BNC Ref. DA133-25
IMPACT: MCU

Townsville City Council

Received
03/11/2025

Date >> 2 November 2025

ASSESSMENT MANAGER
TOWNSVILLE CITY COUNCIL
PO BOX 1268
TOWNSVILLE QLD 4810
Via: Email

Dear Assessment Manager,

RE: LODGEMENT OF A DEVELOPMENT APPLICATION UNDER CHAPTER 3, PART 2 OF THE *PLANNING ACT 2016*
PRELIMINARY APPROVAL FOR A VARIATION REQUEST UNDER s50 OF THE *PLANNING ACT 2016*
11 BLACK HAWK BOULEVARD, THURINGOWA CENTRAL QLD 4817 (RPD: LOT 10 ON SP177384)

BNC Planning acting on behalf of the applicant submits the attached development application to the Townsville City Council in accordance Chapter 3, Part 2 of the *Planning Act 2016* (the Act). The development application is seeking a preliminary approval for a variation request under s50 of the Act for use rights in accordance with a Plan of Development over the above reference premises.

This development application is being made to the Townsville City Council as the relevant assessment manager under the *Planning Regulation 2017* and has been made in the *approved form* as required under s51 of the *Planning Act 2016*. The common material making up the development application includes:

- Relevant development application forms and written consent of the landowner(s).
- A detailed planning report and the relevant site detail.
- Development plans and other relevant supporting information.

Please make contact to confirm receipt of this development application and to confirm the assessment manager application fee amount and payment options. It is noted that the application fee for this application type (variation request) is 'price upon application'. I trust this information is sufficient for acceptance of the development application as *properly made* subject to payment of the application fee. Please contact me should there be any issues or if you require any further information.

Kind regards,

Benjamin Collings
Director

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NOV 2025

BNC PLANNING

DEVELOPMENT APPLICATION
PLANNING ACT 2016

PRELIMINARY APPROVAL

MATERIAL CHANGE OF USE - VARIATION REQUEST UNDER SECTION 50 OF THE PLANNING ACT 2016

11 Black Hawk Boulevard
THURINGOWA CENTRAL QLD 4817
Lot 10 on SP177384

bncplanning.com.au

PLANNING REPORT

DEVELOPMENT APPLICATION FOR A PRELIMINARY APPROVAL
PLANNING ACT 2016

IMPACT ASSESSABLE MATERIAL CHANGE OF USE – VARIATION REQUEST UNDER s50 OF THE *PLANNING ACT 2016*

11 BLACK HAWK BOULEVARD, THURINGOWA CENTRAL QLD 4817
being
LOT 10 on SP177384
for
USE RIGHTS IN ACCORDANCE WITH THE BLACK HAWK BOULEVARD PLAN OF DEVELOPMENT

Report Matrix

APPLICATION SUMMARY	
Applicant:	Stateland C/- BNC Planning
Application Type:	Development Application for a Preliminary Approval and Development Permit
Development Type:	Material Change of Use (Variation Request) and Reconfiguring a Lot
Category of Development (Level of Assessment):	Impact Assessable
Defined Use:	Use rights in accordance with the Black Hawk Boulevard Plan of Development
Assessment Manager:	Townsville City Council
Referral Agencies:	Ergon Energy
Planning Scheme:	Townsville City Council Planning Scheme
Planning Scheme Definition(s):	Plan of Development
Zoning:	Major Centre Zone
Precincts/Sub-Precincts:	Thuringowa Central Major Centre Precinct
Overlays:	Airport environs, Flood hazard
SITE DESCRIPTION	
Property Address:	11 Black Hawk Boulevard, Thuringowa Central QLD 4817
Real (Legal) Property Description:	Lot 10 on SP177384
Site Area:	4.419 ha
Landowner:	FARRELL HEIDELBERG PTY LTD A.C.N. 147 265 316
Tenure:	Freehold
Relevant Encumbrances:	Easement E on SP109747 and Easement B on RP812279
Local Government Area:	Townsville City Council
Road Frontage(s)	Black Hawk Boulevard, High Range Road, Regiment Court & Gregory Street
Existing Use(s)	Vacant land

DOCUMENT CONTROL

Prepared by		Client	File Ref.	Report
BNC Planning		Stateland Pty Ltd	DA133-25	Report No. DA133-25-PR
Version	**Date**	**Author**		
1.0	October 2025	SSM:BNC		

CONTENTS

APPENDICIES

1.0 EXECUTIVE SUMMARY

This development application is made in accordance with the provisions of Chapter 3, Part 2 of the *Planning Act 2016* (the Act) and is seeking a preliminary approval for a *variation request* under section 50 of the Act. The variation being sought is for use rights in accordance with the *Black Hawk Boulevard Plan of Development*. This variation is in direct response to demonstrated market need and opportunity in the area, and in the interest of furthering the strategic intent of the planning scheme by achieving the highest and best use of land in response to social, economic and environmental factors.

The subject premises is situated at 11 Black Hawk Boulevard, Thuringowa Central more particularly described as Lot 10 on SP177384. The premises forms part of the Thuringowa Centre major centre and is undeveloped. The site contains areas of the Major Centre zone and the Medium density residential zone, and within the Thuringowa Central major centre precinct, Thuringowa South precinct, Thuringowa Centre support sub-precinct, and Thuringowa town centre heart sub-precinct under the planning scheme, while also being affected by a number of overlays.

For the purpose of this development application, *BNC Planning* act on behalf of the applicant *Stateland Pty Ltd.*

Following a detailed, strategic land use assessment of the proposal against the applicable local and state assessment benchmarks, including pre-lodgement discussions with council, it has been determined that the development proposal is consistent with the strategic intent of the planning scheme and furthers the achievement of the strategic framework. The development application therefore warrants approval in accordance with rules of assessment as established under the Act, subject to the imposition of reasonable and relevant conditions. A summary of the development application is provided below:

Table 1.0: Development application summary

APPLICATION SUMMARY	
Applicant:	Stateland Pty Ltd C/- BNC PLANNING
Application Type:	Development Application for a Preliminary Approval
Development Type:	Material Change of Use (variation request under s50 of the *Planning Act 2016*)
Category of Development (Level of Assessment):	Assessable Development – Impact Assessable
Development Description:	Variation of use rights in accordance with the Plan of Development
Assessment Manager:	Townsville City Council
Referral Agencies:	NA
CATEGORISING INSTRUMENTS	
Planning Scheme:	Townsville City Plan 2014
Planning Scheme Defined Uses/Works:	NA
Zoning:	Major centre zone and Medium density residential zone
Precincts:	Thuringowa South precinct and Thuringowa Central major centre precinct
Sub-Precincts:	Thuringowa Centre support sub-precinct and Thuringowa town centre sub-precinct
Overlays:	Airport environs overlay, Flood hazard overlay
SITE DESCRIPTION	
Property Address:	11 Black Hawk Boulevard, Thuringowa Central QLD 4817
Legal Description:	Lot 10 on SP177384
Site Area:	4.42ha
Landowner:	Stateland Pty Ltd
Tenure:	Freehold
Encumbrances:	EMT B on RP812279 and EMT E on SP109747
Local Government Area:	Townsville City Council

2.0 SITE AND LOCALITY

The subject premises is addressed as 11 Black Hawk Boulevard, Thuringowa Central, more particularly described as Lot 10 on SP177384. The land is split-zoned being within the Major centre zone and Medium density residential zone under the planning scheme. The site is also identified as being in the Thuringowa Central major centre precinct, Thuringowa South precinct, Thuringowa Centre support sub-precinct, and Thuringowa town centre heart sub-precinct and is subject to influence by a number of scheme overlays. The site and immediate locality are dominated by the Thuringowa Centre major centre which is anchored by the Willow Shopping Centre supported by the surrounding commercial uses established on the local area, consisting of a wide variety of commercial, residential, industrial and community uses. The subject site, Lot 10 on SP177384, consists of two zones, the Major centre zone and the Medium density residential zone. While the entirety of the site is vacant, an area within the Major Centre zoned section provides supportive car parking for the surrounding commercial uses through the easement fronting High Range Drive. The following table describes the key characteristics of the site:

Table 2.0: Site characteristics

SITE AND LOCALITY DESCRIPTION	
Property Address:	11 Black Hawk Boulevard, Thuringowa Central QLD 4817
RPD:	Lot 10 on SP177384
Landowner(s):	Stateland Pty Ltd
Land Area:	4.42ha
Existing Use of Land:	Vacant
Road Frontage:	Approx. 160m to Black Hawk Boulevard, approx. 153m to High Range Drive, approx. 100m to Regiment Court, and approx. 65m to Gregory Street
Significant Site Features:	EMT B on RP812279 and EMT E on SP109747
Topography:	The site is generally flat with no notable topographic features

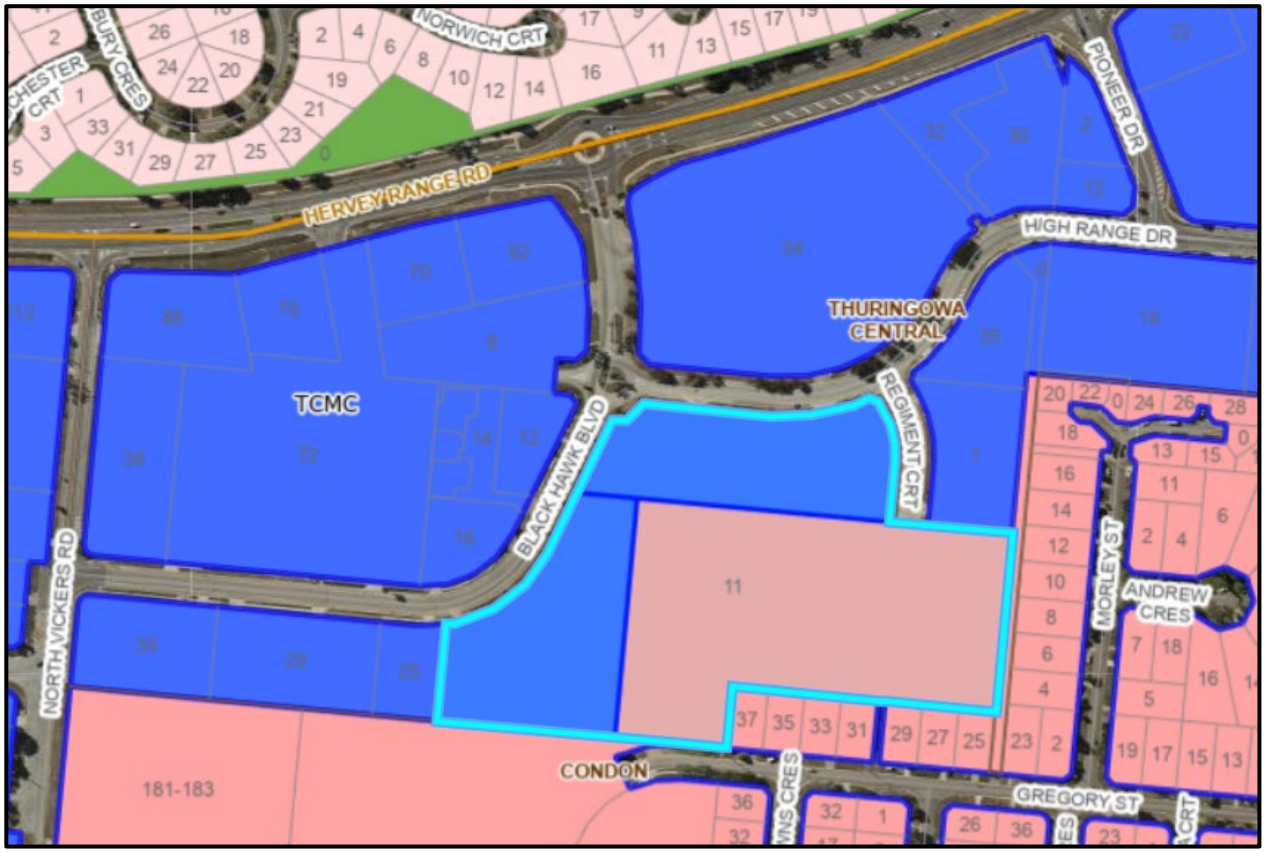


Figure 1.0: Site zoning locality

3.0 PROPOSAL SUMMARY

This development application is seeking a preliminary approval for a variation request under s50 of the Act, which is further defined under Schedule 2 of the Act as follows:

> ***Variation request*** *means part of a development application for a preliminary approval for premises that seeks to vary the effect of any local planning instrument in effect for the premises.*

The applicant is proposing to *vary the effect* of the planning scheme to establish new use rights to facilitate future development outcomes aligned with the Major centre zone and other supportive uses of the surrounding local area. The proposal does not involve any building, site or external works and is a variation request to accommodate future uses which are economically viable but not specifically supported by the existing zoning and are consistent with the character of the local area. In doing, the development will further the extent to which the land can achieve the Strategic Intent of the planning scheme. This proposal is intended for the site to compliment the surrounding commercial area with supporting compatible business uses at a scale that does not compromise the viability or function of the centre or the greater centres hierarchy in general.

3.1 Development Application Strategy

The development application regime will be anchored by an initial impact assessable material change of use application being a variation request (VR) to override the Townsville City Council Planning Scheme to establish new use rights over the premise in accordance with a Plan of Development (the POD). The POD will establish a unique, development specific application and approval framework that will streamline future approval processes, and in doing so built and foster confidence, certainty and control over the construction and operational phases of development.

Once the POD is in place, subsequent material change of use development applications will be made. A summary of the development application sequencing is provided below:

<u>Summary of DA Sequencing</u>

a) Material Change of Use (Impact) lodged under the Planning Scheme - Variation Request for use rights in accordance with a Plan of Development

b) Material Change of Use (Code) lodged under the POD – Specific use rights to be driven by market analysis and demonstrated demand.

c) Operational Works (Code) lodged under the Planning Scheme as required subsequent to each MCU.

3.2 Economic Need

The project is supported an Economic Impact Assessment attached in **Appendix 4** which undertakes a high level analyses of the need for the proposed land uses, any impact on the centres hierarchy and the economic benefits the development has across industries including employment, wages and salaries, value-add and output. The analysis also sought to ensure that, should the development of the subject site be dominated by commercial outcomes over medium density residential outcomes, there would be no adverse impacts.

The assessment concluded that there is a need for the expansion and consideration of the variety of uses that could be supported on the subject site based on the expanded role of the Thuringowa Major Centre as a location for not just traditional centre uses such as retail and entertainment, but other larger-format uses such as sport and recreation and light industry. The lack of mixed-use or low-impact industry land uses surrounding and proximate to the Thuringowa Major Centre, compared to other Major Centres in Townsville such as Aitkenvale and Hyde Park, places this broader level of commercial need on sites such as the subject site, with its location close to existing uses.

The subject site in particular, presents the opportunity to locate a range of other “missing” or undersupplied land uses and activities within Thuringowa proximate to the core of the precinct, contributing to but not undermining the role and function of Thuringowa as a Major Centre.

Furthermore, the Study Area is a dormitory suburb with the resident workforce commuting outside the Study Area to access employment services and opportunities. There is an ongoing need to ensure the delivery of land to accommodate the growing workforce and resident demands of the Study Area, with Thuringowa Central strategically located as the Major Centre for the south-western growth corridor of Townsville and detached from other business and industry land. The proposed variation seeks to consolidate employment and economic uses proximate to the core of the Major Centre, contributing to the vibrancy of the centre, and to the diversity of employment and business activities within the Study Area.

Of particular note, is that the assessment confirmed that there is insufficient need to retain the land within the medium density zone, with a surfeit of medium density zoned land being available in the locality. The inclusion of an expanded array of uses on the subject site will contribute to the diversity of economic, employment and accommodation uses, including land lease community uses, that would support the vibrancy and vitality of Thuringowa Central. Despite this, it is noted that the POD retains a number of residential outcomes.

4.0 STATUTORY ASSESSMENT

This development application is made in accordance with the provisions of Chapter 3, Part 2 of the Act and is seeking a preliminary approval involving a variation request under s50 of the Act. The variation being sought is a change in the application of zoning based use rights as they currently occur within the planning scheme. More specifically, the application of use rights to unify the site under one plan of development to further align the site with the dominate uses of the surrounding local area and its character within the Thuringowa Central major centre precinct. This proposed variation is driven by a clear and distinct interest in the allocation of zoning rights of the subject site and is being undertaken in the focus of furthering the strategic intent of the planning scheme by aligning consistent and compatible land uses, improving settlement pattern efficiency and in doing so seeking to achieve the highest and best use of land in response to unique site and locality specific social, economic and environmental factors.

The subject development application is impact assessable and therefore subject to an unbound *impact assessment* against the planning scheme as a whole, as well as any other relevant matters and the assessment benchmarks identified below.

4.1 Assessing and Deciding a Variation Request – s61 of the *Planning Act 2016*

In assessing and deciding a variation request, the assessment manager must apply the decision-making rules outlined in s61 of the Act, which states:

…

(2) When assessing the variation request, the assessment manager must consider—

(a) the result of the assessment of that part of the development application that is not the variation request; and

(b) the consistency of the variations sought with the rest of the local planning instrument that is sought to be varied; and

(c) the effect the variations would have on submission rights for later development applications, particularly considering the amount and detail of information included in, attached to, or given with the application and available to submitters; and

(d) any other matter prescribed by regulation.

(3) The assessment manager must decide—

(a) to approve—

(i) all or some of the variations sought; or

(ii) different variations from those sought; or

(b) to refuse the variations sought.

Note— The part of a variation approval that approves variations is a local categorising instrument. Section 43(7) states limits on the variation approval as a categorising instrument.

4.2 Assessment Benchmarks Pertaining to State Planning Instruments

Matters Prescribed by Regulation

There are no relevant assessment benchmarks prescribed by Regulation which are relevant to the assessment of this development application.

State Planning Policy

The Townsville City Plan 2014 confirms in section *2.1 State planning policy* that it has ministerial approval as having adequately integrated the *State Planning Policy* into the planning scheme. There are no stand-alone components of the State planning policy which are relevant to the assessment of this development application.

Regional Plan

There are no applicable components of the North Queensland Regional Plan which apply to this development application with the proposed development considered to be consistent with the relevant regional strategies.

State Development Assessment Provisions

Under Schedule 10 of the *Planning Regulation 2017*, the development application will trigger referral agency involvement. However, it is noted that there are no specific assessment benchmarks/codes relating to the referral trigger.

4.3 Assessment Benchmarks Pertaining to Local Planning Instruments

The applicable planning scheme for the application is the Townsville City Plan 2014. There are no other identified applicable local planning instruments.

Townsville City Plan 2014

As a variation request, this development application is subject to an assessment against the planning scheme as a whole, as well as any other matter the assessment manager deems relevant.

A summary of the most relevant assessment benchmarks from the planning scheme are identified below:

- The strategic framework
- Major centre zone code
- Medium density residential zone code
- Airport environs overlay code
- Flood hazard overlay code

The development application has been assessed against each of the applicable local level assessment benchmarks and found to be consistent with the strategic framework, specifically the strategic intent, for the planning scheme. The pertinent issues arising from the assessment against the local level assessment benchmarks are discussed below.

4.3.1 Strategic Framework

This development proposal seeks to vary the existing zoning to accommodate future uses on the site according to the Plan of Development, which is able to align the existing Major centre and Medium density residential zoning while still improving the extent wo which the site is able to advance the achievement of the strategic framework of the planning scheme. This proposal is in response to a detailed Economic Impact Assessment (see Appendix 4), which determined that the site has potential to facilitate a broader mix of uses and provide function to the otherwise vacant site.

It is considered that the proposed variation aligns with the strategic framework particularly for the following reasons:

- The site is acknowledged as containing areas within the Major centre and Medium density residential zone, but this does not prevent the assessment of alternative land use outcomes in response to demonstrated economic, site and locality specific characteristics, circumstances and opportunities.
- It is put to council that the current zoning of the site does not support the highest and best use of the site.
- Creates a single overarching 'zoning' for the site to remove any potential conflict and streamlines the development approval process.
- Reflects community expectation for the dominant land use type in the area.
- The Major centre zone, Thuringowa Central major centre precinct and Thuringowa town centre heart sub-precinct maintains support for residential uses as mixed development with commercial and entertainment uses at the ground storey.
- The site is not identified as being susceptible to an unacceptable or unmanageable natural hazard or infrastructure constraints.
- The POD allows the site to better contribute to the achievement of the Strategic Framework.
- It is not uncommon for land use decisions to be inconsistent with a zoning designation in response to site specific circumstances which change over the life of a planning scheme.

4.3.2 Major Centre Zone Code

While the site is within both the Major Centre zone and Medium density residential zone, the dominant land use outcomes in the locality relate to the centre zoning, which is reflect in the POD structure, vision and purpose. The POD seeks to retain the majority of supported uses within the Major centre zone. The primary matter of consideration is whether the new uses are able to be regulated to occur such that they do not prejudice the achievement of the purpose of the greater major centre. The below assessment highlights the key purpose outcomes from the zone code and provides a response to show how the POD aligns with that outcome while advancing economic opportunities to better deliver the strategic intent for the planning scheme.

1. *The purpose of the Major centre zone code is to provide for a mix of uses and activities. It includes concentrations of higher order retail, commercial, offices, residential, administrative and health services, community, cultural and entertainment facilities and other uses capable of servicing a sub-region in the planning scheme area.*

Response

The proposed variation request will continue to facilitate a wide mix of uses and activities in a location which is directly adjacent to other similar uses and will seek to deliver the highest and best uses for the site as demonstrated by the economics needs analysis. Furthermore, the proposal does not impact the future viability of similar zoned land which has been mostly developed in the immediate locality.

2. *The particular purpose of the code is to provide for a network of centres that are readily accessible, integrated and well-designed, form vibrant focal points for the community, and provide a mix and range of services and facilities that are appropriate to their respective function and catchments. This promotes efficient provision of services and contributes to the quality of life, character and identity of communities.*

Response

The proposed variation request will result in the facilitation of a mix and range of services and facilities within the Thuringowa Central major centre precinct which is desired by the planning scheme for the following reasons:

- The subject site currently contains areas of the Thuringowa Central major centre precinct.
- The site will continue to be co-located with the surrounding centre uses.
- The site has a high level of access to all required forms of urban infrastructure.
- The site is vacant and hence offers significant design flexibility.
- As demonstrated by the attached Economic Impact Assessment, the site has potential for a broader mix of uses.
- The plan of development will enable the highest and best use for the vacant site.
- The Plan of Development accommodates for medium density residential outcomes, which are also supported within the Major centre zone and encourages interaction between commercial and residential uses.

3. *The purpose of the zone will be achieved through the following overall outcomes:*
   - *(a) development evolves as a vibrant mixed use place where people live, work and play in a high density environment which is active both during the day and night-time and includes residential uses;*
   - *(b) development is highly accessible by walking and cycling from surrounding residential areas;*
   - *(c) development becomes a hub for major public transport routes providing frequent services to other parts of the city, and development facilitates convenient access to public transport facilities as a priority;*
   - *(d) showrooms occur within the development, but are generally located and designed so that they do not detract from the intended built form, pedestrian focus and accessibility;*
   - *(e) development also provides for a range of generally smaller scale industrial uses, storage, wholesale and trade supplies, and uses requiring significant outdoor sales areas;*
   - *(f) centre design and built form creates a walkable and legible pedestrian-focussed environment, with a range of connected, safe and pleasant public spaces forming community focal points. Public spaces and primary pedestrian circulation streets are activated by shop fronts, awnings and kerbside activities;*
   - *(g) the height and scale of buildings reinforce the character, legibility and accessibility of the development. The development predominantly contain medium-rise buildings. However, a human scale and attractive, pedestrian friendly environment is created at street level;*
   - *(h) development is designed to create a desirable interface with surrounding neighbourhoods, providing for attractive streetscapes and transitioning of building form and scale and minimising potential land use conflicts;*
   - *(i) opportunities for energy efficiency through built form are maximised.*
   - *(j) any interface between industrial uses and sensitive land uses is designed and managed to minimise adverse impacts; and*
   - *(k) development avoids significant adverse effects on water quality and the natural environment.*

Response

The proposed variation request will result in the facilitation of a mix of commercial uses within the Thuringowa Central major centre precinct which is desired by the planning scheme. This will facilitate appropriate land use which is easily accessible and complimentary to the surrounding land uses which are predominantly commercial. It is noted that the transition of the subject site to the Plan of Development can be readily supported by existing infrastructure.

4. *The purpose of the zone will also be achieved through the following additional overall outcomes for particular precincts and sub-precincts:*

   Thuringowa Central major centre precinct:
   - *(a) development in the Thuringowa Central major centre continues to grow and diversify the range of activities within the centre. However, a department store is not established within this centre;*
   - *(b) higher density housing includes student and visitor accommodation to reinforce economic links with the James Cook University and Townsville Hospital;*
   - *(c) the centre is focussed on a new main street and town square along High Range Drive, which provides a strong connector between Riverway and the Willows sub-precinct;*
   - *(d) further outward expansion of the centre does not occur, with all new development contributing to the increasing consolidation of the centre and the clear definition of its edges;*
   - *(e) new development facilitates improved permeability within the centre for pedestrians and cyclists, provides for safer and shadier pedestrian routes and promotes access to public transport facilities;*
   - *(f) a bus interchange forms a focal point within the centre that is well-connected to the Thuringowa town centre heart sub-precinct, the Willows sub-precinct and the surrounding neighbourhoods;*
   - *(g) built form is highest and most intensive in the Thuringowa town centre heart sub-precinct, decreasing to the centre edges;*
   - *(h) visual and physical connections to Pioneer Park and Riverway are maximised wherever possible; and*
   - *(i) Thuringowa Drive, Riverway Drive and Hervey Range Road become tropical boulevards providing a sense of arrival at the centre and strong landscape amenity. This is achieved through street tree planting, stronger definition of road edges by buildings fronting the street and screening of parking areas.*

Thuringowa town centre heart sub-precinct:

(i) a new main street and town square for Thuringowa Central are created along High Range and Pioneer Drive, and provides a community heart and a strong connection between Riverway and the Willows sub-precinct;

(ii) the sub-precinct contains a concentrated mix of uses, including shopping, office, higher density residential uses, community facilities and dining and entertainment uses. Residential and office uses are accommodated in mixed use developments, with shopping or entertainment uses at the ground storey;

(iii) the sub-precinct contains the highest and most concentrated built form within Thuringowa Central, with the most intensive built form along Riverway Drive and the main street sections of High Range and Pioneer Drives;

(iv) buildings along High Range and Pioneer Drive create a strong relationship with the street frontage and facilitate a highly activated environment, accommodating day and night-time activities, shop fronts, outdoor dining and other opportunities for community interaction;

(v) development creates a strong relationship with Hervey Range Road, Riverway Drive and Blackhawk Boulevard, by sleeving the sub-precinct with buildings that are oriented to the street and screen parking areas behind;

(vi) pedestrian spaces and pathways are provided with extensive shading;

(vii) parking is consolidated wherever practicable and is screened and separated from the street by buildings;

(viii) pedestrian and cyclist linkages are improved to the residential neighbourhood to the south and to the centre sub-precincts to the west and north. Additional and safe pedestrian crossings are provided across Hervey Range Road to the Willows sub-precinct; and

(ix) development minimises impacts on the amenity of adjoining residential land to the south of the sub-precinct.

Thuringowa centre support sub-precinct:

(i) larger format showroom uses, service industries and some low impact industries are accommodated in this sub-precinct. The sub-precinct may also contain office uses and community facilities, but does not contain shopping uses other than those of a convenience nature;

(ii) buildings are oriented to the street frontages, and streetscape is improved through the quality of the adjoining built form and landscaping;

(iii) built form is generally lower rise and less intensive than in the rest of the Thuringowa Central major centre;

(iv) convenient pedestrian connections are created to the Thuringowa town centre heart sub-precinct; and

(v) development along the edges of this sub-precinct provides an attractive interface and minimises impacts on the amenity of nearby residential land.

Response

The POD continues to apply very similar overall outcomes, code outcomes and levels of assessment as currently occur within the planning scheme. There are some additional uses now included under Code Assessable within the tables of assessment, but these are supported by an Economic Impact Assessment and are clearly compatible with the retained existing supported uses. **In substantive terms, the variation sought does not depart from the existing zone and precinct controls to an extent where the overall outcomes and purpose of the zone code are prejudiced.**

4.3.3 Medium Density Residential Zone Code

While the site is within both the Major Centre zone and Medium density residential zone, the dominant land use outcomes in the locality relate to the centre zoning, which is reflect in the POD structure, vision and purpose. The POD seeks to retain the majority of supported uses within the Medium density residential zone. The only matter of consideration is whether the removal of mandatory residential outcomes over part of the site is acceptable. The market will still be left to drive residential outcomes for the site where they exist, noting that the conclusions of the Economic Impact Assessment confirm that even if no residential outcomes occur, there will be no adverse land use or 'planning need' impacts given the significant land supply available elsewhere in the immediate locality.

4.3.4 Development Codes

As a variation request this development application does not seek to establish the right to commence development, does not seek approval of built form or site layout outcomes or for the issuing of any specific use right development permits. As such, high level assessments against the development codes are provided in the form of the Engineering Report, Traffic Impact Assessment and Noise Impact Assessment included in Appendix 4. The strategy taken has been to confirm that future development will not be prejudiced by any environmental or infrastructure constraints.

The information contained within the supporting reports concludes that the development is able to objectively satisfy the outcomes and purpose of these development codes. Given the extent to which the proposal objectively satisfies the codes, and in light of the nature of the application being a variation request, a direct assessment against each of the outcomes is not considered necessary in order to demonstrate compliance. It is noted that any future use on the site will be required to satisfy the codes and policies applicable to Accepted Development and Assessable Development in accordance with the POD.

4.3.5 Overlay Codes

Given the fact that this proposal is a variation request relating to future use rights (meaning there are no building or site works approvals being sought) there is no need to consider these assessment benchmarks, other than in the form taken in the attached supporting reports i.e. high level confirmation that future development will not be prejudiced by any environmental or infrastructure constraints. It is noted that any future use on the site will be required to satisfy the codes and policies applicable to Accepted Development and Assessable Development in accordance with the Plan of Development which is being sought through this variation request. It is considered that any future uses on the site will demonstrate necessary compliance with this overlay code.

4.4 Public Notification

The application is impact assessable and will be subject to the public notification requirements under the *Planning Act 2016* and in accordance with the *Development Assessment Provisions*.

5.0 CONCLUSION

This development application is made in accordance with the provisions of Chapter 3, Part 2 of the *Planning Act 2016* (the Act) and is seeking a preliminary approval for a *variation request* under section 50 of the Act. The variation being sought is for use rights in accordance with the Black Hawk Boulevard Plan of Development, overriding the Townsville City Plan 2014. This variation is in direct response to demonstrated market need and opportunity in the area, and in the interest of furthering the strategic intent of the planning scheme by achieving the highest and best use of land in response to social, economic and environmental factors.

An assessment of the proposal was undertaken against the applicable assessment benchmarks which confirms that it is consistent with the provisions of the applicable planning instruments, specifically the strategic framework for the planning scheme. It is therefore recommended that Council **approve** the development application by delegated authority and issue a development permit subject to the imposition of reasonable and relevant conditions.

STATEMENT OF REASONS

Subject to the imposition of reasonable and relevant conditions, the development is able to comply with the following applicable assessment benchmarks against which the application was required to be assessed.

Sufficient justification has been provided and satisfactory grounds have been established to conclude that the proposed development is consistent with relevant local, State and Commonwealth planning instruments, in particular the Strategic Framework from the Planning Scheme. In substantive terms, this conclusion is based on the following reasons:

With specific reference to the Plan of Development:

- The Plan of Development seeks to unlock the development potential of a large, strategically located, vacant brownfield land parcel.
- The development will deliver uses that reflect a demonstrate economic need.
- The proposed mix of uses provides commercial flexibility and economic resilience which can complement, and not detract from, the centres hierarchy.
- The Plan of Development seeks to encourage compatible medium density residential opportunities, contributing to the delivery of dwelling stock and diversity in a key location.
- The proposed PoD reflects the highest and best use for the site, in particular as it relates to social and economic benefits to the community, and in doing so furthers the achievement of the strategic intent.

In general terms:

- The development advances the purpose of the *Planning Act 2016*.
- The development aligns with and further the achievement of the State Planning Policy and North Queensland Regional Plan.
- The development is consistent with and advances the Strategic Intent established within the Strategic Framework from the Planning Scheme.
- The development allows the site to better contribute to the achievement of the Strategic Framework.
- The development responds to a direct and verifiable economic and social need.
- The development responds to an established overriding need for the use in the community interest.
- The development is or can be adequately serviced and will maintain the existing level and standard of servicing provided by the relevant infrastructure networks for users outside of the development.
- The site is not identified as being susceptible to any unacceptable or unmanageable natural hazard or infrastructure constraints.
- The development does not increase the susceptibility of people or property to natural hazards or other health risks.
- The proposal does not undermine the planning scheme.

  The proposal does not establish precedence that could result in the future undermining of the planning scheme.

APPENDIX 1

DEVELOPMENT APPLICATION FORMS

DA Form 1 – Development application details

Approved form (version 1.4 effective 15 December 2023) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development (i.e. material change of use, operational work or reconfiguring a lot)**, use this form (*DA Form 1*) **and** parts 4 to 6 of *DA Form 2 – Building work details*.

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008.* For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: *All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).*

PART 1 – APPLICANT DETAILS

1) Applicant details	
Applicant name(s) (*individual or company full name*)	Stateland Pty Ltd C/- BNC Planning
Contact name *(only applicable for companies)*	Benjamin Collings
Postal address *(P.O. Box or street address)*	PO Box 5493
Suburb	Townsville
State	QLD
Postcode	4810
Country	Australia
Contact number	(07) 4724 1763 or 0438 789 612
Email address *(non-mandatory)*	enquire@bncplanning.com.au
Mobile number *(non-mandatory)*	
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	DA133-25

2) Owner's consent
2.1) Is written consent of the owner required for this development application?
☒ Yes – the written consent of the owner(s) is attached to this development application ☐ No – proceed to 3)

Queensland Government

PART 2 – LOCATION DETAILS

3) Location of the premises *(complete 3.1) or 3.2), and 3.3) as applicable)*

***Note**: Provide details below and attach a site plan for any or all premises part of the development application. For further information, see DA Forms Guide: Relevant plans.*

3.1) Street address and lot on plan

☒ Street address **AND** lot on plan (*all lots must be listed*), ***or***

☐ Street address **AND** lot on plan for an adjoining or adjacent property of the premises *(appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).*

a)	Unit No.	Street No.	Street Name and Type	Suburb
		11	Black Hawk Boulevard	Thuringowa Central
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
	4817	10	SP177384	Townsville
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)

3.2) Coordinates of premises *(appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay)*

***Note**: Place each set of coordinates in a separate row.*

☐ Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) *(if applicable)*
		☐ WGS84 ☐ GDA94 ☐ Other:	

☐ Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) *(if applicable)*
		☐ 54 ☐ 55 ☐ 56	☐ WGS84 ☐ GDA94 ☐ Other:	

3.3) Additional premises

☐ Additional premises are relevant to this development application and the details of these premises have been attached in a schedule to this development application

☒ Not required

4) Identify any of the following that apply to the premises and provide any relevant details

☐ In or adjacent to a water body or watercourse or in or above an aquifer

Name of water body, watercourse or aquifer:

☐ On strategic port land under the *Transport Infrastructure Act 1994*

Lot on plan description of strategic port land:

Name of port authority for the lot:

☐ In a tidal area

Name of local government for the tidal area *(if applicable)*:

Name of port authority for tidal area *(if applicable)*:

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*

Name of airport:

☐ Listed on the Environmental Management Register (EMR) under the *Environmental Protection Act 1994*	
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under the *Environmental Protection Act 1994*	
CLR site identification:	

5) Are there any existing easements over the premises?

Note: Easement uses vary throughout Queensland and are to be identified correctly and accurately. For further information on easements and how they may affect the proposed development, see DA Forms Guide.

☒ Yes – All easement locations, types and dimensions are included in plans submitted with this development application

☐ No

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

6.1) Provide details about the first development aspect

a) What is the type of development? *(tick only one box)*

☒ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☒ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☒ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

Variation request – Use rights in accordance with the Plan of Development

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.2) Provide details about the second development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*

☐ Relevant plans of the proposed development are attached to the development application

6.3) Additional aspects of development

☐ Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application

☒ Not required

Section 2 – Further development details

7) Does the proposed development application involve any of the following?	
Material change of use	☒ Yes – complete division 1 if assessable against a local planning instrument
Reconfiguring a lot	☐ Yes – complete division 2
Operational work	☐ Yes – complete division 3
Building work	☐ Yes – complete *DA Form 2 – Building work details*

Division 1 – Material change of use

***Note**: This division is only required to be completed if any part of the development application involves a material change of use assessable against a local planning instrument.*

8.1) Describe the proposed material change of use			
Provide a general description of the proposed use	Provide the planning scheme definition *(include each definition in a new row)*	Number of dwelling units *(if applicable)*	Gross floor area (m^2) *(if applicable)*
Use rights in accordance with the Plan of Development.	NA	NA	NA

8.2) Does the proposed use involve the use of existing buildings on the premises?
☐ Yes
☒ No

Division 2 – Reconfiguring a lot

***Note**: This division is only required to be completed if any part of the development application involves reconfiguring a lot.*

9.1) What is the total number of existing lots making up the premises?

9.2) What is the nature of the lot reconfiguration? *(tick all applicable boxes)*	
☐ Subdivision *(complete 10))*	☐ Dividing land into parts by agreement *(complete 11))*
☐ Boundary realignment *(complete 12))*	☐ Creating or changing an easement giving access to a lot from a constructed road *(complete 13))*

10) Subdivision				
10.1) For this development, how many lots are being created and what is the intended use of those lots:				
Intended use of lots created	Residential	Commercial	Industrial	Other, please specify:
Number of lots created				

10.2) Will the subdivision be staged?	
☐ Yes – provide additional details below ☐ No	
How many stages will the works include?	
What stage(s) will this development application apply to?	

11) Dividing land into parts by agreement – how many parts are being created and what is the intended use of the parts?				
Intended use of parts created	Residential	Commercial	Industrial	Other, please specify:
Number of parts created				

12) Boundary realignment			
12.1) What are the current and proposed areas for each lot comprising the premises?			
Current lot		Proposed lot	
Lot on plan description	Area (m^2)	Lot on plan description	Area (m^2)
12.2) What is the reason for the boundary realignment?			

13) What are the dimensions and nature of any existing easements being changed and/or any proposed easement? *(attach schedule if there are more than two easements)*				
Existing or proposed?	Width (m)	Length (m)	Purpose of the easement? *(e.g. pedestrian access)*	Identify the land/lot(s) benefitted by the easement

Division 3 – Operational work

***Note**: This division is only required to be completed if any part of the development application involves operational work.*

14.1) What is the nature of the operational work?		
☐ Road work	☐ Stormwater	☐ Water infrastructure
☐ Drainage work	☐ Earthworks	☐ Sewage infrastructure
☐ Landscaping	☐ Signage	☐ Clearing vegetation
☐ Other – please specify:		
14.2) Is the operational work necessary to facilitate the creation of new lots? *(e.g. subdivision)*		
☐ Yes – specify number of new lots:		
☐ No		
14.3) What is the monetary value of the proposed operational work? *(include GST, materials and labour)*		
$		

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application
Townsville City Council
16) Has the local government agreed to apply a superseded planning scheme for this development application?
☐ Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
☒ No

PART 5 – REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements?
***Note**: A development application will require referral if prescribed by the* Planning Regulation 2017.

☐ No, there are no referral requirements relevant to any development aspects identified in this development application – proceed to Part 6

Matters requiring referral to the **Chief Executive of the *Planning Act 2016***:

☐ Clearing native vegetation
☐ Contaminated land *(unexploded ordnance)*
☐ Environmentally relevant activities (ERA) *(only if the ERA has not been devolved to a local government)*
☐ Fisheries – aquaculture
☐ Fisheries – declared fish habitat area
☐ Fisheries – marine plants
☐ Fisheries – waterway barrier works
☐ Hazardous chemical facilities
☐ Heritage places – Queensland heritage place *(on or near a Queensland heritage place)*
☐ Infrastructure-related referrals – designated premises
☐ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
☐ Infrastructure-related referrals – near a state-controlled road intersection
☐ Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
☐ Koala habitat in SEQ region – key resource areas
☐ Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
☐ Ports – Brisbane core port land – environmentally relevant activity (ERA)
☐ Ports – Brisbane core port land – tidal works or work in a coastal management district
☐ Ports – Brisbane core port land – hazardous chemical facility
☐ Ports – Brisbane core port land – taking or interfering with water
☐ Ports – Brisbane core port land – referable dams
☐ Ports – Brisbane core port land – fisheries
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
☐ SEQ development area
☐ SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – community activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
☐ SEQ regional landscape and rural production area or SEQ rural living area – urban activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – combined use
☐ SEQ northern inter-urban break – tourist activity or sport and recreation activity
☐ SEQ northern inter-urban break – community activity
☐ SEQ northern inter-urban break – indoor recreation
☐ SEQ northern inter-urban break – urban activity
☐ SEQ northern inter-urban break – combined use
☐ Tidal works or works in a coastal management district
☐ Reconfiguring a lot in a coastal management district or for a canal
☐ Erosion prone area in a coastal management district
☐ Urban design
☐ Water-related development – taking or interfering with water
☐ Water-related development – removing quarry material *(from a watercourse or lake)*
☐ Water-related development – referable dams
☐ Water-related development –levees *(category 3 levees only)*
☐ Wetland protection area

Matters requiring referral to the **local government:**

☐ Airport land

☐ Environmentally relevant activities (ERA) (*only if the ERA has been devolved to local government)*

☐ Heritage places – Local heritage places

Matters requiring referral to the **Chief Executive of the distribution entity or transmission entity:**

☒ Infrastructure-related referrals – Electricity infrastructure

Matters requiring referral to:

- The **Chief Executive of the holder of the licence**, if not an individual
- The **holder of the licence**, if the holder of the licence is an individual

☐ Infrastructure-related referrals – Oil and gas infrastructure

Matters requiring referral to the **Brisbane City Council:**

☐ Ports – Brisbane core port land

Matters requiring referral to the **Minister responsible for administering the *Transport Infrastructure Act 1994*:**

☐ Ports – Brisbane core port land *(where inconsistent with the Brisbane port LUP for transport reasons)*

☐ Ports – Strategic port land

Matters requiring referral to the **relevant port operator**, if applicant is not port operator**:**

☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*

Matters requiring referral to the **Chief Executive of the relevant port authority:**

☐ Ports – Land within limits of another port *(below high-water mark)*

Matters requiring referral to the **Gold Coast Waterways Authority:**

☐ Tidal works or work in a coastal management district *(in Gold Coast waters)*

Matters requiring referral to the **Queensland Fire and Emergency Service:**

☐ Tidal works or work in a coastal management district *(involving a marina (more than six vessel berths))*

18) Has any referral agency provided a referral response for this development application?

☐ Yes – referral response(s) received and listed below are attached to this development application

☒ No

Referral requirement	Referral agency	Date of referral response

Identify and describe any changes made to the proposed development application that was the subject of the referral response and this development application, or include details in a schedule to this development application *(if applicable).*

PART 6 – INFORMATION REQUEST

19) Information request under Part 3 of the DA Rules

☒ I agree to receive an information request if determined necessary for this development application

☐ I do not agree to accept an information request for this development application

***Note**: By not agreeing to accept an information request I, the applicant, acknowledge:*

- *that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties*
- *Part 3 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules.*

Further advice about information requests is contained in the DA Forms Guide.

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? *(e.g. a preliminary approval)*

☐ Yes – provide details below or include details in a schedule to this development application
☒ No

List of approval/development application references	Reference number	Date	Assessment manager
☐ Approval ☐ Development application			
☐ Approval ☐ Development application			

21) Has the portable long service leave levy been paid? *(only applicable to development applications involving building work or operational work)*

☐ Yes – a copy of the receipted QLeave form is attached to this development application
☐ No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid
☒ Not applicable *(e.g. building and construction work is less than $150,000 excluding GST)*

Amount paid	Date paid (dd/mm/yy)	QLeave levy number (A, B or E)
$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?

☐ Yes – show cause or enforcement notice is attached
☒ No

23) Further legislative requirements

Environmentally relevant activities

23.1) Is this development application also taken to be an application for an environmental authority for an **Environmentally Relevant Activity (ERA)** under section 115 of the *Environmental Protection Act 1994*?

☐ Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below
☒ No

***Note**: Application for an environmental authority can be found by searching "ESR/2015/1791" as a search term at www.qld.gov.au. An ERA requires an environmental authority to operate. See www.business.qld.gov.au for further information.*

Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			

☐ Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.

Hazardous chemical facilities

23.2) Is this development application for a **hazardous chemical facility**?

☐ Yes – *Form 69: Notification of a facility exceeding 10% of schedule 15 threshold* is attached to this development application
☒ No

***Note**: See www.business.qld.gov.au for further information about hazardous chemical notifications.*

Clearing native vegetation

23.3) Does this development application involve **clearing native vegetation** that requires written confirmation that the chief executive of the *Vegetation Management Act 1999* is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act 1999*?

☐ Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)

☒ No

***Note**: 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.*

2. See https://www.qld.gov.au/environment/land/vegetation/applying for further information on how to obtain a s22A determination.

Environmental offsets

23.4) Is this development application taken to be a prescribed activity that may have a significant residual impact on a **prescribed environmental matter** under the *Environmental Offsets Act 2014*?

☐ Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter

☒ No

***Note**: The environmental offset section of the Queensland Government's website can be accessed at www.qld.gov.au for further information on environmental offsets.*

Koala habitat in SEQ Region

23.5) Does this development application involve a material change of use, reconfiguring a lot or operational work which is assessable development under Schedule 10, Part 10 of the Planning Regulation 2017?

☐ Yes – the development application involves premises in the koala habitat area in the koala priority area

☐ Yes – the development application involves premises in the koala habitat area outside the koala priority area

☒ No

***Note**: If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.des.qld.gov.au for further information.*

Water resources

23.6) Does this development application involve **taking or interfering with underground water through an artesian or subartesian bore, taking or interfering with water in a watercourse, lake or spring, or taking overland flow water under the *Water Act 2000***?

☐ Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development

☒ No

***Note**: Contact the Department of Natural Resources, Mines and Energy at www.dnrme.qld.gov.au for further information.*

DA templates are available from https://planning.dsdmip.qld.gov.au/. If the development application involves:

- *Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1*
- *Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2*
- *Taking overland flow water: complete DA Form 1 Template 3.*

Waterway barrier works

23.7) Does this application involve **waterway barrier works?**

☐ Yes – the relevant template is completed and attached to this development application

☒ No

DA templates are available from https://planning.dsdmip.qld.gov.au/. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

Marine activities

23.8) Does this development application involve **aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?**

☐ Yes – an associated *resource* allocation authority is attached to this development application, if required under the *Fisheries Act 1994*

☒ No

***Note**: See guidance materials at www.daf.qld.gov.au for further information.*

Quarry materials from a watercourse or lake

23.9) Does this development application involve the **removal of quarry materials from a watercourse or lake** under the *Water Act 2000?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development
☒ No

***Note**: Contact the Department of Natural Resources, Mines and Energy at www.dnrme.qld.gov.au and www.business.qld.gov.au for further information.*

Quarry materials from land under tidal waters

23.10) Does this development application involve the **removal of quarry materials from land under tidal water** under the *Coastal Protection and Management Act 1995?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development
☒ No

***Note**: Contact the Department of Environment and Science at www.des.qld.gov.au for further information.*

Referable dams

23.11) Does this development application involve a **referable dam** required to be failure impact assessed under section 343 of the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act)?

☐ Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application
☒ No

***Note**: See guidance materials at www.dnrme.qld.gov.au for further information.*

Tidal work or development within a coastal management district

23.12) Does this development application involve **tidal work or development in a coastal management district**?

☐ Yes – the following is included with this development application:
- ☐ Evidence the proposal meets the code for assessable development that is prescribed tidal work *(only required if application involves prescribed tidal work)*
- ☐ A certificate of title

☒ No

***Note**: See guidance materials at www.des.qld.gov.au for further information.*

Queensland and local heritage places

23.13) Does this development application propose development on or adjoining a place entered in the **Queensland heritage register** or on a place entered in a local government's **Local Heritage Register**?

☐ Yes – details of the heritage place are provided in the table below
☒ No

***Note**: See guidance materials at www.des.qld.gov.au for information requirements regarding development of Queensland heritage places.*

Name of the heritage place:		Place ID:	

Brothels

23.14) Does this development application involve a **material change of use for a brothel**?

☐ Yes – this development application demonstrates how the proposal meets the code for a development application for a brothel under Schedule 3 of the *Prostitution Regulation 2014*
☒ No

Decision under section 62 of the *Transport Infrastructure Act 1994*

23.15) Does this development application involve new or changed access to a state-controlled road?

☐ Yes – this application will be taken to be an application for a decision under section 62 of the *Transport Infrastructure Act 1994* (subject to the conditions in section 75 of the *Transport Infrastructure Act 1994* being satisfied)
☒ No

Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation
23.16) Does this development application involve reconfiguring a lot into 2 or more lots in certain residential zones (except rural residential zones), where at least one road is created or extended?
☐ Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered ☒ No ***Note**: See guidance materials at www.planning.dsdmip.qld.gov.au for further information.*

PART 8 – CHECKLIST AND APPLICANT DECLARATION

24) Development application checklist	
I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17 ***Note**: See the Planning Regulation 2017 for referral requirements*	☒ Yes
If building work is associated with the proposed development, Parts 4 to 6 of *DA Form 2 – Building work details* have been completed and attached to this development application	☐ Yes ☒ Not applicable
Supporting information addressing any applicable assessment benchmarks is with the development application ***Note**: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see DA Forms Guide: Planning Report Template.*	☒ Yes
Relevant plans of the development are attached to this development application ***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*	☒ Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued (*see 21*)	☐ Yes ☒ Not applicable

25) Applicant declaration
☒ By making this development application, I declare that all information in this development application is true and correct ☒ Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the *Electronic Transactions Act 2001* ***Note**: It is unlawful to intentionally provide false or misleading information.*
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or • required by other legislation (including the *Right to Information Act 2009*); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002.*

PART 9 – FOR COMPLETION OF THE ASSESSMENT MANAGER – FOR OFFICE USE ONLY

Date received: | | Reference number(s): | |

Notification of engagement of alternative assessment manager	
Prescribed assessment manager	
Name of chosen assessment manager	
Date chosen assessment manager engaged	
Contact number of chosen assessment manager	
Relevant licence number(s) of chosen assessment manager	

QLeave notification and payment *Note: For completion by assessment manager if applicable*			
Description of the work			
QLeave project number			
Amount paid ($)		Date paid (dd/mm/yy)	
Date receipted form sighted by assessment manager			
Name of officer who sighted the form			

Landowners Consent Form
Planning Act 2016

I/We,

Guy Washington, Director and Sam Ellis, Director

Being the delegate representative(s) of **FARRELL HEIDELBERG PTY LTD** the owner of the premises identified as follows:

11 BLACK HAWK BOULEVARD, THURINGOWA CENTRAL QLD 4817

LOT 10 ON RP177384

consent to the making of a development application under the *Planning Act 2016* by:

STATELAND

C/- BNC Planning Pty Ltd

on the premises described above for:

Material Change of Use (Variation Request)

Signed by: Sam Ellis 74823769A59E489...

Signed by: Guy Washington D88D5244C0D6468...

Signature of Delegate(s)

8/10/2025

Date

The Planning Act 2016 is administered by the Department of Local Government, Infrastructure and Planning, Queensland Government.

APPENDIX 2

SITE DETAILS

Aerial

11 Black Hawk Boulevard, Thuringowa Central QLD 4817

19°19'10"S 146°43'18"E 19°19'10"S 146°43'32"E

19°19'24"S 146°43'18"E 19°19'24"S 146°43'32"E

A product of Queensland Globe

Legend located on next page

N

0 50 metres

Scale: 1:2280

Printed at: A4

Print date: 5/8/2025

Not suitable for accurate measurement.
Projection: Web Mercator EPSG 102100 (3857)

For more information, visit https://qldglobe.information.qld.gov.au/help-info/Contact-us.html

Queensland Government
Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development

Aerial

11 Black Hawk Boulevard, Thuringowa Central QLD 4817

Legend

Land parcel
Parcel

Land parcel - gt 1 ha
Parcel

Land parcel - gt 10 ha
Parcel

Easement parcel

Strata parcel

Volumetric parcel

Land parcel - gt 1000 ha
Parcel

Land parcel label

Land parcel label - gt 1 ha

Land parcel label - gt 10 ha

Land parcel label - gt 1000 ha

Places: Land parcel
10SP177384

Green bridges

Roads and tracks
- Motorway
- Highway
- Secondary
- Connector
- Local
- Restricted Access Road
- Mall
- Busway
- Bikeway
- Restricted Access Bikeway
- Walkway
- Restricted Access Walkway
- Non-vehicular Track
- Track
- Restricted Access Track
- Ferry
- Proposed Thoroughfare

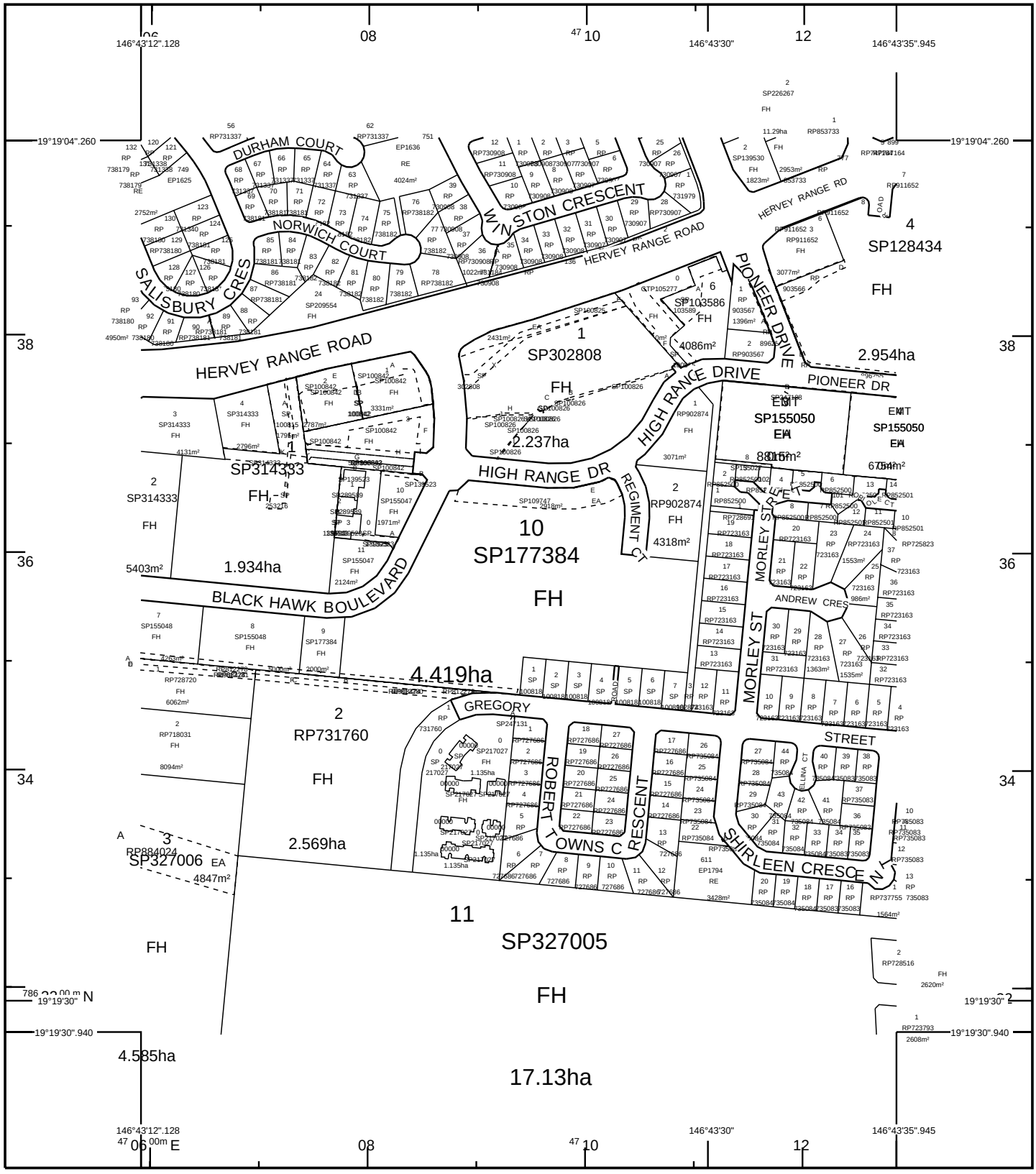
Bridges

Tunnels

Railway stations

Railways

Attribution



STANDARD MAP NUMBER	8259-31214

0 100 200 300 400 500 m

HORIZONTAL DATUM:GDA94 ZONE:55 SCALE 1 : 5000

SmartMap

An External Product of SmartMap Information Services

Based upon an extraction from the Digital Cadastral Data Base

MAP WINDOW POSITION & NEAREST LOCATION

146°43'24".037
19°19'17".600
CONDON
0.94 KM

SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	10/SP177384
Area/Volume	4.419ha
Tenure	FREEHOLD
Local Government	TOWNSVILLE CITY
Locality	THURINGOWA CENTRAL
Segment/Parcel	61961/240

CLIENT SERVICE STANDARDS

PRINTED 05/08/2025

DCDB 04/08/2025

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For further information on SmartMap products visit https://www.qld.gov.au/housing/buying-owning-home/property-land-valuations/smartmaps

Queensland Government

GDA

Current Title Search

Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Title Reference:	**50530254**	**Search Date:**	02/11/2025 10:56
Date Title Created:	26/11/2004	**Request No:**	53939313
Previous Title:	50448275		

ESTATE AND LAND

Estate in Fee Simple

LOT 10 SURVEY PLAN 177384
Local Government: TOWNSVILLE

REGISTERED OWNER

Dealing No: 723639741 31/10/2024

FARRELL HEIDELBERG PTY LTD A.C.N. 147 265 316 TRUSTEE
UNDER INSTRUMENT 723639741

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10425162 (POR 115)
Deed of Grant No. 10425172 (POR 115)

2. EASEMENT IN GROSS No 601185774 (T545848F) 15/07/1991
BURDENING THE LAND
TO THE NORTH QUEENSLAND ELECTRICITY BOARD
OVER EASEMENT B ON RP812279

3. EASEMENT No 702970049 23/10/1998 at 10:34
burdening the land to
LOTS 1 AND 2 ON GTP 105277 AND LOTS 4,5,AND 22 ON
SP103595 OVER EASEMENT E ON SP 109747

4. EASEMENT No 702970056 23/10/1998 at 10:35
burdening the land to
LOT 6 ON SP 103586 OVER
EASEMENT E ON SP 109747

5. EASEMENT No 702970072 23/10/1998 at 10:37
burdening the land to
THE COMMON PROPERTY OF CANNON PARK ENTERTAINMENT CTS 22612
OVER EASEMENT E ON SP109747

6. MORTGAGE No 723639742 31/10/2024 at 14:16
COMMONWEALTH BANK OF AUSTRALIA A.C.N. 123 123 124

ADMINISTRATIVE ADVICES

NIL

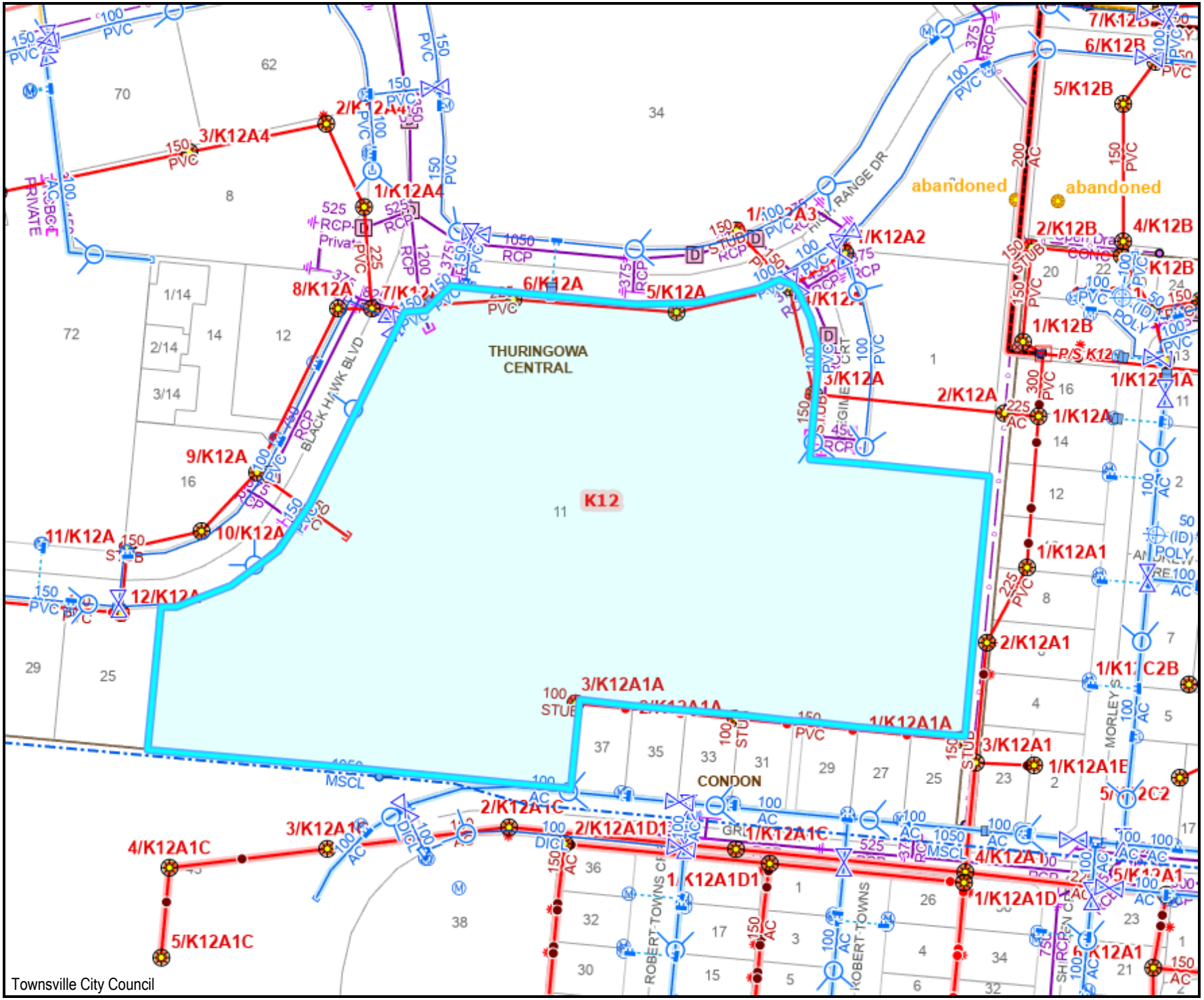
UNREGISTERED DEALINGS

NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested by: D-ENQ TITLES QUEENSLAND



Services

Legend

0 20 40 m

Scale 1: 2000

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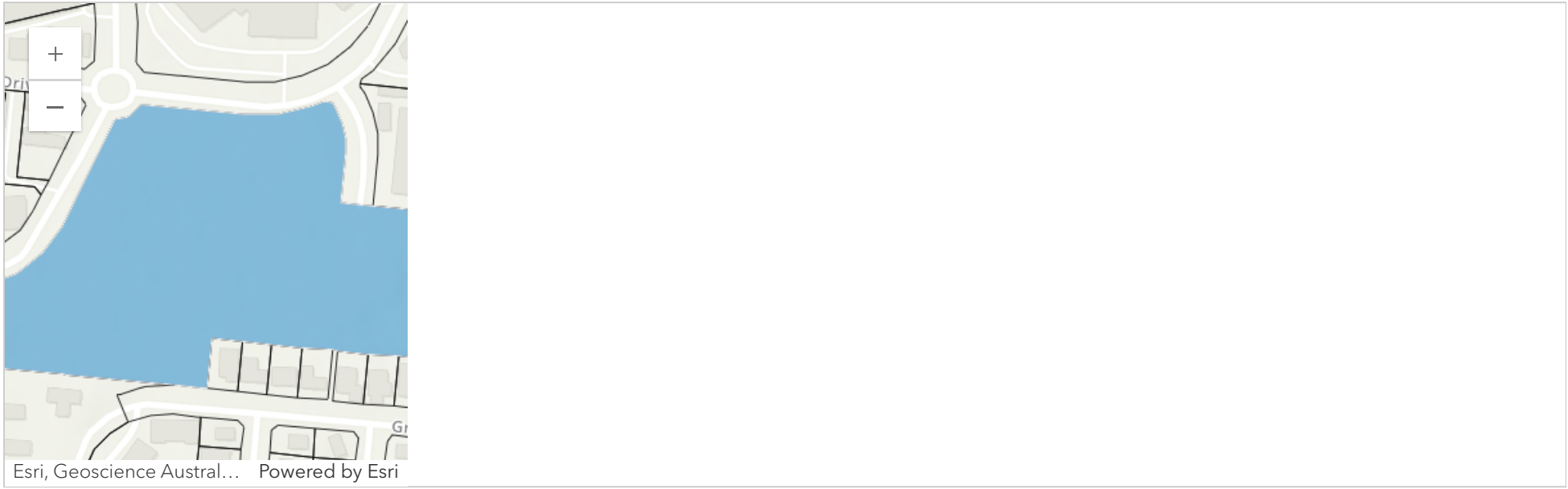
City of Townsville

Townsville City Council

Property Site Report



1 Black Hawk Boulevard, THURINGOWA CENTRAL

This report has been automatically generated to offer a general overview of planning scheme related information for the site.

For more detailed information and to verify if the overlays mapped are relevant, please consult the Townsville City Council Planning Scheme. This report does not replace the need for a thorough assessment of Council and State regulations.

Council advises you to obtain professional guidance on town planning laws and other regulations that may affect the current or proposed use of the site. If you are pursuing development or building certification, it is recommended to request Council property searches, which may include, but are not limited to, building information searches, planning and development certificates, and flood information searches.

Local Government Infrastructure Plan

The purpose of the local government infrastructure plan is to:

(a) integrate infrastructure planning with the land use planning identified in the planning scheme;
(b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure;
(c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning;
(d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner; and
(e) provide a basis for the imposition of conditions about infrastructure on development approvals.

For more information, please click the link below:

›wnsville City Plan – Part 4 Local Government Infrastructure Plan
›wnsville City Plan – Schedule 3 Local Government Infrastructure Plan Mapping
›wnsville Maps – Local Government Infrastructure Plan (LGIP)

Local Government Infrastructure Plan Area

- This property is within a Local Government Infrastructure Plan Area

Zones

The purpose of Zones are to ensure that:

(1) Zones organise the planning scheme area in a way that facilitates the location of preferred or acceptable land uses.
(2) Zones are mapped and included in Schedule 2 of the Townsville City Plan.
(3) The categories of development and assessment for development in a zone are in Part 5.
(4) Assessment benchmarks for zones are contained in a zone code.
(5) A precinct may be identified for part of a zone.
(6) Precinct provisions are contained in the zone code.
(7) Each zone code identifies the following:
(a) the purpose of the code;
(b) the overall outcomes that achieve the purpose of the code;
(c) the performance outcomes that achieve the overall outcomes and the purpose of the code;
(d) the acceptable outcomes that achieve the performance and overall outcomes and the purpose of the code; and
(e) the performance and acceptable outcomes for the precinct.

Below you will see how this applies to your property.

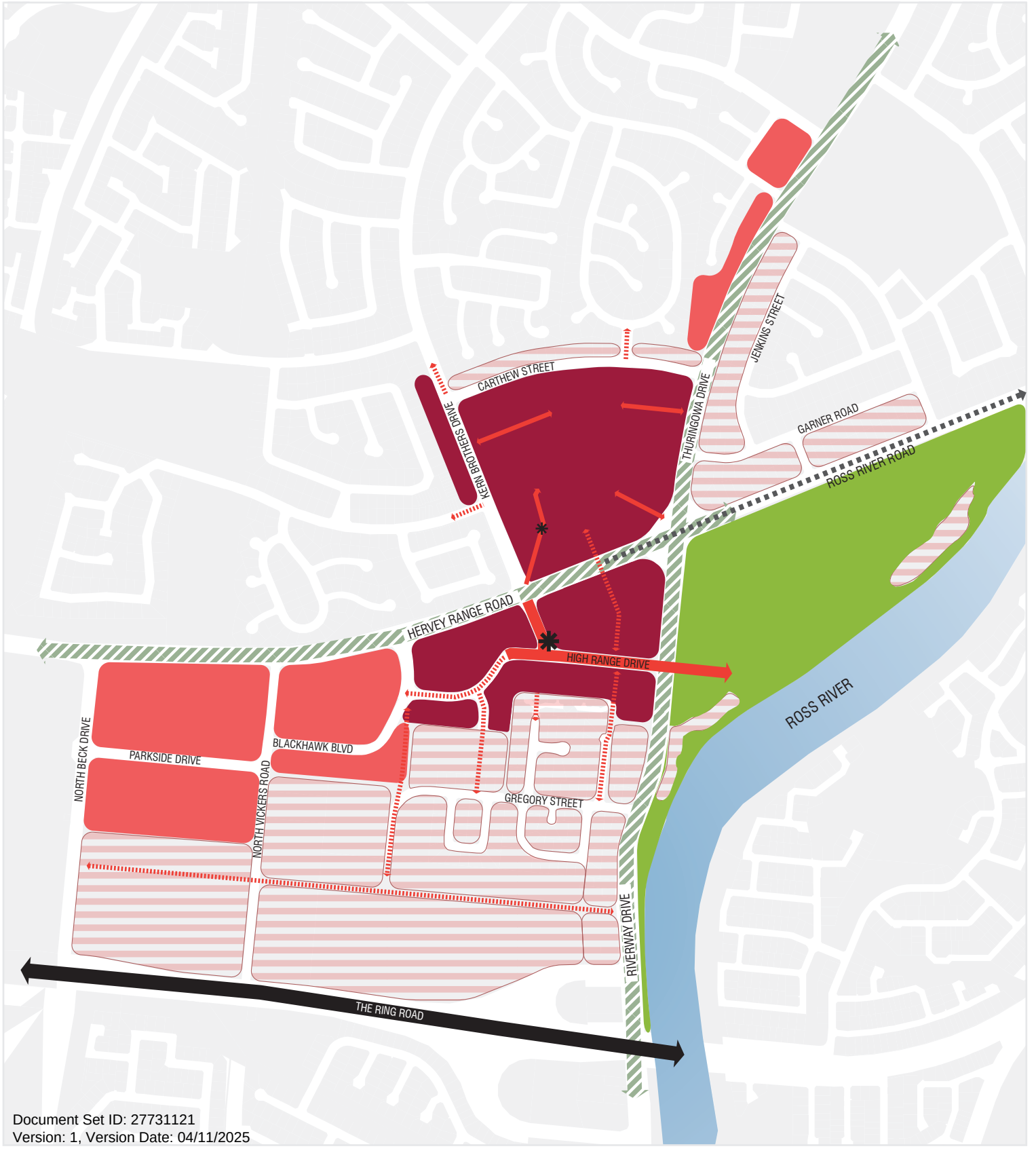
For more information, please click the link below:

›wnsville City Plan - Part 6 Zones

Zoning

The subject site is located within the:

- Major centre zone
- Medium density residential zone



Legend

- Existing parkland / recreation destination
- Development intensification area - residential focus
- Development intensification area - activity focus - centre core
- Development intensification area - activity focus - centre frame / mixed use
- Streetscape boulevard
- Core public transport corridor
- Education
- Centre plaza
- Pedestrian link
- Potential pedestrian link
- Arterial connection
- Ross River

For more information, please click the link below:

Precincts

The subject site is located within the:

- Thuringowa Central major centre precinct
- Thuringowa South precinct

Sub Precincts

The subject site is located within the:

- Thuringowa centre support sub-precinct
- Thuringowa town centre heart sub-precinct

Flood Hazard Overlay

The purpose of the Flood hazard overlay code is to manage development outcomes in flood hazard areas so that risk to life, property, community, economic activity and the environment during future flood events is minimised, and to ensure that development does not increase the potential for flood damage on-site or to other property.

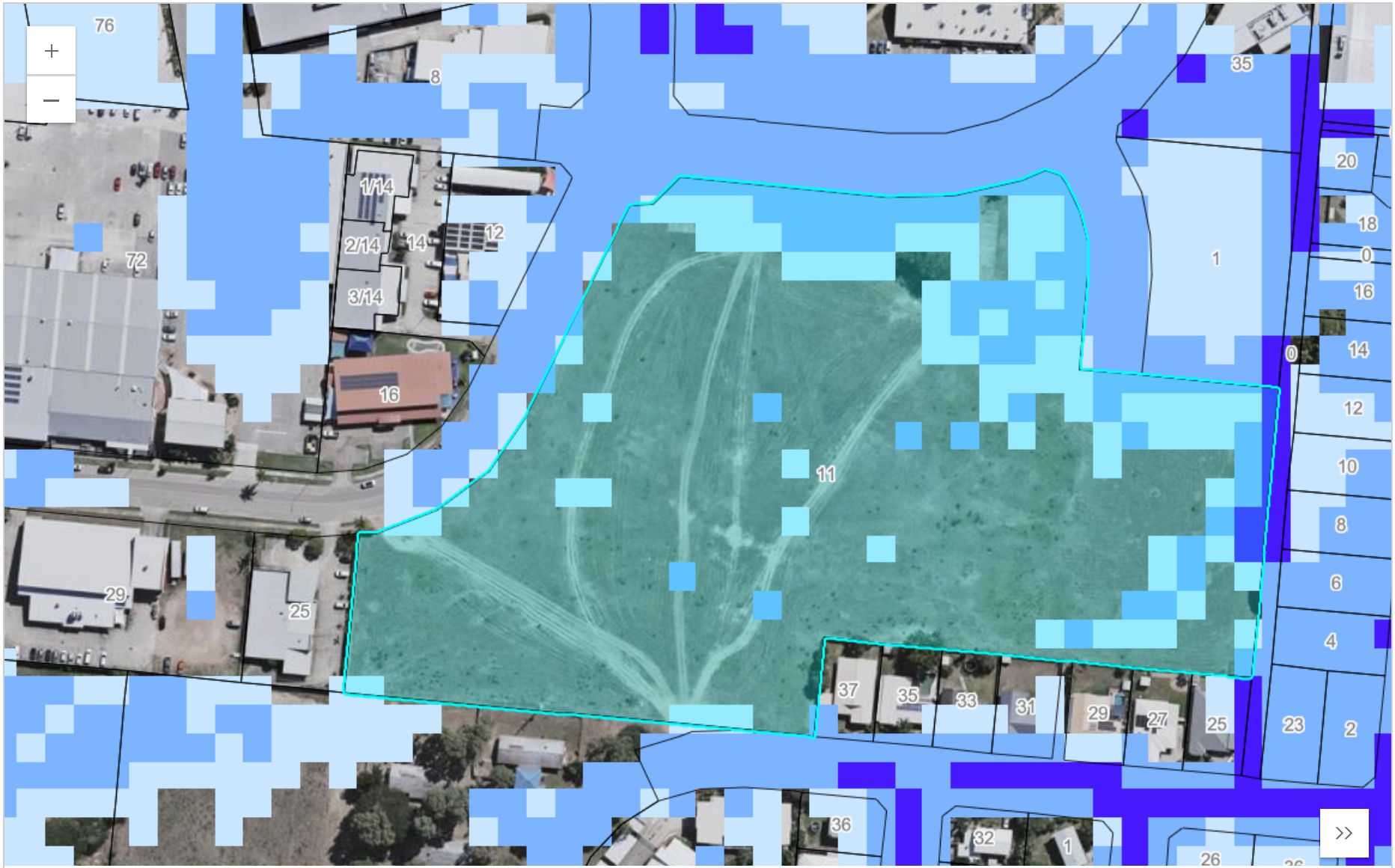
The subject site is located within the following Flood Hazard Overlay constraints:

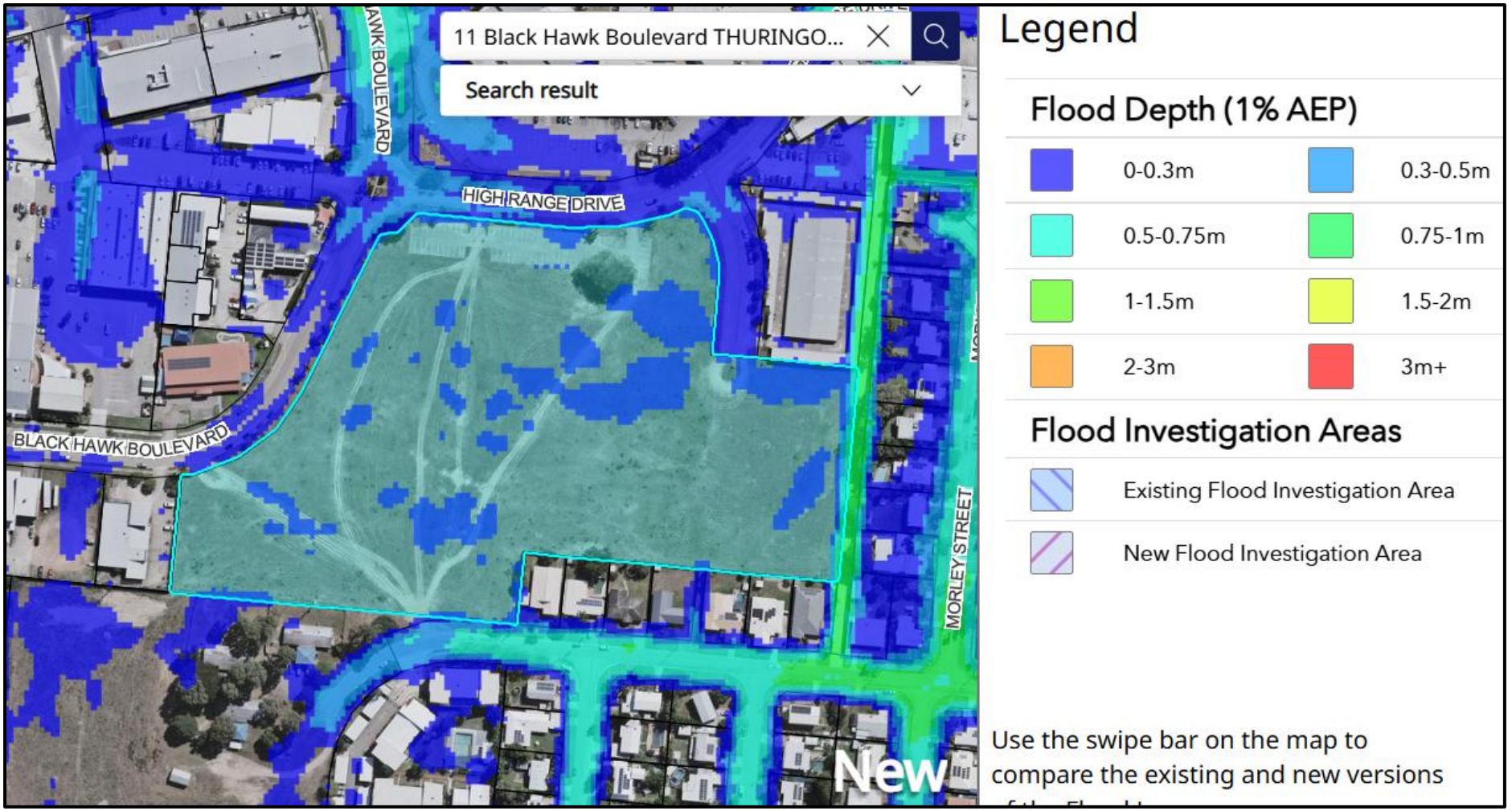
For more information, please click the link below:

igh and Medium Hazard Area Table of Assessment
ow Hazard Area Table of Assessment
verlay Code

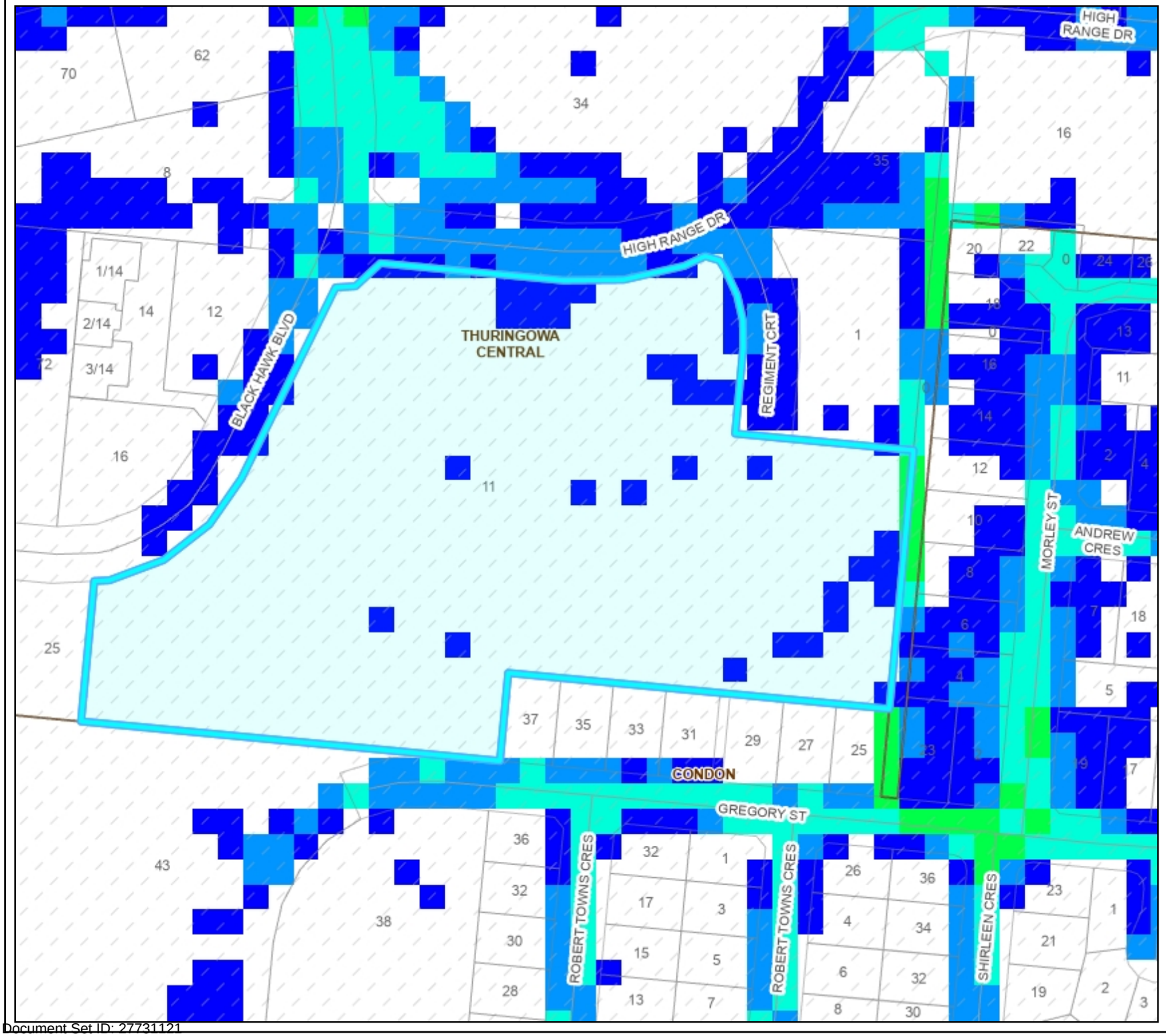
Flood Hazard

- Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - Low hazard area
- Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - Medium hazard area
- Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - High hazard area





NEW FLOOD DEPTHS



Q100

Legend

Properties

Suburbs

FLOOD STUDY AREAS

November 2014 to Present

WATER HEIGHT (1:250 - 1:5000)

2% AEP Height

1% AEP Height

1% AEP & 2% AEP DEPTH (1:250 - 1:5,000)

Water Depth: 0.01 - 0.3m

Water Depth: 0.3 - 0.5m

Water Depth: 0.5 - 0.75m

Water Depth: 0.75 - 1.0m

Water Depth: 1.0 - 1.5m

Water Depth: 1.5 - 2.0m

Water Depth: 2.0 - 3.0m

Water Depth: 3.0 - 25.0m

0 25.4 50.80

Meters

Date: 5/8/2025 10:55 AM

Scale 1: 2,000

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DISCLAIMER: Visible Scale - 1: 250 - 1 :5,000. The flooding contained in this map does not in itself indicate whether any particular property has or has not been affected by floods. The flooding information depicted shows inundation resulting from rainfall of river flows resulting from rainfall and does not include inundation due to Storm Tide. The council considers that the information presented in the map is the best available at the time of preparation. However the modelling results contained in this map are based upon projections, assumptions and analys is about circumstances that may not eventuate, or may eventuate in different combinations and with different outcomes. Because of that, the information in the map is not provided with the intention that persons will rely upon its accuracy or completeness for the purpose of making decisions with financial or legal implications. Neither the council nor its officers will be liable in contract, negligence or otherwise for the consequences of any deficiency, inaccuracy or error in the map or for the consequences of any person relying upon the map. The Flood Study Areas layer indicates the date of the flood study that has generated the flood map data. Infrastructure constructed since the completion of a flood study has the potential to alter flood levels and extents to those shown.

City of Townsville

Airport Environs Overlay

The purpose of the Airport environs overlay code is to ensure the safe and efficient operations of the airport, RAAF base and aviation facilities are protected.

To view the Airport Environs Overlay Maps select the Overlay Code link below.

The subject site is located within the following Airport Environs Overlay constraints:

For more information, please click the link below:

verlay Code
ıble of Assessment

Operational Airspace

- Airport Environs Overlay Map OM-01.1 - Operational airspace - Airspace more than 90m above ground level

Wildlife Hazard Buffer Zones And Public Safety Areas

- Airport Environs Overlay Map OM-01.2 - Wildlife hazard buffer zones and Public safety areas - Distance from airport runway - 8km
- Airport Environs Overlay Map OM-01.2 - Wildlife hazard buffer zones and Public safety areas - Distance from airport runway - 13km

Additional Information

The following is provided for information awareness:

Acid Sulphate Soils

The subject site is located within an area of potential acid sulfate soils as identified in the Townsville City Plan on:

- Acid sulphate soils Figure 9.2 - 5-20 metres AHD

For more information, please click the link below:

APPENDIX 3

PLAN OF DEVELOPMENT

OCT 2025

BNC PLANNING

BLACK HAWK BOULEVARD PLAN OF DEVELOPMENT

ASSOCIATED WITH A DEVELOPMENT APPLICATION FOR A PRELIMINARY APPROVAL - VARIATION REQUEST UNDER SECTION 50 OF THE PLANNING ACT 2016

11 Black Hawk Boulevard
THURINGOWA CENTRAL QLD 4817
Lot 10 on SP177384

bncplanning.com.au

DOCUMENT CONTROL

Prepared by	**Client**	**Report**
BNC Planning	Stateland Pty Ltd	Report No. DA133-25-POD October 2025 Version 1.0

Version	Date	Author
1.0	November 2025	SSM:BNC

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Contents

APPENDICIES

1.0 Preliminary

1.1 Introduction

The *Black Hawk Boulevard Plan of Development* (the Plan of Development) has been prepared as a framework for managing the future development of land addressed as 11 Black Hawk Boulevard, Thuringowa Central QLD 4817 more particularly described as being Lot 10 on SP177384. See **Appendix 1 – Plan of Development Area**.

1.2 Vision and Character

The Plan of Development seeks to create a unique mixed use commercial and medium density residential destination supported by commensurate low impact industrial activities, that takes advantage of demonstrated economic opportunities created by the sites endemic setting and characteristics. This includes leveraging the existing infrastructure and connections to further enhance the precinct's character and promote a distinct sense of destination and identity.

The greenfield site is an urban infill property which offers the opportunity to create a modern sense of place through considered place-making urban design outcomes. The character and streetscape should foster a clear sense of destination and place making while balancing the interests and needs of a select range of commercial, residential and industrial activities, as well as the established framing environment. This will expand upon the utility of the site and significantly improve the extent to which future development outcomes can align with, and further the achievement of, the purpose and overall outcomes established for the Thuringowa Central Major Centre and Medium Density Residential Zone under the Townsville City Council Planning Scheme.

The intention is to facilitate the highest and best use of the site, to deliver investment flexibility and confidence and expand the range of activities within the Thuringowa Central Major Centre. Concurrently, the Plan of Development acknowledges and encourages the need for medium density housing outcomes and offers a platform to effectively integrate these activities into a mixed use precinct without compromising on amenity.

1.3 Applicability

The provisions of the Plan of Development apply to the Plan of Development Area identified in **Appendix 1**.

1.4 Extent of Variation

The intent of the Plan of Development and the extent to which it seeks to vary the Townsville City Plan is described below:

- define the extent to which the associated development application seeks to vary the effect of the Townsville City Plan;
- establish the area to which the Plan of Development is applicable (the Plan of Development Area);
- set levels of assessment for future development by way of a Table of Assessment;
- set assessment benchmarks for future development by way of a Table of Assessment;
- establish a Plan of Development Code applicable to development within the Plan of Development Area;

- establish an ongoing application framework which will ensure an efficient development assessment process for future uses.

Note – the Plan of Development involves new codes and assessment benchmarks as well as new tables of assessment which seek to change the current categories of development and assessment applied under the planning scheme.

1.5 Relationship with the Planning Act 2016

The Plan of Development forms part of the parent development application made under section 50 of the *Planning Act 2016* (the Act) seeking a Preliminary Approval to vary the effect of a local planning instrument (Townsville City Plan) as it applies to the Plan of Development Area, pursuant to section 61 of the Act.

2.0 Purpose Statement

(1) The purpose of the Plan of Development is to further expand upon and support the Thuringowa Central major centre precinct by further diversifying commensurate commercial and residential activities to take advantage of the opportunity for new development on a greenfield site that has access to a high level of urban infrastructure and high proximity to other centre activities.

More specially, the purpose and vision of the Plan of Development is to establish a planning framework for new use rights to facilitate future development outcomes that better facilitate economic growth in way that continues to align with the Major centre zone and Medium Density Residential Zone under the Townsville City Council Planning Scheme, and proves a greater range of services to the local community.

(2) The purpose of the PoD will be achieved through the outcomes identified within the Black Hawk Boulevard Plan of Development Code.

3.0 Categories of Development and Assessment

3.1 Preliminary

The table of assessment identifies the categories of development and assessment and the assessment criteria for development within the Plan of Development Area.

3.2 Reading the Table of Assessment

The table identifies the following:

(1) The category of development:
  (a) prohibited;
  (b) accepted, including accepted with requirements; and
  (c) assessable development that requires code or impact assessment

(2) The category of assessment, being code or impact, for assessable development in:
   (a) The Plan of Development area and, where used, a precinct or sub-precinct of a zone;
   (b) an overlay, where used.

(3) the assessment benchmarks for assessable development and requirements for accepted development, including:
   (a) whether a Plan of Development code or specific provisions in the Plan of Development code apply (shown in the 'assessment benchmarks for assessable development and requirements for accepted development' column);
   (b) if there is an overlay:
      (i) whether an overlay code applies (shown in Table 5.9.1 of the Townsville City Plan); or
      (ii) whether the assessment benchmarks as shown on the overlay map (noted in the 'assessment benchmarks for assessable development and requirements for accepted development' column) applies;
   (c) any other applicable code(s) (shown in the 'assessment benchmarks for assessable development and requirements for accepted development' column).
   (d) any requirements for accepted development which will need to be met in order for the development to remain accepted.

(4) any variation to the category of assessment (shown as an 'if' in the 'Categories of development and assessment' column) that applies to the development.

3.3 Determining the Categories of Development and Assessment

The process for determining a category of development and category of assessment is:

For a material change of use:

(a) establish the use by reference to the use definitions in Schedule 1;
(b) identify the precinct that applies to the development area, by reference to the Masterplan - Precinct Plan in Appendix 1;
(c) identify if any overlay's apply to the development area, by reference to the overlay mapping in Schedule 2 of the Townsville City Plan;
(d) determine the category of development and assessment by reference to *Table 1 – Categories of Development and Assessment – Plan of Development*;
(e) determine the assessment benchmarks by reference to *Table 1 – Categories of Development and Assessment – Plan of Development*;
(f) if an overlay applies, refer to section 5.9 Categories of development and assessment-Overlays within the Townsville City Plan, to determine if the overlay further changes the category of development or assessment; Where an aspect of development is proposed on premises included in more than one precinct or overlay, category of development and assessment for that aspect is the highest category for each aspect of the development under each of the applicable development area or overlays;
(g) Where development is proposed on premises partly affected by an overlay, the category of development for assessment for the overlay only relates to the part of the premises affected by the overlay;
(h) If development is identified as having a different category of development or category of assessment under a precinct than under an overlay, the highest category of development or assessment applies as follows:

i) accepted development subject to requirements prevails over accepted development;
ii) code assessment prevails over accepted development where subject to requirements and accepted development;
iii) impact assessment prevails over code assessment, accepted development where subject to requirements and accepted development.

(i) Despite all of the above, if development is listed as prohibited development under schedule 10 of the Regulation, a development application cannot be made.

For other development types (Reconfiguring a lot, Operational works and Building works) the provisions of the Townsville City Plan apply.

3.4 Categories of Development and Assessment – Plan of Development

The following table identifies the categories of development and assessment and the corresponding assessment benchmarks for assessable development and accepted development for material change of use development within the Plan of Development area. The Plan of Development only applies to material change of use development. For other development types the provisions of the Townsville City Plan apply.

Table 1 – Categories of Development and Assessment – Plan of Development

Use	**Categories of development and assessment**	**Assessment benchmarks for assessable development and requirements for accepted development**
Dwelling unit Home based business Landing Park	**Accepted development**	
		No assessment benchmarks apply
Major electricity infrastructure Substation Utility installation	**Accepted development**	
	If provided by a public sector entity.	No assessment benchmarks apply
Telecommunications facility	**Accepted development**	
	If aerial cabling for broadband purposes.	No assessment benchmarks apply
	Assessable development - Code assessment	
	Otherwise	Plan of Development Code **and the following codes from the Townsville City Plan:** Healthy waters code Landscape code Transport impact, access and parking code Works code
Bar Car wash Caretaker's accommodation Child care centre Community care centre Community residence	**Accepted development subject to requirements**	
	If in an existing building and not involving more than minor building work	Plan of Development Code **and the following codes from the Townsville City Plan:** Works code

Community use Club Dwelling unit Educational establishment Emergency services Hardware and trade supplies Health care services Hotel Function facility Indoor sport and recreation Low impact industry Market Multiple dwelling Place of worship Residential care facility Retirement facility Rooming accommodation Sales office Service station Short-term accommodation Theatre Veterinary services Warehouse	**Assessable development - Code assessment**	
	Otherwise	Plan of Development Code **and the following codes from the Townsville City Plan:** Healthy waters code Landscape code Transport impact, access and parking code Works code
Adult store Food and drink outlet Office Service industry Showroom Shop	**Accepted development subject to requirements**	
	If in an existing building and not involving more than minor building work	Plan of Development Code **and the following codes from the Townsville City Plan:** Works code
	Assessable development - Code assessment	
	If: (a) not accepted development subject to requirements; and (b) the gross floor area does not exceed 6,000m2. Editor's note—The gross floor area threshold is calculated for a new use or an extension to an existing use. It is not the cumulative total of the existing centre and the additional gross floor area forming part of the development application.	Plan of Development Code **and the following codes from the Townsville City Plan:** Healthy waters code Landscape code Transport impact, access and parking code Works code
Outdoor sales Parking Station Relocatable home park	**Assessable development – Code assessment**	
		Plan of Development Code **and the following codes from the Townsville City Plan:** Healthy waters code Landscape code Transport impact, access and parking code Works code
	Assessable development - Impact assessable	

Any other use not listed in this table. Any other undefined use.		The planning scheme The Plan of Development

SCHEDULE 1

DEFINITIONS

SCHEDULE 1 Use definitions

All use definitions applicable for the purpose of applying this Plan of Development are to be taken from Schedule 1 of the Townsville City Council Planning Scheme 2014 (City Plan 2014) as it occurs at the date of the approval of this Plan of Development, with the exception of any variations outlined in **Table SC1.0** below:

Table SC1.0–Use definitions

Column 1 **Use**	**Column 2** **Definition**	**Column 3** **Examples include**	**Column 4** **Does not include the following examples**

APPENDIX 1

PLAN OF DEVELOPMENT AREA PLAN

BLACK HAWK BOULEVARD
PLAN OF DEVELOPMENT AREA

11 Black Hawk Boulevard
THURINGOWA CENTRAL QLD 4817
Lot 10 on SP177384

BNC PLANNING
Office 7 / Ground Floor / 41 Denham Street
TOWNSVILLE CITY QLD 4810
PO BOX 5493 TOWNSVILLE QLD 4810
(07) 4724 1763 or 0438 789 612 - enquire@bncplanning.com.au

N

Property Details

Site Address:	11 Black Hawk Boulevard THURINGOWA CENTRAL QLD 4817
Real Property Description:	Lot 10 on SP177384
Tenure:	Freehold
Site Area:	44,190m^2 (4.419 ha)
Road Frontage:	Black Hawk Boulevard, Regiment Court, Gregory Street
Planning Scheme Zoning:	Major Centre Zone
Precincts:	Thuringowa Central Major Centre Precinct

Notes

- *Plan and detail is not for construction purposes*
- *All site dimensions to be confirmed by detailed survey*
- *No new road reserves*
- *No existing or proposed public open space*
- *No new retaining walls or retaining structures*
- *No land to be dedicated for community purposes*
- *No building envelopes proposed*
- *Any existing and/or new easements as shown*
- *The site may be subject to 1%AEP DFE flooding*

Data Source

- *DCDB as taken from unconfirmed survey source*
- *Queensland Globe*

PLAN OF DEVELOPMENT AREA

Black Hawk Boulevard Plan of Development

AMT	DESCRIPTION	BY	DATE
A	DA ISSUE	BNC	October 2025

Date: October 2025	Drawn: BNC
Scale: As shown	Reviewed: BNC
Job No.: DA133-25	Approved.: BNC
DRAWING STATUS: DA Issue	BNC Ref. No.: 133-25 / Drawing No.: S01-01 / Rev.: A

APPENDIX 2

BLACK HAWK BOULEVARD PLAN OF DEVELOPMENT CODE

Black Hawk Boulevard Plan of Development Code

Application

This code applies to assessing development on land within the Black Hawk Boulevard Plan of Development Area Plan as shown on the map contained within this code. When using this code, reference should be made to the Table of Assessment Black Hawk Boulevard.

Purpose

1. The purpose of the Black Hawk Boulevard Plan of Development Code (the POD Code) is:

   The purpose of the POD code is to provide for a mix of uses and activities. It includes concentrations of higher order retail, commercial, offices, residential, administrative and health services, community, cultural and entertainment facilities and other uses capable of servicing a sub-region, as well as low impact industry uses, and non-industry uses that support the industrial activities.

2. The Purpose of the POD Code will be achieved through the following overall outcomes:
   (a) development evolves as a vibrant mixed use place where people live, work and play in a high density environment which is active both during the day and night-time and includes residential uses;
   (b) development is highly accessible by walking and cycling from surrounding residential areas;
   (c) development becomes a hub for major public transport routes providing frequent services to other parts of the city, and development facilitates convenient access to public transport facilities as a priority;
   (d) showrooms occur within the development, but are generally located and designed so that they do not detract from the intended built form, pedestrian focus and accessibility;
   (e) development also provides for a range of generally smaller scale industrial uses, storage, wholesale and trade supplies, and uses requiring significant outdoor sales areas;
   (f) centre design and built form creates a walkable and legible pedestrian-focussed environment, with a range of connected, safe and pleasant public spaces forming community focal points. Public spaces and primary pedestrian circulation streets are activated by shop fronts, awnings and kerbside activities;
   (g) the height and scale of buildings reinforce the character, legibility and accessibility of the development. The development predominantly contain medium-rise buildings. However, a human scale and attractive, pedestrian friendly environment is created at street level;
   (h) development is designed to create a desirable interface with surrounding neighbourhoods, providing for attractive streetscapes and transitioning of building form and scale and minimising potential land use conflicts;
   (i) opportunities for energy efficiency through built form are maximised.
   (j) any interface between industrial uses and sensitive land uses is designed and managed to minimise adverse impacts; and

(k) development avoids significant adverse effects on water quality and the natural environment.

Assessment Benchmarks

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	Acceptable outcomes
For accepted development subject to requirements and assessable development	
PO1 Where provided, outdoor lighting does not adversely affect the amenity of adjoining properties or create a traffic hazard on adjacent roads.	**AO1.1** Light emanating from any source complies with *Australian Standard AS4282 Control of the Obtrusive Effects of Outdoor Lighting*.
	AO1.2 Outdoor lighting is provided in accordance with *Australian Standard AS 1158.1.1 –Road Lighting – Vehicular Traffic (Category V) Lighting – Performance and Installation Design Requirements*.
PO2 Residential uses within the development do not interrupt the continuity of the streetscape or the active, pedestrian focus of the street frontage.	**AO2** Any residential uses are located above or behind ground storey retail, commercial or community uses.
PO3 Residential uses within the development are provided with a reasonable level of privacy.	**AO3.1** Windows, balconies, and terraces of a dwelling unit are screened where overlooking a habitable room or private open space of another dwelling within 9m.
	AO3.2 Screening is a solid translucent screen or perforated panels or trellises which have a maximum of 50% openings.
PO4 Residential uses within the development are provided with a reasonable level of private outdoor living space.	**AO4** Dwellings are provided with private open space or a balcony directly accessible from a habitable room with: (a) a minimum area of 9m^2; and (b) a minimum dimension of 3m; and (c) clear of any utilities such as gas, water tanks or air conditioning units.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	Acceptable outcomes
For assessable development	
Role and function	
PO6 Development is consistent with the intended role, scale and character of the development and does not compromise the intended role or successful functioning of the principal centre (CBD) or major centres. The growth of floor space within the development is balanced with anticipated growth within their primary catchment and does not substantively impact on the trading of other centres for an extended period of time or unduly undermine the potential for another centre to expand into its intended role.	No acceptable outcome is nominated. **Editor's note—**Applicants should have regard to Economic impact assessment planning scheme policy SC6.5 for guidance on how to demonstrate compliance with this performance outcome.
PO7 Development facilitates a range of uses that contributes to the vibrancy of the POD Area and provides for a compatible mix of active day and night-time uses.	No acceptable outcome is nominated.
PO8 Development facilitates opportunities for appropriate co-location of residential uses and community-related activities or facilities with retail or commercial development within the POD Area, to the extent practical.	No acceptable outcome is nominated.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	Acceptable outcomes
For assessable development	
Development design and built form	
PO9 The design of the POD Area provides for: (a) a coherent and integrated built form, public realm and circulation networks; (b) central, accessible and attractive public spaces for people to congregate and interact; (c) continuity of streetscape and landscape characteristics; (d) pedestrian friendly and visually interesting frontages to streets and public spaces; (e) optimum energy efficiency; (f) a well-integrated mix of uses; (g) connectivity of pedestrian and cyclist paths and spaces internal and external to the POD Area; and (h) sensitive transitioning to surrounding land and uses. **Editor's note–**Applicants may be requested to prepare a centre design master plan to demonstrate compliance with this performance outcome.	No acceptable outcome is nominated.
PO10 Buildings create a human scale at street level.	No acceptable outcome is nominated.

PO11 A strong sense of enclosure and definition of pedestrian space is created along street frontages, with buildings designed to provide visual interest, foster social interaction and create a safe and pleasant pedestrian-focused environment.	No acceptable outcome is nominated.
PO12 Streetscape treatments and street trees are provided along the street frontage to create a visually cohesive precinct and enhance pedestrian amenity.	No acceptable outcome is nominated.
PO13 Parking areas are not located along the street frontage.	No acceptable outcome is nominated.
PO14 Building caps and rooftops create an attractive roofscape and screen plant and equipment.	No acceptable outcome is nominated.
PO15 Built form maximises use of natural ventilation, solar heating/cooling and water conservation through building orientation and design, landscaping, building materials and on-site infrastructure.	No acceptable outcome is nominated.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	**Acceptable outcomes**
For assessable development	
Crime prevention through environmental design	
PO16 Development facilitates the security of people and property having regard to: (a) opportunities for casual surveillance and sightlines; (b) exterior building design that promotes safety; (c) adequate lighting; (d) appropriate signage and wayfinding; (e) minimisation of entrapment locations; and (f) building entrances, loading and storage areas that are well lit and lockable after hours. **Editor's note—**Applicants should have regard to Crime Prevention through Environmental Design Guidelines for Queensland.	No acceptable outcome is nominated.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	**Acceptable outcomes**
For assessable development	
Accessibility	
PO17 Convenient and legible connections are provided for pedestrians and cyclists to the site, particularly having regard to linkages with existing and proposed public transport infrastructure, the open space network, centres and other community-related activities.	No acceptable outcome is nominated.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	Acceptable outcomes
For assessable development	
Amenity	
PO18 Development minimises impacts on surrounding land and provides for an appropriate level of amenity within the POD Area, having regard to: (a) noise; (b) hours of operation; (c) traffic; (d) visual impact; (e) signage; (f) odour and emissions; (g) lighting; (h) access to sunlight; (i) privacy; and (j) outlook.	No acceptable outcome is nominated.
PO19 Refuse storage areas, loading/unloading and other service or storage areas are screened from view from the street and adjoining land.	**AO19** Refuse storage areas loading/unloading or other service or storage areas are located to the rear or side of a building and are screened from view by a 1.8m high solid fence.
PO20 Development is located, designed and operated so that adverse impacts on privacy and amenity on nearby land in a residential zone are minimised.	**AO20.1** Buildings are set back 4m from any boundary shared with a residential zone.
	AO20.2.1 A 1.8m high solid screen fence is provided along all boundaries shared with a residential zone. AND **AO20.2.2** A landscaped buffer with a minimum width of 3m and consisting of dense screen planting is provided along all boundaries shared with a residential zone.
	AO20.3 Windows that have a direct view into an adjoining residential use are provided with fixed screening that is a maximum of 50% transparent to obscure views and maintain privacy for residents.
PO21 Utility elements (including refuse areas, outdoor storage, plant and equipment, loading and unloading areas) are screened from view from the street and land within other zones.	**AO21** Utility elements are: (a) located within or behind the building; or (b) screened by a 1.8m high solid wall or fence; or (c) behind landscaping having the same screening effect as a 1.8m screen fence.

PO22 On-site landscaping is provided to: (a) enhance the appearance of the development, particularly in parking and service areas and in public spaces; (b) contribute to pedestrian comfort through shade; and (c) screen servicing components.	No acceptable outcome is nominated.
PO23 Development provides for the collection, treatment and disposal of liquid wastes or sources of contamination such that off-site releases of contaminants do not occur. **Editor's note—**Applicants should also have regard to Section 9.3.7 Works code, Section 9.3.2 Healthy waters code and other relevant legislative, industry and licensing requirements.	**AO23.1** Areas where potentially contaminating substances are stored or used, are roofed and sealed with concrete, asphalt or similar impervious substance and bunded.
	AO23.2 Roof water is piped away from areas of potential contamination.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	**Acceptable outcomes**
For assessable development	
Community and environmental risk	
PO24 Development is designed and managed so that it provides appropriate protection for community health and safety, and avoids unacceptable risk to life and property.	No acceptable outcome is nominated.
PO25 The site layout and design responds sensitively to on-site and surrounding drainage patterns and ecological values by: (a) maximising retention of natural drainage patterns; (b) ensuring existing drainage capacity is not reduced; (c) maximising the retention or enhancement of existing vegetation and ecological corridors; and (d) providing buffers to protect the ecological functions of waterways.	No acceptable outcome is nominated.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	**Acceptable outcomes**
For assessable development	
Community uses, community care centres, clubs	
PO26 Adequate lockable storage space is provided on-site to meet the needs of users.	**AO26** At least one (1) lockable storage space of at least 4m^2 is provided for each room or area that can be hired out or used by community organisations or the public.

Table 1.0 – Accepted development subject to requirements and assessable development (Part)

Performance outcomes	**Acceptable outcomes**

For assessable development	
Showrooms	
PO27 Showrooms are designed and located as an integrated part of the POD Area, having regard to the continuity of built form and streetscapes, active street frontages and pedestrian and cyclist accessibility and circulation.	No acceptable outcome is nominated.

APPENDIX 4

STATE CODE 1 ASSESSMENT

Need and Impact Assessment – Variation Request

11 BLACK HAWK BLVD
THURINGOWA

OCTOBER 2025

urban economics

Prepared on behalf of:

Stateland Pty ltd

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1.0	October 15 2025	Nicholas Hiller	Kerrianne Meulman
1.1	October 20 2025	Kerrianne Meulman	

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Contents

Executive Summary

- This Economic Need and Impact Assessment report has been prepared by Urban Economics on behalf of Stateland Ltd in accordance with the Planning Policy SC6.5 economic impact assessment policy to accompany a Variation Request to override the Planning Scheme in expanding the Major Centre zone at 11 Black Hawk Boulevard in Thuringowa. The subject site is located within the Major Centre zone and Medium Density Residential zone under the Townsville City Plan 2014 and it is proposed to include a greater range of uses that could be developed on the site.

- The subject site is strategically located to accommodate a mix of centre support uses that contribute to the vibrancy and vitality of Thuringowa Central as a Major Activity Centre for Townsville, supporting the needs of the expanding south-western corridor of Townsville and contributing to sustaining the city's economic growth and development.

- The Thuringowa Major Centre performs a broader role to the other two major centres in Townsville, acting not only as the main retail hub for surrounding suburbs but as a major hub for healthcare, commercial, recreational and leisure activities as well as including a mix of service and light industry uses. Its location further from the Townsville CBD also increases its importance as a service centre compared to the other two major centres as well, with the growth corridor and greenfield expansion areas of Townsville forming part of the centre's natural catchment.

- This broader role is reflected in the proportion of estimated GFA taken up by major anchoring centres, with the Willows Centre comprising only 38% of the total Thuringowa Major Centre floorspace, in comparison to Aitkenvale and Hyde Park, where the largest shopping centre takes up 47% and 60% respectively of the entire centre floorspace.

- The lack of surrounding supporting employment land use zones such as low impact industry and mixed-use zoned land when compared to other major centres in Townsville, underlines the importance of existing major centre land fulfilling this role supporting a broader range of employment uses.

- Whilst there is scope for future growth of the centre, compared to the other major centres which are constrained by surrounding land uses, the quantum of surrounding medium density land is also largely undeveloped, maintaining the potential for future residential development when demand is realised.

- Moreover, there remains a relative lack of significant showroom development relative to the status and floorspace of the Thuringowa Major Centre. Given the necessity of the centre playing an expanded role in not only the retail but commercial and industrial network, the subject site, with its location proximate to existing higher traffic leisure and entertainment uses, would represent an ideal opportunity to establish additional commercial uses, particularly homemaker type brands, business and industry support activities and other large format uses, which do not have a significant existing presence nor are conducive to the development of an effective and vibrant, pedestrian focused core.

- There is strong forecast population growth within the Study Area with the expansion of large masterplanned estates in the suburbs surrounding the subject site, which will generate a significant ongoing demand for commercial and other facilities. Of the local population, there is also a higher than average proportion of the workforce employed in industries such as Healthcare, Construction, Retail and Other Services, which have a need for improved access to employment opportunities close to home including low-impact industry, office, hardware or showroom uses as proposed for the subject site, which are in limited supply within the Thuringowa Major Centre as well as the Study Area generally.

- The population of the Study Area has a strong family demographic with a relatively lower proportion of lone person and group households, which is reflected in a high proportion of detached housing and suggests a relatively lower demand for medium-density housing suited to smaller households.

- It is also noted that the older demographic, whilst remaining lower than the State average, is expected to grow strongly, with older and retiree aged residents comprising more than 20% of the population by 2041, inevitably, generating accelerating demand for facilities targeted at older residents, including retirement living options such as Land-Lease communities, leisure and wellbeing facilities, health care and allied services.

- Across the SA2s comprising the Study Area, there were 10,558 workers employed, representing an average of 2.5 Study Area resident workers per every job within the Study Area, or in other words a relative net jobs balance of 40% in that there are jobs for 40% of all resident workers of the Study Area, indicative of a dormitory community and that residents are travelling outside the Study Area to access employment opportunities including within the CBD and within industry precincts.

- Allowing for the projected growth of the resident workforce, indicatively suggests that if this ratio remains constant, at least 13,300 jobs would be required within the Study Area to support the growth of the resident population, representing a growth of some 2,700 jobs to 2041. This makes no allowance for an increased in the share of job opportunities within the Study Area.

- For instance, if the net jobs balance increased to only 45% as a result of increased employment close to home for Study Area residents and investment in economic opportunities, this would represent a growth of some 4,500 additional jobs within the Study Area.

- *There is a clear and growing demand from the resident population of the Study Area for the provision of additional employment opportunities within the Study Area and close to the place of employment. Centres such as Thuringowa Central will be intrinsic to the delivery of diversity of employment for the Study Area community*.

- At the time of the 2021 Census, some 20% of the resident workforce was employed in industries typically associated with industry precincts including manufacturing, transport, postal and warehousing, wholesale and construction sectors. Assuming that this share remains relatively consistent, with increases and decreases between sectors anticipated, a 2041 resident workforce of some 33,000 workers would represent a local industry base of some 6,600 workers, and an increase of at least 1,300 workers. At approximately 25-30 workers per hectare, this growth in demand would effectively represent a demand for some 50ha of employment area, with no land elsewhere within the Study Area to support this employment base.

- When assessing the balance between the demand for commercial employment spaces and the corresponding supply of land, it is important to consider the role of the Thuringowa Centre in the Townsville Centres Hierarchy. While there is vacant land available within the Major Centre zone that could accommodate centre-type uses, the nature of the Thuringowa Major Centre is such that it accommodates a wide range of employment uses beyond traditional shopping centre activities such as low-impact industry, leisure, sport and recreation and ongoing growth in the local workforce will generate an increasing need for these uses and employment activities within Thuringowa Central.

- More particularly, there are gaps and growing demand for goods and services that will meet the established and evolving needs of the Study Area community including local residents, the resident workforce, workers, businesses and visitors.

- Unlike both Aitkenvale and Hyde Park, which are more established centres and focused on the shopping centre cores, there is a more diverse array of activities within Thuringowa Central supporting a diverse business and employment base, however unlike either major centre in Townsville or other comparable greenfield centres such as Helensvale on the Gold Coast, Thuringowa Central is not supported by surrounding mixed industry or light industry precincts, with this role naturally falling to the Major Centre.

- Moreover, there is a strong propensity for local resident workers to commute out of the Study Area to access employment opportunities with the Study Area effectively representing a dormitory area for residents working in areas elsewhere in Townsville and a need for more localised employment opportunities.

- In comparison, while there is an existing demand for housing in the Thuringowa area, it is largely for detached suburban housing, as evidenced by the increase in price over recent years, which has occurred in spite of the fact that building approvals have remained steady and that there are a number of detached residential estates currently undergoing construction.

- At the time of the Census, 92.2%of dwellings within the Study Area were detached dwellings. If this share remained consistent to 2041, the growth of some 3,350 households within the Study Area between 2025 and 2041 would represent a demand for at least 3,080 detached dwellings and an estimated demand for approximately 270 dwellings in attached forms including townhouses, duplexes, terraces, flats and units. Allowing for an average of 25 dwelling per hectare, this would represent a demand for some 11ha of medium density land.

- Even if assuming an increasing share of dwellings are attached forms of dwellings, (15%) going forward, this would represent a demand for some 500 attached and semi-attached dwellings or at least 20ha of medium density land. There is currently more than 40ha of medium density zoned land within Thuringowa Central indicative of a surfeit of land to meet current and future needs of the Study Area community.

- It is Urban Economics's opinion that there is a need for additional centre activities to meet the growth of the Study Area community, and that the subject site represents a strategic and logical expansion of centre uses proximate to the core of the Major Centre in contributing to the role and function of Thuringowa Central as a vibrant, vital and effective Major Centre for the surrounding sub-regional community.

- The loss of the site as a medium-density parcel is negligible in comparison to the economic and employment opportunities that could otherwise be delivered therein, mitigated by the provision of extensive undeveloped land parcels adjacent to the Thuringowa Major Centre as well as the demand for housing being met elsewhere. More particularly, the need to retain the subject property for medium density housing is limited at best, with substantial land available within Thuringowa Central and the Study Area to accommodate medium density dwelling demand to 2041 and beyond, whilst there is strong and growing demand for more diverse business and employment opportunities within the Study Area.

- It is Urban Economics's opinion that there is insufficient need for the subject site to be retained for medium-density residential use, with a more pressing need for the Thuringowa Major Centre to play an expanded role in the commercial and employment needs of the south west growth corridor. More particularly, the inclusion of a broader range of uses that could establish on the subject site will contribute to the vitality and vibrancy of the Thuringowa Major Centre through improved delivery of business and employment activity proximate to the core whilst there remains significant tracts of available land for medium density residential land far beyond that required to support even a higher level of demand for medium density dwellings to 2041.

- The proposed inclusion of a broader range of uses on the subject parcel will have a negligible impact on the availability of land for medium density residential purposes within the Study Area and Townsville.

1.0 Introduction

1.1 Background

Urban Economics has been commissioned by Stateland Pty ltd to prepare an Economic Need and Impact Assessment report in accordance with the Planning Policy SC6.5 economic impact assessment policy to accompany a development application to seek a Variation Request to override the Planning Scheme in expanding the range of uses that could be accommodated on the site at 11 Black Hawk Boulevard in Thuringowa.

The subject site is located within the Thuringowa precincts of the Major Centre zone and Medium Density Residential zone under the Townsville City Plan 2014.

This report explores the role of Thuringowa Central as a Major Centre, critiques the potential gaps and mix of facilities within Thuringowa and the potential uses that could be accommodated on the subject site, and evaluates the relative economic need for medium density on the subject site relative to commercial uses having regard to implications for the role of Thuringowa overall and the network of centres for Townsville.

1.2 Study Objectives and Methodology

The key objective of this report is to provide a comprehensive assessment of the economic and community need, as well as examination of the impacts of the proposed variation request. In doing this, Urban Economics has:

- Inspected the site and the mix of uses within the Thuringowa Central precinct
- Critiqued the performance of the existing centres network including vacancies and land available for further development
- Assessed the demographic and socio-economic profile of the Study Area including key changes in the profile of the community over time and implications for housing, retail and commercial demand
- Explored the expenditure base and growth of the expenditure of the Study Area community
- Assessed the demand for additional commercial uses and the demand supply gap and threshold analysis within Thuringowa
- Assessed the demand for medium density residential product in Thuringowa Central
- Assessed the need to retain the land for residential purposes and implications for the availability of medium density land within the planning scheme
- Critiqued the economic and community need for additional commercial uses within Thuringowa
- Assessed the impacts of the proposed utilisation of the land for commercial purposes on the existing and approved centres network
- Considered the implications of the proposed commercial uses on Council's hierarchy of centre

2.0 The Subject Site

2.1 The Subject Site

Described as Lot 10 on SP177384, the subject site at 11 Black Hawk Boulevard in Thuringowa Central is a 4.43ha site surrounded by detached residential to the south and east and a diverse array of commercial uses to the north and west including large format bulky goods and trade supplies, childcare, car wash, indoor sport and recreational facilities, commercial offices, self-storage and the Cannon Park entertainment and leisure centre (FIGURE 2.1). The site's zoning is split between major centre and medium density residential, as shown in FIGURE 2.6.

FIGURE 2.1: The Subject Site

Source: Nearmap showing 12 July 2025

FIGURE 2.2: 11 Black Hawk Blvd

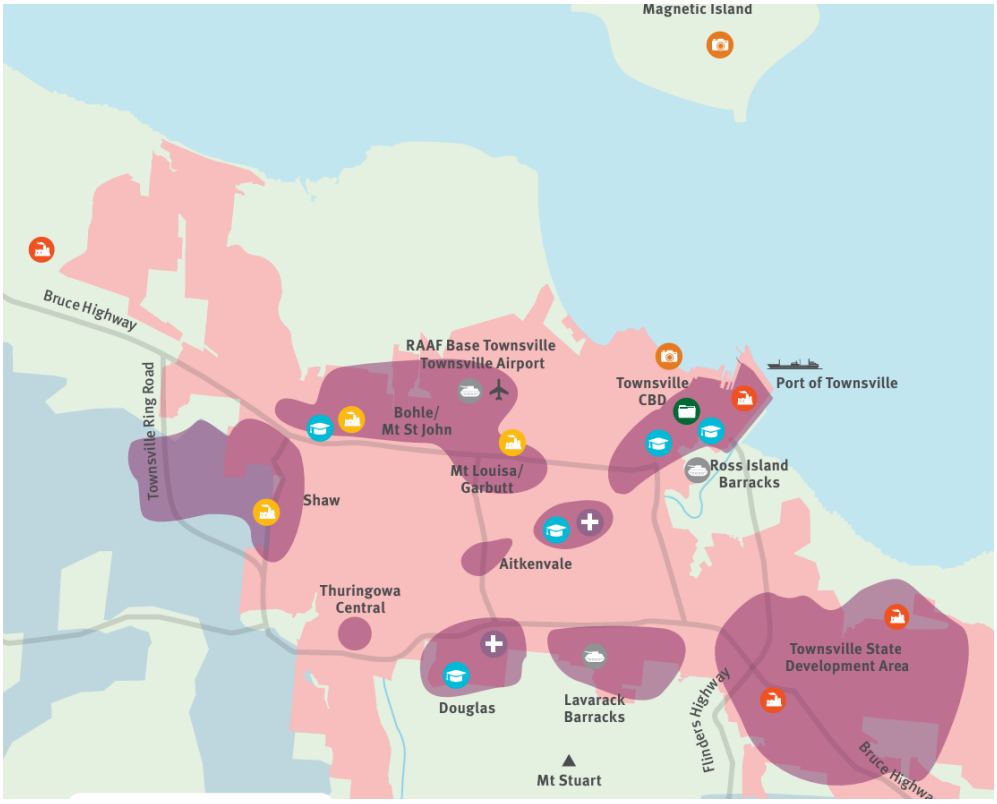
2.2 Planning Framework

The North Queensland Regional Plan defines four goals for the North Queensland region:

- Leading economy
- Rich and healthy natural environment
- Liveable, sustainable and resilient communities
- Safe, connected and efficient

Thuringowa Central is recognised as one of four major centres for Townsville, together with Aitkenvale, Douglas and Hyde Park, and is the only major centre and Area of Regional Economic Significance in the south west of Townsville and proximate to the Douglas health and knowledge precinct and the Shaw industry area, both of which are also defined as areas of regional economic significance. (Figure 2.3)

FIGURE 2.3: North Queensland Economic Snapshot



Source: NQ Regional Plan

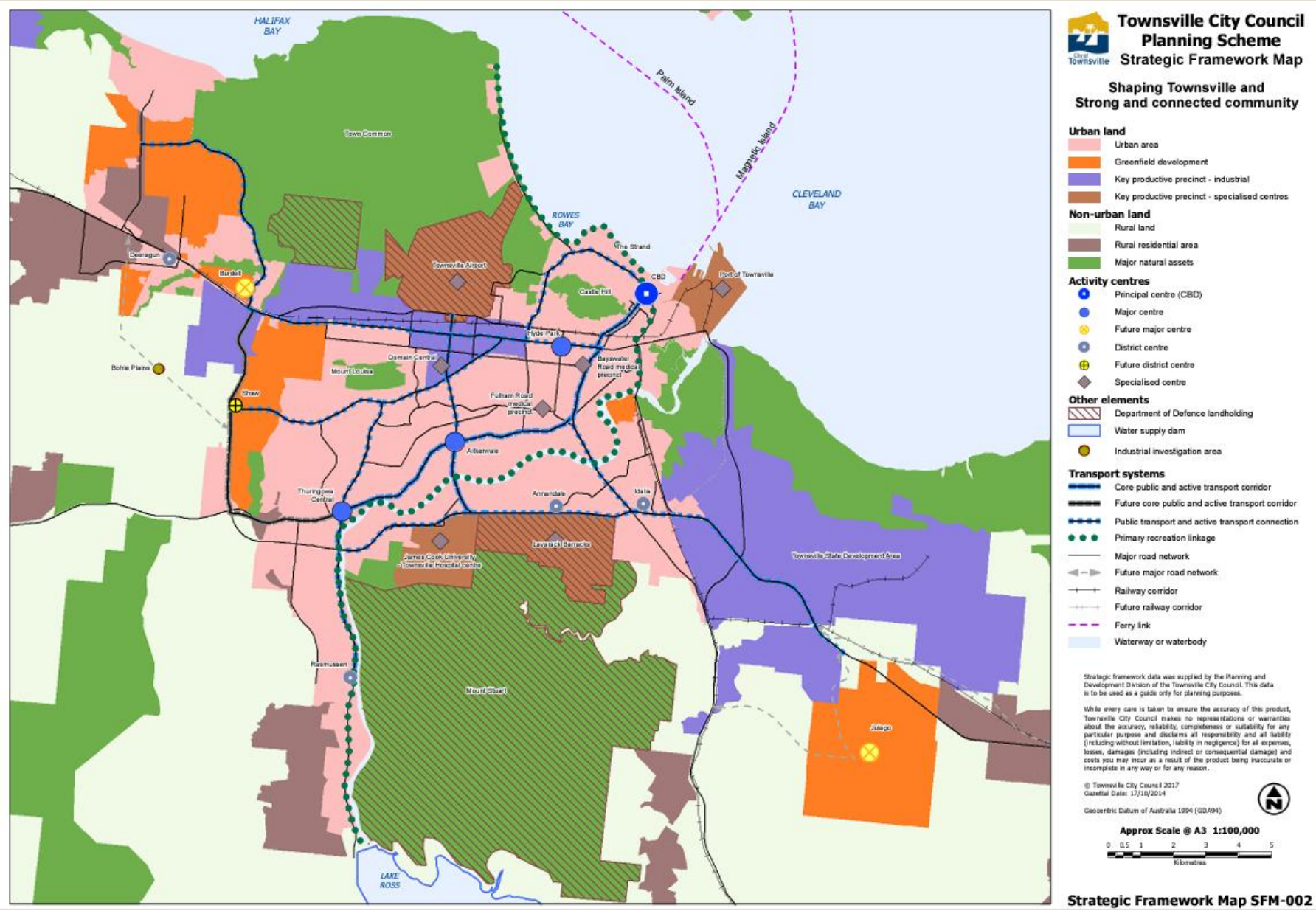
Th Strategic Framework of the Townsville City Plan has been framed around four key themes:

- Shaping Townsville
- Strong connected community
- Environmentally sustainable future
- Sustaining economic growth

In exploring sustaining economic growth, the Strategic Framework highlights key city economic elements and precincts around:

- The Townsville CBD
- Port of Townsville
- JCU and Hospital precinct
- Lavarack Barracks
- Airport and RAAF Base
- Thuringowa Central, Aitkenvale and Hyde Park major centres

FIGURE 2.4: Strategic Framework Map 2



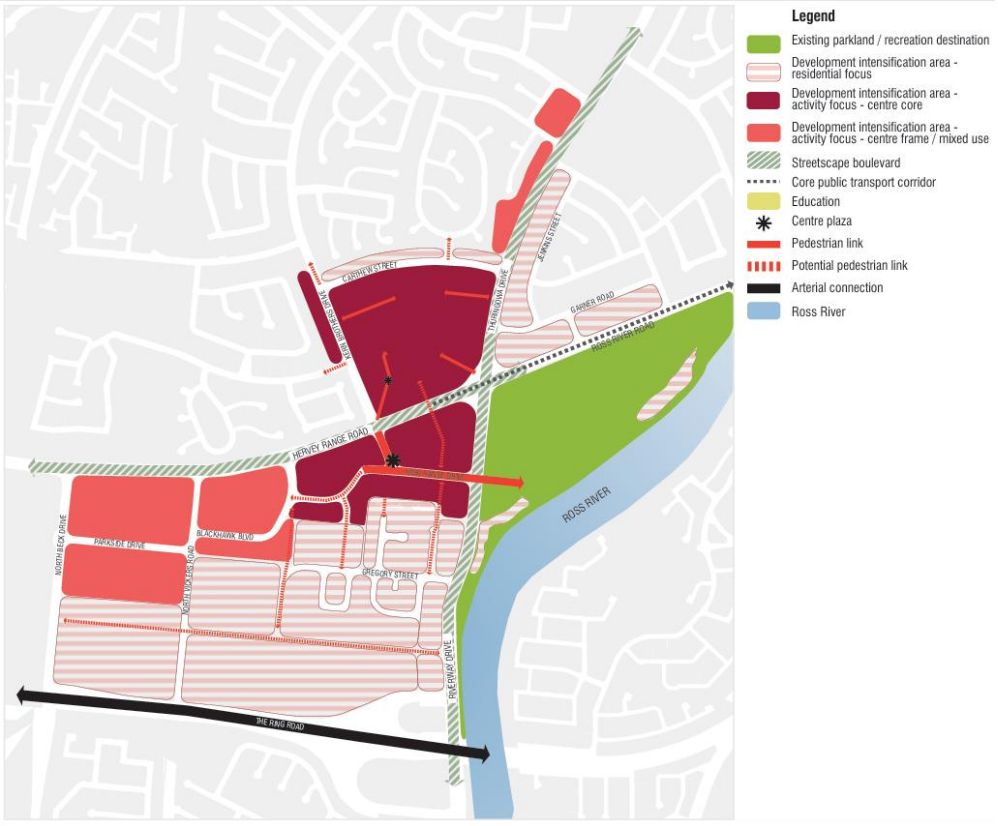
Source: Townsville City Council

The subject site is located within the Thuringowa Major Centre precinct as identified within the *Strategic Framework* and illustrated within Strategic Framework Map 2 (FIGURE 2.4). Relevantly, the Strategic Framework outlines an intent for Townsville's major centres *"at Aitkenvale, Thuringowa Central and Hyde Park, and new centres at Burdell and Julago, will be economic and community hubs. Over time, mixed use development within these centres will broaden their function beyond shopping to become great places to live, work, access services and recreate. New infill residential development will underpin these changes, comprising about a fifth of the city's residential growth to 2031. Similar changes at smaller scales – in keeping with an established activity centres hierarchy - will be promoted at other district, local and neighbourhood centres around the city."*

Section 3.3.4 of the Strategic Framework – Shaping Townsville and the Activity Centres element states that "*Major centres in Townsville support but do not undermine the role of the principal centre (CBD), offering diverse business, employment and residential opportunities. These activity centres are accessible to broad catchment areas across the city, offering higher-order shopping and commerce, entertainment, health, education and community facilities, as well as higher density housing choices. They are well serviced by public and active transport networks and increasingly offer active, pedestrian-focussed street level environments*"

Having particular regard to Aitkenvale and Thuringowa Central, paragraph 3.3.4.1 (15) states that these "*major centres have a broad range of uses and increased vibrancy as community hubs. Integration and connectivity within the centres is improved. The centres contain an array of higher order retailing, with a broad range of commercial, community, cultural and entertainment services. Medium density housing is encouraged as an integrated component of development within the centres. Housing includes student and visitor accommodation to reinforce links with James Cook University and Townsville Hospital*".

FIGURE 2.5: Thuringowa Town Centre Planning Framework



Source: Townsville City Council

The following TABLE 2.1 summarises the identified proposed uses for the subject site, accounting for its position as Major Centre Zoned land, with differing development assessment processes depending on the individual uses. The uses are then evaluated based on assessment benchmarks defined in the major centre zone code, which differ depending on the specific site.

TABLE 2.1: Assessment Table, Major Centre Land

Accepted	Code Assessable	Proposed Additional Uses
Home based business, landing, major electricity infrastructure, park, substation, utility installation	Adult store, bar, caretaker's accommodation, car wash, child care centre, club, community care centre, community residence, community use, dwelling unit, educational establishment, emergency services, food and drink outlet, function facility, health care services, hotel, indoor sport and recreation, market, multiple dwelling, office, parking station, place of worship, retirement facility, rooming accommodation, sales office, service industry, service station, short-term accommodation, showroom, telecommunications facility, veterinary services	Funeral parlour, hardware and trade supplies, low impact industry, outdoor sales, relocatable home park, residential care facility, warehouse

The proposed additional land uses are large format, land expansive uses that are not appropriate with the core of the precinct but would contribute to the overall role and functionality of Thuringowa as a Major Centre for the surrounding community.

The following extracts summarise the relevant zone codes and their purpose, particularly as they relate to the intentions of the Strategic Framework and the proposed commercial uses on the subject site.

Major Centre zone code

a. *"The purpose of the Major centre zone code is to provide for a mix of uses and activities. It includes concentrations of higher order retail, commercial, offices, residential, administrative and health services, community, cultural and entertainment facilities and other uses capable of servicing a sub-region in the planning scheme area."*
b. *"showrooms occur within the major centres, but are generally located and designed so that they do not detract from the intended built form, pedestrian focus and accessibility"*
c. *"the height and scale of buildings reinforce the character, legibility and accessibility of the centre"*

The purpose of the Major Centre zone code for Thuringowa Central as outlined in Section 6.3.4.2 is replicated below, with key commercial sub-precincts comprising the town centre heart, Willows, Thuringowa Drive and Centre support sub-precincts. The Black Hawk Boulevard fronting portion of the subject site falls within the Centre support sub-precinct. The remainder of the site falls within the Thuringowa South medium density residential zone.

Thuringowa Central major centre precinct:

a) *development in the Thuringowa Central major centre continues to grow and diversify the range of activities within the centre. However, a department store is not established within this centre;*
b) *higher density housing includes student and visitor accommodation to reinforce economic links with the James Cook University and Townsville Hospital;*
c) *the centre is focussed on a new main street and town square along Hervey Range Drive, which provides a strong connector between Riverway and the Willows sub-precinct;*
d) *further outward expansion of the centre does not occur, with all new development contributing to the increasing consolidation of the centre and the clear definition of its edges;*
e) *new development facilitates improved permeability within the centre for pedestrians and cyclists, provides for safer and shadier pedestrian routes and promotes access to public transport facilities;*
f) *a bus interchange forms a focal point within the centre that is well-connected to the Thuringowa town centre heart sub-precinct, the Willows sub-precinct and the surrounding neighbourhoods;*
g) *built form is highest and most intensive in the Thuringowa town centre heart sub-precinct, decreasing to the centre edges;*
h) *visual and physical connections to Pioneer Park and Riverway are maximised wherever possible; and*
i) *Thuringowa Drive, Riverway Drive and Hervey Range Road become tropical boulevards providing a sense of arrival at the centre and strong landscape amenity. This is achieved*

through street tree planting, stronger definition of road edges by buildings fronting the street and screening of parking areas.

FIGURE 2.6: Subject Site Zoning

Source: Townsville City Council

Thuringowa Central is intended to incorporate a range of uses and activities that continuously evolve the centre as a mixed use centre integrated with medium density housing with a particular focus on visitor and student accommodation options that would integrate and support the role and performance of Townsville Hospital and James Cook University, although noting that both these economic and employment nodes are detached from both Aitkenvale and Thuringowa Central.

Subsequent to the City Plan, it is noted that the James Cook University masterplan was released in 2017, with a vision to incorporate considerable residential diversity across retirement living, aged care, high density, medium density, low density residential and student accommodation options over the long term, which if achieved, may reduce in part the capacity to accommodate significant student and visitor accommodation options within Aitkenvale and Thuringowa that are also targeted at these markets.

The centre support precinct in which part of the subject site is located, has accommodated a mix of employment activities with a vehicle oriented focus, effectively developing the precinct as a frame area supporting the core retail and commercial around Willows Shopping Centre.

The subject site is strategically located to accommodate a mix of centre support uses that contribute to the vibrancy and vitality of Thuringowa Central as a Major Activity Centre for Townsville, supporting the needs of the expanding south-western corridor of Townsville and contributing to sustaining the city's economic growth and development.

3.0 Thuringowa & the Centres Hierarchy

3.1 The Centres Network

As highlighted in Chapter 2, Major Centres as defined by the Planning Scheme are intended to be diverse centres of activity comprising a mix of uses and activities that would cater to a sub-regional catchment area including concentrations of concentrations of higher order retail, commercial, offices, residential, administrative and health services, community, cultural and entertainment facilities. Major Centres are intended to complement and support the CBD as the Principal Activity Centre, incorporating the highest order concentration of retail, commercial and employment activities.

Thuringowa Central is the largest of the Major Centres in terms of actual zoned Major Centre area but remains smaller in terms of Gross Floor Area (GFA) of major shopping centre space relative to the Aitkenvale Major Centre, with the core of Thuringowa Central anchored by the Willows Shopping Centre.

TABLE 3.1: Townsville's Major Centres

	Major Centre zone area (ha)	Key Centre GFAs (m^2)	Total GFA	Major Uses
Thuringowa Central	55.68	Willows (44,500m^2) Cannon Park (14,000m^2)	~115,000m^2	Willows Shopping Centre - Woolworths - Coles - Big W - ALDI Cannon Park City Centre - Reading Cinemas - Kingpin - Twin City Hotel
Hyde Park	14.63	Castletown (37,500m^2) Hyde Park Centre (16,000m^2)	~62,000m^2	Castletown - Woolworths - Coles - Big W Hyde Park Centre - Betta Electrical - Muscle & Fitness
Aitkenvale	22.61	Townsville Shopping Centre (59,500m^2) The Intersection (14,000m^2)	~125,000m^2	Townsville Shopping Centre - Myer - Big W - Woolworths The Intersection - Kmart - Coles - ALDI approval

All major centres have large anchoring retailers such as supermarkets and discount department stores as well as a range mini majors such as Best & Less, Rebel, Cotton On and TK Maxx, either in a single centre or spread across multiple shopping centres as in Aitkenvale. As large shopping centres, all include a range of clothing, dining and fast food, health/beauty and general retail uses. Only Aitkenvale incorporates a department store and the broadest range of discount department and supermarket anchors within Townsville at this point in time.

Willows Shopping Centre at Thuringowa has a more limited number and mix of homewares and lifestyle uses in comparison to the other core shopping centres of the major centres.

In terms of centre vacancies, Urban Economics estimates ~2,500sqm worth of vacant space within the Willows Shopping Centre, based on inspections and information available online, representing an overall retail vacancy rate of approximately 5.6% which is within typical target retail vacancy rates of 3-5%. Also notable is a disused building within the centre site that seems to have formerly been used by small-scale commercial and office uses with a footprint of ~1,600sqm. There are several vacant tenancies in the Cannon Park centre and in nearby centre frame buildings.

There are also vacancies in the Eastbrooke Health Hub, which is located within the Mixed Use Zone of the Thuringowa Central area.

The Townsville Shopping Centre in Aitkenvale appears to be performing well, with just over 1,000sqm in estimated vacancies, representing a retail vacancy rate of less than 2%, which is indicative of a tight retail trading environment. However, the smaller, older commercial facilities extending east along Ross River Rd within the Major Centre and neighbouring Mixed Use land appear to be struggling, with a number of advertised vacancies for smaller office and consulting spaces and the closure of the Kingsvale and Sunvale centres, anticipated to be redeveloped.

At Castletown, the main shopping centre in the Hyde Park Major Centre, there was ~400sqm of identified vacancies representing a retail vacancy rate of approximately 1%, and in the neighbouring Hyde Park Centre, an existing vacancy is being filled with an additional furniture retailer, House of Brown.

Urban Economics notes that within the Thuringowa Major Centre, in the Centre Frame areas, particularly along Parkside Dr (also referred to as Tecno Park), there has been substantial development of uses more typically found in low-impact industry areas, such as Bridgestone Tyre & Auto, Plumbing and Air conditioning supply, self-storage, as well as indoor sport and recreation uses. These reflect centre support activities and uses that contribute to and are supported by the critical mass of activities in the core of the Major Centre and the number of businesses, shoppers, workers and those conducting other business therein.

Selected uses along Parkside Dr, Black Hawk Blvd

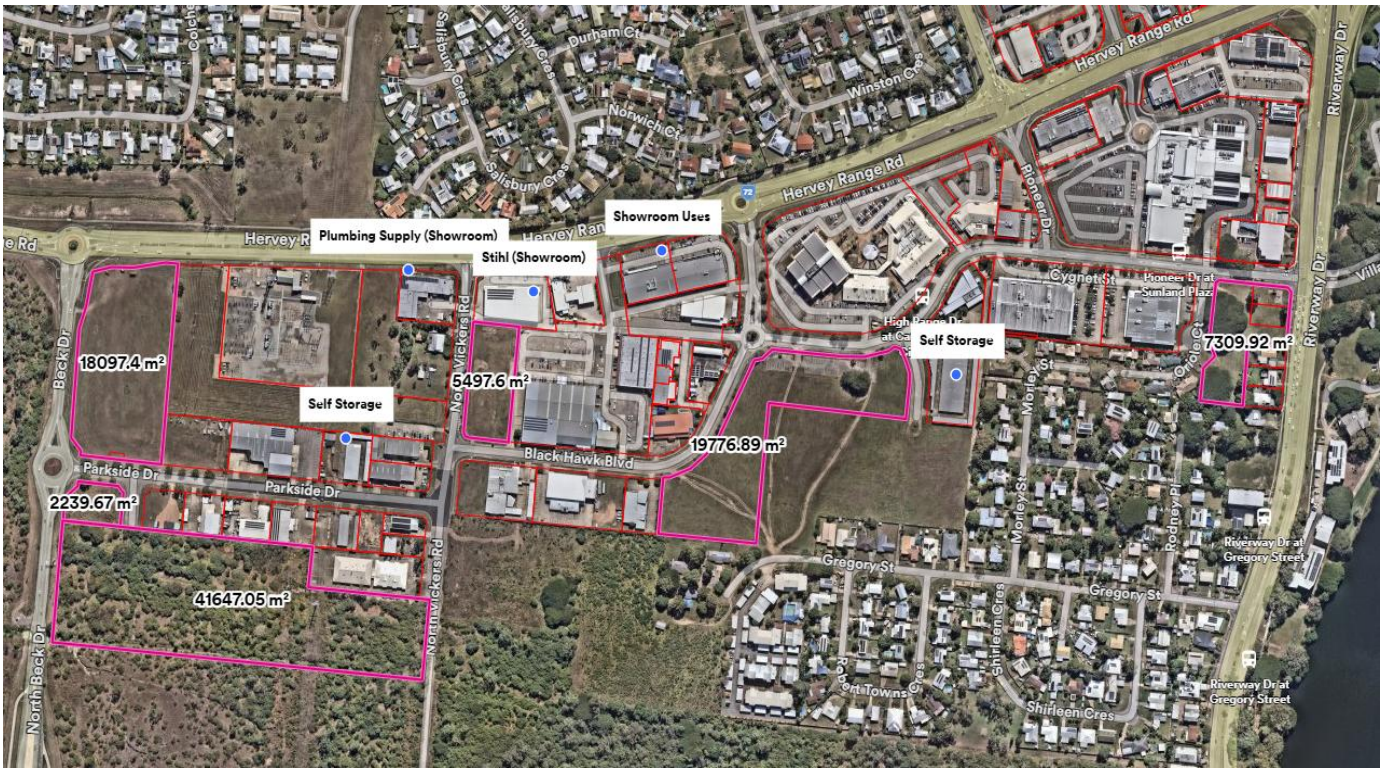
Both the Hyde Park and Aitkenvale Major Centres are within 4km of the Domain Central bulky goods and showroom precinct in Garbutt and the extensive array of showroom facilities within this precinct, with a limited mix of large format outlets within the Aitkenvale centre whilst Hyde Park has incorporated bulky goods and showroom outlets in the Hyde Park Centre and the former Joyce Mayne Centre, although both have been subject to vacancies and challenges in securing and retaining quality large format tenancies.

In comparison, the supporting town centre precinct in Thuringowa incorporates a broader mix of large format uses as well as industry support and light industry uses, as well as the entertainment precinct of the former Cannon Park centre, in part a reflection of the different catchment area that the Thuringowa Major Centre is supporting and supported by, the distance to the concentration of industry and bulky goods outlets in Garbutt and the outer suburban layout of the centre. Urban Economics also notes a strong presence of health and social service uses within the Thuringowa centre, with 4 medical centres, 5 pharmacies as well as allied health and disability service providers located within the centre, particularly along Thuringowa Dr.

A review of the zoned vacant land within the major centres notes that there is ~9.6 hectares of vacant land in the Thuringowa major centre zone, compared to 2.3ha in Hyde Park and just 0.6ha in Aitkenvale. As a proportion of total land, the level of vacancy in the Thuringowa Major Centre was 17.2%, similar to Hyde Park with 15.7% and well above just 0.9% in Aitkenvale, indicative of potential and ongoing capacity to absorb additional land uses.

81% of all zoned undeveloped vacant land within the Thuringowa Major Centre is within areas identified for centre frame/mixed use purposes, with centre core areas largely developed and occupied by shopping centre, commercial and other uses. This reflects the strength of existing uses in the core areas and the limited potential for significant at-grade expansion.

FIGURE 3.1: Vacant Land within Thuringowa Major Centre Zone



Source: Nearmap

Excluding the subject site at 11 Black Hawk Blvd, within the Thuringowa Major Centre land, Urban Economics has identified a quantum of ~76,500sqm of vacant and potentially developable land across 6 separate parcels. Nearly all (75,000sqm) of this land is located to the south of Hervey Range Rd, within land identified for centre core or centre frame uses and within the west of the Major Centre precinct. All other land is occupied by commercial, industrial, entertainment or community/government department uses, and Urban Economics notes an existing approval to develop 4 industrial units at 20-24 Parkside Dr on a parcel of vacant land, as well as an approval to expand the existing Queensland Government Child Safety Centre with additional office/consulting space along Black Hawk Blvd.

By comparison, vacant land within the Aitkenvale Major Centre is largely made up of smaller, former residential lots, with the most significant parcel (comprising 3,845sqm) currently listed for sale and suggested for potential childcare development. There are no contiguous, englobo parcels with the capacity to accommodate significant expansion of centre uses and activities within the Aitkenvale centre.

In the Hyde Park Major Centre, there is a ~2.3ha parcel of vacant land comprising lots to the rear of the Hyde Park Centre as well as an old industrial building and adjacent vacant land plot noted for sale along Virgil St to the south of the centre.

Other uses typically associated with the Major Centres are now locating in Fairfield relative to Thuringowa.

3.2 Other Uses and Activities

Relocatable Home Park

Defined in the Townsville Planning Scheme as "Relocatable Home Park" and also known as "Manufactured Home Parks" or "Land Lease Communities", these types of developments differ from traditional retirement products in that residents own the dwelling but lease the land parcel and do not pay stamp duty or any exit fees.

The major difference between this model and traditional retirement living is that most retirement living residents enter into a long-term lease or licence agreement and are then charged an exit or deferred management fee. Retirement Village residents also pay ongoing costs to maintain their property, while land lease residents are responsible for their own maintenance.

The land-lease community market is relatively underdeveloped in Townsville compared to other parts of Queensland, and there are five existing facilities within the Townsville Urban area. However, none of these facilities are more modern purpose-built "Over-50s Living" communities, which tend to have over 200 sites and extensive amenities, rather being small numbers of manufactured home sites that form part of larger caravan and tourist parks.

TABLE 3.2: Manufactured Home Parks, Townsville LGA

Village Name	Address	Suburb	Number Of MH Sites	Distance (km)
TOWNSVILLE TOURIST & LIFESTYLE VILLAGE	405 HERVEY RANGE RD	BOHLE PLAINS	23	3.4
SECURA LIFESTYLE MAGNETIC GATEWAY	88 MINEHANE ST	CLUDEN	4	11.5
TOWNSVILLE BUSH OASIS CARAVAN PARK	1 MUNTALUNGA DR	NOME	3	19.8
BLUEWATER CARAVAN PARK	41420 BRUCE HWY	YABULU	6	20.7
ROLLINGSTONE BEACH CARAVAN RESORT	367 HENCAMP CREEK RD	ROLLINGSTONE	5	49.3

Source: QLD Government Open Data, Google

While a different product, many potential residents factor in both retirement living and land-lease as options for their retirement, and there are a number of retirement villages within a 10km radius (generally accepted as where the majority of residents will originate).

Carlyle Gardens is the closest and largest retirement village, and is located just to the south of the Townsville Ring Rd, while others in proximate suburbs include Regis Corinthian Court (which is co-located with an aged care facility) in Kirwan.

TABLE 3.3: Retirement Living Complexes within 10km of Subject Site

Village Name	Address	Suburb	Units Available	Dwelling Tenure	Distance (km)
CARLYLE GARDENS TOWNSVILLE	60 BECK DR NORTH	CONDON	458	Leased	1.0
REGIS CORINTHIAN COURT RETIREMENT VILLAGE	1 EMERALD ST	KIRWAN	85	Licensed	2.2
BROOKLEA LIFESTYLE VILLAGE	1 LINDEMAN AVE	CRANBROOK	93	Leased	4.5
OAK TREE RETIREMENT VILLAGE RIVERWAY	29 MARIA ST	RASMUSSEN	15	Leased	4.6
ST JAMES RETIREMENT VILLAGE	260 FULHAM RD	HEATLEY	133	Leased (23) Licensed (99) Other (11)	5.2
VILLA MCAULEY RETIREMENT VILLAGE	ACACIA ST	MUNDINGBURRA	117	Licensed	6.8
CARINITY LIFESTYLE – FAIRFIELD GRANGE	VILLAGE DRIVE	ADALIA	76	Licensed	8.9

Source: QLD Government Open Data, Google

Low-Impact Industry Uses

As shown in FIGURE 3.2, industrial land supply within the Townsville urban area is concentrated in the northern suburbs along Woolcock St, close to the RAAF Base and Townsville Airport. Outside of this area, industrial land is limited to small parcels along the port and waterfront areas, as well as some land along Anne St near the Aitkenvale Major Centre.

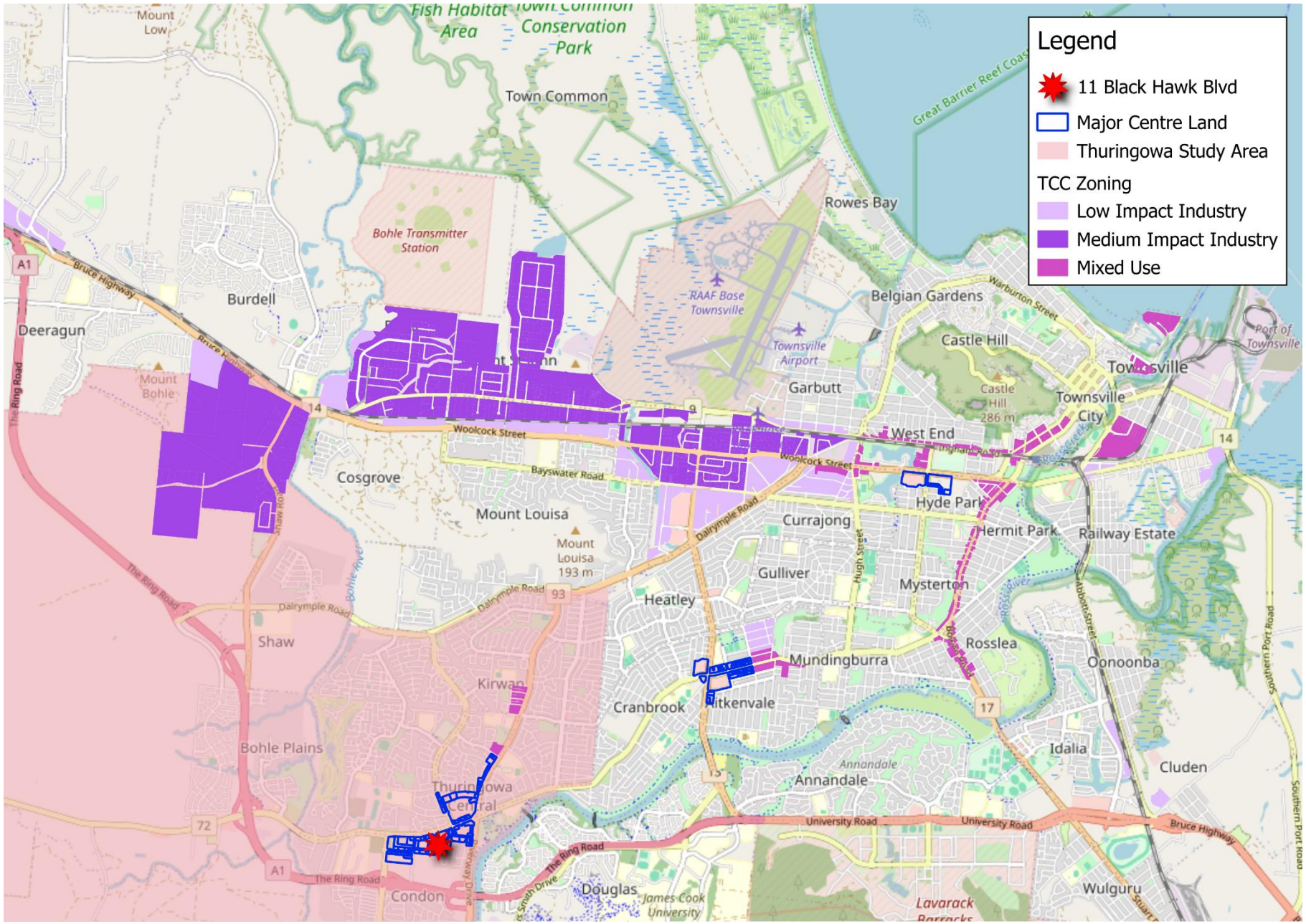
The only industrial land within the Study Area is Medium Impact Industry land along Shaw Rd, which is largely taken up by the Bohle Quarry, Townsville Speedway as well as some smaller industrial lots.

It is also worth noting the role that Mixed-Use land can play in allowing the development of low-impact industry uses, which are specifically identified as a potential land use alongside other commercial and residential uses.

As established, Thuringowa has no nearby low-impact industry land that allows for the establishment of industrial uses close to large employment hubs, while other major centres such as Aitkenvale, which has low-impact industry land as well as mixed-use nearby, and Hyde Park proximate to Townsville's largest concentration of industrial land along Woolcock St, as well as concentrations of mixed use land along major nearby roads. In terms of scale, these land uses are comparable to the centre-zoned land itself.

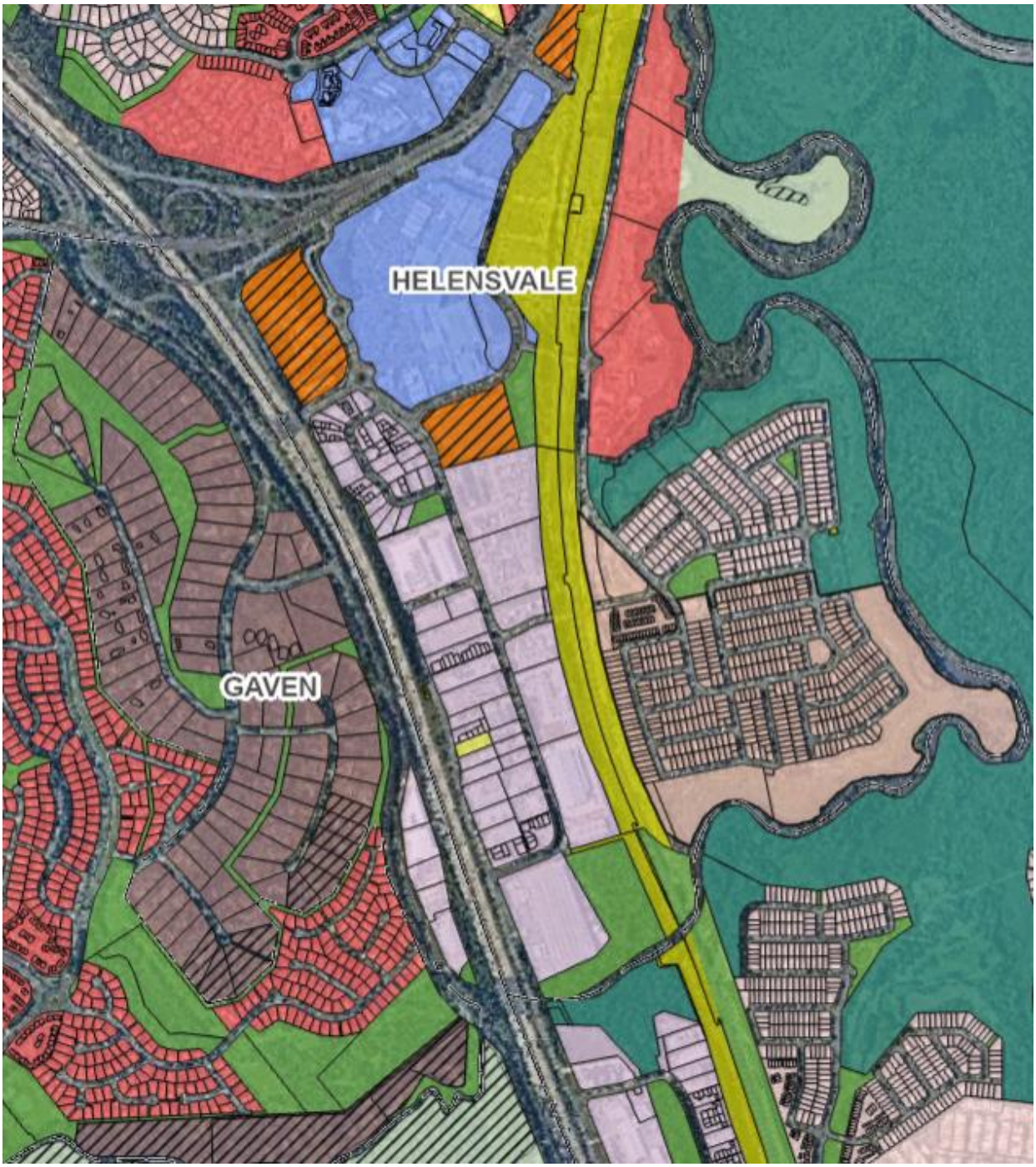
This is in stark contrast to Thuringowa, where there is no accompanying industry land, and the only nearby mixed-use land are parcels north along Thuringowa Dr, including the Eastbrooke Health Hub (home to a number of uses including GP Clinic, Gym and various specialist and allied health providers), the Kirwan Tavern and connected bottleshop and the Kirwan Business Precinct – relatively detached from the nexus of the Thuringowa Major Centre, identified by council to be made up of small-scale commercial uses.

FIGURE 3.2: Industry Zoning in Relation to Major Centres



Urban Economics has also had regard to other Major Centres in regional centres such as Helensvale on the Gold Coast, which as illustrated in the following Figure 3.3 includes the Westfield Shopping Centre focus of the Major Centre core surrounded by mixed use/fringe business zones and light industry extending south from the centre. The light industry zone has attracted a mix of auto servicing, maintenance, light manufacturing, indoor sport and recreational uses, workstores/storage, warehousing, and landscaping supplies.

FIGURE 3.3: Helensvale Major Centre and Surrounding Zones



Source: Gold Coast City Plan

3.3 Proposed and Approved Facilities

Urban Economics has identified notable proposed and approved changes to the centre and retirement mix in the Study Area and Townsville as a whole if deemed relevant.

Willows Shopping Centre Coles Extension – First approved in 2015, this would represent an expansion of the existing Coles supermarket by 1,700sqm alongside 563sqm of retail space across 8 new tenancies. Also planned is the "West Stage" expansion that proposed to deliver a fourth anchor (discount department store) as well as over 20 additional tenancies. In May 2025, an extension until 2029 for the Coles expansion was approved.

Cannon Park Entertainment Facility – There has been an approval for an expansion to create an additional cinema at Reading Cinemas as well as add several other small-scale retailers in the outside plaza area. Approval currency has been extended to 2029.

298-308 Ross River Rd – directly adjacent to the Townsville Shopping Centre, the former Kingsvale and Sunvale shopping centres are scheduled for demolition, subject to approval. Information is limited on future development plans, although the sites are owned by the same group as manage Townsville Shopping Centre – Haben Property Management, so will likely represent some kind of expansion to the existing centre and potentially regenerate the centre strip along Ross River Rd, which currently has a substantial number of vacant tenancies on both sides of the road.

Hyde Park Major Centre Expansion – Urban Economics is aware of an approval to expand the Hyde Park Major Centre zone to include neighbouring land, currently occupied by an Outdoor Sales centre and several other vacant parcels of land.

Riverway Plaza – this centre, located in Rasmussen south of the Thuringowa Major Centre, has recently been approved for expansion, which would deliver a Coles supermarket in addition to the existing Woolworths along with complementary specialties, effectively doubling the size of the centre to ~11,000m^2 in size.

Fairfield & Co – adjacent to retail facilities in Idalia, this project would deliver build-to-rent housing and ground floor commercial spaces to the growing Fairfield & Co centre in Idalia, with plans including an eventual provision of 30,000m^2

Stockland North Shore – as part of a larger residential estate, this project is a new town centre development in Burdell in the early stages of development, including a Woolworths, service station and medical facility. Currently developing is an ALDI/Reject shop anchored shopping centre.

Harris Crossing Commercial Area – while not formally identified, there is a vacant area at the entrance to the Harris Crossing Estate that has is vacant and could be potentially part of future commercial development.

Living Gems Harris Crossing – approved in May 2025, this new land lease community at Bohle Plains would include 294 home sites as well as a range of amenities including an exclusive Country Club reserved for residents. The site is located adjacent to the Townsville Ring Rd and has accessibility to the Thuringowa Major Centre via Hervey Range Rd.

Lincoln Lifestyle Northern Beaches – located in Mount Low, this community will deliver 350 homes to the local supply of land lease dwellings in stages, with the first 30-lot stage expected to be completed by the end of 2026.

3.4 Implications

Thuringowa Major Centre performs a broader centre role relative to the other two major centres in Townsville, acting not only as the main retail hub for surrounding suburbs but as a major hub for healthcare, commercial, recreational and leisure activities as well as including a mix of service and light industry uses. Its location further from the Townsville CBD also increases its importance as a service centre compared to the other two major centres, with the growth corridor and greenfield expansion areas of Townsville forming part of the centre's natural catchment.

This broader role is reflected in the proportion of estimated GFA taken up by major anchoring centres, with the Willows Centre comprising only 38% of the total Thuringowa Major Centre floorspace, in comparison to Aitkenvale and Hyde Park, where the largest shopping centre takes up 47% and 60% respectively of the entire centre floorspace. The lack of surrounding supporting employment land use zones such as low impact industry and mixed-use zoned land when compared to other major centres in Townsville and in comparison to other regional major centres, underlines the importance of existing major centre land fulfilling this role supporting a broader range of employment uses.

While the land size invites the establishment of larger recreation, leisure and light industry uses, there remains a relative lack of significant showroom development relative to the status and floorspace of the Thuringowa Major Centre. Given the necessity of the centre playing an expanded role in not only the retail but commercial and industrial network, the subject site, with its location proximate to existing higher traffic leisure and entertainment uses, would represent an ideal opportunity to establish additional commercial uses, particularly homemaker type brands, business and industry support activities and other large format uses, which do not have a significant existing presence in nor are conducive to the development of an effective and vibrant, pedestrian focused core.

4.0 Study Area

4.1 Study Area Definition

Urban Economics has defined a Study Area for the Thuringowa Major Centre based on Statistical Area 2 (SA2) boundaries and displayed in FIGURE 4.1. In defining this Study Area, the role of the Aitkenvale Major Centre in relation to Thuringowa, SA2 boundaries as well as the road network and perceived accessibility have been considered.

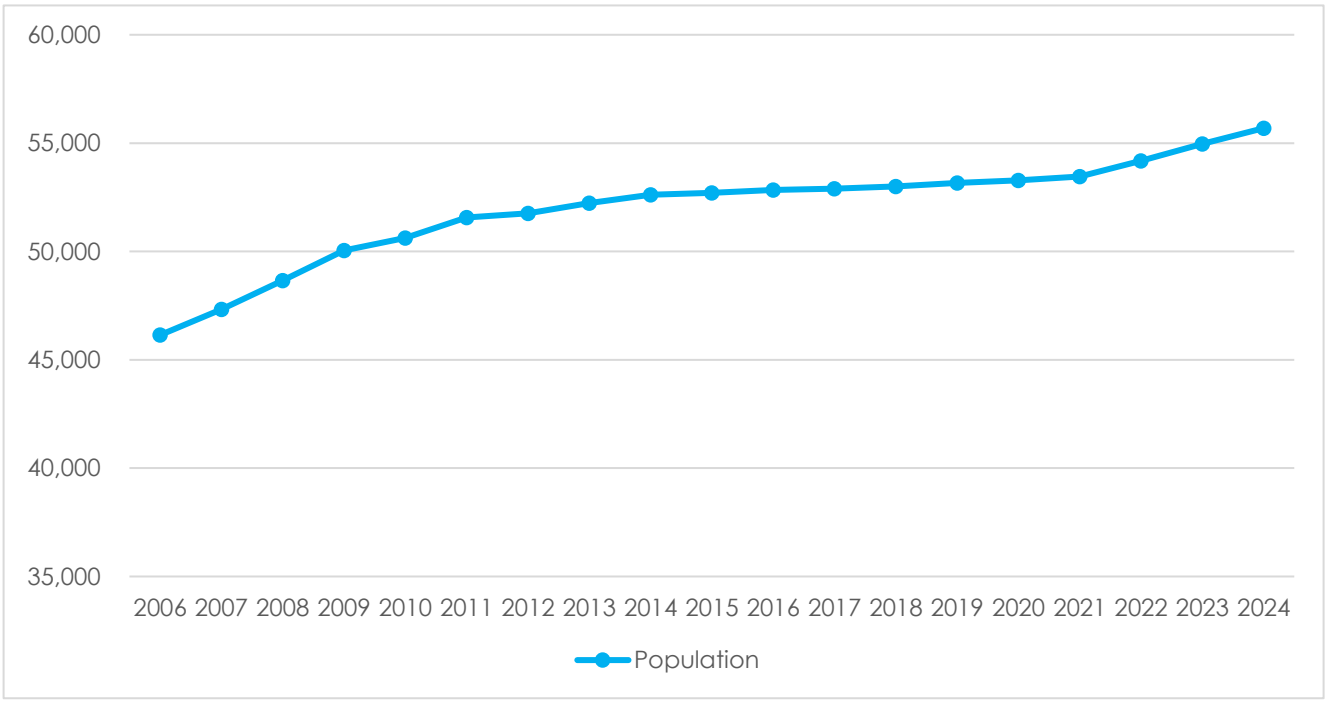
The Study Area consists of the suburban SA2s of Kirwan and Thuringowa Central as well as urban expansion and peri-urban SA2s of Condon – Rasmussen, Kelso and Bohle Plains. These are the areas that are expected to have the Thuringowa Major Centre as their most convenient major centre, where they access higher order retail and commercial facilities.

This Study Area reflects the sub-regional role of Thuringowa Central relative to existing and anticipated major centres.

4.2 Population Growth

The Study Area population has grown from 46,142 in 2006 to 55,689 in 2024, an average annual growth rate of 1.1%. Population growth since 2021 has been notably faster in pace than the previous decade, increasing at 1.4% per annum, potentially a reflection of greenfield housing development in the area, with a number of estates such as Harris Crossing, Somers & Hervey and the Riverstone estate in Rasmussen, and The Reserve Bohle Plains currently in progress.

FIGURE 4.2: Historic Population Growth (ERP)



Source: ABS

Based on a number of developing housing estates within the Study Area, Urban Economics forecasts a future population of ~57,800 by 2031 and ~64,000 by 2041, reflecting an average addition of 200 new dwellings per annum. Slower growth is anticipated in the lead up to 2031 due to challenges in the Townsville area in terms of construction delivery.

As most houses in these outer urban growth suburbs are detached dwellings, the number of persons per household is expected to remain around 2.65 persons, as most new inhabitants are young and growing families.

TABLE 4.1: Projected Population and Household Growth

	JUNE	Δ	JUNE	Δ	JUNE	Δ	JUNE	Δ	JUNE	Δ	JUNE	Δ	JUNE
AREA	2016	P.A.	2021	P.A.	2025	P.A.	2026	P.A.	2031	P.A.	2036	P.A.	2041
	(ACT)		(ACT)		(EST)		(PROJ)		(PROJ)		(PROJ)		(PROJ)
Population	52,836	0.2%	53,457	1.2%	56,141	1.0%	56,720	0.4%	57,820	1.0%	60,700	1.1%	64,010
Dwellings	18,995	226	20,126	170	20,806	200	21,006	130	21,656	250	22,906	250	24,156
Persons/Household	2.78		2.66		2.70		2.70		2.67		2.65		2.65

Source: ABS, QGSO

More than 3,350 additional households are projected within the Study Area between 2025 and 2041, generating ongoing growth in demand for access to services, employment opportunities and retail and commercial facilities.

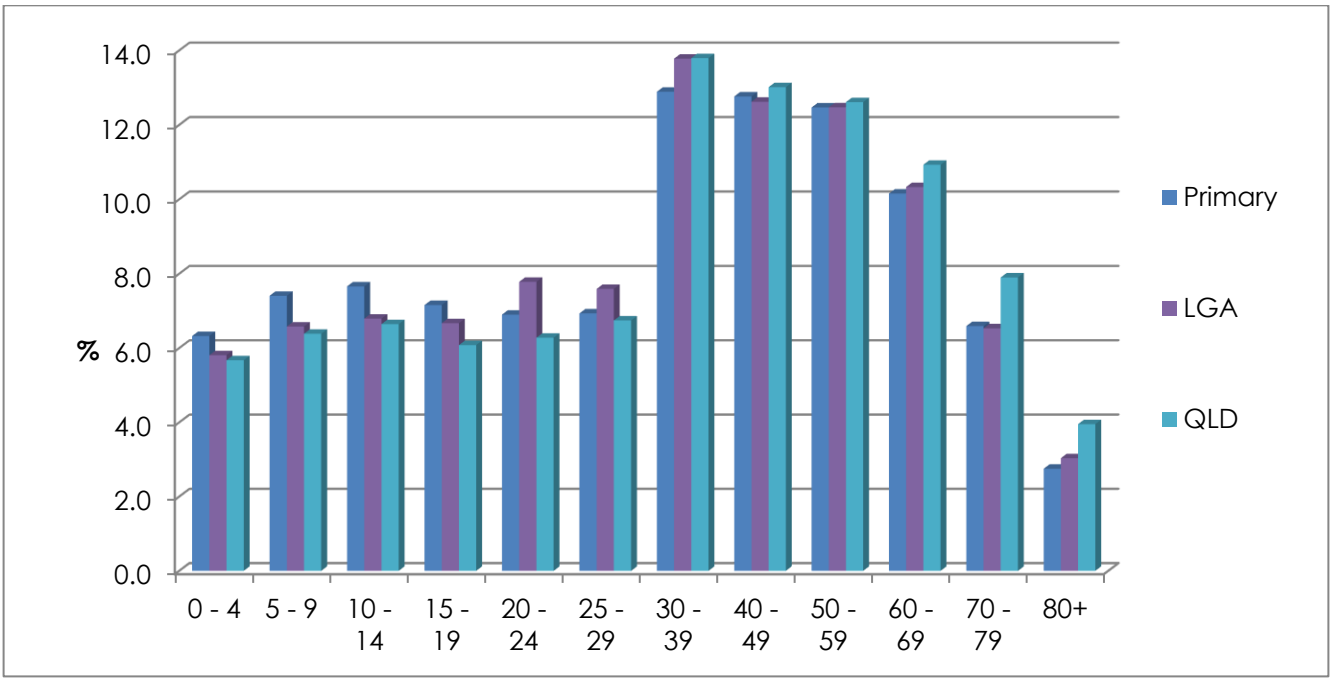
4.3 Socio-Economic Profile

TABLE 4.3 summarises the socio-economic and demographic profile of the Catchment Area with comparison to Townsville and Queensland, based on the results of the 2021 Census. Key features of the Catchment Area community included:

- A noticeably younger age distribution, with 21.4% of the population under the age of 14, compared to 19.2% in the Townsville LGA as a whole and 18.7% across Queensland. This results in a slightly lower proportion of the overall population who are elderly.

- There is a generally smaller proportion of the population of working age than in Townsville City, a reflection of the LGA's status as a defence hub with a large serving population.

FIGURE 4.3: Age Structure of the Population, 2021



Source: ABS

- The Study Area has a strong family demographic, and just 10.4% of the population form part of non-family households (lone person and group households), compared to 14.6% in Townsville City and 13.6% in Queensland.

- The Study Area has a high workforce participation rate of 68.2%, similar to the Townsville average of 68.9% and above the statewide rate of 65.8%. This represents a high level of local employment that would benefit from the provision of more local commercial spaces in improving access to employment.

- A high proportion of the population who were homeowners, with 63.3% of the population owning their own home either through a mortgage or outright, compared to 60.4% across Townsville.

- A high level of vehicle ownership, with only 4.2% of the population not having access to a vehicle and 64% of households owning at least 2 vehicles. This indicates a high level of accessibility to car-based suburban shopping centres such as Thuringowa.

- There is a high proportion of the Study Area workforce employed as part of the "care economy" as in 2021 17.4% of the total workforce were employed in the Healthcare & Social Assistance industry, compared to 15.4% across Queensland. Also, in terms of occupation, 17.2% of the workforce are employed as Community & Personal Service workers.

- Other industries that employ a larger share of the population when compared to Townsville are the Construction, Retail and Other Services (of which auto and machinery repair is a large component), whilst there is also a lower proportion of the workforce within the Professional Services industry.

TABLE 4.2: Socio-Economic Profile

Demographic	Study Area	LGA	Queensland
Age Profile (%)			
0-14yrs	21.4	19.2	18.7
15-29yrs	21.0	22.0	19.1
30-59yrs	38.1	38.9	39.4
60+yrs	19.5	19.9	22.8
Average Annual Household Income ($)	101,140	102,980	104,470
Labour Force (%)			
Unemployment Rate	5.4	5.1	5.4
Workforce Participation Rate	68.2	68.9	65.8
Occupation Profile (%)			
Managers/Administrators	8.9	10.1	12.5
Professionals	15.2	19.7	21.4
Technicians & Trade Workers	15.4	14.6	13.7
Community & Personal Service Workers	17.2	16.1	12.3
Clerical & Administrative Workers	13.2	12.3	12.7
Sales Workers	9.9	8.6	8.7
Machine Operators & Drivers	8.1	7.5	6.8
Labourers	10.4	9.3	10.1
Inadequately Described/Not Stated	1.8	1.7	1.9
Industry Profile (%)			
Agriculture, forestry & fishing	0.6	0.7	2.6
Mining	2.8	2.8	2.3
Manufacturing	4.6	4.5	5.7
Electricity, gas, water & waste services	1.3	1.4	1.2
Construction	9.3	8.5	9.1
Wholesale trade	2.1	1.9	2.4
Retail trade	10.6	9.2	9.3
Accommodation & food services	7.1	7.4	7.2
Transport, postal & warehousing	4.3	4.3	4.7
Information media & telecommunications	0.8	0.8	1.0
Financial & insurance services	1.2	1.4	2.6
Rental, hiring & real estate services	1.2	1.4	1.8
Professional, scientific & technical services	3.5	4.5	6.7
Administrative & support services	2.9	2.7	3.4
Public administration & safety	12.0	12.6	6.2
Education & training	9.2	9.4	8.8
Health care & social assistance	17.4	17.5	15.4
Arts & recreation services	1.3	1.3	1.5
Other services	4.1	3.9	3.9
Inadequately described/Not stated	3.6	3.6	4.5
Highest Level of Education (%)			
Post Graduate Degree	1.9	3.5	4.7
Graduate Diploma & Graduate Certificate	1.6	2.0	2.2
Bachelor Degree	9.6	12.7	15.0
Advanced Diploma	8.4	8.2	9.4
Certificate	26.4	24.0	22.1
Not Stated/Inadequately Described	8.8	9.9	9.0

Not Applicable	43.4	39.8	37.5
Home Ownership (%)			
Owned Outright	24.1	24.7	29.1
Mortgage	39.2	35.7	34.4
Rent	33.4	36.6	33.1
Other/Not Stated	3.3	2.9	3.4
Structure of Dwellings (%)			
Separate House	92.2	81.1	74.8
Semi-detached/Row/Terrace/Townhouse	6.1	11.0	11.7
Flat/Unit	1.1	7.0	12.5
Other/Not Stated	0.6	0.9	1.0
Number of Vehicles Per Dwelling (%)			
0	4.2	5.3	5.7
1	32.0	34.4	35.2
2	40.4	39.4	37.5
3	14.8	13.0	12.8
4+	7.4	6.4	7.2
Not Stated	1.2	1.5	1.5
Relationship in Household (%)			
Couple in Registered Marriage/De Facto Relationship	44.8	44.5	46.1
Lone Parent	6.1	5.4	4.9
Child Under 15yr	21.4	19.8	19.0
Dependent Student (15-24yr)	4.9	4.4	4.7
Non-dependent Child	6.4	5.5	5.8
Other in Family Household	4.0	3.7	4.0
Group Household Member	2.6	4.0	3.8
Lone Person	7.8	10.6	9.8
Visitor in Household (from within Australia)	2.0	2.0	1.9
Religious Affiliation (%)			
Buddhism	0.5	0.8	1.4
Christianity	50.4	47.4	45.7
Hinduism	0.4	0.7	1.3
Islam	0.3	0.5	1.2
Judaism	0.0	0.0	0.1
Other Religions	0.5	0.6	1.0
Secular Beliefs, Other Spiritual Beliefs and No Religious Affiliation	39.8	40.4	41.2
Religious affiliation not stated	8.0	9.5	8.0

Source: ABS

While the current population of the Study Area is relatively young in comparison to the LGA and State averages, Queensland Government Statistician's Office (QGSO) projections anticipate the population of elderly residents will grow by ~4,800 by 2041, representing a 90% growth in number and 5.5 percentage point growth, such that those aged over 65 will make up 22% of the overall population.

When estimating the 50-85 demographic to give an indication of demand for land-lease type dwellings, the proportion of the population is forecast to remain relatively steady, potentially representing the high current population of younger children and attractiveness of the suburb as a housing choice for young families. Total growth over the same time period to 2041 is projected to be ~3,300 and at that point, those aged over 50 would make up more than one third of the total resident population.

TABLE 4.3: Projected Older Population

	2021	2025	2026	2031	2036	2041
Population	53,457	56,141	56,720	57,820	60,700	64,010
Retirement Cohort						
Prop. 65+	13.6%	16.3%	16.5%	18.8%	20.8%	21.8%
Number 65+	7,270	9,151	9,359	10,870	12,626	13,954
Land Lease						
Prop. 50-85	30.8%	31.6%	31.9%	32.5%	32.9%	32.9%
Number 50-85	16,465	17,741	18,094	18,792	19,970	21,059

Source: ABS, QGSO

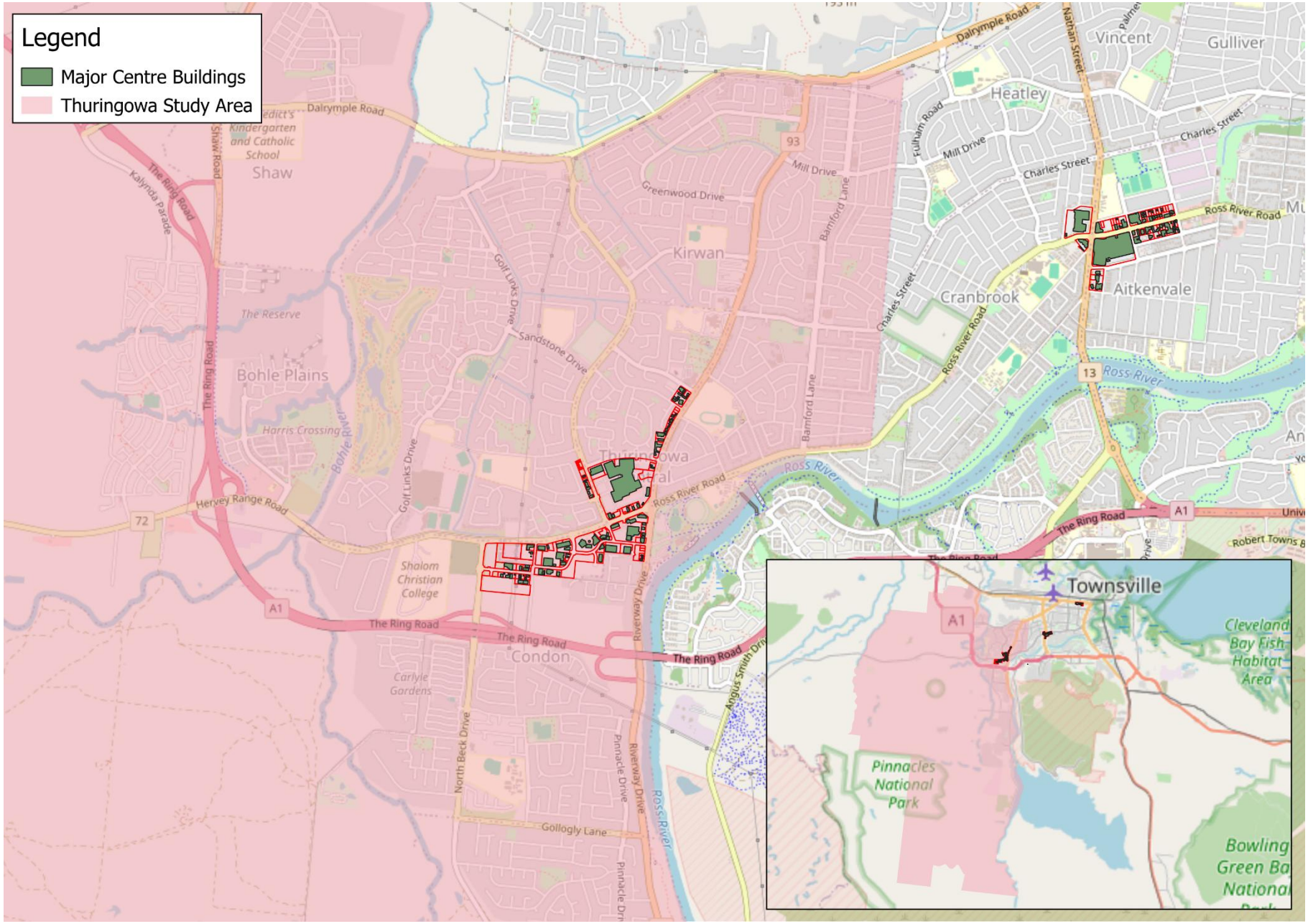
4.4 Implications

There is strong forecast population growth within the Study Area with the expansion of large masterplanned estates in the suburbs surrounding the subject site, which will generate a significant ongoing demand for commercial and other facilities. Of the local population, there is also a higher than average proportion of the workforce employed in industries such as Healthcare, Construction, Retail and Other Services, which have a need for improved access to employment opportunities close to home including low-impact industry, office, hardware or showroom uses as proposed for the subject site, which are in limited supply within the Thuringowa Major Centre as well as the Study Area generally.

The existing population has a strong family demographic with a relatively lower proportion of lone person and group households, which is reflected in a high proportion of detached housing and suggests a relatively lower demand for medium-density housing suited to smaller households.

It is also noted that the older demographic, whilst still lower than the State average, is expected to grow strongly, with older and retiree aged residents comprising more than 20% of the population by 2041, inevitably, generating accelerating demand for facilities targeted at older residents, including retirement living options such as Land-Lease communities, leisure and wellbeing facilities, health care and allied services.

FIGURE 4.1: Study Area (Major Centre Zoned Land Outlined in Red)



5.0 Commercial Demand Analysis

5.1 Business and Employment Demand

The Australian Government has announced that the Army's 3rd Combat Brigade, made up of 500 personnel, will relocate to Townsville, marking the start of Townsville's transition to the 'Army Capital' of Australia. As outlined in FIGURE 5.1, the public administration and safety industry is the largest employing sector of the defined Study Area, comprising 13.5% employment at the time of the 2021 Census.

In the Study Area, there are a number of residential estates that are undergoing or have been approved for development, which will inevitably drive demand for local trade workers, technicians and labourers, as well as supporting businesses such as trade supply and hardware stores.

On a broader scale, ongoing economic growth and employment within the region is also anticipated to be driven by major projects and investment including:

- CopperString – supporting 800 direct construction jobs
- JetZero – 1,000 construction jobs, 100 direct operational jobs
- Townsville Energy Chemicals Hub (TECH) 800 jobs in construction, 300 jobs in operation

There are 2,323 registered businesses in the Study Area, which make up 18% of all businesses registered in the Townsville LGA. This contrasts with the Study Area comprising 27% of the Townsville LGA total population, implying that local workers are currently travelling outside the area to access employment and could benefit from more businesses in close proximity.

TABLE 5.1: Business Registrations by Industry, Study Area

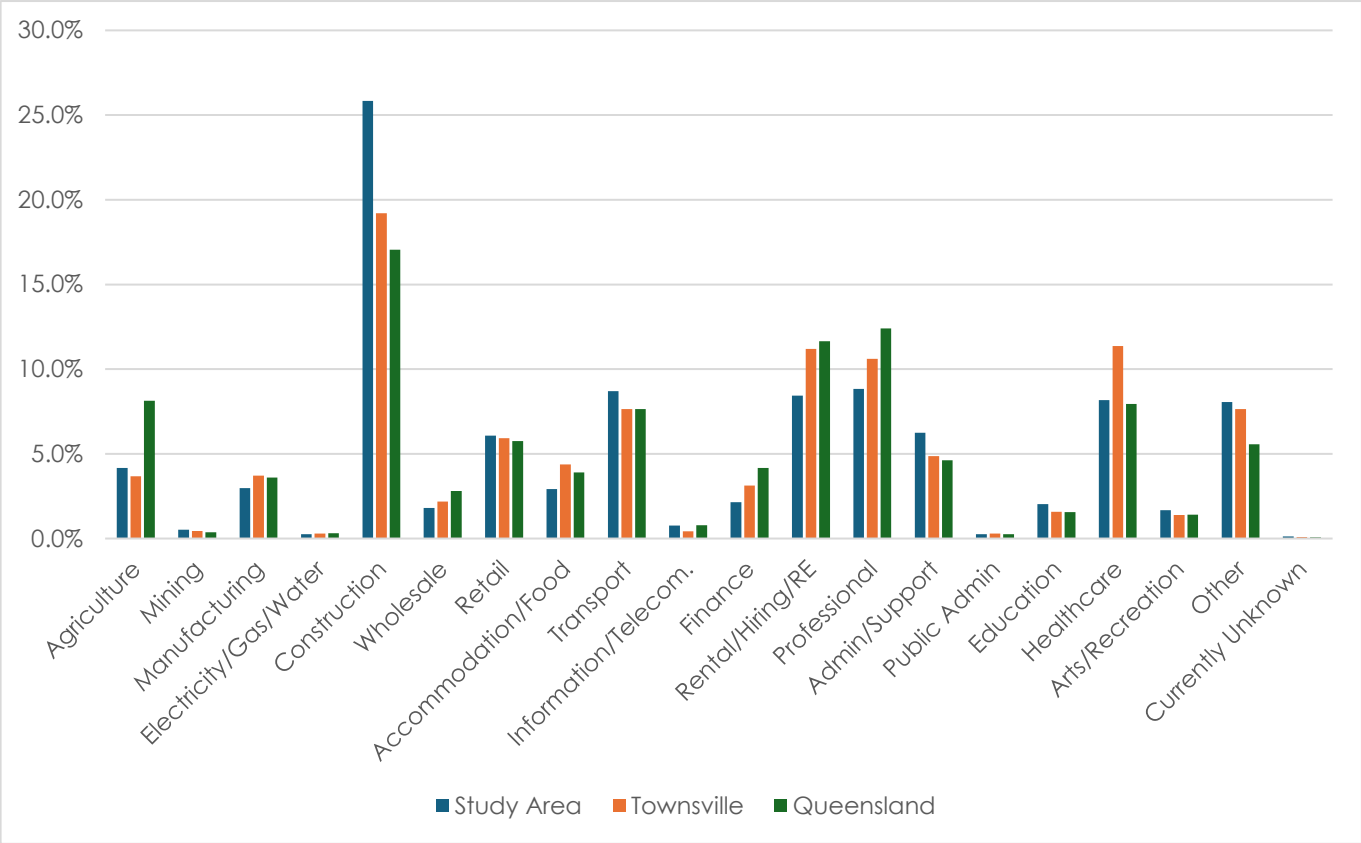
Industry	Total
Agriculture, Forestry and Fishing	97
Mining	12
Manufacturing	69
Electricity, Gas, Water and Waste Services	6
Construction	600
Wholesale Trade	42
Retail Trade	141
Accommodation and Food Services	68
Transport, Postal and Warehousing	202
Information Media and Telecommunications	18

Industry	Total
Financial and Insurance Services	50
Rental, Hiring and Real Estate Services	196
Professional, Scientific and Technical Services	205
Administrative and Support Services	145
Public Administration and Safety	6
Education and Training	47
Health Care and Social Assistance	190
Arts and Recreation Services	39
Other Services	187
Currently Unknown	3
Total	2,323

Source: ABS

As is clear in FIGURE 5.1, there is a much higher concentration of businesses within the Construction sector, which comprised 26% of all registered businesses, compared to 19% in Townsville. Other significant industries with high concentrations of businesses include Transport and Other Services, which along with Construction suggest a higher level of demand for land uses suited to these businesses such as industrial and commercial employment spaces.

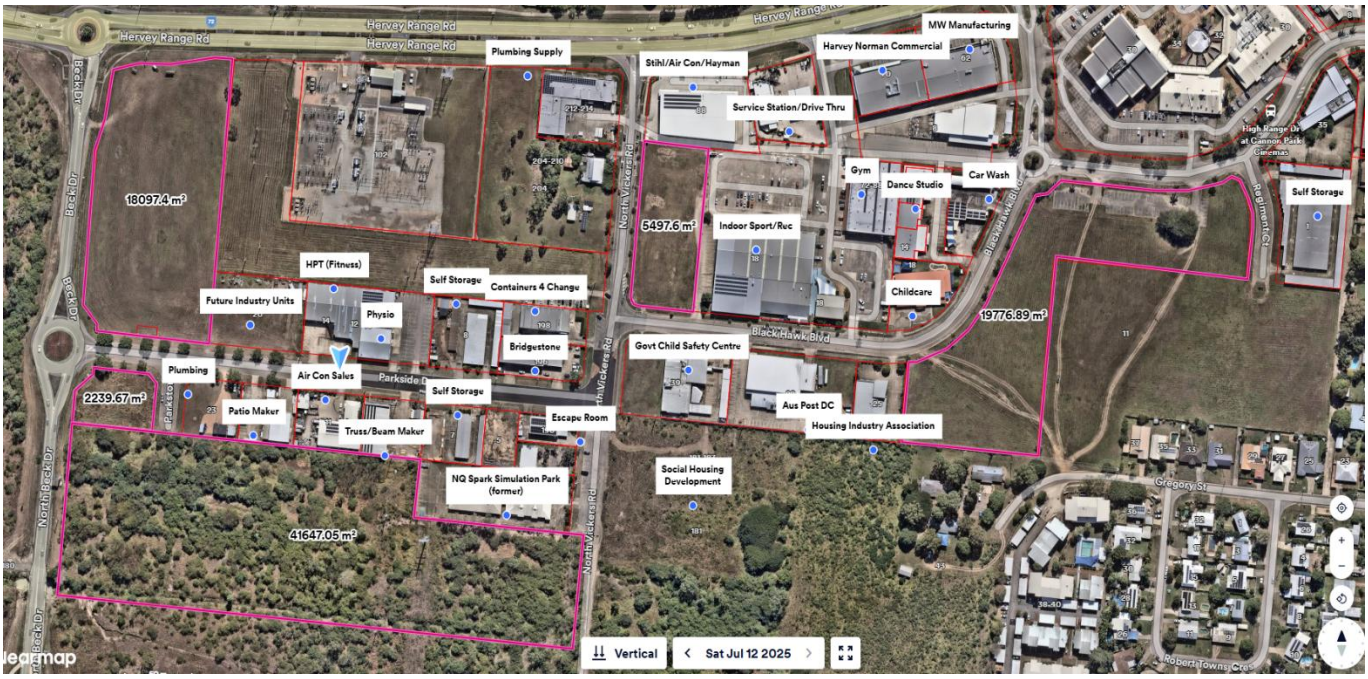
FIGURE 5.1: Comparison of Proportion of Businesses by Industry



Source: ABS

The demand for business and employment spaces is reflected in the makeup of uses in the centre frame areas in Thuringowa, with the wide variety of uses, especially those of a light industry nature underlining the importance of the centre to accommodate a diversity of employment uses.

FIGURE 5.2: Overview of Uses



Source: Nearmap

The resident workforce of the Study Area represented some 26,322 workers in 2021, 5.4% of whom were unemployed at the time of the Census. Based on the population and household growth projections of Chapter 4, it is projected that the Study Area resident workforce would increase by some 6,750persons representing a resident workforce of some 33,080 persons seeking access to employment opportunities.

As at June 2021 there were 4,544 persons employed within the SA2 of Kirwan West, including Thuringowa Central as well as other employment precincts such as the Kirwan health precinct and a number of schools in Kirwan West, noting also that a share of the jobs and businesses of Thuringowa Central are to the south of Hervey Range Road and within Condon-Rasmussen SA2 (2,323 jobs in 2021 including at two large high schools and Rasmussen Shopping Centre). The three largest employing sectors in Kirwan West were within the health care and social assistance sector (23%), retail (19%) and accommodation and food services (13%).

Between 2011 and 2021, there was an estimated growth of some 895 jobs within the Kirwan West SA2, or a growth of 25% over the 10 year period, whilst population growth increased only 3.7% over the same period.

Across the SA2s comprising the Study Area, there were 10,558 workers employed within the Study Area, representing an average of 2.5 Study Area resident workers per every job within the Study Area, or in other words a relative net jobs balance of 40% in that there are jobs for 40% of all resident workers of the Study Area, indicative of a dormitory community.

Residents are travelling outside the Study Area to access employment opportunities including within the CBD and within industry precincts.

Allowing for the projected growth of the resident workforce, indicatively suggests that if this ratio remains constant, at least 13,300 jobs would be required within the Study Area to support the growth of the resident population, representing a growth of some 2,700 jobs. This makes no allowance for an increased in the share of job opportunities within the Study Area.

For instance, if the net jobs balance increased to only 45% as a result of increased employment close to home for Study Area residents and investment in economic opportunities, this would represent a growth of some 4,500 additional jobs within the Study Area.

There is a clear and growing demand from the resident population of the Study Area for the provision of additional employment opportunities within the Study Area and close to the place of employment. Centres such as Thuringowa Central will be intrinsic to the delivery of diversity of employment for the Study Area community.

At the time of the 2021 Census, some 20% of the resident workforce was employed in industries typically associated with industry precincts including manufacturing, transport, postal and warehousing, wholesale and construction sectors. Assuming that this share remains relatively consistent, with increases and decreases between sectors anticipated, a 2041 resident workforce of some 33,000 workers would represent a local industry base of some 6,600 workers, and an increase of at least 1,300 workers.

At approximately 25-30 workers per hectare, this growth in demand would effectively represent a demand for some 50ha of employment area.

5.2 Expenditure Demand

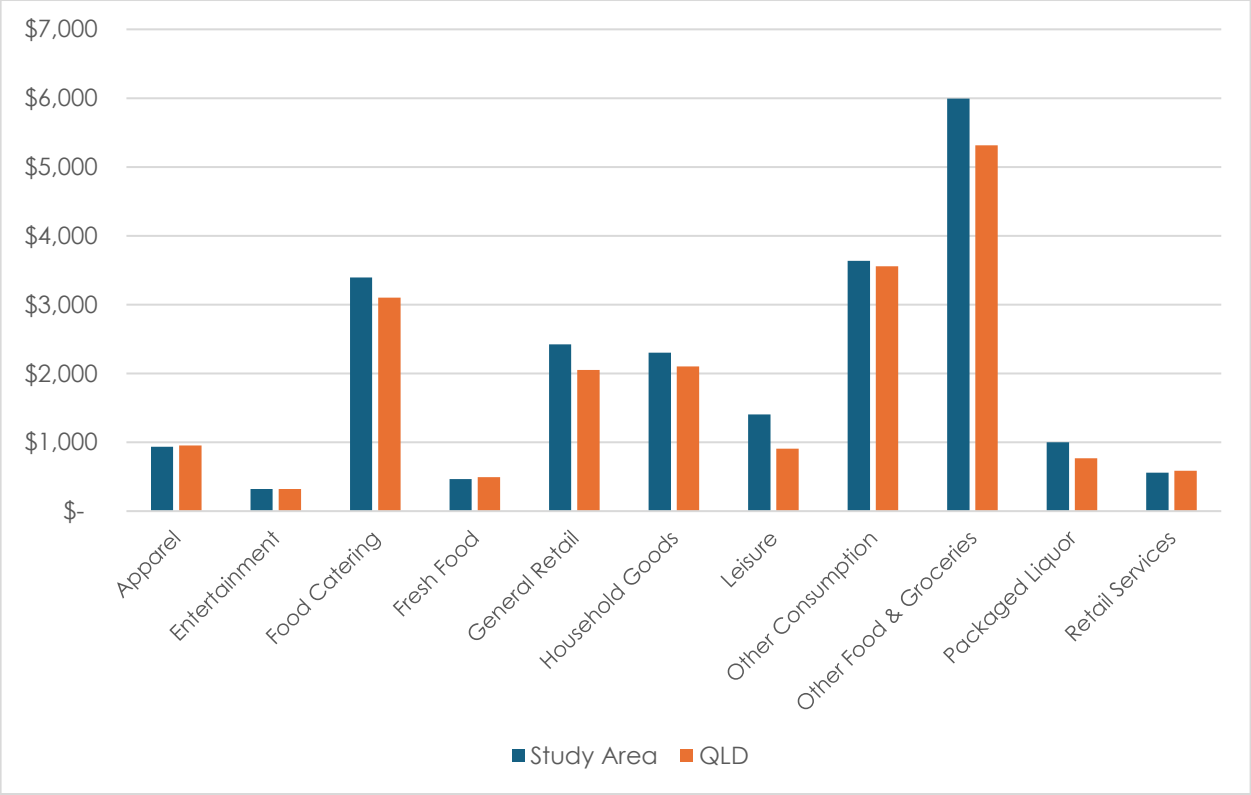
In order to estimate the level of retail expenditure in the identified Study Area, Urban Economics has used the 2024 CommBank iQ Insights dataset, which gathers spending data by SA1 area and disaggregates into various categories such as online or in store, as well as a wide variety of different retail sectors.

According to this dataset, the average resident of the Study Area spent $22,431 per annum, 11% higher than the Queensland average spend, indicating an increased demand for retail and commercial facilities within the area. When excluding non-retail spending, Study Area residents spent an average of $17,455, compared to $15,372 in Queensland.

FIGURE 5.3 highlights the difference in per capita spending across categories, with notably higher levels of spend across all categories, but especially in in the Other Food & Groceries, Food Catering and General Retail categories. This indicates a higher level of spending on supermarkets, takeaways and other food retailers, reflective of the local family demographic.

Other notably different spending habits include an additional $500 per capita expenditure on Leisure activities (largely at Newsagents & Tobacconists), Household Goods and Packaged Liquor.

FIGURE 5.3: CommBank iQ Per Capita Spending by Category



Source: CommBank iQ

Applying the average per capita expenditure rates to the Study Area population, there is in 2025 ~$1.3 billion worth of expenditure, with $980 million of this being retail expenditure. By 2041, there is anticipated to be an additional $176 million worth of expenditure due to projected population growth, which will inevitably generate additional demand for retail and commercial space.

Growth in the retail expenditure base between 2025 and 2041 of the Study Area is estimated to generate demand for at least 22,000sqm of additional retail space.

TABLE 5.2: Projected Expenditure, 2025-2041

	2025	2026	2031	2036	2041
Population	56,141	56,720	57,820	60,700	64,010
Expenditure ($M)	$1,259	$1,272	$1,297	$1,362	$1,436
Retail Expenditure($M)	$980	$990	$1,009	$1,059	$1,117

Source: ABS, CommBank iQ

As shown in TABLE 5.3, there is a higher level of spend in the Study Area on retail categories that are generally associated with showroom uses, and local residents on average spend 10% more on showroom uses, which includes categories such as Outdoor Furniture, Pet Stores and Motor Vehicle Accessories.

TABLE 5.3: Expenditure on Showroom/Low Impact Industry Uses,

	Per Capita Spend	Comparison to QLD
Furniture Stores	$247	-16%
Hardware & Home Maintenance Supplies	$1,052	+5%
Household Appliance Stores	$151	+13%
Motor Vehicle Accessories	$314	+27%
Outdoor Adventure	$150	+31%
Outdoor Furniture and BBQ Stores	$19	+33%
Outdoor Recreation	$158	+2%
Pet Stores	$209	+28%
Tyres & Vehicle Servicing	$140	+10%
Windows, Doors & Lighting Stores	$26	-40%
All Showroom	$2,470	+10%

Source: CommBank iQ

5.3 Gap and Threshold Analysis

Showroom Uses

In 2022, the Large Format Retail Association of Australia estimated an average retail productivity rate for showroom and large format uses of ~$4,500 per sqm of floorspace. At this rate, there is estimated to be a demand for ~30,800sqm worth of large format retail floorspace by study area residents, not all of which would be directed to facilities within the Study Area, with expenditure also directed to precincts such as Garbutt and Hyde Park.

Urban Economics's site inspections estimated ~5,000sqm of showroom floorspace across buildings with direct frontage to Hervey Range Rd, which include uses such as Repco, Stihl, Harvey Norman Commercial, Hayman and Reece Plumbing Supply. Adjacent to the Willows Shopping Centre, there is also ~4,900sqm of floorspace in uses such as Supercheap, Salvos Discount Store, Petbarn and Choice Discount, with an overall estimate of some 12,000sqm of showrooms, bulky goods, trade supplies and tyre/auto servicing facilities within the Centre.

While not all the demand for showroom floorspace from Study Area residents would be realised at the Thuringowa centre, this market balance still suggests a gap in the provision of larger format retail spaces, particularly in light of ongoing growth in the population of the Study Area and demand for goods and services that cater to the needs of establishing households.

In contrast, the Hyde Park Centre provides homeware and furnishing outlets, many of which have complementary delivery and supply facilities. Examples of these types of stores include Betta Home Living and Il Mondo Kitchenware stores and House of Brown furniture shop – anticipated to open in late October. In general, the types of uses accommodated in the Hyde Park Centre are mainly showroom uses for larger products such as furniture, sporting and recreational items as well as charity shops.

Hyde Park Centre Showroom Uses

The demand for commercial uses will grow substantially in line with population growth, as new Study Area residents naturally seek out employment and retail opportunities in the nearest major employment hub. While there is already some large format retail present within the centre, the nature of population growth, focused on detached housing and young families, mean that more of the "homemaker" style of retail is required in the form of brands such as Snooze, Home Timber and Hardware as well as other furniture and bedding stores.

This is supported by CommBank iQ data, which shows increased levels of spending on household goods and general retail products. Using the per capita spending level on estimated showroom-type uses of $2,470 and applying this to the Study Area population, there is $138.7 million worth of showroom spending per annum in the area, which is anticipated to rise to $158.1 million by the year 2041 based on population growth.

Growth in the showroom expenditure base alone is projected to generate an increase in demand for at least 4,300sqm of showroom space. This excludes other business-to-business and trade related demand for showroom space but would represent demand for at least 1ha of land area.

Relocatable Home Park/Land Lease Community

In regional Queensland, the latest data from Colliers shows that in regional areas, there is a penetration rate of 2.1% of those aged 50-85 living in land lease communities. While currently in Townsville the penetration rate is much lower than this due to limited supply of only ~40 manufactured home park dwellings and a lack of dedicated land lease communities, the addition of new communities at Bohle Plains and Mount Low will inevitably increase demand towards this regional average.

Applying average rates of penetration to the current population of Townsville aged 30-85 years suggests that almost 1,350 residents could be living in homes within land lease community/home park dwellings. By the year 2031, this is anticipated to rise to ~1,460 residents and a demand for at least 1,040 dwellings. Even allowing for the two new land lease communities, there is projected to be a deficit of ~670 dwellings – representing 2-3 additional modern developments that could be accommodated in Townsville to meet the retirement lifestyle needs of the aging community.

TABLE 5.4: Projected Demand for Relocatable/Land Lease Dwellings

Townsville LGA	2021	2025	2026	2031	2036	2041
Population	195,515	205,112	207,512	221,789	236,434	250,867
Prop. 50-85	30.5%	31.3%	31.5%	31.3%	31.2%	31.2%
Number 50-85	59,632	64,200	65,366	69,420	73,767	78,271
Population in LLC	1,252	1,348	1,373	1,458	1,549	1,644
Demand for Dwellings	890	960	980	1,040	1,110	1,170
Supply	40	40	50	370	684	684
Demand/Supply Gap	-850	-920	-930	-670	-426	-486

5.4 Summary and Implications

When assessing the balance between the demand for commercial employment spaces and the corresponding supply of land, it is important to consider the role of the Thuringowa Centre in the Townsville Centres Hierarchy. While there is vacant land available within the Major Centre zone that could accommodate centre-type uses, the nature of the Thuringowa Major Centre is such that it accommodates a wide range of employment uses beyond traditional shopping centre activities such as low-impact industry, leisure, sport and recreation.

More particularly, there are gaps and growing demand for goods and services that will meet the established and evolving needs of the Study Area community including local residents, the resident workforce, workers, businesses and visitors.

Unlike both Aitkenvale and Hyde Park, which are more established centre and focused on the shopping centre cores, there is a more diverse array of activities within Thuringowa Central supporting a diverse business and employment base, however, nor is Thuringowa Central supported or proximate to a major industry or service precinct unlike either major centre in Townsville or other comparable greenfield centres such as Helensvale on the Gold Coast.

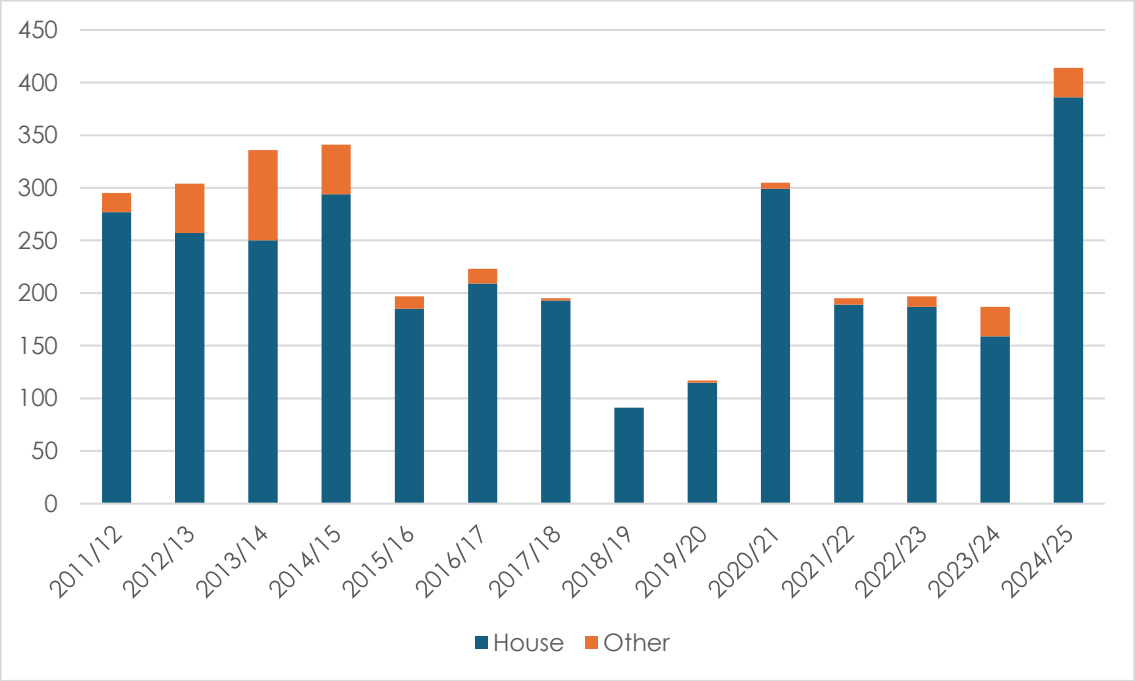
Moreover, there is a strong propensity for local resident workers to commute out of the Study Area to access employment opportunities with the Study Area effectively representing a dormitory area for residents working in areas elsewhere in Townsville.

6.0 Residential Market

6.1 Residential Supply and Development Activity

Study Area building approvals have largely been made up of houses, owing to its outer suburban location, with any townhouse or apartment approvals made up of small individual projects rather than indicative of a long-term consistent trend in uplift of development. The Study Area is also home to a number of Townsville's residential greenfield and masterplanned estates, and 2024/25 saw more than 400 dwellings approved, the highest for 15 years.

FIGURE 6.1: Study Area Building Approvals, 2011-2025



Source: ABS

There are a number of residential estates proximate to the subject site at various stages of development, with those anticipated to deliver significant future growth in coming years including Harris Crossing, MacKinnons Reach, Riverstone and Greater Ascot Estate.

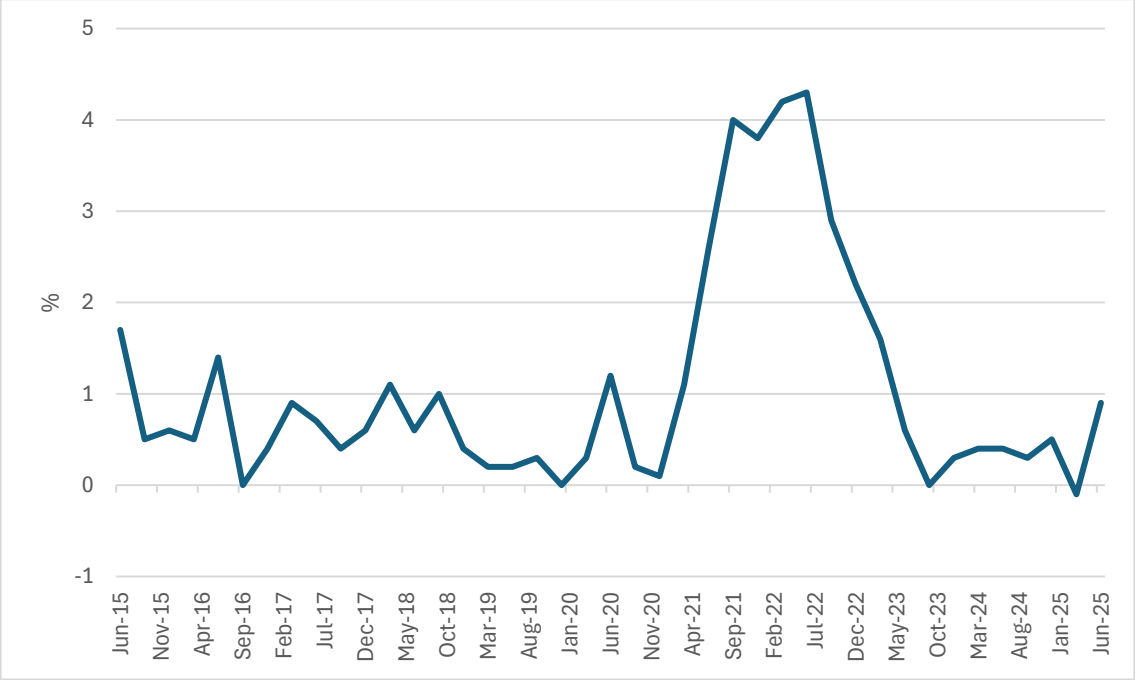
TABLE 6.1: Nearby Residential Estates

Estate Name	Current Status	Total Lots when Complete
Willowbank Estate	In Progress	561
The Reserve Estate	In Progress	221
Harris Crossing Estate	In Progress	800
Kalynda Chase Estate	Sold Out	1,700
MacKinnons Reach Estate	Land for Sale	700
Greater Ascot Estate	In Progress	~2,000
Limestone Estate	Sold Out	54
Brookstone on Park	Sold Out	72
River Parks Estate	In Progress	888
Pinnacle Views	Sold Out	52
Riverstone Estate	In Progress	1,500
Somers and Hervey Estate	In Progress	850
31 Bluewattle Blvd	In Planning	17

Source: OpenLot

In general, the construction industry has been challenged in recent years due to construction cost increases, underlying economic conditions, as well as the demand for vacant land to meet the burgeoning demand for housing of all types and a relative shortage of labour. As shown in FIGURE 6.2 below, between 2021 and 2023, the quarterly increase in the cost of building inputs increased at well over the historical average of between 1-2% or 33% in total since June 2021, in effect permanently increasing the cost of building a home.

FIGURE 6.2: %age Change in the Cost of Material Inputs

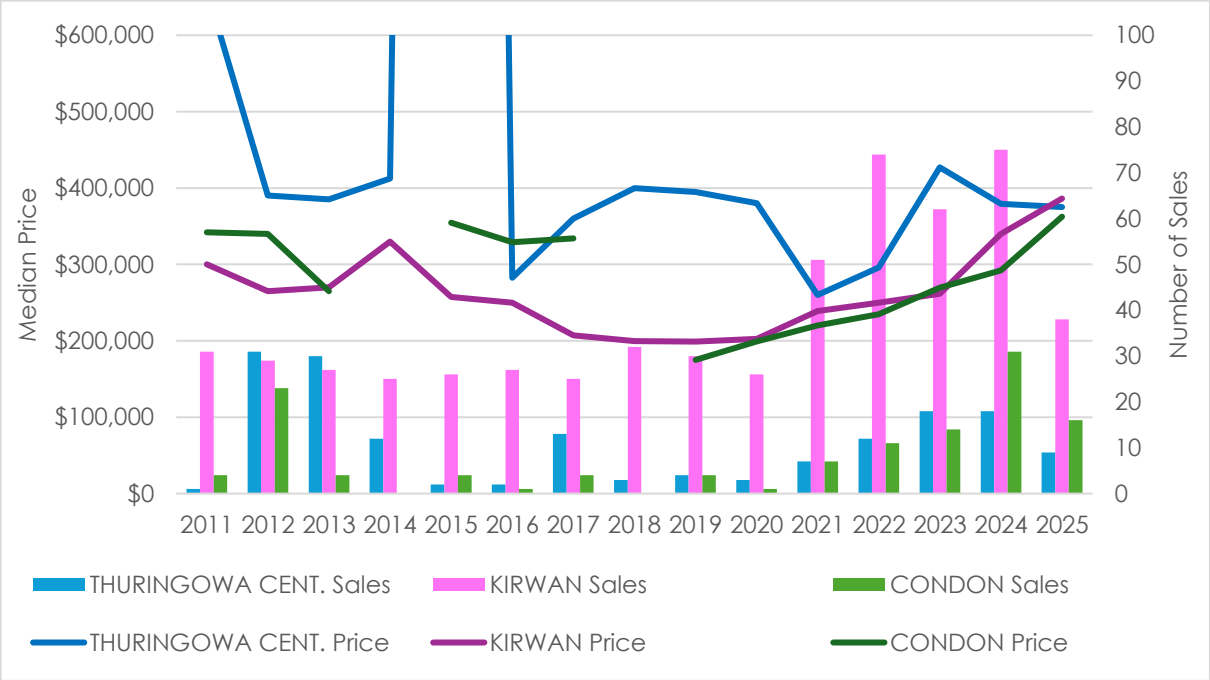


Source: ABS

6.2 Residential Demand Analysis

As reflected in both the consistent growth in median sale prices and the overall quantum of sales, the demand for both units and houses has increased significantly in Thuringowa Central and surrounding suburbs. As of 2025, the average unit sale price was between $350,000 –$400,000. However, it is notable that historically the demand for units has been less consistent than for houses, potentially reflecting the general lack of sales and a preference for houses given the outer suburban location as well as reflective of the relative supply and stock.

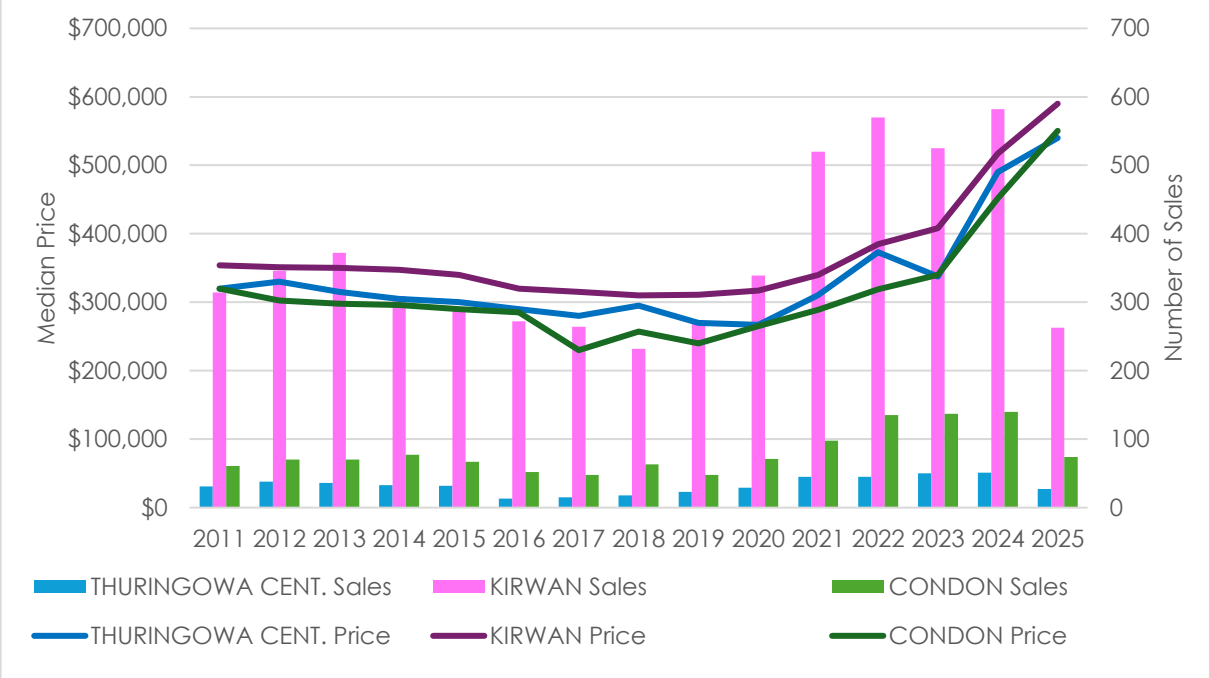
FIGURE 6.3: Unit Market, Study Area Suburbs



Source: Pricefinder

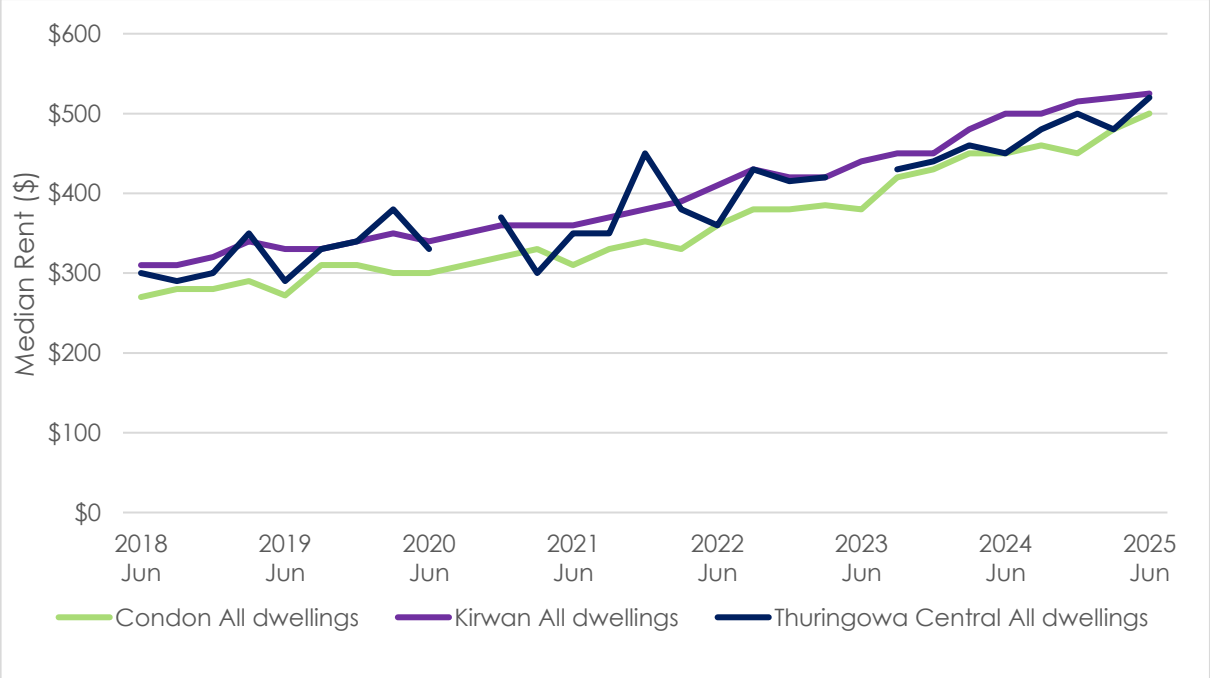
In comparison, the demand for houses is at an all-time high in terms of median prices as well as annual sales, with average annual sales since 2020 of 725 per annum, compared to average yearly unit sales of 100 over the same period. So too, median rental prices reflect increasing pressure on renting households to afford the area, with rental prices rising from ~$300-350/week in 2020 to over $500 in 2025.

FIGURE 6.3: House Market, Study Area Suburbs



Source: Pricefinder

FIGURE 6.4: Median Rent in Suburbs Surrounding Subject Site



Source: Pricefinder

6.3 Demand for Medium Density Residential

In reflection of the substantial housing development ongoing in The Study Area in the form of greenfield estates, the pressure on centres to provide infill housing in order to accommodate growth remains somewhat subdued, particularly in an outer suburban area such as Thuringowa, where demand is naturally higher for housing that is more suited to a family demographic. Nevertheless, the development of all types of housing is desirable in the face of significantly increase housing and rental prices, which present significant affordability challenges.

However, the current supply of medium-density zoned land in and around the Thuringowa Major Centre (and particularly surrounding the subject site) is largely vacant and undeveloped, with the exception of an approval to build social housing at 181-183 North Vickers Rd, as shown in FIGURE 6.5 below. The total area of land that is vacant south of Hervey Range Rd is ~44 hectares (ha) in total, with the medium density land on the subject site comprising 2.4ha or 5.5% of this total. It is notable that North Vickers Rd southbound is not accessible past the existing developed land uses and may require future work to access to these parcels.

In summary, while there is an existing demand for housing in the Thuringowa area, it is largely for detached suburban housing, as evidenced by the increase in price over recent years, which has occurred in spite of the fact that building approvals have remained steady and that there are a number of detached residential estates currently undergoing construction.

At the time of the Census, 92.2%of dwellings within the Study Area were detached dwellings. If this share remained consistent to 2041, the growth of some 3,350 households within the Study Area between 2025 and 2041 would represent a demand for at least 3,080 detached dwellings when assuming one household = one dwelling. Approximately 270 dwelling would be attached forms including townhouses, duplexes, terraces, flats and units. Allowing for an average of 25 dwelling per hectare, this would represent a demand for some 11ha of medium density land.

Even if assuming an increasing share of dwellings are attached forms of dwellings, (15%) going forward, this would represent a demand for some 500 attached and semi-attached dwellings or at least 20ha of medium density land.

Should this demand profile shift as the Thuringowa community matures, ages and develops a demand for higher density dwellings, there is therefore ample vacant land for the development of medium-density housing, as displayed in FIGURE 6.5.

FIGURE 6.5: Vacant Medium-Density Zoned Land (displayed in Blue)

Source: Nearmap (Accessed 12th July, 2025)

It is also recognised that the James Cook University masterplan, which was released in 2017, includes a vision to incorporate considerable residential diversity across retirement living, aged care, high density, medium density, low density residential and student accommodation options over the long term, which if achieved, may further reduce in part the capacity to accommodate significant student and visitor accommodation options within Aitkenvale and Thuringowa that are also targeted at these markets.

In light of the cost to develop and deliver land, the challenges of providing housing have become more acute, and currently in many locations, large, detached dwellings are the most feasible typology to deliver having regard to their sales prices and lower $/sqm cost compared to other attached and higher density forms of development. With swathes of land and greenfield residential estates available within the Study Area and more broadly throughout Townsville, there are little to no compelling reasons underpinning the acceleration of supply of attached forms of housing within the Study Area.

It is Urban Economics's opinion therefore that there is sufficient land for the long-term delivery of medium density housing within the Study Area, even at higher growth and density scenario projections.

7.0 Need Assessment

It is Urban Economics's opinion that there is a need for additional centre activities to meet the growth of the Study Area community, and that the subject site represents a strategic and logical expansion of uses proximate to the core of the Major Centre in contributing to the role and function of Thuringowa Central as a vibrant, vital and effective Major Centre for the surrounding sub-regional community. More particularly, the need to retain the subject property for medium density housing is limited at best, with substantial land available within Thuringowa Central and the Study Area to accommodate medium density dwelling demand to 2041 and beyond, whilst there is strong and growing demand for more diverse business and employment opportunities within the Study Area.

Economic Need

- As the major centre for Townsville's south-western growth corridor, the anticipated population growth of ~7,900 people within the sub-regional Study Area to 2041 will drive the need for additional facilities to cater to the shopping, service, employment and wellbeing needs of the local community. The growth of the resident community would generate a demand for more than:

    - 3,350 additional dwellings
    - 4,500 additional jobs
    - 21,000sqm of retail space
    - 4,300sqm of bulky goods space '
    - 2,000sqm of additional self-storage space

- Growth of the resident employment base including workers in manufacturing, transport, warehousing and postal services, construction and wholesale activities would also generate a demand for at least 50ha of light industry, service industry and mixed business land to accommodate this workforce. There is no light industry land proximate to or within the Thuringowa Central.

- Significantly, the Study Area is a dormitory community, with local employment opportunities representing an effective net jobs balance of only 40%, with the majority of Study Area resident workers commuting outside the Study Area to access employment opportunities. There is a need to ensure the timely, effective delivery of employment land within Thuringowa Central to support the employment needs of the growing resident workforce.

- Furthermore, the elderly population is forecast to increase substantially, implying an expanding need for goods and services that are particularly tailored to their needs, including purpose-built living arrangements.

- There is no purpose-built land lease community in Townsville, and even allowing for approvals across the City, the demand/supply gap analysis concludes that there remains a clear deficit in the delivery of home park/land lease stock to meet the needs of existing residents of retirement age, and the growth of this age cohort to 2041. Inclusion of land lease communities within the major centre zone would support the need for improved housing choice and the growth in demand for purpose-built retirement living close to amenities, retail and services.

- The current distribution of businesses across industries has higher incidences of those in the Construction, Other Services (largely repair services) and Transport. This implies a strong potential demand for low-impact industry and mixed-use land. Given the lack of significant supply of these land types proximate to Thuringowa, there will inevitably be pressure on the Thuringowa Major Centre to provide for these businesses.

- When compared to other major centres of Aitkenvale and Hyde Park, there is a noticeable gap in the provision of showroom and homemaker-facilities, and service industry activities in the Thuringowa Major Centre. The provision of additional major centre land, close to the core of the Major Centre would support the capacity for the centre to attract and retain land expansive uses that are otherwise going to other centres such as Fairfield, whilst supporting the vibrancy and vitality of the core retail and commercial precinct.

- The demand for housing in the Study Area and Townsville generally, is skewed towards detached housing, with medium-density dwellings facing challenges in terms of feasibility in most markets. This reduces the pressure on existing medium-density land for housing. More particularly, a demand for between 11 and 20ha of medium density land within the Study Area is projected to cater to the needs and growth of the Study Area population to 2041. There is more than 44ha of medium density zoned land within the Thuringowa Central area including the subject property, suggesting that there is more than sufficient land available to cater to projected demand for medium density lifestyles top 2041 and beyond, even at higher takeup rates.

Planning Need

- The Thuringowa Major Centre fulfils a different role to the other two major centres in Townsville, incorporating a wider range of uses in addition to higher order retail such as recreation and leisure, service industry and healthcare. Notably, Thuringowa Central is also detached from light, service and other industry areas unlike both other major centres, with a need to incorporate these employment activities and industry support activities within the Major Centre.

- Growth of the population, employment and economic base of the Study Area community will therefore continue to generate demand for land to accommodate the needs of businesses and workers servicing this community, including for service industry, light industry and commercial activities that are not elsewhere provisioned within the Study Area. The subject property would contribute to the consolidation of employment and economic activity within the Major Centre and proximate to the core of the Major Centre creating amenity for workers of the employment land and contributing to the vibrancy of the retail core.

- In contrast to the other two major centres, much of the medium density land in and around the Thuringowa Major Centre is vacant, making it realistically developable when required and reducing the pressure on the subject site to be reserved for residential uses. More particularly, there is a surfeit of medium density zoned land for residential purposes within Thuringowa Central. The removal of the subject site from the medium density residential zoning would not preclude the future development of infill housing within the major centre, with the accommodation forms also anticipated within the Major Centre zone.

- Notably, whilst there is land zoned for additional centre uses within the Thuringowa Central, the subject site has the capacity to consolidate commercial and employment uses proximate to existing uses including the core, contributing to the viability and sense of vibrancy within the Major Centre rather than further elongating centre uses and the centre.

- Moreover, masterplans within precincts such as JCU anticipating a range of permanent and short term accommodation options, undermine the demand for and delivery of medium density housing within Thuringowa. There is considerable land available, planned and intended to support a range of housing densities, with insufficient need and demand to retain the subject property for medium density residential purposes.

Community Need

- The utilisation of the subject property for an expanded array of centre uses enhances the capacity to deliver an employment and industry precinct proximate to centre uses and amenities that would support the south western growth corridor of Townsville relative to the major industry land precincts to the north and south-west, improving convenience and accessibility for businesses, workers and residents to trade supplies, business support activities and supplies, light industry and servicing activities.

- The addition of additional employment generating land would assist in accommodating local businesses and creating jobs in proximity to local residents, reducing the need to commute to other areas of the city for employment.

- There is a need for a more diverse array of activities within the major centre zone in Thuringowa to meet the needs of the resident workers, businesses and the local community for access to employment, activities and support services close to home and their place of work.

8.0 Impact Assessment

It is Urban Economics's opinion that there is insufficient need for the subject site to be retained for medium-density residential use, with a more pressing need for the Thuringowa Major Centre to play an expanded role in the commercial and employment needs of the south west growth corridor. More particularly, the inclusion of an expanded array of centre uses on the subject site will contribute to the vitality and vibrancy of the Thuringowa Major Centre through improved delivery of business and employment activity proximate to the core. There remains significant tracts of available land for medium density residential land far beyond that required to support even a higher level of demand for medium density dwellings to 2041.

The proposed inclusion of a broader mix of employment and centre activities on the subject parcel will have a negligible impact on the availability of land for medium density residential purposes within the Study Area and Townsville more broadly:

- As previously established, the subject site represents approximately 5.5% of the zoned medium density land south of Hervey Range Rd. Around 44ha of this land is currently vacant and available for development, meaning that the loss of the subject site would have a minimal impact on the future capacity to support demand for medium-density dwellings within the Thuringowa Central area and the Study Area overall.

- It is estimated that there is a demand for between 11-20ha of land for medium density dwellings within the Study Area between 2025 and 2041. There is more than sufficient land within the Thuringowa Centre to accommodate the medium to high series demand projections for medium density dwellings. The loss of the subject property and its capacity for medium density dwellings would have a negligible impact on the delivery of medium density dwellings within the Study Area.

- More particularly, the inclusion of a broader array of centre and employment uses on the subject property as well as uses such as land lease community and other permanent and short term accommodation options would contribute to the vitality of Thuringowa as a Major Centre.

- As an outer suburban growth area, there is a clear demand among consumers for a traditional detached housing product, evidenced by the recent spike in building approvals and the ongoing development of a number of local detached housing estates.

- Furthermore, the local population has a strong family demographic, with larger household sizes maintaining a strong level of demand for larger detached.

Urban Economics has also had regard to the implications for the hierarchy of centres and the role, function and performance of the Thuringowa Central as a Major Centre. The inspections, modelling and investigations have concluded that the proposed inclusion of a broader range of commercial, centre and employment uses on the subject property would encourage the development of new employing generating and economic development land uses within the centre and not have an undue level of impact on the role of the Centre or the performance of the existing entertainment, recreation or retail uses.

Moreover, as the Major Centre for a large growth corridor, the expansion of centre land alongside population growth ensures that the local community is adequately served by a range of different land uses. In any event, the addition of the remainder of the subject site (~2.4ha) would only represent an expansion of size of the Major Centre of ~4%.

The inclusion of a broader range of centre uses on the subject site would consolidate employment uses in and around the core of Thuringowa Central contributing to the vibrancy and vitality of existing centre uses and activities. The proposed mix of uses is not intended to extend the role of Thuringowa Central in the hierarchy, but contribute to the community of the Study Area an enhanced level of access to employment opportunities and reduce the need to travel outside the Study Area for employment, business-to-business services and other industry support activities.

The proposed inclusion would support the role of Thuringowa Central as a true Major Centre for its sub-regional catchment area and contribute to the competitiveness of Thuringowa Central relative to other active centres such as Fairfield in providing the range of sites that attracts land expansive and employment generating uses to cater to the needs of the expanding Study Area catchment. The opportunity to consolidate employment activities including light and service industry needs within the centre will deliver to the south-western growth corridor a level of access to employment and services otherwise enjoyed by residents of the Aitkenvale and Hyde Park catchments and their proximate industry areas.

In addition, both the Hyde Park and Aitkenvale Major Centres appear to be undertaking expansion plans that will likely result in an expansion of future floorspace, maintaining their competitiveness and concentration of retail uses and activities in these major centres.

Additional land uses would play the role of supporting the expansion of the range of uses within Thuringowa Major Centre in a location proximate to existing high traffic areas, with the recognition that the centre caters not just to retail but also commercial and industrial uses. There is no other proximate industry and business land to cater to the growth in the local resident workforce.

9.0 Conclusions

It is Urban Economics view that there is a need for the expansion and consideration of the variety of uses that could be supported on the subject site based on the expanded role of the Thuringowa Major Centre as a location for not just traditional centre uses such as retail and entertainment, but other larger-format uses such as sport and recreation and light industry. The lack of mixed-use or low-impact industry land uses surrounding and proximate to the Thuringowa Major Centre, compared to other Major Centres in Townsville such as Aitkenvale and Hyde Park, places this broader level of commercial need on sites such as the subject site, with its location close to existing uses.

The subject site in particular, presents the opportunity to locate a range of other "missing" or undersupplied land uses and activities within Thuringowa proximate to the core of the precinct, contributing to but not undermining the role and function of Thuringowa as a Major Centre.

Furthermore, the Study Area is a dormitory suburb with the resident workforce commuting outside the Study Area to access employment services and opportunities. There is an ongoing need to ensure the delivery of land to accommodate the growing workforce and resident demands of the Study Area, with Thuringowa Central strategically located as the Major Centre for the south-western growth corridor of Townsville and detached from other business and industry land. The proposed variation seeks to consolidate employment and economic uses proximate to the core of the Major Centre, contributing to the vibrancy of the centre, and to the diversity of employment and business activities within the Study Area.

There is insufficient need to retain the land within the medium density zone, with a surfeit of medium density zoned land, whilst the inclusion of an expanded array of uses on the subject site will contribute to the diversity of economic, employment and accommodation uses, including land lease community uses, that would support the vibrancy and vitality of Thuringowa Central.

Appendix 1 – Contemplated Uses

This table compares the planning scheme's treatment of different uses depending on the land zoning, comparing Major Centre land with Medium density residential land.

TABLE A.1: Comparison of Uses Across Zones

Key	Contemplated use	Not contemplated use

Use	Major Centre	Medium density residential
Bar		
Car wash		
Caretaker's accommodation		
Child care centre		
Community care centre		
Community residence		
Community use		
Club		
Dwelling unit		
Educational establishment		
Emergency services		
Health care services		
Hotel		
Function facility		
Indoor sport and recreation		
Market		
Multiple dwelling		
Place of worship		
Retirement facility		
Rooming accommodation		
Sales office		
Service station		
Short-term accommodation		
Telecommunications facility		
Veterinary services		
Adult store		
Food and drink outlet		
Office		
Showroom		
Service industry		
Parking station		
Funeral parlour		
Hardware and trade supplies		
Low impact industry		
Outdoor sales		
Relocatable home park		
Residential care facility		
Warehouse		

Premise

PART OF THE Amey GROUP

STATELAND PTY LTD

11 Black Hawk Boulevard

ENGINEERING REPORT

Report No: P004113/R02
Rev: A
31 October 2025

Document reference: P004113/R02

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Prepared By		**Reviewed By**		**Authorised By**	
Fabricio Ramos		Chris Marston		Chris Marston	

CONTENTS

APPENDICES

1. INTRODUCTION

This report assesses the Civil Engineering aspects of 11 Black Hawk Boulevard, a vacant lot in the municipality of Townsville City Council.

The proposed development is located at 11 Black Hawk Boulevard bounded by Black Hawk Boulevard to its northwest and by Regiment Street and Gregory Street to its East and South respectively.

This report has been commissioned by the developer, Stateland Pty Ltd, and forms part of a variation request to consider new code assessable uses. This report examines the engineering aspects of the site in respect of the proposed variation request.

2. PROPOSED DEVELOPMENT

The development site is currently in split zoning under the Townsville City Plan and is located on vacant, undeveloped land with a total area of 4.419 ha. The developer is seeking approval to develop the site as an integrated development comprising one or more of the proposed uses.

The developer plans to subdivide and sell the lots as central zoning community title lots, with the intended purpose of serving commercial properties and others as approved by the code assessable usage to be approved by the Townsville Council.

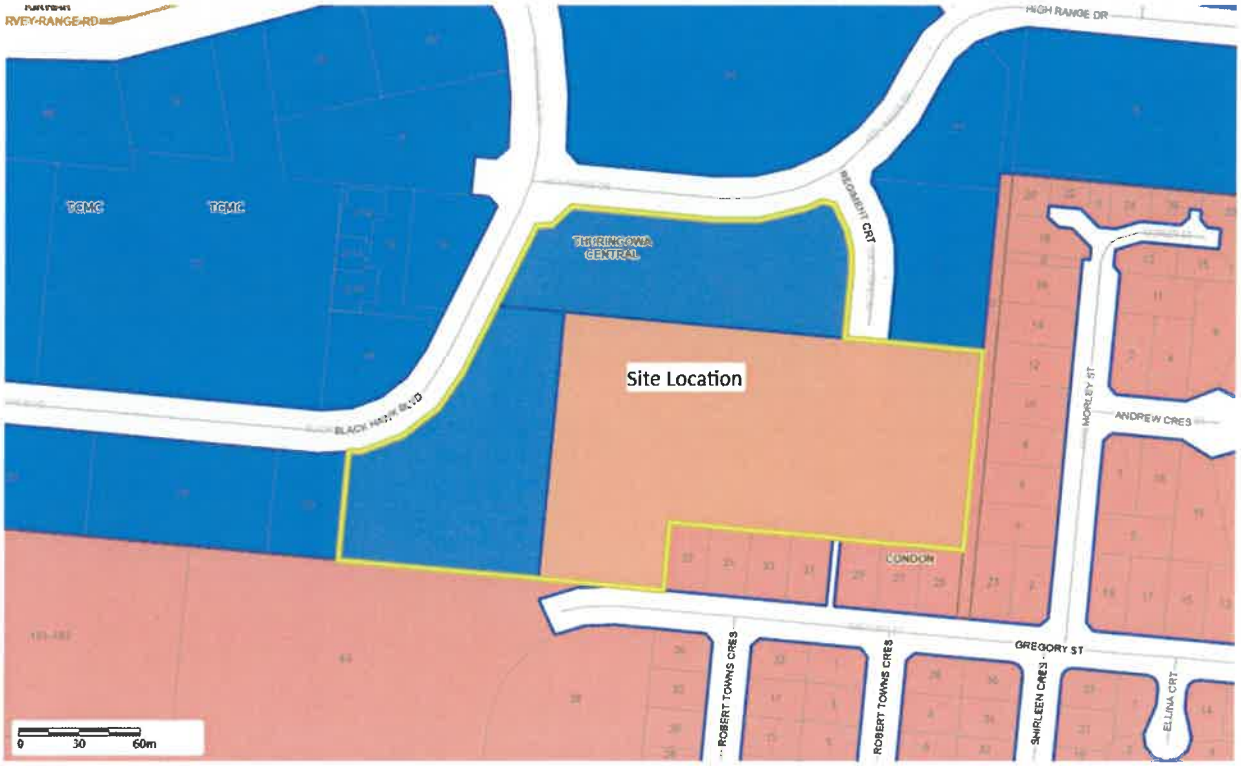

Figure 1: Townsville City council zoning map

3. TRAFFIC AND ROADWAYS

3.1 General

Access to the 11 Black Hawk Boulevard from trunk transport infrastructure is proposed to be from Black Hawk Boulevard or High Range Drive, with any internal roads and access to be designed and approved as part of the development approval process. Hawk Boulevard is an existing Industrial access road with a road reserve width of 22.5m. It is assumed that council will not allow industrial crossover and access to site via Gregory Street.

4. FLOODING AND EARTHWORKS

Earthworks and Flood impact will need to be addressed as part of the development approval for the proposed development which will be subject to a subsequent MCU application. Based on the council flood maps shown below it is apparent that some earthworks will be required to address the Q100 flood zone impacting the site at High Range drive.

At this stage of the development, we believe that the impact of the flood is minimal and occurs predominantly on the roadway and kerbing, from the map below it is evident that the little flood impacting the site is a direct result of low spot ponds throughout the site. The deepest point of the flood encountered on site as 0.2m in depth. The hypothetical development proposed for the site would compose of residential and commercial developments both of which would significantly increase the amount of impermeable area, and as such would increase the amount of water generated by the site which will need to be mitigated to avoid overcharging the current surrounding drainage infrastructure. One proposed solution to this would be to have some on site detention/ retention to reduce the peak discharge of the key storm events.

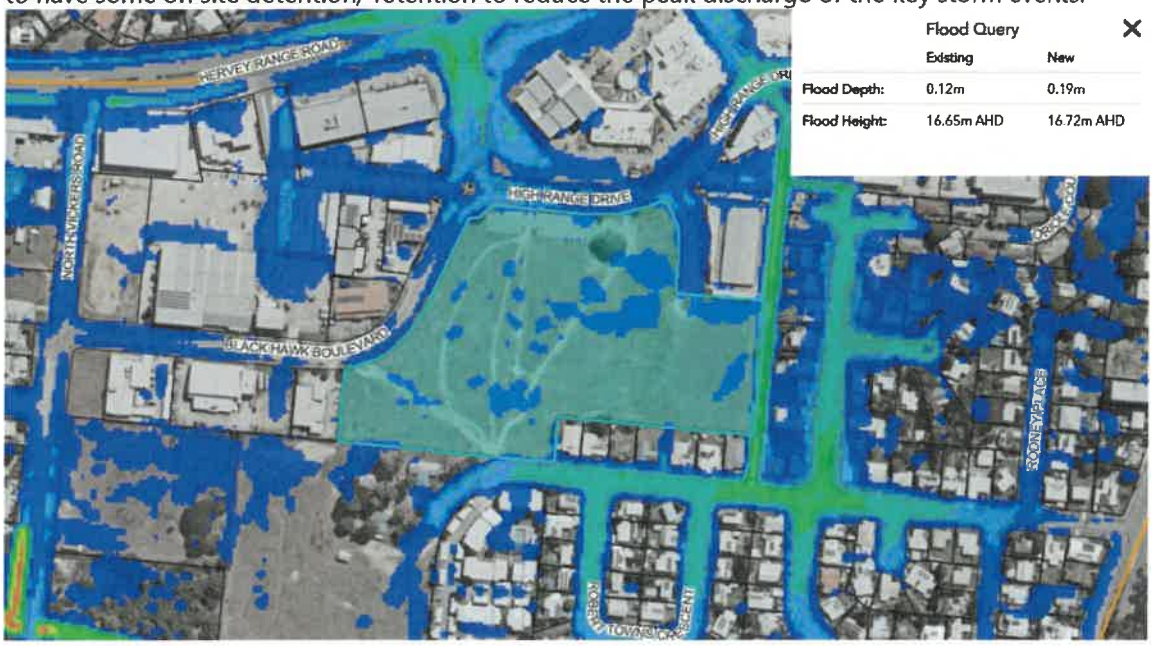

Figure 2: Townville Council flood maps with subject site highlighted blue

5. STORMWATER DRAINAGE

An analysis was carried out on existing stormwater infrastructure to measure the impact of the development at 11 Blackhawk Boulevard. The rational method was used to determine the peak discharge Q values for the surrounding catchments based on their point of discharge. A screenshot is attached showing the potential point of discharge of each catchment and the values derived from the equation are in the table below. We have compared these values primarily to determine the impact of the development in the Q values for key storms based on rainfall intensity data supplied on the bureau of meteorology website. This preliminary assessment was done to outline the increase in discharge and to prepare a strategic plan to show that the development can be completed without having worsening effect on the surrounding infrastructure. QUDM states that when developing a site from 90%+ pervious to 80%+ impervious you must ensure that the impact of the stormwater flow will be the same or less than the current maximum in the existing network. Our calculations based on the catchments show that there is an increase in the peak discharge after development of 56%. This shows that the new stormwater discharge quantity would not meet QUDM standard, and as part of the MCU application the developer must prepare a stormwater management strategy stating how they will reduce the discharge to meet the current limits. Attached below is a catchment drawing showing our assumptions of the catchments and discharge points, showing changes only at discharge points A and D.

Annual Exceedance Probability AEP %

Discharge point	63.2%	50%	20%	10%	5%	2%	1%
A	**0.5818**	**0.7129**	**1.1059**	**1.4194**	**1.7097**	**2.1838**	**2.5294**
B	0.7174	0.8789	1.39	1.75	2.10	2.6927	3.1188
C	0.7782	0.9535	1.5085	1.898	2.2867	2.9209	3.3831
D	**0.4521**	**0.5539**	**0.8764**	**1.067**	**1.3285**	**1.6969**	**1.9654**
E	0.4689	0.5745	0.9089	1.1439	1.3778	1.7599	2.0384
F	0.3843	0.4707	0.7449	0.937	1.129	1.4423	1.6705

Peak stormwater discharge Q predevelopment (m^3 per second)

Annual Exceedance Probability AEP %

Discharge point	63.2%	50%	20%	10%	5%	2%	1%
A	**0.6297**	**0.7715**	**1.2206**	**1.5360**	**1.8502**	**2.3633**	**2.7373**
B	0.7174	0.8789	1.39	1.75	2.10	2.6927	3.1188
C	0.7782	0.9535	1.5085	1.898	2.2867	2.9209	3.3831
D	**0.7069**	**0.8660**	**1.3703**	**1.7244**	**2.0771**	**2.6532**	**3.0730**
E	0.4689	0.5745	0.9089	1.1439	1.3778	1.7599	2.0384
F	0.3843	0.4707	0.7449	0.937	1.129	1.4423	1.6705

Peak stormwater discharge Q post development (m^3 per second)

Assumed Catchments and Discharge points

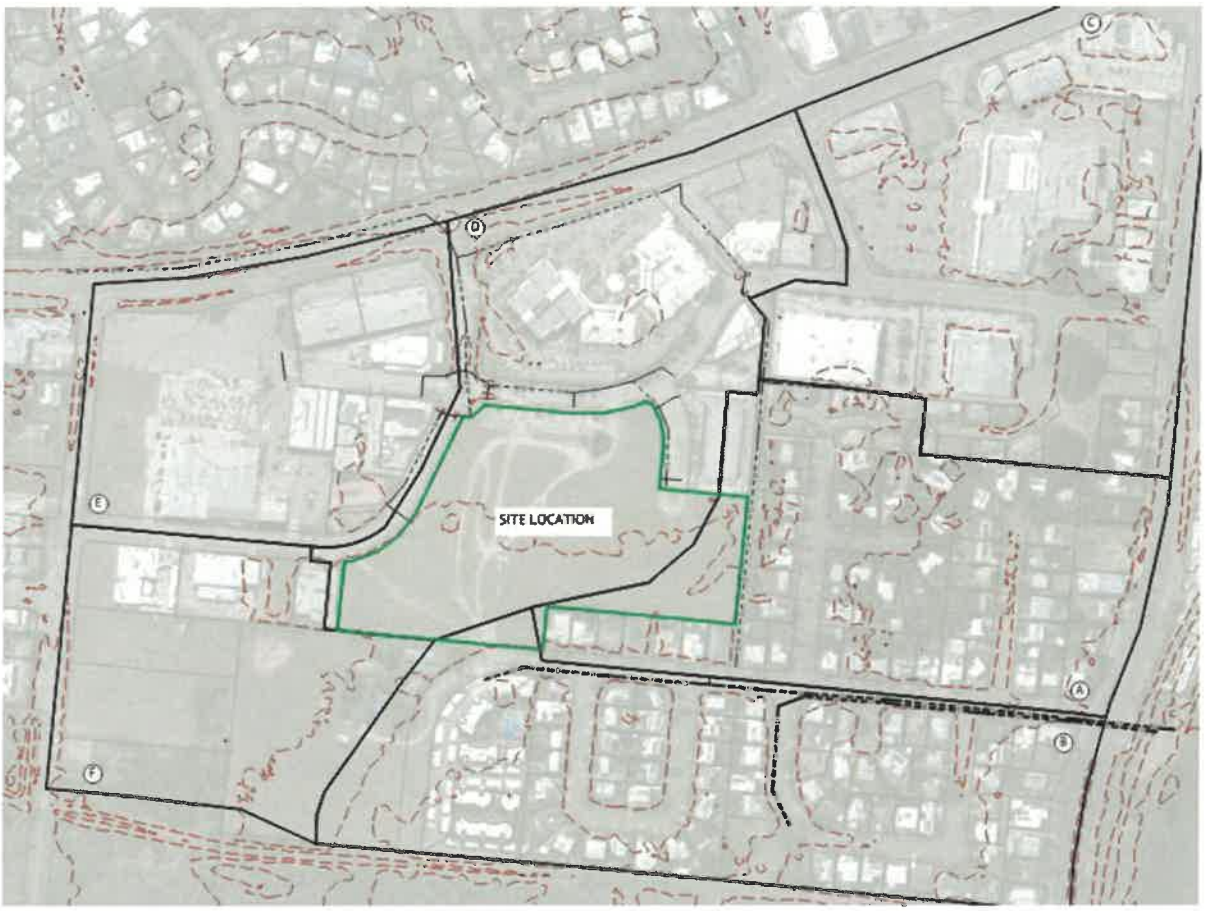

Figure 3: Pre Development stormwater catchment layout

5.1 Internal Drainage

Minor system (Q_2 – 39% AEP) stormwater flows shall be discharged from the site via overland discharge and shall be collected and transported via roadway kerb and channel, kerb inlet pits and underground stormwater drainage pipes to the major drainage system as per Council standards.

Major system (Q_{100} – 1% AEP) stormwater flows, surplus to the minor system capacity, shall be transported via the roadway systems to the main drainage paths and discharged as per normal Council requirements.

Due to the change in usage the site is now 90% impervious meaning that there will be an increase in the output of stormwater from the site. Based on our calculations the increase of the flow of water will be 3.0730 m^3 per second. This is an increase of over 50% to the existing stormwater flow. Further analysis of the stormwater drainage will be required, but at this stage it is correct to assume that some on site storage may be required, this aspect will be addressed at the time a MCU application is lodged for the specific uses that the site will be developed.

6. WATER RETICULATION

6.1 Water Infrastructure Assessment

The proposed development can be serviced by a DN100 water main running along High Range Drive Alternatively, the site can be serviced by DN150 connection at Black Hawk Boulevard. The approximate alignment of the DN100 and DN150 water main is illustrated in the existing services Plan. Due to the water demands of commercial properties it is expected that both connections will be needed to supply enough water to the proposed development. The approximate location of the services can be seen in the illustration below.

6.2 Design Populations

The 11 Black Hawk Boulevard will consist of two main development area:

- For residential development lot area, the population is assumed to be 207.2 persons per hectare (EP) in accordance with Council's planning standards. The residential part of Black Hawk Boulevard would be is 1.45 hectares in size resulting in a EP value of 300 EP
- For commercial development lot area, the population is assumed to be 132.1 persons per hectare (EP) in accordance with Council's planning standards. The residential part of Black Hawk Boulevard would be is 2.95 hectares in size resulting in a EP value of 389.7 EP

6.3 Water Demand

Water demands have been calculated in accordance with the Townsville City Plan, CTM Water Alliance Design and Construction Code (CTM Code) and Water Systems Australia Specification WSA-03 (including Townsville City Council amendments). Based on the Relevant calculations are presented below.

The maximum hour water demand per EP is 0.033 L/s/EP (based on Council's latest amendment to the planning scheme). This water demand is determined as follows:

Average Day Demand (AD)	=	689.7 EP x 600 L/day
	=	4.789 L/s
Mean Day Maximum Month	=	1.5 x AD
	=	1.5 x 0.007
	=	0.0104 L/EP/s (or 900 L/EP/day)
Maximum Day (MD)	=	1.25 x MDMM
	=	1.25 x 0.0104
	=	0.013 L/EP/s (or 1,123.2 L/EP/day)
Peak Hour (PH)	=	1.50 x MD
	=	1.50 x 0.013
	=	0.0195 L/EP/s

With a full development equivalent population being 689.7 EP the peak hour demand for the site is 28.37L/s.

In addition to the above if the site will have commercial properties a 30 l/s Fire flow water demand for commercial allotments is required as per council design standards. The standards allow for the fire flow to be provided from up to 3 hydrants.

It is expected that the initial 11 Black Hawk Boulevard development stages will be located on the western side of the property so a DN150 connection to the existing DN150 could supply water

Figure 4: External DN150 Proposed Water Main Connection

The report will be updated and refined as part of the actual development of the 11 Black Hawk Boulevard site and associated water network modelling. The preliminary reticulation water mains can be modelled on WaterGEMS but will also need to be adjusted and completed as part of the development stage of the 11 Black Hawk Boulevard site.

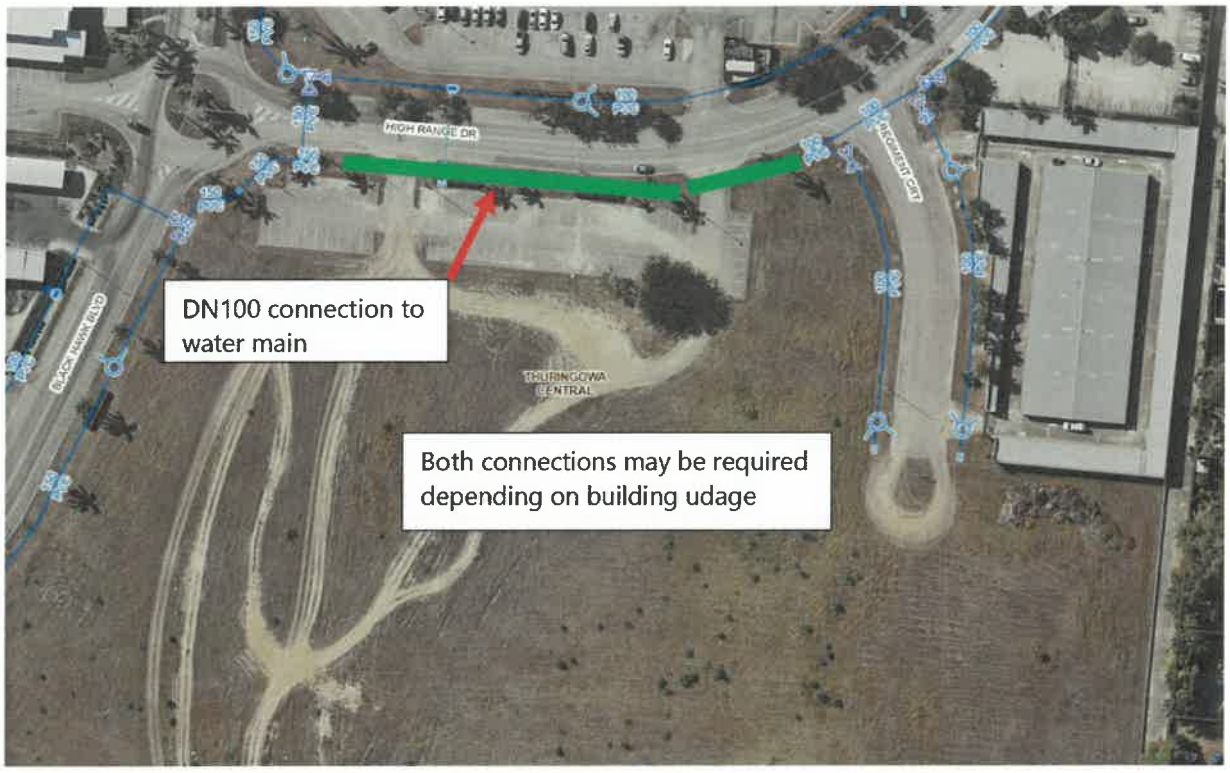

Figure 5: Proposed Water Main Connection

The full development of the 11 Black Hawk Boulevard site is therefore able to be serviced by a DN100 connection running along the frontage to High Range Drive or from the DN150 water main running along Black Hawk Boulevard (or both if there are multiple commercial developments). We have attached in the appendix, an assessment carried out by an expert, and it outlines the performance requirements of the development site (it is important to point out that this analysis was carried out for a 100% commercial development which the expert believes is a worst-case scenario).

6.4 Reticulation Mains

The development shall be serviced via water mains of DN150 PVC, DN100 PVC mains running under ground as required, and these mains will generally be on a 2.05m alignment from the property boundary as per Council standard verge profiles. When the allotment layout of the proposed development is known all internal reticulation mains will be laid in accordance with Townsville City Council requirements.

Valves and hydrants shall be provided in accordance with normal Council requirements.

7. SEWERAGE

11 Black Hawk Boulevard is currently serviced by an existing PVC DN150 sewer connection

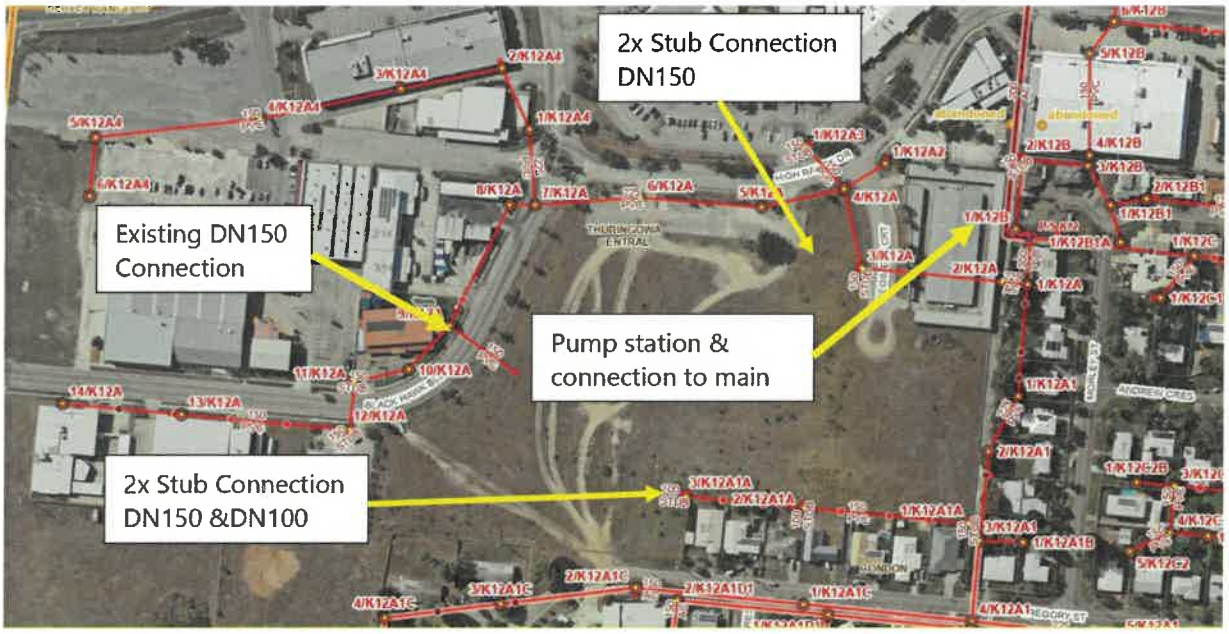

Figure 6: 11 Black Hawk Boulevard Sewer Connection Location

From a desktop assessment there are three (3) main options identified for the connection of sewer main from the 11 Black Hawk Boulevard development to the sewer main illustrated above. These three options have been analysed and reviewed to ensure main has enough capacity for the proposed site usage. Based on highest demand zoning we have selected Thuringowa Major Centre.

The existing Condon Sewer Treatment Plant (STP) is located to the southwest of the 11 Black Hawk Boulevard development site. Advice from Townsville City Council is that the existing Condon STP is at its capacity limit and is therefore not able to have sewage from the 11 Black Hawk Boulevard development directed to it. The Condon STP services the Upper Ross area (Condon, Rasmussen & Kelso) and has a licensed capacity of approximately 22,000 EP. The current connected population to the STP is nearing this population. The Council's Sewage Plans for Trunk Infrastructure illustrate future trunk sewer infrastructure works to divert sewage out of the Condon STP catchment so that it continues to meet its environmental license. This confirms the Condon STP does not have capacity for the additional 693.3 EP from 11 Black Hawk Boulevard. The proposed development can discharge sewage into the existing sewer reticulation network where it will head towards the pump station located downstream and join the pressured main.

7.1 Design commercial Populations

The 11 Black Hawk Boulevard residential development will consist of two main development areas as follows:

- Residential development lots. For the areas where residential lots are proposed, the population is assumed to be 2.8 persons per allotment (EP) in accordance with Council's planning standards. The 11 Black Hawk Boulevard development will consist of up to roughly 30% residential allotments and 70% commercial allotments adding up to a total equivalent population of 693.3 EP.

7.2 Sewerage Design Criteria

All allotments within the proposed development shall be serviced by a minimum DN100 sewer house connection. The reticulation sewers shall be DN150 and generally located 1.5m off the property as standard for Townsville City plan. The sewerage network shall be designed and constructed in accordance with the Townsville City Plan, CTM Code and Water Systems Australia Specification WSA-02.

The location and sizing of the internal sewerage infrastructure will be verified as part of the detailed design of the development planning approvals.

8. ELECTRICITY

According to Townsville council infrastructure map there is existing low voltage electrical lines running along Blackhawk Boulevard, this will be able to provide some power to this site. Due to the zoning being classified as commercial we would recommend providing underground high voltage connection to the site. This can be achieved by connecting to the existing high voltage network running across Blackhawk Boulevard just north of the proposed development site. Approximately 80m of high voltage cable and 1 crossing is required to supply the site with high voltage for commercial use. Extra details regarding connection to electricity will be supplied by an electrical engineer during MCU application.

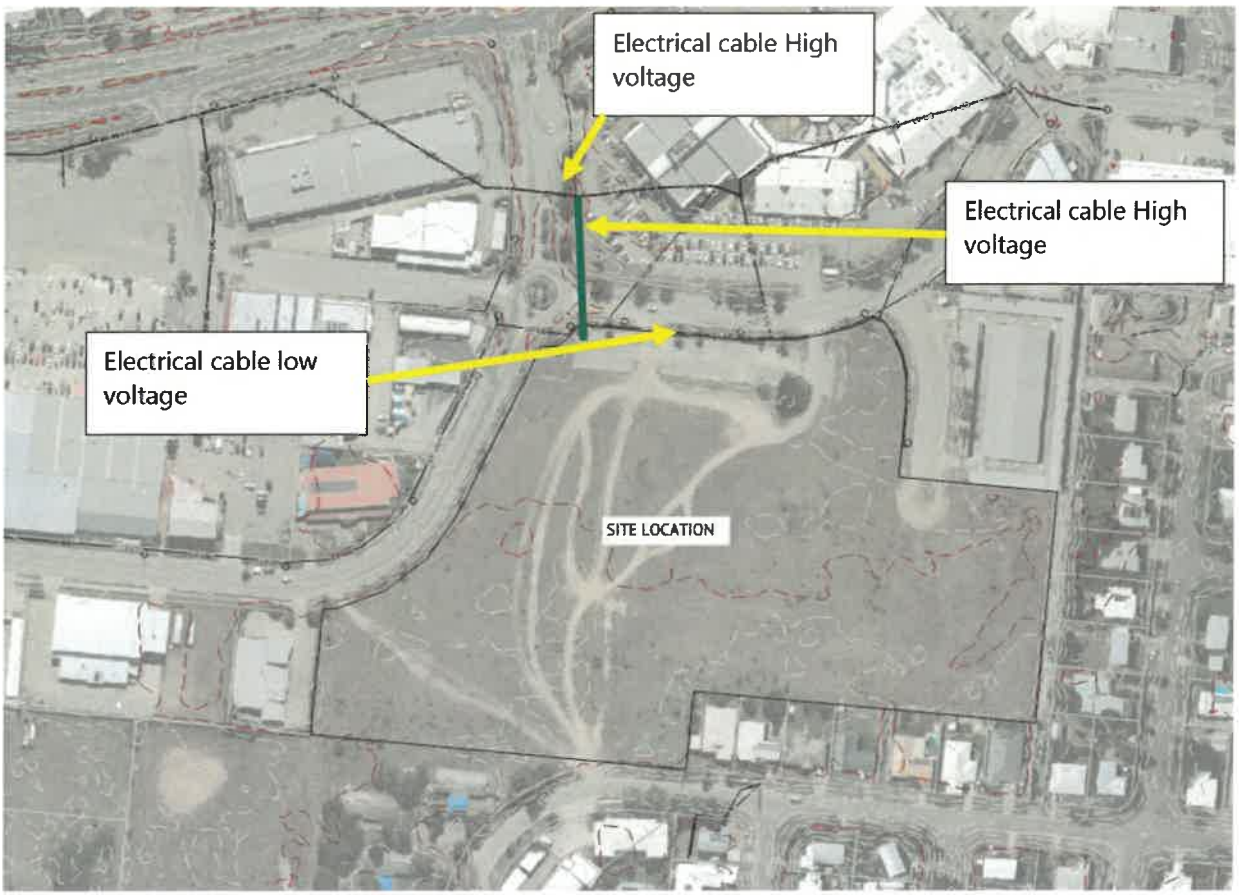

Figure 7: Proposed electrical Connection

APPENDIX A

EXISTING ELECTRICAL SERVICES

	SITE BOUNDARY
HV-UG	EXISTING HIGH VOLTAGE UNDER GROUND
LV-UG	EXISTING LOW VOLTAGE UNDER GROUND

EXISTING ELECTRICAL SERVICES LAYOUT

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
21/10/2025	1	PRELIMINARY - NOT FOR CONSTRUCTION	REC	APP

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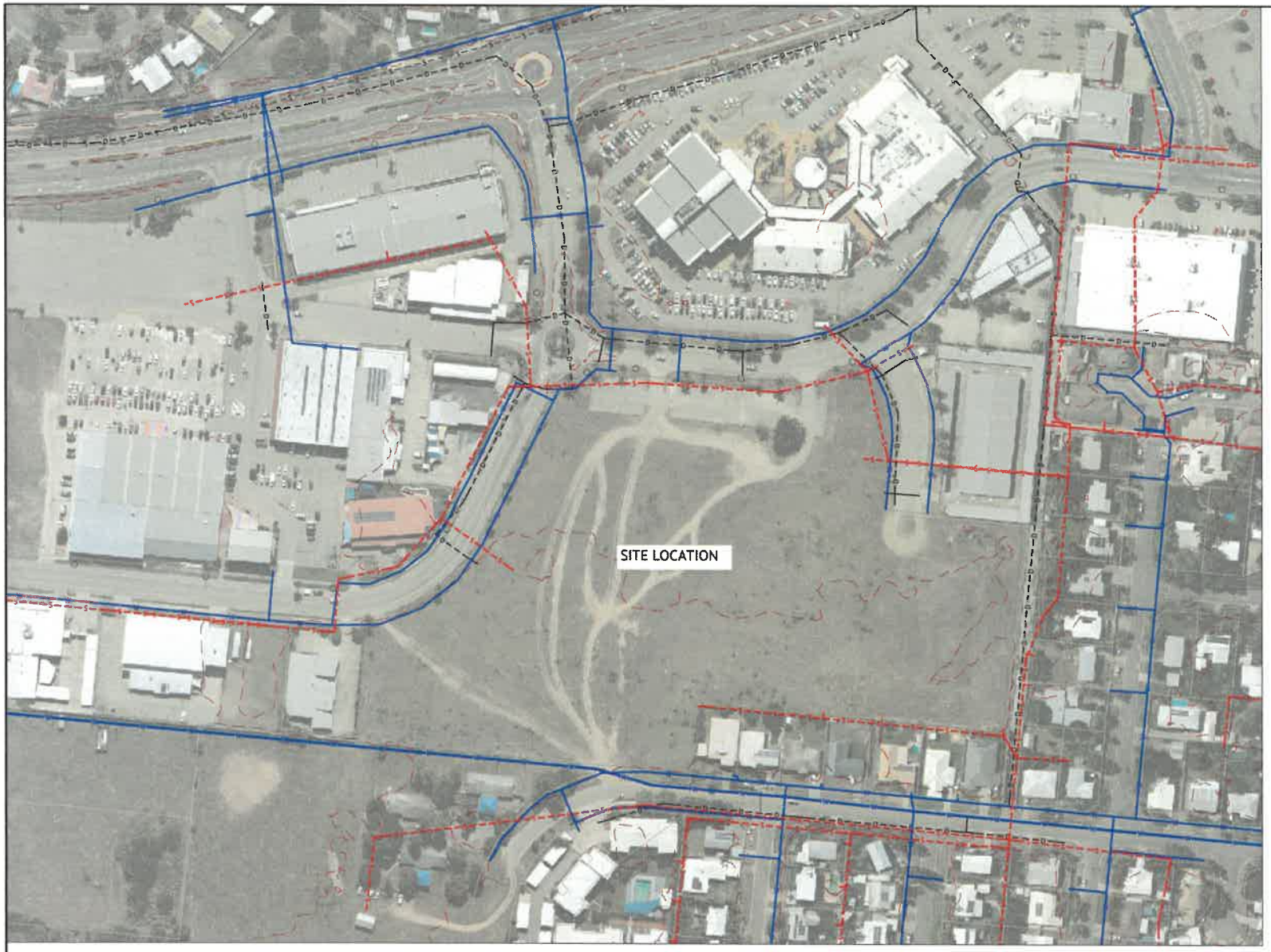
ENGINEERING CERTIFICATION: ENTER CERTIFIER DETAILS
SCALE:
ORIGINAL SHEET SIZE A1

CLIENT: STATELAND PTY LTD
PROJECT: DUE DILIGENCE REPORTING
LOCATION: 11 BLACKHAWK BOULEVARD
SHEET TITLE: EXISTING ELECTRICAL SERVICES LAYOUT

JOB CODE: P004113
SHEET NUMBER:
REV: 1

APPENDIX B

EXISTING WATER AND DRAINAGE SERVICES



	SITE BOUNDARY
S S	EXISTING SEWER
D D	EXISTING STORMWATER DRAINAGE
	EXISTING WATER RETICULATION
	EXISTING WATER MAIN 1050mm
	EXISTING BOUNDARIES
	CONTOUR Minor
	CONTOUR Major

EXISTING WATER AND DRAINAGE SERVICES LAYOUT

PRELIMINARY - NOT FOR CONSTRUCTION

DATE	REV	DESCRIPTION	REC	APP
21/10/2025	1	PRELIMINARY - NOT FOR CONSTRUCTION	REC	APP

REVISIONS

Premise
PART OF THE Arney GROUP
BRISBANE OFFICE
LEVEL 11, 300 ADELAIDE STREET
BRISBANE, QLD 4000
PH: (07) 3253 2222
WEB: www.premise.com.au

DESIGNED: FABRICIO RAMOS
CHECKED: CHRIS MARSTON
PROJECT MANAGER: CHRIS MARSTON
ENGINEERING CERTIFICATION: ENTER CERTIFIER DETAILS
SCALE
ORIGINAL SHEET SIZE A1

CLIENT: STATELAND PTY LTD
PROJECT: DUE DILIGENCE REPORTING
LOCATION: 11 BLACKHAWK BOULEVARD
SHEET TITLE: EXISTING WATER AND DRAINAGE SERVICES LAYOUT

JOB CODE: P004113
SHEET NUMBER:
REV: 1

APPENDIX D

WATER AND SEWER CONNECTION ASSESSMENT

STATELAND PTY LTD COMMERCIAL DEVELOPMENT

11 BLACKHAWK BOULEVARD, THURINGOWA CENTRAL

WATER SUPPLY AND SEWERAGE PLANNING REPORT

Date: 29 Oct 2025 (Rev A)

TABLE OF CONTENTS

APPENDICES

REPORT AUTHORISATION

Revision	Revision Date	Details	Approved by	Signature
A	29/10/2025	Initial Report	Desmond Moseley	

1 INTRODUCTION

This report assessed the performance of the existing water & sewer infrastructure to service the proposed re-zoning of the large land parcel that is to be located at 11 Blackhawk Blvd, Thuringowa Central. The development site is bounded by Blackhawk Blvd to the west, High Range Dr to the north, and Gregory St to the south. The existing site is currently vacant land.

The development location is illustrated on the extract below, with a larger version of the site plan provided in Appendix A. The land parcel is 4.416 ha in area.

Figure 1 – Commercial Development Site Plan

The land parcel has two zonings over it in the Townsville Planning Scheme. The proponent is looking at having the zoning changed to allow the whole site to become commercial. The assessment in this report is based on the potential re-zoning of the site to commercial. The assessment is based on applying the commercial zoning that will result in the highest water & sewer equivalent population with this being "Thuringowa Major Centre".

The site is currently serviced with a reticulated water and sewer system. The capacity of the existing infrastructure has been assessed based on the water and sewer loadings from the Thuringowa Major Centre zoning in the planning scheme. The assessment has illustrated:

- A new DN100 PVC water main will need to be constructed along the High Range Drv frontage of the development site. This water main would extend from the end of the existing DN100 water main at the intersection of High Range Drv and Regiment Ct to the west to connect to the existing DN150 PVC main at the intersection of High Range Drv and Black Hawk Blvd over a length of 120 m. This water main is required to ensure reliability of supply and ensure the flows, pressures and headloss gradients meet TCC standards.

- With the construction of the section of DN100 PVC main along the development site frontage on High Range Drv, the existing water network has sufficient capacity to service the proposed commercial re-zoning with the peak hour demands. The system also has sufficient capacity to service the development with commercial fire flows in accordance with Council standards.
- The existing DN150 and DN225 reticulation sewer that service the site to the east and to existing PS K12 (Morley St) have sufficient capacity for the commercial sewage loading.
- The modelling illustrated that the existing installed pumps in PS K12 that services the development site may not have sufficient capacity to service the peak wet weather flows from the site along with the existing Cannon Park commercial area and other residential lots that are currently serviced by PS K12. The modelling shows that slightly larger replacement pumps in PS K12 would allow the full peak wet weather flows to be pumped by PS K12. The larger replacement pumps could be installed as part of the TCC sewage pump replacement program when the existing pumps reach the end of their effective life or when the site is developed.

Further details of the water & sewer infrastructure assessment for the proposed commercial development site at 11 Blackhawk Blvd in Thuringowa Central is provided in the following report sections.

2 POPULATION ASSESSMENT

The following section provides the equivalent population assessment for the proposed re-zoning and future potential commercial development of the site at 11 Blackhawk Blvd.

The method used to assess the equivalent population of the development is to apply the broad loading rates from "Table SC3.1.6a - Planned demand generation rate for a trunk infrastructure network" from Townsville's planning scheme. As the actual type and size of commercial development that may be constructed on the site is not certain, the worst case (highest) loading rates per ha for the potential site have been used. The extract from Table SC3.1.6a from the planning scheme is below that shows the water and sewer loading rates.

The potential commercial uses and loading rates indicate that the highest demand zoning would be the "Thuringowa Major Centre (Major Centre – TCMC)". The water and sewer equivalent population (EP) based on the Thuringowa Major Centre zoning and loading rates is provided in Table 2.1 below.

Table 2.1 – Water Equivalent Population Assessment

	Area	Loading Rate	EP
Commercial Tenancies	4.416 ha	132.1 EP/ha	583.3 EP
Total			**583.3 EP**

Table 2.2 – Sewage Equivalent Population Assessment

	Area	Rate	EP
Commercial Tenancies	4.416 ha	157 EP/ha	693.3 EP
Total			**693.3 EP**

Table SC3.1.6a - Planned demand generation rate for a trunk infrastructure network
(Lots less than threshold)

Column 1 – Area			Column 2 (n/a)	Column 3 – Planned density			Column 4 - Demand generation rate for a trunk infrastructure network (per net developable Ha)				
Zone	Zone	Precinct		Plot ratio (Non-residential)	Plot ratio (Residential)	Dwelling density (no./Ha)	Water (EP)	Sewerage (EP)	Roads (trip ends/day)	Pathways (trip ends/day)	Parks (ERP)
CF	Community Facilities	All		-	-	-	-	-	-	-	-
CR	Character Residential	All		-	-	16.7	46.7	46.7	121.2	7.2	47.8
DC	District Centre	All		0.45	-	-	81.6	103.5	1,128.5	13.2	-
EC	Emerging Communities	MCF2		0.35	-	-	63.5	80.5	877.7	10.2	-
EC	Emerging Communities	MCNS		0.80	-	-	145.1	184.0	2,006.1	23.4	-
EC	Emerging Communities	Other		0.50	0.50	21.5	56.8	57.3	181.0	9.7	56.4
HDR	High Density Residential	PS		6.90	6.90	590.6	1,273.2	1,335.7	4,694.2	265.8	1,063.2
HDR	High Density Residential	Other		1.08	1.08	80.0	164.1	168.2	694.3	36.5	144.0
HII	High Impact Industry	All		0.65	-	-	9.5	9.7	687.0	7.0	-
LC	Local Centre	All		0.45	-	-	81.6	103.5	1,128.5	13.2	-
LDR	Low Density Residential	MCF1		0.35	-	-	63.5	80.5	877.7	10.2	-
LDR	Low Density Residential	MHF1		0.53	-	-	66.6	81.1	2,026.9	24.4	-
LDR	Low Density Residential	RRRC		0.50	0.50	20.9	57.1	57.4	165.1	9.3	57.7
LDR	Low Density Residential	ST		-	-	10.0	28.0	28.0	72.7	4.3	28.7
LDR	Low Density Residential	Other		0.50	0.50	21.0	57.0	57.2	156.6	9.2	58.0
LII	Low Impact Industry	All		0.56	-	-	35.6	44.0	871.5	9.5	-
MC	Major Centre	ACC		0.80	1.80	36.0	180.9	212.0	1,777.7	33.6	64.8
MC	Major Centre	ACF		0.50	-	-	90.7	115.0	1,253.8	14.6	-
MC	Major Centre	HPMC(MCC)		0.80	-	-	145.1	184.0	2,006.1	23.4	-
MC	Major Centre	HPMC(Other)		0.80	-	-	145.1	184.0	2,006.1	23.4	-
MC	Major Centre	MCF3		0.35	-	-	63.5	80.5	877.7	10.2	-
MC	Major Centre	TCMC(TD)		0.73	0.73	21.9	132.1	157.0	1,386.5	24.0	39.4
MC	Major Centre	TCMC(TCS)		0.73	0.73	21.9	132.1	157.0	1,386.5	24.0	39.4
MC	Major Centre	Other		0.80	1.80	18.0	163.0	198.0	1,891.9	28.5	32.4

Figure 2.1 – Extract from Council Planning Scheme – Demand Generation Rates

The above assessment has determined the upper estimate of the equivalent population for the proposed commercial development at 11 Blackhawk Blvd. The broad loading rates from the Planning Scheme has been used for the water and sewer capacity assessment.

3 WATER SUPPLY PLANNING

The proposed development site at 11 Blackhawk Blvd in Thuringowa Central is currently serviced with a potable water supply. Two of the three site frontages to road reserves have existing water mains as follows:

- DN150 PVC water main along the Blackhawk Blvd frontage of the site. This water main extends to the north and under Hervey Range Rd to connect to the existing DN300 AC trunk water main on the northern side of Hervey Ragne Rd. The existing DN300 AC trunk main on Hervey Range Rd extends to the east and connects to the DN375 AC and DN525 AC trunk water mains at the intersection of Hervey Range Rd and Thuringowa Drv.
- DN100 PVC water main along Regiment Ct that is located on the north eastern boundary of the site. This DN100 reticulation water main extends to the east along High Range Drv. This main increases in diameter to be a DN150 AC main at the intersection with Pioneer Drv and continues to the east along High Range Drv. The existing DN150 AC main connect to the existing DN375 AC trunk main on Riverway Drv.
- The existing DN375 AC trunk main on Riverway Drv and DN300 AC water main on Hervey Range Rd are supplied water from the Dougals No 2/3 reservoir site via it's trunk outlet mains.

The High Range Drv frontage of the development site does not have a water main located along it. This is the section of road from the intersection of Regiment Ct to the intersection with Black Hawk Blvd. To ensure the proposed development of the large site at 11 Black Hawk Blvd is able to be serviced with a reticulated water supply a new DN100 PVC water main is required.

A new DN100 PVC water main will need to be constructed along the High Range Drv frontage of the development site. This water main would extend from the end of the existing DN100 water main at the intersection of High Range Drv and Regiment Ct to the west to connect to the existing DN150 PVC main at the intersection of High Range Drv and Black Hawk Blvd over a length of 120 m. This new DN100 PVC main is required to ensure reliability of supply and ensure the flows, pressures and headloss gradients meet TCC standards.

Figure 3.1 below illustrates the existing water mains along with the new DN100 PVC water main that will need to be constructed along the High Range Drv frontage of the site.

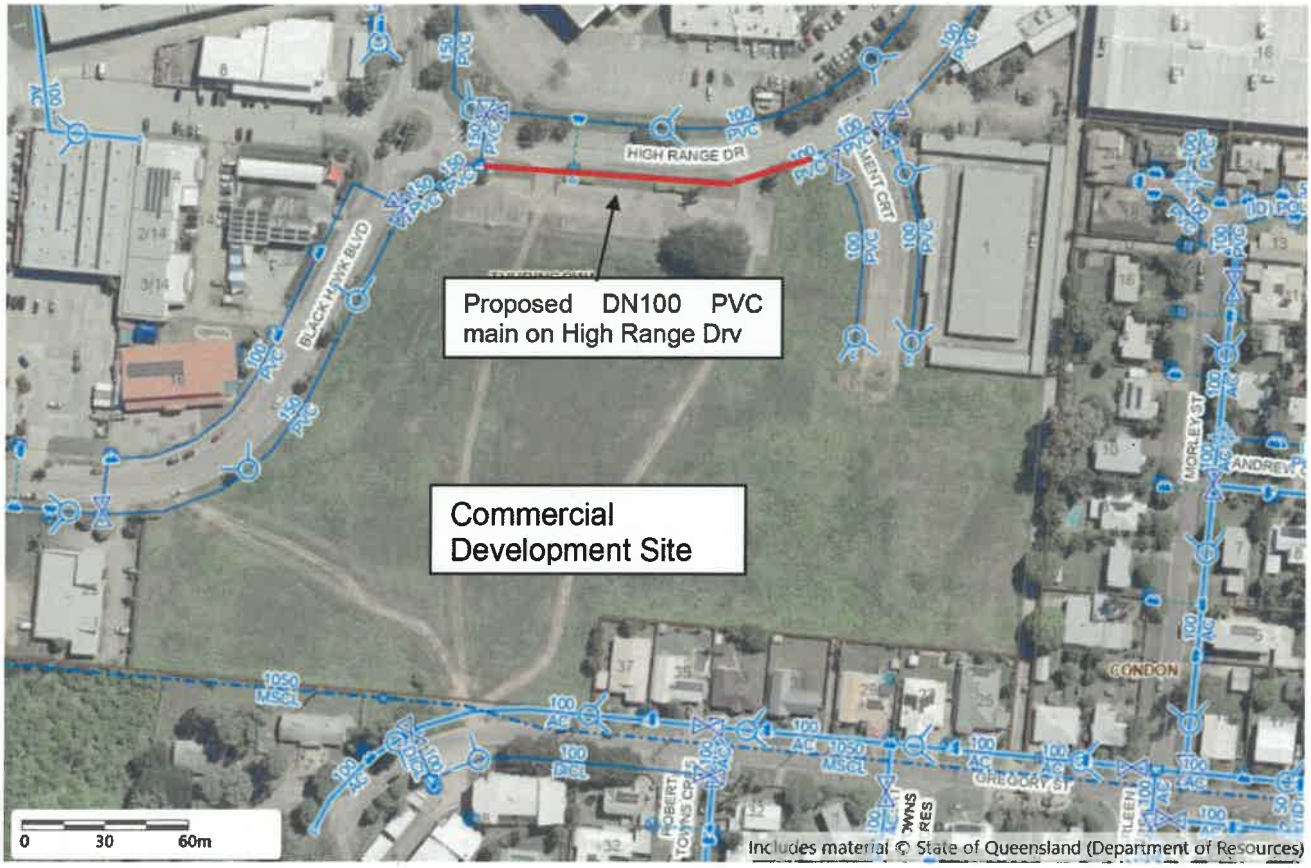


Figure 3.1 – Existing Water Mains Image

The above illustrates the development site is well serviced with a potable water system from existing reticulation and trunk water mains.

To confirm that the existing water system and the proposed DN100 PVC main along the High Range Drv frontage of the development site can adequately supply the proposed commercial development with a reticulated water supply, water network modelling has been undertaken. Details of the water network modelling is provided in the following report sections.

3.1 Water Demand

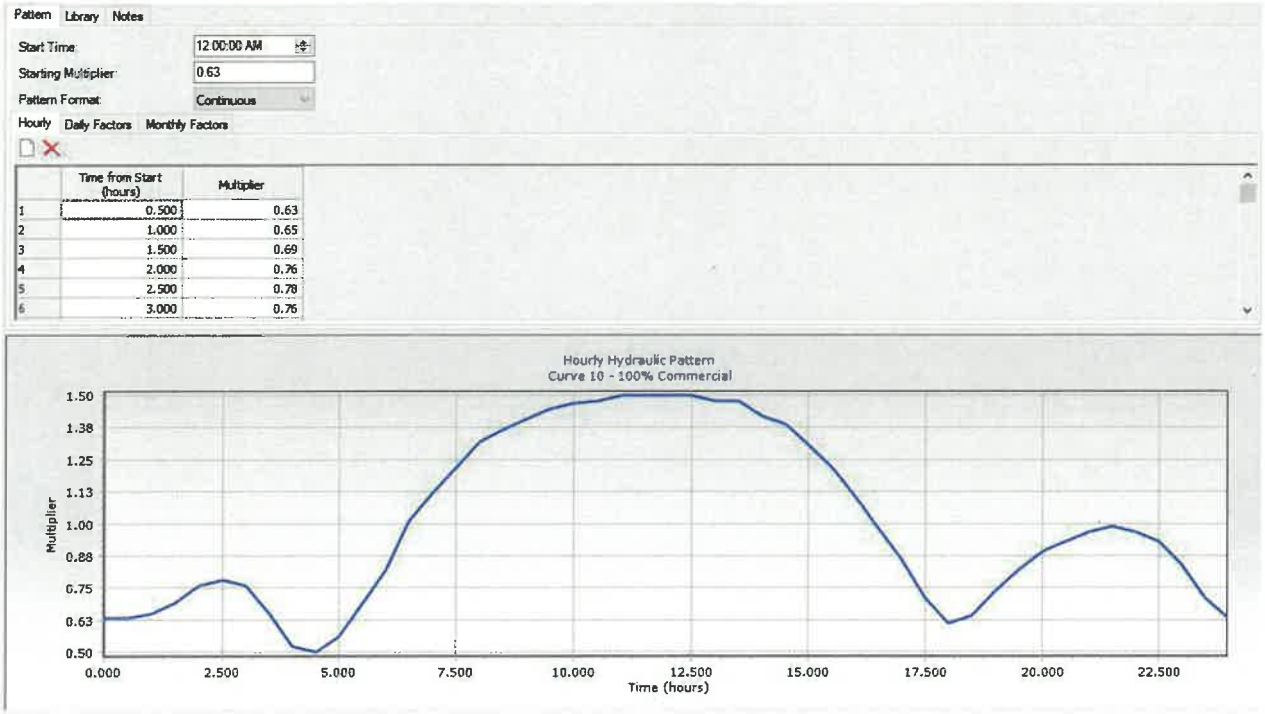
Water demands have been calculated in accordance with Townsville City Council planning scheme and its latest amendments.

The following table provides the water demand parameters for the Townsville Planning Scheme which have been used in the water infrastructure assessment for the 11 Blackhawk Blvd commercial development site.

Table SC6.4.3.21.2 Water supply unit demand parameters

Parameter	Unit Demand	Peaking Factor
Average Day (AD)	600 L/day/EP	
Mean Day Max Month (MDMM)	900 L/day/EP	1.5 AD
Peak Day (PD)	1125 L/day/EP	1.25 MDMM
Peak Hour (PH) (Residential Demands)	0.033 L/s/EP	2.56 PD

Townsville Water also have diurnal water demand patterns that are applied to the various water uses. As the proposed development will be commercial, the commercial demand diurnal pattern will be applied. The commercial demand diurnal pattern has a peaking factor of 1.5, instead of the 2.56 peaking factor provided in the above table for residential water demands. The commercial diurnal pattern is illustrated below.



Based on an equivalent population for the proposed commercial development site of 583.3 EP, the peak water demand for the development is:

= 583.3 EP x 1125 L/day/EP x 1.5 (commercial peaking factor)

= 583.3 x (1125 / (24*3600)) x 1.5

= 11.39 l/s

In addition to the above, as the development site will be commercial a 30 l/s fire flow is required in accordance with Council's design standards. The standards allow for the fire flow to be provided from up to three hydrants. The water network modelling results for the proposed Blackhawk Blvd commercial development site are provided in the following report sections.

3.2 Water Supply Assessment

The proposed commercial development at 11 Blackhawk Blvd could be serviced off the existing DN150 PVC main on the Black Hawk Blvd frontage of the site or off the proposed DN100 PVC water main along the High Range Drv frontage of the site (or both if there are multiple commercial developments undertaken).

The water network modelling has been based on the water demands being supplied off the smaller DN100 PVC water main that is proposed along the High Range Drv frontage of the development site. The performance and capacity of the existing water network to service the proposed commercial development site is as follows:

- Minimum water pressure in the reticulation network around the development site are all above 340 kPa. The water pressure is at the proposed offtake location on the DN100 PVC main on the High Range Drv frontage of the development site is 341 kPa. The lowest water pressure occurs at 6:30PM due to the high residential water demands in the adjacent Kirwan and Thuringowa Central reticulation system.
- The water pressure at 12 noon (concurrent with the peak commercial water demands) is 408 kPa. This achieves the minimum required pressure of 220 kPa.
- The velocity and headloss gradient in the existing DN150 & DN100 PVC water mains that service the development are up to 0.45 m/s and less than 0.003 m/m respectively. These both meet the required Council design standards.
- With the inclusion of the 30 l/s commercial fire flows (ie the TCC design standard for commercial facilities) concurrently with the peak water demands, the water pressure on the frontage of the development site is reduced to 305 kPa at 12 noon and to 260 kPa at 6:30PM. The lowest water pressure occurs at 6:30PM due to the high amount of residential development in the adjacent Kirwan and Thuringowa Central suburbs. Both these water pressures with the concurrent fire flows are above the minimum allowable pressure of 120 kPa.
- The velocity in the existing DN150 and DN100 PVC mains that service the development site are up to 2.96 m/s for the fire flow modelling. This is under the maximum velocity standard of 4.0 m/s for fire flows and meets Council standards.
- It is noted the above water pressures are the residual pressures within the water main and do not specifically account for pressure losses through fire hydrants, standpipes, RPZD's etc.

The assessment illustrates the proposed commercial development at 11 Blackhawk Blvd is able to be serviced with peak hour and fire flows from the existing reticulation water along with the construction of a new DN100 PVC main along the High Range Drv frontage of the development site. Further water modelling results and figures are provided in Appendix B.

It is noted that the fire flow WaterGEMS network modelling is to assess the proposed developments performance against Townsville Council planning standards. Based on the type/classification of the commercial development, the Building Code may require different fire flow and pressure standards, including a fire tank and booster pump system. This assessment has not specifically assessed the

performance against the building code requirements. Additional fire hydrant testing may be required as part of the detailed hydraulic design of the facility.

The plots below (Figure 3.2 & 3.3) from the WaterGems model illustrate the water pressures on the proposed DN100 PVC water main on the High Range Drv frontage of the site.

Figure 3.2 – Commercial Development Peak Hour Demands Curve

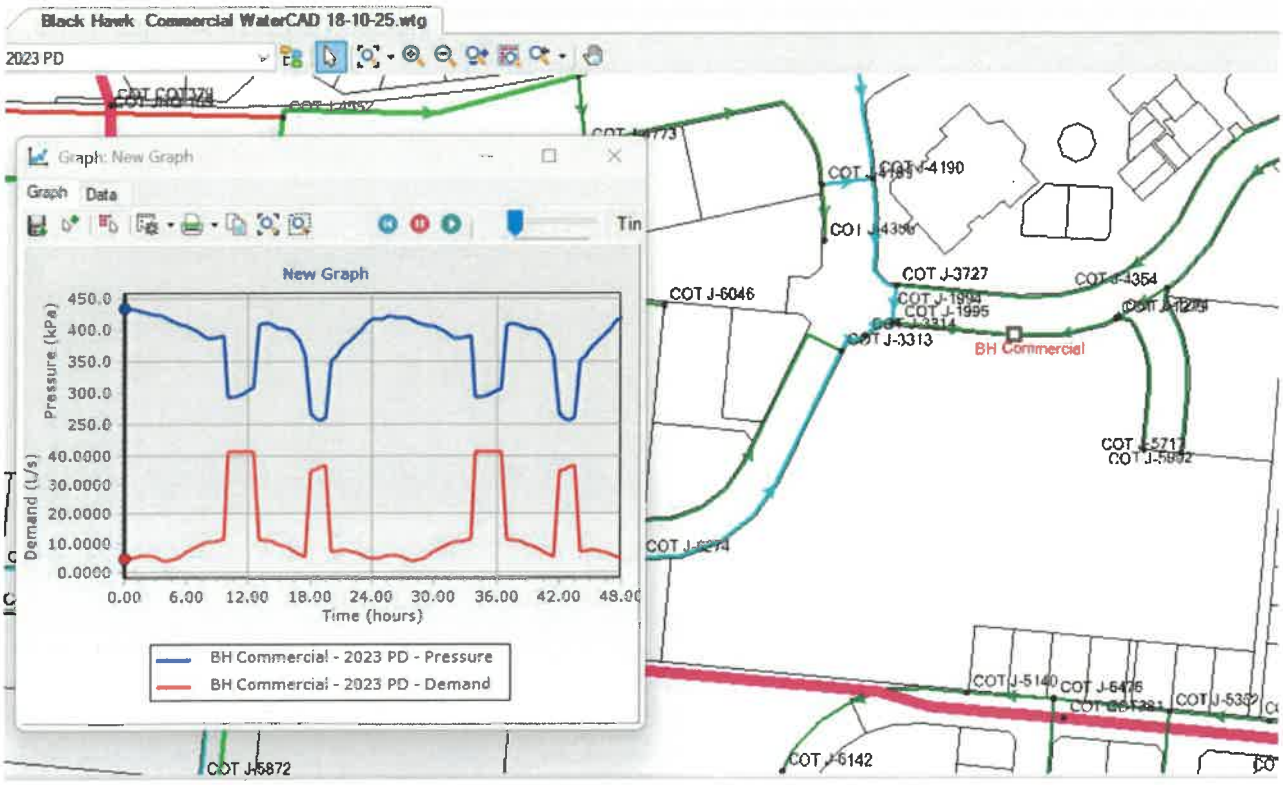


Figure 3.3 – Commercial Development Fire Flow Results Figure

4 SEWAGE SYSTEM PLANNING

The proposed commercial development site at 11 Blackhawk Blvd is currently serviced with a reticulated sewer system as follows:

- A DN150 sewer extends under Black Hawk Blvd into the development site near its western boundary. This sewer line is connected to existing MH 9/K12A.
- A DN225 sewer extends from MH 9/K12A to the north along Black Hawk Blvd to High Range Drv. The DN225 sewer then extends to the east along High Range Drv (along the frontage of the development site) through to MH 4/K12A.
- The DN225 sewer then extends to the south inside the development site and parallel to Regiment Ct and then east to MH 1/K12A that is located to the east of Morely St. A DN300 trunk sewer then extends to the north from MH 1/K12A to existing PS K12 (Morely St).
- Existing PS K12 pumps its sewage via a DN200 AC and DN200 PE sewer pressure main to discharge into existing MH 1/KT1ZQ3C that is located on Riverway Drv.

The figure below from the Council GIS illustrates the existing gravity sewer system that services the proposed commercial development site.

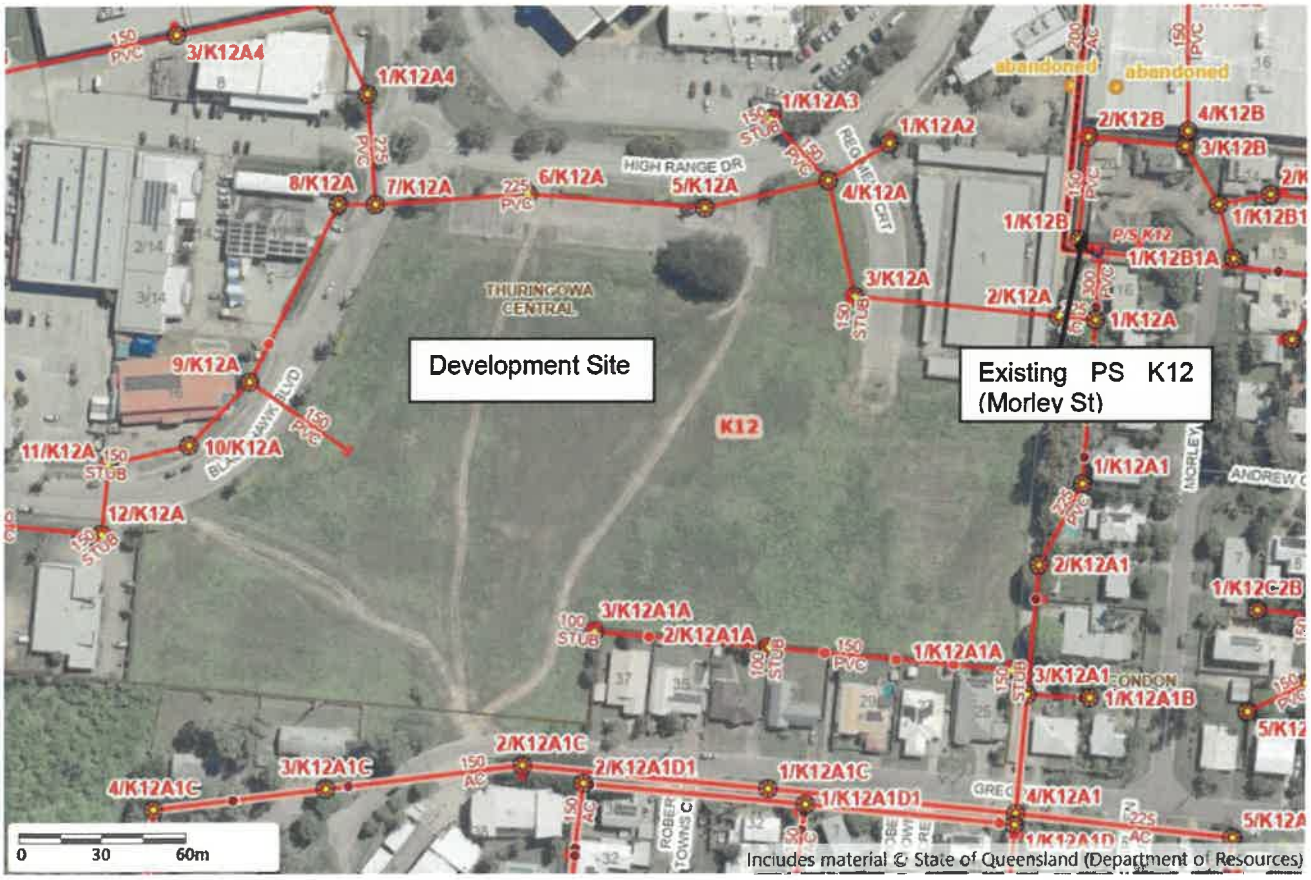


Figure 4.1 - GIS Image of Sewer System

4.1 Sewage Infrastructure Capacity

The capacity of the existing gravity sewer system to cater for the proposed commercial development site on the southern side of High Range Drv has been assessed using the SewerCAD model for Thuringowa.

Figure 4.2 below illustrates the SewerGEMS model with the additional sewage loading from the proposed commercial development added to the existing DN150 gravity sewer that crosses under Black hawk Blvd into the development site.

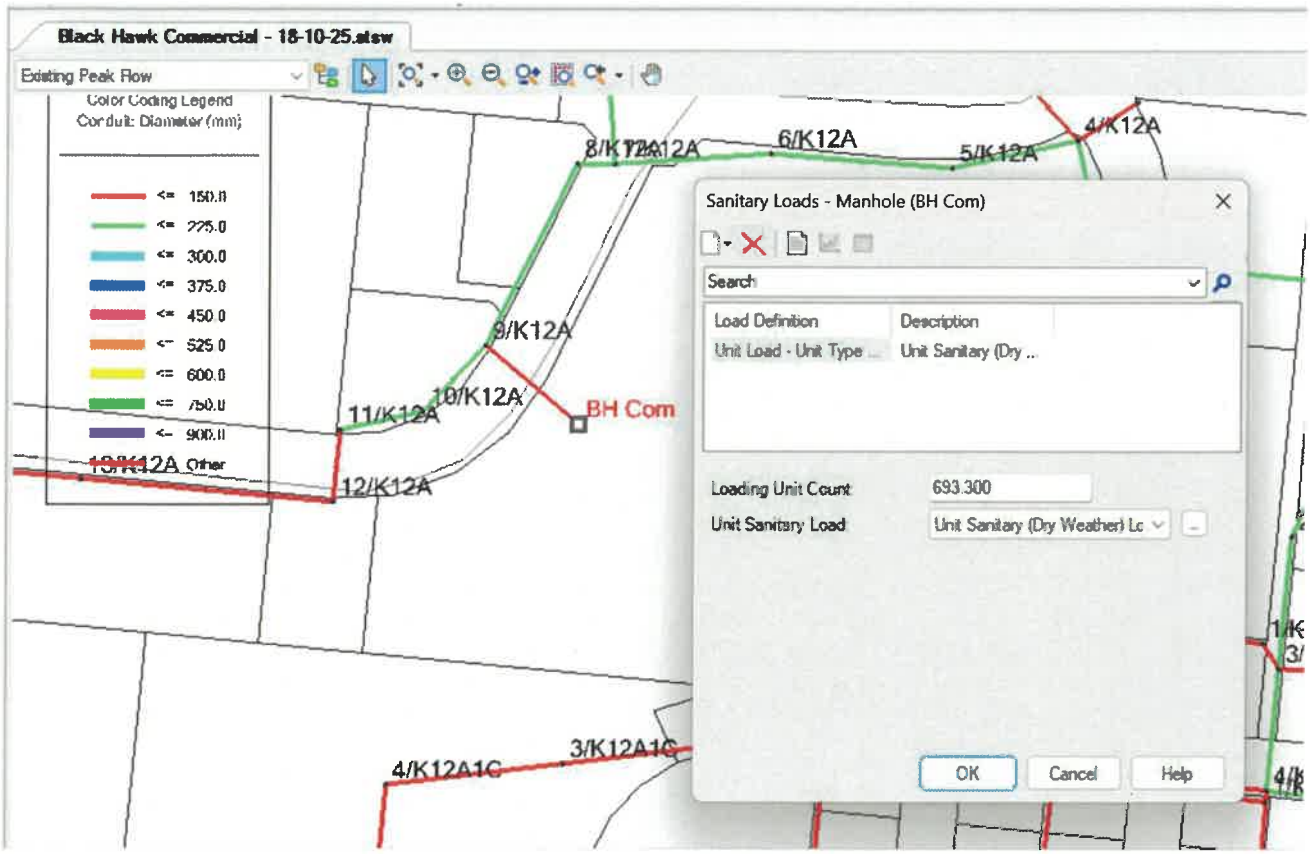


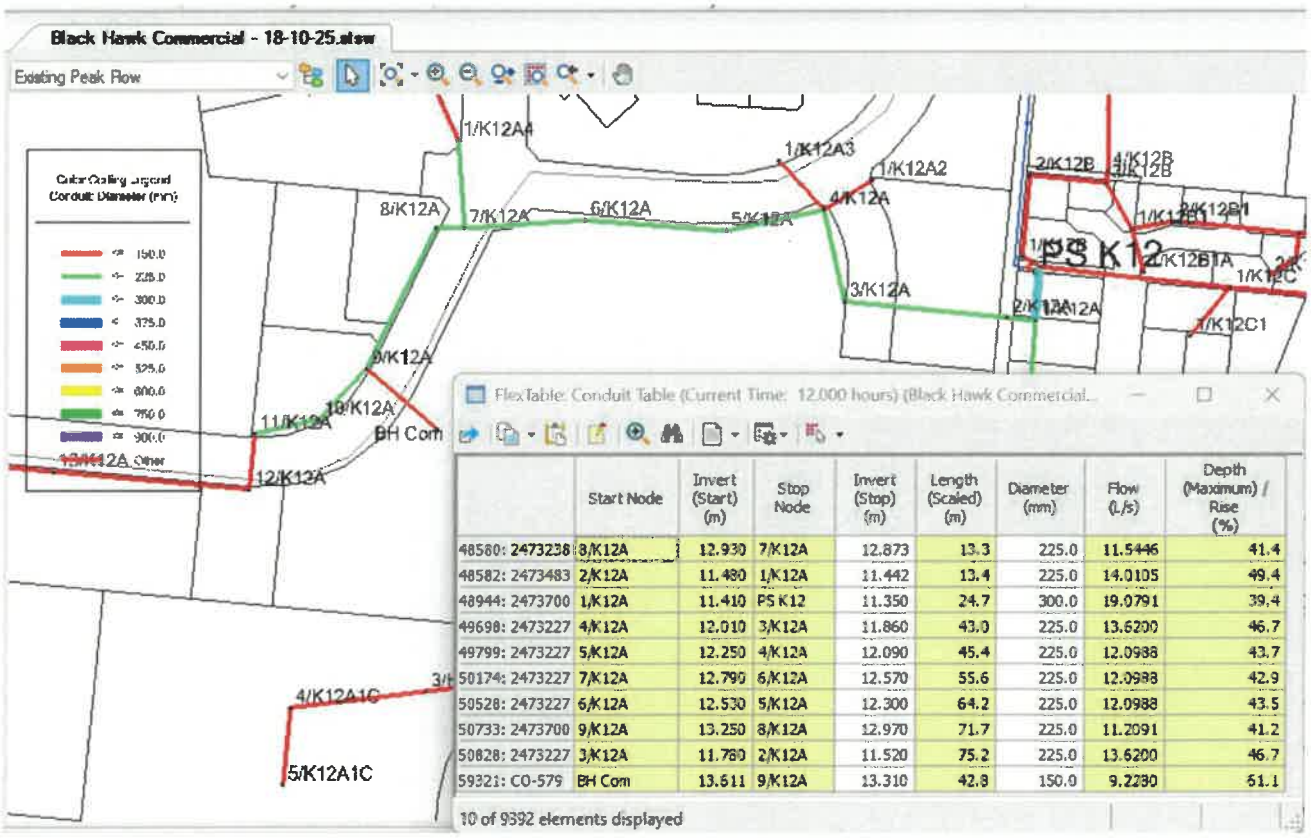
Figure 4.2 – SewerGEMS Model Figure

To assess the capacity of the existing sewer network to service the proposed commercial development, SewerGEMS network modelling has been performed. The modelling results are summarised below and illustrated on the modelling Figures 4.3. A larger version of this figure is provided in Appendix C:

- The initial sewer modelling showed that the existing pumps in PS K12 (Morley St) were not able to pump the peak wet weather flows from its existing catchment along with the increased flows from the proposed commercial development site. The existing large pump was able to discharge 25.2 l/s @ 9.8 m head which was not sufficient.
- To service the upper estimate of the sewage flows from the commercial development site, larger replacement pumps would need to be installed in PS K12. The SewerGEMS modelling has shown the revised pump duty needed to pump the peak weather flows including the flows from the commercial development site is 29.6 l/s @ 19.9 m. This is a relatively small increase in the duty of the existing large sewage pump. This replacement pump could be installed as part of Council's sewage pump replacement program when the pumps reach the end of their effective life or when the commercial development is undertaken.
- The existing DN150 sewer from the development site to MH 9/K12A flow up to 61% full. This is based on the full EP and sewage flows from the development site being directed to this sewer line. This meets the CTM Code standards of flowing less than 75% full.

- The existing DN225 gravity sewer from MH 9/K12A to MH 4/K12A flows up to 44% full. This is the DN225 gravity sewer along Black Hawk Bvd and High Range Dr that services the proposed commercial development site.
- The existing DN225 sewer from MH 4/K12A to MH 1/K12A flows up to 49% full.
- The final section of DN300 trunk sewer from MH 1/K12A to PS K12 flows up to 39% full.
- All the gravity sewers flow less than the 75% full requirement from the CTM Code and therefore have sufficient capacity for the proposed development sewer flows.

The following Figure 4.3 illustrates the depth of flow in the existing gravity sewer system that services the proposed development site at 11 Blackhawk Blvd.



	Start Node	Invert (Start) (m)	Stop Node	Invert (Stop) (m)	Length (Scaled) (m)	Diameter (mm)	Flow (L/s)	Depth (Maximum) / Rise (%)
48580: 2473238	8/K12A	12.930	7/K12A	12.873	13.3	225.0	11.5446	41.4
48582: 2473483	2/K12A	11.480	1/K12A	11.442	13.4	225.0	14.0105	49.4
48944: 2473700	1/K12A	11.410	PS K12	11.350	24.7	300.0	19.0791	39.4
49698: 2473227	4/K12A	12.010	3/K12A	11.860	43.0	225.0	13.6200	46.7
49799: 2473227	5/K12A	12.250	4/K12A	12.090	45.4	225.0	12.0988	43.7
50174: 2473227	7/K12A	12.790	6/K12A	12.570	55.6	225.0	12.0988	42.9
50528: 2473227	6/K12A	12.530	5/K12A	12.300	64.2	225.0	12.0988	43.5
50733: 2473700	9/K12A	13.250	8/K12A	12.970	71.7	225.0	11.2091	41.2
50828: 2473227	3/K12A	11.780	2/K12A	11.520	75.2	225.0	13.6200	46.7
59321: CO-579	BH Com	13.611	9/K12A	13.310	42.8	150.0	9.2280	61.1

Figure 4.3 – SewerGEMS Modelling Results

The sewer system assessment therefore shows the existing gravity sewer in the catchment of PS K12 in Thuringowa Central is able to cater for the additional sewage loading from the proposed commercial development at 11 Blackhawk Blvd. The only potential upgrade works would be the replacement of the existing large pump in PS K12 (Morely St) with the dependent on the actual type and size of the commercial development that occurs at the site in the future. The installation of the larger pump in PS K12 could be undertaken by TCC as part of the future pump replacement program once the existing pump reaches the end of its effective life.

APPENDIX A
COMMERCIAL DEVELOPMENT PLANS

Location

THURINGOWA CENTRAL

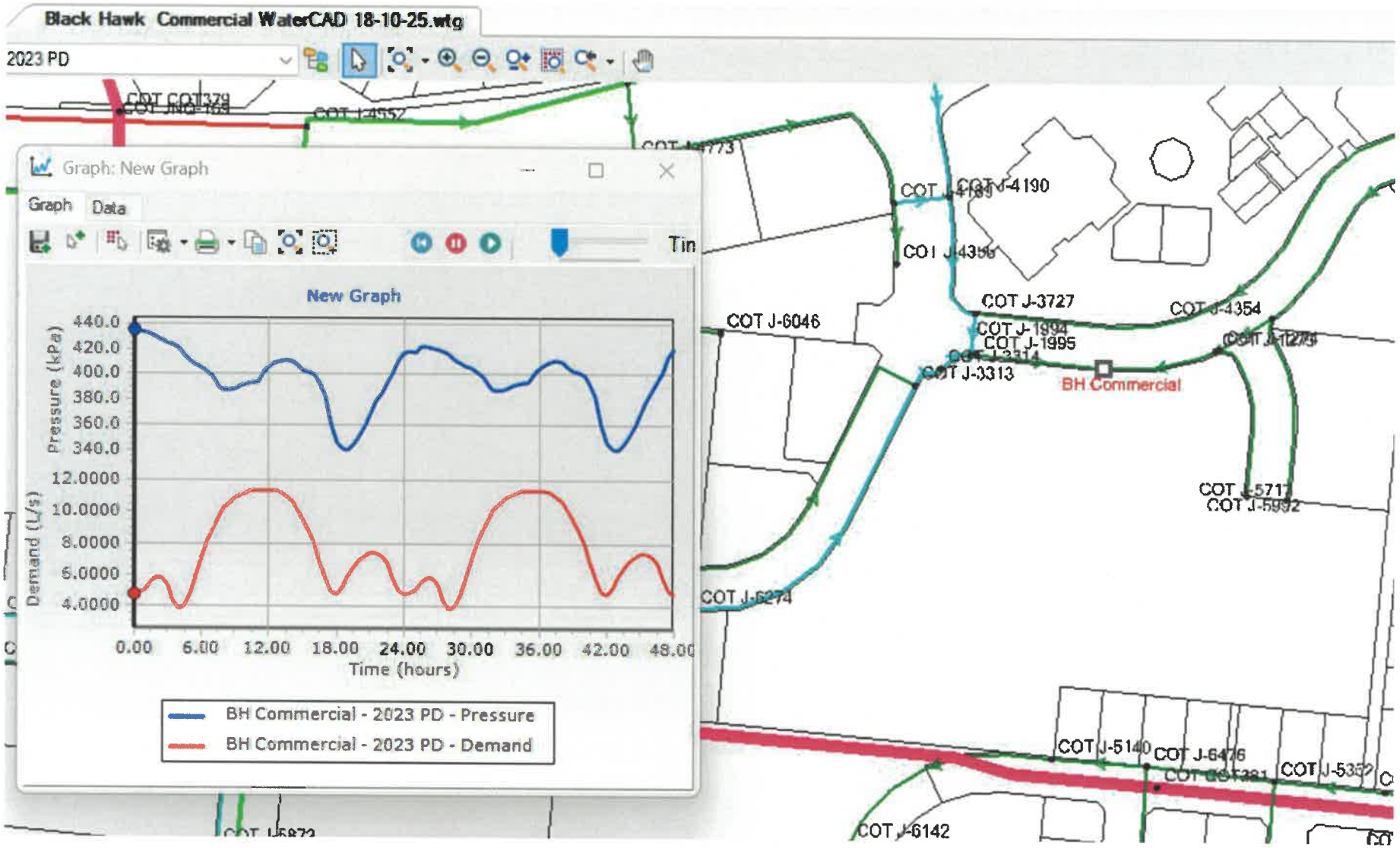
The site is located in Thuringowa Central, one of Townsville's key suburban hubs and a major growth corridor within the wider Townsville Region.

Positioned approximately 13 kilometres west of the Townsville CBD, the site benefits from excellent connectivity via major arterial roads including Thuringowa Drive and Dalrymple Road, linking it efficiently to both the northern and southern suburbs as well as industrial and port precincts.

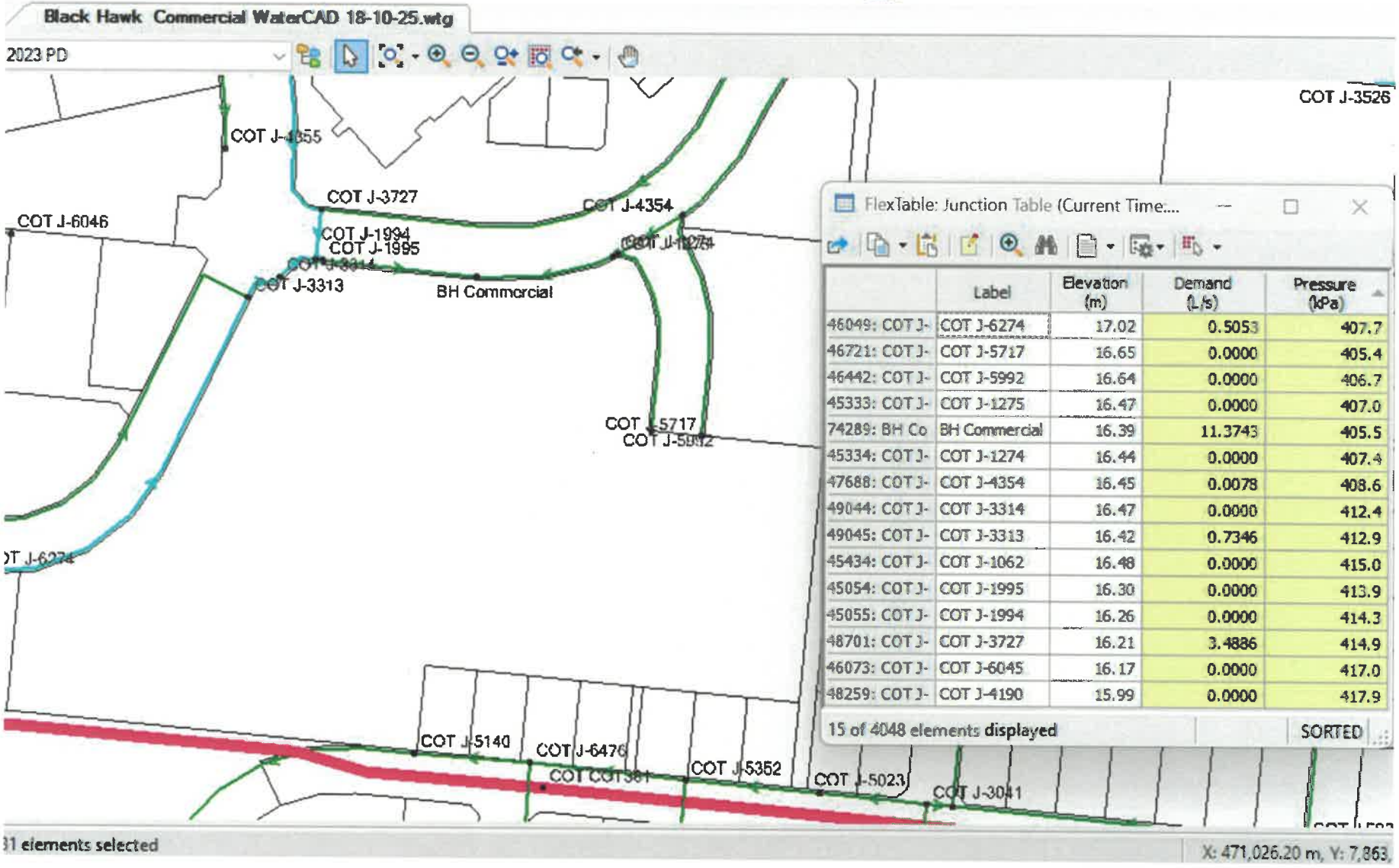
Thuringowa Central is a highly established precinct with strong infrastructure. The area is home to Willows Shopping Centre, Riverway precinct, schools, medical services and sports facilities.

With its central location, established amenities and strong growth outlook, 11 Black Hawk Boulevard, Thuringowa Central, presents a highly strategic opportunity for businesses seeking to capitalise on Townsville's expanding market.

APPENDIX B
WATER MODELLING FIGURES & RESULTS

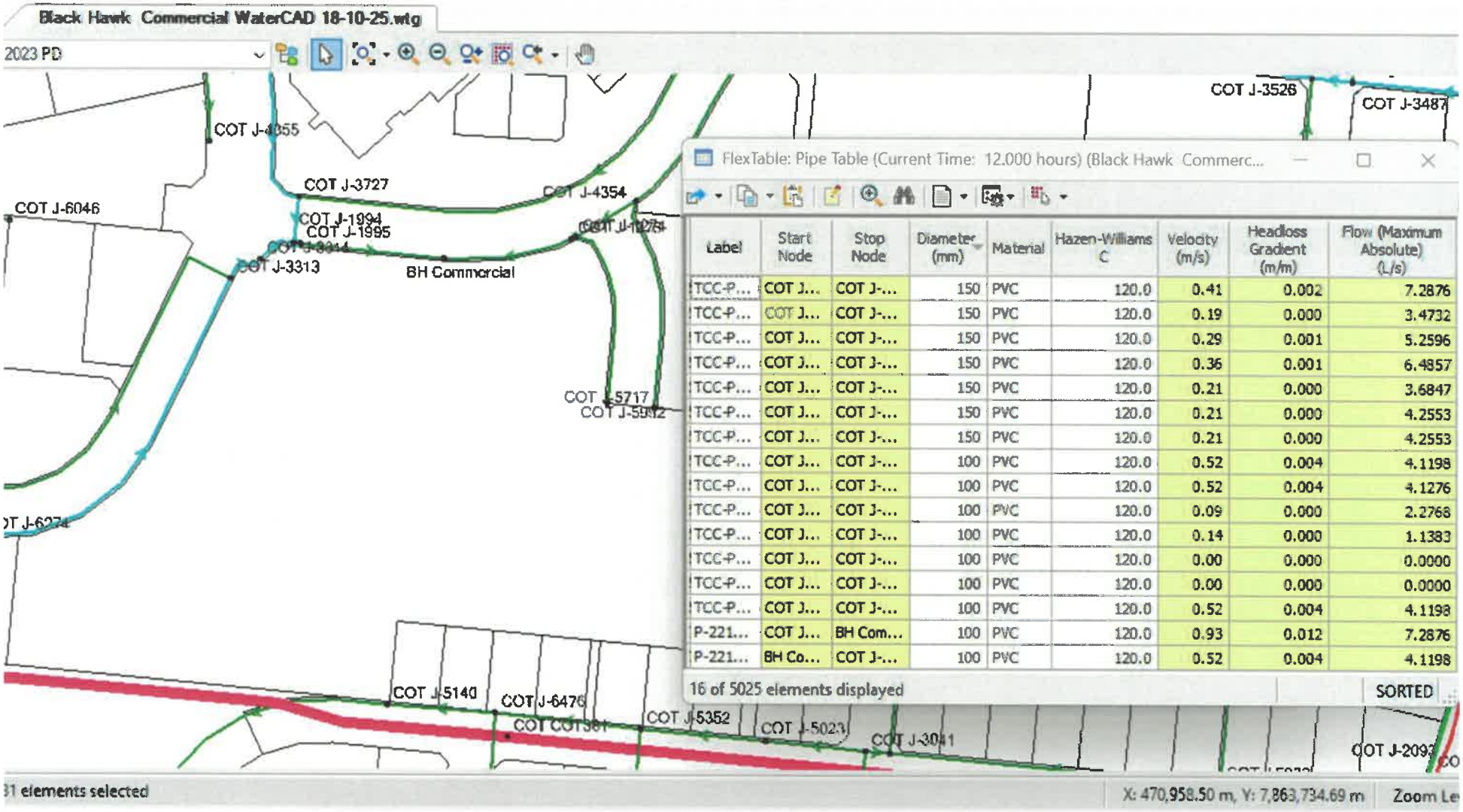


WATERGEMS FIGURE



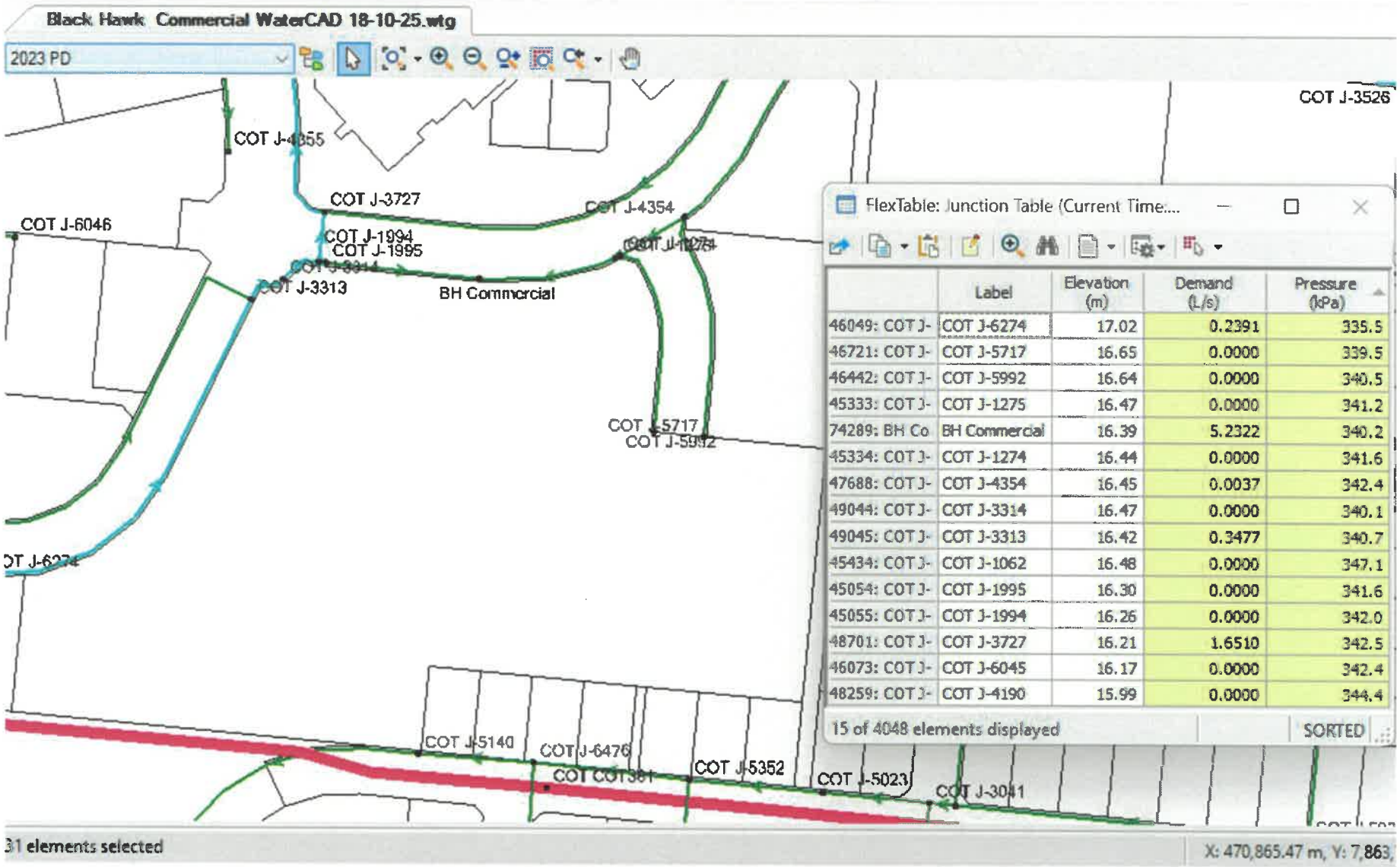
	Label	Elevation (m)	Demand (L/s)	Pressure (kPa)
46049: COT J-	COT J-6274	17.02	0.5053	407.7
46721: COT J-	COT J-5717	16.65	0.0000	405.4
46442: COT J-	COT J-5992	16.64	0.0000	406.7
45333: COT J-	COT J-1275	16.47	0.0000	407.0
74289: BH Co	BH Commercial	16.39	11.3743	405.5
45334: COT J-	COT J-1274	16.44	0.0000	407.4
47688: COT J-	COT J-4354	16.45	0.0078	408.6
49044: COT J-	COT J-3314	16.47	0.0000	412.4
49045: COT J-	COT J-3313	16.42	0.7346	412.9
45434: COT J-	COT J-1062	16.48	0.0000	415.0
45054: COT J-	COT J-1995	16.30	0.0000	413.9
45055: COT J-	COT J-1994	16.26	0.0000	414.3
48701: COT J-	COT J-3727	16.21	3.4886	414.9
46073: COT J-	COT J-6045	16.17	0.0000	417.0
48259: COT J-	COT J-4190	15.99	0.0000	417.9

PEAK HOUR ASSESSMENT – NODES (12 NOON)

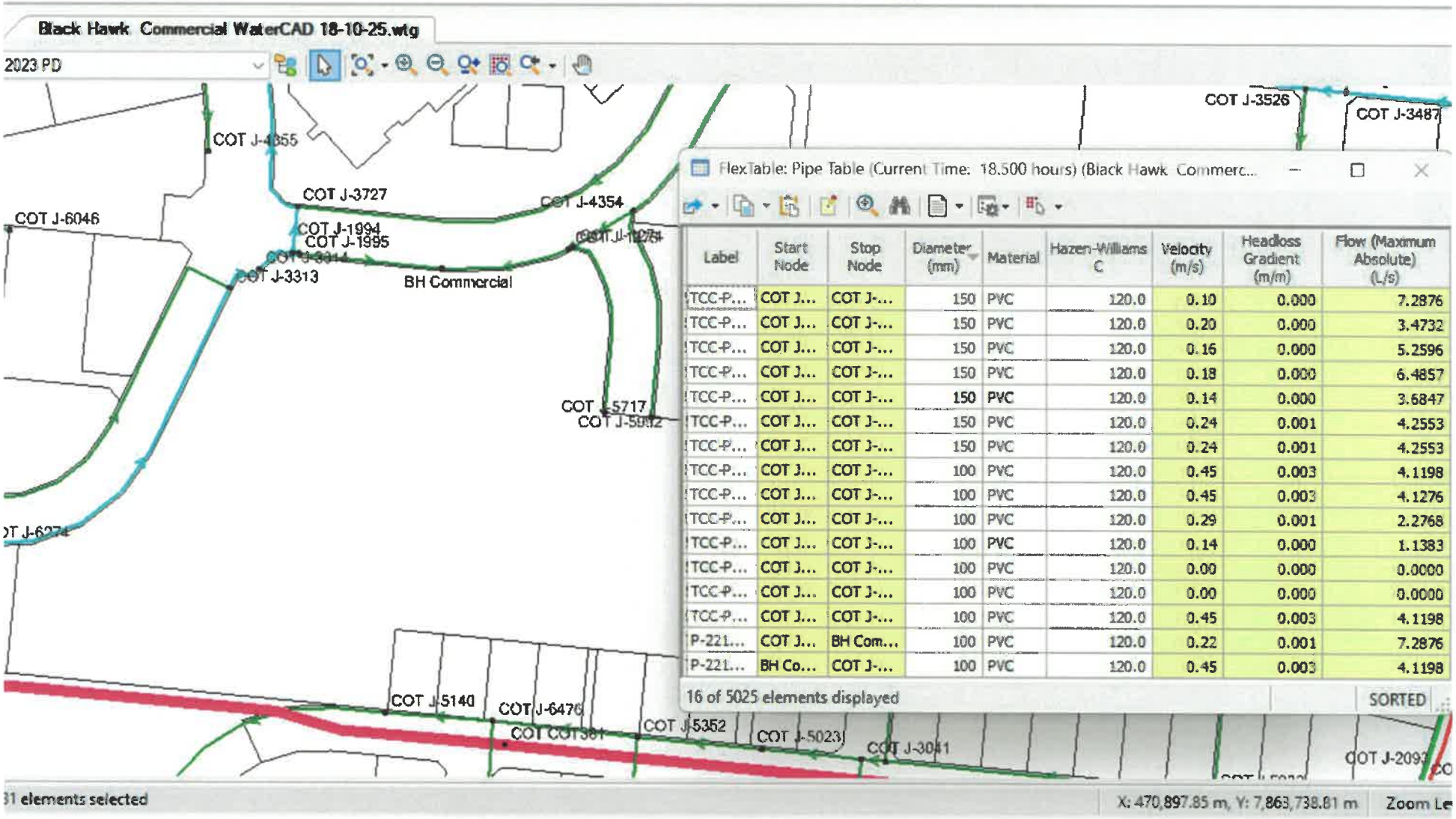


Label	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Velocity (m/s)	Headloss Gradient (m/m)	Flow (Maximum Absolute) (L/s)
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.41	0.002	7.2876
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.19	0.000	3.4732
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.29	0.001	5.2596
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.36	0.001	6.4857
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.21	0.000	3.6847
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.21	0.000	4.2553
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.21	0.000	4.2553
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.52	0.004	4.1198
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.52	0.004	4.1276
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.09	0.000	2.2768
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.14	0.000	1.1383
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.52	0.004	4.1198
P-221...	COT J...	BH Com...	100	PVC	120.0	0.93	0.012	7.2876
P-221...	BH Co...	COT J-...	100	PVC	120.0	0.52	0.004	4.1198

PEAK HOUR ASSESSMENT – PIPES (12 NOON)

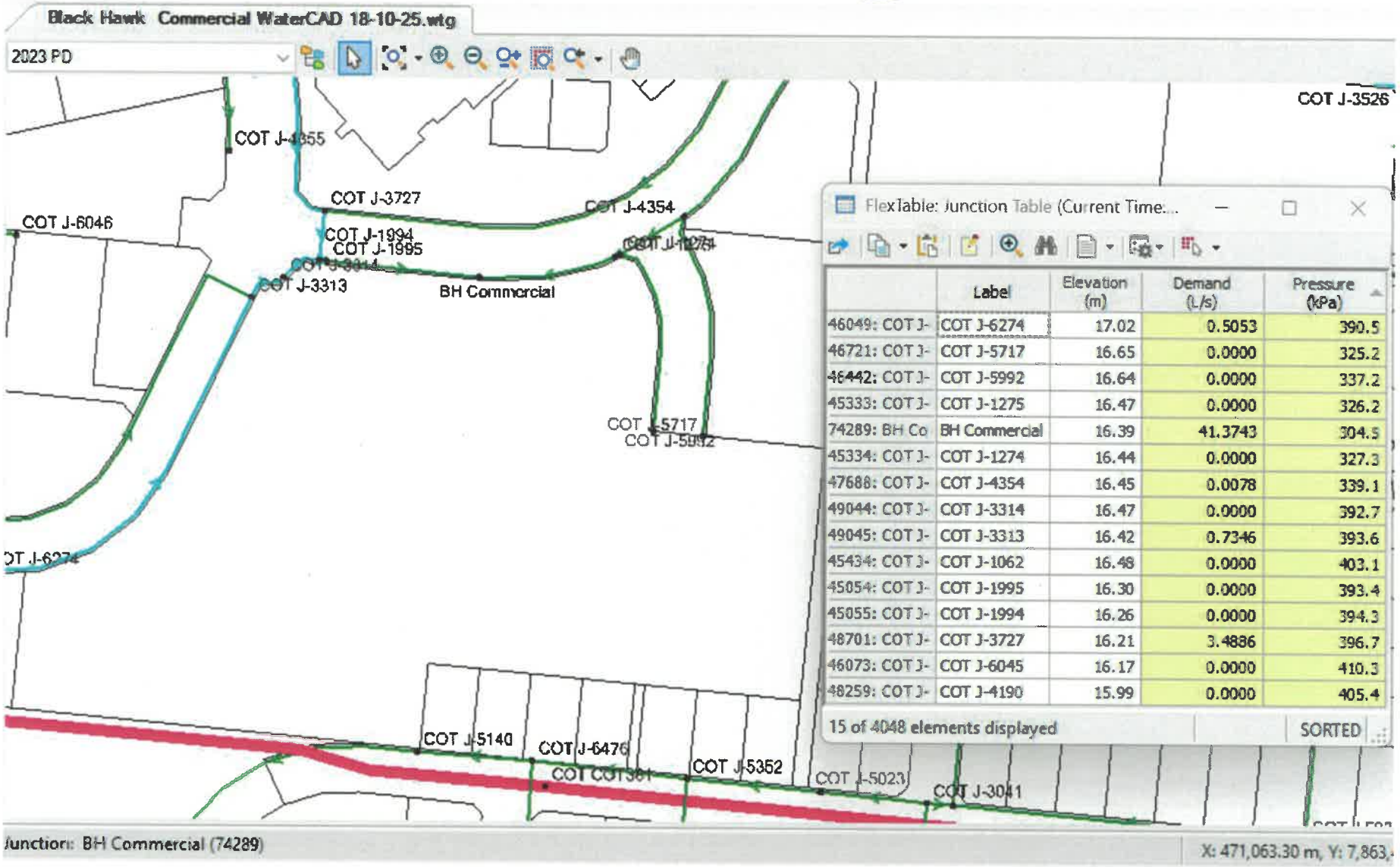


PEAK HOUR ASSESSMENT – NODES (6:30PM)

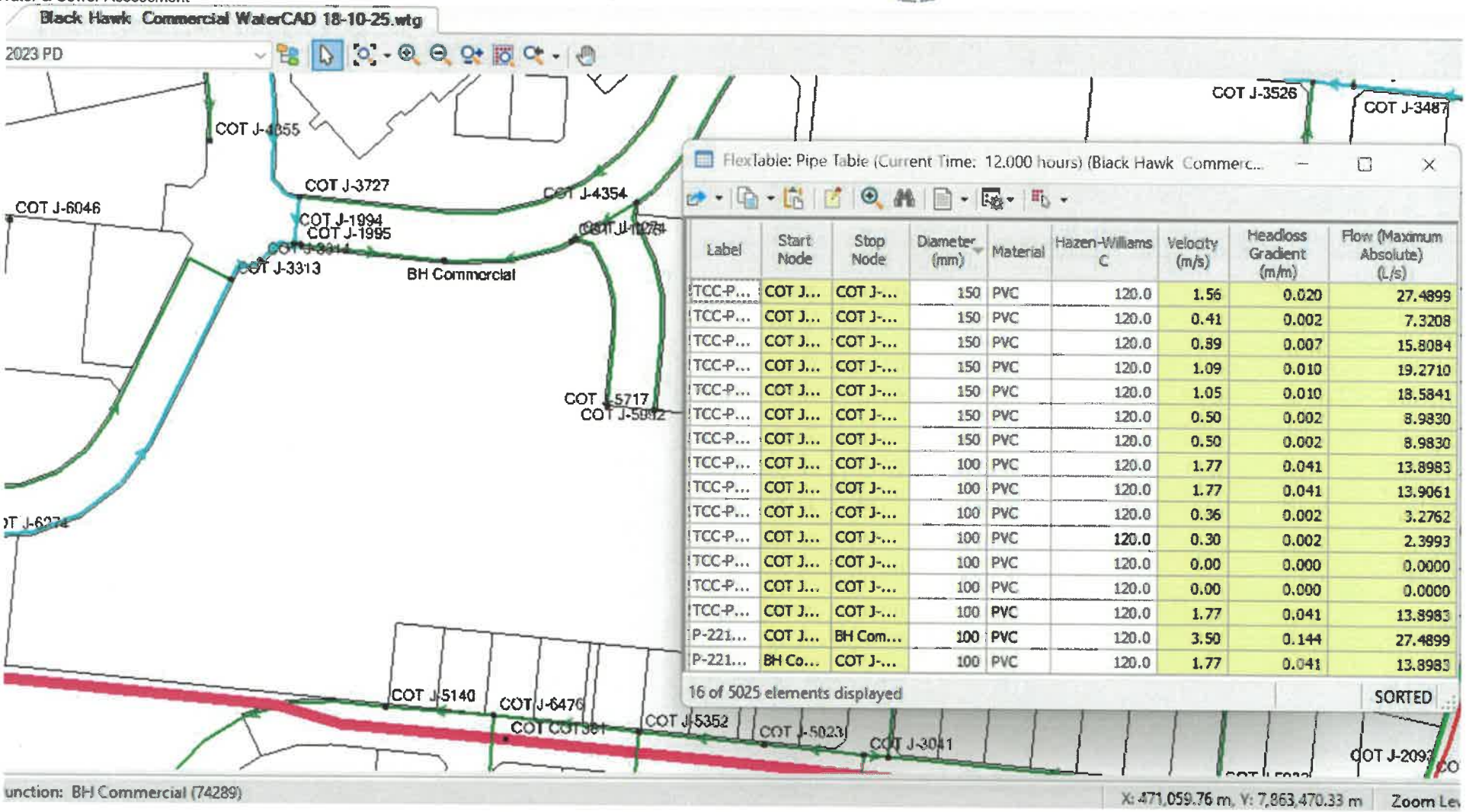


Label	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Velocity (m/s)	Headloss Gradient (m/m)	Flow (Maximum Absolute) (L/s)
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.10	0.000	7.2876
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.20	0.000	3.4732
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.16	0.000	5.2596
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.18	0.000	6.4857
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.14	0.000	3.6847
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.24	0.001	4.2553
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.24	0.001	4.2553
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.45	0.003	4.1198
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.45	0.003	4.1276
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.29	0.001	2.2768
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.14	0.000	1.1383
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.45	0.003	4.1198
P-221...	COT J...	BH Com...	100	PVC	120.0	0.22	0.001	7.2876
P-221...	BH Co...	COT J-...	100	PVC	120.0	0.45	0.003	4.1198

PEAK HOUR ASSESSMENT – PIPES (6:30PM)

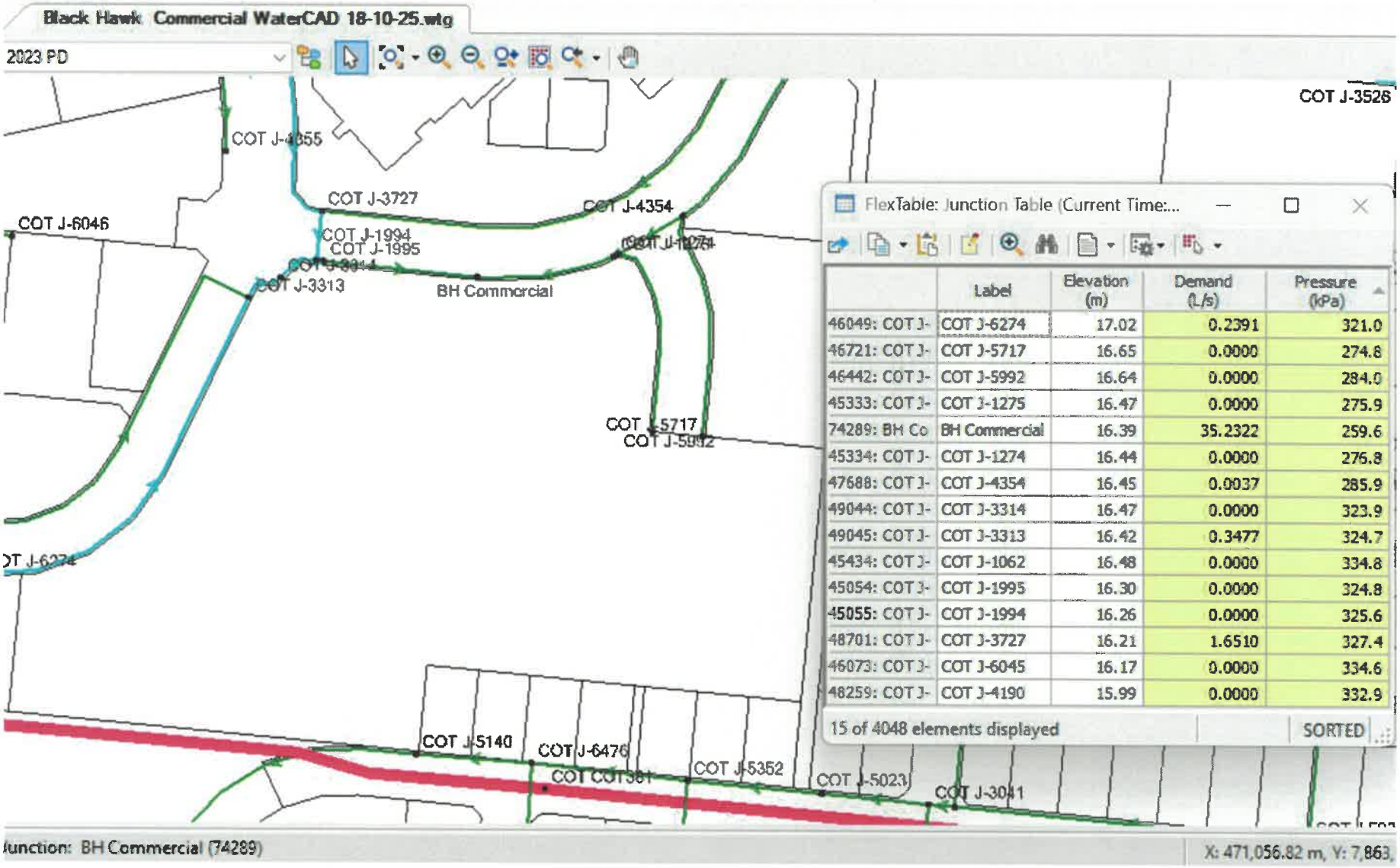


COMMERCIAL FIRE FLOW ASSESSMENT – NODES (12 NOON)

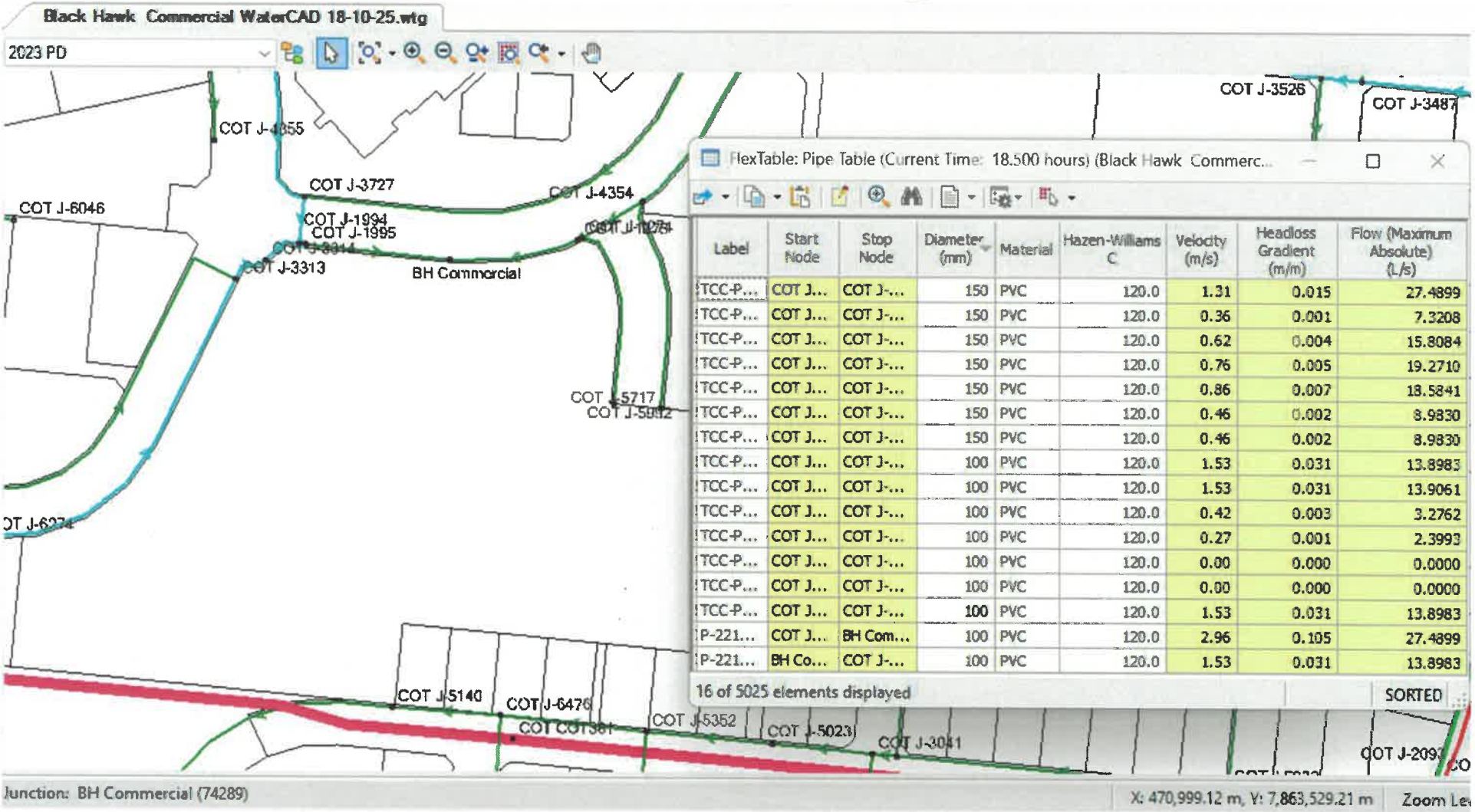


Label	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Velocity (m/s)	Headloss Gradient (m/m)	Flow (Maximum Absolute) (L/s)
TCC-P...	COT J...	COT J-...	150	PVC	120.0	1.56	0.020	27.4899
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.41	0.002	7.3208
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.89	0.007	15.8084
TCC-P...	COT J...	COT J-...	150	PVC	120.0	1.09	0.010	19.2710
TCC-P...	COT J...	COT J-...	150	PVC	120.0	1.05	0.010	18.5841
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.50	0.002	8.9830
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.50	0.002	8.9830
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.77	0.041	13.8983
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.77	0.041	13.9061
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.36	0.002	3.2762
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.30	0.002	2.3993
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.77	0.041	13.8983
P-221...	COT J...	BH Com...	100	PVC	120.0	3.50	0.144	27.4899
P-221...	BH Co...	COT J-...	100	PVC	120.0	1.77	0.041	13.8983

COMMERCIAL FIRE FLOW ASSESSMENT – PIPES (12 NOON)



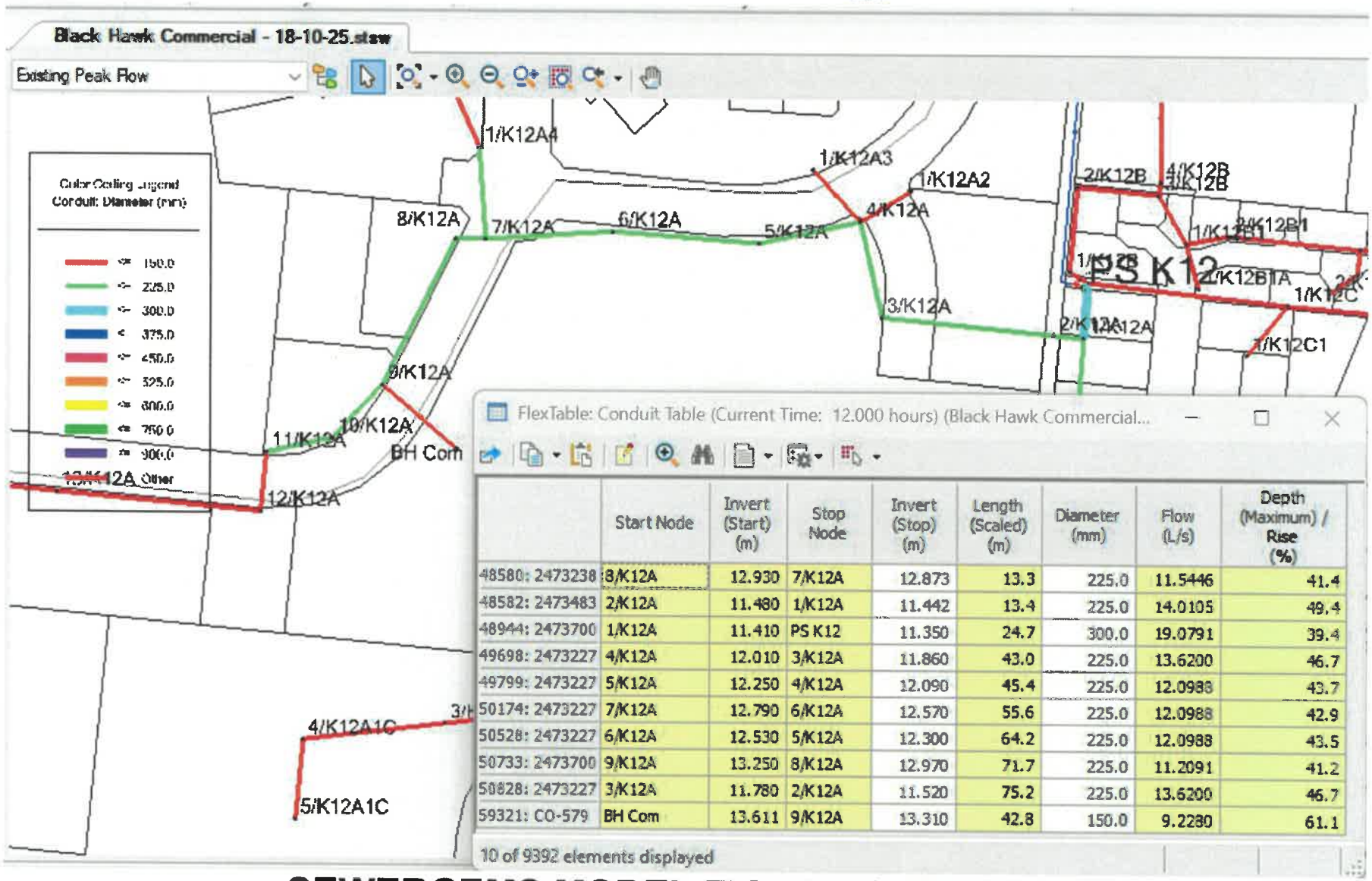
COMMERCIAL FIRE FLOW ASSESSMENT – NODES (6:30PM)



Label	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Velocity (m/s)	Headloss Gradient (m/m)	Flow (Maximum Absolute) (L/s)
TCC-P...	COT J...	COT J-...	150	PVC	120.0	1.31	0.015	27.4899
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.36	0.001	7.3208
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.62	0.004	15.8084
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.76	0.005	19.2710
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.86	0.007	18.5841
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.46	0.002	8.9830
TCC-P...	COT J...	COT J-...	150	PVC	120.0	0.46	0.002	8.9830
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.53	0.031	13.8983
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.53	0.031	13.9061
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.42	0.003	3.2762
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.27	0.001	2.3993
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	0.00	0.000	0.0000
TCC-P...	COT J...	COT J-...	100	PVC	120.0	1.53	0.031	13.8983
P-221...	COT J...	BH Com...	100	PVC	120.0	2.96	0.105	27.4899
P-221...	BH Co...	COT J-...	100	PVC	120.0	1.53	0.031	13.8983

COMMERCIAL FIRE FLOW ASSESSMENT – PIPES (6:30PM)

APPENDIX C
SEWER MODELLING FIGURES & RESULTS



	Start Node	Invert (Start) (m)	Stop Node	Invert (Stop) (m)	Length (Scaled) (m)	Diameter (mm)	Flow (L/s)	Depth (Maximum) / Rise (%)
48580: 2473238	8/K12A	12.930	7/K12A	12.873	13.3	225.0	11.5446	41.4
48582: 2473483	2/K12A	11.480	1/K12A	11.442	13.4	225.0	14.0105	49.4
48944: 2473700	1/K12A	11.410	PS K12	11.350	24.7	300.0	19.0791	39.4
49698: 2473227	4/K12A	12.010	3/K12A	11.860	43.0	225.0	13.6200	46.7
49799: 2473227	5/K12A	12.250	4/K12A	12.090	45.4	225.0	12.0988	43.7
50174: 2473227	7/K12A	12.790	6/K12A	12.570	55.6	225.0	12.0988	42.9
50528: 2473227	6/K12A	12.530	5/K12A	12.300	64.2	225.0	12.0988	43.5
50733: 2473700	9/K12A	13.250	8/K12A	12.970	71.7	225.0	11.2091	41.2
50828: 2473227	3/K12A	11.780	2/K12A	11.520	75.2	225.0	13.6200	46.7
59321: CO-579	BH Com	13.611	9/K12A	13.310	42.8	150.0	9.2230	61.1

SEWERGEMS MODEL FIGURE & RESULTS

11 Black Hawk Boulevard
Traffic Impact Assessment

Stateland Pty Ltd

P004113-R01

Rev: B

31 October 2025

Premise

PART OF THE Amey GROUP

Document Reference: P004113-R01 Rev B

Document Authorisation					
Revision	**Revision Date**	**Proposal Details**			
B	31/10/2025	For submission			
Prepared by		**Reviewed by**		**Authorised by**	
Prineth Fernando		Chris Marston		Chris Marston	

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1. INTRODUCTION

Premise Australia Pty Ltd (Premise) has been engaged by Stateland Pty Ltd (Stateland) to undertake a Traffic Impact Assessment (TIA) for the development site located at 11 Black Hawk Boulevard, Thuringowa Central. This TIA report will accompany an application for a Material Change of Use - Variation Request (MCU) to be lodged with Townsville City Council (TCC). The TIA report is prepared in accordance with Townsville City Plan SC6.4.5.2 Traffic Impact Assessment.

1.1 Background

The development site is currently split-zoned, with the portion of the site along the road frontage zoned as 'major centre' and remainder of the site zoned as 'medium density residential' in the Townsville City Plan. It is understood that Stateland are intending to lodge an MCU application with TCC to seek approval to consolidate the site to introduce specific uses that would be code assessable across the entire site.

1.2 Scope and Study Area

The subject site is described as Lot 10 SP 177384 and is bounded by Black Hawk Boulevard to the west, High Range Drive to the north and residential properties to the east and south. The study area consists of the site frontages on Black Hawk Boulevard and High Range Drive and the five (5) intersections shown in Figure 1.

In accordance with the Townsville City Plan SC6.4.5.2 Traffic Impact Assessment, the impact assessment period is 10 years after the opening of the final stage of the development. It is assumed that the development will be completed in 2028, resulting in a design year of 2038.

Figure 1: Location of the site and the surrounding intersections (Source: Queensland Globe)

1.3 Pre-lodgement Meeting Notes

At a pre-lodgement meeting held on 26 August 2025, TCC's executive planning team requested an assessment of the development traffic impacts on the surrounding road network. The pre-lodgement meeting minutes, PLM25/0155, is enclosed in Appendix A.

The key discussion points related to the transport network is summarised below.

- The southern boundary of the subject site abuts a residential road, Gregory Street. Industrial access to the site via Gregory Street will not be supported by TCC.
- Townsville City Plan's Thuringowa Central strategy plan identifies a pedestrian linkage through the eastern proportion of the site into the broader residential area with accessibility to the site and surrounding area easily able to occur by walking, cycling and public transport. It is requested that the development provide this linkage. The envisaged pedestrian linkage is shown in Figure 3.5 of the Thuringowa Central strategy plan in PLM25/0155, enclosed in Appendix A.

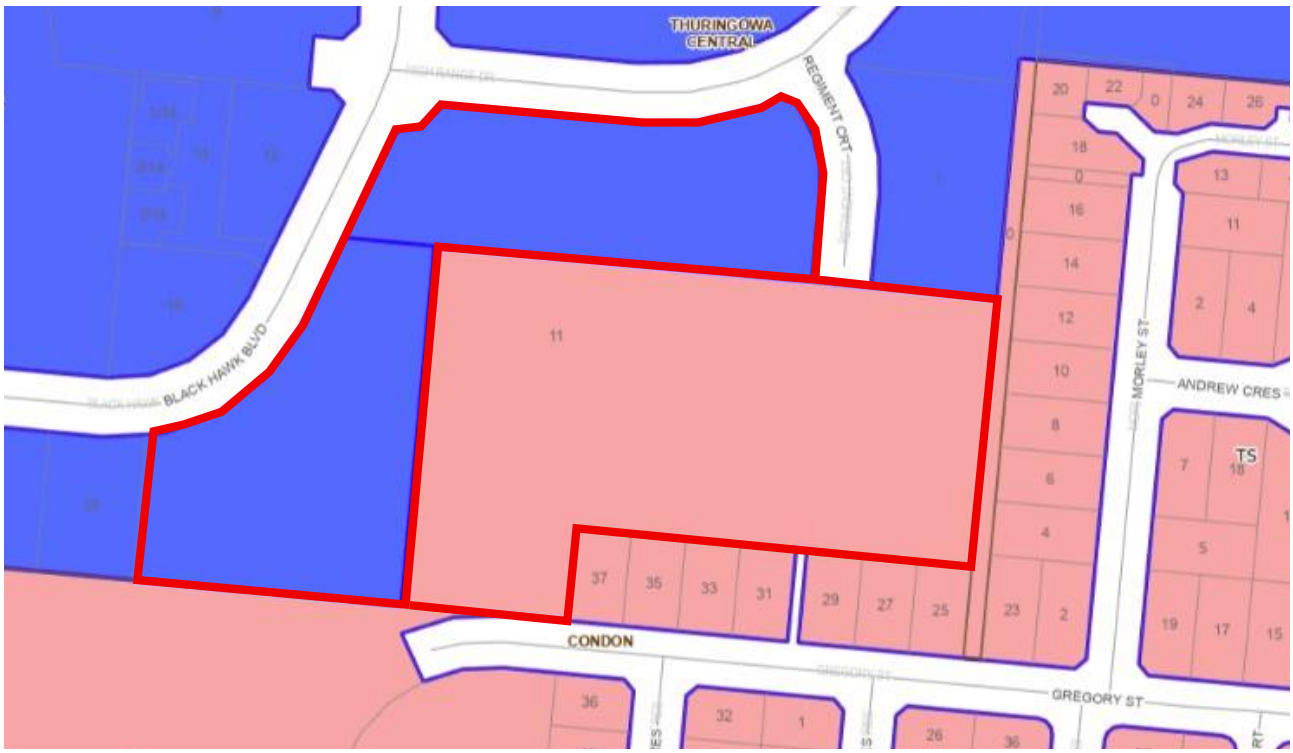
2. EXISTING CONDITIONS

2.1 Land Use and Zoning

The subject site is currently vacant with no prior buildings erected on it. A private carpark is located on the northern boundary of the site. The carpark consists of approximately 63 car parking bay and is serviced by two (2) accesses on High Range Drive.

As shown in Figure 2, the site is split-zoned. The portion of the site shown in blue is zoned as 'major centre' and the portion of the site shown in red is zoned as 'medium density residential' in the Townsville City Plan.

Figure 2: Land zoning (Source: TownsvilleMAPS – Townsville City Plan)



2.2 Adjacent Land Uses / Approvals

As illustrated in Figure 2, the land uses to the north and west of the subject site are zoned as 'major centre' and consists of a childcare centre, a car wash, a health and fitness centre, a cinema and a café. Traffic generated by these land uses access wider road network via the three (3) state-controlled road (SCR) intersections shown in Figure 1.

The land uses to the south and east of the subject site are zoned as 'medium density residential' and consists of residential dwellings. Traffic generated by these dwellings access the wider road network via the Riverway Drive / Gregory Street priority-controlled intersection.

A Ministerial Infrastructure Designation for social and affordable housing (MID-0325-0914) is approved at 181-183 North Vickers Road, approximately 250m west of the subject site.

2.3 Surrounding Road Network Details

2.3.1 ROAD LINKS

2.3.1.1 Black Hawk Boulevard

Black Hawk Boulevard is a local government road (LGR) under the jurisdiction of TCC. The alignment of the road is from Hervey Range Road to North Wickers Road. It forms a four-legged roundabout with High Range Drive at the northwest corner of the subject site. The typical cross section of Black Hawk Boulevard consists of a two-lane undivided carriageway (one (1) lane in each direction) with marked centre and edge lines. On-street parking is provided along both shoulders of the road. Black Hawk Boulevard has a posted speed limit of 50 km/h.

2.3.1.2 High Range Drive

High Range Drive is a LGR under the jurisdiction of TCC. The alignment of the road is from Hervey Range Road to Riverway Drive. It forms a four-legged roundabout at the northwest corner of the subject site. The typical cross section consists of a two-lane undivided carriageway (one (1) lane in each direction) with marked centre and edge lines. On-street parking is provided along both shoulders of the road. High Range Drive has a posted speed limit of 50 km/h.

2.3.1.3 Pioneer Drive

Pioneer Drive is a LGR under the jurisdiction of TCC. The alignment of the road is from Hervey Range Road to High Range Drive. The typical cross section consists of a two-lane undivided carriageway (one (1) lane in each direction) with a marked centre line at the southern section of Pioneer Drive. The carriageway widens to three (3) exit lanes and two (2) entry lanes at the Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals. Pioneer Drive has a posted speed limit of 50 km/h.

2.3.1.4 Hervey Range Road

Hervey Range Road is a SCR classified as a regional road under the jurisdiction of The Department of Transport and Main Roads (TMR). It's designated TMR road name is Hervey Range Developmental Road (Townsville - Battery) and road ID is 83A.

Hervey Range Road has a typical cross section consisting of a four-lane carriageway (two (2) lanes in each direction) divided by a solid median west of Pioneer Drive and widens to a six-lane carriageway (three (3) lanes in each direction) east of the Pioneer Drive. As shown in Figure 1, it forms a two-lane roundabout with Black Hawk Boulevard and traffic signal-controlled intersection with Kern Brothers Drive and Pioneer Drive within the study area. The posted speed limit on Hervey Range Road within the study area is 60km/h.

2.3.1.5 Riverway Drive

Riverway Drive is a SCR classified as a district road under the jurisdiction of TMR. It's designated TMR road name is Garbutt – Upper Ross Road and road ID is 835.

Riverway Drive has a typical cross section consisting of a four-lane carriageway (two (2) lanes in each direction) divided by a solid median south of High Range Drive and it widens to a six-lane (three (3) lanes in each direction north of High Range Drive approaching the Hervey Range Road traffic signals. As shown in Figure 1, it forms a traffic signal-controlled intersection High Range Drive and Village Boulevard within the study area. The posted speed limit on Riverway Drive within the study area is 60km/h.

2.3.2 INTERSECTIONS

2.3.2.1 Black Hawk Boulevard / High Range Drive Roundabout

Black Hawk Boulevard and High Range Drive forms a single-lane four-legged roundabout at the northwest corner of the subject site. No pedestrian crossing facilities are provided at the roundabout. The roundabout is under the jurisdiction of TCC.

2.3.2.2 High Range Drive / Pioneer Drive Intersection

High Range Drive / Pioneer Drive intersection is a priority-controlled T-intersection with High Range Drive having priority. The intersection is under the jurisdiction of TCC.

2.3.2.3 Hervey Range Road / Black Hawk Boulevard Roundabout

Hervey Range Road / Black Hawk Boulevard roundabout is a two-lane three-legged roundabout. Black Hawk Boulevard widens to two (2) lanes approximately 40m south of the roundabout to provide a two-lane exit. The intersection is under the jurisdiction of TMR.

2.3.2.4 Hervey Range Road / Kern Brothers Drive / Pioneer Drive Intersection

Hervey Range Road / Kern Brothers Drive / Pioneer Drive intersection is four-legged intersection controlled by traffic signals. Left turn slip lanes and short right turn lanes are provided on all four (4) legs of the intersection. The intersection is under the jurisdiction of TMR.

2.3.2.5 Riverway Drive / High Range Drive / Village Boulevard Intersection

Riverway Drive / High Range Drive / Village Boulevard intersection is four-legged intersection controlled by traffic signals. Left turn and right turn short lanes are provided on Riverway Drive for traffic turning into High Range Drive. The intersection is under the jurisdiction of TMR.

2.4 Traffic Volumes

2.4.1 LOCAL GOVERNMENT ROADS

Traffic volume data on LGRs are extracted from the 2025 Traffic Calibration Model of the TCC's Townsville Aimsun Integrated Model (TAIM). AM and PM peak hour traffic volumes are estimated based on previous traffic counts in the area for road segments where TAIM traffic data is unavailable. The Annual Average Daily Traffic (AADT) and the peak hour traffic volumes are documented in Table 1.

Table 1: Traffic data on LGRs (Source: TAIM)

Road	Direction	AADT	AM peak hour	PM peak hour
Black Hawk Boulevard (between Hervey Range Road and High Range Drive)	Northbound	932vpd	78vph	164vph
	Southbound	261vpd	88vph	116vph
Black Hawk Boulevard (between High Range Drive and North Wickers Road)	Eastbound	395vpd	107vph	129vph
	Westbound	368vpd	90vph	114vph
High Range Drive (between Black Hawk Boulevard and Pioneer Drive)	Eastbound	398vpd	99vph	131vph
	Westbound	351vpd	79vph	153vph

Road	Direction	AADT	AM peak hour	PM peak hour
High Range Drive (between Pioneer Drive and Riverway Drive)	Eastbound	2,196vpd	211vph	251vph
	Westbound	2,128vpd	267vph	168vph
Pioneer Drive	Northbound	1,297vpd	244vph	123vph
	Southbound	2,489vpd	233vph	275vph
	Westbound	2025vpd	72vph	180vph

2.4.2 STATE-CONTROLLED ROADS

Traffic data for SCR are extracted from the Queensland Government's Open Data Portal. The AADT recorded in 2024 is documented in Table 2.

Table 2: Traffic data on SCRs (Source: Open Data Portal)

Road	Direction	AADT
Hervey Range Road	Eastbound (against gazettal)	9,812vpd
	Westbound (with gazettal)	9,115vpd
	Both directions	18,927vpd
Riverway Drive	Northbound (against gazettal)	13,550vpd
	Southbound (with gazettal)	13,167vpd
	Both directions	26,717vpd

Premise requested traffic count data / forecasts, including turning movements and STREAMS data for the SCR intersections from TMR on 3 October 2025, however, the data was not available to Premise at the time of preparation of this TIA report. Premise estimated turning traffic volumes based on traffic data from TAIM Forecast Model for the SCR intersections. The estimated turning traffic volumes are used in this TIA report. It is recommended that the TIA report is updated when recorded traffic count data is available.

2.5 Road Safety Issues

Road safety issues in the study area are assessed based on the reported crash data provided by TMR for a period from 1 January 2009 to 31 December 2024. There has been a total of 51 reported crashes in the study area. The crash locations are summarised below.

- Eight (8) crashes at the Hervey Range Road / Black Hawk Boulevard roundabout
- Eight (8) crashes at the Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals
- 12 crashes at the Riverway Drive / High Range Drive / Village Boulevard traffic signals
- Five (5) crashes at the High Range Drive / Pioneer Drive priority-controlled intersection
- Four (4) crashes at the Black Hawk Boulevard / High Range Drive roundabout
- Three (3) midblock crashes on Black Hawk Boulevard
- Nine (9) midblock crashes on High Range Drive
- Two (2) midblock crashes on Pioneer Drive

The crash reports provided by TMR are enclosed in Appendix B. A summary of the crashes is detailed below.

- Hervey Range Road / Black Hawk Boulevard roundabout
  - Crash reference 52, 60, 70, 102, 108, 110, 120: Seven (7) turning type crashes (DCA 101, 104, 202, 305, 308) resulting in two (2) minor injury, one (1) medical treatment and four (4) hospitalisations.
  - Crash reference 43: One (1) loss of control type crash (DCA 703) resulting in hospitalisation.
- Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals
  - Crash reference 3, 50: Two (2) rear end type crashes (DCA 302) resulting in medical treatment.
  - Crash reference 6, 51, 64, 84, 133: Five (5) turning type crashes (DCA 101, 107) resulting in one (1) in minor injury, three (3) medical treatment and one (1) hospitalisation.
  - Crash reference 29: One (1) lane change type crash (DCA 307) resulting in medical treatment.
- Riverway Drive / High Range Drive / Village Boulevard traffic signals
  - Crash reference 20, 38, 125: Three (3) rear end type crashes (DCA 301, 303) resulting in medical treatment.
  - Crash reference 8, 40, 58, 71, 103, 104, 129, 134, 139: Nine (9) turning type crashes (DCA 104, 202, 305, 408) resulting in two (2) minor injury, five (5) medical treatment and two (2) hospitalisations.
- High Range Drive / Pioneer Drive intersection priority-controlled intersection
  - Crash reference 45, 83, 86, 131, 135: Five (5) turning type crashes (DCA 102, 104, 202) resulting in three (3) medical treatment and two (2) hospitalisations.
- Black Hawk Boulevard / High Range Drive roundabout
  - Crash reference 126: One (1) rear end type crash (DCA 301) resulting in medical treatment.
  - Crash reference 18, 77: Two (2) turning type crashes (DCA 101, 104) resulting in one (1) minor injury and one (1) medical treatment.
  - Crash reference 14: One (1) loss of control type crash (DCA 708) resulting in hospitalisation.
- Black Hawk Boulevard (midblock)
  - Crash reference 81: One (1) crash involving a pedestrian (DCA 3) resulting in hospitalisation.
  - Crash reference 121: One (1) turning type crash (DCA 406) resulting in hospitalisation.
  - Crash reference 122: One (1) loss of control type crashes (DCA 703) resulting in hospitalisation.
- High Range Drive (midblock)
  - Crash reference 17, 107: Two (2) loss of control type crashes (DCA 400, 703) resulting in one (1) minor injury and one (1) hospitalisation.
  - Crash reference 56, 75, 85, 87: Four (4) turning type crashes (DCA 201, 202, 406) resulting in three (3) medical treatment and one (1) hospitalisation.
  - Crash reference 90, 105, 130: Three (3) rear end type crashes (DCA 301, 303, 400) resulting in three (3) medical treatment.

Pioneer Drive (midblock)

- Crash reference 59: One (1) turning type crash (DCA 406) resulting in medical treatment.
- Crash reference 69: One (1) rear end type crash (DCA 301) resulting in medical treatment.

2.6 Site Access

The site is currently vacant land with a private carpark located on the northern boundary of the site serviced by two (2) accesses on High Range Drive.

2.7 Public Transport

The Bus Route 210 between Willows Shopping Centre in Thuringowa Central and James Cook University Student Union Mall in Douglas operates on Black Hawk Boulevard and High Range Drive along the site frontage. The closest bus stop to the site is located on High Range Drive outside the Cannon Park Cinemas approximately 100m from the subject site. This service operates in each direction typically hourly during the evenings.

2.8 Active Transport

Currently, there are no active transport facilities, such as bicycle lanes or shared paths provided along the site frontage or within the study area.

3. PROPOSED DEVELOPMENT DETAILS

3.1 Development Site Plan

The tenancies within the development site is currently not finalised. Therefore, a hypothetical site layout is adopted in this TIA by selecting a mix of proposed code assessable land uses.

- The total land area is 44,190m^2, of which two-third is allocated for commercial use and the remaining one-third for residential use.
- 14,730m^2 of land allocated for residential use will consist of 50 multiple dwellings.
- 50% of commercial use site coverage is estimated to account for setbacks, car parking, access facilities, utilities, easements and landscaping. The remaining 14,800m^2 will consist of the following land uses and gross leasable floor areas (GLFA).
  - Childcare centre with a GLFA of 800m^2
  - Medical centre with a GLFA of 1,000m^2
  - Showroom with a GLFA of 5,000m^2 and warehouse with a GLFA of 4,000m^2
  - Low impact industry with a GLFA of 4,000m^2

3.2 Operational Details

It is assumed that the development will commence operations in 2028 (opening year), resulting in a design year of 2038.

3.3 Proposed Access and Parking

Site access locations are not confirmed yet, and therefore, in this TIA it is assumed that site access will be via High Range Drive and Black Hawk Boulevard.

A car park layout has not been developed yet.

4. DEVELOPMENT TRAFFIC

4.1 Traffic Generation

Traffic generated by the land uses are estimated following a review of the "Guide to Transport Impact Assessment" (GtTIA). It should be noted that the highest traffic generated for each land use is during the site peak hour(s). The peak hours generally varies for different land uses and often do not coincide with the network peak hour(s). To assess the highest traffic impact of the development on the surrounding network, it is assumed that the site peak hour(s) for all land uses coincide with each other and the network peak hour(s).

- Section 5.6.2 'high density residential dwellings' specifies generation rates of 0.53 vehicle trips in the AM peak hour and 0.32 vehicle trips in the PM peak hour per dwelling. Therefore, 50 dwellings is estimated to generate 27 vehicles trips in the AM peak hour and 16 vehicle trips in the PM peak hour.
- Section 5.6.8 'childcare centres' specifies generation rates of 0.81 vehicle trips in the AM peak hour and 0.64 vehicle trips in the PM peak hour per child for long day care centres. Based on the size of the childcare centre, it is estimated that a maximum of 75 children will attend the centre daily generating 61 vehicle trips in the AM peak hour and 48 vehicle trips in the PM peak hour.
- Section 'medical centres' specifies a generation rate of 32 vehicle trips per centre in the peak hour. Therefore, it is estimated to generate 32 vehicles trips in the AM and PM peak hours.
- Section 'business parks' specifies generation rates of 0.69 vehicle trips in the AM peak and 0.78 vehicle trips in the PM peak hour per 100m^2 of GLFA for showrooms, warehouses and low impact industries.
  - Showroom and warehouse is estimated to generate 62 vehicle trips in the AM peak hour and 70 vehicle trips in the PM peak hour.
  - Low impact industry is estimated to generate 28 vehicle trips in the AM peak hour and 31 vehicle trips in the PM peak hour.

Table 3 summarises the total vehicle trips generated by each land use and the development in the peak hours.

Table 3: Trips generated by each land use and the development in the AM and PM peak hours

Land use	AM peak hour vehicle trips	PM peak hour vehicle trips
Multiple dwellings	27vph	16vph
Childcare centre	61vph	48vph
Medical centre	32vph	32vph
Showroom with attached warehouse	62vph	70vph
Low impact industry	28vph	31vph
Total	**209vph**	**197vph**

The following directional split is adopted for trips generated by the development:

- Trips generated by multiple dwellings:
  - AM peak hour - 30% inbound and 70% outbound
  - PM peak hour – 60% inbound and 40% outbound
- Trips generated by commercial uses:
  - AM peak hour - 50% inbound and 50% outbound
  - PM peak hour – 50% inbound and 50% outbound

4.2 Trip Distribution

The distribution of development traffic is assumed to be distributed to the surrounding network as follows.

> Trips generated by the development is distributed to the SCR network as follows;

- 30% east on Hervey Range Road and 5% north on Kern Brothers Drive at the Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals.
- 25% north and 25% south on Riverway Drive at the Riverway Drive / High Range Drive / Village Boulevard traffic signals.
- 15% west on Hervey Range Road at the Hervey Range Road / Black Hawk Boulevard roundabout.

4.3 Development Traffic Volumes on the Network

The distribution of development traffic for in the AM and PM peak hours are shown in Figure 3 and Figure 4.

Figure 3: Development traffic distribution in the AM peak hour

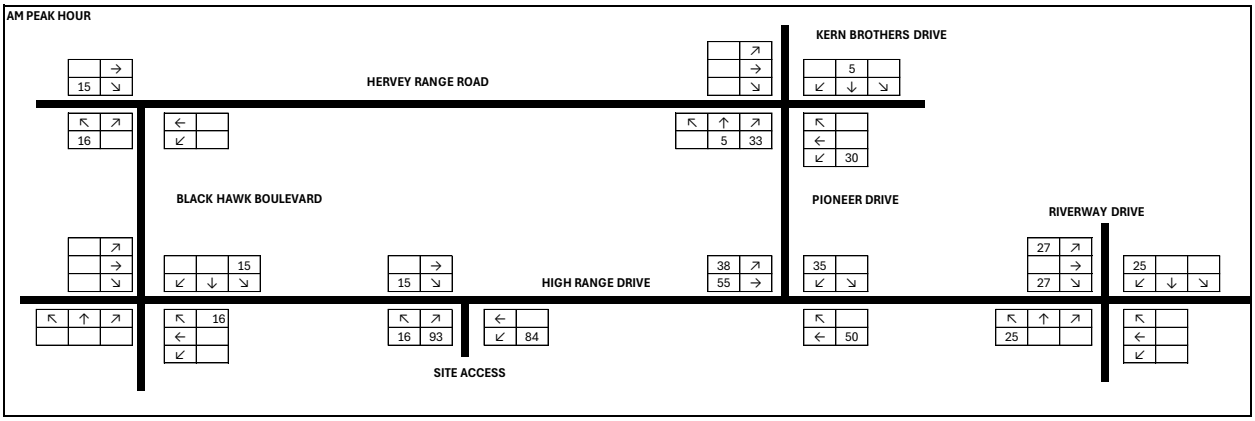
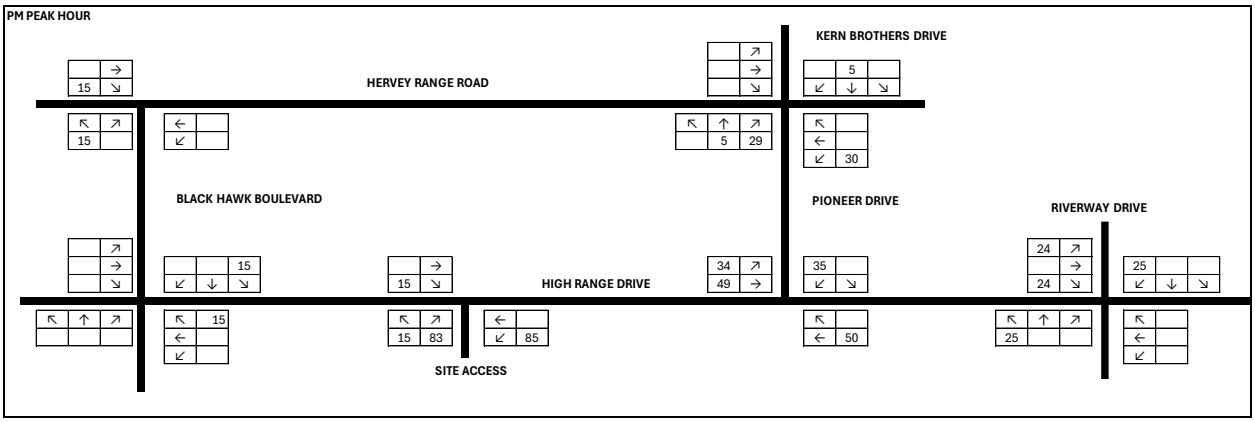


Figure 4: Development traffic distribution in the PM peak hour



5. IMPACT ASSESSMENT AND MITIGATION

5.1 With and Without Development Traffic Volumes

5.1.1 "WITHOUT DEVELOPMENT" TRAFFIC VOLUMES

A review of the Queensland Government's Open Data Portal and TCC's TAIM Forecast Model showed no significant traffic growth within the study area between the opening year (2028) and the design year (2038). Therefore, the traffic "without development" traffic volumes in the opening year (2028) and design year (2038) will be identical. Figure 5 and Figure 6 show the "without development" traffic in the AM and PM peak hours.

Figure 5: AM peak hour "without development" in the opening year (2028) and design year (2038)

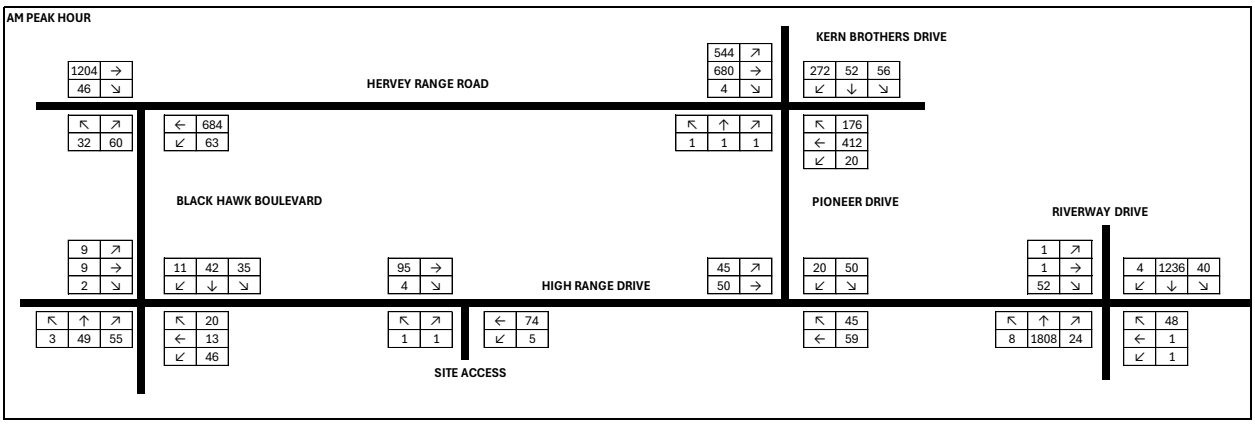
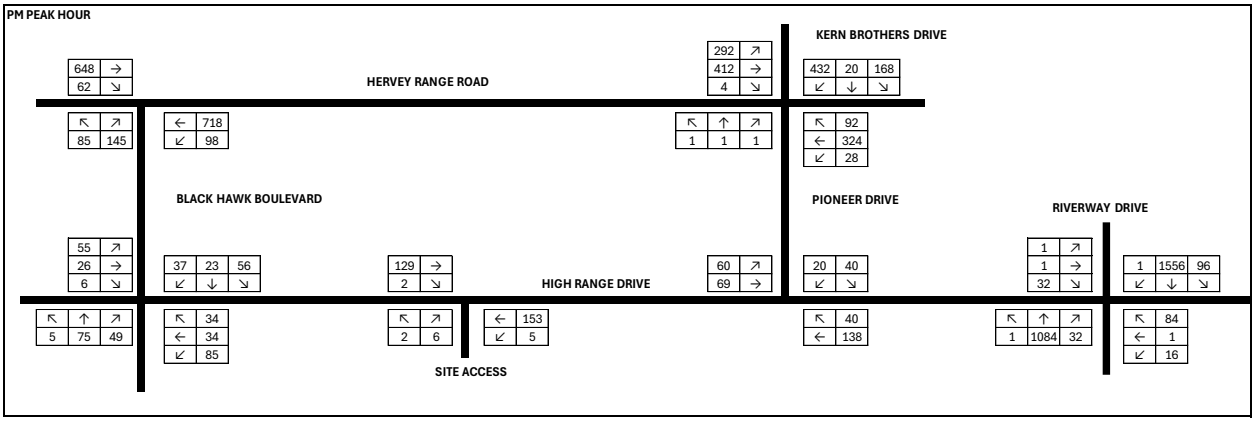


Figure 6: PM peak hour "without development" in the opening year (2028) and design year (2038)



5.1.2 "WITH DEVELOPMENT" TRAFFIC VOLUMES

AM peak hour "with development" traffic volumes shown in Figure 7 is the sum of AM peak hour development traffic in Figure 3 and AM peak hour "without development" traffic volumes in Figure 5.

PM peak hour "with development" traffic volumes shown in Figure 8 is the sum of PM peak hour development traffic in Figure 4 and PM peak hour "without development" traffic volumes in Figure 6.

Figure 7: AM peak hour "with development" in the opening year (2028) and design year (2038)

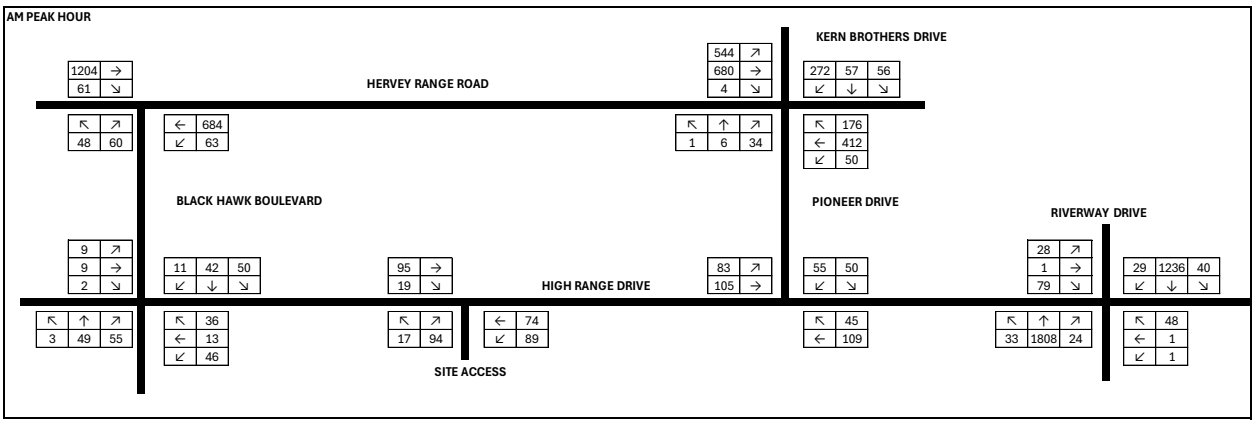
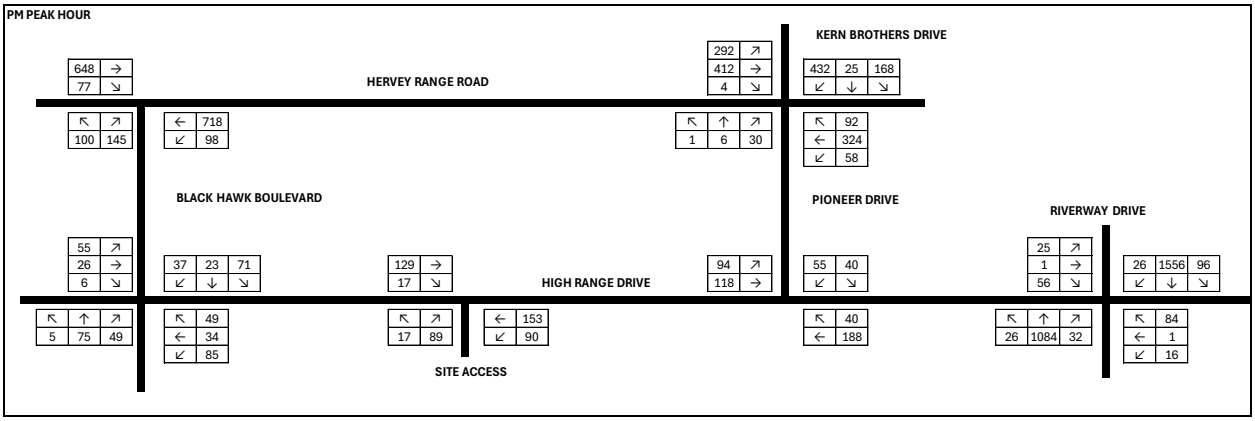


Figure 8: PM peak hour "with development" in the opening year (2028) and design year (2038)



5.2 Road Safety Impact Assessment and Mitigation

The GTIA specifies the following two (2) stage process for assessment of road safety impacts:

- Risk Assessment to determine the change in risk profile associated with existing road safety issues as a result of the development.
- Safety Assessment to determine if changes to the road environment require either a road safety audit by an accredited road safety auditor, or a road safety assessment by either an accredited road safety auditor or a registered professional engineer of Queensland (RPEQ).

5.2.1 RISK ASSESSMENT

A road safety risk assessment was conducted in accordance with the risk assessment process specified by the GTIA, the risk assessment process involves the following steps for each risk item:

- Evaluate potential consequences based on accident severity from 1, property damage only, to 5, fatality;
- Evaluate potential likelihood from 1, rare, to 5, almost certain; and
- Sum the potential consequence and likelihood values to determine the risk score with scores up to and
- including 4 considered low risk, 5 to 7 medium risk, and 8 or greater high risk.

Table 4 summarises the road safety risk assessment with further detail provided in the following sections.

Table 4: Road safety risk assessment

	Existing			With development				With development & mitigation		
Risk item	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score	Mitigation measures	Likelihood	Consequence	Risk score
Intersection crashes at Hervey Range Road / Black Hawk Boulevard roundabout	3	4	M	3	4	M	No action.			
Intersection crashes at Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals	1	4	M	1	4	M	No action.			
Intersection crashes at Riverway Drive / High Range Drive / Village Boulevard traffic signals	2	4	M	2	4	M	No action.			
Intersection crashes at High Range Drive / Pioneer Drive intersection	2	4	M	3	4	M	No action.			
Intersection crashes at Black Hawk Boulevard / High Range Drive roundabout	1	4	M	2	4	M	No action.			
Midblock crashes on High Range Drive	2	4	M	3	4	M	No action.			
Midblock crashes on Black Hawk Boulevard	2	4	M	3	4	M	No action.			
Midblock crashes on Pioneer Drive	2	4	M	3	4	M	No action.			

5.2.1.1 "Existing" Risk Assessment

To provide an objective assessment of the potential likelihood and consequence, Premise uses historic crash data and the average recurrence interval / frequency criteria listed in Table 5. These criteria are more conservative than those suggested by TMR's "Guide to Traffic Impact Assessment: Frequently Asked Questions (December 2017)" but are consistent with other TMR guidelines that three (3) fatal or serious injury (potential consequence 4) accidents in five (5) years (potential likelihood 4) is high risk and should be mitigated. It was found that the highest risk scores generally resulted from consideration of the highest consequence / most severe accidents.

Table 5: Potential likelihood evaluation criteria

Potential likelihood	Average recurrence interval	Accidents over 16 years
Almost Certain (5)	≤1 year	16 or more
Likely (4)	≤ 2 years	8 to 15
Moderate (3)	≤ 4 years	4 to 7
Unlikely (2)	≤ 8 years	2 or 3
Rare (1)	> 8 years	1

The following risk items are identified.

- Intersection crashes at Hervey Range Road / Black Hawk Boulevard roundabout
  - Out of eight (8) crashes, two (2) resulted in minor injury, one (1) resulted in medical treatment and five (5) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is moderate (potential likelihood of 3). The risk score is medium.
- Intersection crashes at Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals.
  - Out of eight (8) crashes, one (1) resulted in minor injury, six (6) resulted in medical treatment and one (1) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.
- Intersection crashes at Riverway Drive / High Range Drive / Village Boulevard traffic signals
  - Out of 12 crashes, two (2) resulted in minor injury, eight (8) resulted in medical treatment and two (2) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is unlikely (potential likelihood of 2). The risk score is medium.
- Intersection crashes at High Range Drive / Pioneer Drive priority-controlled intersection
  - Out of five (5) crashes, three (3) resulted in medical treatment and two (2) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is unlikely (potential likelihood of 2). The risk score is medium.
- Intersection crashes at Black Hawk Boulevard / High Range Drive roundabout
  - Out of four (4) crashes, one (1) resulted in minor injury, two (2) resulted in medical treatment and one (1) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is rare (potential likelihood of 1). The risk score is medium.

- Midblock crashes on Black Hawk Boulevard
  - Out of three (3) crashes, three (3) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is unlikely (potential likelihood of 2). The risk score is medium.
- Midblock crashes on High Range Drive
  - Out of nine (9) crashes, one (1) resulted in minor injury, six (6) resulted in medical treatment and two (2) resulted in hospitalisation. Therefore, the likelihood of a crash resulting in hospitalisation (potential consequence of 4) is unlikely (potential likelihood of 2). The risk score is medium.
- Midblock crashes on Pioneer Drive
  - Out of two (2) crashes, two (2) resulted in medical treatment. Therefore, the likelihood of a crash resulting in medical treatment (potential consequence of 3) is unlikely (potential likelihood of 2). The risk score is medium.

5.2.1.2 "With Development" and "Without Development" Risk Assessment

To provide an objective assessment of the potential likelihood increase due to a development, Premise uses the volume ratio (R) of with development traffic and without development traffic ("with development" traffic divided by "without development" traffic) in the opening year of the development listed in Table 6.

Table 6: Potential likelihood increase criteria

Potential likelihood increase	Volume ratio (R)
+4 bands	$8 < R$
+3 bands	$4 < R \leq 8$
+2 bands	$2 < R \leq 4$
+1 band	$1.05 < R \leq 2$
No increase	$R \leq 1.05$

R calculated for each intersection and midblock road segment is as follows.

- 1.02 at the Hervey Range Road / Black Hawk Boulevard roundabout
- 1.04 at the Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals
- 1.03 at the Riverway Drive / High Range Drive / Village Boulevard traffic signals
- 1.66 at the High Range Drive / Pioneer Drive intersection
- 1.11 at the Black Hawk Boulevard / High Range Drive roundabout
- 1.58 on High Range Drive
- 1.16 on Black Hawk Boulevard
- 1.93 on Pioneer Drive

The potential likelihood increases by one (1) band at the High Range Drive / Pioneer Drive priority-controlled intersection, Black Hawk Boulevard / High Range Drive roundabout, Black Hawk Boulevard, High Range Drive and Pioneer Drive. The potential likelihood does not change at the Hervey Range Road / Black Hawk Boulevard roundabout, Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals and Riverway Drive / High Range Drive / Village Boulevard traffic signals. The addition of development traffic onto the surrounding road

network does not increase the risk score of any of the intersections or midblock road segments within the study area. Therefore, mitigation measures are not required.

5.2.2 SAFETY ASSESSMENT

Any changes to access configurations, nearby intersections, bus stop locations, cycling facilities, footpaths and so on, once designed, should be assessed to identify if they introduce any additional safety issues. There are two (2) potential levels of assessment of these changes detailed in the GTIA, namely:

- Road safety assessment; and
- Road safety audit.

The level of assessment required relates to the road environment the development is accessing and the scale of the potential risk, based on the scale of the development. Table 7 and Table 8 define the level of safety risk, and the assessment required.

Table 7: Road environment safety matrix (level of risk)

Traffic volume (AADT)	Speed (km/h)		
	Up to 50 km/h	60 km/h to 70 km/h	80 km/h+
≤ 8000	Low	Medium	Medium
> 8000	Medium	Medium	High

Table 8: Type of road safety assessment based on road environment safety rating

Development type	Road environment safety rating		
	Low	Medium	High
Major Development	road safety assessment	road safety audit	road safety audit
Planning Act Development	road safety assessment	road safety assessment	road safety audit

In accordance with the GTIA, Black Hawk Boulevard and High Range Drive are currently assessed as having a low road environment risk rating based on having a posted speed limit of 50 km/h and an AADT of less than 8,000vpd.

The proposed development is a Planning Act Development as defined by the GTIA and therefore, any changes to the road environment on Black Hawk Boulevard and High Range Drive do not require a road safety audit but should be subject to a road safety assessment. A road safety assessment may be conducted by either an accredited road safety auditor or an RPEQ. This requirement would be satisfied by safety reports prepared in accordance with Section 295 of the Work Health and Safety Regulation 2011 as part of the design process.

5.3 Access and Frontage Impact Assessment

5.3.1 TURN WARRANT ASSESSMENT

Turn warrant assessments are required for priority-controlled intersections. The priority-controlled intersections associated with the proposed development are limited to:

- High Range Drive / Pioneer Drive intersection
- Site access on High Range Drive

Assessments are based on warrants contained in Austroads' "Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings" (AGTM06-20). The assessment for the above intersections is based on a design speed of at least 70 km/h in the normal design domain (NDD). Table 9 lists design traffic volumes at the intersections during the AM and PM peak hours in the design year (2038) as shown in Figure 7 and Figure 8.

Table 9: Turn warrant assessment summary

Intersection	Q_{TL} / Q_{TR}	Q_L / Q_R	Treatment
High Range Drive / Pioneer Drive intersection	AM: 105vph / 109vph PM: 118vph / 188vph	AM: 83vph / 45vph PM: 94vph / 40vph	AM: BAL / BAR PM: BAL / BAR
Site access on High Range Drive	AM: 74vph / 95vph PM: 153vph / 129vph	AM: 89vph / 19vph PM: 90vph / 17vph	AM: BAL / BAR PM: BAL / BAR

The assessment concludes that:

- Basic left (BAL) and basic right (BAR) treatments are warranted at the High Range Drive / Pioneer Drive intersection, that is, deceleration lanes are not required.
- BAL and BAR treatments are warranted at the site access on High Range Drive, that is, deceleration lanes are not required.

Turn warrant assessment graphs are enclosed in Appendix C.

5.3.2 INTERSECTION ANALYSIS

Intersection performance has been assessed using SIDRA Intersection Version 10 (SIDRA). SIDRA is an advanced micro-analytical traffic tool for the evaluation of intersections, and it reports intersection performance in terms of a range of parameters including:

- Demand Volumes (V): The modelled number of vehicles arriving at the intersection during the assessment hour. Demand volumes are calculated by dividing the peak hour volume by the peak flow factor (PFF). SIDRA's default PFF of 95% has been adopted for all movements.
- Degree of Saturation (DoS): The ratio of the demand volume, V, to the theoretical capacity. An intersection is considered to be operating at its practical capacity when the DoS reaches 0.80 for a priority-controlled intersection, 0.85 for a roundabout and 0.90 for traffic signals.
- Average Delay (D): The mean control delay including both queuing delay and geometric delay for all vehicles arriving during the assessment period including the delay experienced after the end of the flow period until the departure of the last vehicle arriving during the flow period. The Townsville City Plan specifies that average delays exceeding 35 seconds for any movement is a safety issue.
- Back of Queue Length (Q): The maximum backward extent of the queue relative to the stop line or give-way / yield line during a signal cycle or gap acceptance cycle below which 95% of all queue lengths fall (95th percentile back of queue) or 50% of all queue lengths fall (average back of queue). The 95th percentile back of queue length is generally accepted as the maximum queue length for design purposes.

SIDRA modelling is based on the following assumptions:

- The proportion of heavy vehicles (HV%) is 5% for all movements.
- SIDRA default peak flow factor (PFF) of 95% is retained.
- Pedestrian crossings (where present) are utilised by 30 pedestrians per hour.

5.3.2.1 Black Hawk Boulevard / High Range Drive Roundabout

The Black Hawk Boulevard / High Range Drive roundabout was modelled as a single lane roundabout for "with development" AM and PM peak hour traffic volumes in the design year (2038). The SIDRA output results are enclosed in Appendix D, and the key points are summarised below.

- The maximum DoS is 0.137 on the High Range Drive east approach in the PM peak hour, which is below practical capacity (DoS < 0.85).
- The maximum delay to any movement is 9.5 sec for the right turn movement on the High Range Drive west approach in the PM peak hour, which is below the maximum specified delay (D < 35 sec) in the Townsville City Plan.

5.3.2.2 High Range Drive / Pioneer Drive Priority-Controlled Intersection

The High Range Drive / Pioneer Drive intersection was modelled has a priority-controlled T-intersection for "with development" AM and PM peak hour traffic volumes in the design year (2038). The SIDRA output results are enclosed in Appendix D, and the key points are summarised below.

- The maximum DoS is 0.136 on the High Range Drive east approach in the PM peak hour, which is below practical capacity (DoS < 0.80).
- The maximum delay to any movement is 7.5 sec for the right turn movement on Pioneer Drive in the PM peak hour, which is below the maximum specified delay (D < 35 sec) in the Townsville City Plan.

5.3.3 SIGHT DISTANCES

The GTIA specifies minimum sight distance requirements for intersections as the Approach Sight Distance (ASD) required to the road surface at all intersections and accesses. ASD is defined in the "Guide to Road Design Part 4A: Unsignalised and Signalised Intersections" (Austroads 2017). Austroads also provides formulas for calculating the acceptable minimum sight distances.

ASD is the distance at which a driver can see any line marking on the road surface at the intersection. ASD should be sufficient to allow a driver to react to the intersection and, if necessary, come to a complete stop before entering the intersection. Minimum ASD is calculated using the formula;

$$ASD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

where:

R_T = reaction time (generally 2.5 sec)

V = design speed (60km/h on High Range Drive, 10km/h above the posted speed limit)

d = coefficient of deceleration (0.61 for cars braking on dry, sealed roads)

a = longitudinal grade (0 for a relatively flat grade)

Based on the above parameters, the minimum required ASD at the site access on High Range Drive is 65m. There is 80m of unobstructed visibility on both approaches to the site access, and therefore, the available ASD at the site access is acceptable.

5.4 Intersection Delay Impact Assessment

As specified in the GTIA, TMR considers that it is unreasonable to require quantifying the impacts on intersection delays unless a proposed development creates an increase in traffic over a particular threshold level. This threshold level applies to all SCR intersections where the development traffic exceeds 5% of the base traffic for any movement in the design peak hours in the year of opening (2028).

Intersection delay impacts are assessed using SIDRA. If the additional delays created by traffic generated by the development exceeds 5% of the base traffic for any movement, it needs to be mitigated by upgrade works. All SIDRA outputs for the Intersection Delay Impact Assessment are attached in Appendix E

This study area consists of the following SCR intersections:

- Hervey Range Road / Black Hawk Boulevard roundabout
- Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals
- Riverway Drive / High Range Drive / Village Boulevard traffic signals

5.4.1 HERVEY RANGE ROAD / BLACK HAWK BOULEVARD ROUNDABOUT

5.4.1.1 "Without Development" Intersection Delay

SIDRA outputs for the Hervey Range Road / Black Hawk Boulevard roundabout for opening year (2028) "without development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The roundabout is operating below its practical capacity with the maximum DoS being 0.464 (DoS < 0.85) for the Hervey Range Road west approach in the AM peak hour.
- The maximum average delay to any movement is 11.2 sec (D < 35 sec) for the right movement on Black Hawk Boulevard in the PM peak hour.

5.4.1.2 "With Development" Intersection Delay

SIDRA outputs for the Hervey Range Road / Black Hawk Boulevard roundabout for opening year (2028) "with development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The roundabout is operating below its practical capacity with the maximum DoS being 0.470 (DoS < 0.85) for the Hervey Range Road west approach in the AM peak hour.
- The maximum average delay to any movement is 11.2 sec (D < 35 sec) for the right movement on Black Hawk Boulevard in the PM peak hour.

5.4.1.3 Intersection Delay Impact

An intersection delay impact assessment was undertaken in accordance with the GTIA as shown by Table 10. Key points are:

> The delay impact is 1.1% when opening year (2028) "with development" and "without development" traffic volumes are compared. This is below the threshold level of 5% specified in the GTIA. Therefore, the Hervey Range Road / Black Hawk Boulevard roundabout can accommodate the additional traffic generated by the proposed development without requiring mitigation measures.

Table 10: Hervey Range Road / Black Hawk Boulevard roundabout, net intersection delay comparison, opening year (2028)

Movement	Without Development							With Development					
	Demand Volume, V		Average Delay, D		Total Delay, BC (=VxD)			Average Delay, D'		Total Delay, WD (=VxD')			Delay Impact
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	SUM	AM peak	PM peak	AM peak	PM peak	SUM	ID(=WD-BC)
South Approach: Black Hawk Boulevard													
Left	34	89	5.9	6.2	200.6	551.8	752.4	6.0	6.2	204.0	551.8	755.8	3.4
Right	63	153	10.9	11.2	686.7	1713.6	2400.3	10.9	11.2	686.7	1713.6	2400.3	0.0
East Approach: Hervey Range Road													
Left	66	103	4.4	4.5	290.4	463.5	753.9	4.5	4.5	297.0	463.5	760.5	6.6
Through	720	756	4.4	4.5	3168.0	3402.0	6570.0	4.5	4.6	3240.0	3477.6	6717.6	147.6
West Approach: Hervey Range Road													
Through	1267	682	4.5	4.8	5701.5	3273.6	8975.1	4.5	4.9	5701.5	3341.8	9043.3	68.2
Right	48	65	9.2	9.5	441.6	617.5	1059.1	9.2	9.5	441.6	617.5	1059.1	0.0
Total	**2198**	**1848**			**10488.8**	**10022.0**	**20510.8**			**10570.8**	**10165.8**	**20736.6**	**225.8**
										100.8%	101.4%	101.1%	1.1%

5.4.2 HERVEY RANGE DRIVE / KERN BROTHERS DRIVE / PIONEER DRIVE TRAFFIC SIGNALS

5.4.2.1 "Without Development" Intersection Delay

With STREAMS data for the Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals currently not available to Premise, the preliminary analysis was based on the optimum (least delay) cycle time which resulted in a program determined cycle time of 70 seconds for the AM peak hour and 80 seconds for the PM peak hour. These cycle times are considered too short to align with existing intersection performance. Therefore, a user given cycle time of 110 seconds was adopted.

SIDRA outputs for the Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals in the opening year (2028) "without development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The traffic signals is operating below its practical capacity with the maximum DoS being 0.423 (DoS < 0.90) for the right turn movement on Hervey Range Road east approach and for the through movement on Hervey Range Road west approach in the AM peak hour.
- The maximum average delay to any movement is 61.3 sec (D > 35 sec) for the right movement on Hervey Range Road east approach in the PM peak hour.

5.4.2.2 "With Development" Intersection Delay

SIDRA outputs for the Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals in the opening year (2028) "with development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The traffic signals is operating below its practical capacity with the maximum DoS being 0.423 (DoS < 0.90) for the right turn movement on Hervey Range Road east approach and for the through movement on Hervey Range Road west approach in the AM peak hour.
- The maximum average delay to any movement is 61.3 sec (D > 35 sec) for the right movement on Hervey Range Road east approach in the PM peak hour.

5.4.2.3 Intersection Delay Impact

An intersection delay impact assessment was undertaken in accordance with the GTIA as shown by Table 11. Key points are:

- The delay impact is 0.1% when opening year (2028) "with development" and "without development" traffic volumes are compared. This is below the threshold level of 5% specified in the GTIA. Therefore, the Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals can accommodate the additional traffic generated by the proposed development without requiring mitigation measures.

Table 11: Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals, net intersection delay comparison, opening year (2028)

Movement	Without Development							With Development					
	Demand Volume, V		Average Delay, D		Total Delay, BC (=VxD)			Average Delay, D'		Total Delay, WD (=VxD')			Delay Impact
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	SUM	AM peak	PM peak	AM peak	PM peak	SUM	ID(=WD-BC)
South Approach: Pioneer Drive													
Left	1	1	6.6	6.9	6.6	6.9	13.5	6.6	6.9	6.6	6.9	13.5	0.0
Through	1	1	40.0	40.0	40.0	40.0	80.0	40.5	40.5	40.5	40.5	81.0	1.0
Right	1	1	44.0	31.0	44.0	31.0	75.0	45.5	31.9	45.5	31.9	77.4	2.4
East Approach: Hervey Range Road													
Left	21	29	6.0	5.9	126.0	171.1	297.1	6.1	5.9	128.1	171.1	299.2	2.1
Through	434	341	31.5	40.6	13671.0	13844.6	27515.6	31.5	40.6	13671.0	13844.6	27515.6	0.0
Right	185	97	55.5	61.3	10267.5	5946.1	16213.6	55.5	61.3	10267.5	5946.1	16213.6	0.0
North approach: Kern Brothers Drive													
Left	59	177	6.2	5.9	365.8	1044.3	1410.1	6.3	6.0	371.7	1062.0	1433.7	23.6
Through	55	21	42.3	41.2	2326.5	865.2	3191.7	42.4	41.4	2332.0	869.4	3201.4	9.7
Right	286	455	48.8	35.6	13956.8	16198.0	30154.8	48.8	35.6	13956.8	16198.0	30154.8	0.0
West Approach: Hervey Range Road													
Left	573	307	6.0	5.9	3438.0	1811.3	5249.3	6.1	5.9	3495.3	1811.3	5306.6	57.3
Through	716	434	33.3	41.3	23842.8	17924.2	41767.0	33.4	41.3	23914.4	17924.2	41838.6	71.6
Right	4	4	51.7	58.4	206.8	233.6	440.4	51.8	58.5	207.2	234.0	441.2	0.8
Total	**2336**	**1868**			**68291.8**	**58116.3**	**126408.1**			**68436.6**	**58122.3**	**126558.9**	**150.8**
										100.2%	100.0%	100.1%	0.1%

5.4.3 RIVERWAY DRIVE / HIGH RANGE DRIVE / VILLAGE BOULEVARD TRAFFIC SIGNALS

5.4.3.1 "Without Development" Intersection Delay

With STREAMS data for the Riverway Drive / High Range Drive / Village Boulevard traffic signals currently not available to Premise, the preliminary analysis was based on the optimum (least delay) cycle time which resulted in a program determined cycle time of 150 seconds for the AM peak hour and 110 seconds for the PM peak hour.

SIDRA outputs for the Riverway Drive / High Range Drive / Village Boulevard traffic signals in the opening year (2028) "without development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The traffic signals is operating below its practical capacity with the maximum DoS being 0.815 (DoS < 0.90) for the through movement on Riverway Drive south approach in the AM peak hour.
- The maximum average delay to any movement is 99.6 sec (D > 35 sec) for the right movement on Riverway Drive south approach in the AM peak hour.

5.4.3.2 "With Development" Intersection Delay

SIDRA outputs for the Riverway Drive / High Range Drive / Village Boulevard traffic signals in the opening year (2028) "with development" traffic volumes in the AM and PM peak hours is summarised below. The key points are:

- The traffic signals is operating below its practical capacity with the maximum DoS being 0.824 (DoS < 0.90) for the through movement on Riverway Drive south approach in the AM peak hour.
- The maximum average delay to any movement is 100.0 sec (D > 35 sec) for the right movement on Riverway Drive south approach in the AM peak hour.

5.4.3.3 Intersection Delay Impact

An intersection delay impact assessment was undertaken in accordance with the GTIA as shown by Table 12. Key points are:

> The delay impact is 0.7% when opening year (2028) "with development" and "without development" traffic volumes are compared. This is below the threshold level of 5% specified in the GTIA. Therefore, the Riverway Drive / High Range Drive / Village Boulevard traffic signals can accommodate the additional traffic generated by the proposed development without requiring mitigation measures.

Table 12: Riverway Drive / High Range Drive / Village Boulevard traffic signals, net intersection delay comparison, opening year (2028)

Movement	Without Development							With Development					
	Demand Volume, V		Average Delay, D		Total Delay, BC (=VxD)			Average Delay, D'		Total Delay, WD (=VxD')			Delay Impact
	AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	SUM	AM peak	PM peak	AM peak	PM peak	SUM	ID(=WD-BC)
South Approach: Riverway Drive													
Left	8	1	33.0	29.1	264.0	29.1	293.1	33.4	29.3	267.2	29.4	296.6	3.5
Through	1903	1141	37.5	26.8	71362.5	30578.8	101941.3	37.9	26.9	72504.3	30807.0	103311.3	1370.0
Right	25	34	99.6	65.6	2490.0	2230.4	4720.4	100.0	65.8	2502.5	2240.6	4743.1	22.7
East Approach: Village Boulevard													
Left	1	17	65.7	48.4	65.7	822.8	888.5	65.7	48.5	65.7	824.5	890.2	1.7
Through	1	1	59.9	42.3	59.9	42.3	102.2	59.9	42.3	59.9	42.3	102.2	0.0
Right	51	88	89.5	65.3	4564.5	5746.4	10310.9	89.5	65.3	4564.5	5755.2	10319.7	8.8
North approach: Riverway Drive													
Left	42	101	18.6	24.0	781.2	2424.0	3205.2	18.6	24.0	781.2	2424.0	3205.2	0.0
Through	1301	1638	14.9	24.1	19384.9	39475.8	58860.7	14.9	24.0	19384.9	39475.8	58860.7	0.0
Right	4	1	83.7	63.9	334.8	63.9	398.7	86.6	66.7	346.4	66.7	413.1	14.4
West Approach: High Range Drive													
Left	1	1	47.7	31.0	47.7	31.0	78.7	51.9	33.6	51.2	33.5	84.7	6.0
Through	1	1	42.1	25.4	42.1	25.4	67.5	46.3	28.0	45.6	27.9	73.5	6.0
Right	55	34	62.7	42.5	3448.5	1445.0	4893.5	68.6	47.0	3723.5	1594.6	5318.1	424.6
Total	**3393**	**3058**			**102845.8**	**82914.9**	**185760.7**			**103965.5**	**83034.9**	**187000.4**	**1239.7**
										101.1%	100.1%	100.7%	0.7%

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Impact and Mitigation Measures

This TIA report is prepared to assess the traffic impacts of the proposed development at 11 Black Hawk Boulevard, Thuringowa Central. With tenancies within the development site yet to be finalised, the assessments have been undertaken based on hypothetical site layout consisting of commercial and residential uses. The residential use consists of 50 multiple dwellings, and the commercial use consists of a childcare centre, a medical centre, a showroom with a warehouse and low impact industry. Site access will be via High Range Drive and Black Hawk Boulevard. The development is estimated to generate a total of 209 vehicle trips in the AM peak hour and 197 vehicle trips in the PM peak hour. The study area consists of two (2) LGR intersections and three (3) SCR intersections. The assumed opening year for the development is 2028, resulting in a design year of 2038.

Based on the preceding discussion and analysis the following conclusions are made:

> The introduction of development traffic does not increase the risk scores of intersections and midblock crashes within the study area.

> Black Hawk Boulevard and High Range Drive are assessed as having a low road environment risk rating. The proposed development is a Planning Act Development as defined by the GTIA and therefore, any changes to the road environment on Black Hawk Boulevard and High Range Drive do not require a road safety audit but should be subject to a road safety assessment to be conducted by either an accredited road safety auditor or an RPEQ. This requirement would be satisfied by safety reports prepared in accordance with Section 295 of the Work Health and Safety Regulation 2011 as part of the design process.

> Turn warrant assessments concluded that:

- BAL and BAR treatments are warranted at the High Range Drive / Pioneer Drive intersection, that is, deceleration lanes are not required.
- BAL and BAR treatments are warranted at the site access on High Range Drive, that is, deceleration lanes are not required.

> The minimum required ASD at the site access on High Range Drive is 65m. There is 80m of unobstructed visibility on both approaches to the site access, and therefore, the available ASD at the site access is acceptable.

> SIDRA analysis of the Black Hawk Boulevard / High Range Drive roundabout when assessed with design year (2038) "with development" traffic volumes concluded that:

- The roundabout is operating below its practical capacity, with the maximum DoS being 0.137 (DoS < 0.85) on the High Range Drive east approach in the PM peak hour.
- The maximum delay to any movement is 9.5 sec (D < 35 sec) for the right turn movement on the High Range Drive west approach in the PM peak hour, which is below the maximum specified delay in the Townsville City Plan.

> SIDRA analysis of the High Range Drive / Pioneer Drive priority-controlled intersection when assessed with design year (2038) "with development" traffic volumes concluded that:

- The intersection is operating below its practical capacity, with the maximum DoS being 0.136(DoS < 0.80) on the High Range Drive east approach in the PM peak hour.
- The maximum delay to any movement is 7.5 sec (D < 35 sec) for the right turn movement on Pioneer Drive in the PM peak hour, which is below the maximum specified delay in the Townsville City Plan.

> The intersection delay impact assessment conducted for the three (3) SCR intersections in the study area concluded that:
    - The delay impact of the development traffic is less than the threshold of 5% at the Hervey Range Road / Black Hawk Boulevard roundabout (delay impact of 1.1%), Hervey Range Drive / Kern Brothers Drive / Pioneer Drive traffic signals (0.1%) and Riverway Drive / High Range Drive / Village Boulevard traffic signals (0.7%). Therefore, mitigation measures are not required.
> This TIA will be updated at the time an MCU application is lodged for the specific use of the subject site.

6.2 Certification Statement and Authorisation

This report was prepared by Prineth Fernando (RPEQ 32194) under the supervision of Chris Marston (RPEQ 28607). It has been completed in accordance with TMR's GTIA and certification is enclosed in Appendix F.

APPENDIX A

PRE-LODGEMENT MEETING MINUTES (PLM25/0155)

PO BOX 1268, Townsville
Queensland 4810

13 48 10

enquiries@townsville.qld.gov.au
townsville.qld.gov.au

ABN: 44 741 992 072

PRE-LODGEMENT MEETING MINUTES >>

COUNCIL REFERENCE >>	PLM25/0155
ASSESSMENT NO >>	14008006
LEGAL DESCRIPTION >>	Lot 10 SP 177384
PROPERTY ADDRESS >>	11 Black Hawk Boulevard THURINGOWA CENTRAL QLD 4817
PROPOSAL >>	MCU - Variation Request for use rights in accordance with a Plan of Development - Commercial Use Rights

DATE >> 26 August 2025
TIME >> 9:00am

ATTENDEES >>

Benjamin Collings	Applicant
Peter Macdougall	State Land
Sarah Macdougall	State Land
Kate Wilkes	Senior Planner – Planning and Development
Rob Freers	Senior Development Engineer – Planning and Development
Emma Clifford	Planning Support Officer - Planning and Development

VIA MICROSOFT TEAMS/TELECONFERENCE >>

Kerrianne Meulman	Urban Economics
Nicholas Hiller	Urban Economics

Description of the Proposal

- The proposal is for Material Change of Use - Variation Request for use rights in accordance with a Plan of Development - Commercial Use Rights

Property Zoning and Overlays

Zone:
>> Major centre zone
>> Medium density residential zone
Precinct:
>> Thuringowa Central major centre precinct
>> Thuringowa South precinct
Sub-precinct:
>> Thuringowa centre support sub-precinct
>> Thuringowa town centre heart sub-precinct
Plans of development or other plans:
>> Not applicable
Priority infrastructure plan:
>> This property is within a Local Government Infrastructure Plan Area.
Overlay(s):
>> Airport Environs Overlay Map OM-01.1 - Operational airspace - Airspace more than 90m above ground level

>> Airport Environs Overlay Map OM-01.2 - Wildlife hazard buffer zones and Public safety areas - Distance from airport runway - 13km
>> Airport Environs Overlay Map OM-01.2 - Wildlife hazard buffer zones and Public safety areas - Distance from airport runway - 8km
>> Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - High hazard area
>> Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - Low hazard area
>> Development Constraints Overlay Map OM-06.1 to OM-06.2 - Flood hazard - Medium hazard area

Planning Scheme

The proposal is subject to assessment against the Townsville City Plan. The planning scheme can be viewed via the following link: Current City Plan (townsville.qld.gov.au)

Furthermore, Townsville Maps can be viewed via the following link: TownsvilleMAPS Mapping Service - Townsville City Council

Meeting Discussion

Key Discussion Points

1. Proposal Overview

- The site in question is currently split-zoned.
- The proponent is seeking preliminary feedback from Council on a potential variation request to consolidate the site for commercial use.
- A similar precedent was cited at Hyde Park, where commercial rights were moved into a residential component based on economic justification.

2. Economic Justification

- Urban Economics provided a high-level preliminary review (not a full economic impact assessment).
- Findings suggest:
    - Thuringowa Major Centre has potential for a broader mix of uses.
    - There is a gap in large-format service industry and employment-generating uses in the south-west growth corridor.
    - The site could support such uses without undermining the existing centre hierarchy.
    - Residential opportunities are emerging closer to JCU and the hospital, reducing pressure on this site for housing.

3. Planning Considerations

- The proposed plan of development should not support a new shopping centre in this location. Focus should remain on centre-support uses. Council would not support a full-line supermarket or discount department store in this location.

4. Engineering and Infrastructure

- Southern boundary abuts residential road; industrial access here may not be supported.
- The site appears well-serviced, but any application must address impacts on water, sewer, and stormwater – in particular if the aggregate demands placed on the utility networks for future commercial/industrial uses may exceed the aggregate demands that would occur for a residential development.
- Traffic impacts to be assessed at MCU stage.

5. Assessment Pathway

- The variation requests should be drafted to align with existing scheme codes where possible.
- The tables of assessment should exclude uses that may cause undue impacts on the nearby residential use.
- It is recommended the application be accompanied with a noise impact assessment to assist with determining uses that are compatible with the neighbouring residential land.
- Avoid rewriting codes unless necessary; use familiar language and structure for clarity.
- The variation request should be accompanied with the plan of development, including a structure plan. Please see post meeting feedback for further details.
- It is recommended the applicant provide a draft Plan of Development for initial review prior to lodgement of the application.

6. Other Nearby Developments

- An Ministerial Infrastructure Designation (MID) for social and affordable housing at 181 North Vickers Road is proposed for the neighbouring property to the South Refer: MID-0325-0914 : Ministerial Infrastructure Designations | Planning.

Other Applicable Information

Upon lodgement of your development application, you will be required to pay assessment fees in accordance with Council's Planning Services Fees and Charges Schedule. For the most current schedule, please refer to: Fees & Charges - Townsville City Council

Post Meeting Feedback

- The economic impact assessment should provide an assessment of the extent of developable land available identified within the Major centre zone.
- The variation request should be accompanied with a Plan of Development, whereby a proportion of the development, supports residential uses.
- The PoD should consider a structure plan that provides for a buffer between the existing land within the medium Density residential zone and land to be included in the Major Centre Zone, to mitigate against amenity impacts. Additionally, where possible 'back of house' areas with loading docs and refuse areas should not face the existing nearby residential uses.
- Strategic framework
  The Strategic framework envisions the site to form part of a vibrant urban neighbourhood (see figure 3.5 – Thuringowa Central strategy plan below) and it identifies a pedestrian connection through the eastern proportion of the site. It is requested that the development provide this linkage. The Thuringowa South precinct also advocates for development facilitating pedestrian and cyclist access to the Thuringowa Central major centre precinct. To realise the sites potential, the POD should be designed to achieve the outcomes sought in Figure 3.5 of the Townsville City Plan, which clearly shows a pedestrian linkage from the site into the broader residential area with accessibility to the site and surrounding area easily able to occur by walking, cycling and public transport.

(Source: Townsville City Plan – Strategic framework figure 3.5 – Thuringowa Central strategy plan)

Assessment Fee
As per the fees and charges schedule, the assessment fee is price on application and will need to be calculated following receipt of the application. In particular, Council will need consider the cost of a third party review of the Economic Impact Assessment.

Further Feedback
Council would like to offer a subsequent prelodgement meeting to provide further advice on the proposal, prior to formal application being made.

Meeting Closed >> 9:25am

Note: This pre-lodgement advice has been prepared based on the information provided in the meeting. A full assessment of the proposal against the planning scheme has not been carried out and this advice may be subject to change at the time of lodgement of a formal development application. An application may be subject to requests for further information not identified in the pre-lodgement meeting following a full assessment.

APPENDIX B
CRASH DATA

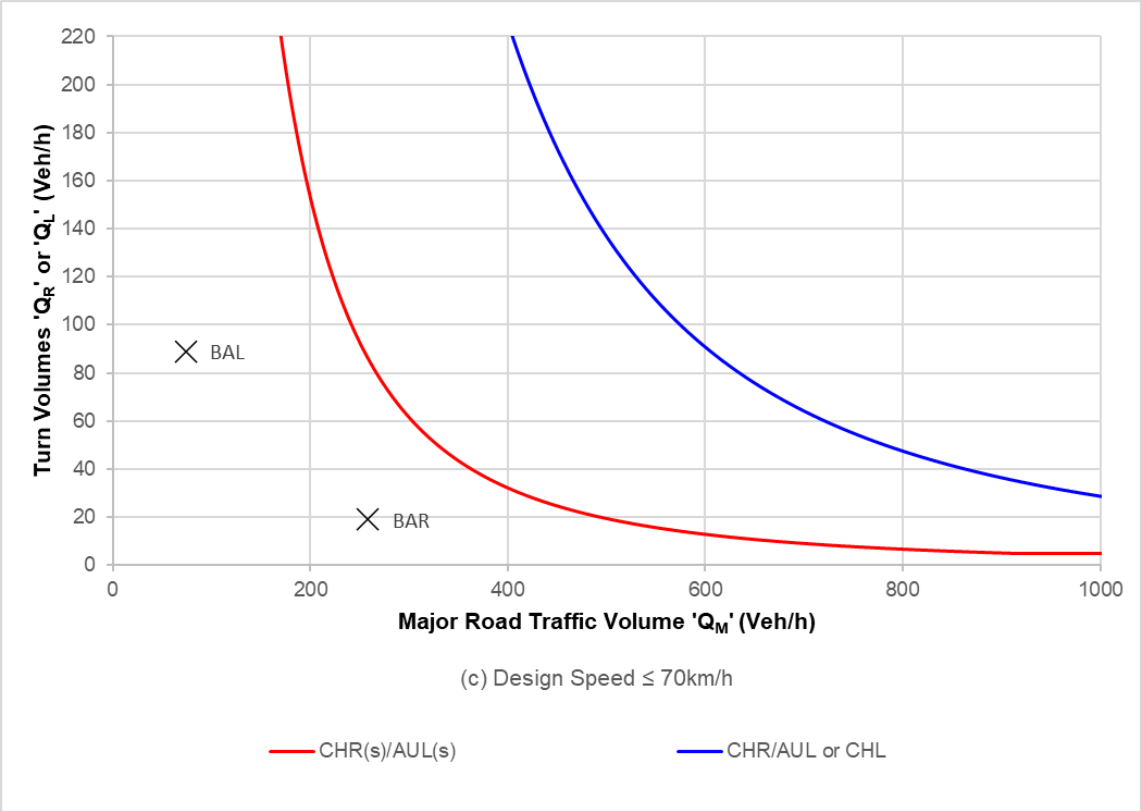
Reported road traffic crashes within the defined subject area, Townsville City Local Government Area
Fatal crashes: 1 January 2009 to 31 May 2025
Non-fatal casualty (hospitalisation, medical treatment and minor injury) crashes: 1 January 2009 to 28 February 2025
AADT (as at the year of the crash) is provided at the road level (i.e. not recorded for a specific carriageway).

CRASH_REF_NUMBER	CRASH_SEVERITY	CRASH_YEAR	CRASH_STREET	CRASH_STREET_INTERSECTING	CRASH_ROADWAY_TYPE	CRASH_DCA_CODE	CRASH_DCA_DESCRIPTION	CASUALTY_FATALITY	CASUALTY_HOSPITALISED	CASUALTY_MEDICALLY_TREATED	CASUALTY_MINOR_INJURY
3	Medical treatment	2016	Hervey Range Rd (Code To 34183)	Kern Brothers Dr	Intersection	302	Vehs Same Direction: Left Rear	0	0	1	0
6	Medical treatment	2015	Hervey Range Rd (Code To 34183)	Kern Brothers Dr	Intersection	107	Vehs Adjacent Approach: Thru-Left	0	0	1	0
8	Minor injury	2016	Garbutt - Upper Ross Rd	High Range Dr	Intersection	305	Vehs Same Direction: Lane Side Swipe	0	0	0	1
14	Hospitalisation	2011	Black Hawk Bvd	High Range Dr	Intersection	708	Off Path-Straight: Mounts Traffic Island	0	1	0	0
17	Hospitalisation	2011	High Range Dr		Midblock	400	Vehs Manoeuvring: Other	0	1	0	0
18	Minor injury	2012	Black Hawk Bvd	High Range Dr	Intersection	101	Vehs Adjacent Approach: Thru-Thru	0	0	0	1
20	Medical treatment	2009	Garbutt - Upper Ross Rd	High Range Dr	Intersection	303	Vehs Same Direction: Right Rear	0	0	3	0
29	Medical treatment	2019	Hervey Range Rd (Code To 34183)	Kern Brothers Dr	Intersection	307	Vehs Same Direction: Lane Change Left	0	0	2	0
38	Medical treatment	2018	Garbutt - Upper Ross Rd	High Range Dr	Intersection	301	Vehs Same Direction: Rear End	0	0	1	0
40	Minor injury	2023	Garbutt - Upper Ross Rd	High Range Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	0	2
43	Hospitalisation	2022	Black Hawk Bvd	Hervey Range Rd (Code To 34183)	Intersection	703	Off Path-Straight: Left Off Cway Hit Obj	0	1	0	0
45	Medical treatment	2024	High Range Dr	Pioneer Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	2	0
50	Medical treatment	2009	Hervey'S Range Developmental Rd	Kern Brothers Dr	Intersection	302	Vehs Same Direction: Left Rear	0	0	1	0
51	Medical treatment	2009	Hervey'S Range Developmental Rd	Kern Brothers Dr	Intersection	101	Vehs Adjacent Approach: Thru-Thru	0	0	1	0
52	Minor injury	2011	Black Hawk Bvd	Hervey'S Range Developmental Rd	Intersection	305	Vehs Same Direction: Lane Side Swipe	0	0	0	1
56	Medical treatment	2009	High Range Dr		Midblock	202	Vehs Opposite Approach: Thru-Right	0	0	2	0
58	Medical treatment	2011	Garbutt - Upper Ross Rd	High Range Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	1	0
59	Medical treatment	2011	Pioneer Dr		Midblock	406	Vehs Manoeuvring: Leaving Driveway	0	0	1	0
60	Hospitalisation	2012	Black Hawk Bvd	Hervey'S Range Developmental Rd	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	2	0	0
64	Minor injury	2014	Hervey Range Rd (Code To 34183)	Kern Brothers Dr	Intersection	107	Vehs Adjacent Approach: Thru-Left	0	0	0	1
69	Medical treatment	2021	Pioneer Dr		Midblock	301	Vehs Same Direction: Rear End	0	0	1	0
70	Minor injury	2023	Black Hawk Bvd	Hervey Range Rd (Code To 34183)	Intersection	308	Vehs Same Direction: Right Turn S/Swipe	0	0	0	1
71	Hospitalisation	2023	Garbutt - Upper Ross Rd	High Range Dr	Intersection	408	Vehs Manoeuvring: Entering From Footway	0	1	0	0
75	Hospitalisation	2016	High Range Dr		Midblock	201	Vehs Opposite Approach: Head On	0	1	0	0
77	Medical treatment	2013	Black Hawk Bvd	High Range Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	1	0
81	Hospitalisation	2012	Black Hawk Bvd		Midblock	3	Pedn: Far Side Vehicle Hit From Left	0	1	0	0
83	Medical treatment	2015	High Range Dr	Pioneer Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	1	0
84	Hospitalisation	2009	Hervey'S Range Developmental Rd	Kern Brothers Dr	Intersection	107	Vehs Adjacent Approach: Thru-Left	0	1	0	0
85	Medical treatment	2011	High Range Dr		Midblock	202	Vehs Opposite Approach: Thru-Right	0	0	1	0
86	Medical treatment	2010	High Range Dr	Pioneer Dr	Intersection	102	Vehs Adjacent Approach: Right-Thru	0	0	1	0
87	Medical treatment	2012	High Range Dr		Midblock	406	Vehs Manoeuvring: Leaving Driveway	0	0	2	1
90	Medical treatment	2013	High Range Dr		Midblock	400	Vehs Manoeuvring: Other	0	0	1	0
102	Hospitalisation	2021	Black Hawk Bvd	Hervey Range Rd (Code To 34183)	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	1	0	0
103	Medical treatment	2018	Garbutt - Upper Ross Rd	High Range Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	0	1	0
104	Medical treatment	2009	Garbutt - Upper Ross Rd	High Range Dr	Intersection	408	Vehs Manoeuvring: Entering From Footway	0	0	1	0
105	Medical treatment	2009	High Range Dr		Midblock	301	Vehs Same Direction: Rear End	0	0	1	0
107	Minor injury	2009	High Range Dr		Midblock	703	Off Path-Straight: Left Off Cway Hit Obj	0	0	0	1
108	Hospitalisation	2009	Black Hawk Bvd	Hervey'S Range Developmental Rd	Intersection	305	Vehs Same Direction: Lane Side Swipe	0	1	2	0
110	Hospitalisation	2021	Black Hawk Bvd	Hervey Range Rd (Code To 34183)	Intersection	101	Vehs Adjacent Approach: Thru-Thru	0	1	0	0
120	Medical treatment	2021	Black Hawk Bvd	Hervey Range Rd (Code To 34183)	Intersection	202	Vehs Opposite Approach: Thru-Right	0	0	1	0
121	Hospitalisation	2014	Black Hawk Bvd		Midblock	406	Vehs Manoeuvring: Leaving Driveway	0	1	0	0
122	Hospitalisation	2017	Black Hawk Bvd		Midblock	703	Off Path-Straight: Left Off Cway Hit Obj	0	1	0	0
125	Medical treatment	2019	Garbutt - Upper Ross Rd	High Range Dr	Intersection	303	Vehs Same Direction: Right Rear	0	0	1	0
126	Medical treatment	2020	Black Hawk Bvd	High Range Dr	Intersection	301	Vehs Same Direction: Rear End	0	0	1	0
129	Medical treatment	2023	Garbutt - Upper Ross Rd	High Range Dr	Intersection	202	Vehs Opposite Approach: Thru-Right	0	0	1	0
130	Medical treatment	2023	High Range Dr		Midblock	303	Vehs Same Direction: Right Rear	0	0	2	0
131	Hospitalisation	2023	High Range Dr	Pioneer Dr	Intersection	202	Vehs Opposite Approach: Thru-Right	0	1	0	0
133	Medical treatment	2023	Hervey Range Rd (Code To 34183)	Kern Brothers Dr	Intersection	101	Vehs Adjacent Approach: Thru-Thru	0	0	1	0
134	Hospitalisation	2023	Garbutt - Upper Ross Rd	High Range Dr	Intersection	104	Vehs Adjacent Approach: Thru-Right	0	1	0	1
135	Hospitalisation	2023	High Range Dr	Pioneer Dr	Intersection	202	Vehs Opposite Approach: Thru-Right	0	2	0	0
139	Medical treatment	2010	Garbutt - Upper Ross Rd	High Range Dr	Intersection	202	Vehs Opposite Approach: Thru-Right	0	0	1	0

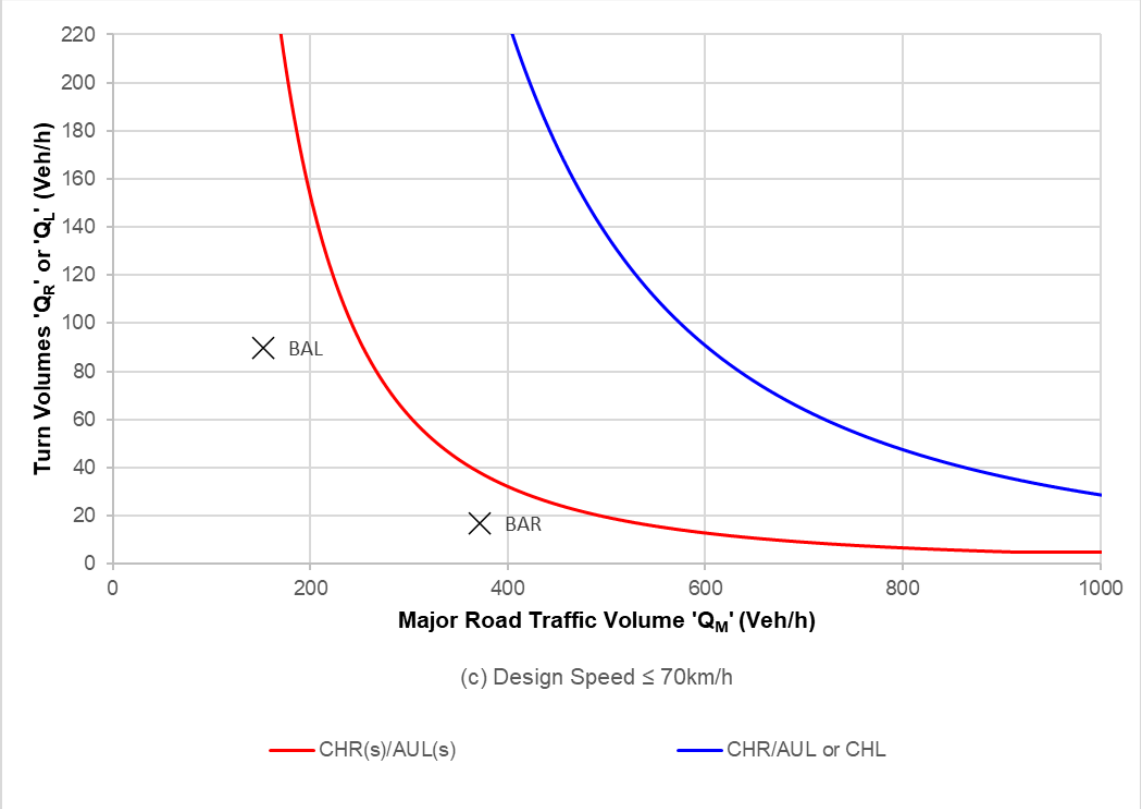
APPENDIX C
TURN WARRANT ASSESSMENT

Site Access on High Range Drive

AM Peak Hour

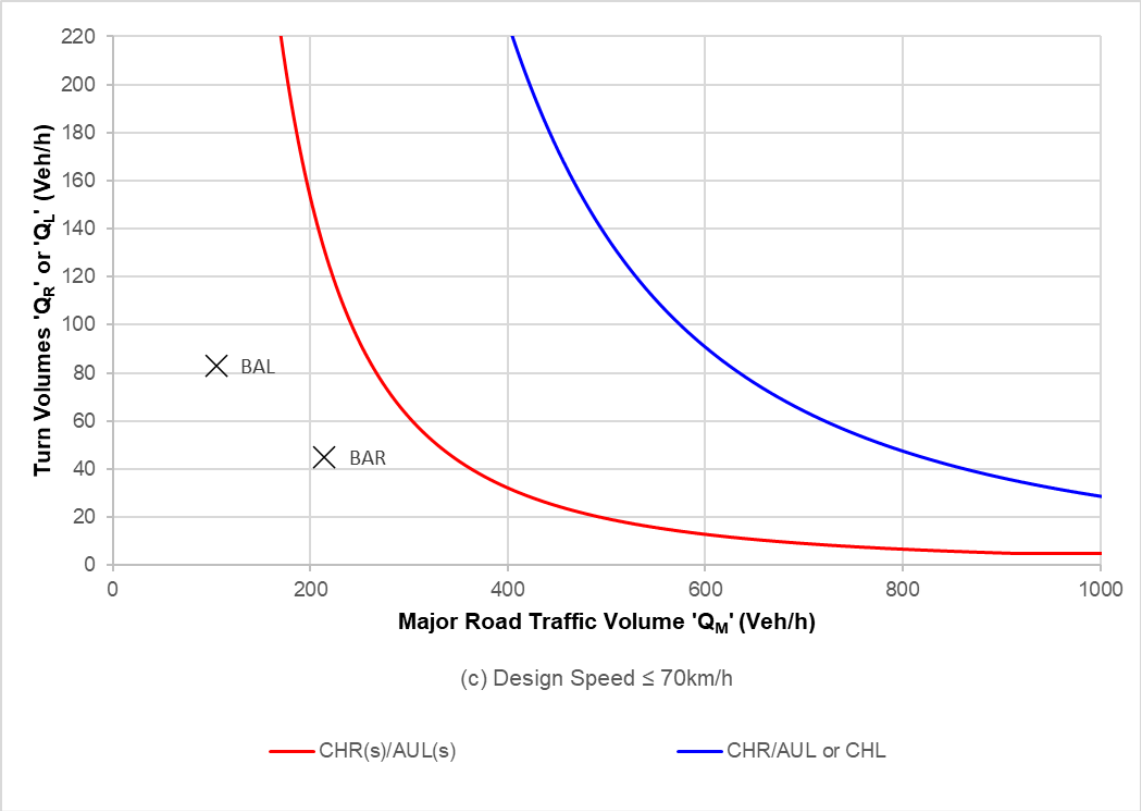


PM Peak Hour

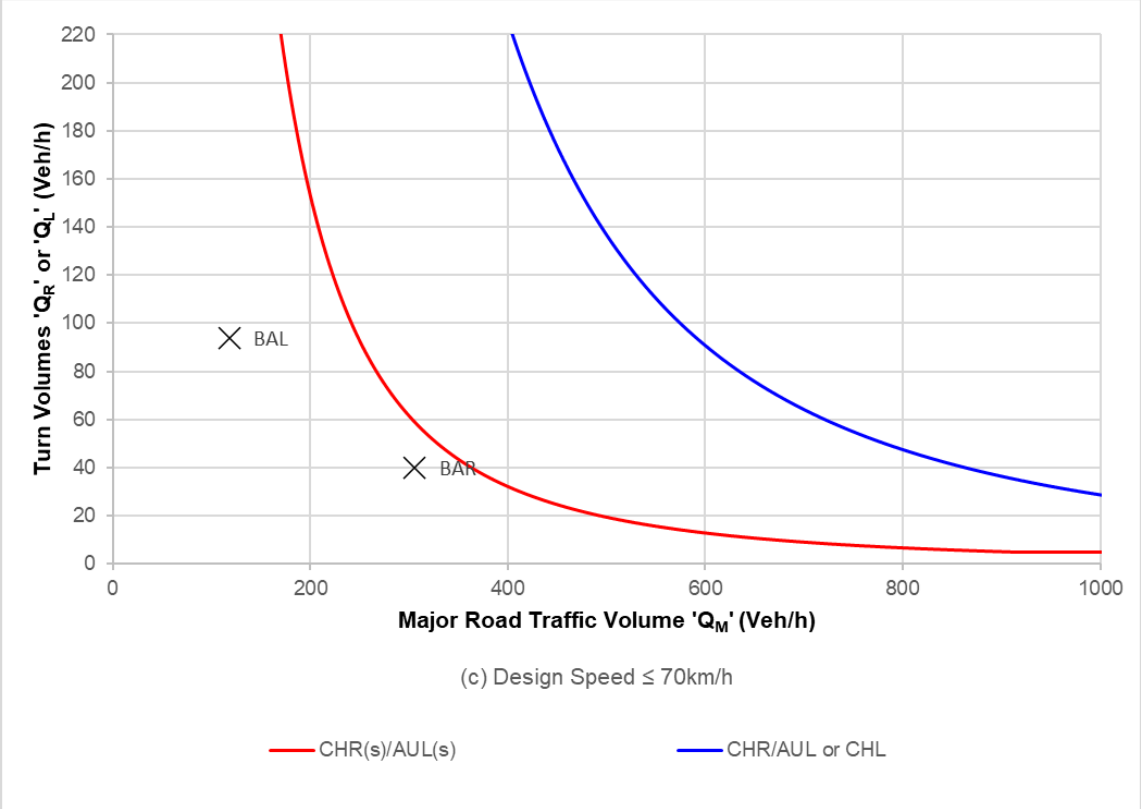


High Range Drive / Pioneer Drive Intersection

AM Peak Hour



PM Peak Hour



APPENDIX D

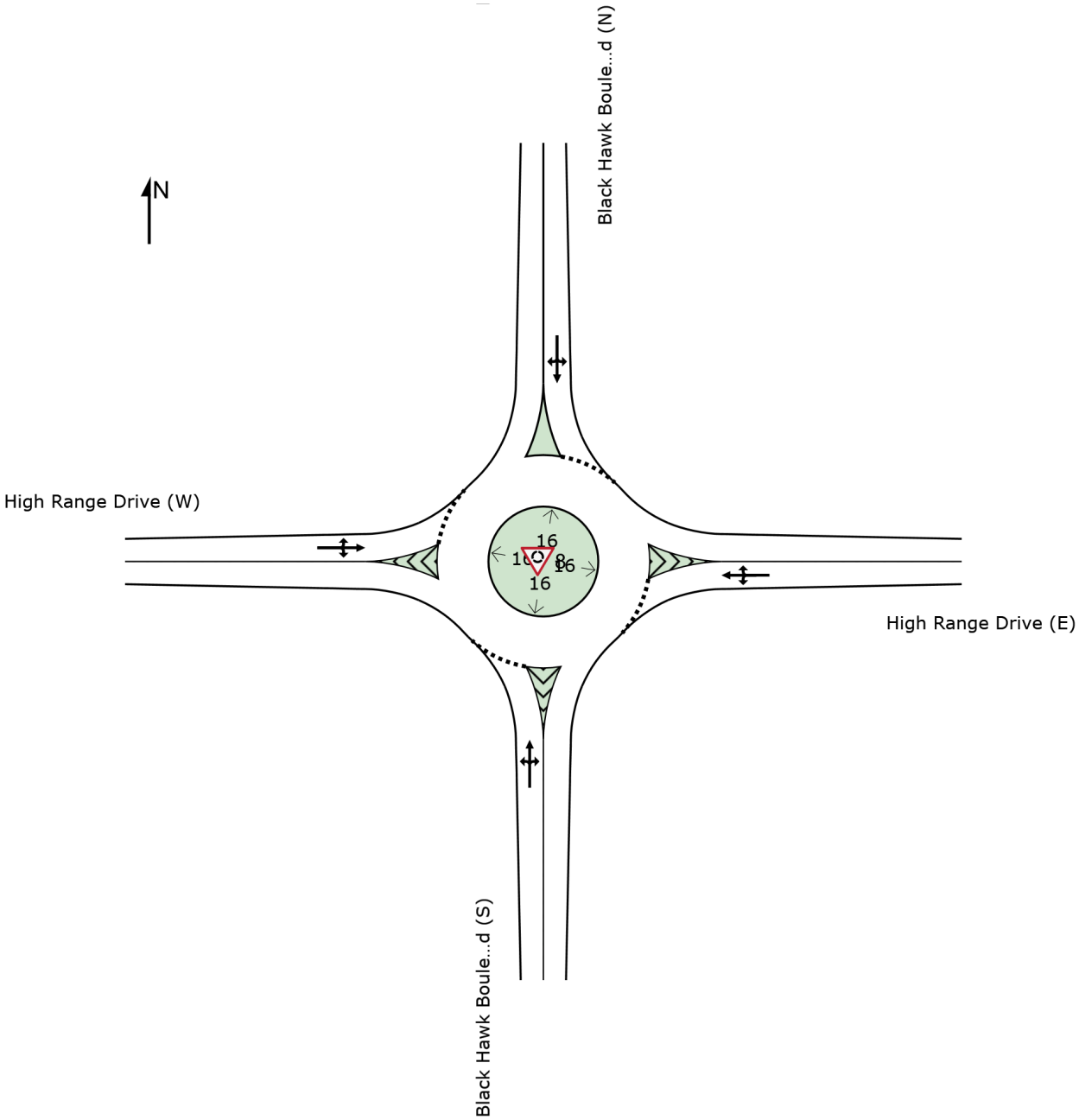
SIDRA OUTPUT (LOCAL GOVERNMENT ROAD INTERSECTIONS)

SITE LAYOUT

Site: [8] AM peak with development (Black Hawk Boulevard / High Range Drive roundabout)

WIth Development Design Year (2038)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:39:20 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [8] AM peak with development (Black Hawk Boulevard / High Range Drive roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

WIth Development Design Year (2038)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	3	5.0	3	5.0	0.089	4.5	LOS A	0.4	3.2	0.20	0.54	0.20	48.5
2	T1	All MCs	52	5.0	52	5.0	0.089	4.7	LOS A	0.4	3.2	0.20	0.54	0.20	48.0
3	R2	All MCs	58	5.0	58	5.0	0.089	8.8	LOS A	0.4	3.2	0.20	0.54	0.20	51.1
Approach			113	5.0	113	5.0	0.089	6.8	LOS A	0.4	3.2	0.20	0.54	0.20	49.9
East: High Range Drive (E)															
4	L2	All MCs	48	5.0	48	5.0	0.078	4.4	LOS A	0.4	2.9	0.19	0.54	0.19	52.0
5	T1	All MCs	14	5.0	14	5.0	0.078	4.7	LOS A	0.4	2.9	0.19	0.54	0.19	49.5
6	R2	All MCs	38	5.0	38	5.0	0.078	8.8	LOS A	0.4	2.9	0.19	0.54	0.19	37.0
Approach			100	5.0	100	5.0	0.078	6.1	LOS A	0.4	2.9	0.19	0.54	0.19	46.3
North: Black Hawk Boulevard (N)															
7	L2	All MCs	53	5.0	53	5.0	0.086	4.5	LOS A	0.4	3.1	0.21	0.48	0.21	49.0
8	T1	All MCs	44	5.0	44	5.0	0.086	4.7	LOS A	0.4	3.1	0.21	0.48	0.21	49.6
9	R2	All MCs	12	5.0	12	5.0	0.086	8.8	LOS A	0.4	3.1	0.21	0.48	0.21	41.0
Approach			108	5.0	108	5.0	0.086	5.0	LOS A	0.4	3.1	0.21	0.48	0.21	48.7
West: High Range Drive (W)															
10	L2	All MCs	9	5.0	9	5.0	0.018	4.8	LOS A	0.1	0.6	0.30	0.49	0.30	41.5
11	T1	All MCs	9	5.0	9	5.0	0.018	5.1	LOS A	0.1	0.6	0.30	0.49	0.30	50.2
12	R2	All MCs	2	5.0	2	5.0	0.018	9.2	LOS A	0.1	0.6	0.30	0.49	0.30	49.1
Approach			21	5.0	21	5.0	0.018	5.4	LOS A	0.1	0.6	0.30	0.49	0.30	47.3
All Vehicles			342	5.0	342	5.0	0.089	5.9	LOS A	0.4	3.2	0.21	0.52	0.21	48.2

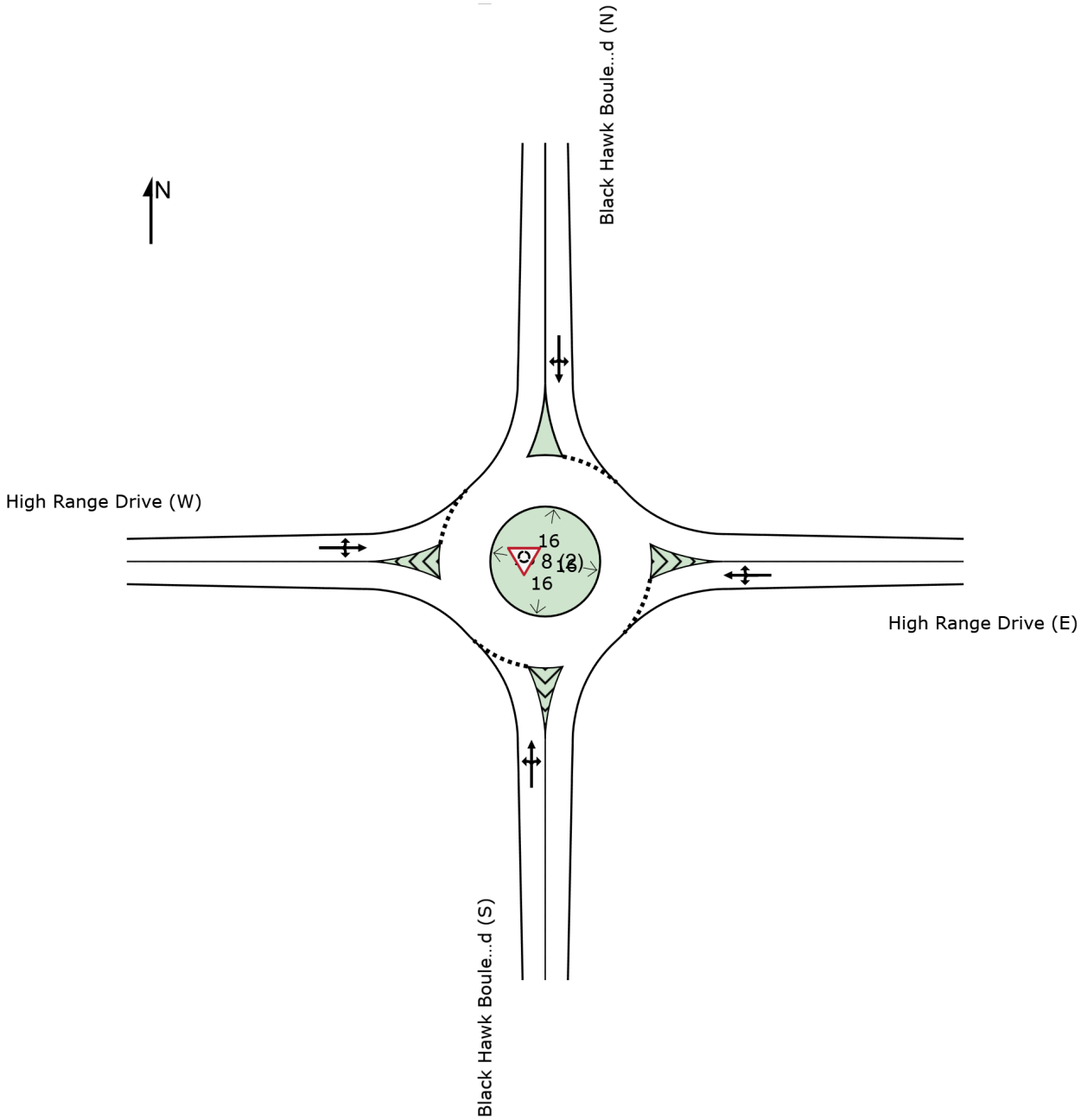
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [8 (2)] PM peak with development (Black Hawk Boulevard / High Range Drive roundabout)

WIth Development Design Year (2038)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:39:29 AM
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MOVEMENT SUMMARY

Site: [8 (2)] PM peak with development (Black Hawk Boulevard / High Range Drive roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

WIth Development Design Year (2038)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	5	5.0	5	5.0	0.116	4.8	LOS A	0.6	4.3	0.30	0.53	0.30	48.4
2	T1	All MCs	79	5.0	79	5.0	0.116	5.1	LOS A	0.6	4.3	0.30	0.53	0.30	47.8
3	R2	All MCs	52	5.0	52	5.0	0.116	9.2	LOS A	0.6	4.3	0.30	0.53	0.30	50.9
Approach			136	5.0	136	5.0	0.116	6.6	LOS A	0.6	4.3	0.30	0.53	0.30	49.3
East: High Range Drive (E)															
4	L2	All MCs	89	5.0	89	5.0	0.137	4.5	LOS A	0.7	5.3	0.22	0.52	0.22	52.2
5	T1	All MCs	36	5.0	36	5.0	0.137	4.7	LOS A	0.7	5.3	0.22	0.52	0.22	49.7
6	R2	All MCs	52	5.0	52	5.0	0.137	8.9	LOS A	0.7	5.3	0.22	0.52	0.22	37.1
Approach			177	5.0	177	5.0	0.137	5.8	LOS A	0.7	5.3	0.22	0.52	0.22	47.6
North: Black Hawk Boulevard (N)															
7	L2	All MCs	75	5.0	75	5.0	0.111	4.6	LOS A	0.6	4.1	0.24	0.52	0.24	48.1
8	T1	All MCs	24	5.0	24	5.0	0.111	4.8	LOS A	0.6	4.1	0.24	0.52	0.24	48.7
9	R2	All MCs	39	5.0	39	5.0	0.111	8.9	LOS A	0.6	4.1	0.24	0.52	0.24	39.9
Approach			138	5.0	138	5.0	0.111	5.8	LOS A	0.6	4.1	0.24	0.52	0.24	46.5
West: High Range Drive (W)															
10	L2	All MCs	58	5.0	58	5.0	0.083	5.1	LOS A	0.4	3.0	0.36	0.52	0.36	41.1
11	T1	All MCs	27	5.0	27	5.0	0.083	5.3	LOS A	0.4	3.0	0.36	0.52	0.36	50.0
12	R2	All MCs	6	5.0	6	5.0	0.083	9.5	LOS A	0.4	3.0	0.36	0.52	0.36	48.8
Approach			92	5.0	92	5.0	0.083	5.5	LOS A	0.4	3.0	0.36	0.52	0.36	45.5
All Vehicles			542	5.0	542	5.0	0.137	6.0	LOS A	0.7	5.3	0.27	0.52	0.27	47.6

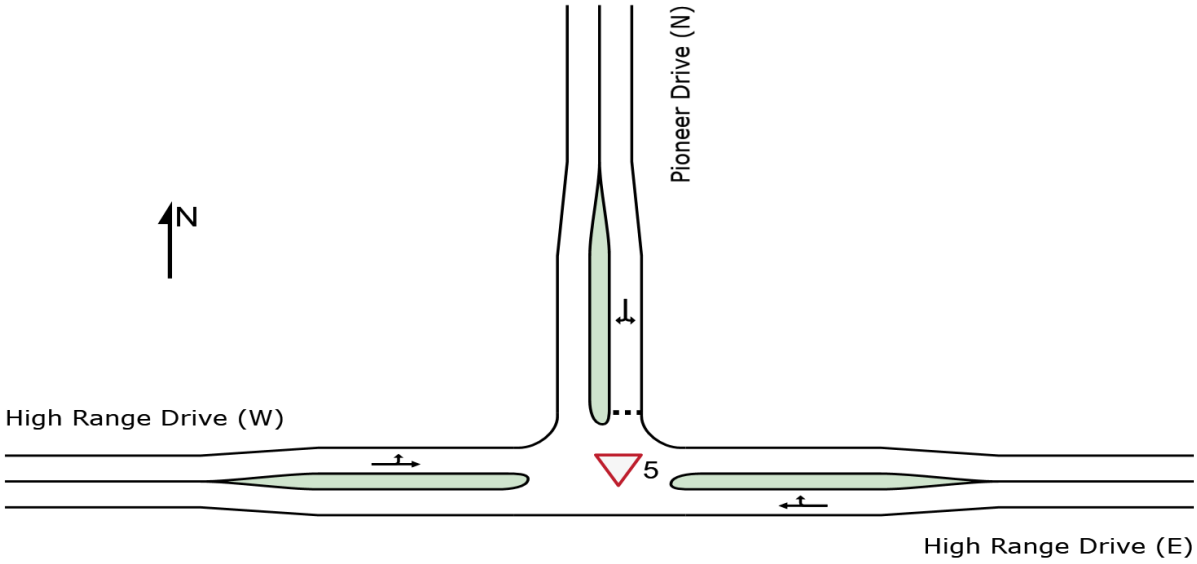
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [5] AM peak with development (High Range Drive / Pioneer Drive priority-controlled intersection)

With Development Design Year (2038)
AM Peak Hour
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:39:42 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [5] AM peak with development (High Range Drive / Pioneer Drive priority-controlled intersection)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Design Year (2038)
AM Peak Hour
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: High Range Drive (E)															
5	T1	All MCs	115	5.0	115	5.0	0.094	0.3	LOS A	0.3	2.3	0.20	0.25	0.20	54.4
6	R2	All MCs	47	5.0	47	5.0	0.094	6.3	LOS A	0.3	2.3	0.20	0.25	0.20	46.4
Approach			162	5.0	162	5.0	0.094	2.1	NA	0.3	2.3	0.20	0.25	0.20	52.5
North: Pioneer Drive (N)															
7	L2	All MCs	53	5.0	53	5.0	0.099	6.0	LOS A	0.4	2.6	0.28	0.58	0.28	39.5
9	R2	All MCs	58	5.0	58	5.0	0.099	7.0	LOS A	0.4	2.6	0.28	0.58	0.28	42.3
Approach			111	5.0	111	5.0	0.099	6.5	LOS A	0.4	2.6	0.28	0.58	0.28	41.1
West: High Range Drive (W)															
10	L2	All MCs	87	5.0	87	5.0	0.107	5.6	LOS A	0.0	0.0	0.00	0.26	0.00	50.4
11	T1	All MCs	111	5.0	111	5.0	0.107	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	56.2
Approach			198	5.0	198	5.0	0.107	2.5	NA	0.0	0.0	0.00	0.26	0.00	53.9
All Vehicles			471	5.0	471	5.0	0.107	3.3	NA	0.4	2.6	0.13	0.33	0.13	50.3

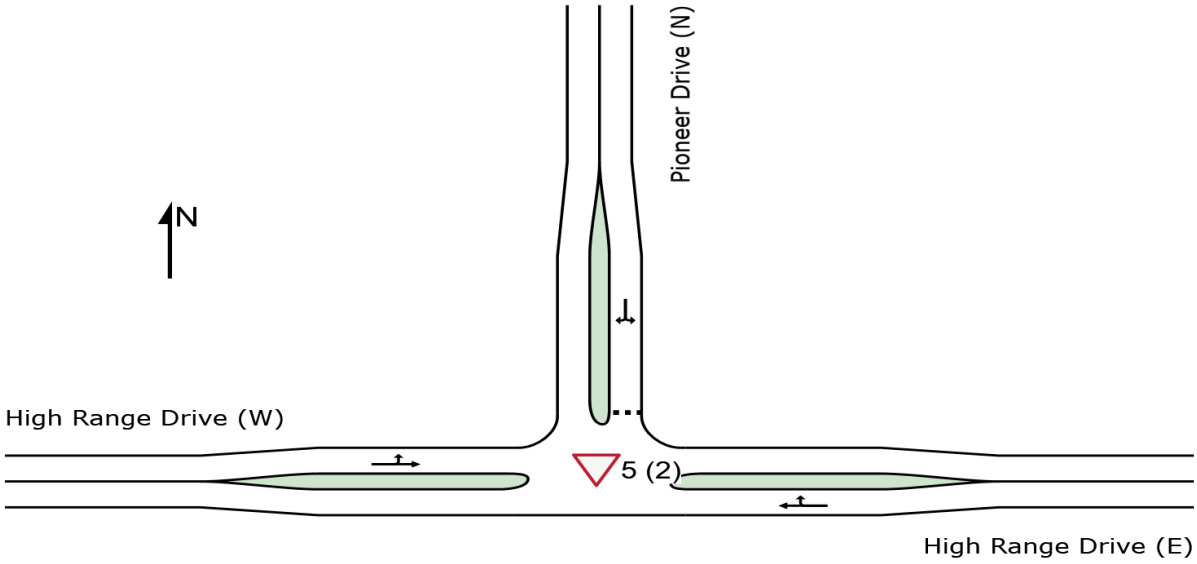
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [5 (2)] PM peak with development (High Range Drive / Pioneer Drive priority-controlled intersection)

With Development Design Year (2038)
PM Peak Hour
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:39:45 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [5 (2)] PM peak with development (High Range Drive / Pioneer Drive priority-controlled intersection)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Design Year (2038)
PM Peak Hour
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: High Range Drive (E)															
5	T1	All MCs	198	5.0	198	5.0	0.136	0.2	LOS A	0.3	2.3	0.14	0.17	0.14	55.0
6	R2	All MCs	42	5.0	42	5.0	0.136	6.4	LOS A	0.3	2.3	0.14	0.17	0.14	47.1
Approach			240	5.0	240	5.0	0.136	1.3	NA	0.3	2.3	0.14	0.17	0.14	53.9
North: Pioneer Drive (N)															
7	L2	All MCs	42	5.0	42	5.0	0.099	6.0	LOS A	0.4	2.6	0.32	0.59	0.32	38.7
9	R2	All MCs	58	5.0	58	5.0	0.099	7.5	LOS A	0.4	2.6	0.32	0.59	0.32	41.5
Approach			100	5.0	100	5.0	0.099	6.9	LOS A	0.4	2.6	0.32	0.59	0.32	40.4
West: High Range Drive (W)															
10	L2	All MCs	99	5.0	99	5.0	0.121	5.6	LOS A	0.0	0.0	0.00	0.26	0.00	50.4
11	T1	All MCs	124	5.0	124	5.0	0.121	0.0	LOS A	0.0	0.0	0.00	0.26	0.00	56.2
Approach			223	5.0	223	5.0	0.121	2.5	NA	0.0	0.0	0.00	0.26	0.00	53.8
All Vehicles			563	5.0	563	5.0	0.136	2.8	NA	0.4	2.6	0.12	0.28	0.12	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX E

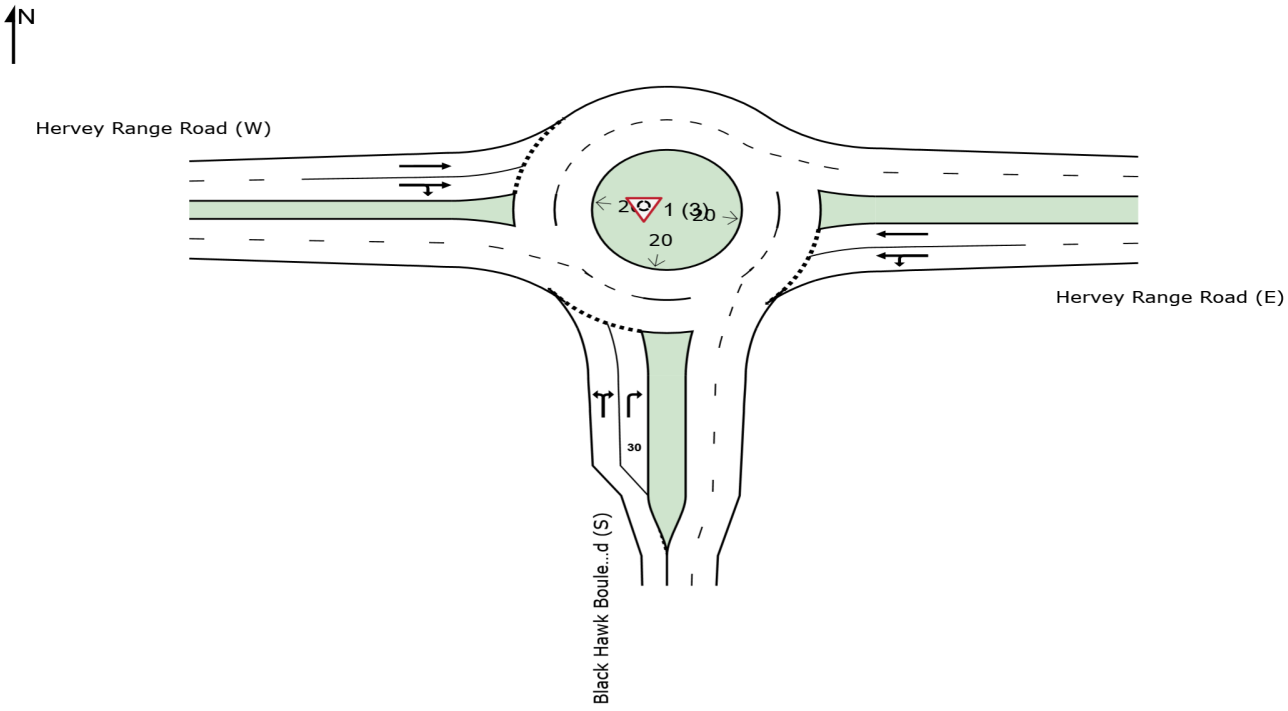
SIDRA OUTPUT (STATE-CONTROLLED ROAD INTERSECTIONS)

SITE LAYOUT

Site: [1 (3)] AM peak without development (Hervey Range Road / Black Hawk Boulevard roundabout)

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:47:41 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [1 (3)] AM peak without development (Hervey Range Road / Black Hawk Boulevard roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	34	5.0	34	5.0	0.053	5.9	LOS A	0.2	1.4	0.48	0.68	0.48	46.2
3	R2	All MCs	63	5.0	63	5.0	0.053	10.9	LOS B	0.2	1.4	0.49	0.73	0.49	37.8
Approach			97	5.0	97	5.0	0.053	9.2	LOS A	0.2	1.4	0.48	0.71	0.48	41.1
East: Hervey Range Road (E)															
4	L2	All MCs	66	5.0	66	5.0	0.276	4.4	LOS A	1.4	10.5	0.17	0.41	0.17	46.5
5	T1	All MCs	720	5.0	720	5.0	0.276	4.4	LOS A	1.4	10.5	0.17	0.40	0.17	52.7
Approach			786	5.0	786	5.0	0.276	4.4	LOS A	1.4	10.5	0.17	0.40	0.17	52.4
West: Hervey Range Road (W)															
11	T1	All MCs	1267	5.0	1267	5.0	0.464	4.5	LOS A	3.2	23.7	0.26	0.41	0.26	51.7
12	R2	All MCs	48	5.0	48	5.0	0.464	9.2	LOS A	3.2	23.5	0.27	0.43	0.27	49.2
Approach			1316	5.0	1316	5.0	0.464	4.7	LOS A	3.2	23.7	0.26	0.41	0.26	51.6
All Vehicles			2199	5.0	2199	5.0	0.464	4.8	LOS A	3.2	23.7	0.24	0.42	0.24	51.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

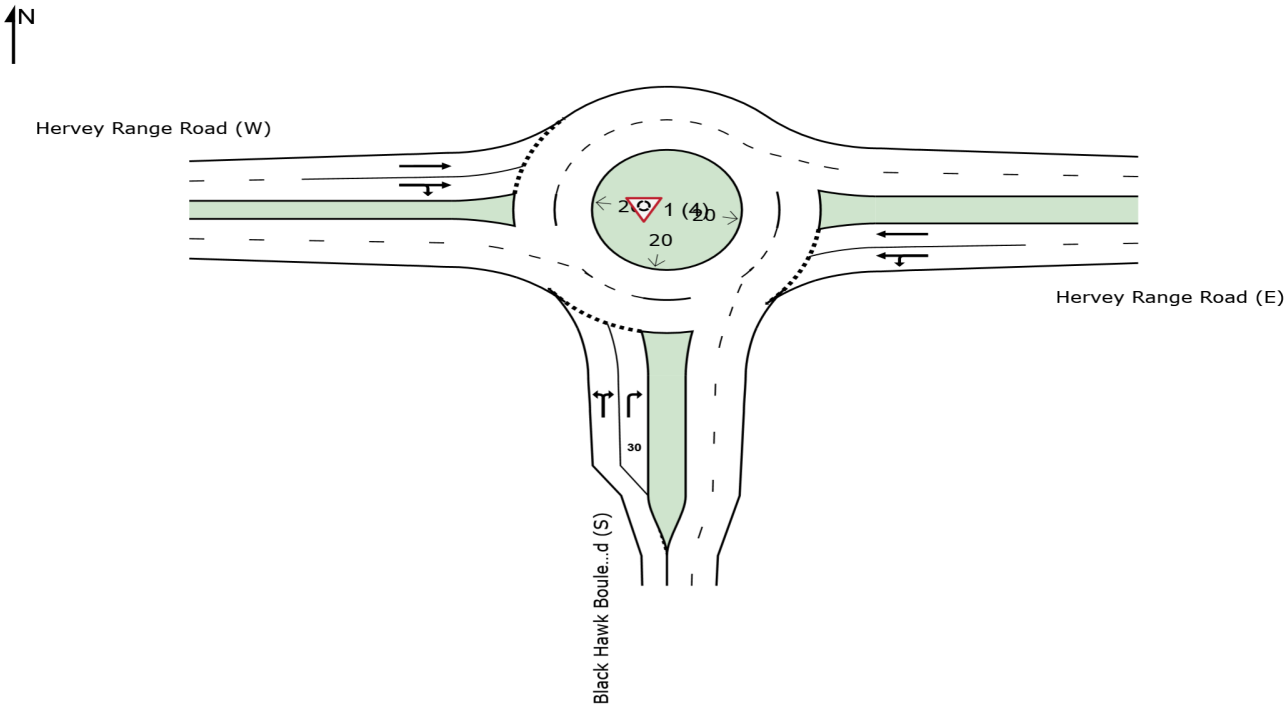
Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:47:43 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [1 (4)] PM peak without development (Hervey Range Road / Black Hawk Boulevard roundabout)

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: [1 (4)] PM peak without development (Hervey Range Road / Black Hawk Boulevard roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	89	5.0	89	5.0	0.135	6.2	LOS A	0.5	3.9	0.52	0.69	0.52	46.1
3	R2	All MCs	153	5.0	153	5.0	0.135	11.2	LOS B	0.5	3.9	0.53	0.74	0.53	37.6
Approach			242	5.0	242	5.0	0.135	9.3	LOS A	0.5	3.9	0.52	0.72	0.52	41.1
East: Hervey Range Road (E)															
4	L2	All MCs	103	5.0	103	5.0	0.308	4.5	LOS A	1.7	12.5	0.21	0.42	0.21	46.2
5	T1	All MCs	756	5.0	756	5.0	0.308	4.5	LOS A	1.7	12.5	0.21	0.41	0.21	52.6
Approach			859	5.0	859	5.0	0.308	4.5	LOS A	1.7	12.5	0.21	0.41	0.21	52.1
West: Hervey Range Road (W)															
11	T1	All MCs	682	5.0	682	5.0	0.299	4.8	LOS A	1.6	11.8	0.34	0.47	0.34	51.1
12	R2	All MCs	65	5.0	65	5.0	0.299	9.5	LOS A	1.6	11.6	0.35	0.49	0.35	48.3
Approach			747	5.0	747	5.0	0.299	5.3	LOS A	1.6	11.8	0.34	0.47	0.34	50.8
All Vehicles			1848	5.0	1848	5.0	0.308	5.4	LOS A	1.7	12.5	0.31	0.47	0.31	50.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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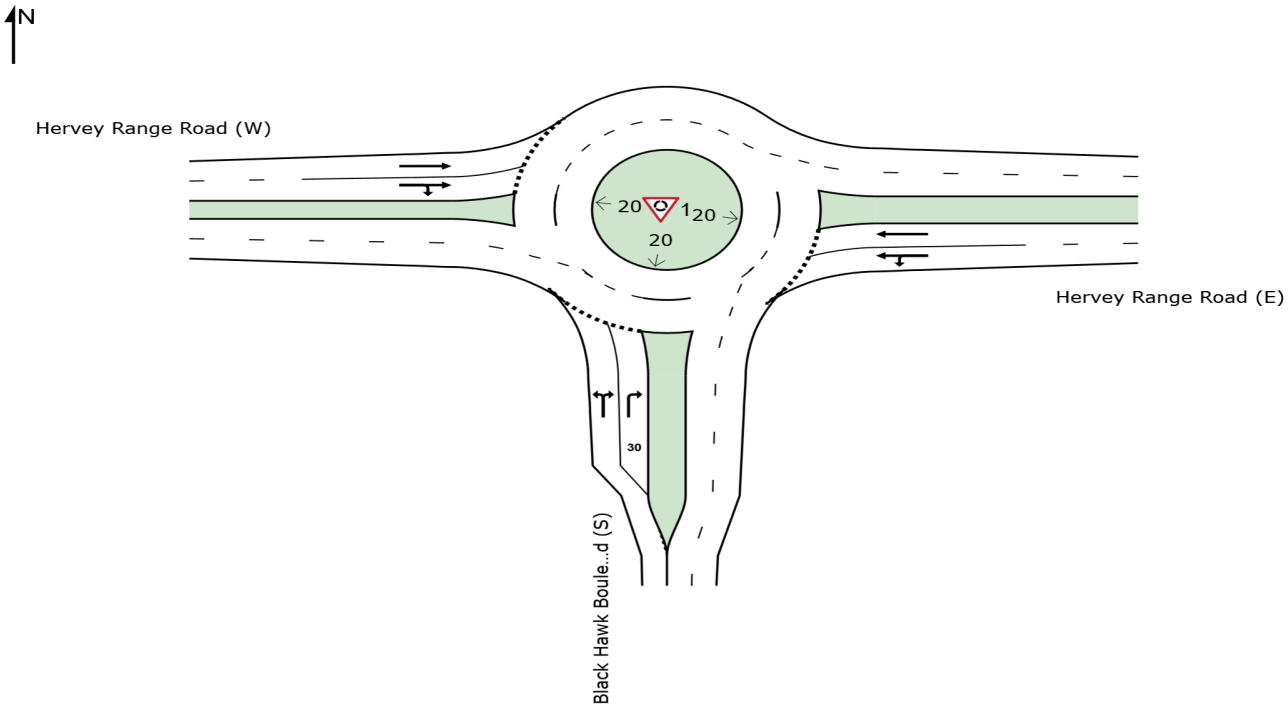
SITE LAYOUT

Site: [1] AM peak with development (Hervey Range Road / Black Hawk Boulevard roundabout)

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:47:49 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [1] AM peak with development (Hervey Range Road / Black Hawk Boulevard roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	51	5.0	51	5.0	0.062	6.0	LOS A	0.2	1.7	0.48	0.66	0.48	46.9
3	R2	All MCs	63	5.0	63	5.0	0.062	10.9	LOS B	0.2	1.7	0.50	0.73	0.50	37.6
Approach			114	5.0	114	5.0	0.062	8.7	LOS A	0.2	1.7	0.49	0.70	0.49	42.1
East: Hervey Range Road (E)															
4	L2	All MCs	66	5.0	66	5.0	0.282	4.5	LOS A	1.5	10.8	0.20	0.41	0.20	46.3
5	T1	All MCs	720	5.0	720	5.0	0.282	4.5	LOS A	1.5	10.8	0.20	0.41	0.20	52.6
Approach			786	5.0	786	5.0	0.282	4.5	LOS A	1.5	10.8	0.20	0.41	0.20	52.3
West: Hervey Range Road (W)															
11	T1	All MCs	1267	5.0	1267	5.0	0.470	4.5	LOS A	3.3	24.4	0.27	0.42	0.27	51.6
12	R2	All MCs	64	5.0	64	5.0	0.470	9.2	LOS A	3.3	24.1	0.27	0.43	0.27	49.1
Approach			1332	5.0	1332	5.0	0.470	4.8	LOS A	3.3	24.4	0.27	0.42	0.27	51.5
All Vehicles			2232	5.0	2232	5.0	0.470	4.9	LOS A	3.3	24.4	0.25	0.43	0.25	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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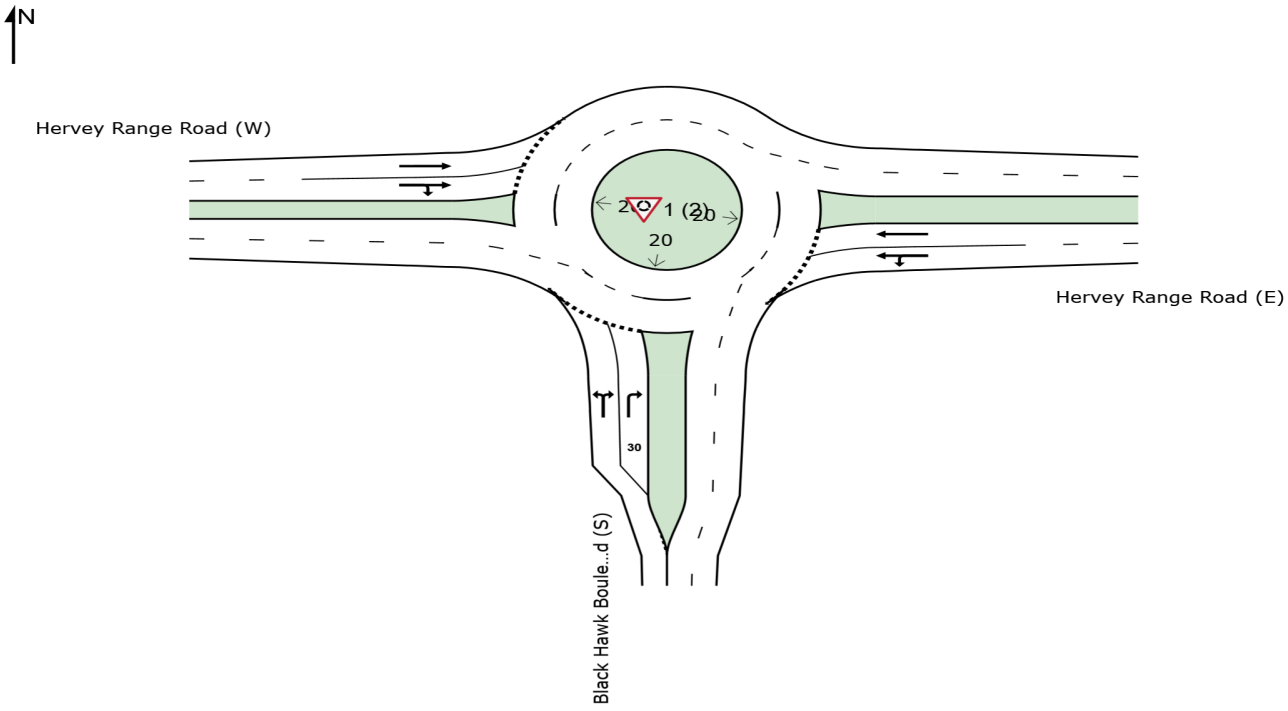
SITE LAYOUT

Site: [1 (2)] PM peak with development (Hervey Range Road / Black Hawk Boulevard roundabout)

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [1 (2)] PM peak with development (Hervey Range Road / Black Hawk Boulevard roundabout)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Black Hawk Boulevard (S)															
1	L2	All MCs	105	5.0	105	5.0	0.144	6.2	LOS A	0.6	4.2	0.53	0.69	0.53	46.4
3	R2	All MCs	153	5.0	153	5.0	0.144	11.2	LOS B	0.6	4.2	0.54	0.75	0.54	37.5
Approach			258	5.0	258	5.0	0.144	9.2	LOS A	0.6	4.2	0.53	0.72	0.53	41.5
East: Hervey Range Road (E)															
4	L2	All MCs	103	5.0	103	5.0	0.314	4.5	LOS A	1.8	12.8	0.24	0.42	0.24	46.0
5	T1	All MCs	756	5.0	756	5.0	0.314	4.6	LOS A	1.8	12.8	0.24	0.42	0.24	52.4
Approach			859	5.0	859	5.0	0.314	4.6	LOS A	1.8	12.8	0.24	0.42	0.24	51.9
West: Hervey Range Road (W)															
11	T1	All MCs	682	5.0	682	5.0	0.305	4.9	LOS A	1.7	12.2	0.35	0.47	0.35	51.0
12	R2	All MCs	81	5.0	81	5.0	0.305	9.5	LOS A	1.6	12.0	0.35	0.50	0.35	48.1
Approach			763	5.0	763	5.0	0.305	5.4	LOS A	1.7	12.2	0.35	0.47	0.35	50.7
All Vehicles			1880	5.0	1880	5.0	0.314	5.5	LOS A	1.8	12.8	0.32	0.48	0.32	50.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
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.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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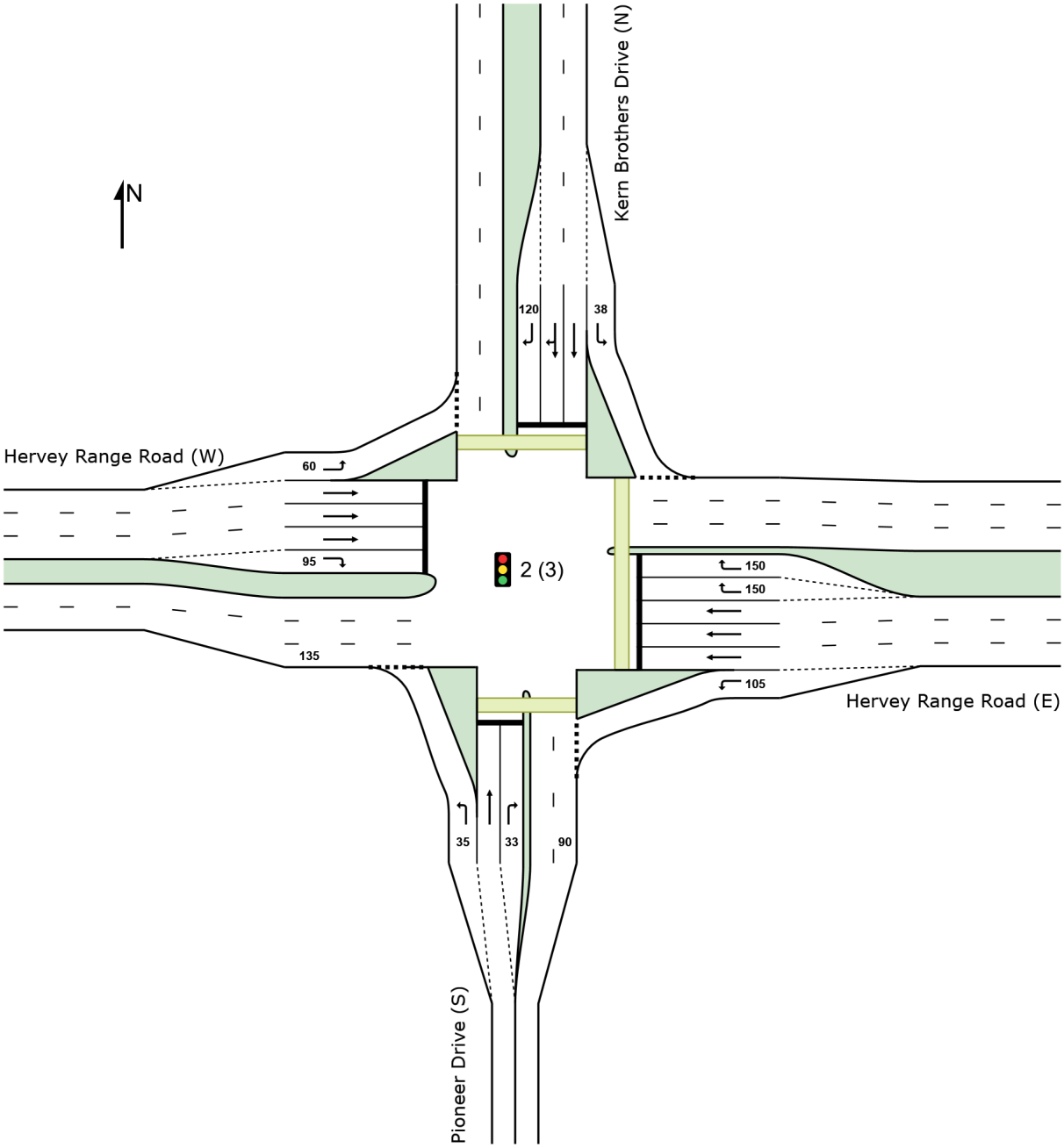
SITE LAYOUT

Site: [2 (3)] AM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [2 (3)] AM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Pioneer Drive (S)															
1	L2	All MCs	1	5.0	1	5.0	0.001	6.6	LOS A	0.0	0.0	0.13	0.74	0.13	37.5
2	T1	All MCs	1	5.0	1	5.0	0.003	40.0	LOS D	0.0	0.3	0.84	0.51	0.84	18.9
3	R2	All MCs	1	5.0	1	5.0	0.003	44.0	LOS D	0.0	0.3	0.83	0.59	0.83	21.4
Approach			3	5.0	3	5.0	0.003	30.2	LOS C	0.0	0.3	0.60	0.61	0.60	23.9
East: Hervey Range Road (E)															
4	L2	All MCs	21	5.0	21	5.0	0.014	6.0	LOS A	0.1	0.6	0.08	0.72	0.08	39.4
5	T1	All MCs	434	5.0	434	5.0	0.276	31.5	LOS C	6.4	46.7	0.80	0.66	0.80	29.9
6	R2	All MCs	185	5.0	185	5.0	* 0.423	55.5	LOS E	4.8	34.8	0.97	0.78	0.97	22.2
Approach			640	5.0	640	5.0	0.423	37.6	LOS D	6.4	46.7	0.83	0.69	0.83	27.5
North: Kern Brothers Drive (N)															
7	L2	All MCs	59	5.0	59	5.0	0.049	6.2	LOS A	0.3	2.1	0.10	0.73	0.10	43.1
8	T1	All MCs	55	5.0	55	5.0	* 0.168	42.3	LOS D	2.5	18.5	0.89	0.68	0.89	18.9
9	R2	All MCs	286	5.0	286	5.0	* 0.423	48.8	LOS D	6.9	50.4	0.93	0.79	0.93	21.6
Approach			400	5.0	400	5.0	0.423	41.6	LOS D	6.9	50.4	0.80	0.77	0.80	23.2
West: Hervey Range Road (W)															
10	L2	All MCs	573	5.0	573	5.0	0.394	6.0	LOS A	2.7	19.5	0.15	0.82	0.15	37.6
11	T1	All MCs	716	5.0	716	5.0	* 0.423	33.4	LOS C	10.3	75.2	0.85	0.72	0.85	29.9
12	R2	All MCs	4	5.0	4	5.0	0.019	51.7	LOS D	0.2	1.5	0.90	0.64	0.90	17.9
Approach			1293	5.0	1293	5.0	0.423	21.3	LOS C	10.3	75.2	0.54	0.76	0.54	32.4
All Vehicles			2336	5.0	2336	5.0	0.423	29.3	LOS C	10.3	75.2	0.66	0.74	0.66	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Pioneer Drive (S)											
P1 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Hervey Range Road (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Kern Brothers Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

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PHASING SUMMARY

Site: [2 (3)] AM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

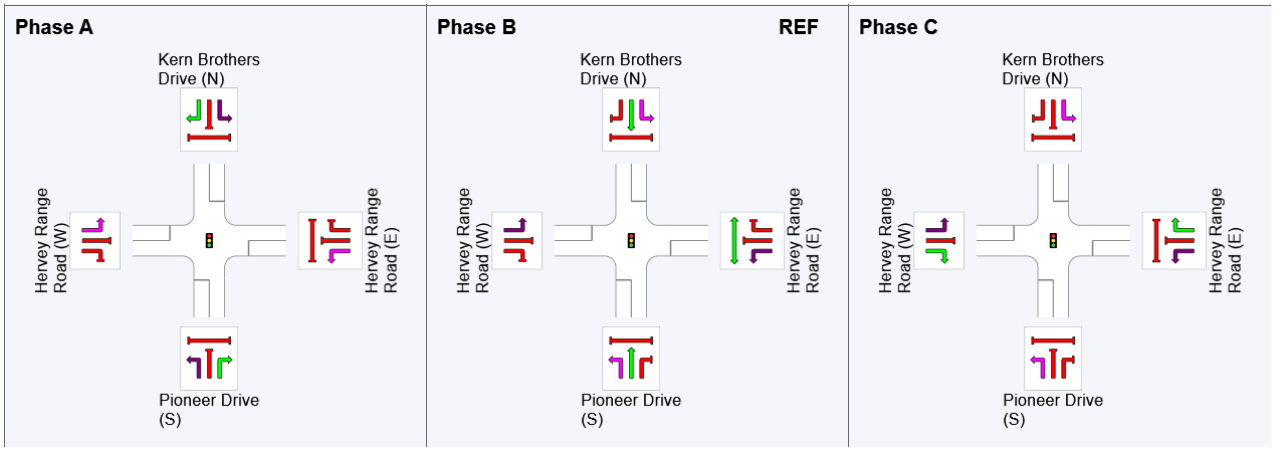
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

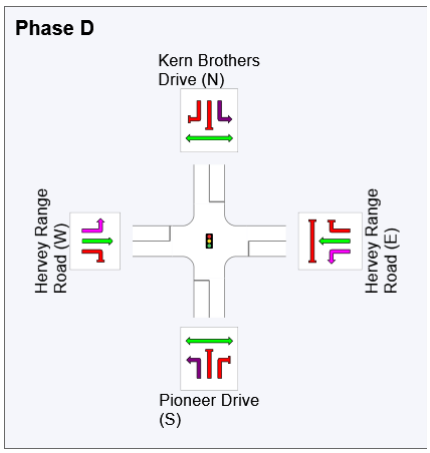
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	83.2	0.0	24.9	44.4
Green Time (sec)	20.8	18.9	13.4	32.9
Phase Time (sec)	26.8	24.9	19.4	38.9
Phase Split	24%	23%	18%	35%
Phase Frequency (%)	100.0	100.0	100.0	100.0

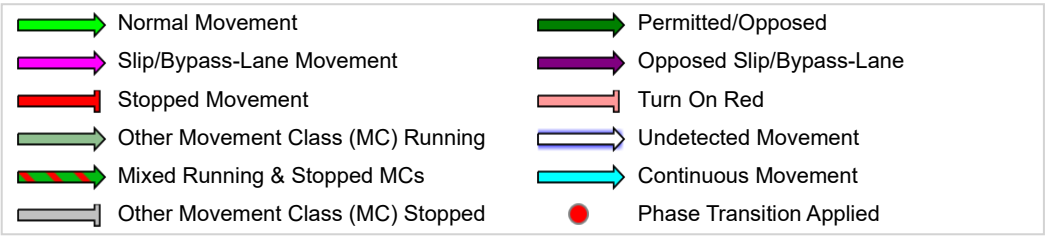
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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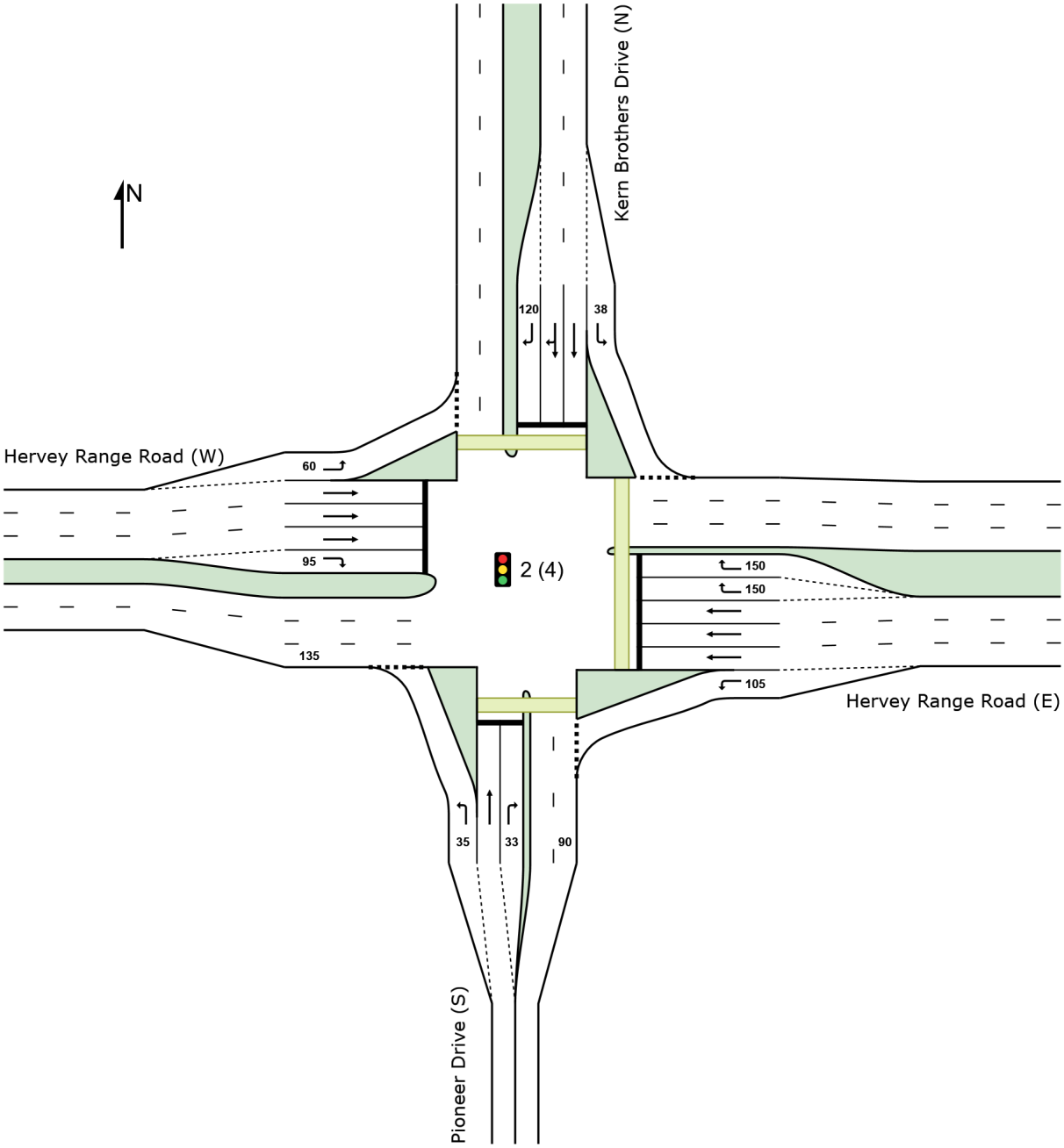
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [2 (4)] PM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:05 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [2 (4)] PM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Pioneer Drive (S)															
1	L2	All MCs	1	5.0	1	5.0	0.001	6.9	LOS A	0.0	0.1	0.15	0.68	0.15	37.8
2	T1	All MCs	1	5.0	1	5.0	0.003	40.0	LOS D	0.0	0.3	0.84	0.51	0.84	18.9
3	R2	All MCs	1	5.0	1	5.0	0.002	31.0	LOS C	0.0	0.3	0.68	0.59	0.68	23.9
Approach			3	5.0	3	5.0	0.003	26.0	LOS C	0.0	0.3	0.56	0.59	0.56	25.0
East: Hervey Range Road (E)															
4	L2	All MCs	29	5.0	29	5.0	0.019	5.9	LOS A	0.1	0.7	0.07	0.70	0.07	40.4
5	T1	All MCs	341	5.0	341	5.0	0.321	40.6	LOS D	5.7	41.5	0.89	0.71	0.89	27.7
6	R2	All MCs	97	5.0	97	5.0	* 0.378	61.3	LOS E	2.6	19.2	0.99	0.74	0.99	21.2
Approach			467	5.0	467	5.0	0.378	42.7	LOS D	5.7	41.5	0.86	0.72	0.86	26.5
North: Kern Brothers Drive (N)															
7	L2	All MCs	177	5.0	177	5.0	0.133	5.9	LOS A	0.6	4.2	0.07	0.64	0.07	45.6
8	T1	All MCs	21	5.0	21	5.0	* 0.065	41.2	LOS D	0.9	6.9	0.87	0.62	0.87	18.9
9	R2	All MCs	455	5.0	455	5.0	* 0.378	35.6	LOS D	9.3	67.8	0.81	0.78	0.81	24.2
Approach			653	5.0	653	5.0	0.378	27.7	LOS C	9.3	67.8	0.61	0.74	0.61	28.0
West: Hervey Range Road (W)															
10	L2	All MCs	307	5.0	307	5.0	0.201	5.9	LOS A	1.1	8.1	0.10	0.76	0.10	39.9
11	T1	All MCs	434	5.0	434	5.0	* 0.378	41.3	LOS D	6.8	49.6	0.91	0.74	0.91	27.7
12	R2	All MCs	4	5.0	4	5.0	0.033	58.4	LOS E	0.2	1.6	0.95	0.64	0.95	17.0
Approach			745	5.0	745	5.0	0.378	26.8	LOS C	6.8	49.6	0.58	0.74	0.58	31.0
All Vehicles			1868	5.0	1868	5.0	0.378	31.1	LOS C	9.3	67.8	0.66	0.74	0.66	28.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Pioneer Drive (S)											
P1 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Hervey Range Road (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Kern Brothers Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:06 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [2 (4)] PM peak without development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

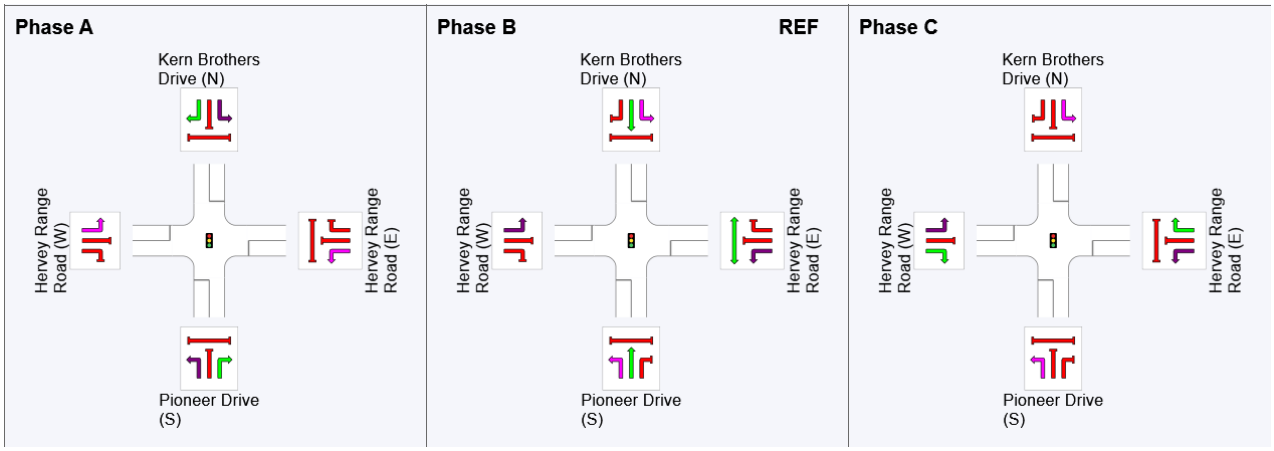
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

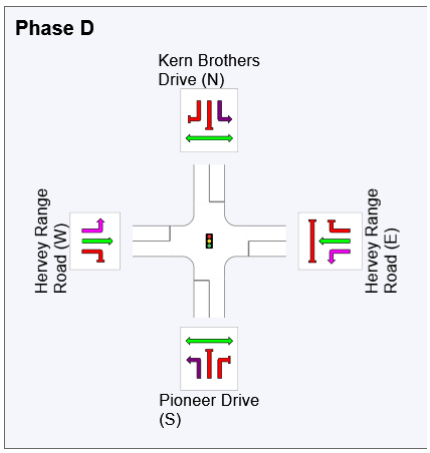
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	67.1	0.0	24.9	38.8
Green Time (sec)	36.9	18.9	7.9	22.3
Phase Time (sec)	42.9	24.9	13.9	28.3
Phase Split	39%	23%	13%	26%
Phase Frequency (%)	100.0	100.0	100.0	100.0

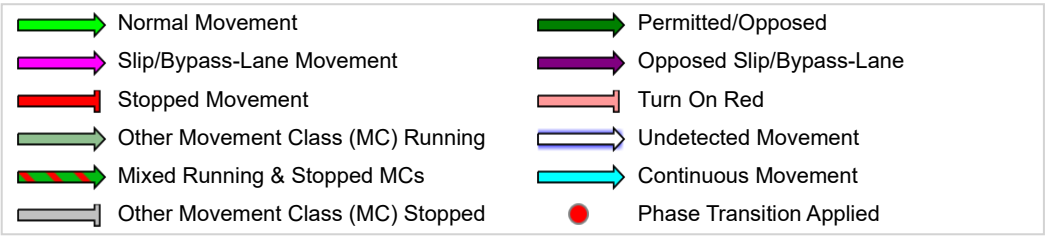
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase

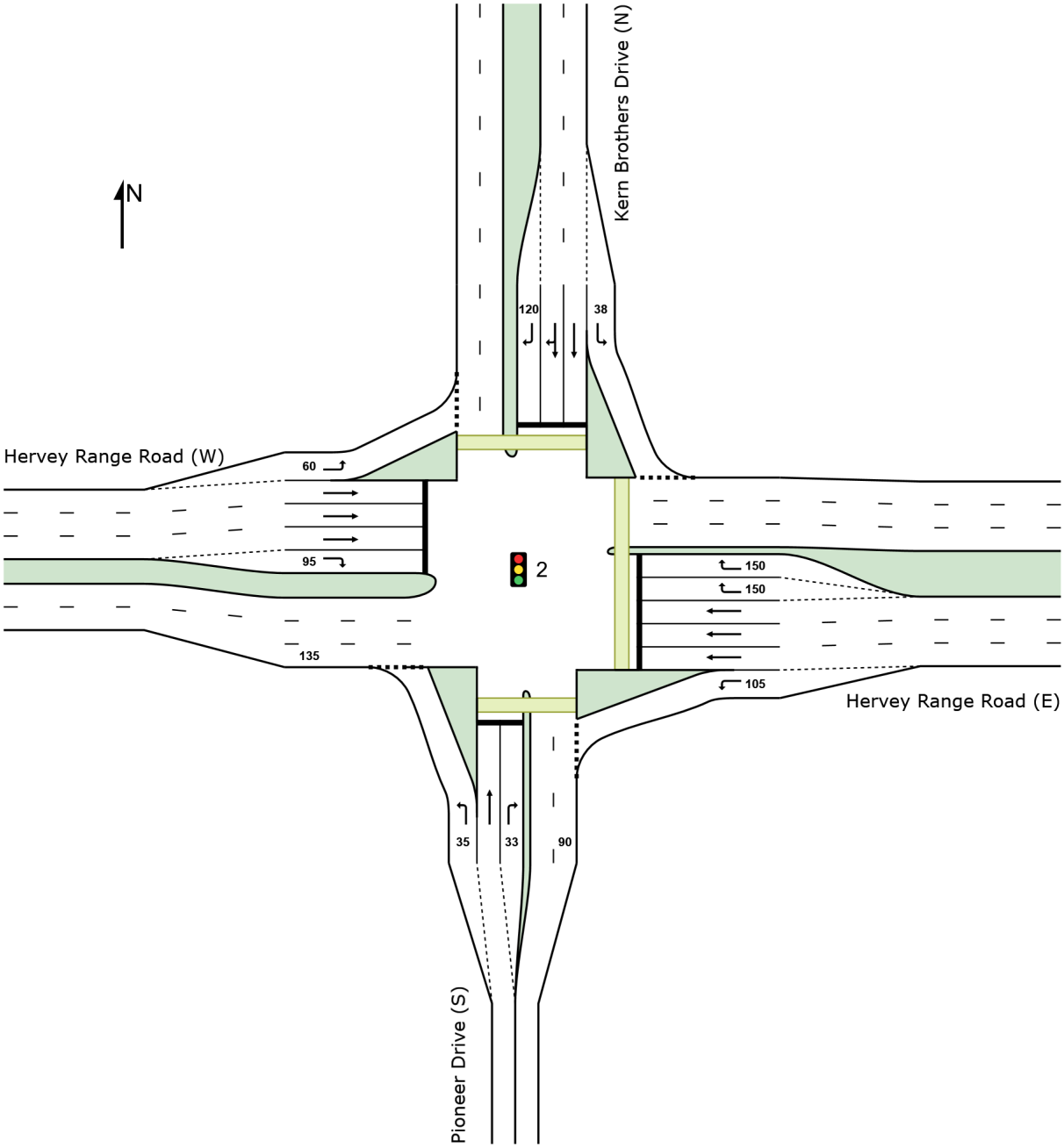


SITE LAYOUT

Site: [2] AM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:10 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [2] AM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Pioneer Drive (S)															
1	L2	All MCs	1	5.0	1	5.0	0.001	6.6	LOS A	0.0	0.0	0.13	0.74	0.13	37.5
2	T1	All MCs	6	5.0	6	5.0	0.019	40.5	LOS D	0.3	2.0	0.85	0.57	0.85	18.9
3	R2	All MCs	36	5.0	36	5.0	0.106	45.7	LOS D	1.6	11.7	0.86	0.72	0.86	21.3
Approach			43	5.0	43	5.0	0.106	44.0	LOS D	1.6	11.7	0.84	0.70	0.84	21.2
East: Hervey Range Road (E)															
4	L2	All MCs	53	5.0	53	5.0	0.035	6.1	LOS A	0.2	1.7	0.09	0.74	0.09	39.0
5	T1	All MCs	434	5.0	434	5.0	0.276	31.5	LOS C	6.4	46.7	0.80	0.66	0.80	29.9
6	R2	All MCs	185	5.0	185	5.0	*0.423	55.5	LOS E	4.8	34.8	0.97	0.78	0.97	22.2
Approach			672	5.0	672	5.0	0.423	36.2	LOS D	6.4	46.7	0.79	0.70	0.79	27.8
North: Kern Brothers Drive (N)															
7	L2	All MCs	59	5.0	59	5.0	0.051	6.3	LOS A	0.3	2.5	0.12	0.76	0.12	42.3
8	T1	All MCs	60	5.0	60	5.0	*0.185	42.4	LOS D	2.8	20.4	0.89	0.68	0.89	18.9
9	R2	All MCs	286	5.0	286	5.0	*0.423	48.8	LOS D	6.9	50.4	0.93	0.79	0.93	21.6
Approach			405	5.0	405	5.0	0.423	41.7	LOS D	6.9	50.4	0.81	0.77	0.81	23.1
West: Hervey Range Road (W)															
10	L2	All MCs	573	5.0	573	5.0	0.396	6.1	LOS A	2.8	20.5	0.16	0.83	0.16	37.3
11	T1	All MCs	716	5.0	716	5.0	*0.423	33.4	LOS C	10.3	75.2	0.85	0.72	0.85	29.9
12	R2	All MCs	4	5.0	4	5.0	0.019	51.8	LOS D	0.2	1.5	0.90	0.64	0.90	17.9
Approach			1293	5.0	1293	5.0	0.423	21.3	LOS C	10.3	75.2	0.54	0.77	0.54	32.3
All Vehicles			2413	5.0	2413	5.0	0.423	29.3	LOS C	10.3	75.2	0.66	0.75	0.66	29.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Pioneer Drive (S)											
P1 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Hervey Range Road (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Kern Brothers Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:12 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [2] AM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

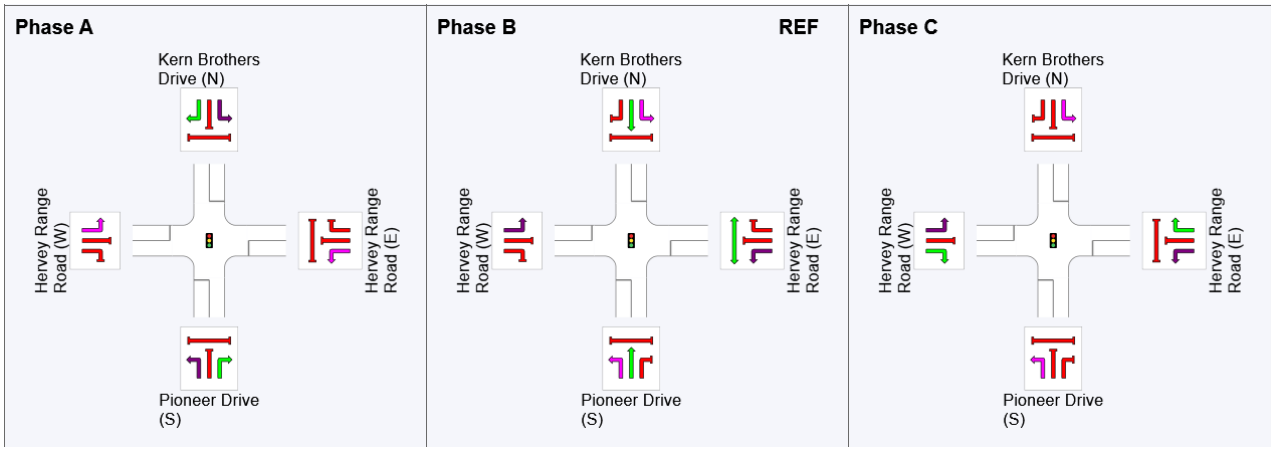
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

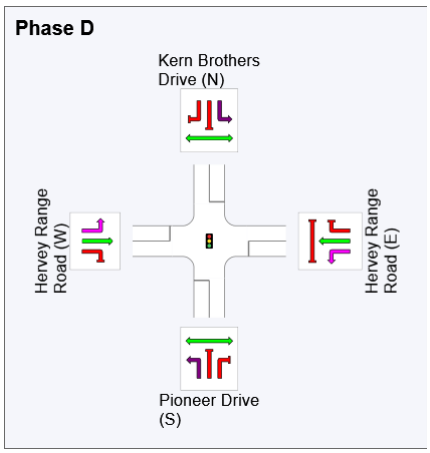
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	83.2	0.0	24.9	44.4
Green Time (sec)	20.8	18.9	13.4	32.9
Phase Time (sec)	26.8	24.9	19.4	38.9
Phase Split	24%	23%	18%	35%
Phase Frequency (%)	100.0	100.0	100.0	100.0

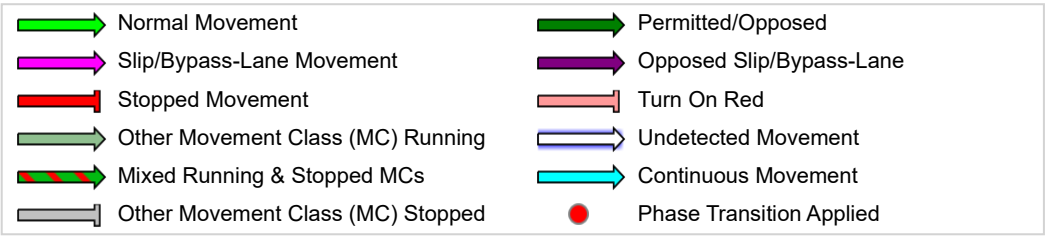
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



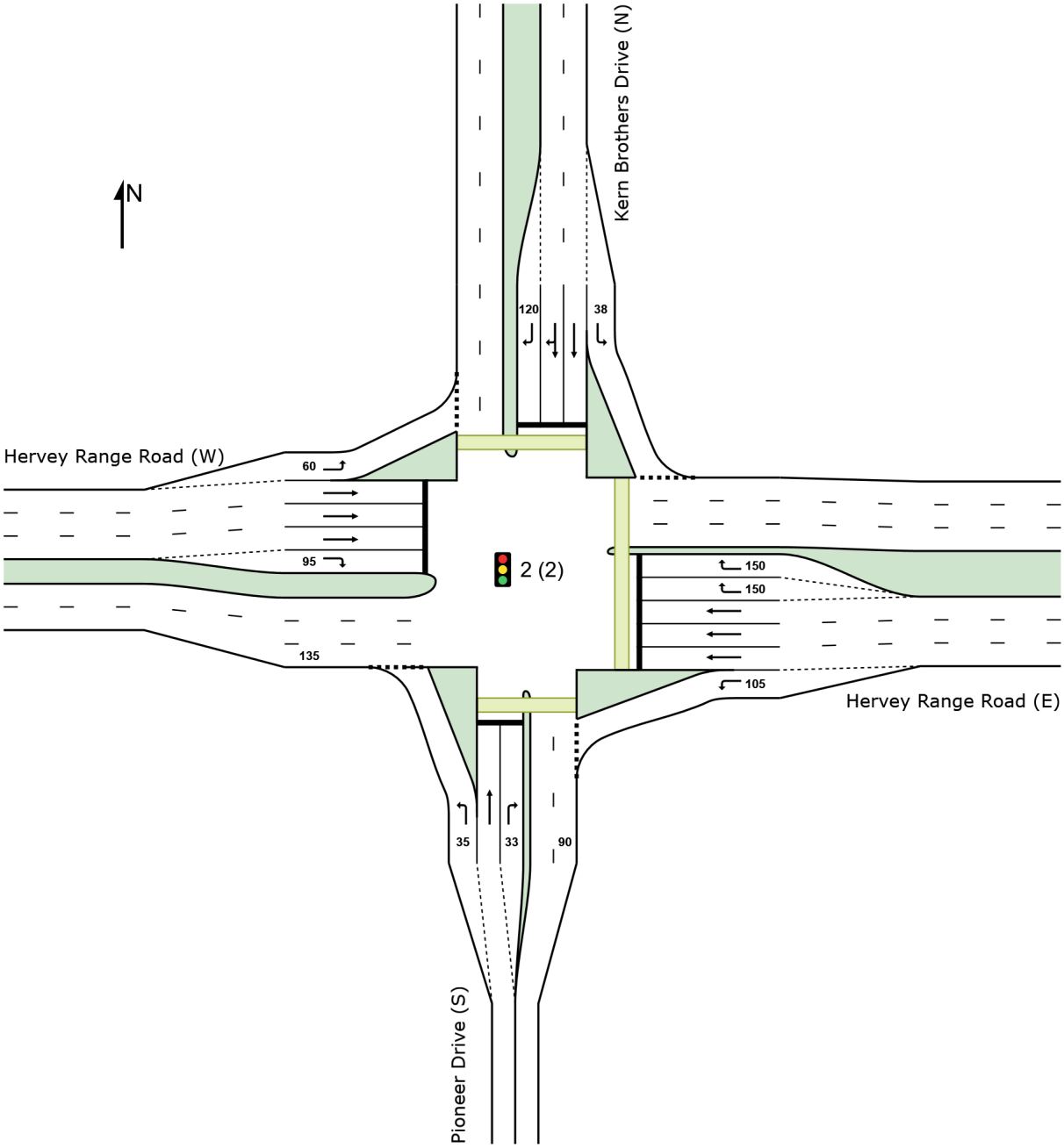
Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:12 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [2 (2)] PM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:17 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [2 (2)] PM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Pioneer Drive (S)															
1	L2	All MCs	1	5.0	1	5.0	0.001	6.9	LOS A	0.0	0.1	0.15	0.68	0.15	37.8
2	T1	All MCs	6	5.0	6	5.0	0.019	40.5	LOS D	0.3	2.0	0.85	0.57	0.85	18.9
3	R2	All MCs	32	5.0	32	5.0	0.052	31.9	LOS C	1.1	8.3	0.70	0.68	0.70	23.9
Approach			39	5.0	39	5.0	0.052	32.6	LOS C	1.1	8.3	0.71	0.67	0.71	23.4
East: Hervey Range Road (E)															
4	L2	All MCs	61	5.0	61	5.0	0.039	5.9	LOS A	0.2	1.6	0.07	0.72	0.07	40.0
5	T1	All MCs	341	5.0	341	5.0	0.321	40.6	LOS D	5.7	41.5	0.89	0.71	0.89	27.7
6	R2	All MCs	97	5.0	97	5.0	*0.378	61.3	LOS E	2.6	19.2	0.99	0.74	0.99	21.2
Approach			499	5.0	499	5.0	0.378	40.3	LOS D	5.7	41.5	0.81	0.72	0.81	27.0
North: Kern Brothers Drive (N)															
7	L2	All MCs	177	5.0	177	5.0	0.138	6.0	LOS A	0.7	5.1	0.08	0.66	0.08	45.0
8	T1	All MCs	26	5.0	26	5.0	*0.081	41.4	LOS D	1.2	8.7	0.87	0.64	0.87	18.9
9	R2	All MCs	455	5.0	455	5.0	*0.378	35.6	LOS D	9.3	67.8	0.81	0.78	0.81	24.2
Approach			658	5.0	658	5.0	0.378	27.9	LOS C	9.3	67.8	0.62	0.74	0.62	27.9
West: Hervey Range Road (W)															
10	L2	All MCs	307	5.0	307	5.0	0.202	5.9	LOS A	1.2	8.5	0.10	0.76	0.10	39.7
11	T1	All MCs	434	5.0	434	5.0	*0.378	41.3	LOS D	6.8	49.6	0.91	0.74	0.91	27.7
12	R2	All MCs	4	5.0	4	5.0	0.033	58.5	LOS E	0.2	1.6	0.95	0.64	0.95	17.0
Approach			745	5.0	745	5.0	0.378	26.8	LOS C	6.8	49.6	0.58	0.75	0.58	31.0
All Vehicles			1941	5.0	1941	5.0	0.378	30.8	LOS C	9.3	67.8	0.65	0.74	0.65	28.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Pioneer Drive (S)											
P1 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
East: Hervey Range Road (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Kern Brothers Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:18 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [2 (2)] PM peak with development (Hervey Range Road / Kern Brothers Drive / Pioneer Drive traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

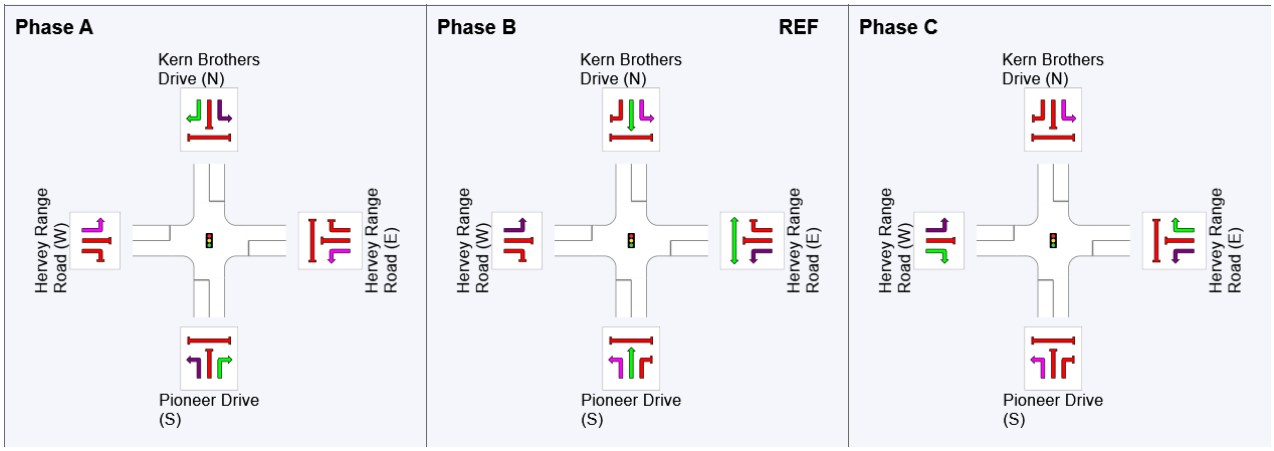
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

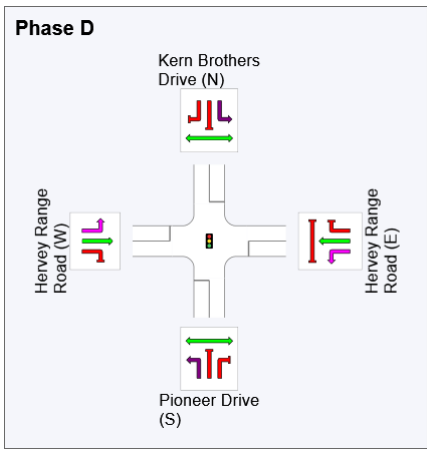
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	67.1	0.0	24.9	38.8
Green Time (sec)	36.9	18.9	7.9	22.3
Phase Time (sec)	42.9	24.9	13.9	28.3
Phase Split	39%	23%	13%	26%
Phase Frequency (%)	100.0	100.0	100.0	100.0

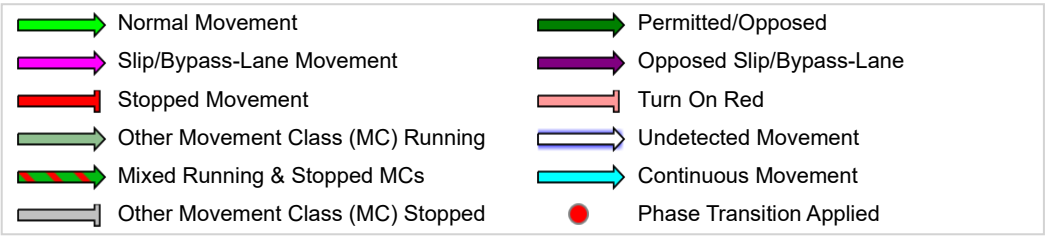
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



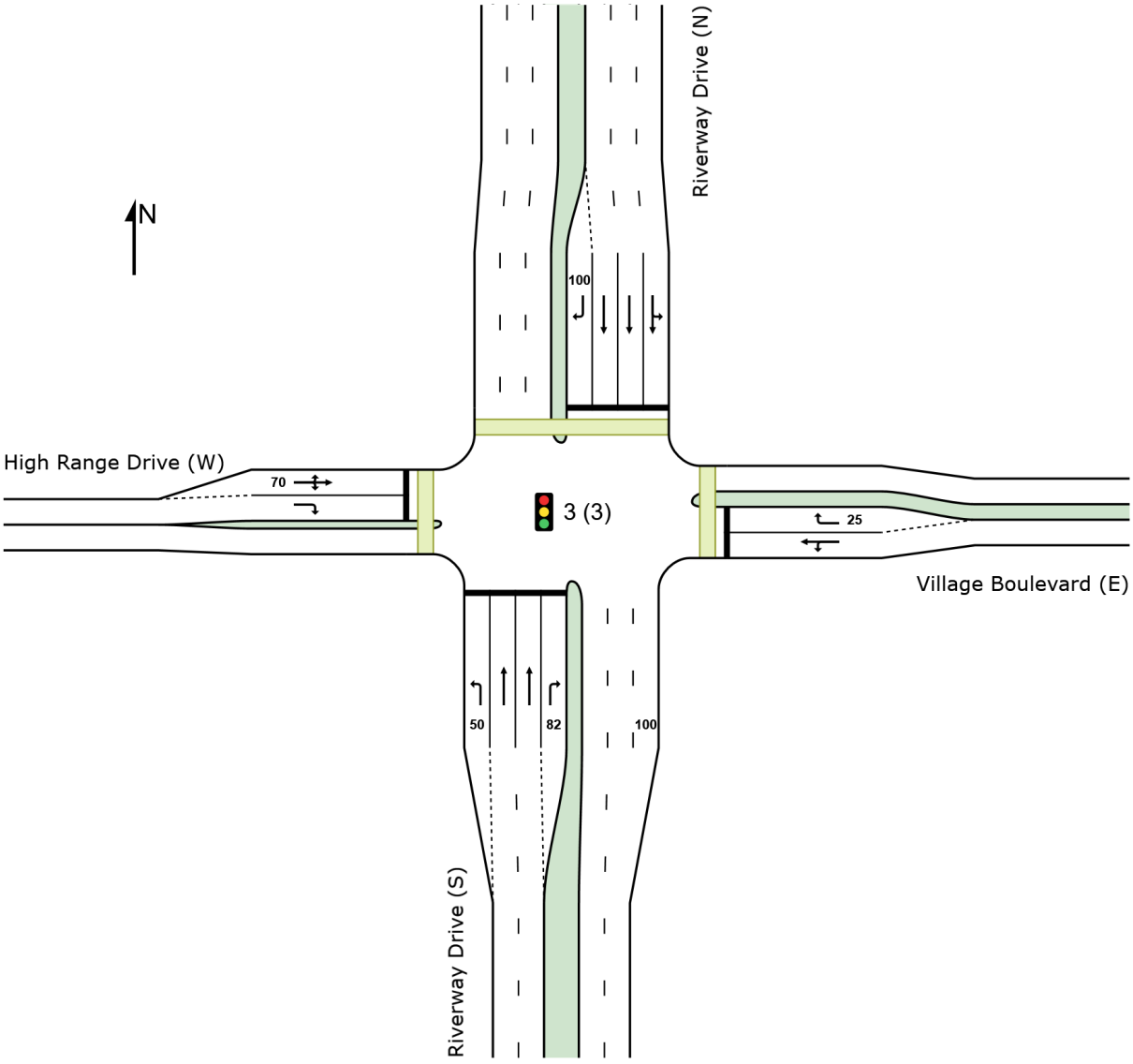
Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:18 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [3 (3)] AM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:24 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [3 (3)] AM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Riverway Drive (S)															
1	L2	All MCs	8	5.0	8	5.0	0.008	33.0	LOS C	0.2	1.6	0.39	0.63	0.39	37.5
2	T1	All MCs	1903	5.0	1903	5.0	* 0.815	37.5	LOS D	52.3	381.7	0.83	0.76	0.83	38.1
3	R2	All MCs	25	5.0	25	5.0	* 0.352	99.6	LOS F	1.9	14.1	1.00	0.72	1.00	19.0
Approach			1937	5.0	1937	5.0	0.815	38.3	LOS D	52.3	381.7	0.83	0.76	0.83	31.4
East: Village Boulevard (E)															
4	L2	All MCs	1	5.0	1	5.0	0.009	65.7	LOS E	0.1	1.0	0.89	0.59	0.89	21.6
5	T1	All MCs	1	5.0	1	5.0	0.009	59.9	LOS E	0.1	1.0	0.89	0.59	0.89	22.2
6	R2	All MCs	51	5.0	51	5.0	* 0.704	89.5	LOS F	4.0	29.1	1.00	0.82	1.16	13.9
Approach			53	5.0	53	5.0	0.704	88.4	LOS F	4.0	29.1	1.00	0.81	1.15	14.2
North: Riverway Drive (N)															
7	L2	All MCs	42	5.0	42	5.0	0.245	18.6	LOS B	9.0	66.1	0.47	0.46	0.47	27.8
8	T1	All MCs	1301	5.0	1301	5.0	0.446	14.9	LOS B	19.6	142.8	0.54	0.50	0.54	37.9
9	R2	All MCs	4	5.0	4	5.0	0.059	83.7	LOS F	0.3	2.3	0.98	0.64	0.98	21.1
Approach			1347	5.0	1347	5.0	0.446	15.2	LOS B	19.6	142.8	0.54	0.50	0.54	37.6
West: High Range Drive (W)															
10	L2	All MCs	1	5.0	1	5.0	0.146	47.7	LOS D	2.7	20.0	0.88	1.00	0.88	23.4
11	T1	All MCs	1	5.0	1	5.0	* 0.146	42.1	LOS D	2.7	20.0	0.88	1.00	0.88	22.0
12	R2	All MCs	55	5.0	55	5.0	0.146	62.7	LOS E	2.7	20.0	0.91	0.94	0.91	26.7
Approach			57	5.0	57	5.0	0.146	62.1	LOS E	2.7	20.0	0.90	0.94	0.90	26.6
All Vehicles			3394	5.0	3394	5.0	0.815	30.3	LOS C	52.3	381.7	0.72	0.66	0.72	33.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
East: Village Boulevard (E)											
P2 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
North: Riverway Drive (N)											
P3 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
West: High Range Drive (W)											
P4 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
All Pedestrians	90	95	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:25 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [3 (3)] AM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

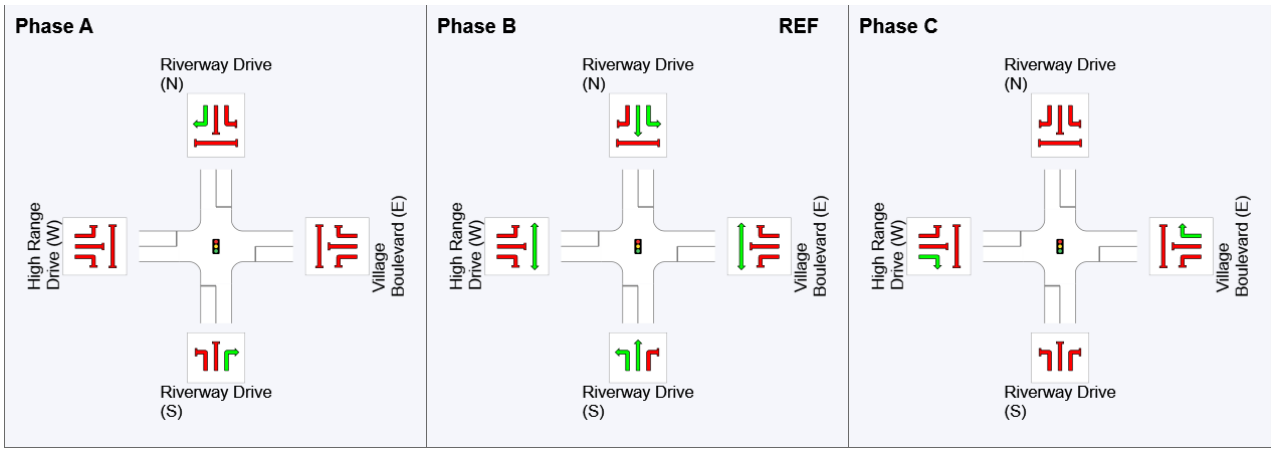
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

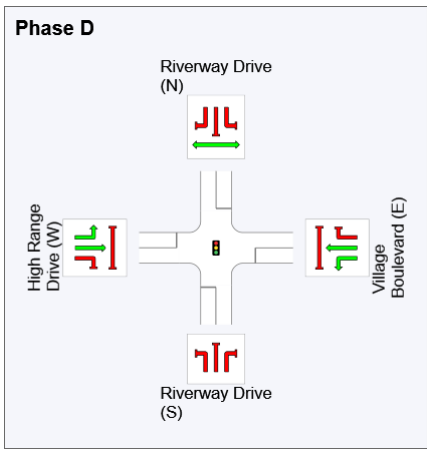
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	138.0	0.0	99.9	111.9
Green Time (sec)	6.0	93.9	6.0	20.1
Phase Time (sec)	12.0	99.9	12.0	26.1
Phase Split	8%	67%	8%	17%
Phase Frequency (%)	100.0	100.0	100.0	100.0

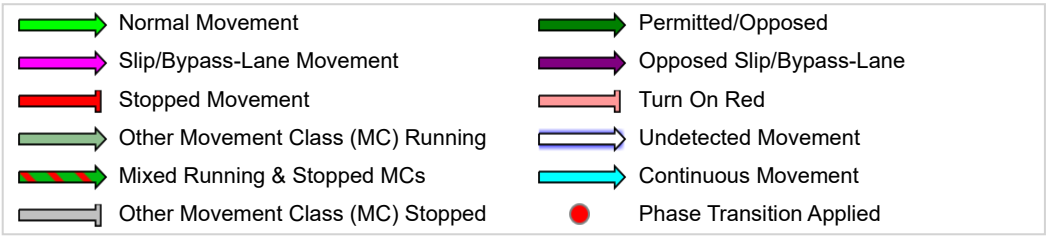
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



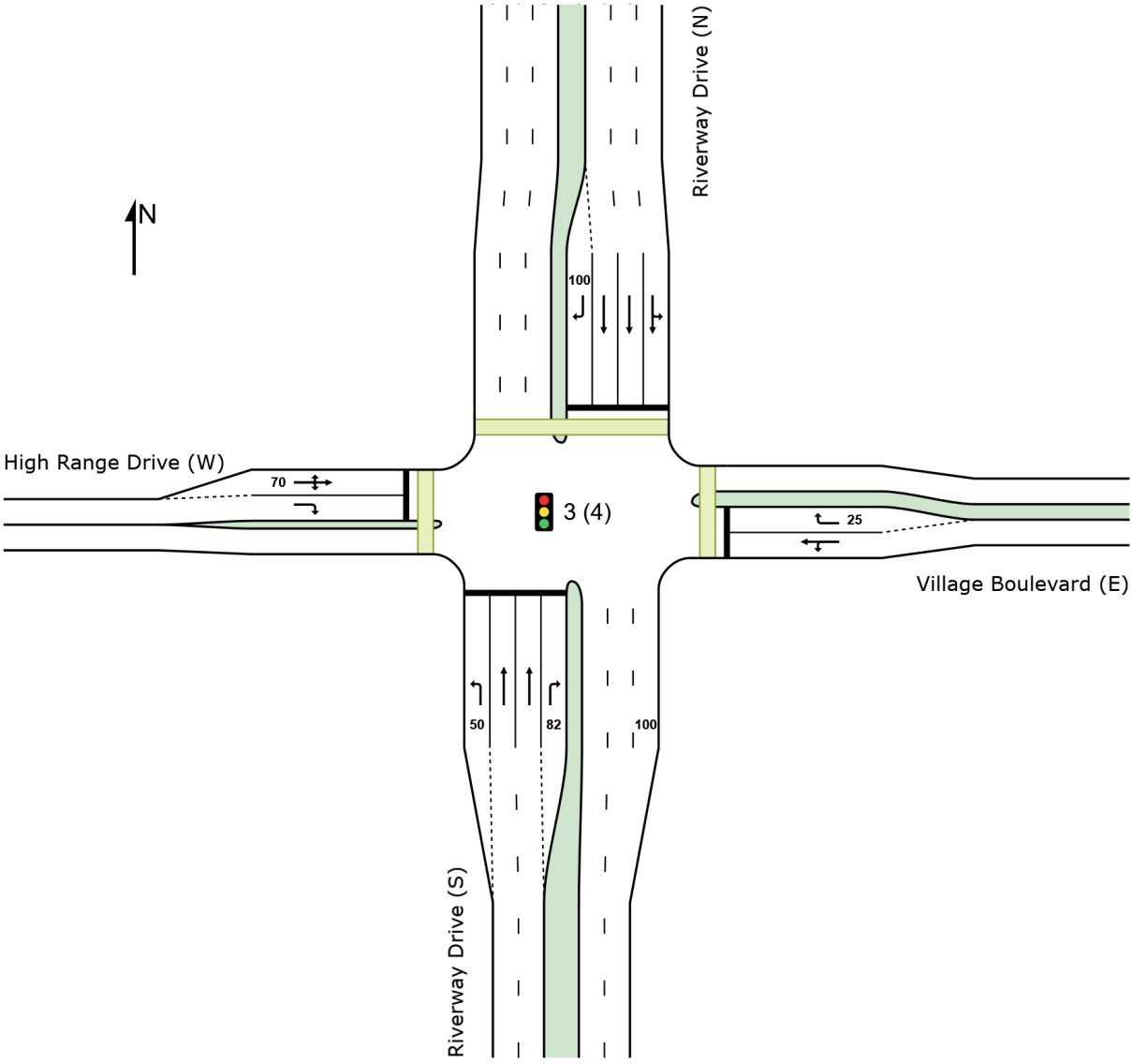
Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:25 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [3 (4)] PM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:29 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [3 (4)] PM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Riverway Drive (S)															
1	L2	All MCs	1	5.0	1	5.0	0.001	29.1	LOS C	0.0	0.2	0.51	0.60	0.51	37.5
2	T1	All MCs	1141	5.0	1141	5.0	0.609	26.8	LOS C	21.9	160.0	0.78	0.70	0.78	38.0
3	R2	All MCs	34	5.0	34	5.0	* 0.344	65.6	LOS E	1.9	13.7	1.00	0.72	1.00	23.0
Approach			1176	5.0	1176	5.0	0.609	27.9	LOS C	21.9	160.0	0.78	0.70	0.78	34.8
East: Village Boulevard (E)															
4	L2	All MCs	17	5.0	17	5.0	0.062	48.4	LOS D	0.8	6.0	0.88	0.69	0.88	25.2
5	T1	All MCs	1	5.0	1	5.0	0.062	42.3	LOS D	0.8	6.0	0.88	0.69	0.88	26.0
6	R2	All MCs	88	5.0	88	5.0	* 0.728	65.3	LOS E	5.1	37.2	1.00	0.86	1.18	17.5
Approach			106	5.0	106	5.0	0.728	62.4	LOS E	5.1	37.2	0.98	0.83	1.13	18.8
North: Riverway Drive (N)															
7	L2	All MCs	101	5.0	101	5.0	0.400	24.0	LOS C	12.3	90.0	0.67	0.64	0.67	27.4
8	T1	All MCs	1638	5.0	1638	5.0	* 0.728	24.1	LOS C	28.7	209.4	0.82	0.75	0.82	37.8
9	R2	All MCs	1	5.0	1	5.0	0.011	63.9	LOS E	0.1	0.4	0.96	0.59	0.96	25.3
Approach			1740	5.0	1740	5.0	0.728	24.1	LOS C	28.7	209.4	0.81	0.74	0.81	36.6
West: High Range Drive (W)															
10	L2	All MCs	1	5.0	1	5.0	0.066	31.0	LOS C	1.1	7.9	0.81	0.99	0.81	27.2
11	T1	All MCs	1	5.0	1	5.0	* 0.066	25.4	LOS C	1.1	7.9	0.81	0.99	0.81	26.0
12	R2	All MCs	34	5.0	34	5.0	0.066	42.5	LOS D	1.1	7.9	0.85	0.91	0.85	30.8
Approach			36	5.0	36	5.0	0.066	41.6	LOS D	1.1	7.9	0.85	0.91	0.85	30.6
All Vehicles			3058	5.0	3058	5.0	0.728	27.1	LOS C	28.7	209.4	0.81	0.73	0.81	35.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
East: Village Boulevard (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Riverway Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: High Range Drive (W)											
P4 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:30 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [3 (4)] PM peak without development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

Without Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

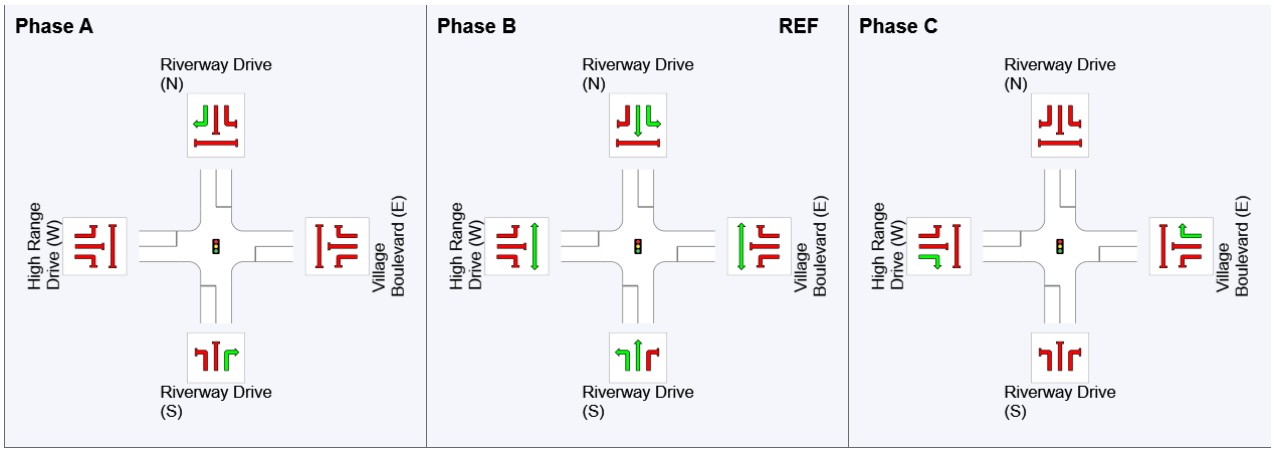
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

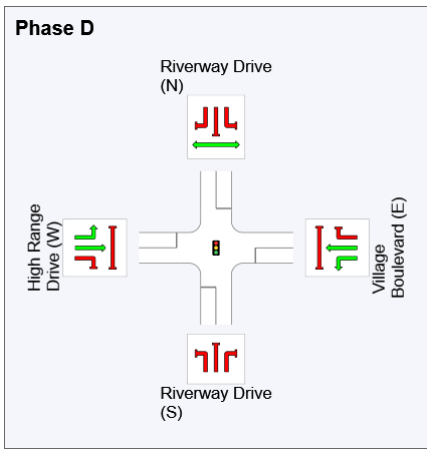
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	98.0	0.0	60.8	74.2
Green Time (sec)	6.0	54.8	7.5	17.8
Phase Time (sec)	12.0	60.8	13.5	23.8
Phase Split	11%	55%	12%	22%
Phase Frequency (%)	100.0	100.0	100.0	100.0

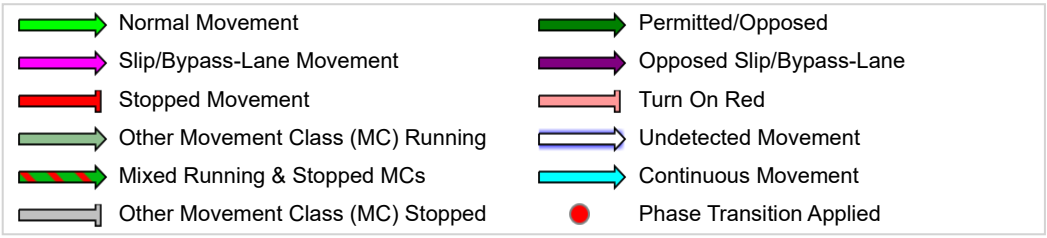
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase

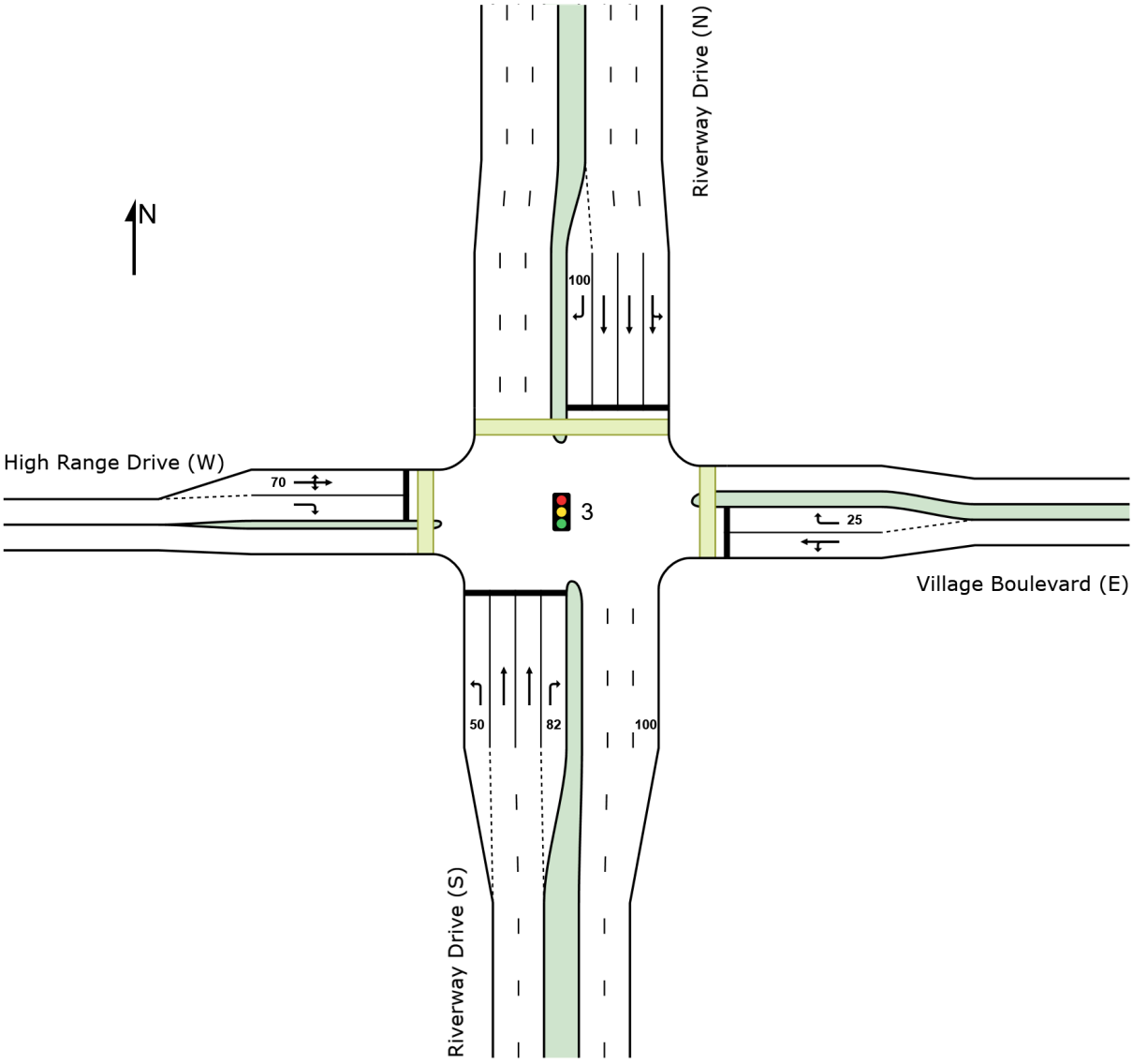


SITE LAYOUT

Site: [3] AM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Created: Wednesday, 29 October 2025 10:48:34 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

MOVEMENT SUMMARY

Site: [3] AM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Riverway Drive (S)															
1	L2	All MCs	35	5.0	35	5.0	0.031	33.4	LOS C	0.9	6.8	0.40	0.65	0.40	37.6
2	T1	All MCs	1903	5.0	1903	5.0	* 0.824	37.9	LOS D	53.0	386.8	0.84	0.77	0.84	38.1
3	R2	All MCs	25	5.0	25	5.0	0.352	100.0	LOS F	1.9	14.1	1.00	0.72	1.00	19.0
Approach			1963	5.0	1963	5.0	0.824	38.7	LOS D	53.0	386.8	0.84	0.77	0.84	31.4
East: Village Boulevard (E)															
4	L2	All MCs	1	5.0	1	5.0	0.009	65.7	LOS E	0.1	1.0	0.89	0.59	0.89	21.6
5	T1	All MCs	1	5.0	1	5.0	0.009	59.9	LOS E	0.1	1.0	0.89	0.59	0.89	22.2
6	R2	All MCs	51	5.0	51	5.0	* 0.704	89.5	LOS F	4.0	29.1	1.00	0.82	1.16	13.9
Approach			53	5.0	53	5.0	0.704	88.4	LOS F	4.0	29.1	1.00	0.81	1.15	14.2
North: Riverway Drive (N)															
7	L2	All MCs	42	5.0	42	5.0	0.245	18.6	LOS B	9.0	66.1	0.47	0.46	0.47	27.8
8	T1	All MCs	1301	5.0	1301	5.0	0.446	14.9	LOS B	19.6	142.8	0.54	0.50	0.54	37.9
9	R2	All MCs	31	5.0	31	5.0	* 0.426	86.8	LOS F	2.3	17.1	1.00	0.73	1.00	20.8
Approach			1374	5.0	1374	5.0	0.446	16.6	LOS B	19.6	142.8	0.55	0.50	0.55	37.0
West: High Range Drive (W)															
10	L2	All MCs	29	5.0	29	5.0	0.296	51.9	LOS D	5.6	41.0	0.91	1.07	0.91	22.9
11	T1	All MCs	1	5.0	1	5.0	* 0.296	46.3	LOS D	5.6	41.0	0.91	1.07	0.91	21.6
12	R2	All MCs	83	5.0	83	5.0	0.296	68.6	LOS E	5.6	41.0	0.94	0.97	0.94	26.2
Approach			114	5.0	114	5.0	0.296	64.0	LOS E	5.6	41.0	0.93	1.00	0.93	25.4
All Vehicles			3503	5.0	3503	5.0	0.824	31.6	LOS C	53.0	386.8	0.73	0.67	0.73	32.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
East: Village Boulevard (E)											
P2 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
North: Riverway Drive (N)											
P3 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
West: High Range Drive (W)											
P4 Full	30	32	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90
All Pedestrians	90	95	69.2	LOS F	0.1	0.1	0.96	0.96	223.1	200.0	0.90

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:36 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [3] AM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
AM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 150.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

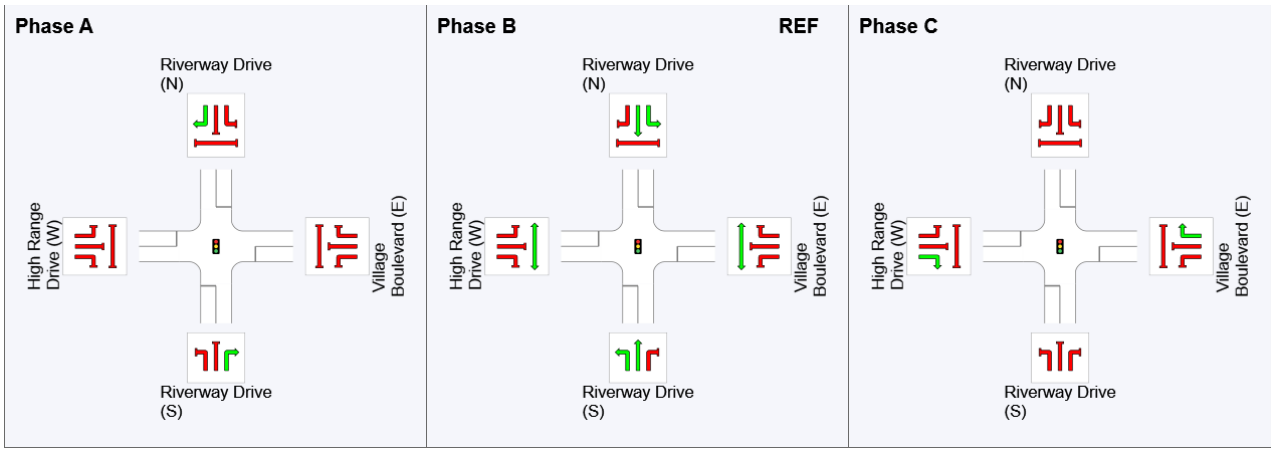
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

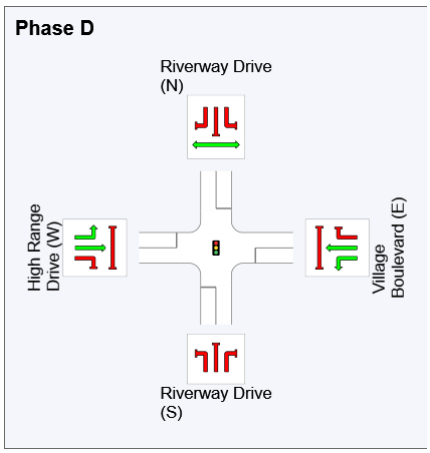
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	138.0	0.0	99.9	111.9
Green Time (sec)	6.0	93.9	6.0	20.1
Phase Time (sec)	12.0	99.9	12.0	26.1
Phase Split	8%	67%	8%	17%
Phase Frequency (%)	100.0	100.0	100.0	100.0

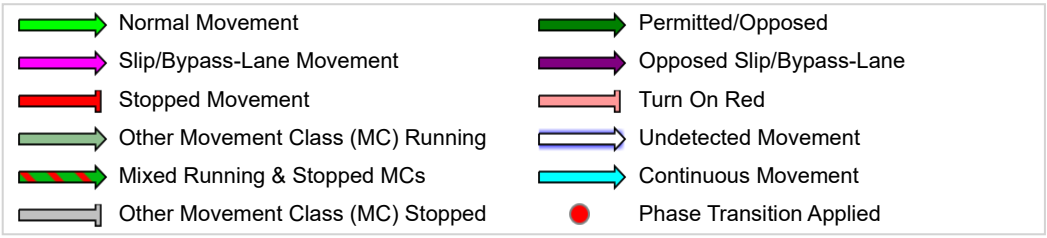
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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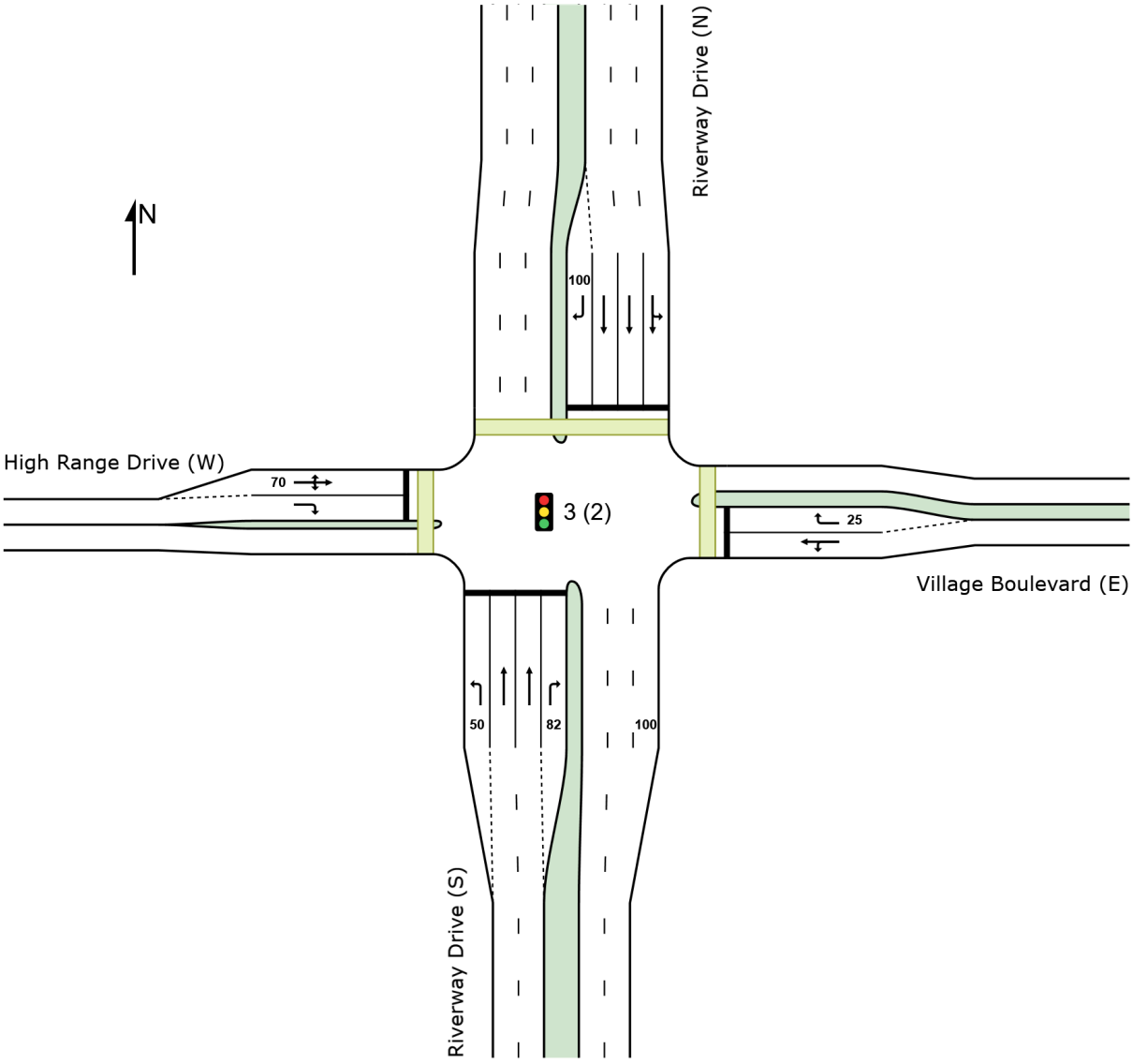
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

SITE LAYOUT

Site: [3 (2)] PM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: [3 (2)] PM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Riverway Drive (S)															
1	L2	All MCs	27	5.0	27	5.0	0.031	29.3	LOS C	0.7	5.3	0.53	0.67	0.53	37.6
2	T1	All MCs	1141	5.0	1141	5.0	0.616	26.9	LOS C	22.1	161.6	0.78	0.70	0.78	38.0
3	R2	All MCs	34	5.0	34	5.0	* 0.344	65.8	LOS E	1.9	13.7	1.00	0.72	1.00	23.0
Approach			1202	5.0	1202	5.0	0.616	28.1	LOS C	22.1	161.6	0.78	0.70	0.78	34.8
East: Village Boulevard (E)															
4	L2	All MCs	17	5.0	17	5.0	0.062	48.5	LOS D	0.8	6.0	0.88	0.69	0.88	25.2
5	T1	All MCs	1	5.0	1	5.0	0.062	42.3	LOS D	0.8	6.0	0.88	0.69	0.88	26.0
6	R2	All MCs	88	5.0	88	5.0	* 0.729	65.3	LOS E	5.1	37.2	1.00	0.86	1.18	17.5
Approach			106	5.0	106	5.0	0.729	62.4	LOS E	5.1	37.2	0.98	0.83	1.13	18.8
North: Riverway Drive (N)															
7	L2	All MCs	101	5.0	101	5.0	0.401	24.0	LOS C	12.4	90.2	0.67	0.64	0.67	27.4
8	T1	All MCs	1638	5.0	1638	5.0	* 0.729	24.0	LOS C	28.8	210.2	0.82	0.75	0.82	37.9
9	R2	All MCs	27	5.0	27	5.0	0.280	66.7	LOS E	1.5	11.0	0.99	0.71	0.99	25.1
Approach			1766	5.0	1766	5.0	0.729	24.7	LOS C	28.8	210.2	0.82	0.74	0.82	36.4
West: High Range Drive (W)															
10	L2	All MCs	26	5.0	26	5.0	0.162	33.6	LOS C	2.7	19.5	0.84	1.05	0.84	27.0
11	T1	All MCs	1	5.0	1	5.0	* 0.162	28.0	LOS C	2.7	19.5	0.84	1.05	0.84	25.8
12	R2	All MCs	59	5.0	59	5.0	0.162	47.0	LOS D	2.7	19.5	0.88	0.94	0.88	30.5
Approach			86	5.0	86	5.0	0.162	42.7	LOS D	2.7	19.5	0.87	0.97	0.87	29.5
All Vehicles			3161	5.0	3161	5.0	0.729	27.7	LOS C	28.8	210.2	0.81	0.74	0.81	34.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Qued	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
East: Village Boulevard (E)											
P2 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
North: Riverway Drive (N)											
P3 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
West: High Range Drive (W)											
P4 Full	30	32	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98
All Pedestrians	90	95	49.2	LOS E	0.1	0.1	0.95	0.95	203.1	200.0	0.98

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.

Organisation: PREMISE GROUP SERVICES PTY LTD | Licence: PLUS / 1PC | Processed: Wednesday, 29 October 2025 10:48:41 AM
Project: C:\12dS\data\12dSynergy\P004113 11 Black Hawk Boulevard, Thuringowa_20043\14. Engineering - Traffic\02. SIDRA\P004133 SIDRA.sipx

PHASING SUMMARY

Site: [3 (2)] PM peak with development (Riverway Drive / High Range Drive / Village Boulevard traffic signals)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

With Development Opening Year (2028)
PM Peak Hour
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

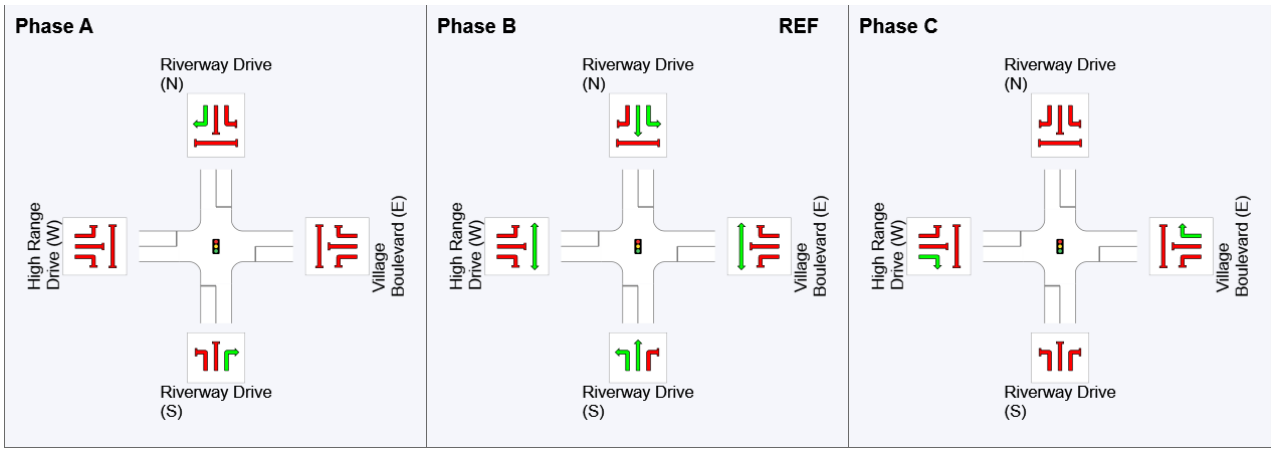
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D
Reference Phase: Phase B

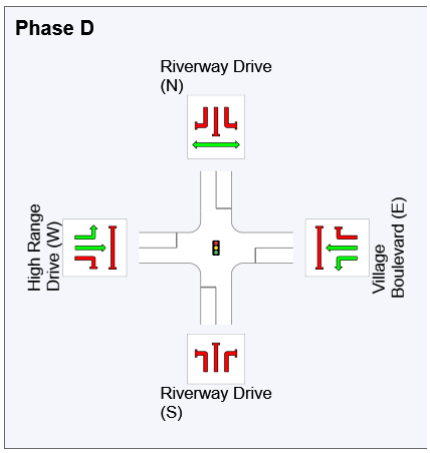
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	98.0	0.0	60.8	74.2
Green Time (sec)	6.0	54.8	7.4	17.8
Phase Time (sec)	12.0	60.8	13.4	23.8
Phase Split	11%	55%	12%	22%
Phase Frequency (%)	100.0	100.0	100.0	100.0

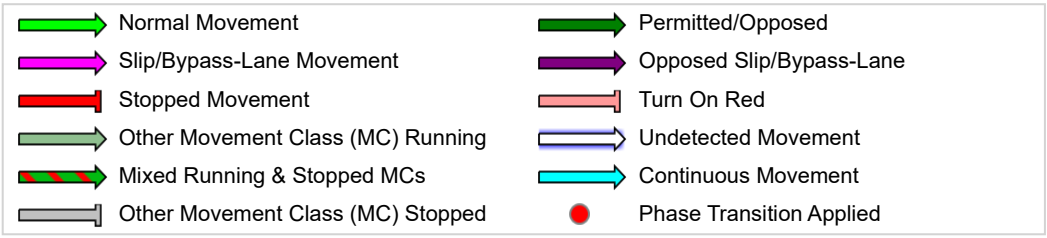
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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APPENDIX F
TRAFFIC IMPACT ASSESSMENT CERTIFICATION

TRAFFIC IMPACT ASSESSMENT CERTIFICATION

CERTIFICATION OF TRAFFIC IMPACT ASSESSMENT REPORT REGISTERED PROFESSIONAL ENGINEER QUEENSLAND

FOR

Project Title	11 Black Hawk Boulevard - Traffic Impact Assessment

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the *Professional Engineers Act 2002* as competent in my areas of nominated expertise, I understand and recognise:

- The significant role of engineering as a profession; and that
- The community has a legitimate expectation that my certification affixed to this engineering work can be trusted; and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

i. I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles; and

ii. Where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment; and that

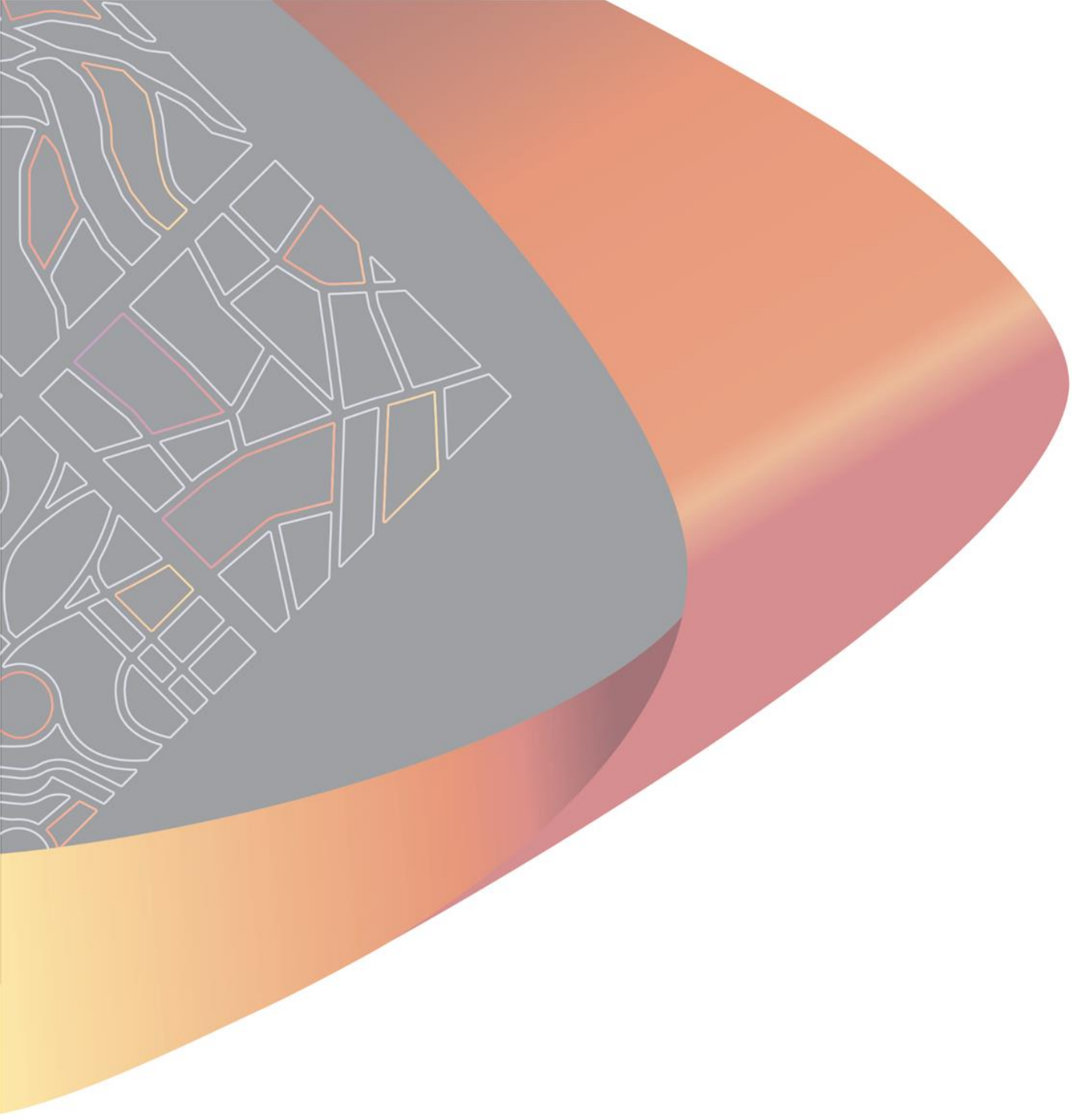
iii. The outcomes of this traffic impact assessment are a true reflection of results of assessment; and that

iv. I believe the strategies recommended for mitigating impacts by this traffic impact assessment, embrace contemporary practice initiatives and will deliver the desired outcomes.

Name	Prineth Fernando	**RPEQ No.**	32194
RPEQ Competencies	Civil		
Signature	Prineth	**Date**	31 October 2025
Postal Address	PO Box 1110, Townsville QLD 4810		
Email	Prineth.Fernando@premise.com.au		

Premise

Traffic impact assessment components to which this certification applies	☒
1. Introduction	
Background	☒
Scope and study area	☒
Pre-lodgement meeting notes / Information requests	☒
2. Existing Conditions	
Land use and zoning	☒
Adjacent land uses / approvals	☒
Surrounding road network details	☒
Traffic volumes	☒
Intersection and network performance	☐
Road safety issues	☒
Site access	☒
Public transport (if applicable)	☒
Active transport (if applicable)	☒
Parking (if applicable)	☐
Pavement (if applicable)	☐
Transport infrastructure (if applicable)	☐
3. Proposed Development Details	
Development site plan	☒
Operational details (including year of opening each stage and any relevant catchment / market analysis)	☒
Proposed access and parking	☒
4. Traffic Forecasting	
Traffic generation (by development stage if relevant and considering light and heavy vehicle trips)	☒
Trip distribution	☒
Development traffic volumes on the network	☒
With and without development traffic volumes	☒
5. Impact Assessment and Mitigation	
Construction traffic impact assessment and mitigation (if applicable)	☐
Road safety impact assessment and mitigation	☒
Access and frontage impact assessment and mitigation	☒
Intersection delay impact assessment and mitigation	☒
Road link capacity assessment and mitigation	☐
Pavement impact assessment and mitigation	☐
Transport infrastructure impact assessment and mitigation	☐
Other impacts assessment relevant to the specific development type / location (if applicable)	☐
6. Conclusions and Recommendations	
Summary of impacts and mitigation measures proposed	☒
Certification statement and authorisation	☒



Noise Impact Assessment

Material Change of Use Application – Variation Request for Commercial Use Rights

11 Black Hawk Boulevard, Thuringowa Central

Premise

Project No.: ATP250957

Project Name: 11 Black Hawk Boulevard, Thuringowa Central

Document No.: ATP250957-R-NIA-01A

October 2025

Document Control Record

Prepared by:	Aldrich Ang
Position:	Engineer - Acoustics
Signed:	
Date:	29 October 2025

Approved by:	Sasho Temelkoski RPEQ 13551
Position:	Manager - Acoustics
Signed:	
Date:	29 October 2025

REVISION STATUS

Issue No.	Revision	Date	Approved
1	A	29 October 2025	S. Temelkoski

Recipients are responsible for eliminating all superseded documents in their possession.

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Executive Summary

ATP Consulting Engineers (ATP) was engaged to prepare a noise impact assessment (NIA) report in support of a Material Change of Use Application (MCU) for a variation request for the use rights of the existing lot at 11 Black Hawk Boulevard in Thuringowa Central, Townsville.

The application relates to a variation request to consolidate the use rights of the existing lot into a commercial use lot. The purpose of this report is to evaluate a range of commercial uses and assess their potential noise impacts on the nearby noise sensitive uses. The assessment aims to determine whether future commercial development at the site is compatible with the adjacent residential uses without any adverse effects the existing noise amenity.

The operational noise levels in this report were assessed against the noise criteria from Schedule 6.4.19 Noise and Vibration under *Townsville City Plan (Version 2024/01)*.

A high-level noise assessment was carried out considering activities that generate significant noise emissions associated with a range of commercial uses.

The assessment presents necessary setback distance for specific activities from the commercial uses including amplified music, patron noise, mechanical noise, and vehicle movements considering only distance propagation, without accounting for mitigation measures such as acoustic screening or operating hours.

The results of the operational noise assessment indicate that noise mitigation measures must be implemented at the site to achieve a practical layout for a future commercial use, especially for commercial use operating during the night time period (10:00pm to 7:00am).

The following general noise mitigation measures must be considered for future planning and development at the site:

- For any commercial uses categorised *Major/Moderate* in accordance with Table 5.2, a detailed noise impact assessment must be undertaken at the development application (DA) stage.
- For commercial uses with activities operating during the period of 10:00pm to 7:00am (night time), particularly those outlined in Table 5.3, a detailed noise impact assessment must also be undertaken at the development application (DA) stage.
- Position future buildings to act as physical barriers and provide screening between noise generating activities and sensitive receivers, particularly to the east and south.
- Locate mechanical equipment, loading bays, and other noise-generating sources as far as practicable from sensitive receivers.
- Where possible, install acoustic screens around mechanical plant to contain noise emissions.
- Implement landscaped buffers along boundaries adjoining residential areas to provide additional separation distance to the development and the residential uses.

- Where possible, limit operating hours between 7:00am to 10:00pm only and restrict deliveries / refuse collection during night time (10:00pm to 7:00am).
- Where amplified music is to be used, the following must be implemented:
    - Amplified music must be fully contained within any future building. If any amplified music is proposed outdoors, a detailed noise impact assessment would be required.
    - All amplified music (speakers) must be limited to the default amplified noise limits for licensed venues under the *Liquor Act 1992* of no louder than a sound pressure level of 70dB(A) $L_{Aeq,adj,15min}$ and 75dB(C) $L_{Ceq,adj,15min}$ measured at a distance of 3m from the speaker.
    - The above noise limits can be amended based on licensed venue specific acoustic assessment carried out at the liquor licensing stage. The acoustic assessment must be carried out in accordance with *Guideline 51* by the *Office of Liquor and Gaming Regulation (OLGR)*.
- A noise barrier fence with a maximum height of 2.0m may be installed at the southern and eastern boundary to further contain the noise emissions from the operation of the development.
- In addition, the following general recommendations should be considered for the design and installation of the various mechanical equipment:
    - Select equipment with low sound power level;
    - Locate equipment as far away from noise sensitive areas as possible;
    - Provide acoustic lining to inside of ventilation ducts and/or provide duct silencers;
    - Where equipment has directional noise characteristics, point equipment away from noise sensitive areas.

The noise mitigation measures recommended in the report are general guidelines to consider during the planning stage. Implementation of the strategies outlined above is expected to ensure that operation of any proposed commercial use at 11 Black Hawk Boulevard, Thuringowa Central in Townsville will achieve the relevant noise criteria from the Townsville City Plan (2024/01) and that the existing noise amenity at the surrounding sensitive uses will be maintained. Once the specific uses are allotted, a detailed noise impact assessment will be undertaken in support of the associated development application for each use.

Table of Contents

Tables

Figures

Appendices

Acoustics Glossary

A-weighting	Correction to sound levels to mimic the response of the human ear at low sound frequencies. A-weighting filter covers the full audio range - 20 Hz to 20 kHz and the shape mimics the response of the human ear at the lower frequency levels.
Decibel (dB)	(1) Degree of loudness (2) A unit for expressing the relative intensity of sounds on a scale from zero for the average least perceptible sound to about 130 for the average pain level. A unit used to express relative difference in power or intensity, between two acoustic signals, equal to ten times the common logarithm of the ratio of the two levels, one of which is a standard reference value.
dB(A)	The A-weighted sound pressure level in dB.
Façade adjusted	The noise level at 1m from a building façade is calculated by adding 2.5dB to the free-field noise level to account for sound reflected from the building façade. The external noise levels at the buildings facades are "façade-adjusted".
Free-field	Noise level without any reflected sound from buildings or other hard, reflective surfaces (except for the ground plane).
Hz (Hertz)	Hertz is the standard measure of the frequency of oscillations in a wave motion. The frequency is most often measured in cycles per second (cps) or Hertz (Hz). Frequency of 1 Hz is one cycle per second.
Impulsive noise and impulsiveness adjustment	Noise having a high peak of short duration or a sequence of such peaks. Impulsive noise is present if the difference in A-weighted maximum noise levels between fast response and impulse response is greater than 2dB. Impulsiveness adjustment (penalty) of up to 5dB should be applied to the component noise level.
$L_{Amax,T}$	The maximum A-weighted sound pressure level occurring in a specified time period T in seconds.
$L_{Aeq,T}$	"Average-energy" sound level used in situations where sound varies over time. $L_{Aeq,T}$ is the A-weighted sound pressure level that has the same energy as the fluctuating sound over the time period T in seconds.
$L_{A1,T}$	Measure of the maximum sound level. $L_{A01,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 1% of the measurement time T.
$L_{A10,T}$	$L_{A10,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 10% of the measurement time T. Used as a traffic noise descriptor in Queensland.
$L_{A90,T}$	Background sound level. $L_{A90,T}$ is a statistical parameter that is the A-weighted sound pressure level that is exceeded for 90% of the measurement time T.
Noise	Unwanted sound.

Octave bands and 1/3 octave bands	A range of frequencies whose upper frequency limit is twice that of its lower frequency limit. In acoustics, the audible spectrum (20Hz to 20kHz) is divided into 10 parts (octaves) with centre frequencies of 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz and 16kHz. For more detailed frequency analysis, octave bands are further divided into more discrete bands. For examples, 1/3 octaves bands are where each octave band is divided into three parts. IEC 61260:1995, *Electroacoustics — Octave-band and fractional-octave band filters*
Sound power	The sound energy radiated per unit time by a sound source, measured in Watts (W).
Sound Power Level, L_w (SWL)	Logarithmic measure of sound power on a decibel scale, referenced to the human hearing threshold of 1×10^{-12} W.
Sound pressure	The fluctuations in air, measured in Pascals (Pa).
Sound Pressure Level, L_p (SPL)	Logarithmic measure of sound pressure on a decibel scale, referenced to the human hearing threshold of 2×10^{-5} Pa.
Tonal noise, tonality and tonality adjustment	Tonal noise is characterised by one or more distinct frequency components ("tones") that emerge audibly from the total sound. For example, distinct tones may be emitted by fans, saws, grinders and other equipment. Tonal noise is generally far more annoying than non-tonal noise. Presence of tonal sound ("tonality") can be identified by analysing the sound levels in adjacent 1/3 octave bands. AS1055.1-1997 and the DEHP Noise Measurement Manual 2013 provides guidance on how tonality should be assessed. If tonal components are clearly audible and they can be detected by 1/3 octave analysis (1/3 octave band exceeds neighbouring bands by at least 5dB), tonality adjustment (penalty) of up to 5dB should be applied to the component noise level.
Weighted Sound Reduction Index (R_w)	A single-number quantity which characterises the airborne sound insulation of a material or building element over a range of frequencies.

1. Introduction

1.1 Project Background

ATP Consulting Engineers (ATP) was engaged to prepare a noise impact assessment (NIA) report in support of a Material Change of Use Application (MCU) for a variation request for the use rights of the existing lot at 11 Black Hawk Boulevard in Thuringowa Central, Townsville.

The application relates to a variation request to consolidate the use rights of the existing lot into a commercial use lot. The purpose of this report is to evaluate a range of commercial uses and assess their potential noise impacts on the nearby noise sensitive uses. The assessment aims to determine whether future commercial development at the site is compatible with the adjacent residential uses without any adverse effects the existing noise amenity.

The operational noise levels in this report were assessed against the noise levels from Schedule 6.4.19 Noise and Vibration under *Townsville City Plan (Version 2024/01)*.

1.2 Study Objectives

Study objectives are as follows:

- Site-specific noise measurements using an automated noise logger to obtain data on the existing background noise levels at the site.
- Consideration of potential commercial uses and assessment of noise emissions associated with future commercial use on the nearest noise sensitive uses.
- Assessment of the noise levels against the relevant noise criteria from the *Townsville City Plan (2024/01)*
- Recommendation of noise mitigation measures to prevent noise impacts on the noise sensitive receptors in the vicinity of the development.

1.3 Subject Site

The subject site is located at 11 Black Hawk Boulevard in Thuringowa Central, Townsville on the land described as Lot 10 on SP177384. The land is within the Townsville City Council (TCC) local government area and is zoned as a *Major Centre* and *Medium Density Residential* zone. The total area of the site is 4.42ha.

The site location is presented in Figure 1.1.

Figure 1.1 Site location

1.4 Description of Application

The existing lot at Lot 10 on SP177384, No. 11 Black Hawk Boulevard in Thuringowa Central is currently split-zoned as *Major Centre* and *Medium Density Residential* zone. The proponent is seeking to investigate different options of commercial use for the site, including accepted uses, code assessable uses, and few additional proposed uses, as presented in the Table 1.1.

Table 1.1 Proposed commercial uses

Accepted Use	Code Assessable Use	Proposed Additional Use
• Home based business • Landing • Major electricity infrastructure • Park • Substation • Utility installation	• Adult store • Bar • Caretaker's accommodation • Car wash • Childcare centre • Club • Community care centre • Community Residence • Community use • Dwelling unit • Educational establishment • Emergency services • Food and drink outlet • Function facility • Health care services • Hotel • Indoor sport and recreation • Market • Multiple dwelling • Office • Parking station • Place of worship • Retirement facility • Rooming accommodation • Sales office • Service industry • Service station • Shop • Shopping centre • Short-term accommodation • Showroom • Telecommunications facility • Theatre • Veterinary services	• Funeral parlour • Hardware and trade supplies • Low impact industry • Outdoor sales • Relocatable home park • Residential care facility • Warehouse

Based on ATP's experience with similar developments, the land uses which typically generate the most noise emissions are those characterised by night time activities, high patronage, or mechanical plant operations (e.g. licensed food and drink outlets, childcare centres, function facilities, and service stations). In contrast, land uses such as offices, retail premises, and health care services typically generate only moderate noise levels, while small-scale professional services or low-intensity commercial operations (e.g. local shops or consulting rooms) generally result in comparatively low noise emissions.

2. Existing Noise Amenity

2.1 Site-specific Noise Measurements

Noise measurements were carried out at the subject site using an automated noise logger to obtain information about the existing background noise levels during day, evening, and night-time.

The noise measurement methodology is summarised in Table 2.1.

Table 2.1 Noise measurements

Relevant legislation, standards and guidelines	The noise measurements were carried out in accordance with: • Australian Standard AS 1055-1997 (*Acoustics – Description and measurement of environmental noise*).
Measurement location	Background noise measurements were carried out at a location representative of the noise amenity at the nearest noise sensitive receivers at the subject site. Photos showing the noise measurement location are presented in Appendix B.
Measurement period	Continuous unattended noise measurements were carried out 24 hours a day from 20 to 27 October 2025.
Measurement equipment	The following sound measurement equipment was used: • Noise logger – ARL NGARA (Serial no. #8780D4); and • Calibration – RION NC-75 Sound Level Calibrator (serial no. 34413140). The noise measurement instruments conform to Australian Standard AS IEC61672.1-2004. Calibration was performed during set up and download of the data from the noise logger. The calibration drift was <0.1 dB(A).
Meteorological conditions	The weather was fine with no inclement weather experienced during the monitoring period. Full meteorological data for the monitoring period is presented in Appendix B. Daily weather observation data was sourced from the Bureau of Meteorology for Townsville Meteorological Station (station ID 032040).
Analysis of data	The noise measurement data was analysed to determine the following noise descriptors: • $L_{A90,T}$: Background noise level during day time (7am to 6pm), evening (6pm to 10pm) and night time (10pm to 7am).

Figure 2.1 Noise measurement location

2.2 Measurement Results

The results of the unattended noise measurements carried out from 20 to 27 October 2025, are presented in Table 2.2 and Appendix C.

Table 2.2 Measured background noise levels

Date	Background noise levels dB(A)			Assessment Background Levels (ABL) dB(A)		
	$L_{90,11hr}$ day (7am–6pm)	$L_{90,4hr}$ evening (6pm–10pm)	$L_{90,9hr}$ night (10pm–7am)	$L_{90,11hr}$ day (7am–6pm)	$L_{90,4hr}$ evening (6pm–10pm)	$L_{90,9hr}$ night (10pm–7am)
20 Oct 2025 (Mon)	—	42	40	—	40	36
21 Oct 2025 (Tue)	44	42	40	42	40	36
22 Oct 2025 (Wed)	43	42	39	41	40	36
23 Oct 2025 (Thu)	44	42	38	42	39	36
24 Oct 2025 (Fri)	44	43	38	42	41	36
25 Oct 2025 (Sat)	44	43	38	43	41	36
26 Oct 2025 (Sun)	45	43	38	43	40	37
Rating Background Level (RBL)				**42**	**40**	**36**

3. Nearest Noise Sensitive Places

The nearest noise sensitive places (sensitive receptors) to the proposed development site are listed in Table 3.1.

Table 3.1 Nearest noise sensitive places

Street Address	Zone	Current/Approved Use
23 Gregory Street	Medium density residential	Residential
25 Gregory Street	Medium density residential	Residential
27 Gregory Street	Medium density residential	Residential
29 Gregory Street	Medium density residential	Residential
31 Gregory Street	Medium density residential	Residential
33 Gregory Street	Medium density residential	Residential
35 Gregory Street	Medium density residential	Residential
37 Gregory Street	Medium density residential	Residential
36 Gregory Street	Medium density residential	Residential
38 Gregory Street	Medium density residential	Residential
43 Gregory Street	Medium density residential	Residential
4 Morley Street	Medium density residential	Residential
6 Morley Street	Medium density residential	Residential
8 Morley Street	Medium density residential	Residential
10 Morley Street	Medium density residential	Residential
12 Morley Street	Medium density residential	Residential
14 Morley Street	Medium density residential	Residential
16 Morley Street	Medium density residential	Residential
18 Morley Street	Medium density residential	Residential
20 Morley Street	Medium density residential	Residential

The nearest noise sensitive places, identified on the zoning map from the *Townsville City Plan (2024/01)*, are presented in Figure 3.1.

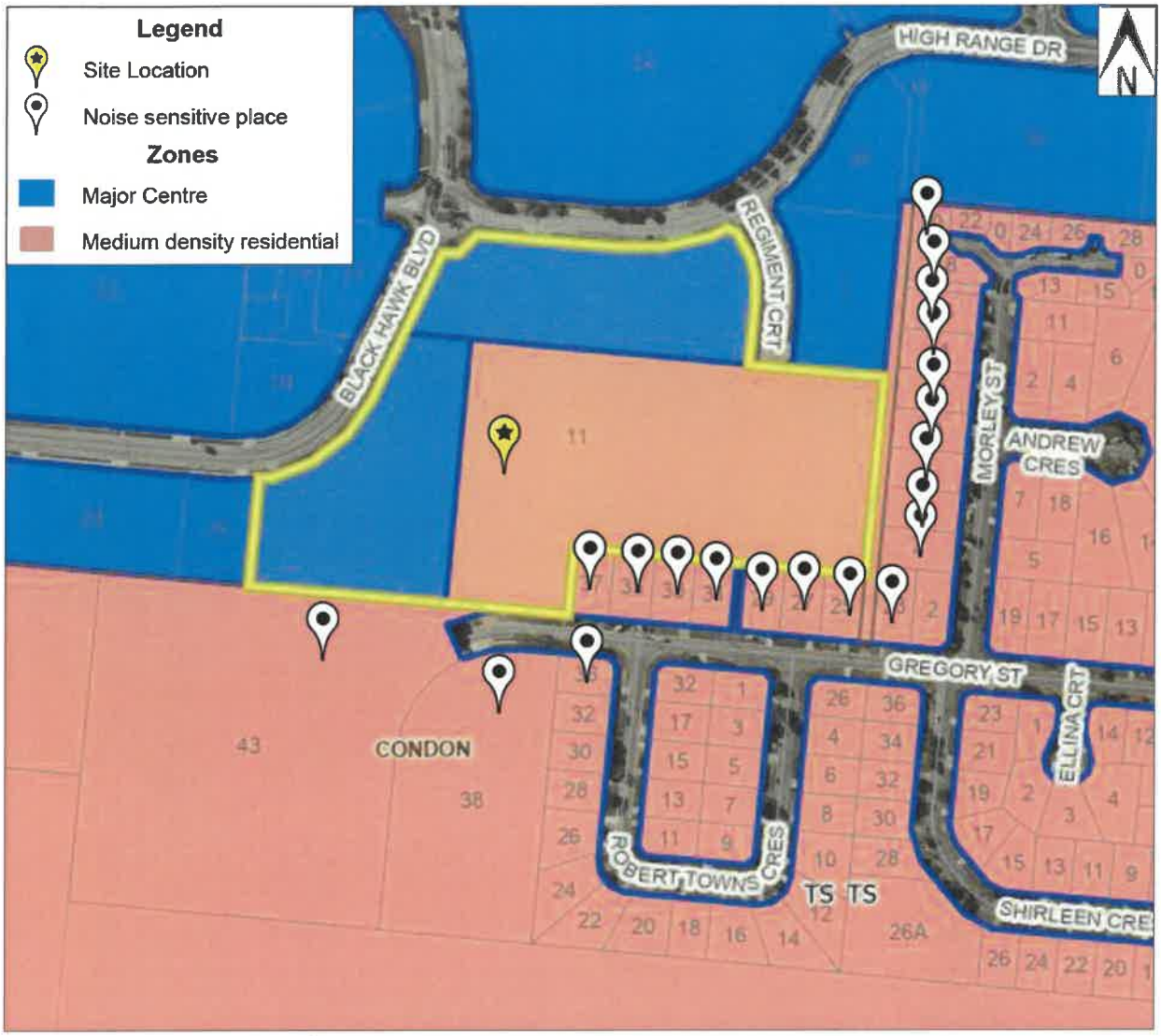


Figure 3.1 TCC zoning map – Sensitive receptors

4. Noise Criteria

4.1 Townsville City Plan (2024/01)

In accordance with Townsville City Plan, there is a requirement for consideration of the potential noise impacts from the proposed commercial use on the surrounding area.

The relevant acceptable outcomes from the Table 6.4.1.3 – *Accepted development subject to requirements and assessable development (Part)* of the Major centre zone code for the development under *Townsville City Plan* are presented in Table 4.1 below.

Table 4.1 Performance outcomes & acceptable outcomes

Performance outcomes	Acceptable outcomes
For assessable development	
Amenity	
PO17 Development maintains a level of amenity within the site and for surrounding areas, having regard to: a) noise; b) hours of operation; c) traffic; d) visual impact; e) signage; f) odour and emissions; g) lighting; h) access to sunlight; i) privacy; and j) outlook.	No acceptable outcome is nominated.

4.1.1 SC6.4.19 Noise and Vibration

SC6.4 – *Development Manual Planning Scheme Policy (PSP), Clause 19 – Noise and vibration* of *Townsville City Plan* identifies three noise levels criteria for assessing the impact of noise from premises:

- General: – project noise trigger level provides a benchmark or objective for assessing a proposal or site. The project noise trigger level is the lower (i.e., the more stringent) value of the intrusiveness noise level and amenity noise level;
- Intrusive noise level: – intrusive noise levels require that $L_{Aeq,}$15-minute noise levels from the site during the relevant operational periods (I.e., day, evening, and night) do not exceed the rating background level by more than 5 dB; and
- Amenity noise levels: – maximum recommended amenity of noise levels as per Table SC6.4.19.1 of the *Development Manual PSP* under *Townsville City Plan*.

4.1.2 Intrusive Noise Levels

Intrusive noise levels require that L_{Aeq},15-minute noise levels from the site during the relevant operational periods (I.e., day, evening, and night) do not exceed the rating background level (RBL) by more than 5dB.

The intrusive noise levels, based on the assumed background noise levels, are presented in Table 4.2.

Table 4.2 Intrusive noise levels

Period	Intrusiveness noise level $L_{Aeq,15min}$, dB(A)	
Day (7:00am to 6:00pm)	RBL + 5dB(A)	**47** (42 + 5)
Evening (6:00pm to 10:00pm)	RBL + 5dB(A)	**45** (40 + 5)
Night (10:00pm to 7:00am)	RBL + 5dB(A)	**41** (36 + 5)

Please note that intrusive noise level criteria are only applicable to residential receivers.

4.1.3 Amenity Noise Level

The *recommended amenity noise level* is set according to the surrounding land uses (receiver category) and the existing background noise levels. The receiver categories and typical existing background noise levels are presented in Table 4.3.

Table 4.3 Amenity levels for residential receiver categories

Receiver	Noise Amenity Area	Time of Day	Maximum Recommended Amenity Noise Level for All Sources $L_{Aeq\ 15\ minutes}$, dB(A)
Residence	**Rural** – an area with an acoustical environment that is dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels	Day	50
		Evening	45
		Night	40
	Suburban – an area that has local traffic with characteristically intermittent traffic flows or with some limited commerce or industry. This area often has the following characteristic: evening ambient noise levels defined by the natural environment and human activity.	Day	55
		Evening	45
		Night	40
	Urban – an area with an acoustical environment that: is dominated by 'urban hum' or industrial source noise has through traffic with characteristically heavy and continuous traffic flows during peak periods is near commercial districts or	Day	60
		Evening	50

Receiver	Noise Amenity Area	Time of Day	Maximum Recommended Amenity Noise Level for All Sources $L_{Aeq\ 15\ minutes}$, dB(A)
	industrial districts has any combination of the above or where 'urban hum' means the aggregate sound of many unidentifiable, mostly traffic and/or industrial related sound sources	Night	40
Commercial premises	**All**	When in use	65

Note: *This table is reproduced from SC6.4.19.1 - Maximum Recommended Amenity of Noise Levels For All Sources*

Based on the surrounding environment of the site, the Amenity Noise level for suburban area will be adopted in the assessment for the nearby residential noise sensitive receivers.

4.1.4 Project Noise Trigger Level (General Noise Level)

As per *Townsville City Plan,* the project noise trigger level is the more stringent value of the intrusiveness noise level and amenity noise level.

Considering this, the project specific noise trigger levels are summarized in Table 4.4 below.

Table 4.4 Project noise trigger levels

Receiver	Time of day	Noise criteria, dB(A)		
		Intrusiveness noise level $L_{Aeq,15min}$	Project amenity noise level $L_{Aeq,15min}$	Project trigger level $L_{Aeq,15min}$
Residential	Day	47	55	**47**
	Evening	45	45	**45**
	Night	41	40	**40**
Commercial	Day	–	65	**65**
	Evening	–	65	**65**
	Night	–	65	**65**

4.1.5 Potential for Sleep Disturbance

Extract from the *Schedule 6 of the Townsville City Plan (Version 2024/01)* is as follows:

> *The potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.*
>
> *Where the subject development can satisfy the following three maximum noise level event trigger levels no additional assessment or evaluation of sleep disturbance is required:*
>
> - *$L_{Aeq,15min}$ 40 dB(A) 1 metre from the façade or the existing rating background level plus 5 dB, whichever is the greater, and/or*
> - *The arithmetic average of the maximum levels from up to 15 single events over a given night-time period L_{AFmax} 52 dB(A) 1 metre from the façade or the existing rating background level plus 15 dB, whichever is the greater.*
> - *The absolute highest L_{AFmax} 60 dB(A) 1 metre from the façade or the existing rating background level plus 15 dB, whichever is the greater,*

Considering the night-time RBL of 36 dB(A), the resulting noise limits are presented in Table 4.5.

Table 4.5 Maximum noise level criteria

Time of Day	Noise limit, $L_{Aeq,15min}$, dB(A)	Noise limit, $L_{AF,max}$, dB(A)
Night	Criterion 1: 41dB(A)	Criterion 2: 52dB(A) Criterion 3: 60dB(A)

Please note that the noise criteria outlined in potential for sleep disturbance are only applicable for residential receivers.

5. Operational Noise Impact Assessment

5.1 Assessment of Proposed Commercial Uses

Based on the list of potential future commercial uses at the site, ATP has assigned an assessment category for noise emissions from typical commercial developments. The associated operational noise consequences are presented in Table 5.1.

Table 5.1 Assessment criteria

Assessment Category	Definition
Insignificant	No further assessments or noise mitigation measures are likely to be required.
Minor	Minor noise impacts with little to no mitigation required.
Moderate	A detailed noise impact assessment is required to ensure noise is adequately contained within the development.
Major	A detailed noise impact assessment is required, with a high likelihood of noise mitigation measures.

The commercial uses were categorised using the established assessment criteria. A summary is provided in Table 5.2.

Table 5.2 Commercial uses assessment

Assessment Category	Accepted Use	Code Assessable Use	Additional Proposed Use
Insignificant	• Home based business • Landing • Park	• Adult store • Caretaker's accommodation • Community Residence • Dwelling unit • Multiple dwelling • Office • Retirement facility • Sales office • Showroom • Telecommunications facility	• Funeral parlour • Hardware and trade supplies • Relocatable home park
Minor	• Utility installation	• Community use • Emergency services • Health care services • Hotel • Short-term accommodation • Veterinary services.	• Outdoor sales
Moderate	• Major electricity infrastructure • Substation	• Community care centre	• Low impact industry • Warehouse

Assessment Category	Accepted Use	Code Assessable Use	Additional Proposed Use
		• Indoor sport and recreation • Educational establishment • Parking station • Service industry • Shop • Shopping centre • Theatre	
Major	• n/a	• Bar • Car wash • Childcare centre • Club • Food and Drink outlet • Function facility. • Market • Place of worship • Service station	• n/a

Land uses that typically generate mechanical noise emissions, attract high volumes of pedestrian and/or vehicle traffic, operate with amplified music or operate during the late hours are most likely to result in adverse impacts on the surrounding noise amenity. Noise mitigation strategies must be implemented to ensure compliance with relevant noise criteria and protect the noise amenity of the nearest noise sensitive receivers.

5.2 Noise Sources

The dominant noise sources from the operation of commercial uses classified under the *Major* category are outlined in Table 5.3. The corresponding sound power levels for these activities were determined and assessed against the day, evening, and night-time noise criteria. This assessment was used to establish the required setback distances from any noise-sensitive uses to ensure compliance with the relevant noise standards.

Table 5.3 Operational noise scenarios

Noise Source	Sound Power Level dB(A) (re 10^{-12} W)	Setback Distance to Comply with Noise Criteria, (m)[1]		
		Day	Evening	Night
Bar / Club / Food and Drink Outlet / Function Facility				
Amplified music/speech (Indoors)	100 dB(A) combined internal noise level w/ standard building construction	18	22	40
Amplified music/speech (Outdoors)	93 dB(A) per speaker (102 dB(A) per 8 speaker)	224	282	501
Carpark	93 dB(A) per 100 parking bays	79	100	178
Patron noise	93 dB(A) per 100 people	79	100	178
Refrigeration Condenser	85 dB(A) per unit	32	40	71
Car wash / Service Station				
Wash bay	105 dB(A)	316	398	708
Fuel bowser	83 dB(A) per unit	25	32	56
Truck movements	91 dB(A)	63	79	141
Vehicle movements	90 dB(A) per car moving at 10kph	56	71	126
Childcare Centre				
Outdoor play areas	0 to 2 years (100 children): 88 dB(A)	45	56	100
	2 to 3 years (100 children): 95 dB(A)	100	126	224
	3 to 5 years (100 children): 97 dB(A)	126	158	282
Breakout noise from children playing	97 dB(A) combined internal noise level w/ standard building construction	13	16	28
Truck idling (refuse / deliveries)	96 dB(A)	112	141	251
Truck loading (refuse)	97 dB(A)	126	158	282

[1] Distances are based on noise levels assessed against the project noise trigger levels

Noise Source	Sound Power Level dB(A) (re 10^{-12} W)	Setback Distance to Comply with Noise Criteria, (m)[1]		
		Day	Evening	Night
Place of Worship				
Patron Noise	93 dB(A) per 100 people	79	100	178
Breakout noise from worship, amplified music / voices, and patron noise	100 dB(A) combined internal noise level breaking out through standard construction	18	22	40
Carpark	93 dB(A) per 100 parking bays	79	100	178
Market				
Patron noise	96 dB(A) per 200 people	112	141	251
Carpark	96 dB(A) per 200 parking bays	112	141	251
Amplified music/speech (Outdoors)	93 dB(A) per speaker (102 dB(A) per 8 speaker)	224	282	501

Note: tonality / impulsiveness has been accounted in the sound power level values

Based on the size of the lot, a setback distance of greater than 150m is unlikely to be practical. As such, appropriate noise mitigation measures such as operational controls or screening should be considered.

For example, a well-placed acoustic barrier can provide at least 3-6dB(A) noise reduction, which can effectively halve the required setback distance.

6. Discussion and Recommendations

A high-level noise assessment was carried out considering activities that generate significant noise emissions associated with a range of commercial uses.

The assessment presents necessary setback distance for specific activities from the commercial uses including amplified music, patron noise, mechanical noise, and vehicle movements considering only distance propagation, without accounting for mitigation measures such as acoustic screening or operating hours.

The results of the operational noise assessment indicate that noise mitigation measures must be implemented at the site to achieve a practical layout for a future commercial use, especially for commercial use operating during the night time period (10:00pm to 7:00am).

The following general noise mitigation measures must be considered for future planning and development at the site:

- For any commercial uses categorised *Major/Moderate* in accordance with Table 5.2, a detailed noise impact assessment must be undertaken at the development application (DA) stage.
- For commercial uses with activities operating during the period of 10:00pm to 7:00am (night time), particularly those outlined in Table 5.3, a detailed noise impact assessment must also be undertaken at the development application (DA) stage.
- Position future buildings to act as physical barriers and provide screening between noise generating activities and sensitive receivers, particularly to the east and south.
- Locate mechanical equipment, loading bays, and other noise-generating sources as far as practicable from sensitive receivers.
- Where possible, install acoustic screens around mechanical plant to contain noise emissions.
- Implement landscaped buffers along boundaries adjoining residential areas to provide additional separation distance to the development and the residential uses.
- Where possible, limit operating hours between 7:00am to 10:00pm only and restrict deliveries / refuse collection during night time (10:00pm to 7:00am).
- Where amplified music is to be used, the following must be implemented:
    - Amplified music must be fully contained within any future building. If any amplified music is proposed outdoors, a detailed noise impact assessment would be required.
    - All amplified music (speakers) must be limited to the default amplified noise limits for licensed venues under the *Liquor Act 1992* of no louder than a sound pressure level of 70dB(A) $L_{Aeq,adj,15min}$ and 75dB(C) $L_{Ceq,adj,15min}$ measured at a distance of 3m from the speaker.

- The above noise limits can be amended based on licensed venue specific acoustic assessment carried out at the liquor licensing stage. The acoustic assessment must be carried out in accordance with *Guideline 51* by the *Office of Liquor and Gaming Regulation (OLGR)*.

- A noise barrier fence with a maximum height of 2.0m may be installed at the southern and eastern boundary to further contain the noise emissions from the operation of the development.

- In addition, the following general recommendations should be considered for the design and installation of the various mechanical equipment:

  - Select equipment with low sound power level;

  - Locate equipment as far away from noise sensitive areas as possible;

  - Provide acoustic lining to inside of ventilation ducts and/or provide duct silencers;

  - Where equipment has directional noise characteristics, point equipment away from noise sensitive areas.

The noise mitigation measures recommended in the report are general guidelines to consider during the planning stage. Implementation of the strategies outlined above is expected to ensure that operation of any proposed commercial use at 11 Black Hawk Boulevard, Thuringowa Central in Townsville will achieve the relevant noise criteria from the Townsville City Plan (2024/01) and that the existing noise amenity at the surrounding sensitive uses will be maintained. Once the specific uses are allotted, a detailed noise impact assessment will be undertaken in support of the associated development application for each use.

7. References

- Australian Standard AS1055.1-1997 *(Acoustics - Description and Measurement of Environmental Noise Part 1: General Procedures)*
- Australian Standard AS1055.2-1997 *(Acoustics - Description and Measurement of Environmental Noise Part 2: Application to Specific Situations)*
- Australian Standard ASIEC61672.1-2004 (Electroacoustics - Sound level meters – Specifications)
- Australian Standard ISO 1996-2:2007 (*Acoustics – Description, measurement, and assessment of environmental noise – Part 2: Determination of environmental noise levels)*
- International Standard ISO 9613 (*Acoustics – Attenuation of sound during propagation outdoors)*
- Townsville City Council, 2024, *Townsville City Plan Version 2024/01*
- Queensland Government, 2019, *Environmental Protection (Noise) Policy 2019*

8. Appendices

Appendix A – Site Photos

Appendix B – Meteorological Data

Appendix C – Background Noise Measurement Results

Appendix A – Site Photos

Photo 1: Noise logger location – View due east

Photo 2: Noise logger location – View due north

Appendix B – Meteorological Data

Townsville, Queensland
October 2025 Daily Weather Observations

Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am						3pm					
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	We	18.0	31.4	0			N	28	11:10	26.5	66	7	NW	13	1014.2	30.4	46		NNE	15	1010.2
2	Th	20.4	33.8	0			NNW	35	12:13	27.8	65		WSW	6	1014.4	32.5	39		N	15	1011.1
3	Fr	17.5	36.4	0			ENE	41	13:52	31.2	18		SW	19	1015.6	30.9	42		ENE	31	1012.0
4	Sa	16.3	32.3	0			NE	46	12:33	28.8	39		SE	13	1018.6	28.3	58		ENE	33	1015.8
5	Su	20.5	30.2	0			ENE	52	12:33	26.4	52		ESE	31	1020.7	28.2	45	2	ENE	35	1017.0
6	Mo	19.3	30.2	0			E	50	10:50	27.2	55	6	ESE	28	1019.7	28.3	50		E	31	1016.4
7	Tu	20.0	30.4	0			ENE	43	14:19	24.9	67	8	SSE	15	1018.8	28.1	59	7	ENE	30	1015.0
8	We	23.1	29.9	0			NE	37	11:24	26.3	71	8	ENE	19	1017.9	28.0	62		ENE	28	1014.1
9	Th	24.3	30.6	1.2			ENE	37	11:00	28.0	70		ENE	22	1017.7	28.7	67		ENE	31	1014.8
10	Fr	23.4	30.6	0			ENE	41	13:49	27.8	66	6	E	19	1017.9	28.4	61		ENE	31	1014.3
11	Sa	22.2	30.8	0			NE	39	14:14	27.3	66	7	ESE	17	1017.3	28.8	67		NE	30	1013.8
12	Su	23.2	30.8	0			NE	35	12:25	28.4	67	1	ENE	20	1016.4	28.4	69	7	ENE	28	1012.9
13	Mo	22.3	31.6	0			NE	37	13:39	27.5	76	5	ENE	17	1016.0	29.6	66		ENE	24	1013.0
14	Tu	25.1	32.6	0			NE	39	12:05	30.0	61	3	E	19	1016.0	29.1	70		NE	31	1013.4
15	We	23.1	32.0	0.2			ENE	50	16:32	28.4	62	8	ESE	24	1016.7	30.3	55	1	ENE	31	1013.4
16	Th	24.2	31.6	0			E	46	11:17	26.5	75	8	ESE	24	1017.8	29.5	54		ENE	31	1014.2
17	Fr	19.9	31.7	0			ENE	48	15:12	27.9	59	8	SE	19	1016.7	28.4	65	3	ENE	35	1012.7
18	Sa	20.9	30.4	0			NE	39	13:26	27.9	56	1	E	17	1014.5	28.7	54		ENE	28	1010.6
19	Su	19.2	30.6	0			ENE	39	15:42	27.8	58		NE	13	1013.2	28.3	60		NE	28	1009.5
20	Mo	23.6	31.4	0			NE	37	14:56	29.1	59		ENE	22	1015.4	29.4	61		ENE	30	1011.1
21	Tu	21.6	31.3	0			ENE	31	10:09	27.8	58		ENE	20	1013.6	28.3	52		NE	26	1009.9
22	We	21.8	30.5	0			NNE	31	14:34	28.1	55	1	ENE	17	1013.4	29.2	52		NE	20	1009.4
23	Th	20.6		0						27.7	64	8	N	17	1012.4	30.1	52		NNE	20	1009.4
24	Fr	23.1	32.4				NNE	39	13:03	28.0	67	7	NW	13	1013.9	30.3	54		N	22	1010.3
25	Sa	24.2	31.7	0			NNE	37	08:53	29.2	63	3	NNE	26	1013.9	30.8	54		NNE	24	1011.0
26	Su	25.6	32.7	0			N	39	14:45	28.6	68	8	NW	15	1014.3	31.6	58		NNE	28	1009.4
27	Mo	26.7	32.4	0			NNE	41	13:19	30.4	64	1	N	20	1011.8	31.1	65	2	NNE	28	1007.5
28	Tu	24.3		1.6						27.7	75	7	E	7	1013.1						
Statistics for the first 28 days of October 2025																					
	Mean	21.9	31.6							28.0	61	5		18	1015.8	29.4	56	3		27	1012.3
	Lowest	16.3	29.9							24.9	18	1	WSW	6	1011.8	28.0	39	1	NNE	15	1007.5
	Highest	26.7	36.4	1.6			ENE	52		31.2	76	8	ESE	31	1020.7	32.5	70	7	ENE	35	1017.0
	Total			3.0																	

Observations were drawn from Townsville Aero {station 032040}

IDCJDW4128.202510 Prepared at 00:26 UTC on 28 Oct 2025

Appendix C – Background Noise Measurement Results

Unattended Noise Measurements
11 Black Hawk Boulevard, Thuringowa Central

Environmental Noise Levels Day, Evening and Night

Logger Location - South of the site near 43 Gregory Street

ARL Environmental Noise Logger	
Logger Serial Number	0
Measurement Title	0
Measurement started at	30/12/1899 0:0
Measurement stopped at	30/12/1899 0:0
Frequency Weighting	A
Time Averaging	Fast
Statistical Interval	15 min
Pre-measurement Ref.	Not Applicable
Post-measurement Ref.	Not Applicable
Engineering Units	dB SPL

		$L_{Aeq,T}$ dB(A)			$L_{A01,T}$ dB(A)			$L_{A10,T}$ dB(A)			$L_{A90,T}$ dB(A)			Assessment Background Levels		
Date	Day	D	E	N	D	E	N	D	E	N	D	E	N	D	E	N
20/10/2025	Monday	—	49	45	—	58	53	—	51	46	—	42	40	—	40	36
21/10/2025	Tuesday	51	48	45	60	58	53	53	51	46	44	42	40	42	40	36
22/10/2025	Wednesday	50	49	45	60	58	54	52	51	46	43	42	39	41	40	36
23/10/2025	Thursday	49	49	44	59	59	52	51	51	43	44	42	38	42	39	36
24/10/2025	Friday	50	49	48	59	59	59	52	51	48	44	43	38	42	41	36
25/10/2025	Saturday	50	51	45	59	60	56	52	52	46	44	43	38	43	41	36
26/10/2025	Sunday	53	48	43	63	58	51	55	50	43	45	43	38	43	40	37
Average		**50**	**49**	**45**	**60**	**59**	**54**	**52**	**51**	**45**	**44**	**42**	**39**	—	—	—
														Rating Background Level (RBL)	**42**	**40**	**36**

Note

— No noise data available

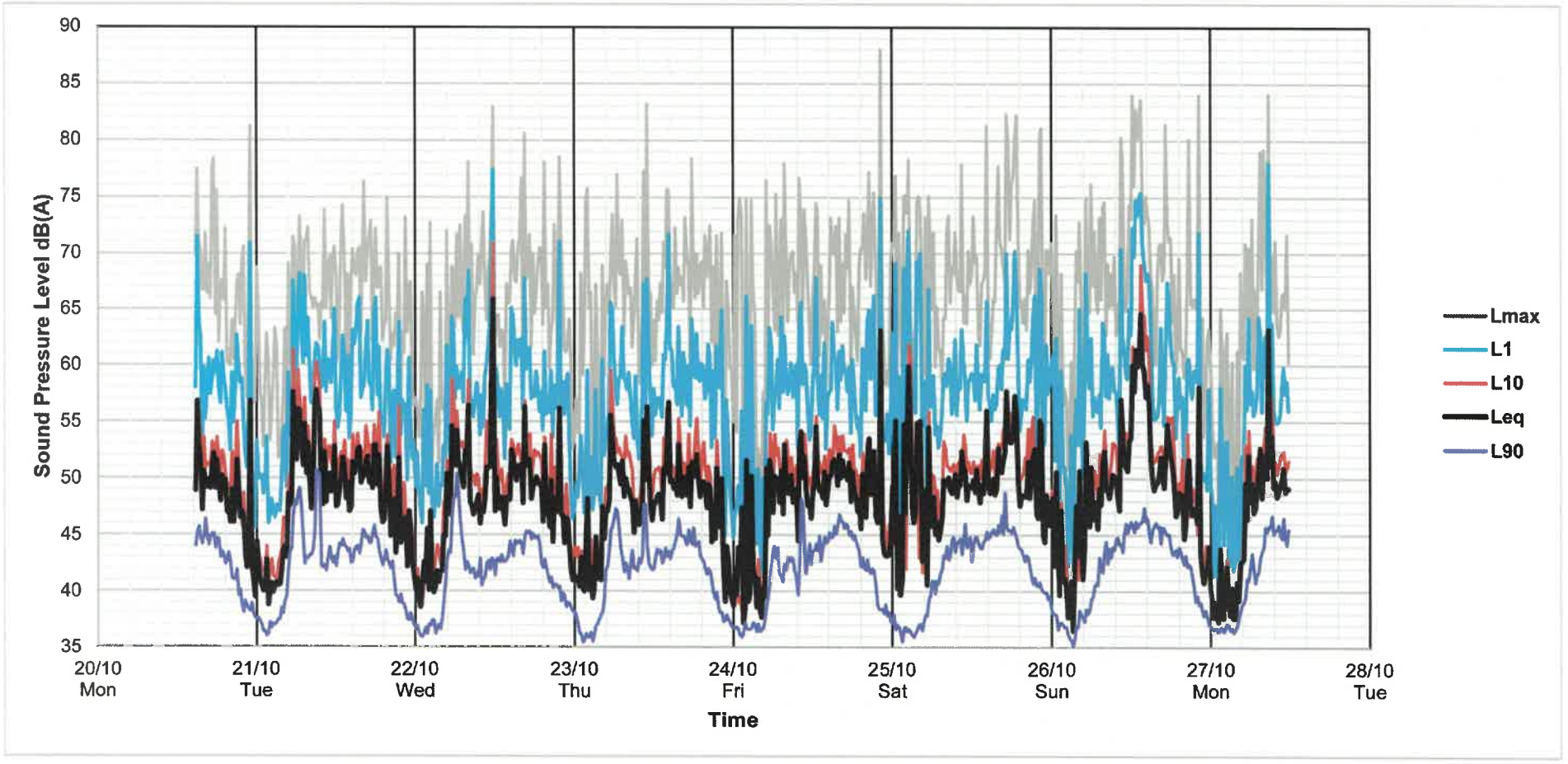
Day (D): 7:00am to 6:00pm

Evening (E): 6:00pm to 10:00pm

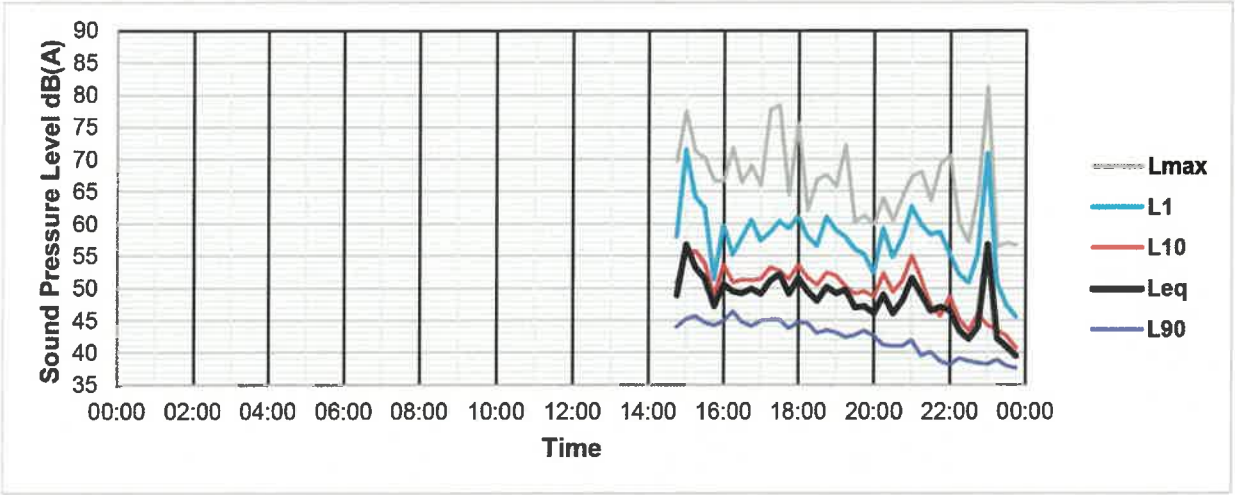
Night (N): 10:00pm to 7:00am

Rainfall recorded on this day

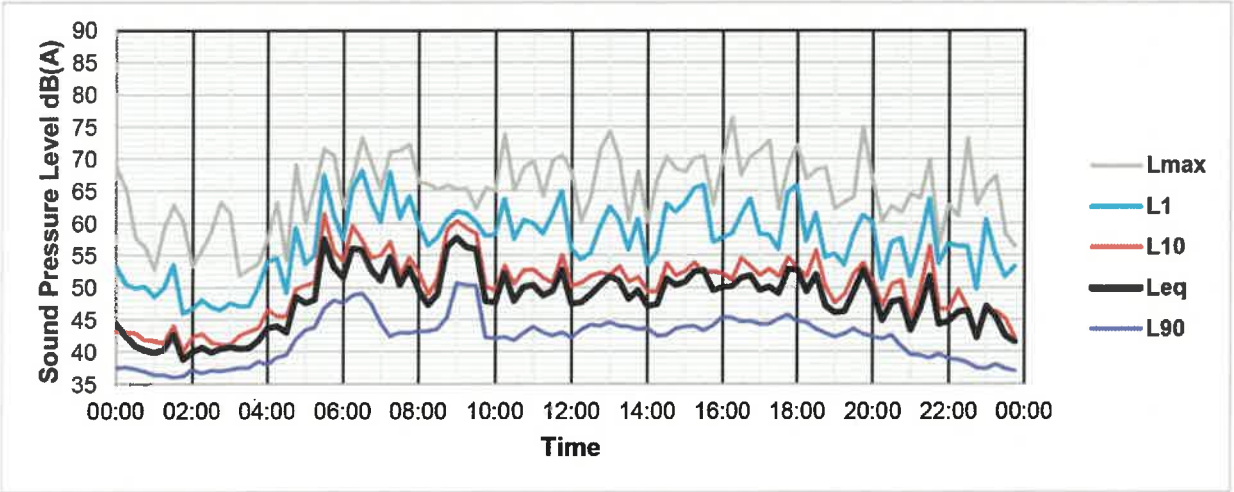
Unattended Noise Measurements
20 to 27 October 2025



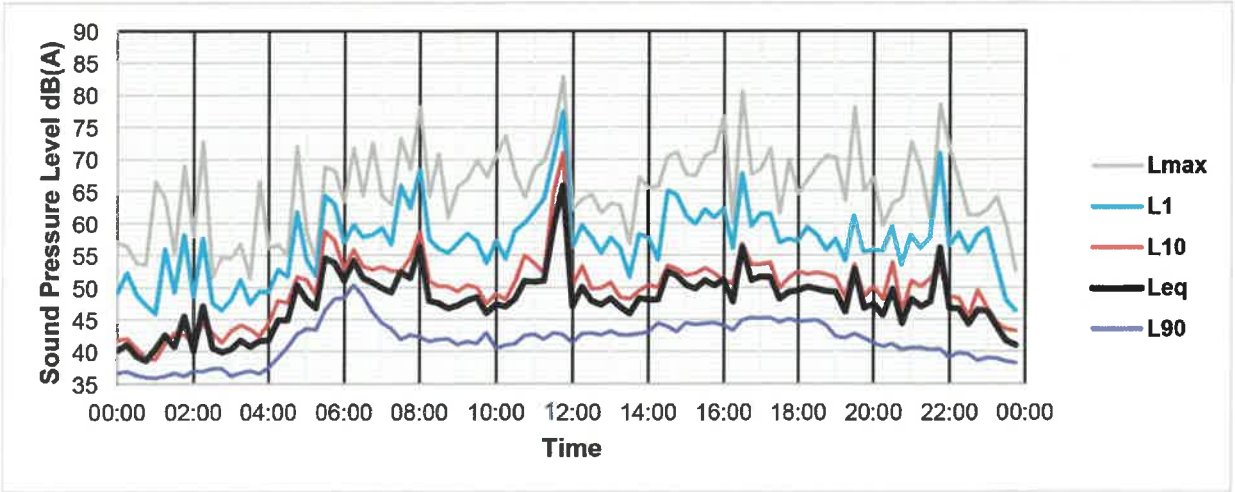
Unattended Noise Measurements
Monday 20 October 2025



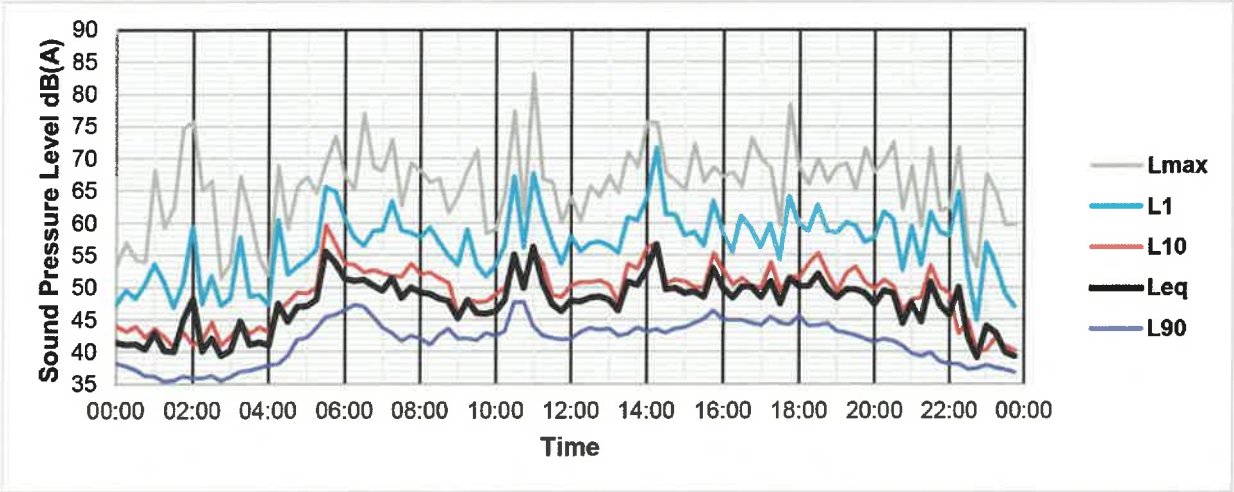
Unattended Noise Measurements
Tuesday 21 October 2025



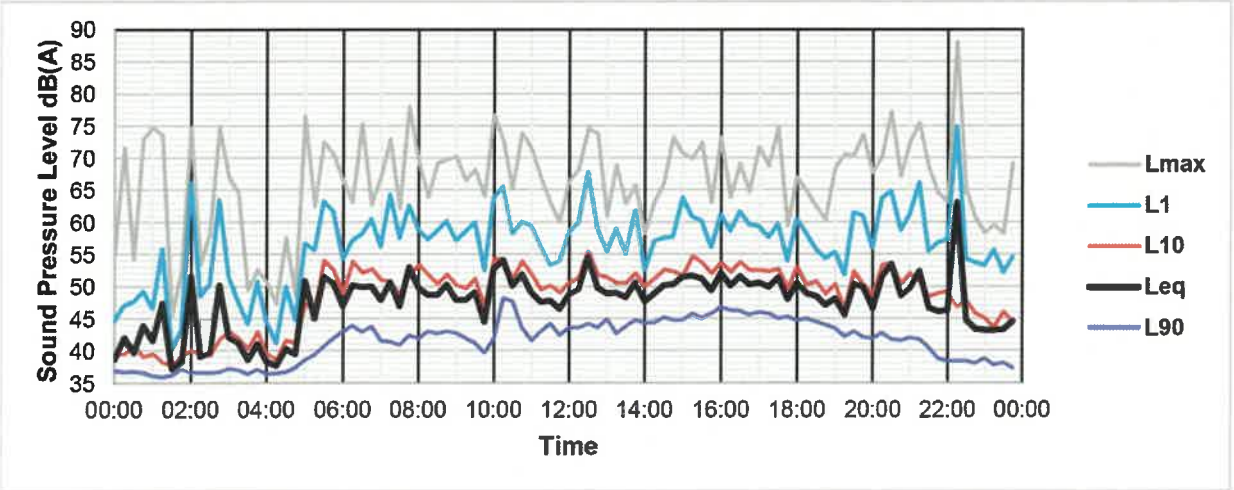
Unattended Noise Measurements
Wednesday 22 October 2025



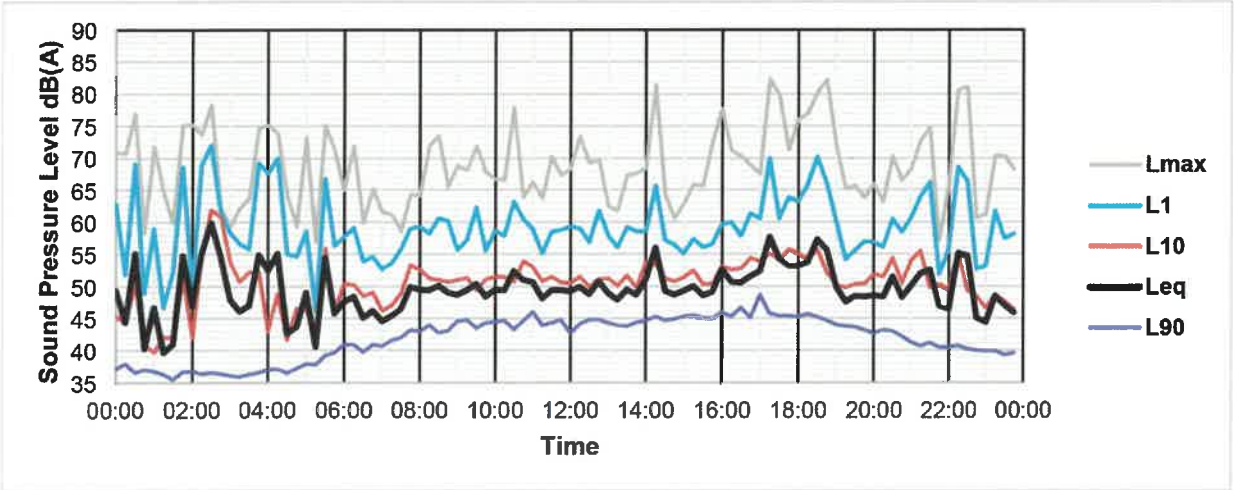
Unattended Noise Measurements
Thursday 23 October 2025



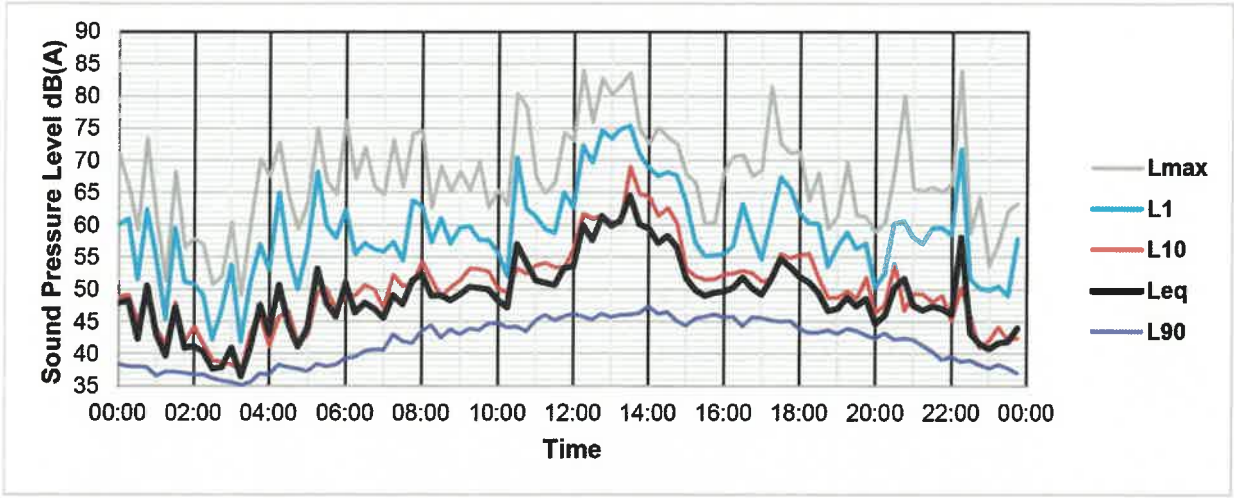
Unattended Noise Measurements
Friday 24 October 2025



Unattended Noise Measurements
Saturday 25 October 2025



Unattended Noise Measurements
Sunday 26 October 2025



Unattended Noise Measurements
Monday 27 October 2025