on the recommendations provided in the Australian / New Zealand Standard AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS 2107). The design sound level range defined in AS 2107 applies to the combined noise levels from continuous sources such as building services (e.g., supply, breakout, return etc.) and external noise intrusion (e.g., road traffic noise etc.).

A summary of the recommended design sound level range for internal spaces within health buildings have been reproduced from AS 2107 in **Table 10**.

Table 10: Recommended design sound level range and reverberation times (AS 2107)

Type of occupancy/activity	Design sound level (Leq,t) range, dB(A)
HEALTH BUILDINGS	
Audiological test rooms	See AS/NZS 1269.4 and AS ISO 8253
Emergency areas	40 to 45
Control rooms	40 to 50
Corridors and lobby spaces	50
Consulting rooms	40 to 45
Delivery suites	45 to 50
Dental clinics	40 to 45
Dining areas	40 to 45
Geriatric rehabilitation	40 to 45
Intensive care wards	40 to 45
Kitchens, sterilizing and service areas	55

Type of occupancy/activity	Design sound level (Leq,t) range, dB(A)
Laboratories	40 to 50
Maintenance workshops	< 60
MRI/CT Scan/X-Ray areas/Ultrasound	45 to 50
Nurseries	35 to 45
Nurses' stations	40 to 45
Office areas	35 to 45
Operating theatres	40 to 50
Patient lounge	40 to 45
Post-Op, Pre-Op, recovery rooms	40 to 45
Pharmacies	45 to 50
Staff rooms	40 to 45
Sterilizing areas in operating theatres	40 to 45
Surgeries/treatment/procedure rooms	40 to 45
Utility rooms	50 to 60
Ward bedrooms, single bed	35 to 40
Ward bedrooms, multiple beds	35 to 40
Waiting rooms, reception areas	40 to 50
OFFICE BUILDINGS	
Board and conference rooms	30 to 40
Video/audio conference rooms	30 to 40

5. Noise Impact Assessment

5.1 Environmental Noise Emissions

5.1.1 Building Services Plant

Noise emissions from all mechanical plant proposed for the project are required to comply with the relevant environmental noise limits outlined in **Section 4.1**.

At this stage, specific details regarding mechanical plant selections and finalised locations are not typically available; therefore, detailed calculations of proposed selections are not practical or possible to undertake. In lieu of this, preliminary calculations were conducted based on first principle formulation to estimate the maximum permissible sound power levels (L_W) for the combined plant which is expected to comply with the environmental noise criteria.

The preliminary assessment has been based on the minimum distance between the nearest noise sensitive locations and nearest relative façade of each proposed development. Noise attenuation factors such as sound source directivity, building shielding effects, noise barriers and other noise control measures have not been applied. The maximum permissible sound power level of combined plant during each period of the day are detailed in **Table 11**.

Table 11: Maximum permissible sound power level of combined building services plant

Building	Period	Applicable noise limits at residential boundary, $L_{A90,T}$ dB(A)	Maximum permissible sound power level of combined plant – L_W, dB(A)
IWHC	**7 AM – 6 PM**	53	94
	6 PM – 10 PM	50	91
	10 PM – 7 AM	44	85

It shall be noted that the maximum permissible source noise levels defined above are provided as a basis for further acoustic assessment are not intended to limit equipment noise levels. Further, results are to be considered preliminary only, where the sole purpose is to assess the viability of the project from a noise perspective; therefore, a development approval condition **should not** be imposed based on the predicted sound power levels above. Instead, the environmental noise emissions of all relevant plant items pertaining the Project should be assessed in combination during the following design stages once the number of and actual noise emission and location of specific items of plant are established. The requirements and the extent of noise control measures should be specified during these stages to ensure the proposed noise limits are met.

The following general concepts for noise control from building services to be considered for costing are;

- Selection of the quiet plant such as magnetic bearing chillers and low-noise cooling tower fans;
- Implementing vibration isolation for all services to minimise structure-borne noise effects; and
- Inclusion of barriers, acoustic louvres, intake and discharge attenuators and duct linings (where permissible) to achieve internal, external and environmental noise targets.

In addition to compliance with statutory noise limits applicable outside the project site, source noise levels shall be appropriately designed to provide a reasonable degree of acoustic amenity to outdoor areas of the proposed developments (refer to **Section 4.3**). Therefore, the following is also recommended;

- Plant room openings are generally located on the roof (vertical); and
- Weak acoustic paths, such as openings, louvres, intake or discharge paths, doors, lightweight partition elements and minimised.

5.1.2 Emergency Backup Generators

Due to the infrequent operation of generators, it is considered unreasonable to assess noise emissions against the noise limits established in the Environmental Protection (Noise) Policy 2019, which would normally apply since there are no specific requirements pertaining to emergency generators under EPA 1994.

It is assumed that any emergency backup generator/s provided as a part of this project will primarily operate during testing regimes within daytime hours (i.e., 7 AM – 6 PM) and only operate during night-time periods (i.e., 10 PM – 7 AM) in emergency situations (i.e., power-loss following bushfire / storm / flood etc.), Stantec considers that a reasonable environmental noise impact outcome is to assess all hours against the daytime noise limit of L_{eq} 54 dB(A) (i.e., daytime measured background noise level L_{A90} 49 dB(A) + 5 dB) at the boundary of the nearest noise sensitive receptor.

Noise control devices, such as silencers / mufflers and plant space acoustic attenuators and louvres, as well as vibration isolation treatments to reduce structure-borne noise impacts to be investigated as the design progresses and plant selection details are provided.

5.1.3 Loading Docks

A loading dock is proposed for location on the lower level of the IWHC. Due to the location, noise associated with activities occurring within the loading are generally expected to be contained by the proposed building structure and hence, not expected to significantly contribute to the existing acoustic environment at noise sensitive locations.

To assist the reduction of noise emissions from the loading dock, the project design shall:

- Consider application of sound absorptive linings to the underside of the soffit to minimise reverberant noise build up;
- Encourage use of the loading dock during daytime hours to minimise potential disturbance to the residents.

5.1.4 5-storey Carpark

A new 5-storey carpark will be provided towards the west of the project site at the location shown in **Figure 1**. Based on the documentation received, it is expected that the proposed carpark will accommodate 700 – 800 vehicles.

Primary access will be via a main entrance along Roderick St, with additional access via Nicholas St at the west of the site.

Review of online imaging (Nearmap and CIC Planning Scheme), the nearest noise sensitive uses to the proposed carpark are located at:

- 65 – 73 Nicholas St, Ipswich QLD 4305 (zoned Character Mixed Use);
- 43 South St, Ipswich QLD 4305 (Aged Care Facility – zoned CBD Primary Commercial); and
- 22 – 30A Roderick St, Ipswich QLD 4305 (zoned Character Mixed Use).

Whilst the acoustic-related impacts on adjacent noise sensitive receptors are likely negligible when compared to the existing acoustic environment (refer to **Section 3.3**), impacts from the carpark will depend on the expected frequency of use and operating hours. Impulsive noise from car parking activity and vehicle movement within the carpark may be audible at noise sensitive locations; however, not expected to be obtrusive.

In addition, further noise generation can be expected from the traffic generation due to the capacity. Sensitive receptors along roadways with access points to the carpark will likely to be impacted by the additional noise.

The following noise control measures are generally recommended to minimise potential impacts from the proposed car park:

- General slab gradings shall be constructed as flat as is practicable to minimise engine noise / strain.
- Minimise speed bumps where in proximity to noise sensitive uses.
- Ensure gutter drain covers are sufficiently recessed to the grade of the driveway / slab and well fabricated to minimise additional noise as vehicles drive over.
- Consider application of sound absorptive linings to the underside of the carpark soffits to minimise reverberant noise build up.
- Screening / acoustic louvres / barriers to the perimeter of the carpark which interrupt the direct line of sight to all noise sensitive receivers will generally assist with noise emissions from site vehicle operations.

We will work with the project team and advise on the extent and performance of acoustic treatments necessary for mitigating noise impacts to surrounding noise sensitive uses.

5.2 External Noise Intrusion

5.2.1 Assessment Overview

The QLD Government State Planning Policy – Interactive Mapping System indicates that the IWHC will be situated within a Transport noise corridor – State-controlled Road (up to Category 3: Noise Level 68-73 dB(A) – see **Figure 3**).

Where buildings proposed for the project are situated within the respective noise contours, these shall be designed to comply with the requirements outlined by SDAP SC1 and TMR Policy (refer to **Section 4.2**).

With the aid of environmental noise modelling software (SoundPLAN), acoustic assessment of road traffic noise impacts has been conducted in accordance with TMR Code, to determine both the façade performance requirements to achieve internal noise level objectives, as well as any screening requirements required to satisfy external noise limits in occupiable spaces (where applicable).

5.2.2 Noise Modelling

To predict noise impacts, calculations were made using the recognised CoRTN algorithm assisted by a three-dimensional computer model of the site created within SoundPLAN 8.2 acoustic software. The computer model was created as a representation of the existing and future site, which incorporates the following inputs:

- Calculation algorithms – SoundPLAN implementation of accepted noise prediction standards;
- Terrain elevation – A 3D representation of the existing terrain and at completion of construction;
- Ground surface corrections – Areas of soft (absorptive) and hard (reflective) ground;
- Roads sources – The placement of each road source as a source line and the input of traffic flow parameter;
- Buildings – Detailed implementation of the proposed building from drawings (i.e., layout, height, floors), and
- Sensitive receptors – Locations where the noise limits are to be assessed.

Refer to **Appendix C** for further details regarding the acoustic simulation assumptions and inputs.

5.2.3 Calculation Methodology

Road traffic noise has been identified to affect the proposed development and may place specific noise reduction performance requirements on the facade of the proposed buildings, and noise reduction to private open spaces. The applicable noise criteria have been discussed in **Section 4.2**.

Road traffic noise calculations were conducted by applying the SoundPLAN implementation of the UK Department of Transport Welsh Office *Calculation of Road Traffic Noise* 1988 (CoRTN) algorithms. CoRTN is widely accepted in Australia for the calculation of road traffic noise and, in addition with *SoundPLAN*, is recommended in the Department of Transport and Main Roads document *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise,* dated November 2013 (TMR Code).

5.2.4 Predicted Noise Levels

The noise simulation model was used to predict the $L_{10(18hr)}$ / $L_{Aeq(1hr)}$ [2] noise levels from road source at 1 m from the façade. The highest predicted noise levels per façade are presented in **Table 12**.

[2] The difference of $L_{Aeq,1hr\ day}$ and $L_{10(18hour)}$ was found to be closely correlated (0.4 dB average difference). (R. Brown, "*An assessment of the relationship between the $L_{10(18hour)}$ noise level parameter and other road traffic noise level parameters*", Proceedings of Acoustics, 3-5 November 2004, Gold Coast)

Table 12: Predicted facade noise levels (IWHC)

Façade (IWHC)	Predicted façade noise levels range, $L_{eq(1hr)}$ dB(A) [1)]
North (facing South Street)	63 – 68
East (facing East Street)	67 – 71
South (facing Roderick Street)	64 – 66
West (facing Nicholas Street)	52 – 61
Notes: 1) Façade noise levels include correction of +2.5 dB	

5.2.5 Outdoor Spaces for Recreational Use

Based on the architectural drawings received, there are no outdoor spaces which could be considered as being used for recreational purposes.

5.2.6 Building Envelope Performance

Based on the predicted noise levels outlined in **Section 5.2.4** and the internal noise targets set by the SDAP SC1 and TMR Policy (i.e., $L_{eq(1hr)} \leq 35$ dB(A)), the building envelope shall be sufficiently designed to provide the following minimum noise reduction levels outlined in **Table 13**.

Table 13: Minimum noise reduction performance of façade

Façade (IWHC)	Noise Reduction Performance of Façade, dB(A)
North (facing South Street)	28 – 33
East (facing East Street)	32 – 36
South (facing Roderick Street)	29 – 31
West (facing Nicholas Street)	17 – 26

A preliminary noise intrusion assessment was conducted based on the worst-case façade noise levels estimates outlined above and compared against the internal noise level criteria (i.e., $L_{eq(1hr)} \leq 35$ dB(A)). Internal noise level estimates have followed the calculation method from EN 12354-3:2000, for a typical room and window dimensions (curtain wall) based on the current architectural drawing set.

Based on the above, the façade system (including glass and framework) shall achieve an airborne sound isolation rating equivalent to $\mathbf{R_w + C_{tr} \geq 32}$ to achieve compliance with average continuous internal noise level target identified.

Example glazing arrangements which satisfy the performance ratings specified above include:

- 10.38 mm laminated glass; or
- DGU – 6 mm standard glass + 12 mm airgap + 6.38 mm standard glass.

Glazing types to coordinated with the project team as the project progresses.

From the noise intrusion assessment described, it is expected that road traffic noise intrusion can be sufficiently controlled through façade design and achieve in compliance with SDAP SC1 and TMR Policy requirements.

Notwithstanding the above, the estimated require sound insulation performance of glazing may be reduced where less sensitive spaces are position at the affected façade.

Other control of noise intrusion may include:

- Increasing glazing performance respectively; and / or
- Rearrange the layout moving sensitive areas/spaces to less affected area of the building; and / or
- Include corridor along the affected boundary as additional sound insulation layer.

6. Conclusion

Stantec have been engaged by dwp to conduct a noise impact assessment to support the approval of the proposed Ipswich Wellness and Health Centre (IWHC) and 5-storey carpark located at 50 South Street, Ipswich QLD 4305 (1/SP331207)

This acoustic report:

- details the site setting in context with surrounding environment;
- identifies acoustic items to be addressed during the design stages of the project;
- outlines the results of noise measurements conducted at or near the project site;
- establishes environmental noise limits applicable at the nearest external noise sensitive land uses, as well as criteria relating to control of external noise source impacts on the proposed development; and
- provides details of acoustic assessments undertaken for the project and, subsequently, nominates noise mitigation options to be considered for future design stages.
- provides design advice and construction recommendations for achieve acoustic performance objectives nominated.

We trust that this report to be sufficient for your current requirements; however, should you have any queries, please do not hesitate to contact the undersigned on (07) 3811 4500.

Regards,

Carl Edser (Author)
Acoustics Project Team Leader for **Stantec**

Michael Lanchester (Reviewer)
Acoustics Section Manager (QLD) for **Stantec**

Appendix A Glossary of Acoustic Terms

TERM	DEFINITION
Assessment Location	The position at which noise measurements are undertaken or estimated.
Assessment Period	The period in a day over which assessments are made.
Attenuation	A reduction in the magnitude of sound.
A-weighting	A frequency dependent filter applied to an instrument-measured noise. In its simplest form, the filter is designed to replicate the relative sensitivity to loudness perceived by the human ear.
Background Noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the LA90 noise level.
Barrier	Solid walls or partitions, solid fences, earth mounds, earth berms, buildings, etc. used to reduce noise.
Ctr	A standard weighting curve which replicates low frequency noise, such as that from traffic. Often added to DnT,w or Rw to characterise airborne sound insulation performance.
dB	The abbreviation for decibel.
dB(A)	A-weighted sound level in decibels.
Dw	A single number value that represents a field measurement of the weighted level difference between two adjacent spaces separated by a partition. Dw = L1 – L2 where, L1 is the average sound pressure level in the source room; and L2 is the average sound pressure level in the receiver room.
Free Field	An environment in which there are no acoustic reflective surfaces. Free field noise measurements are carried out outdoors at least 3.5 m from any acoustic reflecting structures other than the ground.
Frequency	Frequency is synonymous to pitch. Frequency or pitch can be measured on a scale in units of Hertz (Hz). Most noise sources typically comprise of a vast, and often complex, range of frequencies.
Frequency Response	This is a characteristic of a system which has a measured response resulting from a known applied input. In a mechanical structure, the frequency response function (FRF) is the spectrum of the vibration of a structure divided by the spectrum of the input force to the system. To measure the frequency response of a mechanical system, one must measure the spectra of both the input force to the system and the vibration response.
Impulsive Noise	Noise having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent Noise	Level that drops to the background noise level several times during the period of observation.
LA1	The A-weighted sound pressure level exceeded for 1 % of the measurement time period.
LA10	The A-weighted sound pressure level exceeded for 10 % of the measurement time period.
LA90	The A-weighted sound pressure level exceeded for 90 % of the measurement time period. Typically represents the background noise level of an environment.
LAeq	The equivalent continuous sound pressure level in dB(A). It is often accompanied by an additional suffix “T”, which is indicative of the measurement time period. (e.g. LAeq,15min, symbolising the measurement is evaluated over 15-minutes).
LAmax	The maximum A-weighted sound pressure level recorded over the measurement period.
Reverberation	The persistence of a sound within a space, which will naturally decay over time. Most apparent once the source signal has ceased emitting. Reverberation may have effects on speech intelligibility if not adequately controlled. Reverberation time, represented in seconds, can vary depending on the volume and surface finishes of the space.
Rw	Weighted sound reduction index. A single number value which represents the airborne sound insulation performance of a partition or building element that has been determined under laboratory testing conditions.
Sound Level Meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.

TERM	DEFINITION
Sound Power Level	The total sound energy radiated by a source, expressed in Watts. The sound power level is ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Sound Pressure Level	The measured acoustic wave strength in a given environment and at a particular point of interest where the total sound level expressed is relative to a reference pressure, i.e. the threshold of human hearing. Sound pressure level is typically measured using a standard sound level meter with a microphone, expressed in decibels (dB).

Appendix B Noise Monitoring Details

Unattended noise logging was conducted from Wednesday 21st November 2018 to Wednesday 28th November 2018 (inclusive) at the locations shown in **Figure 1** (coordinates in **Table 14**). The measurement locations are considered representative of the noise environment at and around the project site.

As a part of the Ipswich Hospital DBC for Stage 1, Stantec undertook an attended and unattended noise monitoring to establish environmental noise impacts on the previous project. Whilst measurements were conducted in mid-November 2018, site noise levels measured are generally expected have remained unchanged for the following reasons:

- annual average daily traffic volumes (considered as the dominant noise source influence site noise levels) have not generally increased (see link); and
- there have not been any major developments in areas surrounding the project site since the measurements were conducted.

Based on the above, the noise measurements previously conducted by Stantec are considered appropriate for acoustic assessment purposes for the current period.

Table 14: Noise monitoring coordinates

Monitor	Latitude	Longitude
001	27.61921 S	152.76062 E
002	27.62003 S	152.75917 E

The following instrumentation was used:

- NTi XL2 (S/N A2A-12892-E0) Class 1 sound level meter. The monitor was installed at the front of the existing mental Hospital. This location is considered representative of the road traffic noise exposure of the project buildings fronting Warwick Road, Churchill Street and East Street;
- NTi XL2 (S/N A2A-14215-E0) Class 1 sound level meter. The monitor was installed at the front of 5 Chelmsford Avenue. This location is considered representative of the environmental noise levels at the Future Mental Health Hospital and immediate surroundings; and
- Pulsar 105 Class 1 acoustic calibrator (S/N 72913).

All instrumentation had a current calibration certificate by a certified National Association of Testing Authorities (NATA) acoustics laboratory at the time of measurements.

Noise Monitoring Method

Noise measurements were conducted in accordance with Australian Standard AS 1055.1-1997 – *Acoustics – Description and measurement of environmental noise*, and the instruments were configured as follows:

- A-weighting frequency response;
- FAST time response;
- 15-minute intervals;

The sound level meter was calibrated before and checked at the end of the measurement period. The instrument showed a drift less than ±1 dB during the course of monitoring; therefore, measurements are considered valid according to AS1055.1-1997.

Noise Monitoring Results

The raw sound level meter files were post-processed to determine relevant long-tern noise descriptors, some of which were used to determine the applicable noise limits.

Results and time trace plots of relevant noise descriptors are provided below (for Location 001 see **Table 15** and **Figure 4**). Where data was not measured for a full period (i.e., at the start and end of measurement), the cells are shown dashed in the table. In addition, the noise descriptor averages are presented.

Table 15: Summary of measured noise levels (rounded) – Noise Monitor 001

Noise descriptor	Average	Wed 21/11/18	Thurs 22/11/18	Fri 23/11/18	Sat 24/11/18	Sun 25/11/18	Mon 26/11/18	Tue 27/11/18	Wed 28/11/18
$L_{A10(18hr),6am-12am}$	64	-	65	64	63	63	64	64	-
$L_{Aeq,7am-6pm}$	63	-	65	63	61	61	65	66	-
$L_{Aeq,6pm-10pm}$	60	61	63	60	60	60	60	59	-
$L_{Aeq,10pm-7am}$	57	57	57	56	54	61	57	57	-
$RBL_{,7am-6pm}$	49	-	50	48	44	42	48	49	-
$RBL_{,6pm-10pm}$	44	42	42	40	41	46	43	42	-
$RBL_{,10pm-7am}$	41	39	37	37	37	44	38	39	-
$L_{A90,7am-6pm}$	49	-	52	49	46	45	50	51	-
$L_{A90,6pm-10pm}$	45	45	45	43	43	49	46	46	-
$L_{A90,10pm-7am}$	42	42	40	40	40	49	41	42	-

Figure 4: Time trace of relevant noise descriptors – Noise Monitor 001

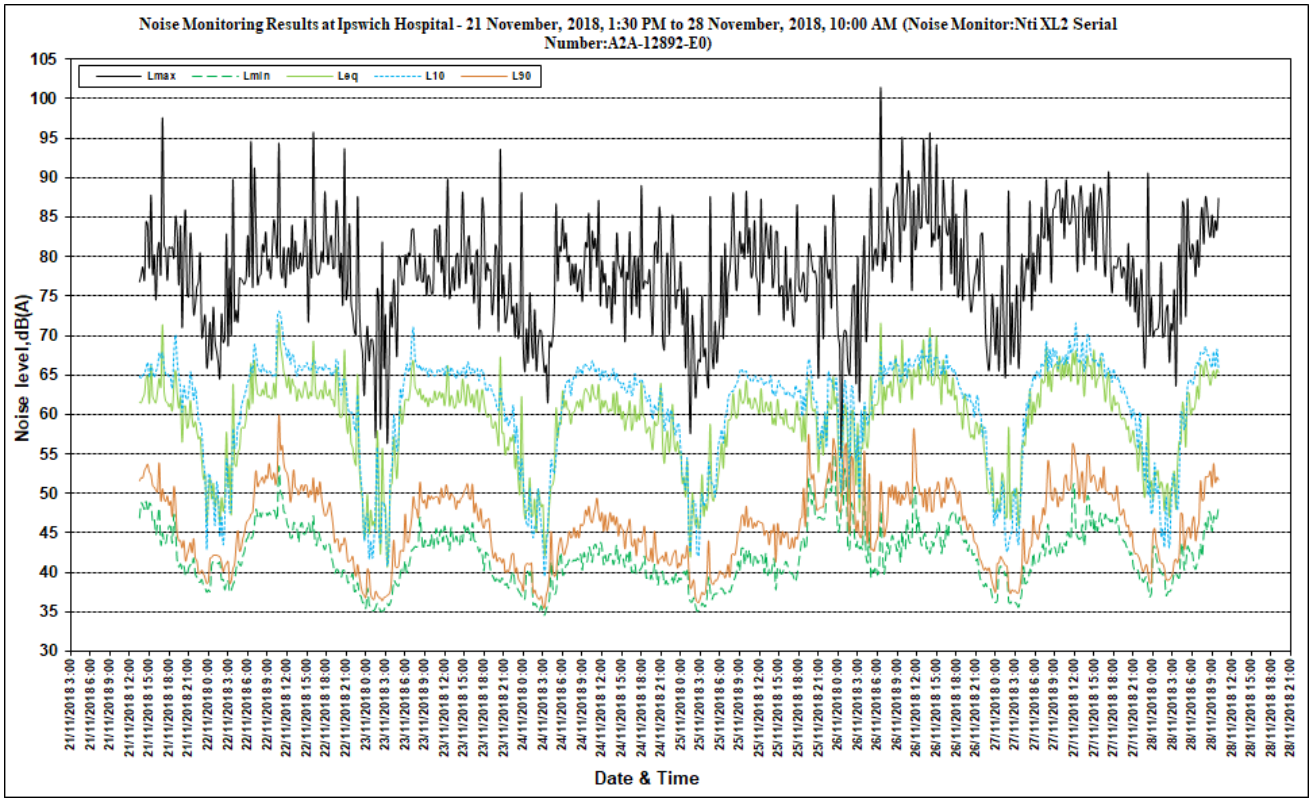
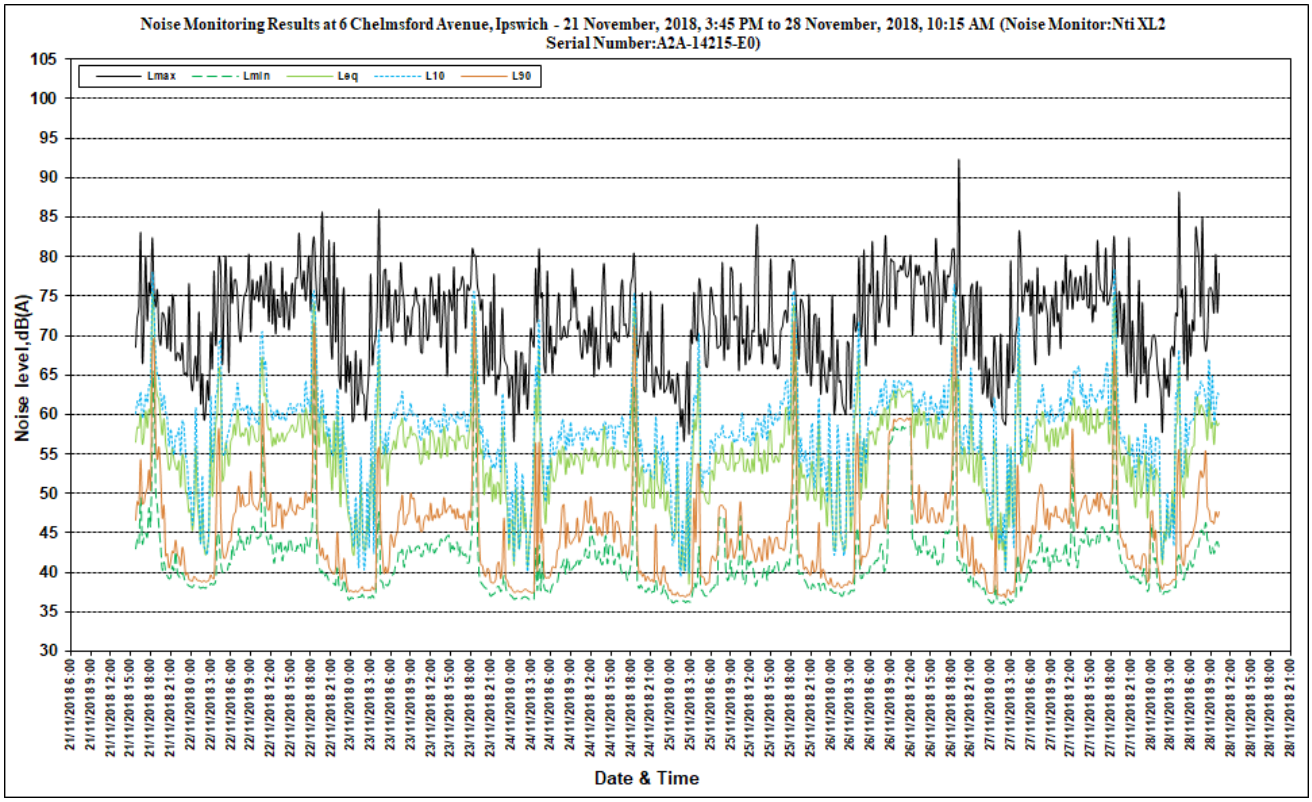


Table 16: Summary of measured noise levels (rounded) – Noise Monitor 002

Noise descriptor	Average	Wed 21/11/18	Thurs 22/11/18	Fri 23/11/18	Sat 24/11/18	Sun 25/11/18	Mon 26/11/18	Tue 27/11/18	Wed 28/11/18
$L_{A10(18hr),6am-12am}$	60	-	61	59	57	58	61	61	-
$L_{Aeq,7am-6pm}$	58	-	59	57	55	55	60	59	-
$L_{Aeq,6pm-10pm}$	65	66	65	65	64	65	65	65	-
$L_{Aeq,10pm-7am}$	56	56	56	56	55	56	57	56	-
$RBL_{,7am-6pm}$	47	-	47	46	43	42	46	46	-

Noise descriptor	Average	Wed 21/11/18	Thurs 22/11/18	Fri 23/11/18	Sat 24/11/18	Sun 25/11/18	Mon 26/11/18	Tue 27/11/18	Wed 28/11/18
$RBL_{6pm-10pm}$	42	42	40	39	39	40	41	41	-
$RBL_{10pm-7am}$	39	39	38	38	37	38	37	39	-
$L_{A90,7am-6pm}$	48	-	49	47	45	44	51	48	-
$L_{A90,6pm-10pm}$	47	50	46	46	45	46	48	47	-
$L_{A90,10pm-7am}$	41	42	41	40	40	42	41	42	-

Figure 5: Time trace of relevant noise descriptors – Noise Monitor 002



Appendix C Noise Model Details

C.1 Road Traffic Noise Model Inputs

A summary of the modelling conditions is presented in **Table 17**.

Table 17: Road Traffic Noise Modelling Parameters

Item	Assumptions
Calculation Method	CoRTN (1988) with variations as described in this report. Low traffic correction not used.
Ground Topography	A 1 metre Digital Elevation Model (DEM) derived from LiDAR obtained from an Australian Government website and was used to calculate 3D contours at 0.1m elevation intervals. The data was used 'as is', and it is considered of sufficient resolution for assessment purposes.
Ground Absorption	0% ground absorption for hard surfaces. 20% ground absorption was used for areas of short grass.
Traffic Volumes and Mix	AADT volume data and projected growth sourced from QLD Government 2020 Traffic Census Data (link). Detailed of the traffic volumes are presented in **Table 18** and **Table 19.**
Correction For Australian Conditions	As per the TMR guidance, -0.7 dB is applied to free-field condition
Sources Heights and Correction	Model assumes average source height of 0.5 m
Vehicle Speeds	Existing model validation: posted speed – all roads 60 km/h Future model: posted speed – all roads 60 km/h
Road Gradient	As per topography.
Receptor Locations	Assessed at 1 m from the façade at heights of 1.5 m for ground floor free-field

Table 18: Base Traffic Volume Data (2020)

Section	Road Name	Speed Limit (km/h)	Direction	AADT	%HV
Ipswich - Cunningham Hwy Connection Road	East Street	60	Both (North / South)	11,556	1.0 % (*estimated*)

Table 19: Projected Traffic Volume Data (Current Year +10, 2032)

Section	Road Name	Speed Limit (km/h)	Direction	Applied Growth Rate	Calculated AADT	%HV
Ipswich - Cunningham Hwy Connection Road	East Street	60	Both (North / South)	1.5 % p.a	13,817	1.0 % (*estimated*)

C1.1 Road Traffic Noise Model Validation

The noise model was validated using the concurrent noise monitoring and traffic volume counting. **Table 20** presents a summary of the measured and predicted noise levels.

Table 20: Road traffic noise model validation

Monitoring Location	Noise Level $L_{10(18hr)}$, dB(A)		
	Measured noise level (2018)	**Predicted noise level**	**Difference, dB**
001	63.8	64.9	+1.1

The predicted results show the noise model return results within ±2 dB of the measured road traffic noise levels and is considered valid for use. In accordance with the TMR Code, no additional calibration factors are deemed necessary.

w

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Stantec

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Appendix 7 – State Interest Mapping

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 07/03/2023

Queensland Government

0 30 60 90 120

Metres

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Legend

Drawn Polygon Layer

Override 1

Cadastre

Cadastre

Erosion prone area

Erosion prone area

High storm tide inundation area

High storm tide inundation area

Medium storm tide inundation area

Medium storm tide inundation area

Flood hazard area - Level 1 - Queensland floodplain assessment overlay

Flood hazard area - Level 1 - Queensland floodplain assessment overlay

Flood hazard area - local government flood mapping area

Flood hazard area - local government flood mapping area

Bushfire prone area

Very High Potential Bushfire Intensity

High Potential Bushfire Intensity

Medium Potential Bushfire Intensity

Potential Impact Buffer

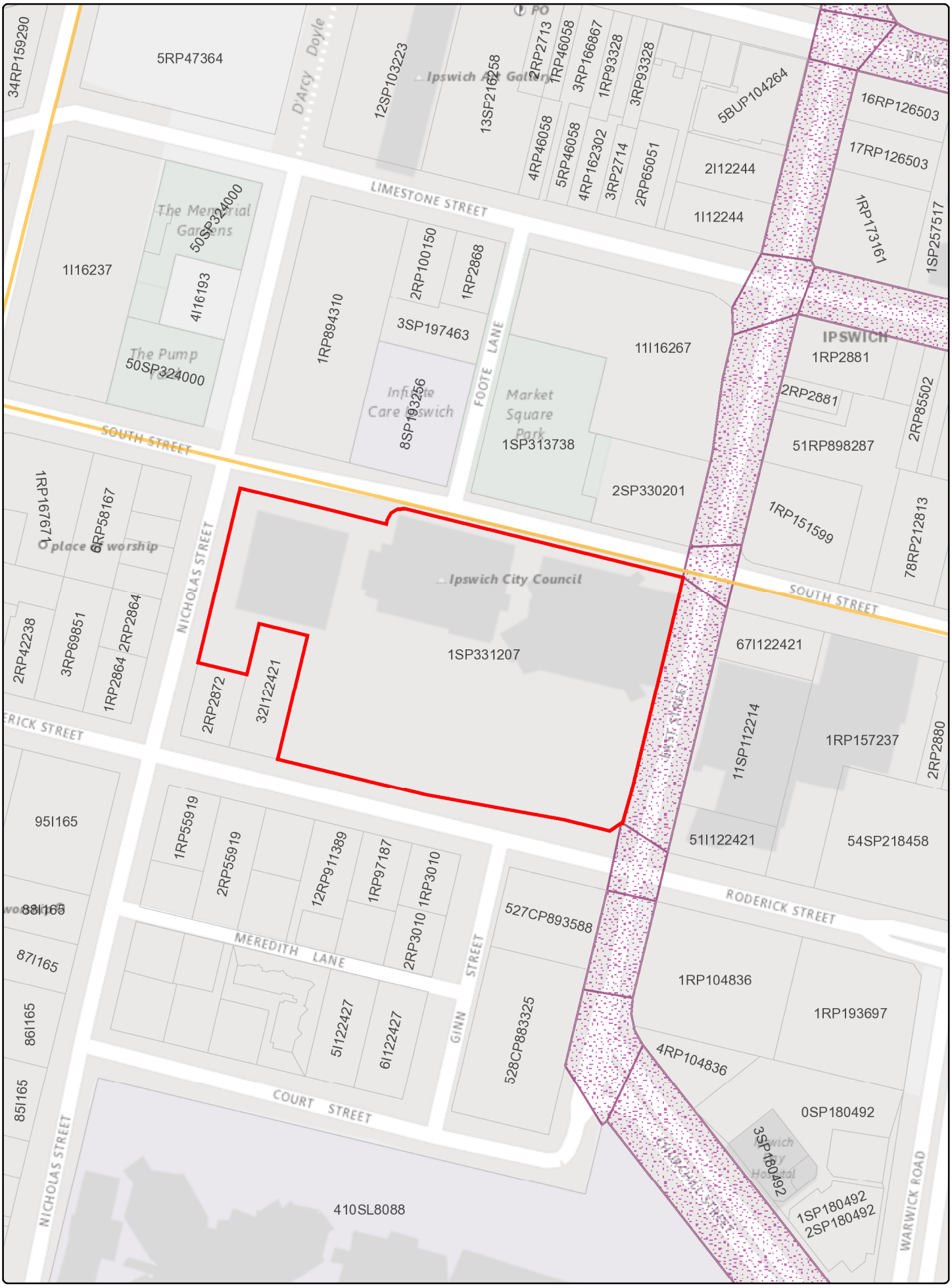
Date: 07/03/2023

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Queensland Government

Queensland Government



State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 07/03/2023

Queensland Government

0 30 60 90 120

Metres

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Legend

Drawn Polygon Layer

Override 1

Cadastre

Cadastre

Public passenger transport facility

Public passenger transport facility

Future public passenger transport facility

Future public passenger transport facility

Active transport corridor

Active transport corridor

Future State-controlled transport tunnel

Future State-controlled transport tunnel

State-controlled transport tunnel

State-controlled transport tunnel

Future busway corridor

Future busway corridor

Busway corridor

Busway corridor

Future light rail corridor

Future light rail corridor

Light rail corridor

Light rail corridor

State-controlled road

State-controlled road

Future State-controlled road

Future State-controlled road

Future railway corridor

Future railway corridor

Railway corridor

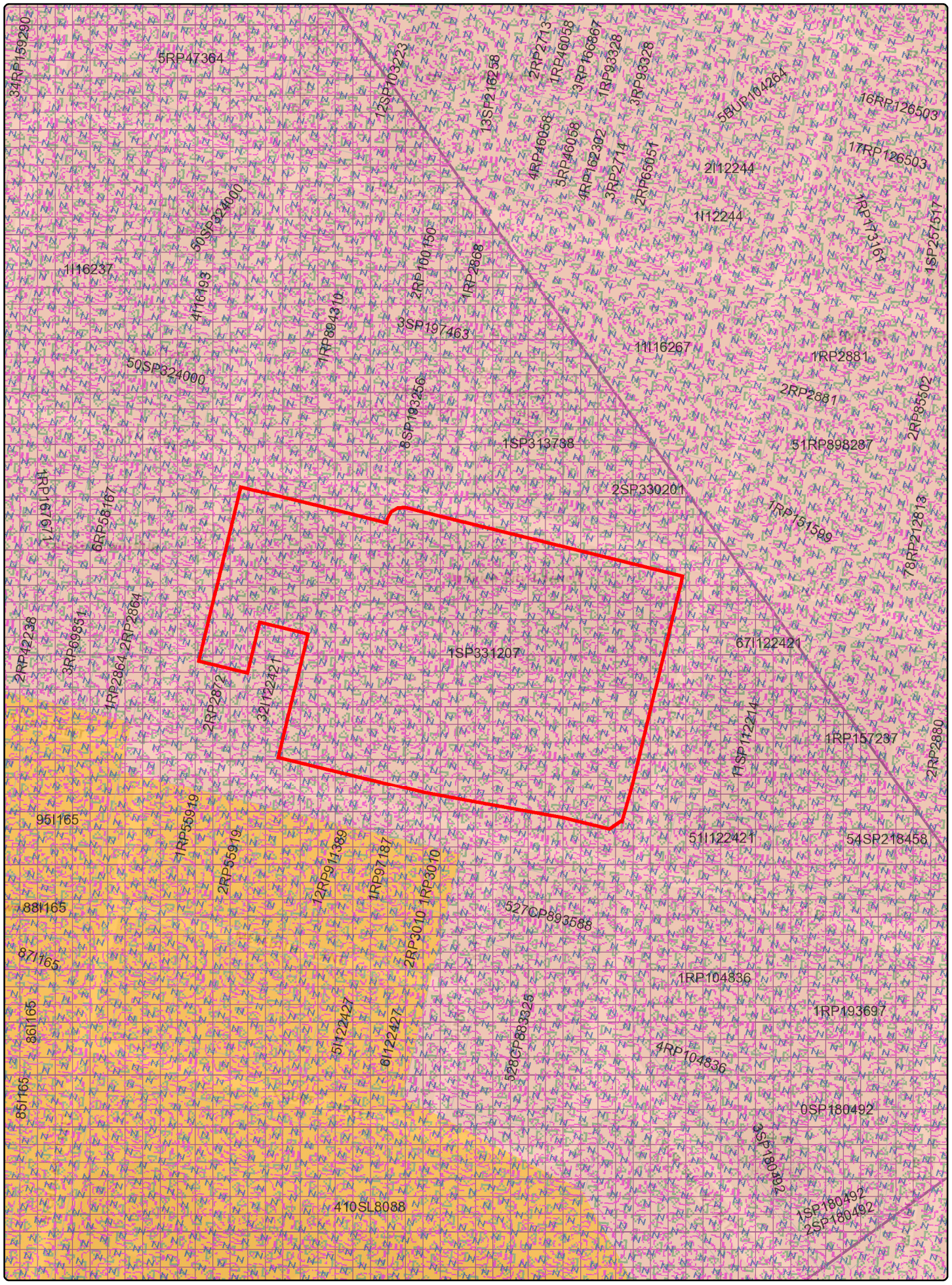
Railway corridor

Date: 07/03/2023

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Queensland Government



State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 07/03/2023

Queensland Government

0 30 60 90 120

Metres

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Legend

Drawn Polygon Layer

Override 1

Cadastre

Cadastre

Wildlife hazard buffer zone

3km

8km

13km

Lighting area buffer 6km

Lighting area buffer 6km

Light restriction zone

Zone A

Zone B

Zone C

Zone D

Aviation facility

Location

Building restricted area - Zone A

Building restricted area - Zone A/B

Building restricted area - Area of interest

Obstacle limitation surface contours

Obstacle limitation surface contours

Public safety area

Public safety area

ANEF 40 contour or greater

ANEF 40 contour or greater

ANEF 35 - 40 contour

ANEF 35 - 40 contour

ANEF 30 - 35 contour

ANEF 30 - 35 contour

ANEF 25 - 30 contour

ANEF 25 - 30 contour

ANEF 20 - 25 contour

ANEF 20 - 25 contour

Height restriction zone 0m

Height restriction zone 0m

Height restriction zone 7.5m

Height restriction zone 7.5m

Height restriction zone 15m

Height restriction zone 15m

Height restriction zone 45m

Height restriction zone 45m

Height restriction zone 90m

Height restriction zone 90m

Obstacle limitation surface area

Obstacle limitation surface area

Date: 07/03/2023

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Queensland Government

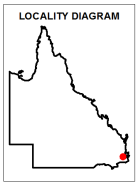
4.1 Regulated vegetation management map

Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Other land parcel boundaries

LOCALITY DIAGRAM



N

0 10 20 30 40 50 m

This product is projected into:
GDA 1994 MGA Zone 56

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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

4.2 Vegetation management supporting map

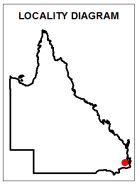
Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

Queensland Government

LOCALITY DIAGRAM



N

0 8 16 24 32 40 m

This product is projected into: GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

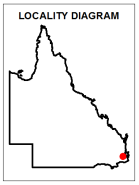
4.3 Coastal/non-coastal map

Coastal/Non Coastal Map

Legend

- Selected Lot and Plan
- Coastal
- Non Coastal
- Other land parcel boundaries

LOCALITY DIAGRAM



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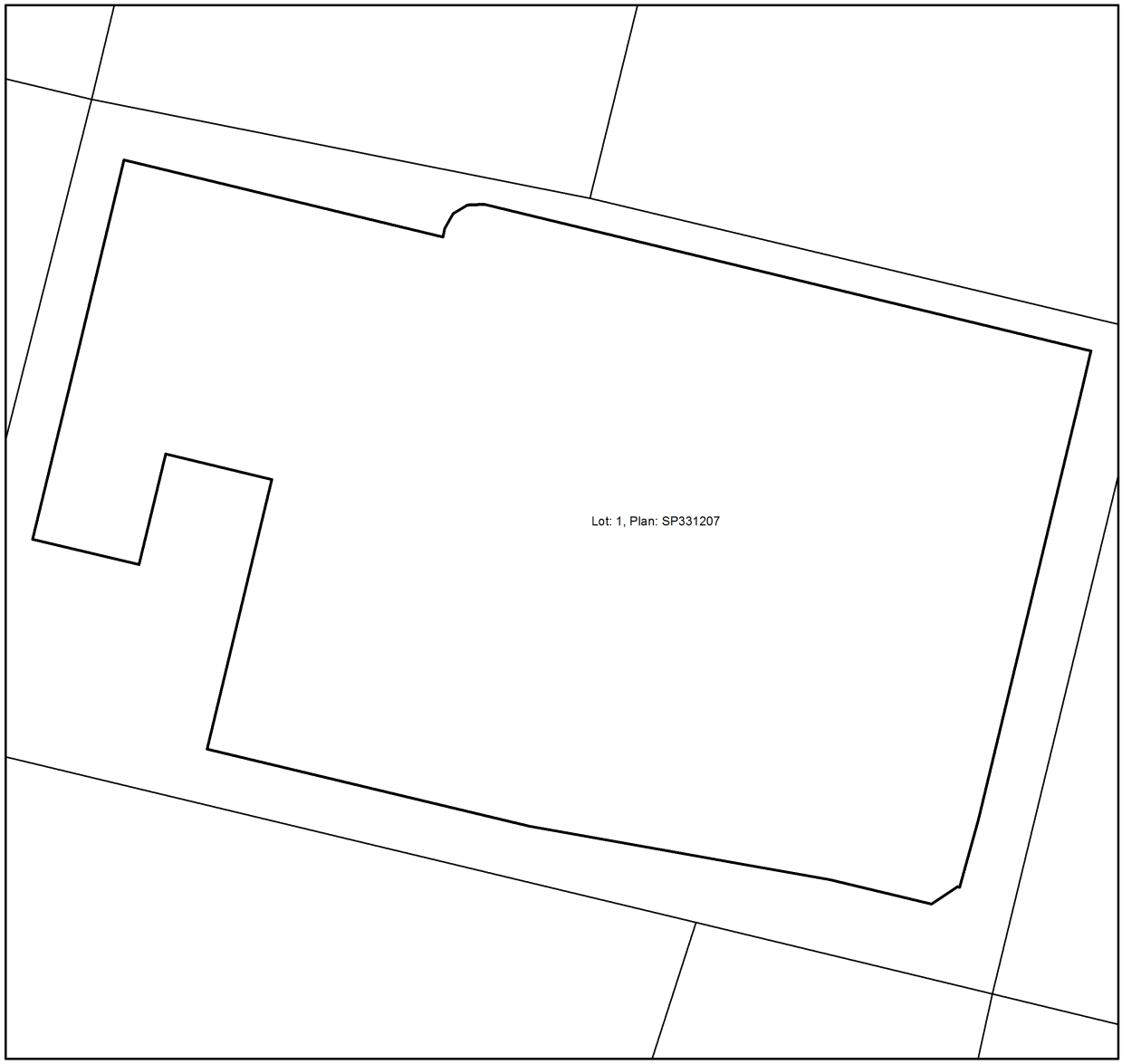
Queensland Government

4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



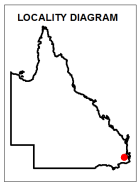
Agricultural Land Class A or B
as per State Planning Policy: State Interest for Agriculture

Legend

- Selected Lot and Plan
- Towns
- Rivers and creeks
- Freeways / motorways; Highways
- Secondary roads; Streets

Agricultural land class A or B

- A
- B
- Not class A or B



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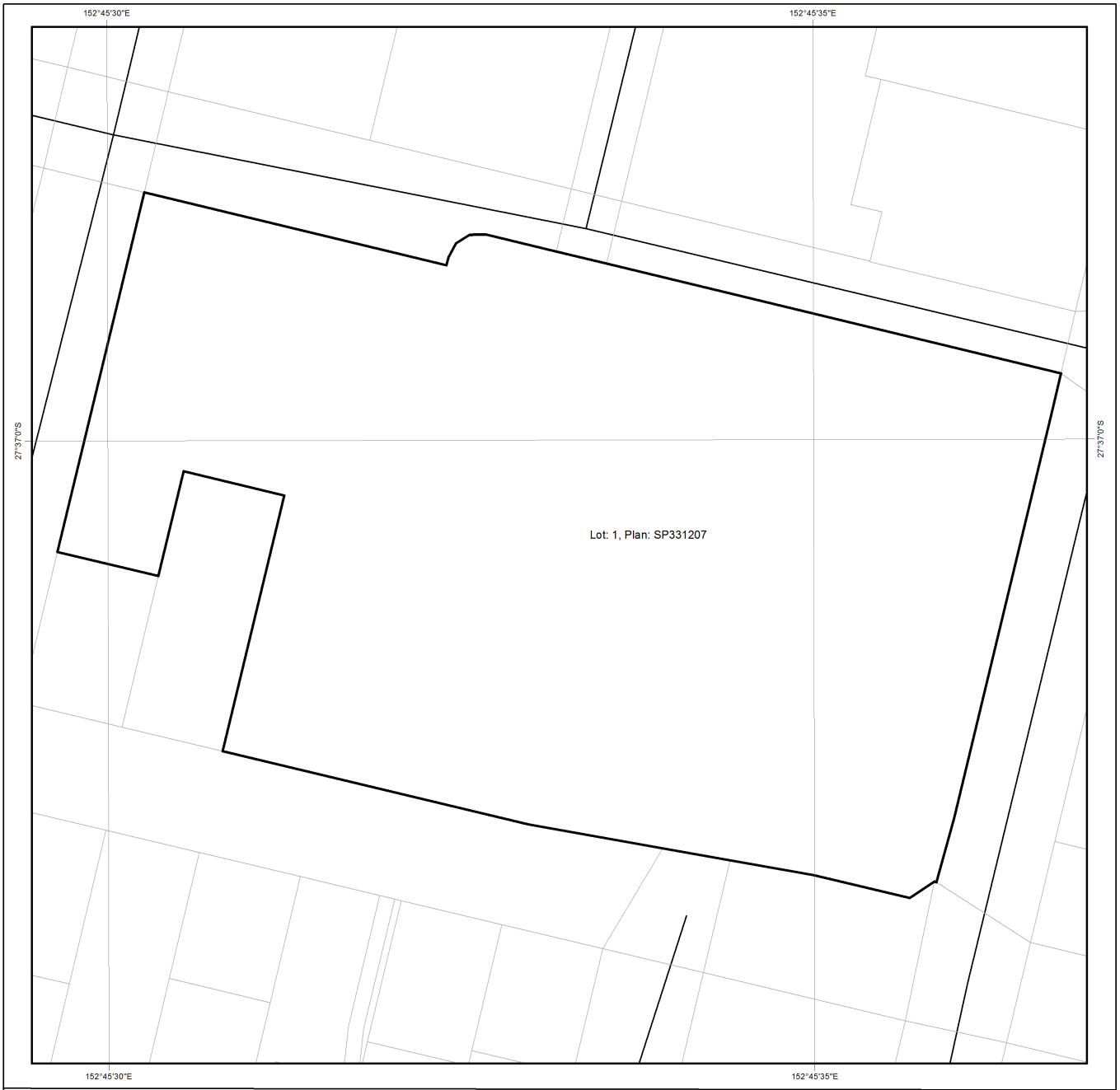
0 10 20 30 40 50 m

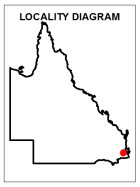
This product is projected into GDA 1994 MGA Zone 56



Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries.
- Freeways / motorways / highways
- Secondary roads / streets



N

0 7.5 15 22.5 30 37.5 m

This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

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7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map

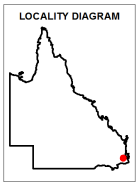
Koala priority area, koala habitat area and identified koala broad-hectare area map

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Koala habitat area (locally refined)
- Koala priority area
- Identified koala broad-hectare area
- Cadastral Boundaries
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

LOCALITY DIAGRAM



N

0 10 20 30 40 50 m

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The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/. The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

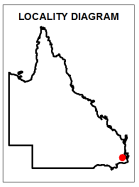
7.3 Koala habitat regional ecosystems for core koala habitat areas

Koala habitat regional ecosystems for core koala habitat areas

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

LOCALITY DIAGRAM



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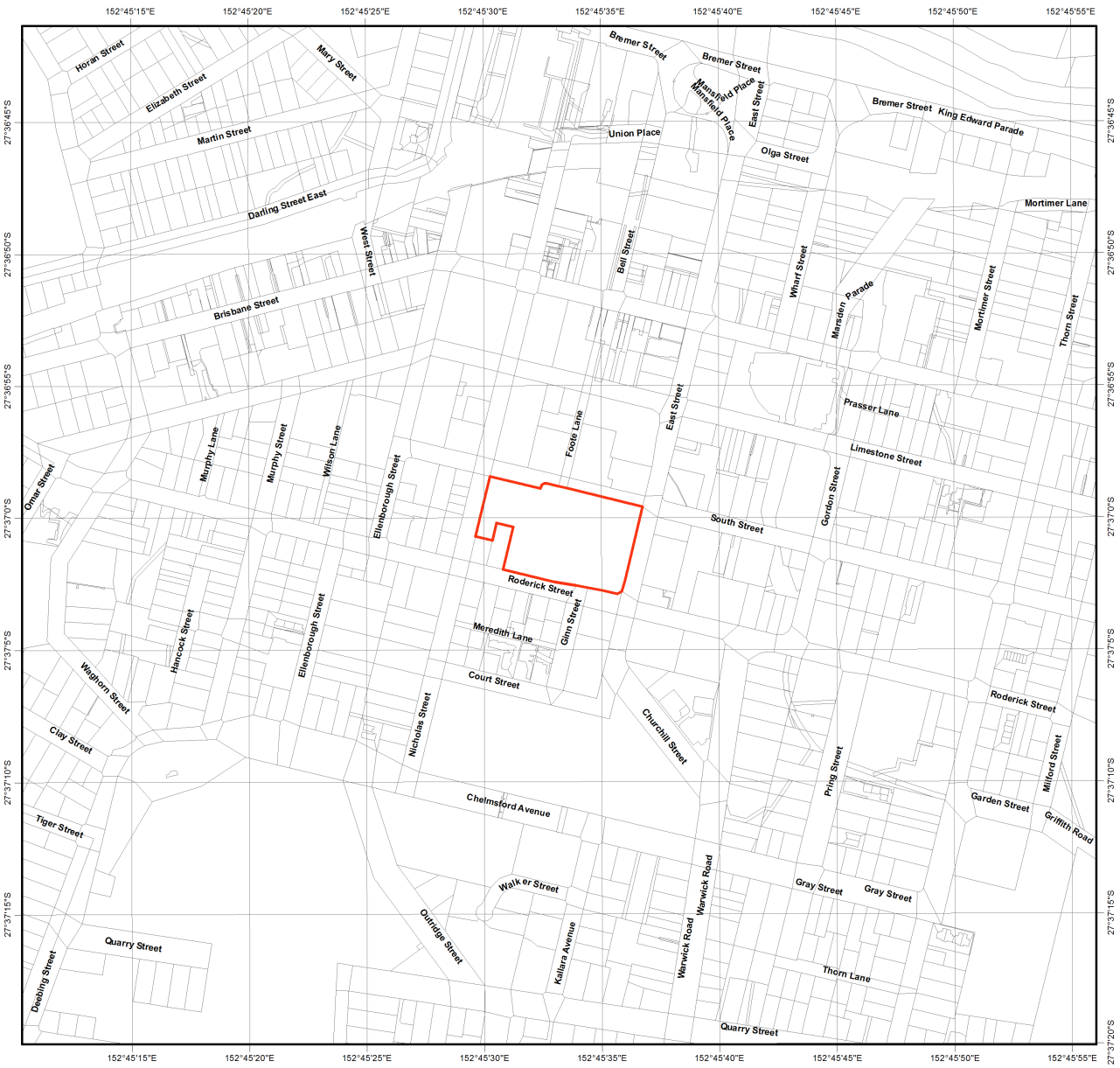
0 10 20 30 40 50 m

DISCLAIMER:

While every care is taken to ensure the accuracy of this product, the Department of Environment and Science acting on behalf of the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

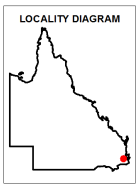
This product is projected into GDA 1994 MGA Zone 56



Map of Great Barrier Reef Wetland Protection Areas

- Selected Lot and Plan
- Cadastral Boundary
- Wetland in a wetland protection area
- Great Barrier Reef wetland protection area

LOCALITY DIAGRAM



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Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development, Manufacturing, Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Science is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *State Code 9 : Great Barrier Reef Wetland Protection Areas.*

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science, email planning.support@des.qld.gov.au.

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This product is projected into GDA 1994 MGA Zone 56

Map of Queensland Wetland Environmental Values

Selected Lot and Plan

Cadastral Boundary

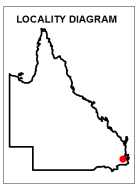
High ecological values waters management intent

Wetlands assessed under section 7

GBR wetland of high ecological significance

Wetland of high ecological significance

Wetland of general ecological significance



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Note:
This map shows the location of wetlands on the Map of Queensland Wetland Environmental Values under the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. The map also shows high ecological value waters management intent under Schedule 2 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 7 of the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

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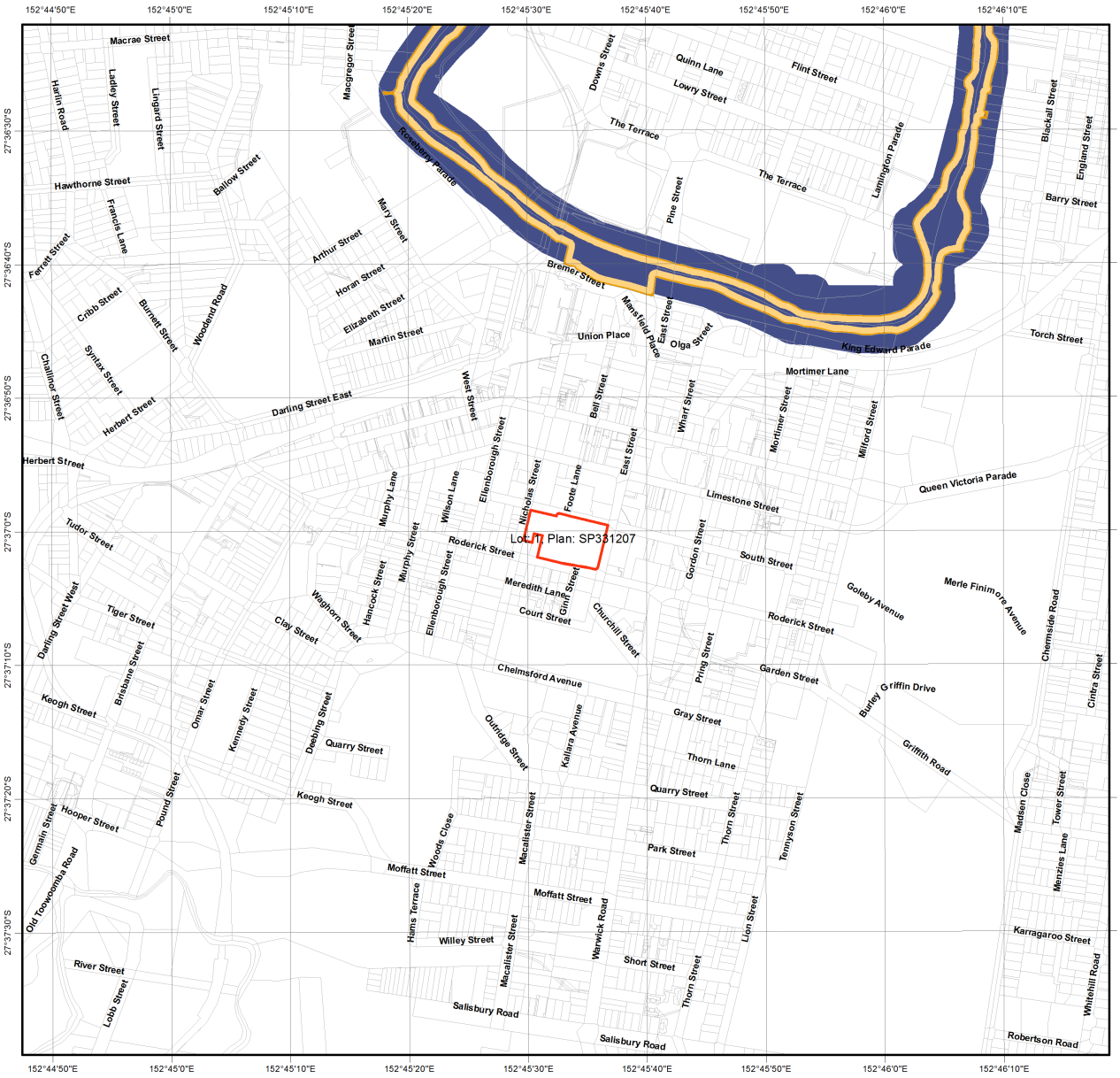
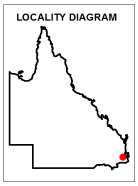


Coastal Hazard Areas Map
Erosion Prone Area

Legend

- Selected Lot and Plan
- Erosion due to storm impact and long term trends including sediment supply deficit and channel migration
- Erosion from permanent tidal inundation due to sea level rise
- Coastal Management District
- Coastal Building Lines



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Notes

1. The areas shown on this map are indicative of the extent of erosion and permanent inundation defined by erosion prone area plans declared under the Coastal Protection and Management Act 1995. Only the declared erosion prone area plans should be used for development assessment. To determine the actual position of the erosion prone area a registered surveyor or geotechnical consultant may be required if there is any doubt.

2. Erosion prone area plans for each local government area and a comprehensive description of their determination are available from the Department of Environment and Science website.

Version 7 - October 2016

Disclaimer

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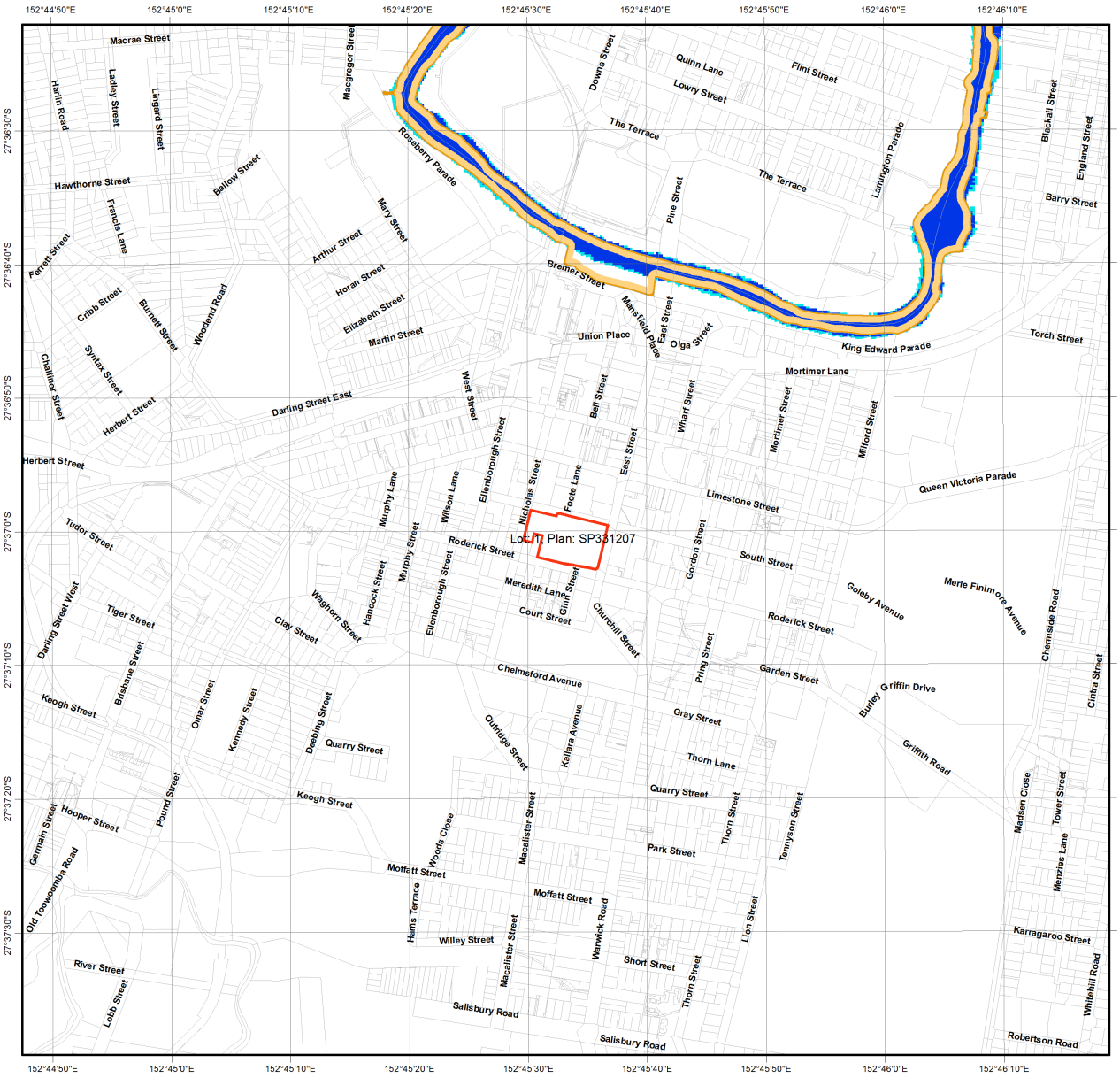
This product is projected into GDA 1994 MGA Zone 56

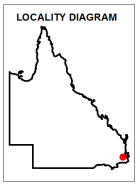


Coastal Hazard Areas Map
Storm Tide Inundation Area

Legend

- Selected Lot and Plan
- High hazard area (greater than 1.0m water depth)
- Medium hazard area (less than 1.0m water depth)
- Coastal Management District
- Coastal hazard data not available in this area
- Coastal Building Lines

* **Regional default values for a 100yr ARI inundation level including 0.8m sea level rise.**



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Notes

1. A default storm tide inundation level of 1.5 m HAT in South East Queensland regional planning area and 2 m HAT for the remainder of Queensland is used where projected storm tide inundation levels have not been determined locally.

2. The high hazard area may coincide with the area of permanent inundation - refer to the Erosion Prone Area map.

3. The map should be used as a guide only. Field surveys are recommended to verify feature boundaries.

Version 4 - July 2015

Disclaimer

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0 130 260 390 520 650 m

This product is projected into GDA 1994 MGA Zone 56

Appendix 8 – EPBC Protected Matters Search and NCA Wildlife Online database

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 17-May-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	41
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	5
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	40 - 50km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata			
Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Turnix melanogaster			
Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Neoceratodus forsteri			
Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans			
Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus hallucatus			
Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Macroderma gigas			
Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Arthraxon hispidus			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area	In feature area
Dichanthium setosum			
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fontainea venosa			
[24040]	Vulnerable	Species or species habitat may occur within area	In feature area
Notelaea ipsviciensis			
Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area	In feature area
Notelaea lloydii			
Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Picris evae			
Hawkweed [10839]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Planchonella eerwah			
Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens			
Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhodomyrtus psidioides			
Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Samadera bidwillii			
Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe			
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Delma torquata			
Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Furina dunmalli			
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus			
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat known to occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - Commonwealth Centre - 3rd Floor [31877]	QLD	In feature area
Defence - IPSWICH TRAINING DEPOT [31953]	QLD	In feature area

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
[Rostratula australis as Rostratula benghalensis (sensu lato)](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Denmark Hill	Conservation Park	QLD	In feature area

EPBC Act Referrals	[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Divestment of Ipswich Post Office	2006/2750	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Removal of Grey-headed Flying-fox Habitat	2005/2137	Not Controlled Action	Completed	In feature area
South West Transport Corridor	2006/2547	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Construction & Operation 275/330kV Transmission Line	2006/2820	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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WildNet Records
Species List

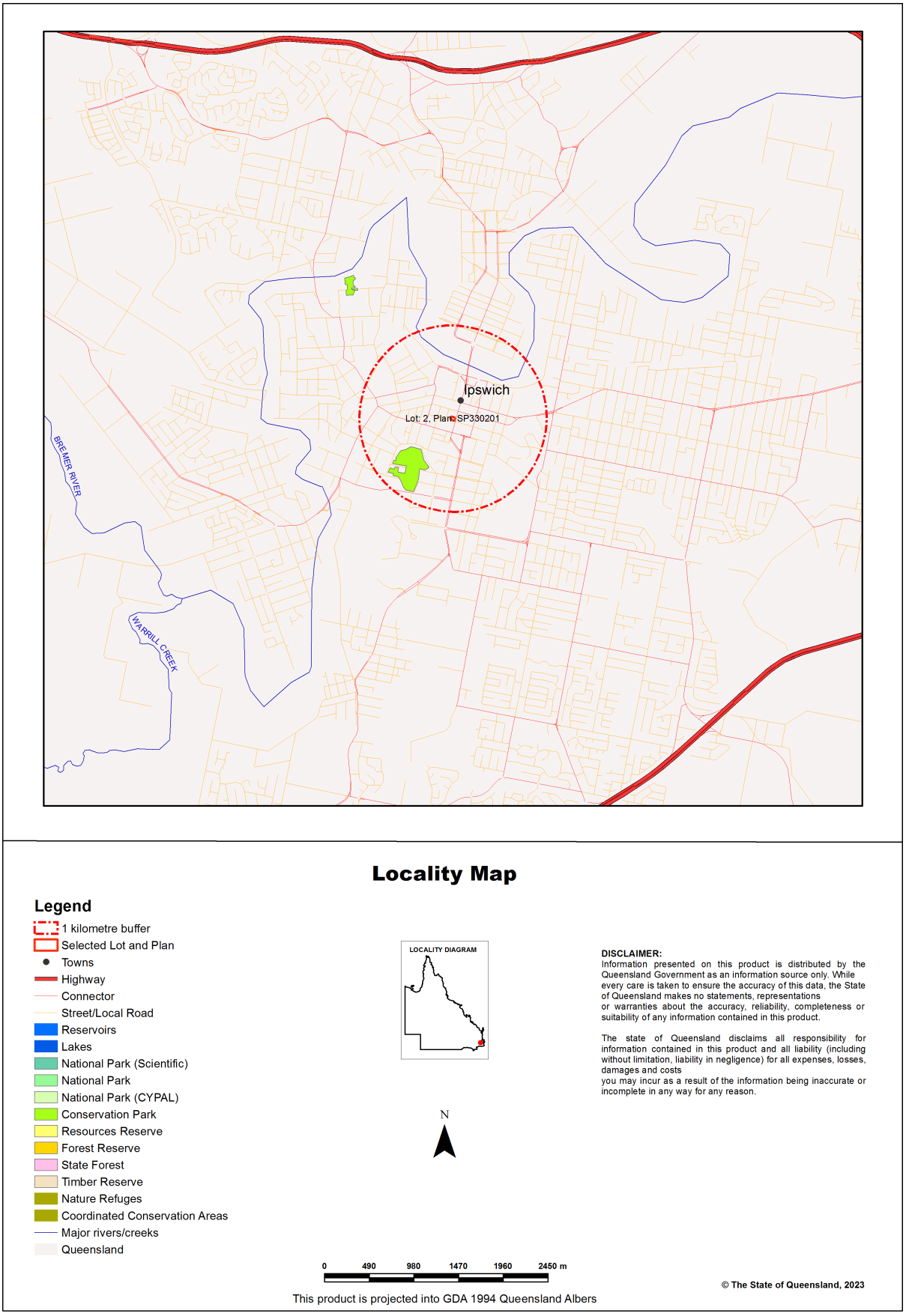
For the selected area of interest 0.16ha Lot: 2 Plan: SP330201

Current as at 17/05/2023

WildNetSpeciesList

Queensland Government

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Lot: 2 Plan: SP330201.

Table 1. Area of interest details

Size (ha)	0.16
Local Government(s)	Ipswich City
Bioregion(s)	Southeast Queensland
Subregion(s)	Moreton Basin
Catchment(s)	Brisbane

Protected Area(s)
No estates or reserves are located within the area of interest.

World Heritage Area(s)
No World Heritage Areas are located within the area of interest.

Ramsar Area(s)
No Ramsar Areas are located within the area of interest.

Species List

Introduction

This report is derived from a spatial layer generated from the WildNet database managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the animals recorded within the area of interest and its one kilometre buffer.

Table 3 lists the plants recorded within the area of interest and its one kilometre buffer.

Table 4 lists the fungi recorded within the area of interest and its one kilometre buffer.

Table 5 lists the other species recorded within the area of interest and its one kilometre buffer.

Table 2. Animals recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
716	Amphibia	Bufonidae	*Rhinella marina*	cane toad	None	None	0	6	09/01/1994
627	Amphibia	Hylidae	*Litoria caerulea*	common green treefrog	C	None	0	1	30/10/1992
608	Amphibia	Hylidae	*Litoria fallax*	eastern sedgefrog	C	None	0	2	09/10/1994
706	Amphibia	Limnodynastidae	*Adelotus brevis*	tusked frog	V	None	0	1	31/12/1893
681	Amphibia	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog	C	None	0	2	12/11/2017
1419	Aves	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill	C	None	0	6	10/01/1994
1422	Aves	Acanthizidae	*Acanthiza nana*	yellow thornbill	C	None	0	2	31/03/1993

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1410	Aves	Acanthizidae	*Gerygone mouki*	brown gerygone	C	None	0	1	31/03/1993
1396	Aves	Acanthizidae	*Gerygone olivacea*	white-throated gerygone	C	None	0	7	23/05/1993
1382	Aves	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren	C	None	0	8	23/05/1993
1371	Aves	Acanthizidae	*Smicrornis brevirostris*	weebill	C	None	0	6	23/05/1993
1742	Aves	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk	C	None	0	3	31/03/1993
1729	Aves	Accipitridae	*Accipiter fasciatus*	brown goshawk	C	None	0	1	13/11/2005
1732	Aves	Accipitridae	*Aquila audax*	wedge-tailed eagle	C	None	0	1	30/04/1981
1721	Aves	Accipitridae	*Aviceda subcristata*	Pacific baza	C	None	0	1	30/04/1981
1722	Aves	Accipitridae	*Circus approximans*	swamp harrier	C	None	0	1	30/04/1981
1725	Aves	Accipitridae	*Elanus axillaris*	black-shouldered kite	C	None	0	1	30/04/1981
1718	Aves	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle	C	None	0	1	13/11/2005
1712	Aves	Accipitridae	*Lophoictinia isura*	square-tailed kite	C	None	0	1	31/05/1986
1714	Aves	Accipitridae	*Milvus migrans*	black kite	C	None	0	1	31/03/1993
1305	Aves	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler	C	None	0	3	20/12/1993
1776	Aves	Alcedinidae	*Ceyx azureus*	azure kingfisher	C	None	0	1	13/11/2005
1767	Aves	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra	C	None	0	22	13/11/2005
1760	Aves	Alcedinidae	*Todiramphus macleayii*	forest kingfisher	C	None	0	1	16/01/1993
1761	Aves	Alcedinidae	*Todiramphus pyrrhopygius*	red-backed kingfisher	C	None	0	1	30/04/1981
1762	Aves	Alcedinidae	*Todiramphus sanctus*	sacred kingfisher	C	None	0	6	13/11/2005
1993	Aves	Anatidae	*Anas gracilis*	grey teal	C	None	0	1	13/11/2005
1994	Aves	Anatidae	*Anas platyrhynchos*	northern mallard	None	None	0	1	30/04/1981
1998	Aves	Anatidae	*Anas superciliosa*	Pacific black duck	C	None	0	2	13/11/2005
1999	Aves	Anatidae	*Aythya australis*	hardhead	C	None	0	1	13/11/2005
2003	Aves	Anatidae	*Chenonetta jubata*	Australian wood duck	C	None	0	7	13/11/2005
2005	Aves	Anatidae	*Cygnus atratus*	black swan	C	None	0	1	13/11/2005
1982	Aves	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose	C	None	0	2	13/11/2005
1279	Aves	Anhingidae	*Anhinga novaehollandiae*	Australasian darter	C	None	0	2	13/11/2005
1829	Aves	Ardeidae	*Ardea alba modesta*	eastern great egret	C	None	0	1	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1831	Aves	Ardeidae	*Ardea intermedia*	intermediate egret	C	None	0	1	13/11/2005
1832	Aves	Ardeidae	*Ardea pacifica*	white-necked heron	C	None	0	1	30/04/1981
1830	Aves	Ardeidae	*Bubulcus ibis*	cattle egret	C	None	0	6	13/11/2005
1839	Aves	Ardeidae	*Butorides striata*	striated heron	C	None	0	1	13/11/2005
1826	Aves	Ardeidae	*Egretta novaeh ollandiae*	white-faced heron	C	None	0	2	20/12/1993
1660	Aves	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow	C	None	0	1	13/11/2005
1654	Aves	Artamidae	*Cracticus nigrogularis*	pied butcherbird	C	None	0	17	13/11/2005
1656	Aves	Artamidae	*Cracticus torquatus*	grey butcherbird	C	None	0	17	13/11/2005
1644	Aves	Artamidae	*Gymnorhina tibicen*	Australian magpie	C	None	0	34	13/11/2005
1645	Aves	Artamidae	*Strepera graculina*	pied currawong	C	None	0	6	28/08/1994
1956	Aves	Burhinidae	*Burhinus grallarius*	bush stone-curlew	C	None	0	1	30/04/1981
1191	Aves	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo	C	None	0	6	13/11/2005
1194	Aves	Cacatuidae	*Cacatua sanguinea*	little corella	C	None	0	1	13/11/2005
1193	Aves	Cacatuidae	*Eolophus roseicapilla*	galah	C	None	0	10	13/11/2005
1636	Aves	Campephagidae	*Coracina novae hollandiae*	black-faced cuckoo-shrike	C	None	0	36	13/11/2005
1639	Aves	Campephagidae	*Edolisoma tenuirostre*	common cicadabird	C	None	0	2	31/03/1993
1640	Aves	Campephagidae	*Lalage leucomela*	varied triller	C	None	0	3	31/03/1993
1940	Aves	Charadriidae	*Elseyornis melanops*	black-fronted dotterel	C	None	0	1	31/05/2018
27774	Aves	Charadriidae	*Vanellus miles*	masked lapwing	C	None	0	1	13/11/2005
1933	Aves	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)	C	None	0	3	15/10/1992
1820	Aves	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork	C	None	0	1	30/04/1981
1294	Aves	Cisticolidae	*Cisticola exilis*	golden-headed cisticola	C	None	0	11	13/11/2005
1628	Aves	Climacteridae	*Climacteris picumnus*	brown treecreeper	C	None	0	1	31/12/1984
1803	Aves	Columbidae	*Columba leucomela*	white-headed pigeon	C	None	0	2	31/03/1993
1804	Aves	Columbidae	*Columba livia*	rock dove	None	None	0	8	09/10/1994
1810	Aves	Columbidae	*Geopelia humeralis*	bar-shouldered dove	C	None	0	2	13/11/2005
1793	Aves	Columbidae	*Ocyphaps lophotes*	crested pigeon	C	None	0	9	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1795	Aves	Columbidae	*Phaps chalcoptera*	common bronzewing	C	None	0	1	30/04/1981
1773	Aves	Columbidae	*Ptilinopus superbus*	superb fruit-dove	C	None	0	2	20/11/1975
1774	Aves	Columbidae	*Spilopelia chinensis*	spotted dove	None	None	0	30	13/11/2005
1779	Aves	Coraciidae	*Eurystomus orientalis*	dollarbird	C	None	0	11	13/11/2005
1609	Aves	Corvidae	*Corvus orru*	Torresian crow	C	None	0	45	13/11/2005
1754	Aves	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo	C	None	0	3	31/03/1993
1743	Aves	Cuculidae	*Cacomantis variolosus*	brush cuckoo	C	None	0	1	30/04/1981
1751	Aves	Cuculidae	*Centropus phasianinus*	pheasant coucal	C	None	0	7	13/11/2005
1744	Aves	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo	C	None	0	3	31/03/1993
1745	Aves	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo	C	None	0	1	22/08/1992
1736	Aves	Cuculidae	*Cuculus optatus*	oriental cuckoo	SL	None	0	1	31/03/1993
1738	Aves	Cuculidae	*Eudynamys orientalis*	eastern koel	C	None	0	10	09/10/1994
1740	Aves	Cuculidae	*Scythrops nova ehollandiae*	channel-billed cuckoo	C	None	0	9	13/11/2005
1611	Aves	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird	C	None	0	10	13/11/2005
1601	Aves	Dicruridae	*Dicrurus bracteatus*	spangled drongo	C	None	0	9	23/05/1993
1366	Aves	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin	C	None	0	4	20/12/1993
1367	Aves	Estrildidae	*Lonchura punctulata*	nutmeg mannikin	None	None	0	3	31/03/1993
1369	Aves	Estrildidae	*Neochmia modesta*	plum-headed finch	C	None	0	2	31/03/1993
1359	Aves	Estrildidae	*Neochmia temporalis*	red-browed finch	C	None	0	1	13/11/2005
1342	Aves	Estrildidae	*Taeniopygia bichenovii*	double-barred finch	C	None	0	8	19/12/1993
1716	Aves	Falconidae	*Falco berigora*	brown falcon	C	None	0	1	05/04/1987
1704	Aves	Falconidae	*Falco cenchroides*	nankeen kestrel	C	None	0	3	31/03/1993
1691	Aves	Falconidae	*Falco longipennis*	Australian hobby	C	None	0	5	31/03/1993
1572	Aves	Hirundinidae	*Hirundo neoxena*	welcome swallow	C	None	0	10	13/11/2005
1585	Aves	Hirundinidae	*Petrochelidon ariel*	fairy martin	C	None	0	4	20/12/1993
1928	Aves	Jacanidae	*Irediparra gallinacea*	comb-crested jacana	C	None	0	1	13/11/2005
1289	Aves	Locustellidae	*Cincloramphus timoriensis*	tawny grassbird	C	None	0	5	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1570	Aves	Maluridae	*Malurus cyaneus*	superb fairy-wren	C	None	0	16	29/06/1994
18458	Aves	Maluridae	*Malurus lamberti*	variegated fairy-wren	C	None	0	6	31/03/1993
1558	Aves	Maluridae	*Malurus melano cephalus*	red-backed fairy-wren	C	None	0	8	13/11/2005
1542	Aves	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird	C	None	0	2	31/03/1993
1523	Aves	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater	C	None	0	6	29/06/1994
1539	Aves	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater	C	None	0	7	09/10/1994
1497	Aves	Meliphagidae	*Lichmera indistincta*	brown honeyeater	C	None	0	10	13/11/2005
1500	Aves	Meliphagidae	*Manorina melanocephala*	noisy miner	C	None	0	15	13/11/2005
1504	Aves	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater	C	None	0	1	29/06/1994
1507	Aves	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater	C	None	0	7	31/03/1993
1489	Aves	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater	C	None	0	8	09/10/1994
1493	Aves	Meliphagidae	*Philemon citreogularis*	little friarbird	C	None	0	9	13/11/2005
1494	Aves	Meliphagidae	*Philemon corniculatus*	noisy friarbird	C	None	0	29	10/01/1994
1471	Aves	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater	C	None	0	1	30/04/1981
1764	Aves	Meropidae	*Merops ornatus*	rainbow bee-eater	C	None	0	6	13/11/2005
1589	Aves	Monarchidae	*Grallina cyanoleuca*	magpie-lark	C	None	0	17	13/11/2005
1600	Aves	Monarchidae	*Myiagra inquieta*	restless flycatcher	C	None	0	1	30/04/1981
1586	Aves	Monarchidae	*Myiagra rubecula*	leaden flycatcher	C	None	0	2	01/03/1989
1442	Aves	Oriolidae	*Oriolus sagittatus*	olive-backed oriole	C	None	0	6	31/03/1993
1444	Aves	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird	C	None	0	32	13/11/2005
1449	Aves	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush	C	None	0	1	10/01/1994
1436	Aves	Pachycephalidae	*Pachycephala pectoralis*	golden whistler	C	None	0	8	23/05/1993
1437	Aves	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler	C	None	0	8	23/05/1993
1702	Aves	Pandionidae	*Pandion haliaetus cristatus*	eastern osprey	SL	None	0	1	13/11/2005
1392	Aves	Pardalotidae	*Pardalotus striatus*	striated pardalote	C	None	0	12	06/06/1993
1360	Aves	Passeridae	*Passer domesticus*	house sparrow	None	None	0	8	29/06/1994

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1284	Aves	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican	C	None	0	4	13/11/2005
1347	Aves	Petroicidae	*Eopsaltria australis*	eastern yellow robin	C	None	0	1	22/08/1992
1339	Aves	Petroicidae	*Microeca fascinans*	jacky winter	C	None	0	1	01/05/1993
1330	Aves	Petroicidae	*Petroica boodang*	scarlet robin	C	None	0	2	28/05/1987
1329	Aves	Petroicidae	*Petroica goodenovii*	red-capped robin	C	None	0	1	07/05/1972
1332	Aves	Petroicidae	*Petroica rosea*	rose robin	C	None	0	5	23/05/1993
1261	Aves	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant	C	None	0	1	13/11/2005
1275	Aves	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant	C	None	0	1	13/11/2005
1263	Aves	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant	C	None	0	3	13/11/2005
1264	Aves	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant	C	None	0	1	31/03/1993
1687	Aves	Phasianidae	*Synoicus ypsilophorus*	brown quail	C	None	0	3	31/03/1993
1955	Aves	Podargidae	*Podargus strigoides*	tawny frogmouth	C	None	0	5	31/03/1993
1249	Aves	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe	C	None	0	1	13/11/2005
1318	Aves	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler	C	None	0	1	30/04/1981
1180	Aves	Psittaculidae	*Alisterus scapularis*	Australian king-parrot	C	None	0	4	31/03/1993
1145	Aves	Psittaculidae	*Glossopsitta concinna*	musk lorikeet	C	None	0	3	06/11/1991
1147	Aves	Psittaculidae	*Parvipsitta pusilla*	little lorikeet	C	None	0	2	20/11/1975
1136	Aves	Psittaculidae	*Platycercus adscitus*	pale-headed rosella	C	None	0	16	13/11/2005
1139	Aves	Psittaculidae	*Platycercus eximius*	eastern rosella	C	None	0	1	30/10/1992
1119	Aves	Psittaculidae	*Psephotus pulcherrimus*	paradise parrot	PE	EX	0	2	17/01/2003
1124	Aves	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet	C	None	0	19	13/11/2005
1125	Aves	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet	C	None	0	10	13/11/2005
1623	Aves	Psophodidae	*Psophodes olivaceus*	eastern whipbird	C	None	0	5	13/11/2005
1686	Aves	Rallidae	*Fulica atra*	Eurasian coot	C	None	0	1	13/11/2005
1673	Aves	Rallidae	*Gallinula tenebrosa*	dusky moorhen	C	None	0	1	13/11/2005
1675	Aves	Rallidae	*Gallirallus philippensis*	buff-banded rail	C	None	0	1	16/05/1994

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1662	Aves	Rallidae	*Porphyrio melanotus*	purple swamphen	C	None	0	2	13/11/2005
1575	Aves	Rhipiduridae	*Rhipidura albiscapa*	grey fantail	C	None	0	12	23/05/1993
1576	Aves	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail	C	None	0	19	13/11/2005
1578	Aves	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail	SL	None	0	2	31/03/1993
1102	Aves	Strigidae	*Ninox boobook*	southern boobook	C	None	0	2	06/06/1993
1101	Aves	Strigidae	*Ninox connivens*	barking owl	C	None	0	2	31/03/1993
1314	Aves	Sturnidae	*Acridotheres tristis*	common myna	None	None	0	8	13/11/2005
1303	Aves	Sturnidae	*Sturnus vulgaris*	common starling	None	None	0	4	20/12/1993
1822	Aves	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill	C	None	0	1	30/04/1981
1823	Aves	Threskiornithidae	*Platalea regia*	royal spoonbill	C	None	0	1	30/04/1981
1812	Aves	Threskiornithidae	*Threskiornis molucca*	Australian white ibis	C	None	0	1	30/04/1981
1800	Aves	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis	C	None	0	6	09/10/1994
1276	Aves	Zosteropidae	*Zosterops lateralis*	silvereye	C	None	0	34	09/10/1994
19149	Insecta	Nymphalidae	*Acraea andromacha andromacha*	glasswing	None	None	0	2	24/01/1993
19147	Insecta	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor	None	None	0	2	04/03/1994
19177	Insecta	Nymphalidae	*Danaus plexippus*	monarch	None	None	0	2	04/03/1994
19185	Insecta	Nymphalidae	*Euploea corinna*	common crow	None	None	0	4	04/03/1994
19122	Insecta	Nymphalidae	*Melanitis leda bankia*	evening brown	None	None	0	5	04/03/1994
19159	Insecta	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)	None	None	0	3	04/03/1994
19176	Insecta	Nymphalidae	*Tirumala hamata hamata*	blue tiger	None	None	0	3	04/03/1994
19169	Insecta	Nymphalidae	*Vanessa kershawi*	Australian painted lady	None	None	0	2	04/03/1994
19075	Insecta	Papilionidae	*Cressida cressida cressida*	clearwing swallowtail	None	None	0	1	27/12/1992
19061	Insecta	Papilionidae	*Graphium choredon*	blue triangle	None	None	0	4	04/03/1994
19062	Insecta	Papilionidae	*Graphium eurypylus lycaon*	pale triangle	None	None	0	1	04/03/1994
19068	Insecta	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)	None	None	0	1	12/01/1993

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
19067	Insecta	Papilionidae	*Papilio anactus*	dainty swallowtail	None	None	0	1	09/01/1994
19074	Insecta	Papilionidae	*Papilio demoleus sthenelus*	chequered swallowtail	None	None	0	1	04/03/1994
19110	Insecta	Pieridae	*Belenois java teutonia*	caper white	None	None	0	5	09/01/1994
19079	Insecta	Pieridae	*Catopsilia gorgophone gorgophone*	yellow migrant	None	None	0	2	04/03/1994
19078	Insecta	Pieridae	*Catopsilia pomona*	lemon migrant	None	None	0	5	04/03/1994
19086	Insecta	Pieridae	*Eurema hecabe*	large grass-yellow	None	None	0	2	04/03/1994
1071	Mammalia	Canidae	*Vulpes vulpes*	red fox	None	None	0	1	22/08/1992
1056	Mammalia	Felidae	*Felis catus*	cat	None	None	0	1	22/08/1992
832	Mammalia	Leporidae	*Lepus europaeus*	European brown hare	None	None	0	1	22/08/1992
989	Mammalia	Molossidae	*Austronomus australis*	white-striped freetail bat	C	None	0	1	09/10/1994
764	Mammalia	Muridae	*Mus musculus*	house mouse	None	None	0	3	01/04/1997
731	Mammalia	Muridae	*Rattus rattus*	black rat	None	None	0	2	22/08/1992
879	Mammalia	Petauridae	*Petaurus norfolcensis*	squirrel glider	C	None	1	1	31/12/1951
859	Mammalia	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum	C	None	0	2	09/10/1994
860	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	koala	E	E	0	33	29/10/2011
851	Mammalia	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum	C	None	0	1	09/10/1994
984	Mammalia	Pteropodidae	*Pteropus alecto*	black flying-fox	C	None	0	1	09/10/1994
962	Mammalia	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox	C	V	0	1	09/10/1994
554	Reptilia	Agamidae	*Intellagama lesueurii*	eastern water dragon	C	None	0	2	10/01/1994
556	Reptilia	Agamidae	*Pogona barbata*	bearded dragon	C	None	0	3	09/01/1994
519	Reptilia	Boidae	*Morelia spilota*	carpet python	C	None	0	2	22/08/1992
512	Reptilia	Colubridae	*Dendrelaphis punctulatus*	green tree snake	C	None	0	1	17/01/1990
378	Reptilia	Diplodactylidae	*Oedura tryoni*	southern spotted velvet gecko	C	None	0	1	31/12/2003
502	Reptilia	Elapidae	*Cacophis krefftii*	dwarf crowned snake	C	None	0	1	31/12/1884
493	Reptilia	Elapidae	*Demansia psammophis*	yellow-faced whipsnake	C	None	0	1	22/08/1992
496	Reptilia	Elapidae	*Demansia vestigiata*	lesser black whipsnake	C	None	0	1	31/12/1988
486	Reptilia	Elapidae	*Furina diadema*	red-naped snake	C	None	0	1	22/08/1992
477	Reptilia	Elapidae	*Hemiaspis signata*	black-bellied swamp snake	C	None	0	1	31/12/1884
454	Reptilia	Elapidae	*Pseudonaja textilis*	eastern brown snake	C	None	0	1	22/08/1992

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
308	Reptilia	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink	C	None	0	2	27/02/1993
31898	Reptilia	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink	C	None	0	3	09/10/1994
240	Reptilia	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus	C	None	0	2	22/08/1992
207	Reptilia	Scincidae	*Eremiascincus richardsonii*	broad-banded sand swimmer	C	None	0	1	31/12/1988
209	Reptilia	Scincidae	*Eroticoscincus graciloides*	elf skink	C	None	0	1	31/12/1988
184	Reptilia	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink	C	None	0	1	22/08/1992
107	Reptilia	Scincidae	*Tiliqua scincoides scincoides*	eastern bluetongue	C	None	0	2	30/10/1992

Table 3. Plants recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17160	Equisetopsida	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	None	None	1	1	31/08/1952
15734	Equisetopsida	Leguminosae	*Acacia penninervis var. longiracemosa*	None	C	None	1	1	11/07/1962
15694	Equisetopsida	Leguminosae	*Acacia salicina*	doolan	C	None	1	1	13/05/1980
11510	Equisetopsida	Leguminosae	*Albizia lebbeck*	Indian siris	C	None	1	1	04/08/2002
36258	Equisetopsida	Oleaceae	*Olea europaea subsp. cuspidata*	None	None	None	1	1	05/08/2002
15550	Equisetopsida	Poaceae	*Chloris divaricata var. divaricata*	slender chloris	C	None	1	1	18/04/1962
7812	Equisetopsida	Poaceae	*Cynodon dactylon var. dactylon*	None	None	None	1	1	18/04/1962
18424	Equisetopsida	Poaceae	*Panicum simile*	None	C	None	1	1	06/09/1930
22165	Equisetopsida	Poaceae	*Sporobolus africanus*	Parramatta grass	None	None	1	1	23/01/1963
10156	Equisetopsida	Poaceae	*Sporobolus pyramidalis*	None	None	None	1	1	04/08/2006
14974	Equisetopsida	Poaceae	*Themeda triandra*	kangaroo grass	C	None	1	1	06/09/1930
10435	Equisetopsida	Poaceae	*x Cynochloris macivorii*	None	C	None	1	1	27/03/1986
34205	Equisetopsida	Potamogetonaceae	*Stuckenia pectinata*	None	SL	None	1	1	16/09/2010

Table 4. Fungi recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
33223	Agaricomycetes	Phallaceae	*Colus pusillus*	None	C	None	0	1	11/03/1992
25521	Agaricomycetes	Phallaceae	*Phallus rubicundus*	None	C	None	0	1	11/03/1992

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
28637	Agaricomycetes	Suillaceae	*Suillus granulatus*	None	C	None	1	1	02/03/1972

Table 5. Other species recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Species table headings and codes

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- Species profile search - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- Species lists - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld wildlife data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australia's Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government, to the maximum extent permitted by law, makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses,

damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

WildNet Records
Species List

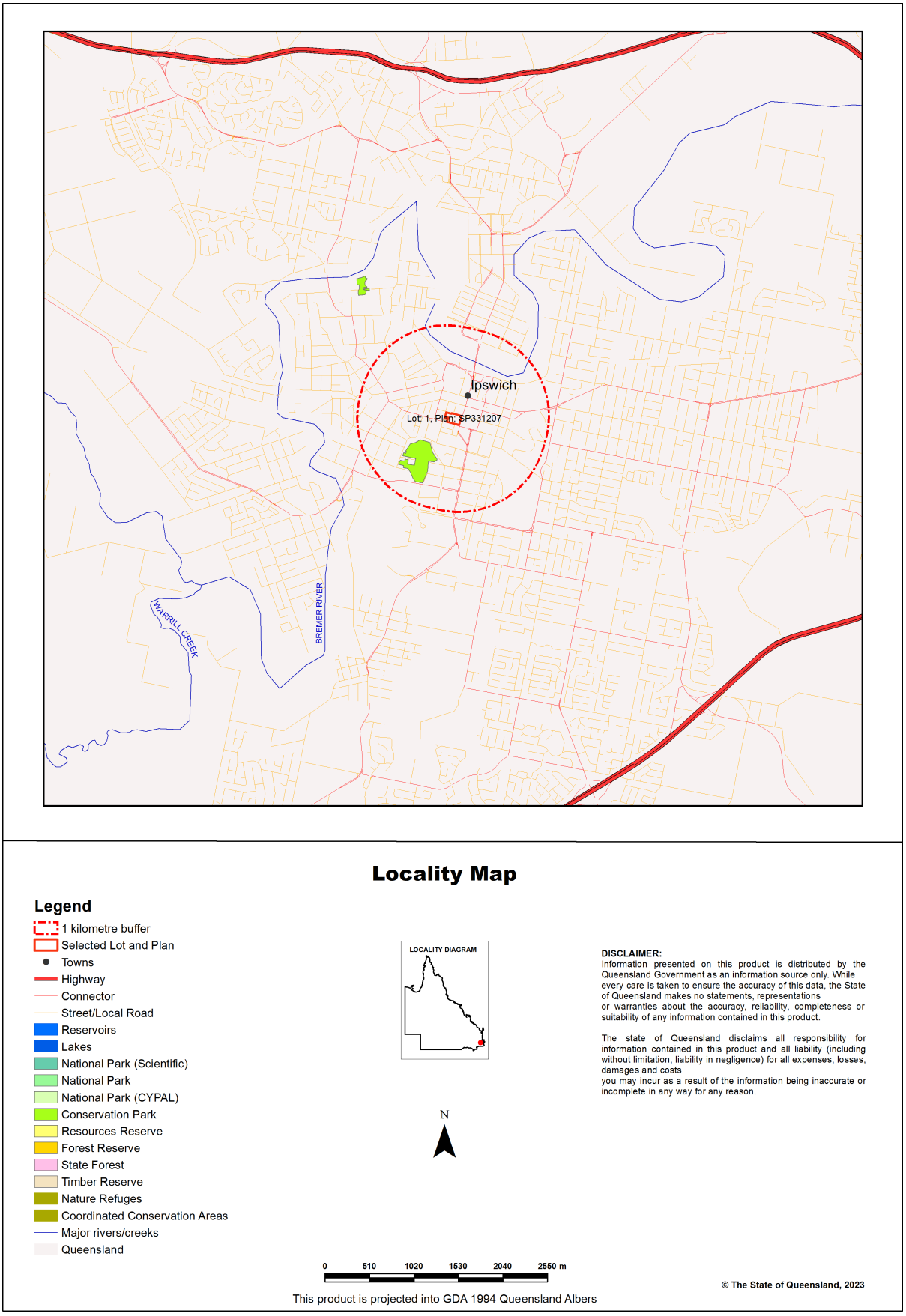
For the selected area of interest 1.76ha Lot: 1 Plan: SP331207

Current as at 17/05/2023

WildNetSpeciesList

Queensland Government

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Lot: 1 Plan: SP331207.

Table 1. Area of interest details

Size (ha)	1.76
Local Government(s)	Ipswich City
Bioregion(s)	Southeast Queensland
Subregion(s)	Moreton Basin
Catchment(s)	Brisbane

Protected Area(s)
No estates or reserves are located within the area of interest.

World Heritage Area(s)
No World Heritage Areas are located within the area of interest.

Ramsar Area(s)
No Ramsar Areas are located within the area of interest.

Species List

Introduction

This report is derived from a spatial layer generated from the WildNet database managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the animals recorded within the area of interest and its one kilometre buffer.

Table 3 lists the plants recorded within the area of interest and its one kilometre buffer.

Table 4 lists the fungi recorded within the area of interest and its one kilometre buffer.

Table 5 lists the other species recorded within the area of interest and its one kilometre buffer.

Table 2. Animals recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
716	Amphibia	Bufonidae	*Rhinella marina*	cane toad	None	None	0	6	09/01/1994
627	Amphibia	Hylidae	*Litoria caerulea*	common green treefrog	C	None	0	2	29/11/2018
608	Amphibia	Hylidae	*Litoria fallax*	eastern sedgefrog	C	None	0	9	13/12/2018
706	Amphibia	Limnodynastidae	*Adelotus brevis*	tusked frog	V	None	0	1	31/12/1893
681	Amphibia	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog	C	None	0	8	14/10/2019
1419	Aves	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill	C	None	0	6	10/01/1994
1422	Aves	Acanthizidae	*Acanthiza nana*	yellow thornbill	C	None	0	2	31/03/1993

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1410	Aves	Acanthizidae	*Gerygone mouki*	brown gerygone	C	None	0	1	31/03/1993
1396	Aves	Acanthizidae	*Gerygone olivacea*	white-throated gerygone	C	None	0	7	23/05/1993
1382	Aves	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren	C	None	0	8	23/05/1993
1371	Aves	Acanthizidae	*Smicrornis brevirostris*	weebill	C	None	0	6	23/05/1993
1742	Aves	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk	C	None	0	3	31/03/1993
1729	Aves	Accipitridae	*Accipiter fasciatus*	brown goshawk	C	None	0	1	13/11/2005
1732	Aves	Accipitridae	*Aquila audax*	wedge-tailed eagle	C	None	0	1	30/04/1981
1721	Aves	Accipitridae	*Aviceda subcristata*	Pacific baza	C	None	0	1	30/04/1981
1722	Aves	Accipitridae	*Circus approximans*	swamp harrier	C	None	0	1	30/04/1981
1725	Aves	Accipitridae	*Elanus axillaris*	black-shouldered kite	C	None	0	1	30/04/1981
1718	Aves	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle	C	None	0	1	13/11/2005
1712	Aves	Accipitridae	*Lophoictinia isura*	square-tailed kite	C	None	0	1	31/05/1986
1714	Aves	Accipitridae	*Milvus migrans*	black kite	C	None	0	1	31/03/1993
1305	Aves	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler	C	None	0	3	20/12/1993
1776	Aves	Alcedinidae	*Ceyx azureus*	azure kingfisher	C	None	0	1	13/11/2005
1767	Aves	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra	C	None	0	22	13/11/2005
1760	Aves	Alcedinidae	*Todiramphus macleayii*	forest kingfisher	C	None	0	1	16/01/1993
1761	Aves	Alcedinidae	*Todiramphus pyrrhopygius*	red-backed kingfisher	C	None	0	1	30/04/1981
1762	Aves	Alcedinidae	*Todiramphus sanctus*	sacred kingfisher	C	None	0	6	13/11/2005
1993	Aves	Anatidae	*Anas gracilis*	grey teal	C	None	0	1	13/11/2005
1994	Aves	Anatidae	*Anas platyrhynchos*	northern mallard	None	None	0	1	30/04/1981
1998	Aves	Anatidae	*Anas superciliosa*	Pacific black duck	C	None	0	2	13/11/2005
1999	Aves	Anatidae	*Aythya australis*	hardhead	C	None	0	1	13/11/2005
2003	Aves	Anatidae	*Chenonetta jubata*	Australian wood duck	C	None	0	7	13/11/2005
2005	Aves	Anatidae	*Cygnus atratus*	black swan	C	None	0	1	13/11/2005
1982	Aves	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose	C	None	0	2	13/11/2005
1279	Aves	Anhingidae	*Anhinga novaehollandiae*	Australasian darter	C	None	0	2	13/11/2005
1829	Aves	Ardeidae	*Ardea alba modesta*	eastern great egret	C	None	0	1	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1831	Aves	Ardeidae	*Ardea intermedia*	intermediate egret	C	None	0	1	13/11/2005
1832	Aves	Ardeidae	*Ardea pacifica*	white-necked heron	C	None	0	1	30/04/1981
1830	Aves	Ardeidae	*Bubulcus ibis*	cattle egret	C	None	0	6	13/11/2005
1839	Aves	Ardeidae	*Butorides striata*	striated heron	C	None	0	1	13/11/2005
1826	Aves	Ardeidae	*Egretta novaeh ollandiae*	white-faced heron	C	None	0	2	20/12/1993
1660	Aves	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow	C	None	0	1	13/11/2005
1654	Aves	Artamidae	*Cracticus nigrogularis*	pied butcherbird	C	None	0	17	13/11/2005
1656	Aves	Artamidae	*Cracticus torquatus*	grey butcherbird	C	None	0	17	13/11/2005
1644	Aves	Artamidae	*Gymnorhina tibicen*	Australian magpie	C	None	0	34	13/11/2005
1645	Aves	Artamidae	*Strepera graculina*	pied currawong	C	None	0	6	28/08/1994
1956	Aves	Burhinidae	*Burhinus grallarius*	bush stone-curlew	C	None	0	1	30/04/1981
1191	Aves	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo	C	None	0	6	13/11/2005
1194	Aves	Cacatuidae	*Cacatua sanguinea*	little corella	C	None	0	1	13/11/2005
1193	Aves	Cacatuidae	*Eolophus roseicapilla*	galah	C	None	0	10	13/11/2005
1636	Aves	Campephagidae	*Coracina novae hollandiae*	black-faced cuckoo-shrike	C	None	0	36	13/11/2005
1639	Aves	Campephagidae	*Edolisoma tenuirostre*	common cicadabird	C	None	0	2	31/03/1993
1640	Aves	Campephagidae	*Lalage leucomela*	varied triller	C	None	0	3	31/03/1993
1940	Aves	Charadriidae	*Elseyornis melanops*	black-fronted dotterel	C	None	0	1	31/05/2018
27774	Aves	Charadriidae	*Vanellus miles*	masked lapwing	C	None	0	1	13/11/2005
1933	Aves	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)	C	None	0	3	15/10/1992
1820	Aves	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork	C	None	0	1	30/04/1981
1294	Aves	Cisticolidae	*Cisticola exilis*	golden-headed cisticola	C	None	0	11	13/11/2005
1628	Aves	Climacteridae	*Climacteris picumnus*	brown treecreeper	C	None	0	1	31/12/1984
1803	Aves	Columbidae	*Columba leucomela*	white-headed pigeon	C	None	0	2	31/03/1993
1804	Aves	Columbidae	*Columba livia*	rock dove	None	None	0	8	09/10/1994
1810	Aves	Columbidae	*Geopelia humeralis*	bar-shouldered dove	C	None	0	2	13/11/2005
1793	Aves	Columbidae	*Ocyphaps lophotes*	crested pigeon	C	None	0	9	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1795	Aves	Columbidae	*Phaps chalcoptera*	common bronzewing	C	None	0	1	30/04/1981
1773	Aves	Columbidae	*Ptilinopus superbus*	superb fruit-dove	C	None	0	2	20/11/1975
1774	Aves	Columbidae	*Spilopelia chinensis*	spotted dove	None	None	0	30	13/11/2005
1779	Aves	Coraciidae	*Eurystomus orientalis*	dollarbird	C	None	0	11	13/11/2005
1609	Aves	Corvidae	*Corvus orru*	Torresian crow	C	None	0	45	13/11/2005
1754	Aves	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo	C	None	0	3	31/03/1993
1743	Aves	Cuculidae	*Cacomantis variolosus*	brush cuckoo	C	None	0	1	30/04/1981
1751	Aves	Cuculidae	*Centropus phasianinus*	pheasant coucal	C	None	0	7	13/11/2005
1744	Aves	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo	C	None	0	3	31/03/1993
1745	Aves	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo	C	None	0	1	22/08/1992
1736	Aves	Cuculidae	*Cuculus optatus*	oriental cuckoo	SL	None	0	1	31/03/1993
1738	Aves	Cuculidae	*Eudynamys orientalis*	eastern koel	C	None	0	10	09/10/1994
1740	Aves	Cuculidae	*Scythrops nova ehollandiae*	channel-billed cuckoo	C	None	0	9	13/11/2005
1611	Aves	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird	C	None	0	10	13/11/2005
1601	Aves	Dicruridae	*Dicrurus bracteatus*	spangled drongo	C	None	0	9	23/05/1993
1366	Aves	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin	C	None	0	4	20/12/1993
1367	Aves	Estrildidae	*Lonchura punctulata*	nutmeg mannikin	None	None	0	3	31/03/1993
1369	Aves	Estrildidae	*Neochmia modesta*	plum-headed finch	C	None	0	2	31/03/1993
1359	Aves	Estrildidae	*Neochmia temporalis*	red-browed finch	C	None	0	1	13/11/2005
1342	Aves	Estrildidae	*Taeniopygia bichenovii*	double-barred finch	C	None	0	8	19/12/1993
1716	Aves	Falconidae	*Falco berigora*	brown falcon	C	None	0	1	05/04/1987
1704	Aves	Falconidae	*Falco cenchroides*	nankeen kestrel	C	None	0	3	31/03/1993
1691	Aves	Falconidae	*Falco longipennis*	Australian hobby	C	None	0	5	31/03/1993
1572	Aves	Hirundinidae	*Hirundo neoxena*	welcome swallow	C	None	0	10	13/11/2005
1585	Aves	Hirundinidae	*Petrochelidon ariel*	fairy martin	C	None	0	4	20/12/1993
1928	Aves	Jacanidae	*Irediparra gallinacea*	comb-crested jacana	C	None	0	1	13/11/2005
1289	Aves	Locustellidae	*Cincloramphus timoriensis*	tawny grassbird	C	None	0	5	13/11/2005

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1570	Aves	Maluridae	*Malurus cyaneus*	superb fairy-wren	C	None	0	16	29/06/1994
18458	Aves	Maluridae	*Malurus lamberti*	variegated fairy-wren	C	None	0	6	31/03/1993
1558	Aves	Maluridae	*Malurus melano cephalus*	red-backed fairy-wren	C	None	0	8	13/11/2005
1542	Aves	Meliphagidae	*Anthochaera chrysoptera*	little wattlebird	C	None	0	2	31/03/1993
1523	Aves	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater	C	None	0	6	29/06/1994
1539	Aves	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater	C	None	0	7	09/10/1994
1497	Aves	Meliphagidae	*Lichmera indistincta*	brown honeyeater	C	None	0	10	13/11/2005
1500	Aves	Meliphagidae	*Manorina melanocephala*	noisy miner	C	None	0	15	13/11/2005
1504	Aves	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater	C	None	0	1	29/06/1994
1507	Aves	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater	C	None	0	7	31/03/1993
1489	Aves	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater	C	None	0	8	09/10/1994
1493	Aves	Meliphagidae	*Philemon citreogularis*	little friarbird	C	None	0	9	13/11/2005
1494	Aves	Meliphagidae	*Philemon corniculatus*	noisy friarbird	C	None	0	29	10/01/1994
1471	Aves	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater	C	None	0	1	30/04/1981
1764	Aves	Meropidae	*Merops ornatus*	rainbow bee-eater	C	None	0	6	13/11/2005
1589	Aves	Monarchidae	*Grallina cyanoleuca*	magpie-lark	C	None	0	17	13/11/2005
1600	Aves	Monarchidae	*Myiagra inquieta*	restless flycatcher	C	None	0	1	30/04/1981
1586	Aves	Monarchidae	*Myiagra rubecula*	leaden flycatcher	C	None	0	2	01/03/1989
1442	Aves	Oriolidae	*Oriolus sagittatus*	olive-backed oriole	C	None	0	6	31/03/1993
1444	Aves	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird	C	None	0	32	13/11/2005
1449	Aves	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush	C	None	0	1	10/01/1994
1436	Aves	Pachycephalidae	*Pachycephala pectoralis*	golden whistler	C	None	0	8	23/05/1993
1437	Aves	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler	C	None	0	8	23/05/1993
1702	Aves	Pandionidae	*Pandion haliaetus cristatus*	eastern osprey	SL	None	0	1	13/11/2005
1392	Aves	Pardalotidae	*Pardalotus striatus*	striated pardalote	C	None	0	12	06/06/1993
1360	Aves	Passeridae	*Passer domesticus*	house sparrow	None	None	0	8	29/06/1994

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1284	Aves	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican	C	None	0	4	13/11/2005
1347	Aves	Petroicidae	*Eopsaltria australis*	eastern yellow robin	C	None	0	1	22/08/1992
1339	Aves	Petroicidae	*Microeca fascinans*	jacky winter	C	None	0	1	01/05/1993
1330	Aves	Petroicidae	*Petroica boodang*	scarlet robin	C	None	0	2	28/05/1987
1329	Aves	Petroicidae	*Petroica goodenovii*	red-capped robin	C	None	0	1	07/05/1972
1332	Aves	Petroicidae	*Petroica rosea*	rose robin	C	None	0	5	23/05/1993
1261	Aves	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant	C	None	0	1	13/11/2005
1275	Aves	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant	C	None	0	1	13/11/2005
1263	Aves	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant	C	None	0	3	13/11/2005
1264	Aves	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant	C	None	0	1	31/03/1993
1687	Aves	Phasianidae	*Synoicus ypsilophorus*	brown quail	C	None	0	3	31/03/1993
1955	Aves	Podargidae	*Podargus strigoides*	tawny frogmouth	C	None	0	5	31/03/1993
1249	Aves	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe	C	None	0	1	13/11/2005
1318	Aves	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler	C	None	0	1	30/04/1981
1180	Aves	Psittaculidae	*Alisterus scapularis*	Australian king-parrot	C	None	0	4	31/03/1993
1145	Aves	Psittaculidae	*Glossopsitta concinna*	musk lorikeet	C	None	0	3	06/11/1991
1147	Aves	Psittaculidae	*Parvipsitta pusilla*	little lorikeet	C	None	0	2	20/11/1975
1136	Aves	Psittaculidae	*Platycercus adscitus*	pale-headed rosella	C	None	0	16	13/11/2005
1139	Aves	Psittaculidae	*Platycercus eximius*	eastern rosella	C	None	0	1	30/10/1992
1119	Aves	Psittaculidae	*Psephotus pulcherrimus*	paradise parrot	PE	EX	0	2	17/01/2003
1124	Aves	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet	C	None	0	19	13/11/2005
1125	Aves	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet	C	None	0	10	13/11/2005
1623	Aves	Psophodidae	*Psophodes olivaceus*	eastern whipbird	C	None	0	5	13/11/2005
1686	Aves	Rallidae	*Fulica atra*	Eurasian coot	C	None	0	1	13/11/2005
1673	Aves	Rallidae	*Gallinula tenebrosa*	dusky moorhen	C	None	0	1	13/11/2005
1675	Aves	Rallidae	*Gallirallus philippensis*	buff-banded rail	C	None	0	1	16/05/1994

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1662	Aves	Rallidae	*Porphyrio melanotus*	purple swamphen	C	None	0	2	13/11/2005
1575	Aves	Rhipiduridae	*Rhipidura albiscapa*	grey fantail	C	None	0	12	23/05/1993
1576	Aves	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail	C	None	0	19	13/11/2005
1578	Aves	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail	SL	None	0	2	31/03/1993
1102	Aves	Strigidae	*Ninox boobook*	southern boobook	C	None	0	2	06/06/1993
1101	Aves	Strigidae	*Ninox connivens*	barking owl	C	None	0	2	31/03/1993
1314	Aves	Sturnidae	*Acridotheres tristis*	common myna	None	None	0	8	13/11/2005
1303	Aves	Sturnidae	*Sturnus vulgaris*	common starling	None	None	0	4	20/12/1993
1822	Aves	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill	C	None	0	1	30/04/1981
1823	Aves	Threskiornithidae	*Platalea regia*	royal spoonbill	C	None	0	1	30/04/1981
1812	Aves	Threskiornithidae	*Threskiornis molucca*	Australian white ibis	C	None	0	1	30/04/1981
1800	Aves	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis	C	None	0	6	09/10/1994
1276	Aves	Zosteropidae	*Zosterops lateralis*	silvereye	C	None	0	34	09/10/1994
19149	Insecta	Nymphalidae	*Acraea andromacha andromacha*	glasswing	None	None	0	2	24/01/1993
19147	Insecta	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor	None	None	0	2	04/03/1994
19177	Insecta	Nymphalidae	*Danaus plexippus*	monarch	None	None	0	2	04/03/1994
19185	Insecta	Nymphalidae	*Euploea corinna*	common crow	None	None	0	4	04/03/1994
19122	Insecta	Nymphalidae	*Melanitis leda bankia*	evening brown	None	None	0	5	04/03/1994
19159	Insecta	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)	None	None	0	3	04/03/1994
19176	Insecta	Nymphalidae	*Tirumala hamata hamata*	blue tiger	None	None	0	3	04/03/1994
19169	Insecta	Nymphalidae	*Vanessa kershawi*	Australian painted lady	None	None	0	2	04/03/1994
19075	Insecta	Papilionidae	*Cressida cressida cressida*	clearwing swallowtail	None	None	0	1	27/12/1992
19061	Insecta	Papilionidae	*Graphium choredon*	blue triangle	None	None	0	4	04/03/1994
19062	Insecta	Papilionidae	*Graphium eurypylus lycaon*	pale triangle	None	None	0	1	04/03/1994
19068	Insecta	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)	None	None	0	1	12/01/1993

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
19067	Insecta	Papilionidae	*Papilio anactus*	dainty swallowtail	None	None	0	1	09/01/1994
19074	Insecta	Papilionidae	*Papilio demoleus sthenelus*	chequered swallowtail	None	None	0	1	04/03/1994
19110	Insecta	Pieridae	*Belenois java teutonia*	caper white	None	None	0	5	09/01/1994
19079	Insecta	Pieridae	*Catopsilia gorgophone gorgophone*	yellow migrant	None	None	0	2	04/03/1994
19078	Insecta	Pieridae	*Catopsilia pomona*	lemon migrant	None	None	0	5	04/03/1994
19086	Insecta	Pieridae	*Eurema hecabe*	large grass-yellow	None	None	0	2	04/03/1994
1071	Mammalia	Canidae	*Vulpes vulpes*	red fox	None	None	0	1	22/08/1992
1056	Mammalia	Felidae	*Felis catus*	cat	None	None	0	1	22/08/1992
832	Mammalia	Leporidae	*Lepus europaeus*	European brown hare	None	None	0	1	22/08/1992
989	Mammalia	Molossidae	*Austronomus australis*	white-striped freetail bat	C	None	0	1	09/10/1994
764	Mammalia	Muridae	*Mus musculus*	house mouse	None	None	0	3	01/04/1997
731	Mammalia	Muridae	*Rattus rattus*	black rat	None	None	0	2	22/08/1992
879	Mammalia	Petauridae	*Petaurus norfolcensis*	squirrel glider	C	None	1	1	31/12/1951
859	Mammalia	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum	C	None	0	2	09/10/1994
860	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	koala	E	E	0	34	29/10/2011
851	Mammalia	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum	C	None	0	1	09/10/1994
984	Mammalia	Pteropodidae	*Pteropus alecto*	black flying-fox	C	None	0	1	09/10/1994
962	Mammalia	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox	C	V	0	1	09/10/1994
554	Reptilia	Agamidae	*Intellagama lesueurii*	eastern water dragon	C	None	0	2	10/01/1994
556	Reptilia	Agamidae	*Pogona barbata*	bearded dragon	C	None	0	3	09/01/1994
519	Reptilia	Boidae	*Morelia spilota*	carpet python	C	None	0	2	22/08/1992
512	Reptilia	Colubridae	*Dendrelaphis punctulatus*	green tree snake	C	None	0	1	17/01/1990
378	Reptilia	Diplodactylidae	*Oedura tryoni*	southern spotted velvet gecko	C	None	0	1	31/12/2003
502	Reptilia	Elapidae	*Cacophis krefftii*	dwarf crowned snake	C	None	0	1	31/12/1884
493	Reptilia	Elapidae	*Demansia psammophis*	yellow-faced whipsnake	C	None	0	1	22/08/1992
496	Reptilia	Elapidae	*Demansia vestigiata*	lesser black whipsnake	C	None	0	1	31/12/1988
486	Reptilia	Elapidae	*Furina diadema*	red-naped snake	C	None	0	1	22/08/1992
477	Reptilia	Elapidae	*Hemiaspis signata*	black-bellied swamp snake	C	None	0	1	31/12/1884
454	Reptilia	Elapidae	*Pseudonaja textilis*	eastern brown snake	C	None	0	1	22/08/1992

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
308	Reptilia	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink	C	None	0	2	27/02/1993
31898	Reptilia	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink	C	None	0	3	09/10/1994
240	Reptilia	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus	C	None	0	2	22/08/1992
207	Reptilia	Scincidae	*Eremiascincus richardsonii*	broad-banded sand swimmer	C	None	0	1	31/12/1988
209	Reptilia	Scincidae	*Eroticoscincus graciloides*	elf skink	C	None	0	1	31/12/1988
184	Reptilia	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink	C	None	0	1	22/08/1992
107	Reptilia	Scincidae	*Tiliqua scincoides scincoides*	eastern bluetongue	C	None	0	2	30/10/1992

Table 3. Plants recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17160	Equisetopsida	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	None	None	1	1	31/08/1952
15734	Equisetopsida	Leguminosae	*Acacia penninervis var. longiracemosa*	None	C	None	1	1	11/07/1962
15694	Equisetopsida	Leguminosae	*Acacia salicina*	doolan	C	None	1	1	13/05/1980
11510	Equisetopsida	Leguminosae	*Albizia lebbeck*	Indian siris	C	None	1	1	04/08/2002
36258	Equisetopsida	Oleaceae	*Olea europaea subsp. cuspidata*	None	None	None	1	1	05/08/2002
15550	Equisetopsida	Poaceae	*Chloris divaricata var. divaricata*	slender chloris	C	None	1	1	18/04/1962
7812	Equisetopsida	Poaceae	*Cynodon dactylon var. dactylon*	None	None	None	1	1	18/04/1962
18424	Equisetopsida	Poaceae	*Panicum simile*	None	C	None	1	1	06/09/1930
22165	Equisetopsida	Poaceae	*Sporobolus africanus*	Parramatta grass	None	None	1	1	23/01/1963
10156	Equisetopsida	Poaceae	*Sporobolus pyramidalis*	None	None	None	1	1	04/08/2006
14974	Equisetopsida	Poaceae	*Themeda triandra*	kangaroo grass	C	None	1	1	06/09/1930
10435	Equisetopsida	Poaceae	*x Cynochloris macivorii*	None	C	None	1	1	27/03/1986
34205	Equisetopsida	Potamogetonaceae	*Stuckenia pectinata*	None	SL	None	1	1	16/09/2010

Table 4. Fungi recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
33223	Agaricomycetes	Phallaceae	*Colus pusillus*	None	C	None	0	1	11/03/1992
25521	Agaricomycetes	Phallaceae	*Phallus rubicundus*	None	C	None	0	1	11/03/1992

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
28637	Agaricomycetes	Suillaceae	*Suillus granulatus*	None	C	None	1	1	02/03/1972

Table 5. Other species recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Species table headings and codes

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- Species profile search - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- Species lists - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld wildlife data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australia's Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government, to the maximum extent permitted by law, makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses,

damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

Appendix 9 – Contaminated Land Register and Environmental Management Register Search

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852762 EMR Site Id: 217954 20 April 2023
This response relates to a search request received for the site:
Lot: 1 Plan: SP331207

SEARCH RESULT

The site you have searched is a lot resulting from the amalgamation of the following sites, which are included on the Environmental Management Register (EMR) or the Contaminated Land Register (CLR), as indicated below. Further details for these sites are available by contacting this Agency via email: emr.clr.registry@des.qld.gov.au

Lot	Plan	
42	I122421	EMR
39	I122421	EMR
2	CP864211	EMR
41	I122421	EMR
43	I122421	EMR
40	I122421	EMR

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852763 EMR Site Id: 5699 20 April 2023
This response relates to a search request received for the site:
Lot: 42 Plan: I122421

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 42 Plan: I122421
Address: 61A EAST STREET
IPSWICH QLD 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852764 EMR Site Id: 5696 20 April 2023
This response relates to a search request received for the site:
Lot: 39 Plan: I122421

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 39 Plan: I122421
Address: 61A EAST STREET
IPSWICH QLD 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852766 EMR Site Id: 5697 20 April 2023
This response relates to a search request received for the site:
Lot: 43 Plan: I122421

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 43 Plan: I122421
Address: 61A EAST STREET
IPSWICH QLD 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852767 EMR Site Id: 5698 20 April 2023
This response relates to a search request received for the site:
Lot: 40 Plan: I122421

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 40 Plan: I122421
Address: 61A EAST STREET
IPSWICH QLD 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
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If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

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ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852768 EMR Site Id: 88424 20 April 2023
This response relates to a search request received for the site:
Lot: 2 Plan: CP864211

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 2 Plan: CP864211
Address: 50 SOUTH STREET
IPSWICH QLD 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-
1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
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Administering Authority

Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50852765 EMR Site Id: 5650 20 April 2023
This response relates to a search request received for the site:
Lot: 41 Plan: I122421

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 41 Plan: I122421
Address: 61A EAST STREET
IPSWICH 4305

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
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1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Appendix 10 – Property Information

INTERNAL CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Search Date: 07/03/2023 12:31 Title Reference: 51272885
Date Created: 24/12/2021

Previous Title: 18696232
18800011
18807063
51251204
51251205
51251206
51251207

REGISTERED OWNER

Dealing No: 721339609 14/12/2021

WEST MORETON HOSPITAL AND HEALTH SERVICE

ESTATE AND LAND

Estate in Fee Simple

LOT 1 SURVEY PLAN 331207
Local Government: IPSWICH

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 19547079 (ALLOT 11 SEC 23)
Deed of Grant No. 19547081 (ALLOT 19 SEC 23)
Deed of Grant No. 19547082 (ALLOT 18 SEC 23)
Deed of Grant No. 19547085 (ALLOT 4 SEC 23)
Deed of Grant No. 19547087 (ALLOT 1 SEC 23)
Deed of Grant No. 19547091 (ALLOT 17 SEC 23)
Deed of Grant No. 19547092 (ALLOT 16 SEC 23)
Deed of Grant No. 19547093 (ALLOT 15 SEC 23)
Deed of Grant No. 19547094 (ALLOT 13 SEC 23)
Deed of Grant No. 19547095 (ALLOT 12 SEC 23)
Deed of Grant No. 19547098 (ALLOT 10 SEC 23)
Deed of Grant No. 19547099 (ALLOT 9 SEC 23)
Deed of Grant No. 19547106 (ALLOT 14 SEC 23)
Deed of Grant No. 19547107 (ALLOT 8 SEC 23)
Deed of Grant No. 19547108 (ALLOT 7 SEC 23)
Deed of Grant No. 19547109 (ALLOT 6 SEC 23)
Deed of Grant No. 19547110 (ALLOT 5 SEC 23)
Deed of Grant No. 19547111 (ALLOT 3 SEC 23)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

INTERNAL CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Search Date: 22/03/2023 10:49 Title Reference: 51264448
Date Created: 08/10/2021

Previous Title: 40079117

REGISTERED OWNER

Dealing No: 721271372 19/11/2021

WEST MORETON HOSPITAL AND HEALTH SERVICE

ESTATE AND LAND

Estate in Fee Simple

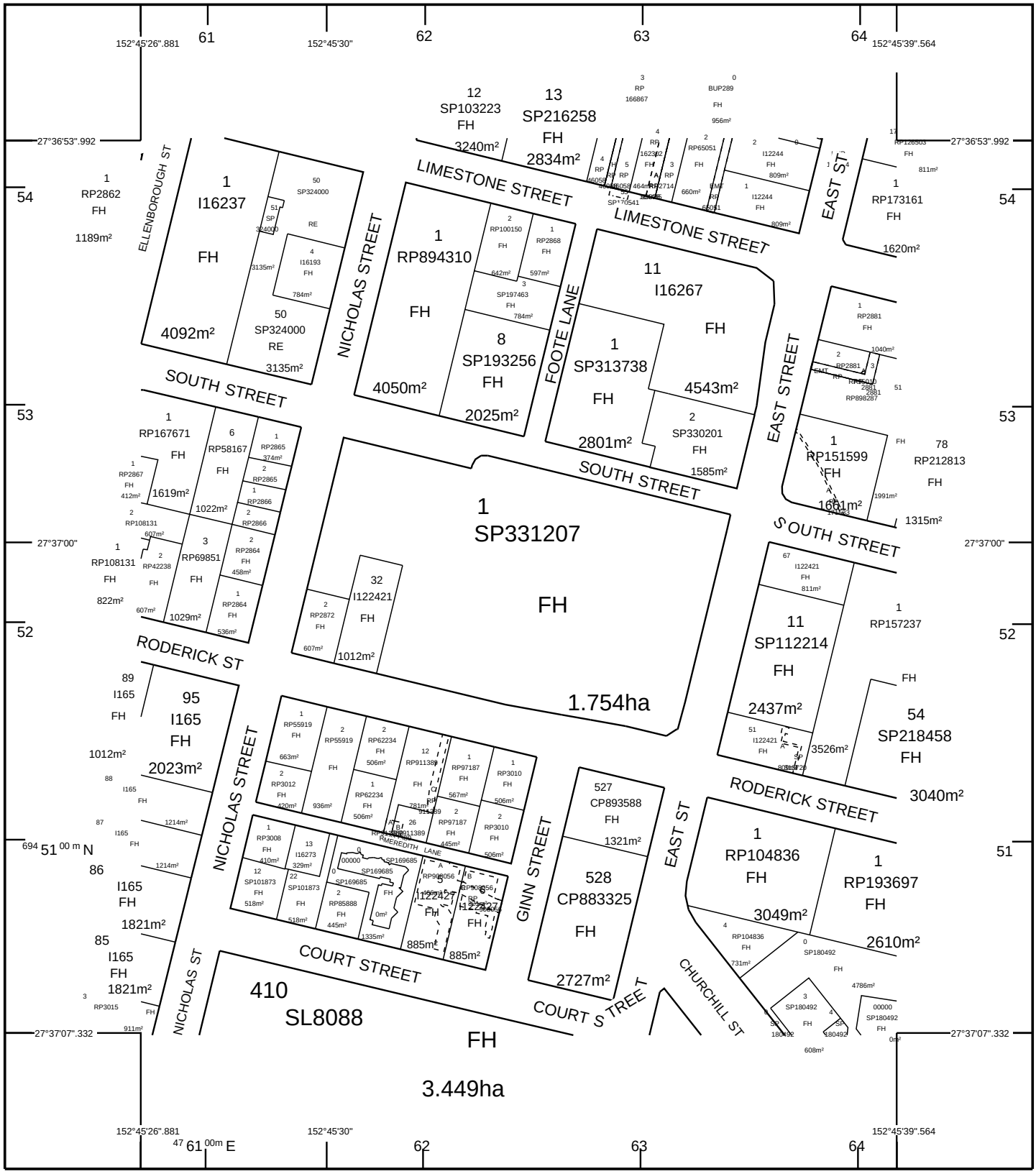
LOT 2 SURVEY PLAN 330201
Local Government: IPSWICH

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Commonwealth by Conveyance No. 602308526 (E999201) (ALLOT 10 SEC 22)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Title Search **

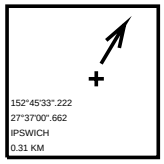


STANDARD MAP NUMBER
9442-14333

0 50 100 150 200 250 m

HORIZONTAL DATUM:GDA94 ZONE:56 SCALE 1 : 2500

MAP WINDOW POSITION & NEAREST LOCATION



SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	1/SP331207
Area/Volume	1.754ha
Tenure	FREEHOLD
Local Government	IPSWICH CITY
Locality	IPSWICH
Segment/Parcel	10199/209

CLIENT SERVICE STANDARDS

PRINTED 07/03/2023

DCDB 06/03/2023

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GDA

SmartMap

An External Product of SmartMap Information Services

Based upon an extraction from the Digital Cadastral Data Base

Queensland Government

Appendix 11 – Extracts from Planning Act 2016

(2) The chief executive officer of the local government must give notice of the payment of the compensation to the registrar of titles.

(3) The notice must be in the form approved by the registrar of titles.

(4) The registrar of titles must keep the information in the notice under—

(a) to the extent the interest in the premises is recorded on the freehold land register under the Land Title Act—section 34 of that Act; or

(b) to the extent the interest in the premises is recorded on a register under the Land Act—section 281 of that Act.

Part 5 Designation of premises for development of infrastructure

35 What is a designation

(1) A ***designation*** is a decision of the Minister, or a local government, (a ***designator***) that identifies premises for the development of 1 or more types of infrastructure that are prescribed by regulation.

(2) A designation may include requirements about any or all of the following—

(a) works for the infrastructure (the height, shape, bulk, landscaping, or location of works, for example);

(b) the use of premises, for example—

(i) vehicular and pedestrian access to, and circulation on, premises; and

(ii) operating times for the use; and

(iii) ancillary uses;

(c) lessening the impact of the works or use (environmental management procedures, for example).

(3) The chief executive may, by notice, require a local government to include a matter in subsection (2) in a designation made by the local government.

Note—

For the effect of a designation on the categorisation of development, see section 44(6)(b).

36 Criteria for making or amending designations

(1) To make a designation, a designator must be satisfied that—

(a) the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or

(b) there is or will be a need for the efficient and timely supply of the infrastructure.

(2) To make or amend a designation, if the designator is the Minister, the Minister must also be satisfied that adequate environmental assessment, including adequate consultation, has been carried out in relation to the development that is the subject of the designation or amendment.

(3) The Minister may, in guidelines prescribed by regulation, set out the process for the environmental assessment and consultation.

(4) The Minister is taken to be satisfied of the matters in subsection (2) if the process in the guidelines is followed.

(5) However, the Minister may be satisfied of the matters in another way.

(6) Sections 10 and 11 apply to the making or amendment of the guidelines as if the guidelines were a State planning policy.

(7) To make or amend a designation, a designator must have regard to—

(a) all planning instruments that relate to the premises; and

(b) any assessment benchmarks, other than in planning instruments, that relate to the development that is the subject of the designation or amendment; and

(c) if the premises are in a State development area under the State Development Act—any approved development scheme for the premises under that Act; and

(ca) if the premises are in a priority development area under the *Economic Development Act 2012*—any development scheme for the priority development area under that Act; and

(d) any properly made submissions made as part of the consultation carried out under section 37; and

(e) the written submissions of any local government.

37 Process for making or amending designation

(1) This section is about the process for—

(a) making a designation for premises; or

(b) amending a designation for premises, including by amending—

(i) the area of the premises; or

(ii) the type of infrastructure for which the premises were designated; or

(iii) a requirement included in the designation under section 35(2).

(2) If the Minister proposes to make or amend a designation, the Minister must give notice of the proposal to the affected parties.

(3) However, the Minister need not give the notice to an owner of premises if—

(a) a notice has already been given to the owner as part of the consultation for an assessment under section 36(2); or

(b) the Minister can not notify the owner after making reasonable efforts.

(4) A notice under subsection (2) must state the following—

(a) that a submission about the proposal may be given by an affected party to the Minister;

(b) the period, of at least 15 business days after the notice is given, in which the submission may be made;

(c) the requirements for a properly made submission.

(5) If, after considering any properly made submissions, the Minister decides not to proceed with the proposal, the Minister must give a decision notice to the affected parties.

(6) If a local government proposes to make or amend a designation, the local government must follow the process in the designation process rules, before the local government makes or amends the designation.

(7) Sections 10 and 11 apply to the making or amendment of the designation process rules as if the designation process rules were a State planning policy.

(8) In this section—

designation process rules means rules made by the Minister and prescribed by regulation.

38 Process after making or amending designation

(1) If, after considering any properly made submissions, the designator decides to make or amend a designation, the designator must publish a gazette notice that states—

(a) that the designation has been made or amended; and

(b) a description of the designated premises; and

(c) the type of infrastructure for which the premises were designated; and

(d) for an amendment—the nature of the amendment.

(2) The designator must give the following things to each affected party and the chief executive—

(a) a copy of the gazette notice;

(b) a notice of any requirements included in the designation under section 35(2);

(c) a notice of how the designator dealt with any properly made submissions.

39 Duration of designation

(1) A designation stops having effect on the day (the ***end day***) that is 6 years after the designation starts to have effect, unless—

(a) on the end day—

(i) a public sector entity owns, or has an easement for the same purpose as the designation over, the designated premises; or

(ii) another entity owns, or has an easement over, the designated premises and construction of the infrastructure for which the premises were designated started before the end day; or

(b) before the end day—

(i) a public sector entity gave a notice of intention to resume the designated premises under the Acquisition Act, section 7; or

(ii) a public sector entity signed an agreement to take designated premises under the Acquisition Act or to otherwise buy the premises; or

(iii) the designator complies with subsection (3).

(2) The designator may extend the duration of a designation, for up to 6 years, by publishing a gazette notice about the extension before the designation stops having effect.

(3) The designator must give notice of the extension of the designation to—

(a) if the Minister is the designator—each of the affected parties and the chief executive; or

(b) if a local government is the designator—the owner of the premises and the chief executive.

(4) If a public sector entity discontinues proceedings to resume designated premises, either before or after the end day, the designation stops having effect on the day when the proceedings are discontinued.

40 Repealing designation—designator

(1) A designator may repeal a designation made by the designator by publishing a gazette notice that states—

(a) that the designation is repealed; and

(b) a description of the designated premises; and

(c) the type of infrastructure for which the premises were designated; and

(d) the reasons for the repeal.

(2) The designator must give a copy of the notice to—

(a) if the Minister is the designator—each of the affected parties and the chief executive; or

(b) if a local government is the designator—the owner of the premises and the chief executive.

(3) Any development started under the designation may be completed as if the designation had not been repealed.

(4) Subject to any requirements under section 35(2), a use of the premises that is the natural and ordinary consequence of the development is taken to be a lawful use.

41 Repealing designation—owner's request

(1) An owner of an interest in designated premises may request a designator to repeal a designation made by the designator on the basis that the designation is causing the owner hardship.

(2) Subsection (1) does not apply if—

(a) the premises are subject to an easement for the infrastructure for which the premises are designated; or

(b) the designation also applies to other premises and relates to a land corridor for the infrastructure; or

(c) the premises are a road.

(3) The request must be in writing, and contain any information that the guidelines made under section 36(3) require.

(4) The designator must, within 40 business days after receiving the request—

(a) repeal the designation, using the process under section 40; or

(b) decide to refuse the request; or

(c) decide to take other action that the designator considers appropriate in the circumstances.

(5) The designator must, within 5 business days after making a decision under subsection (4)(b) or (c), give a decision notice to the owner.

42 Noting designation in planning scheme

(1) This section applies if a local government—

(a) makes, amends, extends or repeals a designation; or

(b) receives a notice about the Minister making, amending, extending or repealing a designation.

(2) The local government must include a note about the making, amendment, extension or repeal in—

(a) the local government's planning scheme; and

(b) any planning scheme that the local government makes before the designation stops having effect.

(3) The note must—

(a) identify the premises that were designated; and

(b) describe the type of infrastructure for which the premises were designated; and

(c) state the day when the designation, amendment, extension or repeal started to have effect.

(4) The local government must include the note in the planning scheme in a way that ensures the other provisions of the scheme that apply to the designated premises remain effective.

(5) To remove any doubt, it is declared that—

(a) the note is not an amendment of a planning scheme; and

(b) a designation is taken to be part of a planning scheme; and

(c) a designation is not the only way that a planning scheme may identify infrastructure; and

(d) a designation does not affect the provisions of a planning scheme that apply to designated premises, even after the designation stops having effect.

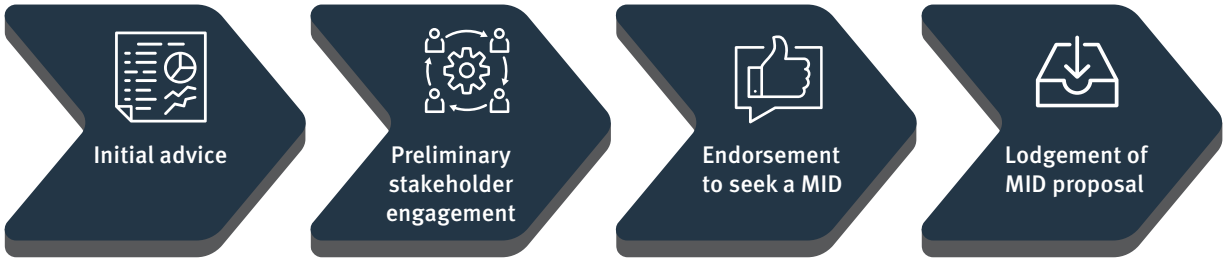
42A Amending and repealing designations under old Act

To remove any doubt, it is declared that the Minister may, under this part, amend or repeal a designation of land under the old Act made by another Minister.

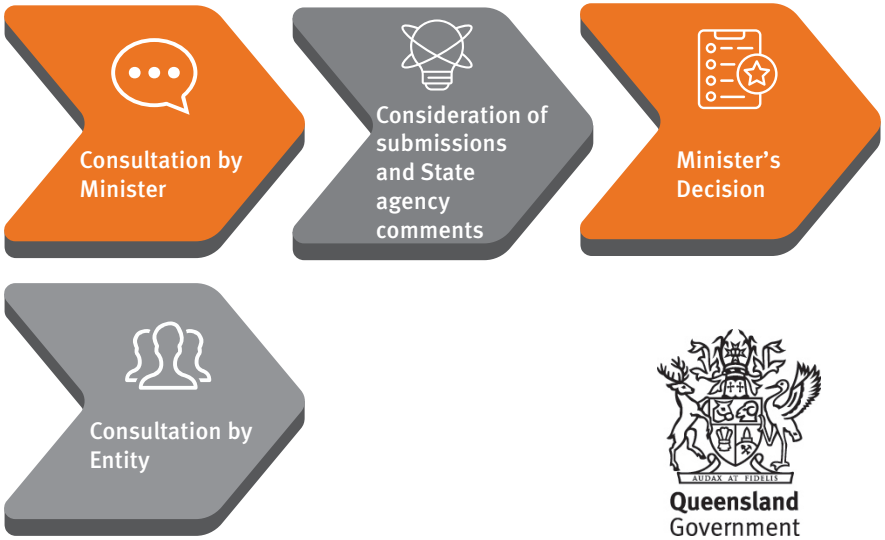
Appendix 12 – MID Flowchart

Process for making a Ministerial Infrastructure Designation (MID), and making an amendment to a MID (not a minor amendment)

Guidance Material



MGR & Planning Act 2016



- Guidance Material
- MGR
- Planning Act 2016

Queensland Government