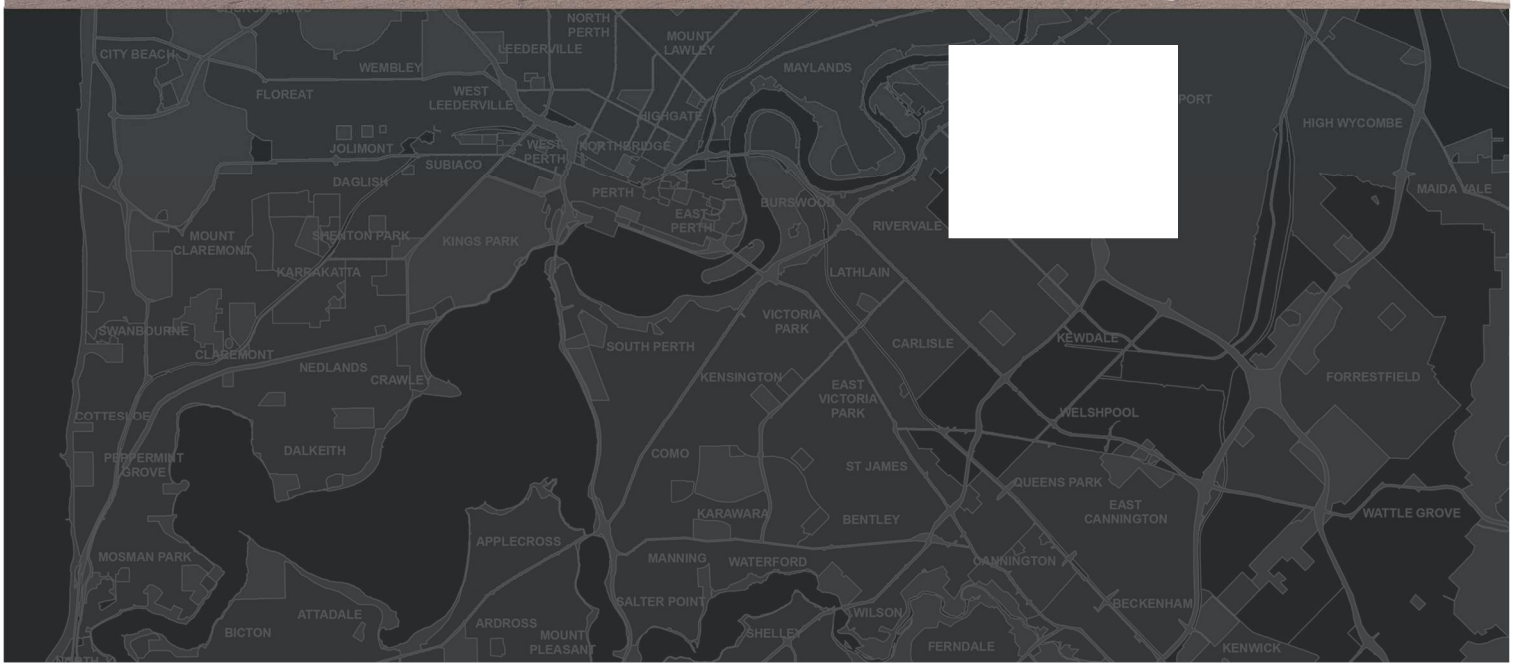
Development Application Report

Geraldton Theatre Redevelopment

Lots 150 & 151 (205 & 181-195) Marine Terrace, Lot 152 (15) Fitzgerald Street and
Lot 153 (222-228) Lester Avenue
Geraldton



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1 PRELIMINARY

1.1 Introduction

This report will discuss various matters pertinent to the proposal, including:

- Site details.
- Proposed development.
- Statutory planning framework.

This development application seeks approval for the redevelopment of the subject site, which comprises a number of heritage registered properties, including the state heritage registered Radio Theatre building. The development proposes retention and revitalisation of most existing buildings, where these are viable for retention in their current form.

The redevelopment of these sites will facilitate creation of a new tourism and entertainment precinct within the Geraldton town centre and will comprise a mixture of food and beverage areas, drive through bottle shop, serviced apartment, as well as associated landscaping, parking, amenities, and vehicle access on the subject site.

The proposed development has been designed in a contextual manner and ensures the retention and refurbishment of important local heritage fabric. The development aligns with the desired future character of the area as identified within the City of Geraldton local planning framework.

The development is suitably located within an area of Geraldton identified as an urban growth area and will provide increased entertainment and short stay housing opportunities within the Geraldton town centre.

Overall, the proposed development is demonstrated to have a well-considered design and will ensure retention of significant heritage fabric and provision of contemporary commercial spaces to the Geraldton region.

Accordingly, it is respectfully requested that the Regional Development Assessment Panel consider the application on its merits and approve the development.

2 SITE DETAILS

2.1 Land description

Refer to **Table 1** below for the lot details and a description of the subject site.

Table 1 - Lot details

Lot	Deposited Plan	Volume	Folio	Area (m²)
150	67166	2794	469	2,471
151	67166	2794	470	5,695
152	67166	2794	471	4,003
153	67166	2794	472	4,061

There are no encumbrances listed on the Certificates of Title for the above lots.

Refer **Appendix 1** for a copy of the Certificate of Titles and Deposited Plan.

2.2 Location

The subject site is located within the local government municipality of the City of Greater Geraldton (**City**) and within the Geraldton City Centre as identified in the City's Geraldton City Centre Revitalisation Plan.

Refer **Figure 1**, Location Plan.

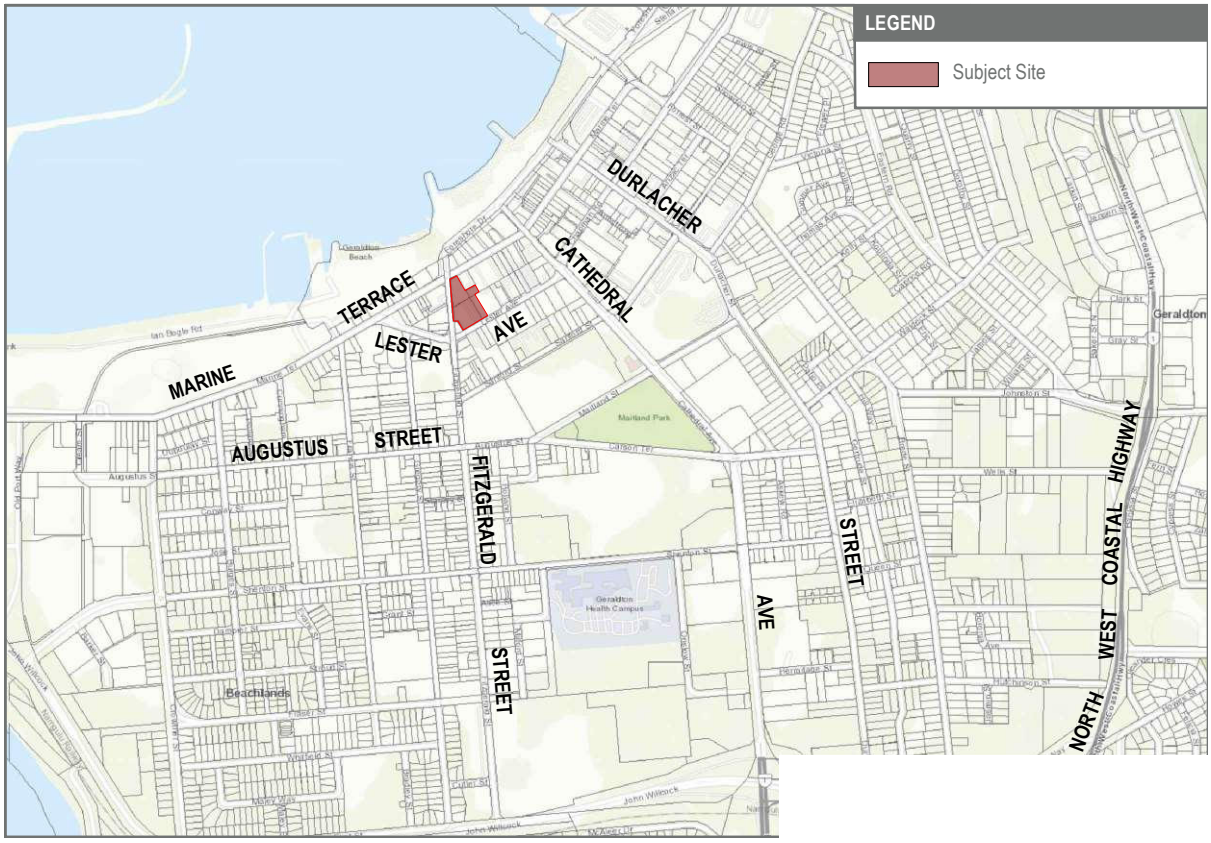

Figure 1 - Location Plan

2.3 Site conditions

The subject site comprise several existing buildings comprising both single and two storey heights. All buildings are predominantly vacant and in a state of disrepair. Some minor vegetation exists on Lot 150 between the Radio Theatre and Kings Hall buildings and on Lot 152 behind the heritage building. The subject site is predominantly devoid of any significant vegetation.

Refer **Figure 2** for an aerial photograph showing the subject site and immediate surrounds.

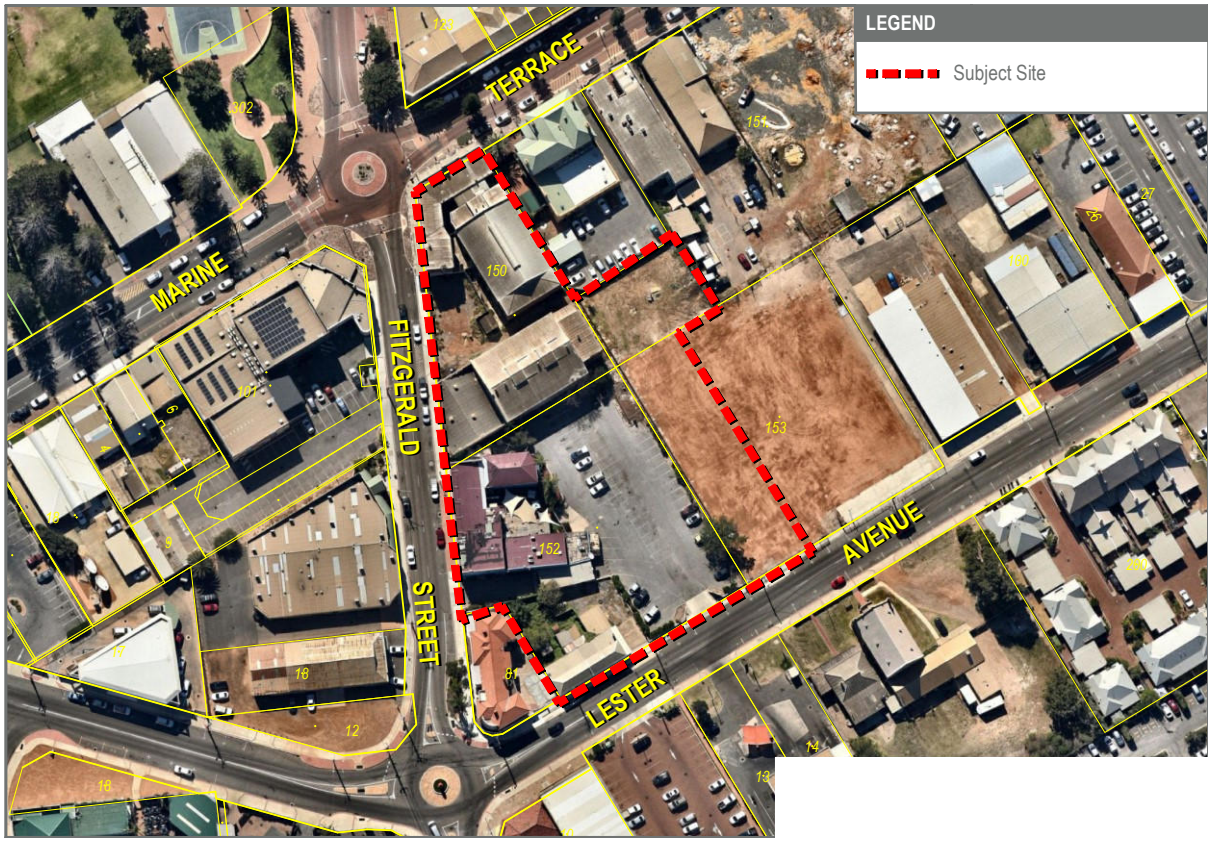

Figure 2 – Aerial Photograph of subject site and surrounds (*Nearmap 2023*)

The subject site benefits from its close proximity to a range of local amenities and infrastructure, including a range of retail, commercial, civic and tourist enterprises.

The area immediately surrounding the subject site is predominantly older low scale commercial tenancies or vacant land, with adjoining sites comprising a mix of older commercial developments.

The topography of the site is generally flat varied and presents no challenges to the future development of the locality.

3 PROPOSED DEVELOPMENT

The subject site comprises four separate lots (as per **Figure 2**) which comprises several existing buildings, including the state heritage listed Radio Theatre and locally heritage listed Kings Hall and Colonial Hotel.

The proposed development comprises the following key works:

- Refurbishment of the existing Radio Theatre building and expansion to include a new pavilion and beer garden.
- Demolition of the existing showroom building fronting the Kings Hall building, and refurbishment of the existing building and provision of new alfresco areas.
- Demolition of the existing Colonial Hotel building and construction of a new bottle shop with two covered drive through lanes.
- Refurbishment of the existing heritage store building at 236-238 Lester Avenue and construction of a multi-storey serviced apartment building.

The proposed development focuses on the retention and refurbishment of existing heritage buildings, and creation of a new entertainment precinct to expand offerings to the wider Geraldton community.

Perspectives of the proposed development are provided in **Figure 3** – **Figure 7** below.

Figure 3– Perspective of the proposed development (as viewed from Marine Terrace)

Figure 4– Perspective of the proposed development (as viewed from Marine Terrace)

Figure 5 - Perspective of the proposed development (as viewed from Fitzgerald Street)

Figure 6 - Perspective of the proposed development (as viewed from rear internal laneway)

Figure 7 – Perspective of proposed Serviced Apartments building (as viewed from Lester Avenue)

3.1 Built form

The proposed development has been formulated through a vision to provide a high-quality development outcome for the subject site, and the wider precinct. The project envisions a contemporary development outcome that considers the existing built form and heritage significance of development on the site, whilst creating a revitalised entertainment precinct within the Geraldton city centre.

The site itself is prominent within Geraldton's city centre and has been designed to integrate with the heritage significance of the site and complement existing land uses present within the surrounding area.

This vision is achieved through:

- Maintaining consistency of built form and scale with existing development on the site and within the surrounding streets.
- Carefully distinguishing proposed new development aspects and retained, heritage significant built form through use of contemporary design and varying materiality treatments.
- Visually permeable design along the Marine Parade and Fitzgerald Street frontages, allowing activation and passive surveillance of the development site and the public realm.
- Continuation of existing building height datums and architectural forms for proposed additions along Fitzgerald Street, which maintain consistency with the state heritage listed Radio Theatre building.
- Built form measures to ensure residential land uses are not unduly impacted to the south of the proposed development.

Refer to **Appendix 2** for a copy of the Development Plans depicting the proposed works.

3.2 Heritage

The subject site includes four heritage listed buildings, one building listed on the state heritage register, and three listed on the local heritage register. These buildings are as follows:

- Radio Theatre building – State heritage register (Heritage Plan No. 1060)
- Kings Hall building – Local heritage list (Heritage Plan No. 26652)
- Colonial Hotel building – Local heritage list (Heritage Plan No. 13383)
- 236-238 Lester Avenue (Shop) building – Local heritage list (Heritage Plan No. 13434)

In support of the proposed development works, a Heritage Impact Statement (**HIS**)
The HIS concludes:

- Demolition works to the Radio Theatre building are minor and relate to elements with little significance.
- Demolition works to the Kings Hall building ensure retention of existing masonry walls and reuse or adaption of existing roof trusses where appropriate within the new development.
- Demolition of the Colonial Hotel is acceptable given the building has been altered and extended over time which has reduced its significance. Additionally, the building is in a state of disrepair, as per the 2021 structural report prepared by Quoin Consulting at Appendix 1 of the HIS.
- Work associated with the Radio Theatre, Kings Hall and Lester Avenue shop building all achieve good heritage outcomes that compensate for the loss of the Colonial Hotel building and provide positive aspects of the overall development.

The proposed redevelopment represents adaptation and reuse of existing heritage buildings to evolve the importance of these buildings in the locality. The restoration of Radio Theatre building and future operation as a theatre ensures the heritage importance of the existing building is maintained.

Refer to **Appendix 3** for a copy of the HIS prepared in support of the proposed development.

3.3 Transport

The development proposes the inclusion of several new car parking areas within the development site. Two car parks are proposed to accommodate vehicles for the food and beverage/entertainment precinct (Radio Theatre and Kings Hall), and one car park is provided for the serviced apartment development.

Adjustment to existing vehicle access and egress measures is required to facilitate access to the development via Lester Avenue.

Specifically, the development proposes:

- Provision of 49 bays vehicle car bays within the main commercial car park.
- Provision of 46 bays vehicle car bays within the short stay development car park.
- Modification of existing street parking bays within Lester Avenue to accommodate a new vehicle access point to the development.

The development provides a total of 95 vehicle parking bays on the proposed development site. This is a cumulative increase in current on-site parking of approximately 42 parking bays.

The proposed development provides two vehicle access points to the site, as follows:

Vehicle Access 1 – Removal of the northern crossover and reuse of the other existing Fitzgerald Street vehicle crossover location and provides for full movement access.

Vehicle Access 2 – New vehicle crossover to Lester Avenue and removal of existing vehicle crossover presently servicing Lot 152.

Vehicle access points and movements are shown in **Figure 8** below.

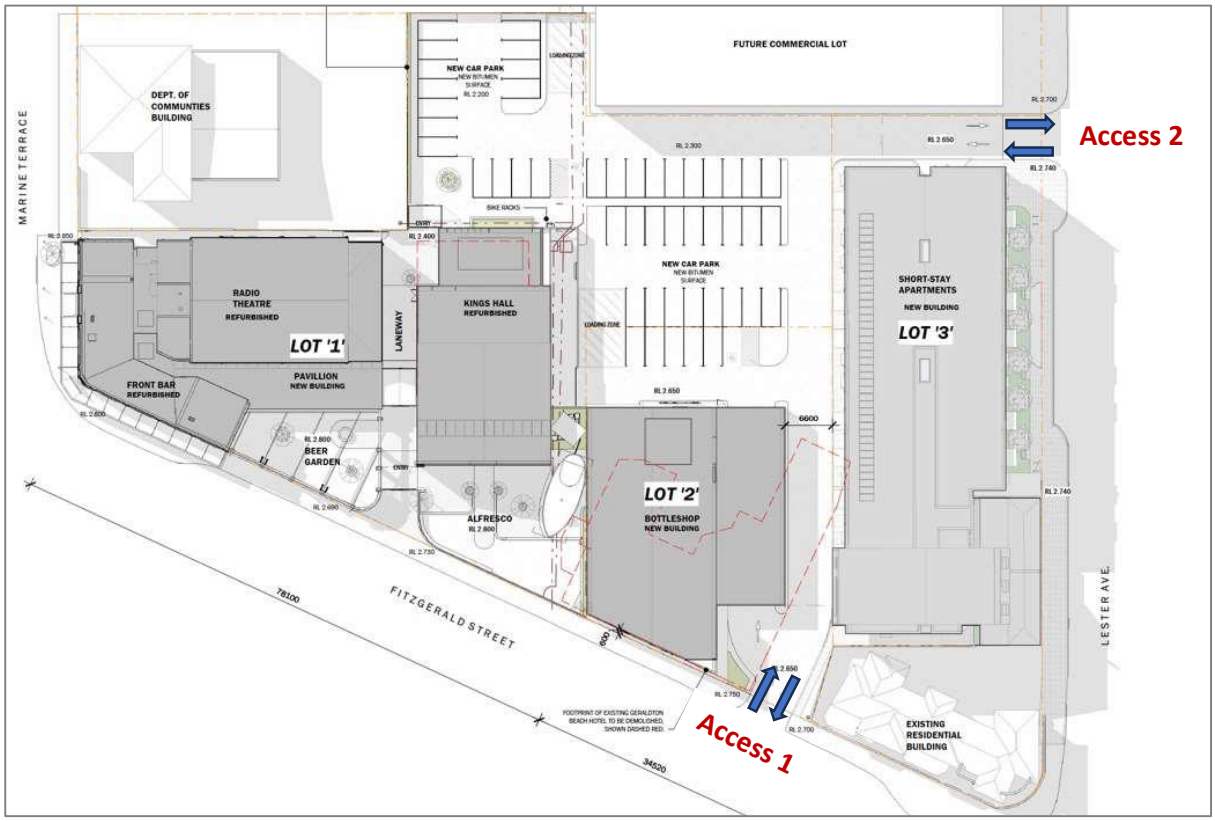

Figure 8 – Proposed vehicle access points

Servicing for the subject site will be undertaken via Fitzgerald Street and Lester Avenue. Three separate loading zones are proposed internally within the site, two adjoining new parking areas, and one within the serviced apartment development.

A Transport Impact Assessment (**TIA**) report has been in support of the proposed development (refer **Appendix 4**). The TIA concludes that the proposed development will not have a significant impact on the surrounding road network.

3.4 Waste

A Waste Management Plan (**WMP**) has been prepared by in support of the proposed development. The WMP considers waste generation from both the entertainment venues and the serviced apartment development.

Two bin stores are proposed to service the development, one within the Kings Hall back of house storage area and one within the serviced apartment building. The development will be serviced by private waste contractors to ensure waste and recyclable materials are collected on as needed basis.

The WMP concludes:

- The proposed bin storage areas are of sufficient size, based on estimated waste generation volumes and proposed collection schedule.
- Refuse and recycling will be collected directly from each bin store area via rear loading waste collection vehicles at the loading zones adjoining each store.
- Waste collection will generally occur outside of trading/operating hours of the development.

Refer to **Appendix 5** for a copy of the WMP prepared in support of the proposed development.

4 STATUTORY PLANNING FRAMEWORK

4.1 City of Greater Geraldton Local Planning Scheme No. 1

4.1.1 Zoning

The City's Local Planning Scheme No. 1 (**LPS1**) is applicable to the subject site. Pursuant to LPS1, the subject site is zoned Regional Centre with an applicable density coding of R-AC3.

4.1.1.1 Regional Centre zone objectives

The proposed development is assessed in relation to the objectives of the 'Regional Centre' zone in **Table 2** below.

Table 2 – Centre zone objectives assessment

Objective		Applicant comment
Regional Centre zone		
a)	*ensure that the Geraldton regional centre continues as the largest multifunctional Centre of activity, providing the most intensely concentrated development in the region, the greatest range of high order services and jobs and the largest commercial component of any activity centre.*	The proposed development will reactivate the subject site, introducing a higher concentration of entertainment type uses in the City centre area. The result of this development is increased growth of the locality and economic growth, including creation of jobs.
b)	*support the maturation of the Geraldton regional centre into a diverse, intense and highly connected activity centre with high density residential.*	The proposed development provides for short-stay residential opportunities, integrated into the wider entertainment precinct.
c)	*promote development of the Geraldton regional centre as a focus for a wide range of retail, business, commercial, health, education, entertainment, cultural, recreational, community, tourism and public transport activities.*	The proposed development provides for entertainment, tourism and cultural activities.

As demonstrated above, the proposed development is consistent with the objectives of the Regional Centre zone and warrants support accordingly.

4.1.2 Land use permissibility

The proposed development is considered to align with the following land uses within LPS1:

- Cinema/Theatre
- Liquor Store
- Tavern
- Serviced Apartments

These land uses are defined under LPS1, as follows:

Cinema/Theatre *means premises where the public may view a motion picture or theatrical production.*

Liquor Store *means premises the subject of a liquor store licence granted under the Liquor Control Act 1988 for the sale of packaged liquor for consumption off premises only.*

Tavern *means premises the subject of a tavern licence granted under the Liquor Control Act 1988 used to sell liquor for consumption on the premises.*

Serviced Apartments *means a group of units or apartments providing:*

(a) self-contained short-stay accommodation for guests; and

(b) any associated reception or recreation facilities.

Within the Regional Centre zone, 'Cinema/Theatre', 'Liquor Store', 'Tavern' and 'Serviced Apartment' land uses are all identified as 'D' (discretionary) land uses. These uses are all capable of approval, subject to the exercise of discretion.

Given Radio Theatre has existed at the subject site since 1937, it is anticipated that the 'Cinema/Theatre' land use has previously been approved for operation at the subject site, whether as 'Cinema/Theatre' or a similar land use. As such, this land use is considered to already be approved.

4.1.3 Development standards and requirements

Clause 3.2.2 of LPS1 notes the primary development controls, including setbacks, plot ratio and building height are all variable.

The City's local planning policy frameworks provide guidance as to the expected built form outcomes within the Geraldton City centre. As assessment of the proposed development against the relevant policies is provided below.

4.1.3.1 Car parking

Table 3 – LPS1 car parking assessment

Land use	LPS1 requirement	Total applicable floor area (m^2)	Required car bays	Bays provided
All development (Regional Centre zone)	1 per 35m^2 *(Refer note)*	Cinema / Theatre – No increase	0	49
		Tavern (Kings Hall) – No increase	0	
		Liquor Store – No increase	0	
		Serviced Apartments – 3,883	111	46
		Total	**111**	**95**

Note: The parking ratio for the Regional Centre Zone only applies where the development has a works component that proposes an increase in the floor area, and only applies to that increased floor area. It is not applicable where the development is for a use that has no works component or a development where the works component does not increase the floor area.

As noted above, the Regional Centre Zone parking requirements only apply to the increased floor area. In this regard, the refurbishment of the Kings Hall building, and the replacement of the Geraldton Beach Hotel do not generate parking provision requirements given the proposed floor areas for both buildings are less than existing floor areas. Further, the addition to the Radio Theatre building is offset by the removal of internal floorspace.

As such, parking provision requirements are only generated by the Serviced Apartment building, which is a new component, and is offset by the removal of the two outbuildings to the rear of the existing heritage built form proposed for retention. Overall, the development results in a on paper shortfall of 16 bays when considered with the provisions of LPS1.

The 16 bay parking shortfall is considered acceptable for the following reasons:

- With the exception of the Serviced Apartment component of the development, the nature of the proposed development is one that encourages patrons to consider alternate transport methods to the site, due to the provision of alcohol. When considered with the centralised location of the subject site, it is anticipated that a greater number of patrons would travel to and from the site via means other than private car. Where patrons do travel via private car, car-pooling is likely to occur, which is a further measure to reduce total number of vehicle movements.

- Public transport is available within the surrounding area, and bicycle parking bays are provided on the subject site. These facilities encourage alternate means of travel to the site.
- Substantial on-street public car parking bays are available within the immediate vicinity along all three public roads adjoining the site. Lester Avenue to the south of the subject site contains on street parking along both the north and south sides of the street, as does Marine Terrace to the north of the subject site.
- The liquor store includes a two lane drive through which allows for approximately 8 stacking bays within the drive through canopy. It is expected a proportion of future customers will use the drive through facility in lieu of requiring a vehicle parking bay.

Given the above, the proposed parking shortfall of 16 bays is considered acceptable and warrants support accordingly.

Notwithstanding the above considerations to the on-paper parking shortfall, Clause 12 of the *Planning and Development (Local Planning Schemes) Regulations – Schedule 2 - Deemed provisions for local planning schemes* (**Deemed Provisions**) allows decision makers to vary any development requirements to facilitate heritage conservation or enhance or preserve heritage values in an area. The proposed development as a whole is considered to greatly enhance and preserve the heritage value of the state heritage listed Radio Theatre and locally heritage listed Kings Hall and Shop building on Lester Avenue.

In accordance with Clause 12(1) of the Deemed Provisions, the local government is able to vary the parking requirements applicable to the development. Given adequate parking is provided on site to facilitate the future operation of the development, and the heritage significance of the site is maintained, the exercise of discretion is warranted.

4.1.4 Matters to be considered

Clause 67(2) of the Deemed Provisions sets out the matters for which due regard is to be given when considering a development application. Refer **Table 4** below for an assessment of the relevant matters.

Table 4 – Matters to be considered assessment

Matter to be considered	Provided
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	Refer **Section 4.1** for review of the proposed development against the relevant provisions of the City's LPS1.
(c) any approved State planning policy;	Refer **Section 4.2** for a review of the proposed development against the provisions of relevant state planning policies.
(g) any local planning policy for the Scheme area;	Refer **Section 4.3** for a review of the proposed development against the provisions of the City's relevant local planning policies.
(h) any structure plan or local development plan that relates to the development;	There are no applicable local development plan, structure plans or activity centre plans relevant to the subject site.

Matter to be considered	Provided
(k) the built heritage conservation of any place that is of cultural significance;	The subject site has significant cultural heritage significance, with three buildings listed on the City's local heritage list and one building listed on the state heritage register. A HIS has been prepared in support of the proposed development (refer **Appendix 3**) which concludes that the proposed redevelopment expansion of existing development on the subject site will not detract from the heritage significance of the state and locally heritage listed buildings. The HIS determines that the overall development outcome will contribute positively to the heritage values of the surrounding locality and the retention of three heritage buildings ensures the continued conservation of cultural heritage within Geraldton.
(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;	The proposed development is generally consistent with the surrounding built form being of a similar scale and bulk to surrounding developments along Fitzgerald Street, Marine Terrace and Foreshore Drive. The appearance and materials chosen are reflective of elements of the existing heritage significance of the subject site and heritage buildings within the local area. New development is respective of the existing heritage and comprises contemporary elements to be distinguishable from the existing heritage fabric. The proposed entertainment components of the development are oriented towards Marine Terrace and Fitzgerald Street with at a nil setback, consistent with existing and surrounding development. The serviced apartment development is oriented towards Lester Avenue and is setback from the street up to 5m to allow landscaping treatments and recognition of the existing heritage (shop) building to remain of prominence at street level.

Matter to be considered	Provided
(n) the amenity of the locality including the following – *(i) environmental impacts of the development;* *(ii) the character of the locality;* *(iii) social impacts of the development;*	The proposed development will positively impact all aspects of the amenity of the locality as follows: <u>Environmental Impacts</u> The proposed development will not result in any environmental impacts. <u>Character of the Locality</u> The proposed development is an extension of the existing Radio Theatre, Kings Hall and shop buildings, all which are prominent in the locality. The proposed development considers and responds to the character and significance of the existing heritage buildings and their context within the locality. <u>Social Impacts</u> The proposed development is intended to improve the offerings of the existing locality to provide increased services to the local and wider community. The redevelopment of the subject site offers job opportunities to the local community and opportunities for growth of tourism within Geraldton and the greater Mid West region.
(s) the adequacy of – *(i) the proposed means of access to and egress from the site; and* *(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;*	The proposed development includes retention of the existing vehicle access point via Fitzgerald Street, with a new vehicle access point proposed to Lester Avenue. This arrangement provides acceptable vehicle access and egress from the site. It is intended that the development be serviced by a mixture of both via small and large service vehicles via both Fitzgerald Street and Lester Avenue. Three separate loading/unloading areas are provided, all which have access configurations for manoeuvring and vehicle parking.
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	The development proposes a peak trip generation of 87 trips during the day, 221 trips during the night and 219 trips during the weekend peak period. The TIA, prepared in support of the development, concludes the proposed development is expected to have a minimal impact on traffic operations and safety of the surrounding road network. Many patrons are expected to travel via alternative means of travel such as walking, cycling, rideshare services/taxi or public transport. Where patrons choose to travel via private vehicle, parking is provided on site and within the surrounding road network. Refer to **Appendix 4** for a copy of the TIA.

Matter to be considered	Provided
(u) the availability and adequacy for the development of the following – *(i) public transport services;* *(ii) public utility services;* *(iii) storage, management and collection of waste;* *(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);* *(v) access by older people and people with disability;*	i. TransGeraldton bus routes 800 and 856 travel along Lester Avenue as circular routes, connecting the subject site to the wider Geraldton city centre. Bus stop no. 70048 is located directly to the south of the subject site. ii. N/A. iii. The Waste Management Plan, prepared in support of the proposed development (**Appendix 5**), details adequacy of the proposed waste management practices. iv. The development proposes the provision of public bicycle parking within the car parking area to the east of Kings Hall. v. Access will be designed in accordance with the relevant Australian Standards.

As is demonstrated above, the relevant matters have been considered in assessment of the proposed development and therefore warrants approval accordingly.

4.2 State Planning Policies

4.2.1 State Planning Policy 3.5 Historic Heritage Conservation

State Planning Policy 3.5 – Historic Heritage Conservation (**SPP 3.5**) is the lead policy that elevates the importance of sound and responsible planning for heritage conservation and protection within Western Australia, across all levels of planning and development.

SPP 3.5 applies principally to historic cultural heritage including heritage areas, buildings and structures, historic man-made landscapes and historic/archaeological sites. This policy applies to places and areas of significance at both state and local level.

Clause 6.5 of SPP3.5 details the relevant considerations for development assessment. The requirements of SPP3.5 are referenced through the Deemed Provisions and the City's Heritage Local Planning Policy framework, the provisions of which, are addressed below or through the provided HIS at **Appendix 3**.

4.2.2 State Planning Policy 7.0 Design of the Built Environment

State Planning Policy 7.0 – Design of the Built Environment (**SPP 7**) is the lead policy that elevates the importance of design quality, and sets out the principles, processes and considerations which apply to the design of the built environment in Western Australia, across all levels of planning and development.

SPP 7 establishes a set of ten 'Design Principles', providing a consistent framework to guide the design, review and decision-making process for planning proposals. The design principles were considered during the Design Review process and form the basis for the design of the proposed development. Refer **Table 5** below for consideration of the proposed development with the design principles.

Table 5 – SPP7 Design Principles

SPP7 Design Principle	Applicant Response
1. Context and character *Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.*	The proposed development has been designed to respond to the surrounding context in scale and use of materials, enhancing the existing sense of place and the cultural heritage significance of the subject site.

SPP7 Design Principle	Applicant Response
2. Landscape quality *Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.*	High quality landscaping outcomes are proposed fronting the short stay accommodation component of the development.
3. Built form and scale *Good design provides development with massing and height that is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.*	The proposed development maintains similar built form and scale as the existing single and two storey developments (Radio Theatre and Kings Hall) that exist on the subject site. A four storey building is proposed to Lester Avenue which integrates with the existing single storey development. As demonstrated within this report, in the context of the subject site and the surrounding area, the development is of an appropriate scale for the present and future context of the locality.
4. Functionality and build quality *Good design meets the needs of users efficiently and effectively, balancing functional requirements to deliver optimum benefit and performing well over the full life-cycle.*	A high quality design outcome is proposed which proposes reuse and retention of original materials where possible. Where new materials are proposed these will maximise life cycle of the buildings and ensure functionality.
5. Sustainability *Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.*	Revitalisation of the existing heritage buildings within the subject site optimises the sustainability of the existing cultural heritage and built form of the subject site. The development will facilitate social and economic benefits to the locality and offer short stay accommodation.
6. Amenity *Good design optimises internal and external amenity for occupants, visitors and neighbours, contributing to living and working environments that are comfortable and productive.*	Contemporary design principles incorporated into the proposed development enhance the amenity of the development's immediate context.
7. Legibility *Good design results in buildings and places that are legible, with clear connections and memorable elements to help people find their way around.*	The proposed development fronts to Marine Terrace, Fitzgerald Street and Lester Avenue. At each street interface the development interacts with the street and ensures sufficient legibility of the subject site and proposed development.
8. Safety *Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.*	The street facing development of the site, incorporation of active land uses and provision of large outdoor spaces adjoining the main street interfaces ensures activation and surveillance of the development. Lighting and other safety measures such as CCTV will be provided as required to maximise safety and security of patrons and the local community.
9. Community *Good design responds to local community needs as well as the wider social context, providing buildings and spaces that support a diverse range of people and facilitate social interaction.*	Provision of an entertainment venue with food and beverage offerings, a refurbished theatre space, outdoor alfresco spaces and short term accommodation facilities ensures the local community is supported and provides a place for social interaction and engagement.
10. Aesthetics *Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.*	The development is architecturally design, with varied materials and design treatments to ensure a visually appealing built form, ensuring the development positively contributes to the streetscape and retains the cultural heritage significance of the subject site.

The proposed development suitably responds to the SPP7 design principles and warrants approval accordingly.

4.3 Local Planning Policies

4.3.1 Local Planning Policy – City Centre

The City's City Centre Local Planning Policy (**City Centre LPP**) is intended to facilitate the development of a unique Geraldton city centre with a high level of amenity and activity. The objectives of the City Centre Policy are as follows:

1. *A significant residential base that supports a diverse and concentrated mix of uses, generating a lively, interesting social environment and a profitable business setting.*
2. *A quality environment that establishes a distinctive 'sense of place' by having a physical setting designed to encourage and accommodate pedestrian activity and is unique in its architecture, landscapes and culture.*
3. *A 'future proofed' city centre that is robust enough to withstand the changes that are likely to occur as a result of peak oil prices, climate change and public attitudes/behaviour regarding sustainability.*

The proposed development is considered consistent with the objectives of the City Centre Policy as it provides for concentrated use of entertainment type and short stay residential uses, references the significance of the Radio Theatre and builds upon its demonstrated sense of use through complimentary built form and reuses a portion of the existing built form.

The City Centre LPP is divided into several sections, which include:

- Land Use;
- Height;
- Setbacks;
- Built Form;
- Heritage;
- Transit Planning and Parking;
- Sustainable Building and Green Design; and
- Designing a Safe City.

Tables 6-13 below provide an assessment of the proposed development with regard to the relevant policy measures.

Table 6 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP.

Table 6 – City Centre LPP – Land use policy measures assessment

Provision	Comment	Complies
Land use policy measures		
a) *Support residential living within the city centre, both around the edges and in the upper levels of buildings.*	The development incorporates short stay apartments. Whilst not permanent residential dwellings, these apartments still work towards achieving increased opportunities for bringing greater accommodation typologies to the Geraldton city centre.	✓

Provision	Comment	Complies
b) *Ensure the Foreshore and its immediate surrounds are distinguishable as 'the heart of the city'. Facilitate retail activity within this node, and encourage commercial and less active land uses such as commercial uses, offices, short-stay accommodation and residential are located above the ground level.*	The development site is in immediate proximity to the foreshore. The redevelopment of the site with active land uses at the ground level along Marine Terrace and Fitzgerald Street. Short stay accommodation apartments are located above ground level.	✓
c) *Provide flexibility and compatibility in the distribution of land uses throughout the CBD.*	The development proposed reintroduction of historic land uses to the subject site, with other proposed uses complimentary to the predominant land use.	✓
d) *Link retail uses to cultural, leisure and office activities.*	The food and beverage areas within the development link to the redevelopment theatre building, which provides opportunities for cultural and leisure activities.	✓
e) *Encourage mixed land uses within each precinct and capitalise on retail opportunities in mixed-use developments.*	The development provides a range of active and compatible land uses which supports the growth of the wider precinct.	✓
f) *Provide continuity in ground level retail uses (ie. continuous storefronts along important pedestrian connections).*	The development refurbishes the existing Radio Theatre and Kings Hall buildings and establishes an activated interface along the main pedestrian pathway adjoining the site.	✓
g) *Create a sense of place and positive setting for pedestrian activity by providing comfortable, safe, and interesting streets and activation at ground level.*	The refurbishment and expansion of ground floor activities along Marine Terrace and Fitzgerald Street ensure an activated ground level. The retention and refurbishment of the shop building on Lester Avenue, as well as provision of landscaping treatments along Lester Avenue ensures a sense of place and positive pedestrian environment.	✓
h) *Encourage land uses that promote movement and activity throughout the CBD and partner with the local government on ground level design through private/public space design (i.e. improved street/laneway lighting design, artworks, etc.).*	All activities are considered to create pedestrian and vehicle movements into the City area, creating activity and vibrancy within the Geraldton CBD.	✓

Table 7 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to building height measures.

Table 7 - City Centre LPP – Height policy measures assessment

Provision	Comment	Complies
Height policy measures		
5.2.2 Building heights should be in accordance with the building heights plan (see Figure 2) and shall be measured from the ANGL at the street (or road) frontage. For corner sites further reference will need to be made to setbacks in clause 6.0. *Note: Maximum of 5 storeys (20m) as per Table 2.*	Proposed building heights are as follows: • Radio Theatre and Kings Hall maintain their existing buildings heights. • Bottleshop development is single storey (approx. 5.35m) • Serviced apartment development is four storeys (approx. 14.8m)	✓

Provision	Comment	Complies
Height policy measures		
5.2.3 Notwithstanding that plant and equipment located on rooftops are not included in the measurement of the height of the development, all plant and equipment should be screened from view at street level and made visually acceptable such that it fits in with the surrounding roof-scapes when viewed from other buildings. The aim is to minimise any adverse visual impacts.	All plant equipment proposed is screened from view from the street level with appropriate materials so to minimise any visual impact on the surrounding area.	✓
5.2.9 Where a development has decorative parapets or a gabled roofline these protrusions shall not exceed 2m above the podium of the building (see Figure 5).	The parapet to the bottleshop sits 1.6m above the main roofline of the building.	✓

Table 8 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to building setback measures.

Table 8 - City Centre LPP – Setbacks policy measures assessment

Provision	Comment	Complies
Setbacks policy measures		
6.2.1 New buildings within all precincts should provide a nil setback to the street(s) and rear boundary. However partial setbacks may be appropriate adjacent to pedestrian links or as part of the streetscape and designed as urban space.	All new development fronting Fitzgerald Street (beer garden, alfresco, bottleshop) is positioned with a nil setback, consistent with the existing Radio Theatre. The proposed short stay accommodation development is setback from Lester Avenue between 3.5m-5m from the street. This provides for an increased width footpath, landscaping treatments adjoining the site to screen the car park and service elements, and space for additional on street parking. These setbacks are considered appropriate in the context of the urban environment and maintain the prominence of the existing heritage listed building at ground level.	✓
6.2.3 The street façade of any floor level above or adjacent to a heritage listed building, or greater than the podium height, should be setback a minimum of 3m from the street boundary to provide a consistent building height at the street frontage (see Figure 7), whilst ensuring that the bulk of the overall height of the building does not dominate the streetscape.	The serviced apartment building is setback between 3.5m-5m at Lester Street ground level (excluding the existing heritage building) and steps back to a setback between 7.15m-9.65m at upper levels. Stepping of the building form creates articulation at the street interface and ensure the building does not dominate the street.	✓
6.2.9 Where new development occupies the same site as a 'recognised heritage building', street setbacks shall be in accordance with clause 8.0. A 'recognised heritage building' is one included on the local government's Municipal Inventory, the State Register, the National Trust or the Commonwealth's National Estate.	Refer assessment in **Table 14** below.	N/A

Provision	Comment	Complies
Setbacks policy measures		
6.2.13 Setbacks to neighbouring development shall consider the privacy and amenity of residential development within the city centre. Residential development contained within upper levels shall be setback in accordance with the R-Codes.	The proposed development is short stay accommodation and is not subject to the provisions of the Residential Design Codes.	N/A
6.2.14 Where a road widening is required, setback distances shall be calculated from the new street alignment as per the Scheme.	The development is within an area identified for road widening in accordance with Clause 4.13.1 of LPS1. Proposed setbacks do not align with the proposed widening requirements owing to the retention of the existing heritage building which maintains a nil setback to the street. All additional building form is otherwise setback from the street alignment. As per Clause 4.13.2 of LPS1, the local government may vary road widening requirements where site conditions make variations desirable. Retention of existing heritage fabric is considered acceptable reasons for a variation. Further, we understand during pre-lodgement discussions between the proponent and the City, an agreement was reached regarding the varied setback as proposed.	✓

Table 9 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to built form measures.

Table 9 - City Centre LPP – Built form policy measures assessment

Provision	Comment	Complies
Built form policy measures		
7.2.1 Buildings should provide street-level, pedestrian-oriented uses on all street frontages.	All buildings incorporate street level land uses that are pedestrian focused and create activation along the street.	✓
7.2.2 No more than 25% of any street frontage should be occupied by uses that have no need for or discourage walk-in traffic. Drive-through uses are highly discouraged.	The Radio Theatre and Kings Hall buildings create activation for the entirety of the building frontage and directly encourage walk-in foot traffic. The bottleshop land use encourages walk-in foot traffic. The drive through component associated with the bottle shop approximately 10.5m from the street alignment and equates to 8.25% (9.3m) of the overall development frontage along Fitzgerald Street.	✓
7.2.3 Primary building entrances should be well defined and articulated. These entrances should be designed so that they are not easily confused with entrances into ground level tenancies (i.e. entrances to upper floors should be individual and clearly defined). Civic art and artistic crafting of building materials can help distinguish building entrances from tenancies.	Existing building entry points to Radio Theatre and Kings Hall are retained, with other new pedestrian entry points clearly identified along the street through provision of alternate material treatments and articulation along the street setback alignment.	✓

Provision	Comment	Complies
Built form policy measures		
	Additions to Radio Theatre comprises a brick and glazed façade with a metal arbour structure to identify the primary pedestrian entry point. The new centralised entry point on Fitzgerald Street comprises a curved feature wall with varying materials which leads to all main food and beverage areas. The service apartment building retains existing retains existing openings along Lester Avenue, with the main apartment lobby entry located off Lester Street to avoid further modification of the heritage listed building. An entry canopy and signage ensure the pedestrian entry is highlighted at the street level.	
7.2.4 Large buildings which front multiple streets should provide multiple entrances. Building entrances which connect to a central lobby should be distributed on different street frontages.	The Radio Theatre building fronts Marine Terrace and Fitzgerald Street and is provided separate entry points to each adjoining street.	✓
7.2.5 Multiple storey building design should consider creating a permeable active ground level that provides opportunities for the public to pass through the building.	The multi storey serviced apartment building comprises a direct north-south connection from Lester Avenue to the rear of the building where the other food and beverage precinct is located.	✓
7.2.6 Awnings/verandahs are highly effective tools for improving the retail façade and creating a positive image. They also provide shelter from adverse weather. These should be provided by all new developments over both footpaths and access ways, encouraging the interaction between the public and the private realm.	The existing awning is maintained around the Radio Theatre given this is a feature of the existing state heritage listed building. An awning canopy has not been extended along the remainder of Fitzgerald Street to maintain the integrity and authenticity of the existing canopy feature of the Radio Theatre building.	X
7.2.7 Buildings should be built as high-quality, long-term components to the urban fabric. The energy embodied in existing buildings through the materials and construction labour represents a long-term investment in 'energy banking'. To conserve energy, older buildings should be maintained and adapted wherever possible and appropriate to protect this investment.	Retention of multiple heritage buildings ensures protection of the cultural heritage fabric, and reuse of buildings. All building works will be undertaken with high-quality building materials and are considered long-term investments in the Geraldton city centre.	✓
7.2.8 Buildings should be constructed as maintenance-free as possible, noting the proximity to the coast and associated impacts from salt and wind, and should be designed to achieve a life span greater than 80 years. A building is at the end of its lifespan when factors including operating or maintenance costs, repair or reconstruction costs, pressure for more flexible spaces, among others, outweigh the cost of building a new similar building.	All buildings will be constructed with longevity at the forefront of the project.	✓
7.2.9 Buildings should have a built-in flexibility to their design and recognise that buildings frequently undergo internal alterations to conform to uses not considered in the original design.	All buildings are intended to operate in accordance with their intended purposes for the duration of their operation, however, all will have a level of adaptability.	✓

Provision	Comment	Complies
Built form policy measures		
7.2.10 Consideration should be given to the design of exterior walls and cladding of buildings. These should not be considered sacrificial surfaces to be replaced several times in the life of the building.	All external treatments have been thoroughly considered and will be constructed of high quality materials to ensure longevity of the buildings.	✓
7.2.11 New buildings are not expected to imitate all materials, colours and finishes of the existing townscape, but rather complement and blend with the existing townscape. Building materials should be used in a way that reflects their inherent characteristics.	All new buildings and additions to existing buildings are designed in a contemporary fashion that complements the existing locality. Building materials are used to reflect the heritage significance of the existing building and do not detract from the significance of these heritage elements.	✓
7.2.12 The use of quality local materials is encouraged. Local Mid West character should be included in the design.	Use of local materials is noted and will be achieved where possible.	✓
7.2.13 Care should be taken to avoid nostalgic reproductions or to propose faux-historic architectural styles or themes. A 21 century building has its own design integrity and to mimic a nearby or adjoining heritage building diminishes the aesthetic value of both buildings.	All proposed new buildings are designed to be contemporary additions to the site and do not propose faux heritage elements.	✓
7.2.14 The use of a variety of materials is encouraged, although very shiny surfaces and large expanses of reflective and tinted glass are generally inappropriate to the character of the city because they shut off visual connection between the street and the people in the buildings. Sheer curtain walls or other expanses of reflective glass are discouraged.	A well-considered mix of building materials is proposed for all proposed works. No reflective glazing treatments are proposed.	✓
7.2.15 A schedule of all external colours, materials and finishes should be submitted as part of the application for development approval.	All proposed building materials are set out in the development plans.	✓
7.2.16 Buildings should be designed with a variety of scales and level of detail at the street level.	All buildings are considered to provide a variety of scales and varying level of detail along the street interfaces.	✓
7.2.17 The composition and proportion of architectural elements of building façades should reflect a form and rhythm that is in keeping with the existing streetscape character. This should be achieved by following existing strong horizontal lines of verandahs, masonry courses or openings, or the rhythm of vertical proportions in the divisions of façades or windows.	Existing building form within the surrounding is not considered to have any consistent massing or building form. The proposed works are considered to be reflective of the built form on the north and south ends of Fitzgerald Street, which comprises two storey developments.	✓
7.2.18 Clearly articulating different uses at lower building levels will aid in creating a sense of human scale in mid and high-rise buildings. Addressing human scale may further be achieved through architectural detailing and by variation in the 3dimensional character of the building mass as it rises skyward.	Human scale is maintained along Marine Terrace and Fitzgerald through retention of existing heritage buildings and expansion of these buildings and new development at a single storey height only.	✓
7.2.19 Above the 1 floor, balconies and strong articulation are encouraged. Conversely monolithic, vertical extrusions of a maximum building footprint are strongly discouraged.	The serviced apartment building incorporates balconies on the north and south building frontages to create articulation and form in the building form.	✓

Provision	Comment	Complies
Built form policy measures		
7.2.20 The lower floors (i.e. the podium levels) should be differentiated architecturally.	No podium element is proposed.	N/A
7.2.21 Where existing adjacent buildings have a consistent massing, this should be reinforced unless there are demonstrable extenuating aesthetic or physical circumstances.	Existing building form within the surrounding is not considered to have any consistent massing or building form that can be replicated.	N/A
7.2.22 Roofs and ridge lines should contribute to creating views/vistas down the valleys of the roof (generally run through, not across the block, north-west to southeast).	All roof elements to the existing heritage listed buildings are reflective of the existing roof forms. New building elements generally maintain flat roof forms to ensure continued views.	✓

Given the significance of the state heritage listed Radio Theatre building, as well as the three locally heritage listed buildings, the proposed development works have been assessed and considered through the Heritage Impact Statement prepared by Griffiths Architects (refer **Appendix 3**).

Table 10 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to heritage measures.

Table 10 - City Centre LPP – Heritage policy measures assessment

Provision	Comment	Complies
Heritage policy measures		
8.2.1 Adaptation or additions to heritage listed buildings should be contemporary in style but compliment the historic character of the original building. Ideally the 'substantial whole' of the heritage building should be retained although the desired design response will be dependent on the relevant significance of the individual heritage building. *In this regard the local government is not generally supportive of façadism (or façadomy) for a heritage place. Façadomy should be considered a 'last resort' development solution for heritage buildings which may be supported only in cases where all other redevelopment options (including restoration and adaptive re-use) have been considered and the heritage assessment of the place is such that the built fabric has been compromised to the extent that its heritage values are substantially diminished.*	All refurbishment works and additions to the existing heritage buildings retained as part of the development are respectful of the heritage significance of the place and ensure the majority of the heritage buildings are retained in their entirety.	✓
8.2.2 Generally the following principles should be applied to any development of a heritage building: *a) Identify the significant original fabric of the building.* *b) Full restoration of balconies/awnings etc.* *c) Minimise any impacts or disturbance to the significant original fabric.* *d) Visually distinguish and articulate the junction between the old and the new.* *In general, additions should not imitate the architectural detailing of the original to look 'old'.*	The proposed works adhere to all four principles, as follows: • All significant is identified and retained wherever possible. The Geraldton Hotel building has been modified from its original state and as such, its demolition is considered an acceptable outcome. • The existing awning canopy to Radio Theatre will be fully restored.	✓

Provision	Comment	Complies
Heritage policy measures		
	• Additions adjoining the Radio Theatre are of a similar scale and architectural form, but with different materiality to be clearly distinguished from the original heritage fabric. The existing showroom component presently fronting the Kings Hall building is being demolished and the original hall refurbished. No additions mimic or imitate the architectural detailing of the existing heritage buildings.	
8.2.3 Any new development above an existing heritage listed building (regardless of the height of the heritage building) should be setback a minimum of 3m from the existing building façade and in accordance with clause 6.0. This setback requirement may vary and will be dependent on the significance of the individual heritage building.	Refer to setbacks assessment in **Table 7**. All building setbacks are well-considered in the context of the existing heritage buildings and their cultural significance to the locality.	✓
8.2.4 On sites adjoining a heritage listed building particular attention should be paid to the design of the development to ensure that it does not compromise or detract from the setting or special character of the heritage building. *Desired development should be designed to respect and compliment the adjacent heritage building with contemporary design which does not dominate, but is sympathetic to, the architectural character of the heritage building.* *If development is to occur in a precinct which has a large number of remaining heritage buildings, or has a valued townscape character (such as the Marine Terrace partial mall), then the design may need to respond to the character of the area not just the neighbouring buildings.*	The development site contain heritage listed buildings rather than adjoining a site with a heritage listed building.	N/A
8.2.5 In order to maintain a positive and harmonious townscape ambience which preserves the existing historic character, new building design should be respectful of the surrounding built environment. Interpretative new design which expresses its modernity while complimenting the historic or architecturally significant character of its immediate context is desirable.	All proposed works are designed in a manner that ensures the cultural heritage significance of the subject site is preserved and new development elements are designed in a manner that is respectful of the importance of the place within the locality.	✓
8.2.6 Development should have regard to the scale of existing heritage buildings, and the size relationship between the new and the old. Generally, the scale of the proposed development should be similar to, and not dominate, the existing Heritage building. *If the new building is to be much larger than the adjacent old building, the scale of the new may be 'broken down', or visually reduced by the composition of its façade, to be more compatible with the old.* *Development should also be sited so that the setting of the adjacent heritage building is maintained. Within the streetscape, the heritage building should remain a feature and not be overwhelmed by intensive adjacent development.*	In respect to works to the Radio Theatre and Kings Hall Theatre buildings, all works are lower in scale than the existing buildings and do not dominate the existing heritage buildings. In respect to the serviced apartment component, the additions to the existing building are substantially larger in scale than the existing shop building, however these have been architecturally designed so to not dominate the scale of the existing building. The following measures ensure the new building is visually reduced in scale:	✓

Provision	Comment	Complies
Heritage policy measures		
	• Stepping of building setbacks to Lester Avenue and inclusion of a break in the building mass above the existing heritage building. • Articulation of the Lester Avenue building façade through incorporation of balconies, glazing, and protruding frames/hoods to windows and balconies.	
8.2.7 he use of complementary or traditional building forms provides opportunity for the designer to make good and sensitive use of the qualities of the adjoining heritage building. The building form can be used to achieve either a visual distinction between the old and the new or continuity of existing forms. While either approach may be appropriate, depending on the context of the development site in relation to the heritage building, the new building should always be respectful of the formal character established by its neighbour.	Building materials for all proposed works complement the existing heritage buildings, but create visual distinction between existing heritage elements and new works.	✓
8.2.8 Materials, colours and external finishes which are compatible with an adjoining heritage building, or the historical character of a precinct should be used.	All building materials are considered compatible with the heritage buildings on the site.	✓

Table 11 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to heritage measures.

Table 11 - City Centre LPP – Transit planning and parking policy measures assessment

Provision	Comment	Complies
Transit planning and parking policy measures		
10.2.1 Buildings should provide facilities for bicycles both for staff and the public, in accordance with the requirements of the Scheme.	Parking provision is considered in Section 4.13 of this report.	✓
10.2.2 The parking requirements of the Scheme are only applicable to any increases in floor area.	Noted.	✓
10.2.3 The use of landscaping, screen panels or innovative screening such as artworks should be used to reduce the visibility of parking areas (either on the street or on upper floors) from the street, whilst addressing crime prevention through environmental design principles.	Landscaping is proposed along the entire frontage of the serviced apartment car park area to reduce the visibility of parking. Proposed building along Fitzgerald Street and Lester Avenue screens all parking areas located to the rear of the Radio Theatre and Kings Hall buildings.	✓
10.2.4 Half basement car parks can present long blank walls to the street, or a gap with unattractive views into the basement car park. Effective screening techniques such as planting, decorative semi-transparent fences or screens should be used.	N/A	✓
10.2.5 A Local Area Traffic Management Plan may be required as part of any development application.	Noted.	✓

Table 12 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to sustainable design measures.

Table 12 - City Centre LPP – Sustainable building and green design policy measures assessment

Provision	Comment	Complies
Sustainable building and green design policy measures		
11.2.1 The local government encourages the development of the city centre to consider the impacts on the consumption of energy, greenhouse gas emissions, and the long lasting legacy on the community, economy and environment.	The proposed development is partially an adaptive reuse of existing heritage built form, only proposing demolition where required. Further, solar panels are proposed to be provided on both the Radio Theatre building and the Serviced Apartments building. Further sustainability initiatives, such as energy efficient fixtures, will be confirmed at the detailed design stage.	✓
11.2.2 Sustainability aspects of developments should be considered, including: *a) Having regard to the whole life cycle of any planned development and design appropriately for the location, function and local climate.* *b) Adaptability in design for reuse of buildings in the future.* *c) Using resources efficiently, minimising waste and using environmentally benign materials in construction, operation and maintenance.* *d) Using renewable energy where possible and aiming to install water and energy efficient appliances and services.* *e) Passive solar design principles.*	The proposed development will address many of the mentioned sustainability principles through the detailed design stage.	-
11.2.3 Design buildings so that they incorporate sustainable building technology, such as solar panels, into the fabric of the building.	Solar panels are proposed to be provided on both the Radio Theatre roof and the Serviced Apartments building roof.	✓
11.2.4 Water use reduction – maximise water efficiency within buildings to reduce the burden on water supply and wastewater treatment systems.	As above, proposed fixtures will be confirmed at the detailed design stage.	✓
11.2.5 Innovative wastewater technologies – reduce the generation of wastewater and potable water demand (e.g. utilisation of split black/grey water disposal systems).	As above, proposed fixtures will be confirmed at the detailed design stage.	✓
11.2.6 Water efficient landscaping – limit or eliminate the use of potable water for landscape irrigation by using water sensitive urban design principles; and install or use water sensitive landscaping areas to maximise stormwater harvesting and other suitable purposes.	Proposed species and watering practices for landscaping beds will be confirmed at detailed design stage.	-
11.2.7 Stormwater management – limit disruption of natural water flows by minimizing stormwater runoff and increasing on-site infiltration.	Noted.	-

Provision	Comment	Complies
Sustainable building and green design policy measures		
11.2.8 New developments should achieve significant energy savings by addressing the effect of the sun on the buildings, both to promote use of natural light while at the same time decreasing heat transfer into the building. Energy savings can also be achieved by careful planning of shape and orientation the building, use materials of a colour which reflects rather than absorbs solar radiation, use of low transmission glass and using shading through awnings and appropriately planted vegetation cover.	Through building orientation, floorplate layout and materiality, the Serviced Apartments building provides for solar access at all levels and opportunities for cross ventilation. The remainder of the site makes use of shaded outdoor seating areas where possible to reduce energy requirements.	✓
11.2.9 Design to incorporate thermal mass in developments to improve temperature stability, and utilise natural cross-ventilation to reduce air conditioning needs.	As above, the Serviced Apartments building provides for cross ventilation opportunities where possible.	✓
11.2.10 All buildings should use low energy lamps, solar water heating and utilise building energy management systems.	As above, proposed fixtures will be confirmed at the detailed design stage.	-
11.2.11 All buildings should take advantage of renewable energy generation systems to supplement their energy use and encourage the development and use of gridsource, renewable energy technologies on a net zero pollution basis.	As above, solar panels are proposed. However, further details are unknown at this stage and will require consideration at the detailed design stage.	-
11.2.12 Where possible extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacture and transport.	The proposed development retains existing built form where possible, in consideration with the operational requirements of the proposed development.	✓
11.2.13 Extend the life cycle of targeted building materials, reducing environmental impacts related to materials manufacturing and transport.	The proposed building materials and finishes are considered resilient and will provide an extended life cycle as required.	✓
11.2.14 Maximise the use of building products that have incorporated recycled content material, reducing the impacts resulting from extraction of new material.	Final building materials and sources of these will be confirmed at detailed design stage.	-
11.2.17 Regardless of height, other buildings (classes 2 to 9 under the NCC series) where construction value (excluding the value of internal fit out) is $3 million and greater should achieve a +15% improvement on the NCC series part J compliance standards as determined by compliance method JV3.	Compliance will be confirmed through the detailed design stage.	-
11.2.18 Heritage buildings are more difficult to design and construct to current standards of energy efficiency and will use significantly less 'embodied energy' during construction, and therefore should qualify for some concession on the energy efficiency rating requirements of 0.5 Star for NABERS and/or a reduction to +5%in the efficient improvement on the NCC series standard.	Noted.	-

Table 13 below provides an assessment of the proposed development against the relevant provisions of the City Centre LPP in relation to safe city policy measures.

Table 13 - City Centre LPP – Designing a safe city policy measures assessment

Provision	Comment	Complies
Designing a safe city policy measures		
12.2.1 Access to and through a development should be safe and efficient, and preferably at ground level to ensure a concentration of pedestrian activity is achieved. Entrances can be positioned so that pedestrian movement is adequately lit and directly visible from a public space. Access to and from car parking areas and building entrances shall be adequately sign-posted with provision of good lighting to enable safe out of hours use. As a general rule, alternative means of escape should be incorporated in all cases and routes should be clearly signposted. Routes should avoid resulting in dead ends.	All access arrangements are safe, efficient and maintained at ground level throughout the subject site.	✓
12.2.2 Maximise visibility and surveillance of the public environment. Natural surveillance can be fostered by active ground floors that enable overlooking into public space. Windows can be positioned to overlook pedestrian routes, provided that privacy concerns are met. With more inner city living, windows and balconies can overlook car parks and laneways and provide passive surveillance.	The design of the proposed works ensures surveillance of the public realm is maximised through inclusion of active areas (outdoor courtyards and dining areas) associated with Radio Theatre and Kings Hall Theatre front Fitzgerald Street, and balconies and apartments from the serviced apartments face Lester Avenue. All internal and external pedestrian movement zones are provided with high levels of active and passive surveillance.	✓
12.2.3 The local government is embarking on a closed-circuit television system for the CBD and new developments should enable the expansion/integration of the local government's system.	Noted.	-
12.2.4 Clearly define private and public space responsibilities. The function and ownership of an area can be clarified by paving, lighting and planting. Planting shall not create concealed spaces near paths and lighting should allow clear lines of visibility. Where the ownership of an area is ambiguous and undefined, it can become the focus of anti-social and criminal behaviour.	Concealed spaces are not created by the existing development, with all pedestrian areas to be well lit and have high levels of visibility from within the site and the public realm.	✓
12.2.5 Street furniture and lighting shall be made of durable materials that are resistant to vandalism and graffiti. Graffiti-resistant materials and surface finishes are appropriate at street level in all developments. Graffiti can be reduced by rapid removal, increased lighting and general design features, including sacrificial coatings. The prompt removal of graffiti enhances the amenity of the city centre and can actively work to discourage crime.	No infrastructure is proposed within the road reserve.	N/A

As is demonstrated within **Tables 6-13** above, the proposed development is entirely consistent with the requirements of the City Centre LPP and warrants support accordingly.

4.3.2 Local Planning Policy – Geraldton City Centre Revitalisation Plan

The Geraldton City Centre Revitalisation Plan (**GCCVP**) was developed in 2017 to guide the future development and revitalisation of the Geraldton City Centre. The vision of the GCCVP is:

> *"For Geraldton city centre to develop as the regional capital of the Mid West, as a collaborative and innovative leader that positively harnesses change. The city centre will be a unique place for locals and visitors and an active destination embracing Geraldton's nautical history and assets. The broader community will come together to deliver this vision and strengthen their city centre heart."*

The proposed development is consistent with the objectives of the GCCVP, as follows:

- The development will expand entertainment facilities within the Geraldton city centre, creating a drawcard food, beverage and entertainment precinct.
- The development supports the tourism sector within Geraldton through provision of substantial new serviced apartment facilities within the Geraldton city centre.
- The restoration and enhancement of existing heritage buildings, particularly the Radio Theatre and Kings Hall buildings ensures creation of existing places for the community to visit and enjoy within Geraldton.
- The proposed development, in terms of built form and materiality, has been designed in reference to the heritage significance of the Radio Theatre, which has existed at the subject site for a significant amount of time. Further, the proposed play space is inspired by nautical influences.

As a whole, the development is considered to provide an excellent opportunity to activate and enliven the Geraldton city centre and the wider locality.

The proposed development is considered consistent with the intent of the GCCVP and therefore warrants support accordingly.

4.3.3 Local Planning Policy – Heritage Conservation and Development

The City's Heritage Conservation and Development Local Planning Policy (**Heritage LPP)** provides framework for the conservation of built heritage in the City. The subject site currently contains several heritage listed buildings. The objectives of the Heritage LPP are as follows:

a) To conserve and protect places of cultural heritage significance.

b) To ensure development does not adversely affect the significance of heritage places.

c) To ensure that sufficient information is provided to enable the local government to make informed decisions.

d) To ensure that heritage significance is given due weight in local planning decision making.

e) To guarantee that where a development is approved which involves the demolition of a heritage building, that development is actually constructed.

f) To provide guidelines for the placement of signage on places of heritage significance.

g) To ensure that signage is appropriately placed and designed to complement the heritage significance of the place.

The proposed development is considered consistent with the objectives of the Heritage LPP, as follows:

- The state heritage listed Radio Theatre building is to be conserved and enhanced by returning the building to a functional theatre building, and expanding offerings of services associated with this building (food and beverage expansion) to create greater diversity in its functionality.
- The locally heritage listed Kings Halls building is in a state of disrepair, with the majority of it's structural building elements deemed to be unsafe for occupation (refer to the HIS **Appendix 3**). The removal of all existing building elements, with the exception of the masonry walls, allows the building frame to be retained and reused.

- All works are proposed to be undertaken in a considered manner that is respective of the cultural heritage significance of all buildings and will not adversely impact the heritage significance of these places to the surrounding locality.
- The demolition and rebuild of the existing Geraldton hotel heritage building is considered appropriate in the context of the site noting that the building has had a number of modifications to the existing heritage fabric since its original construction, and its main purpose as a drive through bottle shop is still being retained by the new development.

On balance, the proposed development is considered to align with all objectives of the City's heritage conservation and development policy.

Table 14 below provides an assessment of the proposed development against the policy measures of the Heritage LPP.

Table 14 – Heritage LPP assessment

Provision	Comment	Complies
4.1 Development Control		
4.1.1 In considering any applications in relation to a place on the local government's Inventory (commonly known as the Municipal Inventory) or land within a designated heritage area under the Scheme, the local government will apply and have regard to: *a) The development control principles set out in State Planning Policy 3.5 Historic Heritage Conservation.* *b) The structural condition of a place, and whether a place is reasonably capable of conservation.* *c) The level of heritage significance of a place.*	In relation to the three relevant considerations in clause 4.1.1, the following is noted: • Due consideration has been given to the provisions of State Planning Policy 3.5. • The structural condition of the Kings Hall and Geraldton Hotel buildings is not adequate and requires a range of demolition works to ensure these buildings are safe for reuse and/or redevelopment. In relation to the Geraldton Hotel building proposed for full demolition, a structural engineers report is provided within the HIS (refer **Appendix 3**) which confirms the building has substantial issues and defects, which make retention of the site unviable. • The significance of all heritage listed buildings is acknowledged through retention and refurbishment work, and considered expansion works.	✓
4.1.2 The Scheme contains clauses that allow the variation of any provision of the Scheme where its objective is to ensure the conservation of a heritage place. This provision gives the local government considerable freedom to negotiate a suitable heritage outcome with property owners. It not only benefits the property owner but also the community as a heritage place can be conserved and the development potential realised through collaborative and creative planning.	Noted.	-
4.1.3 Development approval for internal works that do not materially affect the external appearance of a heritage place or building within a heritage area is only required when a building permit is required for the internal building work.	Noted.	-
4.2 Heritage Impact Statement (HIS)		

Provision	Comment	Complies
4.2.1 If a proposal will have a substantial impact on the exterior fabric of a place on the local government's Inventory, the local government may require a 'Heritage Impact Statement' (HIS) to be submitted addressing three main questions: *a) How will the proposed works affect the significance of the place or area?* *b) What measures (if any) are proposed to ameliorate any adverse impacts?* *c) Will the proposal result in any heritage conservation benefits that might offset any adverse impacts?* *Reference should be made to the State Heritage Office publication Heritage Impact Statements – a guide for an example/model HIS.*	A Heritage Impact Statement has been prepared by Griffiths Architects in support of the development application and proposed works (refer **Appendix 3**).	✓
4.2.2I f a proposal affects a place that is entered in the State Heritage Register, or a large or complex place of exceptional significance, the local government may require a conservation plan to be prepared.	Noted, a Conservation Management Plan (**CMP**) is currently being prepared. Provision of the completed CMP may be included as a suitable condition of approval to ensure the City is satisfied with the proposed heritage conservation measures.	✓
4.3 Structural Condition Assessment (in the case of demolition)		
4.3 If structural failure is cited as a justification for the demolition of a place in the local government's Inventory, evidence should be provided from a registered structural engineer that the structural integrity of the building has failed, to the point where it cannot be rectified without removal of a majority of its significant fabric and/or prohibitive costs.	A structural engineers report is provided within the HIS (refer **Appendix 3**) which confirms the existing locally heritage listed Geraldton Hotel building has substantial structural issues and defects. These issues, as confirmed by the structural engineer, confirm the structural integrity of the building is likely to be unviable due to anticipated prohibitive costs due to the dilapidated state of the building.	✓
4.4 Archival Recording (in the case of demolition)		
If a proposal is for the demolition or the substantial redevelopment of a place in the local government's Inventory, the local government may require, as a condition of approval, the preparation of an archival record of the place, prior to demolition or commencement of development.	Noted.	-
4.5 Redevelopment Plans (in the case of demolition)		
4.5.1 If a proposal is for the demolition of a place in the local government's Inventory, the local government may (depending on the significance of the place) require details of the proposed future development/use of the site to be submitted. Information required may include a redevelopment site plan, floor plan(s), elevations and accompanying details on the proposed development/use together with reference to suggested interpretive outcomes which reflect the history of the site.	Details of all proposed development works are provided in support of the development application requesting demolition of the Geraldton Hotel building.	✓
4.5.2 Additionally, the local government may require that, prior to granting approval for the demolition of a place in the local government's Inventory, the proponent must have obtained a development approval for the future development/use of the site.		✓
4.6 General Signage Guidelines		

Provision	Comment	Complies
4.6.1 The number of signs should be restricted in order to avoid visual clutter.	All signage is generally contained within existing signage zones of the heritage buildings. Where new signage is proposed, this is generally done to avoid visual clutter on the existing heritage buildings.	✓
4.6.2 No new signs should be painted on unpainted surfaces.	Noted.	-
4.6.3 Signage is to be readily removable without causing damage to the historic fabric of the place. Careful consideration is to be given to the method of installation in order to minimise the impact on significant fabric.	All signage will be capable of design and installation such that it does not adversely impact the heritage fabric of the place.	✓
4.6.4 Where possible, references should be made to historic photographs of the building to determine original and appropriate locations for signage.	Noted. The HIS provides historical photographs and references which have informed signage.	✓
4.6.5 Bunting, flags, banners and similar signs are generally not permitted except in special circumstance for a defined period.	Noted. These signage types are not proposed.	✓
4.6.6 Signage applications should include additional details regarding lettering type.	Signage detail is included in the development plan package (refer **Appendix 2**).	✓
4.7 Historic Signage		
4.7.1 Historic signs that contribute to the significance of a heritage place should be retained and conserved (e.g. signs in pavement, in tile-work, in lead lighting or windows, painted on walls or in raised lettering in render etc.)	Existing historic signage elements, such as those painted to the side of the existing Kings Hall building are to be retained and conserved.	✓
4.7.2 New signage should not detrimentally impact on the historic signs.	All signage to existing heritage buildings is considered respectful of the cultural heritage significance.	✓
4.8 Location of Signs		
4.8.1 Advertising signage should be appropriately located and be clear and easy to read from the street. It should not obscure any significant features of the heritage building or visually dominate the building or its immediate vicinity.	All signage elements are located to provide good wayfinding methods for pedestrians along the street level. These signage elements do not dominate or obscure significant heritage features on the heritage buildings.	✓
4.8.2 It is important that signage be located in appropriate positions on the building so as not to detract from the heritage value of the place. These locations are summarised as follows:. *a) Above Verandah Roofs:* • *On the parapet, preferably using existing parapet advertising panels; and* • *On the gable ends.* *b) On Verandah Roofs:* • *On the verandah roof beam;* • *On the end (spandrel) panel of the verandah roof; and* • *On verandah roof awnings/blinds.* *c) Below Verandah Roofs:* • *Suspended under verandah roofs at right angles to the face of the building and at least 2,450mm above the verandah floor;*	Signage is generally located on all preferred locations as set out in Clause 4.8.2. Refer Drawing Numbers DA3.0-DA3.2 for elevational perspectives identifying all proposed signage locations and future signage zones. Refer to Drawing Numbers DA6.0-DA6.2 for signage location plans and signage detail.	✓

Provision	Comment	Complies
• *On shopfront windows; and* • *On stall boards/tenancy boards mounted flat to the wall adjacent to doorways.* *d) On End Walls:* • *At ground and upper floor levels.*		
4.8.3 Signage is to be positioned and designed to fit within any spaces created by architectural elements on the building. Signs are not to cover any architectural features or detailing of a building.	Noted.	✓
4.9 Proportion of Signs		
4.9.1 Signage proportions should complement the heritage building and should not visually dominate the heritage building or the immediate streetscape.	All signage elements complement heritage buildings on the site and do not visually dominate existing heritage fabric or the surrounding streetscape.	✓
4.9.2 Signage to the verandah fascia should not project beyond the fascia frame.	All signage along the retained and refurbished heritage awnings does not project beyond the frame of the awning.	✓
4.9.3 Signs with large supporting frameworks will not be supported.	No large supporting structures are required for proposed signage elements.	✓
4.10 Design of Signs		
4.10.1 Reproduction of historic advertising styles is not necessary for new signs. Rather respectful but modern design is preferred for new signage.	All signage elements will be contemporary and respectful of the cultural heritage of the existing buildings.	✓
4.10.2 Lettering styles, icons, symbols and illustrations used for advertising, need not replicate old styles, but should be in sympathy with the cultural heritage significance of the building.		✓
4.10.3 The size of lettering for a sign is to be of a scale so as not to be a dominant element. As a guide, lettering of 380mm in height is usually adequate.	The size and scale of lettering is relevant to the size of proposed signage elements, with vary in dimensions. All lettering is considered to generally align with the intentions of the policy requirements.	✓
4.10.4 In general, upper case lettering should be used as lower case script was rarely used on heritage buildings.		✓
4.11 Colour of Signs		
4.11.1 The colour palette of signage should complement the overall approved colour scheme for the building.	Noted. Signage zones and general detail is provided within the Development Plans (refer **Appendix 2**). Final detail on colouring will be determined through the design development process and through formulation of the future business operations. All signage elements, including colouring, will be respectful of the heritage significance of the place.	✓
4.11.2 Fluorescent colours or iridescent paint is not appropriate for heritage buildings and are to be avoided.		✓
4.11.3 The whole of the building should not be regarded as part of the signage.		✓
4.11.4 Corporate colours should be confined to awnings and main signs.		✓
4.12 Illumination of Signs		
4.12.1 Discrete externally illuminated signage utilising concealed spotlights is preferable. Wiring should be concealed in existing building cavities where possible.	Some signage elements will have a level of illumination, predominantly blade and under-awning signs.	✓

Provision	Comment	Complies
4.12.2 Rotating, flashing or pulsating signage is not appropriate on heritage buildings.	One digital display sign is proposed. Detail on operation and signage displayed on this sign is to be determined at a later date, however it will not rotate, flash or pulsate and will be respectful of the heritage significance of the Radio Theatre building.	✓
4.12.3 Internally lit signage should not be permitted on heritage buildings.		✓

As demonstrated above, the proposed development is considered to be consistent with the requirements and provisions of the City's Heritage LPP and warrants support accordingly.

4.3.4 Local Planning Policy – Signage

The City's Signage Local Planning Policy (**Signage LPP)** provides direction on the design of signage within the City. The objectives of the Signage LPP are as follows:

a) To control signs in order to safeguard the visual amenity of the district.

b) To ensure signs do not compromise safety issues regarding thoroughfares.

c) To set out standards which apply to different types of signs and the considerations the local government should have in determining applications.

d) *To specify what types of signs do not require the development approval of the local government.*

The proposed development incorporates the following signage:

<u>Radio Theatre</u>

Fitzgerald Street Elevation

- 1 x 4m² digital sign – affixed on top of awning.
- 1 x 3.85m² signage zone – affixed on top of awning.
- 1 x 11.3m² signage zone on awning fascia.
- 1 x 2.4m² 'Radio' blade sign – affixed to second storey wall and roof.

Marine Terrace Elevation

- 1 x 3.7m² signage zone – on awning fascia.
- 1 x 2.5m² signage zone – on awning fascia.
- 1 x 1.4m² signage zone – on awning fascia.
- Total of 3 suspended awning signs.

<u>Tavern</u>

- 1 x 13.4m² 'West End Kings Hall' signage zone.
- Total of three horizontal signs, attached perpendicular to alfresco brick framing.
- An approx. 1m² 'West End' sign attached above laneway gate.

<u>Liquor Store</u>

Fitzgerald Street Elevation

- 1 x 2.3m² wall signage zone.
- 1 x 13.4m² wall signage zone.
- 1 x 12.6m² wall signage zone.
- 1 x 12.2m² wall signage zone.

East Elevation

- 1 x 4.25m² wall signage zone.
- 1 x 21.55m² wall signage zone.
- 1 x 6.1m² wall signage zone.
- 1 x 6m² wall signage zone.

South Elevation

- 1 x 25.4m² wall signage zone.
- 1 x 13m² wall signage zone.
- 1 x 52.3m² wall signage zone.

North Elevation

- 1 x 5.3m² wall signage zone.
- 1 x 10m² digital display sign.

Serviced Apartments

- 1 x 32m² signage zone – west facing.
- 1 x 26.7m² '236 Lester Avenue' signage zone – south facing to Lester Avenue.

The proposed signage is incorporated into the built form so as to not detract from the visual amenity of the locality or the buildings themselves. An assessment of the proposed signage against the relevant provisions of the Signage LPP is provided in **Table 15** below.

Table 15 – Signage LPP assessment

Provision	Comment	Complies
Location of signs *A sign should not be displayed where:*		
a) Where it would detract from the aesthetic environment of a park or other land used by the public for recreation;	The proposed development is located adjacent to the Geraldton Foreshore Reserve, across the Marine Terrace and Fitzgerald Street intersection. The portion of the development fronting the reserve is the Radio Theatre building. Given the building is proposed for refurbishment, positive impacts are expected.	✓
b) Where it would be likely to interfere with, or cause risk or danger to traffic on a thoroughfare by virtue of the fact that it; *i. May be mistaken or confused with, or obstruct or reduce the effectiveness of any control device;* *ii. Would invite traffic to turn and would be sited so close to the turning point that there would not be reasonable time for a driver of a vehicle to signal and turn safely;* *iii. Would invite traffic to move contrary to any traffic control device;* *iv. Would invite traffic to turn where there is fast moving traffic and no turning lane;* *v. May obscure the vision of a person driving a vehicle.*	The proposed signage will display the goods and services provided at the subject site and therefore will not be mistaken for traffic controlling signage and will not obscure the vision of drivers given it is generally integrated into the proposed built form.	✓
c) Where it significantly obstructs or obscures the view of a river, the sea or any other natural feature of beauty;	The proposed signage does not obstruct the views of any natural feature of beauty.	✓

Provision	Comment	Complies
d) Where it would detrimentally affect the amenity of the area;	Proposed signage would not affect the amenity of the area. Refer below for further commentary.	✓
e) Where it is not associated with the approved use of the property on which it is displayed;	The proposed signage will display the goods and services offered at the subject site, consistent with the applied for use.	✓
f) On a property which does not relate to the sign;	Not applicable.	-
g) On or adjacent to a footpath which results in the pedestrian access being less than 1.8m in width, however the local government may specify a greater width in certain cases;	The proposed signage does not encroach on the width of surrounding pedestrian accessways.	✓
h) On or within 3m of a carriageway;	The proposed signage is located within 3m of a carriageway. Refer below for further commentary.	Variation
Horizontal Signs *A Horizontal sign should:*		
a) Not exceed 3m in height or 4m in length;	Proposed signage exceeds the maximum dimensions, refer below for further commentary.	Variation
b) Not exceed 5m² in area;	Proposed signage exceeds the maximum area, refer below for further commentary.	Variation
c) Not project more than 1.5m from the wall to which it is attached;	Proposed signs do not project more than the maximum 1.5m to the attached wall.	✓
d) Not project more than 1m above the top of the wall to which it is attached;	Proposed signage projects more than 1m above the attached wall, refer below for further commentary.	Variation
e) Afford a minimum headway of 2.75m where the sign projects more than 12mm into a thoroughfare;	Proposed signage provides a minimum of 2.75m headway to surrounding footpaths.	✓
f) Not be within 450mm of the edge of a carriageway; and	Proposed signage abuts the edge of surrounding carriageways. Refer below for further commentary.	Variation
g) Not be within 600mm of either end of the wall to which it is attached.	Proposed signage is within 600m of the end of attached walls. Refer below for further commentary.	Variation
Verandah signs *A verandah sign under a verandah should:*		
a) Be fixed a right-angles to the front wall of the building to which it is to be affixed except on a corner of a building at a thoroughfare intersection where the sign may be placed at an angle with the wall so as to be visible from both thoroughfares;	Proposed verandah signage is affixed at right angles to the corresponding wall as required.	✓
b) Afford a minimum headway of 2.75m; and	Proposed signage provides a minimum of 2.75m headway to surrounding footpaths.	✓
c) Not exceed 1.5m in length or 400mm in width.	Proposed signage exceeds the maximum dimensions, refer below for further commentary.	Variation

As above, the proposed signage exceeds some aspects of the City's Signage LPP requirements. However, the proposed signage is considered acceptable in the context of the proposed development as:

- The proposed signage zones offer flexibility to the future venue operators. It is noted the signage zones will not likely be entirely filled with signage elements, rather they are identified as zones. Actual signage scale may be less than the proposed signage zones.

- The scale of proposed signage is consistent with the operational requirements of the proposed development, which requires a sufficient level of exposure to advertise goods and services available on site.
- The signage does not detract from the heritage significance of the subject site and as considered by the HIS, the proposed development will not have a detrimental impact of the heritage significance of the subject site.

As demonstrated above, the proposed signage is generally consistent with the requirements of the Signage LPP and warrants support accordingly.

5 CONCLUSION

As detailed within this report, the proposed redevelopment of the existing heritage buildings and the construction of a new four storey serviced apartment development on the subject site achieves the purpose and intent of the applicable local planning scheme and is largely compliant with the provisions of the applicable planning framework.

Specifically, the proposed development:

- Achieves the aim and objectives of the City's *Local Planning Scheme No.1*.
- Is consistent with the objectives and provisions of the City's applicable local planning policies.
- Is consistent with the objectives and standards of the relevant State Planning Policies, particularly SPP7 and SPP3.5.
- Will not have any impact on the amenity of adjoining owners or occupiers.

The redevelopment of these sites will facilitate creation of a new entertainment precinct within the Geraldton city centre and will comprise a mixture of food and beverage areas, drive through bottle shop, serviced apartment, as well as associated landscaping, parking, amenities, and vehicle access on the subject site.

The proposed development has been designed in a contextual manner and ensures the retention and refurbishment of important local and state heritage places. The development aligns with the desired future character of the area as identified within the City of Geraldton local planning framework.

Overall, the proposed development is demonstrated to have a well-considered architectural and heritage response to the subject site and warrants approval accordingly.

Appendix 2:
Development Plans Package

WEST END GERALDTON

DEVELOPMENT APPLICATION

DRAWING LIST

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023

MARINE TERRACE

EX. DEPT. FOR HOUSING

EX. EMPTY LOT

EX. EMPTY LOT

REAR STAGE ANNEX TO BE DEMOLISHED

EXISTING GLAZING TO REMOVED AND REPLACE

NEW OPENINGS IN EXISTING WALLS

NEW OPENINGS IN EXISTING WALLS

EXISTING GLAZING REMOVED AND REPLACED

STAIRS TO REMOVED, 'INPRINT' TO BE SHOWN.

RL 2.915

RL 2.925

RADIO THEATRE
RL 1.965

RL 2.975

EX. RESTAURANT

RL 2.850

OUTBUILDINGS TO BE DEMOLISHED

EX. CAR PARK
RL 2.685

NEW OPENINGS IN EXISTING WALLS

KINGS HALL
RL 2.525

EXISTING ENVELOPE TO BE DISMANTLED AND REINSTATED WITH NEW SUPPORTING STRUCTURE

NEW OPENINGS IN EXISTING WALLS

EX. CAR PARK
RL 2.500

EX. SHOW ROOM
RL 2.845
LOWER ADD-ON BUILDING TO BE DEMOLISHED

FITZGERALD STREET

EX. GERALDTON BEACH HOTEL
TO BE DEMOLISHED

EX. HERITAGE BUILDING

EX. RESIDENTIAL UNITS

LESTER AVE.

LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
- FIRE-SEPARATING LINE
- EXISTING SEWER
- LOT BOUNDARY

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46060 | 21170 | 3660 | 34285 | 29275

30205

21110

MARINE TERRACE

NEW TIMBER FENCE OVER <500mm RETAINING

DEPT. OF COMMUNITIES BUILDING

NEW CAR PARK
NEW BITUMEN SURFACE
RL 2.200

LOADING ZONE

FUTURE COMMERCIAL LOT

RL 2.700

RL 2.650

RL 2.300

6200
NEW CORSSOVER

29400

73695

BIKE RACKS

ENTRY

RL 2.400

RL 2.850

RADIO THEATRE
REFURBISHED

LOT '1'

LANEWAY

KINGS HALL
REFURBISHED

NEW CAR PARK
NEW BITUMEN SURFACE

LOADING ZONE

SHORT-STAY APARTMENTS
NEW BUILDING

LOT '3'

PAVILLION
NEW BUILDING

FRONT BAR
REFURBISHED

RL 2.800

RL 2.650

6600

RL 2.800
BEER GARDEN

ENTRY

RL 2.690

ALFRESCO
RL 2.800

RL 2.730

LOT '2'

BOTTLESHOP
NEW BUILDING

44345

LESTER AVE.

78100

FITZGERALD STREET

600

RL 2.650

RL 2.750

FOOTPRINT OF EXISTING GERALDTON BEACH HOTEL TO BE DEMOLISHED, SHOWN DASHED RED.

6440
EX. CROSSOVER

RL 2.700

EXISTING RESIDENTIAL BUILDING

34520

11180

LEGEND
- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
- FIRE-SEPARATING LINE
- EXISTING SEWER
- LOT BOUNDARY

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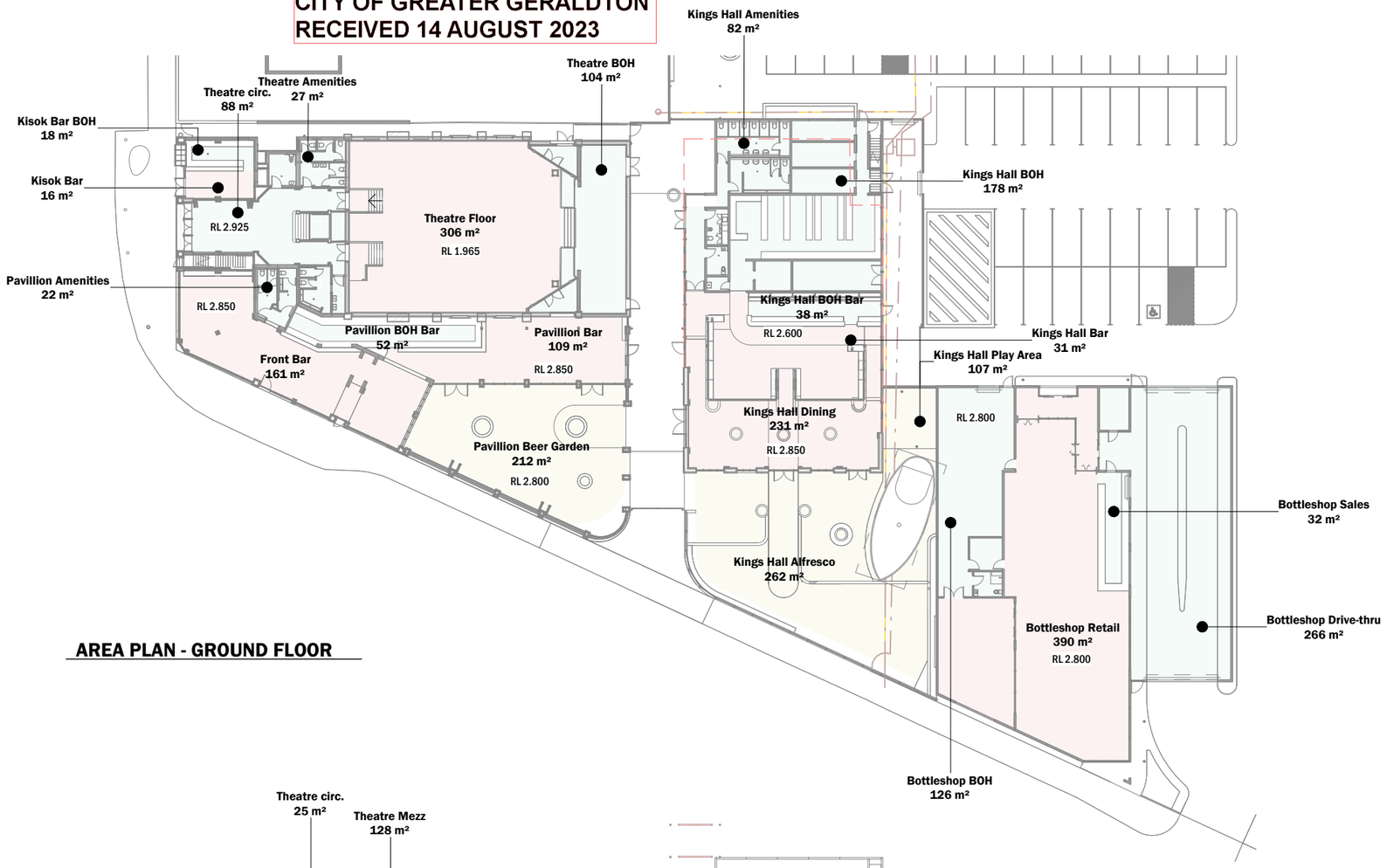
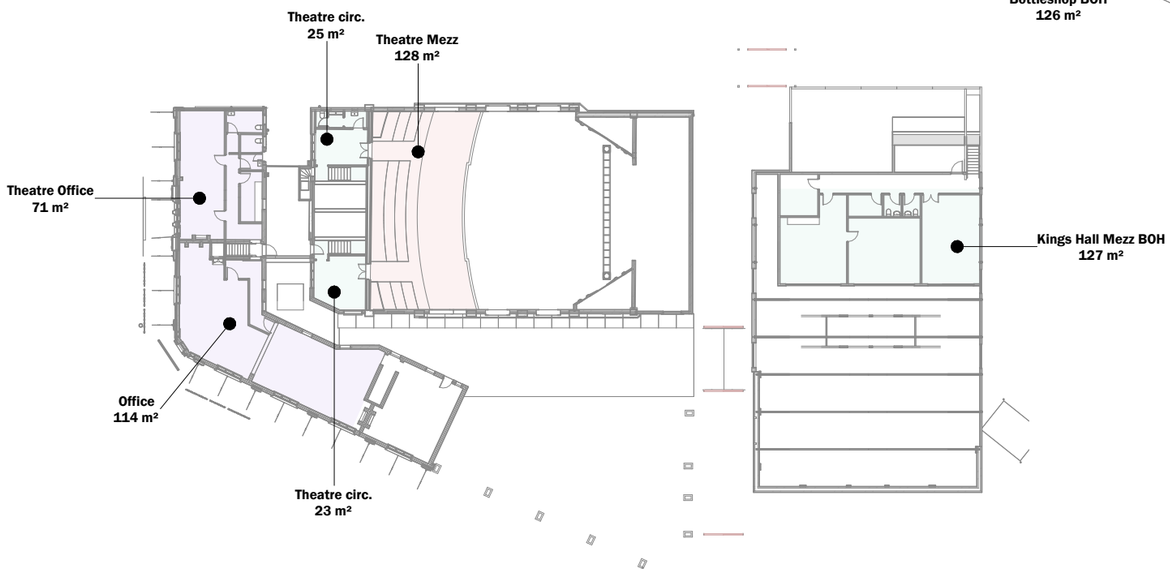


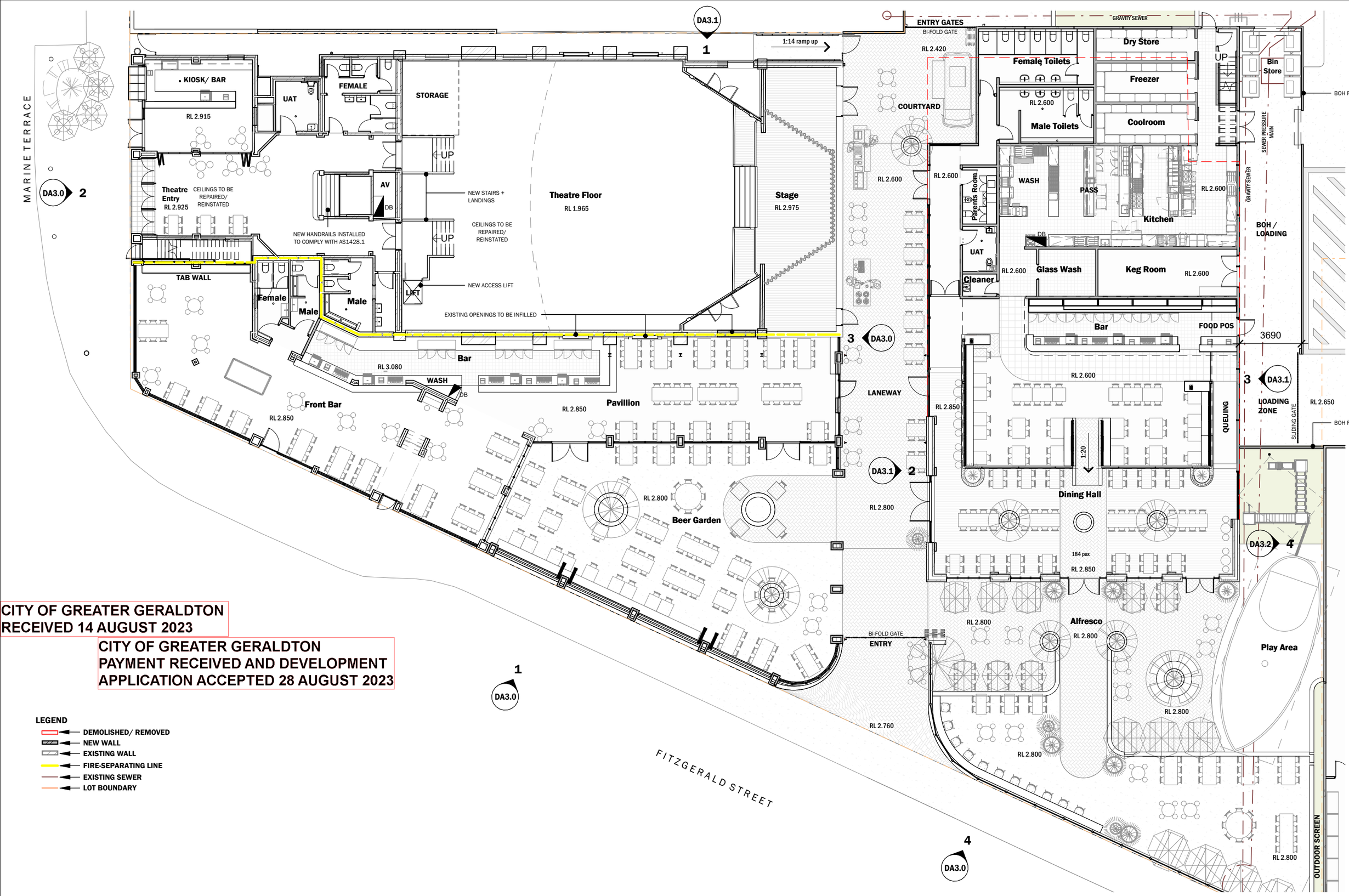
AREA PLAN - GROUND FLOOR



AREA PLAN - FIRST FLOOR

NEW FLOOR AREA	
Name	**Area**
Bottleshop BOH	11 m²
Bottleshop BOH	126 m²
Bottleshop Drive-thru	266 m²
Bottleshop Retail	390 m²
Bottleshop Sales	32 m²
Kings Hall Mezz BOH	127 m²
Pavillion Amenities	22 m²
Pavillion Bar	109 m²
Pavillion BOH Bar	52 m²
Grand total	1136 m²

EXISTING/ REFURBISHED FLOOR AREA	
Name	**Area**
Front Bar	161 m²
Kings Hall Amenities	82 m²
Kings Hall Bar	31 m²
Kings Hall BOH	178 m²
Kings Hall BOH Bar	38 m²
Kings Hall Dining	231 m²
Kisok Bar	16 m²
Kisok Bar BOH	18 m²
Office	114 m²
Theatre Amenities	27 m²
Theatre BOH	104 m²
Theatre circ.	88 m²
Theatre circ.	25 m²
Theatre circ.	23 m²
Theatre Floor	306 m²
Theatre Male	12 m²
Theatre Mezz	128 m²
Theatre Office	71 m²
Grand total	1654 m²



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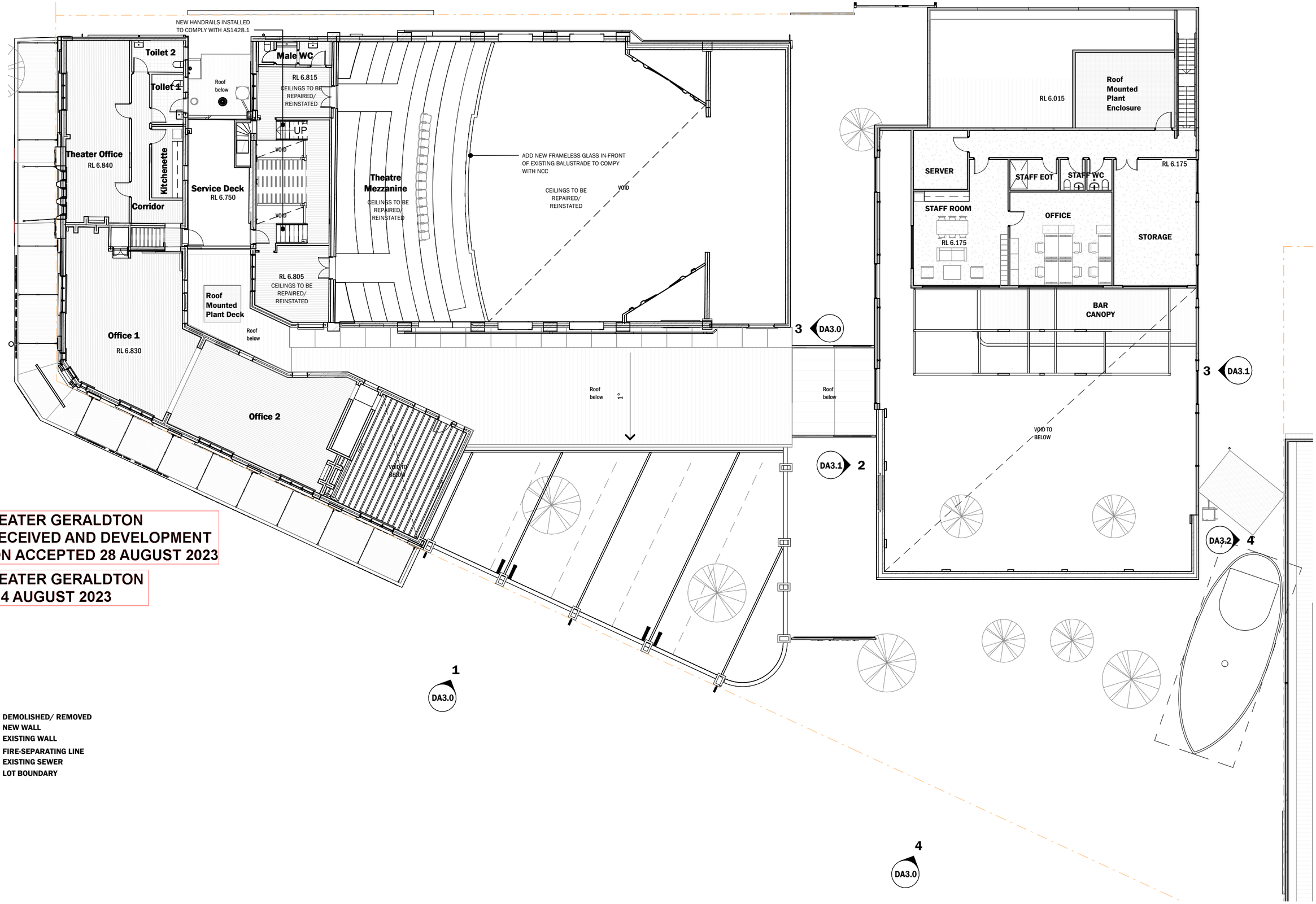
LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
- FIRE-SEPARATING LINE
- EXISTING SEWER
- LOT BOUNDARY



LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
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- EXISTING SEWER
- LOT BOUNDARY

NEON SIGN

MARINE TERRACE

NEW CORRUGATED ROOF 12°

6°

12°

8°

ROOF PLANT

EXISTING ROOF REPLACED

INDICATIVE SOLAR PANEL ARRAY SHOWN DASHED

EXISTING ROOF REPLACED 27°

NEW CORRUGATED ROOF

14°

EXISTING ROOF REPLACED

DA3.0 2

DA3.0 3

INDICATIVE SOLAR PANEL ARRAY SHOWN DASHED

DIGITAL DISPLAY MOUNTED ATOP AWNING

REFURBISH EXISTING AWNING + REPLACE ROOF SHEETING

EXISTING ROOF REPLACED

NEW CORRUGATED ROOF 14°

12°

1°

NEW GLAZED ROOF ALONG EXISTING BUILDING JUNCTION

NEW TRANSLUCENT ROOF

DA3.1 2

NEW CORRUGATED ROOF LOWER ROOF

3°

PLANT ENCLOSURE ROOF

10°

NEW CORRUGATED ROOF

NEW CORRUGATED ROOF 21°

EXISTING ROOF REPLACED

NEW POLYCARB. ROOF

NEW CORRUGATED ROOF

DA3.1 3

SHADESAIL TO PLAY AREA BELOW

DA3.2 4

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1 DA3.0

4 DA3.0

FITZGERALD STREET

LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
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KINGS HALL

SHORT-STAY
APRTMENT
BUILDING

28809

27620

18140

9500

DA3.2 2

DA3.2 4

3 DA3.2

RL 2.650

Entry
29 m²

entry only

Quick Grab
11 m²

entry only

exit only

BOH
109 m²

Service
32 m²

Retail Floor
285 m²
RL 2.800

Office
9 m²

UAT

Drive-thru

Coolroom
75 m²

RL 2.650

400

6200

600

6440

1
DA3.2

LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL
- FIRE-SEPARATING LINE
- EXISTING SEWER
- LOT BOUNDARY

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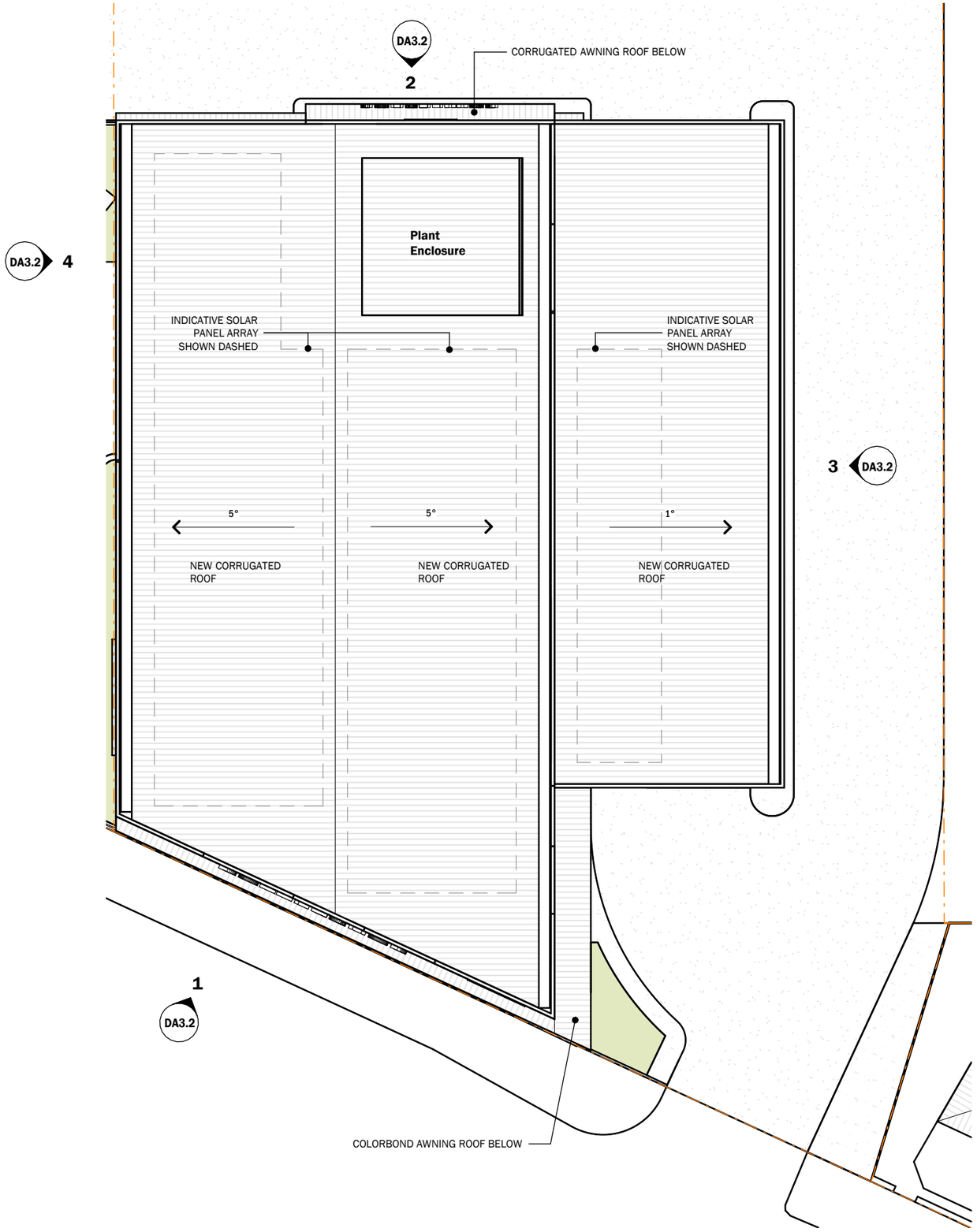

LEGEND

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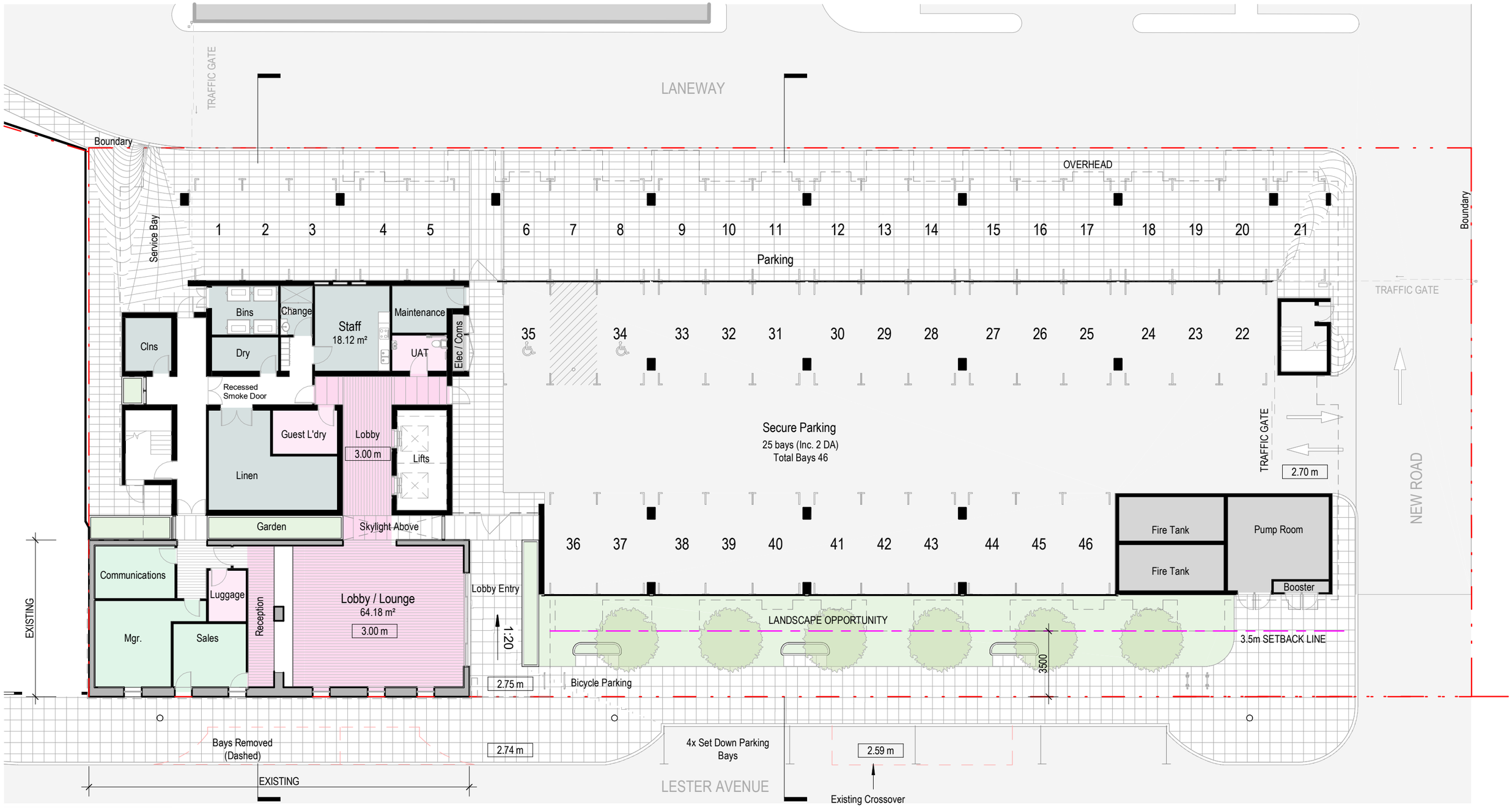

1 Bed	1238.30 m²
26	1238.30 m²
2 Bed	571.13 m²
8	571.13 m²
Accessible	104.06 m²
2	104.06 m²
Studio	861.43 m²
36	861.43 m²
Grand total: 72	2774.93 m²

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

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RECEIVED 14 AUGUST 2023

ADJACENT LOT

LANEWAY

A

B

ADJACENT LOT

29275

EXISTING FENCELINE

11°

STANDING SEAM METAL ROOF
SHEETING COLOURBOND
(ETNA RED)

5°

LOT 152

SHORT STAY
ACCOMODATION

PHOTOVOLTIC CELLS

METAL ROOFING COLOURBOND
(SURFMIST)

5°

PLANT

PLANT (INDICATIVE)

SKYLIGHT

SKYLIGHT

CAR PARK ENTRANCE

NEW ROAD

11°

SKYLIGHT

5°

5°

EXISTING

EXISTING BUILDING
METAL ROOFING COLOURBOND
(SURFMIST)

ENTRY
CANOPY

LANDSCAPE OPPORTUNITY

SET BACK

2.59 m

3500

Bike Parking

BOUNDARY LINE

PEDESTRIAN ZONE
(PAVING)

BOUNDARY LINE

2.74 m

2.74 m

Existing Parallel Parking
Bays (REMOVED)

4x Set Down Parking
Bays

2000

2.59 m

6700

6700

6700

6700

EXISTING

LESTER AVENUE

Existing Crossover
(REMOVED)

73766

CITY OF GREATER GERALDTON
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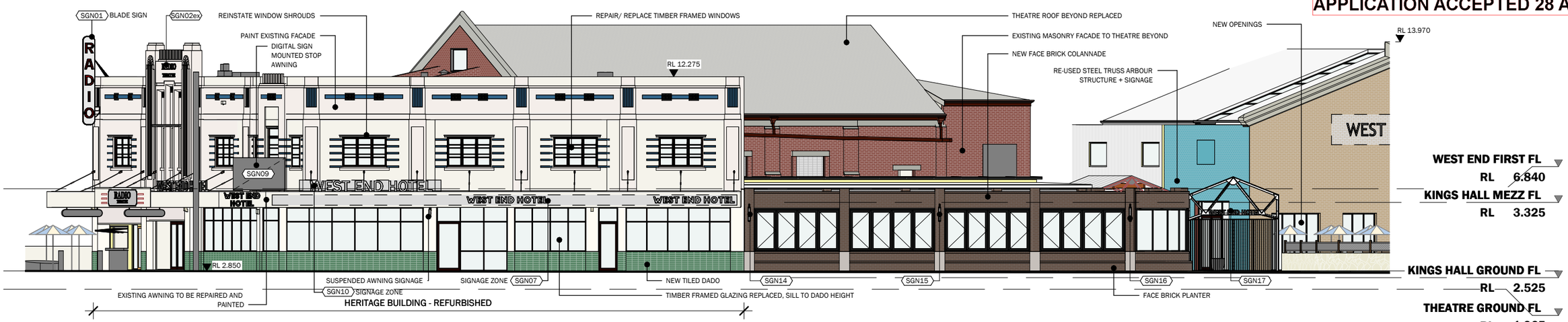
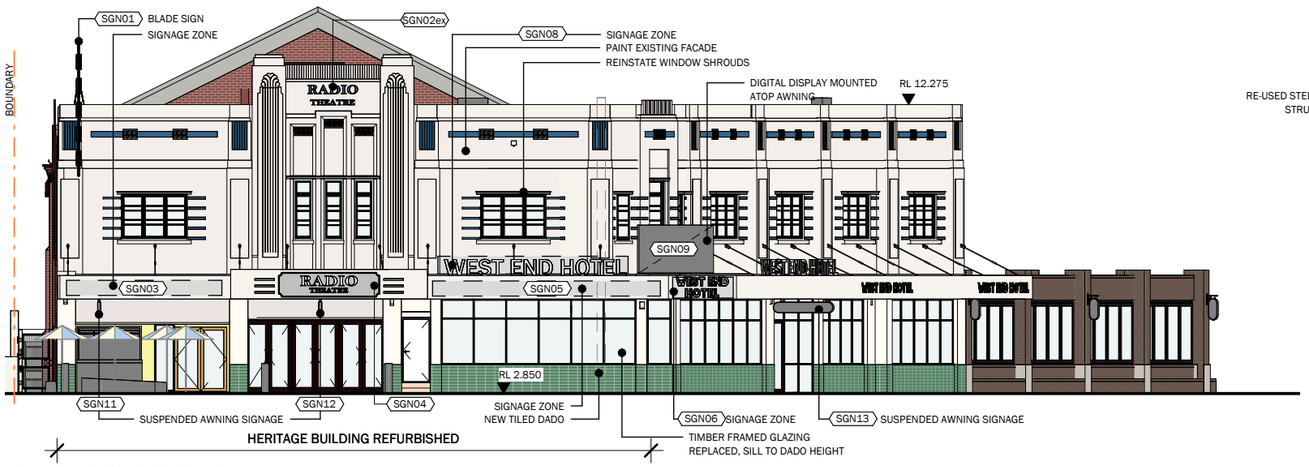
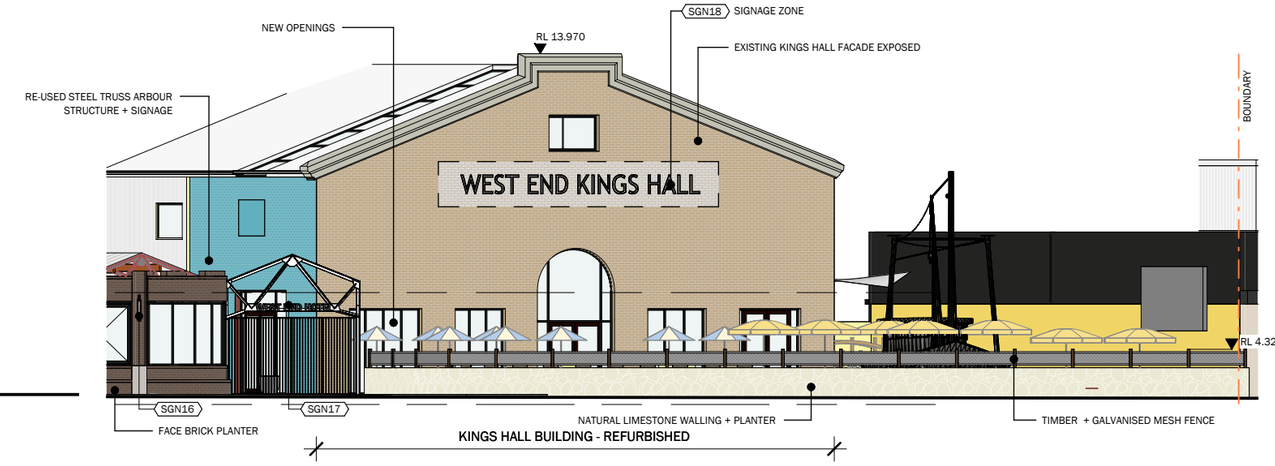
FITZGERALD ST ELEVATION



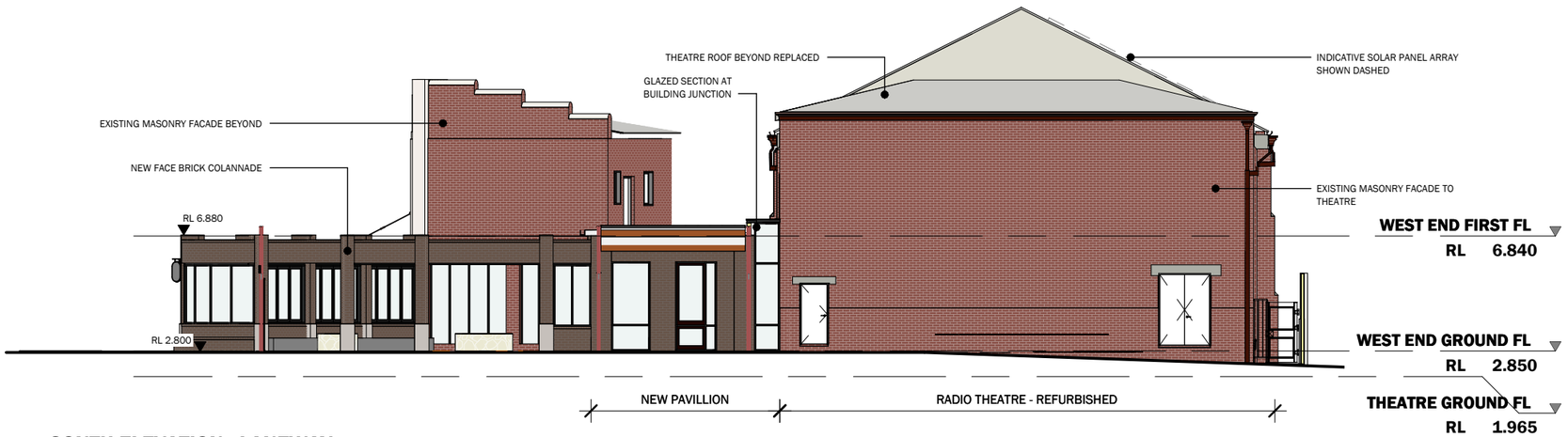
MARINE TCE ELEVATION



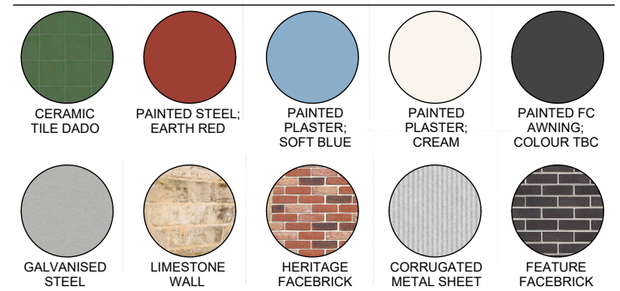
FITZGERALD ST ELEVATION



SOUTH ELEVATION - LANEWAY

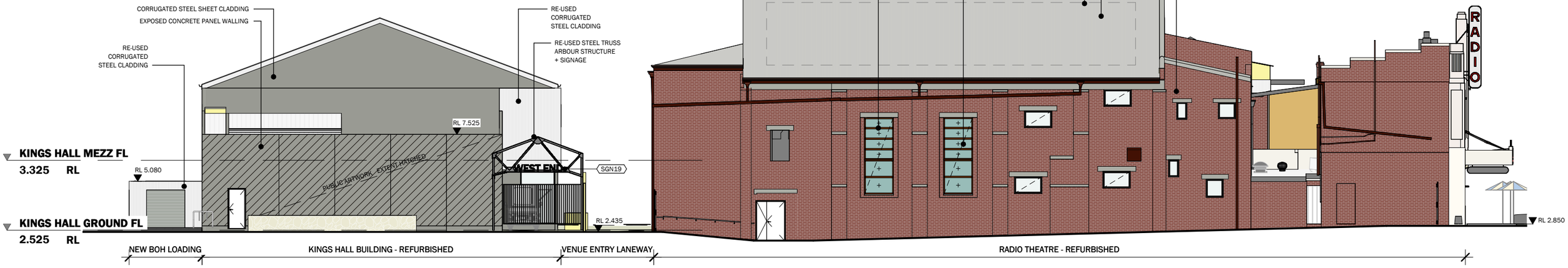


MATERIAL LEGEND

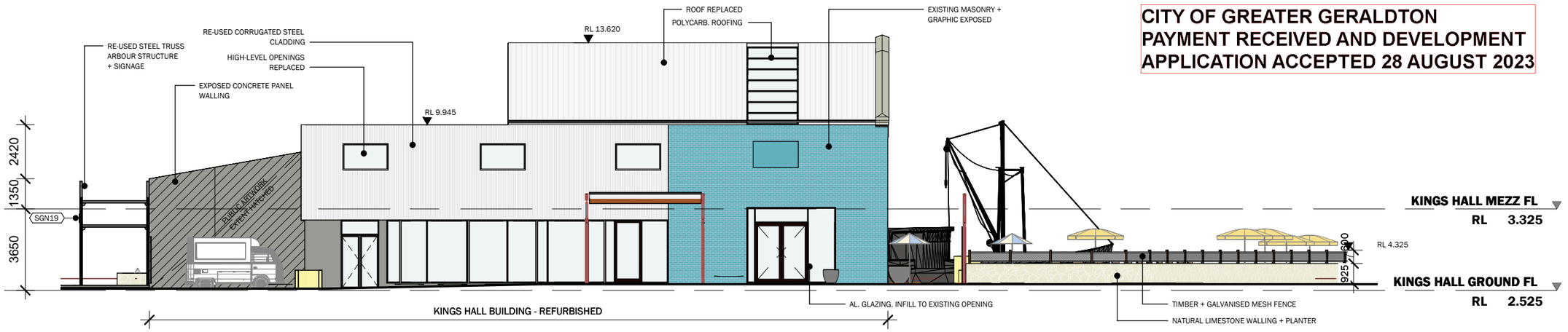


CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

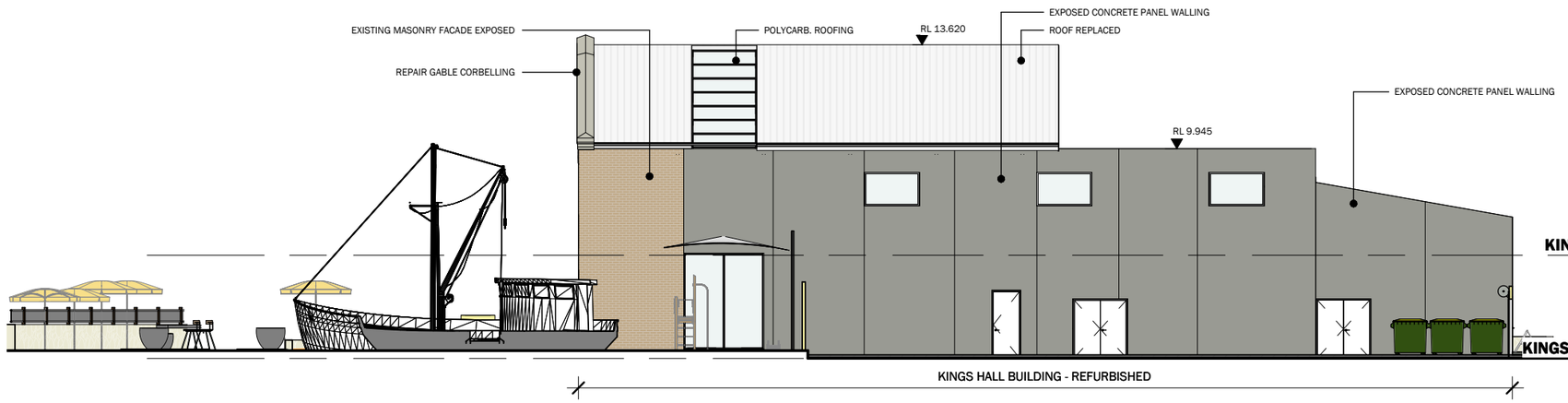
EAST ELEVATION

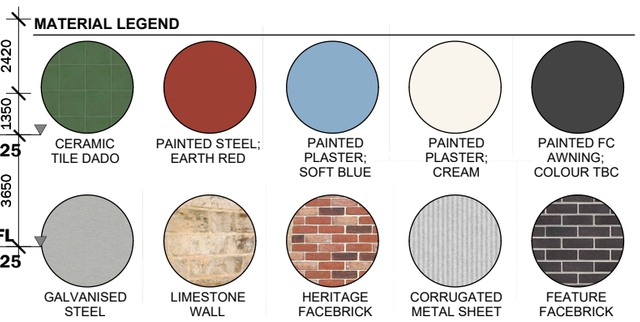


CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023



NORTH ELEVATION





SOUTH ELEVATION

CITY OF GREATER GERALDTON
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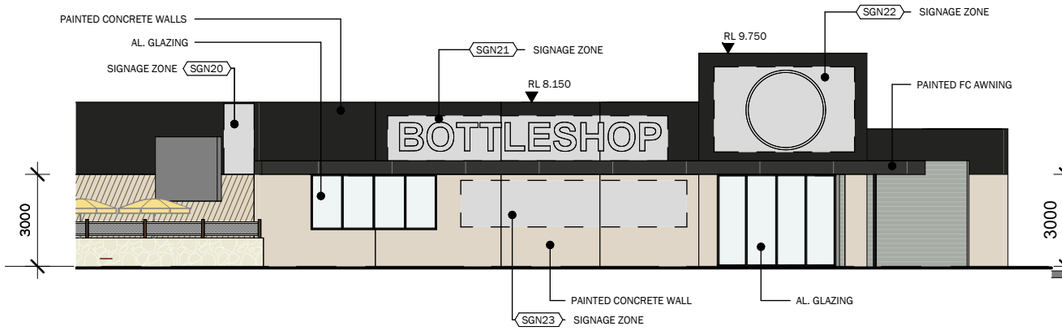
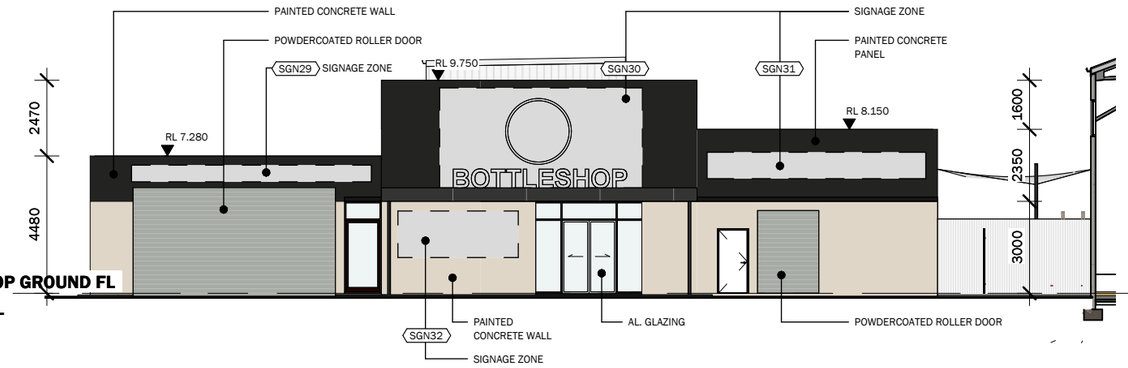
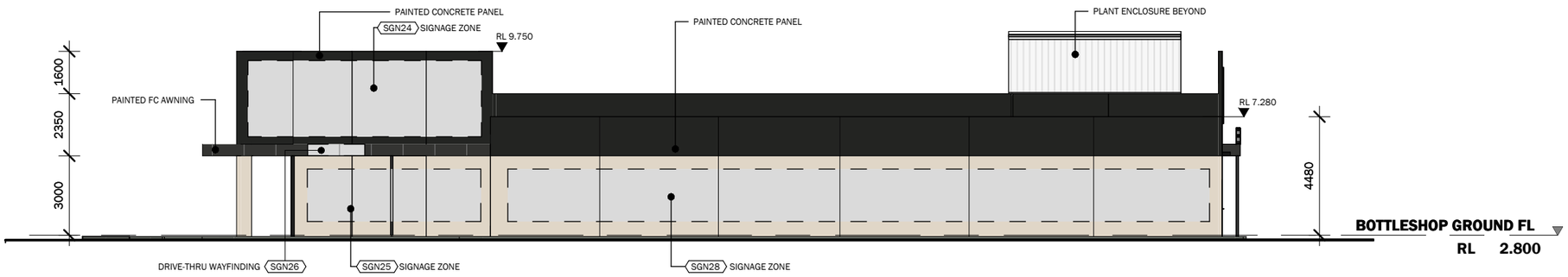
CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023



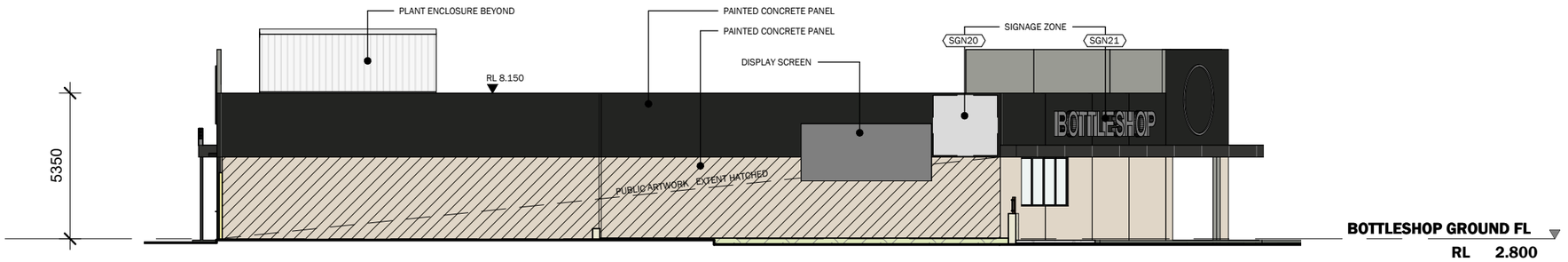
FITZGERALD ST ELEVATION



EAST ELEVATION

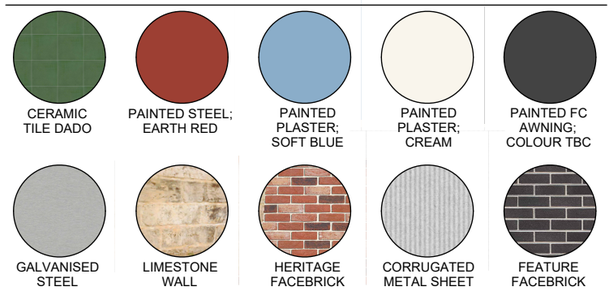


SOUTH ELEVATION



NORTH ELEVATION

MATERIAL LEGEND



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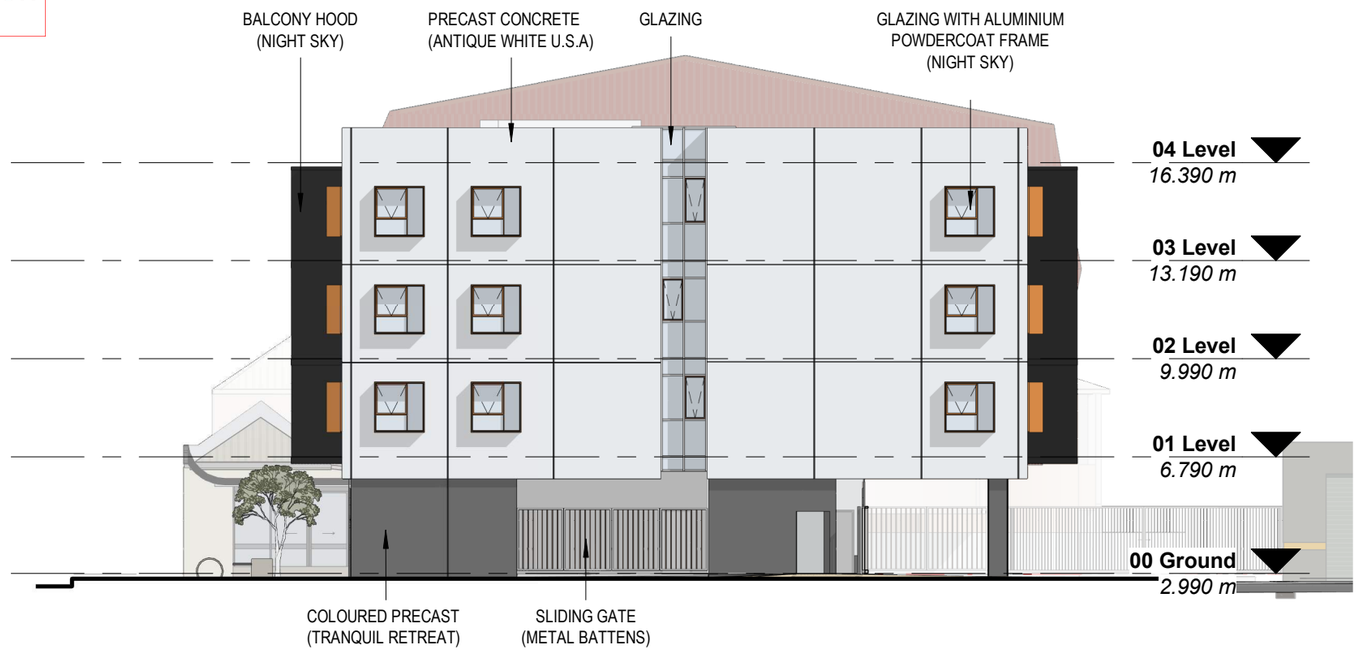
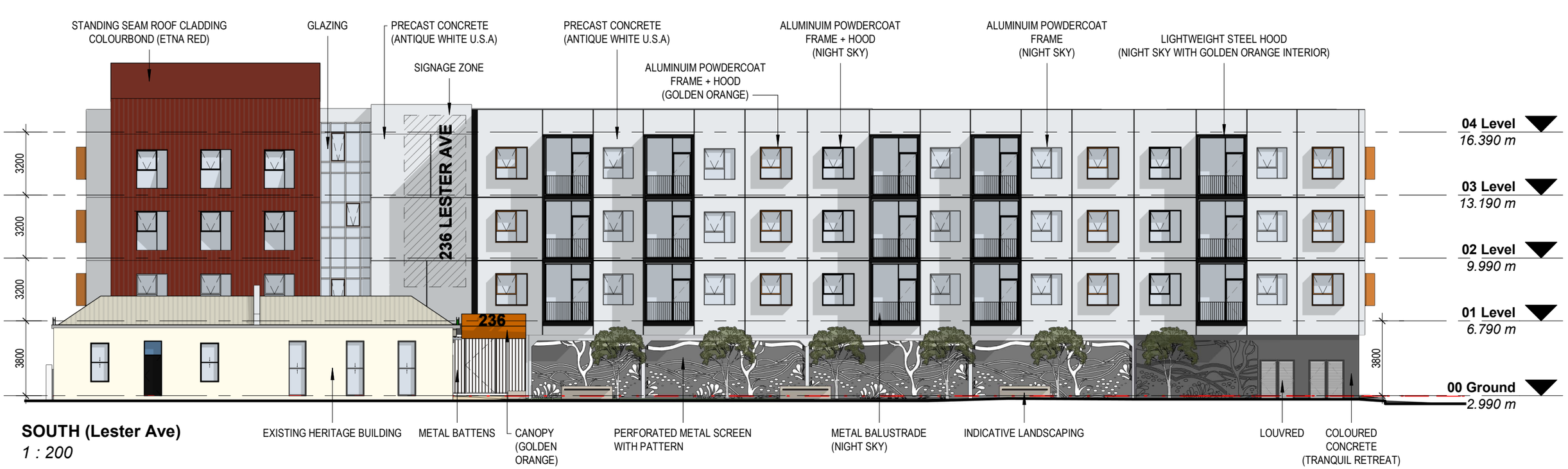
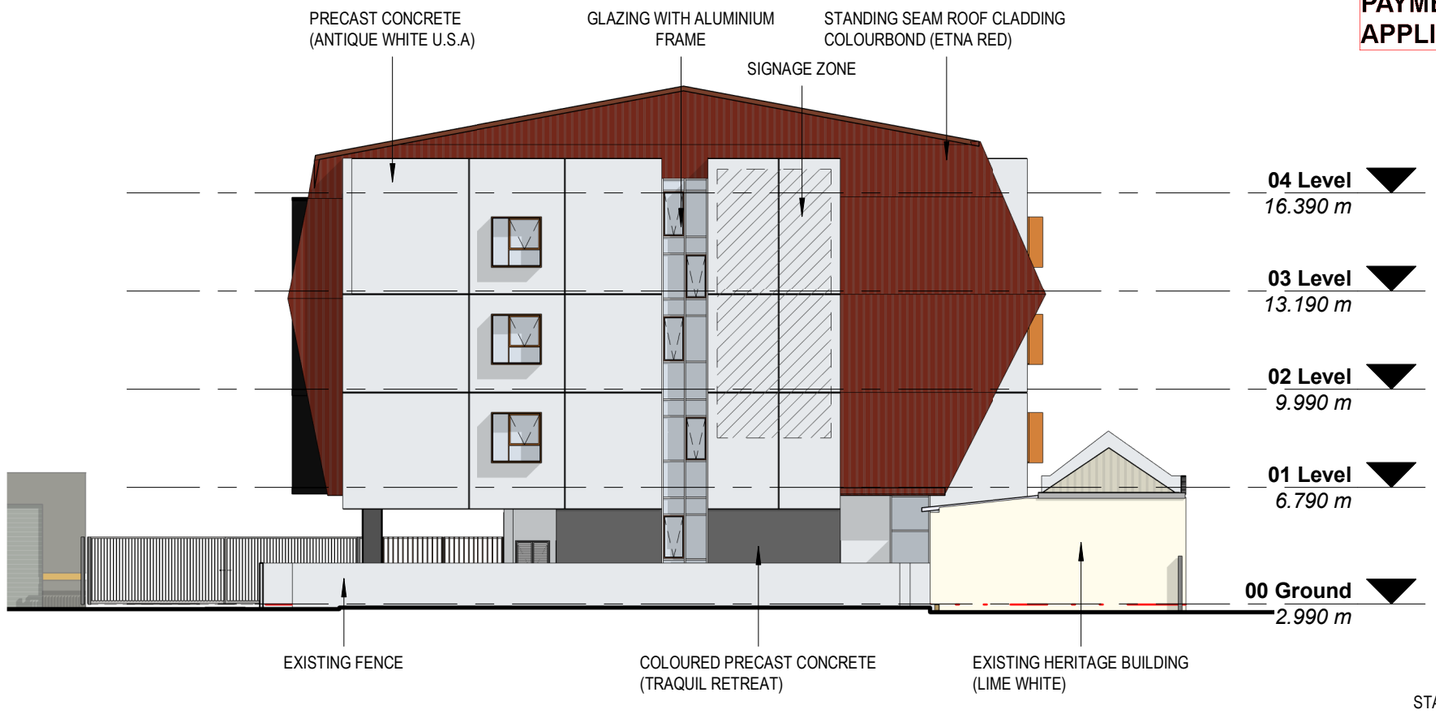


EAST (Carpark Entry)
1 : 200



SOUTH (Lester Ave)
1 : 200

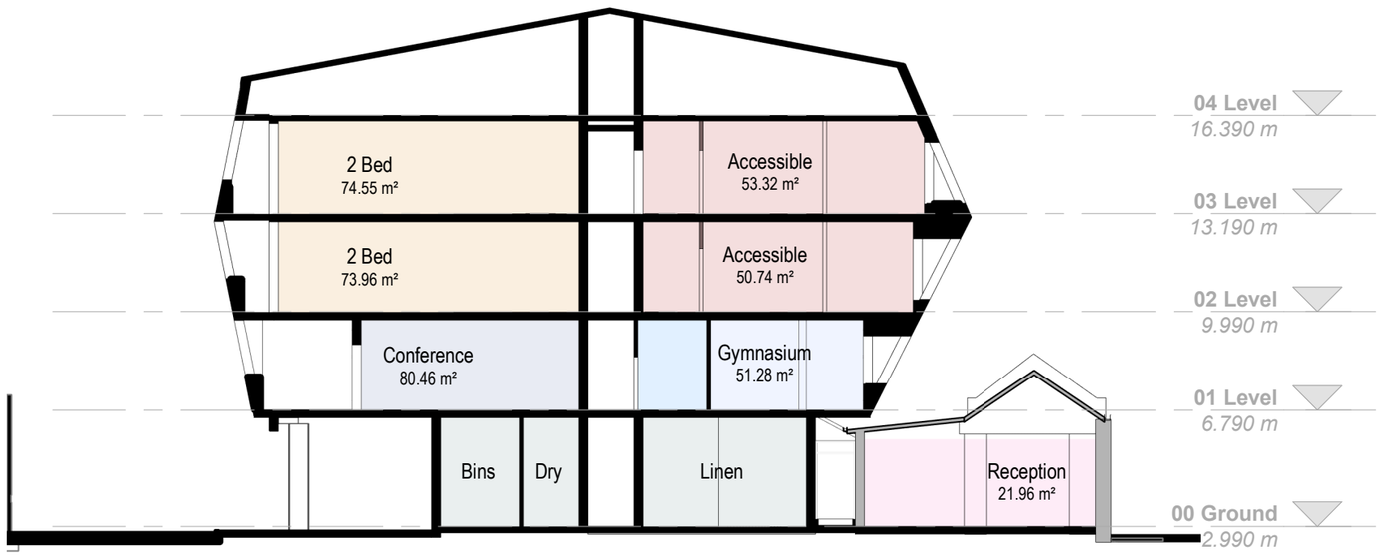


WEST (Fitzgerald St)

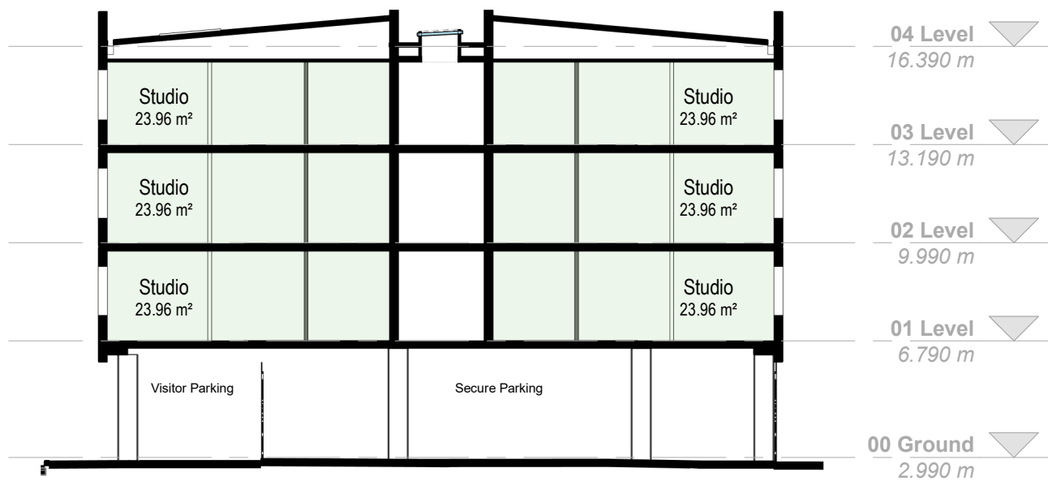
1 : 200

NORTH (Laneway)

1 : 200



SECTION A
1 : 200



SECTION B
1 : 200

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
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3D VIEW - RADIO THEATRE FROM MARINE TERRACE

3D VIEW FROM FITZGERALD ST

3D VIEW FROM FITZGERALD ST

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

3D VIEW FROM FITZGERALD ST

CITY OF GREATER GERALDTON
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RECEIVED 14 AUGUST 2023

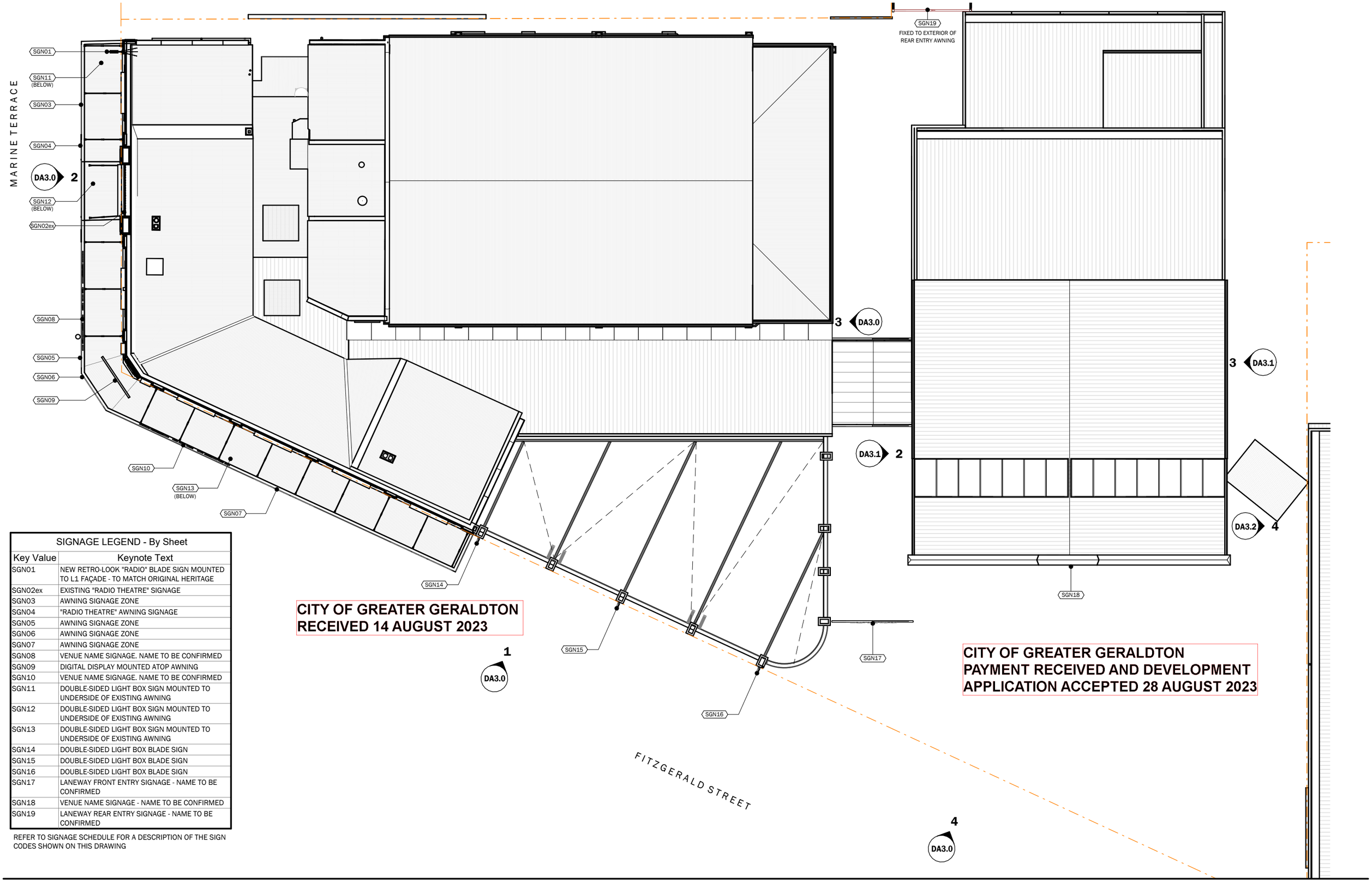
3D VIEW - LANEWAY REAR ENTRY

3D VIEW - LANEWAY REAR ENTRY

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023

APPLICATION ACCEPTED 28 AUGUST 2023

3D VIEW - BOTTLESHOP FROM FITZGERALD ST



SIGNAGE LEGEND - By Sheet	
Key Value	Keynote Text
SGN01	NEW RETRO-LOOK "RADIO" BLADE SIGN MOUNTED TO L1 FAÇADE - TO MATCH ORIGINAL HERITAGE
SGN02ex	EXISTING "RADIO THEATRE" SIGNAGE
SGN03	AWNING SIGNAGE ZONE
SGN04	"RADIO THEATRE" AWNING SIGNAGE
SGN05	AWNING SIGNAGE ZONE
SGN06	AWNING SIGNAGE ZONE
SGN07	AWNING SIGNAGE ZONE
SGN08	VENUE NAME SIGNAGE. NAME TO BE CONFIRMED
SGN09	DIGITAL DISPLAY MOUNTED ATOP AWNING
SGN10	VENUE NAME SIGNAGE. NAME TO BE CONFIRMED
SGN11	DOUBLE-SIDED LIGHT BOX SIGN MOUNTED TO UNDERSIDE OF EXISTING AWNING
SGN12	DOUBLE-SIDED LIGHT BOX SIGN MOUNTED TO UNDERSIDE OF EXISTING AWNING
SGN13	DOUBLE-SIDED LIGHT BOX SIGN MOUNTED TO UNDERSIDE OF EXISTING AWNING
SGN14	DOUBLE-SIDED LIGHT BOX BLADE SIGN
SGN15	DOUBLE-SIDED LIGHT BOX BLADE SIGN
SGN16	DOUBLE-SIDED LIGHT BOX BLADE SIGN
SGN17	LANEWAY FRONT ENTRY SIGNAGE - NAME TO BE CONFIRMED
SGN18	VENUE NAME SIGNAGE - NAME TO BE CONFIRMED
SGN19	LANEWAY REAR ENTRY SIGNAGE - NAME TO BE CONFIRMED

REFER TO SIGNAGE SCHEDULE FOR A DESCRIPTION OF THE SIGN CODES SHOWN ON THIS DRAWING

CITY OF GREATER GERALDTON
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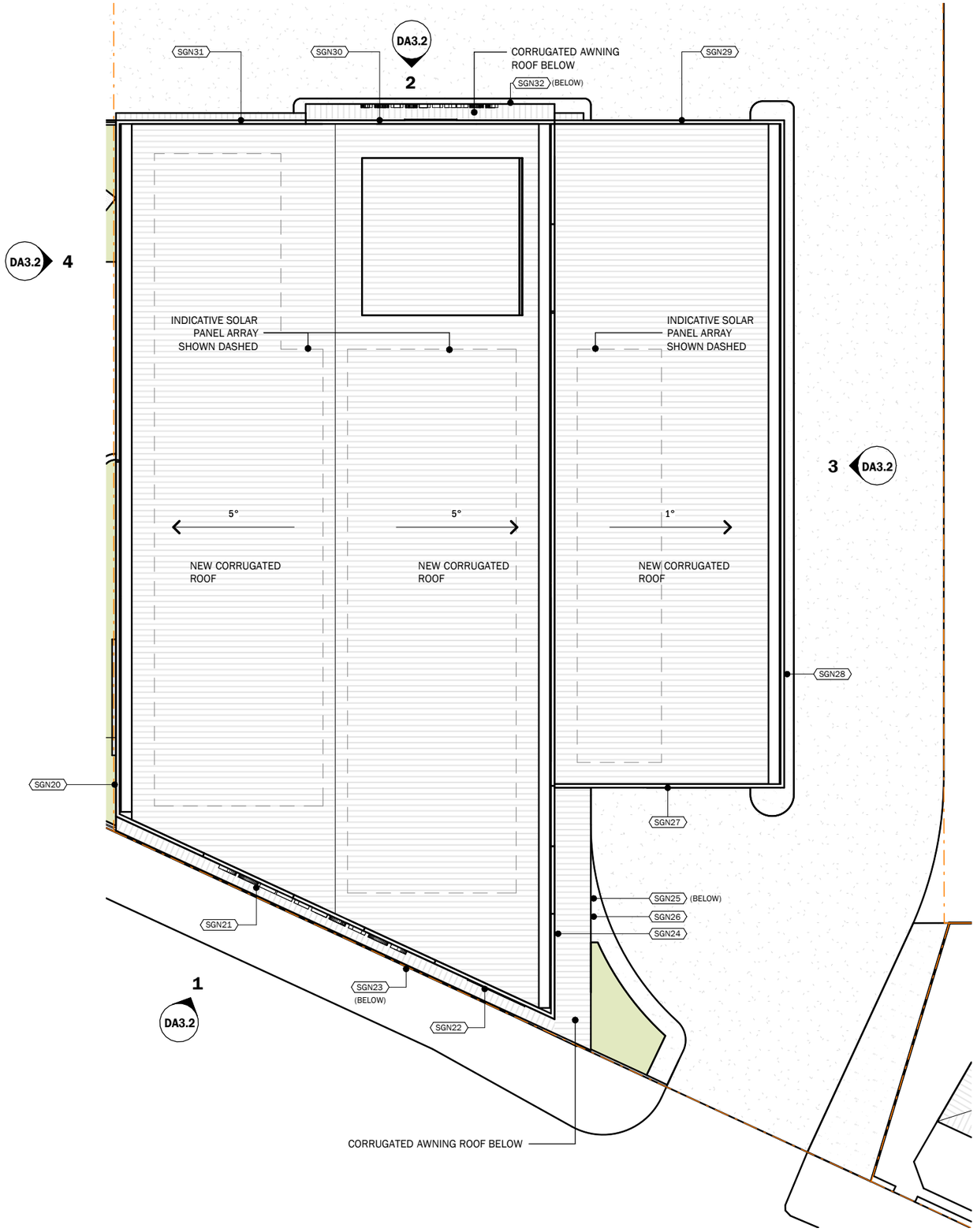
CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023



SIGNAGE LEGEND - By Sheet	
Key Value	Keynote Text
SGN20	BOTTLESHOP BRANDING
SGN21	BOTTLESHOP BRANDING
SGN22	BOTTLESHOP BRANDING
SGN23	ROTATING BOTTLESHOP DISPLAYS TO ADVERTISE PRODUCTS AND PROMOTIONS
SGN24	BOTTLESHOP BRANDING
SGN25	ROTATING BOTTLESHOP DISPLAYS TO ADVERTISE PRODUCTS AND PROMOTIONS
SGN26	DRIVE-THRU WAYFINDING SIGNAGE
SGN27	DRIVE-THRU "ENTRY" SIGNAGE
SGN28	BOTTLESHOP BRAND SIGNAGE
SGN29	DRIVE-THRU "EXIT ONLY" SIGNAGE
SGN30	BOTTLESHOP BRAND SIGNAGE
SGN31	BOTTLESHOP BRAND SIGNAGE
SGN32	ROTATING BOTTLESHOP DISPLAYS TO ADVERTISE PRODUCTS AND PROMOTIONS

REFER TO SIGNAGE SCHEDULE FOR A DESCRIPTION OF THE SIGN CODES SHOWN ON THIS DRAWING

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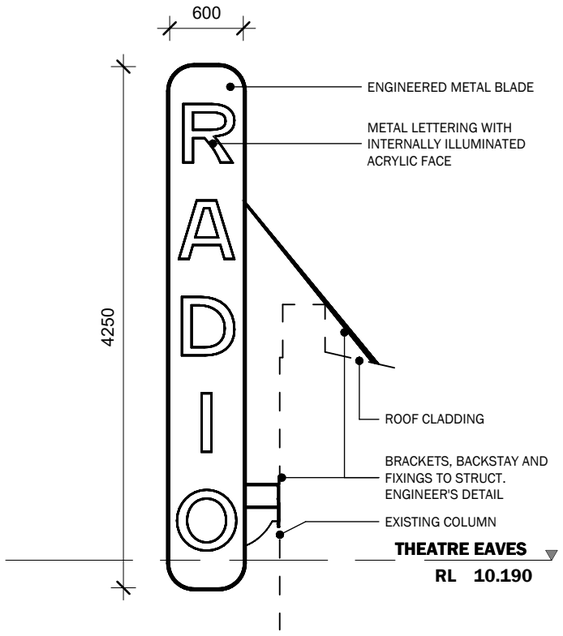
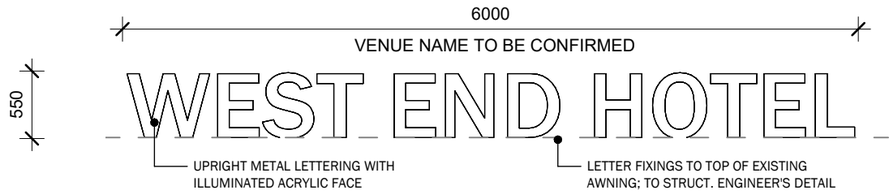
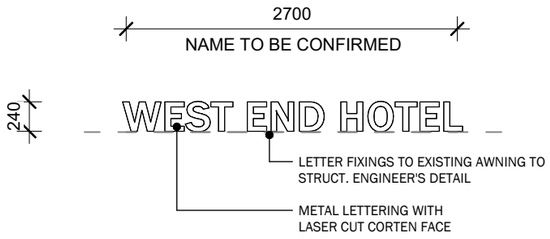


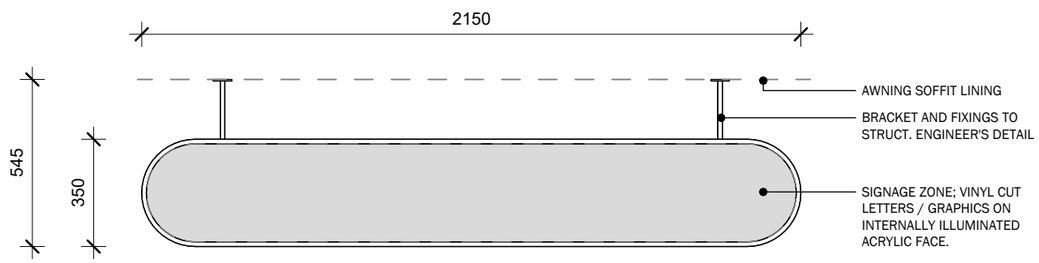
1 **NEW RETRO-LOOK "RADIO" BLADE SIGN: "SGN01"**
SCALE 1:50



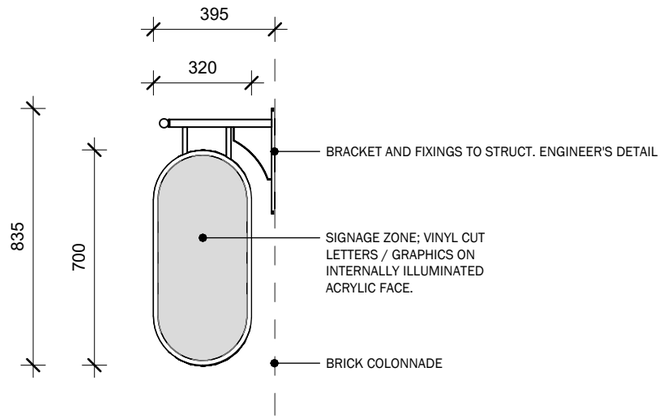
2 **VENUE NAME SIGNAGE: "SNG08" AND "SNG10"**
SCALE 1:50



3 **TYPICAL LANEWAY ENTRY SIGNAGE: "SGN17" AND "SGN19"**
SCALE 1:50



4 **TYPICAL UNDER AWNING DOUBLE-SIDED LIGHT BOX: "SGN11", "SGN12" AND "SGN13"**
SCALE 1:20



5 **TYPICAL BLADE DOUBLE SIDED LIGHT BOX: "SGN14", "SGN15" AND "SGN16"**
SCALE 1:20

NOTE: REFER TO SIGNAGE SCHEDULE FOR A DESCRIPTION OF THE SIGN CODES SHOWN ON THIS DRAWING

Appendix 3:
Heritage Impact Statement

Proposed Development

GERALDTON WEST END

Heritage Impact Statement

July 2023

Contents

Introduction

In 2009, A Detailed Area Plan and Development Guidelines were approved by the then City of Geraldton-Greenough. None of the envisaged development proceeded. This development application is for part of the DAP area.

This Heritage Impact Statement (HIS) relates to the conservation and adaptation of the *Radio Theatre* on the corner of Marine Parade and Fitzgerald Street, recycling of the Soldiers' Theatre, demolition and redevelopment of the Geraldton Beach Hotel as a non-viable proposition to retain, and the development of short stay accommodation on Lester Avenue, that incorporates some historic shops, in part. The interior development of the cinema auditorium will be submitted as a separate application.

Radio Theatre Building is included in the State Register of Heritage Places (Heritage Place no 1060). Other buildings in the group are on City lists as scheduled in the heritage listing section of this report.

All but one of the buildings has been vacant for over a decade, with only part of the *Radio Theatre* being occupied at present.

This HIS was commissioned to independently examine the proposals as part of the development application.

Summary

There are many positive dividends in the overall proposal, including the conservation works to the *Radio Theatre Building* and the loss of the Colonial Hotel and its replacement with a new building and interpretation would seem to be a balanced outcome.

Work associated with the *Radio Theatre Building,* The Soldiers'/Kings Theatre building elements, and the Lester Avenue shops are all very good heritage outcomes that well compensate for the sacrifice of the hotel.

The completed project will provide a good conservation outcome for the building group, increase activity in the area and provide passive surveillance to this end of the town.

Location

The proposed development site is located at the *Radio Theatre* 205-207 Marine Terrace, The Colonial Hotel, 15 Fitzgerald Street and Shop 236-238 Lester Avenue.

Figure 01: Aerial photograph of subject site. State Registered curtilage shown red. *Landgate 2023.*

Heritage Listings

Radio Theatre (Heritage Place no 1060)

Heritage Council – State Register of Heritage Places 15 December 2015

City of Greater Geraldton – Municipal Heritage List December 2015

City of Greater Geraldton – Municipal Inventory June 1998

Soldiers' Theatre/Kings Theatre (Heritage Place no 26652)

City of Greater Geraldton Municipal Heritage List September 2010 (As a Category 2 Place)

Colonial Hotel (Heritage Place no 13383)

City of Greater Geraldton Municipal Heritage List December 2015

City of Greater Geraldton Municipal Inventory June 1998

Shop 236-238 Lester Avenue (Heritage Place no 13434)

City of Greater Geraldton Municipal Heritage List December 2015

City of Greater Geraldton Municipal Inventory June 1998

Background

Radio Theatre

Historic Background

Radio Theatre was built as a theatre and garage, with apartments at the first-floor level for Alfred Wheat, a longstanding Geraldton businessman. It was designed by architect Samuel Rosenthal in the Art Deco style. It was completed in 1937 and ran until 1988, when there were brief periods of operation as a nightclub and a church.

Physical Evidence

Radio Theatre Building, is a two-storey rendered brick and fibre cement roofed building designed in the Inter-War Art Deco style that originally comprised a picture theatre, service station, motor showroom, two shops and four flats. It has been reconfigured a number of times to turn the garage into shops and the raked floor of the auditorium removed to make a flat floor. It is generally in poor condition and has lost some of its external detail in ill-advised maintenance regime.

Soldiers' / Kings Theatre

Historic Background

The theatre was in existence by the time Wheat arrived in Geraldton in 1921, well before the construction of the *Radio Theatre Building,* and it was on the same Lot as the Radio Theatre. After closing as a theatre, it had various uses, including, garage, archery and a camping goods store.

Physical Evidence

The building comprises the original theatre constructed in timber frame, with a front entrance brick gable end and brick bracing panels. It has an iron framed, iron clad roof, together with a single storey shop at the front that is to be demolished to reveal the original theatre frontage.

A structural report prepared by Quoin Consulting in 2021 assessed the building as being incapable of repurposing as it stands.

Colonial Hotel

Historical Background

Originally called the Shamrock Hotel, it was built c1881 by the Quinn family from Ireland. One of the first hotels to be built in Geraldton, it was originally a single-story building with the top floor added

later, as was the practice with many of Geraldton's early buildings. It was a favourite hotel with the sea men.

Physical Evidence

This large painted and rendered brick two storey building has a large extension to the rear which forms an L-shaped structure. There is a skillion roof to the main (front) section with a hipped roof to the rear. A low parapet runs around the building and bears the name of the hotel "GERALDTON BEACH HOTEL". Windows are timber framed and double hung to the ground floor with bayed metal grilles. Upper floor windows are aluminium framed with blue painted shutters as decoration. Two aluminium framed entry doors are located to the street facade. A bottle shop operates from the side of the building.

A structural report prepared by Quoin Consulting in 2021 identified deterioration in the masonry due to the building having its basement walls in water and wicking taking place in the walls.

The report concludes:

> The main building is of heavy masonry construction and, from a structural perspective, appears to have performed adequately over its life. However, there are significant issues that now affect the operations.
>
> (e.g., areas not safe to use), comfort (e.g., leaks, high humidity), running costs (e.g., ongoing plumbing and roof repairs) and the possible durability of the masonry walls into the future. It is possible that these issues could be remediated, but they are extensive. We cannot comment on the probable cost of these repairs and recommend that the owners obtain a budget estimate to inform their decision making.

The building condition related issues make its retention hard to justify and has a negative impact in terms of investment and return.

Shop 236-238 Lester Avenue

Historic Background

Little is known about these two shops, but they are believed to have dated from the 1880s.

Physical Evidence

This rectangular shaped stone building fronts directly onto the footpath of Lester Avenue, the street facade of which is rendered. A hipped corrugated iron roof is punctuated by a low, centrally placed dividing parapet wall. There is a small bull nosed verandah supported on timber posts to the east elevation which is a later addition. Most of the original windows have been replaced with aluminium framed windows. To the rear of the building is a lean-to roof with a hardiplank clad extension attached.

Statement of Significance

To assist in assessing heritage impacts, the significance from various heritage listings are shown below in this section.

Radio Theatre Building-State Register

Radio Theatre Building (fmr), a two-storey rendered brick and fibre cement roofed building designed in the Inter-War Art Deco style that originally comprised a picture theatre, service station, motor showroom, two shops and four flats, has cultural heritage significance for the following reasons:

the place is a fine, relatively intact example of Inter-War Art Deco architecture combining strong horizontal and vertical streamlining with stylised decorative features;

the place is a good example of the work of prominent architect Samuel Rosenthal, being one of the few remaining of his theatre designs and a rare example of an Art Deco styled picture theatre outside the Perth metropolitan area;

representative of a prevalent trend in Western Australia in the 1930s, the place was constructed to house a number of disparate activities;

the place makes a positive contribution to the southern end of the Marine Terrace streetscape displaying lively and appropriately scaled façades and an attractive entry statement at a prominent intersection within the Geraldton city centre;

the place was purpose-built to house the theatre and motor vehicle business activities of Alfred G. Wheat, longstanding Geraldton businessman, whose family has been associated with the place from 1937 to 1976; and,

the place contributes to the Geraldton and surrounding community's sense of place as a significant two-storey building on Marine Terrace, which has provided an important continuity in use of the area for residents.

The glazed shopfront infill at ground level along both Marine Terrace and Fitzgerald Street has little significance and the face brick panels surrounding the entrance doors on Marine Terrace are visually intrusive. All fences and gates are intrusive.

Soldiers'/Kings Theatre (Inventory and Scheme List Category 2)

The King's Picture Theatre Fmr has considerable historic significance as the oldest remaining cinema building in Geraldton. The place has further significance for its role in assisting with the rehabilitation of returned First World War servicemen and for its long association with well known local business identity, Alfred Wheat from 1921 to 1976. The building is a rare example of a large structure of corrugated iron construction and although altered internally and externally, still retains some of its original features and detailing. Further the place forms part of a "Cinema Precinct", inclusive of the adjacent 1930s Radio Theatre Building and the modern Cinemas Complex opposite, which is evidence of the social value of cinema in the local community as well as the development of the technology over time.

Colonial Hotels/Geraldton Beach Hotel (Inventory and Scheme List Category 2)

The Geraldton Beach Hotel contributes to the built environment of the central business district of Geraldton given its large, and somewhat imposing scale. Although altered and extended over time, the place still retains some aesthetic value for its presentation to Fitzgerald Street as well as some interior spaces which remain relatively intact. Further the place has considerable historic significance as one of the earliest hotels built in Geraldton.

Shops 236-238 Lester Avenue (Inventory and Scheme List Category 2)

The stone building at 236-238 Lester Avenue has some historic significance as a business premise which has operated in Geraldton since the c1880s. The use of local materials, the small scale and simple style of the building combine to give the place considerable aesthetic appeal. The streetscape value of the building is further enhanced by its direct frontage onto the footpath.

Conservation Policy

Radio Theatre Building-State Register

Radio Theatre Building has the protection of the Heritage Act 2018 and a Conservation Management Strategy, prepared by Griffiths Architects in 2023 to guide its future conservation and development. The plan identifies what is significant about the place, suggests what should be retained and how it should be conserved. The conservation works identified in the conservation strategy will be implemented as part of this development proposal.

Soldiers'/Kings Theatre (Inventory and Scheme List Category 2)

The management category suggests that the place is very important to the heritage of the locality. It goes on to recommend the conservation of the place, with any proposed changes not unduly impacting on the heritage values of the place along with the retention of significant fabric.

Colonial Hotels/Geraldton Beach Hotel (Inventory and Scheme List Category 2)

The management category suggests that the place is very important to the heritage of the locality but makes no recommendations on management.

Shops 236-238 Lester Avenue (Inventory and Scheme List Category 2)

The management category suggests that the place is very important to the heritage of the locality. It goes on to recommend that any proposed change should not unduly impact on the heritage values of the place and should retain significant fabric wherever possible.

A) Demolition

Radio Theatre Building-State Register

Radio Theatre Building will have its fences and outbuildings demolished, none of which have any significance. In addition, there will be some openings made in the rear or east shop wall of the Fitzgerald Street side of the building, the south end of the same section and demolition of some later internal walls and toilet fittings and fixtures.

Radio Theatre and Motors 1950. *Geraldton Guardian Express,*10 April 1937.

A number of openings will be infilled to achieve fire separation, but this work will be done to accord with conservation practice.

Soldiers'/Kings Theatre (Inventory and Scheme List Category 2)

The structural engineer's report has deemed the Soldiers'/Kings Theatre structure as a whole to be unsafe and that the roof trusses are incapable of carrying the required loads. Masonry front elevation apart, the theatre is in very poor condition.

All but the original masonry external walls of the Soldiers' Theatre will be removed, leaving the original brick theatre front revealed. The roof trusses of the theatre have some historic interest and integrity and will be removed and set aside for re-use. The retained sections of masonry are the original front façade of the theatre and two substantial stiffening side walls.

The trusses will be recycled and conserved, then protected.

The fabric to be removed from the Soldiers'/Kings Theatre include;

- All fabric associated with the showroom located at the west end of the building. A latter addition.
- The rear stage annexure located at the east end of the building.
- All internal partitions, fixtures and stairs.

The pressed metal reveal around the proscenium arch will be retained and re-used in the new development.

Soldiers' Theatre prior to closure. *Courtesy Jeff Wheat (grandson of owner).*

Colonial Hotels/Geraldton Beach Hotel (Inventory and Scheme List Category 2)

The whole of the hotel is to be demolished for a replacement building.

Shops 236-238 Lester Avenue (Inventory and Scheme List Category 2)

The peripheral building additions are to be removed to reveal the original stone walls to the pair of shops.

B) Construction

Radio Theatre Building-State Register

Aside from urgent conservation works the Marine Terrace side of the building will be set up as a bar and the later shop wall between shop and lobby removed to re-unite these spaces. The remainder of the shops along Fitzgerald Street will become a front bar. There will be alfresco areas to the south and between the wings of the building and a laneway created to the south of these areas. The rhythm and theme of the theatre will be used to frame the alfresco area.

Conservation work recommended in the conservation plan will be included in the work, including façade restoration and painting, re-pointing, treatment of corroded steel, replacement of the asbestos cement roofs and replacement with corrugated steel sheeting, restoration of windows, and renewal of

all the non-original shopfronts in a manner to match the original shopfront expression. The awning will be stripped, rust treated and reclad to match the existing details and the ACM removed from the soffit and replaced with metal. An attempt will be made to determine the original treatment and whether or not it can be reinstated.

The auditorium will be developed at a later stage and the flats above will also be held over until a later stage. There will be separate development applications for that work.

The approach is one of conservation and adaptation.

Soldiers'/Kings Theatre (Inventory and Scheme List Category 2)

The original main front wall will be revealed, retained and conserved, along with the north and south external walls. The pressed metal from the proscenium arch will be salvaged and re-applied to the building interior.

This site will be completely redeveloped internally and externally to food and beverage in a contemporary manner with a combination of back of house, kitchen, bars, indoor dining, alfresco and children's' play.

The pub will be a large volume like the theatre and the existing salvaged roof trusses will be used in its construction.

The kitchen will be located in the area of the old theatre stage area.

Colonial Hotels/Geraldton Beach Hotel (Inventory and Scheme List Category 2)

This site will become retail liquor and drive through bottle shop and the hotel interpreted.

Shops 236-238 Lester Avenue (Inventory and Scheme List Category 2)

The historic structure will be retained, and short stay accommodation built over the remainder of the round level of the site. This will be a three-storey concrete and metal clad structure wrapping around the historic building.

The shops will be used for reception and management. The structure will be conserved in the process.

In reviewing the Statement of Significance for the Australian Fine China, Subiaco complex, impacts the impacts and mitigation are evaluated against the various statements of significance.

Radio Theatre Building

Heritage Values	Potential Impact Analysis	Degree and Intensity of Impacts and Mitigation
The place is a fine, relatively intact example of Inter-War Art Deco architecture combining strong horizontal and vertical streamlining with stylised decorative features.	The external features will only be conserved and in some instance re-constructed.	These strategies will have a positive impact on presentation and heritage values.
The place is a good example of the work of prominent architect Samuel Rosenthal, being one of the few remaining of his theatre designs and a rare example of an Art Deco styled picture theatre outside the Perth metropolitan area.	The remaining and most important parts of the design will remain and be conserved, and utilities upgraded.	The impacts are positive.
Representative of a prevalent trend in Western Australia in the 1930s, the place was constructed to house a number of disparate activities.	This will remain the case, though the activities will be new to the place.	The impacts will be positive.
The place makes a positive contribution to the southern end of the Marine Terrace streetscape displaying lively and appropriately scaled façades and an attractive entry statement at a prominent intersection within the Geraldton city centre.	The conservation works will enhance presentation.	The impacts will be positive.
The place was purpose-built to house the theatre and motor vehicle business activities of Alfred G. Wheat, longstanding Geraldton businessman, whose family has been associated with the place from 1937 to 1976.	This historic value will remain, though the activities will be different.	The impacts are neutral.
The place contributes to the Geraldton and surrounding community's sense of place as a significant two-storey building on Marine Terrace, which has provided an important continuity in use of the area for residents.	Arguably this value will be enhanced, and the increased activity will reactivate this part of the town.	The impacts will be positive.

Colonial Hotel/Ocean Beach Hotel

Heritage Values	Potential Impact Analysis	Degree and Intensity of Impacts and Mitigation
The Geraldton Beach Hotel contributes to the built environment of the central business district of Geraldton given its large, and somewhat imposing scale. Although altered and extended over time, the place still retains some aesthetic value for its presentation to Fitzgerald Street as well as some interior spaces which remain relatively intact. Further the place has considerable historic significance as one of the earliest hotels built in Geraldton.	These values will be lost completely.	Interpretation of the hotel will be included in the proposal and will offer some mitigation of the loss of the fabric, while telling the story of the place.

Shops 236-238 Lester Avenue

Heritage Values	Potential Impact Analysis	Degree and Intensity of Impacts and Mitigation
The stone building at 236-238 Lester Avenue has some historic significance as a business premise which has operated in Geraldton since the c1880s. The use of local materials, the small scale and simple style of the building combine to give the place considerable aesthetic appeal. The streetscape value of the building is further enhanced by its direct frontage onto the footpath.	This value will to a large extent be retained by the conservation and adaptation of the shops to suit their new purpose.	This value will be enhanced and represented.

Soldiers'/Kings Theatre

Heritage Values	Potential Impact Analysis	Degree and Intensity of Impacts and Mitigation
The King's Picture Theatre Fmr has considerable historic significance as the oldest remaining cinema building in Geraldton. The place has further significance for its role in assisting with the rehabilitation of returned First World War servicemen and for its long association with well known local business identity, Alfred Wheat from 1921 to 1976. The building is a rare example of a large structure of corrugated iron construction and although altered internally and externally, still retains some of its original features and detailing. Further the place forms part of a "Cinema Precinct", inclusive of the adjacent 1930s Radio Theatre Building and the modern Cinemas Complex opposite, which is evidence of the social value of cinema in the local community as well as the development of the technology over time.	This value will to some extent be retained by the conservation of retained original fabric. The proposed adaptation of the building largely retains the original form of the theatre building.	The revealing of the main (front) elevation will enhance this identified heritage value. The removal of some fabric, original and latter, results in a minor impact on these values.

Conclusion

This part of Geraldton has been derelict for some time and the re-activation of the area is important for the town and its heritage.

There are many positive dividends in the overall proposal and the loss of the Colonial Hotel and its replacement with a new building and interpretation would seem to be a balanced outcome.

Work associated with the *Radio Theatre Building,* The Soldiers'/Kings Theatre building elements, and the Lester Avenue shops are all very good heritage outcomes that well compensate for the sacrifice of the hotel.

References

Benson Studio.2023. *Geraldton Pub* Drawing Set.

Cameron Chisholm and Nicol. *Short Stay Accommodation* Drawing Set.

City of Greater Geraldton Municipal Heritage List Colonial Hotel (Heritage Place no 13383) and Shop 236-238 Lester Avenue (Heritage Place no 13434).

City of Greater Geraldton Municipal Inventory Colonial Hotel (Heritage Place no 13383) and Shop 236-238 Lester Avenue (Heritage Place no 13434).

Griffiths Architects, *Radio Theatre, West End, Geraldton-Conservation Management Strategy* February 2023.

Register of Heritage Places *Radio Theatre* (Heritage Place no 1060).

Appendix A: Engineer's Report

RE: Geraldton Beach Hotel
Commentary on Structural Damage and Repairs

Background

On 9 September 2021, completed a due diligence inspection of the Geraldton Beach Hotel. I completed that inspection, together with another structural engineer, when we were employed at The owners have now requested a brief summary of the structural issues relating to the building and an indication of the remedial works that may be required.

The key issues identified at the time of the inspection are summarised below under separate headings. The photographic record can be provided on request.

Rising Damp

Rising damp was observed across much of the building, evidenced by stains, blistering and plaster loss on the interior faces of many ground floor walls. Similar evidence was found on the exterior faces of the walls, but to a lesser degree. Many rooms on the ground floor also felt humid. The damp issue was exacerbated by the exterior and interior faces of the walls being sealed with paint, possibly with impermeable cement render applied to the exterior faces. This severely limited the ability of the walls to lose trapped moisture to the air (i.e., to 'breathe'). In one location where the exterior masonry was exposed, severe deterioration of the brickwork (fretting) was observed. It is possible that long term exposure to high levels of damp may have caused more extensive masonry deterioration of this type.

To remediate the rising damp, investigations would need to be conducted to determine the severity of the damage to the masonry. If remediation is possible, several steps would need to be followed as outlined below.

- Remove exterior paint coating throughout the ground floor and possibly the first floor.
- Remove exterior render, unless tests can show that the render is sufficiently permeable to allow the masonry to breathe adequately.
- Scarify the interior plaster walls throughout and dehumidify the masonry by mechanical means.
- Expose and assess the condition of the footings. Determine any remedial works required such as lowering the soil level, adding or redirecting drainage, removing coatings on the footings (if any).

- Assess the condition of the masonry to determine if deterioration is significant and whether remedial works are required or possible.
- Complete any remedial works to the footings and masonry.
- Determine presence of a masonry cavity (if any) and damp proof course and determine the path of rising damp. Develop an approach to minimising rising damp.
- Install remediation to minimise rising damp, throughout the ground floor (possible exception of later masonry construction). Note that internal floors may need to be partially taken up for this work.
- Determine final exterior appearance (exposed masonry would be the preferred option to allow maximum breathing).
- Obtain advice on building ventilation and install ventilation accordingly.
- Once the moisture level in the masonry has returned to an acceptable level, replaster and finish the interior walls.

Tidal Flow into Basement

We were shown an access hatch below ground floor level to a basement area. It was not possible to access this area due to the presence of ground water. I understand that the basement was subject to tidal changes in water level. Methods to exclude water ingress into this area, or to manage the tidal flow at least, is beyond our area of expertise. We were not able to collect any evidence to determine whether or not this water had adversely affected the adequacy of the footings or elements of the superstructure such as the ground floor framing. Masonry cracks were observed in different parts of the building, but nothing to indicate that parts of the building had settled due to the condition of the footings or the foundation material. Nonetheless, tidal water flow should be considered as a longer term risk to the condition and adequacy of the building and steps should be taken to manage or exclude the tidal flow. It may be advisable to seek geotechnical or other expert advice on this matter.

Spongy and Sagging Timber Floors

This issue was observed in the Shamrock Bar (west side of the building), the Breakfast Room (south-west corner), the Public Bar and in the office adjacent to the Colonial Bar. The issue was most significant in the Shamrock bar; access into this area should be avoided and access by the public prohibited. We could not inspect below floor level to determine the cause of this issue. It is likely a result of insect damage and/or rot from tidal water ingress from below. All the areas listed above will need to have the floorboards lifted carefully and safely, the cause of the damage confirmed, and remediation works completed. If tidal water has caused any of the damage, then careful consideration will need to be given to the design and installation of a new subfloor that is not prone to future rot.

Moisture Ingress From Above

In many areas of the upper storey, ceilings and walls showed staining from moisture ingress (Lounge Room, men's and women's toilets, corridors and some hotel rooms). Some ground floor areas also showed this type of damage. Ceilings had been repainted locally in places, suggesting previous water damage. The landlord informed us that the roof leaked in many locations including the Public Bar and the upper storey Lounge Room. The roof sheeting, where observed, was in poor to average condition and small holes were observed in some locations. Moisture staining of some roof timbers was observed, although the roof timberwork appeared to be in good serviceable condition. As a minimum, the entire roof sheet will need to be replaced. In some locations this will be complicated by the presence of air conditioning units and pipework located on the rooftop.

The skillion roof over the Public Bar extension is at a particularly shallow angle and inadequate for shedding storm water. Consideration must be given to changing the roof and wall structure to increase the angle, or to demolishing this extension entirely and reconstructing a new extension if desired.

Corroding Lintels

The masonry directly above the windows, particularly on the Fitzgerald Street facade, is damaged to varying degrees as evidenced by cracks, render delamination and some exposed lintels. This is indicative of corroded lintels. Deterioration will continue, and typically accelerate, as corrosion progresses and pressure from the corrosion product cracks the masonry and delaminates the render. The lintels will need to be remediated by exposing them fully, removing rust and applying a protective coating, or possibly by replacement if corrosion is too advanced. The masonry damage can then be remediated, and any new coatings applied over the masonry (subject to the findings of the damp issue discussed above).

Other Issues

Other identified issues are listed below:

- Parapet cracks (Fitzgerald Street façade) which should be investigated to ensure the parapet is structurally adequate. Repairs to be completed accordingly.
- Severely corroded steel fire escape will need to be remediated or replaced.
- Minor masonry cracks in localised places throughout the building. Extensive cracking on the Fitzgerald Street façade which may be cosmetic.
- Termite damage to window frames which will need to remediated or replaced.
- Ongoing plumbing issues, as communicated by the landlord. Currently managed by having plumbers in regular attendance.

Summary

The main building is of heavy masonry construction and, from a structural perspective, appears to have performed adequately over its life. However, there are significant issues that now affect the operations (e.g., areas not safe to use), comfort (e.g., leaks, high humidity), running costs (e.g., ongoing plumbing and roof repairs) and the possible durability of the masonry walls into the future. It is possible that these issues could be remediated, but they are extensive. We cannot comment on the probable cost of these repairs and recommend that the owners obtain a budget estimate to inform their decision making.

Appendix 4:
Traffic Impact Assessment

Revision	DATE	Description	Author	Reviewed by	Approved by
A	11 July 2023	For Issue	LL	DH	RJC
B	28 July 2023	Minor Update	LL	DH	RJC
C	10 August 2023	Minor Update -Rev C reissue	LL	DH	RJC
D	14 August 2023	Minor Update – Reissue	LL	DH	RJC

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2.1 SITE LOCATION AND CONTEXT

The site is located within the City of Greater Geraldton. The subject Site is located 400km to the north of Perth Central Business District. The proposed development is located at the corner of Marine Terrace / Fitzgerald Street / Lester Avenue intersections. The site is bounded by Fitzgerald Street to the west, Marine Terrace to the north and Lester Avenue to the south. **Figure 2-1** shows an aerial image of the site.

Figure 2-1 Aerial Image of the Site

Source: MetroMap (2023)

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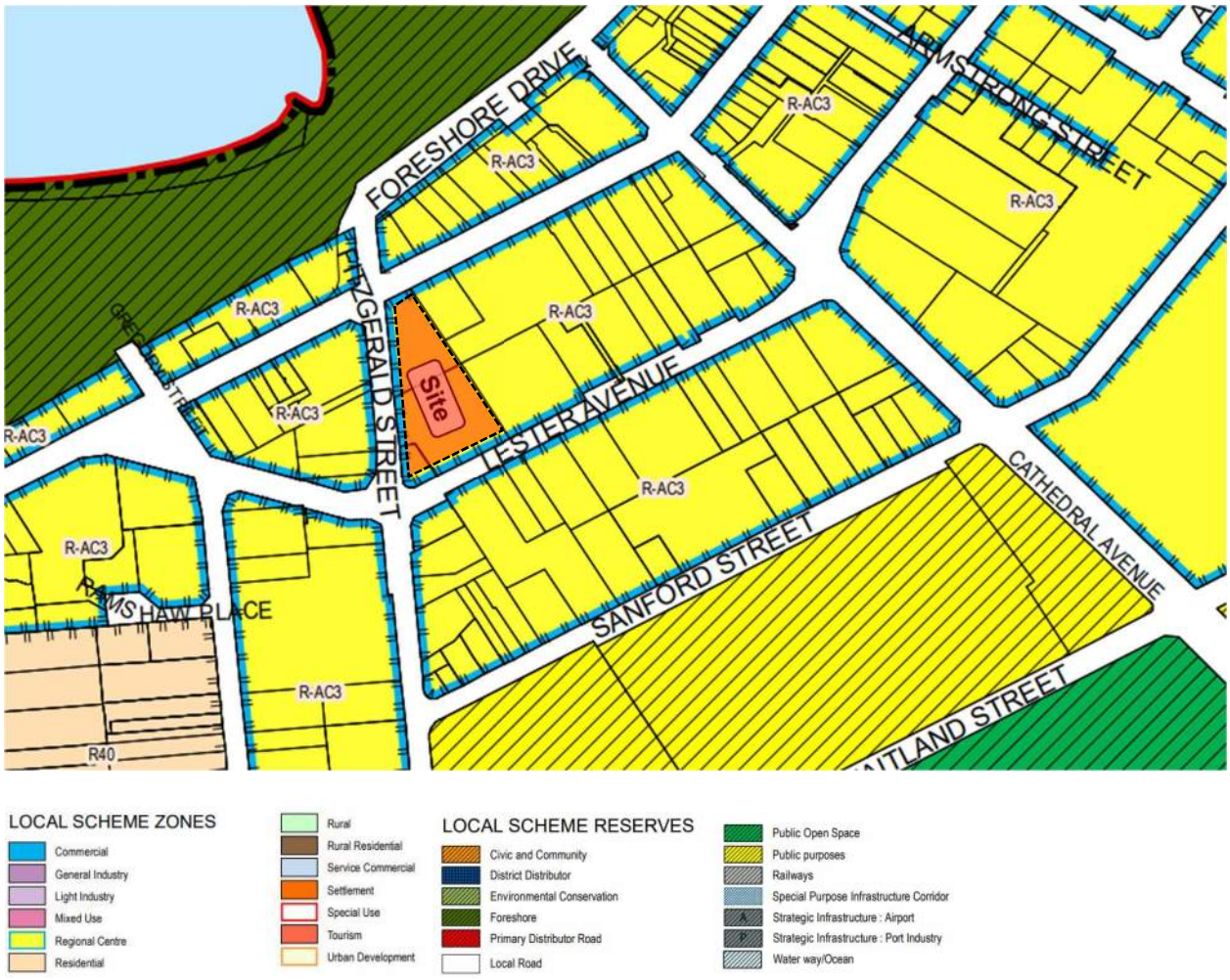
Figure 2-1 Aerial Image of the Site

Source: MetroMap (2023)

2.2 ZONING

Pursuant to the provision of the *City of Greater Geraldton LPS No.1,* the Site is zoned "*Regional Centre*". The Site is surrounded by other regional centre land uses to the east, west and south. North of the site is zoned as foreshore area. **Figure 2-2** shows the *Scheme* map.

Figure 2-2 City of Greater Geraldton Zoning



Source: City of Greater Geraldton LPS No.1

2.3 EXISTING ROAD NETWORK

Road Classifications are defined in the Main Roads Functional Hierarchy as follows:

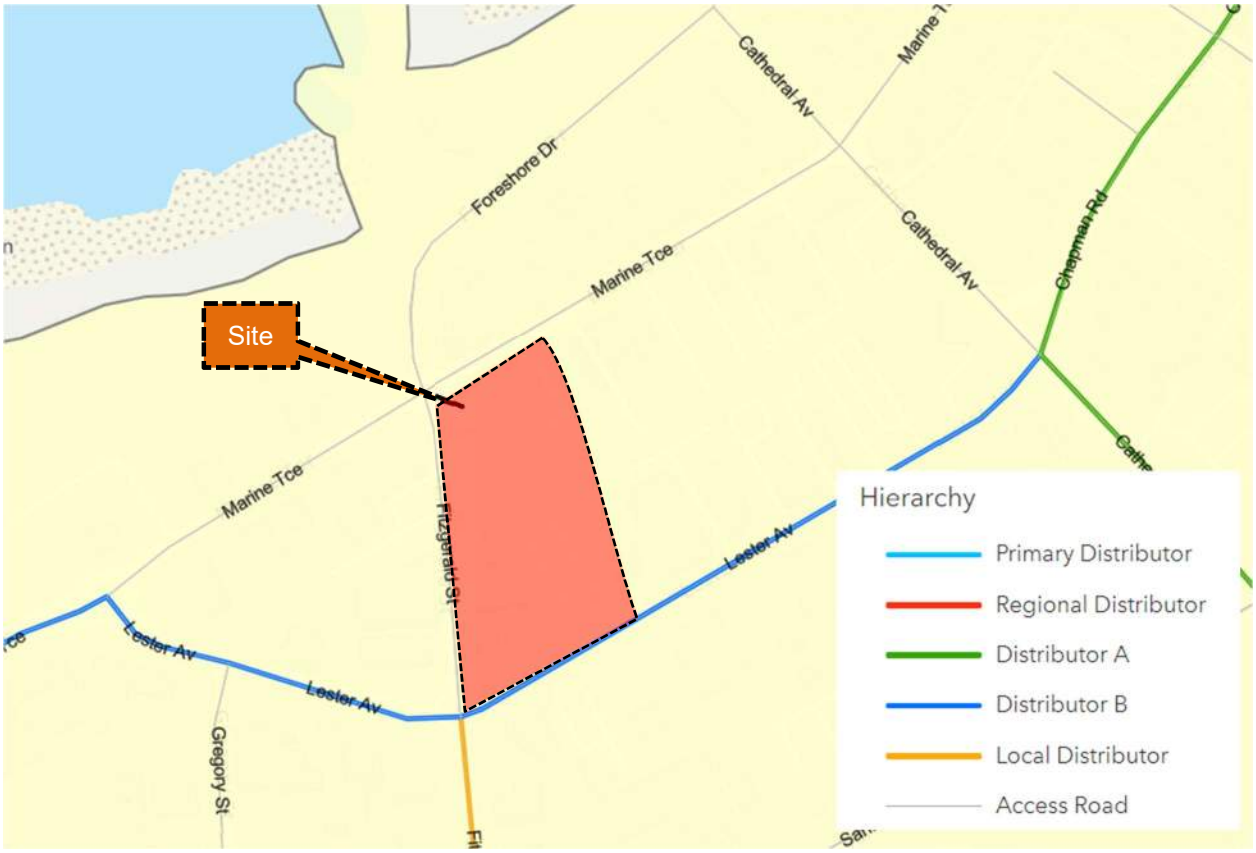
- **Primary Distributors (light blue):** Form the regional and inter-regional grid of Main Roads WA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes and all are National or State roads. They are managed by Main Roads.
- **Regional Distributors (red):** Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- **District Distributor B (dark blue):** Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside the adjoining property. These are often older roads with traffic demand in excess of what was originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.
- **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian-friendly. They are managed by Local government.

The surrounding road network is further described in **Table 2-1** and **Figure 2-3** shows the hierarchy as per the Main Roads WA Road Information Mapping System.

Table 2-1 Road Network Classification

Road Name	Road Hierarchy		Road Characteristics			
	Road Hierarchy	Road Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Lester Ave	Access Road	Local Government	2	2	11.2m (including parallel parking bays on both sides)	50
Fitzgerald Street	Access Road	Local Government	2	2	9.95m (including parallel parking bays on both sides)	50
Marine Terrace	Access Road	Local Government	2	2	14.25m (including 2m median & parallel parking on both sides)	50

Figure 2-3 Road Hierarchy



Source: Road Mapping and Information System

2.4 EXISTING KEY INTERSECTIONS

2.4.1 Marine Terrace / Fitzgerald Street Intersection

Marine Terrace / Fitzgerald Street intersection is located to the north west of the site. The intersection is a four-legged roundabout as illustrated in **Figure 2-4.**

Figure 2-4 Marine Terrace / Fitzgerald Street Intersection

Source: Metromap

2.4.2 Lester Avenue / Fitzgerald Street Intersection

Lester Avenue / Fitzgerald Street intersection is located to the south west of the site. The intersection is a four-legged roundabout as illustrated in **Figure 2-5.**

Figure 2-5 Lester Ave / Fitzgerald St Intersection

Source: Metromap

2.4.3 Lester Avenue / Cathedral Avenue / Chapman Road Intersection

Lester Avenue / Cathedral Avenue / Chapman Road intersection is located to the east of the site. The intersection is a four-legged signalised intersection as illustrated in **Figure 2-6.**

Figure 2-6 Lester Ave / Cathedral Ave / Chapman Road

Source: Metromap

2.5 EXISTING TRAFFIC VOLUMES

The existing traffic volumes for the surrounding road network were sourced from traffic count data provided by City of Greater Geraldton pneumatic tube counts. The existing average daily peak hour traffic volumes are summarised in **Table 2-2.**

Table 2-2 Two-way Annual Average Daily Traffic (AADT)

Road Name	Date	Source	Average Two-way Daily Traffic Volume	AM Peak Hour	PM Peak Hour	HV %
Marine Terrace (88m East of Portway)	2022	City of Greater Geraldton	4,036	341	308	-
Foreshore Dr (50m south of Forrest St)	2015	City of Greater Geraldton	4,199	370	380	-
Marine Terrace (40m west of Fitzgerald St)	2020	City of Greater Geraldton	2,565	228	230	-
Marine Terrace (Fitzgerald St -Lester Ave)	2019	City of Greater Geraldton	3,772	373	378	-
Cathedral Ave (50m west of Marine Terrace)	2018	City of Greater Geraldton	2,921	330	312	5.5%

2.6 CRASH ASSESSMENT

A crash assessment for the surrounding road network of the Site has been completed using the Main Roads WA Reporting Centre. The assessment covers all the recorded accidents between 1 January 2018 and 31 December 2022 and the results are summarised in **Table 2-3** to **Table 2-6. Figure 2-7** illustrates the crash locations and their severity.

Table 2-3 Total Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Right Angle	-	-	-	8	1	9
Sideswipe Same Direction	-	-	-	5	3	8
Hit Object	-	1	-	2	-	3
Rear End	-	-	-	2	5	7
Right Turn Thru	-	-	1	2	-	3
Hit Pedestrian	-	1	-	-	-	1
Unspecified	-	-	-	-	3	3
Total	**-**	**2**	**1**	**19**	**12**	**34**

Table 2-4 Fitzgerald St / Lester Avenue Intersection Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	**-**	**-**	**-**	**1**	**-**	**1**
Hit Object	-	-	-	1	-	1
Rear End	**-**	**-**	**-**	**2**	**1**	**3**
Total	-	-	-	4	1	5

Table 2-5 Lester Avenue / Cathedral Ave / Chapman Rd Intersection Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	-	-	-	-	1	1
Right Angle	-	-	-	3	-	3
Hit Object	-	1	-	-	-	1
Right Turn Thru	-	-	1	1	-	2
Rear End	-	-	-	-	1	1
Unspecified	-	-	-	-	1	1
Total	**-**	**1**	**1**	**4**	**3**	**9**

Table 2-6 Midblock Crashes

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Fitzgerald St	-	-	-	1	1	2
Lester Av	-	1	-	10	7	18
Total	-	1	-	11	8	20

Figure 2-7 Crash Locations

Source: Maps.co

The crashes recorded are summarised below:

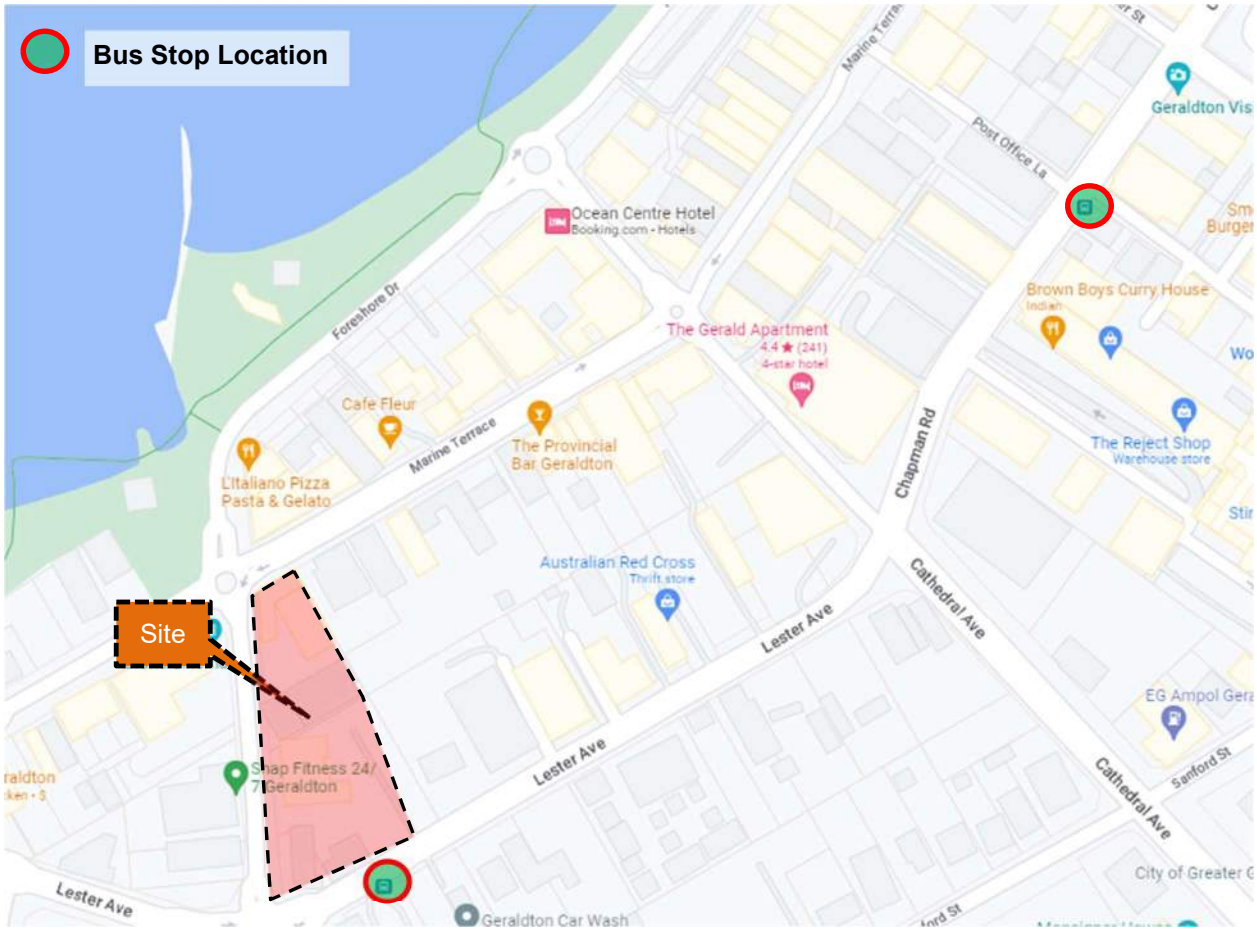
- A total of 34 crashes was recorded in close proximity to the Site.
- Majority of the crash severity recorded are Major Property Damage (19 incidents) and Minor Property Damage (12 incidents).
- 2 crashes recorded required hospitalisation and 1 crash required medical attention.
- No fatal crash was recorded near the Site.

It is very unlikely that this development would have any material impact on road safety in the area.

2.7 EXISTING PUBLIC TRANSPORT FACILITIES

The site is served by Trans WA Bus Route 800 (Geraldton- Circular Route via Central Regional TAFE & Geraldton Hospital) along Chapman Road / Lester Avenue to the south of the site. This bus route provides half hourly service between 9.00 am and 2.30 pm and hourly service from 2.30 pm to 7.00 pm on weekdays and a service every hour on Saturdays between 9.00 am and 3.00 pm. The nearest bus stop is located approximately 380m to the south of the site as shown in **Figure 2-8**. **Table 2-7** shows the bus route and frequency and **Figure 2-9** shows the existing public transport services in the area.

Figure 2-8 Bus Stop Location



Source: Google Maps

Table 2-7 Bus Route and Frequencies

Route	Route Description	Weekday Peak Frequency	Weekend Peak Frequency
800	Geraldton Circular Route (Via Central Regional TAFE & Geraldton Hospital)	30 minutes	60 minutes

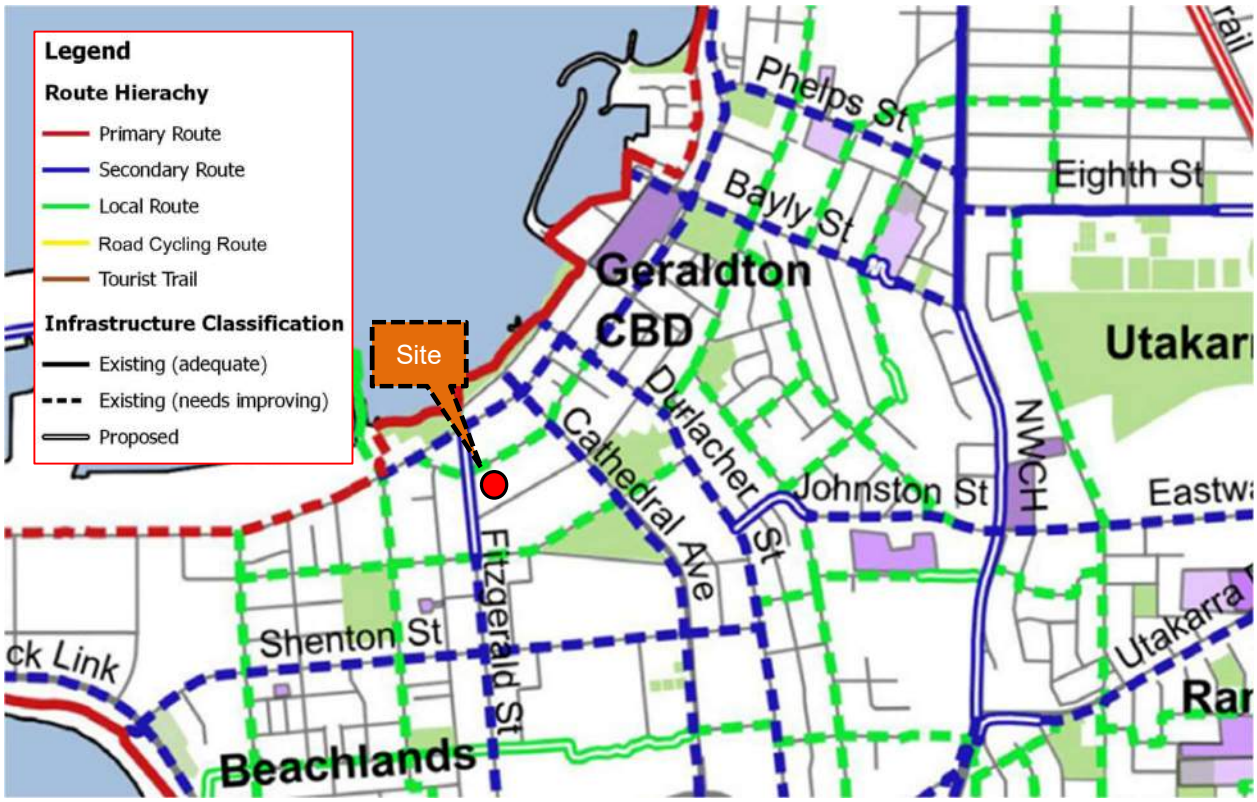
Figure 2-9 Existing Bus Routes

Source: Trans WA Maps

2.8 EXISTING PEDESTRIAN/CYCLE NETWORKS

Footpaths are provided on both sides along Foreshore Drive to the north of the site and cycling lanes have been provided along Foreshore Drive. The City's existing cycling infrastructure typically consists of shared paths of varying quality and a small number of sporadic, unprotected bike lanes. In many cases these remain poorly connected to the wider network. **Figure 2-10** shows the existing & proposed cycling network conditions near the development site.

Figure 2-10 Existing & Proposed Cycling Network Conditions



Source : Geraldton's 2050 Regional Cycling Strategy

3.0 PROPOSED DEVELOPMENT

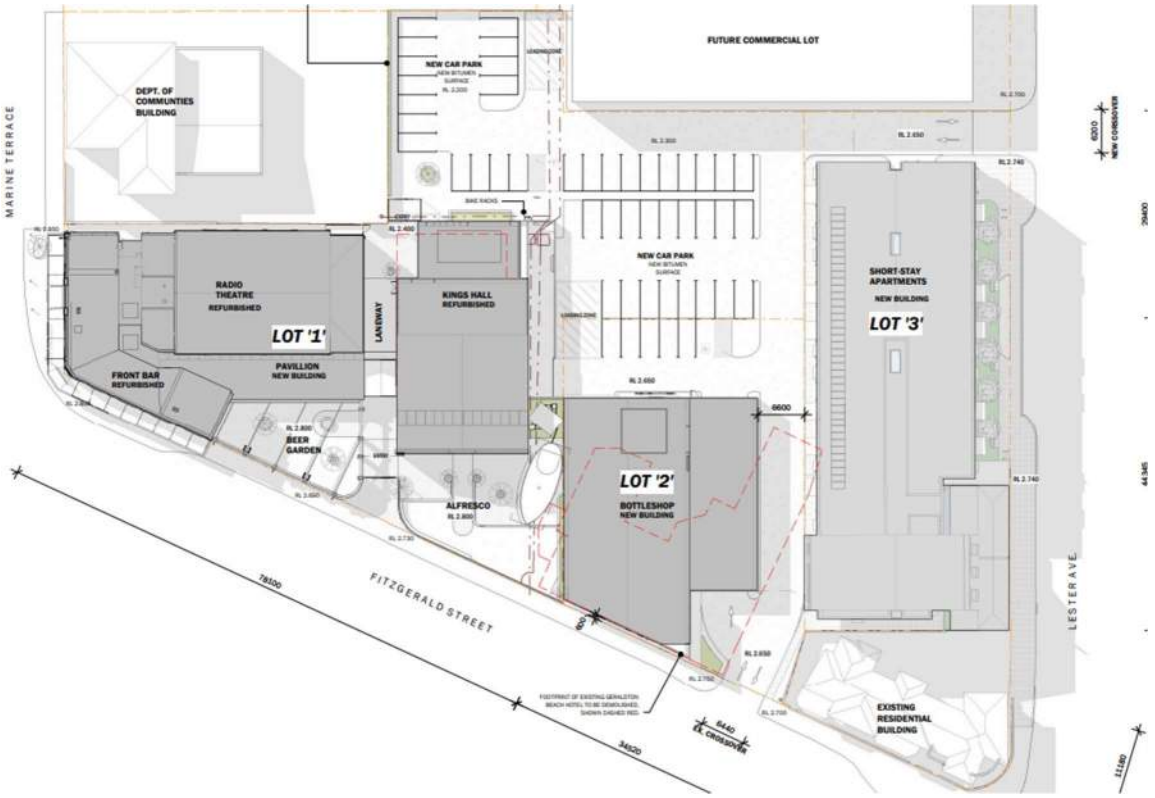
3.1 PROPOSED LAND USE

The proposal is for a Geraldton Pub and Serviced Apartments located with the City of Greater Geraldton, comprising of the following site-specific design components:

- Serviced Apartments – 72 units
  - 1 B/R – 26 units
  - 2 B/R – 8 units
  - Studio – 36 units
  - Accessible - 2
- Bar – 318 sqm;
- Restaurant – 231 sqm;
- Beer Garden – 471 sqm;
- Theatre – 434 sqm;
- Bottleshop – 390 sqm;
- Office – 185 sqm.

The layout of the proposed development on the subject Site is shown in **Figure 3-1** and **Figure 3-2**. Detailed development plans are provided in **Appendix B**.

Figure 3-1 Site Plan for Commercial Developments + Serviced Apartments



Source: Benson Studio

Figure 3-2 Serviced Apartments

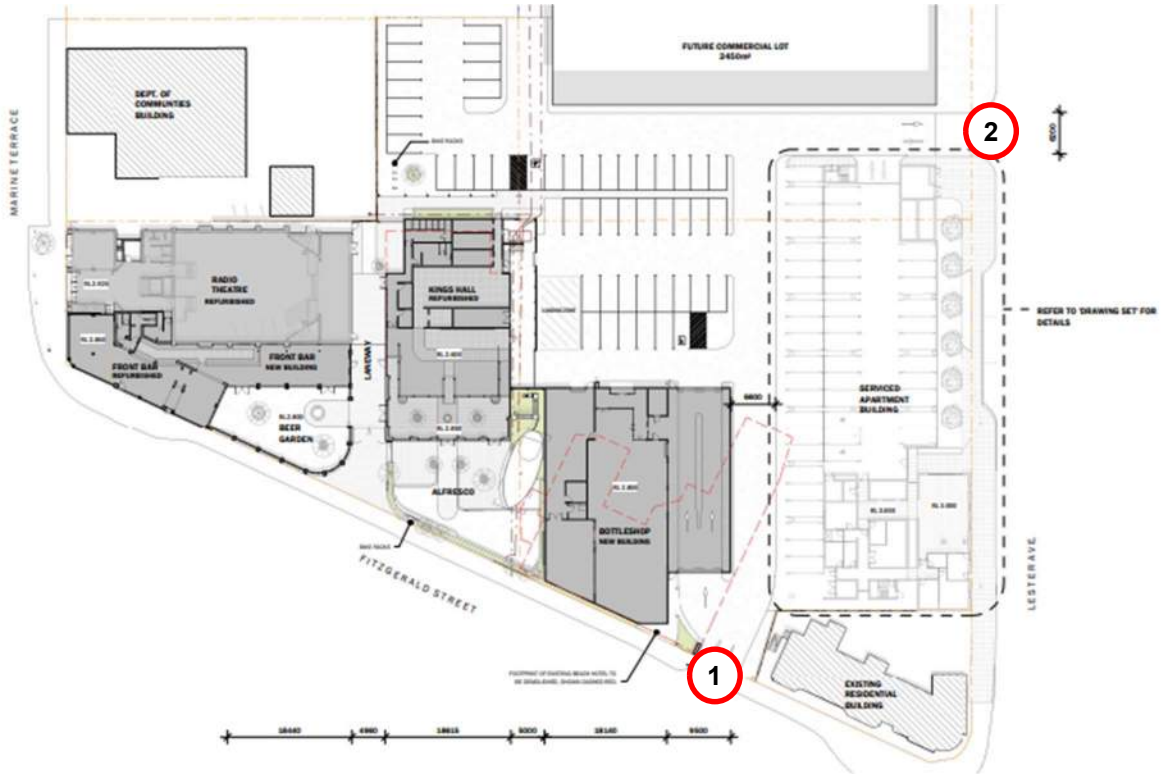
Source: Cameron Chisholm Nicol

3.2 ACCESS ARRANGEMENTS

Vehicular access into the site is proposed to be via crossovers on Fitzgerald Street and Lester Avenue as shown in **Figure 3-3**.

- Access 1
  - Passenger Cars – Full Movement access
  - Small rigid delivery vehicles – Left out movement to Fitzgerald Street Restricted
- Access 2
  - Passenger Cars – full movement
  - Waste Truck Access – Left out movement to Lester Avenue Restricted

Figure 3-3 Access Arrangements



Source: Benson Studio

SRV and waste truck vehicles exiting the site and intending to travel in a southerly and easterly direction will need to circulate via the Fitzgerald Street/Lester Ave and Marine Terrace/Fitzgerald Street roundabouts because of the proposed left turn exit restrictions for these vehicles at the proposed accesses.

3.2.1 PROVISION FOR SERVICE VEHICLES

Servicing for the site will be undertaken via Fitzgerald Street & Lester Avenue. The largest delivery vehicle anticipated to deliver goods to the proposed bar / restaurant and serviced apartments is a SRV delivery vehicle. Separate loading areas are provided for the proposed bar/restaurant facility and service apartments as shown in **Figure 3-4.**

A swept path analysis was conducted for a SRV design vehicle which is shown in **Figure 3-5** to **Figure 3-6.** Larger versions are provided at **Appendix C**.

Figure 3-4 Loading Area

Figure 3-5 SRV Swept Path – In & Out Lester Avenue

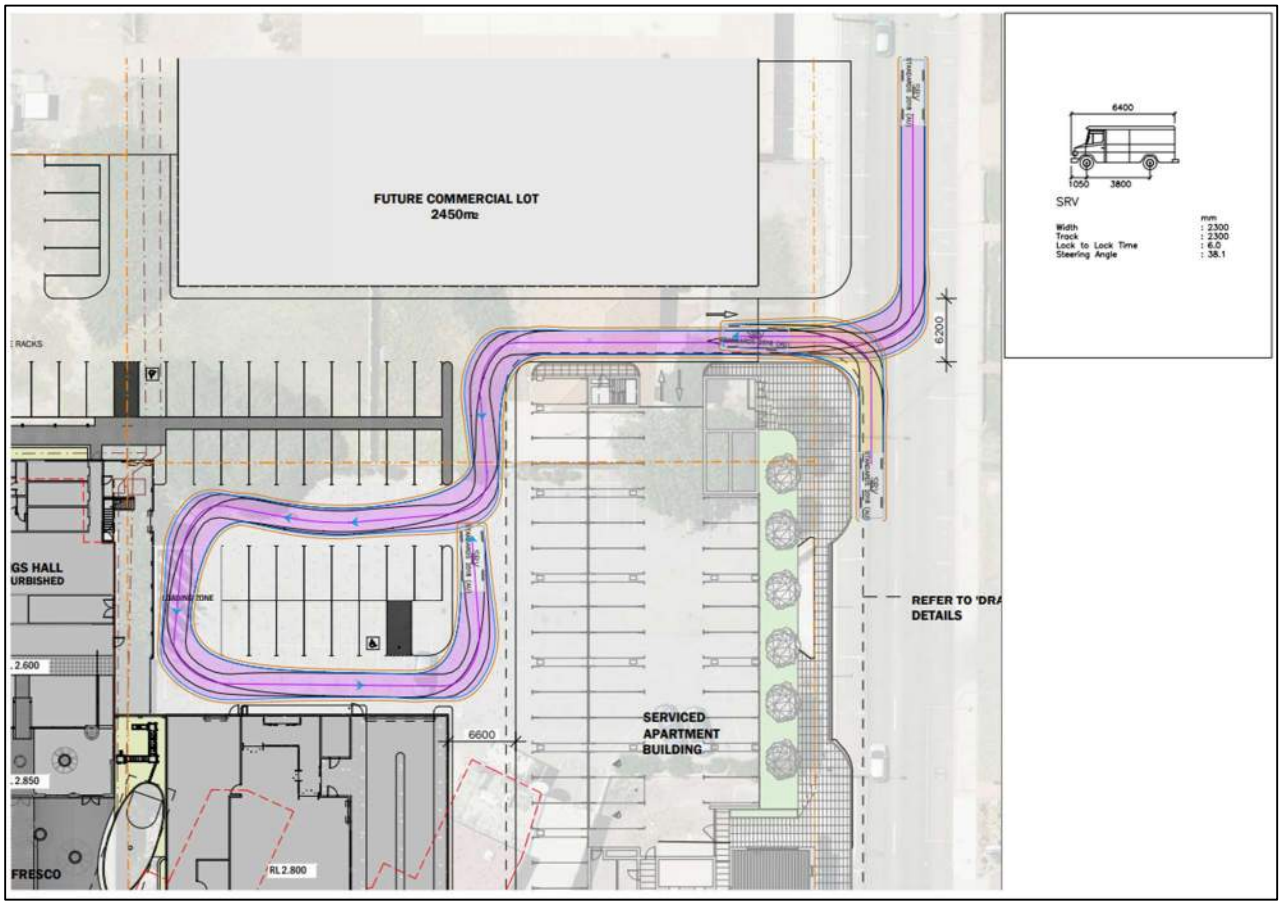
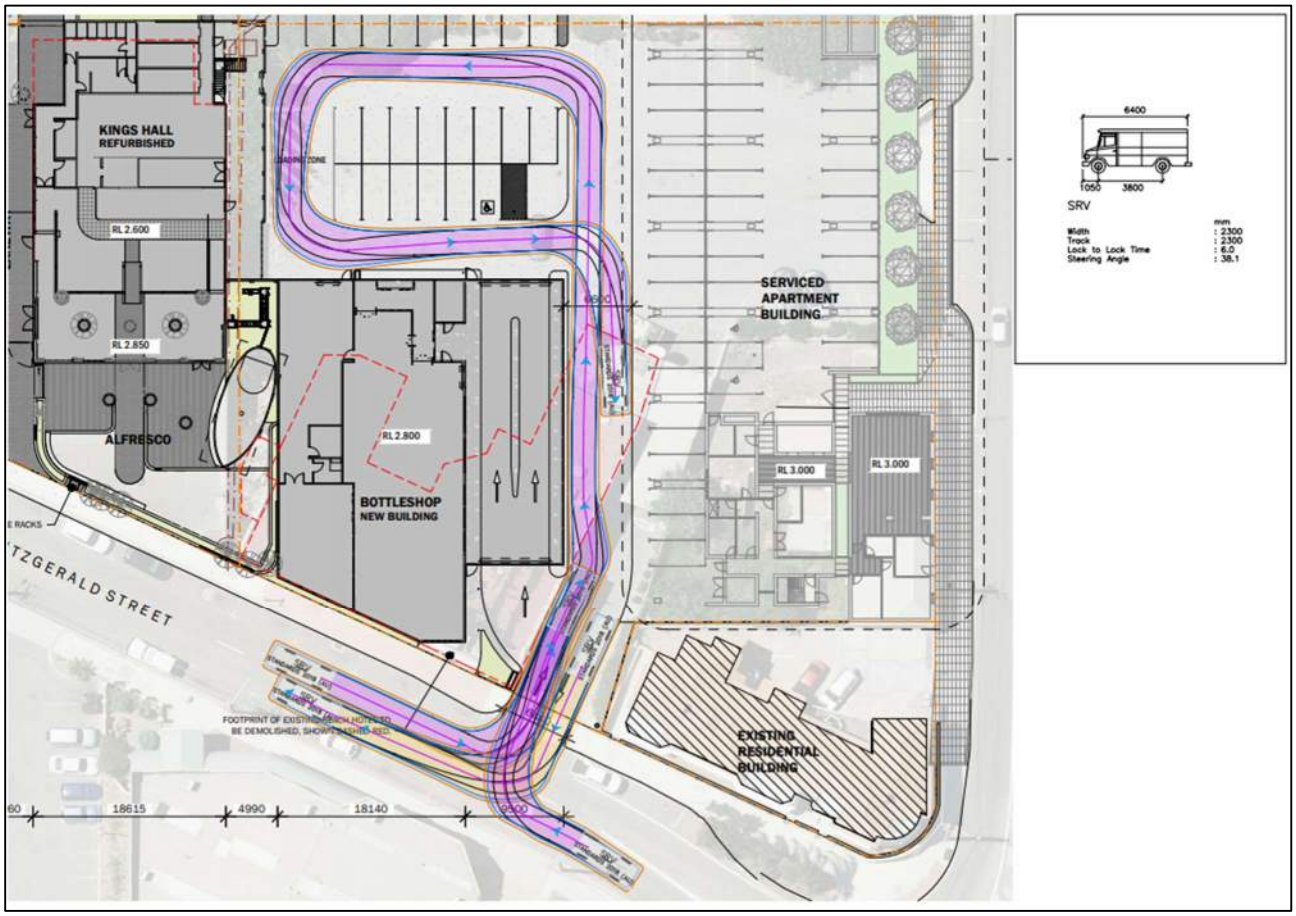


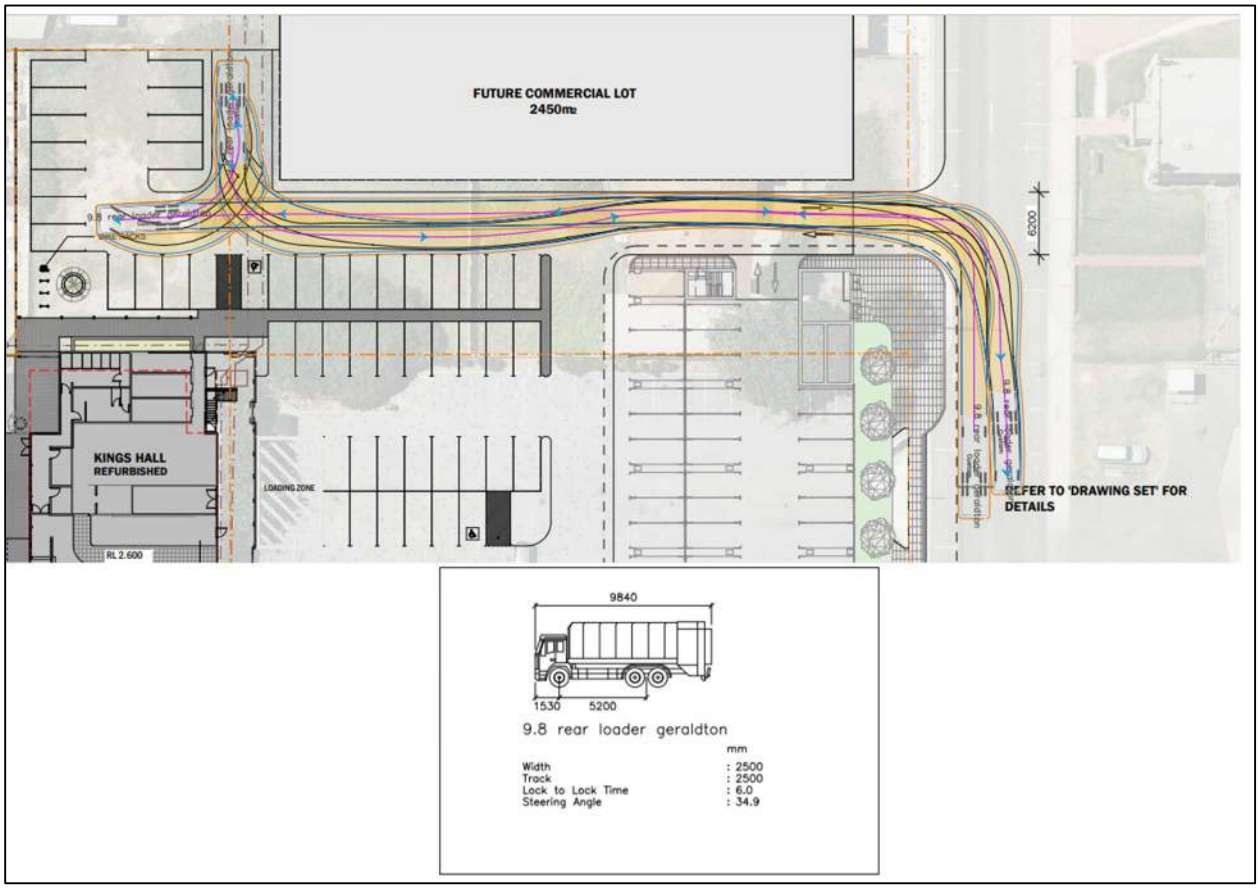
Figure 3-6 SRV Swept Path – In & Out Fitzgerald Street



3.2.2 WASTE COLLECTION SERVICES

A swept path analysis for a 9.8m rear lift waste vehicle was undertaken as illustrated in **Figure 3-7.** The analysis indicates that a waste vehicle approaching via Lester Avenue is able to adequately enter the site, manoeuvre and park at the waste collection area and exit in a forward direction. It is anticipated that waste collections will be undertaken on-site by a private waste contractor and to be arranged to occur during off peak hours or after normal business hours to minimise disruption to traffic operations as well as minimise any impacts to staff and visitors.

Figure 3-7 Waste Truck Swept Path



3.2.3 B85 & B99 SWEPT PATHS

A swept path analysis was undertaken for B85/B99 passenger vehicles and illustrated in **Figure 3-8** and **Figure 3-9.** The swept path diagrams demonstrate that these design vehicles are able to adequately circulate, enter and exit the proposed parking without any encroachments.

Figure 3-8 B85 Swept path – Parking

Figure 3-9

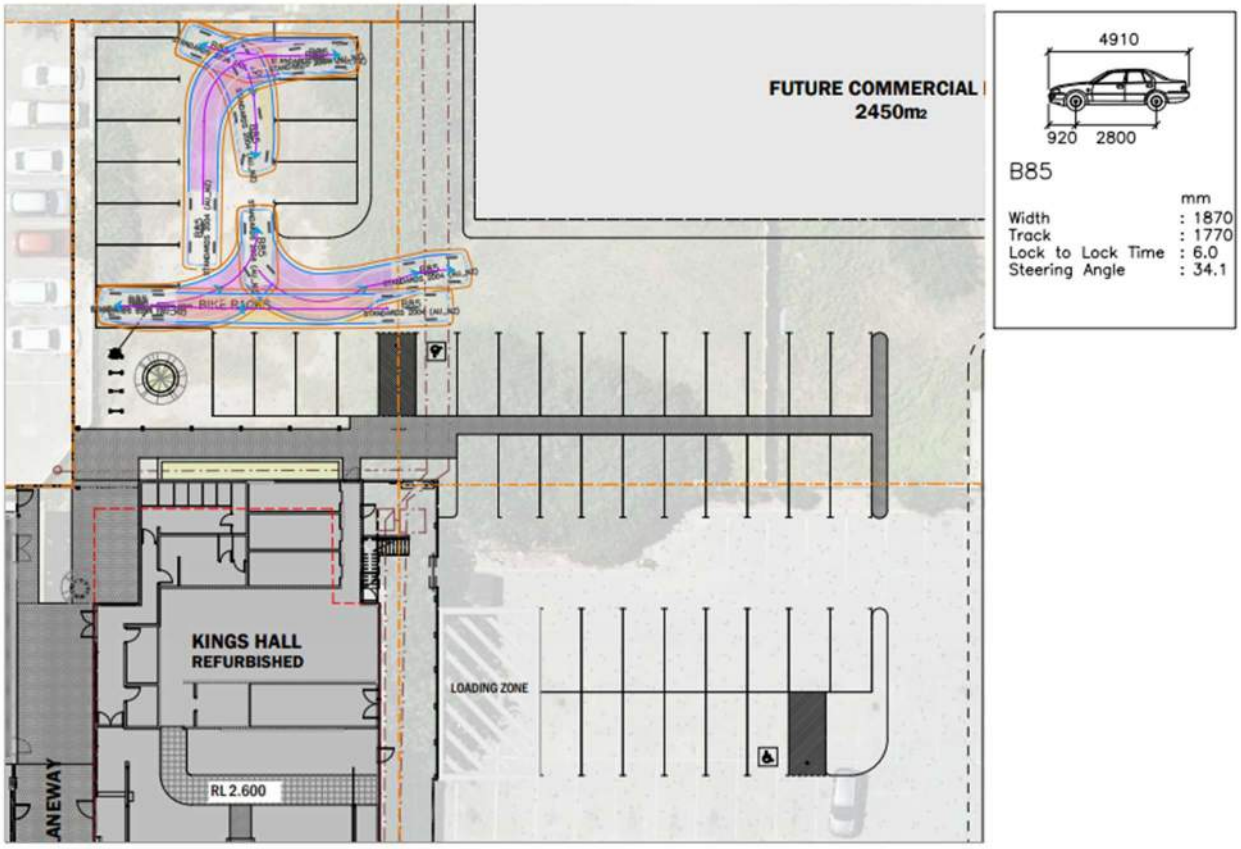
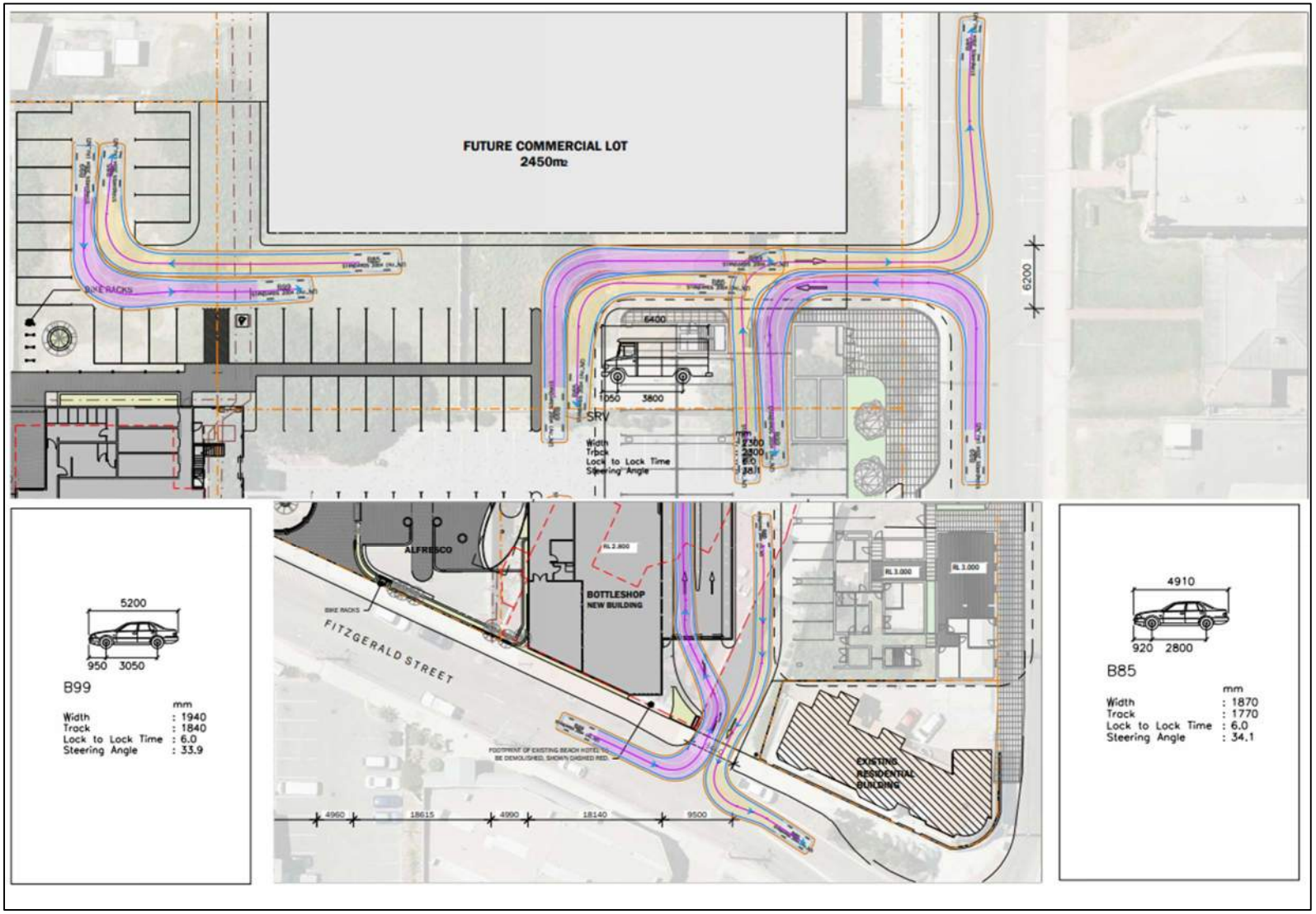


Figure 3-9 B85 & B99 Swept Paths - Circulation



4.0 PARKING

4.1 CAR PARKING REQUIREMENTS

The car parking requirements for the development are prescribed in the *City of Greater Geraldton Local Planning Scheme No.1*. The proposed development falls under the Regional Centre Zone and hence the parking requirements stipulated for this zone has been used. **Table 4-1** summarises the car parking requirements and the on-site provision based on these requirements.

Table 4-1 Car Parking Requirements

Land Use	Total Applicable Floor Area (m^2)	LPS 1 Requirement	Required Parking Bays	Bays Provided	Parking Shortfall
All Development (Regional Centre Zone)	Cinema / Theatre – No Increase	1 per 35 sqm	0	49	+49
	Tavern (Kings Hall) – No Increase		0		
	Liquor Store – No Increase		0		
	Serviced Apartments – 3,883		111	46	65
Total			111 bays	95 bays	16 bays

Note: The parking ratio for the Regional Centre Zone only applies where the development has a works component that proposes an increase in the floor area, and only applies to that increased floor area. It is not applicable where the development is for a use that has no works component or a development where the works component does not increase the floor area.

The parking requirements only apply to the increased floor area and the following was included in the parking calculations:

- Theatre – no increase given a balance between removed internal floor space and increased Pavilion floor space.
- Tavern – no increase given the existing part of the building fronting Fitzgerald Street is being demolished.
- Liquor store – no increase given existing Geraldton beach hotel is being demolished.
- Serviced Apartments – Increase in floorspace minus demolition of existing outbuildings.

In accordance with **Table 4-1**, the commercial tenancies meet the requirements of the Regional Centre Zone, however, there is a shortfall for the proposed serviced apartments. Overall a 16 parking bay shortfall is anticipated.

For the serviced apartments a booking system is proposed to be implemented, whereby apartment rooms and parking bays are booked simultaneously to manage the on-site parking supply. This approach would allow guests to determine the availability of parking spaces upon making a booking, which would have an influence on the decision to drive a vehicle or not.

Furthermore, the subject Site is located in the City of Greater Geraldton Town Centre and there is a large number of on-street and off-street parking options available in close proximity.

4.2 BICYCLE REQUIREMENTS

The bicycle parking requirements for the development are prescribed in the *City of Greater Geraldton Local Planning Scheme No.1* and the provision is shown in **Table 4-2**.

Table 4-2 Bicycle Parking Requirements

Use	LPS 1 Requirement	Racks Provided
All developments (Regional centre Zone)	1 for every 10 car parking spaces (minimum of 2)	6

Based on **Table 4-2**, the overall on-site bicycle space requirements for the proposed development meets the statutory requirements of City of Greater Geraldton.

4.3 PARKING COMPLIANCE

The parking bay geometry requirements set forth by AS2890.1 and AS2890.6 for User Class 2 at 90˚ angle and the corresponding provisions in the proposed development are presented in **Table 4-3**. It should be noted that the proposed commercial bays have been categorised as a User Class 2 facility as seen on the classification of off-street car parking. The proposed development is categorised as a Category 2 access facility (development fronting a local road and has 101 to 300 parking spaces).

Table 4-3 Parking Compliance

Parameter	Minimum Requirement	Provided	Remarks
Bay Width, m (User Class 2)	2.5	2.6	No Non-conformances identified
Bay Length, m	5.4	5.4	No Non-conformances identified
ACROD Parking Bay Width, m	2.4	2.4	No Non-conformances identified
ACROD Shared Area Width, m	2.4	2.4	No Non-conformances identified
ACROD Parking Bay and Shared Area Length, m	5.4	5.4	No non-compliances identified
Aisle width, m	5.8	5.8, 6.0, 6.2	No Non-conformances identified
Circulation roadway width, m	5.5 (Two-way)	5.8 – 6.4	No Non-conformances identified
Access width, m (Category 2)	6.0 to 9.0	6.2, 6.4	No Non-conformances identified

Sources: AS2890.1 (2004), AS2890.6 (2009)

5.0 CHANGES TO SURROUNDING NETWORK

5.1 INTERSECTION CONTROLS

Stantec contacted the City of Greater Geraldton and was advised that there aren't any changes to the intersection controls.

5.2 FUTURE PUBLIC TRANSPORT FACILITIES

Stantec contacted the relevant authorities and was advised that there will be no changes to the public transport services within the vicinity of the Site in the short term.

5.3 FUTURE PEDESTRIAN / CYCLING NETWORKS

5.3.1 Geraldton's 2050 Regional Cycling Strategy

The aim of this strategy is to create a safe, direct, comfortable and integrated cycling network. The proposed network, which connects people to activity centres and key attractions, has been developed to facilitate cycling for transport, recreation and tourism purposes. Foreshore Drive has been designated as a Primary Bicycle Route and Cathedral Avenue a secondary route in the City's 2050 Cycling Strategy**. Figure 5-1** provides an overview of the proposed 2050 cycling network for the Geraldton urban area.

Figure 5-1 2050 Cycling Network for Inner Geraldton

Source : Geraldton's 2050 Regional Cycling Strategy

6.0 INTEGRATION WITH SURROUNDING AREA

6.1 SURROUNDING ATTRACTORS / GENERATORS

The major attractors/generators within the vicinity of the site include the residential developments and the various commercial and retail developments surrounding the proposed site.

6.2 PROPOSED CHANGES TO SURROUNDING LAND USES

The City of Greater Geraldton has confirmed that there is no short term proposed changes to surrounding land uses that would impact the proposed development.

7.0 ANALYSIS OF TRANSPORT NETWORK

7.1 ASSESSMENT YEARS AND TIME PERIOD

Three assessment years as indicated below were analysed:

- Existing Condition – 2023 traffic data
- Year 2025: Assumed opening year of the development:
- Year 2035: 10-year horizon after the completion of the development.

Based on an examination of Traffic count data for Lester Avenue / Chapman Road / Cathedral Avenue Intersection, the following peak hours were identified for analysis:

- Weekday AM Peak: 8:00 – 9:00 AM
- Weekday PM Peak: 3:00 – 4:00 PM
- Weekend Peak: 11:00 – 12:00 PM

7.1.1 Analysis Overview

To identify the impact of the proposed development on the surrounding road network, the intersection performance of the following intersections has been analysed using SIDRA analysis software:

- Lester Avenue / Fitzgerald Street intersection.
- Lester Avenue / Chapman Road / Cathedral Avenue Intersection.

7.2 ANALYSIS ASSUMPTIONS

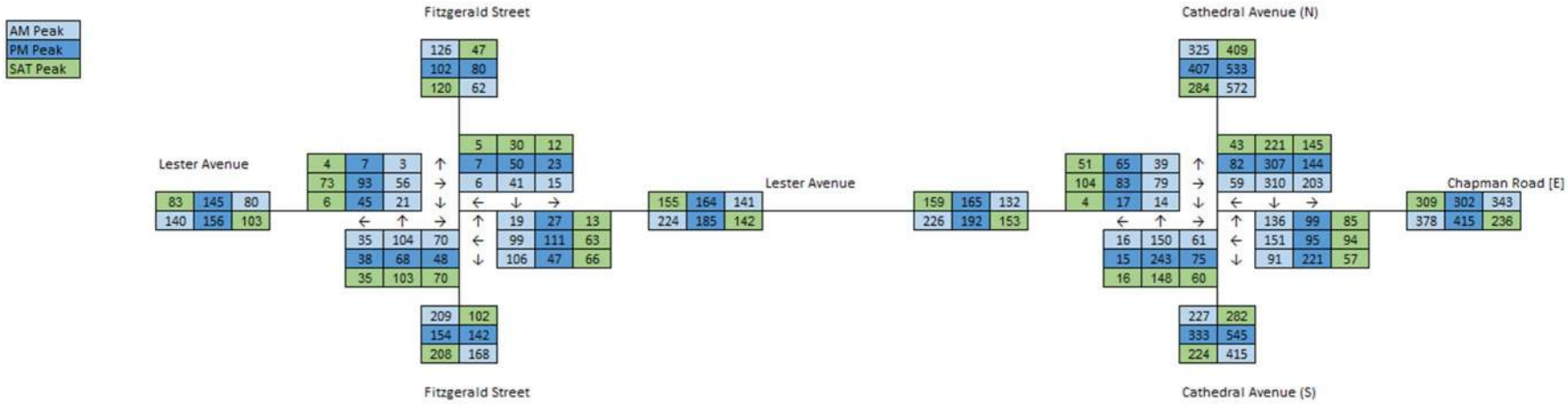
The following provides a list of assumptions used in this assessment.

- Existing intersection traffic volumes were obtained from the SCATS data and Fitzgerald / Lester Avenue intersection count data recorded in Dec 2020.
- Opening year has been assumed to be 2025.
- For a robust assessment, a future traffic growth rate of 1% per annum has been applied for the opening year and to the 10-year horizon analysis; this is based on the nearest background traffic volumes obtained from the Main Roads Traffic Map.
- The intersection assessment was modelled as a network model using SIDRA 9 software analysis tool in accordance with Main Roads WA Operational Modelling Guidelines.
- The approach and exit speeds were based on speed limits from Main Roads WA Road Information Mapping System.

- Signal phasing and timing information used at the intersections of Lester Avenue / Chapman Road / Cathedral Avenue was sourced from Main Roads Traffic Map. These have been modified for the future scenarios to use either practical or optimal timings to account for changing traffic conditions.

Figure 7-1 shows the existing traffic volumes for the intersections of Fitzgerald Street/Lester Avenue and Lester Avenue/ Cathedral Avenue.

Figure 7-1 Existing Traffic Volumes - 2023



7.3 DEVELOPMENT TRIP GENERATION

Trip generation rates from the following sources were used to calculate the estimated trip generation for the subject Site.

- Western Australia Planning Commission (WAPC) TIA Guidelines Vol. 5.
- Institute of Transportation Engineers (ITE) "Trip Generation" 10th Ed.
- Guide to Traffic Generating Developments, Roads and Traffic Authority (RTA)

The trip generation rates have been recalculated by applying the trip rates for individual land uses as indicated in the RTA Guide to Traffic Generating Developments Guidelines. Wherever RTA trip generation rates were not available the ITE/WAPC rates were adopted. **Table 7-1** shows the trip generation rates adopted and **Table 7-3** summarises the estimated trips to be generated by the proposed development.

Table 7-1 Trip Generation Rate

Land Use	Source	Yield	Unit	Trip Rate Weekday AM Peak	Trip Rate Weekday PM Peak	Trip Rate Weekend Peak
Short-Stay Apartments	ITE 310	72	rooms	0.54	0.61	0.61
F&B Retail	WAPC/RTA*	10.19	100 sqm GFA	2.50	10.00	10.00
Office	ITE 710/RTA*	1.85	100 sqm GFA	1.58	2.00	0.57
Retail (Bottleshop)	ITE 899	3.90	100 sqm GFA	4.90	18.43	18.43

Table 7-2 Directional Distribution

Land Use	AM Peak		PM Peak		Weekend	
	In	Out	In	Out	In	Out
Short-Stay Apartments	54%	46%	58%	42%	58%	42%
F&B Retail	80%	20%	50%	50%	50%	50%
Office	88%	12%	18%	82%	18%	82%
Retail (Bottleshop)	51%	49%	50%	50%	50%	50%

Table 7-3 Total Development Trips

Land Use	AM Peak		PM Peak		Weekend	
	In	Out	In	Out	In	Out
Short-Stay Apartments	21	18	25	18	25	18
F&B Retail	20	5	51	51	51	51
Office	3	0	1	3	0	1
Retail (Bottleshop)	10	9	36	36	36	36
Total	**54**	**33**	**113**	**108**	**113**	**106**

The proposed development is expected to generate approximately 87 trips during the AM Peak hour, 221 trips during the PM Peak hour and 219 trips during weekend peak hour period.

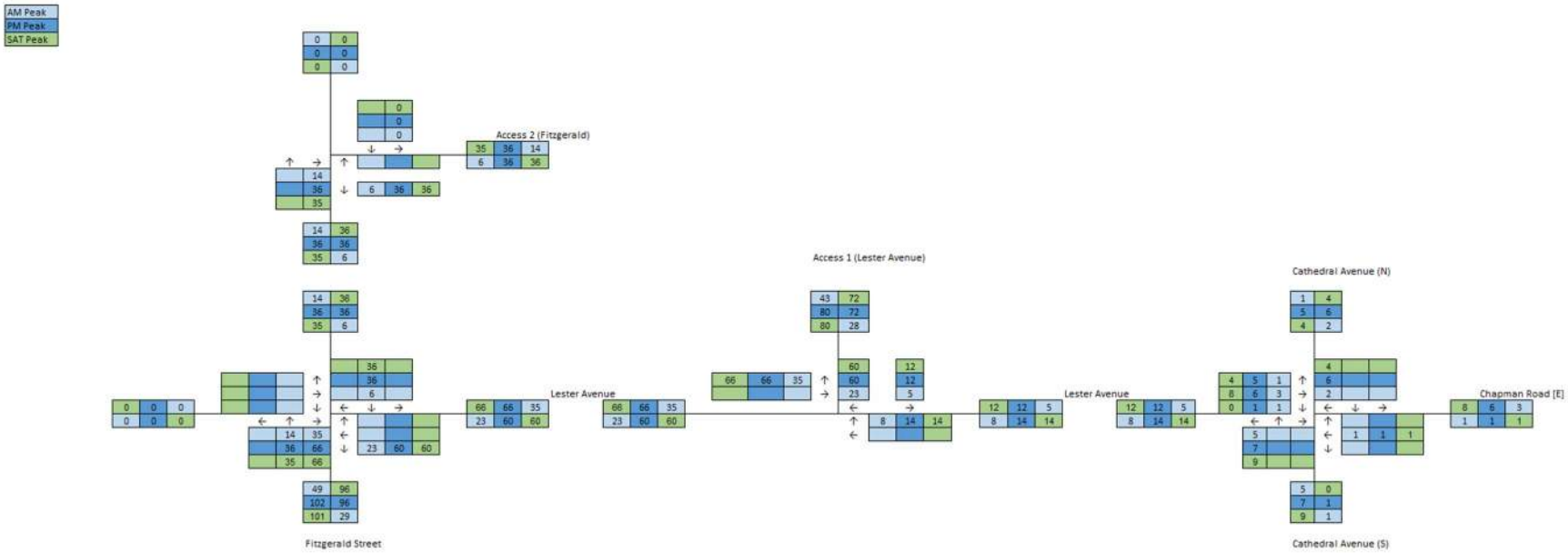
7.4 TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of development traffic is based on the existing traffic patterns. **Figure 7-2** and **Figure 7-3** shows the inbound and outbound trip distribution of the Site. **Figure 7-4** shows the anticipated development traffic volumes based on the indicated trip distribution.

Figure 7-2 Inbound Trips

Figure 7-3 Outbound Trips

Figure 7-4 Development Trip Distribution



7.5 TOTAL BACKGROUND AND DEVELOPMENT TRAFFIC

The background and development traffic adopted for 2025 and 2035 design years are shown in **Figure 7-5** and **Figure 7-6.**

Figure 7-5 Scenario 2- 2025 Background + Development Traffic

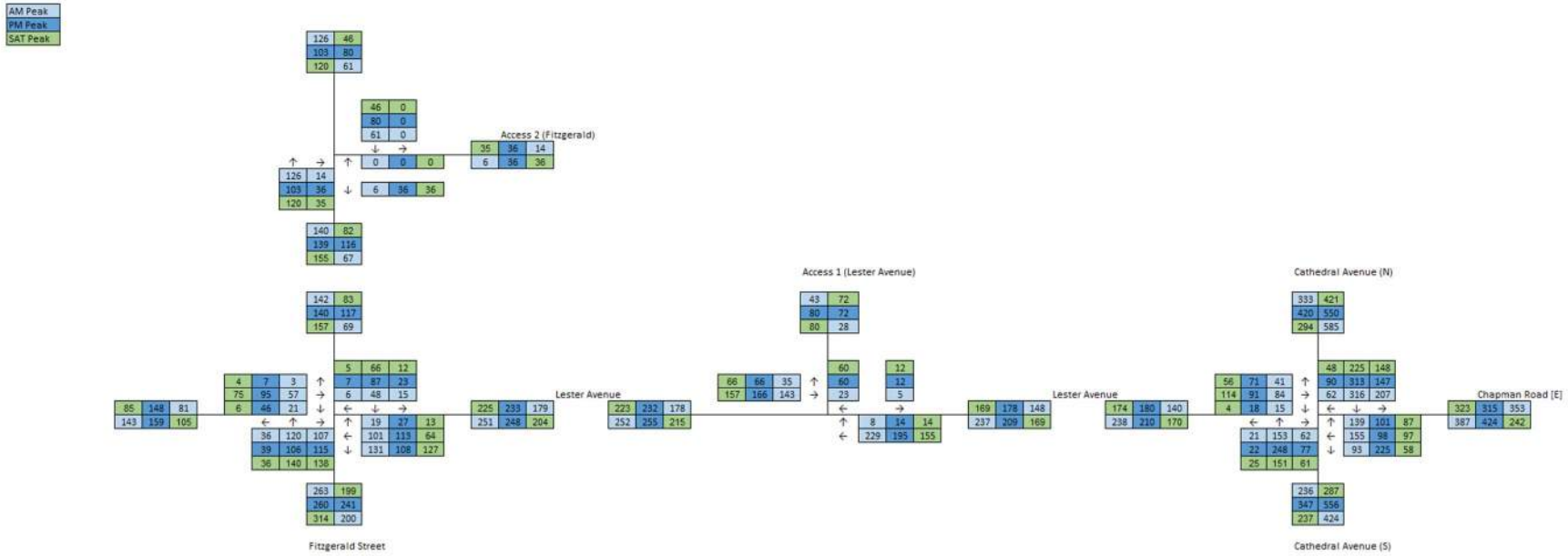
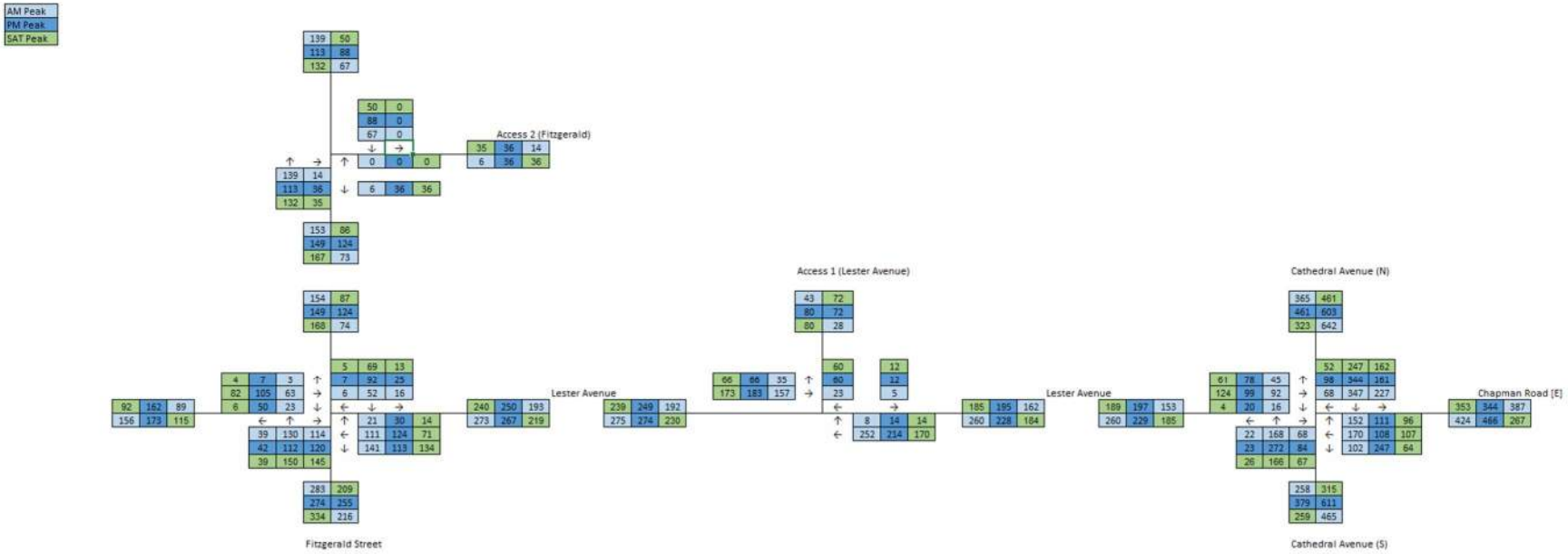


Figure 7-6 Scenario 2- 2035 Background + Development Traffic



7.6 INTERSECTION PERFORMANCE

7.6.1 Parameters

SIDRA intersection analysis was undertaken for the subject intersection. SIDRA calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- Degree of Saturation (DOS): is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded from an un-signalized intersection where DOS > 80.
- 95% Queue: is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- Average Delay: is the average of all travel delays for vehicles through the intersection. An unsigned intersection can be operating at capacity where the average delay exceeds 40 seconds for any movement; and
- Level of Service (LOS): is the qualitative measure describing operational conditions within a traffic system and the perception by motorists and/or passengers.

The different levels of service can generally be described as shown in **Table 7-4**. A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersections are likely to experience unsatisfactory queueing and delays during the peak hour periods.

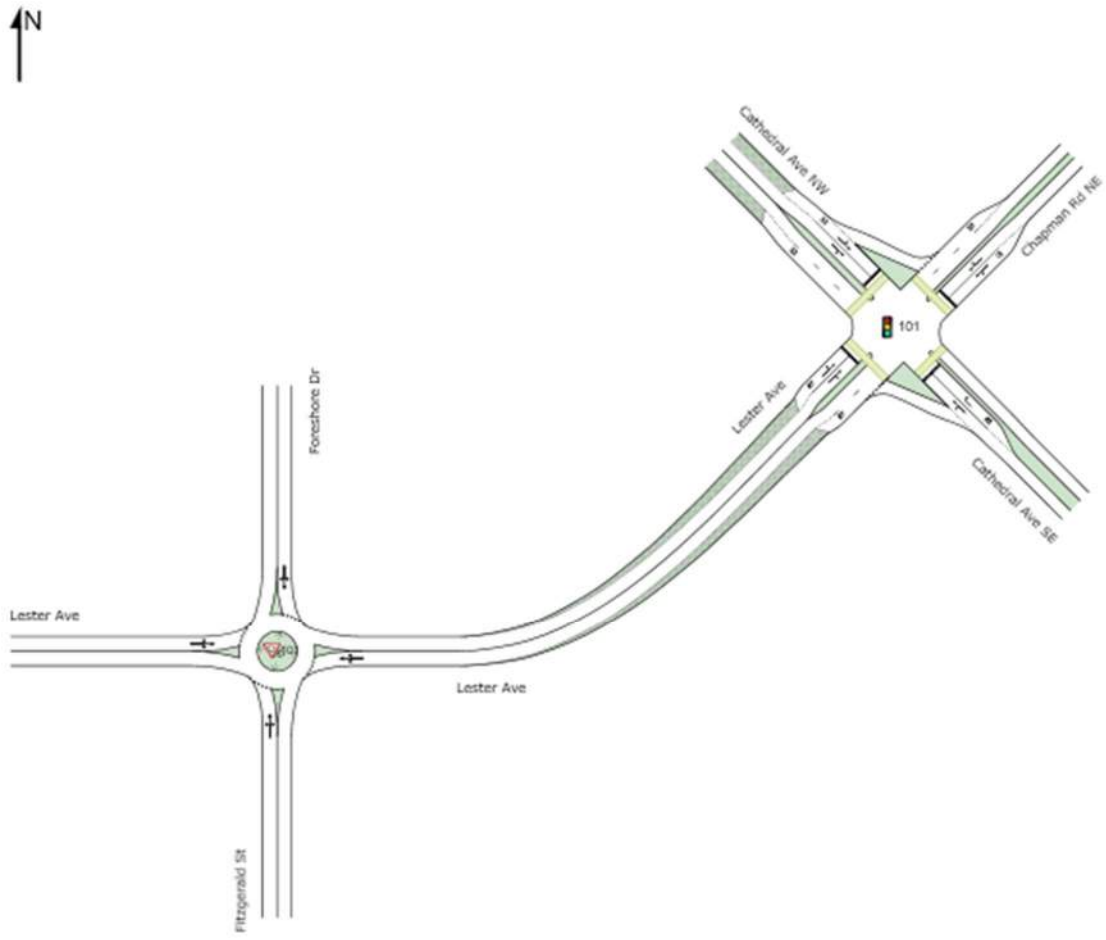
Table 7-4 Level of Service (LoS) Specifications

LOS	Description	Signalized Intersection	Unsignalized Intersection
A	Free flow conditions (best condition)	≤ 10 sec	≤ 10 sec
B	Reasonable free flow operations	10 – 20 sec	10 – 15 sec
C	At or near free flow operations	20 – 35 sec	15 – 25 sec
D	Decreasing free flow levels	35 - 55 sec	25 - 35 sec
E	Operations at capacity	55 – 80 sec	35 – 50 sec
F	A breakdown in vehicular flow (worst condition)	≤ 80 sec	≤ 50 sec

7.7 SIDRA ANALYSIS RESULTS – EXISTING SCENARIO

Analysis has been undertaken using the SIDRA traffic analysis software. The network layout of the two intersections considered in the analysis is illustrated in **Figure 7-7**. Details of the results are presented in **Appendix B**. Results for each intersection are detailed in the following sub-sections.

Figure 7-7 SIDRA Network Layout



7.7.1 Lester Avenue / Fitzgerald Street

The SIDRA layout for this intersection is illustrated in **Figure 7-8**. The analysis results for the Lester Avenue/Fitzgerald St intersection are summarised in **Table 7-5**.

Figure 7-8 SIDRA Intersection Layout

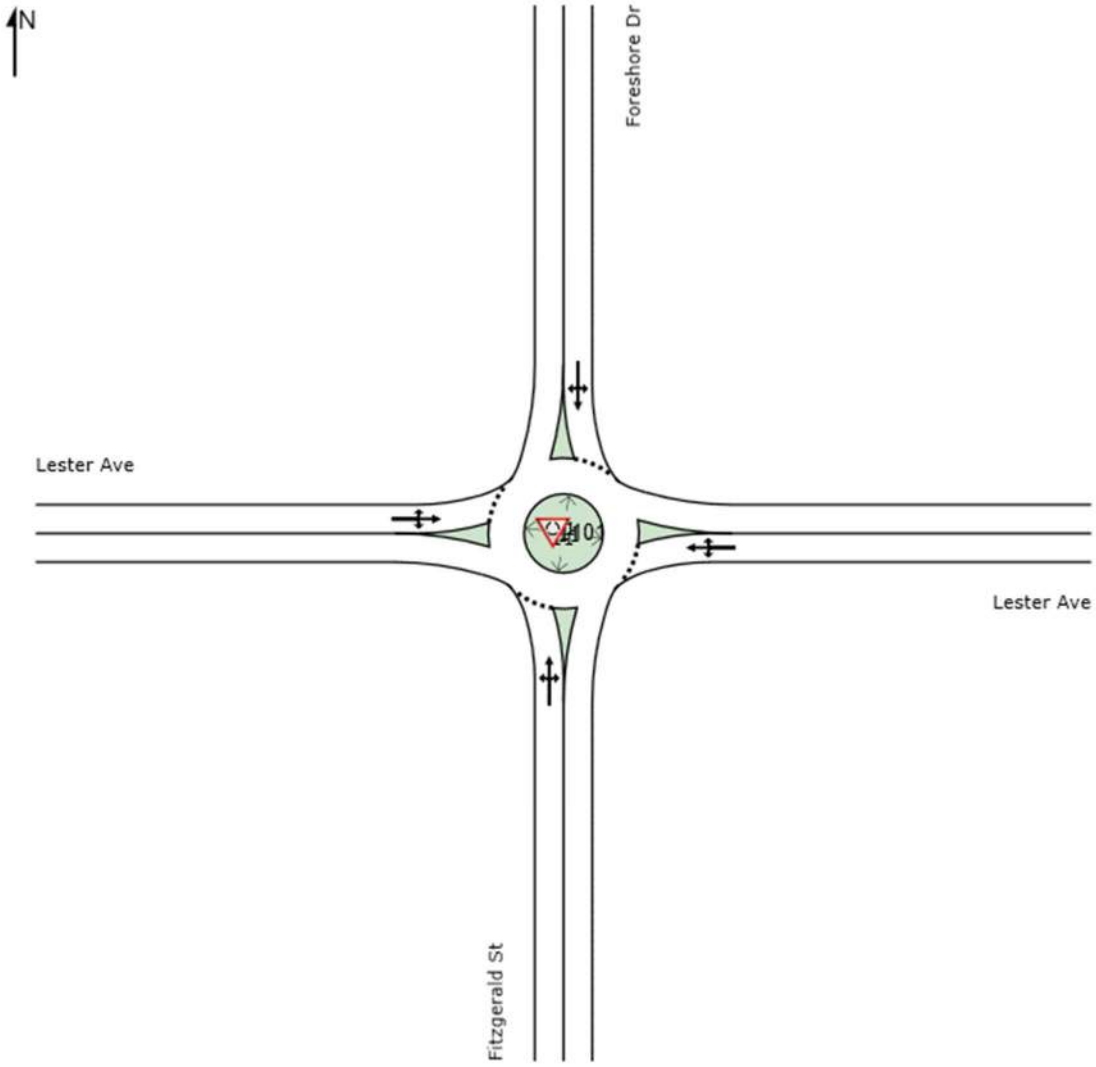


Table 7-5 SIDRA Results: Lester Ave / Fitzgerald St - Existing

Intersection Approach		AM peak				PM Peak				Weekend			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Fitzgerald St	L	0.187	4.3	A	8.3	0.144	4.4	A	6.2	0.174	4.0	A	7.5
	T	0.187	4.3	A	8.3	0.144	4.4	A	6.2	0.174	4.0	A	7.5
	R	0.187	7.7	A	8.3	0.144	7.8	A	6.2	0.174	7.4	A	7.5
East: Lester Ave	L	0.185	4.0	A	6.2	0.164	4.2	A	5.3	0.114	3.8	A	3.6
	T	0.185	3.9	A	6.2	0.164	4.1	A	5.3	0.114	3.7	A	3.6
	R	0.185	7.3	A	6.2	0.164	7.5	A	5.3	0.114	7.1	A	3.6
North: Foreshore Dr	L	0.059	4.4	A	2.1	0.080	4.6	A	2.9	0.045	4.4	A	1.6
	T	0.059	4.3	A	2.1	0.080	4.6	A	2.9	0.045	4.3	A	1.6
	R	0.059	7.7	A	2.1	0.080	7.9	A	2.9	0.045	7.7	A	1.6
West: Lester Ave	L	0.080	4.6	A	2.9	0.137	4.4	A	5.3	0.082	4.6	A	3.0
	T	0.080	7.9	A	2.9	0.137	7.7	A	5.3	0.082	4.6	A	3.0
	R	0.080	5.5	A	2.9	0.137	5.4	A	5.3	0.082	7.9	A	3.0
All vehicles		0.187	4.9	A	8.3	0.164	5.1	A	6.2	0.174	4.7	A	7.5

The SIDRA analysis indicates that the intersection of Lester Avenue/ Fitzgerald St is currently operating at satisfactory capacity with an overall level of service of 'A' for all peak hours.

7.7.2 Lester Avenue / Chapman Road / Cathedral Ave Intersection

The SIDRA layout for this intersection is illustrated in **Figure 7-9**. The existing signal phase is shown in **Figure 7-10** The analysis results for the Lester Ave / Chapman Dr / Cathedral Ave intersection are summarised in **Table 7-6.**

Figure 7-9 SIDRA Layout : Lester Ave / Chapman Rd / Cathedral Ave

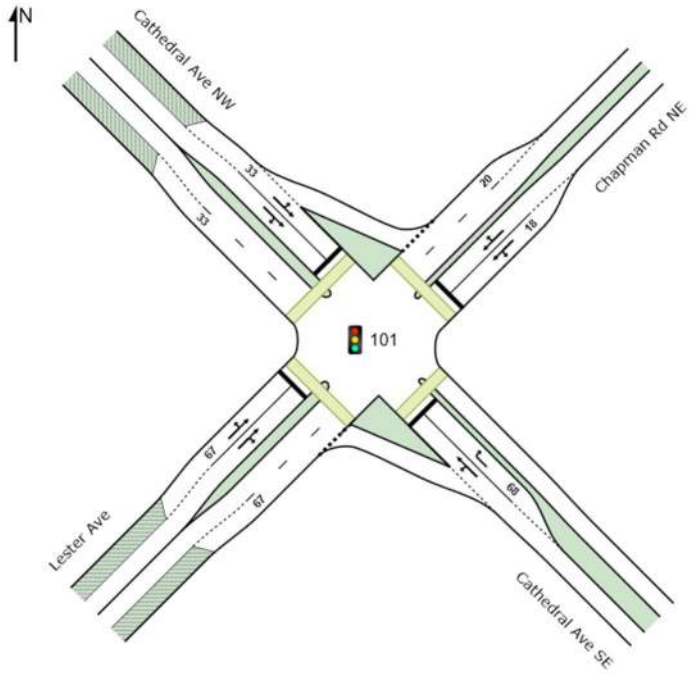


Figure 7-10 Phasing Data

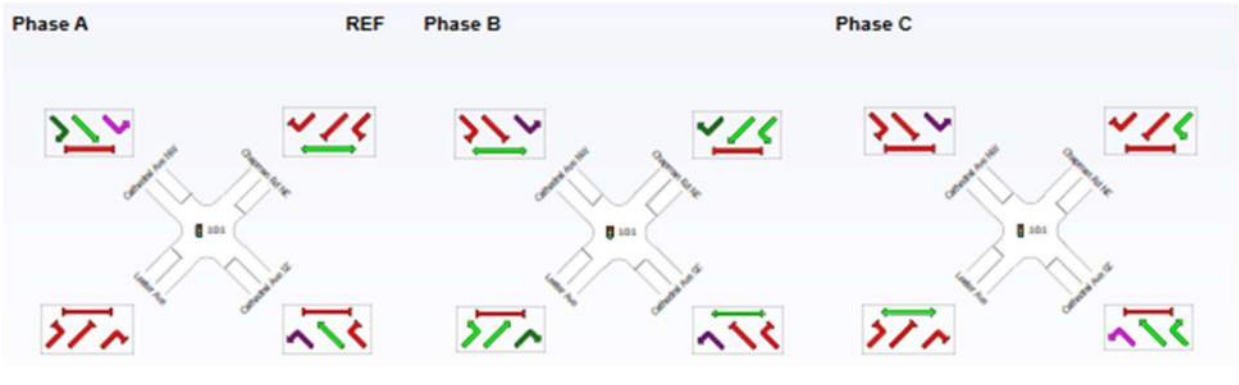


Table 7-6 SIDRA Results: Lester Ave / Chapman Road / Cathedral Ave - Existing

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
SouthEast: Cathedral Ave SE	L	0.216	19.6	B	29.6	0.260	17.3	B	48.1	0.202	13.7	B	17.7
	T	0.216	15.1	B	29.6	0.260	12.8	B	48.1	0.202	9.2	A	17.7
	R	0.265	40.9	D	17.2	0.336	49.7	D	26.1	0.263	28.9	C	11.2
NorthEast: Chapman Rd NE	L	0.379	25.6	C	36.1	0.441	20.2	C	47.8	0.226	21.3	C	16.6
	T	0.948	44.1	D	95.1	0.956	77.6	E	100.7	0.566	19.8	B	25.6
	R	0.948	70.0	E	95.1	0.956	82.2	F	100.7	0.566	27.4	C	25.6
NorthWest: Cathedral Ave NW	L	0.188	6.7	A	10.8	0.187	10.2	B	19.2	0.130	6.6	A	6.6
	T	0.938	53.8	D	149.3	0.936	58.7	E	182.2	0.593	18.3	B	47.1
	R	0.938	59.0	E	149.3	0.936	65.6	E	182.2	0.593	22.9	C	47.1
SouthWest: Lester Ave	L	0.220	23.8	C	8.3	0.258	30.0	C	28.7	0.131	23.5	C	8.2
	T	0.220	28.3	C	21.6	0.258	34.6	C	28.7	0.280	19.6	B	18.3
	R	0.220	25.0	C	21.6	0.258	31.1	C	28.7	0.280	24.1	C	18.3
All vehicles		0.948	37.0	D	149.3	0.956	39.5	D	182.2	0.593	17.5	B	47.1

The SIDRA analysis indicates that the intersection of Lester Avenue/Fitzgerald Street is currently operating with an overall level of service of 'D' for the AM and PM peak hour periods and an overall level of service of 'B' during the weekend peak hour.

It should be noted that the degree of saturation for the AM and PM peaks is already at 95%-96%, which means that the overall performance of the intersection is near capacity. This high saturation levels may be attributed to the right-turning movements for Chapman NE and Cathedral NW, which have a significant impact on the intersection's overall performance. The current signal phasing allows for filter right turns which contributes to the poor results and long delays experienced by the right-turn movements at this intersection.

7.8 SIDRA ANALYSIS RESULTS – OPENING YEAR

The SIDRA network layout of the two intersections and the accesses to the site is illustrated in **Figure 7-11**. Details of the results are presented in **Appendix B**. Results for each intersection are detailed in **Table 7-7** to **Table 7-10.**

Figure 7-11 Sidra Network Layout

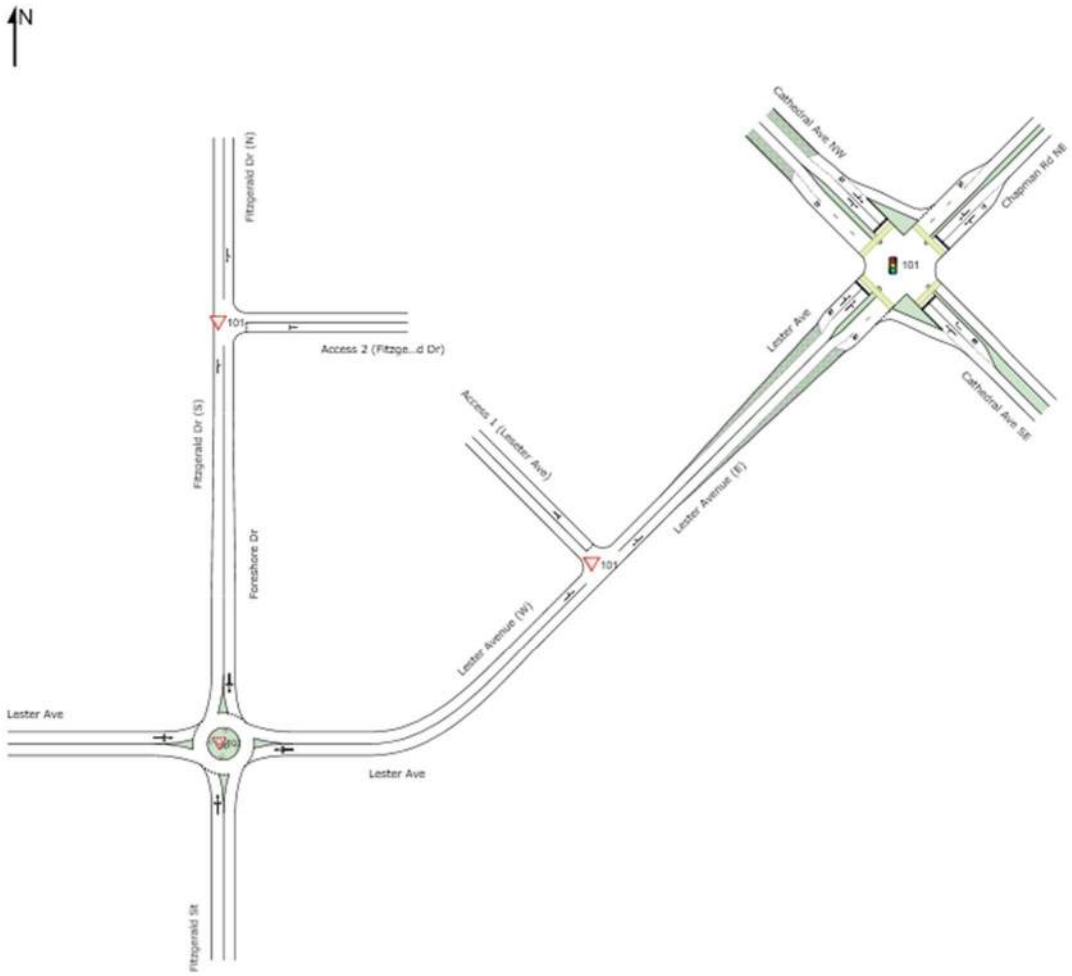


Table 7-7 SIDRA Results: Lester Ave / Fitzgerald St: 2025 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
South: Fitzgerald St	L	0.238	4.4	A	9.8	0.244	4.5	A	10.3	0.262	4.1	A	11.2
	T	0.238	4.3	A	9.8	0.244	4.5	A	10.3	0.262	4.0	A	11.2
	R	0.238	7.7	A	9.8	0.244	7.8	A	10.3	0.262	7.4	A	11.2
East: Lester Ave	L	0.210	3.9	A	8.6	0.229	4.4	A	9.5	0.174	3.9	A	7.1
	T	0.210	3.8	A	8.6	0.229	4.3	A	9.5	0.174	3.8	A	7.1
	R	0.210	7.3	A	8.6	0.229	7.8	A	9.5	0.174	7.3	A	7.1
North: Foreshore Dr	L	0.069	4.6	A	2.4	0.125	5.1	A	4.7	0.085	4.8	A	3.0
	T	0.069	4.6	A	2.4	0.125	5.1	A	4.7	0.085	4.8	A	3.0
	R	0.069	7.9	A	2.4	0.125	8.4	A	4.7	0.085	8.1	A	3.0
West: Lester Ave	L	0.085	5.0	A	3.1	0.156	5.1	A	6.0	0.093	5.3	A	3.4
	T	0.085	8.3	A	3.1	0.156	8.4	A	6.0	0.093	5.2	A	3.4
	R	0.085	5.8	A	3.1	0.156	6.1	A	6.0	0.093	8.6	A	3.4
All vehicles		0.238	5.0	A	9.8	0.244	5.5	A	10.3	0.262	5.0	A	11.2

Table 7-8 SIDRA Results: Lester Ave / Chapman Road / Cathedral Ave: 2025 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
SouthEast: Cathedral Ave SE	L	0.240	20.7	C	32.3	0.268	13.4	B	33.6	0.233	14.5	B	20.0
	T	0.240	16.2	B	32.3	0.268	8.8	A	33.6	0.233	10.0	A	20.0
	R	0.269	40.9	D	17.5	0.342	36.2	D	18.8	0.268	29.0	C	11.4
NorthEast: Chapman Rd NE	L	0.395	25.6	C	36.5	0.409	17.4	B	36.9	0.235	21.3	C	17.2
	T	0.989	54.4	D	112.2	1.023	94.8	F	100.7	0.588	19.9	B	26.4
	R	0.989	88.2	F	112.2	1.023	99.4	F	100.7	0.588	27.8	C	26.4
NorthWest: Cathedral Ave NW	L	0.194	6.8	A	11.2	0.191	8.3	A	11.6	0.134	6.6	A	6.8
	T	0.970	66.0	E	170.1	0.957	53.9	D	153.5	0.621	18.8	B	49.8
	R	0.970	71.5	E	170.1	0.957	60.7	E	153.5	0.621	23.3	C	49.8
SouthWest: Lester Ave	L	0.237	23.9	C	8.9	0.335	25.2	C	24.3	0.143	23.5	C	9.1
	T	0.237	28.5	C	23.4	0.335	29.8	C	24.3	0.307	19.7	B	20.3
	R	0.237	25.1	C	23.4	0.335	26.7	C	24.3	0.307	24.3	C	20.3
All vehicles		0.989	43.6	D	170.1	1.023	37.9	D	153.5	0.621	17.9	B	49.8

Table 7-9 Lester Ave / Access 1 – 2025 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
NorthEast: Lester Avenue (E)	T	0.135	0.0	A	0.4	0.120	0.1	A	0.7	0.098	0.1	A	0.7
	R	0.135	6.1	A	0.4	0.120	6.3	A	0.7	0.098	6.3	A	0.7
NorthWest: Access 1 (Leseter Ave)	L	0.034	6.0	A	0.8	0.082	6.1	A	2.0	0.079	6.1	A	1.9
	R	0.034	7.0	A	0.8	0.082	7.1	A	2.0	0.079	6.9	A	1.9
SouthWest: Lester Avenue (W)	L	0.101	4.5	A	0.0	0.130	4.5	A	0.0	0.125	4.5	A	0.0
	R	0.101	0.0	A	0.0	0.130	0.0	A	0.0	0.125	0.0	A	0.0
All vehicles		0.135	1.0	A	0.8	0.130	1.8	A	2.0	0.125	1.9	A	1.9

Table 7-10 Fitzgerald St / Access 2: 2025 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
South: Fitzgerald Dr (S)	T	0.079	0.0	A	0.7	0.080	0.1	A	1.6	0.087	0.0	A	1.5
	R	0.079	5.3	A	0.7	0.080	5.4	A	1.6	0.087	5.3	A	1.5
East: Access 2 (Fitzgerald Dr)	L	0.005	5.7	A	0.1	0.026	5.8	A	0.7	0.025	5.7	A	0.7
	R	0.005	6.2	A	0.1	0.026	6.3	A	0.7	0.025	6.2	A	0.7
North: Fitzgerald Dr (N)	L	0.035	3.9	A	0.0	0.046	3.9	A	0.0	0.027	3.9	A	0.0
	R	0.035	0.0	A	0.0	0.046	0.0	A	0.0	0.027	0.0	A	0.0
All vehicles		0.079	0.6	A	0.7	0.080	1.6	A	1.6	0.087	1.5	A	1.5

Most of the intersections, including the access intersection are operating at a good capacity during the opening year. However, the intersection of Lester Ave / Chapman Road / Cathedral Ave despite having an overall level of service of 'D', the intersection is expected to operate with a DOS nearing 1.0 during the AM and PM peak hours, in particular the northern and eastern approaches are reaching capacity. This high saturation levels may be attributed to the right-turning movements for Chapman NE and Cathedral NW, which have a significant impact on the intersection's overall performance.

7.10 SIDRA ANALYSIS RESULTS – 2035 HORIZON YEAR

Table 7-11 to **Table 7-14** summarises the SIDRA analysis results for the 2035 horizon year.

Table 7-11 SIDRA Results: Lester Ave / Fitzgerald St: 2035 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
South: Fitzgerald St	L	0.257	4.4	A	10.8	0.258	4.5	A	11.0	0.282	4.1	A	12.3
	T	0.257	4.4	A	10.8	0.258	7.9	A	11.0	0.282	4.1	A	12.3
	R	0.257	7.7	A	10.8	0.258	6.0	A	11.0	0.282	7.5	A	12.3
East: Lester Ave	L	0.221	4.0	A	9.1	0.235	4.3	A	9.8	0.187	3.9	A	7.7
	T	0.221	3.9	A	9.1	0.235	7.8	A	9.8	0.187	3.8	A	7.7
	R	0.221	7.3	A	9.1	0.235	4.8	A	9.8	0.187	7.3	A	7.7
North: Foreshore Dr	L	0.075	4.7	A	2.7	0.134	5.2	A	5.1	0.090	4.9	A	3.3
	T	0.075	4.7	A	2.7	0.134	8.5	A	5.1	0.090	4.9	A	3.3
	R	0.075	8.0	A	2.7	0.134	5.4	A	5.1	0.090	8.2	A	3.3
West: Lester Ave	L	0.095	5.1	A	3.5	0.173	8.5	A	6.8	0.102	5.4	A	3.8
	T	0.095	8.4	A	3.5	0.173	6.2	A	6.8	0.102	5.4	A	3.8
	R	0.095	5.9	A	3.5	0.258	5.6	A	11.0	0.102	8.7	A	3.8
All vehicles		0.257	5.1	A	10.8	0.258	5.6	A	11.0	0.282	5.1	A	12.3

Table 7-12 SIDRA Results: Lester Ave / Chapman Road / Cathedral Ave: 2035 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
SouthEast: Cathedral Ave SE	L	0.261	19.0	B	30.6	0.294	13.2	B	35.1	0.271	13.2	B	17.2
	T	0.261	14.5	B	30.6	0.294	8.6	A	35.1	0.271	8.7	A	17.2
	R	0.304	36.0	D	16.6	0.346	33.4	C	18.9	0.254	22.1	C	9.2
NorthEast: Chapman Rd NE	L	0.445	23.9	C	36.0	0.472	16.6	B	38.1	0.311	19.4	B	14.9
	T	1.112	91.6	F	167.3	1.134	171.2	F	153.9	0.778	19.1	B	26.2
	R	1.112	162.4	F	167.3	1.134	175.7	F	153.9	0.778	27.4	C	26.2
NorthWest: Cathedral Ave NW	L	0.213	7.1	A	12.6	0.219	8.7	A	13.1	0.171	7.0	A	7.2
	T	1.066	116.8	F	244.6	1.095	132.2	F	274.1	0.854	23.3	C	54.5
	R	1.066	123.4	F	244.6	1.095	143.2	F	274.1	0.854	28.3	C	54.5
SouthWest: Lester Ave	L	0.278	22.3	C	8.7	0.383	24.6	C	25.4	0.231	22.2	C	8.4
	T	0.278	26.9	C	22.8	0.383	29.2	C	25.4	0.482	18.3	B	18.7
	R	0.278	23.5	C	22.8	0.383	26.0	C	25.4	0.482	22.8	C	18.7
All vehicles		1.112	69.1	E	244.6	1.134	69.0	E	274.1	0.854	18.1	B	54.5

Table 7-13 Lester Ave / Access 1 – 2035 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
NorthEast: Lester Avenue (E)	T	0.141	0.0	A	0.4	0.121	0.1	A	0.7	0.106	0.1	A	0.7
	R	0.141	6.2	A	0.4	0.121	6.4	A	0.7	0.106	6.3	A	0.7
NorthWest: Access 1 (Lester Ave)	L	0.034	6.0	A	0.8	0.084	6.2	A	2.0	0.081	6.1	A	2.0
	R	0.034	7.1	A	0.8	0.084	7.2	A	2.0	0.081	7.0	A	2.0
SouthWest: Lester Avenue (W)	L	0.108	4.5	A	0.0	0.140	4.5	A	0.0	0.133	4.5	A	0.0
	R	0.108	0.0	A	0.0	0.140	0.0	A	0.0	0.133	0.0	A	0.0
All vehicles		0.141	0.9	A	0.8	0.140	1.8	A	2.0	0.133	2.0	A	2.0

Table 7-14 Fitzgerald St / Access 2: 2035 + Development

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
South: Fitzgerald Dr (S)	T	0.086	0.0	A	0.7	0.084	0.1	A	1.6	0.094	0.1	A	1.6
	R	0.086	5.4	A	0.7	0.084	5.4	A	1.6	0.094	5.3	A	1.6
East: Access 2 (Fitzgerald Dr)	L	0.005	5.7	A	0.1	0.026	5.8	A	0.7	0.025	5.7	A	0.7
	R	0.005	6.2	A	0.1	0.026	6.3	A	0.7	0.025	6.3	A	0.7
North: Fitzgerald Dr (N)	L	0.038	3.9	A	0.0	0.050	3.9	A	0.0	0.029	3.9	A	0.0
	R	0.038	0.0	A	0.0	0.050	0.0	A	0.0	0.029	0.0	A	0.0
All vehicles		0.086	0.5	A	0.7	0.084	1.6	A	1.6	0.094	1.6	A	1.6

Most of the intersections, including the access intersection are operating at a good capacity during the horizon year. However, the intersection of Lester Ave / Chapman Road / Cathedral Ave is expected to operate at acceptable capacity and Level of Service 'B' during the Saturday peak hour period. However, it should be noted that despite optimised signal timing modifications, the intersection is expected to operate at poor capacity for the 2035 horizon year. The intersection is also expected to operate at overall LOS E during the weekday AM and PM peak hour periods.

The analysis indicates that the proposed development traffic would have minimal impact on this intersection and the deterioration of the intersection's performance can be mainly attributed to the background traffic growth on the surrounding road network.

7.11 SIDRA ANALYSIS RESULTS – 2025 WITHOUT DEVELOPMENT TRAFFIC AND 2035 WITHOUT DEVELOPMENT TRAFFIC

A further analysis was undertaken for the "without development" traffic for the Lester Ave / Chapman Road / Cathedral Ave intersection. The SIDRA results for the "without" development traffic is summarised in **Table 7-15** and **Table 7-16.**

Table 7-15 SIDRA Results: Lester Ave / Chapman Road / Cathedral Ave: 2035 without development traffic

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
SouthEast: Cathedral Ave SE	L	0.222	20.3	C	30.9	0.271	13.8	B	32.0	0.205	13.7	B	18.1
	T	0.222	15.8	B	30.9	0.271	9.2	A	32.0	0.205	9.2	A	18.1
	R	0.269	40.9	D	17.5	0.318	33.2	C	17.2	0.268	29.0	C	11.4
NorthEast: Chapman Rd NE	L	0.392	25.6	C	36.4	0.400	17.1	B	35.9	0.232	21.3	C	17.0
	T	0.980	51.9	D	108.5	1.002	76.7	E	85.7	0.579	19.9	B	26.3
	R	0.980	83.7	F	108.5	1.002	84.0	F	85.7	0.579	27.6	C	26.3
NorthWest: Cathedral Ave NW	L	0.191	7.2	A	11.8	0.193	8.3	A	10.8	0.133	6.6	A	6.8
	T	0.955	59.4	E	159.6	0.963	54.2	D	146.5	0.605	18.5	B	48.5
	R	0.955	65.1	E	159.6	0.963	61.0	E	146.5	0.605	23.1	C	48.5
SouthWest: Lester Ave	L	0.225	23.8	C	8.5	0.322	24.2	C	21.2	0.133	23.5	C	8.4
	T	0.225	28.4	C	22.1	0.322	28.8	C	21.2	0.285	19.6	B	18.6
	R	0.225	25.0	C	22.1	0.322	25.7	C	21.2	0.285	24.1	C	18.6
All vehicles		0.980	41.1	D	159.6	1.002	35.5	D	146.5	0.605	17.6	B	48.5

Table 7-16 SIDRA Results: Lester Ave / Chapman Road / Cathedral Ave: 2035 without development traffic

Intersection Approach		Weekday AM Peak				Weekday PM Peak				Saturday Peak			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	Ave. Back of Queue (m)
SouthEast: Cathedral Ave SE	L	0.242	17.9	B	28.5	0.291	14.2	B	38.1	0.236	12.9	B	16.0
	T	0.242	13.4	B	28.5	0.291	9.6	A	38.1	0.236	8.4	A	16.0
	R	0.304	36.0	D	16.6	0.373	36.3	D	20.6	0.254	22.1	C	9.2
	L	0.441	23.9	C	35.9	0.475	17.0	B	40.1	0.308	19.4	B	14.8
	T	1.104	88.0	F	162.6	1.083	135.8	F	136.9	0.770	19.0	B	26.0

NorthEast: Chapman Rd NE	R	1.104	155.8	F	162.6	1.083	140.4	F	136.9	0.770	27.2	C	26.0
NorthWest: Cathedral Ave NW	L	0.212	7.1	A	12.5	0.216	8.7	A	13.8	0.168	7.0	A	7.1
	T	1.059	111.7	F	237.3	1.081	124.9	F	268.6	0.841	22.6	C	52.8
	R	1.059	118.1	F	237.3	1.081	135.0	F	268.6	0.841	27.4	C	52.8
SouthWest: Lester Ave	L	0.264	22.2	C	8.3	0.331	24.4	C	24.4	0.216	22.1	C	7.8
	T	0.264	26.7	C	21.6	0.331	29.0	C	24.4	0.449	18.2	B	17.3
	R	0.264	23.4	C	21.6	0.331	25.8	C	24.4	0.449	22.7	C	17.3
All vehicles		1.104	66.7	E	237.3	1.083	62.8	E	268.6	0.841	17.8	B	52.8

A comparison table is summarised in **Table 7-17**. The comparison of the results shows minor differences in the performance parameters, and it is concluded that the poor performance of the Lester Ave / Chapman Road / Cathedral Ave intersection can be primarily attributed to the background traffic growth and not due to the traffic associated with the proposed development.

Table 7-17 Comparison of Results

	Weekday AM Peak				Weekday PM Peak				Saturday Peak			
	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Existing Year	0.948	37	D	149.3	0.956	39.5	D	182.2	0.593	17.5	B	47.1
2025 without development traffic	0.98	41.1	D	159.6	1.002	35.5	D	146.5	0.605	17.6	B	48.5
2025 with development traffic	0.989	43.6	D	170.1	1.023	37.9	D	153.5	0.621	17.9	B	49.8
2035 without development traffic	1.104	66.7	E	237.3	1.083	62.8	E	268.6	0.841	17.8	B	52.8
2035 with development traffic	1.112	69.1	E	244.6	1.134	69	E	274.1	0.854	18.1	B	54.5

Furthermore, based on the analysis of the existing scenario for the Lester Ave / Chapman Road / Cathedral Ave intersection, the degree of saturation for the AM and PM peak hours are already at 95%-96%, indicating that the intersection is operating near capacity and already requires improvement measures to be considered.

8.0 SUMMARY

This Transport Impact Assessment outlines the transport aspects of the proposed development focusing on traffic operations, access and provision of car parking. Included are discussions regarding pedestrian, cycle, and public transport considerations.

This statement has been prepared in accordance with the *WAPC Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016).*

- The following is concluded for the proposed development:
  - Serviced Apartments – 72 units
    - 1 B/R – 26 units
    - 2 B/R – 8 units
    - Studio – 36 units
    - Accessible - 2
  - Bar – 318 sqm
  - Restaurant – 231 sqm
  - Beer Garden – 471 sqm
  - Theatre – 434 sqm
  - Bottleshop – 390 sqm
  - Office – 185 sqm
- The B85/B99 design vehicles and service vehicles swept paths illustrate that the design vehicles would appear to be able to adequately manoeuvre through the proposed car park and parking bays.
- The proposed development is expected to generate approximately 87 trips during the AM Peak hour, 221 trips during the PM Peak hour and 219 trips during weekend peak hour period.
- The traffic analysis showed that most of the intersections, apart from the Lester Avenue / Chapman Road / Cathedral Avenue Intersection, are currently operating at a good capacity. It is expected that these intersections will continue to operate at satisfactory capacity levels during the opening year and the horizon year.
- The traffic analysis for the intersection of Lester Ave, Chapman Road, and Cathedral Ave indicates that the intersection is currently operating at a DOS of 95%-96%, indicating that this intersection is operating near capacity. A comparison between the “with” and “without” development scenario was undertaken for the future opening (2025) and 2035 design horizon year. The analysis indicates that the proposed development traffic would have minimal impact on this intersection and the deterioration of the intersection's performance can be mainly attributed to the background traffic growth on the surrounding road network.

Overall, the proposed development is expected to have minimal impact on traffic operations and safety on the surrounding road network.

APPENDICES

Appendix A WAPC CHECKLIST

Item	Provided	Comments/Proposals
Summary		
Introduction/Background		
name of applicant and consultant	Section 1	
development location and context	Section 2	
brief description of development proposal	Section 2	
key issues	Section 2	
Background information	Section 2	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 2	
existing access arrangements	Section 2	
existing site traffic	Section 2	
surrounding land uses	Section 2	
surrounding road network	Section 2	
traffic management on frontage roads	NA	
traffic flows on surrounding roads (usually am and pm peak hours)	Section 2	
traffic flows at major intersections (usually am and pm peak hours)	Section 2	
operation of surrounding intersections	Section 7	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	

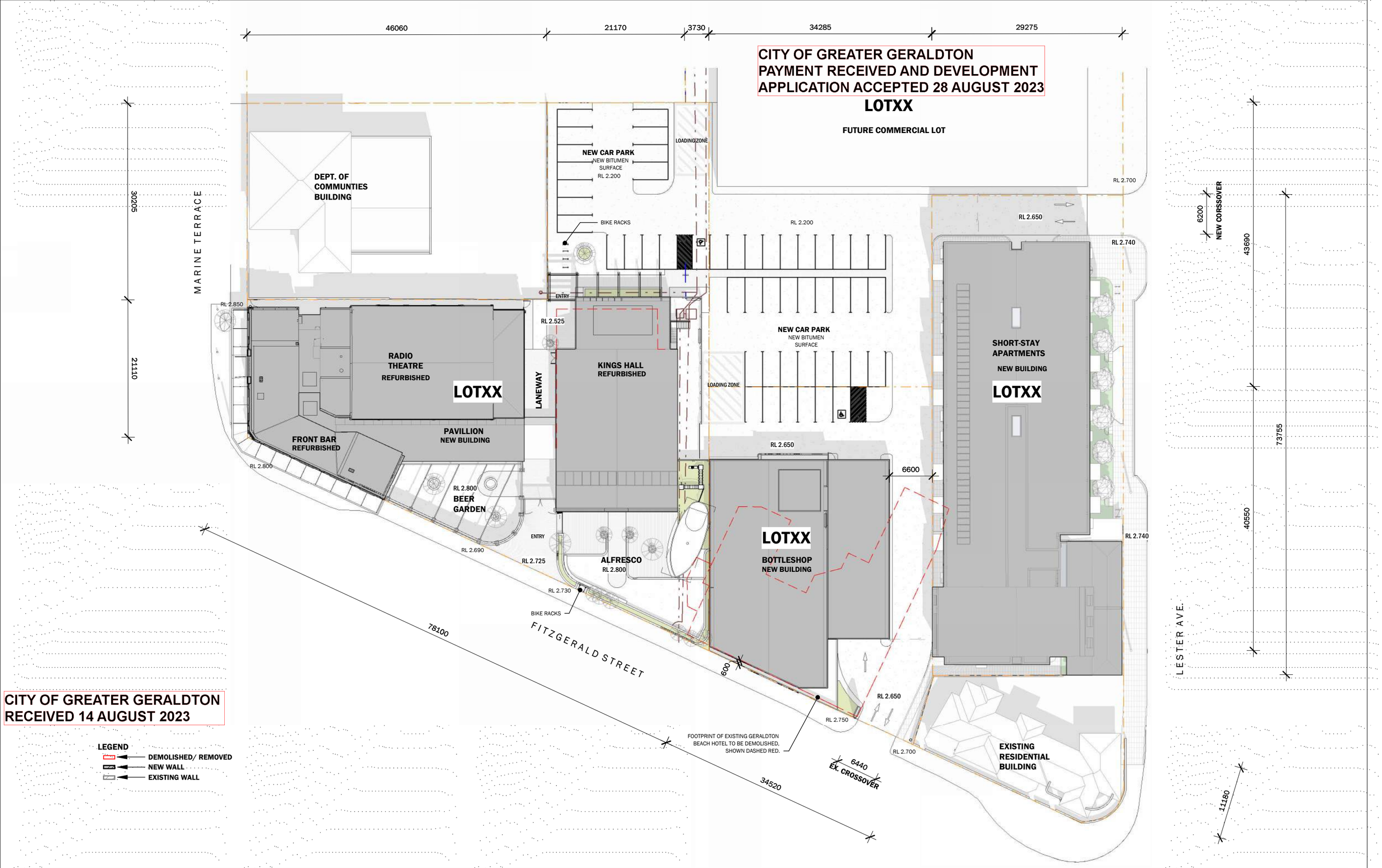
parking provision	Section 4	
end of trip facilities	NA	
any specific issues	Section 2	
road network	Section 2	
intersection layouts and controls	Section 2	
pedestrian/cycle networks and crossing facilities	Section 2	
public transport services	Section 2	
Integration with surrounding area	Section 6	
surrounding major attractors/generators	Section 6	
committed developments and transport proposals	N/A	
proposed changes to land uses within 1200 metres	N/A	
travel desire lines from development to these attractors/generators	N/A	
adequacy of existing transport networks	Section 2	
deficiencies in existing transport networks	N/A	
remedial measures to address deficiencies	N/A	
Analysis of transport networks		
assessment years	Section 7	
time periods	Section 7	
development generated traffic	Section 7	
distribution of generated traffic	Section 7	
parking supply & demand	Section 4	
base and "with development" traffic flows	Section 7	
analysis of development accesses	Section 7	
impact on surrounding roads	Section 7	
impact on intersections	Section 7	
impact on neighbouring areas	Section 7	
traffic noise and vibration	N/A	
road safety	N/A	
public transport access	Section 2	

pedestrian access / amenity	Section 2	
cycle access / amenity	Section 2	
analysis of pedestrian / cycle networks	Section 2	
safe walk/cycle to school (for residential and school site developments only)	N/A	
Traffic management plan (where appropriate)	N/A	

Appendix B SITE PLANS

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

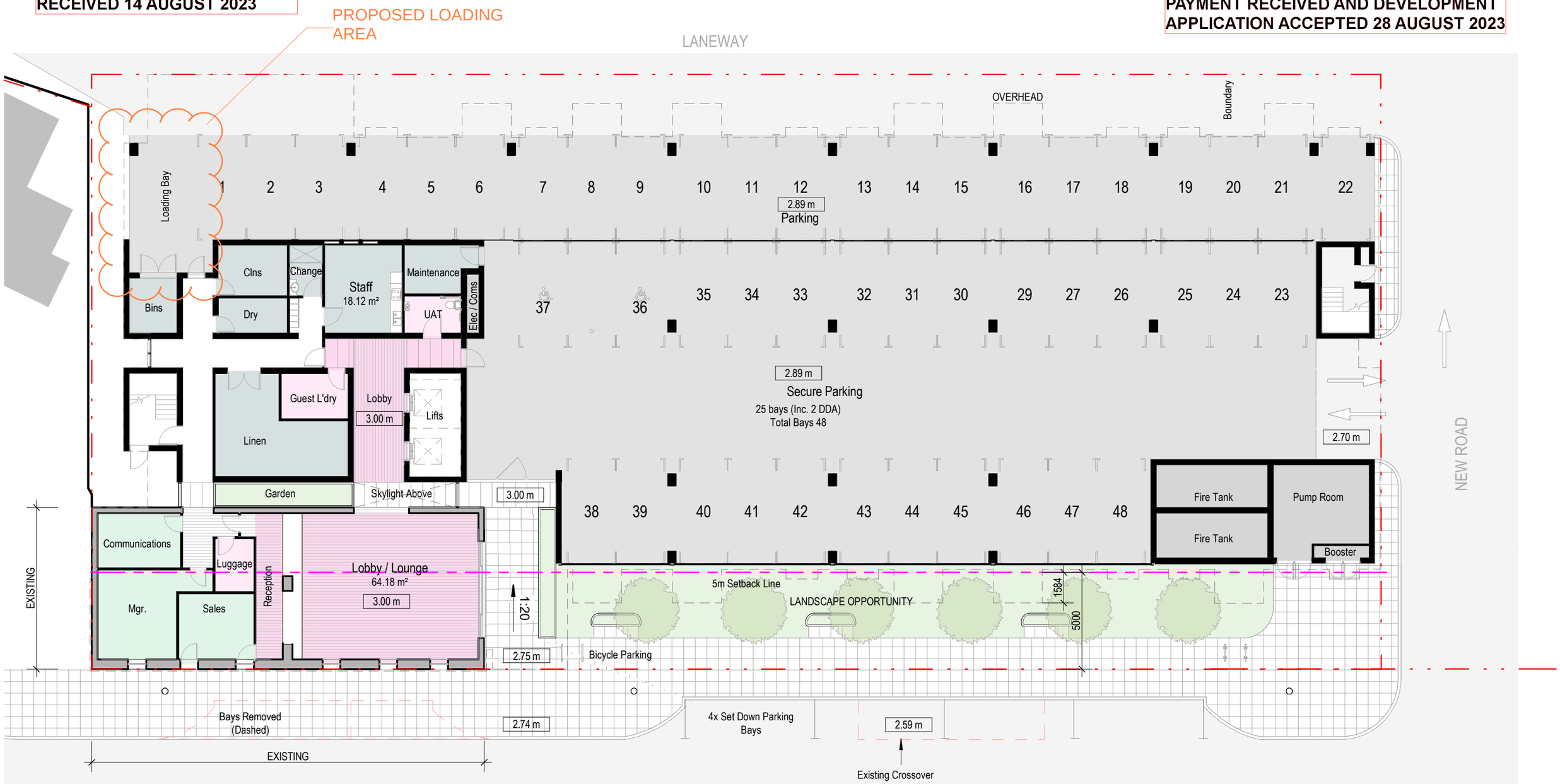


LEGEND

- DEMOLISHED/ REMOVED
- NEW WALL
- EXISTING WALL

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023



1 Bed	1238.30 m²
26	1238.30 m²
2 Bed	571.34 m²
8	571.34 m²
Accessible	104.06 m²
2	104.06 m²
Studio	861.43 m²
36	861.43 m²
Grand total: 72	2775.14 m²

Appendix C SWEPT PATH

FUTURE COMMERCIAL LOT
2450m2

BIKE RACKS

B99 STANDARDS 2004 (AU_NZ)

B85 STANDARDS 2004 (AU_NZ)

6400

1050 3800

SRV

	mm
Width	: 2300
Track	: 2300
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

6200

ALFRESCO

RL 2.800

BOTTLESHOP
NEW BUILDING

RL 3.000

RL 3.000

BIKE RACKS

FITZGERALD STREET

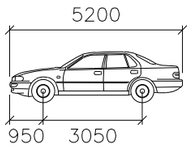
FOOTPRINT OF EXISTING BEACH HOTEL TO BE DEMOLISHED, SHOWN DASHED RED.

6440

EXISTING
RESIDENTIAL
BUILDING

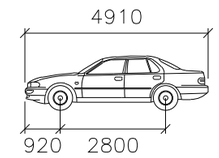
4960 | 18615 | 4990 | 18140 | 9500

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023



B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.9



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023

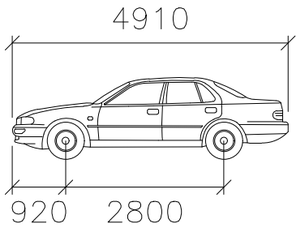
FUTURE COMMERCIAL
2450m2

BIKE RACKS

KINGS HALL
REFURBISHED

RL 2.600

LOADING ZONE



B85

	mm
Width	: 1870
Track	: 1770
Lock to Lock Time	: 6.0
Steering Angle	: 34.1

KINGS HALL
REFURBISHED

LOADING ZONE

RL 2.600

RL 2.850

ALFRESCO

RL 2.800

BOTTLESHOP
NEW BUILDING

SERVICED
APARTMENT
BUILDING

RL 3.000

RL 3.000

6600

6400

SRV
STANDARDS 2018 (AU)

FOOTPRINT OF EXISTING BEACH HOTEL TO
BE DEMOLISHED, SHOWN DASHED RED.

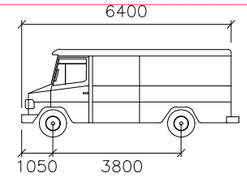
EXISTING
RESIDENTIAL
BUILDING

E RACKS

TZGERALD STREET

60 | 18615 | 4990 | 18140 | 9500

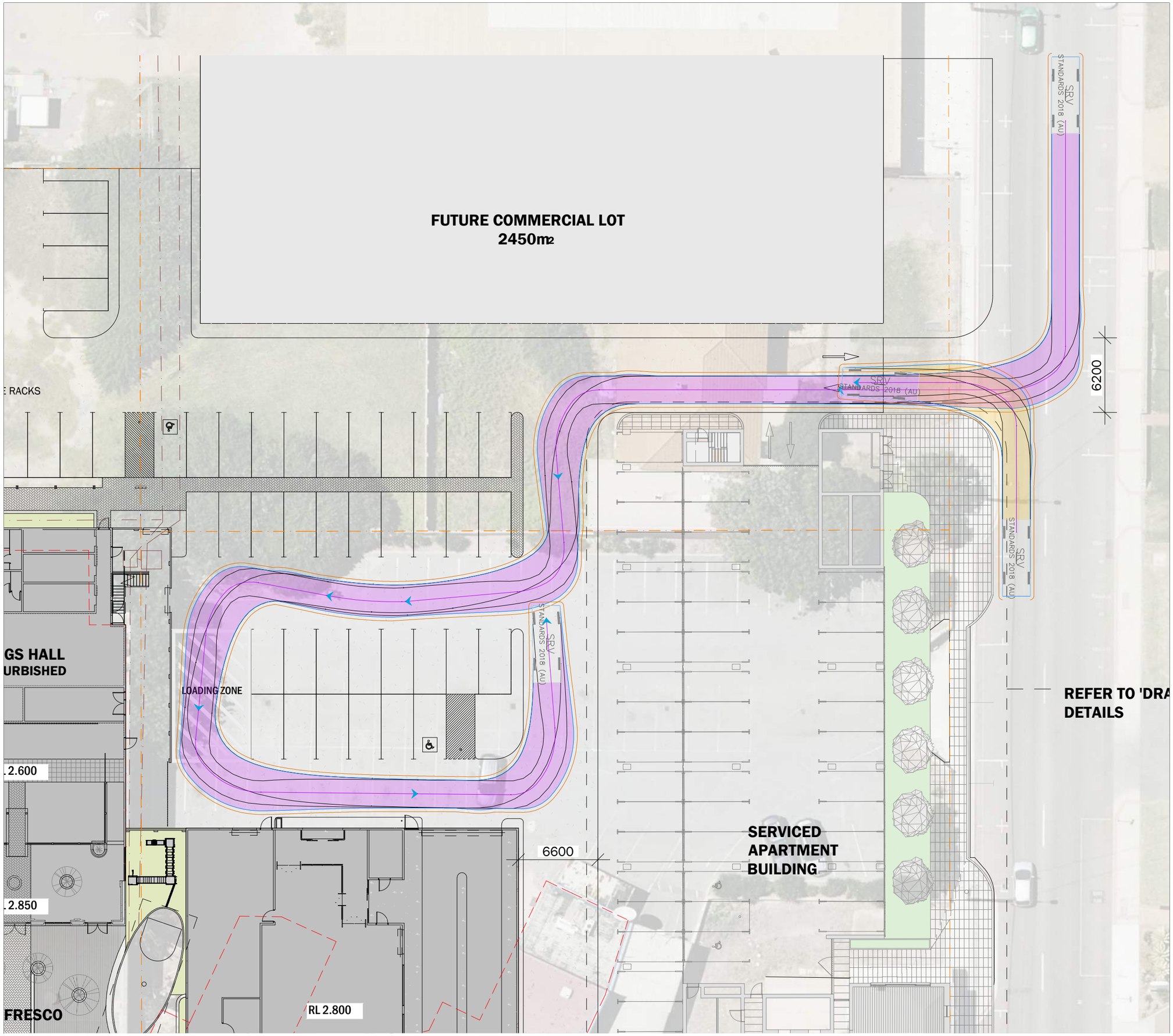
CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

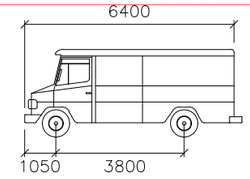


SRV

	mm
Width	: 2300
Track	: 2300
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT
APPLICATION ACCEPTED 28 AUGUST 2023





SRV

	mm
Width	: 2300
Track	: 2300
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

FUTURE COMMERCIAL LOT
2450m2

9.8 rear loader geraldton
Custom

BIKE RACKS

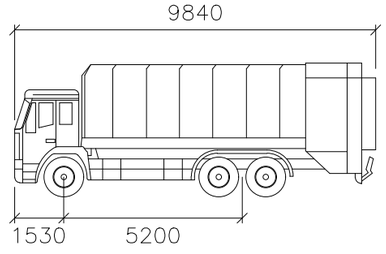
KINGS HALL
REFURBISHED

RL 2.600

LOADING ZONE

6200

REFER TO 'DRAWING SET' FOR DETAILS



9.8 rear loader geraldton

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 34.9

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023

Appendix D SIDRA RESULTS

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_SAT_Existing (Site Folder: SAT PEAK)]

Network: N101 [Existing Year_SAT (Network Folder: Existing Year)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	37	0.3	37	0.3	0.174	4.0	LOS A	1.1	7.5	0.25	0.50	0.25	37.8
2	T1	108	3.2	108	3.2	0.174	4.0	LOS A	1.1	7.5	0.25	0.50	0.25	40.2
3	R2	74	1.3	74	1.3	0.174	7.4	LOS A	1.1	7.5	0.25	0.50	0.25	34.3
Approach		219	2.1	219	2.1	0.174	5.1	LOS A	1.1	7.5	0.25	0.50	0.25	38.3
East: Lester Ave														
4	L2	69	1.8	69	1.8	0.114	3.8	LOS A	0.5	3.6	0.13	0.46	0.13	43.3
5	T1	66	2.9	66	2.9	0.114	3.7	LOS A	0.5	3.6	0.13	0.46	0.13	44.3
6	R2	14	2.6	14	2.6	0.114	7.1	LOS A	0.5	3.6	0.13	0.46	0.13	44.2
Approach		149	2.4	149	2.4	0.114	4.1	LOS A	0.5	3.6	0.13	0.46	0.13	43.8
North: Foreshore Dr														
7	L2	13	2.6	13	2.6	0.045	4.4	LOS A	0.2	1.6	0.32	0.48	0.32	34.5
8	T1	32	4.0	32	4.0	0.045	4.3	LOS A	0.2	1.6	0.32	0.48	0.32	40.5
9	R2	5	0.8	5	0.8	0.045	7.7	LOS A	0.2	1.6	0.32	0.48	0.32	39.6
Approach		49	3.3	49	3.3	0.045	4.7	LOS A	0.2	1.6	0.32	0.48	0.32	39.3
West: Lester Ave														
10	L2	4	1.4	4	1.4	0.082	4.6	LOS A	0.4	3.0	0.37	0.49	0.37	37.6
11	T1	77	2.9	77	2.9	0.082	4.6	LOS A	0.4	3.0	0.37	0.49	0.37	31.5
12	R2	6	0.5	6	0.5	0.082	7.9	LOS A	0.4	3.0	0.37	0.49	0.37	39.4
Approach		87	2.6	87	2.6	0.082	4.8	LOS A	0.4	3.0	0.37	0.49	0.37	32.9
All Vehicles		505	2.4	505	2.4	0.174	4.7	LOS A	1.1	7.5	0.24	0.48	0.24	40.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_AM_Existing (Site Folder: AM PEAK)]

Network: N101 [Existing Year_AM (Network Folder: Existing Year)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	17	0.3	17	0.3	0.216	19.6	LOS B	4.1	29.6	0.65	0.57	0.65	23.1
22	T1	158	3.2	158	3.2	0.216	15.1	LOS B	4.1	29.6	0.65	0.57	0.65	29.2
23	R2	64	1.3	64	1.3	* 0.265	40.9	LOS D	2.4	17.2	0.94	0.75	0.94	14.6
Approach		239	2.5	239	2.5	0.265	22.3	LOS C	4.1	29.6	0.72	0.61	0.72	23.3
NorthEast: Chapman Rd NE														
24	L2	96	1.8	96	1.8	0.379	25.6	LOS C	5.1	36.1	0.76	0.69	0.76	21.1
25	T1	159	2.9	159	2.9	* 0.948	44.1	LOS D	13.3	95.1	0.87	0.99	1.28	5.7
26	R2	143	2.6	143	2.6	0.948	70.0	LOS E	13.3	95.1	0.97	1.27	1.76	8.6
Approach		398	2.5	398	2.5	0.948	49.0	LOS D	13.3	95.1	0.88	1.02	1.33	9.7
NorthWest: Cathedral Ave NW														
27	L2	214	2.6	214	2.6	0.188	6.7	LOS A	1.5	10.8	0.33	0.60	0.33	21.5
28	T1	326	4.0	326	4.0	* 0.938	53.8	LOS D	20.7	149.3	0.95	1.22	1.52	14.0
29	R2	62	0.8	62	0.8	0.938	59.0	LOS E	20.7	149.3	0.96	1.23	1.53	7.3
Approach		602	3.2	602	3.2	0.938	37.6	LOS D	20.7	149.3	0.73	1.00	1.09	14.8
SouthWest: Lester Ave														
30	L2	41	1.4	41	1.4	0.072	26.4	LOS C	1.2	8.3	0.73	0.69	0.73	27.3
31	T1	83	2.9	83	2.9	0.220	23.8	LOS C	3.0	21.6	0.79	0.65	0.79	27.2
32	R2	15	0.5	15	0.5	0.220	28.3	LOS C	3.0	21.6	0.79	0.65	0.79	29.4
Approach		139	2.2	139	2.2	0.220	25.0	LOS C	3.0	21.6	0.77	0.66	0.77	27.5
All Vehicles		1378	2.8	1378	2.8	0.948	37.0	LOS D	20.7	149.3	0.78	0.91	1.07	15.6

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	199.6	213.0	1.07
NorthEast: Chapman Rd NE											
P6	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.2	216.3	1.07
NorthWest: Cathedral Ave NW											
P7	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07

SouthWest: Lester Ave										
P8 Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07
All Pedestrians	211	35.8	LOS D	0.1	0.1	0.93	0.93	201.9	215.9	1.07

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_AM_Existing (Site Folder: AM PEAK)]

Network: N101 [Existing Year_AM (Network Folder: Existing Year)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	37	0.3	37	0.3	0.187	4.3	LOS A	1.2	8.3	0.33	0.51	0.33	37.4
2	T1	109	3.2	109	3.2	0.187	4.3	LOS A	1.2	8.3	0.33	0.51	0.33	39.8
3	R2	74	1.3	74	1.3	0.187	7.7	LOS A	1.2	8.3	0.33	0.51	0.33	33.8
Approach		220	2.1	220	2.1	0.187	5.4	LOS A	1.2	8.3	0.33	0.51	0.33	37.8
East: Lester Ave														
4	L2	112	1.8	112	1.8	0.185	4.0	LOS A	0.9	6.2	0.18	0.47	0.18	43.1
5	T1	104	2.9	104	2.9	0.185	3.9	LOS A	0.9	6.2	0.18	0.47	0.18	44.0
6	R2	20	2.6	20	2.6	0.185	7.3	LOS A	0.9	6.2	0.18	0.47	0.18	44.0
Approach		236	2.4	236	2.4	0.185	4.2	LOS A	0.9	6.2	0.18	0.47	0.18	43.5
North: Foreshore Dr														
7	L2	16	2.6	16	2.6	0.059	4.4	LOS A	0.3	2.1	0.32	0.48	0.32	34.6
8	T1	43	4.0	43	4.0	0.059	4.3	LOS A	0.3	2.1	0.32	0.48	0.32	40.5
9	R2	6	0.8	6	0.8	0.059	7.7	LOS A	0.3	2.1	0.32	0.48	0.32	39.6
Approach		65	3.4	65	3.4	0.059	4.7	LOS A	0.3	2.1	0.32	0.48	0.32	39.4
West: Lester Ave														
10	L2	3	1.4	3	1.4	0.080	4.7	LOS A	0.4	2.9	0.38	0.53	0.38	36.9
11	T1	59	2.9	59	2.9	0.080	4.6	LOS A	0.4	2.9	0.38	0.53	0.38	30.6
12	R2	22	0.5	22	0.5	0.080	7.9	LOS A	0.4	2.9	0.38	0.53	0.38	38.7
Approach		84	2.2	84	2.2	0.080	5.5	LOS A	0.4	2.9	0.38	0.53	0.38	33.9
All Vehicles		605	2.3	605	2.3	0.187	4.9	LOS A	1.2	8.3	0.28	0.49	0.28	40.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_PM_Existing (Site Folder: PM PEAK)]

Network: N101 [Existing Year_PM (Network Folder: Existing Year)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 102 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	16	0.1	16	0.1	0.260	17.3	LOS B	6.8	48.1	0.55	0.49	0.55	25.3
22	T1	256	2.2	256	2.2	0.260	12.8	LOS B	6.8	48.1	0.55	0.49	0.55	31.3
23	R2	79	0.7	79	0.7	* 0.336	49.7	LOS D	3.7	26.1	0.95	0.76	0.95	12.8
Approach		351	1.8	351	1.8	0.336	21.3	LOS C	6.8	48.1	0.64	0.55	0.64	24.2
NorthEast: Chapman Rd NE														
24	L2	233	4.2	233	4.2	0.441	20.2	LOS C	6.6	47.8	0.61	0.72	0.61	22.7
25	T1	100	1.8	100	1.8	* 0.956	77.6	LOS E	14.2	100.7	0.95	1.23	1.68	3.5
26	R2	104	1.9	104	1.9	0.956	82.2	LOS F	14.2	100.7	0.95	1.23	1.68	7.5
Approach		437	3.1	437	3.1	0.956	48.1	LOS D	14.2	100.7	0.77	0.96	1.11	11.3
NorthWest: Cathedral Ave NW														
27	L2	152	21.0	152	21.0	0.187	10.2	LOS B	2.3	19.2	0.47	0.63	0.47	19.5
28	T1	323	4.5	323	4.5	* 0.936	58.7	LOS E	25.2	182.2	0.92	1.15	1.38	13.1
29	R2	86	1.2	86	1.2	0.936	65.6	LOS E	25.2	182.2	0.94	1.18	1.41	6.6
Approach		561	8.5	561	8.5	0.936	46.7	LOS D	25.2	182.2	0.80	1.02	1.14	13.1
SouthWest: Lester Ave														
30	L2	68	1.2	68	1.2	0.119	31.5	LOS C	2.4	17.1	0.75	0.72	0.75	25.1
31	T1	87	1.5	87	1.5	0.258	30.0	LOS C	4.1	28.7	0.80	0.67	0.80	24.3
32	R2	18	0.3	18	0.3	0.258	34.6	LOS C	4.1	28.7	0.80	0.67	0.80	26.7
Approach		174	1.3	174	1.3	0.258	31.1	LOS C	4.1	28.7	0.78	0.69	0.78	24.9
All Vehicles		1522	4.6	1522	4.6	0.956	39.5	LOS D	25.2	182.2	0.75	0.86	0.97	15.7

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	45.3	LOS E	0.1	0.1	0.94	0.94	209.1	213.0	1.02
NorthEast: Chapman Rd NE											
P6	Full	53	45.3	LOS E	0.1	0.1	0.94	0.94	211.7	216.3	1.02
NorthWest: Cathedral Ave NW											
P7	Full	53	45.3	LOS E	0.1	0.1	0.94	0.94	212.4	217.2	1.02

SouthWest: Lester Ave										
P8 Full	53	45.3	LOS E	0.1	0.1	0.94	0.94	212.4	217.2	1.02
All Pedestrians	211	45.3	LOS E	0.1	0.1	0.94	0.94	211.4	215.9	1.02

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_PM_Existing (Site Folder: PM PEAK)]

Network: N101 [Existing Year_PM (Network Folder: Existing Year)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	40	0.3	40	0.3	0.144	4.4	LOS A	0.9	6.2	0.35	0.52	0.35	37.4
2	T1	72	3.2	72	3.2	0.144	4.4	LOS A	0.9	6.2	0.35	0.52	0.35	39.7
3	R2	51	1.3	51	1.3	0.144	7.8	LOS A	0.9	6.2	0.35	0.52	0.35	33.7
Approach		162	1.9	162	1.9	0.144	5.5	LOS A	0.9	6.2	0.35	0.52	0.35	37.7
East: Lester Ave														
4	L2	49	1.8	49	1.8	0.164	4.2	LOS A	0.7	5.3	0.22	0.48	0.22	42.7
5	T1	117	2.9	117	2.9	0.164	4.1	LOS A	0.7	5.3	0.22	0.48	0.22	43.6
6	R2	28	2.6	28	2.6	0.164	7.5	LOS A	0.7	5.3	0.22	0.48	0.22	43.6
Approach		195	2.6	195	2.6	0.164	4.6	LOS A	0.7	5.3	0.22	0.48	0.22	43.4
North: Foreshore Dr														
7	L2	24	2.6	24	2.6	0.080	4.6	LOS A	0.4	2.9	0.37	0.50	0.37	34.1
8	T1	53	4.0	53	4.0	0.080	4.6	LOS A	0.4	2.9	0.37	0.50	0.37	40.2
9	R2	7	0.8	7	0.8	0.080	7.9	LOS A	0.4	2.9	0.37	0.50	0.37	39.3
Approach		84	3.3	84	3.3	0.080	4.9	LOS A	0.4	2.9	0.37	0.50	0.37	38.9
West: Lester Ave														
10	L2	7	1.4	7	1.4	0.137	4.4	LOS A	0.7	5.3	0.35	0.52	0.35	37.0
11	T1	98	2.9	98	2.9	0.137	4.4	LOS A	0.7	5.3	0.35	0.52	0.35	30.7
12	R2	47	0.5	47	0.5	0.137	7.7	LOS A	0.7	5.3	0.35	0.52	0.35	38.8
Approach		153	2.1	153	2.1	0.137	5.4	LOS A	0.7	5.3	0.35	0.52	0.35	34.5
All Vehicles		594	2.4	594	2.4	0.164	5.1	LOS A	0.9	6.2	0.31	0.50	0.31	39.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_SAT_Existing (Site Folder: SAT PEAK)]

Network: N101 [Existing Year_SAT (Network Folder: Existing Year)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	17	0.1	17	0.1	0.202	13.7	LOS B	2.5	17.7	0.62	0.54	0.62	29.1
22	T1	156	0.8	156	0.8	0.202	9.2	LOS A	2.5	17.7	0.62	0.54	0.62	34.7
23	R2	63	0.3	63	0.3	* 0.263	28.9	LOS C	1.6	11.2	0.94	0.74	0.94	18.2
Approach		236	0.6	236	0.6	0.263	14.8	LOS B	2.5	17.7	0.71	0.60	0.71	28.3
NorthEast: Chapman Rd NE														
24	L2	60	1.7	60	1.7	0.226	21.3	LOS C	2.3	16.6	0.81	0.70	0.81	23.5
25	T1	99	2.8	99	2.8	0.566	19.8	LOS B	3.6	25.6	0.88	0.75	0.90	10.6
26	R2	89	2.5	89	2.5	* 0.566	27.4	LOS C	3.6	25.6	0.95	0.81	0.99	17.4
Approach		248	2.4	248	2.4	0.566	22.9	LOS C	3.6	25.6	0.88	0.76	0.91	16.8
NorthWest: Cathedral Ave NW														
27	L2	153	2.5	153	2.5	0.130	6.6	LOS A	0.9	6.6	0.36	0.61	0.36	32.5
28	T1	233	3.8	233	3.8	* 0.593	18.3	LOS B	6.5	47.1	0.91	0.77	0.91	26.4
29	R2	45	0.7	45	0.7	0.593	22.9	LOS C	6.5	47.1	0.91	0.77	0.91	16.6
Approach		431	3.0	431	3.0	0.593	14.6	LOS B	6.5	47.1	0.71	0.72	0.71	27.0
SouthWest: Lester Ave														
30	L2	54	0.4	54	0.4	0.131	23.5	LOS C	1.2	8.2	0.83	0.72	0.83	28.7
31	T1	109	0.8	109	0.8	0.280	19.6	LOS B	2.6	18.3	0.87	0.69	0.87	29.8
32	R2	4	0.0	4	0.0	0.280	24.1	LOS C	2.6	18.3	0.87	0.69	0.87	31.9
Approach		167	0.7	167	0.7	0.280	20.9	LOS C	2.6	18.3	0.86	0.70	0.86	29.5
All Vehicles		1082	2.0	1082	2.0	0.593	17.5	LOS B	6.5	47.1	0.77	0.70	0.78	25.6

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	185.2	213.0	1.15
NorthEast: Chapman Rd NE											
P6	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	187.8	216.3	1.15
NorthWest: Cathedral Ave NW											
P7	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15

SouthWest: Lester Ave										
P8 Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15
All Pedestrians	211	21.4	LOS C	0.1	0.1	0.89	0.89	187.5	215.9	1.15

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

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2025+DEV_SAT (Site Folder: SAT Peak_2025+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	126	1.2	126	1.2	0.087	0.0	LOS A	0.2	1.5	0.07	0.13	0.07	51.3
6	R2	37	0.0	37	0.0	0.087	5.3	LOS A	0.2	1.5	0.07	0.13	0.07	54.2
Approach		163	1.0	163	1.0	0.087	1.2	NA	0.2	1.5	0.07	0.13	0.07	52.8
East: Access 2 (Fitzgerald Dr)														
7	L2	38	0.0	38	0.0	0.025	5.7	LOS A	0.1	0.7	0.12	0.54	0.12	50.2
9	R2	1	0.0	1	0.0	0.025	6.2	LOS A	0.1	0.7	0.12	0.54	0.12	47.7
Approach		39	0.0	39	0.0	0.025	5.7	LOS A	0.1	0.7	0.12	0.54	0.12	50.1
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.027	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	48	6.9	48	6.9	0.027	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.5
Approach		49	6.8	49	6.8	0.027	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.3
All Vehicles		252	2.0	252	2.0	0.087	1.7	NA	0.2	1.5	0.06	0.17	0.06	52.2

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

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_AM_2025 +DEV (Site Folder: AM Peak_2025+DEV)]

Network: N101 [2025 +DEV_AM (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	22	0.3	22	0.3	0.240	20.7	LOS C	4.5	32.3	0.68	0.60	0.68	22.2
22	T1	161	3.2	161	3.2	0.240	16.2	LOS B	4.5	32.3	0.68	0.60	0.68	28.2
23	R2	65	1.3	65	1.3	* 0.269	40.9	LOS D	2.5	17.5	0.94	0.75	0.94	14.6
Approach		248	2.4	248	2.4	0.269	23.1	LOS C	4.5	32.3	0.75	0.64	0.75	22.8
NorthEast: Chapman Rd NE														
24	L2	98	1.8	98	1.8	0.395	25.6	LOS C	5.1	36.5	0.76	0.70	0.76	21.1
25	T1	163	2.9	163	2.9	* 0.989	54.4	LOS D	15.7	112.2	0.88	1.07	1.41	4.8
26	R2	146	2.6	146	2.6	0.989	88.2	LOS F	15.7	112.2	0.99	1.40	1.99	7.0
Approach		407	2.5	407	2.5	0.989	59.6	LOS E	15.7	112.2	0.89	1.10	1.46	8.2
NorthWest: Cathedral Ave NW														
27	L2	218	2.6	218	2.6	0.194	6.8	LOS A	1.6	11.2	0.34	0.61	0.34	21.4
28	T1	333	4.0	333	4.0	* 0.970	66.0	LOS E	23.6	170.1	0.96	1.34	1.68	12.1
29	R2	65	0.8	65	0.8	0.970	71.5	LOS E	23.6	170.1	0.97	1.35	1.70	6.1
Approach		616	3.2	616	3.2	0.970	45.7	LOS D	23.6	170.1	0.74	1.08	1.21	13.1
SouthWest: Lester Ave														
30	L2	44	1.4	44	1.4	0.077	26.4	LOS C	1.3	8.9	0.73	0.70	0.73	25.1
31	T1	89	2.9	89	2.9	0.237	23.9	LOS C	3.3	23.4	0.79	0.65	0.79	24.6
32	R2	16	0.5	16	0.5	0.237	28.5	LOS C	3.3	23.4	0.79	0.65	0.79	27.4
Approach		149	2.2	149	2.2	0.237	25.1	LOS C	3.3	23.4	0.77	0.67	0.77	25.1
All Vehicles		1421	2.8	1421	2.8	0.989	43.6	LOS D	23.6	170.1	0.79	0.96	1.15	13.7

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	199.6	213.0	1.07
NorthEast: Chapman Rd NE											
P6	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.2	216.3	1.07
NorthWest: Cathedral Ave NW											
P7	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07

SouthWest: Lester Ave										
P8 Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07
All Pedestrians	211	35.8	LOS D	0.1	0.1	0.93	0.93	201.9	215.9	1.07

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2025+DEV_AM (Site Folder: AM Peak_2025+DEV)]

Network: N101 [2025 +DEV_AM (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	241	7.3	241	7.3	0.135	0.0	LOS A	0.1	0.4	0.02	0.02	0.02	58.9
6	R2	8	0.0	8	0.0	0.135	6.1	LOS A	0.1	0.4	0.02	0.02	0.02	56.7
Approach		249	7.1	249	7.1	0.135	0.2	NA	0.1	0.4	0.02	0.02	0.02	58.7
NorthWest: Access 1 (Leseter Ave)														
7	L2	6	0.0	6	0.0	0.034	6.0	LOS A	0.1	0.8	0.33	0.62	0.33	49.1
9	R2	26	0.0	26	0.0	0.034	7.0	LOS A	0.1	0.8	0.33	0.62	0.33	49.1
Approach		33	0.0	33	0.0	0.034	6.8	LOS A	0.1	0.8	0.33	0.62	0.33	49.1
SouthWest: Lester Avenue (W)														
10	L2	39	0.0	39	0.0	0.101	4.5	LOS A	0.0	0.0	0.00	0.12	0.00	55.7
11	T1	151	4.8	151	4.8	0.101	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	49.5
Approach		189	3.8	189	3.8	0.101	0.9	NA	0.0	0.0	0.00	0.12	0.00	53.4
All Vehicles		472	5.3	472	5.3	0.135	1.0	NA	0.1	0.8	0.03	0.10	0.03	55.6

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_AM_2025 +DEV (Site Folder: AM Peak_2025+DEV)]

Network: N101 [2025 +DEV_AM (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	38	0.3	38	0.3	0.238	4.4	LOS A	1.4	9.8	0.35	0.55	0.35	37.0
2	T1	126	3.2	126	3.2	0.238	4.3	LOS A	1.4	9.8	0.35	0.55	0.35	33.3
3	R2	115	1.3	115	1.3	0.238	7.7	LOS A	1.4	9.8	0.35	0.55	0.35	33.3
Approach		279	2.0	279	2.0	0.238	5.7	LOS A	1.4	9.8	0.35	0.55	0.35	34.0
East: Lester Ave														
4	L2	140	1.8	140	1.8	0.210	3.9	LOS A	1.2	8.6	0.26	0.47	0.26	37.1
5	T1	106	2.9	106	2.9	0.210	3.8	LOS A	1.2	8.6	0.26	0.47	0.26	37.6
6	R2	20	2.6	20	2.6	0.210	7.3	LOS A	1.2	8.6	0.26	0.47	0.26	27.6
Approach		266	2.3	266	2.3	0.210	4.1	LOS A	1.2	8.6	0.26	0.47	0.26	36.9
North: Foreshore Dr														
7	L2	16	2.6	16	2.6	0.069	4.6	LOS A	0.3	2.4	0.37	0.50	0.37	28.5
8	T1	51	4.0	51	4.0	0.069	4.6	LOS A	0.3	2.4	0.37	0.50	0.37	38.3
9	R2	6	0.8	6	0.8	0.069	7.9	LOS A	0.3	2.4	0.37	0.50	0.37	36.9
Approach		73	3.4	73	3.4	0.069	4.9	LOS A	0.3	2.4	0.37	0.50	0.37	36.9
West: Lester Ave														
10	L2	3	1.4	3	1.4	0.085	5.0	LOS A	0.4	3.1	0.44	0.55	0.44	30.1
11	T1	60	2.9	60	2.9	0.085	5.0	LOS A	0.4	3.1	0.44	0.55	0.44	30.1
12	R2	22	0.5	22	0.5	0.085	8.3	LOS A	0.4	3.1	0.44	0.55	0.44	38.3
Approach		85	2.2	85	2.2	0.085	5.8	LOS A	0.4	3.1	0.44	0.55	0.44	33.1
All Vehicles		703	2.3	703	2.3	0.238	5.0	LOS A	1.4	9.8	0.33	0.51	0.33	35.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2025+DEV_AM (Site Folder: AM Peak_2025+DEV)]

Network: N101 [2025 +DEV_AM (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	133	4.8	133	4.8	0.079	0.0	LOS A	0.1	0.7	0.04	0.06	0.04	55.5
6	R2	15	0.0	15	0.0	0.079	5.3	LOS A	0.1	0.7	0.04	0.06	0.04	55.2
Approach		147	4.3	147	4.3	0.079	0.6	NA	0.1	0.7	0.04	0.06	0.04	55.4
East: Access 2 (Fitzgerald Dr)														
7	L2	6	0.0	6	0.0	0.005	5.7	LOS A	0.0	0.1	0.14	0.54	0.14	50.1
9	R2	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.14	0.54	0.14	47.7
Approach		7	0.0	7	0.0	0.005	5.8	LOS A	0.0	0.1	0.14	0.54	0.14	49.7
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.035	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	64	7.3	64	7.3	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.9
Approach		65	7.2	65	7.2	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.6
All Vehicles		220	5.0	220	5.0	0.079	0.6	NA	0.1	0.7	0.03	0.06	0.03	55.1

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

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_PM_2025 +DEV (Site Folder: PM Peak_2025+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	23	0.1	23	0.1	0.268	13.4	LOS B	4.7	33.6	0.54	0.49	0.54	29.7
22	T1	261	2.2	261	2.2	0.268	8.8	LOS A	4.7	33.6	0.54	0.49	0.54	35.3
23	R2	81	0.7	81	0.7	* 0.342	36.2	LOS D	2.7	18.8	0.95	0.76	0.95	15.9
Approach		365	1.7	365	1.7	0.342	15.1	LOS B	4.7	33.6	0.63	0.55	0.63	28.3
NorthEast: Chapman Rd NE														
24	L2	237	4.2	237	4.2	0.409	17.4	LOS B	5.1	36.9	0.66	0.73	0.66	24.4
25	T1	103	1.8	103	1.8	* 1.023	94.8	LOS F	14.2	100.7	1.00	1.51	2.40	2.9
26	R2	106	1.9	106	1.9	1.023	99.4	LOS F	14.2	100.7	1.00	1.51	2.40	6.3
Approach		446	3.1	446	3.1	1.023	54.8	LOS D	14.2	100.7	0.82	1.10	1.48	10.2
NorthWest: Cathedral Ave NW														
27	L2	155	21.0	155	21.0	0.191	8.3	LOS A	1.4	11.6	0.46	0.62	0.46	20.6
28	T1	329	4.5	329	4.5	* 0.957	53.9	LOS D	21.2	153.5	0.95	1.32	1.67	14.0
29	R2	95	1.2	95	1.2	0.957	60.7	LOS E	21.2	153.5	0.98	1.35	1.73	7.1
Approach		579	8.4	579	8.4	0.957	42.8	LOS D	21.2	153.5	0.83	1.14	1.36	13.8
SouthWest: Lester Ave														
30	L2	75	1.2	75	1.2	0.168	27.8	LOS C	2.1	14.5	0.83	0.73	0.83	24.4
31	T1	97	1.5	97	1.5	0.335	25.2	LOS C	3.4	24.3	0.88	0.71	0.88	23.9
32	R2	19	0.3	19	0.3	0.335	29.8	LOS C	3.4	24.3	0.88	0.71	0.88	26.7
Approach		191	1.3	191	1.3	0.335	26.7	LOS C	3.4	24.3	0.86	0.72	0.86	24.4
All Vehicles		1581	4.5	1581	4.5	1.023	37.9	LOS D	21.2	153.5	0.78	0.94	1.16	15.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.2	213.0	1.10
NorthEast: Chapman Rd NE											
P6	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	195.7	216.3	1.11
NorthWest: Cathedral Ave NW											
P7	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11

SouthWest: Lester Ave										
P8 Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11
All Pedestrians	211	29.3	LOS C	0.1	0.1	0.92	0.92	195.4	215.9	1.10

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2025+DEV_PM (Site Folder: PM Peak_2025+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	205	7.8	203	7.9	0.120	0.1	LOS A	0.1	0.7	0.04	0.04	0.04	57.8
6	R2	15	0.0	15	0.0	0.120	6.3	LOS A	0.1	0.7	0.04	0.04	0.04	56.3
Approach		220	7.3	218 N1	7.3	0.120	0.5	NA	0.1	0.7	0.04	0.04	0.04	57.6
NorthWest: Access 1 (Leseter Ave)														
7	L2	14	0.0	14	0.0	0.082	6.1	LOS A	0.3	2.0	0.36	0.64	0.36	48.9
9	R2	65	0.0	65	0.0	0.082	7.1	LOS A	0.3	2.0	0.36	0.64	0.36	48.9
Approach		79	0.0	79	0.0	0.082	6.9	LOS A	0.3	2.0	0.36	0.64	0.36	48.9
SouthWest: Lester Avenue (W)														
10	L2	73	0.0	73	0.0	0.130	4.5	LOS A	0.0	0.0	0.00	0.17	0.00	55.1
11	T1	175	3.0	175	3.0	0.130	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	46.3
Approach		247	2.1	247	2.1	0.130	1.3	NA	0.0	0.0	0.00	0.17	0.00	52.7
All Vehicles		546	3.9	544 N1	3.9	0.130	1.8	NA	0.3	2.0	0.07	0.19	0.07	53.4

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_PM_2025 +DEV (Site Folder: PM Peak_2025+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.244	4.5	LOS A	1.4	10.3	0.38	0.56	0.38	36.7
2	T1	112	3.2	112	3.2	0.244	4.5	LOS A	1.4	10.3	0.38	0.56	0.38	32.8
3	R2	124	1.3	124	1.3	0.244	7.8	LOS A	1.4	10.3	0.38	0.56	0.38	32.8
Approach		277	1.9	277	1.9	0.244	6.0	LOS A	1.4	10.3	0.38	0.56	0.38	33.6
East: Lester Ave														
4	L2	116	1.8	115	1.8	0.229	4.4	LOS A	1.3	9.5	0.37	0.51	0.37	36.2
5	T1	119	2.9	118	2.9	0.229	4.3	LOS A	1.3	9.5	0.37	0.51	0.37	36.6
6	R2	28	2.6	28	2.6	0.229	7.8	LOS A	1.3	9.5	0.37	0.51	0.37	26.4
Approach		263	2.4	261[N1]	2.4	0.229	4.7	LOS A	1.3	9.5	0.37	0.51	0.37	35.7
North: Foreshore Dr														
7	L2	24	2.6	24	2.6	0.125	5.1	LOS A	0.6	4.7	0.45	0.55	0.45	27.7
8	T1	92	4.0	92	4.0	0.125	5.1	LOS A	0.6	4.7	0.45	0.55	0.45	37.8
9	R2	7	0.8	7	0.8	0.125	8.4	LOS A	0.6	4.7	0.45	0.55	0.45	36.3
Approach		123	3.5	123	3.5	0.125	5.3	LOS A	0.6	4.7	0.45	0.55	0.45	36.5
West: Lester Ave														
10	L2	7	1.4	7	1.4	0.156	5.1	LOS A	0.8	6.0	0.46	0.59	0.46	29.6
11	T1	100	2.9	100	2.9	0.156	5.1	LOS A	0.8	6.0	0.46	0.59	0.46	29.6
12	R2	48	0.5	48	0.5	0.156	8.4	LOS A	0.8	6.0	0.46	0.59	0.46	37.9
Approach		156	2.1	156	2.1	0.156	6.1	LOS A	0.8	6.0	0.46	0.59	0.46	33.2
All Vehicles		819	2.3	817[N1]	2.3	0.244	5.5	LOS A	1.4	10.3	0.40	0.55	0.40	34.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2025+DEV_PM (Site Folder: PM Peak_2025+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	108	3.0	108	3.0	0.080	0.1	LOS A	0.2	1.6	0.11	0.15	0.11	49.6
6	R2	38	0.0	38	0.0	0.080	5.4	LOS A	0.2	1.6	0.11	0.15	0.11	53.7
Approach		146	2.2	146	2.2	0.080	1.5	NA	0.2	1.6	0.11	0.15	0.11	52.0
East: Access 2 (Fitzgerald Dr)														
7	L2	38	0.0	38	0.0	0.026	5.8	LOS A	0.1	0.7	0.17	0.54	0.17	49.9
9	R2	1	0.0	1	0.0	0.026	6.3	LOS A	0.1	0.7	0.17	0.54	0.17	47.5
Approach		39	0.0	39	0.0	0.026	5.8	LOS A	0.1	0.7	0.17	0.54	0.17	49.9
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.046	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	84	7.8	84	7.8	0.046	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach		85	7.7	85	7.7	0.046	0.0	NA	0.0	0.0	0.00	0.01	0.00	58.9
All Vehicles		271	3.6	270[N1]	3.6	0.080	1.6	NA	0.2	1.6	0.08	0.16	0.08	51.8

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_SAT_2025+DEV (Site Folder: SAT Peak_2025+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	26	0.1	26	0.1	0.233	14.5	LOS B	2.8	20.0	0.67	0.59	0.67	27.8
22	T1	159	0.8	159	0.8	0.233	10.0	LOS A	2.8	20.0	0.67	0.59	0.67	33.6
23	R2	64	0.3	64	0.3	* 0.268	29.0	LOS C	1.6	11.4	0.94	0.74	0.94	18.2
Approach		249	0.6	249	0.6	0.268	15.3	LOS B	2.8	20.0	0.74	0.63	0.74	27.7
NorthEast: Chapman Rd NE														
24	L2	61	1.7	61	1.7	0.235	21.3	LOS C	2.4	17.2	0.81	0.70	0.81	23.5
25	T1	102	2.8	102	2.8	0.588	19.9	LOS B	3.7	26.4	0.88	0.76	0.91	10.6
26	R2	92	2.5	92	2.5	* 0.588	27.8	LOS C	3.7	26.4	0.95	0.82	1.02	17.3
Approach		255	2.4	255	2.4	0.588	23.1	LOS C	3.7	26.4	0.89	0.77	0.93	16.7
NorthWest: Cathedral Ave NW														
27	L2	156	2.5	156	2.5	0.134	6.6	LOS A	0.9	6.8	0.37	0.61	0.37	32.5
28	T1	237	3.8	237	3.8	* 0.621	18.8	LOS B	6.9	49.8	0.91	0.80	0.94	26.1
29	R2	51	0.7	51	0.7	0.621	23.3	LOS C	6.9	49.8	0.91	0.80	0.94	16.3
Approach		443	3.0	443	3.0	0.621	15.0	LOS B	6.9	49.8	0.72	0.73	0.74	26.7
SouthWest: Lester Ave														
30	L2	59	0.4	59	0.4	0.143	23.5	LOS C	1.3	9.1	0.84	0.72	0.84	26.5
31	T1	121	0.8	121	0.8	0.307	19.7	LOS B	2.9	20.3	0.88	0.70	0.88	27.3
32	R2	4	0.0	4	0.0	0.307	24.3	LOS C	2.9	20.3	0.88	0.70	0.88	30.0
Approach		184	0.7	184	0.7	0.307	21.0	LOS C	2.9	20.3	0.86	0.71	0.86	27.0
All Vehicles		1132	2.0	1132	2.0	0.621	17.9	LOS B	6.9	49.8	0.79	0.71	0.80	24.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	185.2	213.0	1.15
NorthEast: Chapman Rd NE											
P6	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	187.8	216.3	1.15
NorthWest: Cathedral Ave NW											
P7	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15

SouthWest: Lester Ave										
P8 Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15
All Pedestrians	211	21.4	LOS C	0.1	0.1	0.89	0.89	187.5	215.9	1.15

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2025+DEV_SAT (Site Folder: SAT Peak_2025+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2025+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	163	7.0	163	7.0	0.098	0.1	LOS A	0.1	0.7	0.05	0.05	0.05	57.4
6	R2	15	0.0	15	0.0	0.098	6.3	LOS A	0.1	0.7	0.05	0.05	0.05	56.2
Approach		178	6.4	178	6.4	0.098	0.6	NA	0.1	0.7	0.05	0.05	0.05	57.1
NorthWest: Access 1 (Leseter Ave)														
7	L2	14	0.0	14	0.0	0.079	6.1	LOS A	0.3	1.9	0.34	0.63	0.34	49.1
9	R2	65	0.0	65	0.0	0.079	6.9	LOS A	0.3	1.9	0.34	0.63	0.34	49.1
Approach		79	0.0	79	0.0	0.079	6.8	LOS A	0.3	1.9	0.34	0.63	0.34	49.1
SouthWest: Lester Avenue (W)														
10	L2	73	0.0	73	0.0	0.125	4.5	LOS A	0.0	0.0	0.00	0.18	0.00	55.0
11	T1	165	1.2	165	1.2	0.125	0.0	LOS A	0.0	0.0	0.00	0.18	0.00	46.0
Approach		238	0.9	238	0.9	0.125	1.4	NA	0.0	0.0	0.00	0.18	0.00	52.6
All Vehicles		495	2.7	495	2.7	0.125	2.0	NA	0.3	1.9	0.07	0.20	0.07	53.1

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_SAT_2025 +DEV (Site Folder: SAT Peak_2025+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2025+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	38	0.3	38	0.3	0.262	4.1	LOS A	1.6	11.2	0.28	0.53	0.28	37.2
2	T1	147	3.2	147	3.2	0.262	4.0	LOS A	1.6	11.2	0.28	0.53	0.28	33.6
3	R2	148	1.3	148	1.3	0.262	7.4	LOS A	1.6	11.2	0.28	0.53	0.28	33.6
Approach		334	2.0	334	2.0	0.262	5.5	LOS A	1.6	11.2	0.28	0.53	0.28	34.2
East: Lester Ave														
4	L2	136	1.8	136	1.8	0.174	3.9	LOS A	1.0	7.1	0.26	0.47	0.26	37.1
5	T1	67	2.9	67	2.9	0.174	3.8	LOS A	1.0	7.1	0.26	0.47	0.26	37.7
6	R2	14	2.6	14	2.6	0.174	7.3	LOS A	1.0	7.1	0.26	0.47	0.26	27.5
Approach		217	2.2	217	2.2	0.174	4.1	LOS A	1.0	7.1	0.26	0.47	0.26	36.9
North: Foreshore Dr														
7	L2	13	2.6	13	2.6	0.085	4.8	LOS A	0.4	3.0	0.40	0.51	0.40	28.2
8	T1	69	4.0	69	4.0	0.085	4.8	LOS A	0.4	3.0	0.40	0.51	0.40	38.1
9	R2	5	0.8	5	0.8	0.085	8.1	LOS A	0.4	3.0	0.40	0.51	0.40	36.7
Approach		87	3.6	87	3.6	0.085	5.0	LOS A	0.4	3.0	0.40	0.51	0.40	37.2
West: Lester Ave														
10	L2	4	1.4	4	1.4	0.093	5.3	LOS A	0.5	3.4	0.47	0.55	0.47	30.5
11	T1	79	2.9	79	2.9	0.093	5.2	LOS A	0.5	3.4	0.47	0.55	0.47	30.5
12	R2	6	0.5	6	0.5	0.093	8.6	LOS A	0.5	3.4	0.47	0.55	0.47	38.7
Approach		89	2.7	89	2.7	0.093	5.5	LOS A	0.5	3.4	0.47	0.55	0.47	31.5
All Vehicles		727	2.3	727	2.3	0.262	5.0	LOS A	1.6	11.2	0.31	0.51	0.31	35.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2035+DEV_SAT (Site Folder: SAT Peak_2035+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	139	1.2	139	1.2	0.094	0.1	LOS A	0.2	1.6	0.07	0.12	0.07	51.7
6	R2	37	0.0	37	0.0	0.094	5.3	LOS A	0.2	1.6	0.07	0.12	0.07	54.3
Approach		176	1.0	176	1.0	0.094	1.2	NA	0.2	1.6	0.07	0.12	0.07	53.0
East: Access 2 (Fitzgerald Dr)														
7	L2	38	0.0	38	0.0	0.025	5.7	LOS A	0.1	0.7	0.13	0.54	0.13	50.2
9	R2	1	0.0	1	0.0	0.025	6.3	LOS A	0.1	0.7	0.13	0.54	0.13	47.7
Approach		39	0.0	39	0.0	0.025	5.7	LOS A	0.1	0.7	0.13	0.54	0.13	50.1
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.029	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	53	7.0	53	7.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	58.6
Approach		54	6.8	54	6.8	0.029	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.4
All Vehicles		268	2.0	268	2.0	0.094	1.6	NA	0.2	1.6	0.06	0.16	0.06	52.4

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

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_AM_2035 +DEV (Site Folder: AM Peak_2035+DEV)]

Network: N101 [2035 +DEV_AM (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	23	0.3	23	0.3	0.261	19.0	LOS B	4.3	30.6	0.69	0.61	0.69	23.5
22	T1	177	3.2	177	3.2	0.261	14.5	LOS B	4.3	30.6	0.69	0.61	0.69	29.6
23	R2	72	1.3	72	1.3	* 0.304	36.0	LOS D	2.3	16.6	0.95	0.75	0.95	15.9
Approach		272	2.5	272	2.5	0.304	20.6	LOS C	4.3	30.6	0.76	0.65	0.76	24.3
NorthEast: Chapman Rd NE														
24	L2	107	1.8	107	1.8	0.445	23.9	LOS C	5.0	36.0	0.79	0.71	0.79	22.0
25	T1	179	2.9	179	2.9	* 1.112	91.6	LOS F	23.4	167.3	0.90	1.32	1.97	3.0
26	R2	160	2.6	160	2.6	1.112	162.4	LOS F	23.4	167.3	1.00	1.88	3.05	4.0
Approach		446	2.5	446	2.5	1.112	100.7	LOS F	23.4	167.3	0.91	1.38	2.07	5.2
NorthWest: Cathedral Ave NW														
27	L2	239	2.6	239	2.6	0.213	7.1	LOS A	1.8	12.6	0.39	0.62	0.39	21.3
28	T1	365	4.0	365	4.0	* 1.066	116.8	LOS F	33.9	244.6	0.99	1.83	2.49	7.6
29	R2	72	0.8	72	0.8	1.066	123.4	LOS F	33.9	244.6	1.00	1.85	2.52	3.6
Approach		676	3.2	676	3.2	1.066	78.7	LOS E	33.9	244.6	0.78	1.40	1.75	8.7
SouthWest: Lester Ave														
30	L2	48	1.4	48	1.4	0.093	24.8	LOS C	1.2	8.7	0.77	0.70	0.77	25.8
31	T1	98	2.9	98	2.9	0.278	22.3	LOS C	3.2	22.8	0.83	0.68	0.83	25.4
32	R2	17	0.5	17	0.5	0.278	26.9	LOS C	3.2	22.8	0.83	0.68	0.83	28.2
Approach		163	2.2	163	2.2	0.278	23.5	LOS C	3.2	22.8	0.81	0.69	0.81	25.9
All Vehicles		1557	2.8	1557	2.8	1.112	69.1	LOS E	33.9	244.6	0.82	1.19	1.57	9.6

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.2	213.0	1.10
NorthEast: Chapman Rd NE											
P6	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	195.7	216.3	1.11
NorthWest: Cathedral Ave NW											
P7	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11

SouthWest: Lester Ave										
P8 Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11
All Pedestrians	211	29.3	LOS C	0.1	0.1	0.92	0.92	195.4	215.9	1.10

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2035+DEV_AM (Site Folder: AM Peak_2035+DEV)]

Network: N101 [2035 +DEV_AM (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	265	7.3	253	7.6	0.141	0.0	LOS A	0.1	0.4	0.02	0.02	0.02	59.0
6	R2	8	0.0	8	0.0	0.141	6.2	LOS A	0.1	0.4	0.02	0.02	0.02	56.7
Approach		274	7.1	261 N1	7.4	0.141	0.2	NA	0.1	0.4	0.02	0.02	0.02	58.8
NorthWest: Access 1 (Leseter Ave)														
7	L2	6	0.0	6	0.0	0.034	6.0	LOS A	0.1	0.8	0.35	0.62	0.35	49.0
9	R2	26	0.0	26	0.0	0.034	7.1	LOS A	0.1	0.8	0.35	0.62	0.35	49.0
Approach		33	0.0	33	0.0	0.034	6.9	LOS A	0.1	0.8	0.35	0.62	0.35	49.0
SouthWest: Lester Avenue (W)														
10	L2	39	0.0	39	0.0	0.108	4.5	LOS A	0.0	0.0	0.00	0.11	0.00	55.8
11	T1	165	4.8	165	4.8	0.108	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	50.1
Approach		204	3.9	204	3.9	0.108	0.9	NA	0.0	0.0	0.00	0.11	0.00	53.6
All Vehicles		511	5.4	497 N1	5.5	0.141	0.9	NA	0.1	0.8	0.03	0.10	0.03	55.7

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_AM_2035 +DEV (Site Folder: AM Peak_2035+DEV)]

Network: N101 [2035 +DEV_AM (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.257	4.4	LOS A	1.5	10.8	0.36	0.55	0.36	36.9
2	T1	137	3.2	137	3.2	0.257	4.4	LOS A	1.5	10.8	0.36	0.55	0.36	33.2
3	R2	122	1.3	122	1.3	0.257	7.7	LOS A	1.5	10.8	0.36	0.55	0.36	33.2
Approach		300	2.0	300	2.0	0.257	5.8	LOS A	1.5	10.8	0.36	0.55	0.36	33.9
East: Lester Ave														
4	L2	151	1.8	144	1.9	0.221	4.0	LOS A	1.3	9.1	0.27	0.47	0.27	36.9
5	T1	117	2.9	112	3.0	0.221	3.9	LOS A	1.3	9.1	0.27	0.47	0.27	37.5
6	R2	22	2.6	21	2.7	0.221	7.3	LOS A	1.3	9.1	0.27	0.47	0.27	27.5
Approach		289	2.3	277[N1]	2.4	0.221	4.2	LOS A	1.3	9.1	0.27	0.47	0.27	36.8
North: Foreshore Dr														
7	L2	17	2.6	17	2.6	0.075	4.7	LOS A	0.4	2.7	0.38	0.51	0.38	28.3
8	T1	55	4.0	55	4.0	0.075	4.7	LOS A	0.4	2.7	0.38	0.51	0.38	38.2
9	R2	6	0.8	6	0.8	0.075	8.0	LOS A	0.4	2.7	0.38	0.51	0.38	36.8
Approach		78	3.4	78	3.4	0.075	4.9	LOS A	0.4	2.7	0.38	0.51	0.38	36.8
West: Lester Ave														
10	L2	3	1.4	3	1.4	0.095	5.1	LOS A	0.5	3.5	0.46	0.57	0.46	29.9
11	T1	66	2.9	66	2.9	0.095	5.1	LOS A	0.5	3.5	0.46	0.57	0.46	29.9
12	R2	24	0.5	24	0.5	0.095	8.4	LOS A	0.5	3.5	0.46	0.57	0.46	38.1
Approach		94	2.2	94	2.2	0.095	5.9	LOS A	0.5	3.5	0.46	0.57	0.46	32.9
All Vehicles		761	2.3	749[N1]	2.3	0.257	5.1	LOS A	1.5	10.8	0.34	0.52	0.34	35.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2035+DEV_AM (Site Folder: AM Peak_2035+DEV)]

Network: N101 [2035 +DEV_AM (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	146	4.8	145	4.8	0.086	0.0	LOS A	0.1	0.7	0.04	0.06	0.04	55.8
6	R2	15	0.0	15	0.0	0.086	5.4	LOS A	0.1	0.7	0.04	0.06	0.04	55.3
Approach		161	4.3	160 N1	4.4	0.086	0.5	NA	0.1	0.7	0.04	0.06	0.04	55.6
East: Access 2 (Fitzgerald Dr)														
7	L2	6	0.0	6	0.0	0.005	5.7	LOS A	0.0	0.1	0.15	0.54	0.15	50.1
9	R2	1	0.0	1	0.0	0.005	6.2	LOS A	0.0	0.1	0.15	0.54	0.15	47.6
Approach		7	0.0	7	0.0	0.005	5.8	LOS A	0.0	0.1	0.15	0.54	0.15	49.7
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.038	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	71	7.3	71	7.3	0.038	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.0
Approach		72	7.2	72	7.2	0.038	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.7
All Vehicles		240	5.1	239 N1	5.1	0.086	0.5	NA	0.1	0.7	0.03	0.06	0.03	55.3

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_PM_2035 +DEV (Site Folder: PM Peak_2035+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 65 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	24	0.1	24	0.1	0.294	13.2	LOS B	4.9	35.1	0.55	0.50	0.55	30.0
22	T1	286	2.2	286	2.2	0.294	8.6	LOS A	4.9	35.1	0.55	0.50	0.55	35.5
23	R2	88	0.7	88	0.7	* 0.346	33.4	LOS C	2.7	18.9	0.95	0.76	0.95	16.7
Approach		399	1.7	399	1.7	0.346	14.3	LOS B	4.9	35.1	0.64	0.56	0.64	28.9
NorthEast: Chapman Rd NE														
24	L2	260	4.2	260	4.2	0.472	16.6	LOS B	5.2	38.1	0.67	0.74	0.67	25.0
25	T1	114	1.8	114	1.8	* 1.134	171.2	LOS F	21.6	153.9	1.00	1.95	3.39	1.7
26	R2	117	1.9	117	1.9	1.134	175.7	LOS F	21.6	153.9	1.00	1.95	3.39	3.7
Approach		491	3.1	491	3.1	1.134	90.3	LOS F	21.6	153.9	0.83	1.31	1.95	6.7
NorthWest: Cathedral Ave NW														
27	L2	169	21.0	169	21.0	0.219	8.7	LOS A	1.6	13.1	0.50	0.64	0.50	20.4
28	T1	362	4.5	362	4.5	* 1.095	132.2	LOS F	37.9	274.1	0.98	1.99	2.77	6.8
29	R2	103	1.2	103	1.2	1.095	143.2	LOS F	37.9	274.1	1.00	2.06	2.88	3.1
Approach		635	8.4	635	8.4	1.095	101.0	LOS F	37.9	274.1	0.85	1.64	2.18	7.1
SouthWest: Lester Ave														
30	L2	82	1.2	82	1.2	0.194	27.1	LOS C	2.2	15.2	0.84	0.74	0.84	24.8
31	T1	105	1.5	105	1.5	0.383	24.6	LOS C	3.6	25.4	0.90	0.73	0.90	24.2
32	R2	21	0.3	21	0.3	0.383	29.2	LOS C	3.6	25.4	0.90	0.73	0.90	27.0
Approach		208	1.3	208	1.3	0.383	26.0	LOS C	3.6	25.4	0.88	0.73	0.88	24.7
All Vehicles		1733	4.5	1733	4.5	1.134	69.0	LOS E	37.9	274.1	0.80	1.19	1.60	10.1

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	190.7	213.0	1.12
NorthEast: Chapman Rd NE											
P6	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.2	216.3	1.12
NorthWest: Cathedral Ave NW											
P7	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.9	217.2	1.12

SouthWest: Lester Ave										
P8 Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.9	217.2	1.12
All Pedestrians	211	26.8	LOS C	0.1	0.1	0.91	0.91	192.9	215.9	1.12

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2035+DEV_PM (Site Folder: PM Peak_2035+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	225	7.8	206	8.4	0.121	0.1	LOS A	0.1	0.7	0.04	0.04	0.04	58.0
6	R2	15	0.0	13	0.0	0.121	6.4	LOS A	0.1	0.7	0.04	0.04	0.04	56.4
Approach		240	7.3	219 N1	7.9	0.121	0.5	NA	0.1	0.7	0.04	0.04	0.04	57.7
NorthWest: Access 1 (Leseter Ave)														
7	L2	14	0.0	14	0.0	0.084	6.2	LOS A	0.3	2.0	0.37	0.65	0.37	48.8
9	R2	65	0.0	65	0.0	0.084	7.2	LOS A	0.3	2.0	0.37	0.65	0.37	48.8
Approach		79	0.0	79	0.0	0.084	7.0	LOS A	0.3	2.0	0.37	0.65	0.37	48.8
SouthWest: Lester Avenue (W)														
10	L2	73	0.0	73	0.0	0.140	4.5	LOS A	0.0	0.0	0.00	0.16	0.00	55.2
11	T1	193	3.0	193	3.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	47.0
Approach		265	2.2	265	2.2	0.140	1.2	NA	0.0	0.0	0.00	0.16	0.00	52.8
All Vehicles		584	4.0	563 N1	4.1	0.140	1.8	NA	0.3	2.0	0.07	0.18	0.07	53.5

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_PM_2035 +DEV (Site Folder: PM Peak_2035+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	44	0.3	44	0.3	0.258	4.5	LOS A	1.6	11.0	0.40	0.57	0.40	36.6
2	T1	118	3.2	118	3.2	0.258	4.5	LOS A	1.6	11.0	0.40	0.57	0.40	32.8
3	R2	129	1.3	129	1.3	0.258	7.9	LOS A	1.6	11.0	0.40	0.57	0.40	32.8
Approach		292	1.9	292	1.9	0.258	6.0	LOS A	1.6	11.0	0.40	0.57	0.40	33.6
East: Lester Ave														
4	L2	121	1.8	113	1.9	0.235	4.4	LOS A	1.4	9.8	0.38	0.52	0.38	36.1
5	T1	131	2.9	122	3.1	0.235	4.3	LOS A	1.4	9.8	0.38	0.52	0.38	36.4
6	R2	32	2.6	29	2.7	0.235	7.8	LOS A	1.4	9.8	0.38	0.52	0.38	26.3
Approach		283	2.4	264[N1]	2.5	0.235	4.8	LOS A	1.4	9.8	0.38	0.52	0.38	35.6
North: Foreshore Dr														
7	L2	26	2.6	26	2.6	0.134	5.3	LOS A	0.7	5.1	0.47	0.56	0.47	27.5
8	T1	97	4.0	97	4.0	0.134	5.2	LOS A	0.7	5.1	0.47	0.56	0.47	37.6
9	R2	7	0.8	7	0.8	0.134	8.5	LOS A	0.7	5.1	0.47	0.56	0.47	36.2
Approach		131	3.5	131	3.5	0.134	5.4	LOS A	0.7	5.1	0.47	0.56	0.47	36.3
West: Lester Ave														
10	L2	7	1.4	7	1.4	0.173	5.2	LOS A	0.9	6.8	0.48	0.60	0.48	29.5
11	T1	111	2.9	111	2.9	0.173	5.2	LOS A	0.9	6.8	0.48	0.60	0.48	29.5
12	R2	53	0.5	53	0.5	0.173	8.5	LOS A	0.9	6.8	0.48	0.60	0.48	37.8
Approach		171	2.1	171	2.1	0.173	6.2	LOS A	0.9	6.8	0.48	0.60	0.48	33.0
All Vehicles		876	2.3	856[N1]	2.4	0.258	5.6	LOS A	1.6	11.0	0.42	0.56	0.42	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Fitzgerald Dr/Access 2_2035+DEV_PM (Site Folder: PM Peak_2035+DEV)]

Network: N101 [2025 +DEV_PM (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald Dr (S)														
5	T1	119	3.0	117	3.0	0.084	0.1	LOS A	0.2	1.6	0.11	0.14	0.11	50.0
6	R2	38	0.0	37	0.0	0.084	5.4	LOS A	0.2	1.6	0.11	0.14	0.11	53.8
Approach		157	2.3	155 N1	2.3	0.084	1.4	NA	0.2	1.6	0.11	0.14	0.11	52.1
East: Access 2 (Fitzgerald Dr)														
7	L2	38	0.0	38	0.0	0.026	5.8	LOS A	0.1	0.7	0.18	0.54	0.18	49.9
9	R2	1	0.0	1	0.0	0.026	6.3	LOS A	0.1	0.7	0.18	0.54	0.18	47.5
Approach		39	0.0	39	0.0	0.026	5.8	LOS A	0.1	0.7	0.18	0.54	0.18	49.8
North: Fitzgerald Dr (N)														
10	L2	1	0.0	1	0.0	0.050	3.9	LOS A	0.0	0.0	0.00	0.01	0.00	57.0
11	T1	93	7.8	93	7.8	0.050	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.2
Approach		94	7.7	94	7.7	0.050	0.0	NA	0.0	0.0	0.00	0.01	0.00	59.0
All Vehicles		289	3.7	287 N1	3.8	0.084	1.6	NA	0.2	1.6	0.08	0.15	0.08	51.9

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

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_SAT_2035+DEV (Site Folder: SAT Peak_2035+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 40 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	27	0.1	27	0.1	0.271	13.2	LOS B	2.4	17.2	0.70	0.62	0.70	29.5
22	T1	175	0.8	175	0.8	0.271	8.7	LOS A	2.4	17.2	0.70	0.62	0.70	35.0
23	R2	71	0.3	71	0.3	* 0.254	22.1	LOS C	1.3	9.2	0.92	0.74	0.92	21.2
Approach		273	0.6	273	0.6	0.271	12.6	LOS B	2.4	17.2	0.76	0.65	0.76	30.1
NorthEast: Chapman Rd NE														
24	L2	67	1.7	67	1.7	0.311	19.4	LOS B	2.1	14.9	0.87	0.73	0.87	24.7
25	T1	113	2.8	113	2.8	* 0.778	19.1	LOS B	3.7	26.2	0.94	0.85	1.17	10.9
26	R2	101	2.5	101	2.5	0.778	27.4	LOS C	3.7	26.2	1.00	0.97	1.45	17.4
Approach		281	2.4	281	2.4	0.778	22.2	LOS C	3.7	26.2	0.95	0.86	1.20	17.2
NorthWest: Cathedral Ave NW														
27	L2	171	2.5	171	2.5	0.171	7.0	LOS A	1.0	7.2	0.47	0.64	0.47	21.2
28	T1	260	3.8	260	3.8	* 0.854	23.3	LOS C	7.6	54.5	0.99	1.10	1.54	23.4
29	R2	55	0.7	55	0.7	0.854	28.3	LOS C	7.6	54.5	1.00	1.11	1.56	13.9
Approach		485	3.0	485	3.0	0.854	18.2	LOS B	7.6	54.5	0.81	0.94	1.17	21.8
SouthWest: Lester Ave														
30	L2	64	0.4	64	0.4	0.231	22.2	LOS C	1.2	8.4	0.92	0.73	0.92	27.2
31	T1	132	0.8	132	0.8	0.482	18.3	LOS B	2.6	18.7	0.96	0.75	0.96	28.2
32	R2	4	0.0	4	0.0	0.482	22.8	LOS C	2.6	18.7	0.96	0.75	0.96	30.8
Approach		200	0.7	200	0.7	0.482	19.6	LOS B	2.6	18.7	0.94	0.75	0.94	27.9
All Vehicles		1239	2.0	1239	2.0	0.854	18.1	LOS B	7.6	54.5	0.85	0.83	1.05	23.6

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	178.3	213.0	1.19
NorthEast: Chapman Rd NE											
P6	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	180.9	216.3	1.20
NorthWest: Cathedral Ave NW											
P7	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	181.6	217.2	1.20

SouthWest: Lester Ave										
P8 Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	181.6	217.2	1.20
All Pedestrians	211	14.5	LOS B	0.1	0.1	0.85	0.85	180.6	215.9	1.20

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

MOVEMENT SUMMARY

Site: 101 [Lester Avenue/ Access 1_2035+DEV_SAT (Site Folder: SAT Peak_2035+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2035+DEV)]

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

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
NorthEast: Lester Avenue (E)														
5	T1	179	7.0	179	7.0	0.106	0.1	LOS A	0.1	0.7	0.05	0.05	0.05	57.5
6	R2	15	0.0	15	0.0	0.106	6.3	LOS A	0.1	0.7	0.05	0.05	0.05	56.2
Approach		194	6.4	194	6.4	0.106	0.6	NA	0.1	0.7	0.05	0.05	0.05	57.3
NorthWest: Access 1 (Leseter Ave)														
7	L2	14	0.0	14	0.0	0.081	6.1	LOS A	0.3	2.0	0.36	0.64	0.36	49.0
9	R2	65	0.0	65	0.0	0.081	7.0	LOS A	0.3	2.0	0.36	0.64	0.36	49.0
Approach		79	0.0	79	0.0	0.081	6.9	LOS A	0.3	2.0	0.36	0.64	0.36	49.0
SouthWest: Lester Avenue (W)														
10	L2	73	0.0	73	0.0	0.133	4.5	LOS A	0.0	0.0	0.00	0.17	0.00	55.2
11	T1	182	1.2	182	1.2	0.133	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	46.7
Approach		255	0.9	255	0.9	0.133	1.3	NA	0.0	0.0	0.00	0.17	0.00	52.8
All Vehicles		527	2.8	527	2.8	0.133	1.9	NA	0.3	2.0	0.07	0.19	0.07	53.2

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_SAT_2035 +DEV (Site Folder: SAT Peak_2035+DEV)]

Network: N101 [2025 +DEV_SAT (Network Folder: 2035+DEV)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.282	4.1	LOS A	1.7	12.3	0.30	0.53	0.30	37.1
2	T1	158	3.2	158	3.2	0.282	4.1	LOS A	1.7	12.3	0.30	0.53	0.30	33.5
3	R2	156	1.3	156	1.3	0.282	7.5	LOS A	1.7	12.3	0.30	0.53	0.30	33.5
Approach		355	2.0	355	2.0	0.282	5.6	LOS A	1.7	12.3	0.30	0.53	0.30	34.1
East: Lester Ave														
4	L2	143	1.8	143	1.8	0.187	3.9	LOS A	1.1	7.7	0.27	0.47	0.27	37.0
5	T1	75	2.9	75	2.9	0.187	3.8	LOS A	1.1	7.7	0.27	0.47	0.27	37.6
6	R2	15	2.6	15	2.6	0.187	7.3	LOS A	1.1	7.7	0.27	0.47	0.27	27.5
Approach		233	2.2	233	2.2	0.187	4.1	LOS A	1.1	7.7	0.27	0.47	0.27	36.9
North: Foreshore Dr														
7	L2	14	2.6	14	2.6	0.090	4.9	LOS A	0.5	3.3	0.42	0.52	0.42	28.1
8	T1	73	4.0	73	4.0	0.090	4.9	LOS A	0.5	3.3	0.42	0.52	0.42	38.0
9	R2	5	0.8	5	0.8	0.090	8.2	LOS A	0.5	3.3	0.42	0.52	0.42	36.6
Approach		92	3.6	92	3.6	0.090	5.1	LOS A	0.5	3.3	0.42	0.52	0.42	37.1
West: Lester Ave														
10	L2	4	1.4	4	1.4	0.102	5.4	LOS A	0.5	3.8	0.49	0.56	0.49	30.4
11	T1	86	2.9	86	2.9	0.102	5.4	LOS A	0.5	3.8	0.49	0.56	0.49	30.4
12	R2	6	0.5	6	0.5	0.102	8.7	LOS A	0.5	3.8	0.49	0.56	0.49	38.6
Approach		97	2.7	97	2.7	0.102	5.6	LOS A	0.5	3.8	0.49	0.56	0.49	31.2
All Vehicles		776	2.3	776	2.3	0.282	5.1	LOS A	1.7	12.3	0.33	0.52	0.33	35.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_SAT_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_SAT (Network Folder: Year 2025)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	38	0.3	38	0.3	0.179	4.0	LOS A	1.1	7.8	0.25	0.50	0.25	37.8
2	T1	111	3.2	111	3.2	0.179	4.0	LOS A	1.1	7.8	0.25	0.50	0.25	40.2
3	R2	76	1.3	76	1.3	0.179	7.4	LOS A	1.1	7.8	0.25	0.50	0.25	34.3
Approach		224	2.1	224	2.1	0.179	5.1	LOS A	1.1	7.8	0.25	0.50	0.25	38.3
East: Lester Ave														
4	L2	71	1.8	71	1.8	0.115	3.8	LOS A	0.5	3.7	0.13	0.46	0.13	43.3
5	T1	67	2.9	67	2.9	0.115	3.7	LOS A	0.5	3.7	0.13	0.46	0.13	44.3
6	R2	14	2.6	14	2.6	0.115	7.1	LOS A	0.5	3.7	0.13	0.46	0.13	44.2
Approach		152	2.4	152	2.4	0.115	4.1	LOS A	0.5	3.7	0.13	0.46	0.13	43.8
North: Foreshore Dr														
7	L2	13	2.6	13	2.6	0.045	4.4	LOS A	0.2	1.6	0.33	0.48	0.33	34.5
8	T1	32	4.0	32	4.0	0.045	4.4	LOS A	0.2	1.6	0.33	0.48	0.33	40.4
9	R2	5	0.8	5	0.8	0.045	7.7	LOS A	0.2	1.6	0.33	0.48	0.33	39.6
Approach		49	3.3	49	3.3	0.045	4.7	LOS A	0.2	1.6	0.33	0.48	0.33	39.3
West: Lester Ave														
10	L2	4	1.4	4	1.4	0.084	4.7	LOS A	0.4	3.1	0.38	0.49	0.38	37.6
11	T1	79	2.9	79	2.9	0.084	4.6	LOS A	0.4	3.1	0.38	0.49	0.38	31.5
12	R2	6	0.5	6	0.5	0.084	7.9	LOS A	0.4	3.1	0.38	0.49	0.38	39.4
Approach		89	2.7	89	2.7	0.084	4.8	LOS A	0.4	3.1	0.38	0.49	0.38	32.8
All Vehicles		515	2.4	515	2.4	0.179	4.7	LOS A	1.1	7.8	0.25	0.48	0.25	40.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_AM_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_AM (Network Folder: Year 2025)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 83 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	17	0.3	17	0.3	0.222	20.3	LOS C	4.3	30.9	0.66	0.58	0.66	22.6
22	T1	161	3.2	161	3.2	0.222	15.8	LOS B	4.3	30.9	0.66	0.58	0.66	28.7
23	R2	65	1.3	65	1.3	* 0.269	40.9	LOS D	2.5	17.5	0.94	0.75	0.94	14.6
Approach		243	2.5	243	2.5	0.269	22.8	LOS C	4.3	30.9	0.74	0.62	0.74	23.1
NorthEast: Chapman Rd NE														
24	L2	98	1.8	98	1.8	0.392	25.6	LOS C	5.1	36.4	0.76	0.70	0.76	21.1
25	T1	162	2.9	162	2.9	* 0.980	51.9	LOS D	15.2	108.5	0.88	1.05	1.38	5.0
26	R2	146	2.6	146	2.6	0.980	83.7	LOS F	15.2	108.5	0.98	1.37	1.94	7.4
Approach		406	2.5	406	2.5	0.980	57.0	LOS E	15.2	108.5	0.89	1.08	1.43	8.6
NorthWest: Cathedral Ave NW														
27	L2	218	2.6	218	2.6	0.191	7.2	LOS A	1.6	11.8	0.37	0.61	0.37	21.2
28	T1	333	4.0	333	4.0	* 0.955	59.4	LOS E	22.1	159.6	0.95	1.28	1.59	13.1
29	R2	63	0.8	63	0.8	0.955	65.1	LOS E	22.1	159.6	0.96	1.29	1.61	6.7
Approach		614	3.2	614	3.2	0.955	41.4	LOS D	22.1	159.6	0.75	1.04	1.16	13.9
SouthWest: Lester Ave														
30	L2	42	1.4	42	1.4	0.073	26.4	LOS C	1.2	8.5	0.73	0.69	0.73	27.3
31	T1	85	2.9	85	2.9	0.225	23.8	LOS C	3.1	22.1	0.79	0.65	0.79	27.2
32	R2	15	0.5	15	0.5	0.225	28.4	LOS C	3.1	22.1	0.79	0.65	0.79	29.4
Approach		142	2.2	142	2.2	0.225	25.0	LOS C	3.1	22.1	0.77	0.66	0.77	27.5
All Vehicles		1405	2.8	1405	2.8	0.980	41.1	LOS D	22.1	159.6	0.79	0.94	1.13	14.5

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	199.6	213.0	1.07
NorthEast: Chapman Rd NE											
P6	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.2	216.3	1.07
NorthWest: Cathedral Ave NW											
P7	Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07

SouthWest: Lester Ave										
P8 Full	53	35.8	LOS D	0.1	0.1	0.93	0.93	202.9	217.2	1.07
All Pedestrians	211	35.8	LOS D	0.1	0.1	0.93	0.93	201.9	215.9	1.07

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_AM_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_AM (Network Folder: Year 2025)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	38	0.3	38	0.3	0.192	4.3	LOS A	1.2	8.6	0.33	0.51	0.33	37.3
2	T1	112	3.2	112	3.2	0.192	4.3	LOS A	1.2	8.6	0.33	0.51	0.33	39.7
3	R2	76	1.3	76	1.3	0.192	7.7	LOS A	1.2	8.6	0.33	0.51	0.33	33.7
Approach		225	2.1	225	2.1	0.192	5.5	LOS A	1.2	8.6	0.33	0.51	0.33	37.8
East: Lester Ave														
4	L2	114	1.8	114	1.8	0.188	4.0	LOS A	0.9	6.4	0.18	0.47	0.18	43.1
5	T1	106	2.9	106	2.9	0.188	3.9	LOS A	0.9	6.4	0.18	0.47	0.18	44.0
6	R2	20	2.6	20	2.6	0.188	7.3	LOS A	0.9	6.4	0.18	0.47	0.18	44.0
Approach		240	2.4	240	2.4	0.188	4.2	LOS A	0.9	6.4	0.18	0.47	0.18	43.5
North: Foreshore Dr														
7	L2	16	2.6	16	2.6	0.060	4.4	LOS A	0.3	2.1	0.33	0.48	0.33	34.5
8	T1	44	4.0	44	4.0	0.060	4.4	LOS A	0.3	2.1	0.33	0.48	0.33	40.5
9	R2	6	0.8	6	0.8	0.060	7.7	LOS A	0.3	2.1	0.33	0.48	0.33	39.6
Approach		66	3.4	66	3.4	0.060	4.7	LOS A	0.3	2.1	0.33	0.48	0.33	39.4
West: Lester Ave														
10	L2	3	1.4	3	1.4	0.081	4.7	LOS A	0.4	3.0	0.39	0.53	0.39	36.9
11	T1	60	2.9	60	2.9	0.081	4.6	LOS A	0.4	3.0	0.39	0.53	0.39	30.6
12	R2	22	0.5	22	0.5	0.081	8.0	LOS A	0.4	3.0	0.39	0.53	0.39	38.7
Approach		85	2.2	85	2.2	0.081	5.5	LOS A	0.4	3.0	0.39	0.53	0.39	33.8
All Vehicles		617	2.3	617	2.3	0.192	4.9	LOS A	1.2	8.6	0.28	0.49	0.28	40.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_PM_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_PM (Network Folder: Year 2025)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 65 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	16	0.1	16	0.1	0.271	13.8	LOS B	4.5	32.0	0.56	0.50	0.56	29.3
22	T1	261	2.2	261	2.2	0.271	9.2	LOS A	4.5	32.0	0.56	0.50	0.56	34.9
23	R2	81	0.7	81	0.7	* 0.318	33.2	LOS C	2.4	17.2	0.94	0.76	0.94	16.7
Approach		358	1.8	358	1.8	0.318	14.8	LOS B	4.5	32.0	0.64	0.56	0.64	28.6
NorthEast: Chapman Rd NE														
24	L2	237	4.2	237	4.2	0.400	17.1	LOS B	4.9	35.9	0.68	0.74	0.68	24.7
25	T1	102	1.8	102	1.8	* 1.002	76.7	LOS E	12.0	85.7	0.99	1.42	2.27	3.5
26	R2	106	1.9	106	1.9	1.002	84.0	LOS F	12.0	85.7	1.00	1.45	2.33	7.4
Approach		445	3.1	445	3.1	1.002	46.7	LOS D	12.0	85.7	0.83	1.06	1.44	11.6
NorthWest: Cathedral Ave NW														
27	L2	155	21.0	155	21.0	0.193	8.3	LOS A	1.3	10.8	0.48	0.63	0.48	20.6
28	T1	329	4.5	329	4.5	* 0.963	54.2	LOS D	20.3	146.5	0.97	1.36	1.78	13.9
29	R2	88	1.2	88	1.2	0.963	61.0	LOS E	20.3	146.5	0.99	1.40	1.83	7.1
Approach		573	8.4	573	8.4	0.963	42.8	LOS D	20.3	146.5	0.84	1.17	1.43	13.8
SouthWest: Lester Ave														
30	L2	69	1.2	69	1.2	0.164	26.9	LOS C	1.8	12.8	0.84	0.73	0.84	27.1
31	T1	89	1.5	89	1.5	0.322	24.2	LOS C	3.0	21.2	0.88	0.71	0.88	26.9
32	R2	18	0.3	18	0.3	0.322	28.8	LOS C	3.0	21.2	0.88	0.71	0.88	29.2
Approach		177	1.3	177	1.3	0.322	25.7	LOS C	3.0	21.2	0.87	0.72	0.87	27.2
All Vehicles		1553	4.6	1553	4.6	1.002	35.5	LOS D	20.3	146.5	0.79	0.95	1.19	16.8

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	190.7	213.0	1.12
NorthEast: Chapman Rd NE											
P6	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.2	216.3	1.12
NorthWest: Cathedral Ave NW											
P7	Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.9	217.2	1.12

SouthWest: Lester Ave										
P8 Full	53	26.8	LOS C	0.1	0.1	0.91	0.91	193.9	217.2	1.12
All Pedestrians	211	26.8	LOS C	0.1	0.1	0.91	0.91	192.9	215.9	1.12

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_PM_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_PM (Network Folder: Year 2025)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.147	4.5	LOS A	0.9	6.4	0.35	0.52	0.35	37.3
2	T1	74	3.2	74	3.2	0.147	4.4	LOS A	0.9	6.4	0.35	0.52	0.35	39.7
3	R2	52	1.3	52	1.3	0.147	7.8	LOS A	0.9	6.4	0.35	0.52	0.35	33.7
Approach		166	1.9	166	1.9	0.147	5.5	LOS A	0.9	6.4	0.35	0.52	0.35	37.7
East: Lester Ave														
4	L2	51	1.8	50	1.8	0.167	4.2	LOS A	0.8	5.4	0.22	0.48	0.22	42.7
5	T1	119	2.9	119	2.9	0.167	4.1	LOS A	0.8	5.4	0.22	0.48	0.22	43.6
6	R2	28	2.6	28	2.6	0.167	7.5	LOS A	0.8	5.4	0.22	0.48	0.22	43.6
Approach		198	2.6	198	2.6	0.167	4.6	LOS A	0.8	5.4	0.22	0.48	0.22	43.4
North: Foreshore Dr														
7	L2	24	2.6	24	2.6	0.081	4.7	LOS A	0.4	2.9	0.38	0.51	0.38	34.1
8	T1	54	4.0	54	4.0	0.081	4.6	LOS A	0.4	2.9	0.38	0.51	0.38	40.2
9	R2	7	0.8	7	0.8	0.081	7.9	LOS A	0.4	2.9	0.38	0.51	0.38	39.3
Approach		85	3.3	85	3.3	0.081	4.9	LOS A	0.4	2.9	0.38	0.51	0.38	38.9
West: Lester Ave														
10	L2	7	1.4	7	1.4	0.141	4.5	LOS A	0.8	5.4	0.35	0.52	0.35	36.9
11	T1	100	2.9	100	2.9	0.141	4.4	LOS A	0.8	5.4	0.35	0.52	0.35	30.7
12	R2	48	0.5	48	0.5	0.141	7.7	LOS A	0.8	5.4	0.35	0.52	0.35	38.7
Approach		156	2.1	156	2.1	0.141	5.4	LOS A	0.8	5.4	0.35	0.52	0.35	34.5
All Vehicles		605	2.4	605	2.4	0.167	5.1	LOS A	0.9	6.4	0.31	0.51	0.31	39.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_SAT_2025 (Site Folder: Year 2025)]

Network: N101 [Year 2025_SAT (Network Folder: Year 2025)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 54 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	17	0.1	17	0.1	0.205	13.7	LOS B	2.6	18.1	0.62	0.54	0.62	29.0
22	T1	159	0.8	159	0.8	0.205	9.2	LOS A	2.6	18.1	0.62	0.54	0.62	34.6
23	R2	64	0.3	64	0.3	* 0.268	29.0	LOS C	1.6	11.4	0.94	0.74	0.94	18.2
Approach		240	0.6	240	0.6	0.268	14.8	LOS B	2.6	18.1	0.71	0.60	0.71	28.3
NorthEast: Chapman Rd NE														
24	L2	61	1.7	61	1.7	0.232	21.3	LOS C	2.4	17.0	0.81	0.70	0.81	23.5
25	T1	101	2.8	101	2.8	0.579	19.9	LOS B	3.7	26.3	0.88	0.76	0.91	10.6
26	R2	92	2.5	92	2.5	* 0.579	27.6	LOS C	3.7	26.3	0.95	0.82	1.01	17.3
Approach		254	2.4	254	2.4	0.579	23.0	LOS C	3.7	26.3	0.89	0.76	0.92	16.8
NorthWest: Cathedral Ave NW														
27	L2	156	2.5	156	2.5	0.133	6.6	LOS A	0.9	6.8	0.37	0.61	0.37	32.5
28	T1	237	3.8	237	3.8	* 0.605	18.5	LOS B	6.7	48.5	0.91	0.78	0.92	26.3
29	R2	46	0.7	46	0.7	0.605	23.1	LOS C	6.7	48.5	0.91	0.78	0.92	16.5
Approach		439	3.0	439	3.0	0.605	14.8	LOS B	6.7	48.5	0.72	0.72	0.72	26.9
SouthWest: Lester Ave														
30	L2	55	0.4	55	0.4	0.133	23.5	LOS C	1.2	8.4	0.83	0.72	0.83	28.7
31	T1	112	0.8	112	0.8	0.285	19.6	LOS B	2.6	18.6	0.87	0.69	0.87	29.8
32	R2	4	0.0	4	0.0	0.285	24.1	LOS C	2.6	18.6	0.87	0.69	0.87	31.9
Approach		171	0.7	171	0.7	0.285	20.9	LOS C	2.6	18.6	0.86	0.70	0.86	29.5
All Vehicles		1103	2.0	1103	2.0	0.605	17.6	LOS B	6.7	48.5	0.78	0.70	0.79	25.5

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	185.2	213.0	1.15
NorthEast: Chapman Rd NE											
P6	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	187.8	216.3	1.15
NorthWest: Cathedral Ave NW											
P7	Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15

SouthWest: Lester Ave										
P8 Full	53	21.4	LOS C	0.1	0.1	0.89	0.89	188.5	217.2	1.15
All Pedestrians	211	21.4	LOS C	0.1	0.1	0.89	0.89	187.5	215.9	1.15

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_SAT_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_SAT (Network Folder: Year 2035)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.197	4.1	LOS A	1.2	8.9	0.27	0.50	0.27	37.7
2	T1	121	3.2	121	3.2	0.197	4.1	LOS A	1.2	8.9	0.27	0.50	0.27	40.0
3	R2	83	1.3	83	1.3	0.197	7.4	LOS A	1.2	8.9	0.27	0.50	0.27	34.2
Approach		245	2.1	245	2.1	0.197	5.2	LOS A	1.2	8.9	0.27	0.50	0.27	38.1
East: Lester Ave														
4	L2	78	1.8	78	1.8	0.127	3.8	LOS A	0.6	4.1	0.13	0.46	0.13	43.3
5	T1	75	2.9	75	2.9	0.127	3.8	LOS A	0.6	4.1	0.13	0.46	0.13	44.3
6	R2	15	2.6	15	2.6	0.127	7.1	LOS A	0.6	4.1	0.13	0.46	0.13	44.2
Approach		167	2.4	167	2.4	0.127	4.1	LOS A	0.6	4.1	0.13	0.46	0.13	43.8
North: Foreshore Dr														
7	L2	14	2.6	14	2.6	0.050	4.5	LOS A	0.2	1.7	0.34	0.49	0.34	34.4
8	T1	35	4.0	35	4.0	0.050	4.4	LOS A	0.2	1.7	0.34	0.49	0.34	40.4
9	R2	5	0.8	5	0.8	0.050	7.8	LOS A	0.2	1.7	0.34	0.49	0.34	39.5
Approach		54	3.3	54	3.3	0.050	4.8	LOS A	0.2	1.7	0.34	0.49	0.34	39.2
West: Lester Ave														
10	L2	4	1.4	4	1.4	0.093	4.8	LOS A	0.5	3.4	0.40	0.50	0.40	37.4
11	T1	86	2.9	86	2.9	0.093	4.7	LOS A	0.5	3.4	0.40	0.50	0.40	31.3
12	R2	6	0.5	6	0.5	0.093	8.1	LOS A	0.5	3.4	0.40	0.50	0.40	39.3
Approach		97	2.7	97	2.7	0.093	4.9	LOS A	0.5	3.4	0.40	0.50	0.40	32.6
All Vehicles		563	2.4	563	2.4	0.197	4.8	LOS A	1.2	8.9	0.26	0.49	0.26	40.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_AM_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_AM (Network Folder: Year 2035)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	18	0.3	18	0.3	0.242	17.9	LOS B	4.0	28.5	0.66	0.58	0.66	24.5
22	T1	177	3.2	177	3.2	0.242	13.4	LOS B	4.0	28.5	0.66	0.58	0.66	30.6
23	R2	72	1.3	72	1.3	* 0.304	36.0	LOS D	2.3	16.6	0.95	0.75	0.95	15.9
Approach		266	2.5	266	2.5	0.304	19.8	LOS B	4.0	28.5	0.74	0.62	0.74	24.8
NorthEast: Chapman Rd NE														
24	L2	107	1.8	107	1.8	0.441	23.9	LOS C	5.0	35.9	0.79	0.71	0.79	22.0
25	T1	178	2.9	178	2.9	* 1.104	88.0	LOS F	22.7	162.6	0.90	1.31	1.93	3.1
26	R2	160	2.6	160	2.6	1.104	155.8	LOS F	22.7	162.6	1.00	1.85	2.98	4.2
Approach		445	2.5	445	2.5	1.104	96.9	LOS F	22.7	162.6	0.91	1.36	2.03	5.4
NorthWest: Cathedral Ave NW														
27	L2	239	2.6	239	2.6	0.212	7.1	LOS A	1.8	12.5	0.39	0.62	0.39	21.3
28	T1	365	4.0	365	4.0	* 1.059	111.7	LOS F	32.9	237.3	0.99	1.79	2.43	7.9
29	R2	69	0.8	69	0.8	1.059	118.1	LOS F	32.9	237.3	1.00	1.81	2.46	3.8
Approach		674	3.2	674	3.2	1.059	75.2	LOS E	32.9	237.3	0.78	1.38	1.71	9.0
SouthWest: Lester Ave														
30	L2	46	1.4	46	1.4	0.089	24.8	LOS C	1.2	8.3	0.76	0.70	0.76	28.1
31	T1	94	2.9	94	2.9	0.264	22.2	LOS C	3.0	21.6	0.82	0.67	0.82	28.0
32	R2	16	0.5	16	0.5	0.264	26.7	LOS C	3.0	21.6	0.82	0.67	0.82	30.2
Approach		156	2.2	156	2.2	0.264	23.4	LOS C	3.0	21.6	0.81	0.68	0.81	28.3
All Vehicles		1541	2.8	1541	2.8	1.104	66.7	LOS E	32.9	237.3	0.81	1.17	1.54	10.1

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.2	213.0	1.10
NorthEast: Chapman Rd NE											
P6	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	195.7	216.3	1.11
NorthWest: Cathedral Ave NW											
P7	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11

SouthWest: Lester Ave										
P8 Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11
All Pedestrians	211	29.3	LOS C	0.1	0.1	0.92	0.92	195.4	215.9	1.10

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_AM_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_AM (Network Folder: Year 2035)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	41	0.3	41	0.3	0.210	4.4	LOS A	1.4	9.6	0.34	0.52	0.34	37.3
2	T1	122	3.2	122	3.2	0.210	4.4	LOS A	1.4	9.6	0.34	0.52	0.34	39.6
3	R2	83	1.3	83	1.3	0.210	7.7	LOS A	1.4	9.6	0.34	0.52	0.34	33.6
Approach		246	2.1	246	2.1	0.210	5.5	LOS A	1.4	9.6	0.34	0.52	0.34	37.7
East: Lester Ave														
4	L2	124	1.8	118	1.8	0.199	4.0	LOS A	1.0	6.8	0.19	0.47	0.19	43.0
5	T1	117	2.9	111	2.9	0.199	4.0	LOS A	1.0	6.8	0.19	0.47	0.19	44.0
6	R2	22	2.6	21	2.6	0.199	7.3	LOS A	1.0	6.8	0.19	0.47	0.19	44.0
Approach		263	2.4	251[N1]	2.4	0.199	4.3	LOS A	1.0	6.8	0.19	0.47	0.19	43.5
North: Foreshore Dr														
7	L2	17	2.6	17	2.6	0.066	4.5	LOS A	0.3	2.3	0.35	0.49	0.35	34.4
8	T1	48	4.0	48	4.0	0.066	4.5	LOS A	0.3	2.3	0.35	0.49	0.35	40.4
9	R2	6	0.8	6	0.8	0.066	7.8	LOS A	0.3	2.3	0.35	0.49	0.35	39.5
Approach		72	3.4	72	3.4	0.066	4.8	LOS A	0.3	2.3	0.35	0.49	0.35	39.3
West: Lester Ave														
10	L2	3	1.4	3	1.4	0.091	4.8	LOS A	0.5	3.4	0.41	0.54	0.41	36.7
11	T1	66	2.9	66	2.9	0.091	4.8	LOS A	0.5	3.4	0.41	0.54	0.41	30.4
12	R2	24	0.5	24	0.5	0.091	8.1	LOS A	0.5	3.4	0.41	0.54	0.41	38.5
Approach		94	2.2	94	2.2	0.091	5.6	LOS A	0.5	3.4	0.41	0.54	0.41	33.6
All Vehicles		675	2.3	662[N1]	2.4	0.210	5.0	LOS A	1.4	9.6	0.30	0.50	0.30	40.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_PM_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_PM (Network Folder: Year 2035)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	17	0.1	17	0.1	0.291	14.2	LOS B	5.3	38.1	0.56	0.51	0.56	28.8
22	T1	286	2.2	286	2.2	0.291	9.6	LOS A	5.3	38.1	0.56	0.51	0.56	34.5
23	R2	88	0.7	88	0.7	* 0.373	36.3	LOS D	2.9	20.6	0.96	0.76	0.96	15.8
Approach		392	1.8	392	1.8	0.373	15.8	LOS B	5.3	38.1	0.65	0.56	0.65	27.8
NorthEast: Chapman Rd NE														
24	L2	260	4.2	260	4.2	0.475	17.0	LOS B	5.5	40.1	0.66	0.73	0.66	24.8
25	T1	113	1.8	113	1.8	* 1.083	135.8	LOS F	19.3	136.9	1.00	1.74	2.84	2.1
26	R2	117	1.9	117	1.9	1.083	140.4	LOS F	19.3	136.9	1.00	1.74	2.84	4.6
Approach		489	3.1	489	3.1	1.083	73.8	LOS E	19.3	136.9	0.82	1.21	1.68	7.9
NorthWest: Cathedral Ave NW														
27	L2	169	21.0	169	21.0	0.216	8.7	LOS A	1.7	13.8	0.49	0.63	0.49	20.4
28	T1	362	4.5	362	4.5	* 1.081	124.9	LOS F	37.2	268.6	0.98	1.88	2.55	7.2
29	R2	97	1.2	97	1.2	1.081	135.0	LOS F	37.2	268.6	1.00	1.94	2.64	3.3
Approach		628	8.4	628	8.4	1.081	95.1	LOS F	37.2	268.6	0.85	1.56	2.01	7.5
SouthWest: Lester Ave														
30	L2	77	1.2	77	1.2	0.163	26.9	LOS C	2.1	14.7	0.81	0.73	0.81	27.1
31	T1	98	1.5	98	1.5	0.331	24.4	LOS C	3.4	24.4	0.87	0.71	0.87	26.8
32	R2	20	0.3	20	0.3	0.331	29.0	LOS C	3.4	24.4	0.87	0.71	0.87	29.1
Approach		195	1.3	195	1.3	0.331	25.8	LOS C	3.4	24.4	0.84	0.72	0.84	27.2
All Vehicles		1704	4.6	1704	4.6	1.083	62.8	LOS E	37.2	268.6	0.79	1.13	1.47	11.2

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	193.2	213.0	1.10
NorthEast: Chapman Rd NE											
P6	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	195.7	216.3	1.11
NorthWest: Cathedral Ave NW											
P7	Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11

SouthWest: Lester Ave										
P8 Full	53	29.3	LOS C	0.1	0.1	0.92	0.92	196.4	217.2	1.11
All Pedestrians	211	29.3	LOS C	0.1	0.1	0.92	0.92	195.4	215.9	1.10

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

MOVEMENT SUMMARY

Site: 101 [Foreshore Dr / Lester Ave / Fitzgerald St_PM_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_PM (Network Folder: Year 2035)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Fitzgerald St														
1	L2	44	0.3	44	0.3	0.161	4.5	LOS A	1.0	7.1	0.36	0.52	0.36	37.3
2	T1	80	3.2	80	3.2	0.161	4.5	LOS A	1.0	7.1	0.36	0.52	0.36	39.7
3	R2	57	1.3	57	1.3	0.161	7.8	LOS A	1.0	7.1	0.36	0.52	0.36	33.6
Approach		181	1.9	181	1.9	0.161	5.5	LOS A	1.0	7.1	0.36	0.52	0.36	37.6
East: Lester Ave														
4	L2	56	1.8	52	1.9	0.174	4.3	LOS A	0.8	5.7	0.23	0.49	0.23	42.6
5	T1	131	2.9	121	3.0	0.174	4.2	LOS A	0.8	5.7	0.23	0.49	0.23	43.5
6	R2	32	2.6	29	2.7	0.174	7.6	LOS A	0.8	5.7	0.23	0.49	0.23	43.6
Approach		218	2.6	203[N1]	2.6	0.174	4.7	LOS A	0.8	5.7	0.23	0.49	0.23	43.3
North: Foreshore Dr														
7	L2	26	2.6	26	2.6	0.090	4.8	LOS A	0.5	3.3	0.40	0.52	0.40	33.9
8	T1	59	4.0	59	4.0	0.090	4.7	LOS A	0.5	3.3	0.40	0.52	0.40	40.1
9	R2	7	0.8	7	0.8	0.090	8.1	LOS A	0.5	3.3	0.40	0.52	0.40	39.1
Approach		93	3.3	93	3.3	0.090	5.0	LOS A	0.5	3.3	0.40	0.52	0.40	38.8
West: Lester Ave														
10	L2	7	1.4	7	1.4	0.156	4.5	LOS A	0.9	6.1	0.37	0.53	0.37	36.8
11	T1	111	2.9	111	2.9	0.156	4.5	LOS A	0.9	6.1	0.37	0.53	0.37	30.5
12	R2	53	0.5	53	0.5	0.156	7.8	LOS A	0.9	6.1	0.37	0.53	0.37	38.6
Approach		171	2.1	171	2.1	0.156	5.5	LOS A	0.9	6.1	0.37	0.53	0.37	34.3
All Vehicles		662	2.4	647[N1]	2.4	0.174	5.2	LOS A	1.0	7.1	0.33	0.51	0.33	39.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network 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 (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [Cathedral Ave / Leaster Ave / Chapman Rd_SAT_2035 (Site Folder: Year 2035)]

Network: N101 [Year 2035_SAT (Network Folder: Year 2035)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 40 seconds (Network Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Cathedral Ave SE														
21	L2	18	0.1	18	0.1	0.236	12.9	LOS B	2.3	16.0	0.67	0.58	0.67	30.2
22	T1	175	0.8	175	0.8	0.236	8.4	LOS A	2.3	16.0	0.67	0.58	0.67	35.6
23	R2	71	0.3	71	0.3	* 0.254	22.1	LOS C	1.3	9.2	0.92	0.74	0.92	21.2
Approach		263	0.6	263	0.6	0.254	12.4	LOS B	2.3	16.0	0.74	0.63	0.74	30.4
NorthEast: Chapman Rd NE														
24	L2	67	1.7	67	1.7	0.308	19.4	LOS B	2.1	14.8	0.87	0.73	0.87	24.7
25	T1	112	2.8	112	2.8	* 0.770	19.0	LOS B	3.6	26.0	0.94	0.85	1.16	10.9
26	R2	101	2.5	101	2.5	0.770	27.2	LOS C	3.6	26.0	1.00	0.96	1.42	17.5
Approach		280	2.4	280	2.4	0.770	22.1	LOS C	3.6	26.0	0.95	0.86	1.19	17.2
NorthWest: Cathedral Ave NW														
27	L2	171	2.5	171	2.5	0.168	7.0	LOS A	1.0	7.1	0.47	0.64	0.47	21.2
28	T1	260	3.8	260	3.8	* 0.841	22.6	LOS C	7.3	52.8	0.99	1.08	1.50	23.9
29	R2	51	0.7	51	0.7	0.841	27.4	LOS C	7.3	52.8	1.00	1.09	1.51	14.3
Approach		481	3.0	481	3.0	0.841	17.6	LOS B	7.3	52.8	0.81	0.92	1.13	22.2
SouthWest: Lester Ave														
30	L2	60	0.4	60	0.4	0.216	22.1	LOS C	1.1	7.8	0.91	0.73	0.91	29.4
31	T1	122	0.8	122	0.8	0.449	18.2	LOS B	2.4	17.3	0.95	0.75	0.95	30.7
32	R2	4	0.0	4	0.0	0.449	22.7	LOS C	2.4	17.3	0.95	0.75	0.95	32.7
Approach		186	0.7	186	0.7	0.449	19.5	LOS B	2.4	17.3	0.94	0.74	0.94	30.3
All Vehicles		1211	2.0	1211	2.0	0.841	17.8	LOS B	7.3	52.8	0.84	0.82	1.03	24.3

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Cathedral Ave SE											
P5	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	178.3	213.0	1.19
NorthEast: Chapman Rd NE											
P6	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	180.9	216.3	1.20
NorthWest: Cathedral Ave NW											
P7	Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	181.6	217.2	1.20

SouthWest: Lester Ave										
P8 Full	53	14.5	LOS B	0.1	0.1	0.85	0.85	181.6	217.2	1.20
All Pedestrians	211	14.5	LOS B	0.1	0.1	0.85	0.85	180.6	215.9	1.20

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

Appendix 5:
Waste Management Plan

Waste Management Plan

205 Marine Terrace, Geraldton

5 July 2023

Project Number: WMP23032

DOCUMENT CONTROL

Version	Description	Date	Author	Reviewer	Approver
1.0	First Approved Release	5/07/2023	DP	AB	DP

Approval for Release

Name	Position	File Reference
Dilan Patel	Project Manager – Waste Management Consultant	WMP23032-02_Waste Management Plan_1.0
Signature		

Executive Summary

is seeking development approval for the proposed commercial development located at 205 Marine Terrace, Geraldton (the Proposal).

To satisfy the conditions of the development application the City of Greater Geraldton (the City) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Talis Consultants has been engaged to prepare this WMP to satisfy the City's requirements.

A summary of the bin size, numbers, collection frequency and collection method is provided in the below table.

Proposed Waste Collection Summary

Waste Type	Generation (L/week)	Bin Size (L)	Number of Bins	Collection Frequency	Collection
Geraldton Pub Bin Storage Area					
Refuse	21,115	1,100	Four	Five times each week	Private Contractor
Recycling	9,443	1,100	Two	Five times each week	Private Contractor
Serviced Apartments Bin Storage Area					
Refuse	2,520	660	Two	Two times each week	Private Contractor
Recycling	2,520	660	Two	Two times each week	Private Contractor

A private contractor will service the Proposal onsite via the internal road/carpark, directly from the Bin Storage Areas. The private contractor's waste collection vehicle will enter and exit the Proposal in forward gear via Lester Avenue.

Management will oversee the relevant aspects of waste management at the Proposal.

Table of Contents

Tables

Diagrams

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1 Introduction

is seeking development approval for the proposed pub and serviced apartments commercial development located at 205 Marine Terrace, Geraldton (the Proposal).

To satisfy the conditions of the development application the City of Greater Geraldton (the City) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Talis Consultants has been engaged to prepare this WMP to satisfy the City's requirements.

The Proposal is bordered by Marine Terrace to the north, commercial developments to the east, Lester Avenue to the south and Fitzgerald Street to the west, as shown in Figure 1.

1.1 Objectives and Scope

The objective of this WMP is to outline the equipment and procedures that will be adopted to manage waste (refuse and recyclables) at the Proposal. Specifically, the WMP demonstrates that the Proposal is designed to:

- Adequately cater for the anticipated volume of waste to be generated;
- Provide adequately sized Bin Storage Areas, including appropriate bins; and
- Allow for efficient collection of bins by appropriate waste collection vehicles.

To achieve the objective, the scope of the WMP comprises:

- Section 2: Waste Generation;
- Section 3: Waste Storage;
- Section 4: Waste Collection;
- Section 5: Waste Management; and
- Section 6: Conclusion.

2 Waste Generation

The following section shows the waste generation rates used and the estimated waste volumes to be generated at the Proposal.

2.1 Proposed Tenancies

The anticipated volume of refuse and recyclables is based on the floor area (m^2) of the Front of House (FOH) tenancies at the Proposal. The Proposal consists of the following:

Bar – 318m^2

- Pavilion Bar – 109m^2;
- Pavilion Front Bar – 161m^2;
- Kings Hall Bar – 31m^2; and
- Kiosk Bar – 16m^2.

Function – 434m^2

- Theatre Floor – 306m^2; and
- Theatre Mezz – 128m^2.

Restaurant – 231m^2

- Kings Hall Dining – 231m^2.

Retail – 390m^2

- Bottleshop Retail – 390m^2.

Alfresco – 471m^2

- Pavilion Beer Garden – 209m^2; and
- Kings Hall Alfresco – 262m^2.

Office – 185m^2

- Theatre Office – 71m^2; and
- Office – 114m^2.

Serviced Apartments – 72

- One Bed – 26;
- Two Bed – 8;
- Accessible – 2; and
- Studio – 36.

2.2 Waste Generation Rates

In order to achieve an accurate projection of waste volumes for the Proposal, consideration was given to the City of Perth's *Waste Guidelines for New Developments* (Revision 5, effective from June 2019).

It should also be noted that a conservative approach has been taken with regards to waste generation across the Proposal by overestimating the potential waste volumes by assuming seven days of operation for all tenancies. This is considered to be an over estimation as it is not uncommon for food and beverage tenancies and function tenancies to close operations post weekend trading therefore resulting in an over estimation of waste volumes generated.

Table 2-1 shows the waste generation rates which have been applied to the Proposal.

Table 2-1: Waste Generation Rates

Tenancy Use Type	City of Perth Guideline Reference	Refuse Generation Rate	Recycling Generation Rate
Bar	Licensed Club, Tavern, Small Bar (w/o dining)	50L/100m^2/day	50L/100m^2/day
Function	Function Room	200L/100m^2/day	100L/100m^2/day
Restaurant	Restaurants	667L/100m^2/day	133L/100m^2/day
Retail	Retail Shops (>100m^2)	50L/100m^2/day	50L/100m^2/day
Alfresco	Licensed Club, Tavern, Small Bar (w/o dining)	50L/100m^2/day	50L/100m^2/day
Office	Offices	10L/100m^2/day	10L/100m^2/day
Serviced Apartments	Serviced Apartments	35L/apartment/week	35L/apartment/week

2.3 Waste Generation

Waste generation is estimated by volume in litres (L) as this is generally the influencing factor when considering bin size, numbers and storage space required.

2.3.1 Geraldton Pub

Waste generation volumes in litres per week (L/week) adopted for this waste assessment are shown in Table 2-2. It is estimated that the Geraldton Pub commercial tenancies at the Proposal will generate 21,115L of refuse and 9,443L of recyclables each week.

Table 2-2: Estimated Waste Generation – Geraldton Pub

Tenancies	Area (m^2)	Waste Generation Rate	Waste Generation (L/week)
Refuse			
Bar	317	50L/100m^2/day	1,110
Function	434	200L/100m^2/day	6,076
Restaurant	231	667L/100m^2/day	10,785
Retail	390	50L/100m^2/day	1,365
Alfresco	471	50L/100m^2/day	1,649
Office	185	10L/100m^2/day	130
		Total	**21,115**
Recyclables			
Bar	317	50L/100m^2/day	1,110
Function	434	100L/100m^2/day	3,038
Restaurant	231	133L/100m^2/day	2,151
Retail	390	50L/100m^2/day	1,365
Alfresco	471	50L/100m^2/day	1,649
Office	185	10L/100m^2/day	130
		Total	**9,443**

2.3.2 Serviced Apartments

Waste generation volumes in litres per week (L/week) adopted for this waste assessment are shown in Table 2-3. It is estimated that the serviced apartments at the Proposal will generate 2,520L of refuse and 2,520L of recyclables each week.

Table 2-3: Estimated Waste Generation – Serviced Apartments

Serviced Apartments	Number of Apartments	Waste Generation Rate (L/apartment/week)	Waste Generation (L/week)
Refuse			
One Bed	26	35	910
Two Bed	8	35	280
Accessible	2	35	70
Studio	36	35	1,260
		Total	**2,520**
Recyclables			
One Bed	26	35	910
Two Bed	8	35	280
Accessible	2	35	70
Studio	36	35	1,260
		Total	**2,520**

n

3 Waste Storage

Waste materials generated within the Proposal will be collected in the bins located in the Bin Storage Areas, as shown in Diagram 1 and Diagram 2, and discussed in the following sub-sections.

Note: the waste generation volumes are best practice estimates and the number of bins to be utilised represents the maximum requirements once the Proposal is fully operational. Bin requirements may be impacted as the development becomes operational and the nature of the tenants and waste management requirements are known.

3.1 Internal Transfer of Waste

To promote positive recycling behaviour and maximise diversion from landfill, internal bins will be available throughout the Proposal for the source separation of refuse and recycling. These internal bins will be collected by the tenants, staff and cleaners and transferred to the respective Bin Storage Area for consolidation into the appropriate bins, as required.

All bins will be colour coded and labelled in accordance with Australian Standards (AS 4123.7) to assist the tenants, staff and cleaners to dispose of their separate waste materials in the correct bins.

3.2 Bin Sizes

Table 3-1 gives the typical dimensions of standard bins sizes that may be utilised at the Proposal. It should be noted that these bin dimensions are approximate and can vary slightly between suppliers.

Table 3-1: Typical Bin Dimensions

Dimensions (m)	Bin Sizes		
	240L	660L	1,100L
Depth	0.730	0.780	1.070
Width	0.585	1.260	1.240
Height	1.060	1.200	1.330

Reference: SULO Bin Specification Data Sheets

3.3 Bin Storage Area Size

3.3.1 Geraldton Pub Bin Storage Area Size

To ensure sufficient area is available for storage of the bins, the amount of bins required for the Geraldton Pub Bin Storage Area was modelled utilising the estimated waste generation in Table 2-2, bin sizes in Table 3-1 and based on collection of refuse and recyclables five times each week.

Based on the results shown in Table 3-2 the Geraldton Pub Bin Storage Area has been sized to accommodate:

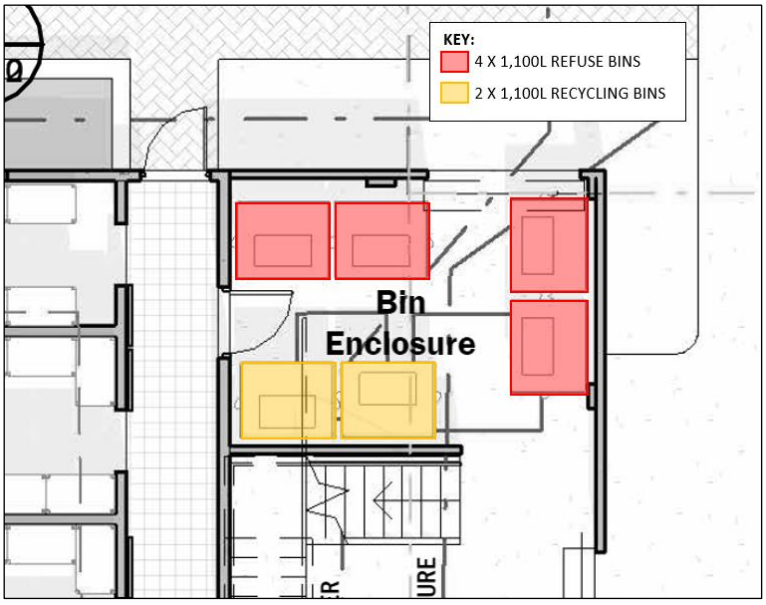
- Four 1,100L refuse bins; and
- Two 1,100L recycling bins.

Table 3-2: Bin Requirements for Bin Storage Area – Geraldton Pub

Waste Stream	Waste Generation (L/week)	Number of Bins Required		
		240L	660L	1,100L
Refuse	21,115	18	7	4
Recycling	9,443	8	3	2

The configuration of these bins within the Geraldton Pub Bin Storage Area is shown in Diagram 1. It is worth noting that the number of bins and corresponding placement of bins shown in Diagram 1 represents the maximum requirements assuming five collections each week of refuse and recyclables.

Diagram 1: Geraldton Pub Bin Storage Area



3.3.2 Serviced Apartments Bin Storage Area Size

To ensure sufficient area is available for storage of the bins, the amount of bins required for the Serviced Apartments Bin Storage Area was modelled utilising the estimated waste generation in Table 2-3, bin sizes in Table 3-1 and based on collection of refuse and recyclables two times each week.

Based on the results shown in Table 3-3 the Serviced Apartments Bin Storage Area has been sized to accommodate:

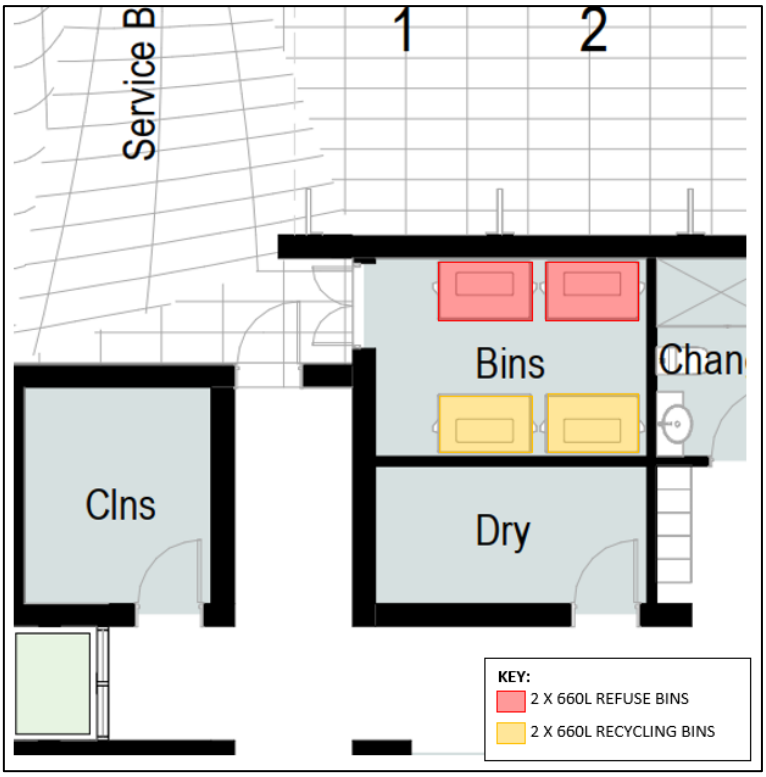
- Two 660L refuse bins; and
- Two 660L recycling bins.

Table 3-3: Bin Requirements for Bin Storage Area – Serviced Apartments

Waste Stream	Waste Generation (L/week)	Number of Bins Required		
		240L	660L	1,100L
Refuse	21,115	18	7	4
Recycling	9,443	8	3	2

The configuration of these bins within the Serviced Apartments Bin Storage Area is shown in Diagram 2. It is worth noting that the number of bins and corresponding placement of bins shown in Diagram 2 represents the maximum requirements assuming two collections each week of refuse and recyclables.

Diagram 2: Serviced Apartment Bin Storage Area



3.4 Bin Storage Area Design

The design of the Bin Storage Areas will take into consideration:

- Smooth impervious floor sloped to a drain connected to the sewer system;
- Taps for washing of bins and Bin Storage Area;
- Adequate aisle width for easy manoeuvring of bins;
- No double stacking of bins;
- Doors to the Bin Storage Area self-closing and vermin proof;
- Doors to the Bin Storage Area wide enough to fit bins through;
- Ventilated to a suitable standard;
- Appropriate signage;
- Undercover where possible and be designed to not permit stormwater to enter into the drain;
- Located behind the building setback line;
- Bins not to be visible from the property boundary or areas trafficable by the public; and
- Bins are reasonably secured from theft and vandalism.

Bin numbers and storage space within the Bin Storage Areas will be monitored by management during the operation of the Proposal to ensure that the number of bins and collection frequency is sufficient.

4 Waste Collection

A private waste collection contractor will service the Proposal and provide the following:

Geraldton Pub Bin Storage Area:

- Four 1,100L bins for refuse, collected five times each week; and
- Two 1,100L bins for recyclables, collected five times each week.

Serviced Apartments Bin Storage Area:

- Two 660L refuse bins, collected two times each week; and
- Two 660L recycling bins, collected two times each week.

The private contractor will collect waste from the respective Bin Storage Areas utilising a rear loader waste collection vehicle and the dedicated Service Areas.

The private contractor's rear lift waste collection vehicle will enter the Proposal's carpark in forward gear and service bins directly from the Bin Storage Areas. Private contractor's staff will transfer bins to and from the waste collection vehicle and the Bin Storage Areas for servicing. Once servicing is complete the private contractor's waste collection vehicle will exit the Proposal in forward gear.

The private contractor will be provided with key/PIN code access to the Bin Storage Areas and any security access gates to facilitate servicing, if required.

The above servicing method will preserve the amenity of the area by removing the requirement for bins to be presented to the street on collection days. In addition, servicing of bins onsite will reduce the noise generated in the area during collection. Noise from waste vehicles must comply with the Environmental Protection (Noise) Regulations and such vehicles should not service the site before 7.00am or after 7.00pm Monday to Saturday, or before 9.00am or after 7.00pm on Sundays and Public Holidays.

The ability of waste collection vehicles to access the Proposal has been assessed by qualified traffic engineers and will be included within their Traffic Impact Assessment.

4.1 Bulk and Speciality Waste

Bulk and speciality waste materials will be removed from the Proposal as they are generated on an 'as required' basis.

Adequate space may be allocated throughout the Proposal for placement of cabinets/containers for collection and storage of bulk and specialty wastes that are unable to be disposed of within the bins in the Bin Storage Areas. These may include items such as:

- Refurbishment wastes from fit outs;
- Batteries and E-wastes;
- White goods/appliances;
- Used Cooking Oil;
- Cleaning chemicals; and
- Commercial Light globes.

These materials will be removed from the Proposal once sufficient volumes have been accumulated to warrant disposal. A temporary skip bin could be utilised for collections, if required. Bulk and specialty waste collection will be monitored by management who will organise their transport to the appropriate waste facility, as required.

5 Waste Management

Management will be engaged to complete the following tasks:

- Monitoring and maintenance of bins and the Bin Storage Areas;
- Cleaning of bins and the Bin Storage Areas, when required;
- Ensure all tenants, staff and cleaners at the Proposal are made aware of this WMP and their responsibilities thereunder;
- Monitor tenants, staff and cleaners' behaviour and identify requirements for further education and/or signage;
- Monitor bulk and speciality waste accumulation and assist with its removal, as required;
- Regularly engage with tenants, staff and cleaners to develop opportunities to reduce waste volumes and increase resource recovery; and
- Regularly engage with the private contractors to ensure efficient and effective waste service is maintained.

6 Conclusion

As demonstrated within this WMP, the Proposal provides sufficiently sized Bin Storage Areas for storage of refuse and recyclables, based on the estimated waste generation volumes and suitable configuration of bins. This indicates that adequately designed Bin Storage Areas have been provided, and collection of refuse and recyclables can be completed from the Proposal.

The above is achieved using:

Geraldton Pub Bin Storage Area:

- Four 1,100L bins for refuse, collected five times each week; and
- Two 1,100L bins for recyclables, collected five times each week.

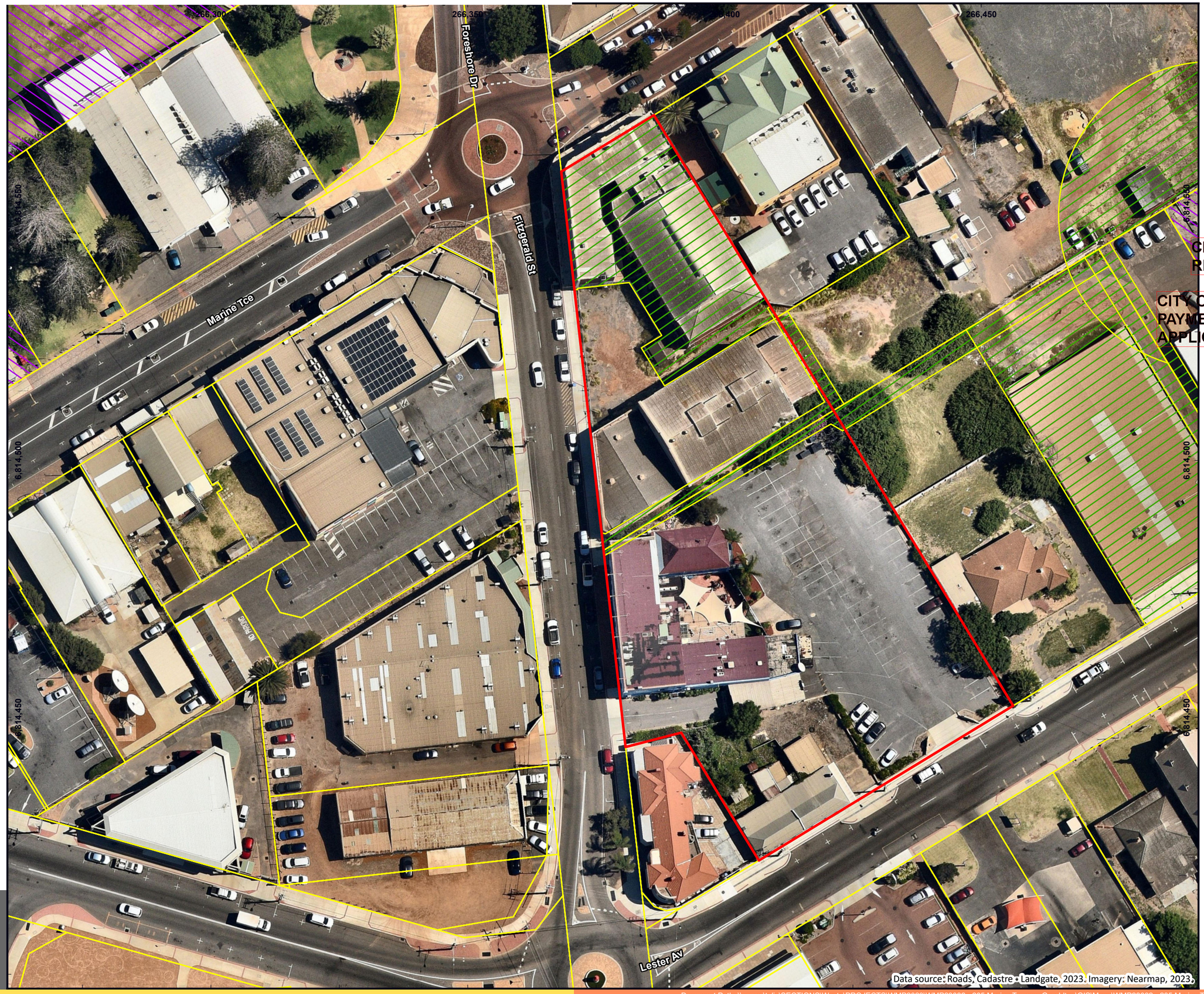
Serviced Apartments Bin Storage Area:

- Two 660L refuse bins, collected two times each week; and
- Two 660L recycling bins, collected two times each week.

A private contractor will service the Proposal onsite via the internal road/carpark, directly from the Bin Storage Areas. The private contractor's waste collection vehicle will enter and exit the Proposal in forward gear via Lester Avenue.

Management will oversee the relevant aspects of waste management at the Proposal.

Figures



Data source: Roads, Cadastre • Landgate, 2023. Imagery: Nearmap, 2023.

LEGEND

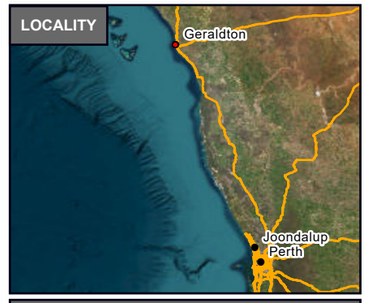
- Site Boundary

Cadastre

- Crown Allotment
- Freehold
- Road
- Strata Plan or Lot
- Easement
- Reserve

CITY OF GREATER GERALDTON
RECEIVED 14 AUGUST 2023

CITY OF GREATER GERALDTON
PAYMENT RECEIVED AND DEVELOPMENT APPLICATION ACCEPTED 28 AUGUST 2023



LOCALITY

205 Marine Terrace
Geraldton 6530 WA

Geraldton Locals Co Hotel

N
0
10
20
30
m

Coordinate System: GDA2020 MGA Zone 50
Scale @ A3: 1:700

Figure 01

Document Path: \\server\talis\SECTIONS\Waste\PROJECTS\WMP2023\WMP23032 - 205 Marine Terrace, Geraldton\GIS\Maps\WMP23032 - 205 Marine Terrace, Geraldton\WMP23032 - 205 Marine Terrace, Geraldton.aprx