

MATILDA BAY BREWERY

NORTH FREMANTLE, WA

PEDESTRIAN WIND ASSESSMENT – ISSUE FOR DEVELOPMENT APPROVAL

PROJECT # 2102035
APRIL 12, 2022



SUBMITTED TO

3 Oceans Property Pty Ltd

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1. INTRODUCTION



RWDI Australia Pty Ltd (RWDI) was retained to conduct a qualitative assessment of the pedestrian wind conditions expected on and around the proposed Matilda Bay Brewery site located in Freemantle, WA. The development site is situated approximately 300m from the western coastline of Perth and approximately 12km to the southwest of the Perth CBD. The site is bound by Stirling Highway to the west, McCabe Street to the north and Coventry Parade and Thompson Road to the south (Image 1).

The proposed development consists of three residential towers sitting atop a common podium that also serves as the primary carpark. The towers heights vary from 10-16 storeys. The developments are taller than the immediate surroundings with most neighbouring buildings comprising of low-rise residential and commercial buildings. The upper plaza of the development is connected to the existing heritage Matilda Bay Brewery building through an elevated walkway. The space is intended for commercial use including a restaurant, café, and a tavern. Residential amenities are also planned for the upper levels of the development.

The key outdoor areas of interest for this assessment include the pedestrian footpaths and other publicly accessible areas as well as the communal amenities within and around the development site. Commentary has been provided based on indicative and assumed usage of the spaces. Conceptual wind control measures are also discussed where deemed necessary.



Image 1: Aerial View of the Existing Site and Surroundings
Source: Nearmap

2. METHODOLOGY



Predicting wind speeds and occurrence frequencies around a building is a complex process and involves the combined assessment of building geometry, orientation, position and height of surrounding buildings, upstream terrain and the local wind climate. Over the years, RWDI has conducted thousands of wind-tunnel model studies and CFD assessments on pedestrian wind conditions around buildings, yielding a broad knowledge base of potential flow behaviour. In some situations, this knowledge and experience, together with literature, allow for a reliable, consistent and efficient desktop estimation of pedestrian wind conditions without wind-tunnel testing.

This qualitative approach provides a screening-level estimation of potential wind conditions and offers conceptual wind control measures to improve wind comfort, where deemed necessary. In order to quantify and confirm the predicted conditions or refine any of the suggested conceptual wind control measures, physical scale model tests in a boundary-layer wind tunnel would be required.

RWDI's assessment is based on the following:

- A review of the regional long-term meteorological data;
- Drawings and models of the proposed development received by RWDI in April 2022.
- Use of RWDI's proprietary software (*WindEstimator*¹) for providing a screening-level numerical estimation of potential wind conditions around generalised building forms;
- Wind-tunnel studies and desktop assessments undertaken by the team for projects in the region;
- Our engineering judgement, experience, and expert knowledge of wind flows around buildings^{2,3}; and,
- RWDI Criteria for pedestrian wind comfort and safety.

Note that other microclimate issues such as those relating to cladding and structural wind loads, door operability, building air quality, noise, vibration, etc. are not part of the scope of this assessment.

-
1. H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", ASCE Structure Congress 2004, Nashville, Tennessee.
 2. H. Wu and F. Kriksic. (2012), "Designing for Pedestrian Comfort in Response to Local Climate", *Journal of Wind Engineering and Industrial Aerodynamics*, vol.104-106, pp.397-407.
 3. C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", 10th International Conference on Wind Engineering, Copenhagen, Denmark.

3. METEOROLOGICAL DATA



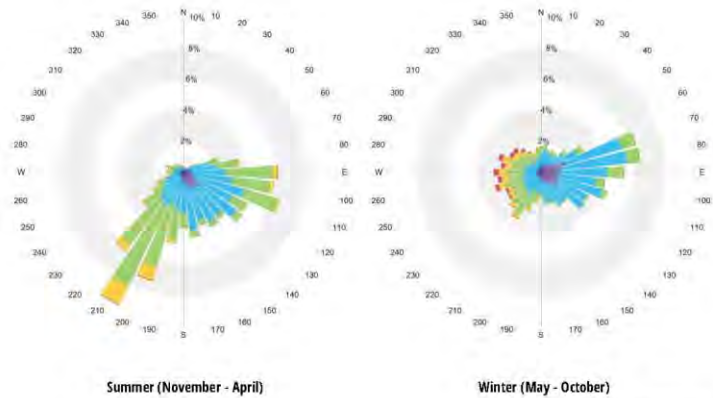
It is noted that the development site is situated near the western coast of Perth and is, therefore, less exposed to the prevailing easterly winds noted at the Perth International Airport. Meteorological data from Swanbourne Station which is situated closer to the coastline is, therefore, considered to be more representative for the site.

Wind statistics recorded at Swanbourne Station were analysed for the period between 2001 and 2021 (inclusive) for the summer (Nov-Apr) and winter (May-Oct) seasons. Image 2 graphically depicts the directional distributions of wind frequencies and speeds observed at the station.

General directionality of the wind is similar to that observed at Perth International Airport. However, winds from the north-east are less frequent near the coast with the easterly inland winds also being less severe as these traverse over the suburban terrain of Perth. The westerly sector winds during winters are noted to be strong and frequent. These can have a significant impact on the outdoor thermal comfort of spaces around site and can lead to high wind regions. Winds from the south-west are more frequent during the summers and would generally be welcomed from a thermal comfort standpoint. Strong winds of a mean speed greater than 30 km/h measured at the station occur for 6.5% of the time during the year and can lead to unsafe wind conditions.

Image 2: Directional distribution of winds approaching Swanbourne Station (2001 to 2021)

Wind Speed (km/h)	Probability (%)	
	Summer	Winter
Calm	0.5	0.5
1-10	14.2	21.4
11-20	45.2	48.5
21-30	35.2	21.4
31-40	4.6	5.8
>40	0.2	2.4



4. RWDI PEDESTRIAN WIND CRITERIA



The RWDI pedestrian wind comfort criteria are used in the current study. These criteria have been developed by RWDI through research and consulting practice since 1974. They have also been widely accepted by municipal authorities, building designers and the city planning community. The Australasian Wind Engineering Society (AWES) recommended safety criterion is also utilised. The criteria are as follows:

4.1 Safety Criterion

Pedestrian safety is associated with excessive gusts that can adversely affect a pedestrian's balance and footing. If strong winds that can affect a person's balance (83 km/h) occur more than 0.1% of the time or 9 hours per year, the wind conditions are considered severe.

4.2 Pedestrian Comfort Criteria

Wind comfort can be categorized by typical pedestrian activities:

Sitting (≤ 10 km/h): Calm or light breezes desired for outdoor seating areas where one can read a paper without having it blown away.

Standing (≤ 14 km/h): Gentle breezes suitable for main building entrances and bus stops.

Strolling (≤ 17 km/h): Moderate winds that would be appropriate for window shopping and strolling along a downtown street, plaza or park.

Walking (≤ 20 km/h): Relatively high speeds that can be tolerated if one's objective is to walk, run or cycle without lingering.

Uncomfortable: The comfort category for walking is not met.

Wind conditions are considered suitable for sitting, standing, strolling or walking if the associated mean wind speeds are expected for at least 80% of the time. Wind control measures are typically required at locations where winds are rated as uncomfortable or they exceed the wind safety criterion.

Note that these wind speeds are assessed at the pedestrian height (i.e., 1.5 m above grade or the concerned floor level), typically lower than those recorded in the airport (10 m height and open terrain).

These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can also affect people's perception of the wind climate.

For the current development, wind speeds comfortable for walking or strolling are appropriate for sidewalks; lower wind speeds comfortable for standing are required for building entrances and bus-stops where pedestrians may linger, and calm wind speeds suitable for sitting are desired in areas where passive activities are anticipated, such as the outdoor dining and amenity terraces.

5. RESULTS AND DISCUSSION



5.1 General Wind Flow around Buildings

In our discussion of wind conditions on and around the proposed development, reference may be made to the following generalised wind flows (see Image 3). If these building / wind combinations occur for prevailing winds, there is a greater potential for increased wind activity and uncomfortable or potentially unsafe conditions.

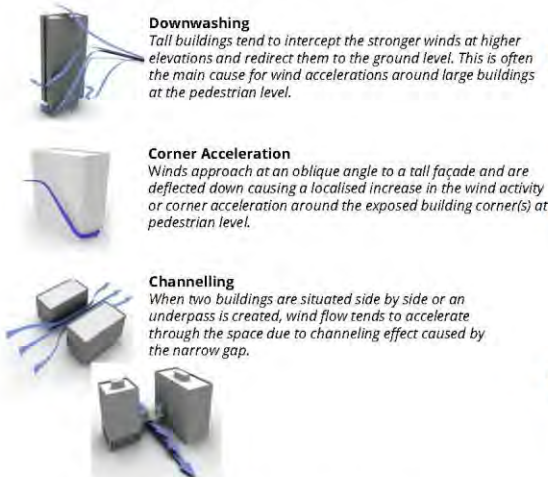


Image 3: General wind flow around buildings

Design details such as setting back a tower from the edges of a podium, deep canopies close to ground level, wind screens / tall trees with dense landscaping, etc. (Image 4) can help reduce high wind activity. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.

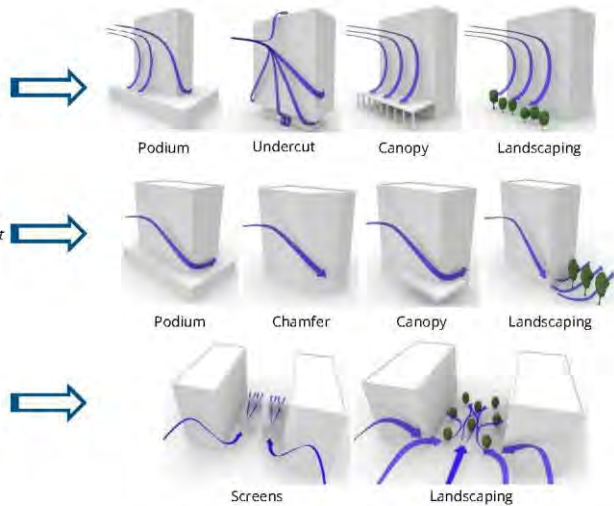


Image 4: Examples of Common Wind Control Measures

5. RESULTS AND DISCUSSION



5.2 Existing Site Conditions

The existing site consists of the Matilda Bay Brewery heritage building. The low-rise building is similar in height to the neighbouring commercial and residential buildings. These buildings are likely to have a small impact on the local microclimate and, therefore, wind conditions exceeding the safety criterion are not expected around the site. The site also receives minimal shielding along the western aspect, therefore remaining exposed to the prevailing westerly winds. These winter winds can impact the outdoor comfort around the existing site with conditions along adjacent streets likely to be suitable for active pedestrian use. This is mainly due to the steep rise in topography moving from the coast towards the site. Wind conditions during summers are likely to be suitable for passive use at most locations.

5.3 Proposed Site Conditions

Ground and Plaza

The exposure of the proposed development site to the regional prevailing winds is indicated in Image 5. Due to the location and design of the proposed towers the retained Matilda Bay brewery site along the western aspect is expected to be shielded from a majority of the prevailing winds. Furthermore, the wind conditions along the Stirling Highway and Coventry Parade frontages are expected to be similar to the existing site conditions. A majority of the ground level areas around the site are generally well shielded from the prevailing wind impacts due to the shared podium of the towers.

The exposure of the site to the prevailing winds and limited shielding from neighbouring sites allows the proposed tower forms to capture the prevailing winds with the potential for downwash winds to be redirected towards the plaza areas and corner accelerate around the building corners. Similarly, the south-westerly to westerly winds are expected to interact with the north-west corner of Indian South (Tower 02) and corner accelerate, which can also channel through the space between Indian North (Tower 01) and Indian South (Tower 02). Due to the strength of the westerly winds, these areas are likely not suitable for use. The downwashed winds can also impact the outdoor seating areas planned at the base of Towers 01 and 02.

Consideration should be made to incorporate awnings within the design of the towers along all aspects. The awnings will assist in reducing the impact of the downwash winds. It is recommended that seating zones are positioned away from the building corners and where permissible perimeter screening implemented.

The proposed vegetation at the base of Tower 01 and Tower 02 is recommended to be retained as they are positioned near the building corners, which will provide some amelioration to the winds. Similarly the proposed landscaping and tree planting within the plaza is recommended to be retained as it will assist in reducing the strength of funneling winds that may occur due to the prevailing westerly and south-westerly winds.

5. RESULTS AND DISCUSSION



5.3 Proposed Site Conditions

The north-western corner of Tower 01 is exposed to the prevailing south-westerly to westerly winds which are expected to corner accelerate. Given the area is intended to include an outdoor deck with the pool area along the northern aspect the area would be required to be suitable for passive patron use. It is recommended that the perimeter consist of 1.5-1.8m high impermeable balustrades with a wrap around awning above to assist with potential downwash winds and corner acceleration.

Circulation within Towers 1 and 2

Pressure-driven wind flows are also expected to channel along the circulation areas within Towers 1 and 2. Due to the partial indoor nature of these areas, higher wind speeds will generally be perceived as uncomfortable. These winds can also have an impact on door operability and can cause stack effect issues within the towers.

Communal Terraces

The outdoor terrace area on Level 05 of Tower 02 and Level 10 of Tower 03 are exposed to the regional prevailing winds as they receive minimal shielding from neighbouring sites. The position of Tower 01 and Tower 02 assists in shielding the Level 10 terrace on Tower 03 from the prevailing south-westerly winds. The terrace is exposed to the north-easterly winds as such 1.5m high impermeable balustrades are recommended along the perimeter of the terrace.

The south-eastern aspect of the Level 05 Terrace of Tower 02 is exposed to the prevailing south-westerly winds which are expected to corner accelerate resulting in localized wind impacts. It is recommended to implement a 1.5-1.8m impermeable screen along the western and southern perimeter of the terrace to assist in shielding the area. Impermeable balustrades are recommended along the northern and eastern perimeter.

Private Balconies

The majority of private balconies within the development are inset within the tower form and are expected to be suitable for passive use throughout the year. Similarly, the design incorporates louvered screening across a majority of the façade and balcony areas which will assist with protecting the balcony areas.

However, corner balconies are located along the southern aspect of Tower 3 which are likely to be exposed to high wind speeds due to corner acceleration. It is recommended that screening be implemented along one aspect so to create a single aspect balcony. This can be in the form of an impermeable full-height screen or louvres (orientated at fixed angles to stagnate the corner acceleration).

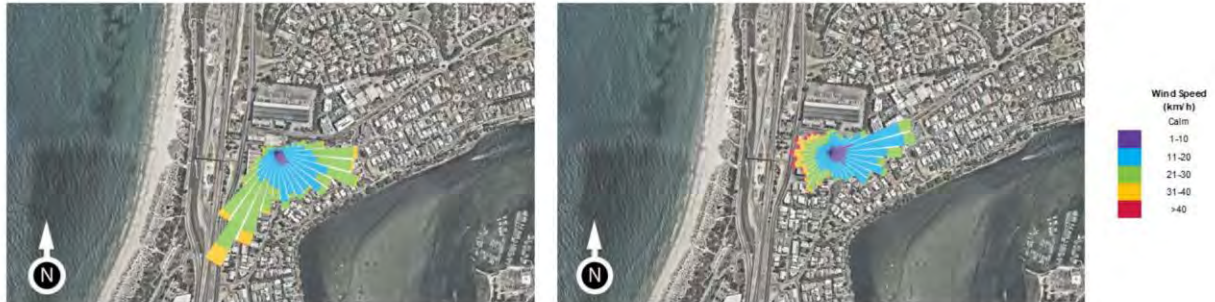
5. RESULTS AND DISCUSSION



Image 5: Site Exposure to Regional Winds

Left – Summer Season

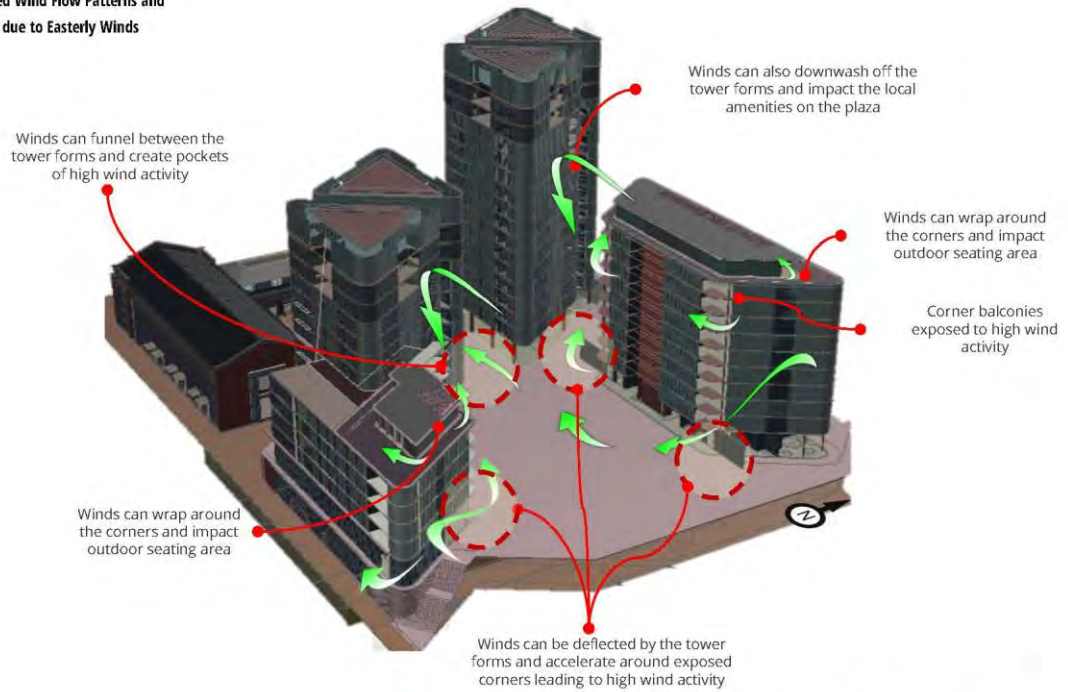
Right – Winter Seasons



5. RESULTS AND DISCUSSION



Image 6: Expected Wind Flow Patterns and Wind Conditions due to Easterly Winds

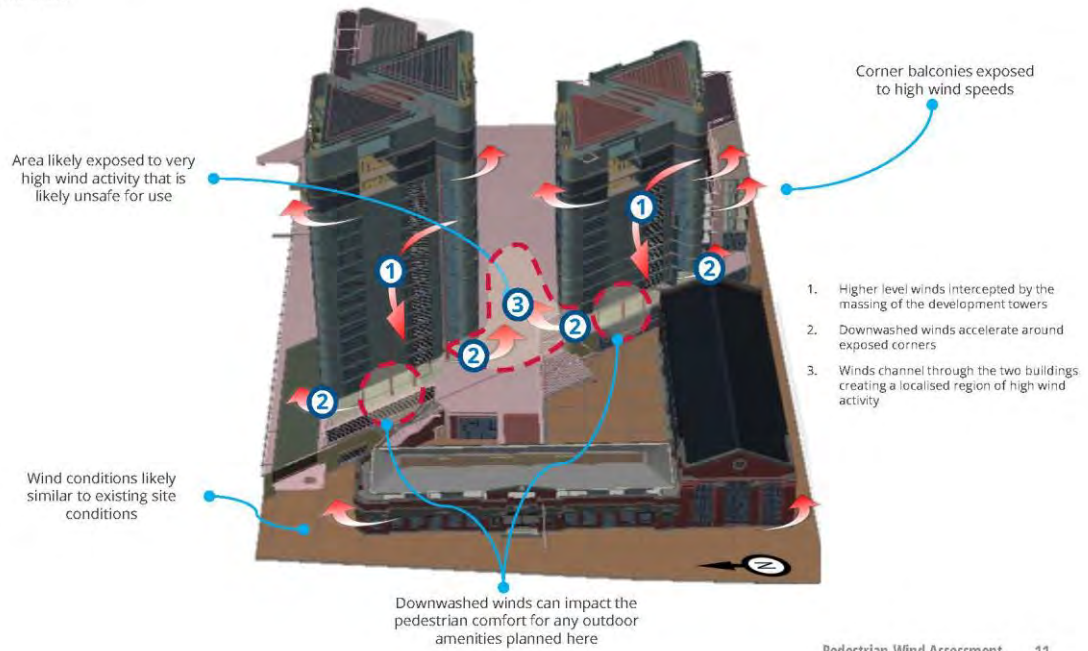


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5. RESULTS AND DISCUSSION



Image 7: Expected Wind Flow Patterns and Wind Conditions due to Westerly and South-Westerly Sector Winds



5. RESULTS AND DISCUSSION



5.4 Proposed Mitigation Measures

Based on the discussion of wind interaction with the proposed development, it is recommended to incorporate/retain the following measures to ensure comfortable and safe wind conditions within and around the development site (examples shown in Image 7) :

- Awnings are recommended to be incorporated within the design of the towers along all aspects. The awnings will assist in reducing the impact of downwash winds on the plaza and grade level areas within and around the site. Alternatively, hanging louvered angled screens along the colonnades may assist to stagnate downwash winds from circulating within the colonnades.
- Localised screening / vegetation zones are recommended at the corners of the towers to help reduce the wind movement around these spaces.
- 1.5-1.8m high balustrades along the northern and western perimeter of the Tower 1 pool terrace.
- Retention of the centrally located canopy / pergola between Towers 1 and 2. Additional articulation in the form of interspersed screening and vegetation is also recommended within the plaza space to reduce the impact of channelling winds.
- Localised screening / vegetation is recommended around outdoor seating areas on the upper levels of Towers 2 and 3 to ensure that the spaces are suitable for passive use. Impermeable perimeter balustrades of at least 1.5-1.8m height along the western and southern aspects are recommended for Tower 2 terrace.

1.5m high impermeable balustrades are recommended along the perimeter of the Tower 3 terrace.

- Full-height corner screening along one of the aspects of the private corner balconies permitting single aspect design. This can be achieved via full height impermeable screens or vertical louvre screens (set to a fixed angle to stagnate corner acceleration flow).
- Retention of proposed vegetation and tree planting at the base of Towers 01 and 02, especially near the building corners. Retention of proposed landscape layout through the plaza.



Image 7: Examples of Wind Control Measures

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6. SUMMARY



Wind conditions in and around the proposed Matilda Bay Brewery development located in Freemantle, WA are discussed in this report. The qualitative assessment is based on the review of local wind climate and the current design of the proposed redevelopment. The impact of the surrounding buildings and local land topography has also been considered. The assessment is based on our experience with wind tunnel testing and CFD analysis of similar buildings within the region.

The shared podium of the proposed towers is a positive design feature that will likely reduce the impact of prevailing winds on the ground level areas around the site. The proposed design and landscaping consists of several features that can assist with wind conditions. However, the proposed development is generally exposed to the prevailing regional winds that are likely to cause high wind activity within the upper plaza level and terraces. These winds can downwash off the tower forms, accelerate around the exposed corners and channel between the towers. The increase in wind activity is expected to impact the pedestrian comfort and safety.

Conceptual wind control measures are discussed in the report and are intended to provide early design advice for the precinct. The wind conditions around the site can be quantified and the measures can be further refined through wind tunnel testing or CFD modelling of the proposed development site. Given the exposure of the site to the prevailing winds, this is highly recommended.

7. APPLICABILITY OF ASSESSMENT



The assessment discussed in this report pertains to the proposed development in accordance with the drawings received in April 2022. In the event of any significant changes to the design, construction or operation of the building or addition of surroundings in the future, RWDI could provide an assessment of their impact wind conditions discussed in this report. It is the responsibility of others to contact RWDI to initiate this process.

Statement of Limitations

This report entitled Pedestrian Wind Assessment, dated April 12, 2022 was prepared by RWDI Australia Pty Ltd ("RWDI"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this

report have been correctly interpreted in the final design of the Project. The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

April 2022

Matilda Bay Brewery

Sustainable Design Report

Graham Agar
FULL CIRCLE DESIGN SERVICES

MATILDA BAY BREWERY | Sustainable Design Report

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Report No: 2020_066_ESD_DA

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Original Date of Issue: 13th May 2022

ACN: 163 742 890

ABN: 84 163 742 890

Title:	Matilda Bay Brewery – Sustainable Design DA Report
Author:	Graham Agar
Client:	3 Oceans Property Pty Ltd
Contact:	Daniel Visser
Description:	This is FCDS proposed strategy for the sustainable design inclusions for the mixed-use development at the Matilda Bay Brewery site in North Fremantle. The report provides an overview of design intent based on current development parameters. It does not explicitly confirm final design inclusions.

Revision	Date	Checked by	Transmitted by
0	13 th May 2022		GEA

Distribution	Revision							
Receiver	0							
Parcel Property	X							
Cox	X							

13/05/2022

MATILDA BAY BREWERY | Sustainable Design Report

Executive Summary

FCDS have been engaged as the project sustainability consultant for the development of the Matilda Bay Brewery site in North Fremantle. The development is considered an exciting proposal for the area, renewing an iconic heritage site and adding significant amenity in the form of food and beverage offerings, new residences and health and well-being facilities.

The ground plane of the site will include a providore within the heritage building, occupant amenities and food and beverage offerings adjacent a large and generous public realm. Above the ground level there are more food and beverage options, occupant amenities and three residential towers.

The project has set itself high sustainable design targets, seeking to achieve a minimum 5-star Green Star Design and As Built V1.3 self-assessed outcome. In addition, the design team are seeking to include health and wellness initiatives, benchmarked against the Fitwel rating tool and community sustainability initiatives referenced from the One Planet Living tool.

The design team have elected to pursue a self-assessed rating in lieu of formal certification due to the mixed-use nature of the project. Whilst the Green Star Design and As Built tool does allow for certification of mixed-use projects, it requires a single rating to be achieved for each building. To achieve a rating for all buildings on the site would require four or more registrations and certification fees.

As a result, the design team intend to use the Green Star Design and As Built V1.3 rating tool to complete separate self-assessments on the site, capturing key sustainability themes which carry across all buildings.

FCDS have completed an initial review of the project and are confident that the design will easily meet its target through features such as:

- Building envelope pressure testing
- Selection of low toxicity internal finishes
- Building tuning post-practical completion and commitment to NABERS ratings in operation
- Undertaking a climate change risk assessment
- Improving building envelope by more than 10% over BCA Section J
- Provision of outside air in excess of minimum compliance requirements
- Including a building metering and monitoring system to record performance and engage with occupants
- Provision of onsite renewable energy – nominally an 80kW peak output solar array
- Consideration of building environmental footprint through a Life Cycle Assessment.
- Provision of a waste management plan for the site, aiming to reduce landfill quantities



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1. Introduction

The proposed Matilda Bay Brewery redevelopment is located adjacent to Stirling Highway, between the Swan River and Leighton Beach. The redevelopment will make use of the existing heritage buildings, as well as adding modern towers containing residences and a health / wellness amenities.



Overall, the development includes redeveloped heritage space, more than 10,000m² of parks, plazas and promenades. There is also more than 2,200m² of food and beverage tenancies as well as health and wellness amenities. Car parking is located behind the main building entries, landscaping and public realm, making for an open and active front to Stirling Highway and easy pedestrian access to the beach adjacent.

1.1 Sustainable Design Targets

The project is pursuing Australian Excellence in sustainable design, targeting 5-star self-assessment under the Green Star Design and As Built V1.3 rating tool. In addition, health and wellness features from the Fitwel tool will be incorporated, as will elements from the One Planet Living system.

The following table provides a summary of general performance targets currently targeted for this site:

Category	Target	Design Team Response
Energy Consumption	10% Reduction in comparison to BCA 2019 Minimum Practice - Facade	This will require insulation and glazing performance in excess of minimum standard, including provision of shading devices. FCDS initial review of the proposed building envelope indicates that this target is readily achievable.
	15% Reduction in comparison to BCA 2019 Minimum Practice - Overall	- Energy efficient services (lighting and mechanical in particular) will be provided. - Natural ventilation to be used where possible, targeting common areas and amenity spaces (mixed mode). - High efficiency reverse cycle heat pump for domestic hot water.
	Facade leakage < 5m ³ /hr @ 50Pa	Design will include detailing to control air leakage and commissioning will include building pressurisation tests. This requirement is in keeping with expectations for Green Star Design and As Built V1.3 and the BCA 2019.
	Renewable Energy	The project shall include a large solar photovoltaic array, up to around 100kW. Consideration will be given to offsetting operational energy. Provision of batteries to capture excess generation and reuse to smooth peak demand.
Water Consumption	Low Flow Tapware	Ensure all taps, showers, WC's, urinal, dishwashers and washing machines provided are within 1 star of the best available WELS rating.
	Waterwise Irrigation	Utilise drought tolerant and native planting where possible. Utilise rain / moisture sensing and sub-soil drip irrigation for all planted areas.
Waste Targets	75%+ Recycling in operation	Design to facilitate capture of recyclable goods and use of comingled recycling. Bin stores to be provided to cater for weekly collections. Minimum three waste streams to be collected.
	>90% Recycling in construction	Use of high efficiency resource recovery facility to sort waste in construction.
Durability	>10 Years for Common Area Finishes	Internal finishes shall target >10-year life spans, with minimal repair and maintenance rather than regular replacement.
Indoor Environment Quality	CO ₂ Levels < 700ppm	Provide control of outside air to apartments – do not rely on leakage to make up exhaust rates. Provide CO ₂ detection and control to commercial tenancies.
	General Occupant Comfort Initiatives	- Target 7 Star NatHERS average - Utilise double glazing
Transportation	Local Amenity	- Advertise local features and amenities within public spaces - Connect to transport infrastructure like bike paths and bus stops. - Provide public EoT Facilities – including showers – at ground plane
	Sustainable Transport	- Provide priority parking for car share / car-pool parking. - Provide EV car charging facilities in commercial / visitor bays on ground floor.
General Sustainability	Australian Excellence	The project is targeting a self-assessment to 60% under the Green Star Design and As Built V1.3 rating tool – representative of 5 stars – Australian Excellence – if formally assessed.
	Health and Wellness	The project is seeking to include health and wellness initiatives from the FitWel rating system.
	One Planet Living	Align design outcomes with One Planet Living Goals.
	Operational Performance	Achieve NABERS Apartment rating in operation (nominally 3 years post practical completion).

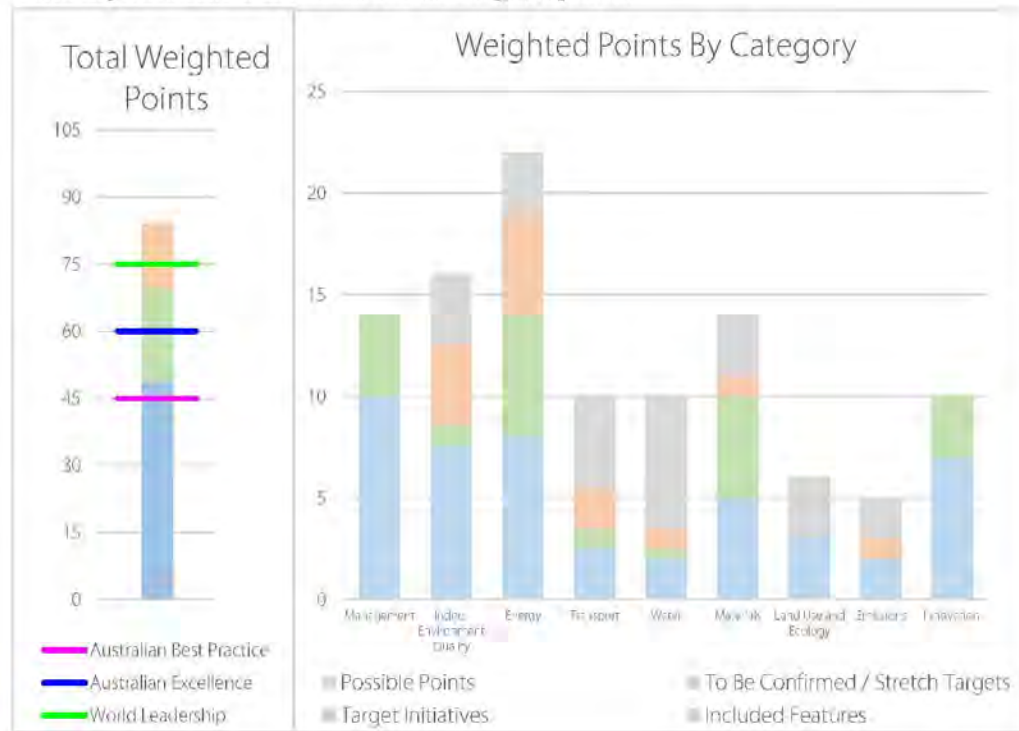
1.2 Key Design Features

In determining the proposed design strategy for the site, the design team are expecting to include the following inclusions:

- Provision of Solar Generation
 - The design is to include a large solar array, nominally 80kW peak output. The system will reduce operational costs and carbon emissions and will benefit from the mixed-use nature of the project.
- Metering and Tuning System
 - The design will include an internal embedded meter network to collect and collate data from tenancies, major uses and apartments to manage the billing process and provide data for building optimisation. The system is expected to have sufficient tiers of metering to facilitate self-check and leak detection functionality.
- Demand Controlled Ventilation
 - CO₂ sensing and outside air control to maintain high levels of air quality within commercial and retail spaces on site. For the residential areas, outside air is expected to be delivered in excess of minimum code requirements through controlled intakes in the facade.
- Commissioning Management
 - At this stage the design team is expected to include an independent consultant to manage and oversee the commissioning process. This role would assist with coordination and integration between the towers and retail component, allowing for synergies and sharing of energy generation across the development.
 - Metering data will be provided to tenants to assist in their engagement and optimisation of building performance.
- Health and Wellness
 - The design intent is to provide a healthy lifestyle for occupants. Site amenities include gym and wellness tenancies, with stair provision in close proximity to lift cores to encourage users to walk where feasible.
- Amenity Space
 - The design includes significant areas provided to occupants and visitors. The design includes gym and pool facilities as well as a health and wellness spaces including; gym, pilates studio and treatment rooms.
 - At ground plane, the development includes shaded and vegetated pedestrian connections infrastructure such as bike parking, seating and public art.
 - The development also include publicly accessible end of trip facilities – including showers – at ground floor level/

1.3 Design Progress

Based on FCDS initial review of confirmed and recommended design features, the project would be expected to achieve around 70 points (>15% over the target of 60 points) under the Green Star Design and As Built V1.3 tool. Should some of the target credits not be available, there are an additional 14 stretch target or credits to be confirmed as the design progresses.



Features have been selected to minimise operational costs in energy and ongoing management, as well as to minimise the impact of materials selected.

2. Management Features

The following design elements are intended to be included by the project team:

2.1 Building Commissioning

The designers will be seeking to complete commissioning in accordance with internationally recognised standards such as Alrah or CIBSE. The commissioning will also include some building envelope pressure testing to confirm build quality and reduce energy loss through air leakage.

2.2 Building Tuning

Buildings are generally understood to take between 3 and 12 months to settle down and operate in accordance with the design intent, however, the process of management and control of this process is often left to chance or to follow an informal process during the Defects Liability Phase.

FCDS will assist the building to optimise its operation during the first 12 months of operation. Scope will include energy consumption review against budgets and engagement with contractors to demonstrate satisfactory operation of installed systems in all weather and load conditions.

2.3 Waste Management

The design will include systems and infrastructure to allow and promote recycling. For example, the residential waste stream would expect to include more than 50% recyclable materials, including FOGO.

The provision of the ability to segregate waste streams will provide operational flexibility in the future and would be expected to reduce operational costs, particularly as the cost of landfill increases over time.

The design currently includes waste stores strategically located to serve major uses, including the retail area and residential components. Recycling bins are also expected to be provided throughout the public access area.



2.4 Construction Practices

The design team expect the main contractor for the project will implement a site-specific environmental management plan, including reporting and audit to a third-party standard such as ISO 14001.

3. Indoor Environment Quality

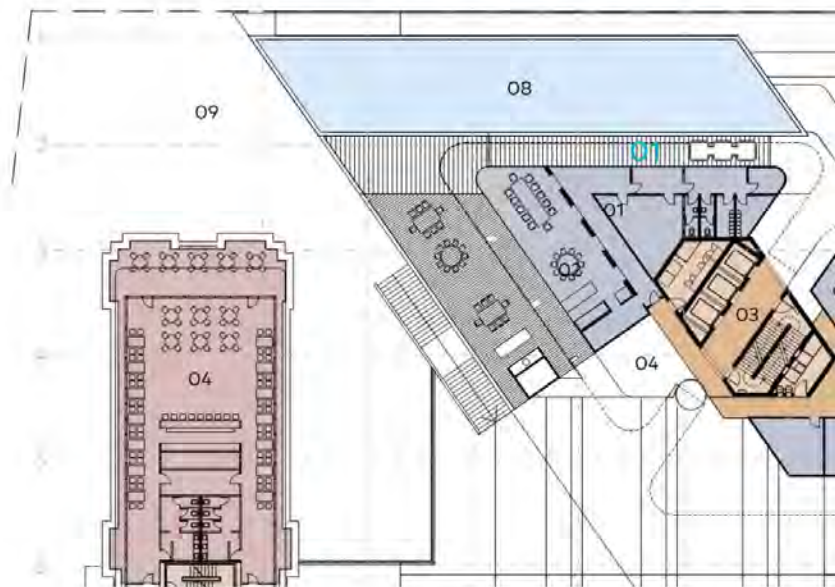
A high level of indoor amenity will be of paramount importance to the success of the project. Occupants, visitors and staff for the building will expect comfortable conditions internally, without glare or noise and good access to views and daylight. Some of the key design features are summarised below:

3.1 Air Quality

Air quality is important for all uses, however, the intended design approach is expected to vary. For the commercial and retail facilities, filtered outside air will be ducted into the occupied space, with quantities controlled to ensure high quality air, without compromising energy efficiency. Retail areas are expected to include CO₂ monitoring and control to reduce peak load, without compromising free cooling during periods of mild ambient conditions.

For the residential space, outside air provision is likely to be occupant controlled, however, exhaust rates from toilets and kitchens will draw in more outside air than is required for minimum code compliance.

For the retail space, many of the tenancies will be able to operate in mixed mode functions and provided with external spaces, allowing improved air quality when conditions are suitable:



3.2 Low Toxicity Materials

The design team will be selecting finishes to minimise pollution of indoor air, with a strong preference for low VOC and low formaldehyde flooring, paints, adhesives and sealants.

3.3 Light Quality

Light fittings within apartments will be high energy efficiency however, will also utilise high quality fittings, targeting 3 McAdam ellipses. Task lighting will be provided for work surfaces, such as kitchen benchtops and bathroom vanities, with power provision for lamps in bedrooms and living spaces.

4. Energy and Green House Gases

The design team are targeting the following performance features:

4.1 Services

The mechanical and electrical designs are seeking to improve over minimum BCA requirements by at least 10%. LED lighting and efficient air conditioning systems are expected to reduce building operational costs and energy consumption.

4.2 Envelope

The design team expect to use a modelled approach to Section J compliance, with a target of a 10% improvement in building envelope performance over minimum requirements. This will include targeting improved NatHERS ratings for the residential component.

4.3 Renewable Generation

The design is intending to include a large solar array. The array should generate between 70 and 100kW peak power.

Wind generation is a possibility for the site, however, considering the residential use for the site and surrounding neighbours, this is unlikely to be used for the development.

The renewable generation plus the building embedded meter network will avoid the need to export energy by sharing the diversity between the retail/commercial and residential spaces. The system will allow occupants access to low carbon, low cost electricity.



5. Transportation

5.1 Local Amenities

The project is classed as having good access to public transport by Walkscore.com.au, with many nearby public transport options. Currently, the location has a high level of car dependence, which will be significantly improved by the proposed development. Fresh food, markets, food and beverage, gym and wellness amenities will significantly improve car reliance for the surrounding area.

124 Stirling Highway

[Add scores to your site](#)

North Fremantle, Perth, 6159

Commute to **Downtown Perth** 

 26 min  31 min  60+ min  60+ min [View Routes](#)

 **Favorite**

 **Map**

 **Nearby Apartments**

Walk Score
36

Car-Dependent

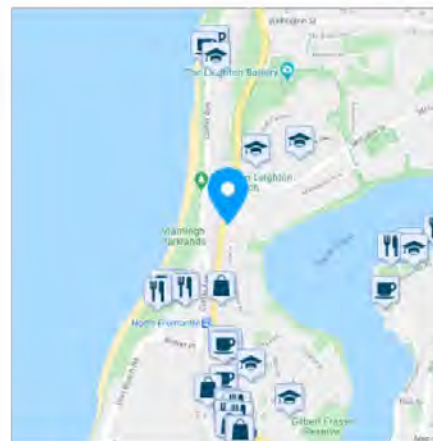
Most errands require a car.

Transit Score
52

Good Transit

Many nearby public transportation options.

[About your score](#)



5.2 Vehicle Infrastructure

The design has separated pedestrians from cars, with car parking generally under the pedestrian space in B1. In addition, the design will consider the provision of electric vehicle parking and charging facilities within the car park.

5.3 Bike Infrastructure

The design currently includes connections to local pedestrian ways for connectivity of bikes, with areas of bike parking also available for public use.



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6. Water Consumption

6.1 Sanitary Fixtures

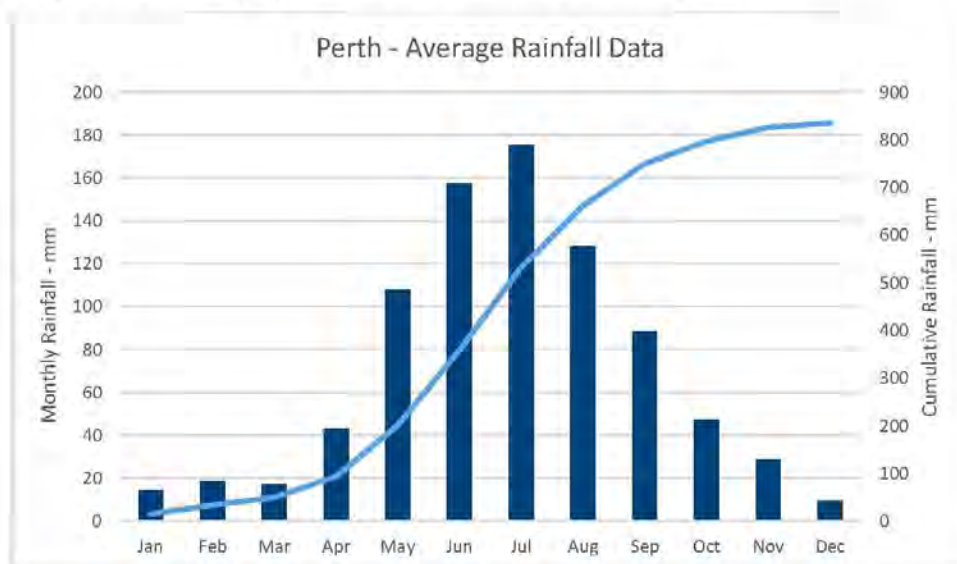
All sanitary fixtures in the project to are seeking to meet high water efficiency standard, whilst still provide occupants with outstanding amenity. Final selections are pending, but the performance below is considered a stretch target:

Fixture Type	Minimum WELS rating	Maximum Flow Allowable
Taps	5 stars	4.5-6 L/min
Urinals	5 stars	1.0 L / Flush + Smart demand flush device
Toilets	4 stars	<3.5 L average flush <4.7L full flush <3.2 half flush
Showers	3 stars	6.0 – 7.5 L/min
Clothes Washing Machines	4 stars	
Dishwashers	5 stars	

6.2 Rainwater Systems

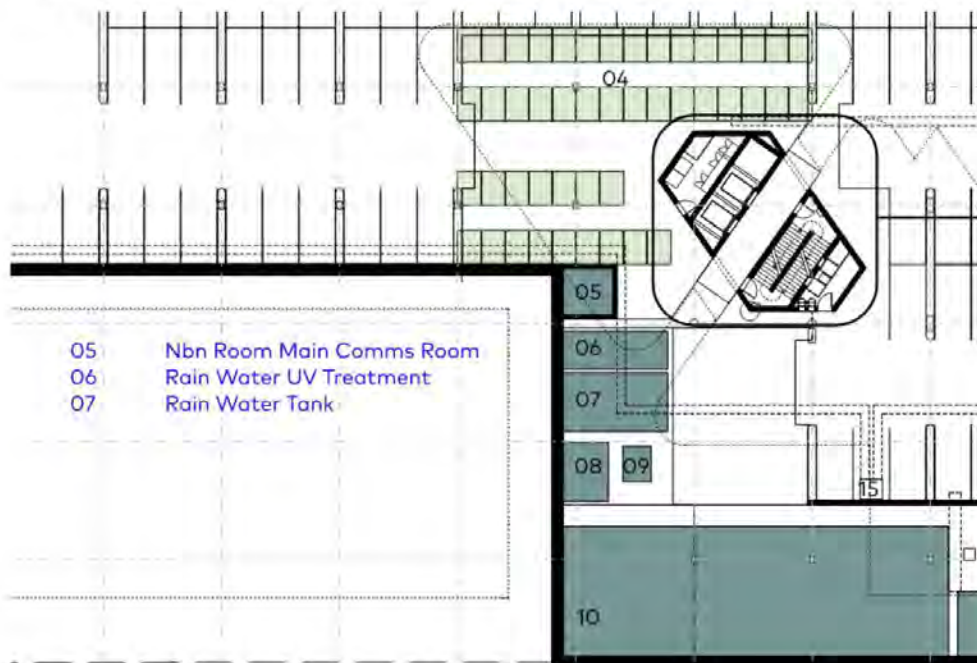
The design includes a rainwater tank for storage and reuse, captured from across the site.

Rainwater collection in Perth is problematic due to the highly concentrated nature of our rainfall patterns. The graph below shows the distribution of local rainfall by month. It is clear that around 80% of the total annual rainfall occurs between May and September. During these periods, there is limited need for additional irrigation water, however, outside of these periods there is insufficient rain to charge tanks or meaningfully contribute to the developments watering needs.



The use of rainwater in the residential component is considered a risk due to the potential for residences to be vacant and untreated water to 'go off'. Rainwater is much better suited for use in the

commercial / retail areas where there is more certainty of high usage, year round. Rainwater will also be provided to landscaped areas which are covered or in rain shadows to supplement available water.



6.3 Fire Systems

The building sprinkler design will seek to capture water used for testing and will include floor by floor isolation valves to avoid wastage during maintenance or modification of the system.

6.4 Landscape

The design includes extensive landscaped areas which will require irrigation. The design intent will be to utilise smart irrigation controls which can detect rainfall and reduce irrigation volumes to match.

6.5 Greywater Systems

Grey water provides a greater certainty of water availability year round, however, represents a significant ongoing economic burden for the development – the system maintenance is likely to be an order of magnitude greater than the value of water saved. Most grey water systems installed in Perth have been decommissioned and, as such, FCDS do not recommend the use of grey water within the Matilda Bay brewery development.

7. Sustainable Materials

The design team are aiming for sustainable materiality selections as follows:

7.1 High Durability

The design team will select finishes which are able to achieve an economic life of at least 10 years. This includes preferential selection of modular or repairable elements (for example, carpet tiles) or natural finishes. Similarly, higher efficiency and quality services design, eg. VRF air conditioning or LED lighting will also be considered.

This option reduces operational maintenance expenditure and is expected to improve visual amenity for the building over the long term.

7.2 Low Toxicity Products

The design will specify low Volatile Organic Compound (VOC) paints and flooring (including adhesives) as a minimum. High VOC products have the potential to significantly reduce indoor environment quality, in particular during initial occupation, if selected with high chemical content.

7.3 Sustainable Credentials

During the construction phase, consideration will be given to utilisation of steel, PVC, insulation, finishes and the like with strong sustainable design credentials. Generally this will include being produced under and ISO 14001 certified EMS, inclusion of a high recycled content and with product stewardship arrangements.

The design team will target reduction of Portland cement content in concrete where practical.

8. Emissions and Ecology

The site emissions and ecological value are to be addressed as follows:

8.1 Ecological Value and Urban Heat Island

The proposed development is considered restorative in terms of local ecology. By replacing an existing hardstand with vegetation, light colours, water features and shaded space the overall ecological value is improved, whilst also reducing the site contribution to the local heat island effect.



9. Innovation

In addition to the above, the design includes features which would be expected to be awarded under the Green Star Innovation category. This category considers things such as social sustainability, exceeding Green Star Benchmarks and contributions to industry development.

Key outcomes to be targeted are as follows:

9.1 Tenancy Design Review

The design team will complete a maintenance and services review on any proposed tenancy. This assists tenants in achieving strong design outcomes, as well as making sure the design is integrated with the overall project intent.

9.2 Ultra-Low VOC Paints

The design team intend to select paints with a VOC (Volatile Organic Content) below 5g/l for walls and ceilings. This level of VOC will significantly improve occupant comfort during initial building occupation.

9.3 Tenant Engagement

As noted above, the building metering system will provide the potential for occupants and tenants to engage with building management and understand their utility use. Live performance monitoring, bill reconciliation and peer group comparisons can be used to air occupants in managing their own use and improving overall building performance.

9.4 Plants, Amenity and Groundskeeping

The design provides extensive planted spaces, internally and externally. The design team expect that occupants and visitors to the development will benefit from these features and plan to include maintenance practices which minimise ecological impacts whilst maintaining a high-quality outlook.

10. One Planet Living

The One Planet Living tool offers a good framework for mapping community outcomes against project design principals.

The overall categories align well with principals from Green Star and with the design intent for the project, as discussed below:

10.1 Health and Happiness

Health and wellbeing is a key design priority for the site. Generous pedestrian features at ground level, as well as dedicated wellness tenancies will provide amenity for residents and the local community.

10.2 Equity and Local Economy

The proposed development includes publicly accessible space and plazas, including a large public open space area promoting equity and growing the local economy.



10.3 Culture and Community

The site is developed among heritage landmarks, reinvigorating these buildings with a public use. In addition generous public spaces such as the Grand Arbour will add to local culture and add space for community development and growth.

10.4 Land and Nature

The project involves the development of a very low value ecology site, with provision of native planting and gardens to improve habitat for native flora and fauna.

10.5 Local and Sustainable Food

The Providore and local markets will enable and improve access for local produce, grown locally and sustainably.

10.6 Travel and Transport

The development improves amenity access for the whole area as well as residents. Connection to pedestrian and other active transport infrastructure is also available as part of the healthy living outcomes for the development.

10.7 Materials and Products

As noted above, selection of materials will be based on low pollutant generation, high durability and good ecological credentials for Green Star outcomes. This aligns very well with the One Planet Living requirements.

10.8 Zero Waste

The design includes waste collection and segregation areas to assist with waste minimisation. In operation, retail tenants will be encouraged to avoid single use plastics and to promote biodegradable products on site.

The site landscaping strategy will include multi-stream bins, located strategically to reflect expected stream generation.

10.9 Zero Carbon Energy

The design will include a large solar array, with energy shared between uses. In operation, the development will have the potential to purchase green energy to further reduce operational carbon emissions.



Planning | Design | Delivery | Performance

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**ADDITIONAL INFORMATION 13 - AMENDED STAGE 1 TRAFFIC IMPACT
ASSESSMENT**

Transport Impact Assessment

Matilda Bay Brewery – Stage 1, North
Fremantle- Issue for Development
Approval

CW1147800 / 304900169

Prepared for
3 Oceans Property Pty Ltd

9 September 2022



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1 Introduction

1.1 Background

Cardno now Stantec has been commissioned by 3 Oceans Property Pty Ltd (the Applicant) to prepare a Transport Impact Assessment (TIA) for a proposed mixed-use development on a site comprising the following lots:

- Lot 5 130 Stirling Highway;
- Lot 12 McCabe Place;
- Lot 253 McCabe Place;
- Lot 218 Thompson Road;
- Lot 219 Thompson Road;
- Lot 220 Stirling Highway;
- Lot 221 Thompson Road; and
- Lot 314 McCabe Street.

This report aims to assess the impacts of the proposed development upon the adjacent road network, with a focus on traffic operations, circulations, and car parking requirements. This report has been prepared in accordance with the *Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)* and the checklist is included at **Appendix A**.

1.2 Planning Context

1.2.1 City of Fremantle Local Planning Scheme No.4

The City of Fremantle Local Planning Scheme No.4, Schedule 6 – Development Areas sets out the following provisions which are relevant to the Site (DA 18).

"Any structure plan for the land of No. 130 Stirling Highway (including Lot 5, 12, 218, 219, 220, 221, 314 and 253) and No. 2 – 4 McCabe Street (including Lot 9, 10 and 11), North Fremantle, is to include an internal link road connecting McCabe Street/McCabe Place to Coventry Parade/Thompson Road."

The proposed development plans have provided a north-south internal link road which connects McCabe Place to Coventry Parade/Thompson Road. The link allows for northbound movements through the Site but limits southbound movements from exiting onto Coventry Parade/Thompson Road.

1.2.2 Former Matilda Bay Brewery Structure Plan

The Structure Plan (which was approved in 2020) provides for the comprehensive redevelopment of the land for medium and high-density residential uses and a limited range of complementary commercial and retail land uses, communal facilities and public open space.

The main differences between the structure plan are that it includes a higher proportion of residential dwellings whereas the current proposal has decrease the number of residential dwelling while yields for the non-residential land uses have increased.

2 Existing Site Situation

2.1 Site Location

The Site is located on multiple lots that comprises 130 Stirling Highway, 12 McCabe Place, 253 McCabe Place, 218 Thompson Road, 219 Thompson Road, 220 Stirling Highway, 221 Thompson Road, and 314 McCabe Street. The Site is bounded by Stirling Highway to the west, McCabe Street to the north, Coventry Parade/Thompson Road to the south and surrounded by multiple residential dwellings to the east.

Figure 2-1 Aerial Image



Source: MetroMap

2.2 Existing Land Use

The Site currently occupied by a range of industrial land uses.

2.3 Surrounding Land Use

According to the City of Fremantle Local Planning Scheme No. 4, the Site is zoned as a Development Area (DA 18). A detailed zoning map showing the zoning around the Site within the City of Fremantle is shown in Figure 2-2. The Site is surrounded by residential and mixed-use developments.

Figure 2-2 Zoning



Source: City of Fremantle Local Planning Scheme No. 4

2.4 Existing Road Network

The layout and classification of the roads under the *Main Roads WA Road Hierarchy* surrounding the Site is summarised in **Table 2.1** and presented in **Figure 2.3**.

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 adjoining property. These are often older roads with traffic demand in excess of that 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.

Table 2-1 Road Network Classification

Street Names	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Stirling Highway	Primary Distributor	Main Roads	4	1-2*	6.2 in each direction	60
McCabe Street	Local Distributor	Local Government	2	1	6.0	50
McCabe Place	Access Road	Local Government	2	0	7.3	50
Thompson Road	Access Road	Local Government	2	1-2*	5.5 in each direction	50

Source: Main Roads Information Mapping Centre

* footpaths are not continuous along these roads as some sections only have a single footpath on either side

Figure 2-3 Road Network Classification



Source: Main Roads Information Mapping Centre

2.5 Existing Intersections

2.5.1 Stirling Highway and McCabe Street

Figure 2-4 shows the current layout for the Stirling Highway and McCabe Street intersection. It is currently a 3-legged traffic signal controlled intersection.

Figure 2-4 Stirling Highway and McCabe Street



Source: Neamap

2.5.2 Stirling Highway and Coventry Parade

Figure 2-5 shows the current layout for the Stirling Highway and Coventry Parade intersection. It is currently a 3-legged give-way controlled intersection.

Figure 2-5 Stirling Highway and Conventry Parade



Source: Neamap

2.5.3 McCabe Street and McCabe Place

Figure 2-6 shows the current layout for the McCabe Street and McCabe Place intersection. It is currently a 3- legged give-way controlled intersection. The southern leg of the intersection currently serves as the main access to existing Lots.

Figure 2-6 McCabe Street and McCabe Place



Source: Neamap

2.6 Existing Traffic Volume

Traffic volumes for the weekdays were sourced from *Main Roads Western Australia's Traffic Map* and is given in **Table 2-2**.

Table 2-2 Existing Traffic Volumes

Road Name	Date	Average Two-Way Daily Traffic Volume	Average Two-Way AM Peak Traffic Volume	Average Two-Way PM Peak Traffic Volume
Stirling Highway (south of Wellington St)	2019/20	34,503	2,682 (8-9am)	2,854 (5-6am)
Stirling Highway (north of Queen Victoria St)	2020/21	30,908	2,281 (8-9am)	2,495 (4-5am)
McCabe Street	2021/22	6,713	712 (8-9am)	645 (3-4pm)

Source: *Main Roads WA Traffic Map*

2.7 Existing Public Transport Facilities

2.7.1 Service Frequency

The location of existing bus routes relative to the Site are shown in **Figure 2-7** and the frequencies are summarised in **Table 2-3**.

Figure 2-7 Transperth Network Map



Source: *Transperth (2022)*

Table 2-3 Bus Route and Train Frequency

Bus/Train Routes	Route Description	Frequencies		
		Weekdays	Saturdays	Sundays and Public Holidays
107	Claremont to Fremantle Station	30 minutes	60 minutes	60-120 minutes
998	Circle Route – Clockwise (Fremantle Station – Stirling Station)	10 minutes	15 minutes	30 minutes
999	Circle Route – Anti-Clockwise (Stirling Station – Fremantle Station)	10 minutes	15 minutes	30 minutes
Fremantle Line	Perth to Fremantle	10 minutes	15 minutes	15 minutes

Source: Transperth (2022)

2.7.2 Bus Stops

There are six (6) bus stops within 400m from the site and one train station (North Fremantle) within 800m from the site; all of these provide direct, safe, and convenient connection for public transport users. The bus stop services routes 107, 998 and 999 and stops at the North Fremantle Station. It should be noted that bus route 103 has recently been discontinued due to low patronage.

Two of the bus stops are located north of the site. Stops 10420 located on the eastern side of Stirling Highway approximately 150m from the site and stop 10348 located on the western side of Stirling Highway approximately 200m from the site. These stops can be accessed through the eastern footpath along Stirling Highway and the non-signalised pedestrian/cyclist crossing point at Stirling Highway / Vlamingh Parade intersection.

Bus stops 10421 and 10347 are located approximately 40m south of the site and stops 10422 and 10346 approximately 300m south of the site. These can be accessed through the footpaths located along both sides of Stirling Highway and the signalised pedestrian crossing located at the McCabe Street / Stirling Highway intersection or the unsignalised pedestrian crossings that serve the respective bus stops.

The North Fremantle Train Station is located approximately 750m from the site, the connection to the site is provided through the footpaths located along Stirling Highway and Congdon Street. There is a signalised pedestrian crossing on Stirling Highway.

Figure 2-8 Bus Stops and Train Station Location



Source: MetroMap (2022)

2.8 Existing Pedestrian / Cycle Networks

Figure 2-9 illustrates the nature of the walking and cycling routes and facilities near the Site which includes:

- High Quality Shared Paths are located along Stirling Highway, north of McCabe Street.
- The stretch of Curtin Avenue that runs from north to south comprises a High-Quality Shared Path that extends to Beach Road.
- Bicycle parking facilities are available at the North Fremantle Station

Regarding improvements to cycling amenity, bike parking and various EOT facilities are proposed as summarised in **Section 3.3.3**.

Figure 2-9 Pedestrian/ Cycle Facilities



Source: Department of Transportation Cycle Network Map

Additionally, the Fremantle PSP extension between Victoria Street and North Fremantle Station was recently completed creating new cycling link to the Fremantle PSP.

Figure 2-10 shows the surrounding footpath network including a 5 minute walking distance from the Site. The quality of footpaths within the surrounding area varies significantly. The footpath along the northern edge of McCabe Street is very narrow whereas along Stirling Highway provide much wider paths. Stirling Highway, being a significant arterial road, is a major barrier for pedestrians looking to cross this road. Other than the Stirling Highway/McCabe Street signals, there are very few locations where pedestrians are able to cross safely. These crossing points are located at side roads which intersect Stirling Highway (Coventry Parade, Pamment Street and Craig Street). The median along Stirling Highway provides a refuge area for these crossing points although the narrow width (approximately 1.2m) is not ideal as it is not sufficiently wide to accommodate people in a wheelchair, parents with prams, cyclist, etc.

With regards to pedestrian amenity improvements, a pedestrian crossing over Stirling Highway has been discussed although it is not considered for this development application.

Figure 2-10 Pedestrian Footpaths and 5 Minute Walking Distance from the Site



2.9 Existing Parking

Existing on-street parking is provided along McCabe Street and Coventry Parade which is within appropriate walking distance from the Site. The locations of the on-street parking are shown in **Figure 2-11**.

Along McCabe Street, there are currently 14 bays along the northern side of the street. The parking demand along this road is relatively low as shown in **Figure 2-11** and **Figure 2-12**. No time restrictions are provided for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply as indicated by the existing signage and linemarking at these locations.

Figure 2-11 Existing On-street Parking Bays in the Vicinity of the Site



Figure 2-12 Parking along McCabe Street



There are approximately 20 angled bays on the northern side of Coventry Parade as shown in **Figure 2-13**. Parallel parking is provided on the southern side although no linemarking is provided to demarcate the individual bays. Approximately 9-10 parking spaces are available along this side of the road. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Parallel parking is provided along both sides of Thompson Road between Coventry Parade and Pamment Street and only along the western side of the road for the section of Thompson Road south of Pamment Street. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Regarding Pamment Street, parallel parking is provided on the northern side of the road with no parking restrictions on the southern side of the road. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Currently, the parking along these streets is likely to be used by the local business staff and residents who live nearby. Parking along Coventry Parade and Pamment Street appear to be well utilised which is likely due to demand from the various businesses located along these road frontages. Higher parking demand was observed on Thompson Road north of Pamment Street when compared to the southern section.

Figure 2-13 Parking Along Coventry Parade, Thompson Road Pamment Street



2.10 Crash Assessment

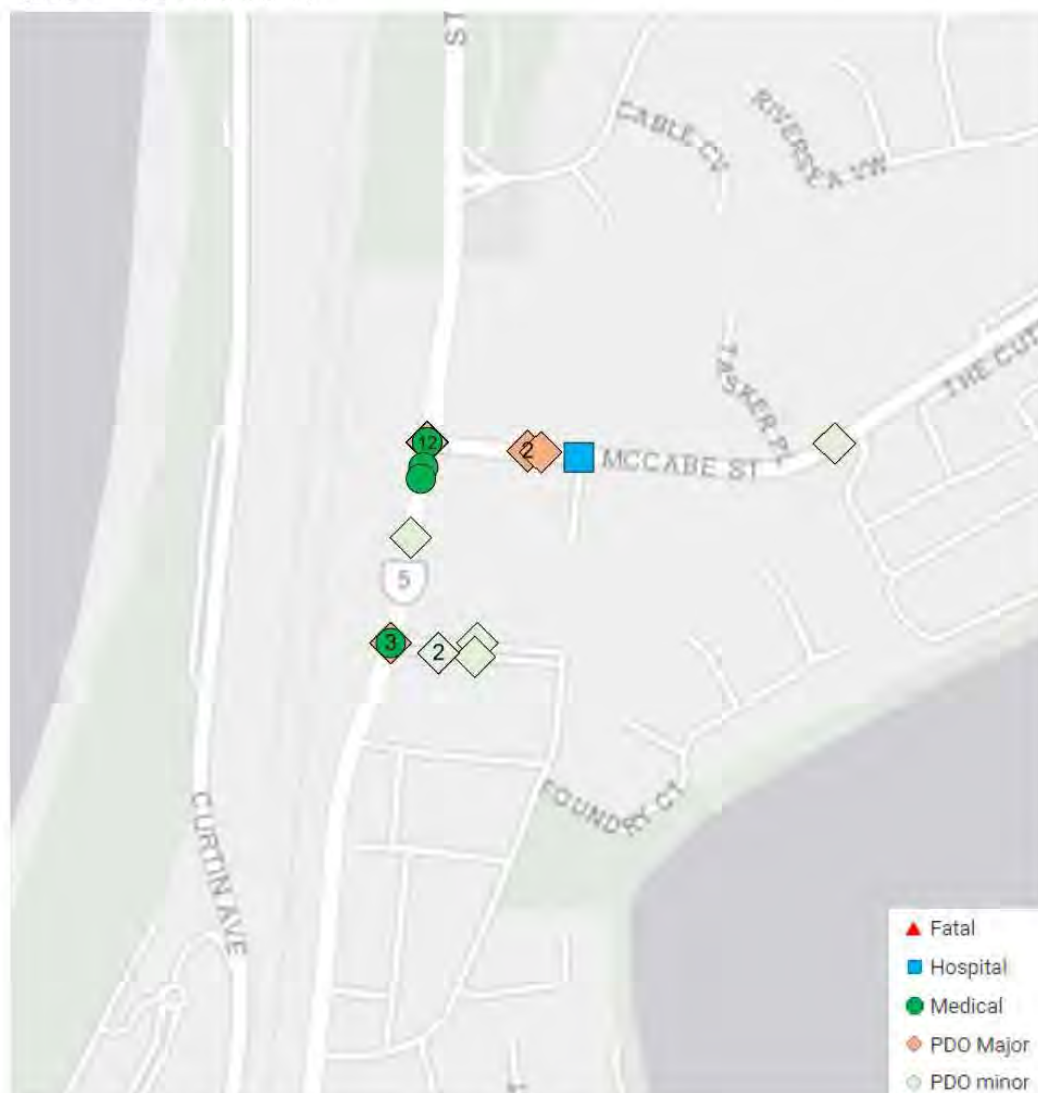
A crash assessment within close proximity of the subject site has been completed. The assessment covers all the recorded accidents in between 1 January 2017 and 31 December 2021 at the following intersections and sections of road:

- Stirling Highway Midblock SLK 13.54 to 13.70 (McCabe Street to Thompson Road)

- > McCabe Street Midblock SLK 0.00 to 0.35 (Stirling Highway to Tyrone Street)
- > Coventry Parade / Thompson Road SLK 0.00 to 0.14
- > Intersection of Stirling Highway and McCabe Street
- > Intersection of Stirling Highway and Coventry Parade / Thompson Road
- > Intersection of McCabe Street and McCabe Place

The severity of the crashes recorded at the intersections listed above are shown in **Figure 2-14**.

Figure 2-14 Crash Assessment Map



Source: Main Roads WA Crash Map

Table 2-4 Stirling Highway Midblock SLK 13.54 to 13.70 (McCabe Street to Thompson Road)

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Hit Pedestrian	-	-	1	-	-	1
Rear End	-	-	1	-	-	1
Sideswipe Same Direction	-	-	-	-	1	1
Total	0	0	2	0	1	3

Table 2-5 McCabe Street Midblock SLK 0.00 to 0.35 (Stirling Highway to Tyrone Street)

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	-	2	-	2
Sideswipe Same Direction	-	-	-	1	1	2
Total	0	0	0	3	1	4

Table 2-6 Coventry Parade/Thompson Road SLK 0.00 to 0.14

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	-	-	-	-	1	1
Right Angle	-	-	-	-	1	1
Unspecified	-	-	-	-	2	2
Total	0	0	0	0	4	4

Table 2-7 Intersection of Stirling Highway and McCabe Street

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	1	3	1	5
Right Turn Thru	-	-	2	3	-	5
Right Angle	-	-	-	1	-	1
Unspecified	-	-	-	1	-	1
Total	0	0	3	8	1	12

Table 2-8 Intersection of Stirling Highway and Coventry Parade/Thompson Road

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Hit Object	-	-	-	1	-	1
Rear End	-	-	-	1	-	1
Right Turn Thru	-	-	1	-	-	1
Total	0	0	1	2	0	3

Table 2-8 Intersection of McCabe Street and McCabe Place

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Right Turn Thru	-	1	-	-	-	1
Total	0	1	0	0	0	1

From the crash assessment conducted above, the following conclusions can be derived:

- Along the stretch of Stirling Highway from McCabe Street to Thompson Road, there were two recorded crashes which required medical attention and one crash resulting in minor property damage.
- 4 crashes reported along McCabe Street from Stirling Highway to Tyrone Street which resulted in major / minor property damage.
- 4 crashes along Coventry Parade/ Thompson Road was reported which resulted in major and minor property damage.
- 12 crashes reported at the intersection of Stirling Highway and McCabe Street in which 3 required medical attention. Based on the number of crashes recorded at this intersection over the last 5 years, this intersection meets the prequalified criteria for the Federal and State Black Spot programs (3 or more casualty crashes for the Federal programs and 10 or more total crashes for the State program).
- 3 crashes reported at the intersection of Stirling Highway and Coventry Parade/Thompson Road in which one required medical attention and the remaining two resulted in major property damage.
- 1 crash reported at the intersection of McCabe Street and McCabe Place, a right turn thru crash, resulted in a hospital admission.

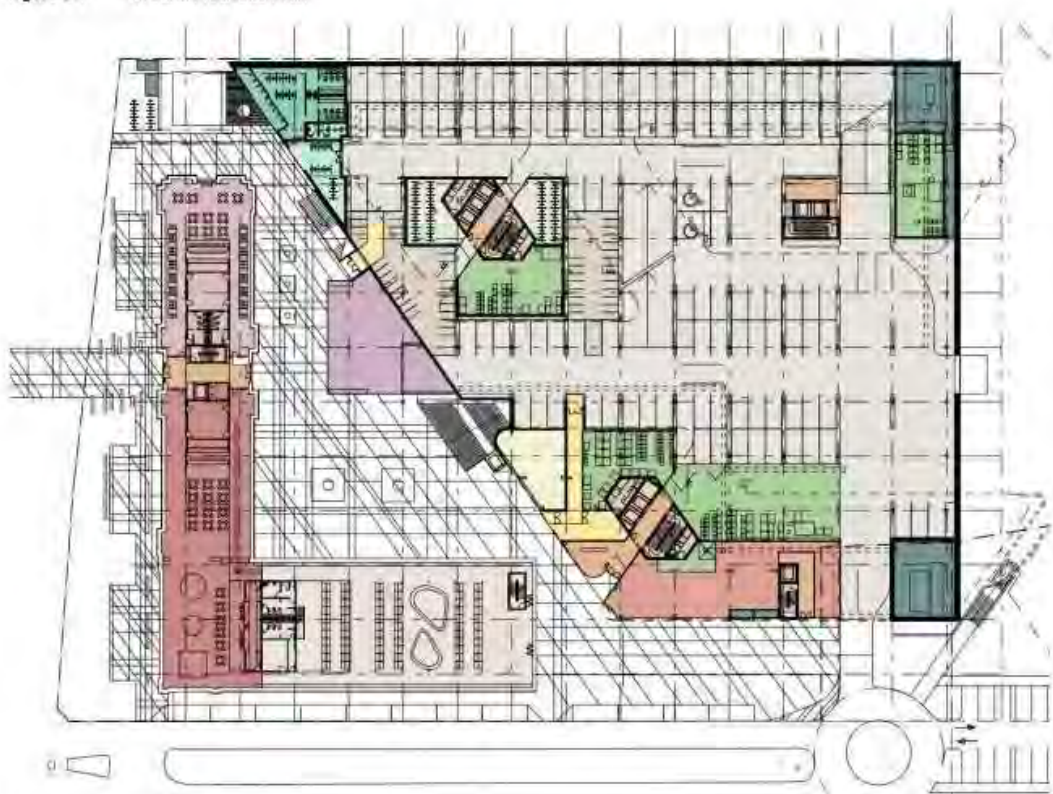
3 Development Proposal

The Site is proposed to be a mixed-use development comprising of the following:

- 198 residential apartments
- Restaurant/Café – 937 m²
- Tavern – 1,300 m²
- Function Rooms – 750 m²
- Provedore – 807 m²
- Creative Studio – 263 m²
- Co-working – 83 m²

Figure 3-1 shows the plaza level for the Site with the full set of plans provided in **Appendix B**.

Figure 3-1 Ground Floor Site Plan



Source: COX Architecture

3.2 Access Arrangement

Two site access points are provided for the Site as summarised below:

- Access 1 – located on the north boundary of the Site providing access to/from McCabe Place. This access links to the ground floor of the Site.
- Access 2 – located on the southern boundary of the Site providing access from Coventry Parade. This access links to the ground floor of the Site and only allows inbound movements. This access forms the northern approach of the proposed roundabout on Coventry Parade/Thompson Road intersection.

Figure 3-2 Site Access Location



Source: MetroMap

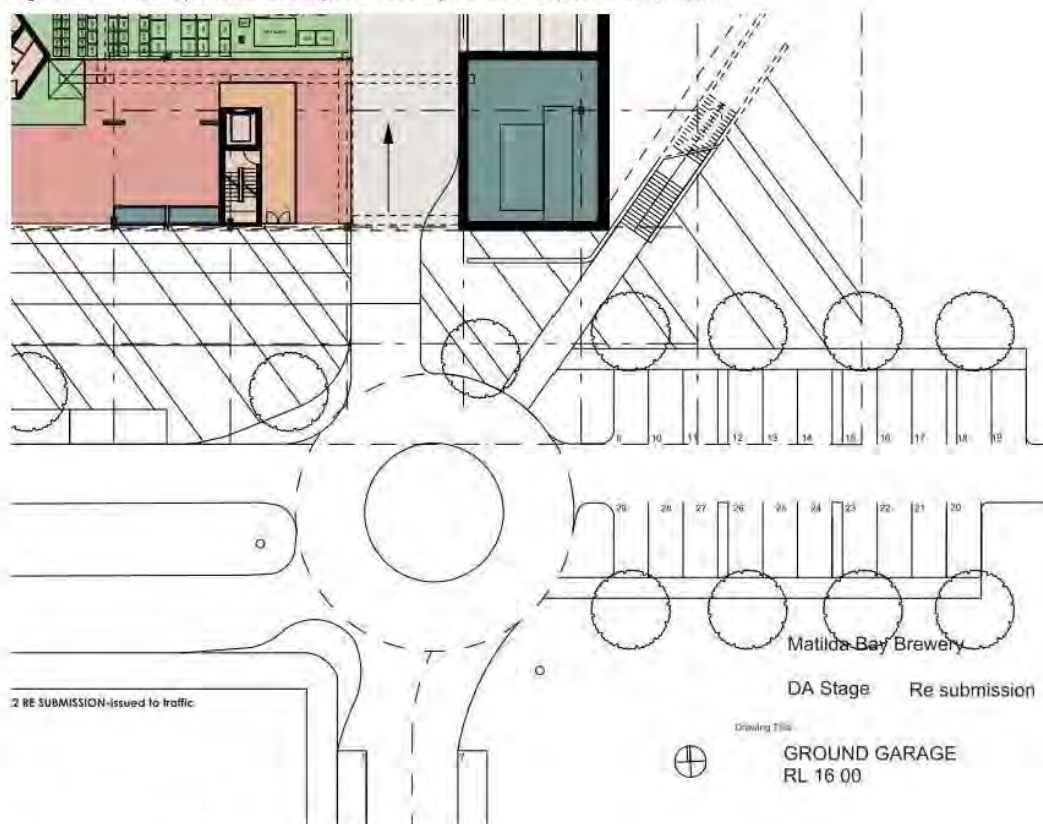
3.2.2 Coventry Parade/Thompson Road Roundabout

A 4-way roundabout at this junction is proposed with the concept layout shown in **Figure 3-3**. The proposed arrangement is summarised as follows:

- The western leg forms Coventry Parade
- The southern leg forms Thompson Road
- The northern leg forms an inbound only access to the Matilda Bay site
- A potential eastern leg to additional site parking

The above arrangement is intended to support efficient access to development Sites along McCabe Street, while eliminating the potential for deleterious rat-running from McCabe Street via McCabe Place to Stirling Highway Southbound.

Figure 3-3 Concept Roundabout Layout at Coventry Parade/Thompson Road Intersection



Source: COX Architecture

3.3 Parking Review

3.3.1 Car Parking Provisions

A total of 471 parking bays are proposed across three levels for the Stage 1 development as summarised below.

- > Basement level – 230 bays including 2 ACROD (residential bays);
- > Ground Floor – 135 bays including 2 ACROD (visitor and commercial bays) - 106 bays within the development, 8 bays on-street bays and 21 bays east of the Coventry Parade/Thompson Road junction;
- > 4 rideshare bays on Coventry Parade and;
- > Upper Plaza – 106 bays (residential bays).

The parking requirements are based on the R-Codes for the residential component and the City of Fremantle's Local Planning Scheme No.4 for the commercial components.

Table 3-1 Parking Requirements

Land Use	Source	Yield	Parking Rate	Parking Required
1 Bed Apartment	R-codes Vol 2	22	0.75 per dwelling	23
2 or more bed Apartment	R-codes Vol 2	176	1 per dwelling	176
Residential (Visitor)	R-codes Vol 2	198	1 bay per 4 dwellings up to 12 dwellings	3
			1 bay per 8 dwellings for the 13th dwelling and above	24
Total Residential				226
Tavern	LPS 4	351 m ²	1:2.5 m ² of public bar area; and 1:5 m ² of lounge / garden area	111
Function area	LPS 4	*420 m ² (100 pax)	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	84
Restaurant / Café	LPS 4	*392 m ²	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	79
Co-working / Creative Studio	**Town of Mosman Park LPS 3	346 m ²	1:40 m ² NLA	9
Provedore	LPS 4	807 m ²	1:20 m ² GLA	40
Total Commercial				323
TOTAL (RESIDENTIAL + COMMERCIAL)				549

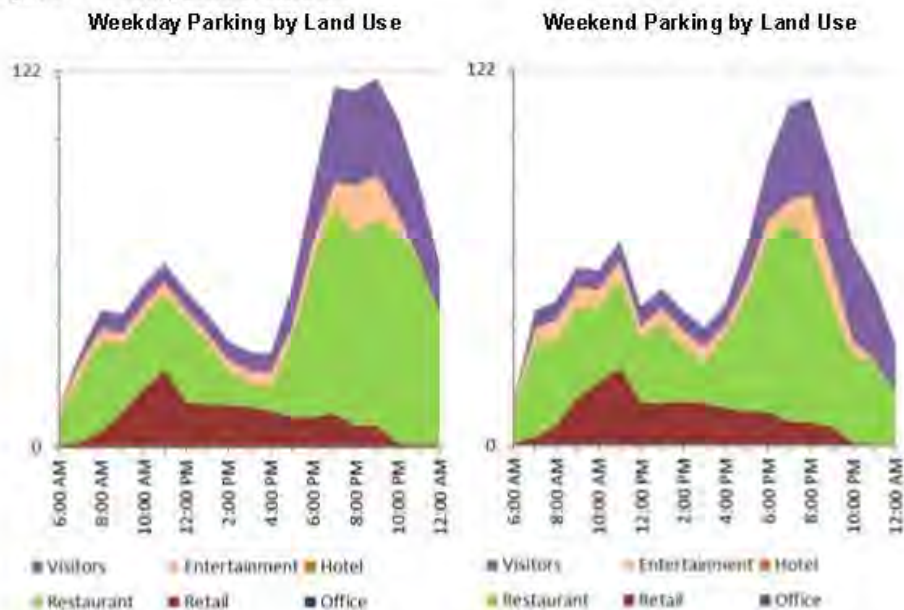
* Includes dining areas only.

** City of Fremantle LPS 4 does not contain this use. Indicative rate has been applied from the Town of Mosman Park LPS 3

3.3.2 Parking Demand Assessment

An additional parking demand assessment has been conducted which provides further detail regarding the anticipated parking demand for the proposed development. The parking demand assessment has been detailed in a separate technical note and a summary of the parking demand assessment results are shown in **Figure 3-4**. The parking demand assessment assumes a 'worst-case' design day scenario, illustrating the development at its potential maximum activity which includes a 100-person function.

Figure 3-4 Parking Demand Assessment



As a result of the above factors, including the shared use of on-site parking and the considerable reduction in parking demand related to visitors walking in from on-site and adjacent residences, the anticipated parking requirement for the proposed development is approximately 120 spaces.

3.3.3 Bicycle Parking Provisions

The bicycle parking requirements are based on the R-Codes for the residential component and the City of Fremantle's Local Planning Scheme No.4 for the commercial components. Note that the listed yields are indicative and subject to change.

Table 3-2 Bicycle Parking Requirements

Land Use	Source	Yield	Parking Rate	Parking Required	Parking Provision
Residential	R-codes	198	0.5 space per dwelling for Residents	99	104
			1.0 space per 10 dwellings for Visitors	20	27
Total Residential				119	131
Tavern	LPS 4	*351 m ²	Class 1 & Class 3: 1 per 25m ² bar floor area and 1 per 100m ² beer garden	14	24
Function area	LPS 4	*100 people accommodated	Class 3: 1 per 30 seats or 1 per 100 people accommodated	1	
Restaurant / Café	LPS 4	*392 m ²	Class 1 & 2: 1 per 100m ² public area Class 3: Two	6	
Co-working / Creative Studio	**Town of Mosman Park LPS 3	346 m ²	0.2 per 40m ² NLA	2	
Provedore	LPS 4	807 m ²	class 1: 1 per 300 m ² GLA class 3: 1 per 500 m ² GLA (over 1000 m ² GLA)	4	
Total Commercial				27	24
TOTAL (RESIDENTIAL + COMMERCIAL)				146	155

* Includes dining areas only.

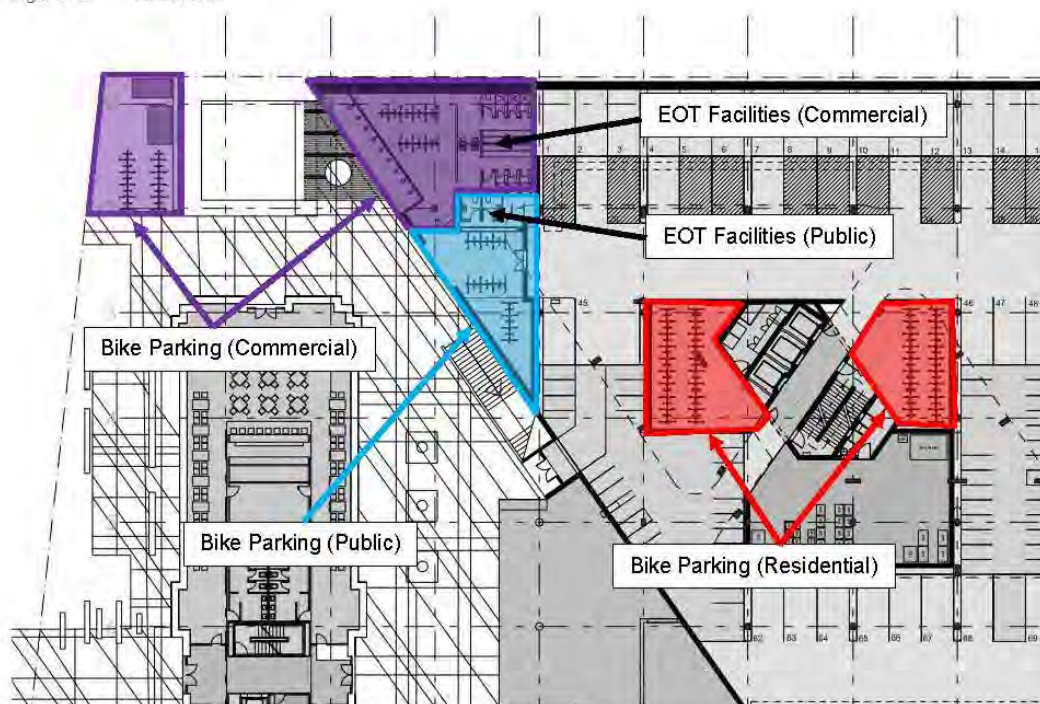
** City of Fremantle LPS 4 does not contain this use. Indicative rate has been applied from the Town of Mosman Park LPS 3

^ assumed maximum capacity

A separate residential and commercial bike store is provided on the ground level as shown in **Figure 3-5**.

End-of-trip facilities such as change rooms, lockers and showers are also proposed as indicated in **Figure 3-5**.

Figure 3-5 Bike Stores



Source: COX Architecture

3.3.4 Motorcycle Parking Provisions

The Motorcycle parking requirements are based on the R-Codes Volume 2 for the residential apartments. The requirements are presented below in **Table 3-3**.

Table 3-3 Motorcycle Parking Requirements

Land Use	Source	Parking Rate	Parking Required	Parking Provision
Residential	R-codes Vol 2	Developments exceeding 20 dwellings: 1 space for every 10 car bays	34	50
Total Residential			34	50

The motorcycle parking area shown in **Figure 3-6** below

Figure 3-6 Motorbike Parking (Ground Level)



Source: COX Architecture

3.4 Provision for Service Vehicles

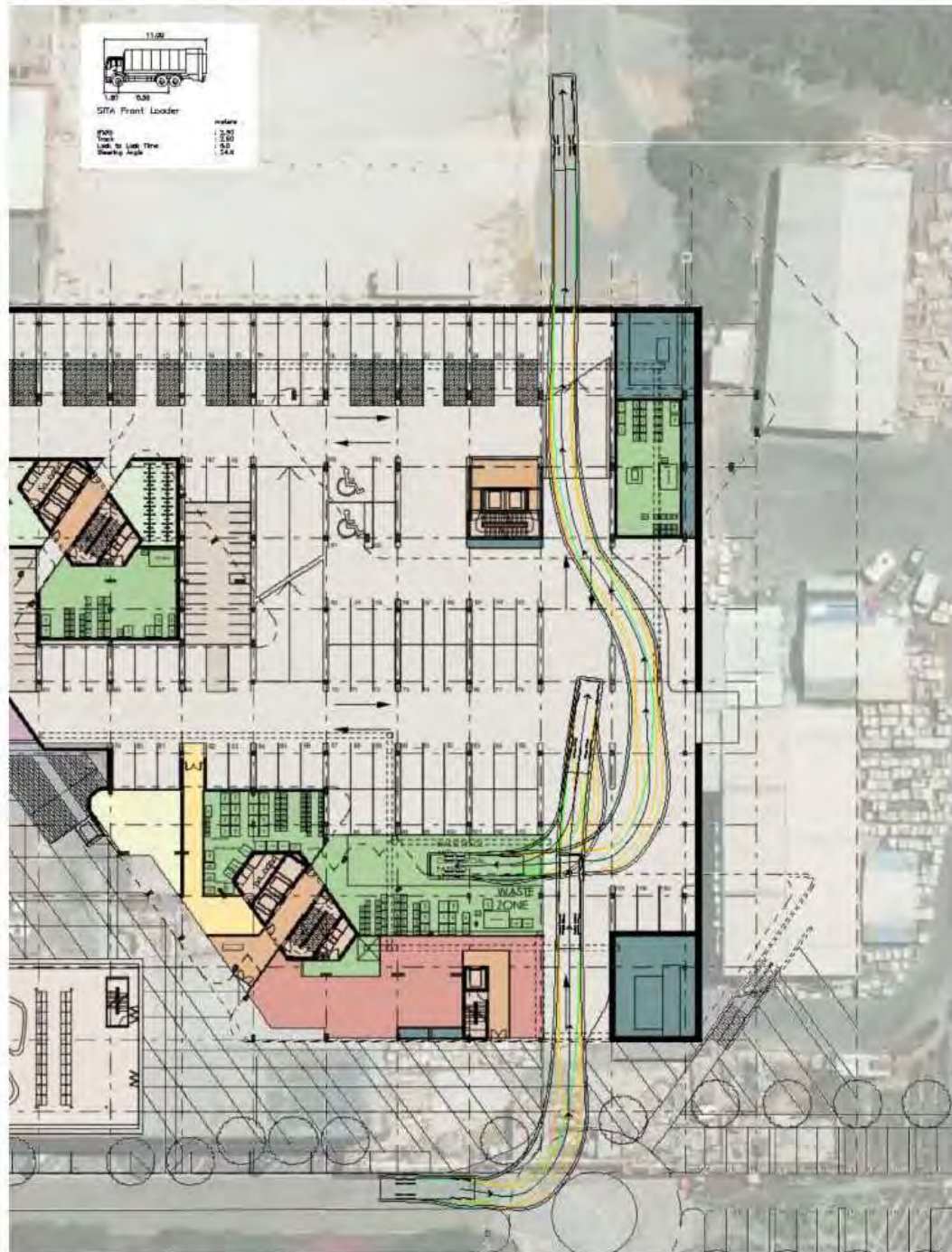
The loading area for the Site is located near the southern access as shown in **Figure 3-2**. Service and waste vehicles are expected to enter the Site via Coventry Parade to enter the loading dock and exit either through the same access or through the McCabe Street access to the north.

A swept path analysis was undertaken using an 8.8m service vehicles and a 11m waste truck as shown in **Figure 3-7** and **Figure 3-8** respectively.

Figure 3-7 Swept Path Analysis for a Service Vehicle



Figure 3-8 Swept Path Analysis for a Waste Vehicle



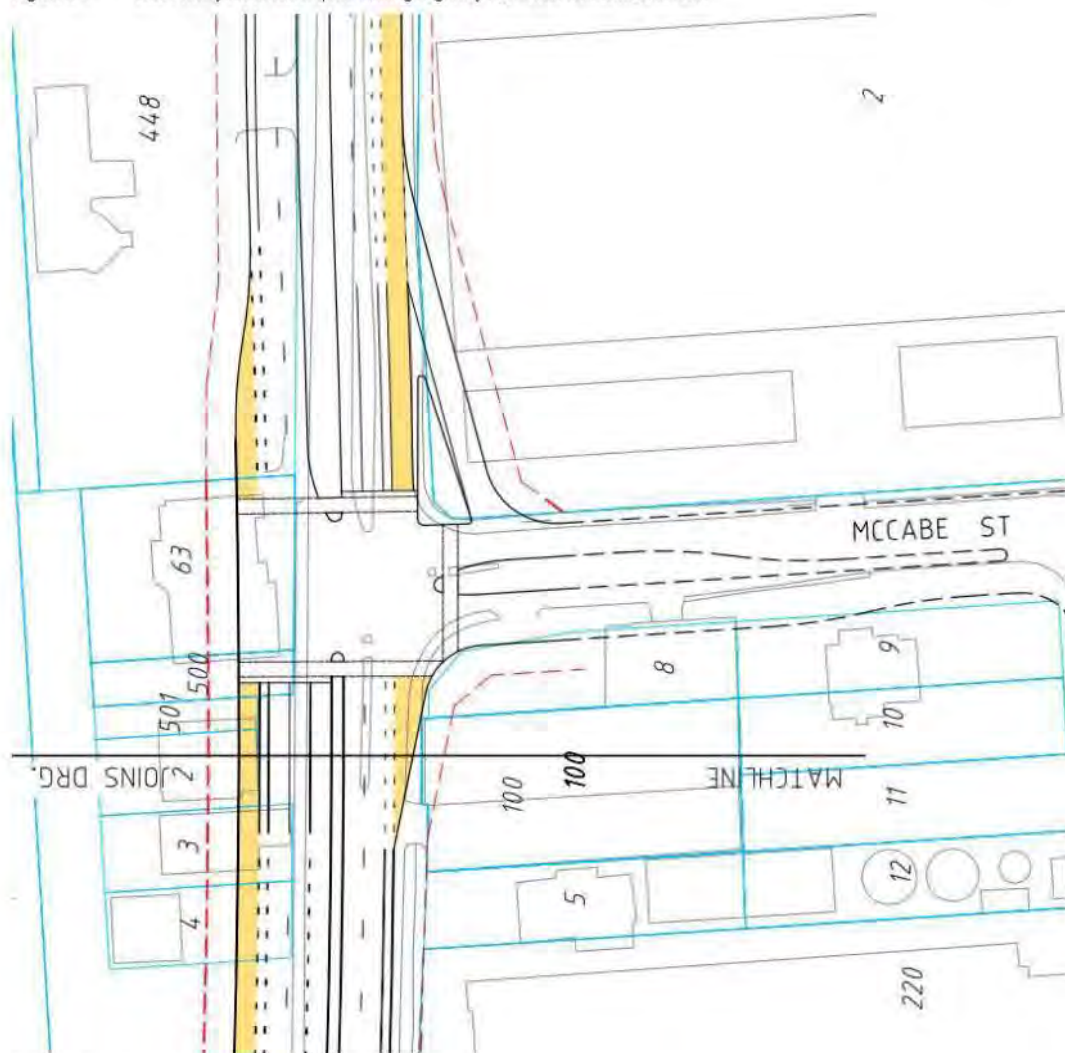
4 Changes to Surrounding Area

4.1 Road Network

4.1.1 Bus Priority Lanes (SHACS)

Previous discussions with Main Roads WA indicated that there are plans to upgrade several intersections along Stirling Highway including bus priority lanes. These upgrades include the Stirling Highway / McCabe Street intersection located adjacent to the Site. Bus priority lanes are proposed along the Stirling Highway approaches and includes widening Stirling Highway to accommodate these lanes. **Figure 4-1** shows the concept layout of the intersection upgrades. Furthermore, Main Roads WA have advised that they are currently in the early stages of investigating the potential of providing double right turn lanes on the southern approach of this intersection.

Figure 4-1 Bus Priority Lane Concept at Stirling Highway / McCabe Street Intersection



Source: Main Roads WA

Currently, there is no set timeframes for the construction of proposed and upgrades at this intersection.

4.2 Pedestrian/ Cycle Networks

4.2.1 City of Fremantle Bike Plan 2019-2024

The City of Fremantle Bike Plan details the proposed cycling infrastructure and policy framework aimed at promoting and encouraging more people to cycle. **Figure 4-2** shows the proposed network improvements within the Fremantle area.

Figure 4-2 Fremantle Bike Plan Network Improvements and Planning Priorities



Source: City of Fremantle Bike Plan 2019-2024

4.3 Public Transport Services

The PTA has advised that there are no changes planned in the short to medium term.

5 Integration with Surrounding Area

5.1 Surrounding Attractors / Generators

Figure 5-1 shows the key attractors and generators within the surrounding area and includes:

- > Mosman Beach;
- > Leighton Beach; and
- > North Fremantle Train Station.

Figure 5-1 Surrounding Area Attractors/Generators



Source: MetroMap

The attractor points located within 5-min walking distance are connected to through the existing footpath network which is provided in at least one side in every road surrounding the site.

5.2 Proposed Changes to Surrounding Land Use

In addition to the proposed development, a second stage is also planned adjacent to the east comprising of apartments, townhouses, aged care living and a child care facility.

Furthermore, there are discussions to redevelop the Site to the north, although the land uses have not been finalised as these are still in early planning stages.

6 Analysis of Transport Network

6.1 Assessment Years and Time Period

Peak times selected are 8:00 AM to 9:00 AM and 4:00 PM to 5:00 PM respectively for the morning and afternoon peak periods on weekdays as these periods are likely to coincide to the development peak periods.

The following model scenarios have therefore been analysed as part of this assessment:

- Scenario 1 – 2022 Existing Traffic without Development (AM and PM)
- Scenario 2 – 2024 Traffic without Development (AM and PM)
- Scenario 3 – 2024 Traffic with Development (AM and PM)
- Scenario 4 – 2034 Traffic without Development (AM and PM)
- Scenario 5 – 2034 Traffic with Development (AM and PM)
- Scenario 6 – Options Assessment (AM and PM), this assessment looks at potential intersection and access upgrade options with the aim of improving operation at these locations.

6.2 Key Assumptions

The following provides a list of assumptions use in the assessment.

- Traffic volumes along Stirling Highway have remained steady over time with some sections experiencing a slight decline in volumes. Therefore, for the purpose of this assessment, a conservative growth rate of 2% per annum has been adopted. This rate has been determined based on observing historic traffic volumes along Stirling Highway at several locations obtained from Main Roads WA Traffic Map and summarised in **Table 6-1**.

Table 6-1 Summary of Traffic Volumes along Stirling Highway

Stirling Highway Location	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Average Yearly Growth Rate
West of Broadway, Stirling Hwy	-	42109	-	35392	-	-	-5.3%
East of Smyth Road, Stirling Hwy	-	38346	39277	36546	-	35923	-1.3%
East of Vincent Street, Stirling Hwy	-	34524	34013	-	-	34615	0.1%
East of Loch Street, Stirling Hwy	-	37561	34656	-	-	43328	3.1%
West of Bay View Terrace, Stirling Hwy	32783	33303	32438	33519	33285	-	0.3%
West of Queenslea Drive, Stirling Hwy	40246	40153	39678	40103	-	-	-0.1%
West of Parry St, Stirling Hwy	-	42109	-	35392	-	-	-5.3%
South of Eric Street, Stirling Hwy	-	35414	-	31894	-	-	-3.3%
North of Jarrad Street, Stirling Hwy	-	30916	-	30894	-	31064	0.1%
South of Jarrad Street, Stirling Hwy	-	34274	-	34179	-	-	-0.1%
North of Wellington Street, Stirling Hwy	34553	35758	-	32979	-	-	-1.1%
South of Wellington Street, Stirling Hwy	-	37242	-	34503	-	-	-2.5%
North of Tyderman Road, Stirling Hwy	-	28432	29348	-	23811	-	-4.1%
North of Canning Highway, Stirling Hwy	37867	37991	39226	39453	38460	-	0.3%
North of Marmion Street, Stirling Hwy	27873	30182	29173	-	-	27931	0.0%
Average							-1.3%

The only section of Stirling Highway which experienced any significant growth was at Loch Street, whereas all other sections experiences very low levels of growth (<1%) or saw a decline in traffic. Even comparing the volumes from pre-Covid years (prior to 2019) show an average growth of 0.2%.

The growth rates that were suggested by Main Roads WA were relatively high (approximately 3-4%) which suggests that local development traffic has been included. Therefore, these rates were not used to avoid the doubling up of development traffic.

- For the purpose of a robust assessment, the traffic volumes associated with the existing development has not been removed from the background traffic.
- Traffic volumes used in the assessment include a combination of SCATS, MRWA traffic midblock volumes and on-site counts.
- The Access 2/Coventry Parade intersection has not been assessed as the existing traffic volumes along Coventry Parade is relatively low and the impact of the development traffic is anticipated to be low.
- The McCabe Street/McCabe Place intersection has not been assessed for Scenario 1 as the traffic volumes generated by the existing development is expected to be low.
- With regards to the trip generation, it is assumed that 25% of trips for the restaurant/café, tavern and the Provedore are internal trips to account for residents of this development and locals that visit these premises which do not contribute to any additional vehicle trips.
- Heavy vehicle volumes are based on the traffic data obtained from Main Roads Traffic Map.
- The Stirling Highway/Coventry Parade intersection has been calibrated to the maximum observed delays. To achieve this, the following parameters were modified:
 - Gap acceptance values for the right turn out of Coventry Parade was reduced to the Austroads minimums
 - Extra bunching was increased on the northern and southern approaches
- The Stirling Highway/McCabe Street intersection has been modified based on the Main Roads WA concept design shown in Section 4.1.1 for the future scenarios (Scenario 4 and 5).
- The existing signal phasing and timing for the Stirling Highway/McCabe Street intersection has been used in the base scenario, and changes required to optimise function under future scenarios have been clearly defined.
 - The filter right turn from the southern approach of the Stirling Highway/McCabe Street intersection has been removed for all future assessments (Scenarios 2-6) as allowing this movement against high volume southbound traffic is a critical safety issue.
 - Though including the filter movement in SIDRA is likely to improve traffic operations, it does not take into consideration of the real world safety implications of drivers taking risks to "make the gap" (as indicated by the most recent 5 year crash data where 5 of the 12 crashes at the intersection were the result of right turn thru crashes).
- A traffic impact assessment for a wider precinct is currently being considered in consultation with the City of Fremantle and has not been taken into consideration in this traffic report.

6.3 Development Trip Generation

Trip generation has been calculated for the proposed development utilising trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Ed* and *RTA Guide to Traffic Generating Developments*. **Table 6-3** provides the trip generation rate during the Weekday AM, Weekday PM, and Weekend peak hours. **Table 6-4** outlines the directional distribution acquired from ITE for the proposed development and **Table 6-5** states the total trip estimated to be generated by the proposed development.

Table 6-2 Development Yield Summary

Land Use	Yield
Apartments	198 dwellings
Function Room	750 sqm (capacity of 100 persons)
Restaurant/Café	937 sqm
Tavern	1,300 sqm
Provedore	807 sqm
Creative Studio/Co-working	346 sqm

Table 6-3 Trip Generation Rates

Land Use	Source	Weekday AM Peak	Weekday PM Peak
Apartments	ITE 222	0.34 per dwelling	0.39 per dwelling
Function Room	First Principles	0.3 per person	0.3 per person
Restaurant/Café	RTA	5 per 100 sqm	5 per 100 sqm
Tavern	RTA	0 per 100 sqm~	5 per 100 sqm
Provedore	RTA	5 per 100 sqm	5 per 100 sqm
Creative Studio/Co-working	ITE 495	1.86 per 100 sqm	2.48 per 100 sqm

~ the tavern is likely to be closed during the AM peak period

Table 6-4 Directional Distribution

Land Use	Weekday AM Peak		Weekday PM Peak	
	In	Out	In	Out
Apartments	21%	79%	62%	38%
Function Room	50%	50%	50%	50%
Restaurant/Café	80%	20%	61%	39%
Tavern	0%	0%	68%	32%
Provedore	80%	20%	61%	39%
Creative Studio/Co-working	63%	37%	46%	54%

Table 6-5 Total Trip Generation

Land Use	Weekday AM Peak		Weekday PM Peak	
	In	Out	In	Out
Apartments	15	54	48	30
Function Room	15	15	15	15
Restaurant/Café	29*	8*	22*	14*
Tavern	0*	0*	34*	16*
Provedore	25*	7*	19*	12*
Creative Studio/Co-working	4	2	3	4
Total	88	86	141	91

* trip generation for these uses have been reduced by 25% to account for internal trips (from residents and locals that visit these premises which do not contribute to any additional vehicle trips).

The Stage 1 development is expected to generate approximately 174 two-way vehicular trips during the weekday AM peak hour and 232 vehicles during the weekday PM peak hour period.

6.4 Development Trip Distribution

The inbound and outbound trip distribution for the development traffic is detailed in **Figure 6-1** and **Figure 6-2**. The development distribution considers the following:

- Location of the development and vehicle access points relative to the surrounding area.
- Driver behaviour based on the local and arterial road network.
- Existing traffic distribution along the surrounding road network.

It is likely that the residential component of the development will travel west and use Stirling Hwy to travel either to the north or to the south. However, the non-residential component which represents a significant volume generated by the proposed development is likely to attract a larger proportion of locals within the surrounding area particularly around the Mosman Park area to the east.

Figure 6-1 Development Trip Distribution (Inbound)



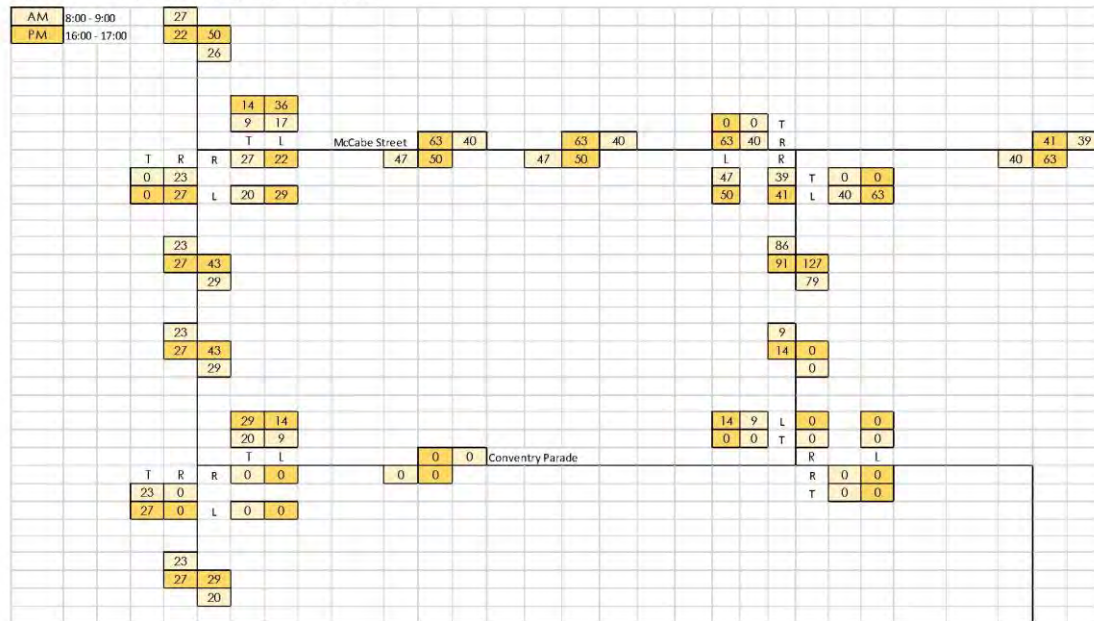
Figure 6-2 Development Trip Distribution (Outbound)



6.5 Background and Development Traffic Volumes

Figure 6-3 shows the proposed development volumes and Figure 6-4 through to Figure 6-8 shows the traffic volumes for the assessment scenarios.

Figure 6-3 Development Volumes (Opening Year for Stage 1)



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Figure 6-5 Scenario 2 – 2024 Existing Traffic without Development (AM and PM)

[illegible]

Figure 6-6 Scenario 3 – 2024 Traffic with Development (AM and PM)

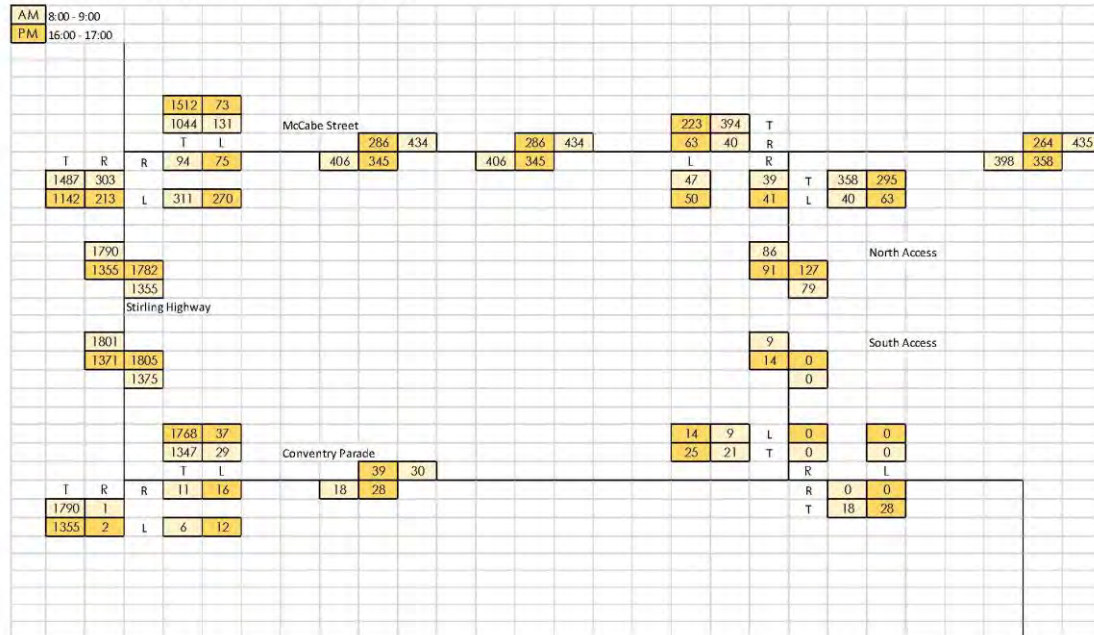
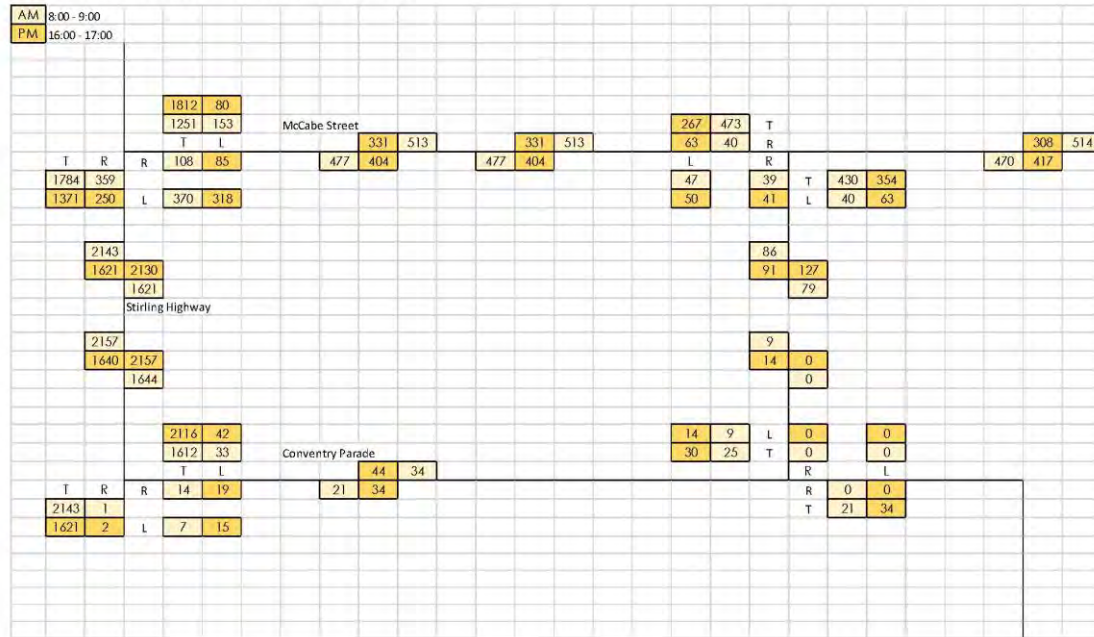


Figure 6-7 Scenario 4 – 2034 Existing Traffic without Development (AM and PM)

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Figure 6-8 Scenario 5 – 2034 Traffic with Development (AM and PM)



6.6 Intersection Performance

Analysis of the traffic impacts of the proposed development has been carried out for the following intersections:

- Stirling Highway/McCabe Street;
- Stirling Highway/Coventry Parade; and
- McCabe Street/McCabe Place.

The identified intersections have been analysed using the SIDRA analysis program. This program 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 for an un-signalized intersection where $DOS > 0.80$;
- 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 time delays for vehicles through the intersection. An unsignalised intersection can be considered to 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 stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-6**.

Table 6-6 Level of Service (LoS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalised Intersection
A	Free-flow operations (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

A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersection are likely to experience unsatisfactory queueing and delays during the peak hour periods.

6.7 SIDRA Analysis Results

6.7.1 Scenario 1

6.7.1.1 Stirling Highway/McCabe Street

Figure 6-9 shows SIDRA layout of the Stirling Highway/McCabe Street intersection and **Table 6-7** provides a summary of the SIDRA results.

Figure 6-9 SIDRA Layout for Stirling Highway/McCabe Street

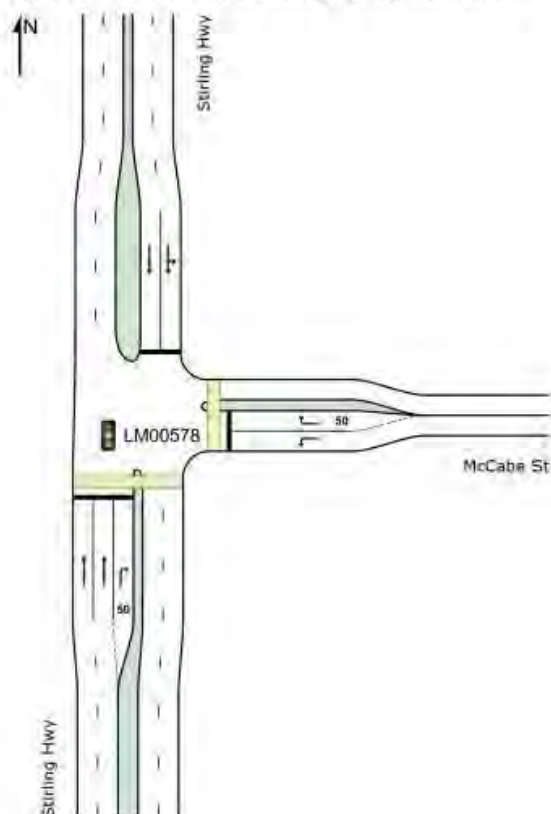


Table 6-7 Stirling Highway/McCabe Street Intersection – Scenario 1

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.544	3.2	A	129.8	0.371	2.1	A	58.3
	R	0.482	21.4	C	89.7	0.506	25.8	C	62.9
McCabe Street (E)	L	0.555	41.4	D	119.1	0.645	48	D	99.3
	R	0.523	72.7	E	36	0.597	68.8	E	26
Stirling Highway (N)	L	0.561	25.5	C	190.5	0.639	18	B	207.2
	T	0.561	19.9	B	190.5	0.639	12.4	B	207.2
All vehicles		0.561	15.7	B	193.6	0.645	13.2	B	208

6.7.1.2 Stirling Highway/Coventry Parade

Figure 6-10 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and **Table 6-8** provides a summary of the SIDRA results.

Figure 6-10 SIDRA Layout for Stirling Highway/Coventry Parade

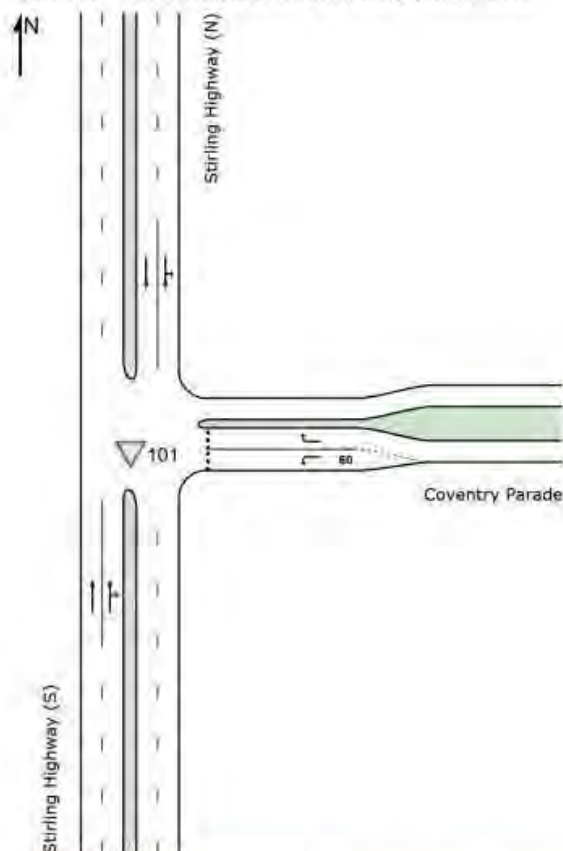


Table 6-8 Stirling Highway/Coventry Parade Intersection – Scenario 1

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.503	0.2	A	0.6	0.381	0.2	A	1.7
	R	0.503	21.3	C	0.6	0.381	27.6	D	1.7
Coventry Parade (E)	L	0.008	8.2	A	0.3	0.02	10.4	B	0.8
	R	0.19	124.5	F	7.2	0.367	111.8	F	7.6
Stirling Highway (N)	L	0.382	5.6	A	0	0.501	5.6	A	0
	T	0.382	0	A	0	0.501	0.1	A	0
All vehicles		0.503	0.6	A	7.2	0.501	0.8	A	7.6

6.7.2 Scenario 2

6.7.2.1 Stirling Highway/McCabe Street

Figure 6-9 shows SIDRA layout of the Stirling Highway/McCabe Street intersection and **Table 6-9** provides a summary of the SIDRA results.

Table 6-9 Stirling Highway/McCabe Street Intersection – Scenario 2

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.499	2.2	A	96.8	0.386	2.1	A	61.7
	R	0.827	44.7	D	115.4	0.691	58.7	E	81.7
McCabe Street (E)	L	0.394	24.6	C	91.1	0.629	46.2	D	101.3
	R	0.898	87.8	F	42.3	0.621	69.1	E	27.1
Stirling Highway (N)	L	0.837	49.2	D	300.8	0.682	19.7	B	233.5
	T	0.837	43.7	D	300.8	0.682	14.1	B	233.5
All vehicles		0.898	24.3	C	305.7	0.691	15.9	B	234.4

6.7.2.2 Stirling Highway/Coventry Parade

Figure 6-10 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and **Table 6-10** provides a summary of the SIDRA results.

Table 6-10 Stirling Highway/Coventry Parade Intersection – Scenario 2

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.523	0.2	A	0.7	0.396	0.2	A	1.9
	R	0.523	23.3	C	0.7	0.396	30.5	D	1.9
Coventry Parade (E)	L	0.008	8.4	A	0.3	0.021	10.9	B	0.8
	R	0.228	153	F	8.6	0.449	139.4	F	9.4
Stirling Highway (N)	L	0.398	5.6	A	0	0.521	5.6	A	0
	T	0.398	0	A	0	0.521	0.1	A	0
All vehicles		0.523	0.7	A	8.6	0.521	1	A	9.4

6.7.3 Scenario 3

6.7.3.1 Stirling Highway/McCabe Street

For Scenario 3, the intersection of Stirling Highway/McCabe Street remains unchanged from **Figure 6-9** and **Table 6-11** provides a summary of the SIDRA results.

Table 6-11 Stirling Highway/McCabe Street Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.562	3	A	133.8	0.382	1.9	A	58.3
	R	0.876	54.5	D	140.5	0.570	51	D	86.1
McCabe Street (E)	L	0.435	24.3	C	97.3	0.612	41.3	D	107.2
	R	0.840	81	F	56.7	0.753	70	E	38.9
Stirling Highway (N)	L	0.872	54.8	D	329.4	0.754	23.7	C	276.4
	T	0.872	49.2	D	329.4	0.754	18.2	B	276.4
All vehicles		0.876	28.1	C	335.4	0.754	17.9	B	278.5

6.7.3.2 Stirling Highway/Coventry Parade

For Scenario 3, the intersection of Stirling Highway/Coventry Parade remains unchanged from **Figure 6-10** and **Table 6-12** provides a summary of the SIDRA results.

Table 6-12 Stirling Highway/Coventry Parade Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.53	0.1	A	0.7	0.404	0.2	A	2.1
	R	0.53	24.3	C	0.7	0.404	32.3	D	2.1
Coventry Parade (E)	L	0.008	8.5	A	0.3	0.021	11	B	0.8
	R	0.486	218.1	F	9.4	0.479	154	F	10
Stirling Highway (N)	L	0.406	5.6	A	0	0.533	5.6	A	0
	T	0.406	0	A	0	0.533	0.1	A	0
All vehicles		0.53	0.9	A	9.4	0.533	1	A	10

6.7.3.3 McCabe Street/McCabe Place

Figure 6-11 shows SIDRA layout of the McCabe Street/McCabe Place intersection and **Table 6-13** provides a summary of the SIDRA results.

Figure 6-11 SIDRA Layout for McCabe Street/McCabe Place Intersection

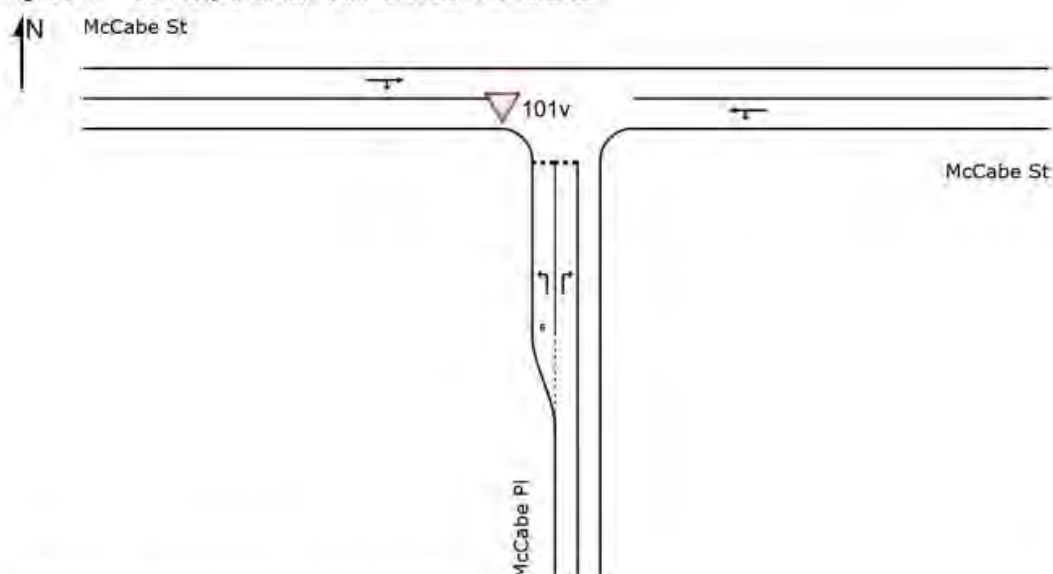


Table 6-13 McCabe Street/McCabe Place Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
McCabe Place (S)	L	0.043	6.8	A	1.1	0.044	6.6	A	1.2
	R	0.07	9.7	A	1.6	0.059	8.2	A	1.4
McCabe Street (E)	L	0.208	5.6	A	0	0.192	5.6	A	0
	T	0.208	0.1	A	0	0.192	0	A	0
McCabe Street (W)	T	0.241	0.3	A	2.8	0.17	0.6	A	3.5
	R	0.241	7.5	A	2.8	0.17	7.1	A	3.5
All vehicles		0.241	1.5	A	2.8	0.192	2.2	A	3.5

6.7.4 Scenario 4

6.7.4.1 Stirling Highway/McCabe Street

Figure 6-12 shows SIDRA layout of the Stirling Highway/McCabe Street intersection (based on the existing intersection layout and Main Roads WA concept design) and Table 6-14 and Table 6-15 provides a summary of the SIDRA results.

Figure 6-12 SIDRA Layout for Stirling Highway/McCabe Street (Existing Layout and MRAWA concept design)

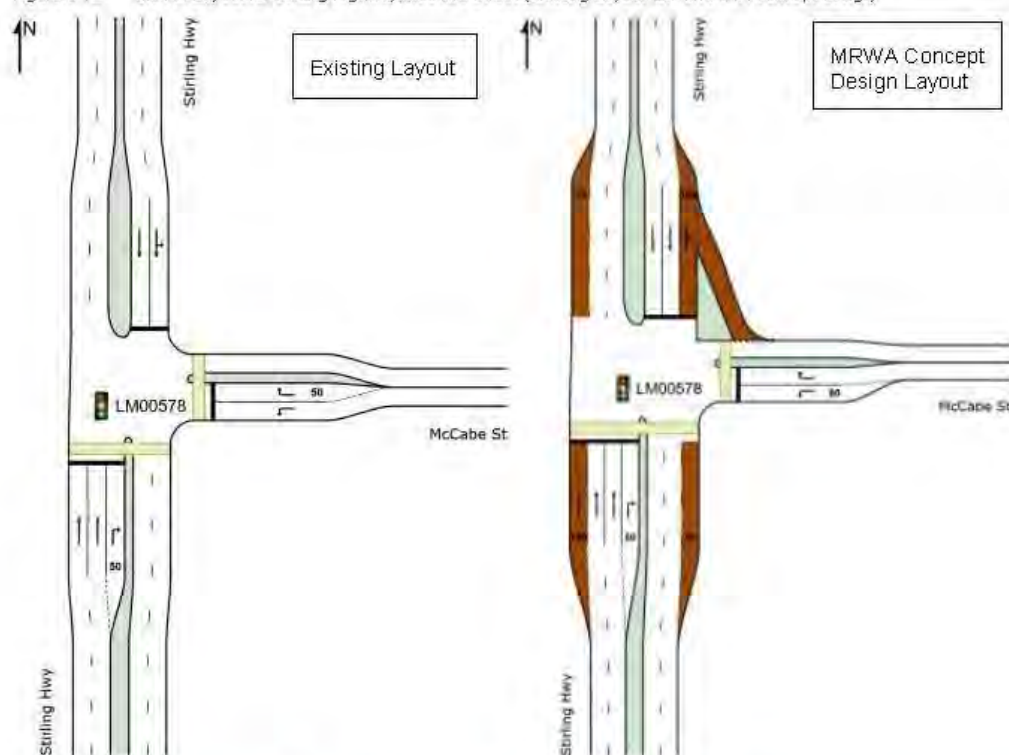


Table 6-14 Stirling Highway/McCabe Street Intersection – Scenario 4 (Existing Layout)

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.689	3	A	194.9	0.463	2.4	A	82.2
	R	0.978	92	F	207.5	0.915	71.5	E	113.2
McCabe Street (E)	L	0.48	26.2	C	115.9	0.609	40	D	113.8
	R	0.930	91.6	F	52.6	0.750	71.1	E	33.5
Stirling Highway (N)	L	0.985	91.2	F	522.5	0.915	43.6	D	483
	T	0.985	85.6	F	522.5	0.915	38	D	483
All vehicles		0.985	43.7	D	531	0.915	27.9	C	484.9

Table 6-15 Stirling Highway/McCabe Street Intersection – Scenario 4 (with MRWA upgrades and Signal Modifications)

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.764	5.8	A	170.6	0.465	3.4	A	72.5
	R	0.836	40.1	D	99.2	0.843	48.7	D	75.8
McCabe Street (E)	L	0.52	24.2	C	76.1	0.576	35.1	D	81.2
	R	0.563	40.9	D	24.2	0.508	46.2	D	21.7
Stirling Highway (N)	L	0.166	11	B	19.4	0.181	15.9	B	29.4
	T	0.814	23.2	C	176.4	0.876	25.6	C	296.9
All vehicles		0.836	16.8	B	176.4	0.876	19.9	B	296.9

6.7.4.2 Stirling Highway/Coventry Parade

Figure 6-10 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and Table 6-16 provides a summary of the SIDRA results.

Table 6-16 Stirling Highway/Coventry Parade Intersection – Scenario 4

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.688	0.2	A	1.2	0.456	0.5	A	4.3
	R	0.688	36.7	E	1.2	0.456	50.3	F	4.3
Coventry Parade (E)	L	0.01	8.9	A	0.4	0.028	14	B	1.1
	R	0.797	460.9	F	16.9	0.561	201	F	12.7
Stirling Highway (N)	L	0.428	5.6	A	0	0.624	5.6	A	0
	T	0.428	0.1	A	0	0.624	0.1	A	0
All vehicles		0.797	1.8	A	16.9	0.624	1.3	A	12.7

6.7.5 Scenario 5

6.7.5.1 Stirling Highway/McCabe Street

For Scenario 5, the intersection of Stirling Highway/McCabe Street remains unchanged from Figure 6-12 and Table 6-17 provides a summary of the SIDRA results.

Table 6-17 Stirling Highway/McCabe Street Intersection – Scenario 5

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.698	3.7	A	207.6	0.425	2.3	A	71.6
	R	0.983	93.9	F	222.8	0.947	80	E	136
McCabe Street (E)	L	0.496	26.2	C	117.2	0.545	42.4	D	122.4
	R	0.965	99.6	F	74	0.995	101.9	F	55.4
Stirling Highway (N)	L	0.211	14	B	29.5	0.19	16.4	B	32.8
	T	0.972	79.4	E	466	0.919	40	D	479.1
All vehicles		0.983	40.3	D	466	0.995	30.4	C	479.1

6.7.5.2 Stirling Highway/Coventry Parade

For Scenario 5, the intersection of Stirling Highway/Coventry Parade remains unchanged from **Figure 6-10** and **Table 6-18** provides a summary of the SIDRA results.

Table 6-18 Stirling Highway/Coventry Parade Intersection – Scenario 5

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	1.023	22.9	C	224.6	0.485	0.5	A	4.9
	R	1.023	3380.8	F	224.6	0.485	55.6	F	4.9
Coventry Parade (E)	L	0.011	9.9	A	0.4	0.033	14.2	B	1.3
	R	1.705	1047.3	F	46.1	0.614	215.7	F	14.6
Stirling Highway (N)	L	0.486	5.6	A	0	0.637	5.6	A	0
	T	0.486	0.1	A	0	0.637	0.1	A	0
All vehicles		1.705	17.7	A	224.6	0.637	1.5	A	14.6

6.7.5.3 McCabe Street/McCabe Place

For Scenario 5, the intersection of McCabe Street/McCabe Place remains unchanged from **Figure 6-11** and **Table 6-19** provides a summary of the SIDRA results.

Table 6-19 McCabe Street/McCabe Place Intersection – Scenario 5

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
McCabe Place (S)	L	0.052	7.2	A	1.2	0.053	6.8	A	1.2
	R	0.086	11.3	B	1.9	0.067	9	A	1.5
McCabe Street (E)	L	0.273	5.6	A	0	0.251	5.6	A	0
	T	0.273	0.1	A	0	0.251	0.1	A	0
McCabe Street (W)	T	0.286	0.4	A	3.3	0.197	0.7	A	4
	R	0.286	8.2	A	3.3	0.197	7.5	A	4
All vehicles		0.286	1.4	A	3.3	0.251	2.1	A	4

6.7.6 Scenario 6

For the purpose of the assessment scenario, the intersection layouts were modified with the aim of providing some potentially practical solutions.

Figure 6-13 shows the SIDRA layout for the modified intersection layout and the results summarised in **Table 6-20**. The upgrade at this intersection includes the SHACS upgrade (**Section 4.1.1**) as well as signal modifications.

Table 6-20 Stirling Highway/McCabe Street Intersection – Scenario 6

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.781	8	A	163.3	0.497	3.5	A	77.6
	R	0.854	39.4	D	63.5	0.882	53.6	D	59.4
McCabe Street (E)	L	0.601	24.1	C	71.9	0.721	40.4	D	95.5
	R	0.726	37.1	D	31.3	0.826	51.4	D	36.9
Stirling Highway (N)	L	0.171	9.4	A	15.7	0.114	9.6	A	14
	T	0.811	20.4	C	148.9	0.866	22.5	C	284.9
All vehicles		0.854	16.4	B	163.3	0.882	19.2	B	284.9

6.7.6.2 Stirling Highway/Coventry Parade

For this intersection, a right turn lane was added on the southern approach and the right turn out of Coventry Parade is restricted. **Figure 6-13** shows the SIDRA layout for the modified intersection layout and the results summarised in **Table 6-21**. Under this arrangement, the right turn pocket will allow turning into Coventry Parade easier. As such, 30% of right-turning inbound traffic (i.e. from Stirling Highway turning right into McCabe Street) has been reassigned to Coventry Parade. As the right turn out is restricted, these volumes were redirected through the proposed development to the McCabe Street signals where vehicles can turn right onto Stirling Highway.

Figure 6-13 SIDRA Layout for McCabe Street/Coventry Parade Intersection (Modified)

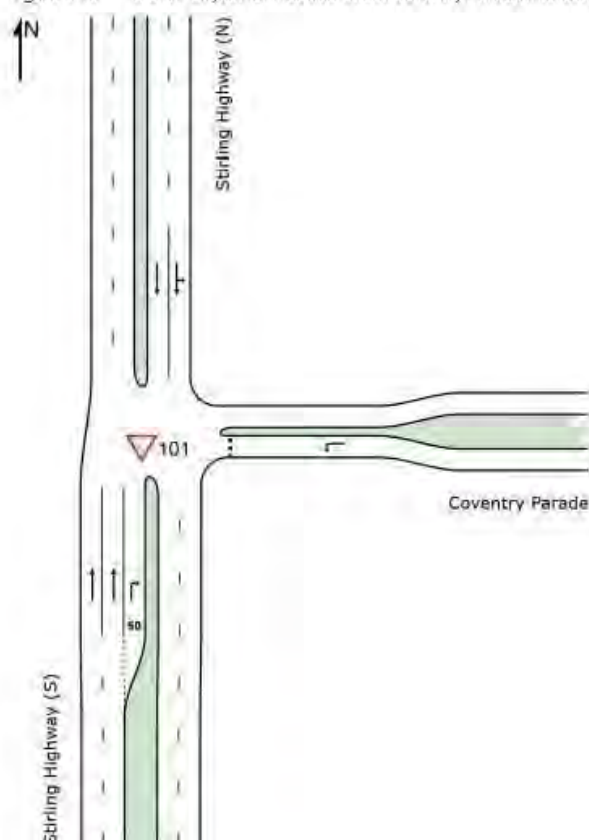


Table 6-21 SIDRA Results for Stirling Highway/Coventry Parade Intersection – Scenario 6

Intersection Approach		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Stirling Hwy (S)	T	0.681	0.3	A	0	0.45	0.1	A	0
	R	0.346	20.6	C	9.9	0.414	33.7	D	10.9
Coventry Pde (E)	L	0.011	9.9	A	0.4	0.033	14.1	B	1.3
Stirling Hwy (N)	L	0.486	5.6	A	0	0.596	5.6	A	0
	T	0.486	0.1	A	0	0.596	0.1	A	0
All Vehicles		0.681	0.9	A	9.9	0.596	0.9	A	10.9

6.7.6.3 McCabe Street/McCabe Place

For this intersection, the modifications include a 4 way roundabout with the following arrangement:

- The southern approach provides access to the proposed development
- The eastern and western approach forms the continuation of McCabe Street
- The northern approach provides access to the future northern development (One Steel)

One-Steel development traffic has not been included as the development yields as still under consideration.

Figure 6-14 shows the SIDRA layout for the modified intersection layout and the results summarised in **Table 6-22**.

Figure 6-14 SIDRA Layout for McCabe Street/McCabe Place Intersection (Modified)

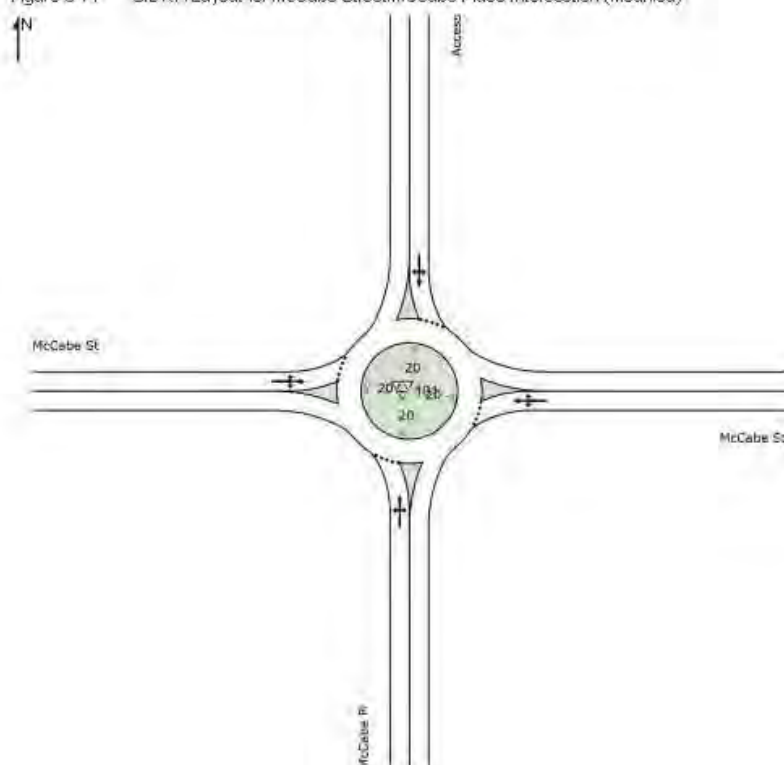


Table 6-22 SIDRA Results for McCabe Street/McCabe Place Intersection – Scenario 6

Intersection Approach		AM Peak				PM Peak			
		DoS	Delay	LOS	95% Queue (m)	DoS	Delay	LOS	95% Queue (m)
McCabe Pl (S)	L	0.11	5.2	A	4.1	0.114	4.7	A	4.3
	T	0.11	5.1	A	4.1	0.114	4.7	A	4.3
	R	0.11	9.6	A	4.1	0.114	9.2	A	4.3
McCabe St (E)	L	0.333	3.1	A	17.8	0.311	3.2	A	16.2
	T	0.333	3.1	A	17.8	0.311	3.3	A	16.2
	R	0.333	7.5	A	17.8	0.311	7.7	A	16.2
Access (N)	L	0.003	6.2	A	0.2	0.003	4.7	A	0.1
	T	0.003	6.2	A	0.2	0.003	4.6	A	0.1
	R	0.003	10.7	B	0.2	0.003	9.2	A	0.1
McCabe St (W)	L	0.372	3.1	A	19.4	0.246	3	A	10.5
	T	0.372	3.2	A	19.4	0.246	3.2	A	10.5
	R	0.372	7.5	A	19.4	0.246	7.5	A	10.5
All Vehicles		0.372	3.7	A	19.4	0.311	4	A	16.2

6.8 Analysis Summary

A summary of the SIDRA results are as follows:

- The Stirling Highway/McCabe Street intersection operates at an acceptable level of service for Scenarios 1, 2 and 3. Hence, no intersection or road improvements are required as a result of the proposed Stage 1 development. The future 2034 scenarios results indicate that some movements are expected to operate at LOS F and experience long queues (Based on the existing layout). The SHACS upgrades improve the operation at the intersection though this is likely due to the left turn pocket on the northern approach as the other upgrades are focused on public transport amenity. The overall level of service however is still considered to be acceptable. As mentioned in **Section 4.1.1**, Main Roads WA are investigating other options (such as a double right turn on the southern approach) and this will need to be reassessed as part of a wider precinct traffic assessment.
- The Stirling Highway/Coventry Parade intersection generally operates at an acceptable level of service for all scenarios with the exception of the right turning movements from Coventry Parade which is expected to experience significant delays. This is due to the high volumes of traffic along Stirling Highway as well as the lack of a central median for a staged crossing which increases the difficulty for this movement. Due to the difficulty and delays associated with this movement, it is very likely that development traffic will utilise the signals at McCabe St for right turns, which is reflected in the trip distribution. There are potential opportunities to modifying this intersection to allow for a left-in, left-out and right turn in configuration in order to improve traffic operations at this intersection as well as the Stirling Highway/McCabe Street intersection. It is suggested that this be investigated as part of a wider precinct traffic assessment.
- The McCabe Street/McCabe Place intersection is expected to operate at an acceptable level of service for all scenarios. Depending on the timing of the development to the north (One Steel Site), this intersection will likely be upgraded to a 4 way roundabout to accommodate access to both developments. The northern approach provides access to the One Steel Site, the southern approach provided access to this development and the east/west approaches form the continuation of McCabe Street.
- Scenario 6 provides an assessment on some potential upgrades options that can be considered to improve traffic operation of the surrounding area intersections.

 - Signal modifications combined with the SHACS upgrade at Stirling Highway/McCabe Street intersection results in further improvements to the intersection operations.
 - Upgraded median, right turn pocket into Coventry Parade and the restriction of the right turn out movement at the McCabe Street/Coventry Parade intersection significantly improves the intersection

operation. Furthermore, the reassigned right turn traffic to this intersection also improves the operation of the signals to the north.

A 4 way roundabout at the McCabe Street/McCabe Place intersection also improves the intersection performance at this intersection. Given that the intersection operates at an acceptable level of service without this upgrade, it is likely not required when this Site is developed.

7 Conclusions and Summary

This Transport Impact Assessment outlines the transport aspects of the proposed Stage 1 development focusing on traffic operations, loading vehicle operations, access and the provision of car parking.

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

The following is concluded about the proposed development:

- The proposed Site comprises of the following:
 - 198 residential apartments
 - Tavern
 - Function Rooms
 - Restaurant/Café
 - Creative Studio
 - Provedore
 - Co-working
- Public transport amenity within the surrounding area is considered to be good as several high frequency services operate along Stirling Highway, though the routes to these stops can be improved.
- Walking and cycling amenity is considered to be average/good as high-quality cycle path such as the Fremantle Line PSP are easily accessible near the Site. There is a variety of footpaths within the surrounding area at varying qualities with crossing Stirling Highway being a significant barrier to pedestrian amenity.
- The proposed development (Stage 1) represents a two-way trip generation of approximately 174 vehicles during the weekday AM peak hour and 232 vehicles during the weekday PM peak hour.
- Parking supply for the Site is sufficient for the residential component of the proposed development and a shortfall was identified for the commercial component. An additional parking demand assessment has been conducted which provides further detail regarding the anticipated parking demand for the proposed development.
- The results for the Stage 1 SIDRA analysis shows that all intersections operated satisfactorily and no intersection or road improvements are required as a result of the proposed Stage 1 development. The overall impact of Stage 1 development is relatively minor although the increase in background traffic combined with further development within the surrounding area will likely have a greater impact.

APPENDIX

A

WAPC GUIDELINES

 **Cardno**

now

 **Stantec**

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 1	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 2	
existing access arrangements	Section 3	
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 6	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
regional context	Section 3	
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	
parking provision	Section 3	
end of trip facilities	Section 3	
any specific issues	N/A	
road network	N/A	
intersection layouts and controls	N/A	
pedestrian/cycle networks and crossing facilities	Section 2	

Item	Provided	Comments/Proposals
public transport services	Section 2	
Integration with surrounding area	Section 5	
surrounding major attractors/generators	Section 5	
committed developments and transport proposals	Section 4	
proposed changes to land uses within 1200 metres	Section 4	
travel desire lines from development to these attractors/generators	N/A	
adequacy of existing transport networks	Section 6	
deficiencies in existing transport networks	Section 6	
remedial measures to address deficiencies	Section 6	
Analysis of transport networks		
assessment years	Section 6	
time periods	Section 6	
development generated traffic	Section 6	
distribution of generated traffic	Section 6	
parking supply & demand	Section 3	
base and "with development" traffic flows	Section 6	
analysis of development accesses	Section 6	
impact on surrounding roads	Section 6	
impact on intersections	Section 6	
impact on neighbouring areas	Section 6	
traffic noise and vibration	N/A	
road safety	Section 2	
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

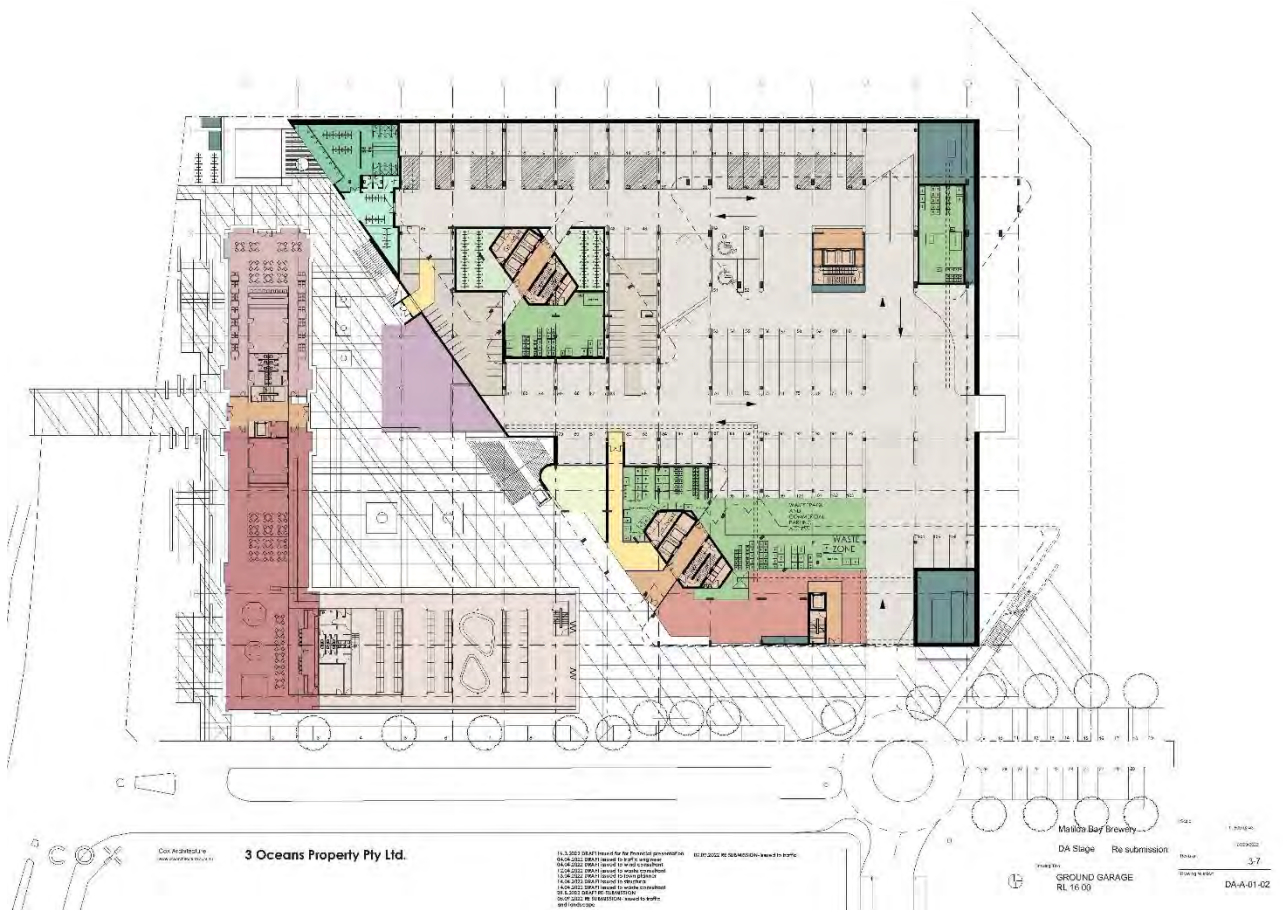
SITE PLANS



now







APPENDIX

C

SIDRA RESULTS



now



AM Peak

MOVEMENT SUMMARY

Site: LRM570 [Slating Highway: McCook Street_AW [Site Folder: Background] (2022)]

Mail Network: NCTE (AMPEAK Network) Pobox: 51-Berlin (20221)

None
Sub-Category: (None)

Keywords: *depression, mood, anxiety, stress, coping, self-esteem*

Indicate Measurement Preference

Industry Performance Performance													
Metric	Category	Q1 2023		Q2 2023		Q3 2023		Q4 2023		Annual Average		Trend	
		Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Change	Direction
Sales (revenue)	North	120	USD	130	USD	140	USD	150	USD	135	USD	+10%	Up
	South	80	USD	85	USD	90	USD	95	USD	87.5	USD	+7%	Up
	East	150	USD	160	USD	170	USD	180	USD	165	USD	+12%	Up
	West	90	USD	95	USD	100	USD	105	USD	97.5	USD	+8%	Up
Profit (margin %)													
Profit	North	15%	%	16%	%	17%	%	18%	%	16.5%	%	+1%	Up
	South	10%	%	11%	%	12%	%	13%	%	11.5%	%	+1%	Up
	East	20%	%	21%	%	22%	%	23%	%	21.5%	%	+1%	Up
	West	12%	%	13%	%	14%	%	15%	%	13.5%	%	+1%	Up
Growth (rate %)													
Growth	North	5%	%	6%	%	7%	%	8%	%	6.5%	%	+1%	Up
	South	3%	%	4%	%	5%	%	6%	%	4.5%	%	+1%	Up
	East	8%	%	9%	%	10%	%	11%	%	9.5%	%	+1%	Up
	West	4%	%	5%	%	6%	%	7%	%	5.5%	%	+1%	Up

(the lower of Simulink LCU latency delay (SEPA), the LCU latency is specified as the software delay using hardware test

Source: *Journal of the American Statistical Association*, 93(463), 1039-1047.

Deadly Mallet: 1024A Standard (Accessories: 2x2 is secure)
Tap-Resistance Capacity: 1024A Standard (Approx. 100)

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Journal compilation © 2007 Blackwell Publishing Ltd

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MOVEMENT SUMMARY

Site: 101 (Rising Highway/ Coventry Parade, AM (San Fiden, Baskyrath (NUT))

www.hubworks.org/8321 [AM PERM] (Network Folder: ST-Essays) (7/2/2011)

New Size
30 to 32 Chest, 24 to 26 Waist

David L. Garber, President
Group WMA (Group WMA)

Summary

Financial Movement Performance													
Item	Year	1999-2001 (1999)	2002-2004 (2002)	2005-2007 (2005)	2008-2010 (2008)	2011-2013 (2011)	2014-2016 (2014)	2017-2019 (2017)	2020-2022 (2020)	2023-2025 (2023)	2026-2028 (2026)	2029-2031 (2029)	2032-2034 (2032)
South Atlantic Region (S)													
1	91	1202	4.4	2768	4.4	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
2	42	1	0.0	0	0.0	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
3	Approach	1202	9.9	2768	8.9	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East Coast Region (E)													
4	12	8	0.0	0	0.0	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
5	85	72	0.0	72	0.0	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
6	Approach	0	0.0	72	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Coast Region (W)													
7	20	0.0	0.0	0.0	0.0	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
8	11	0.0	0.0	0.0	0.0	0.000	0.0	1000.0	0.0	0.0	0.0	0.0	0.0
9	Approach	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North Atlantic Region (N)													
10	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Approach	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Atlantic Region (S)													
13	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	Approach	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

End User of Service (LES) supports the OLMA. The LES cannot be specified in the network data during factory calibration.

PM Peak

MOVEMENT SUMMARY

Site: L800576 (Sta 59g) Highway: McCauley Street_PSF (Site Fwyar: Background) (2022)

DOI: 10.1002/anie.202211111

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1401 Canyon Blvd.
Boulder, CO 80502

Global Marketing Environment

Global Macroeconomic Performance														
Year	Region	GDP (Billion USD)			Inflation (%)			Unemployment (%)			Interest Rate (%)			Notes
		2018	2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020	
North America	US	14.5	15.2	15.8	2.5	1.8	3.2	3.9	3.5	4.1	2.5	2.0	1.5	Stable growth
	Canada	1.8	1.9	1.9	1.5	1.2	6.5	5.8	5.5	5.0	3.0	2.5	2.0	Consistent
	Mexico	1.2	1.3	1.3	3.5	3.0	4.0	3.5	3.0	2.5	4.5	4.0	3.5	Emerging
	Average	2.5	2.8	3.0	2.5	2.0	4.5	4.4	4.0	3.9	3.3	2.8	2.3	
Europe	EU	12.0	12.5	13.0	1.5	0.5	7.5	6.5	6.0	0.5	0.0	-0.5	-1.0	Recovery
	UK	2.5	2.6	2.6	1.0	0.5	4.5	4.0	3.5	0.5	0.0	-0.5	-1.0	Stable
	Germany	3.5	3.6	3.6	0.5	0.0	3.5	3.0	2.5	0.0	-0.5	-1.0	-1.5	Strong
	Average	2.7	2.9	3.1	1.0	0.5	3.8	3.8	3.7	0.3	-0.2	-0.7	-1.2	
Asia-Pacific	China	13.5	14.0	14.5	2.0	1.5	5.5	5.0	4.5	3.0	2.5	2.0	1.5	High growth
	India	2.5	2.8	3.0	4.5	4.0	7.5	7.0	6.5	6.0	5.5	5.0	4.5	Emerging
	Japan	4.0	4.1	4.2	0.5	0.0	2.5	2.0	1.5	0.0	-0.5	-1.0	-1.5	Stable
	Average	3.3	3.6	3.9	2.3	1.8	5.2	4.7	4.2	3.0	2.7	2.4	2.1	
South America	Brazil	1.5	1.6	1.6	5.0	4.5	11.0	10.5	10.0	13.0	12.5	12.0	11.5	Challenged
	Argentina	0.5	0.5	0.5	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	High inflation
	Colombia	0.8	0.8	0.8	3.5	3.0	6.0	5.5	5.0	5.0	4.5	4.0	3.5	Stable
	Average	0.8	0.8	0.8	31.5	31.5	23.7	23.7	23.7	22.7	22.3	21.8	21.3	
Africa	South Africa	0.3	0.3	0.3	3.0	2.5	27.0	26.5	26.0	7.0	6.5	6.0	5.5	Stable
	Egypt	0.2	0.2	0.2	10.0	9.5	15.0	14.5	14.0	14.0	13.5	13.0	12.5	Stable
	Nigeria	0.1	0.1	0.1	18.0	17.5	30.0	29.5	29.0	29.0	28.5	28.0	27.5	Challenged
	Average	0.2	0.2	0.2	10.3	9.3	24.0	23.5	23.3	10.3	9.3	8.8	8.3	
Oceania	Australia	1.3	1.4	1.4	2.5	2.0	5.5	5.0	4.5	4.5	4.0	3.5	3.0	Stable
	New Zealand	0.4	0.4	0.4	3.0	2.5	4.5	4.0	3.5	4.5	4.0	3.5	3.0	Stable
	Indonesia	2.0	2.1	2.2	1.5	1.0	5.5	5.0	4.5	5.5	5.0	4.5	4.0	Stable
	Average	1.2	1.3	1.4	2.3	1.8	5.2	4.7	4.2	5.0	4.5	4.0	3.5	

Int. J. of Environ. Res. Public Health 2024, 21, 11444. <https://doi.org/10.3390/ijerph211111444> (accessed on 10 October 2024). Published by Elsevier B.V.

When rounded L20 falls in level 20, average day is 100000.
 Inverse and approach L20 shows the lowest in average day for all other measure.

Gap-Adjusted Capacity: 1076A Harvard Avenue, #404B, HLL

46. The authors are indebted to the following groups of

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MOVEMENT SUMMARY

T: 2016 - 2017 (Existing Highway Geometry Parade_Plan (2016 Format, Background (2022))

See Network: 20101 (PM PEAK) (Network Folder: 21-Existing (2022))

View Data

View Category (None)

View Map (Full Size)

Link	Count	10th Percentile (10th)			50th Percentile (50th)			90th Percentile (90th)			Avg. Delay (s)	Max. Delay (s)
		10th	50th	90th	10th	50th	90th	10th	50th	90th		
Northbound Highway (ft)												
1	11	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
2	12	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
3	13	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
4	14	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
5	15	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
6	16	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
7	17	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
8	18	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
9	19	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
10	20	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Eastbound Highway (ft)												
11	21	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
12	22	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
13	23	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
14	24	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
15	25	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
16	26	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
17	27	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
18	28	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
19	29	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
20	30	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Southbound Highway (ft)												
21	31	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
22	32	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
23	33	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
24	34	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0
25	35	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
26	36	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
27	37	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
28	38	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
29	39	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
30	40	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Westbound Highway (ft)												
31	41	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
32	42	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
33	43	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
34	44	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0
35	45	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
36	46	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0
37	47	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
38	48	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
39	49	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
40	50	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Link Speed (mi/hr) & Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds) Delay (seconds)												

Scenario 2

AM Peak

MOVEMENT SUMMARY

Site: LHM0173 (Sterling Highway/ McCabe Street, AM (Site Folder: Background) (2024))

Network: N101 (AM PEAK (Network Folder: S2-Existing) (2024))

New Site

Site Category: (None)

Segment: L2-ASAT (Road Down/CAT) (Subsegment: Cycle Time: 1.15 seconds (800 Green-Red Cycle Time))

Vehicle Movement Performance	Site	From	To	Direction	Volume (Veh/hr)	Flow (Veh/hr)	Capacity (Veh/hr)	Level of Service (LOS)	Delay (sec)	Queue (ft)	Stop (sec)	Stop (ft)	Stop (ft)	Stop (ft)
North - Streetcar	1	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
East - Streetcar	2	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
West - Streetcar	3	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
South - Streetcar	4	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
All Movements	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0

Site Level of Service: LOS A (Level of Service: LOS A) (Level of Service: LOS A) (Level of Service: LOS A)

Vehicle movement LOS values are based on average delay per movement.

Approach and Approach LOS values are based on average delay for all vehicle movements.

Delay values: HCM 2000 Standard (Delay values are included).

Capacity values: HCM 2000 Standard (Capacity values are included).

LOS values are calculated for all movement categories of all vehicle movements.

LOS values are calculated for all movement categories of all vehicle movements.

MOVEMENT SUMMARY

Site: LHM0173 (Sterling Highway/ Conway Place, AM (Site Folder: Background) (2024))

Network: N101 (AM PEAK (Network Folder: S2-Existing) (2024))

New Site

Site Category: (None)

Segment: L2-ASAT (Road Down/CAT) (Subsegment: Cycle Time: 1.15 seconds (800 Green-Red Cycle Time))

Vehicle Movement Performance	Site	From	To	Direction	Volume (Veh/hr)	Flow (Veh/hr)	Capacity (Veh/hr)	Level of Service (LOS)	Delay (sec)	Queue (ft)	Stop (sec)	Stop (ft)	Stop (ft)	Stop (ft)
North - Streetcar	1	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
East - Streetcar	2	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
West - Streetcar	3	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
South - Streetcar	4	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
All Movements	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0

Site Level of Service: LOS A (Level of Service: LOS A) (Level of Service: LOS A) (Level of Service: LOS A)

Vehicle movement LOS values are based on average delay per movement.

Approach and Approach LOS values are based on average delay for all vehicle movements.

Delay values: HCM 2000 Standard (Delay values are included).

Capacity values: HCM 2000 Standard (Capacity values are included).

LOS values are calculated for all movement categories of all vehicle movements.

LOS values are calculated for all movement categories of all vehicle movements.

PM Peak

MOVEMENT SUMMARY

Site: LHM0173 (Sterling Highway/ McCabe Street, PM (Site Folder: Background) (2024))

Network: N101 (PM PEAK (Network Folder: S2-Existing) (2024))

New Site

Site Category: (None)

Segment: L2-ASAT (Road Down/CAT) (Subsegment: Cycle Time: 1.15 seconds (800 Green-Red Cycle Time))

Vehicle Movement Performance	Site	From	To	Direction	Volume (Veh/hr)	Flow (Veh/hr)	Capacity (Veh/hr)	Level of Service (LOS)	Delay (sec)	Queue (ft)	Stop (sec)	Stop (ft)	Stop (ft)	Stop (ft)
North - Streetcar	1	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
East - Streetcar	2	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
West - Streetcar	3	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
South - Streetcar	4	100	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
Approach	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0
All Movements	100	0.0	0.0	100	0.0	0.000	1.0	1.000	1.0	0.0	0.0	0.0	0.0	0.0

Site Level of Service: LOS A (Level of Service: LOS A) (Level of Service: LOS A) (Level of Service: LOS A)

Vehicle movement LOS values are based on average delay per movement.

Approach and Approach LOS values are based on average delay for all vehicle movements.

Delay values: HCM 2000 Standard (Delay values are included).

Capacity values: HCM 2000 Standard (Capacity values are included).

LOS values are calculated for all movement categories of all vehicle movements.

LOS values are calculated for all movement categories of all vehicle movements.

—Curtis (1990) (Two-Days)

Global Movement Performance												
Region	Country	Q1 2023		Q2 2023		Q3 2023		Q4 2023		Annual Total		Avg. Score
		Score	Index	Score	Index	Score	Index	Score	Index	Score	Index	
North America	US	85	92	88	95	90	98	92	95	365	94	93
	CA	78	85	80	88	82	90	85	92	335	86	87
	MX	72	75	75	78	78	82	80	85	315	79	78
	Avg	78.3	84.2	81.0	87.1	83.3	90.0	85.7	90.7	335.0	85.4	86.7
Europe	UK	82	88	85	90	88	95	90	98	363	91	92
	DE	75	82	78	85	80	88	85	92	328	84	85
	FR	70	75	72	78	75	80	78	85	310	79	80
	Avg	75.7	81.7	78.3	84.3	81.0	87.8	84.3	91.7	330.3	84.7	85.7
Asia Pacific	JP	88	95	90	98	92	100	95	105	386	97	98
	IN	75	82	78	85	80	88	85	92	328	84	85
	AU	72	78	75	82	78	85	80	88	313	80	81
	Avg	78.3	85.0	81.3	88.3	83.3	91.0	86.7	95.0	338.3	87.3	88.0
South America	BR	70	75	72	78	75	80	78	85	300	77	78
	CL	65	70	68	72	70	75	72	78	283	71	72
	CO	60	65	62	68	65	70	68	75	268	67	68
	Avg	65.0	70.0	64.0	72.7	67.5	75.0	72.7	79.3	283.7	69.7	71.3
Africa	EG	68	72	70	75	72	78	75	82	295	73	74
	KE	60	65	62	68	65	70	68	75	268	67	68
	ZA	65	70	68	72	70	75	72	78	283	71	72
	Avg	64.3	69.0	64.0	71.7	65.7	74.3	71.7	78.3	282.0	69.7	71.3
Oceania	US	85	92	88	95	90	98	92	95	365	94	93
	CA	78	85	80	88	82	90	85	92	335	86	87
	MX	72	75	75	78	78	82	80	85	315	79	78
	Avg	78.3	84.2	81.0	87.1	83.3	90.0	85.7	90.7	335.0	85.4	86.7

AM Peak

MOVEMENT SUMMARY

File: L380578 [Timing Highway: McCabe Street_AM (Site Folder: Backgrounds) (2024) - Dev]

Network: N401 [AS2 PEAK] (Network Folder: SS-Existing (2020) - Dev)

Name:
 Site Category:
 System: (Fixed/Flex/AC/FC) (optional) Cycle Time = (Hours/minutes/seconds) Hours: Cycles:

Global Performance Metrics													
Regional Performance				Product Line Analysis				Operational Efficiency				Financial Summary	
Area	Sub-Area	Q1 2023 Value	Q1 2023 % Change	Q2 2023 Value	Q2 2023 % Change	Q3 2023 Value	Q3 2023 % Change	Q1 2023 Value	Q1 2023 % Change	Q2 2023 Value	Q2 2023 % Change	Q3 2023 Value	Q3 2023 % Change
North America	Product A	1200	5%	1250	4%	1300	3%	1500	2%	1550	1%	1600	0%
	Product B	800	10%	850	9%	900	8%	1000	7%	1050	6%	1100	5%
	Product C	500	2%	520	1%	540	0%	600	-1%	620	-2%	640	-3%
	Product D	300	8%	320	7%	340	6%	400	5%	420	4%	440	3%
Europe	Product A	900	3%	950	2%	1000	1%	1100	0%	1150	-1%	1200	-2%
	Product B	600	7%	650	6%	700	5%	800	4%	850	3%	900	2%
	Product C	400	1%	420	0%	440	-1%	500	-2%	520	-3%	540	-4%
	Product D	200	6%	220	5%	240	4%	300	3%	320	2%	340	1%
Asia Pacific	Product A	1100	6%	1150	5%	1200	4%	1300	3%	1350	2%	1400	1%
	Product B	700	9%	750	8%	800	7%	900	6%	950	5%	1000	4%
	Product C	500	3%	520	2%	540	1%	600	0%	620	-1%	640	-2%
	Product D	300	7%	320	6%	340	5%	400	4%	420	3%	440	2%
South America	Product A	600	4%	650	3%	700	2%	800	1%	850	0%	900	-1%
	Product B	400	8%	450	7%	500	6%	600	5%	650	4%	700	3%
	Product C	200	2%	220	1%	240	0%	300	-1%	320	-2%	340	-3%
	Product D	100	5%	110	4%	120	3%	150	2%	160	1%	170	0%

File Layout of Options 4.010 Microsoft Excel (202204). See LCH Method as specified in the Reference Guide using preferred unit.

Vehicle emissions L10 values are based on average data of numerous observations and represent L10 values derived on average values for all vehicle emissions.

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44% for values are calculated for all 100 percent (range of all 100 percent) (range of all 100 percent)

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MOVEMENT SUMMARY

© 8th: 101 (Biting Highway) Guyanese Parade, AM (Size Point: Background (2024) + Dev)

499 Reference: NIST (AM PEAK, (Substrates: Folded: G3-Eucalypt (2024) + Dry))

How big
the Chinese market

One-Way (Two-Alts)

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Substrate Measurement Performance												
Substrate	Material	Material ID	Length (mm)	Width (mm)	Thickness (mm)	Weight (g)	Volume (cm³)	Density (g/cm³)	Surface Area (cm²)	Volume (cm³)	Weight (g)	Volume (cm³)
Substrate: Silicon, High-purity (H)	1	100	100	0.5	100	50.0	5.00	1.00	100.0	5.00	50.0	5.00
	2	200	200	0.5	200	200.0	20.00	4.00	400.0	20.00	200.0	20.00
	3	300	300	0.5	300	450.0	45.00	3.00	900.0	45.00	450.0	45.00
	4	400	400	0.5	400	800.0	80.00	2.00	1600.0	80.00	800.0	80.00
Substrate: Copper, High-purity (C)	1	100	100	0.5	100	50.0	5.00	1.00	100.0	5.00	50.0	5.00
	2	200	200	0.5	200	200.0	20.00	4.00	400.0	20.00	200.0	20.00
	3	300	300	0.5	300	450.0	45.00	3.00	900.0	45.00	450.0	45.00
	4	400	400	0.5	400	800.0	80.00	2.00	1600.0	80.00	800.0	80.00
Substrate: Aluminum, High-purity (A)	1	100	100	0.5	100	50.0	5.00	1.00	100.0	5.00	50.0	5.00
	2	200	200	0.5	200	200.0	20.00	4.00	400.0	20.00	200.0	20.00
	3	300	300	0.5	300	450.0	45.00	3.00	900.0	45.00	450.0	45.00
	4	400	400	0.5	400	800.0	80.00	2.00	1600.0	80.00	800.0	80.00
Substrate: Silver, High-purity (S)	1	100	100	0.5	100	50.0	5.00	1.00	100.0	5.00	50.0	5.00
	2	200	200	0.5	200	200.0	20.00	4.00	400.0	20.00	200.0	20.00
	3	300	300	0.5	300	450.0	45.00	3.00	900.0	45.00	450.0	45.00
	4	400	400	0.5	400	800.0	80.00	2.00	1600.0	80.00	800.0	80.00
Substrate: Gold, High-purity (G)	1	100	100	0.5	100	50.0	5.00	1.00	100.0	5.00	50.0	5.00
	2	200	200	0.5	200	200.0	20.00	4.00	400.0	20.00	200.0	20.00
	3	300	300	0.5	300	450.0	45.00	3.00	900.0	45.00	450.0	45.00
	4	400	400	0.5	400	800.0	80.00	2.00	1600.0	80.00	800.0	80.00

888 (toll) or 800 222 2222. Email: info@hsc.ie

MOVEMENT SUMMARY

File: 101v (McCase 30 McCase Pl_AM - Compression) (Site Folder: Background) (2024) + Derd

MR. NICHOLSON: MID- (AM) PEAK. (Nicholson's Phone: ST-Exting. (2024) + Der.)

Figure 4

Side Category: **Non-
One-Way One-Way**

100

Multiple Measurement Evaluation													
Metric	Unit	Measurement 1 (10/10)		Measurement 2 (10/10)		Weighted Avg.	Overall Score	1-5 Scale	1-5 Scale	1-5 Scale	1-5 Scale	1-5 Scale	1-5 Scale
		Score	Weight	Score	Weight								
Overall Performance													
Q1	100	92	0.5	88	0.5	90.0	9.0	100%	9.0	9.0	9.0	9.0	9.0
Q2	100	87	0.5	81	0.5	84.0	8.4	100%	8.4	8.4	8.4	8.4	8.4
Avg (avg)		89	1.0	84	1.0	86.5	8.7	100%	8.7	8.7	8.7	8.7	8.7
Overall Metrics													
Q1	10	85	0.5	80	0.5	82.5	8.2	100%	8.2	8.2	8.2	8.2	8.2
Q2	10	77	0.5	72	0.5	74.5	7.4	100%	7.4	7.4	7.4	7.4	7.4
Avg (avg)		81	1.0	76	1.0	78.5	7.8	100%	7.8	7.8	7.8	7.8	7.8
Overall Metrics													
Q1	10	88	0.5	83	0.5	85.5	8.5	100%	8.5	8.5	8.5	8.5	8.5
Q2	10	80	0.5	75	0.5	77.5	7.7	100%	7.7	7.7	7.7	7.7	7.7
Avg (avg)		84	1.0	79	1.0	81.5	8.1	100%	8.1	8.1	8.1	8.1	8.1
Overall Metrics													
Q1	100	95	0.5	90	0.5	92.5	9.2	100%	9.2	9.2	9.2	9.2	9.2
Q2	100	98	0.5	93	0.5	95.5	9.5	100%	9.5	9.5	9.5	9.5	9.5
Avg (avg)		96	1.0	91	1.0	94.0	9.4	100%	9.4	9.4	9.4	9.4	9.4

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PM Peak

MOVEMENT SUMMARY

Site: LM65171 (Dixie Highway) McCabe Street, PM (Site Folder: Background (2024) + Dev)

Network: N101 (PM PEAK) (Network Folder: S3-Existing (2024) + Dev)

New Site

Site Category: (None)

Inputs: 1 (2 PM) Street Flow (CAP) loaded - Cycle Time = 115 seconds (Use Open Cycle Time)

Vehicle Movement Performance													
Mov	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)
North-South (Sec)													
N	71	100	9.9	100	9.9	0.00	0.0	100.0	9.9	0.00	0.0	100.0	9.9
S	80	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
North-South (Sec)													
N	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
S	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
All Movements													
		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0

MOVEMENT SUMMARY

Site: N11 (Dixie Highway) Coventry Parade, PM (Site Folder: Background (2024) + Dev)

Network: N101 (PM PEAK) (Network Folder: S3-Existing (2024) + Dev)

New Site

Site Category: (None)

Inputs: 1 (2 PM) Street Flow (CAP) loaded - Cycle Time = 115 seconds (Use Open Cycle Time)

Vehicle Movement Performance													
Mov	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)
North-South (Sec)													
N	71	100	9.9	100	9.9	0.00	0.0	100.0	9.9	0.00	0.0	100.0	9.9
S	80	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
North-South (Sec)													
N	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
S	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
All Movements													
		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0

MOVEMENT SUMMARY

Site: N11 (McCabe St) McCabe St, PM - Conversion (Site Folder: Background (2024) + Dev)

Network: N101 (PM PEAK) (Network Folder: S3-Existing (2024) + Dev)

New Site

Site Category: (None)

Inputs: 1 (2 PM) Street Flow (CAP) loaded - Cycle Time = 115 seconds (Use Open Cycle Time)

Vehicle Movement Performance													
Mov	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)	Flow	Flow	1 PM (2024) (100%)	1 PM (2024) (%)
North-South (Sec)													
N	71	100	9.9	100	9.9	0.00	0.0	100.0	9.9	0.00	0.0	100.0	9.9
S	80	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
North-South (Sec)													
N	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
S	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
East-West (Sec)													
E	12	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
W	10	100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
Approved		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0
All Movements													
		100	10.0	100	10.0	0.00	0.0	100.0	10.0	0.00	0.0	100.0	10.0

AM Peak

MOVEMENT SUMMARY

Site: LM00378 [Sterling Highway - McCata Street, AM (Side Filler - Backgrout)] (2014)

*** Network: H101 (AMTGA) (Network Folder: 54-Eating (2006))

Open Site
Site Category: None

Signal: E502507 (y-mal-Salicylate) (y-mal-Salicylate) Cycle Time: 1.136 seconds (20s Max) (100s Cycle Time)

Vehicle Movement Performance													
Site	Day	Vehicle Type	Arrival Time	Departure Time	Stop Duration	Queue Length	Waiting Time	Processing Time	Exit Time	Vehicle Count	Incident Count	Severity	Notes
North Station Exit	T1	1070	0.8	1078	8.0	0.000	3.0	100 A	24.2	184.8	0.23	0.00	52.1
	T2	208	0.8	208.8	8.0	-0.070	82.0	100 B	28.2	287.0	0.77	1.01	31.0
	Average	1201	-1.0	1207	7.0	0.070	17.2	100 F	26.2	208.9	0.40	0.40	31.0
East Station St													
A	L2	80	7.1	80	7.1	0.000	26.2	100 C	10.1	118.8	0.00	0.00	58.1
B	R2	15	7.1	80	7.1	-10.200	81.0	100 F	52.1	100.0	1.01	0.70	18.1
Average		825	-7.1	80	7.1	0.000	30.0	100 G	18.7	110.0	0.73	0.50	22.1
South Station Exit													
A	L2	107	0.0	107	0.0	0.000	11.2	100 F	40.0	522.1	1.00	1.00	10.1
B	T1	1027	0.0	1027	0.0	-1.000	123.0	100 F	64.0	623.0	1.00	1.00	10.1
Average		1091	-0.0	1027	0.0	0.000	20.2	100 G	64.0	709.0	1.00	1.00	10.1
Average		-1130	-7.0	1130	7.0	0.000	40.7	100 D	60.0	633.0	0.00	0.70	0.0

The Level of Service (LOS) Method (Daghy, SIDRA) : the LOS Method is specified in the Patrick C220 (May 1999) LOS

Vehicle movement LOS values are based on average delay per movement
 movement and Approach LOS values are based on average delay for all vehicle movement

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James Morrison (1844-1900)

MOVEMENT SUMMARY

Site: L888679 (Siring Highway; McCabe Street; 888 (See Photo: Background) (2024) (Updated))

DOI: 10.1002/eqm2.1254

Discussion

262-1320

Size Category: **Medium**
 Synonyms: **STIMULANT**

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[illegible]

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Delay under 10000 seconds (average delay is included)

Supplemental Capacity: 2004b; Sanders, Jacore, & Morris, 2004) are conducted to address the issues of

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• Cultural Differences (Body/ Tongue)

MOVEMENT SUMMARY

Ⓢ: 101 Sterling Highway, Conway, ME 04839

• Network: R101 (JAM PEAR, Network Folder: 54-Existing 0034)

10/10/2014

Time Step	Step Size
1	0.1
2	0.1
3	0.1
4	0.1
5	0.1
6	0.1
7	0.1
8	0.1
9	0.1
10	0.1
11	0.1
12	0.1
13	0.1
14	0.1
15	0.1
16	0.1
17	0.1
18	0.1
19	0.1
20	0.1
21	0.1
22	0.1
23	0.1
24	0.1
25	0.1
26	0.1
27	0.1
28	0.1
29	0.1
30	0.1
31	0.1
32	0.1
33	0.1
34	0.1
35	0.1
36	0.1
37	0.1
38	0.1
39	0.1
40	0.1
41	0.1
42	0.1
43	0.1
44	0.1
45	0.1
46	0.1
47	0.1
48	0.1
49	0.1
50	0.1
51	0.1
52	0.1
53	0.1
54	0.1
55	0.1
56	0.1
57	0.1
58	0.1
59	0.1
60	0.1
61	0.1
62	0.1
63	0.1
64	0.1
65	0.1
66	0.1
67	0.1
68	0.1
69	0.1
70	0.1
71	0.1
72	0.1
73	0.1
74	0.1
75	0.1
76	0.1
77	0.1
78	0.1
79	0.1
80	0.1
81	0.1
82	0.1
83	0.1
84	0.1
85	0.1
86	0.1
87	0.1
88	0.1
89	0.1
90	0.1
91	0.1
92	0.1
93	0.1
94	0.1
95	0.1
96	0.1
97	0.1
98	0.1
99	0.1
100	0.1

Sales Category: (None)
 Line Item: (Total: 0.00)

CONCLUSIONS

[illegible]

PM Peak

MOVEMENT SUMMARY

☎ Jm: L800078 (Stirling Highway/ Moorabie Street, P8 (The Polder, Wabgroun) (2014))

NAME: JET (PM PEAK) (Source: Folder: 34-Chasing [17-9])

[New 3D](#)
[Shop 3D](#)

Supernova - 100541

Global Movement Performance													
Area	Type	Forecast (k Units)	Actual (k Units)	Variance (k Units)	Forecast (k Units)	Actual (k Units)	Variance (k Units)	Forecast (k Units)	Actual (k Units)	Variance (k Units)	Forecast (k Units)	Actual (k Units)	Variance (k Units)
North America													
South America	IT	1402	8.8	1411	8.9	0.89	7.6	1074.4	80.2	81.2	0.23	0.78	8.27
	RC	28	9.8	33.5	2.8	+9.55	73.5	401.6	95.4	70.5	-1.92	2.68	-1.58
	Aggregat	1478	17.9	1479	7.7	0.76	13.9	1123.8	96.4	115.6	1.27	3.43	0.67
Europe													
Africa	IT	380	7.4	290	7.4	-0.60	40.6	1000.0	94.4	112.6	0.67	0.91	0.87
	RC	7	7.9	97	7.1	+18.99	77.1	106.5	4.2	21.9	1.96	0.92	1.05
	Aggregat	371	7.7	375	7.7	-0.39	48.8	1000.0	104.4	119.8	1.86	1.37	0.94
Asia/Pacific													
Latin America	IT	80	9.8	40	8.8	-0.88	21.6	1200.0	80.4	82.0	0.87	1.02	1.11
	RC	7.1	8.8	103	8.8	+9.55	38.8	1000.0	80.4	480.6	1.02	1.11	1.11
	Aggregat	103	8.7	123.3	8.7	0.97	36.2	1100.0	80.4	444.9	1.57	1.01	1.01
All Markets													
All Markets		1868	2.7	2029	3.5	0.80	27.8	1000.0	93.1	665.5	0.75	0.72	0.21

Site Level of Interest (LDS) Method: Derives (LDS) Method is specified in the Measure Data (using) Method for

Latent movement LOS values are based on average delay per movement; interaction and Approach LOS values are based on average delay for all vehicle movements.

Delay Index: SDOA Standard (Synthetic Delay) is used

11% (N) values are tabulated for 14 Momentum Classes of 14 Heavy Vehicle Hood Diagrams.

^a—Complete Dissolution in Water at 25°C.

MOVEMENT SUMMARY

■ Site: L44570 (Stirling Highway/ McCabe Street, PM (Pink Folded Background) (2034) (Logos:))

Name: /sif/ [PW: PDA] (Habitat: Folder: 34-Erving (2024)
(/g/3404))

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

Site Category: **Open**
 Status: **COMBAT**

Signal: 6.00V (FPGA) (max: 6.00V) (min: 0.00V) (avg: 0.00V) (std: 0.00V) (type: 0.00V) (cycle: 0.00V) (type: 0.00V) (cycle: 0.00V)

Vehicle Mileage Performance												
Vehicle ID	Model	Year	Mileage (mi)	Engine Type	Power (hp)	MPG (City)	MPG (Highway)	MPG (Avg)	MPG (Est.)	MPG (Actual)	MPG (Target)	MPG (Variance)
Group A - Sedan	1	2015	1000	Gasoline	150	24	34	29	28	28	28	0
	2	2016	1200	Gasoline	160	25	35	30	29	29	29	0
	3	2017	1100	Gasoline	170	26	36	31	30	30	30	0
	4	2018	1300	Gasoline	180	27	37	32	31	31	31	0
Group B - SUV	5	2015	800	Gasoline	200	20	28	24	23	23	23	0
	6	2016	900	Gasoline	210	21	29	25	24	24	24	0
	7	2017	1000	Gasoline	220	22	30	26	25	25	25	0
	8	2018	1100	Gasoline	230	23	31	27	26	26	26	0
Group C - Truck	9	2015	500	Gasoline	250	18	26	22	21	21	21	0
	10	2016	600	Gasoline	260	19	27	23	22	22	22	0
	11	2017	700	Gasoline	270	20	28	24	23	23	23	0
	12	2018	800	Gasoline	280	21	29	25	24	24	24	0

Use Level of Service (LOS) Method: Daily (2003). Use LOS Method as specified in the National Highway Traffic Safety Board (NHTSB) Manual.

Debtors represented 1,175 villages, are based on village-level per household information and illustrate 1,002 values are based on census data for all census respondents.

Intersection and Approach LCO values are based on Texas Delay Model (HCM5 Flashed/Drummed, Delay is not used).

Wf: The number of waves in the dataset. If this is not 1, then the following 2 values of α are used: α_{wave} and α_{item} .

4. Control Environment (Coping/Testing)

MOVEMENT SUMMARY

Site: 101 Sterling Highway/ Coweely Pass, PM (SPA Folder: Background (GDM) (Vppr00002))

Net Server: R101 (PXE) (Network Folder: S4-Exchange (2004)
(Vorgeschalt))

Nigel Hall
 21 Ave. Chateaufort, 11 Avenue

Eds Category: **Human
Over-View (The Interview)**

Global Market Performance												
Region	Country	Q1 2024		Q2 2024		Q3 2024		Q4 2024		Annual Total		Avg. Growth
		Revenue (M)	Profit (M)	Revenue (M)	Profit (M)	Revenue (M)	Profit (M)	Revenue (M)	Profit (M)	Revenue (M)	Profit (M)	
North America	USA	120	15	130	18	140	20	150	22	540	75	12%
	Canada	20	3	22	4	24	5	26	6	92	18	8%
	Mexico	10	1	11	2	12	3	13	4	46	10	5%
	Other NA	5	0.5	5	0.5	6	0.6	6	0.6	22	3	3%
Europe	UK	80	10	85	12	90	14	95	16	350	48	10%
	Germany	40	5	42	5.5	44	6	46	6.5	174	24	9%
	France	30	4	32	4.5	34	5	36	5.5	136	19	8%
	Other EU	10	1.5	11	1.8	12	2.2	13	2.5	46	10	7%
Asia Pacific	China	150	20	160	22	170	25	180	28	660	95	15%
	India	60	8	65	9	70	10	75	11	270	38	18%
	Japan	40	6	42	6.5	44	7	46	7.5	174	24	10%
	Other APAC	10	1	11	1.2	12	1.4	13	1.6	46	6	6%
South America	Brazil	30	4	32	4.5	34	5	36	5.5	136	19	7%
	Argentina	10	1	11	1.2	12	1.4	13	1.6	46	6	5%
	Colombia	5	0.5	5	0.5	6	0.6	6	0.6	22	3	4%
	Other SA	5	0.5	5	0.5	6	0.6	6	0.6	22	3	4%
Africa & ME	South Africa	10	1.5	11	1.8	12	2.2	13	2.5	46	10	6%
	Israel	5	0.5	5	0.5	6	0.6	6	0.6	22	3	5%
	UAE	5	0.5	5	0.5	6	0.6	6	0.6	22	3	5%
	Other AF&ME	5	0.5	5	0.5	6	0.6	6	0.6	22	3	5%

Use types of Survey 2.1.12. Incident Date (ICD44). Use 1.01 (date is recorded as the nearest date using Incident 1).

AM Peak

MOVEMENT SUMMARY

Site: L002570 [Strong Highway/ McCabe Street_Alt] [Site Profile: Background] [2014] + Dev. [Upgraded]

BB Network: 10.101 [ABFTeam] (Network Folder: D5-Existing [2006] = New
(Upgraded))

Signal: `ESQ(SAT)Fwd5/Rev5(CTG)104466` Cycle Time = 779 seconds (246 User Given Cycle Time)

[illegible]

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Vertical movement of the carboxylate ions toward the anode may be accompanied by a decrease in the concentration of the carboxylate ions in the electrolyte, which may lead to a decrease in the rate of the reaction.

Infrastructure and Approach Life values are based on average rates for all active environments.
Data listed: 2004-2005. (Comments: Data is available.)

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11/17/16 session, are discussed for all subsequent sessions of the Intensive Vehicle-based Curriculum.

• Critical thinking (logical thinking)

[(1) Absence of true values is reflected due to capacity constraints of measurement equipment.]

MOVEMENT SUMMARY

File: 101 (String Highway) Conestoga Parade_AM (Site Folder: Background (7538) + Dns (Updated))

On Network: MSDI (AM PEAR) (Network Folder: IT-Baiting (2004) + Dev (Updated))

Table 1. (continued)

Site Category (None)
Site Area (Total Area)

Shen-Wei Yang (Tainan, China)

[illegible]

The issue of January 2012, Volume 12(1), has a rich selection of articles in the current issue (page 10).

MOVEMENT SUMMARY

▼ Size: 107s [McGate G] [McGate P] AM + Conversion (Side Folder: Background (303A) + Dry (Upgraded)]

■ **Keywords:** NPIs (AM PEAS) (Person Finder) SS-244Wing (2014) + Des (Aggregated)

Figure 10.10

Site Category: (Water)
 Open Area: (Turf Grass)

One-Way, Two-Way

Robustness Assessment Performance												
Index	Task	Model	Accuracy (%)	Recall (%)	F1 (%)	Precision (%)	Specificity (%)	AUC (%)	Robustness (%)	Stability (%)	Consistency (%)	Adaptability (%)
Model A (Baseline)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Model B (Robust)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Model C (Adaptive)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Model D (Ensemble)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Model E (Transfer)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Model F (Hybrid)	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[illegible]

PM Peak

MOVEMENT SUMMARY

File: LAR0212 [Turning Highway: McCook Street, PM (Side Profile: Background) (2004) + Day (Landscape)]

MR Network: N121 (PU PEAK) (Network Public: SS-Extending (N14) + Dev (Upgraded))

Title:
 Site Category:
 English: EQU/044 Fixed Time/SCAT10 (closed) Cycle Time = 110 seconds (Site User-Over Cycle Time)

[illegible]

His Lumen of Science (1900) *Medicine Today* (1904), *How Life* (1908) and *How Life* (1910) are all published in the National Library of Medicine.

Where movement is not shown, it is assumed to be 100% (no movement).
 Where the Net Approach is shown, it is assumed to be 100% (no movement).
 Delay factor is 1.0 (Standard).
 Capacity is 100% (Standard).
 Delay factor is 1.0 (Standard).
 Capacity is 100% (Standard).

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MOVEMENT SUMMARY

File: 101 [Darting Highway/ Coventry Parade_PA] (Site Folder: Bicknell (2014) - Dev (Upgraded))

we observe: NOT (P & Q) (Hornsey & Fother: 20-Existing (2014) + One /Updated)

Name _____
 Date _____
 Class _____

Waldo Movement Performance												
Year	Type	Latency (ms)	Throughput (ops/sec)	Success Rate (%)	Queue Size	Rejection Rate (%)	Latency (ms)	Throughput (ops/sec)	Success Rate (%)	Queue Size	Rejection Rate (%)	Latency (ms)
Q1 - Q2 (2023)	Overall Average	120	1500	99.5	10	0.5	120	1500	99.5	10	0.5	120
	Q1	110	1600	99.8	8	0.2	110	1600	99.8	8	0.2	110
	Q2	130	1400	99.2	12	0.8	130	1400	99.2	12	0.8	130
Q3 - Q4 (2023)	Overall Average	115	1650	99.7	9	0.3	115	1650	99.7	9	0.3	115
	Q3	105	1700	99.9	7	0.1	105	1700	99.9	7	0.1	105
	Q4	125	1600	99.5	11	0.6	125	1600	99.5	11	0.6	125
Q5 - Q6 (2023)	Overall Average	118	1580	99.6	10	0.4	118	1580	99.6	10	0.4	118
	Q5	108	1620	99.8	8	0.2	108	1620	99.8	8	0.2	108
	Q6	128	1540	99.4	12	0.7	128	1540	99.4	12	0.7	128
Q7 - Q8 (2023)	Overall Average	122	1520	99.4	11	0.6	122	1520	99.4	11	0.6	122
	Q7	112	1560	99.7	9	0.3	112	1560	99.7	9	0.3	112
	Q8	132	1480	99.1	13	0.9	132	1480	99.1	13	0.9	132
Q9 - Q10 (2023)	Overall Average	125	1500	99.3	12	0.7	125	1500	99.3	12	0.7	125
	Q9	115	1540	99.6	10	0.4	115	1540	99.6	10	0.4	115
	Q10	135	1460	99.0	14	0.8	135	1460	99.0	14	0.8	135
Q11 - Q12 (2023)	Overall Average	128	1480	99.2	13	0.8	128	1480	99.2	13	0.8	128
	Q11	118	1520	99.5	11	0.5	118	1520	99.5	11	0.5	118
	Q12	138	1440	98.9	15	1.0	138	1440	98.9	15	1.0	138
Q13 - Q14 (2023)	Overall Average	130	1460	99.1	14	0.9	130	1460	99.1	14	0.9	130
	Q13	120	1500	99.4	12	0.6	120	1500	99.4	12	0.6	120
	Q14	140	1420	98.8	16	1.1	140	1420	98.8	16	1.1	140
Q15 - Q16 (2023)	Overall Average	135	1440	99.0	15	1.0	135	1440	99.0	15	1.0	135
	Q15	125	1480	99.3	13	0.7	125	1480	99.3	13	0.7	125
	Q16	145	1400	98.7	17	1.2	145	1400	98.7	17	1.2	145
Q17 - Q18 (2023)	Overall Average	138	1420	98.9	16	1.1	138	1420	98.9	16	1.1	138
	Q17	128	1460	99.2	14	0.8	128	1460	99.2	14	0.8	128
	Q18	148	1380	98.6	18	1.3	148	1380	98.6	18	1.3	148
Q19 - Q20 (2023)	Overall Average	140	1400	98.8	17	1.2	140	1400	98.8	17	1.2	140
	Q19	130	1440	99.1	15	1.0	130	1440	99.1	15	1.0	130
	Q20	150	1360	98.5	19	1.4	150	1360	98.5	19	1.4	150

(This Layout of Section 2.1.1) is called "Table 2.1.1". This is the standard is according to the Network Data group. Please refer to the following table for the details of the layout.

MOVEMENT SUMMARY

Site: 101v (McCabe to McCabe PI_PM - Conversion (Site Folder, Background (2014) - Day (Updated))

• Network: 10101 QM PEAK, (Network Folder: SS-Existing (2034) - Dev
G:\projects\SS

Line Category (Points)
Down 2000 (Two Miles)

[illegible]

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AM Peak

MOVEMENT SUMMARY

Doc: LVR2179 [52-Setting Highway/McGee Street, All - Report (Site Plan; Background (2024) + Dev. (Upgrade) and Notes]

BR Network: NYN (AM PEAR - 1st) (Network Foster: BR-Background)
(2024) + Dev (Upgraded) and Much)

Sample - EQ2 (BAT) (Wood-SteelSCAT) (1) (cited) Cycle Time = 60 seconds (See Product Cycle Times)

Weekly Revenue Performance													
Metric	Week	Week 1 (Jan 1-7)		Week 2 (Jan 8-14)		Week 3 (Jan 15-21)	Week 4 (Jan 22-28)	Overall Total (Jan)	Average Daily Revenue	Weekly Growth %	Target vs. Actual	Notes	
		Revenue (\$)	Units (K)	Revenue (\$)	Units (K)								
North America	1	120	15.2	115	14.8	125	15.5	475	11.9	2.1%	On Track		
	2	130	16.5	125	15.9	135	16.8	525	13.1	3.5%	Exceeded		
	3	140	17.8	135	17.2	145	18.1	595	14.9	4.2%	Strong		
Europe	1	80	10.1	78	9.9	82	10.3	240	8.0	1.5%	Steady		
	2	85	10.8	82	10.4	88	11.0	255	8.6	2.0%	Growing		
	3	90	11.5	87	11.1	92	11.6	269	9.0	2.5%	Consistent		
Asia Pacific	1	60	7.5	58	7.3	62	7.7	180	6.0	1.0%	Stable		
	2	65	8.2	63	7.9	67	8.4	195	6.5	1.8%	Improving		
	3	70	8.8	68	8.5	72	9.0	210	7.0	2.2%	Positive		
Latin America	1	50	6.2	48	6.0	52	6.4	150	5.0	0.8%	Steady		
	2	55	6.8	53	6.5	57	7.0	165	5.5	1.2%	Growing		
	3	60	7.4	58	7.1	62	7.6	180	6.0	1.6%	Consistent		
Middle East	1	40	5.0	38	4.8	42	5.2	120	4.0	0.5%	Stable		
	2	45	5.5	43	5.2	47	5.8	135	4.5	0.9%	Improving		
	3	50	6.0	48	5.7	52	6.3	150	5.0	1.3%	Positive		
Africa	1	30	3.8	28	3.5	32	4.0	90	3.0	0.3%	Steady		
	2	35	4.3	33	4.0	37	4.5	105	3.5	0.7%	Growing		
	3	40	4.8	38	4.5	42	5.0	120	4.0	1.0%	Consistent		
Oceania	1	20	2.5	19	2.4	21	2.6	60	2.0	0.2%	Stable		
	2	22	2.7	21	2.6	23	2.8	66	2.2	0.4%	Improving		
	3	24	3.0	23	2.8	25	3.1	72	2.4	0.6%	Positive		

The views of authors (C.C., Vincent Tse) (SCA), do not reflect those of the publisher (John Wiley & Sons).

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Insurance and Accident 11/6 Issues are based on average rates for all vehicle management

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Linking Haplotypes to DNA Methylation Patterns in a Family
 Study of Autism Spectrum Disorders

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106 (No animal use) (continued) for All University Courses of All University Health Sciences Programs

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MOVEMENT SUMMARY

File: 101 [ES-Strong Highway] Coventry Parade_AM - Import (Site Folder: Background (2024) - Dev (Upgrade) and Noise)

PR Number: 0001 (AM PEAK - Input) (Network Folder: US-Background)
(2014) + Dev (Upgraded) and Modif)

Name Size
 John Cologreir (Hawaii)
 (1996-1998) (June 1999)

Net Low-Movement Performance												
Net	Rate	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement	Low-Movement
Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate
1	12	225	9.8	225	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
2	15	215	9.8	215	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
3	18	205	9.8	205	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
4	21	195	9.8	195	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
5	24	185	9.8	185	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
6	27	175	9.8	175	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
7	30	165	9.8	165	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
8	33	155	9.8	155	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
9	36	145	9.8	145	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
10	39	135	9.8	135	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
11	42	125	9.8	125	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
12	45	115	9.8	115	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
13	48	105	9.8	105	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
14	51	95	9.8	95	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
15	54	85	9.8	85	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
16	57	75	9.8	75	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
17	60	65	9.8	65	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
18	63	55	9.8	55	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
19	66	45	9.8	45	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
20	69	35	9.8	35	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
21	72	25	9.8	25	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
22	75	15	9.8	15	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
23	78	5	9.8	5	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
24	81	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
25	84	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
26	87	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
27	90	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
28	93	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
29	96	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
30	99	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
31	102	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0
32	105	0	9.8	0	9.8	0.001	0.0	12.0	0.0	0.0	0.0	0.0

[illegible]

MOVEMENT SUMMARY

File: 101 [534b]Case 91McCase Pl. Att - Import (Site Profile: Backgrounds (2034) + Dev (Upgraded) and Muds)

RF Network: W101 (AM PEAK - import (Network Folder: ES-Background
(2024) + Den (Upgraded) and Noise))

Page 10 of 10

Hypothetical Performance		Actual Performance		Hypothetical Performance		Actual Performance		Hypothetical Performance		Actual Performance	
Year	Score	Year	Score	Year	Score	Year	Score	Year	Score	Year	Score
2000	75	2001	78	2002	80	2003	82	2004	85	2005	88
2006	90	2007	92	2008	95	2009	98	2010	100	2011	102
2012	105	2013	108	2014	110	2015	112	2016	115	2017	118
2018	120	2019	122	2020	125	2021	128	2022	130	2023	132
2024	135	2025	138	2026	140	2027	142	2028	145	2029	148
2030	150	2031	152	2032	155	2033	158	2034	160	2035	162
2036	165	2037	168	2038	170	2039	172	2040	175	2041	178
2042	180	2043	182	2044	185	2045	188	2046	190	2047	192
2048	195	2049	198	2050	200	2051	202	2052	205	2053	208
2054	210	2055	212	2056	215	2057	218	2058	220	2059	222
2060	225	2061	228	2062	230	2063	232	2064	235	2065	238
2066	240	2067	242	2068	245	2069	248	2070	250	2071	252
2072	255	2073	258	2074	260	2075	262	2076	265	2077	268
2078	270	2079	272	2080	275	2081	278	2082	280	2083	282
2084	285	2085	288	2086	290	2087	292	2088	295	2089	298
2090	300	2091	302	2092	305	2093	308	2094	310	2095	312
2096	315	2097	318	2098	320	2099	322	2100	325	2101	328
2102	330	2103	332	2104	335	2105	338	2106	340	2107	342
2108	345	2109	348	2110	350	2111	352	2112	355	2113	358
2114	360	2115	362	2116	365	2117	368	2118	370	2119	372
2120	375	2121	378	2122	380	2123	382	2124	385	2125	388
2126	390	2127	392	2128	395	2129	398	2130	400	2131	402
2132	405	2133	408	2134	410	2135	412	2136	415	2137	418
2138	420	2139	422	2140	425	2141	428	2142	430	2143	432
2144	435	2145	438	2146	440	2147	442	2148	445	2149	448
2150	450	2151	452	2152	455	2153	458	2154	460	2155	462
2156	465	2157	468	2158	470	2159	472	2160	475	2161	478
2162	480	2163	482	2164	485	2165	488	2166	490	2167	492
2168	495	2169	498	2170	500	2171	502	2172	505	2173	508
2174	510	2175	512	2176	515	2177	518	2178	520	2179	522
2180	525	2181	528	2182	530	2183	532	2184	535	2185	538
2186	540	2187	542	2188	545	2189	548	2190	550	2191	552
2192	555	2193	558	21							

8881 Leavelle (1999) 3 (27) 1801-1802 (<http://www.mcclellan.com/1999/03/27/1801>) is cited in the Software Tools (STW) Network Ltd.

WM Network: NHR (PM Peak) - Impact Network Folder: SG-Becksteins
(0324) - Drs (Upgraded) and Minda

Signal = ECU347 / (Peak-Time/ECU347) * (ekstrol - Cycle Time - 40 seconds) / (Practical Cycle Time)

Financial Measurement Performance												
Item	Unit	1998 Measurement		1999 Measurement		2000 Measurement		2001 Measurement		2002 Measurement		Trend
		Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	
South Atlantic City												
1	11	1221	10.0	1222	10.0	1237	9.6	1165.6	10.0	77.9	6.96	6.97
2	102	116	9.9	116	9.9	116	9.9	120.2	9.9	1.0	9.9	9.9
Approach		1227	9.7	1227	9.7	1262	9.6	1249.6	10.0	77.9	7.96	7.98
East Atlantic City												
1	12	109	9.1	100	9.1	1221	8.6	1206.1	12.6	100.7	1.01	9.99
2	105	109	9.1	100	9.1	1221	8.6	1206.1	8.9	100.6	1.01	9.99
Approach		109	7.9	100	7.9	1221	8.6	1206.1	12.6	100.7	1.01	9.99
North Atlantic City												
1	12	91	8.9	91	8.9	1113	9.9	1209.9	7.8	14.0	1.01	6.98
2	91	100	10.0	100	10.0	1213	9.9	1210.9	10.7	100.7	1.01	9.99
Approach		100	9.9	100	10.0	1213	9.9	1210.9	10.7	100.7	1.01	9.99
West Atlantic City												
1	100	100	10.0	100	10.0	1213	9.9	1210.9	10.7	100.7	1.01	9.99
2	100	100	10.0	100	10.0	1213	9.9	1210.9	10.7	100.7	1.01	9.99
Approach		100	10.0	100	10.0	1213	9.9	1210.9	10.7	100.7	1.01	9.99

[illegible]

© Netzwerk: H101 (PM PEAK - Import (Netzwerk Folien: 36-Background (2014) • Des (Upgraded) und Much)

New Site
Site Category: Home
Site-Way (True/False)

On-Site Measurement Performance											
Metric	Units	Compliance (100%)		Compliance (100%)		Avg. Value	Max. Value	Min. Value	Std. Dev.	Avg. Value (100%)	
		Value	Units	Value	Units					Value	Units
Good (Strongly Agree)	%	100	100	100	100	100	100	100	100	100	100
1	10	100	100	100	100	100	100	100	100	100	100
2	10	100	100	100	100	100	100	100	100	100	100
3	10	100	100	100	100	100	100	100	100	100	100
4	10	100	100	100	100	100	100	100	100	100	100
5	10	100	100	100	100	100	100	100	100	100	100
6	10	100	100	100	100	100	100	100	100	100	100
7	10	100	100	100	100	100	100	100	100	100	100
8	10	100	100	100	100	100	100	100	100	100	100
9	10	100	100	100	100	100	100	100	100	100	100
10	10	100	100	100	100	100	100	100	100	100	100
11	10	100	100	100	100	100	100	100	100	100	100
12	10	100	100	100	100	100	100	100	100	100	100
13	10	100	100	100	100	100	100	100	100	100	100
14	10	100	100	100	100	100	100	100	100	100	100
15	10	100	100	100	100	100	100	100	100	100	100
16	10	100	100	100	100	100	100	100	100	100	100
17	10	100	100	100	100	100	100	100	100	100	100
18	10	100	100	100	100	100	100	100	100	100	100
19	10	100	100	100	100	100	100	100	100	100	100
20	10	100	100	100	100	100	100	100	100	100	100
21	10	100	100	100	100	100	100	100	100	100	100
22	10	100	100	100	100	100	100	100	100	100	100
23	10	100	100	100	100	100	100	100	100	100	100
24	10	100	100	100	100	100	100	100	100	100	100
25	10	100	100	100	100	100	100	100	100	100	100
26	10	100	100	100	100	100	100	100	100	100	100
27	10	100	100	100	100	100	100	100	100	100	100
28	10	100	100	100	100	100	100	100	100	100	100
29	10	100	100	100	100	100	100	100	100	100	100
30	10	100	100	100	100	100	100	100	100	100	100
31	10	100	100	100	100	100	100	100	100	100	100
32	10	100	100	100	100	100	100	100	100	100	100
33	10	100	100	100	100	100	100	100	100	100	100
34	10	100	100	100	100	100	100	100	100	100	100
35	10	100	100	100	100	100	100	100	100	100	100
36	10	100	100	100	100	100	100	100	100	100	100
37	10	100	100	100	100	100	100	100	100	100	100
38	10	100	100	100	100	100	100	100	100	100	100
39	10	100	100	100	100	100	100	100	100	100	100
40	10	100	100	100	100	100	100	100	100	100	100
41	10	100	100	100	100	100	100	100	100	100	100
42	10	100	100	100	100	100	100	100	100	100	100
43	10	100	100	100	100	100	100	100	100	100	100
44	10	100	100	100	100	100	100	100	100	100	100
45	10	100	100	100	100	100	100	100	100	100	100
46	10	100	100	100	100	100	100	100	100	100	100
47	10	100	100	100	100	100	100	100	100	100	100
48	10	100	100	100	100	100	100	100	100	100	100
49	10	100	100	100	100	100	100	100	100	100	100
50	10	100	100	100	100	100	100	100	100	100	100
51	10	100	100	100	100	100	100	100	100	100	100
52	10	100	100	100	100	100	100	100	100	100	100
53	10	100	100	100	100	100	100	100	100	100	100
54	10	100	100	100	100	100	100	100	100	100	100
55	10	100	100	100	100	100	100	100	100	100	100
56	10	100	100	100	100	100	100	100	100	100	100
57	10	100	100	100	100	100	100	100	100	100	100
58	10	100	100	100	100	100	100	100	100	100	100
59	10	100	100	100	100	100	100	100	100	100	100
60	10	100	100	100	100	100	100	100	100	100	100
61	10	100	100	100	100	100	100	100	100	100	100
62	10	100	100	100	100	100	100	100	100	100	100
63	10	100	100	100	100	100	100	100	100	100	100
64	10	100	100	100	100	100	100	100	100	100	100
65	10	100	100	100	100	100	100	100	100	100	100
66	10	100	100	100	100	100	100	100	100	100	100
67	10	100	100	100	100	100	100	100	100	100	100
68	10	100	100	100	100	100	100	100	100	100	100
69	10	100	100	100	100	100	100	100	100	100	100
70	10	100	100	100	100	100	100	100	100	100	100
71	10	100	100	100	100	100	100	100	100	100	100
72	10	100	100	100	100	100	100	100	100	100	100
73	10	100	100	100	100	100	100	100	100	100	100
74	10	100	100	100	100	100	100	100	100	100	100
75	10	100	100	100	100	100	100	100	100	100	100
76	10	100	100	100	100	100	100	100	100	100	100
77	10	100	100	100	100	100	100	100	100	100	100
78	10	100	100	100	100	100	100	100	100	100	100
79	10	100	100	100	100	100	100	100	100	100	100
80	10	100	100	100	100	100	100	100	100	100	100
81	10	100	100	100	100	100	100	100	100	100	100
82	10	100	100	100	100	100	100	100	100	100	100
83	10	100	100	100	100	100	100	100	100	100	100
84	10	100	100	100	100	100	100	100	100	100	100
85	10	100	100	100	100	100	100	100	100	100	100
86	10	100	100	100	100	100	100	100	100	100	100
87	10	100	100	100	100	100	100	100	100	100	100
88	10	100	100	100	100	100	100	100	100	100	100
89	10	100	100	100	100	100	100	100	100	100	100
90	10	100	100	100	100	100	100	100	100	100	100
91	10	100	100	100	100	100	100	100	100	100	100
92	10	100	100	100	100	100	100	100	100	100	100
93	10	100	100	100	100	100	100	100	100	100	100
94	10	100	100	100	100	100	100	100	100	100	100
95	10	100	100	100	100	100	100	100	100	100	100
96	10	100	100	100	100	100	100	100	100	100	100
97	10	100	100	100	100	100	100	100	100	100	100
98	10	100	100	100	100	100	100	100	100	100	100
99	10	100	100	100	100	100	100	100	100	100	100
100	10	100	100	100	100	100	100	100	100	100	100

Web-based Survey (Lisby, Mathias, & Loeber, 2003a). Any LOS method is specified at the Network Data entry interface tab.

WM Network: 802.11b (FM PLAP - Import) (Network Follow: SS-Background:
(1024) + 64x (Upgrade) and Media)

New York
Little, Calverton, Queens
Boroughs

Revenue Statement Performance													
Year	Qtr	Revenue (\$M)	Cost (\$M)	Gross Profit (\$M)	Gross Profit %	Operating Exp (\$M)	Operating Profit (\$M)	Operating Profit %	Interest Exp (\$M)	Income Before Tax (\$M)	Income Tax (\$M)	Net Income (\$M)	EPS (\$)
Period: Q1 2024													
Q1	2024	100	60	40	40%	25	15	15%	5	10	2	8	0.80
Q2	2024	110	65	45	40.9%	26	19	17.3%	5	14	2	12	1.20
Q3	2024	120	70	50	41.7%	27	23	19.2%	5	18	2	16	1.60
Q4	2024	130	75	55	42.3%	28	27	20.8%	5	22	2	20	2.00
Annual	2024	460	270	190	41.3%	105	85	18.5%	20	65	8	57	5.70
Period: Q2 2025													
Q2	2025	115	68	47	40.9%	27	20	17.4%	5	15	2	13	1.30
Q3	2025	125	72	53	42.4%	28	25	20.0%	5	20	2	18	1.80
Q4	2025	135	78	57	42.2%	29	28	20.7%	5	23	2	21	2.10
Annual	2025	475	288	187	39.6%	104	83	17.5%	20	63	8	55	5.50
Period: Q3 2026													
Q3	2026	130	75	55	42.3%	29	26	20.0%	5	21	2	19	1.90
Q4	2026	140	80	60	42.9%	30	30	21.4%	5	25	2	23	2.30
Annual	2026	480	295	185	38.5%	105	80	16.7%	20	60	8	52	5.20
Period: Q4 2027													
Q4	2027	145	85	60	41.4%	31	29	20.0%	5	24	2	22	2.20
Annual	2027	490	305	185	37.8%	106	79	16.1%	20	59	8	51	5.10

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Parking Management Plan

Matilda Bay Brewery – Stage 1, North
Fremantle- Issue for Development
Approval

CW1147800 / 304900169



Prepared for
3 Oceans Property Pty Ltd

9 September 2022



now



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Document Information

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Traffic Engineer

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Approved By:

Desmond Ho

Senior Traffic Engineer

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CW1147800 / 304900169 | 9 September 2022 | Commercial in Confidence

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Appendix B	Parking Demand Assessment

1 Introduction

Cardno now Stantec has been engaged by 3 Oceans Property Pty Ltd to prepare a Parking Management Plan for the proposed development to be located on lots comprising 130 Stirling Highway, 12 McCabe Place, 253 McCabe Place, 218 Thompson Road, 219 Thompson Road, 220 Stirling Highway, 221 Thompson Road, and 314 McCabe Street.

2 Background

2.1 Site Context

The Site is located at multiple lots that comprises 130 Stirling Highway, 12 McCabe Place, 253 McCabe Place, 218 Thompson Road, 219 Thompson Road, 220 Stirling Highway, 221 Thompson Road, and 314 McCabe Street. The Site is bounded by Stirling Highway to the west, McCabe Street to the north, Coventry Parade/Thompson Road to the south and surrounded by multiple residential dwellings to the east.

Figure 2-1 Aerial Image



Source: MetroMap

2.2 Proposed Development

The Site is a mixed-use development comprising of the following land uses:

- > 198 residential apartments
- > Restaurant
- > Café
- > Tavern
- > Function
- > Provedore
- > Co-working
- > Creative Studio

2.3 Existing On-Street Parking

Existing on-street parking is provided along McCabe Street and Coventry Parade which is within appropriate walking distance from the Site. The locations of the on-street parking are shown in **Figure 2-2**.

Along McCabe Street, there are currently 14 bays along the northern side of the street. The parking demand along this road is relatively low as shown in **Figure 2-3**. No time restrictions are provided for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply as indicated by the existing signage and linemarking at these locations.

Figure 2-2 Existing On-street Parking Bays in the Vicinity of the Site



Figure 2-3 Parking along McCabe Street



There are approximately 20 angled bays on the northern side of Coventry Parade as shown in **Figure 2-4**. Parallel parking is provided on the southern side although no linemarking is provided to demarcate the individual bays. Approximately 9-10 parking spaces are available along this side of the road. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Parallel parking is provided along both sides of Thompson Road between Coventry Parade and Pamment Street and only along the western side of this road for the section of Thompson Road south of Pamment Street. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Regarding Pamment Street, parallel parking is provided on the northern side of this road with no parking restrictions on the southern side of the road. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Currently, the parking along these streets is likely to be used by the local business staff and residents who live nearby. Parking along Coventry Parade and Pamment Street appear to be well utilised which is likely due to the demand from the various businesses located along these road frontages. Higher parking demand was observed on Thompson Road north of Pamment Street when compared to the southern section.

Figure 2.4 Parking Along Coventry Parade, Thompson Road Pamment Street



3 Access and Parking

3.1 Access Arrangements

Two site access points are provided for the Site as summarised below:

- > Access 1 – located on the north boundary of the Site providing access to/from McCabe Place. This access links to the ground floor of the Site.
- > Access 2 – located on the southern boundary of the Site providing access from Coventry Parade. This access links to the ground floor of the Site and only allows inbound traffic.

Figure 3-1 Site Access Location



4 Car Parking Provision

4.1 Proposed Development

With regards to Stage 1 of the development, a total of 471 parking bays are proposed across three levels as summarised below.

- Basement level – 230 bays including 2 ACROD (residential bays);
- Ground Floor – 135 bays including 2 ACROD (visitor and commercial bays) - 106 bays within the development, 8 bays on-street bays and 21 bays east of the Coventry Parade/Thompson Road junction;
- 4 rideshare bays on Coventry Parade; and
- Upper Plaza – 106 bays (residential bays).

4.2 Policy Requirements

The parking requirements are based on the R-Codes for the residential component and the City of Fremantle's Local Planning Scheme No.4 for the commercial components.

Table 4-1 Parking Requirements

Land Use	Source	Yield	Parking Rate	Parking Required
1 Bed Apartment	R-Codes Vol 2	22	0.75 per dwelling	23
2 or more bed Apartment	R-Codes Vol 2	176	1 per dwelling	176
Residential (Visitor)	R-Codes Vol 2	198	1 bay per 4 dwellings up to 12 dwellings	3
			1 bay per 8 dwellings for the 13th dwelling and above	24
Total Residential				226
Tavern	LPS 4	351 m ²	1:2.5 m ² of public bar area; and 1:5 m ² of lounge / garden area	111
Function area	LPS 4	*420 m ² (100 pax)	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	84
Restaurant / Café	LPS 4	*392 m ²	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	79
Co-working / Creative Studio	**Town of Mosman Park LPS 3	348 m ²	1:40 m ² NLA	9
Provedore	LPS 4	807 m ²	1:20 m ² GLA	40
Total Commercial				323
TOTAL (RESIDENTIAL + COMMERCIAL)				549

* Includes dining areas only

** City of Fremantle LPS 4 does not contain this use. Indicative rate has been applied from the Town of Mosman Park LPS 3

An additional parking demand assessment has been conducted which provides further detail regarding the anticipated parking demand for the commercial tenancies for the proposed development. This is included in **Appendix B**.

4.3 Management and Allocation of On-Site Parking

The allocation of parking for all parking levels on the Site is shown in **Figure 4-2** through to **Figure 4-4**. The allocation is based on the anticipated demand for each of the land uses. In addition, turnaround bays have been proposed in blind aisle locations to provide non-residential/visitor users a means to exit these blind aisles.

Figure 4-1 Legend

Legend	
Residential Bays	GREEN
Residential Tandem Bays	YELLOW
Horizontal Sliding system	DARK BLUE
Non-Residential/Visitor Car Bays	RED
ACROD Bays	LIGHT BLUE
Turnaround Bays	ORANGE
On-Street Bays	PINK
Ride Share Bays	PURPLE

Figure 4-2 Basement Level Parking Allocation



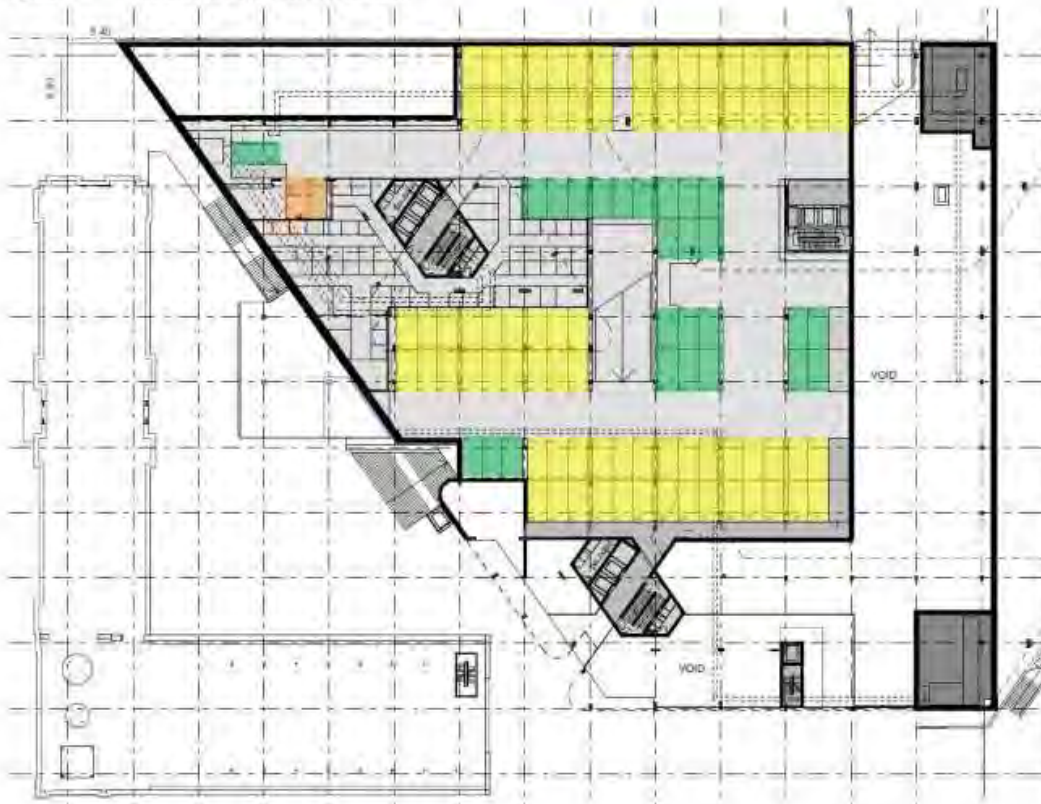
Source: Cox Architecture (September 7, 2022)

Figure 4-3: Ground Floor Parking Allocation



Source: Cox Architecture (September 7, 2022)

Figure 4-4. Mid Garage Level Parking Allocation

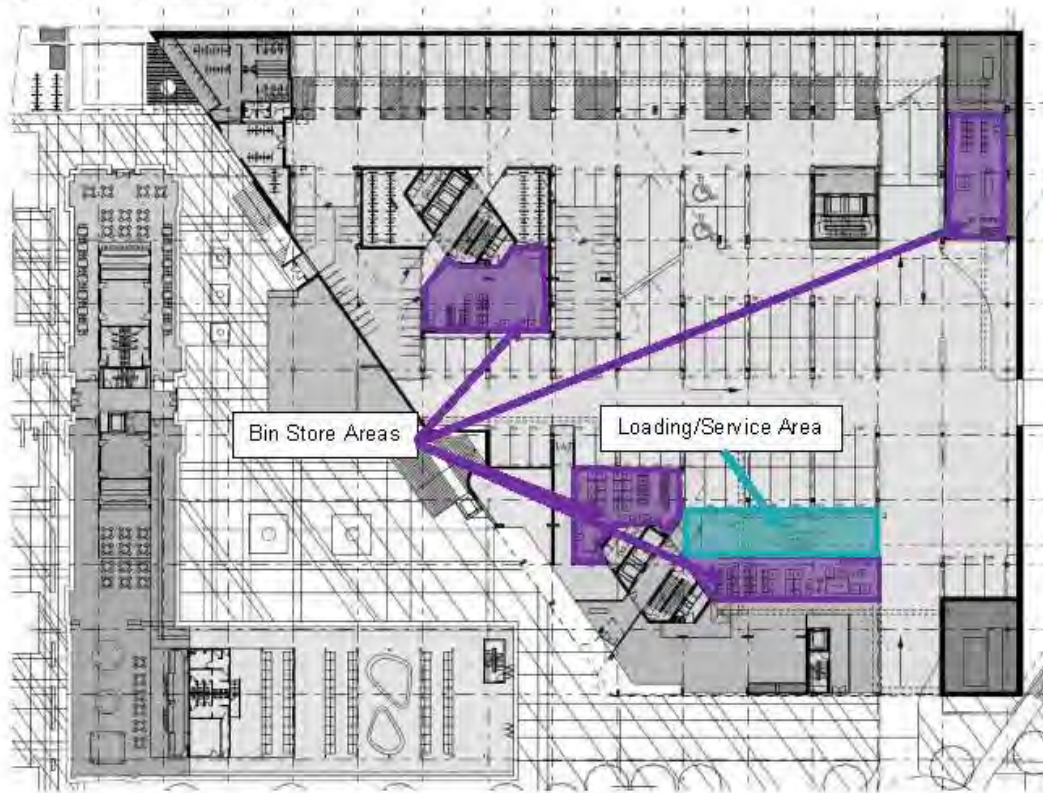


Source: Cox Architecture (September 7, 2022)

4.4 Refuse Collection and Service Vehicles

The site includes four waste enclosures located on the ground floor. It is expected that the bins from these areas will be taken to the loading area for collection. The loading area for the Site is located near the southern access as shown in **Figure 4-5**. Service and waste vehicles enter the Site via Coventry Parade to access the loading dock area and exit via the McCabe Place.

Figure 4-5 Designated Loading Area



Source: Cox Architecture (September 7, 2022)

4.5 Parking Compliance and Enforcement

4.5.1 Resident/Visitor Feedback

Feedback from residents and visitors of the Site will provide a good indication of parking compliance. A reporting system shall be implemented to allow residents and visitors to easily report any parking non-compliances occurring on Site (e.g. filling out a form, online reporting and/or reporting via phone/in person.)

4.5.2 Monitoring Car Park

The building caretaker and/or security staff shall be tasked with patrolling the car park areas periodically to ensure compliance with the parking conditions and restrictions on-site and also report damaged or worn out signage.

4.5.3 Demonstrating Compliance

A warning will be issued to those who fail to comply with the conditions and restrictions set for the parking area. Multiple offences will incur further disciplinary action which may include having the vehicle towed off the Site or a fine issued. Any non-compliances should be kept on record and an annual/biannual review should be conducted to determine the effectiveness of the implemented parking management plan. Modification to the Parking Management Plan should be made if further restrictions are required to ensure compliance.

4.5.4 Review of Parking Management Plan

The measures implemented in the PMP should be reviewed periodically (Ideally once every 12-18 months) to evaluate which management measures were most/least effective. This allows for the inclusion of new measures and modifications of existing measures (including parking pricing adjustments) to improve parking management.

4.6 Safety and Security Measures

4.6.1 CCTV Cameras

CCTV cameras should be installed in the car park to provide an additional layer of security and surveillance throughout the car park, as required. The placement of any CCTV cameras should cover all areas of the car park and ensure that there are no blind spots.

4.6.2 Monitoring Car Park

The building caretaker or security staff shall be tasked with patrolling the car park areas periodically and using the CCTV system to monitor any suspicious behaviour and ensure that visitors and residents are feel safe and secure when entering and leaving the Site.

APPENDIX

A

SITE PLANS



now





APPENDIX

B

PARKING DEMAND ASSESSMENT



now



Technical Memorandum



Title	Matilda Bay Brewery Stage 1 Development – Parking Demand and Supply Analysis	Client	3 Oceans Property Pty Ltd
Project Number	CW1147800	Date	09/09/2022
Author	Edmond Hoang	Reviewer	Jacob Martin
Status	Issue for Development Approval (Rev B)	Discipline	Traffic and Transport

1 Introduction

This Technical Memorandum describes the results of detailed demand and supply analysis for the proposed Matilda Bay Brewery – Stage 1, which comprises the following parking-generating land uses:

- 198 residential apartments
- Tavern – 1,300 m²
- Function Rooms – 750 m²
- Restaurant/Café – 937 m²
- Creative Studio/Co-working – 346 m²
- Provedore – 807 m²

With regards to Stage 1 of the development, a total of 471 parking bays are proposed across three levels as summarised below.

- Basement level – 230 bays including 2 ACROD (residential bays);
- Ground Floor – 135 bays including 2 ACROD (visitor and commercial bays) – 106 bays within the development, 8 bays on-street bays and 21 bays east of the Coventry Parade/Thompson Road junction;
- 4 rideshare bays on Coventry Parade; and
- Upper Plaza – 106 bays (residential bays).

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3 Analysis

The following assessment is based on best-practice profiles from the Urban Land Institute's *Shared Parking* and Institute of Transport Engineers ITE *Parking Generation* and the City of Fremantle LPS No.4 parking supply rates for the above on-site land uses.

This analysis includes a detailed understanding of the effects of mixed-use synergies (trip containment) between the uses on-site, and between the Site and the surrounding development within a reasonable walking catchment (<10mins walk), as shown in **Figure 3-1** below.

Figure 3-1 Assumed 400m Radius Walking Catchment



Land use information for the Site is consistent with the proposal documentation provided by the Client, while land use information for the surrounding catchment has been derived from desktop land use survey undertaken using aerial and street-level imagery.

The information is summarised in **Table 3-1** below. Seating calculations for the food and beverage uses are based on 1.5 m² per person with a peak occupancy of approximately 85-90% of seats.

Technical Memorandum



Table 3-1 Development and Surrounding Yield Table

Land Use	Development (GFA)	Surrounds (GFA)
Residential	198 units	630 units
Single Detached Dwelling		141 units
Apartment	198 units	162 units
Residential Townhouse		27 units
Non-Residential		
Supermarket/Retail	807 m ² (Provedore)	12,000 m ²
Restaurant/Café	392 m ² (236 seats) *dining area	2,700 m ² (~900 seats)
Recreation/Entertainment		1,500 m ²
Health/Fitness Club		700 m ²
Bar/Tavern	351 m ² (210 seats) *dining area	
Function	420 m ² (100 pax)	
Creative Studio/Co-working	346 m ²	
Light Industry		5,800 m ²

Analysis has been undertaken for both average weekday and weekend periods, with demand described graphically, as follows.

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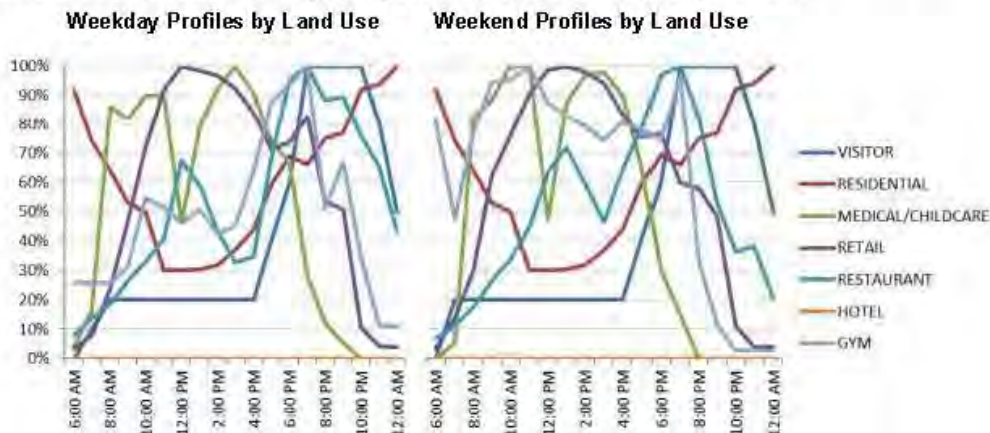
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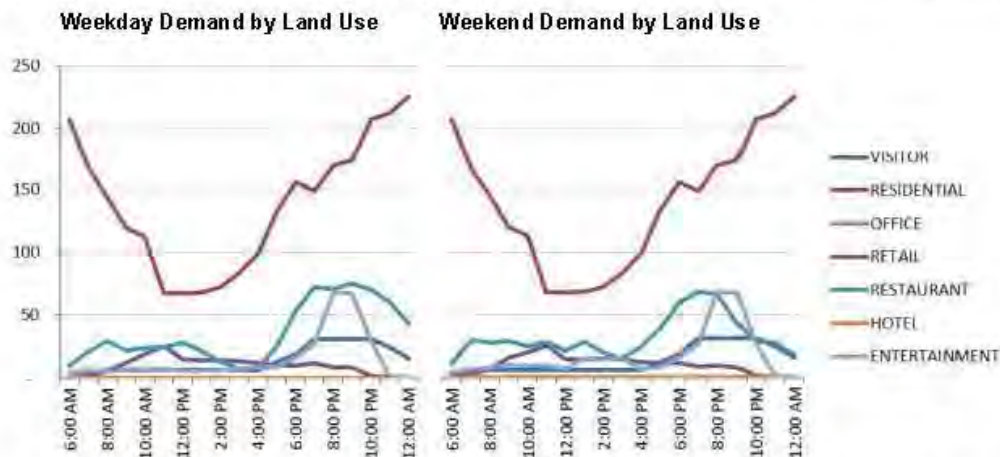
3.2 Parking Profiles by Land Use

Parking demand varies across the day, with different peak times for each land use. The figure below describes best-practice weekday parking demand profile for development land uses.



3.3 Parking Demand by Land Use

Applying the development yields to these parking demand profiles results in a projection for parking demand across the day, by land use. These generation rates assume car-as-driver mode share to the development is consistent with an isolated suburban site, for each land use.



However, in this location, a lower car-as-driver mode share is expected for external trips, particularly for the non-residential land uses. This is consistent with the high density of development in the area, even outside the 400m catchment.

The proposed management regime allows for the greatest degree of parking efficiency, by permitting shared use of the public facility. The following describes the expected function of the on-site car parking, with consideration for dedicated residential parking and the fluctuations in demand for other on-site uses.

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Technical Memorandum



These profiles show the effect of shared parking, with the peak of each land use at a different time of day. In addition, there is consideration in the projection above for the effect of internal trip capture within the 400m walking catchment (e.g. on-site and nearby residents walking to restaurants and retail), resulting in a significant decrease in parking demand.

The combination of all of the non-residential parking demands, including those of residential visitors, is shown below.



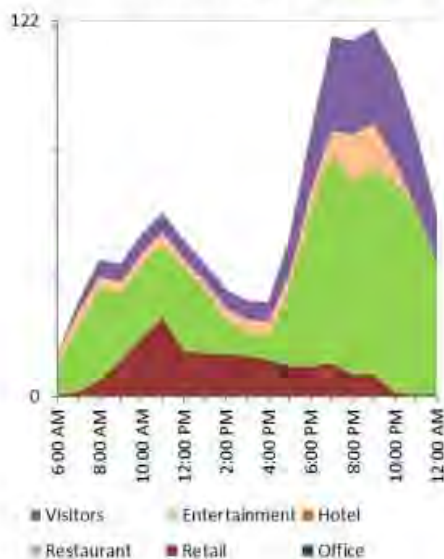
A large proportion of this demand is related to occasional use of the function centre. The City of Fremantle's parking rates present a parking requirement of 84 spaces. Noting that the City's Parking Policy assumes a rate of 1 space per 5 guests or 5 sq.m, it assumes a maximum capacity for the function room of 420 persons. This is substantially higher than the anticipated use.

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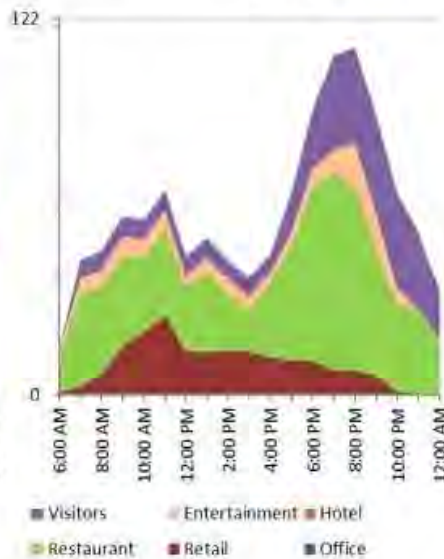


Use of the function centre for large events will occur comparatively rarely. Any function larger than about 100 people (e.g. a wedding) will necessarily require a reduction in tavern function. As such, a 'worst-case' design day scenario is actually described by the graphs below, illustrating the development at maximum activity and plus a 100-person function.

Weekday Parking by Land Use



Weekend Parking by Land Use



As a result of the above factors, including the shared use of on-site parking and the considerable reduction in parking demand related to visitors walking in from on-site and adjacent residences, the anticipated parking requirement for the proposed development is approximately 120 spaces.

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3.4 Public Transport Amenity

There are six (6) bus stops within 400m from the site and one train station (North Fremantle) within 800m from the site; all of these provide direct, safe, and convenient connection for public transport users. The bus stop services routes 107, 998 and 999 and stops at the North Fremantle Station. It should be noted that bus route 103 has recently been discontinued due to low patronage.

Two of the bus stops are located north of the site. Stops 10420 located on the eastbound approximately 150m from the site and stop 10348 located on the westbound approximately 200m from the site. These stops can be accessed through the eastbound path along Stirling Highway and the non-signalised pedestrian/cyclist crossing point at Stirling Highway / Vlammingh Parade intersection.

Bus stops 10421 and 10347 are located approximately 40m south of the site and stops 10422 and 10346 approximately 300m south of the site. These can be accessed through the footpaths located along both sides of Stirling Highway and the signalised pedestrian crossing located at the McCabe Street / Stirling Highway intersection or the unsignalised pedestrian crossings that serve the respective bus stops.

The North Fremantle Train Station is located approximately 750m from the site, the connection to the site is provided through the footpaths located along Stirling Highway and Congdon Street. There is a signalised pedestrian crossing on Stirling Highway.

Furthermore, potential bus priority lanes at the Stirling Highway / McCabe Street intersection will improve travel times for public transport services operating along Stirling Highway.

Technical Memorandum



Figure 3-2 Bus Stops and Train Station Location



Source: MetroMap (2022)

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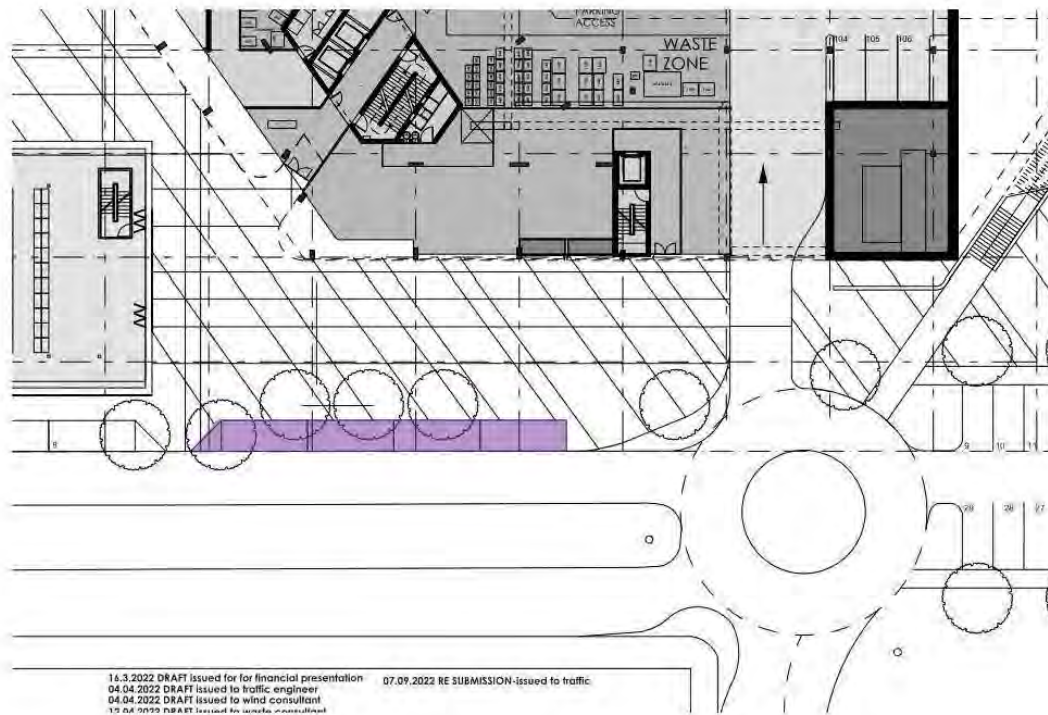
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3.5 Ride-share Amenity

Four ride share bays are provided along Coventry Parade as shown in **Figure 3-3**. The provision of these ride share bays is likely to reduce the parking demand for the tavern and function tenancies even further as visitors are less likely to drive and more likely to use ride share services travelling to and from the proposed development.

Figure 3-3 Location of Ride Share Bays



4 Summary and Conclusions

The proposed parking for the Matilda Bay Brewery Stage 1 development has been evaluated in the context of expected function, using business-as-usual mode shares and vehicle generation rates.

The results of analysis show that the proposed provision of parking would be sufficient to accommodate design day parking demands on both weekdays and weekends.

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**ADDITIONAL INFORMATION 15 - AMENDED STAGES 1 & 2 TRAFFIC IMPACT
ASSESSMENT**

Transport Impact Assessment

Matilda Bay Brewery – Stage 1+2,
North Fremantle- Issue for
Development Approval

CW1147800 / 304900169



Prepared for
3 Oceans Property Pty Ltd

12 September 2022

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CW1147800 / 304900169 | 12 September 2022 | Commercial in Confidence

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1 Introduction

1.1 Background

Cardno now Stantec has been commissioned by 3 Oceans Property Pty Ltd (the Applicant) to prepare a Transport Impact Assessment (TIA) for a proposed mixed-use development on a site comprising the following lots:

- Lot 5 130 Stirling Highway;
- Lot 12 McCabe Place;
- Lot 253 McCabe Place;
- Lot 218 Thompson Road;
- Lot 219 Thompson Road;
- Lot 220 Stirling Highway;
- Lot 221 Thompson Road; and
- Lot 314 McCabe Street.

This report aims to assess the impacts of the proposed development upon the adjacent road network, with a focus on traffic operations, circulations, and car parking requirements. This report has been prepared in accordance with the *Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)* and the checklist is included at **Appendix A**.

1.2 Planning Context

1.2.1 City of Fremantle Local Planning Scheme No.4

The City of Fremantle Local Planning Scheme No.4, Schedule 6 – Development Areas sets out the following provisions which are relevant to the Site (DA 18).

"Any structure plan for the land of No. 130 Stirling Highway (including Lot 5, 12, 218, 219, 220, 221, 314 and 253) and No. 2 – 4 McCabe Street (including Lot 9, 10 and 11), North Fremantle, is to include an internal link road connecting McCabe Street/McCabe Place to Coventry Parade/Thompson Road."

The proposed development plans have provided a north-south internal link road which connects McCabe Place to Coventry Parade/Thompson Road. The link allows for northbound movements through the Site but limits southbound movements from exiting onto Coventry Parade/Thompson Road.

1.2.2 Former Matilda Bay Brewery Structure Plan

The Structure Plan (which was approved in 2020) provides for the comprehensive redevelopment of the land for medium and high-density residential uses and a limited range of complementary commercial and retail land uses, communal facilities and public open space.

The main differences between the structure plan are that it includes a higher proportion of residential dwellings whereas the current proposal has decreased the number of residential dwelling while yields for the non-residential land uses have increased.

2 Existing Site Situation

2.1 Site Location

The Site is located on multiple lots that comprises 130 Stirling Highway, 12 McCabe Place, 253 McCabe Place, 218 Thompson Road, 219 Thompson Road, 220 Stirling Highway, 221 Thompson Road, and 314 McCabe Street. The Site is bounded by Stirling Highway to the west, McCabe Street to the north, Thompson Road to the south and surrounded by multiple residential dwellings on the east.

Figure 2-1 Aerial Image



Source: Neamap

2.2 Existing Land Use

The Site currently occupied by a range of industrial land uses.

2.3 Surrounding Land Use

According to the City of Fremantle Local Planning Scheme No. 4, the Site is zoned as a Development Area (DA18). A detailed zoning map showing the zoning around the Site within the City of Fremantle is shown in **Figure 2-2**. The Site is surrounded by residential and mixed-use developments.

Figure 2-2 Zoning



Source: City of Fremantle Local Planning Scheme No. 4

2.4 Existing Road Network

The layout and classification of the roads under the *Main Roads WA Road Hierarchy* surrounding the Site is summarized in **Table 2.1** and presented in **Figure 2.3**.

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 adjoining property. These are often older roads with traffic demand in excess of that 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.

Table 2-1 Road Network Classification

Street Names	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Stirling Highway	Primary Distributor	Main Roads	4	1-2*	6.2 in each direction	80
McCabe Street	Local Distributor	Local Government	2	1	6.0	50
McCabe Place	Access Road	Local Government	2	0	7.3	50
Thompson Road	Access Road	Local Government	2	1-2*	5.5 in each direction	50

Source: Main Roads Information Mapping Centre

* footpaths are not continuous along these roads as some sections only have a single footpath on either side

Figure 2-3 Road Network Classification



Source: Main Roads Information Mapping Centre

2.5 Existing Intersections

2.5.1 Stirling Highway and McCabe Street

Figure 2-4 shows the current layout for the Stirling Highway and McCabe Street intersection. It is currently a 3-legged signal controlled intersection.

Figure 2-4 Stirling Highway and McCabe Street



Source: Neamap

2.5.2 Stirling Highway and Coventry Parade

Figure 2-5 shows the current layout for the Stirling Highway and Coventry Parade intersection. It is currently a 3-legged give-way controlled intersection.

Figure 2-5 Stirling Highway and Coventry Parade



Source: Neamap

2.5.3 McCabe Street and McCabe Place

Figure 2-6 shows the current layout for the McCabe Street and McCabe Place intersection. It is currently a 3- legged give-way controlled intersection. The southern leg of the intersection currently serves as the main access to existing Lots.

Figure 2-6 McCabe Street and McCabe Place



Source: Neamap

2.6 Existing Traffic Volume

Traffic volumes for the weekdays were sourced from *Main Roads Western Australia's Traffic Map* and is summarised in **Table 2-2**

Table 2-2 Existing Traffic Volumes

Road Name	Date	Average Two-Way Daily Traffic Volume	Average Two-Way AM Peak Traffic Volume	Average Two-Way PM Peak Traffic Volume
Stirling Highway (south of Wellington St)	2019/20	34,503	2,682 (8-9am)	2,854 (5-6am)
Stirling Highway (north of Queen Victoria St)	2020/21	30,908	2,281 (8-9am)	2,495 (4-5am)
McCabe Street	2021/22	6,713	712 (8-9am)	645 (3-4pm)

Source: *Main Roads WA Traffic Map*

2.7 Existing Public Transport Facilities

2.7.1 Service Frequency

The location of existing bus routes relative to the Site are shown in **Figure 2-7** and the frequencies are summarised in **Table 2-3**.

Figure 2-7 Transperth Network Map



Source: Transperth (2022)

Table 2-3 Bus Route and Train Frequency

Bus Routes	Route Description	Frequencies		
		Weekdays	Saturdays	Sundays and Public Holidays
107	Claremont to Fremantle Station	30 minutes	60 minutes	60-120 minutes
998	Circle Route – Clockwise (Fremantle Station – Stirling Station)	10 minutes	15 minutes	30 minutes
999	Circle Route – Anti-Clockwise (Stirling Station – Fremantle Station)	10 minutes	15 minutes	30 minutes

Source: Transperth (2022)

2.7.2 Bus Stops

There are six (6) bus stops within 400m from the site and one train station (North Fremantle) within 800m from the site; all of these provide direct, safe, and convenient connection for public transport users. The bus stop services routes 107, 998 and 999 and stops at the North Fremantle Station. It should be noted that bus route 103 has recently been discontinued due to low patronage.

Two of the bus stops are located north of the site. Stops 10420 located on the eastern side of Stirling Highway approximately 150m from the site and stop 10348 located on the western side of Stirling Highway approximately 200m from the site. These stops can be accessed through the eastern footpath along Stirling Highway and the non-signalised pedestrian/cyclist crossing point at Stirling Highway / Vlamingh Parade intersection.

Bus stops 10421 and 10347 are located approximately 40m south of the site and stops 10422 and 10346 approximately 300m south of the site. These can be accessed through the footpaths located along both

sides of Stirling Highway and the signalised pedestrian crossing located at the McCabe Street / Stirling Highway intersection or the unsignalised pedestrian crossings that serve the respective bus stops.

The North Fremantle Train Station is located approximately 750m from the site, the connection to the site is provided through the footpaths located along Stirling Highway and Congdon Street. There is a signalised pedestrian crossing on Stirling Highway.

Figure 2-8 Bus Stops and Train Station Location



Source: MetroMap (2022)

2.8 Existing Pedestrian/ Cycle Networks

Figure 2-9 illustrates the nature of these walking and cycling routes and facilities near the Site which includes:

- ✧ High Quality Shared Paths are located along Stirling Highway, north of McCabe Street.
- ✧ The stretch of Curtin Avenue that runs from north to south comprises a High-Quality Shared Path that extends to Beach Road.
- ✧ Bicycle parking facilities are available at the North Fremantle Station

Regarding improvements to cycling amenity, bike parking and various EOT facilities are proposed as summarised in **Section 3.3.2**.

Figure 2-9 Pedestrian/ Cycle Facilities



Source: Department of Transportation Cycle Network Map

Additionally, the Fremantle PSP extension between Victoria Street and North Fremantle Station was recently completed creating new cycling links to the Fremantle PSP.

Figure 2-10 shows the surrounding footpath network including a 5-minute walking distance from the Site. The quality of footpaths within the surrounding area varies significantly. The footpath along the northern edge of McCabe Street is very narrow whereas along Stirling Highway provide much wider paths. Stirling Highway, being a significant arterial road, is a major barrier for pedestrians looking to cross this road. Other than the Stirling Highway/McCabe Street signals, there are very few locations where pedestrians are able to cross safely. These crossing points are located at the side roads which intersect Stirling Highway (Coventry Parade, Pamment Street and Craig Street). The median along Stirling Highway provides a refuge area for these crossing points although the narrow width (approximately 1.2m) is not ideal as it is not sufficiently wide to accommodate people in a wheelchair, parents with prams, cyclist, etc.

With regards to pedestrian amenity improvements, a pedestrian crossing over Stirling Highway has been discussed although it is not a part of this development application.

Figure 2-10 Pedestrian Footpaths and 5 Minute Walking Distance from the Site



2.9 Existing Parking

Existing on-street parking is provided along McCabe Street and Coventry Parade which is within appropriate walking distance from the Site. The locations of the on-street parking are shown in **Figure 2-11**.

Along McCabe Street, there are currently 14 bays along the northern side of the street. The parking demand along this road is relatively low as shown in **Figure 2-11** and **Figure 2-12**. No time restrictions are provided for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply as indicated by the existing signage and linemarking at these locations.

Figure 2-11 Existing On-street Parking Bays in the Vicinity of the Site



Figure 2-12 Parking along McCabe Street



There are approximately 20 angled bays on the northern side of Coventry Parade as shown in **Figure 2-13**. Parallel parking is provided on the southern side although no linemarking is provided to demarcate the individual bays. Approximately 9-10 parking spaces are available along this side of the road. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Parallel parking is provided along both sides of Thompson Road between Coventry Parade and Pamment Street and only along the western side of the road for the section of Thompson Road south of Pamment Street. No time restrictions are enforced for parking along this street although standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Regarding Pamment Street, parallel parking is provided on the northern side of the road with no parking restrictions on the southern side of the road. Standard restrictions on parking in front of driveway accesses or near intersection approaches still apply at the relevant locations.

Currently, the parking along these streets is likely to be used by the local business staff and residents who live nearby. Parking along Coventry Parade and Pamment Street appear to be well utilised which is likely due to demand from the various businesses located along these road frontages. Higher parking demand was observed on Thompson Road north of Pamment Street when compared to the southern section.

Figure 2-13 Parking Along Coventry Parade, Thompson Road Pamment Street



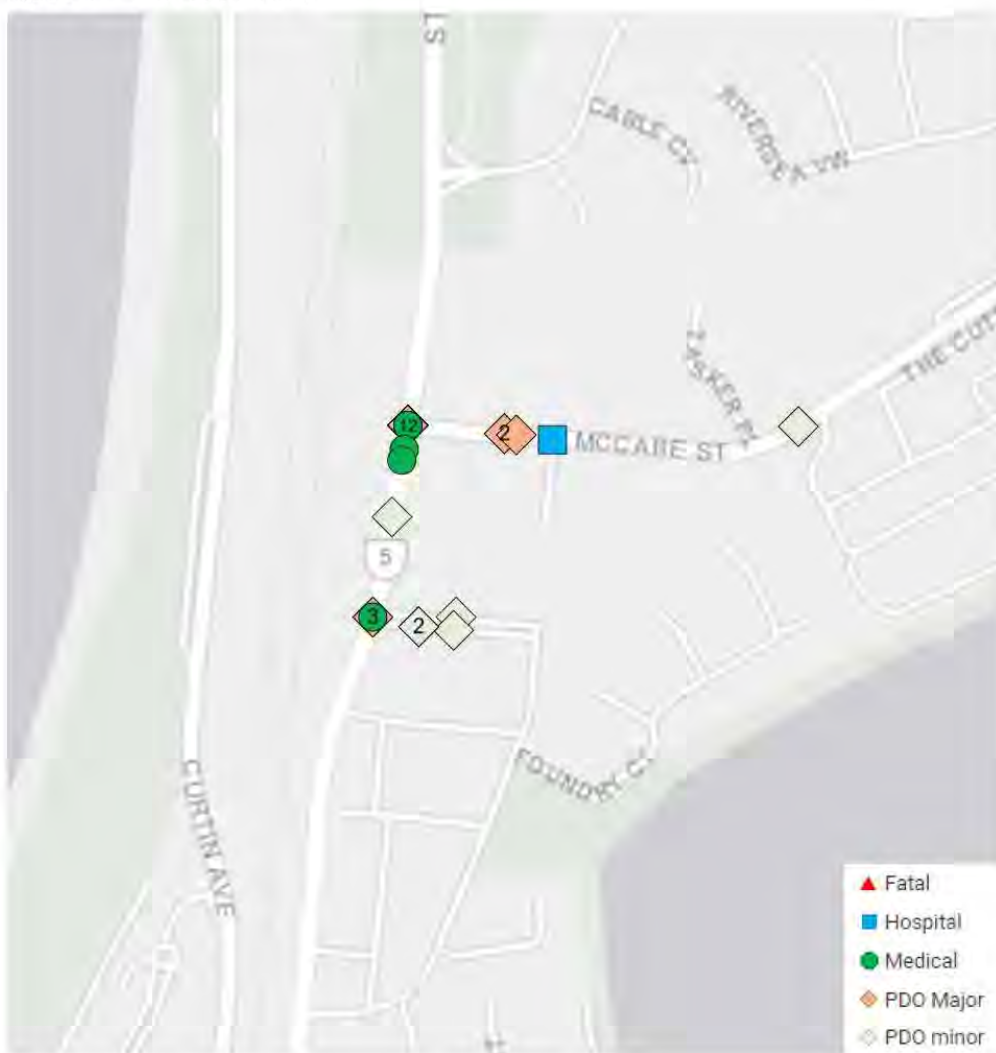
2.10 Crash Assessment

A crash assessment within close proximity of the subject site has been completed. The assessment covers all the recorded accidents in between 1 January 2017 and 31 December 2021 at the following intersections and sections of road:

- > Stirling Highway Midblock SLK 13.54 to 13.70 (McCabe Street to Thompson Road)
- > McCabe Street Midblock SLK 0.00 to 0.35 (Stirling Highway to Tyrone Street)
- > Coventry Parade / Thompson Road SLK 0.00 to 0.14
- > Intersection of Stirling Highway and McCabe Street
- > Intersection of Stirling Highway and Coventry Parade / Thompson Road
- > Intersection of McCabe Street and McCabe Place

The severity of the crashes recorded at the intersections listed above are shown in **Figure 2-14**.

Figure 2-14 Crash Assessment Map



Source: Main Roads WA Crash Map

Table 2-4 Stirling Highway Midblock SLK 13.54 to 13.70 (McCabe Street to Thompson Road)

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Hit Pedestrian	-	-	1	-	-	1
Rear End	-	-	1	-	-	1
Sideswipe Same Direction	-	-	-	-	1	1
Total	0	0	2	0	1	3

Table 2-5 McCabe Street Midblock SLK 0.00 to 0.35 (Stirling Highway to Tyrone Street)

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	-	2	-	2
Sideswipe Same Direction	-	-	-	1	1	2
Total	0	0	0	3	1	4

Table 2-6 Coventry Parade/Thompson Road SLK 0.00 to 0.14

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Sideswipe Same Direction	-	-	-	-	1	1
Right Angle	-	-	-	-	1	1
Unspecified	-	-	-	-	2	2
Total	0	0	0	0	4	4

Table 2-7 Intersection of Stirling Highway and McCabe Street

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Rear End	-	-	1	3	1	5
Right Turn Thru	-	-	2	3	-	5
Right Angle	-	-	-	1	-	1
Unspecified	-	-	-	1	-	1
Total	0	0	3	8	1	12

Table 2-8 Intersection of Stirling Highway and Coventry Parade/Thompson Road

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Hit Object	-	-	-	1	-	1
Rear End	-	-	-	1	-	1
Right Turn Thru	-	-	1	-	-	1
Total	0	0	1	2	0	3

Table 2-8 Intersection of McCabe Street and McCabe Place

Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes
Right Turn Thru	-	1	-	-	-	1
Total	0	1	0	0	0	1

From the crash assessment conducted above, the following conclusions can be derived:

- Along the stretch of Stirling Highway from McCabe Street to Thompson Road, there were two recorded crashes which required medical attention and one crash resulting in minor property damage.
- 4 crashes reported along McCabe Street from Stirling Highway to Tyrone Street which resulted in major / minor property damage.
- 4 crashes along Coventry Parade/ Thompson Road were reported which resulted in major and minor property damage.
- 12 crashes reported at the intersection of Stirling Highway and McCabe Street in which 3 required medical attention. Based on the number of crashes which has occurred at this intersection over the last 5 years, this intersection meets the prequalified criteria for the Federal and State Black Spot programs (3 or more 3 casualty crashes for the Federal programs and 10 or more total crashes for the State program).
- 3 crashes reported at the intersection of Stirling Highway and Coventry Parade/Thompson Road in which one required medical attention and the remaining two resulted in major property damage.
- 1 crash reported at the intersection of McCabe Street and McCabe Place, a right turn thru crash, resulted in a hospital admission.

3 Development Proposal

The Site is a mixed-use development comprising of the following land uses summarised in **Table 3-1**.

Table 3-1 Stage 1 and 2 Development Summary

Stage 1	Stage 2
198 residential apartments	120 residential apartments
Restaurant/café – 937 m ²	20 townhouses
Tavern – 1,300 m ²	Aged care (70 individual living units)
Function – 750 m ² (100 people)	Aged care (High care)- 40 beds
Provedore – 807 m ²	Child care centre (100 children)
Co-working and Creative Studio – 346 m ²	

Figure 3-2 shows the overall extent of the Stage 1 and 2 development on the proposed Site with the full set of plans provided in **Appendix B**.

Figure 3-2 Site Plan



Source: COX Architecture

3.2 Access Arrangement

Two site access points are provided for the Site as summarised below:

- Access 1 – located on the north boundary of the Site providing access to/from McCabe Place. This access links to the ground floor of the Stage 1 Site. An entry/exit roadway is proposed in the vicinity of this access which is expected to lead into the Stage 2 facilities.
- Access 2 – located on the southern boundary of the Site providing access from Coventry Parade. This access links to the ground floor of the Site and only allows inbound movements. This access forms the northern approach of the proposed roundabout on Coventry Parade/Thompson Road intersection.

Figure 3-3 Site Access Location



Source: MetroMap

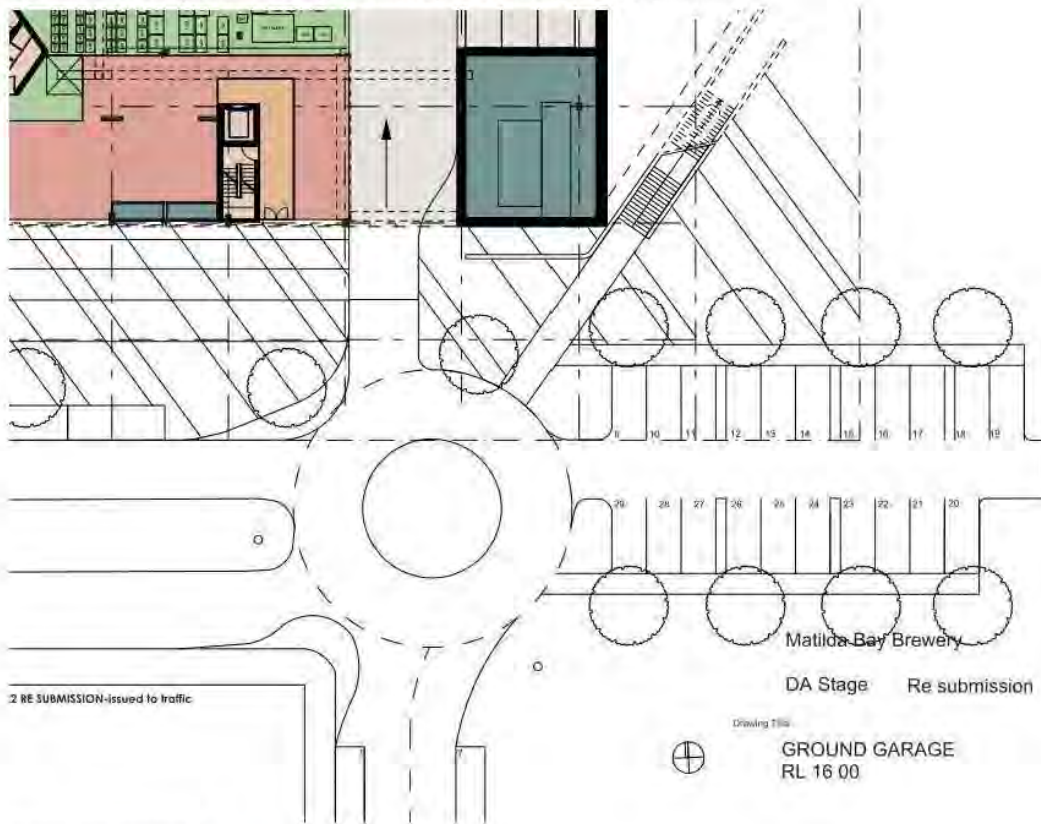
3.2.2 Coventry Parade/Thompson Road Roundabout

A 4-way roundabout at this junction with the concept layout shown in **Figure 3-4**. The proposed arrangement is summarised as follows:

- > The western leg forms Coventry Parade
- > The southern leg forms Thompson Road
- > The northern leg forms an inbound only access to the Matilda Bay site
- > A potential eastern leg to additional site parking

The above arrangement is intended to support efficient access to development Sites along McCabe Street, while eliminating the potential for deleterious rat-running from McCabe Street via McCabe Place to Stirling Highway Southbound.

Figure 3-4 Concept Roundabout Layout at Coventry Parade/Thompson Road Intersection



Source: COX Architecture

3.3 Parking Review

3.3.1 Car Parking Provisions

3.3.1.1 Stage 1

A total of 471 parking bays, is proposed across three levels for the Stage 1 development as summarised below.

- > Basement level – 230 bays including 2 ACROD (residential bays);
- > Ground Floor – 135 bays including 2 ACROD (visitor and commercial bays) - 106 bays within the development, 8 bays on-street bays and 21 bays east of the Coventry Parade/Thompson Road junction;
- > 4 rideshare bays on Coventry Parade; and
- > Upper Plaza – 106 bays (residential bays).

The parking requirements are based on the R-Codes for the residential component and the City of Fremantle's Local Planning Scheme No.4 for the commercial components.

Table 3-2 Parking Requirements (Stage 1)

Land Use	Source	Yield	Parking Rate	Parking Required
1 Bed Apartment	R-Codes Vol 2	22	0.75 per dwelling	23
2 or more bed Apartment	R-Codes Vol 2	176	1 per dwelling	176
Residential (Visitor)	R-Codes Vol 2	198	1 bay per 4 dwellings up to 12 dwellings	3
			1 bay per 8 dwellings for the 13th dwelling and above	24
Total Residential				226
Tavern	LPS 4	351 m ²	1:2.5 m ² of public bar area; and 1:5 m ² of lounge / garden area	111
Function area	LPS 4	*420 m ² (100 pax)	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	84
Restaurant / Café	LPS 4	*392 m ²	1:5 seats or 1:5 people accommodated or 1:5 m ² of dining area, whichever is the greater	79
Co-working / Creative Studio	**Town of Mosman Park LPS 3	346 m ²	1:40 m ² NLA	9
Provedore	LPS 4	807 m ²	1:20 m ² GLA	40
Total Commercial				323
TOTAL (RESIDENTIAL + COMMERCIAL)				549

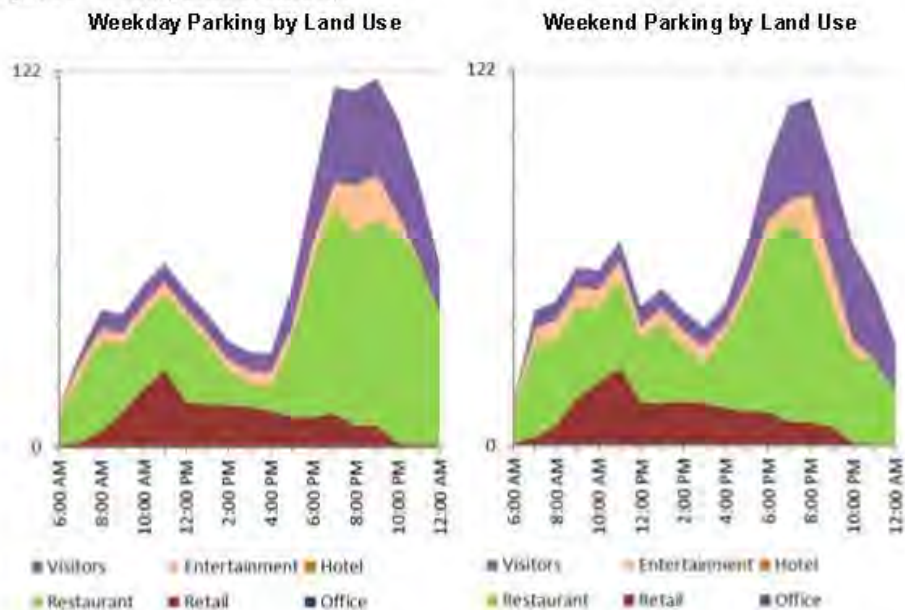
* Includes dining areas only

** City of Fremantle LPS 4 does not contain this use. Indicative rate has been applied from the Town of Mosman Park LPS 3

3.3.1.2 Stage 1 Parking Demand Assessment

An additional parking demand assessment has been conducted which provides further detail regarding the anticipated parking demand for the proposed development. The parking demand assessment has been detailed in a separate technical note and a summary of the parking demand assessment results are shown in **Figure 3-5**. The parking demand assessment assumes a 'worst-case' design day scenario, illustrating the development at its potential maximum activity which includes a 100-person function.

Figure 3-5 Parking Demand Assessment



As a result of the above factors, including the shared use of on-site parking and the considerable reduction in parking demand related to visitors walking in from on-site and adjacent residences, the anticipated parking requirement for the proposed development is approximately 120 spaces.

3.3.1.3 Stage 2

The Stage 2 parking requirements are summarised in **Table 3-3** and is to be accommodated in future planning and design stages for this site.

Table 3-3 Parking Requirements (Stage 2)

Land Use	Source	Yield	Parking Rate	Parking Required
1 Bed Apartment	R-codes	24	0.75 per dwelling	18
2 or more bed Apartment	R-codes	96	1 per dwelling	96
Residential (Visitor)	R-codes	208	1 bay per 4 dwellings up to 12 dwellings	3
			1 bay per 8 dwellings for the 13th dwelling and above	14
Town House (Private)	R-codes	20	1 bay per dwelling	20
Town House (Visitor)	R-codes	20	1 bay per 4 dwellings + 1 additional bay for every 4 dwellings above 17	5
Total Residential				156
Residential Aged Care	Town of Mosman Park LPS 3	110	1 per 4 beds	28
		35	1 per staff member	35
Child Care	LPS 4	25	1:1 employee	25
		100	1:10 children	10
Total Commercial				98
TOTAL (RESIDENTIAL + COMMERCIAL)				254

3.3.2 Bicycle Parking Provisions

3.3.2.1 Stage 1

The bicycle parking requirements are based on the R-Codes for the residential component and the City of Fremantle's Local Planning Scheme No.4 for the commercial components which is summarised in **Table 3-4**.

Table 3-4 Bicycle Parking Requirements (Stage 1)

Land Use	Source	Yield	Parking Rate	Parking Required	Parking Provision
Residential	R-codes	198	0.5 space per dwelling for Residents	99	104
			1.0 space per 10 dwellings for Visitors	20	27
Total Residential				119	131
Tavern	LPS 4	*351 m ²	Class 1 & Class 3: 1 per 25m ² bar floor area and 1 per 100m ² beer garden	14	24
Function area	LPS 4	^100 people accommodated	Class 3: 1 per 30 seats or 1 per 100 people accommodated	1	
Restaurant / Café	LPS 4	*392 m ²	Class 1 & 2: 1 per 100m ² public area Class 3: Two	6	
Co-working / Creative Studio	**Town of Mosman Park LPS 3	346 m ²	0.2 per 40m ² NLA	2	
Provedore	LPS 4	807 m ²	class 1: 1 per 300 m ² GLA class 3: 1 per 500 m ² GLA (over 1000 m ² GLA)	4	
Total Commercial				27	24
TOTAL (RESIDENTIAL + COMMERCIAL)				146	155

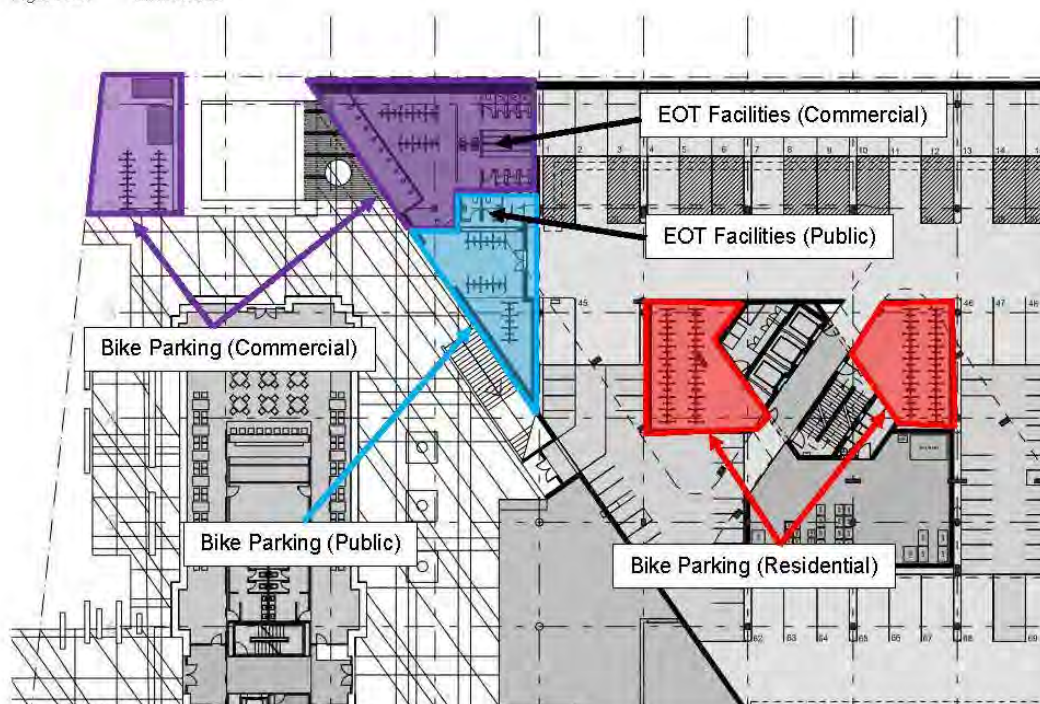
* Includes dining areas only.

** City of Fremantle LPS 4 does not contain this use. Indicative rate has been applied from the Town of Mosman Park LPS 3.

^ assumed maximum capacity

A separate residential and commercial bike store is provided on the ground level as shown in **Figure 3-6**.

Figure 3-6 Bike Stores



Source: COX Architecture

3.3.2.2 Stage 2

The Stage 2 bicycle parking requirements are summarised in **Table 3-5** and is to be accommodated in future planning and design stages for this site.

Table 3-5 Bicycle Parking Requirements (Stage 2)

Land Use	Source	Yield	Parking Rate	Parking Required
Residential (Apartments)	R-codes	120	0.5 space per dwelling for Residents	60
			1.0 space per 10 dwellings for Visitors	12
Total Residential				72
Residential Aged Care	Town of Mosman Park LPS 3	110	0.2 bays per 4 beds	6
		35	0.2 per staff member on duty	7
Child Care	LPS 4	25	Not Applicable	0
		100		0
Total Commercial				13
TOTAL (RESIDENTIAL + COMMERCIAL)				85

3.3.3 Motorcycle Parking Provisions

The Motorcycle parking requirements are based on the R-Codes Volume 2 for the residential apartments. The requirements are presented in **Table 3-6**.

Table 3-6 Motorcycle Parking Requirements

Land Use	Source	Parking Rate	Parking Required	Parking Provision
Residential	R-codes Vol 2	Developments exceeding 20 dwellings: 1 space for every 10 car bays	20	50
Total Residential			20	50

The motorcycle parking area shown in **Figure 3-7** below.

Figure 3-7 Motorbike Parking



Source: COX Architecture

3.4 Provision for Service Vehicles

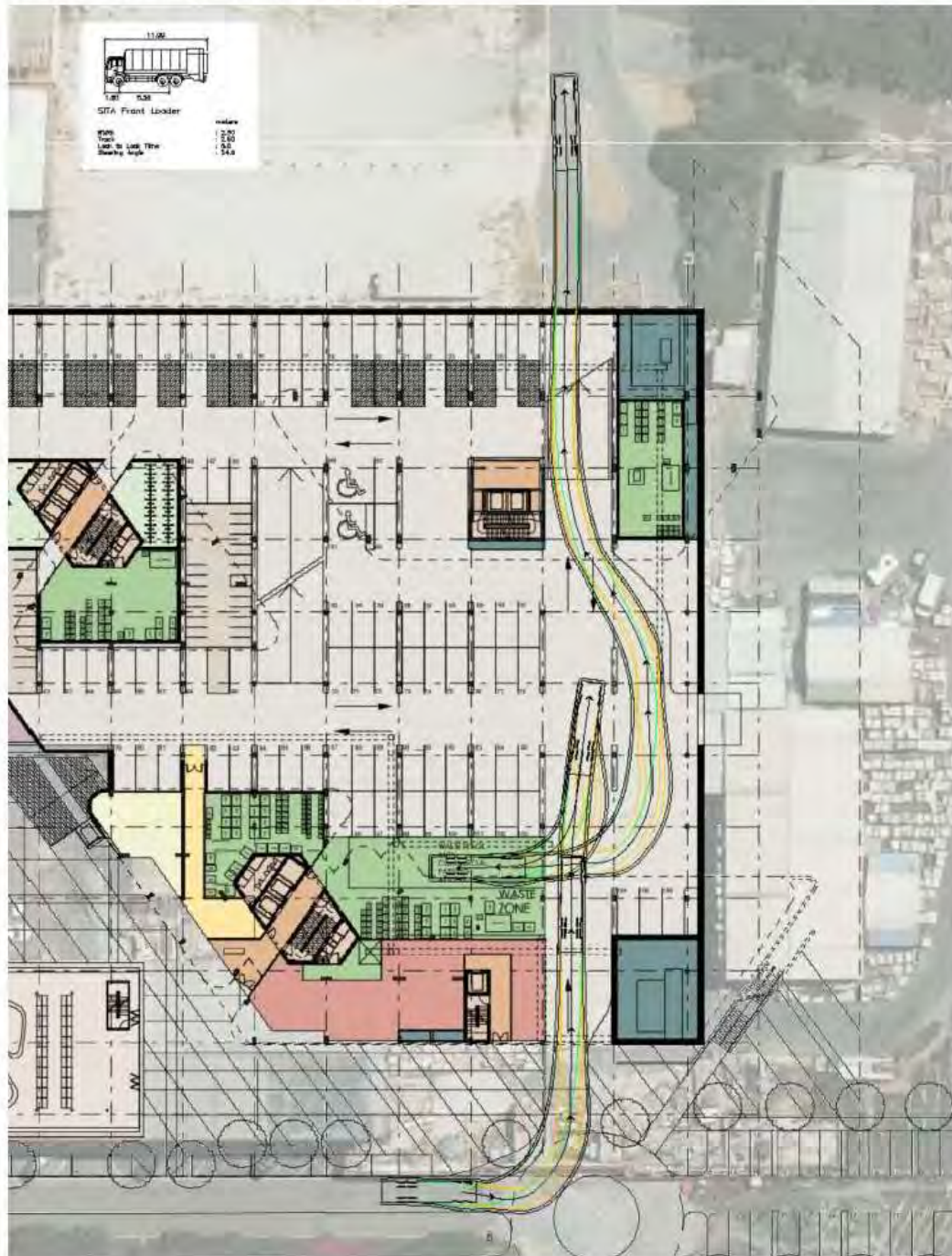
The loading area for the Site is located near the southern access as shown in **Figure 3-3**. Service and waste vehicles are expected to access the Site via Coventry Parade to enter the loading dock and exit either through the same access or through the McCabe Street access to the north.

A swept path analysis was undertaken using an 8.8m service vehicles and a 10m waste truck as shown in **Figure 3-8** and **Figure 3-9** respectively.

Figure 3-8 Swept Path Analysis for a Service Vehicle



Figure 3-9 Swept Path Analysis for a Waste Vehicle



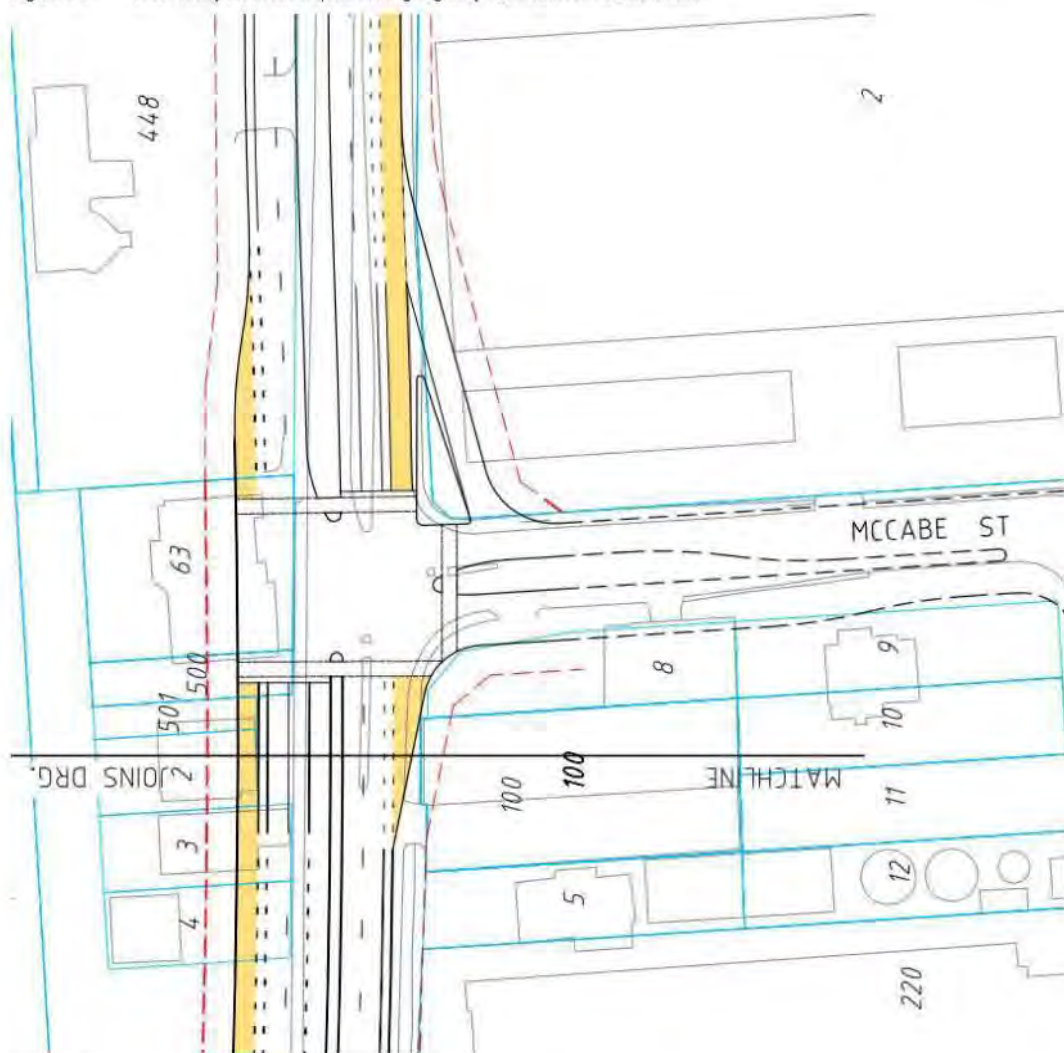
4 Changes to Surrounding Area

4.1 Road Network

4.1.1 Bus Priority Lanes (SHACS)

Previous discussions with Main Roads WA indicated that there are plans to upgrade several intersections along Stirling Highway including bus priority lanes. These upgrades include the Stirling Highway / McCabe Street intersection located adjacent to the Site. Bus priority lanes are proposed along the Stirling Highway approaches and includes widening Stirling Highway to accommodate these lanes. **Figure 4-1** shows the concept layout of the intersection upgrades. Furthermore, Main Roads WA have advised that they are currently in the early stages of investigating the potential of providing double right turn lanes on the southern approach of this intersection.

Figure 4-1 Bus Priority Lane Concept at Stirling Highway / McCabe Street Intersection



Source: Main Roads WA

Currently, there is no set timeframes for the construction of proposed and upgrades at this intersection.

4.2.1 City of Fremantle Bike Plan 2019-2024

Figure 4-2 Fremantle Bike Plan Network Improvements and Panning Priorities



The PTA has advised that there are no changes planned in the short to medium term.

5 Integration with Surrounding Area

5.1 Surrounding Attractors / Generators

Figure 5-1 shows the key attractors and generator within the surrounding area.

- > Mosman Beach
- > Leighton Beach
- > North Fremantle Train Station

Figure 5-1 Surrounding Area Attractors/Generators



Source: MetroMap

The attractor points located within 5-min walking distance are connected to the existing footpath network which is provided in at least one side in every road surrounding the site.

5.2 Proposed Changes to Surrounding Land Use

In addition to the proposed development, there are discussions to redevelop the Site to the north, although the land uses have not been finalised as these are still in the early planning stages.

6 Analysis of Transport Network

6.1 Assessment Years and Time Period

Peak times selected are 8:00 AM to 9:00 AM and 4:00 PM to 5:00 PM respectively for the morning and afternoon peak periods on weekdays as these periods are likely to coincide to the development peak periods.

The following model scenarios have therefore been analysed as part of this assessment:

- Scenario 1 – 2022 Existing Traffic without Development (AM and PM)
- Scenario 2 – 2024 Traffic without Development (AM and PM)
- Scenario 3 – 2024 Traffic with Development (AM and PM)
- Scenario 4 – 2034 Traffic without Development (AM and PM)
- Scenario 5 – 2034 Traffic with Development (AM and PM)
- Scenario 6 – Options Assessment (AM and PM), this assessment looks at potential intersection and access upgrade options with the aim of improving operation at these locations.

6.2 Key Assumptions

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

- Traffic volumes along Stirling Highway have remained steady over time with some sections experiencing a slight decline in volumes. Therefore, for the purpose of this assessment, a conservative growth rate of 2% per annum has been adopted. This rate has been determined based on observing historic traffic volumes along Stirling Highway at several locations obtained from Main Roads WA Traffic Map and summarised in **Table 6-1**.

Table 6-1 Summary of Traffic Volumes along Stirling Highway

Stirling Highway Location	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Average Yearly Growth Rate
West of Broadway, Stirling Hwy	-	42109	-	35392	-	-	-5.3%
East of Smyth Road, Stirling Hwy	-	38346	39277	36546	-	35923	-1.3%
East of Vincent Street, Stirling Hwy	-	34524	34013	-	-	34615	0.1%
East of Loch Street, Stirling Hwy	-	37561	34656	-	-	43328	3.1%
West of Bay View Terrace, Stirling Hwy	32783	33303	32438	33519	33285	-	0.3%
West of Queenslea Drive, Stirling Hwy	40246	40153	39678	40103	-	-	-0.1%
West of Parry St, Stirling Hwy	-	42109	-	35392	-	-	-5.3%
South of Eric Street, Stirling Hwy	-	35414	-	31894	-	-	-3.3%
North of Jarrad Street, Stirling Hwy	-	30916	-	30894	-	31064	0.1%
South of Jarrad Street, Stirling Hwy	-	34274	-	34179	-	-	-0.1%
North of Wellington Street, Stirling Hwy	34553	35758	-	32979	-	-	-1.1%
South of Wellington Street, Stirling Hwy	-	37242	-	34503	-	-	-2.5%
North of Tyderman Road, Stirling Hwy	-	28432	29348	-	23811	-	-4.1%
North of Canning Highway, Stirling Hwy	37867	37991	39226	39453	38460	-	0.3%
North of Marmion Street, Stirling Hwy	27873	30182	29173	-	-	27931	0.0%
Average							-1.3%

The only section of Stirling Highway which experienced any significant growth was at Loch Street, whereas all other sections experiences very low levels of growth (<1%) or saw a decline in traffic. Even comparing the volumes from pre-Covid years (prior to 2019) shows an average growth of 0.2%.

The growth rates that were suggested by Main Roads WA were relatively high (approximately 3-4%) which suggests that local development traffic has been included. Therefore, these rates were not used to avoid the doubling up of development traffic.

- For the purpose of a robust assessment, the traffic volumes associated with the existing development has not been removed from the background traffic.
- The Access 2/Coventry Parade intersection has not been assessed as the existing traffic volumes along Coventry Parade is relatively low and the impact of the development traffic is anticipated to be low.
- The McCabe Street/McCabe Place intersection has not been assessed for Scenario 1 as the traffic volumes generated by the existing development is anticipated to be low.
- With regards to the trip generation, it is assumed that 25% of trips for the restaurant/café, tavern, the Provedore as well as the wellness centre are internal trips to account for residents of this development and locals that visit these premises which do not contribute any additional vehicle trips.
- Heavy vehicle volumes are based on the traffic data obtained from Main Roads Traffic Map.
- The Stirling Highway/Coventry Parade intersection has been calibrated to the maximum observed delays. To achieve this, the following parameters were modified:
 - Gap acceptance values for the right turn out of Coventry Parade was reduced to the Austroads minimums
 - Extra bunching was increased on the northern and southern approaches
- The Stirling Highway/McCabe Street intersection has been modified based on the Main Roads WA design shown in **Section 4.1.1** for the future scenarios (Scenario 4 and 5).
- The existing signal phasing and timing for the Stirling Highway/McCabe Street intersection has been used in the base scenario, and changes required to optimise function under future scenarios have been clearly defined.
 - The filter right turn from the southern approach of the Stirling Highway/McCabe Street intersection has been removed for all future assessments (Scenarios 2-6) as allowing this movement against high volume southbound traffic is a critical safety issue.
 - Though including the filter movement in SIDRA is likely to improve traffic operations, it does not take into consideration of the real world safety implications of drivers taking risks to "make the gap" (as indicated by the most recent 5 year crash data where 5 of the 12 crashes at the intersection were the result of right turn thru crashes).
- Stage 2 traffic will only be applied to the future assessment scenarios (Scenario 5).
- A traffic impact assessment for a wider precinct is currently being considered in consultation with the City of Fremantle and has not been taken into consideration in this traffic report.

6.3 Development Trip Generation

Trip generation has been calculated for the proposed development utilising trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th Ed* and *RTA Guide to Traffic Generating Developments*. **Table 6-1** provides a summary of the proposed development yields for the Stage 1 and 2 development. **Table 6-3** provides the trip generation rate during the Weekday AM, Weekday PM, and Weekend peak hours, **Table 6-4** outlines the directional distribution acquired from ITE for the proposed development and **Table 6-5** summarises the total trip generation for the proposed development.

Table 6-2 Development Yield Summary

Land Use	Yield
STAGE 1	
Apartments	198 dwellings
Function Room	750 sqm (capacity of 100 persons)
Restaurant/Café	937 sqm
Tavern	1,300 sqm
Provedore	807 sqm

Co-working	83 sqm
Creative Studio*	346 sqm
STAGE 2	
Apartments	120 dwellings
Townhouses	20 dwellings
Aged Care (ILU)	70 units
Aged Care (HC)	40 beds
Child Care	100 children

Table 6-3 Trip Generation Rates

Land Use	Source	Weekday AM Peak	Weekday PM Peak
Apartments	ITE 222	0.34 per dwelling	0.39 per dwelling
Function Room	First Principles	0.3 per person	0.3 per person
Restaurant/Café	RTA	5 per 100 sqm	5 per 100 sqm
Tavern	RTA	0 per 100 sqm~	5 per 100 sqm
Provedore	RTA	5 per 100 sqm	5 per 100 sqm
Coworking and Creative Studio	ITE 495	1.86 per 100 sqm	2.48 per 100 sqm
Townhouses	ITE 220	0.48 per dwelling	0.67 per dwelling
Aged Care (ILU)	ITE 252	0.33 per dwelling	0.31 per dwelling
Aged Care (HC)	ITE 255	0.19 per bed	0.25 per bed
Child Care	RTA	0.5 per child	0.7 per child

~ the tavern is likely to be closed during the AM peak period

Table 6-4 Directional Distribution

Land Use	Weekday AM Peak		Weekday PM Peak	
	In	Out	In	Out
Apartments	21%	79%	62%	38%
Function Room	50%	50%	50%	50%
Restaurant/Café	80%	20%	61%	39%
Tavern	0%	0%	68%	32%
Provedore	80%	20%	61%	39%
Coworking and Creative Studio	63%	37%	46%	54%
Townhouses	28%	72%	59%	41%
Aged Care (ILU)	47%	53%	53%	47%
Aged Care (HC)	53%	47%	50%	50%
Child Care	53%	47%	47%	53%

Table 6-5 Total Trip Generation

Land Use	Weekday AM Peak		Weekday PM Peak	
	In	Out	In	Out
STAGE 1				
Apartments	15	54	48	30
Function Room	15	15	15	15
Restaurant/Café	29*	8*	22*	14*
Tavern	0*	0*	34*	16*
Provedore	25*	7*	19*	12*
Coworking and Creative Studio	4	2	3	4
Sub-total	88	86	141	91
STAGE 2				
Apartments	9	33	30	18
Townhouses	4	9	8	6
Aged Care (ILU)	11	13	12	11
Aged Care (HC)	5	4	5	5
Child Care	27	24	33	38
Sub-total	56	83	88	78
TOTAL	144	169	229	169

* trip generation for these uses have been reduced by 25% to account for internal trips (from residents and locals that visit these premises which do not contribute to any additional vehicle trips).

The Stage 1 and 2 combined development is expected to generate approximately 313 two-way vehicular trips during the weekday AM peak hour and 398 vehicles during the weekday PM peak hour period.

6.4 Development Trip Distribution

The overall inbound and outbound trip distribution used for the combined development traffic is illustrated in **Figure 6-1** through to **Figure 6-4**. The development distribution considers the following:

- Location of the development and vehicle access points relative to the surrounding area.
- Driver behaviour based on the local and arterial road network.
- Existing traffic distribution along the surrounding road network.

It is likely that the residential component of the development will travel west and use Stirling Hwy to travel either to the north or to the south. However, the non-residential component which represents a significant volume generated by the proposed development is likely to attract a larger proportion of locals within the surrounding area particularly around the Mosman Park area to the east.

Figure 6-1 Development Trip Distribution for Stage 1 (Inbound)



Figure 6-2 Development Trip Distribution for Stage 1 (Outbound)



Figure 6-3 Development Trip Distribution for Stage 2 (Inbound)



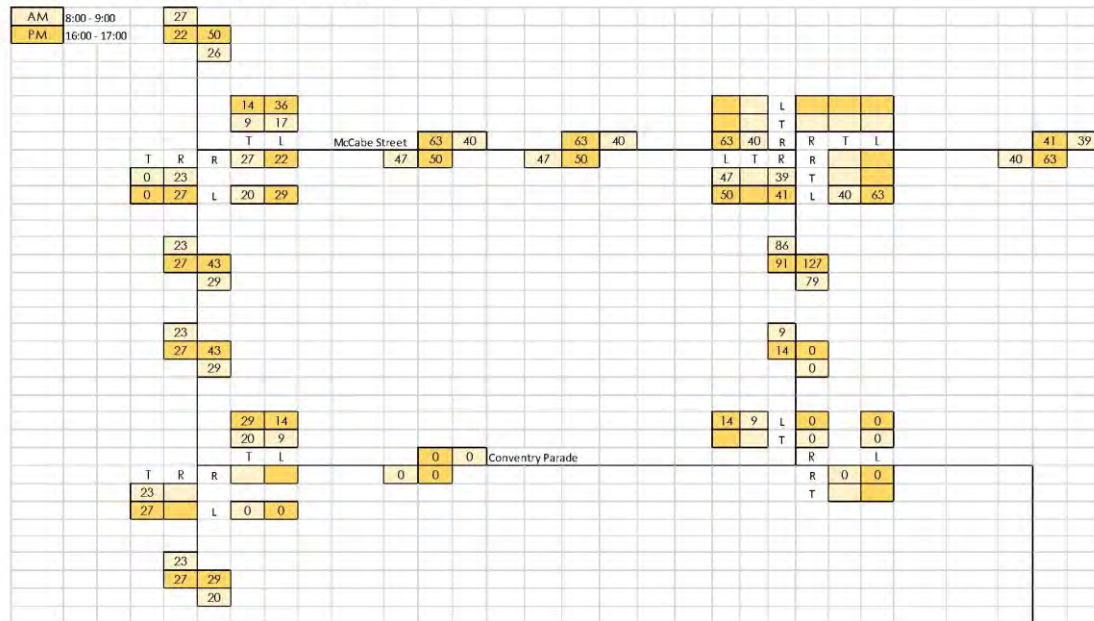
Figure 6-4 Development Trip Distribution for Stage 2 (Outbound)



6.5 Background and Development Traffic Volumes

Figure 6-5 and **Figure 6-6** shows the proposed development volumes and **Figure 6-7** through to **Figure 6-11** shows the traffic volumes for the assessment scenarios.

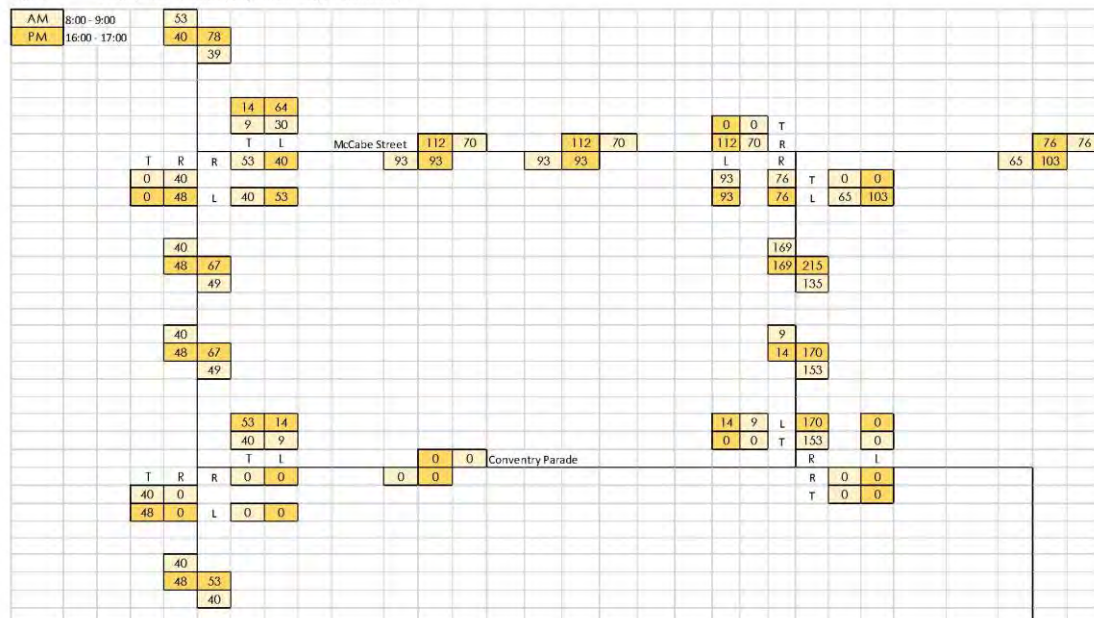
Figure 6-5 Development Volumes (Opening Year for Stage 1)



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Figure 6-6 Development Volumes (Stage 1 and Stage 2 Combined)



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[illegible]

Figure 6-8 Scenario 2 – 2024 Existing Traffic without Development (AM and PM)

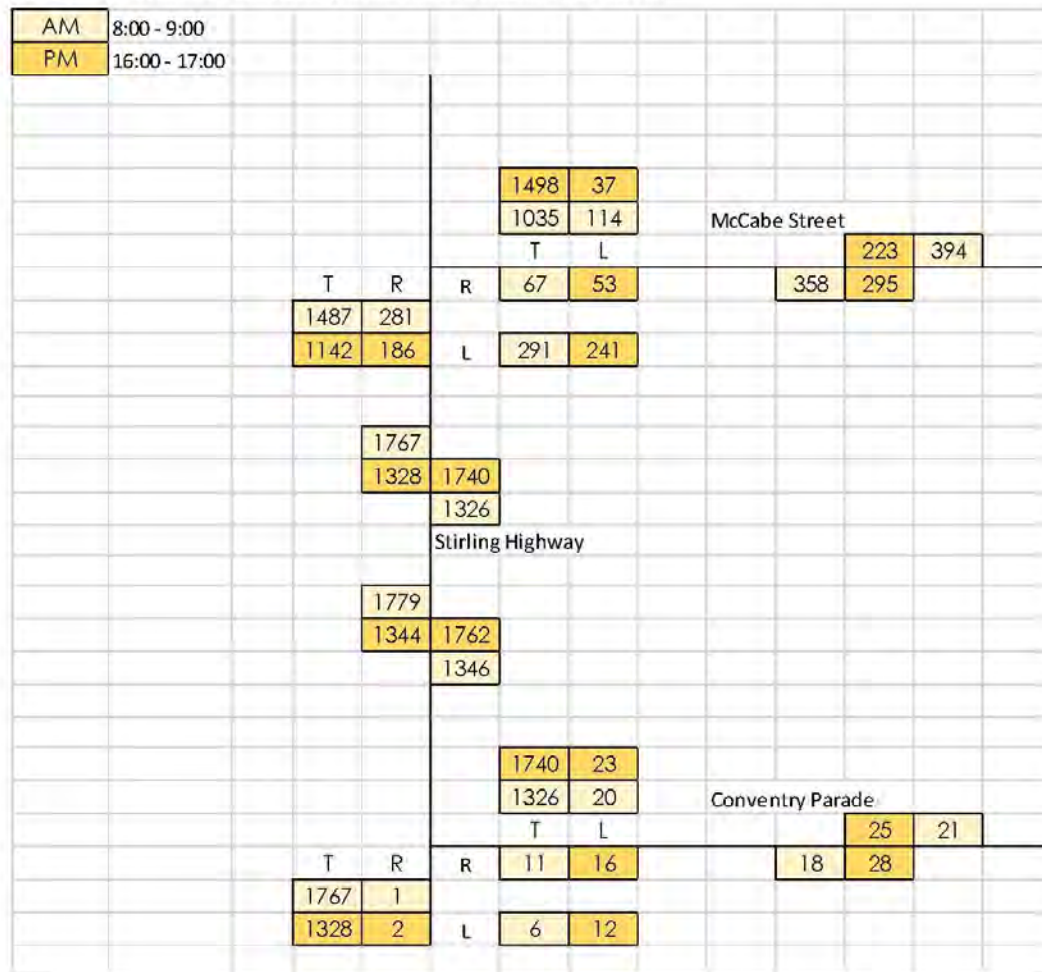
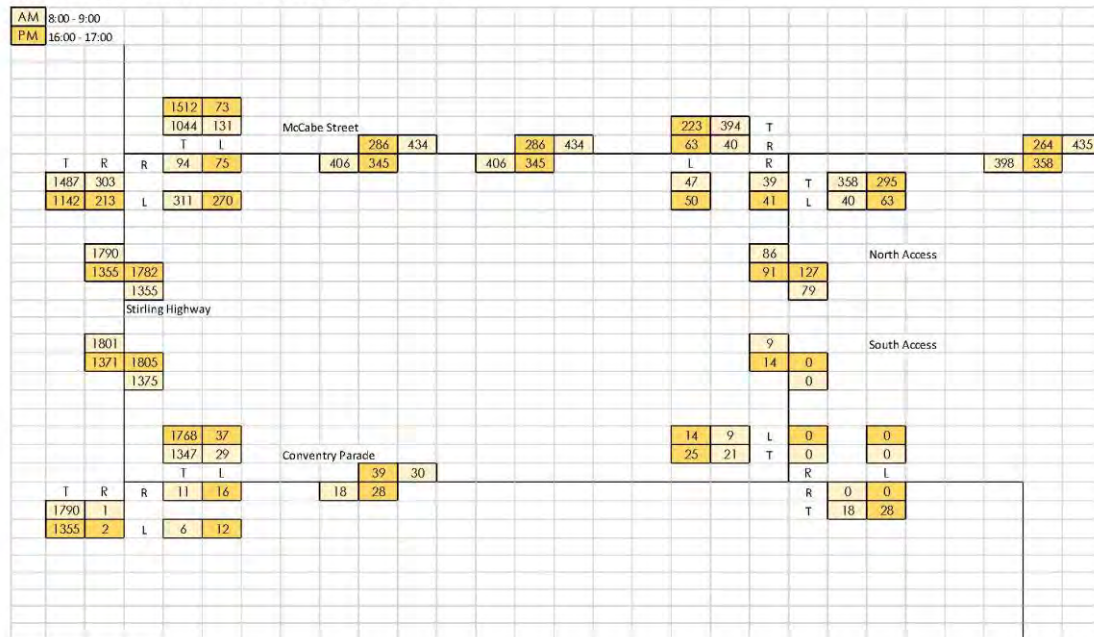
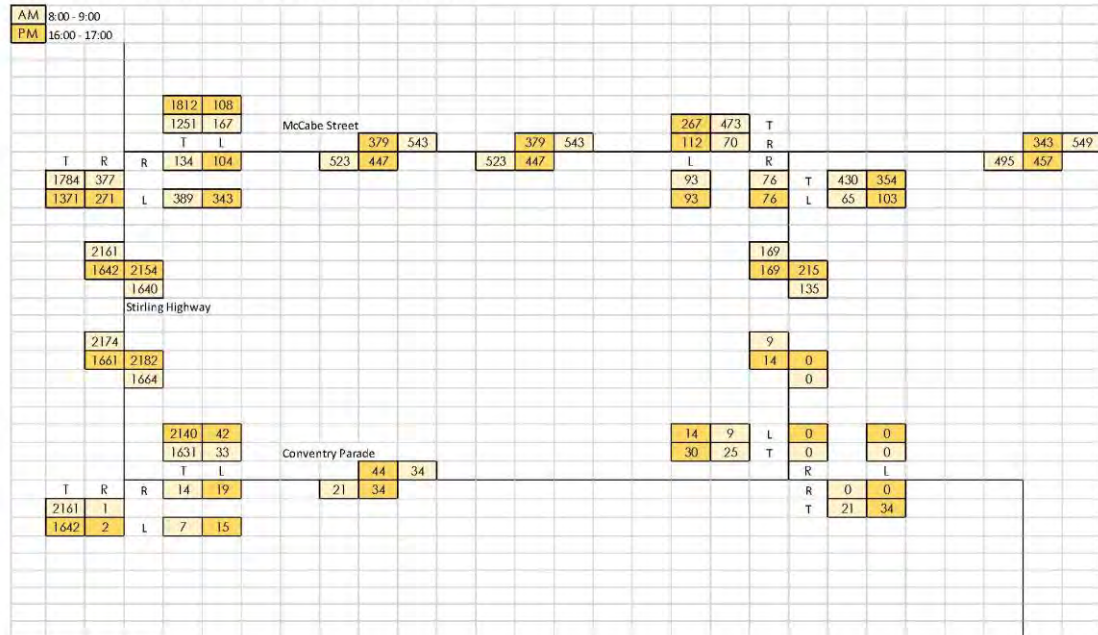


Figure 6-9 Scenario 3 – 2024 Traffic with Stage 1 Development (AM and PM)



[illegible]

Figure 6-11 Scenario 5 – 2034 Traffic with Stage 1 + 2 Development (AM and PM)



6.6 Intersection Performance

Analysis of the traffic impacts of the proposed development has been carried out for the following intersections:

- Stirling Highway/McCabe Street
- Stirling Highway/Coventry Parade
- McCabe Street/McCabe Place

The identified intersections have been analysed using the SIDRA analysis program. This program 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 for an un-signalized intersection where $DOS > 0.80$;
- 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 time delays for vehicles through the intersection. An unsignalised intersection can be considered to 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 stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-6**.

Table 6-6 Level of Service (LoS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalised Intersection
A	Free-flow operations (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

A LOS exceeding these values indicates that the road section is exceeding its practical capacity. Above these values, users of the intersection are likely to experience unsatisfactory queueing and delays during the peak hour periods.

6.7 SIDRA Analysis Results

6.7.1 Scenario 1

6.7.1.1 Stirling Highway/McCabe Street

Figure 6-12 shows SIDRA layout of the Stirling Highway/McCabe Street intersection and Table 6-7 provides a summary of the SIDRA results.

Figure 6-12 SIDRA Layout for Stirling Highway/McCabe Street

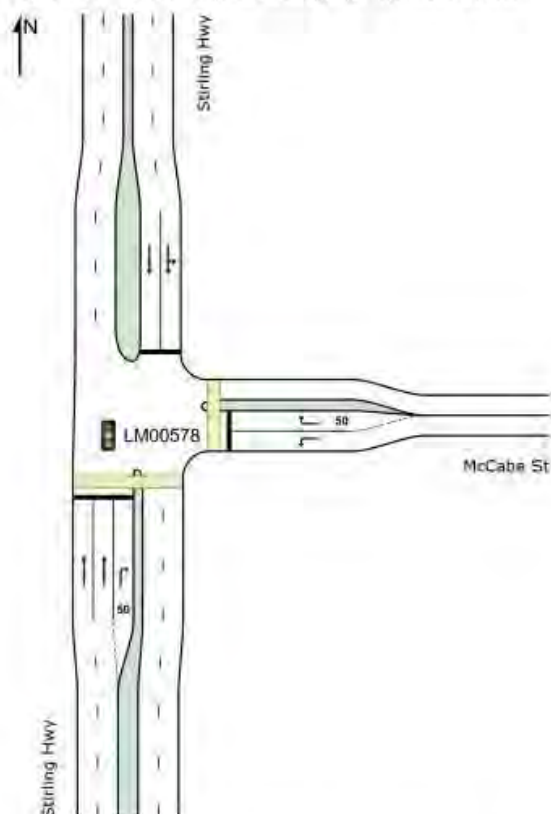


Table 6-7 Stirling Highway/McCabe Street Intersection – Scenario 1

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.544	3.2	A	129.8	0.371	2.1	A	58.3
	R	0.482	21.4	C	89.7	0.506	25.8	C	62.9
McCabe Street (E)	L	0.555	41.4	D	119.1	0.645	48	D	99.3
	R	0.523	72.7	E	36	0.597	68.8	E	26
Stirling Highway (N)	L	0.561	25.5	C	190.5	0.639	18	B	207.2
	T	0.561	19.9	B	190.5	0.639	12.4	B	207.2
All vehicles		0.561	15.7	B	193.6	0.645	13.2	B	208

6.7.1.2 Stirling Highway/Coventry Parade

Figure 6-13 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and **Table 6-8** provides a summary of the SIDRA results.

Figure 6-13 SIDRA Layout for Stirling Highway/Coventry Parade

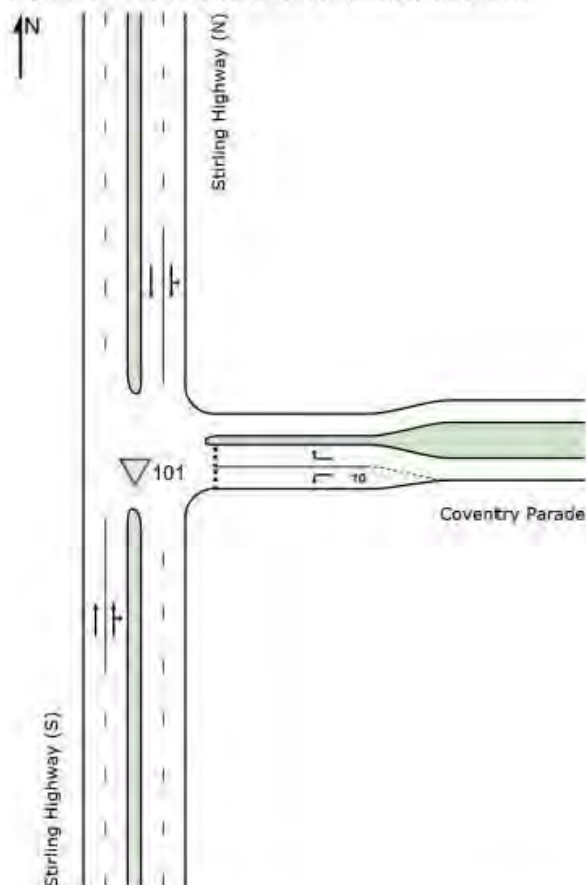


Table 6-8 Stirling Highway/Coventry Parade Intersection – Scenario 1

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.503	0.2	A	0.6	0.381	0.2	A	1.7
	R	0.503	21.3	C	0.6	0.381	27.6	D	1.7
Coventry Parade (E)	L	0.008	8.2	A	0.3	0.02	10.4	B	0.8
	R	0.19	124.5	F	7.2	0.367	111.8	F	7.6
Stirling Highway (N)	L	0.382	5.6	A	0	0.501	5.6	A	0
	T	0.382	0	A	0	0.501	0.1	A	0
All vehicles		0.503	0.6	A	7.2	0.501	0.8	A	7.6

6.7.2 Scenario 2

6.7.2.1 Stirling Highway/McCabe Street

Figure 6-12 shows SIDRA layout of the Stirling Highway/McCabe Street intersection and **Table 6-9** provides a summary of the SIDRA results.

Table 6-9 Stirling Highway/McCabe Street Intersection – Scenario 2

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.499	2.2	A	96.8	0.386	2.1	A	61.7
	R	0.827	44.7	D	115.4	0.691	58.7	E	81.7
McCabe Street (E)	L	0.394	24.6	C	91.1	0.629	46.2	D	101.3
	R	0.898	87.8	F	42.3	0.621	69.1	E	27.1
Stirling Highway (N)	L	0.837	49.2	D	300.8	0.682	19.7	B	233.5
	T	0.837	43.7	D	300.8	0.682	14.1	B	233.5
All vehicles		0.898	24.3	C	305.7	0.691	15.9	B	234.4

6.7.2.2 Stirling Highway/Coventry Parade

Figure 6-13 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and **Table 6-10** provides a summary of the SIDRA results.

Table 6-10 Stirling Highway/Coventry Parade Intersection – Scenario 2

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.523	0.2	A	0.7	0.396	0.2	A	1.9
	R	0.523	23.3	C	0.7	0.396	30.5	D	1.9
Coventry Parade (E)	L	0.008	8.4	A	0.3	0.021	10.9	B	0.8
	R	0.228	153	F	8.6	0.449	139.4	F	9.4
Stirling Highway (N)	L	0.398	5.6	A	0	0.521	5.6	A	0
	T	0.398	0	A	0	0.521	0.1	A	0
All vehicles		0.523	0.7	A	8.6	0.521	1	A	9.4

6.7.3 Scenario 3

6.7.3.1 Stirling Highway/McCabe Street

For Scenario 3, the intersection of Stirling Highway/McCabe Street remains unchanged as illustrated in **Figure 6-12** and **Table 6-11** provides a summary of the SIDRA results.

Table 6-11 Stirling Highway/McCabe Street Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.562	3	A	133.8	0.382	1.9	A	58.3
	R	0.876	54.5	D	140.5	0.570	51	D	86.1
McCabe Street (E)	L	0.435	24.3	C	97.3	0.612	41.3	D	107.2
	R	0.840	81	F	56.7	0.753	70	E	38.9
Stirling Highway (N)	L	0.872	54.8	D	329.4	0.754	23.7	C	276.4
	T	0.872	49.2	D	329.4	0.754	18.2	B	276.4
All vehicles		0.876	28.1	C	335.4	0.754	17.9	B	278.5

6.7.3.2 Stirling Highway/Coventry Parade

For Scenario 3, the intersection of Stirling Highway/Coventry Parade remains unchanged as illustrated in **Figure 6-13** and **Table 6-12** provides a summary of the SIDRA results.

Table 6-12 Stirling Highway/Coventry Parade Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.53	0.1	A	0.7	0.404	0.2	A	2.1
	R	0.53	24.3	C	0.7	0.404	32.3	D	2.1
Coventry Parade (E)	L	0.008	8.5	A	0.3	0.021	11	B	0.8
	R	0.486	218.1	F	9.4	0.479	154	F	10
Stirling Highway (N)	L	0.406	5.6	A	0	0.533	5.6	A	0
	T	0.406	0	A	0	0.533	0.1	A	0
All vehicles		0.53	0.9	A	9.4	0.533	1	A	10

6.7.3.3 McCabe Street/McCabe Place

Figure 6-14 shows SIDRA layout of the McCabe Street/McCabe Place intersection and **Table 6-13** provides a summary of the SIDRA results.

Figure 6-14 SIDRA Layout for McCabe Street/McCabe Place Intersection

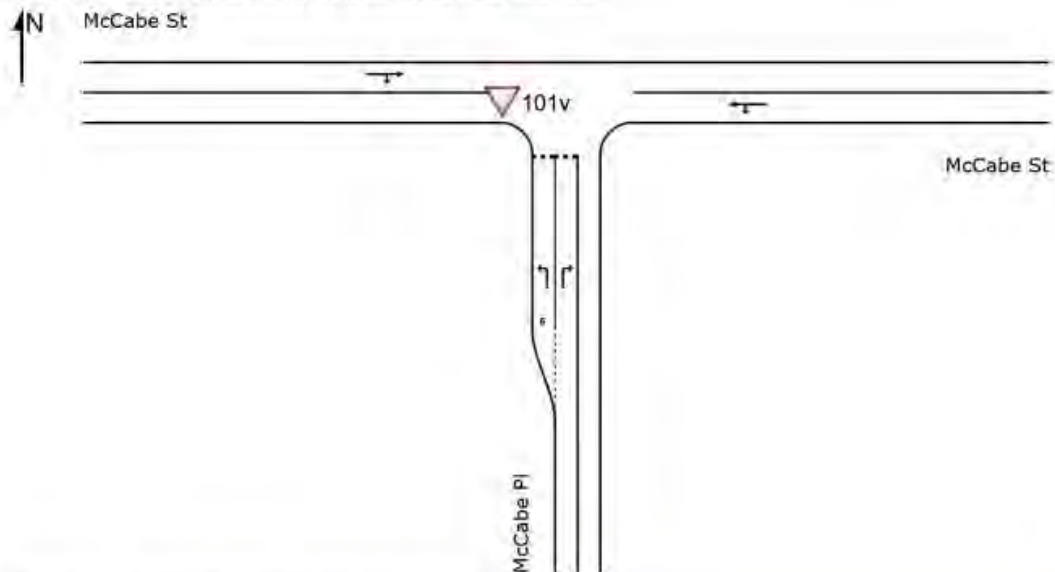


Table 6-13 McCabe Street/McCabe Place Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
McCabe Place (S)	L	0.043	6.8	A	1.1	0.044	6.6	A	1.2
	R	0.07	9.7	A	1.6	0.059	8.2	A	1.4
McCabe Street (E)	L	0.208	5.6	A	0	0.192	5.6	A	0
	T	0.208	0.1	A	0	0.192	0	A	0
McCabe Street (W)	T	0.241	0.3	A	2.8	0.17	0.6	A	3.5
	R	0.241	7.5	A	2.8	0.17	7.1	A	3.5
All vehicles		0.241	1.5	A	2.8	0.192	2.2	A	3.5

6.7.4 Scenario 4

6.7.4.1 Stirling Highway/McCabe Street

Figure 6-15 shows SIDRA layout of the Stirling Highway/McCabe Street intersection (based on the Main Roads WA concept design) and Table 6-14 and Table 6-15 provides a summary of the SIDRA results.

Figure 6-15 SIDRA Layout for Stirling Highway/McCabe Street (Existing Layout and MRWA concept design)

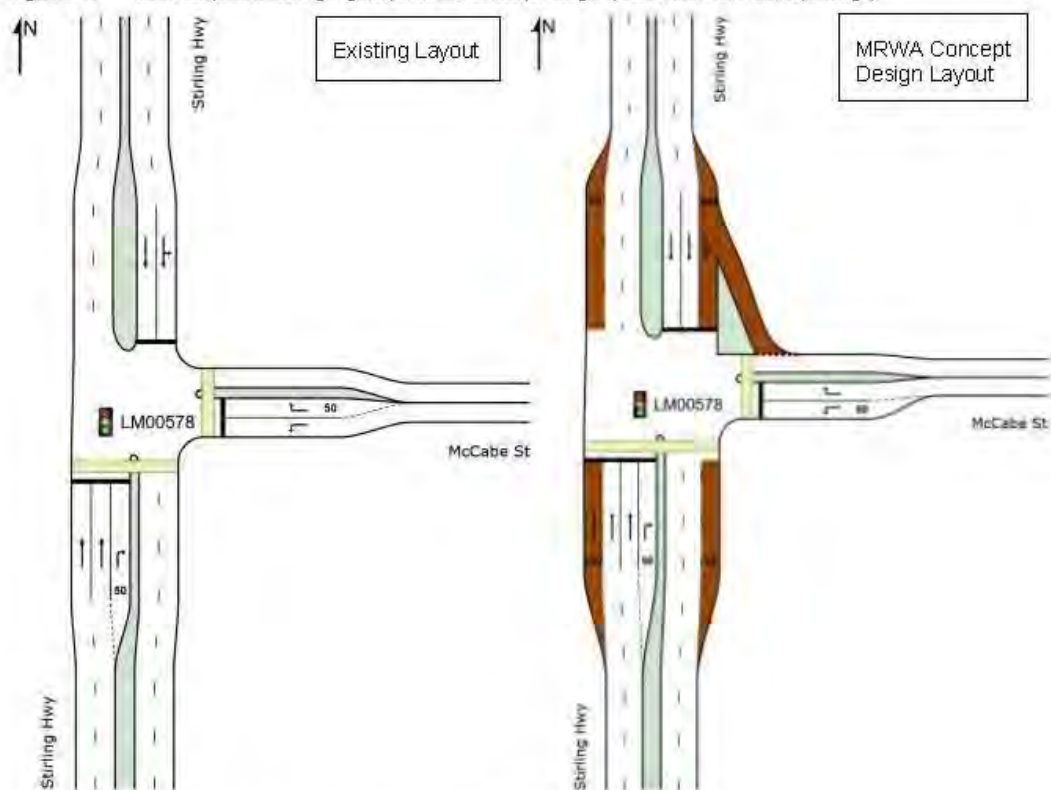


Table 6-14 Stirling Highway/McCabe Street Intersection – Scenario 4 (Existing Layout)

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.689	3	A	194.9	0.463	2.4	A	82.2
	R	0.978	92	F	207.5	0.915	71.5	E	113.2
McCabe Street (E)	L	0.48	26.2	C	115.9	0.609	40	D	113.8
	R	0.930	91.6	F	52.6	0.750	71.1	E	33.5
Stirling Highway (N)	L	0.985	91.2	F	522.5	0.915	43.6	D	483
	T	0.985	85.6	F	522.5	0.915	38	D	483
All vehicles		0.985	43.7	D	531	0.915	27.9	C	484.9

Table 6-15 Stirling Highway/McCabe Street Intersection – Scenario 4 (with MRWA upgrades)

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.679	3	A	185.6	0.425	2.3	A	71.6
	R	0.936	71.6	E	180.7	0.552	49.2	D	88.6
McCabe Street (E)	L	0.457	26.4	C	110.5	0.523	43.4	D	112.3
	R	0.930	91.6	F	52.6	0.750	71.1	E	33.5
Stirling Highway (N)	L	0.193	14	B	23.9	0.179	18.6	B	34.9
	T	0.941	66.1	E	421	0.865	27.3	C	384.1
All vehicles		0.941	33.1	C	421	0.865	21.4	C	384.1

6.7.4.2 Stirling Highway/Coventry Parade

Figure 6-13 shows SIDRA layout of the Stirling Highway/Coventry Parade intersection and **Table 6-16** provides a summary of the SIDRA results.

Table 6-16 Stirling Highway/Coventry Parade Intersection – Scenario 4

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.817	0.5	A	1.7	0.477	0.5	A	4.5
	R	0.817	40.1	E	1.7	0.477	52.2	F	4.5
Coventry Parade (E)	L	0.011	9.8	A	0.4	0.033	14	B	1.3
	R	1.397	850	F	39.8	0.669	243.9	F	15.7
Stirling Highway (N)	L	0.477	5.6	A	0	0.624	5.6	A	0
	T	0.477	0.1	A	0	0.624	0.1	A	0
All vehicles		1.397	3.6	A	39.8	0.669	1.6	A	15.7

6.7.5 Scenario 5

6.7.5.1 Stirling Highway/McCabe Street

For Scenario 5, the intersection of Stirling Highway/McCabe Street remains unchanged as illustrated in **Figure 6-15** and **Table 6-17** provides a summary of the SIDRA results.

Table 6-17 Stirling Highway/McCabe Street Intersection – Scenario 5

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.716	4.4	A	229.9	0.429	2.6	A	75.6
	R	1.013	121.9	F	244.8	0.995	101.3	F	168.1
McCabe Street (E)	L	0.523	25.3	C	120.9	0.561	41.4	D	130.8
	R	0.979	104.9	F	95.2	1.044	128.7	F	78.3
All vehicles		0.252	30	C	64.4	0.199	15	B	34.1

Stirling Highway (N)	T	1.009	101.6	F	518.7	0.963	57.9	E	578
All vehicles		1.013	51.2	D	518.7	1.044	41.2	D	578

6.7.5.2 Stirling Highway/Coventry Parade

For Scenario 5, the intersection of Stirling Highway/Coventry Parade remains unchanged from **Figure 6-13** and **Table 6-18** provides a summary of the SIDRA results.

Table 6-18 Stirling Highway/Coventry Parade Intersection – Scenario 5

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.822	0.6	A	90.1	0.532	0.5	A	5
	R	0.822	79.6	F	90.1	0.532	53.9	F	5
Coventry Parade (E)	L	0.011	9.9	A	0.4	0.034	14.5	B	1.3
	R	4.314	3495.1	F	88.4	0.828	321	F	18
Stirling Highway (N)	L	0.488	5.6	A	0	0.644	5.6	A	0
	T	0.488	0.1	A	0	0.644	0.1	A	0
All vehicles		4.314	13.2	A	90.1	0.828	2	A	18

6.7.5.3 McCabe Street/McCabe Place

For Scenario 5, the intersection of McCabe Street/McCabe Place remains unchanged as illustrated in **Figure 6-14** and **Table 6-19** provides a summary of the SIDRA results.

Table 6-19 McCabe Street/McCabe Place Intersection – Scenario 3

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
McCabe Place (S)	L	0.107	7.3	A	2.5	0.107	6.9	A	2.3
	R	0.172	11.8	B	4	0.133	9.7	A	3.1
McCabe Street (E)	L	0.295	5.6	A	0	0.289	5.6	A	0
	T	0.295	0.1	A	0	0.289	0.1	A	0
McCabe Street (W)	T	0.315	0.7	A	6.3	0.248	1.2	A	7.1
	R	0.315	8.5	A	6.3	0.248	7.9	A	7.1
All vehicles		0.315	2.4	A	6.3	0.289	3.2	A	7.1

6.7.6 Scenario 6

For the purpose of the assessment scenario, the intersection layouts were modified with the aim of providing some potentially practical solutions.

Figure 6-16 shows the SIDRA layout for the modified intersection layout and the results summarised in **Table 6-20**. The upgrade at this intersection includes the SHACS upgrade (**Section 4.1.1**) as well as signal modifications.

Table 6-20 Stirling Highway/McCabe Street Intersection – Scenario 6

Intersection Approach		AM				PM			
		DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T	0.784	8.2	A	165.7	0.505	3.9	A	82
	R	0.816	36.6	D	63.8	0.862	51.3	D	62.9
McCabe Street (E)	L	0.604	23.5	C	74.6	0.71	38.7	D	100.3
	R	0.881	42.9	D	42.2	0.837	51.1	D	43.7
Stirling Highway (N)	L	0.187	9.5	A	17.4	0.139	9.9	A	17
	T	0.843	23.6	C	160.8	0.905	30.7	C	331.2
All vehicles		0.881	17.7	B	165.7	0.905	23.2	C	331.2

6.7.6.2 Stirling Highway/Coventry Parade

For this intersection, a right turn lane was added on the southern approach and the right turn out of Coventry Parade is restricted. **Figure 6-16** shows the SIDRA layout for the modified intersection layout and the results summarised in **Table 6-21**. For this arrangement, the right turn pocket will allow turning into Coventry Parade easier. As such, 30% of right-turning inbound traffic (i.e. from Stirling Highway turning right into McCabe Street) has been reassigned to Coventry Parade. As the right turn out is restricted, these volumes were redirected through the proposed development to the McCabe Street signals where vehicles can turn right onto Stirling Highway.

Figure 6-16 SIDRA Layout for McCabe Street/Coventry Parade Intersection (Modified)

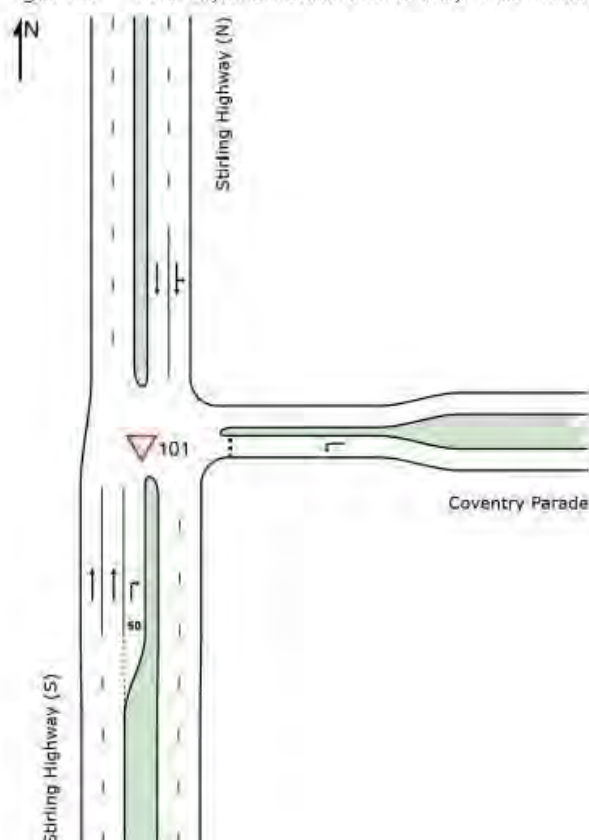


Table 6-21 SIDRA Results for Stirling Highway/Coventry Parade Intersection – Scenario 6

Intersection Approach		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
Stirling Hwy (S)	T	0.692	0.4	A	0	0.456	0.1	A	0
	R	0.37	21.5	C	10.7	0.46	36.1	E	12.5
Coventry Pde (E)	L	0.012	10	B	0.4	0.033	14.4	B	1.3
Stirling Hwy (N)	L	0.491	5.6	A	0	0.603	5.6	A	0
	T	0.491	0.1	A	0	0.603	0.1	A	0
All Vehicles		0.692	0.9	A	10.7	0.603	1	A	12.5

6.7.6.3 McCabe Street/McCabe Place

For this intersection, the modifications include a 4-way roundabout with the following arrangement:

- The southern approach provides access to the proposed development
- The eastern and western approach forms the continuation of McCabe Street
- The northern approach provides access to the future northern development (One Steel)

One-Steel development traffic has not been included as the development yields as still under consideration.

Figure 6-17 shows the SIDRA layout for the modified intersection layout and the SIDRA results are summarised in **Table 6-22**.

Figure 6-17 SIDRA Layout for McCabe Street/McCabe Place Intersection (Modified)

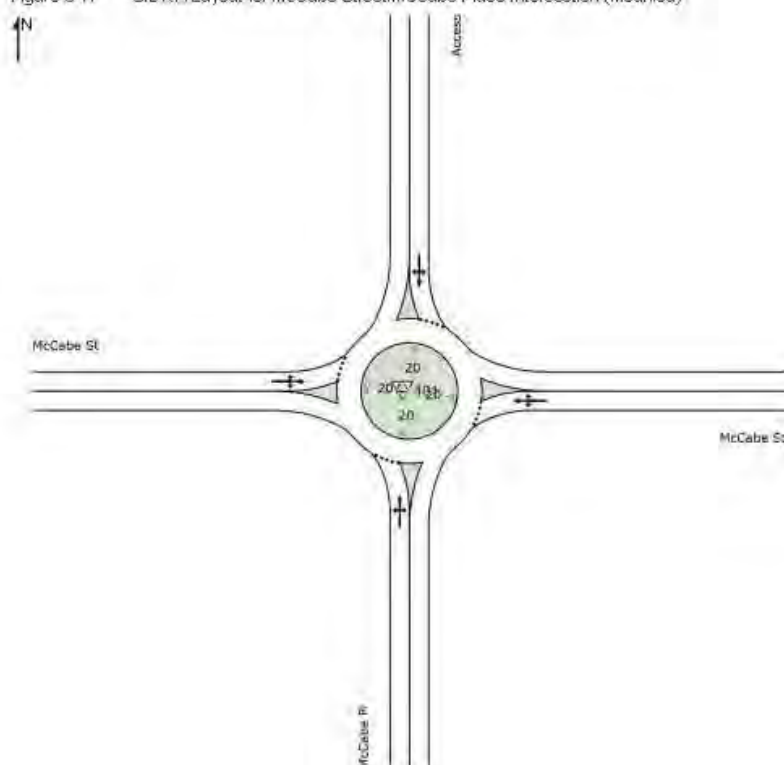


Table 6-22 SIDRA Results for McCabe Street/McCabe Place Intersection – Scenario 6

Intersection Approach		AM Peak				PM Peak			
		DoS	Delay	LOS	95% Queue (m)	DoS	Delay	LOS	95% Queue (m)
McCabe Pl (S)	L	0.202	5.4	A	8.2	0.197	4.9	A	8
	T	0.202	5.3	A	8.2	0.197	4.8	A	8
	R	0.202	9.8	A	8.2	0.197	9.3	A	8
McCabe St (E)	L	0.37	3.3	A	20.8	0.364	3.6	A	20.1
	T	0.37	3.3	A	20.8	0.364	3.7	A	20.1
	R	0.37	7.7	A	20.8	0.364	8	A	20.1
Access (N)	L	0.004	6.8	A	0.2	0.003	5.2	A	0.1
	T	0.004	6.8	A	0.2	0.003	5.2	A	0.1
	R	0.004	11.3	B	0.2	0.003	9.7	A	0.1
McCabe St (W)	L	0.422	3.3	A	23	0.298	3.3	A	13.4
	T	0.422	3.5	A	23	0.298	3.5	A	13.4
	R	0.422	7.8	A	23	0.298	7.7	A	13.4
All Vehicles		0.422	4.3	A	23	0.364	4.6	A	20.1

6.8 Analysis Summary

A summary of the SIDRA results are as follows:

- The Stirling Highway/McCabe Street intersection operates at an acceptable level of service for Scenarios 1, 2 and 3 hence no intersection and road improvements are required. The future 2034 scenarios results indicates that some movements are expected to operate at LOS F and experience long queues and reaching capacity, although the overall level of service is still considered to be acceptable. As mentioned in **Section 4.1.1**, Main Roads WA are investigating other options (such as a double right turn on the southern approach) and this will need to be reassessed as part of a wider precinct traffic assessment.
- The Stirling Highway/Coventry Parade intersection generally operates at an acceptable level of service for all scenarios with the exception of the right turning movements from Coventry Parade which is expected to experience significant delays (and in some cases unrealistic exponential levels of delay although this is likely caused by the limitations of SIDRA). This is due to the high volumes of traffic along Stirling Highway as well as the lack of a central median for a staged crossing which increases the difficulty for this movement. Due to the difficulty and delays associated with this movement, it is very likely that development traffic will utilise the signals at McCabe St for right turns, which is reflected in the trip distribution. There are potential opportunities to modifying this intersection to allow for a left-in-left-out and right turn in configuration in order to improve traffic operations at this intersection as well as the Stirling Highway/McCabe Street intersection (which is reflected in the Scenario 6 assessment).
- The McCabe Street/McCabe Place intersection is expected to operate at an acceptable level of service for all scenarios. Depending on the timing of the development to the north (One Steel Site), this intersection will likely be upgraded to a 4-way roundabout to accommodate access to both developments. The northern approach would potentially provide access to the proposed One Steel Site, the southern approach access to this development and the east/west approaches is anticipated to form the continuation of McCabe Street.
- Scenario 6 provides an assessment on some potential upgrades options that could be considered to improve traffic operations on the surrounding intersections.
 - Signal modifications combined with the SHACS upgrade at Stirling Highway/McCabe Street intersection results in further improvements to the intersection operations.
 - Upgraded median, right turn pocket into Coventry Parade and the restriction of the right turn out movement at the McCabe Street/Coventry Parade intersection significantly improves the intersection

operation. Furthermore, the reassigned right turn traffic to this intersection also improves the operation of the signals to the north.

A 4-way roundabout at the McCabe Street/McCabe Place intersection also improves the intersection performance at this intersection. Given that the intersection operates at an acceptable level of service without this upgrade, it is likely not required when this Site is developed.

7 Conclusions and Summary

This Transport Impact Assessment outlines the transport aspects of the proposed Stage 1 and 2 development focusing on traffic operations, loading vehicle operations, access and the provision of car parking.

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

The following is concluded about the proposed development:

- The proposed Site comprises of the following land uses for each stage:

Stage 1	Stage 2
198 residential apartments	120 residential apartments
Tavern	20 townhouses
Restaurant/café	Aged care (Individual living units)
Function	Aged care (High care)
Provedore	Child care centre
Co-working / Creative Studio	

- Public transport amenity within the surrounding area is considered to be good as several high frequency services operate along Stirling Highway, although the routes to the bus stops can be improved (due to having to cross Stirling Highway to reach the bus stop on the western side.)
- Walking and cycling amenity is considered to be average/good as high-quality cycle path such as the Fremantle Line PSP are easily accessible near the Site. There is a variety of footpaths within the surrounding area at varying qualities with crossing Stirling Highway being a significant barrier to pedestrian amenity.
- Parking supply for the Stage 1 is considered adequate for the residential component although a shortfall was identified for the commercial component. A parking demand assessment has been conducted which provides further detail regarding the anticipated parking demand for the proposed development.
- The proposed development (Stage 1 and 2) represents a two-way trip generation of approximately 313 vehicles during the weekday AM peak hour and 398 vehicles during the weekday PM peak hour
- The SIDRA analysis indicated that for the future 2034 scenario some movements, particularly right turn movements, are expected to operate at LOS F and experience long queues and reaching capacity, although the overall level of service is still considered to be acceptable.
- All access points are anticipated to operate satisfactorily.

Overall, the impacts of both the Stage 1 and 2 development traffic have a moderate impact on the surrounding road network.

APPENDIX

A

WAPC GUIDELINES

 **Cardno**

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 **Stantec**

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 1	
Existing situation		
existing site uses (if any)	Section 2	
existing parking and demand (if appropriate)	Section 2	
existing access arrangements	Section 3	
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 6	
existing pedestrian/cycle networks	Section 2	
existing public transport services surrounding the development	Section 2	
Crash data	Section 2	
Development proposal		
regional context	Section 3	
proposed land uses	Section 3	
table of land uses and quantities	Section 3	
access arrangements	Section 3	
parking provision	Section 3	
end of trip facilities	Section 3	
any specific issues	N/A	
road network	N/A	
intersection layouts and controls	N/A	
pedestrian/cycle networks and crossing facilities	Section 2	

Item	Provided	Comments/Proposals
public transport services	Section 2	
Integration with surrounding area	Section 5	
surrounding major attractors/generators	Section 5	
committed developments and transport proposals	Section 4	
proposed changes to land uses within 1200 metres	Section 4	
travel desire lines from development to these attractors/generators	N/A	
adequacy of existing transport networks	Section 6	
deficiencies in existing transport networks	N/A	
remedial measures to address deficiencies	N/A	
Analysis of transport networks		
assessment years	Section 6	
time periods	Section 6	
development generated traffic	Section 6	
distribution of generated traffic	Section 6	
parking supply & demand	Section 3	
base and "with development" traffic flows	Section 6	
analysis of development accesses	Section 6	
impact on surrounding roads	Section 6	
impact on intersections	Section 6	
impact on neighbouring areas	Section 6	
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

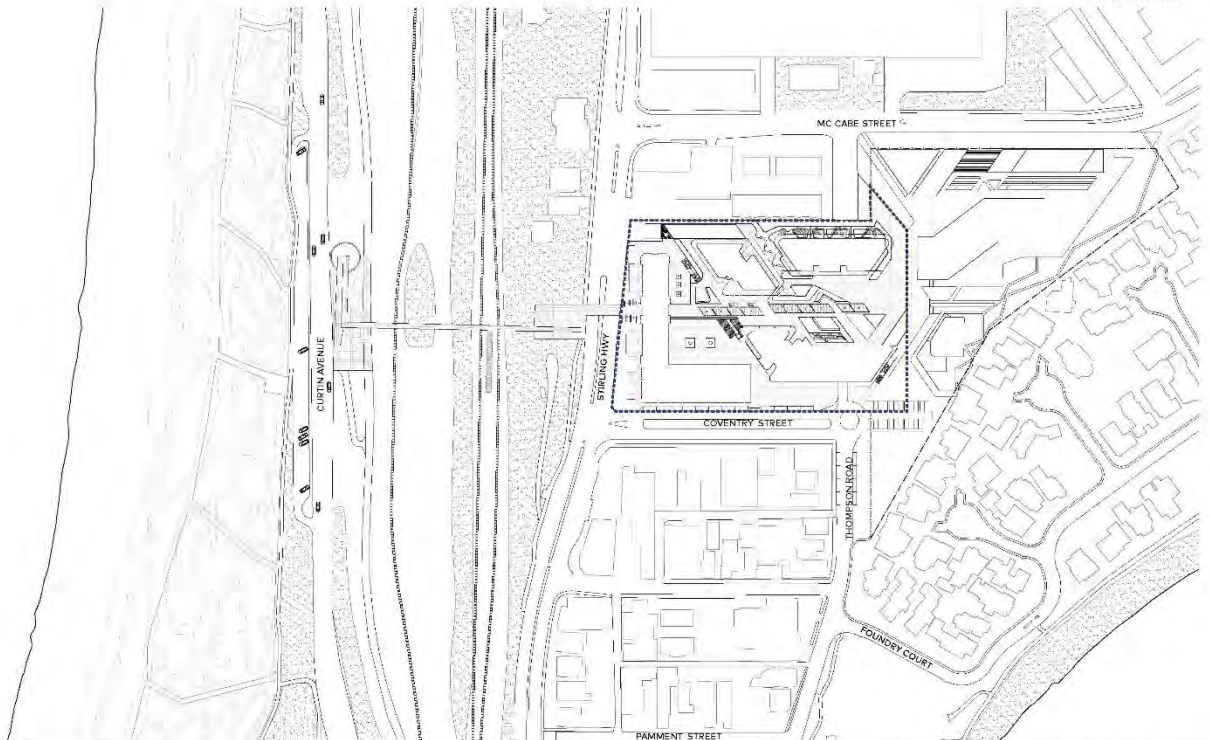
B

SITE PLANS



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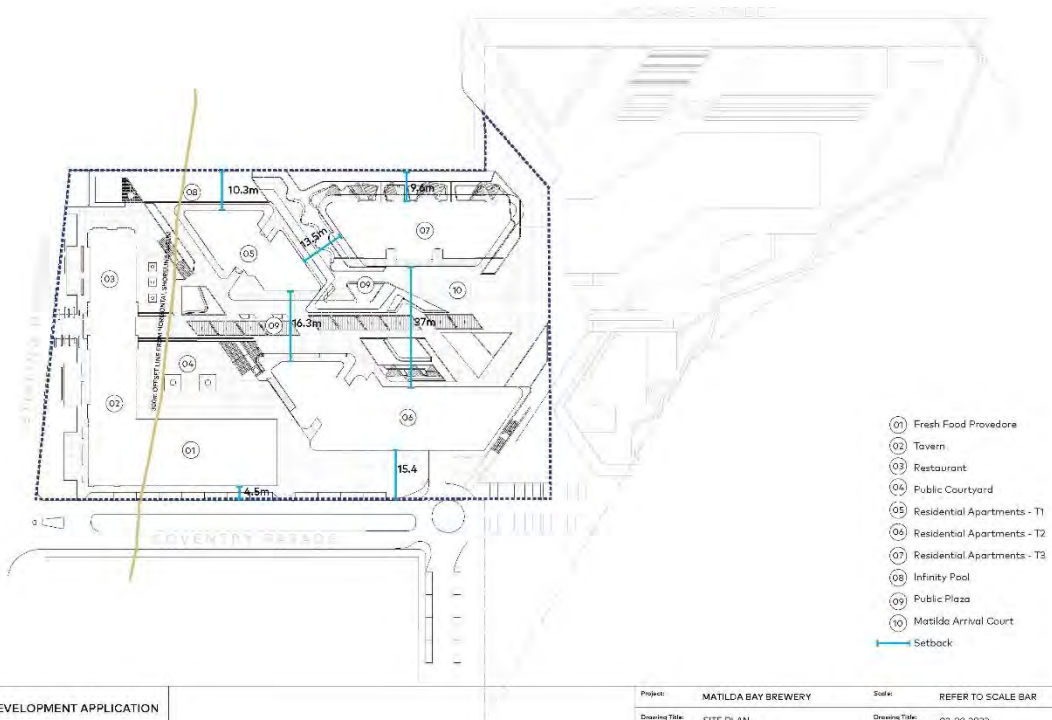


MATILDA BAY BREWERY DEVELOPMENT APPLICATION

COX

3 Oceans Property Pty Ltd

Project:	MATILDA BAY BREWERY	Scale:	REFER TO SCALE BAR
Drawing Title:	LOCATION PLAN	Drawing Title:	02-05-2022
Revision:		Revision:	
Drawing Number:	DA A1-03	Drawing Number:	5



MATILDA BAY BREWERY DEVELOPMENT APPLICATION

COX

3 Oceans Property Pty Ltd

Project:	MATILDA BAY BREWERY	Scale:	REFER TO SCALE BAR
Drawing Title:	SITE PLAN	Drawing Title:	02-09-2022
Revision:		Revision:	
Drawing Number:	DA A1-04	Drawing Number:	6



Issue for Development Approval

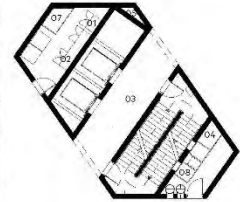
- 01 Lift Lobby
- 02 Core (Fire Escape + Lift & Services)
- 03 Storage
- 04 Service MEP
- 05 Car Park

Basement

- 01 Stormwater Retention Tank
- 02 Residential Storage
- 03 Residential Lobby
- 04 Plant (Fire + Electrical Services)
- 05 Carpark Exhaust
- 06 Storm Water retention tank
- 07 Grease Traps
- 08 Future Connection

Core

- 01 Convo Cupboard
- 02 Electrical Cupboard
- 03 Residential Lobby
- 04 Hydraulic Cupboard
- 05 Gas Fire Rotted Shaft
- 06 Dual Chute
- 07 Hydraulic Shaft (T1 only)
- 08 Stair Pressurisation Duct



MATILDA BAY BREWERY DEVELOPMENT APPLICATION

COX

3 Oceans Property Pty Ltd

Project: MATILDA BAY BREWERY

Scale: 1:500

Drawing Title: BASEMENT PLAN RL 13.0

Date: 02-09-2022



Revision:

Drawing Number: DAA2-01

7



Issue for Development Approval

- 01 Lift Lobby
- 02 Core (Fire Escape + Lift & Services)
- 03 Storage (Residential Bikes)
- 04 Service MEP
- 05 Waste Area Services
- 06 EOT (Commercial)
- 07 EOT (Public)
- 08 Retail
- 09 Carpark
- 10 Provender
- 11 Restaurant
- 12 Tavern
- 13 Creative Studio
- 14 Cafe

04 Heritage

Restaurant	350m ²
Cafe	237m ²
Co-Working	84m ²
Creative Studio	263m ²
Tavern	650m ²
Provender	807m ²

Ground

- 01 Gas Meter
- 02 Master Water Meter
- 03 Residential Lobby
- 04 EOT Commercial
- 05 Public Showers Area
- 06 EOT Public
- 07 Residential Bike Storage
- 08 Waste Zone T1
- 09 Waste Zone T2
- 10 Waste Zone T3
- 11 Waste Zone Commercial
- 12 Carpark Exhaust
- 13 Alfresco Forecourt Coventary Parade
- 14 Fire Booster Cabinet
- 15 Fire Brigade Hardstand
- 16 Future Connection
- 17 Commercial Parking Bays (x15)
- 18 Ride Share
- 19 Co-Working
- 20 Creative Studio
- 21 Provender
- 22 Tavern
- 23 Restaurant
- 24 Cafe
- 25 Motorbike Parking
- 26 Ride Share Drop Off Bays
- 27 Street Parking

MATILDA BAY BREWERY DEVELOPMENT APPLICATION

COX

3 Oceans Property Pty Ltd

Project: MATILDA BAY BREWERY

Scale: 1:500

Drawing Title: GROUND FLOOR PLAN RL 16.0

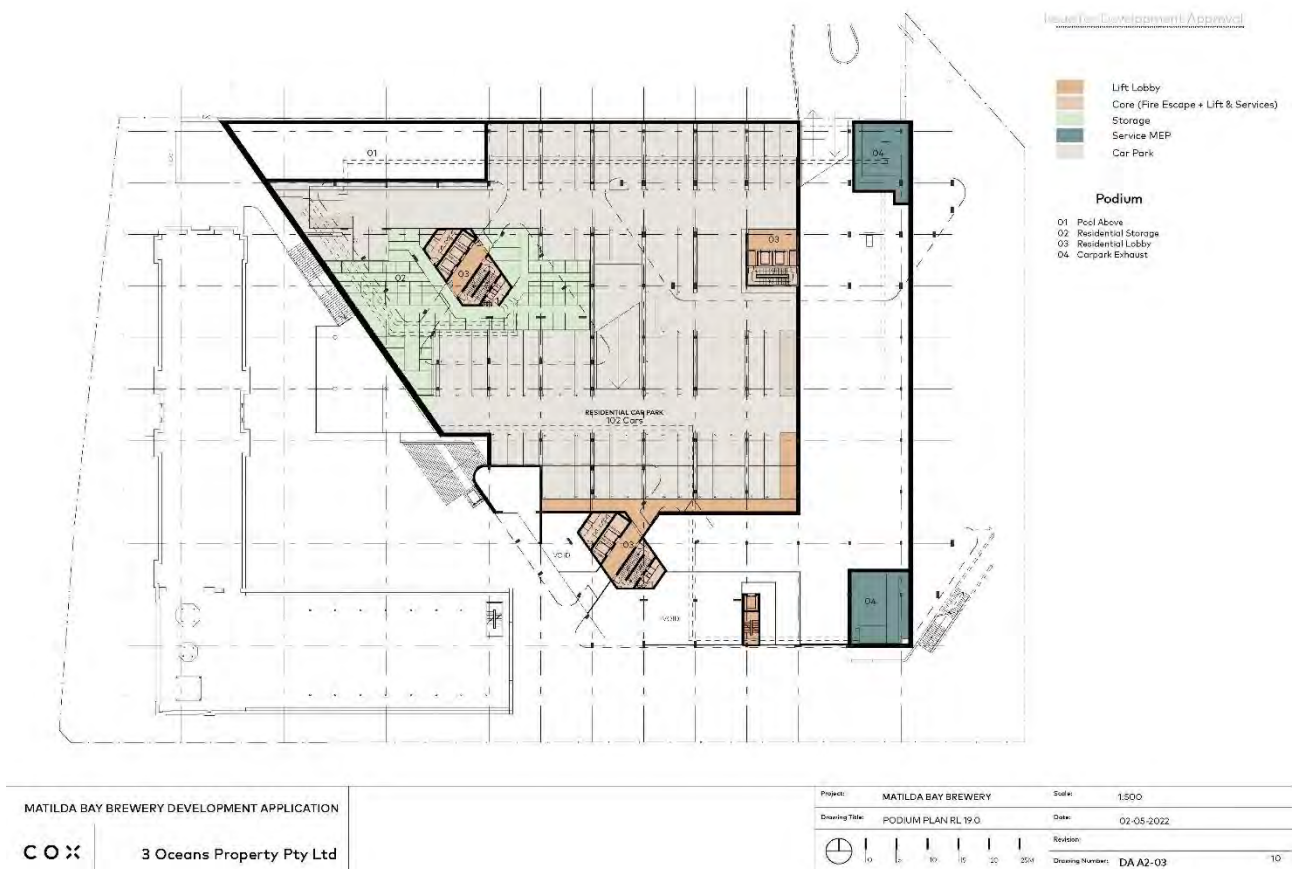
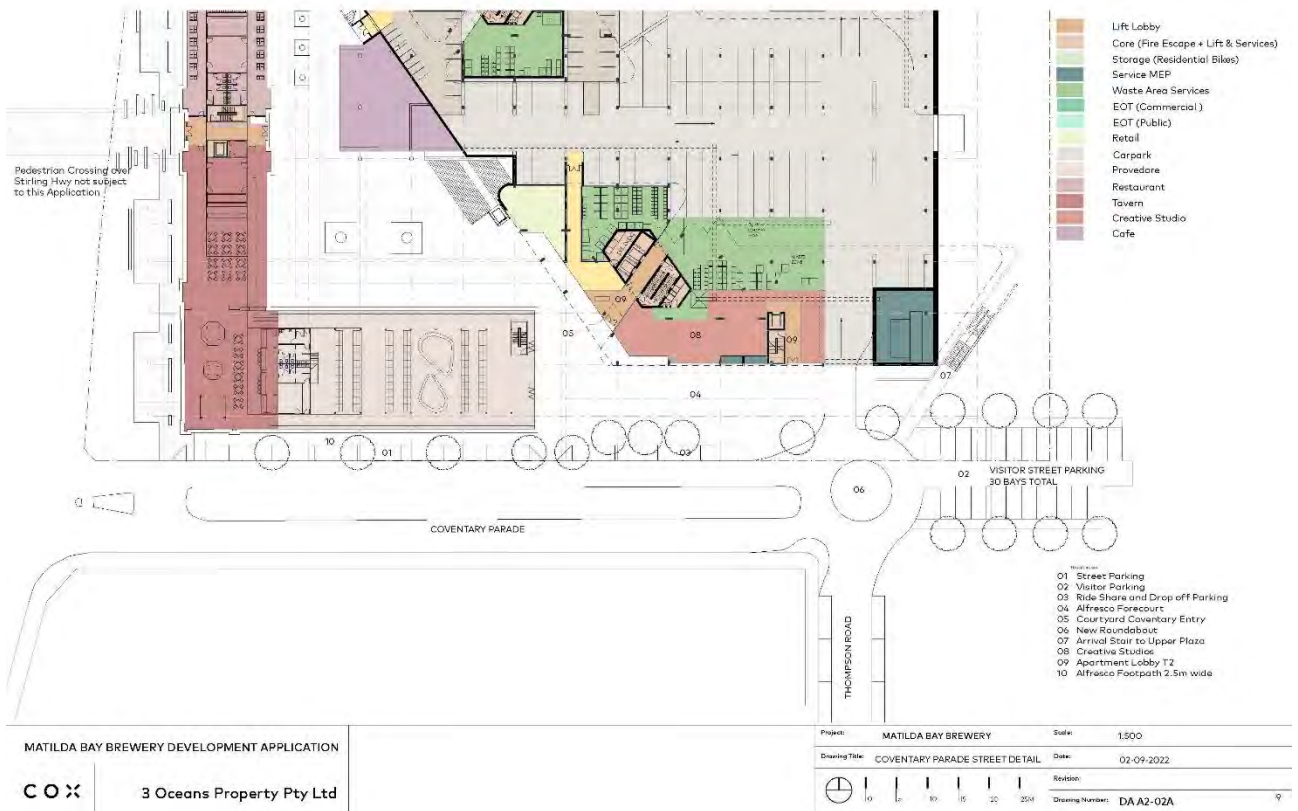
Date: 02-09-2022



Revision:

Drawing Number: DAA2-02

8



APPENDIX

C

SIDRA RESULTS

 **Cardno**

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 **Stantec**

MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2022))]

Network: N101 [AM PEAK (Network Folder: S1-Existing (2022))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Hwy														
2	T1	1504	8.9	1504	8.9	0.544	3.2	LOS A	16.1	129.8	0.30	0.28	0.30	52.1
3	R2	284	0.0	284	0.0	*0.482	21.4	LOS C	12.2	89.7	0.86	0.86	0.86	33.5
Approach		1788	7.5	1788	7.5	0.544	6.1	LOS A	16.1	129.8	0.39	0.37	0.39	46.1
East: McCabe St														
4	L2	295	7.1	295	7.1	0.555	41.4	LOS D	15.1	119.1	0.83	0.80	0.83	21.0
6	R2	68	7.1	68	7.1	*0.523	72.7	LOS E	4.6	36.0	1.00	0.76	1.00	18.6
Approach		363	7.1	363	7.1	0.555	47.3	LOS D	15.1	119.1	0.87	0.80	0.87	20.3
North: Stirling Hwy														
7	L2	115	0.0	115	0.0	0.561	25.5	LOS C	24.0	190.5	0.69	0.66	0.69	34.6
8	T1	1047	8.9	1047	8.9	*0.561	19.9	LOS B	24.0	190.5	0.69	0.64	0.69	22.4
Approach		1162	8.0	1162	8.0	0.561	20.5	LOS C	24.0	193.6	0.69	0.64	0.69	24.5
All Vehicles		3314	7.6	3314	7.6	0.561	15.7	LOS B	24.0	193.6	0.55	0.51	0.55	32.9

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.

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	92.4	40.0	0.43
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.1	34.3	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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 Organisation: CARDNO PTY LTD | Licence: NETWORK / Enterprise | Processed: Monday, 12 September 2022 8:12:43 AM
 Project: K:\Projects\QW1147800_3Oceans-MatildaBayBrewery-Traffic5_Technical\TrafficModelling\Stage 1+2\Matilda Bay_Existing (Stage 1+2) V5.sip9

MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2022))]

Network: N101 [PM PEAK (Network Folder: S1-Existing (2022))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Hwy														
2	T1	1156	8.9	1156	8.9	0.371	2.1	LOS A	7.2	58.3	0.24	0.22	0.24	54.6
3	R2	188	0.0	188	0.0	*0.506	25.8	LOS C	8.6	62.9	0.95	0.89	0.95	31.2
Approach		1344	7.7	1344	7.7	0.506	5.4	LOS A	8.6	62.9	0.34	0.31	0.34	47.3
East: McCabe St														
4	L2	244	7.1	244	7.1	0.645	48.0	LOS D	12.6	99.3	0.94	0.82	0.94	19.2
6	R2	54	7.1	54	7.1	*0.597	68.8	LOS E	3.3	26.0	1.00	0.78	1.08	19.3
Approach		298	7.1	298	7.1	0.645	51.7	LOS D	12.6	99.3	0.95	0.81	0.96	19.2
North: Stirling Hwy														
7	L2	37	0.0	37	0.0	0.639	18.0	LOS B	25.8	207.2	0.64	0.60	0.64	39.9
8	T1	1516	8.9	1516	8.9	*0.639	12.4	LOS B	25.8	207.2	0.64	0.59	0.64	29.6
Approach		1553	8.7	1553	8.7	0.639	12.5	LOS B	25.8	208.0	0.64	0.59	0.64	30.1
All Vehicles		3195	8.1	3195	8.1	0.645	13.2	LOS B	25.8	208.0	0.54	0.49	0.54	34.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	83.9	40.0	0.48
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	79.6	34.3	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_AM (Site Folder: Background (2022))]

Network: N101 [AM PEAK (Network Folder: S1-Existing (2022))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1788	8.9	1788	8.9	0.503	0.2	LOS A	0.1	0.6	0.00	0.00	0.00	59.7
3	R2	1	0.0	1	0.0	0.503	21.3	LOS C	0.1	0.6	0.01	0.00	0.01	57.2
Approach		1789	8.9	1789	8.9	0.503	0.2	NA	0.1	0.6	0.00	0.00	0.00	59.7
East: Coventry Parade														
4	L2	6	0.0	6	0.0	0.008	8.2	LOS A	0.0	0.3	0.56	0.56	0.56	48.2
6	R2	12	0.0	12	0.0	0.190	124.5	LOS F	1.0	7.2	0.98	1.00	1.02	3.6
Approach		18	0.0	18	0.0	0.190	83.5	LOS F	1.0	7.2	0.83	0.84	0.86	12.2
North: Stirling Highway (N)														
7	L2	20	0.0	20	0.0	0.382	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.8
8	T1	1342	8.9	1342	8.9	0.382	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		1362	8.8	1362	8.8	0.382	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		3169	8.8	3169	8.8	0.503	0.6	NA	1.0	7.2	0.01	0.01	0.01	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

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.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_PM (Site Folder: Background (2022))]

Network: N101 [PM PEAK (Network Folder: S1-Existing (2022))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h %	[Veh veh				Dst] m					
South: Stirling Highway (S)														
2	T1	1344	8.9	1344	8.9	0.381	0.2	LOS A	0.2	1.7	0.01	0.00	0.01	59.3
3	R2	2	0.0	2	0.0	0.381	27.6	LOS D	0.2	1.7	0.02	0.00	0.03	54.9
Approach		1346	8.9	1346	8.9	0.381	0.2	NA	0.2	1.7	0.01	0.00	0.01	59.3
East: Coventry Parade														
4	L2	13	0.0	13	0.0	0.020	10.4	LOS B	0.1	0.8	0.65	0.64	0.65	40.2
6	R2	16	0.0	16	0.0	0.367	111.8	LOS F	1.1	7.6	0.98	1.02	1.09	4.0
Approach		28	0.0	28	0.0	0.367	66.7	LOS F	1.1	7.6	0.83	0.85	0.89	11.8
North: Stirling Highway (N)														
7	L2	23	0.0	23	0.0	0.501	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.7
8	T1	1761	8.9	1761	8.9	0.501	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		1784	8.8	1784	8.8	0.501	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.4
All Vehicles		3159	8.7	3159	8.7	0.501	0.8	NA	1.1	7.6	0.01	0.01	0.01	57.9

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.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2024))]

Network: N101 [AM PEAK (Network Folder: S2-Existing (2024))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1565	8.9	1565	8.9	0.499	2.2	LOS A	12.0	96.8	0.25	0.23	0.25	54.4
3	R2	296	0.0	296	0.0	*0.827	44.7	LOS D	15.7	115.4	0.72	0.84	0.89	24.2
Approach		1861	7.5	1861	7.5	0.827	9.0	LOS A	15.7	115.4	0.33	0.33	0.35	42.1
East: McCabe St														
4	L2	306	7.1	306	7.1	0.394	24.6	LOS C	11.5	91.1	0.62	0.74	0.62	27.5
6	R2	71	7.1	71	7.1	*0.898	87.8	LOS F	5.4	42.3	1.00	0.99	1.53	16.5
Approach		377	7.1	377	7.1	0.898	36.5	LOS D	11.5	91.1	0.69	0.79	0.79	23.5
North: Stirling Hwy														
7	L2	120	0.0	120	0.0	0.837	49.2	LOS D	37.9	300.8	0.98	0.92	1.03	25.1
8	T1	1089	8.9	1089	8.9	*0.837	43.7	LOS D	37.9	300.8	0.98	0.92	1.03	13.0
Approach		1209	8.0	1209	8.0	0.837	44.2	LOS D	37.9	305.7	0.98	0.92	1.03	14.7
All Vehicles		3447	7.6	3447	7.6	0.898	24.3	LOS C	37.9	305.7	0.59	0.59	0.64	26.8

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver Speed
		ped/n	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	92.4	40.0	0.43
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.1	34.3	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2024))]

Network: N101 [PM PEAK (Network Folder: S2-Existing (2024))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Hwy														
2	T1	1202	8.9	1202	8.9	0.386	2.1	LOS A	7.7	61.7	0.25	0.22	0.25	54.5
3	R2	196	0.0	196	0.0	*0.691	58.7	LOS E	11.1	81.7	1.00	0.84	1.05	20.7
Approach		1398	7.7	1398	7.7	0.691	10.1	LOS B	11.1	81.7	0.35	0.31	0.36	40.8
East: McCabe St														
4	L2	254	7.1	254	7.1	0.629	46.2	LOS D	12.8	101.3	0.92	0.82	0.92	19.7
6	R2	56	7.1	56	7.1	*0.621	69.1	LOS E	3.4	27.1	1.00	0.79	1.10	19.2
Approach		309	7.1	309	7.1	0.629	50.3	LOS D	12.8	101.3	0.94	0.81	0.96	19.6
North: Stirling Hwy														
7	L2	39	0.0	39	0.0	0.682	19.7	LOS B	29.1	233.5	0.69	0.64	0.69	38.7
8	T1	1577	8.9	1577	8.9	*0.682	14.1	LOS B	29.1	233.5	0.69	0.64	0.69	27.7
Approach		1616	8.7	1616	8.7	0.682	14.3	LOS B	29.1	234.4	0.69	0.64	0.69	28.2
All Vehicles		3323	8.1	3323	8.1	0.691	15.9	LOS B	29.1	234.4	0.57	0.52	0.57	31.4

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.

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	83.9	40.0	0.48
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	79.6	34.3	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_AM (Site Folder: Background (2024))]

Network: N101 [AM PEAK (Network Folder: S2-Existing (2024))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	v/c	sec		[Veh veh]	[Dist m]				km/h
South: Stirling Highway (S)														
2	T1	1860	8.9	1860	8.9	0.523	0.2	LOS A	0.1	0.7	0.00	0.00	0.00	59.7
3	R2	1	0.0	1	0.0	0.523	23.3	LOS C	0.1	0.7	0.01	0.00	0.01	57.2
Approach		1861	8.9	1861	8.9	0.523	0.2	NA	0.1	0.7	0.00	0.00	0.00	59.7
East: Coventry Parade														
4	L2	6	0.0	6	0.0	0.008	8.4	LOS A	0.0	0.3	0.57	0.56	0.57	48.0
6	R2	12	0.0	12	0.0	0.228	153.0	LOS F	1.2	8.6	0.99	1.01	1.04	2.9
Approach		18	0.0	18	0.0	0.228	102.0	LOS F	1.2	8.6	0.84	0.85	0.87	10.4
North: Stirling Highway (N)														
7	L2	21	0.0	21	0.0	0.398	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.7
8	T1	1396	8.9	1396	8.9	0.398	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		1417	8.8	1417	8.8	0.398	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		3296	8.8	3296	8.8	0.523	0.7	NA	1.2	8.6	0.01	0.01	0.01	58.9

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.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_PM (Site Folder: Background (2024))]

Network: N101 [PM PEAK (Network Folder: S2-Existing (2024))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1398	8.9	1398	8.9	0.396	0.2	LOS A	0.3	1.9	0.01	0.00	0.01	59.2
3	R2	2	0.0	2	0.0	0.396	30.5	LOS D	0.3	1.9	0.02	0.00	0.03	54.8
Approach		1400	8.9	1400	8.9	0.396	0.3	NA	0.3	1.9	0.01	0.00	0.01	59.2
East: Coventry Parade														
4	L2	13	0.0	13	0.0	0.021	10.9	LOS B	0.1	0.8	0.66	0.65	0.66	39.8
6	R2	17	0.0	17	0.0	0.449	139.4	LOS F	1.3	9.4	0.98	1.03	1.12	3.2
Approach		29	0.0	29	0.0	0.449	84.3	LOS F	1.3	9.4	0.85	0.87	0.93	9.6
North: Stirling Highway (N)														
7	L2	24	0.0	24	0.0	0.521	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.7
8	T1	1832	8.9	1832	8.9	0.521	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		1856	8.8	1856	8.8	0.521	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles		3285	8.7	3285	8.7	0.521	1.0	NA	1.3	9.4	0.01	0.01	0.01	57.6

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.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2024) + Dev)]

Network: N101 [AM PEAK (Network Folder: S3-Existing (2024) + Dev)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h]	[HV %]	[Total HV]	[HV %]				[Veh veh	[Dist m]				
South: Stirling Hwy														
2	T1	1565	8.9	1565	8.9	0.562	3.0	LOS A	16.6	133.8	0.30	0.28	0.30	52.5
3	R2	319	0.0	319	0.0	*0.876	54.5	LOS D	19.1	140.5	0.76	0.89	1.01	9.2
Approach		1884	7.4	1884	7.4	0.876	11.7	LOS B	19.1	140.5	0.38	0.38	0.42	37.3
East: McCabe St														
4	L2	327	7.1	327	7.1	0.435	24.3	LOS C	12.3	97.3	0.62	0.74	0.62	13.6
6	R2	99	7.1	99	7.1	*0.840	81.0	LOS F	7.2	56.7	1.00	0.93	1.33	10.8
Approach		426	7.1	426	7.1	0.840	37.5	LOS D	12.3	97.3	0.71	0.78	0.79	12.3
North: Stirling Hwy														
7	L2	138	0.0	138	0.0	0.872	54.8	LOS D	41.6	329.4	1.00	0.97	1.10	11.7
8	T1	1099	8.9	1099	8.9	*0.872	49.2	LOS D	41.6	329.4	1.00	0.98	1.10	11.8
Approach		1237	7.9	1237	7.9	0.872	49.9	LOS D	41.6	335.4	1.00	0.98	1.10	11.8
All Vehicles		3547	7.5	3547	7.5	0.876	28.1	LOS C	41.6	335.4	0.63	0.64	0.70	21.4

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.

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	92.4	40.0	0.43
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.1	34.3	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2024) + Dev)]

Network: N101 [PM PEAK (Network Folder: S3-Existing (2024) + Dev)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1202	8.9	1202	8.9	0.382	1.9	LOS A	7.2	58.3	0.23	0.21	0.23	55.0
3	R2	224	0.0	224	0.0	*0.570	51.0	LOS D	11.7	86.1	0.95	0.82	0.95	9.8
Approach		1426	7.5	1426	7.5	0.570	9.6	LOS A	11.7	86.1	0.34	0.31	0.34	40.1
East: McCabe St														
4	L2	284	7.1	284	7.1	0.612	41.3	LOS D	13.6	107.2	0.88	0.81	0.88	9.0
6	R2	79	7.1	79	7.1	*0.753	70.0	LOS E	4.9	38.9	1.00	0.87	1.23	12.1
Approach		363	7.1	363	7.1	0.753	47.5	LOS D	13.6	107.2	0.91	0.83	0.96	10.1
North: Stirling Hwy														
7	L2	77	0.0	77	0.0	0.754	23.7	LOS C	34.5	276.4	0.79	0.74	0.79	23.7
8	T1	1592	8.9	1592	8.9	*0.754	18.2	LOS B	34.5	276.4	0.79	0.74	0.79	23.9
Approach		1668	8.5	1668	8.5	0.754	18.4	LOS B	34.5	278.5	0.79	0.74	0.79	23.9
All Vehicles		3458	7.9	3458	7.9	0.754	17.9	LOS B	34.5	278.5	0.62	0.57	0.62	27.2

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop Que	Effective Stop Rate	Travel Time	Travel Dist	Aver Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	83.9	40.0	0.48
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	79.6	34.3	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_AM (Site Folder: Background (2024) + Dev)]

Network: N101 [AM PEAK (Network Folder: S3-Existing (2024) + Dev)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV veh/h	%				[Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1884	8.9	1884	8.9	0.530	0.1	LOS A	0.1	0.7	0.00	0.00	0.00	59.6
3	R2	1	0.0	1	0.0	0.530	24.3	LOS C	0.1	0.7	0.01	0.00	0.01	55.4
Approach		1885	8.9	1885	8.9	0.530	0.1	NA	0.1	0.7	0.00	0.00	0.00	59.6
East: Coventry Parade														
4	L2	6	0.0	6	0.0	0.008	8.5	LOS A	0.0	0.3	0.58	0.56	0.58	42.2
6	R2	12	0.0	12	0.0	0.486	218.1	LOS F	1.3	9.4	0.99	1.03	1.12	2.1
Approach		18	0.0	18	0.0	0.486	144.1	LOS F	1.3	9.4	0.84	0.86	0.92	5.6
North: Stirling Highway (N)														
7	L2	31	0.0	31	0.0	0.406	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	53.5
8	T1	1418	8.9	1418	8.9	0.406	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		1448	8.7	1448	8.7	0.406	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.4
All Vehicles		3352	8.8	3352	8.8	0.530	0.9	NA	1.3	9.4	0.01	0.01	0.01	57.6

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.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_PM (Site Folder: Background (2024) + Dev)]

Network: N101 [PM PEAK (Network Folder: S3-Existing (2024) + Dev)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist] m				
South: Stirling Highway (S)														
2	T1	1426	8.9	1426	8.9	0.404	0.2	LOS A	0.3	2.1	0.01	0.00	0.01	59.2
3	R2	2	0.0	2	0.0	0.404	32.3	LOS D	0.3	2.1	0.02	0.00	0.03	54.7
Approach		1428	8.9	1428	8.9	0.404	0.3	NA	0.3	2.1	0.01	0.00	0.02	59.1
East: Coventry Parade														
4	L2	13	0.0	13	0.0	0.021	11.0	LOS B	0.1	0.8	0.67	0.65	0.67	39.7
6	R2	17	0.0	17	0.0	0.479	154.0	LOS F	1.4	10.0	0.98	1.03	1.14	2.9
Approach		29	0.0	29	0.0	0.479	92.7	LOS F	1.4	10.0	0.85	0.87	0.94	8.9
North: Stirling Highway (N)														
7	L2	39	0.0	39	0.0	0.533	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	53.4
8	T1	1861	8.9	1861	8.9	0.533	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach		1900	8.7	1900	8.7	0.533	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.2
All Vehicles		3358	8.7	3358	8.7	0.533	1.0	NA	1.4	10.0	0.01	0.01	0.01	57.3

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.

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MOVEMENT SUMMARY

Site: 101v [McCabe St/ McCabe Pl_AM - Conversion (Site Folder: Background (2024) + Dev)]

Network: N101 [AM PEAK (Network Folder: S3-Existing (2024) + Dev)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV veh/h	%				[Veh veh	Dist m				
South: McCabe Pl														
1	L2	49	0.0	49	0.0	0.043	6.8	LOS A	0.2	1.1	0.41	0.62	0.41	48.7
3	R2	41	0.0	41	0.0	0.070	9.7	LOS A	0.2	1.6	0.56	0.81	0.56	50.1
Approach		91	0.0	91	0.0	0.070	8.1	LOS A	0.2	1.6	0.48	0.70	0.48	49.6
East: McCabe St														
4	L2	42	0.0	42	0.0	0.208	5.6	LOS A	0.0	0.0	0.00	0.06	0.00	57.8
5	T1	377	0.0	377	0.0	0.208	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	58.8
Approach		419	0.0	419	0.0	0.208	0.6	NA	0.0	0.0	0.00	0.06	0.00	58.6
West: McCabe St														
11	T1	415	0.0	415	0.0	0.241	0.3	LOS A	0.4	2.8	0.10	0.06	0.10	58.5
12	R2	42	0.0	42	0.0	0.241	7.5	LOS A	0.4	2.8	0.10	0.06	0.10	55.6
Approach		457	0.0	457	0.0	0.241	1.0	NA	0.4	2.8	0.10	0.06	0.10	58.2
All Vehicles		966	0.0	966	0.0	0.241	1.5	NA	0.4	2.8	0.09	0.12	0.09	57.2

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.

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MOVEMENT SUMMARY

Site: 101v [McCabe St/ McCabe Pl_PM - Conversion (Site Folder: Background (2024) + Dev)]

Network: N101 [PM PEAK (Network Folder: S3-Existing (2024) + Dev)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: McCabe Pl														
1	L2	53	0.0	53	0.0	0.044	6.6	LOS A	0.2	1.2	0.36	0.59	0.36	48.9
3	R2	43	0.0	43	0.0	0.059	8.2	LOS A	0.2	1.4	0.48	0.72	0.48	51.3
Approach		96	0.0	96	0.0	0.059	7.3	LOS A	0.2	1.4	0.42	0.65	0.42	50.4
East: McCabe St														
4	L2	66	0.0	66	0.0	0.192	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
5	T1	311	0.0	311	0.0	0.192	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	58.1
Approach		377	0.0	377	0.0	0.192	1.0	NA	0.0	0.0	0.00	0.10	0.00	57.9
West: McCabe St														
11	T1	235	0.0	235	0.0	0.170	0.6	LOS A	0.5	3.5	0.18	0.14	0.18	56.9
12	R2	66	0.0	66	0.0	0.170	7.1	LOS A	0.5	3.5	0.18	0.14	0.18	54.6
Approach		301	0.0	301	0.0	0.170	2.0	NA	0.5	3.5	0.18	0.14	0.18	56.3
All Vehicles		774	0.0	774	0.0	0.192	2.2	NA	0.5	3.5	0.12	0.19	0.12	56.1

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.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2034))]

Network: N101 [AM PEAK (Network Folder: S4-Existing (2034))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1878	8.9	1878	8.9	0.689	3.0	LOS A	24.2	194.9	0.33	0.31	0.33	52.5
3	R2	355	0.0	355	0.0	*0.978	92.0	LOS F	28.2	207.5	0.77	1.01	1.31	15.5
Approach		2233	7.5	2233	7.5	0.978	17.2	LOS B	28.2	207.5	0.40	0.42	0.49	33.8
East: McCabe St														
4	L2	367	7.1	367	7.1	0.480	26.2	LOS C	14.7	115.9	0.66	0.76	0.66	26.7
6	R2	85	7.1	85	7.1	*0.930	91.6	LOS F	6.7	52.6	1.00	1.03	1.59	16.0
Approach		453	7.1	453	7.1	0.930	38.5	LOS D	14.7	115.9	0.73	0.81	0.84	22.9
North: Stirling Hwy														
7	L2	143	0.0	143	0.0	0.985	91.2	LOS F	65.9	522.5	1.00	1.19	1.39	16.9
8	T1	1307	8.9	1307	8.9	*0.985	85.6	LOS F	65.9	522.5	1.00	1.21	1.39	7.4
Approach		1451	8.0	1451	8.0	0.985	86.2	LOS F	65.9	531.0	1.00	1.20	1.39	8.6
All Vehicles		4136	7.6	4136	7.6	0.985	43.7	LOS D	65.9	531.0	0.65	0.74	0.84	18.8

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop Que	Effective Stop Rate	Travel Time	Travel Dist	Aver Speed
		ped/n	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	92.4	40.0	0.43
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.1	34.3	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2034))]

Network: N101 [PM PEAK (Network Folder: S4-Existing (2034))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1443	8.9	1443	8.9	0.463	2.4	LOS A	10.2	82.2	0.27	0.25	0.27	54.0
3	R2	235	0.0	235	0.0	*0.915	71.5	LOS E	15.4	113.2	0.95	1.00	1.39	18.3
Approach		1678	7.7	1678	7.7	0.915	12.0	LOS B	15.4	113.2	0.37	0.36	0.43	38.5
East: McCabe St														
4	L2	305	7.1	305	7.1	0.609	40.0	LOS D	14.4	113.8	0.87	0.81	0.87	21.4
6	R2	67	7.1	67	7.1	*0.750	71.1	LOS E	4.2	33.5	1.00	0.87	1.25	18.9
Approach		373	7.1	373	7.1	0.750	45.6	LOS D	14.4	113.8	0.90	0.82	0.94	20.8
North: Stirling Hwy														
7	L2	46	0.0	46	0.0	0.915	43.6	LOS D	60.1	483.0	0.97	1.02	1.11	27.1
8	T1	1893	8.9	1893	8.9	*0.915	38.0	LOS D	60.1	483.0	0.97	1.02	1.11	14.5
Approach		1939	8.7	1939	8.7	0.915	38.2	LOS D	60.1	484.9	0.97	1.02	1.11	15.0
All Vehicles		3989	8.1	3989	8.1	0.915	27.9	LOS C	60.1	484.9	0.71	0.72	0.81	23.4

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.

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	83.9	40.0	0.48
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	79.6	34.3	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2034) (Upgraded))]

Network: N101 [AM PEAK (Network Folder: S4-Existing (2034) (Upgraded))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	w/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1878	10.9	1875	10.9	0.679	3.0	LOS A	23.0	185.6	0.32	0.30	0.32	52.7
3	R2	355	0.0	354	0.0	*0.936	71.6	LOS E	24.6	180.7	0.74	0.95	1.14	11.1
Approach		2233	9.2	2229	9.2	0.936	13.9	LOS B	24.6	185.6	0.39	0.40	0.45	35.5
East: McCabe St														
4	L2	367	7.1	367	7.1	0.457	26.4	LOS C	14.0	110.5	0.63	0.75	0.63	13.6
6	R2	85	7.1	85	7.1	*0.930	91.6	LOS F	6.7	52.6	1.00	1.05	1.59	10.0
Approach		453	7.1	453	7.1	0.930	38.7	LOS D	14.0	110.5	0.70	0.80	0.81	12.0
North: Stirling Hwy														
7	L2	143	0.0	143	0.0	0.193	14.0	LOS B	2.9	23.9	0.54	0.67	0.54	34.5
8	T1	1307	10.9	1307	10.9	*0.941	66.1	LOS E	52.1	421.0	0.99	1.10	1.25	9.6
Approach		1451	9.8	1451	9.8	0.941	60.9	LOS E	52.1	421.0	0.95	1.06	1.18	10.5
All Vehicles		4136	9.2	4132	9.2	0.941	33.1	LOS C	52.1	421.0	0.62	0.68	0.75	20.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

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

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	97.5	46.6	0.48
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.6	34.9	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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V5.sip9

MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2034) (Upgraded))]

Network: N101 [PM PEAK (Network Folder: S4-Existing (2034) (Upgraded))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1443	10.9	1443	10.9	0.425	2.3	LOS A	8.9	71.6	0.25	0.23	0.25	54.4
3	R2	235	0.0	235	0.0	*0.552	49.2	LOS D	12.1	88.6	0.94	0.82	0.94	14.8
Approach		1678	9.4	1678	9.4	0.552	8.9	LOS A	12.1	88.6	0.35	0.31	0.35	41.7
East: McCabe St														
4	L2	305	7.1	305	7.1	0.523	43.4	LOS D	14.2	112.3	0.86	0.81	0.86	9.4
6	R2	67	7.1	67	7.1	*0.750	71.1	LOS E	4.2	33.5	1.00	0.87	1.25	12.1
Approach		373	7.1	373	7.1	0.750	48.4	LOS D	14.2	112.3	0.89	0.82	0.93	10.2
North: Stirling Hwy														
7	L2	46	0.0	46	0.0	0.179	18.6	LOS B	3.9	34.9	0.49	0.53	0.49	32.4
8	T1	1893	10.9	1893	10.9	*0.865	27.3	LOS C	47.5	384.1	0.88	0.86	0.93	18.7
Approach		1939	10.6	1939	10.6	0.865	27.1	LOS C	47.5	384.1	0.87	0.85	0.92	18.9
All Vehicles		3989	9.8	3989	9.8	0.865	21.4	LOS C	47.5	384.1	0.65	0.62	0.68	25.4

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.

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	89.0	46.6	0.52
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	80.1	34.9	0.44

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_AM (Site Folder: Background (2034) (Upgraded))]

Network: N101 [AM PEAK (Network Folder: S4-Existing (2034) (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Highway (S)														
2	T1	2233	8.9	2233	8.9	0.817	0.5	LOS A	0.2	1.7	0.00	0.00	0.01	58.5
3	R2	1	0.0	1	0.0	0.817	40.1	LOS E	0.2	1.7	0.01	0.00	0.02	55.3
Approach		2234	8.9	2234	8.9	0.817	0.5	NA	0.2	1.7	0.00	0.00	0.01	58.5
East: Coventry Parade														
4	L2	7	0.0	7	0.0	0.011	9.8	LOS A	0.1	0.4	0.63	0.60	0.63	40.8
6	R2	15	0.0	15	0.0	1.397	850.0	LOS F	5.7	39.8	1.00	1.32	2.31	0.5
Approach		22	0.0	22	0.0	1.397	569.9	LOS F	5.7	39.8	0.88	1.08	1.75	1.4
North: Stirling Highway (N)														
7	L2	25	0.0	25	0.0	0.477	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.7
8	T1	1675	8.9	1675	8.9	0.477	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		1700	8.8	1700	8.8	0.477	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.4
All Vehicles		3956	8.8	3956	8.8	1.397	3.6	NA	5.7	39.8	0.01	0.01	0.02	51.7

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.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_PM (Site Folder: Background (2034) (Upgraded))]

Network: N101 [PM PEAK (Network Folder: S4-Existing (2034) (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1678	8.9	1678	8.9	0.477	0.5	LOS A	0.6	4.5	0.01	0.00	0.02	58.5
3	R2	2	0.0	2	0.0	0.477	52.2	LOS F	0.6	4.5	0.03	0.00	0.04	54.0
Approach		1680	8.9	1680	8.9	0.477	0.5	NA	0.6	4.5	0.01	0.00	0.02	58.5
East: Coventry Parade														
4	L2	16	0.0	16	0.0	0.033	14.0	LOS B	0.2	1.3	0.74	0.71	0.74	37.0
6	R2	20	0.0	20	0.0	0.669	243.9	LOS F	2.2	15.7	0.99	1.07	1.28	1.9
Approach		36	0.0	36	0.0	0.669	142.5	LOS F	2.2	15.7	0.88	0.91	1.04	6.2
North: Stirling Highway (N)														
7	L2	28	0.0	28	0.0	0.624	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.6
8	T1	2197	8.9	2197	8.9	0.624	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.1
Approach		2225	8.8	2225	8.8	0.624	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.1
All Vehicles		3941	8.8	3941	8.8	0.669	1.6	NA	2.2	15.7	0.01	0.01	0.02	56.1

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.

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MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_AM (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [AM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 135 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	w/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1878	10.9	1874	10.9	0.716	4.4	LOS A	28.4	229.9	0.39	0.37	0.39	49.9
3	R2	397	0.0	396	0.0	* 1.013	121.9	LOS F	33.3	244.8	1.00	1.15	1.65	4.6
Approach		2275	9.0	2270	9.0	1.013	24.9	LOS C	33.3	244.8	0.50	0.50	0.61	26.2
East: McCabe St														
4	L2	409	7.1	409	7.1	0.523	25.3	LOS C	15.3	120.9	0.62	0.75	0.62	14.2
6	R2	141	7.1	141	7.1	* 0.979	104.9	LOS F	12.1	95.2	1.00	1.12	1.67	8.9
Approach		551	7.1	551	7.1	0.979	45.7	LOS D	15.3	120.9	0.72	0.84	0.89	11.1
North: Stirling Hwy														
7	L2	176	0.0	176	0.0	0.252	30.0	LOS C	8.0	64.4	0.64	0.78	0.64	18.2
8	T1	1317	10.9	1317	10.9	* 1.009	101.6	LOS F	64.2	518.7	0.99	1.30	1.49	6.6
Approach		1493	9.6	1493	9.6	1.009	93.2	LOS F	64.2	518.7	0.95	1.23	1.39	7.0
All Vehicles		4318	9.0	4313	9.0	1.013	51.2	LOS D	64.2	518.7	0.68	0.80	0.92	14.1

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 (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

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

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	61.6	LOS F	0.0	0.0	0.96	0.96	97.5	46.6	0.48
East: McCabe St											
P2	Full	53	61.8	LOS F	0.2	0.2	0.96	0.96	87.7	33.7	0.38
All Pedestrians		58	61.8	LOS F	0.2	0.2	0.96	0.96	88.6	34.9	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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V5.sip9

MOVEMENT SUMMARY

Site: LM00578 [Stirling Highway/ McCabe Street_PM (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [PM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh veh	Dist m				km/h
South: Stirling Hwy														
2	T1	1443	10.9	1443	10.9	0.429	2.6	LOS A	9.4	75.6	0.27	0.24	0.27	53.8
3	R2	285	0.0	285	0.0	*0.995	101.3	LOS F	22.9	168.1	0.94	1.13	1.65	5.4
Approach		1728	9.1	1728	9.1	0.995	18.9	LOS B	22.9	168.1	0.38	0.39	0.49	30.5
East: McCabe St														
4	L2	361	7.1	361	7.1	0.561	41.4	LOS D	16.6	130.8	0.85	0.82	0.85	9.9
6	R2	109	7.1	109	7.1	*1.044	128.7	LOS F	9.9	78.3	1.00	1.28	2.06	7.4
Approach		471	7.1	471	7.1	1.044	61.7	LOS E	16.6	130.8	0.89	0.93	1.13	8.6
North: Stirling Hwy														
7	L2	114	0.0	114	0.0	0.199	15.0	LOS B	4.0	34.1	0.50	0.60	0.50	29.0
8	T1	1907	10.9	1907	10.9	*0.963	57.9	LOS E	71.5	578.0	0.97	1.13	1.26	10.7
Approach		2021	10.3	2021	10.3	0.963	55.5	LOS E	71.5	578.0	0.94	1.10	1.22	10.9
All Vehicles		4220	9.4	4220	9.4	1.044	41.2	LOS D	71.5	578.0	0.70	0.79	0.91	16.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver Speed
		ped/h	sec		[Ped ped	Dist m			sec	m	m/sec
South: Stirling Hwy											
P1	Full	5	53.2	LOS E	0.0	0.0	0.95	0.95	89.0	46.6	0.52
East: McCabe St											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	79.2	33.7	0.43
All Pedestrians		58	53.3	LOS E	0.2	0.2	0.95	0.95	80.1	34.9	0.44

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_AM (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [AM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist] m				
South: Stirling Highway (S)														
2	T1	2275	8.9	2275	8.9	0.822	0.6	LOS A	11.7	90.1	0.01	0.00	0.01	58.2
3	R2	1	0.0	1	0.0	0.822	79.6	LOS F	11.7	90.1	0.02	0.00	0.02	55.1
Approach		2276	8.9	2276	8.9	0.822	0.6	NA	11.7	90.1	0.01	0.00	0.01	58.2
East: Coventry Parade														
4	L2	7	0.0	7	0.0	0.011	9.9	LOS A	0.1	0.4	0.64	0.61	0.64	40.7
6	R2	15	0.0	15	0.0	4.314	3495.1	LOS F	12.6	88.4	1.00	1.38	2.56	0.1
Approach		22	0.0	22	0.0	4.314	2333.4	LOS F	12.6	88.4	0.88	1.12	1.92	0.3
North: Stirling Highway (N)														
7	L2	35	0.0	34	0.0	0.488	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	53.5
8	T1	1717	8.9	1705	8.9	0.488	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach		1752	8.7	1740	8.7	0.488	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles		4049	8.8	4037	8.8	4.314	13.2	NA	12.6	90.1	0.01	0.01	0.02	37.4

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.

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MOVEMENT SUMMARY

Site: 101 [Stirling Highway/ Coventry Parade_PM (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [PM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1728	8.9	1728	8.9	0.532	0.5	LOS A	0.7	5.0	0.01	0.00	0.02	58.3
3	R2	2	0.0	2	0.0	0.532	53.9	LOS F	0.7	5.0	0.03	0.00	0.05	53.6
Approach		1731	8.9	1731	8.9	0.532	0.6	NA	0.7	5.0	0.01	0.00	0.02	58.3
East: Coventry Parade														
4	L2	16	0.0	16	0.0	0.034	14.5	LOS B	0.2	1.3	0.75	0.71	0.75	36.6
6	R2	20	0.0	20	0.0	0.828	321.0	LOS F	2.6	18.0	0.99	1.12	1.47	1.5
Approach		36	0.0	36	0.0	0.828	185.8	LOS F	2.6	18.0	0.88	0.94	1.15	4.9
North: Stirling Highway (N)														
7	L2	44	0.0	44	0.0	0.644	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.3
8	T1	2253	8.9	2253	8.9	0.644	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.0
Approach		2297	8.7	2297	8.7	0.644	0.2	NA	0.0	0.0	0.00	0.01	0.00	58.9
All Vehicles		4063	8.7	4063	8.7	0.828	2.0	NA	2.6	18.0	0.01	0.02	0.02	55.2

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.

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MOVEMENT SUMMARY

Site: 101v [McCabe St/ McCabe Pl_AM - Conversion (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [AM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: McCabe Pl														
1	L2	98	0.0	98	0.0	0.107	7.3	LOS A	0.4	2.5	0.46	0.68	0.46	48.4
3	R2	80	0.0	80	0.0	0.172	11.8	LOS B	0.6	4.0	0.68	0.87	0.68	48.7
Approach		178	0.0	178	0.0	0.172	9.3	LOS A	0.6	4.0	0.56	0.77	0.56	48.6
East: McCabe St														
4	L2	68	0.0	68	0.0	0.295	5.6	LOS A	0.0	0.0	0.00	0.08	0.00	57.5
5	T1	453	0.0	453	0.0	0.295	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	58.4
Approach		521	0.0	521	0.0	0.295	0.8	NA	0.0	0.0	0.00	0.08	0.00	58.2
West: McCabe St														
11	T1	498	0.0	493	0.0	0.315	0.7	LOS A	0.9	6.3	0.19	0.09	0.21	57.3
12	R2	74	0.0	73	0.0	0.315	8.5	LOS A	0.9	6.3	0.19	0.09	0.21	54.6
Approach		572	0.0	566	0.0	0.315	1.7	NA	0.9	6.3	0.19	0.09	0.21	57.0
All Vehicles		1271	0.0	1265	0.0	0.315	2.4	NA	0.9	6.3	0.17	0.18	0.17	55.8

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.

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V5.slp9

MOVEMENT SUMMARY

Site: 101v [McCabe St/ McCabe Pl_PM - Conversion (Site Folder: Background (2034) + Dev (Upgraded))]

Network: N101 [PM PEAK (Network Folder: S5-Existing (2034) + Dev (Upgraded))]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver No. Cycles	Aver Speed
		[Total veh/h	HV %	[Total HV] veh/h	%				[Veh veh	Dist m				
South: McCabe Pl														
1	L2	98	0.0	98	0.0	0.107	6.9	LOS A	0.3	2.3	0.41	0.64	0.41	48.6
3	R2	80	0.0	80	0.0	0.133	9.7	LOS A	0.4	3.1	0.57	0.82	0.57	50.3
Approach		178	0.0	178	0.0	0.133	8.2	LOS A	0.4	3.1	0.48	0.72	0.48	49.6
East: McCabe St														
4	L2	108	0.0	108	0.0	0.289	5.6	LOS A	0.0	0.0	0.00	0.13	0.00	57.1
5	T1	373	0.0	373	0.0	0.289	0.1	LOS A	0.0	0.0	0.00	0.13	0.00	57.5
Approach		481	0.0	481	0.0	0.289	1.3	NA	0.0	0.0	0.00	0.13	0.00	57.3
West: McCabe St														
11	T1	281	0.0	281	0.0	0.248	1.2	LOS A	1.0	7.1	0.32	0.20	0.32	55.3
12	R2	118	0.0	118	0.0	0.248	7.9	LOS A	1.0	7.1	0.32	0.20	0.32	53.1
Approach		399	0.0	399	0.0	0.248	3.2	NA	1.0	7.1	0.32	0.20	0.32	54.6
All Vehicles		1058	0.0	1058	0.0	0.289	3.2	NA	1.0	7.1	0.20	0.26	0.20	54.7

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.

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MOVEMENT SUMMARY

Site: LM00578 [S3-Stirling Highway/McCabe Street_AM - Import (Site Folder: Background (2034) + Dev (Upgraded) and Mods)]

Network: N101 [AM PEAK - Import (Network Folder: S6-Background (2034) + Dev (Upgraded) and Mods)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	HV %	[Total HV veh/h]	%	v/c	Sec		[Veh. veh]	Dist m				km/h
South: Stirling Hwy														
2	T1	1878	10.9	1878	10.9	0.784	8.2	LOS A	21.3	165.7	0.66	0.64	0.71	43.4
3	R2	278	0.0	278	0.0	*0.816	36.6	LOS D	9.1	63.8	1.00	0.97	1.31	13.0
Approach		2156	9.5	2156	9.5	0.816	11.9	LOS B	21.3	165.7	0.70	0.69	0.79	37.5
East: McCabe St														
4	L2	409	7.1	409	7.1	0.604	23.5	LOS C	9.9	74.6	0.86	0.82	0.86	15.1
6	R2	156	7.1	156	7.1	*0.881	42.9	LOS D	5.6	42.2	1.00	1.08	1.66	17.2
Approach		565	7.1	565	7.1	0.881	28.8	LOS C	9.9	74.6	0.90	0.89	1.08	16.1
North: Stirling Hwy														
7	L2	176	0.0	176	0.0	0.187	9.5	LOS A	2.2	17.4	0.45	0.62	0.45	35.1
8	T1	1317	10.9	1317	10.9	*0.843	23.6	LOS C	20.7	160.8	0.95	1.00	1.17	20.5
Approach		1493	9.6	1493	9.6	0.843	22.0	LOS C	20.7	160.8	0.90	0.96	1.09	21.5
All Vehicles		4214	9.2	4214	9.2	0.881	17.7	LOS B	21.3	165.7	0.80	0.81	0.93	28.3

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped]	Dist m			sec	m	m/sec
South: Stirling Hwy											
P11	Stage 1	5	24.3	LOS C	0.0	0.0	0.90	0.90	52.8	34.2	0.65
P12	Stage 2	5	24.3	LOS C	0.0	0.0	0.90	0.90	50.1	30.9	0.62
East: McCabe St											
P2	Full	53	23.5	LOS C	0.1	0.1	0.89	0.89	51.5	33.7	0.65
All Pedestrians		63	23.6	LOS C	0.1	0.1	0.89	0.89	51.5	33.5	0.65

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.

Project: K:\Projects\CW1147800_3Oceans-Matilda Bay Brewery-Traffic\5_Technical\Traffic\Modelling\Stage 1+2\Matilda Bay_Existing (Stage 1+2)
V5.sip9

MOVEMENT SUMMARY

Site: LM00578 [S3-Stirling Highway/McCabe Street_PM - Import (Site Folder: Background (2034) + Dev (Upgraded) and Mods)]

Network: N101 [PM PEAK - Import (Network Folder: S6-Background (2034) + Dev (Upgraded) and Mods)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total HV]	[%]				[Veh. veh]	[Dist m]				
South: Stirling Hwy														
2	T1	1443	10.9	1443	10.9	0.505	3.9	LOS A	10.6	82.0	0.41	0.38	0.41	50.7
3	R2	200	0.0	200	0.0	*0.862	51.3	LOS D	9.0	62.9	1.00	0.99	1.42	9.9
Approach		1643	9.6	1643	9.6	0.862	9.7	LOS A	10.6	82.0	0.49	0.45	0.54	40.4
East: McCabe St														
4	L2	361	7.1	361	7.1	0.710	38.7	LOS D	13.3	100.3	0.95	0.87	1.00	10.6
6	R2	129	7.1	129	7.1	*0.837	51.1	LOS D	5.8	43.7	1.00	0.99	1.43	15.3
Approach		491	7.1	491	7.1	0.837	42.0	LOS D	13.3	100.3	0.97	0.90	1.12	12.4
North: Stirling Hwy														
7	L2	114	0.0	114	0.0	0.139	9.9	LOS A	2.0	17.0	0.39	0.55	0.39	35.7
8	T1	1907	10.9	1907	10.9	*0.905	30.7	LOS C	42.6	331.2	0.95	1.06	1.18	17.2
Approach		2021	10.3	2021	10.3	0.905	29.6	LOS C	42.6	331.2	0.92	1.03	1.13	17.6
All Vehicles		4155	9.6	4155	9.6	0.905	23.2	LOS C	42.6	331.2	0.75	0.79	0.89	23.8

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	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop Que	Effective Stop Rate	Travel Time	Travel Dist	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Stirling Hwy											
P11	Stage 1	5	34.2	LOS D	0.0	0.0	0.93	0.93	60.5	34.2	0.56
P12	Stage 2	5	34.2	LOS D	0.0	0.0	0.93	0.93	58.0	30.9	0.53
East: McCabe St											
P2	Full	53	33.4	LOS D	0.1	0.1	0.91	0.91	61.5	33.7	0.55
All Pedestrians		63	33.5	LOS D	0.1	0.1	0.92	0.92	61.1	33.5	0.55

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.

Project: K:\Projects\CW1147800_3Oceans-Matilda Bay Brewery-Traffic\5_Technical\TrafficModelling\Stage 1+2\Matilda Bay_Existing (Stage 1+2)
V5.sip9

MOVEMENT SUMMARY

Site: 101 [S3-Stirling Highway/Coventry Parade_AM - Import
(Site Folder: Background (2034) + Dev (Upgraded) and Mods)]

Network: N101 [AM PEAK -
Import (Network Folder: S6-
Background (2034) + Dev
(Upgraded) and Mods)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		Total veh/h	HV %	Total HV veh/h	%				Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	2275	8.9	2275	8.9	0.692	0.4	LOS A	0.0	0.0	0.00	0.00	0.00	58.9
3	R2	120	0.0	120	0.0	0.370	21.5	LOS C	1.5	10.7	0.85	0.99	1.04	32.2
Approach		2395	8.5	2395	8.5	0.692	1.4	NA	1.5	10.7	0.04	0.05	0.05	55.8
East: Coventry Parade														
4	L2	7	0.0	7	0.0	0.012	10.0	LOS B	0.1	0.4	0.64	0.61	0.64	40.6
Approach		7	0.0	7	0.0	0.012	10.0	LOS B	0.1	0.4	0.64	0.61	0.64	40.6
North: Stirling Highway (N)														
7	L2	35	0.0	35	0.0	0.491	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	53.4
8	T1	1717	8.9	1717	8.9	0.491	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.3
Approach		1752	8.7	1752	8.7	0.491	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles		4154	8.6	4154	8.6	0.692	0.9	NA	1.5	10.7	0.03	0.03	0.03	57.5

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.

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V5.sip9

MOVEMENT SUMMARY

Site: 101 [S3-Stirling Highway/Coventry Parade_PM - Import
(Site Folder: Background (2034) + Dev (Upgraded) and Mods)]

Network: N101 [PM PEAK -
Import (Network Folder: S6-
Background (2034) + Dev
(Upgraded) and Mods)]

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

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		Total veh/h	HV %	Total HV veh/h	%				Veh veh	Dist m				
South: Stirling Highway (S)														
2	T1	1728	2.3	1728	2.3	0.456	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	88	0.0	88	0.0	0.460	36.1	LOS E	1.8	12.5	0.92	1.04	1.19	25.1
Approach		1817	2.2	1817	2.2	0.460	1.9	NA	1.8	12.5	0.04	0.05	0.06	54.8
East: Coventry Parade														
4	L2	16	0.0	16	0.0	0.033	14.4	LOS B	0.2	1.3	0.74	0.71	0.74	36.7
Approach		16	0.0	16	0.0	0.033	14.4	LOS B	0.2	1.3	0.74	0.71	0.74	36.7
North: Stirling Highway (N)														
7	L2	44	0.0	44	0.0	0.603	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	53.5
8	T1	2255	2.2	2255	2.2	0.603	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.2
Approach		2299	2.2	2299	2.2	0.603	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.1
All Vehicles		4132	2.2	4132	2.2	0.603	1.0	NA	1.8	12.5	0.02	0.03	0.03	57.3

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.

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V5.sip9

MOVEMENT SUMMARY

Site: 101 [S3-McCabe St/McCabe Pl_AM - Import (Site Folder: Background (2034) + Dev (Upgraded) and Mods)] Network: N101 [AM PEAK - Import (Network Folder: S6-Background (2034) + Dev (Upgraded) and Mods)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total HV]	[%]				[Veh veh]	[Dist m]				
South: McCabe Pl														
1	L2	113	0.0	113	0.0	0.202	5.4	LOS A	1.2	8.2	0.59	0.68	0.59	42.0
2	T1	1	0.0	1	0.0	0.202	5.3	LOS A	1.2	8.2	0.59	0.68	0.59	46.6
3	R2	80	0.0	80	0.0	0.202	9.8	LOS A	1.2	8.2	0.59	0.68	0.59	42.1
Approach		194	0.0	194	0.0	0.202	7.2	LOS A	1.2	8.2	0.59	0.68	0.59	42.1
East: McCabe St														
4	L2	68	0.0	68	0.0	0.370	3.3	LOS A	2.8	20.8	0.29	0.36	0.29	45.6
5	T1	453	4.6	453	4.6	0.370	3.3	LOS A	2.8	20.8	0.29	0.36	0.29	34.1
6	R2	1	0.0	1	0.0	0.370	7.7	LOS A	2.8	20.8	0.29	0.36	0.29	47.6
Approach		522	4.0	522	4.0	0.370	3.3	LOS A	2.8	20.8	0.29	0.36	0.29	38.2
North: Access														
7	L2	1	0.0	1	0.0	0.004	6.8	LOS A	0.0	0.2	0.69	0.50	0.69	42.3
8	T1	1	0.0	1	0.0	0.004	6.8	LOS A	0.0	0.2	0.69	0.50	0.69	46.0
9	R2	1	0.0	1	0.0	0.004	11.3	LOS B	0.0	0.2	0.69	0.50	0.69	41.1
Approach		3	0.0	3	0.0	0.004	8.3	LOS A	0.0	0.2	0.69	0.50	0.69	43.6
West: McCabe St														
10	L2	1	0.0	1	0.0	0.422	3.3	LOS A	3.0	23.0	0.27	0.41	0.27	45.3
11	T1	498	9.8	498	9.8	0.422	3.5	LOS A	3.0	23.0	0.27	0.41	0.27	41.5
12	R2	74	0.0	74	0.0	0.422	7.8	LOS A	3.0	23.0	0.27	0.41	0.27	47.2
Approach		573	8.5	573	8.5	0.422	4.1	LOS A	3.0	23.0	0.27	0.41	0.27	43.0
All Vehicles		1292	5.4	1292	5.4	0.422	4.3	LOS A	3.0	23.0	0.33	0.43	0.33	41.3

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.

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MOVEMENT SUMMARY

Site: 101 [S3-McCabe St/McCabe Pl_PM - Import (Site Folder: Background (2034) + Dev (Upgraded) and Mods)] Network: N101 [PM PEAK - Import (Network Folder: S6-Background (2034) + Dev (Upgraded) and Mods)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		Total veh/h	HV %	Total HV	%				Veh veh	Dist m				
South: McCabe Pl														
1	L2	118	0.0	118	0.0	0.197	4.9	LOS A	1.1	8.0	0.55	0.64	0.55	42.4
2	T1	1	0.0	1	0.0	0.197	4.8	LOS A	1.1	8.0	0.55	0.64	0.55	46.8
3	R2	80	0.0	80	0.0	0.197	9.3	LOS A	1.1	8.0	0.55	0.64	0.55	42.4
Approach		199	0.0	199	0.0	0.197	6.7	LOS A	1.1	8.0	0.55	0.64	0.55	42.5
East: McCabe St														
4	L2	108	0.0	108	0.0	0.364	3.6	LOS A	2.7	20.1	0.36	0.40	0.36	45.2
5	T1	373	5.6	373	5.6	0.364	3.7	LOS A	2.7	20.1	0.36	0.40	0.36	33.0
6	R2	1	0.0	1	0.0	0.364	8.0	LOS A	2.7	20.1	0.36	0.40	0.36	47.2
Approach		482	4.3	482	4.3	0.364	3.6	LOS A	2.7	20.1	0.36	0.40	0.36	39.3
North: Access														
7	L2	1	0.0	1	0.0	0.003	5.2	LOS A	0.0	0.1	0.56	0.48	0.56	43.4
8	T1	1	0.0	1	0.0	0.003	5.2	LOS A	0.0	0.1	0.56	0.48	0.56	46.7
9	R2	1	0.0	1	0.0	0.003	9.7	LOS A	0.0	0.1	0.56	0.48	0.56	42.3
Approach		3	0.0	3	0.0	0.003	6.7	LOS A	0.0	0.1	0.56	0.48	0.56	44.6
West: McCabe St														
10	L2	1	0.0	1	0.0	0.298	3.3	LOS A	1.8	13.4	0.24	0.45	0.24	44.9
11	T1	281	10.3	281	10.3	0.298	3.5	LOS A	1.8	13.4	0.24	0.45	0.24	40.6
12	R2	118	0.0	118	0.0	0.298	7.7	LOS A	1.8	13.4	0.24	0.45	0.24	46.8
Approach		400	7.2	400	7.2	0.298	4.7	LOS A	1.8	13.4	0.24	0.45	0.24	43.6
All Vehicles		1084	4.6	1084	4.6	0.364	4.6	LOS A	2.7	20.1	0.35	0.46	0.35	41.9

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.

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waste less, achieve more

Matilda Bay Brewery, North Fremantle

Waste Management Plan

17 May 2022

Rev_1





waste less, achieve more

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Revision	Drafted	Reviewed	Date issued
Rev_0	D Ladle	A Bremner	14 April 2022
Rev_1	D Ladle	A Bremner	17 May 2022

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Glossary of terms and acronyms

Chute	In multi-storey buildings, a 'chute' is literally a shaft built into the construction that allows waste and/or recyclable material to be easily transported to the ground floor level from upper levels.
CDS	Also known as Containers for Change: a 10 cent refund is obtained from returning 'eligible' drinks containers to a designated refund point.
Commingled recycling	Common recyclables, mostly packaging; such as glass, plastics, aluminium, steel, liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Compactor	In multi-level residential buildings, industrial compactors are used to literally 'compact' or compress the waste material into a smaller volume to allow for optimal use of space.
FOGO	Food Organics Green Organics – a third bin offered to residents for the collection of food waste and garden waste.
General Waste	Material that is intended for disposal to landfill, normally what remains after the recyclables have been collected separately.
Organic waste	Separated food and/or 'green' material (e.g. grass clippings or vegetation prunings).
Recyclable	Material that can be collected separately from the general waste and sent for recycling. The precise definition will vary, depending upon location (i.e. systems exist for the recycling of some materials in some areas and not in others).
Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.
Reuse	The transfer of a product to another user, with no major dismantling or processing required. The term "reuse" can also be applied in circumstances where an otherwise disposable item is replaced by a more durable item hence avoiding the creation of waste (e.g. using a ceramic coffee mug in place of disposable cups).

1 Introduction

This Waste Management Plan (WMP) has been prepared for 3 Oceans Property Pty Ltd for Development Application for the proposed mixed-use development at Matilda Bay Brewery, North Fremantle.

The proposed development will consist of three residential towers, food & beverage tenancies (restaurant, café, tavern and tavern function rooms), an artisan greengrocer market, and community spaces.

This WMP has been prepared based on the following information:

- Architectural plans from COX, received 12 May 2022
- Area schedule from COX, received 12 May 2022
- Email: Mario Celik, COX, confirming apartment numbers per tower, 11 April 2022
- WALGA Commercial and Industrial Waste Management Plan Guidelines (2018)
- City of Melville waste generation rates general waste, commingled recycling and FOGO rates: Local Planning Policy 1.3 (January 2020) as agreed with Gerry Anderson, City of Fremantle
- Green Star Office Design and As Built v1.3 credit 8.A requirements (in principle)
- Conversations with Gerry Anderson, Waste Management Team Leader, City of Fremantle, regarding council waste management requirements, 2 / 4 March 2022
- Meeting with City of Fremantle, Parcel Property, COX and Encycle, 6 April 2022

1.1 Context

Key factors to consider at the design phase for effective waste management include:

- The volumes of waste and recyclables likely to be generated during operation
- Size of bin storage area
- Local council requirements
- Access to bins and storage areas from within the building and for trucks for waste collection
- Safety for all operatives involved in waste management
- Amenity (odours and noise)
- The ongoing management of waste and recycling services

1.2 Key components of the WMP

The following report will present detailed information on each of the following components.



2 Estimated waste and recycling volumes



2.1 Local government requirements for waste volumes and bin type

The City of Melville's generation rates for general waste, commingled recycling and FOGO as per Local Planning Policy 1.3 (2020) have been used as a logical approach to estimate residential waste and recycling until finalised City of Fremantle guidelines are available.

Specifically, for residential waste and recycling the generation rates used are presented below.

	Waste requirement	Commingled recycling requirement	FOGO requirement
Per unit	65 L/unit/week	40 L/unit/ week	28 L/unit/week

The WALGA Commercial and Industrial Waste Management Plan Guidelines (2018) have been used as a basis for estimating waste generation rates for the commercial aspects of this development, in addition to Encycle's experience and knowledge.

Specifically, for commercial waste and recycling the generation rates used are presented below. The final column presents Encycle Consulting's in-house estimate of the material streams present in the recycling stream based on our working experience of operational buildings in Perth.

Premises type	Waste generation rate	Recycling generation rate	Percentage breakdown of recycling stream by material
Restaurant/ Club dining	6.7 L /1 m ² /day	1.3 L /1 m ² /day	40% commingled 50% cardboard 10% soft plastics 10% cooking oil 20% of waste is organics 100% glass (in addition)
Café	3 L /1 m ² /day	2 L /1 m ² /day	40% commingled 50% cardboard 10% soft plastics 10% cooking oil 20% of waste is organics
Function	2 L /1 m ² /day	1 L /1 m ² /day	40% commingled 50% cardboard 10% soft plastics 10% cooking oil 20% of waste is organics 100% glass (in addition)
Gymnasium	0.1 L /1 m ² /day	0.1 L /1 m ² /day	40% commingled 50% cardboard 10% soft plastics

Premises type	Waste generation rate	Recycling generation rate	Percentage breakdown of recycling stream by material
Greengrocer	2.4 L / 1 m ² /day	1.2 L / 1 m ² /day	40% commingled 50% cardboard 10% soft plastics 20% of waste is organics
Office	0.1 L / 1 m ² /day	0.1 L / 1 m ² /day	79% paper 14% cardboard 7% commingled 10% soft plastics 20% of waste is organics

2.2 Overall design for waste management

Waste management has been designed to maximise recycling and waste diversion from landfill. Waste management for the development includes:

- Dual chute systems in each residential tower for general waste and commingled recycling. The dual chute access hatches are accessible on each residential floor in designated waste rooms
- Source separated FOGO collection with 140 L bins in the waste room on each floor to collect mainly food waste from the residents; the 140 L bins will be collected and transported to the waste room by the caretaker daily or as required
- A residential bin store on the ground floor of each tower for storage of all residential waste, recycling and FOGO and including bins or designated space for bulky objects not suitable for chute disposal
- A commercial bin store with separate sections for the various tenancies on the ground floor.

2.3 Chute system

A dual chute system will be installed in each of the three residential apartment towers to service general waste and commingled recycling. The dual chute systems will terminate in the residential bin stores on the ground floor and will discharge general waste and recycling into bins on automated conveyors. General waste will be compacted prior to being deposited into the bins at a ratio of 2:1 to provide greater space efficiency. Commingled recyclables cannot be compacted as the broken glass will contaminate other recycling streams.

2.4 Bulk bins for items not suitable for disposing down chutes

As chutes will be installed for disposal of residential waste and commingled recycling, provision has been made in each residential bin store for items that should not or cannot be placed into the chutes:

- 240 L bin for glass; glass is noisy when deposited in bulk down chutes and can potentially damage the chutes and the bins at the base. This 240 L bin can be used for CDS compliant drink containers and the money raised given to the resident's association

- 1100 L bin for large cardboard packaging. Cardboard will be collected and recycled
- 1100 L charity bins for unwanted clothing and bedding. Due to the transient nature of people in multi-unit developments, there is a tendency to throw away items of this nature when relocating
- a bulk general waste storage area for items such as mattresses and furniture. Provision of space to store them facilitates recycling as opposed to disposal to landfill.

Note that residents will have access to these bins stores. To prevent access to the chute systems and mitigate any OHS concerns, a barrier will section the conveyor system from the remaining bins in the bin store.

2.5 FOGO

The building has been designed to allow for source separated FOGO collection from the residents. The FOGO stream from the residential apartments will mainly be comprised of food waste along with very small quantities of plant waste. Space will be allocated in the waste room, near the chute hatches on each floor for a dedicated 140 L FOGO collection bin. Each apartment will have caddies for FOGO. When full residents will transfer the contents of the caddies to the 140 L bin in the waste room. The 140 L bins from each floor will be transferred by the building caretaker to the residential bin store on the ground floor daily or when required.

2.6 Transition plan

The building management will develop a transition plan to obtain bins from the City of Fremantle in line with the number of residents that have moved in to the development.

When the building is first opened, there will be additional 1100 L cardboard bins available in each residential bin store for residents to deposit bulk cardboard from moving boxes and delivery of large items e.g. fridges and furniture. Space for these bins will be available as the full complement of general waste, commingled recycling and FOGO bins will be in place only when all residents have moved in.

2.7 Number and type of bins required for development

2.7.1 Residential waste and recycling – Tower 1

The number of bins to be stored in the Tower 1 residential bin store is based on 66 apartments (46 x 2 bed, 16 x 3 and 4 x 4 bed) and is set out in Table 1 below. Spare bins are provided to sit beneath the chute while filled bins are being collected.

Table 1: Number of bins to be stored in the Tower 1 residential bin stores

Residential apartments	Bin size (L)	Number of bins	Collection frequency
General waste (compacted)	660	2 plus one spare	Twice-weekly
Commingled recycling	360	15 plus one spare	Fortnightly
FOGO	140	14	Weekly
Charity bin for clothing/textiles	1100	1	As required
Large cardboard recycling	1100	1	As required
Bulk glass/CDS recycling bin	240	1	As required
Bulk general waste	~2 m x 3 m space		As required

2.7.2 Residential Waste and recycling – Tower 2

The number of bins to be stored in the Tower 2 residential bin store is based on 81 apartments (25 x 1 bed, 34 x 2 bed, 18 x 3 bed, and 4 x 4 bed) and is set out in Table 2 below. Spare bins are provided to sit beneath the chute while filled bins are being collected.

Table 2: Number of bins to be stored in the Tower 2 residential bin store

Residential apartments	Bin size (L)	Number of bins	Collection frequency
General waste (compacted)	660	3 plus one spare	Twice-weekly
Commingled recycling	360	18 plus one spare	Fortnightly
FOGO	140	17	Weekly
Charity bin for clothing/textiles	1100	1	As required
Large cardboard recycling	1100	1	As required
Bulk glass/CDS recycling bin	240	1	As required
Bulk general waste	~2 m x 3 m space		As required

2.7.3 Residential Waste and recycling – Tower 3

The number of bins to be stored in the Tower 3 residential bin store is based on 60 apartments (11 x 1 bed, 30 x 2 bed and 19 x 3 bed) and is set out in Table 3 below. Spare bins are provided to sit beneath the chute while filled bins are being collected.

Table 3: Number of bins to be stored in the Tower 3 residential bin store

Residential apartments	Bin size (L)	Number of bins	Collection frequency
General waste (compacted)	660	2 plus one spare	Twice-weekly
Commingled recycling	360	14 plus one spare	Fortnightly
FOGO	140	12	Weekly
Charity bin for clothing/textiles	1100	1	As required
Large cardboard recycling	1100	1	As required
Bulk glass/CDS recycling bin	240	1	As required
Bulk general waste	~2 m x 3 m space		As required

2.7.4 Commercial bin store

The commercial bin store will be separated into three sections which will separately house waste and recycling from the food & beverage tenancies, greengrocers, and community spaces.

Food & beverage waste and recycling

The number of bins to be stored in the food & beverage section of the commercial bin store are set out in Table 4 below. This will service the food & beverage tenancies (700 m² restaurant, 237 m² café, 1,300 m² tavern and 750 m² tavern function rooms).

Table 4: Number of bins for the food & beverage tenancies

	Bin size (L)	Number of bins	Collection frequency
General waste (excl. food waste)	1100	12	Daily
Commingled recycling	1100	2	Daily
Organic (food) waste	120	26	Daily
Cardboard	1100	2	Daily
Glass	240	14	Daily

Used cooking oil	400	1 unit	As required
Soft plastic	660	1	As required
Polystyrene	1100	1	As required
E-waste / bulk general waste	2 m x 3 m space		As required

Greengrocer (Provedore) waste and recycling

The number of bins to be stored in the greengrocer (Provedore) section of the commercial bin store are shown in Table 5 below. This will service the 807 m² artisan greengrocer market.

Table 5: Number of bins for the greengrocer (Provedore)

	Bin size (L)	Number of bins	Collection frequency
General waste (excl. food waste)	1100	2	Daily
Commingled recycling	1100	1	Every 1-2 days
Organic (food) waste	120	4	Daily
Cardboard	1100	1	Every 1-2 days
Soft plastic	660	1	Every 1-2 days

Community spaces waste and recycling

The number of bins to be stored in the community spaces section of the commercial bin store are shown in Table 6 below. This will service the 289 m² community spaces (co-working and creative studio).

Table 6: Number of bins for the community spaces

	Bin size (L)	Number of bins	Collection frequency
General Waste	660	1	Weekly
Commingled recycling	660	1	Weekly
Cardboard	1100	1	Weekly
Soft plastic	660	1	Weekly

3 Bin store location and amenity



3.1 Bin stores location

There will be four bin stores within the development:

- i. Residential – Tower 1
- ii. Residential – Tower 2
- iii. Residential – Tower 3
- iv. Commercial (food & beverage tenancies, greengrocer, and community spaces)

All bin stores will be located on the ground floor level (refer Figures 1-5).

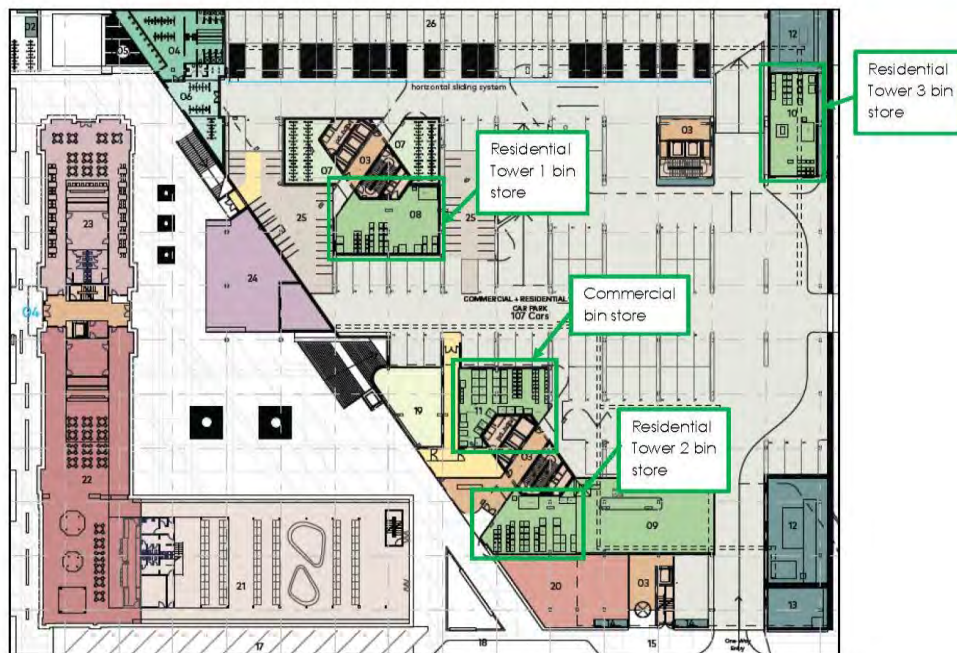


Figure 1: Ground floor layout showing residential and commercial bin stores



Figure 2: Residential bin store – Tower 1



Figure 3: Residential bin store – Tower 2

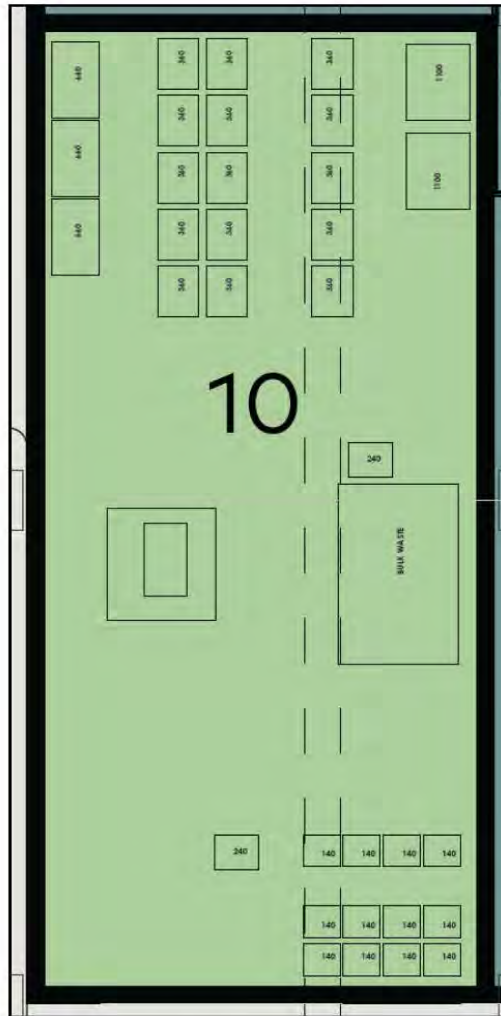


Figure 4: Residential bin store – Tower 3



Figure 5: Commercial bin store

3.2 Bin store amenity

Bin Transfer	
Aisle door and lift width:	All doors, corridors and lifts on the transfer route are designed for the largest bin to fit through, i.e. 1100 L.
General health and safety:	Waste systems are designed to ensure that bins (particularly when full) are not required to be moved over any significant distances, up/down steep ramps (grade of slope <1:14) and definitely avoiding stairs or other potential hazards.
	Manual handling of waste in garbage bags is excluded from the waste management systems where possible.
Bin store	
Location:	The bin stores are all on the ground floor and easily accessible by residents, commercial tenancy staff and the building caretaker.
Washing bins and waste storage area:	Impermeable floors grading to an industrial floor waste (including a charged 'water-trap' connected to sewer or an approved septic system), with a hose cock to enable bins and /or the enclosure to be washed out. 100 mm floor waste gully to waste outlet. Both hot and cold water will be available.
Bin store walls and ceilings:	All internal walls in bin stores will be cement rendered (solid and impervious) to enable easy cleaning. Ceilings will be finished with a smooth faced, non-absorbent material capable of being easily cleaned. Walls and ceilings will be finished or painted in a light colour.
Ventilation and odour:	The design of bin stores will provide for adequate separate ventilation with a system that complies with Australian Standard 1668 (AS1668). The ventilation outlet is not in the vicinity of windows or intake vents associated with other ventilation systems.
Doors:	Ventilated roller doors will be specified both internally and externally to enable bins to be easily wheeled into and out of the bin stores.
Vermin:	Self-closing doors to the bin stores will be installed to eliminate access by vermin.
Lighting:	Bin stores will be provided with artificial lighting, sensor or switch controlled both internal/external to the room.
Noise:	Noise is to be minimised to prevent disruption to occupants or neighbours.
Fully Enclosed:	The bin stores will be fully enclosed and only be accessible by residents, tenancy staff and the waste service provider.
Aesthetics:	The bin stores will be consistent with the overall aesthetics of the development.
Signage:	Visual aids and signage will be provided to ensure that the area works as intended.

4 Internal transfer



4.1 Residential

Residents will be responsible for source separating waste and recyclables within their apartment. Residents will be responsible for disposing of waste and recycling down the correct chute by using the chute hatches in the waste rooms on each level. Items not suitable for disposing down the chutes, such as cardboard boxes, bulky waste items and clothing/bedding, will be taken down the lifts to the residential bin stores and placed in the correct bin.

Residents will place FOGO collected in caddies into the dedicated 140 L bins in the waste rooms on each floor of each tower. The caretaker will bring up an empty 140 L bin and replace the full FOGO bin in the waste room with the empty bin. The full bin will be brought down to the residential bin store by the caretaker daily or as required.

4.2 Transfer of residential bins for collection

On the relevant collection day (twice per week for general waste, once per week for FOGO and once per fortnight for commingled recycling) the caretaker will transfer residential bins from the bin stores to the verge for collection by City of Fremantle. Following collection, the bins will be moved back into the bin stores. The caretaker may use a tug and trailer system or an electric vehicle to assist with the transport of bins. This equipment will be stored within the ground floor when not in use.

4.3 Alternative collection point for residential bins

The City of Fremantle collects residential waste and requires presentation of the bins on the verge as their vehicles do not access buildings. The building has been designed to allow for collection of the residential bins directly from the bin stores should City of Fremantle change their policy on collection and either collect directly from the bin stores or allow a private service provider to collect residential waste directly from the bin stores. Should this occur, the caretaker and/or private service operatives will enter the residential bin stores to retrieve and service the bins, and return them following collection.

4.4 Commercial

Staff from the food & beverage and provided commercial tenancies will manually transfer waste and recyclables to the relevant bin store. Office cleaners or staff will transfer waste and recyclables from the community spaces to the commercial bin store on the ground floor. Staff will use service corridors and safely marked out pathways to transfer waste and recyclables from the commercial tenancies to the bin stores (Figure 6).

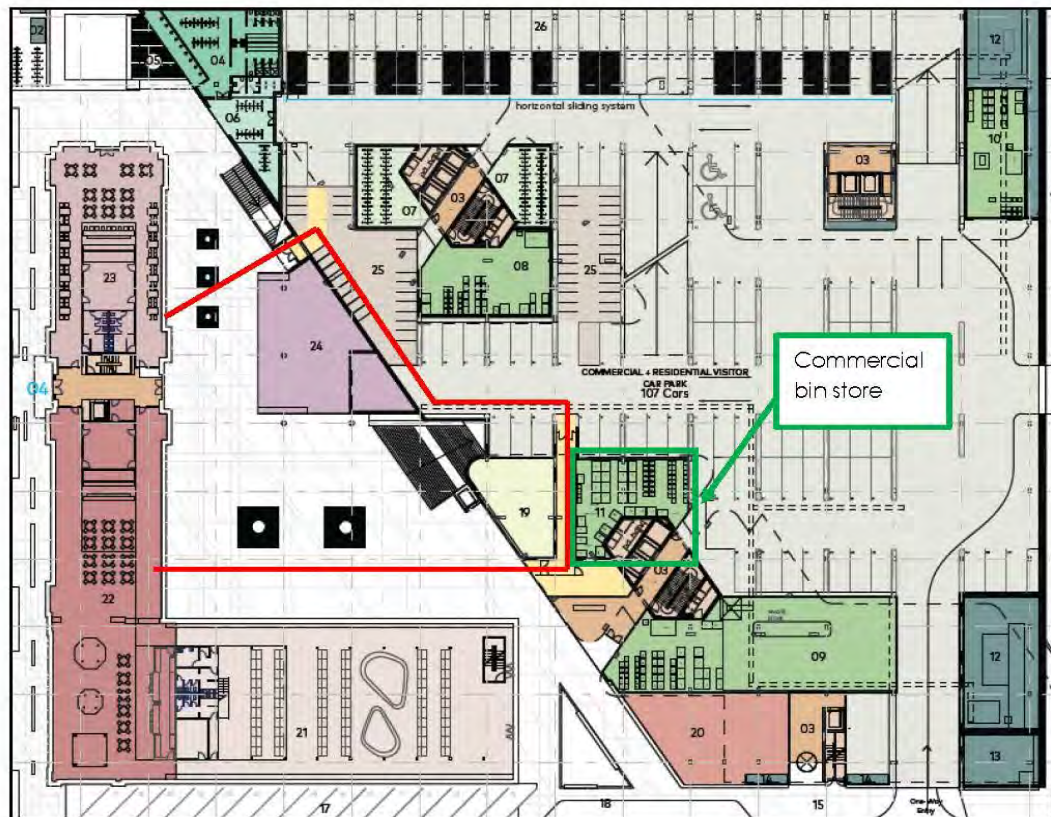


Figure 6: Ground floor layout showing routes from commercial tenancies to commercial bin store (red line)

5 Collection and vehicle access – residential bins



5.1 Service providers, vehicle types and access requirements

The City of Fremantle will service the residential general waste, commingled recycling and FOGO bins.

5.2 Current collection point and method – general waste, commingled recycling and FOGO – verge side

The City of Fremantle requires that general waste, commingled recycling and FOGO bins are presented on the verge and within the property line for collection. The only accessible verge is located along Coventry Pde as Stirling Hwy and McCabe Pl are not suitable for large and frequently stopping waste vehicles. Commingled and FOGO bins must be placed in a single row, with a minimum of 300 mm between them to allow space for the arm of the side-lift vehicle to access each bin. The commingled and FOGO bins must not be placed in, or block, existing parking areas and there must not be any overhead obstructions. Given these restrictions, the space available on the Coventry Pde verge cannot house the full complement of commingled and FOGO bins in one single row at the same time (illustrated in Figure 7).

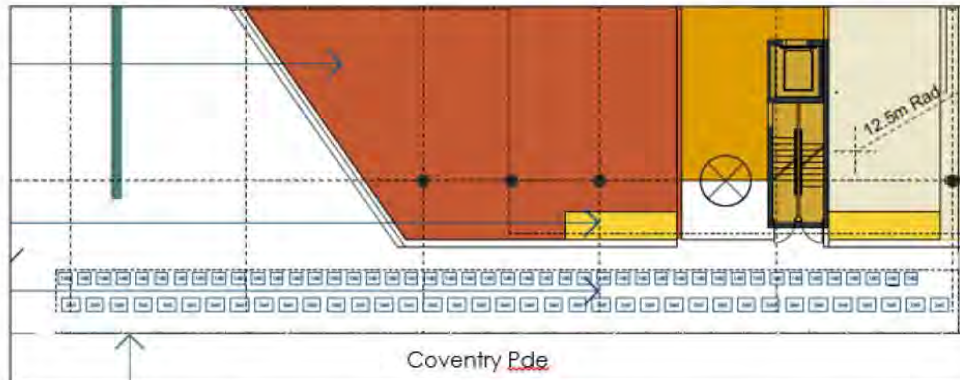


Figure 7: Presentation of FOGO (140 l) and commingled recycling (360 l) bins on the verge along Coventry Pde

Commingled and FOGO bin collection (side-lift)

Commingled recycling and FOGO bins are collected by side-lift vehicles (Figure 8). Bins will be presented by 6 am on the day of collection. FOGO bins are collected weekly and commingled recycling bins fortnightly (on the same day of the week as FOGO). Therefore every second week all full FOGO and commingled recycling bins must be presented for collection. The full

complement of FOGO bins can be accommodated on the Coventry Pde verge. Of the 47 commingled bins estimated for the development, only 37 can be accommodated on the Coventry Pde verge.

The caretaker will be responsible for presenting the bins for collection and returning the empty bins to the bin store. Due to the large number of commingled and FOGO bins and limited length of verge to present bins, coordination between the caretaker and the City of Fremantle will be critical for the efficient servicing of the property. A schedule will need to be agreed between the City and the caretaker so that the relevant bins are presented at the required time (i.e. FOGO bins presented first, followed by commingled bins or vice-versa).

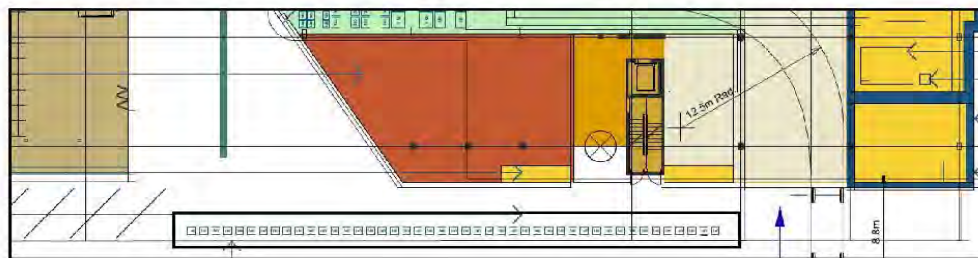


Figure 8: Presentation of FOGO and commingled recycling bins on the verge along Coventry Pde

General waste bin collection (rear-lift)

General waste bins are collected by rear-lift vehicles on a twice-weekly basis. Bins will be presented by 6am on the day of collection and placed on a hardstand area along Coventry Pde. The caretaker will be responsible for presenting the bins for collection and returning the empty bins to the bin store. The rear-lift vehicle will park on the hard stand in front of the 660 L bins to service the bins (Figure 9).

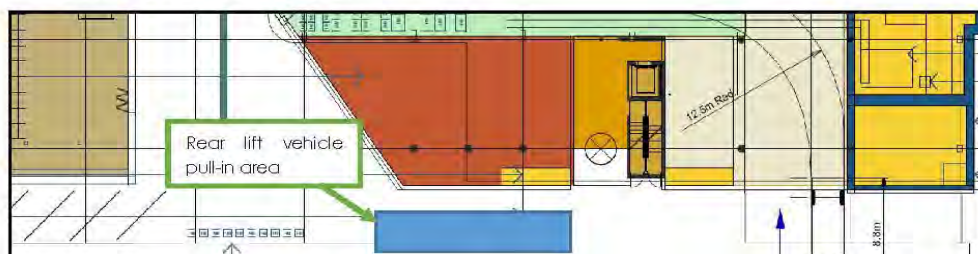


Figure 9: Presentation of general waste bins on the verge along Coventry Pde

5.3 Future collection points and method – general waste, commingled recycling and FOGO – direct from bin stores

The City of Fremantle may in future review their policy on verge side collections in line with other councils and allow either their own vehicles or commercial providers to access residential bin stores within buildings.

The building has been designed to allow an 11 m long waste collection vehicle access to each residential bin store to ensure that bins can be collected directly from the bin stores, should City of Fremantle policy change.

5.4 Other residential waste streams

Private service providers may collect cardboard and CDS bins. The charity providing the textiles bin will collect their bins as needed, in liaison with the caretaker. A range of rear-lift vehicles will require access to the residential bin stores to service these bins.

The City of Fremantle does not provide a service for bulk waste collection in multi-residential apartment buildings. This will be managed by the building caretaker who will hire a skip bin at regular intervals through the year to allow residents to dispose of bulk waste.

6 Collection and vehicle access – commercial

6.1 Service providers, vehicle types and access requirements

A private service provider will service the full range of commercial bins.

A range of rear-lift vehicles will access the building to service the commercial bins and a tanker vehicle to service the used cooking oil storage unit. Accessibility of the vehicles is crucial to ensure that vehicles can safely enter, operate and exit with minimal reversing or manoeuvring.

6.2 Collection points and methods

On collection days rear-lift vehicles for general waste and recycling will enter the ground floor and access the commercial bin store area. The vehicles will stop outside the bin store on ground level and private service operatives will enter the stores to retrieve and service the bins. The operatives will replace the empty bins into the bin store.

Swept path analysis for vehicle ingress and egress has been completed by Cardno taking into consideration the specifications of an 11 m long waste collection vehicles (Figure 10).



Figure 10: Swept path analysis showing access for an 11m long waste collection vehicle

7 Ongoing communication and management



7.1 Management

The building caretaker will be responsible for overseeing the waste management systems. The caretaker will be trained and informed of their responsibility to work to the City of Fremantle schedule for collection and presentation of bins and to work closely with the private service provider to establish a schedule for collection and presentation of bins.

The caretaker will be responsible for rotating full bins on the conveyor at the base of each chute with empty bins. They will be responsible for ensuring that the chutes do not become dirty or odorous and will be responsible for washing the chutes regularly. They will be responsible for maintaining the bin store in a clean and tidy condition at all times and ensuring bins are washed regularly.

The City of Fremantle does not provide a service for bulk waste, bulk cardboard or the charity bin collection in multi-residential apartment buildings. This will be managed by the building caretaker who will hire a skip bin at regular intervals through the year to allow residents to dispose of bulk waste and liaise with charities or waste service providers to arrange for collections of bulk materials/items.

7.2 Communication

For the successful performance of a chute system for the apartments, the continuing education of residents on correct segregation of waste and recyclables and usage of the chutes will be an imperative requirement for building management.

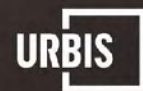
Successful education will be achieved through communication formats such as building intranet site, newsletters, noticeboards, social media, etc. This ongoing communication would be in addition to illustrated clear signage relying on pictures rather than words.

ADDITIONAL INFORMATION 17 - COMMUNITY NEEDS ASSESSMENT

NORTH FREMANTLE COMMUNITY NEEDS ASSESSMENT

Matilda Bay Brewery

Prepared for 3 Oceans Property Pty Ltd
1 June 2022



CONTENTS

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Key Findings

Introduction

3 Oceans Property Pty Ltd is proposing a mixed-use development at Matilda Bay Brewery in Fremantle. The development will comprise of 207 apartments with associated residential amenities, restaurant, tavern, cafe, fresh food provided, community spaces and function spaces.

3 Oceans Property Pty Ltd has engaged Urbis to undertake a Community Needs Assessment of their proposed development.

Community Needs Assessment

This study considered the community services needed in the area based on relevant policy documents such as State Planning Policy 3.6, 7.0, 7.2, 7.3 (Volume 2 Apartments), Planning and Development Bill 2020, Central Sub-Regional Planning Framework: Perth and Peel @ 3.5 million and the City of Fremantle Strategic Community Plan 2015-25. A review of what is currently provided in the area has also been carried out. This sought to assess the community needs in the area and look at ways that the proposed development could positively add to the local community.

Recommendations Based on Opportunities and Needs

Based on the needs assessment and reviewing the site in the context of what could be provided on the site and that would assist with community needs the following recommendations have been made:

- **Improve connectivity** - The Matilda Bay Brewery is a large site that sits between housing the east and the train station and ocean. There is a significant opportunity to increase permeability of the site and reduce the walk time for residents to the train station and beaches.
- **Retention of heritage** - The heritage building on the site is an iconic building along Stirling Highway with a rich history. There is the opportunity to celebrate this building, allow public access to it and for information about the building's history.
- **Improve the civic, community and open space** within the North Fremantle

and Mosman Park area:

- There is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialisation amongst residents, and that can incorporate relaxation for a more localised resident catchment. There is a need for small pocket parks which will provide an attractive outdoor space to complement the existing area and address a current need for green space in the suburb.
- Based on the assessment of the area, there is potential for a multi use space / community facility which could be used by members of the community and various groups for events and gatherings.
- **Lack of local retail and food and beverage offerings for the local community** - Currently the fresh food offering is lacking for local residents in the North Fremantle area as existing options are located in Mosman Park and Fremantle. The cafe and restaurant options are limited in the North Fremantle areas. More of these sorts of facilities will be required given the growing population.
- **Improve economic opportunities** - There is already a high demand for flexible workspaces, a co-working space and spaces that can cater for freelance workers, residents and the local community. This is being driven by the high level of professionals in the area and semi-retired population. Demand is expected to increase for these sorts of facilities and there is no offering in the North Fremantle area. Additionally with a growing population it will be important that new jobs are created in the area to aid with employment self sufficiency.
- **Sustainability focus** - The City of Fremantle and local community have a strong focus on sustainability, and it will be important that the development reflects this. The development is also on a key transport corridor and has good access to public transport and it will be important that the development is in line with the City of Fremantle's overall approach to strategic planning of increasing density and diversity of the built environment in the inner city and along transport corridors.

EXECUTIVE SUMMARY

Community Benefits Summary

Community Benefits provided in the project and outlined in outlined in Section 9 of Cox's Architectural Design Proposal have been based on the findings of the community needs assessment and recommendations. These benefits have been designed around the community needs and based on looking for benefits that will provide tangible benefits to the local community.

Key benefits that are incorporated into the development and ways that they will provide community benefits include the following:

- **Public Accessibility and Connectivity** - development of the site will provide the ability for pedestrians to traverse through the site and unlock pedestrian movement in the area, particularly:
 - The development will enable more than 66% of the site to be public open space.
 - The development will enable much better pedestrian movement from the ocean to the river. This includes the potential for the creation on an at-grade pedestrian crossing on Stirling Highway directly connecting the site to the existing bridge.
 - Movement from the ocean up to McCabe Street (through the future Stage 2).
 - Movement from the north of the site down to the river.
 - Significant percentage (75%) of site is landscaped and new mature trees (14 large new trees, 12 medium and 36 small 3 retained trees) and deep soil planting areas (2,139 sq.m).
- **Retention of heritage** – through the building design, the history and heritage aspect of the building will be retained (3,600 sq.m of heritage building) to create a sense of belonging and revitalise the area. The heritage building will be reused for vibrant commercial uses such as the food and beverage and provided use, for the benefit of the community. The building will be accessible to the public and will have the Heritage Ford Factory and Matilda Bay brewery story integrated throughout the building.
- **New retail and food and beverage offering for the local community**- with the cafe, restaurant/wine bar, providedore, courtyard for events, creative studio and co-working space for hire, the desirability of this part of North Fremantle

as a place to visit, work and spend is expected to increase. New facilities will include:

- Across the development there is a total of 2,987 sqm of proposed restaurant, tavern, function rooms, cafe space.
- The development will also provide a new fresh food providedore (807 sq.m).
- **Improved population retention, attraction and cultural benefits** - the open space and creative studio for public use will increase vibrancy and activate the area as well as create socialisation opportunities. This is likely to lead to improved physical and mental wellness and higher population growth and diversity. Spaces that are incorporated include:
 - There is a total of 289 sq.m in the building dedicated to creative studio and co-working space.
 - The development will include 200 sq.m of public showers and end-of-trip facilities.
- **Sustainable urban neighbourhood** – the development will focus on effective and sustainable development methods and will use solar panels, renewable energy and have a waste management plan which will reduce the carbon footprint of the building. There is a commitment to 5-Star Greenstar rating (equivalent), including use of embedded network with PV cells, batteries, car chargers.
- **Improved economic opportunities** - the co-working space, food and beverage and creative studio will be providing on-site employment opportunities and assist with employment self sufficiency.

INTRODUCTION

INTRODUCTION

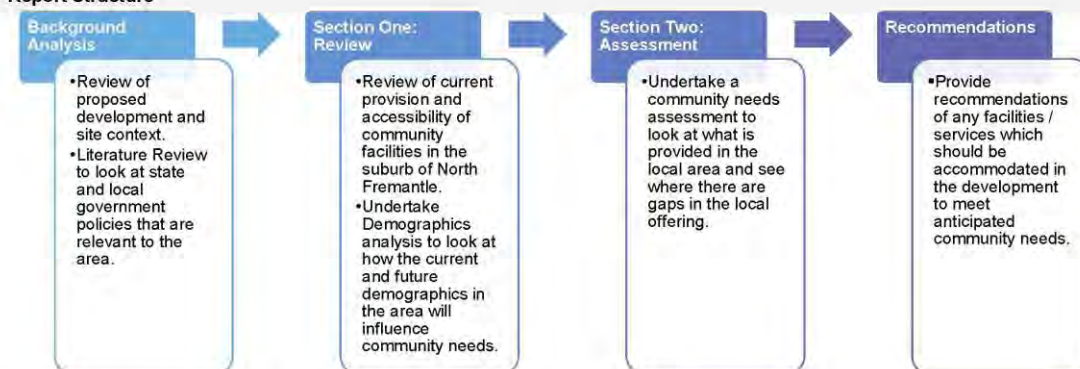
Background and Purpose

3 Oceans Property Pty Ltd has engaged Urbis to undertake a Community Needs Assessment of their proposed development at Matilda Bay Brewery, Fremantle.

This report maps local community need – including gaps, opportunities and insights – to inform 3 Oceans Property Pty Ltd's development and ensure community facilities are utilised and embraced by tenants and the broader community.

Our investigations have been carried out based on the following process and structure.

Report Structure



North Fremantle Community Needs Assessment

1/08/2022

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APPROACH

Approach

This study takes a leading practice approach to identifying social infrastructure requirements for the City of Fremantle including:

- Identifying the demographic characteristics of the current community and the likely demographic characteristics of the future population to understand future needs and demands for social infrastructure.
- Understanding the site context including the unique features and characteristics of the area including current plans or strategies that may have implications for this study.
- Understanding the existing provision of social infrastructure and identifying key gaps in the existing provision.
- Understanding leading practice principles and benchmarks and applying these appropriately to the site.

Planning for higher density areas also requires a focus on quality over quantity, particularly when it comes to open space planning. In higher density environments, where land costs drive strong land efficiency, there needs to be an increased focus on ensuring a high quality of open space provision and a focus on maximising connections to and from existing open space networks. While a certain quantum of open space is required, it is the quality of that space that is most important in a higher density context.

Quality is determined by both good design, quality of materials used and management which allows more benefit to be gained from relatively efficient spaces. Similarly, for community and cultural facilities, higher density environments require facility models that maximise floorspace and focus on being well located, high quality with flexible spaces and multipurpose uses.

While standards and benchmarks are a useful reference, they do not consider many of the factors needed to develop a nuanced assessment of community need requirements and rarely reflect the complexities for planning for growth in established areas.

Where standards are used in contemporary urban renewal practice, they are used mostly as a reference or checking point, rather than the sole driver for the quantity of social infrastructure provision. Recommendations for this study have taken a holistic approach to understanding needs and tested this against contemporary benchmarks.

North Fremantle Community Needs Assessment

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SUBJECT SITE

Key Findings

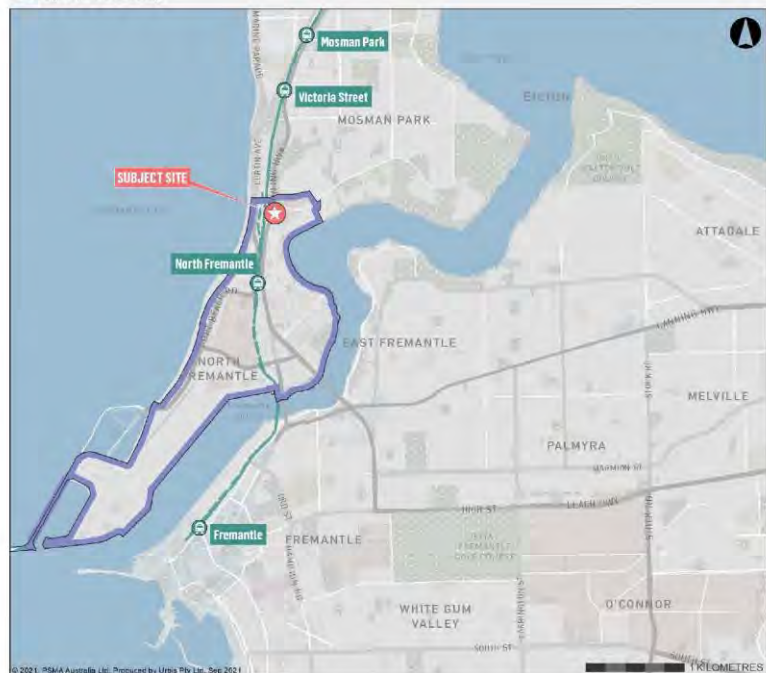
The proposed development is located on Stirling Highway, in North Fremantle. This heritage building was originally the Ford Assembly Plant and then became the Matilda Bay Brewery which ceased all operations and tenancies in 2013.

The site is located near:

- The southern part of the Mosman Park residential area.
- Residential housing and apartments on the Swan River in the east.
- Stirling Highway to the south which runs down to the North Fremantle retail precinct.
- Leighton Beach to the west.

The site sits within the 'Development' and Special Control Area (SCA) 'DA18' as per the City of Fremantle Local Planning Scheme No.4. This allows for higher density development on this site and on site surrounding this site. This will see a dramatic change to this area and will bring in new needs for community facilities in the area.

Subject Site Map



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SITE CONTEXT

Key Findings

The Matilda Bay Brewery is located on Stirling Highway. Operations on the site ceased in 2013 when Matilda Bay Brewery closed. It is currently occupied by Como Engineers and several other ancillary uses.

The subject site is isolated and located away from the North Fremantle town centre located on Stirling Highway 1.5km south of the site. The subject site is adjacent to Leighton Beach where there is a proposed connection via the railway bridge to link the site to it.

The heritage listed Dingo Flour mill is located 500m south of the subject site and is an iconic landmark in North Fremantle. North, south and east of the site is also populated by a mix of high rise and single dwelling residential buildings in the area.

As outlined on the following page, the proposed redevelopment of the site includes a mix of retail/commercial and residential tenancies. The redevelopment of the site will also promote a substantial amount of community space and provide walkways to better connect the subject site with other precincts in the area. This will have the benefit of creating a more vibrant precinct where residents can meet and interact.

Site Context Map



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PROPOSED DEVELOPMENT

Key Findings

The proposed multi storey mixed-use development comprises:

- Total of 4,083 sq.m commercial space.
 - A total of 2,987 sq.m of restaurant and food and beverage spaces including a restaurant, cafe, tavern and function room.
 - A communal resident level comprising of an infinity pool, and gym.
- 207 residential apartments and resident facilities including:
 - Pool, working from home facilities, gym, Pilates studio, treatment rooms and children's play area.

The proposed development also includes a high focus on community spaces including the following key areas and focus:

- Co-working space.
- Creative studio.
- Retail food and beverage offering.
- Variety of courtyard landscaped gardens and increased public realm.
- Dedicated indoor and outdoor children play areas.
- Fresh providers local markets.

The development also provides greatly increased permeability and connectivity for the area. This includes a potential new crossing to extend to the beach linking the ocean to the site and creating greater safety for crossing Stirling Highway.

The project will achieve a minimum of self-certified 5 Star Green Star rating.

Proposed Development Ground Floor Plaza Area



POLICY CONTEXT AND LITERATURE REVIEW

POLICY CONTEXT

The City of Fremantle does not have a Community Needs Strategy or Social Needs Strategy which would inform the need for community facilities in the LGA.

Urbis has reviewed the following reports and highlighted the ways in which the proposed development has addressed the aims of the policy.

Literature Review

REPORT	SUMMARY	DEVELOPMENT RESPONSE AND IMPLICATIONS FOR THE STUDY
Design WA - State Planning Policy 7.0 Design of the Built Environment	The Department of Planning, Lands and Heritage's State Planning Policy (SPP) 7.0 establishes 10 Design Principles that should inform the design, review and decision-making processes for all development: - Context and character - Landscape quality - Built form and scale - Functionality and build quality - Sustainability - Amenity - Legibility - Safety - Community - Aesthetics	The proposed development promotes good design and adheres to the ten design principles stated by the SPP 7.0. Some of the design principals that have particularly been taken into account with the community benefits in the building include the following: - More specifically, the retention of the Heritage Ford Factory will respond to the design principle of context and character which will enhance the distinctive characteristics of the local area and contribute to a sense of place. - The development promotes sustainability through the use of sustainable construction materials and sustainable environmental design measure including solar power, battery storage and car chargers being minimum self-certified 5-Star Green Star. These features will provide a community benefit with aims to address climate change. - Through the various community based components in the development including the community courtyard, open space, provedore, tavern and restaurant and cafe, the development offers good amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy. - The community benefits features of the building will provide a strong sense of community for people in the surrounding area as well as people living and working in the building.
State Planning Policy 7.3 Residential Design Codes Volume 2 - Apartments	Within the SPP 7.3 document, section 2.8 referring to development incentives for community benefit provides guidance for local government on relevant considerations that may be included in exchange for community benefit in nominated areas. These development incentives are a method through which additional development potential or flexibility is offered in exchange for tangible community benefit. Examples of community benefit that <u>may</u> be considered include: - Affordable housing - Dwelling diversity - Heritage - Retention of vegetation - Water conservation - Energy efficient design - Public facilities such as public open space, public car parking, pedestrian access ways, cultural facilities, toilets, end of trip facilities, meeting places, public pre-school/childcare facilities.	This report looks at the local community need and provides ways that this development is able to address these needs and provide community benefits that are in line with both the current community and the future growing and changing population surrounding the development.

North Fremantle Community Needs Assessment

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POLICY CONTEXT CONT.

A range of existing documents and strategies have been reviewed to inform community needs and priorities.

Literature Review

REPORT	SUMMARY	IMPLICATIONS FOR THE STUDY
State Planning Policy 3.6 Infrastructure Contributions	SPP 3.6 recognizes new development creates the need for new infrastructure. Infrastructure contributions are one of a number of ways to meet the physical and social infrastructure needs and the provision of essential infrastructure influences the standard of living, mobility and lifestyle choices of a community. Eight key principles have been identified: - Need and nexus - Transparent - Equity - Certainty - Efficiency - Consistency - Accountable - Right of consultation and review	A key component of this study is looking at the community needs and providing guidance on what the local community needs are and where there are opportunities for these to be addressed within the development. This process is an important component of establishing the need and nexus for the community benefits that are provided within the development.

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POLICY CONTEXT CONT.

Literature Review

REPORT	SUMMARY	DEVELOPMENT RESPONSE
State Planning Policy 7.2 Precinct Design Guidelines 2.8 – Guidance on incentives and community benefits.	Section 2.8 within the SPP 7.2 Precinct Design Guidelines document, provides guidance for proponents and local government on relevant consideration to establish development incentives that may be provided in exchange for community benefit in nominated areas. Community benefit is the public good that a proposal delivers as indicated by (but not limited to) the following: • Productivity: does the proposal contribute to increasing and / or diversifying employment and the local economy and improving equal opportunity? • Quality of life: does the proposal provide new or improve existing services such as education, healthcare and community facilities that could improve quality of life for community members? • Environmental sustainability: does the proposal contribute to sustainable urban environment through improvements to air and water quality, reduced emissions or protecting/enhancing vegetation. • Infrastructure development: does the proposal provide needed or improve existing infrastructure such as transport, utilities and recreation that benefits the local area? • Equity and social inclusion: does the proposal help address issues of poverty, social isolation and contribute towards the creation of equitable communities through improved opportunities for minority and vulnerable groups? It is important to state what benefit will occur and how important the benefit will be, who in the community are expected to experience the benefit and how much benefit is expected. Other things to consider would be to define community benefits that might justify greater development potential, consider the relative weight applied to the community benefits i.e. are some more important than others?, define an 'upper cap' for allowable additional development and outline the process for demonstrating community benefit.	Given the size of this development it is important to consider its implications within the wider precinct. The development has aimed to address the goals of the Precinct Design Guidelines in the following key ways: • Productivity – the development provides a commercial hub to link the coastal activity node of Cottesloe with Fremantle. The employment land uses on the site will add to employment self sufficiency for the area. The creative studio as well as the co-working space will provide a space local North Fremantle creatives and entrepreneurs to share and test business ideas. • Quality of Life – the revitalization of this site from being an industrial area to a vibrant destination for the community will improve the quality of life for community members. People will be able to meet at the event space and courtyard space, recreate, procure fresh local produce at the markets and providedore and collaborate via the co-working spaces. • Environmental Sustainability – the development provides initiatives that mean that it addresses environmental sustainability. • Infrastructure - improves local pedestrian connectivity between residential suburbs to the east and the coast. We could potentially also say that the Proponent seeks to improve pedestrian connectivity outside of the site along Stirling Highway. • Equity and Social Inclusion – the development turns privatised space into public space at the ground floor plaza level and historical building. The development will add to housing diversity to an area of Perth that is predominantly single residential houses. This is particularly important given the aging population in the area.

POLICY CONTEXT CONT.

Literature Review

REPORT	SUMMARY	DEVELOPMENT RESPONSE AND IMPLICATIONS FOR THE STUDY
Central Sub-regional Planning Framework: Perth and Peel @ 3.5 million	The City of Fremantle sits within the Central sub-region of the Greater Perth metropolitan region. The main objective of the Central Sub-regional Planning Framework is to promote a balanced, consolidated development approach that effectively accommodates a larger proportion of new dwellings within existing urban areas. The aim of urban infill development is to ensure the City's capacity to accommodate population growth on under-utilised urban land which is serviced by infrastructure such as train stations and the Stirling Highway transit corridor.	The subject site is well placed to accommodate increased housing density to meet targets for the growth of Perth due to proximity to employment, retail and other amenity. The structure plan states a target of 500 dwellings on this site to assist with urban infill targets. It is important that new community spaces are created to accommodate the needs of the growing population. The structure plan that covers this site states a target of providing 500 dwellings to assist with urban infill targets.
City of Fremantle Strategic Community Plan 2015-25	The City of Fremantle's Strategic Community Plan (SCP) details the vision, outcomes and objectives of the local community over the next 10 years. The vision for Fremantle as a 'destination city' is as below: • A city that is clever and creative, inspiring and inclusive. • A city that welcomes and celebrates all peoples and cultures. • A city that encourages innovation, prosperity and achievement. • A compassionate city that cares for the wellbeing of our people and the environment we share. • A city that thrives on diversity and dares to be different.	The subject site is ideally located to improve the public realm in the precinct and adhere to the visions stated in the SCP. Community benefits such as open space, event / gathering space, cafe, creative studios and play area will help to improve the area.

SUPPLY ASSESSMENT

OPEN SPACE AND RECREATION

Key Findings

There are a limited amount of public and private greenspaces in North Fremantle. Just north of the subject site in Mosman Park there are numerous parks / reserves and pocket parks.

This suggests there are some key gaps in meeting the needs of the influx of high-density dwelling residents.

Key public greenspaces within walking distance of the subject site are:

- Foundary Court Park
- Swansea Park
- Garungup Park

Key private greenspaces are:

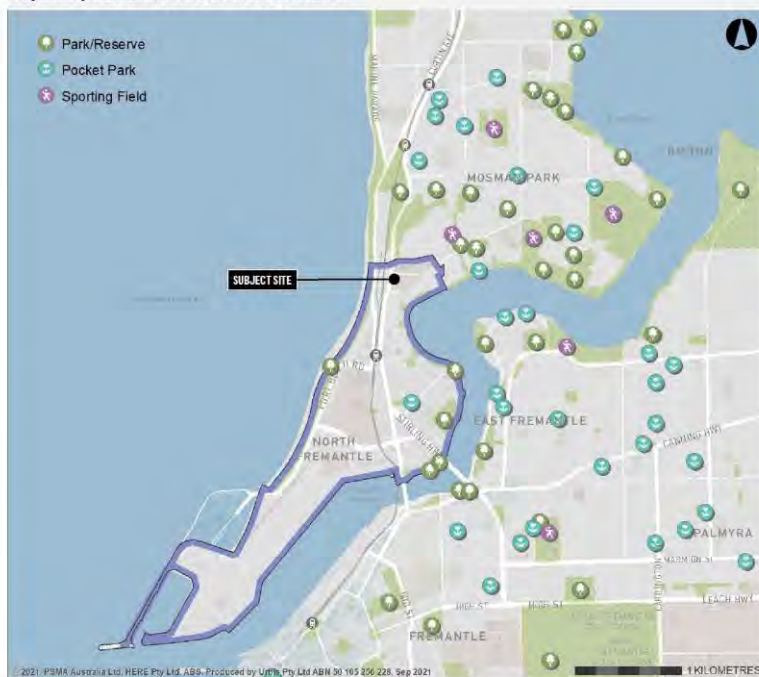
- Mosman Park Golf Course

Residents of high-density dwellings trade off private greenspace for shared or public greenspace. As such, there is a higher need in this part of the city for greenspaces that can provide for a range of resident needs including recreation, relaxation, physical activity, socialising, and building social capital.

Mosman Park is well-supplied with expansive greenspaces suitable for sport and recreation, which cater to both a local and regional catchment.

There is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialisation amongst residents, and that can incorporate relaxation for a more localised resident catchment.

Open Space and Recreation Provision



CAFES AND RESTAURANTS

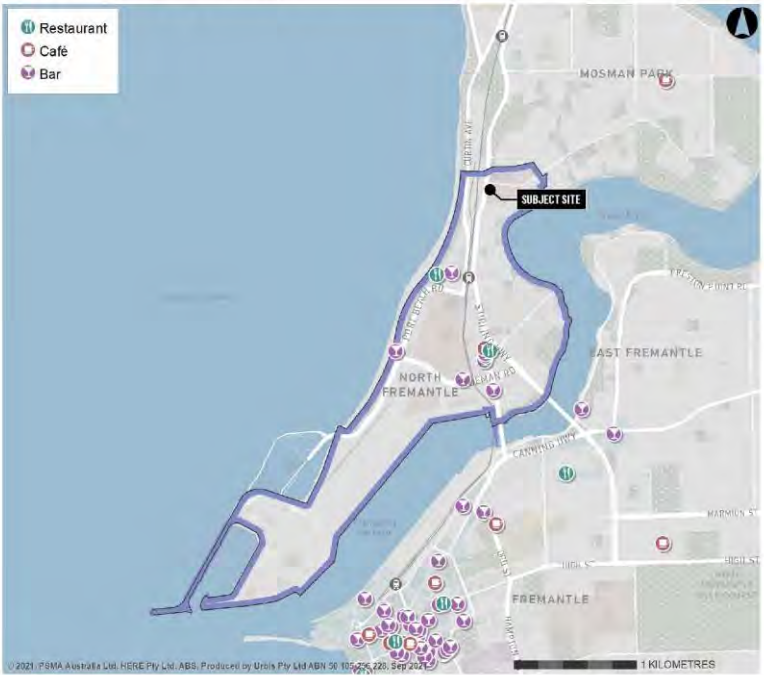
Key Findings

There are a limited number of cafes and restaurants located within the North Fremantle, however several bars are located on Queen Victoria Street.

A majority of bars and restaurants are located in Fremantle. This is a result of the Fremantle City Centre being the primary food and beverage destination in the Fremantle LGA.

Additional cafes on the subject site that interact with the new community spaces proposed will further improve the vibrancy of North Fremantle as a meeting space for the community.

Cafes and Restaurant Provision



FRESH FOOD OFFERING

Key Findings

There are no small supermarkets or convenience stores in North Fremantle at present, whereby residents would need to travel to Mosman Park or cross Stirling Highway to Fremantle.

The closest convenience store and supermarket to the subject site is a 5-6 minute drive away.

Additional fresh food offering on the subject site that interacts with the new community spaces will further improve the vibrancy of the town centre as well as provide convenience for residents nearby.

Fresh Food Offering / Retail



CO-WORKING SPACE ASSESSMENT

Key Findings

In 2018/19, the preferred type of office in the Perth co-working market was a private office followed by a co-working desk. A noticeable shift away from open plan spaces to lockable spaces was seen over several years (The Australian Coworking Market Report 2018-19, Office Hub).

Co-working spaces have continued to increase their penetration of the office market in Australia, with predictions that by 2030 they will account for 30% of the office market. This follows global trends.

Key drivers include increasing freelance / contractor employment, more professional services employment, increased digital technology adaption, the sharing / gig economy, enterprise level demand for flexibility in terms of location and scale, choice of offering and desire for flexible working arrangements.

A review of co-working space opportunities in North Fremantle and surrounds revealed the following findings.

- **Limited Options** – there is currently one formal co-working space in North Fremantle for start-ups and small businesses despite its existing office-based employment, relatively high level of residents in white collar employment and proximity to Perth. As of September 24th, this facility (The Green Room – Coworking Space) will cease operation, resulting in no existing spaces in the suburb. Most co-working spaces are evident in Fremantle.
- **Perth Under-Represented** – Perth is playing catch-up to other capital cities given its low level of co-working spaces.
- **Significant Benefits** – co-working spaces can address many of the reported problems of working from home, such as social isolation, lack of collaboration opportunities, equipment availability and workplace atmosphere, and they support economic activity through start-up and small business support services such as networking and training.

The co-working spaces in the lower-level plaza will benefit residents and the community who can rent this space.

Source: The Australian Coworking Market Report 2018-2019, Office Hub, Property Council Blog – How will Covid-19 Change Coworking.

Co-Working Space Provision in North Fremantle



Source: Rubberdesk, Urbis

LOCAL COMMUNITY FACILITIES

Key Findings

Within North Fremantle, there is a limited offering of halls for hire and community centres. The Fremantle City Centre provides most of the local community facilities within the LGA, providing access to various museums, halls, theatres, community facilities and a library.

In addition to local government-owned facilities, this advice considered the current provision of facilities managed 'at arms length' by the City of Fremantle or privately run facilities that include community services.

An art gallery, event space, a community facility and community centre are located 1.5 kilometres south of the subject site on Stirling Highway. There is also a hall for hire located 2 kilometres south-west at Coast Port Beach.

There are limited creative work spaces / studios for people to hire in the suburb. Providing these additional community facilities such as a creative studio at the subject site can help in better connecting residents with the community and engage levels of socialisation at the site.

Location of Local Community Facilities



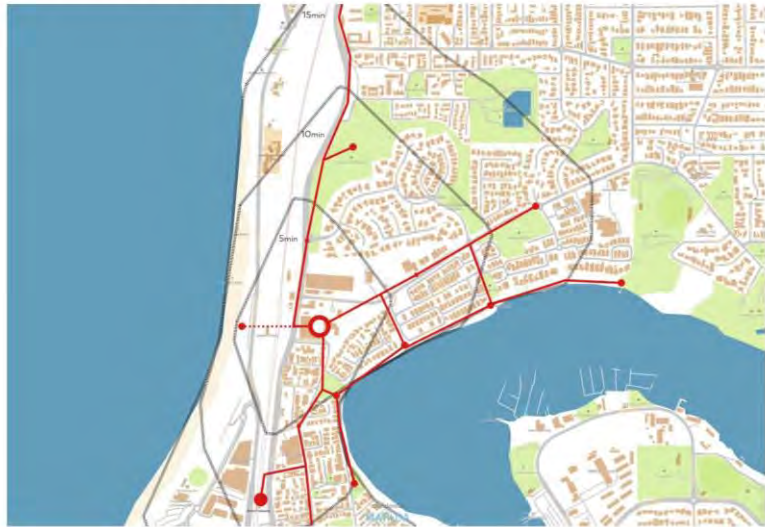
CONNECTIVITY

Key Findings

Stirling Highway provides an important connection between Cottesloe and the activity hub of North Fremantle to the subject site. However the North Fremantle Train Station is located 1 km from the subject site and is a 10 min walk along the highway. Currently this connection is very car focused and not pedestrian friendly.

There is an opportunity with this development to provide better connections in the North Fremantle area and throughout the site. In particular there is the potential for this site to improve pedestrian connectivity between the ocean, residential areas and river.

Site connectivity to the surrounding area



Source: Cox

POPULATION AND DEMOGRAPHICS

FORECAST POPULATION

Key Findings

The Fremantle SA2 had an estimated resident population of 16,587 people in 2020 and the Mosman Park – Peppermint Grove SA2 had a population of 10,868 people in 2020.

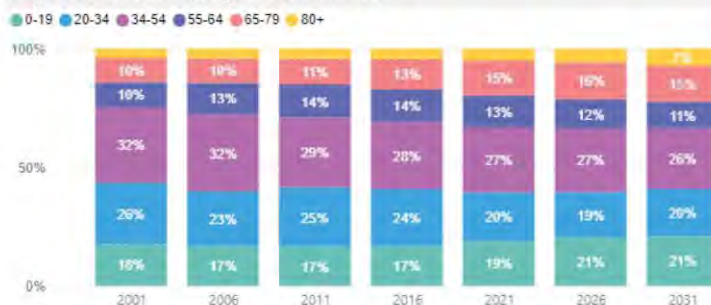
WA Tomorrow population forecasts based on Band C, indicate a growth of 0.9% per annum between 2020 and 2031 in Fremantle SA2. This is equivalent to an average of 158 new residents per year, resulting in a population of 18,330 residents in 2031.

The Mosman Park – Peppermint Grove SA2 is expected to grow at a faster rate, growing by 2.1% per annum between 2020 and 2031 welcoming an average of 260 new residents per year.

With the expanding population, there is a need for expanding needs including community services and amenities. The areas are currently characterised by a large proportion of middle aged residents aged 34-54 years. The proportion of residents aged 0-19 years is expected to grow in the Fremantle SA2 to 21% in 2031. As population ages, residents aged 65+ will account for 22% in 2031.

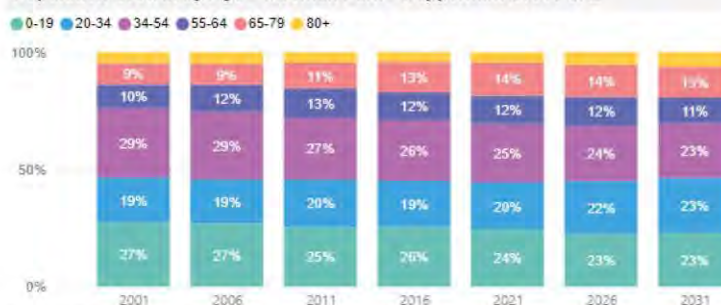
In the Mosman Park – Peppermint Grove SA2, young people aged 20-34 years is anticipated to grow to 23% in 2031 and people aged 65+ will account for 19% by 2031.

Population Growth by Age – Fremantle SA2



Source: WA Tomorrow Government Forecasts Band C, Urbis

Population Growth by Age – Mosman Park – Peppermint Grove SA2



Source: WA Tomorrow Government Forecasts Band C, Urbis

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DEMOGRAPHIC CHARACTERISTICS

Key Findings

Key demographic characteristics of the Catchment* include:

- Higher household incomes than the Perth average, which reflects the affluent nature of the local community.
- Owners make up a highly proportion of the household ownership structure compared to Perth.
- Approximately 24% of dwellings in the catchment are flats, units and apartments indicating higher residential density when compared to Perth. As a result, there is a greater need for public open space.
- Compared to Perth, the number of family households makes up a smaller proportion of households. This is mainly due to a higher proportion of couple families with no children.
- As a result, the Catchment comprises a large number of lone person households. This indicates the need for community spaces to facilitate community interaction.

*Catchment is the suburb of North Fremantle and Mosman Park.

Demographic Characteristics

	CATCHMENT	PERTH
Population	12,097	1,943,698
Aged 0 – 14	16%	19%
Aged 15 – 24	12%	13%
Aged 25 – 39	20%	23%
Aged 40 – 54	21%	20%
Aged 55 – 65	13%	11%
Aged 65 +	19%	14%
Average Household Income	\$121,370	\$101,072
Owner	53%	29%
Purchaser	30%	43%
Renter	36%	28%
Flat, Unit or Apartment (%)	24%	7%
Family Households	80%	86%
Couple family with no children	44%	37%
Couple family with children under 15	28%	32%
Couple family with no children under 15	14%	14%
One parent family with children under 15	7%	7%
One parent family with no children under 15	5%	7%
Non-Family Households	20%	14%
Group	4%	4%
Lone Person	14%	9%
White Collar Workers	86%	68%

Source: ABS Census 2016

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DEMOGRAPHIC IMPLICATIONS FOR COMMUNITY NEEDS

Key Findings

Increased development is expected to drive strong population growth and associated community service / amenity requirements. There are a number of proposed developments in the pipeline within the area. Significant levels of infill (i.e. apartment) development are expected to lead to a more diverse population mix. The key expected demographic trends are noted below.

- **Ageing** – increasing representation of older residents, particularly residents with increasing physical and mental health and wellbeing requirements as well as gathering spaces.
- **Young Professionals** – increasing concentration of young professionals and couples, especially high income professionals, to support recreation, flexible work arrangements and discretionary retail.
- **Household income** – high income households encourage spending on services such as wellness services, personal, health and recreation facilities.

Future Demographic Considerations

TREND	FORECAST / EXPECTATION	IMPLICATIONS FOR COMMUNITY NEED
Ageing	As at the 2016 Census, the 65+ age cohort accounted for 19% of the population in the Catchment. This trend is expected to continue and be supported by an above-average level of downsizer apartment purchasers. The age cohort is set to grow significantly by 2031, with the proportion of 65+ in the Fremantle SA2 and Mosman Park – Peppermint Grove SA2 rising to 33% and 30%, respectively. Alongside this trend, the number of lone person households is expected to increase. Older lone person households are already at levels well-above Perth averages.	Increased demand for social gathering spaces and opportunities.
Young Professionals	An increase in young professionals, especially millennials earning high income, are likely to support the need for various services including gyms, health and wellness, and cafes.	- Increased demand for co-working spaces to cater for flexible working arrangements, start-up businesses and the like. - Increased demand for discretionary cafe and retail (i.e. restaurants).
Household Income	The average household income in the SA2 is \$121,370, approximately 20% higher than the Greater Perth benchmark. Both the older population and younger professionals have higher household incomes, implying higher spending on discretionary uses (such as personal services, allied / alternative health and wellness providers and cafes).	Increased demand for community facilities.

Source: Urbis

COMMUNITY NEEDS ASSESSMENT

BENCHMARKING

Key Findings

Based on the review carried out of current facilities, the policy review, community consultation and a review of comparable areas, there are expected needs for the following range of facilities in the North Fremantle area in the short and medium term.

- **Local government multi-use space / community facility** – a dedicated multi-purpose space or focused purpose space available for hire for the growing local resident base. This includes multi purpose community spaces that cater for a range of community groups and organisations.
- **Co-working space** – need for flexible workspaces for residents and local community considering the large proportion of white-collar workers, younger and retiree cohorts.
- **Short stay accommodation / hotel** – such as serviced apartments and / or hotel.
- **Green Space** – for community meeting place, socialisation and outdoor exercise. Including green spaces around buildings that interact with the public realm and are able to be accessed by the public.
- **Food catering** – casual cafe or takeaway food.
- **Community education and learning facilities** – offering short educational programs for adults.

A number of other uses were explored however these were not considered to have immediate or near-term need.

Community Needs Assessment Findings

USE	FORECAST NEED	
	2021	2026
Co-Working Space	HIGH	HIGH
Local Government Multi-Use Space / Community Facility	HIGH	HIGH
Short Stay Accommodation / Hotel	HIGH	HIGH
Health Services	MODERATE	HIGH
Personal Services	MODERATE	MODERATE
Business Services	MODERATE	MODERATE
Restaurant	MODERATE	HIGH
Green Space	HIGH	VERY HIGH
Child Care	LOW	MODERATE
Food Catering	VERY HIGH	HIGH
Fresh Food Offering	HIGH	VERY HIGH
Gyms	MODERATE	MODERATE
Community Education and Learning Facilities	HIGH	HIGH

Source: Urbis

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COMMUNITY SERVICE / AMENITY NEEDS ASSESSMENT CONSIDERATIONS

USE	ASSESSMENT SUMMARY
Co-Working Space	Limited supply in the area (The Green Room closed on 24 th of September 2021). High levels of professional services workforce and local office worker base, therefore would suit both white collar workers and start up businesses. With an ageing population and high level of semi-retirees / retirees, co-working spaces will be suitable to cater to this demographic.
Local Government Multi-Use Space / Community Facility	The growing resident population in the Fremantle SA2 is set to grow by 16% by 2031. According to benchmarks, local multi-use community facilities are required for 6,000 to 10,000 residents and district level facilities are supported from 20,000 residents. There are currently several local government / community facilities available for hire, however these are across the river in Fremantle and East Fremantle. There are none near the subject site.
Short Stay Accommodation / Hotel	The area is in high demand for short stay accommodation due to the close proximity to the beach, Swan River and links to Perth CBD. Increased vibrancy due to development activity is expected to support greater overnight visitor levels.
Health Services	Resident demographics support higher levels of spending on medical and health services (equivalent to 30% more than Perth averages). Population growth and employment growth expected to support more need.
Personal Services	The demographics indicate high demand for personal services in the area. There are some personal services in the area, including hair and some beautician services available.
Business Services	The existing and expected increase in the local workforce is expected to support business services such as banks / financial services and decentralised government services.
Restaurant	There are a number of restaurants / bars around Queen Victoria Street and a couple on Port Beach road, ranging from casual to fine dining. The strong growth in downsizer and affluent young professional cohorts will support greater expenditure on food catering in the area.
Food Catering	Food catering options in the immediate vicinity around the subject site are limited. A growing resident population and worker population are expected to provide demand for a cafe or takeaway.
Fresh Food Offering	There are no fresh food or supermarket options currently available in North Fremantle with residents needing to travel to either Fremantle or Mosman Park. An offering in the area would better support the needs of the growing resident population especially with the increase in high density development.
Green Space	While there are a number of public open spaces in the area, there is a need for more intimate community meeting places, such as pocket parks.
Child Care / Play Group	With a relatively low proportion of children aged 0-4 (compared to the Greater Perth benchmark) in the area, there is limited demand for childcare services.
Gyms / Fitness Services	There are existing offerings within the area, all of which provide specific types of exercise / training. The increasing young professional resident population and worker population is expected to drive demand for gyms and fitness services.
Community Education and Learning Facilities	Limited community facilities in the area. Providing these spaces in the area will help accommodate for the need for higher levels of community engagement in the area.

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SITE SUITABILITY

Key Findings

The subject site features a number of strong success factors that suggest that it is well placed to cater to a range of community services / uses. In particular, the subject site is located near existing and planned residential buildings and Leighton Beach. This location has access and exposure to a good resident and worker catchment as a result of its positioning on Stirling Highway.

Site Assessment

ATTRIBUTE	ASSESSMENT FINDINGS
Exposure / Accessibility	- Located with ease of access from Stirling Highway. - Stirling Highway receives large amounts of exposure from passing traffic with over 34,000 cars passing through Stirling Highway South of Wellington Street and over 30,000 cars passing through North of Queen Victoria Street on Stirling Highway each day according to Main Roads WA. - Close to Leighton Beach.
Competitive Environment	The immediate surrounds are a mix of industrial and residential. The wider North Fremantle area is primarily residential and commercial with the Fremantle Port being partially serviced out of North Fremantle.
Ant Track / Co-Location	- The site is located on the corner of Stirling Highway and Coventry Parade. - Site located within walkable distance to existing and planned apartment residential buildings on McCabe Street. - The site is currently inaccessible and blocks access for the residents to the east of the site to other surrounding areas. If permeability through the site can be provided this could open up access from the beach through to the swan river which would benefit the local community.
Population Levels / Growth	- Potential for redevelopment of existing dwellings and offices within immediate area. - North Fremantle has become an apartment hotspot. Currently there is one project under construction, two projects in presales and one that is pending.
Views	Coastal views of Leighton Beach

COMMUNITY BENEFITS

Key Findings

There are a range of benefits associated with delivering the proposed uses including the park, community space, laneway and food and beverage establishments. The key benefits of the project include:

- Increased visitation and activation:** with community outdoor space, food and beverage, provedore and retail, these uses are expected to increase the desirability of North Fremantle as a place to visit, play and spend
- Improved economic opportunities:** the improved vibrancy in the precinct associated with the park, food and beverage, provedore, community space and co-working space will drive employment generation opportunities
- Improved population retention and attraction:** with increased vibrancy and activation, socialisation and self-employment opportunities in North Fremantle will lead to improved retention of people and higher population growth and diversity

Community Benefits

USE	DESCRIPTION	RELEVANT COMMUNITY OBJECTIVE/S
Community Space	Additional community space would drive visitation to the subject site and its surrounds. The development will cater to residents of the North Fremantle and Mosman Park as well as family and friends of residents. These visitation increases will result in increased retail spending and support additional retail amenities ¹ .	Increased Visitation, Expenditure, Vibrancy and Activation
Food Catering / Restaurant	The proposed uses (cafe, restaurant, tavern and provedore) will attract people to the subject site to socialise and improve vibrancy and retail activation. Moreover, increased activation will result in increased levels of passive surveillance and lead to reduced loitering and vagrancy / improved safety.	Improved Vibrancy and Activation
Green Space	Improved urban areas and environmental landscapes lead to a stronger attachment to community and sense of place ² .	
Street Connections	Pocket parks can provide a place of respite and relaxation as well as a meeting place for locals. Higher density living creates the opportunities to facilitate 'bumps' between people who would not normally meet. Encouraging social interaction by creating spaces for chance meetings and connections in communal areas, also helps to combat social isolation.	Sense of Community
Outdoor Event Space	Public realm improvements increase the desirability of living in an area, increase property values and increase development activity ³ . The potential bridge link would encourage people to meet and enjoy social activities at the site.	Increased Visitation, Expenditure, Vibrancy and Activation
Co-Working Space	The commercial spaces will support self-employment and remote working opportunities.	Improved Economic Opportunities: A place to meet and connect
Creative Space	A dedicated creative space would support residents and guests who may need a space to work and create. Typically apartment developments do not include sheds or garage spaces to carry out large activities without compromising their living space.	Sense of Community Improved Economic Opportunities: A place to meet and connect

¹ Hass-Klau (1993), *Liveable Communities* (1998) & Whitehead (2006)

² Joongsob (2004)

³ Luttik (2000), CAFE Space (2007), *Fatal Analysis Reporting System (FARS)* (1999), Simons et al. (2005), Rasmussen et al. (2012) & Donovan (2009)

ADDITIONAL COMMUNITY BENEFITS

Key Findings

There are additional community benefits associated with delivering a development. Other benefits include:

- **Sustainable urban neighbourhood**, with the sustainable development design including the use of renewable energy and solar panels, this will reduce energy and carbon footprint through the building's operation.
- **Improved attraction**, the retention of heritage design will bring about vibrancy and attract more visitors.

Other Community Benefits

USE	DESCRIPTION	RELEVANT COMMUNITY OBJECTIVE/S
Sustainable Development	Inclusion of onsite renewable energy, commitment to NABERS ratings in operation, provision of outdoor air in excess of minimum requirements and solar panels.	▪ Sustainable Urban Neighbourhood
	This commitment of sustainable development throughout the building will reduce carbon footprint.	
Retention of Heritage Through Building Design	The importance of the site's history and heritage has been considered through the development. This has been done through the connection of the public realm to the heritage aspect, drawing the industrial fabric into the landscape and use of heritage planting.	▪ Sense of Community ▪ Increased Visitation, Vibrancy and Activation

DISCLAIMER

COVID-19 AND THE POTENTIAL IMPACT ON DATA INFORMATION

The data and information that informs and supports our opinions, estimates, surveys, forecasts, projections, conclusion, judgments, assumptions and recommendations contained in this report (Report Content) are predominantly generated over long periods, and is reflective of the circumstances applying in the past. Significant economic, health and other local and world events can, however, take a period of time for the market to absorb and to be reflected in such data and information. In many instances a change in market thinking and actual market conditions as at the date of this report may not be reflected in the data and information used to support the Report Content.

The recent international outbreak of the Novel Coronavirus (COVID-19), which the World Health Organisation declared a global health emergency in January 2020 and pandemic on 11 March 2020, has and continues to cause considerable business uncertainty which in turn materially impacts market conditions and the Australian and world economies more broadly.

The uncertainty has and is continuing to impact the Australian real estate market and business operations. The full extent of the impact on the real estate market and more broadly on the Australian economy and how long that impact will last is not known and it is not possible to accurately and definitively predict. Some business sectors, such as the retail, hotel and tourism sectors, have reported material impacts on trading performance. For example, Shopping Centre operators are reporting material reductions in foot traffic numbers, particularly in centres that ordinarily experience a high proportion of international visitors.

The data and information that informs and supports the Report Content is current as at the date of this report and (unless otherwise specifically stated in the Report) does not necessarily reflect the full impact of the COVID-19 Outbreak on the Australian economy,

the asset(s) and any associated business operations to which the report relates. It is not possible to ascertain with certainty at this time how the market and the Australian economy more broadly will respond to this unprecedented event and the various programs and initiatives governments have adopted in attempting to address its impact. It is possible that the market conditions applying to the asset(s) and any associated business operations to which the report relates and the business sector to which they belong has been, and may be further, materially impacted by the COVID-19 Outbreak within a short space of time and that it will have a longer lasting impact than we have assumed. Clearly, the COVID-19 Outbreak is an important risk factor you must carefully consider when relying on the report and the Report Content.

Were we have sought to address the impact of the COVID-19 Outbreak in the Report, we have had to make estimates, assumptions, conclusions and judgements that (unless otherwise specifically stated in the Report) are not directly supported by available and reliable data and information. Any Report Content addressing the impact of the COVID-19 Outbreak on the asset(s) and any associated business operations to which the report relates or the Australian economy more broadly is (unless otherwise specifically stated in the Report) unsupported by specific and reliable data and information and must not be relied on.

To the maximum extent permitted by law, Urbis (its officers, employees and agents) expressly disclaim all liability and responsibility, whether direct or indirect, to any person (including the Instructing Party) in respect of any loss suffered or incurred as a result of the COVID-19 Outbreak materially impacting the Report Content, but only to the extent that such impact is not reflected in the data and information used to support the Report ContentContent.

This report is dated **23 May 2022** and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of **3 Oceans Property Pty Ltd** (Instructing Party) for the purpose of a **Community Needs Assessment** (Purpose) and not for any other purpose or use. Urbis expressly disclaims any liability to the Instructing Party who relies or purports to rely on this report for any purpose other than the Purpose and to any party other than the Instructing Party who relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events including wars, civil unrest, economic disruption, financial market disruption, business cycles, industrial disputes, labour difficulties, political action and changes of government or law, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or made in relation to or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

Urbis has made all reasonable inquiries that it believes is necessary in preparing this report but it cannot be certain that all information material to the preparation of this report has been provided to it as there may be information that is not publicly available at the time of its inquiry.

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ADDITIONAL INFORMATION 18 - SCHEDULE OF PUBLIC SUBMISSIONS

SCHEDULE OF PUBLIC CONSULTATION SUBMISSIONS – PROPOSED MIXED USE DEVELOPMENT – 130 STIRLING HIGHWAY, NORTH FREMANTLE (REF. DAP003/22 & DAP/22/02252)	
Date Commenced: 17 June 2022 Date Ended: 20 July 2022 Total Submissions Received: 112 (16 in support, 96 in objection)	
ID #	Submission
1	We have received your planning proposal, thank you. As a commercial Broker of this Developments before retirement I am keen to see this proposal lives up to its location as the gateway to Fremantle city, much has to take place along with the actual development of 130 Stirling Highway as this suburb was designed long before the arrival of the Motor Vehicle, working class Lots of yesteryear abound with a Road system to match. North Fremantle is no longer a working class suburb ladies and gentlemen with its River and Ocean views and 6 million Dollar Units in McCabe Street There is little parking for the present population let alone for the number of Units proposed – two vehicle bays underground for each Unit a prerogative with charging for Electric Vehicles included Refrigerated garbage disposal and daily collection mandatory as this an immense problem with close living as proposed – yes we are aware of this major problem in high rise locations. Kings Park Restaurant a 6 million dollar Tourist development have overcome this problem with a complete refrigerated system, well worth seeing and it 20 years old today so it can be done. With so many Units in and being built in North Fremantle the North Fremantle Railway Station must be resurrected Safe access over our existing Highway's to Land pedestrians on Dog Beach is mandatory for this developing North Fremantle location – Yes the Authorities made this happen in Eric Street Como to gain public pedestrian access to Como Jetty high across six lanes of Freeway years ago. We the richest State in Australia can well afford a similar extravagance. 100,000 more pedestrians visit Dog Beach annually from our suburb than pedestrians visit the end of Como Jetty and that Beautiful Bridge was constructed 50 years ago when the population of Perth was one third it is today. What a magnificent entrance to Fremantle City would such a structure make – make time go look at what was accomplished soaring over the Freeway those many years ago
2	Good morning The plans for this site look a little grandiose- 16 stories is out of scale- the McCabe st units are 6 levels 1. 207 units need 414 car bays- realistically and EV charging stations 2. A tavern, restaurant and reception centre will all need significant parking- say 100 bays? 3 if insufficient parking is mandated then the overflow will go into surrounding streets ie MY STREET Foundry court!!!
3	I am sure you are aware of the resistance, back in 2014, to the scale of the proposed height increases. Then as recently as November 2020 we received the attached letter from the City titled: FORMER MATILDA BAY BREWERY STRUCTURE PLAN – FINAL DECISION OF WESTERN AUSTRALIAN PLANNING COMMISSION (WAPC) So we thought that was it until now and we thought that:

"DAPs are required to make decisions based on the local planning scheme and associated planning policies." But the Developer says in their Application document the following: <i>City of Fremantle</i> <i>Ongoing discussions have been held with the City of Fremantle (Inclusive of the Design Advisory Committee) through the various phases of concept planning. The engagement outcomes from liaison with the City of Fremantle have been considered and incorporated into the design of the development. The Project Team has met formally on two (2) occasions with the Design Advisory Committee ('DAC') prior to the lodgement of this Application to seek independent advice on the design quality and direction of the proposal. Engagement with the DAC has provided clear design direction which has assisted to improve the design quality of the proposal throughout the design process. Copies of the meeting minutes from the initial DAC meeting in September 2021, and subsequent DAC meeting in December 2021, are provided at Attachment 1 to this report. Refer Attachment 1 – DAC Meeting Minutes.</i> Attachment 1 of the same document does not contain any text. Is it possible to obtain a copy of the two DAC Meeting Minutes? My question for now is, how did we get from Local Planning Policy 3.11 - McCabe Street Area, North Fremantle - (height of New Buildings (going from 17m to a discretionary 33m) on 4th November 2020, to the Council's DAC appearing to support what looks like all 3 towers exceeding those revised limits, with the tallest tower looking like it exceeds 60m? As ratepayers, what did we miss and when did we miss it?	
4	I wish to outline my objections and suggestions in relation to this massive proposed development in North Fremantle...an ugly behemoth. 1 Stirling Highway Façade. The façade should be retained and there is no need for a second floor in this area. One restaurant space of 350m² is absolutely sufficient. The proposed building is disrespectful of the heritage building. The designer, in my opinion has demonstrated poor understanding of the heritage value of the building or the ability to incorporate it into a modern design. 2 Set back on Coventry Parade. The set back must be greater than 4.5m in order to reduce the overshadowing and most importantly integrate the building with the North Fremantle community, many of whom access the beach via this road. The building should be considerably reduced in height and terraced. 3 Community consultation. The Structure Plan refers to community consultation but there was none. 4 Access Doors. I support a suggestion that the access doors in the façade of the building on Coventry Parade be re-purposed to make them an interesting historical feature. 5 Council Policy. The design does not comply with council policy or with the actual Structure Plan itself. 6 Car Parking. The proposed number of bays to cover commercial activities as well as the residents is wholly inadequate. We already have parking issues in tiny North Fremantle so there is no possibility of overflow onto the streets. The issue of future vehicles being electric and needing re-charging places has also not been well thought out. 7 Reflection. The impact of reflection on traffic and neighbouring properties on the McCabe street side would be very significant if the proposed finish is used. Road safety must be seriously considered. 8 Landscaping. This demonstrates a lack of consideration given to the harsh environment in which the development is located. 9 Pedestrian Access. The access for residents to exit the building to enjoy the beach and coastline is ridiculously complex and off-putting. The closeness to the coast will be a major reason people would want to live in this location. 10 Construction time and Stage 2. This is stage 1. Where is stage 2? How long will construction take and how will traffic be handled during the extended construction time?
5	As a resident ratepayer I am concerned about the process where external consultants engaged and paid by the City of Fremantle to prepare a Local Structure Plan can also be engaged by a developer to prepare development proposals that do not conform to the Local Structure Plan approved by the Western Australian Planning Commission. Should the Development Approval Panel not be concerned by conflict of interest and matters of governance? 1) The Structure Plan for the site was prepared under the provisions of the City of Fremantle Local Planning Scheme No.4 and "IT IS CERTIFIED THAT THE STRUCTURE PLAN WAS ADOPTED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON: 6 October 2020." 2) The Date of Expiry of the STRUCTURE PLAN as certified by the Western Australian Planning Commission is: 6 October 2030. 3) The Local Structure Plan for the site (WAPC Ref: FREM/2015/1) was prepared for the City of Fremantle by the Rowe Group (Their Reference 8191). The Version 3 document of the Rowe Group prepared plan was approved by Greg Rowe on 8 September 2020. 4) Less than 12 months after the adoption of the LSP by the WAPC, and one year and one week after approving the Version 2 Plan document the Rowe Group were meeting with the City of Fremantle Design Advisory Committee and the Rowe Group held "ongoing discussions with the City of Fremantle through the various phases of concept planning. The engagement outcomes from liaison with the City of Fremantle have been considered and incorporated into the design of the development".

	5) The Application for Development Approval was prepared by the Rowe Group for the landholders. The Rowe Group Reference for the Application for Development Approval Document is "8191 22Feb01R" and dated 3 June 2022 – nine months only after Greg Rowe approved the Version 3 document which was submitted to the Western Australian Planning Commission. The proposed development 8191 22Feb01R does not comply with the Local Structure Plan, "WAPC Ref FREM/2015/1" and Rowe Group reference "8191 20Sep01R": 1) The LSP required that the Internal Link Road was "to be provided within the first stage of development and ceded to the Crown to be vested with the City of Fremantle as a local road reservation". The Application for Development Approval states "an internal link road is proposed connecting McCabe Place in the North to Thompson Road in the South ... and will be retained in private ownership – the internal link road will not be formally ceded to the Crown". The proposed development does not provide a road connecting McCabe Place in the North to Thompson Road in the South. The "internal link road" is through the basement car park. All traffic exiting the site will be from McCabe Place to McCabe Street. 2) The development application makes reference to "pedestrian connectivity and safety along Stirling Highway and McCabe Street". The "desired improvements" are still the subject of investigations – including funding arrangements". It should be expected that any "new crossing over Stirling Highway" will aggravate traffic congestion and will be a cost burden to Fremantle ratepayers. 3) The shortfall of 86 car parking bays can not be justified by the availability of public transport. The site is not sufficiently close to the North Fremantle railway station to enable pedestrian traffic to the rail station. The City of Fremantle provides CATS bus services to precincts south of the river but does not run CATS services in the North Fremantle precinct. There has to be a question as to whether enough car parking has been allocated given the extent of residential and commercial space all supposedly co-sharing the total of car bays. 4) The traffic studies provided in the development application are meaningless. Other developments such as the Stage 2 development on the site, the Cornerstone Townhouses and One McCabe Street (Tubemakers) developments will add to McCabe Street traffic. As a frequent user of the route from North Fremantle to the Mosman Park shops via McCabe Street and Wellington Street I can attest to congestion. Further I can attest to the safety hazards caused by "blind exits" from the Taskers site, the Cove Apartments site and the approved Serai development site to McCabe Street. 5) The single exit for all traffic in a North direction from McCabe place and internal link road will create another hazard and further congestion at the Stirling Highway and McCabe Street intersection. McCabe Street, designated as a "Local Distributor" road, has a total road width of 5 m. Thompson Road, designated as an "Access Road", has two lanes each of 5.5 meters for a total road width of 11 meters. It appears to me that Thompson Road should be designated as a "Local Distributor Road and if the site is to have a single exit then Thompson Road would provide a better exit. 6) The City of Fremantle spent considerable resources in time and money in preparation of the Local Planning Policy 3.11 "McCabe Street Area, North Fremantle – Height of New Buildings". The Rowe Group considered that policy still relevant when it submitted the Local Structure Plan for Western Australian Planning Commission in September 2020. The Western Australian Planning Commission considered that policy still relevant when it approved the Local Structure Plan (WAPC Ref: FREM/2015/1) on 6 October 2020 – and relevant to 6 October 2030. The Development Application suggests that "contemporary development principles" is reason that the development should not comply with a well thought out, well-funded study of building heights adopted as a policy.
6	"There is such an increase in high density living in that area including both sides of McCabe St adjoining Stirling Highway. Very happy for redevelopment plans to proceed especially if it introduces more infrastructure to all locals which is badly needed however 16 floors far too high and can only assume driven by greed by the developers. Why do they need to include such high rise buildings which when they initially tried to pass in Scarborough was denied. We do not want or need huge high rise towers in this beautiful area. I'm sure I am not alone in this thought.
7	"Objection to height Obviously this completely ignores LPP 3.11. The heights in the application are almost double what is allowable under that policy which the community spent a long time developing (even the heights in LPP 3.11 were massively contentious). It also totally disregards the zones in which the extra height was allowed - putting an 11 storey building on the southern side of the development will absolutely ruin the amenity for the southern neighbours. Objection to parking A shortfall of 86 bays for public parking is unacceptable. The area is already incredibly difficult to park in, adding over 200 homes and other commercial venues without adequate parking is ridiculous. Objection to road link The requirement to link northbound traffic on Thompson road to McCabe street is apparently included in this application (although it is very hard to see in the plans). The fact that you are required to drive under the development to use it makes it fairly useless to local traffic movements. Objection to lack of public space in stage 1. The bulk of the public space is in stage 2. What guarantee does the community have of actually realising this space? It should be a requirement of stage 1 that the public space is developed in stage 1.

	Summary This proposal reeks of greed. The LPP 3.11 has been totally ignored in an effort to get as much return possible for the developers (an international company). There needs to be a greater focus on the local community."
8	"This is an ad hoc proposal, completely out of character with the surrounding area. Key reasons why I do not support the proposal include: - It is not within close proximity of the train station, it is approximately 13 minutes, 10 is considered around the appropriate metric for high density development. Even then, train frequency at North Fremantle station is not considered frequent enough to service peoples needs. - It is serviced by buses, but it's unlikely that the wealthy residents who could afford to live here won't use the buses. This will result in increases traffic in the surrounding areas and on Stirling Hwy. - The proposed heights are inappropriate, a more appropriate scale should be between 6-8 storeys at the absolute most. It will stick out like a sore thumb, surrounding development is mostly 1-2 storeys, going from 1-2 storeys to 16 storeys is completely inappropriate, no planner (or logical person) thinks this is a good outcome realistically. As former North Fremantle resident for 20+ years and now a practicing town planner living in Sydney, having seen good and bad approaches to urban infill (noting Sydney is many decades ahead of Perth in terms of higher-density living and development) I can safely say the State Government in Western Australia really needs to undertake better metropolitan strategic planning, and identify key sites that can become new centres, appropriately linked with public transport and a good local amenity, not just ad hoc large residential development which seems to be popping up around Perth, purely to meet infill targets. I would consider supporting a revised proposal at reduced heights, which also perhaps focuses on providing more diverse commercial services to meet the needs of any new residents and the surrounding community. For example, could a small supermarket also fit into the site? A Woolworths metro (smaller sized stores) or the likes (i.e. small IGA) could service the hundreds of residents who would live on site, and be within walkable distance for many other residents. It's noted North Fremantle does not have a supermarket. I presume this proposal is less about appropriate uses and scale for the site, and more about the views that can be sold by the developer. I call on the IDAP to refuse the proposal."
9	Why so high!!! Surely that exceeds allowable planning heights. The empty sky seems to be a simple money maker for developers, at the obvious expense of visual amenity and landscapes, for local and wider communities.
10	"I write in favour of the development. 1. We need high rise development / urban infill and increased population density in this city - there is less environmental footprint than standalone dwellings, and increased population supports a vibrant and diverse mix of shops and businesses in Fremantle 2. Notwithstanding point 1, there are clearly some locations better suited to high rise than others. This location is about as ideal as you can get - adjacent to a 4 lane highway that is a bus route, and adjacent to a railway line. 3. The proposed design is high quality and attractive"
11	The idea to redevelop the Matilda Bay Brewery site is fantastic, and retaining the character of this building is an asset to this plan. However the proposed 10+ storey additions are totally out of character with the North Fremantle coastline and sets a worrying precedent for a Gold Coast type overdeveloped and ugly skyline.
12	This development is far too large and tall. It exceeds the height limit without adding anything beautiful to the area to justify the extra height. It is totally out of proportion and character with most of the surrounding buildings, port and natural landscape. The height limit needs to be strictly enforced in this area. There is no justification for allowing the extra height. It is also concerning that the company behind the proposal is completely under foreign ownership. It is difficult to argue in this case that Western Australians will actually significantly benefit from this development.
13	"Miami, Vegas ... Fremantle? Let's cut straight to the point. If we allow ludicrous over development and wealth exclusive communities to rise then the flood gates will open and we'll soon have overwhelming Gold Coast esq. culture where a proud port city once stood. I've grown up in North Fremantle and have lived and worked in many parts of the world and can testify that what we have here is unique, special in it's attraction to the outside world. We are also still young with ample space to grow in an organic, healthy way ... let's think and feel clearly here and not ruin the future by letting money win over the heart beat and charisma of the local people and shared cultures who will be pushed further and further away if the concrete dollar becomes god. Come on Freo we are bigger than these towers of ego and excess, let's remember what makes us who we are ... it's most definitely not this. Next.

14	Whilst I think development of this site could be beneficial the proposed development is highly unappealing to me as a local resident. The towers are too tall and totally out of keeping with the streetscape in north Fremantle. The parking provision is poor, particularly visitor parking and I suspect will cause major problems in nearby residential streets. I also feel that the plan for a 'providore' is ridiculous. North Fremantle needs an IGA (or like), not a 'providore'. I suspect noise will also be a problem for nearby residential areas, particularly given they sit largely downwind in the prevailing wind direction.
15	Beautiful development, that respects the heritage of the site. Appropriate height for the area. Hopefully sets a precedence for the area of quality design and heritage integration.
16	I think it's great development for Fremantle. Look forward to its development!
17	a logical design for the area with varying heights and scale to upgrade the precinct which has always been earmarked for significant development.
18	Way to high; overlooks the adjacent residences leading to a loss of privacy and a feeling of overshadowing; these heights are out of place in North Fremantle; the increase in population will over tax the local roads; such a huge increase in the population in a small area would need open space for exercise and enjoyment; there aren't enough natural bushy areas already in these areas of the type similar to Pinney Lakes where people can get away from traffic noise and overcrowding. I am a former resident of the area and I think this development is far too big in height and density for the ambience of this area.
19	The development for this site appears appropriate noting both residential and businesses nearby. A great use for an iconic wa site.
20	Strong rejection to proposed development which is the addition of three residential towers (16, 11 and 10 storeys in height respectively) comprising 207 Multiple Dwellings and Café/Restaurant, Shop, Office, Reception Centre and Industry-Light land use, at the Matilda Bay Brewery site North Fremantle due to : 1. negative environmental and traffic impact. 2. the existing traffic congestion experienced on a daily basis from every route, south and north from Stirling highway, east from McCabe street and traffic turning into McCabe from Stirling Hwy south and north. 3. in addition, the fact that it is not in keeping with the architecture of north Fremantle. 4. North Fremantle is the North ward, not inner city and high density living is not viable in this specific location. There are several more suitable locations in the Fremantle region which won't be severely impacted by the three oversized proposed high density high rise buildings of this scale. The first being Knutsford street precinct then the light industrial area west of the rail line close to Pearce st and east of the coast road, and finally the derelict safe building on Jeffrey road, Besconfield. 5. North Fremantle Transperth train station does not cope with existing commuters to and from Perth/Fremantle during peak periods. There is a lack of parking for park and ride customers so much so that they are using illegal parking on side streets, are causing bottlenecks at the Alfred rd intersection of Stirling Highway (every week day) transperth commuters are also illegally using short term retail parking space at the rose and black truffle precinct and the side streets within a 2km radius. This is a pre existing safety hazard to residents and a huge traffic management issue for all retail short term visitors in north Fremantle. The buses are affected (and unable to move) entering and exiting the Alfred Road area between 7am- 9am and again from 2.45pm-5pm on a daily basis. This is due to the transperth commuters parking for the whole day in any area or street that can find space. The traffic flow along Queen Victoria has been hugely impacted since the entry into Fremantle was reduced from dual carriageway to single file. Due to the above reasons, I believe the Fremantle council will be making a huge error in judgement to approve the inclusion of the 3 high rise residential dwellings. I strongly object to this development at this particular Matilda Bay Brewery site.
21	1. Loss of light / shadowing - from height of towers; Impact for residential area - narrow ischmus 2. Visual impact of tower height - narrow isthmus and predominantly single / double story dwellings south / east / west of this area. 3. Traffic , parking - turning off Stirling Hwy into Coventry Parade Use of residential streets - for traffic access Thompson Road - already heavily congested with parked cars 4. Traffic safety - Stirling Hwy / McCabe and traffic flow / congestion in this area 5. High density residential dwellings - already further up McCabe street and Leighton Beach precincts - further impact on quality of living for residents re numbers / for access to green space 6 - North Fremantle is well supplied with choice of restaurants and small bars , did the company undertake any focus groups or what the community needs ? 22 This is too high by a long way! No higher than the new Leighton apartments would be suitable. Developers always try to push the boundaries, either with height or density. We do not want the area looking like Canning Bridge!! 23 "Very supportive of the proposal, north Fremantle is experiencing a crime wave, sensible development like this to reduce the number of vacant and under utilised commercial premises in the area will reduce the amount and likelihood of crime.

	Providing public space and a shop will greatly increase the amenities and appeal of the area. Staging big development projects in the area is a great idea to not have all the development occurring at the same time. If the port is to be moved in 10 years and work is commencing to repurpose beach front land near port peach in the next 3/5 years it is imperative that we action other development in the next 1-3 years so that the strain on roads / noise levels isn't all occurring at once."
24	The submission is supported and would be a great asset for the area and nearby community.
25	I think it's a great idea, just what North Fremantle needs. There is too much unused prime land lying around. Let the people live here!
26	I am supportive of this development. It is great to see a developer considering the built form, heritage, public open space and integration with the natural surrounds. I believe the height of the proposed towers is appropriate and will help more people enjoy the wonderful location. I would have no issues with further floors being added if the developer continues to include the public space benefits.
27	I have had a look through the documents in the submission and on the whole consider the submitted design to be of a reasonably high quality but I do have 2 qualms about it that I would like to see addressed : Firstly, the height of the tallest tower I believe is beyond reasonable. I use the word tower in this instance because 16 stories in that location justifies its use. I am not one of those residents who classifies anything above two stories as a tower or high-rise and get annoyed by this hyperbolic language. 5, 6, 7 story apartment blocks are more than common in Paris, Barcelona, Budapest, etc. and nobody calls those high-rise. However, a 16 story building in an area that is currently mostly single or double story stands out somewhat. When developments were initially proposed on nearby Glyde Street the recommended height limit was 4 stories. The first development was approved at 7 stories but, by and large they did a good job. The second development, Rema, is 9 stories. I did not object to it either as it steps up the hill and is a good design. The most recently approved one is 11 stories, set apart from the other two and next to a single story character restaurant. This is the one I objected to because its extra height and location makes it stick out like a tower and I have real concerns that it will have a detrimental effect on the amenity to the whole street. The trend with an initial 4 stories being used to justify 7 stories, then 7 being used to justify 9, then 9 being used to justify 11 and now 11 being used to justify 16 is clear to see. This 16 story tower will be a stone's throw away from neighbourhoods that are almost exclusively single or double story. That is too large a contrast in my view. It even towers above the two other apartment buildings proposed in this application. I believe the height of this taller tower should be reduced to be more in line with the other two and the limit set for the site. The second concern I have is the pedestrian access from this development and the others (Taskers, Serai and the proposed One Steel site development) across Stirling Highway. There is a pedestrian crossing across Stirling Highway marked on the plans but it states that it is not subject to this application. Does this mean that we will have all this mass of people move into these developments without a safe way of getting across to the beaches or indeed to the train line (I assume there will be a future plan to put a train station in here to accommodate the vastly increased density) ? If the pedestrian crossing goes ahead does that mean we have two sets of lights (the pedestrian crossing and the McCabe Street turn) very close together on an increasingly busy main road ? Surely a big part of the overall rationale for these apartments being built where they are in the density they are is to get people out of their cars and get them walking, cycling and catching public transport more but the pedestrian route from this entire set of developments across Stirling Highway to the train line and beaches has seemingly not been fleshed out. Until this happens I don't see how this development can go ahead without creating real problems in the near future. These are my two big concerns for this proposal and I would like to see them both addressed. Other than that I think it is good design and has a number of merits to it in the context of a growing Perth.
28	We are strongly opposed to this development for the following reasons: proposed height exceeds regulations and would be visually polluting; causes severe shadowing to a substantial number of neighbouring residences; increased traffic congestion (which is already a problem at certain times of the day); existing infrastructure in the area does not support this volume of occupancy; it is not in keeping with the existing landscape.
29	Height and scale. With a proposed stage 2 also mentioned and proposed, the scale and height of stage one is extremely excessive. The visual intrusion on the landscape from both the river and beach will be overwhelming and take away from the sense of place. The surrounding area is all light industrial or residential with nothing over 2 stories. This proposal does not fit that existing community feel in any way. The scale and height of the towers also does not fit in with the heritage aspects of the area; no buildings should be any higher than what is currently on site to preserve the heritage aspects. Building giant towers will diminish any retained heritage aspect because of their overly large scale. The towers will dwarf the brewery building which at the moment is a large prominent building of the area, as it is now it is large in scale relative to all surrounding buildings. I believe this current scale of the brewery building adds to its heritage value. If the towers are built, this heritage aspect of the current building will be diminished in its scale and lose that heritage fabric. Therefore, justifying exceeded height limits because heritage values are being maintained is a flawed argument, as the exceeded heights will actually diminish the heritage aspect of the existing site. <u>Public open space</u>

	There seems to be very little usable public space proposed. Where are the parklands, playgrounds etc.? They even have a picture in the report of an individual child sitting and looking at concrete walls (pg83)! Will the pool be available to the public? This area of North Fremantle already has very small green park spaces that are also given no resources by the City. The playgrounds in the area are outdated and the rangers never visit the area to enforce local laws. This development will dramatically increase the demand on these surrounding parks that are already outdated and substandard in quality. E.g. the park on cny of foundry ct and Thompson rd. Any public open space should be on ground level and easily accessible. It should not be a walkthrough, it should be useable parkland (not concrete paths/promenades). The height and scale of the proposed towers will result in cold shaded ground level areas that experience wind tunnels and will hence be uninviting to pedestrians (the planning report actually shows high wind areas on the ground area between buildings). No public open space provision should include shared car/pedestrian areas, they should be in addition to open space. The planning report mentions there is currently a gap in public greenspaces in the area but doesn't show any green spaces that would be easily accessible to pedestrians from the south proposed. An internal link road in private ownership seems a bad idea. This should be public so it remains open and free to use for all. The idea that a safe road can only be provided if it is private seems flawed logic to me. Are they saying the City of Fremantle are incapable of maintaining safe streets where pedestrians, cyclists and cars can coexist? If the design has been developed to link with stage 2, shouldn't the stage 2 design be provided so the public can comment on whether the pedestrian connectivity is in fact "seamlessly connected"? <u>Visual amenity from the beach</u> The design images themselves show how no neighbouring areas are even close to the scale that are proposed here. The towers will stick out and not blend in with the surrounding area in anyway. No consideration has been given to views from the beach. The viewpoints provided from Buckland Hill and Mount Lyell show how much the proposed buildings block the skyline and dominate the views. Morning beach shading will decrease beach amenity. Shading to north Fremantle residents during winter months will be increased. All residents already in the area will have windows overlooking their yards. It is also not clear from the plans if the residential units will have balconies or not? The shading images provided in the report show the shading of nearby residents and then claim they are all industrial/commercial sites – this is false. They should also show the wider footprint area with sun shading. The City of Fremantle's Local Planning Policy 3.11 – McCabe Street Area, North Fremantle – Height of New Buildings Clearly exceeded height limits is not justified in the planning report – "Whilst the development encroaches upon portions of the view corridors defined in the McCabe Street Height Study, views from locations of significance are generally maintained". Views from all surrounding areas will be impacted by the significant height of these towers. The proposal should not exceed any of the height limits. Justifying going higher by saying adjacent sites have been bought by developers is not valid. If anything, this fact should further reduce the height limits due to the potential for such significant development in the area, that may put a strain on all aspects of the surrounding area. As stated in the planning report 15% of zone H2 and H3 are not open space – they are proposed as car parking, paths, retail etc. <u>STATE PLANNING POLICY No. 2.6 STATE COASTAL PLANNING POLICY</u> The proposals planning report states that SPP2.6 is not relevant. However, it clearly states in SPP2.6 a policy measure of "Ensure that land use and development, including roads, adjacent to the coast is sited and designed to complement and enhance the coastal environment in terms of its visual, amenity, social and ecological values." Along with 5.4 building height limits within 300m of coast. I believe the height of this proposal will adversely affect the visual amenity from Leighton beach. The fact that it is in an elevated position with regard to the beach to start with will make any building heights seem even more dominant on the landscape. I also think the 300m line from the horizontal shoreline datum would cover most of the site and should be checked rather than using the developer's depiction of the line. <u>The Visual Landscape Planning in Western Australia – a manual for evaluation, assessment siting and design</u> was released by the WAPC in November 2007. The manual provides a suite of visual assessment techniques for incorporating landscape factors into the planning system and in Part 3, specifically addresses coastal landscapes in detail (pages 73-80). Building height, landscape, seascape and visual landscape elements of coastal planning should reflect consideration of the manual. The proposed planning report does not reference this landscape manual and compliance with it in anyway. <u>Pedestrian Crossing Stirling Hwy</u> A pedestrian crossing over the top of Stirling Hwy is strongly opposed. The connection to the Leighton footbridge should be accessible for all North Fremantle residents not just this development. There should be a safe ground level crossing. This should actually be a priority prior to any development taking place as once construction starts, crossing Stirling Hwy will become even less safe. The intersection of Stirling Hwy and McCabe is currently unusable for wheelchairs and prams; this also needs to be fixed prior to any development taking place in the area. Especially with the proposal requesting a long approval timeframe due to a potential of not starting development for 4 years. Most people accessing the footbridge over the rail to Leighton beach currently appear to come from the North Fremantle area (south of Coventry street – not McCabe). So, the crossing should be ground level as pedestrians should not have to climb and deviate so much from the Stirling Hwy level to cross Stirling Hwy. They simply won't do it. The plans show stairs entering the development off Coventry, will there also be a ramp? An elevated pedestrian crossing would only serve residents of this proposed development and maybe McCabe st residents. The planning documents reference a working group of the City of Fremantle, Town of Mosman Park, Main Roads WA and PTA with regards to crossing Stirling Hwy. Is there a report from this group? Have they communicated with any residents that currently cross that area to seek their views? If this group acknowledges it is such a problem already now, then why is nothing being done about it? It shouldn't take a development in the area to instigate improved safety? You cannot even safely cross at the McCabe traffic light intersection because of the poor condition and widths of the paths. No wheelchair would currently be able to navigate it. Improving the connectivity of North Fremantle to the current rail pedestrian footbridge and Leighton beach should not be a 'benefit of this development' – it should simply be something that City of Fremantle, Town of Mosman Park, Main Roads WA and PTA seek to fix now as a priority. Summary - The proposed towers are far too high and go against height restrictions. They should instead blend in with the height of the brewery site.
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	- There should be more public green space provided within the development. - Green spaces in the surrounding area should be improved to accommodate the increase in residents. - The safe pedestrian crossing of Stirling Hwy to the existing footbridge should be from ground level and should be undertaken immediately regardless of this development. - No justification is actually provided that the commercial and community proposals are not possible without a non-compliant development (the community benefit aspects (market, tavern, restaurant) are still commercial sites that will be commercially viable and presumably not subsidised by residential sales anyway). - Stage 2 should be considered as part of the overall development approval. - The provision of a link between McCabe and Coventry is supported. - The provision of a fresh food outlet in the area is supported.
30	The size and bulk extending further down Coventry looks sheer, monolithic and extreme. Noise from the amenity. The overlooking from buildings particularly on Coventry. High traffic volume + speed control of vehicles Height exceeds the cities planning guidelines. The extent to which shadowing actually occurs through the day (we note the shadow diagrams provided) Traffic movement and parking overflowing onto Coventry, Thompson and particularly Parnment nazing cars can move directly off Stirling Highway onto Parnment then circle back 1 way into the site, ie I can see a loop forming when activity is busy at the development and people can't find a parking spot. Construction noise mitigation? Construction vehicle movement mitigation Cars moving through rear laneways.
31	Looks like an exciting and well needed development. 65% of open space gives community better place for shopping, drink and food. I would also love to live in there. It should be go higher!!!
32	As a local North Fremantle resident, I am generally supportive of a redevelopment of the former Matilda Bay Brewery site and am of the view that there are multiple community benefits for local residents and more broadly. I support high density housing in theory and consider that this is, on the whole, an appropriate location for such a development. In regard to this proposal, I strongly support the following: • Activation of the area through public open space, playgrounds and community services, supermarkets and casual dining / take away (not just fine dining restaurants) • Retention and restoration of heritage buildings • Improved accessibility to the surrounding area, including pedestrian and bike crossing over Stirling highway. I do not agree with this being from a raised level within the development, it must be for the whole community and easily accessible from the street. My major concerns about this proposed development are: • Building heights. I see no justification for this development exceeding building height restrictions set by LPP 3.11 and determined via a dedicated study on building heights in the local area. The surrounding (new) buildings are 7 storeys at the highest, and this development should be in keeping with the surrounding buildings, or at the very less, comply with existing policy • Impact on the visual landscape. It appears that there was no view analysis undertaken from Leighton Beach which I consider to be the primary viewpoint for this development. From Leighton (at bottom of old pedestrian bridge), the Old Brewer site is visible, meaning the proposed towers will significantly impact the view from the beach. These towers are much closer to the ridge than the existing buildings (Taskers etc) so will be much more visible, which is a further argument for limited building heights. Any towers proposed on this site should not be prominent on the skyline when looking up from Leighton beach. I understand that property developers seek to maximise profits by building as high as they can get away with and insisting this is the only way they can afford to retain / restore heritage aspects. In this case I believe the old brewery presents a great business opportunity that would very likely be successful (see Gage Roads). Therefore, I don't believe the City / DAP should be pressured into accepted excessive building heights at the expense of the existing community's enjoyment of the area.
33	I am concerned about the tower height being extended to 16 storeys. Fremantle planning Policy specified 33 m maximum which is more like 11 storeys. It seems that this always tried on by developers for obvious reasons and that if the Council doesn't agree they run off to the WAPC and Minister to override the wishes of the community. The whole development plus One Steel will be adding huge traffic loads at McCabe and Coventry. As a nearby resident the traffic we are already contending with heavy traffic. The extra storeys will look down on us and mess with our privacy.
34	I object to the height of 16, 11 and 10 storeys. With the development proposed less than 200m away on the corner of McCabe and Stirling Highway with even more apartments I feel this area is being way too over developed. The population increase in such a small area will impact greatly on the environment.
35	Please prevent use of the roof top as a heli pad. Stage 2 is similar size. Assess angles for afternoon reflection of sun off the glass towers x 3. We may have unexpected and unwanted reflections on our property. The design looks more like an office tower rather than a residential building. Visitors parking is a problem, not enough visitors bays.

	Waste Truck access also from southern side Increased traffic from southern side adjacent to a park would be an issue.
36	16 storeys cannot be justified, unless on the second stage area, as I understand, the eastern section of the overall development site, no medium or high rise will be permitted, i.e. it would be a condition of any approval to this development that the second stage area be subject to a height restrictive covenant of say 3 storeys.
37	"I support the development of the old Matilda Bay site by 3 Oceans. I have lived in the area for 6 years and there needs to be more amenities for the local people to enjoy such as walking distance high quality cafes, bars and restaurants. There seems to be a good mix of useable public space which I was not expecting and am pleasantly surprised. The 16 story height proposed could be an issue as I think 12 would suffice in the area. I would expect there to be a maximum 12am (midnight) limit on any bar or function operation with the operator providing plenty of security to ensure patrons are not left hanging around the area after closing to disrupt residents. Looking forward to North Fremantle progressing into an even more vibrant place to live as this development is executed. Let's just hope there are not focus groups of anti-development folks from other suburbs northwest of us who try and block this progression."
38	This development is too big and the tallest building is above the permitted number of storeys as well as 17.6m over height. This being over height will impact the amenities and view of many North Fremantle residents and should not be permitted.
39	I'm completely anti & against this proposal, all buildings are much too high. My/our Fremantle view would be completely wiped out not to mention it being a total eyesore, it would not fit in & is inappropriate.
40	This proposal has 2 towers that are way above the 11 storey allowable limit. If approved this would significantly affect the amenity of the neighbouring residents and the building scape of the area.
41	The development of this site into a landmark mixed-use development is generally supported, however the following concerns are requested to be addressed. 1. <u>Coventry St:</u> The proposed development will result in a significant building mass (vertical building façade) along the length of Coventry St and extending to the east of Thompson Rd at the rear of the existing Zenscapes Nursery. a. The approved planning scheme identifies maximum building height limits within DA18 under the scheme. H1 Zone = 17m. This represents a developed RL of 33m as the existing RL is 16m. The proposed development rises to 43m (+10m). In addition, G1 zoning allows for 11m developments. This represents a developed RL of 27m. The proposed development rises to 43m on the western side of the G1 zone (+16m). <i>The development should strictly adhere to the heights prescribed in the approved planning scheme for areas immediately adjacent to Coventry St. If not, the properties at the rear of Salustri/Keel Place will be significantly impacted by privacy/overlooking issues created by the eastern component of Tower 2, especially as this includes an open 'roof top' terrace.</i> b. Coventry St is fundamentally a one-way street (West to East) adjacent to the proposed development due to grade and physical separation of the street. As such, this would appear to not support suitable traffic flow required to meet the needs of the proposed ride share, refuse collection and DFES booster/hardstand traffic movements. 2. <u>Parking:</u> The proposal identifies a short/fall of 243 Commercial/Visitor parking bays. Due to proposed public access amenities (eg tavern & provedore) this will result in added parking needs on the surrounding streets which are already experiencing parking stress due to greater density housing development in recent years. <i>The development should strictly adhere to resident and Commercial/Visitor parking bay requirements.</i> 3. <u>Development Application:</u> a. The application for development should include Stage 2 to fully assess the cumulative effect on traffic, parking and overshadowing from both stages. b. The proposed shadowing diagrams should include the existing shadowing effect of fencing as the lots are already impacted by shadowing because of boundary fences and vegetation along the eastern boundary. This will not change with any development. c. The Southern Elevation dwg (DA A3-03) does not represent the full height of the proposed building (RL43m) as it does not outline the roof top terrace and parapet.
42	As a resident of nearby Salustri Place I am directly affected by the development proposed at the former Matilda Bay brewery In general terms I am pleased that development will be undertaken because the industrial site does needs revitalising for it to become usefully integrated with the local community, but there are several issues that I would like to raise. Traffic:

	Many residents, businesses, and suppliers etc use the junction between Coventry Street and Stirling Highway daily and between McCabe and Stirling Highway very frequently. They are busy junctions. The additional traffic generated by this development and the One Steel development will put a severe strain on traffic flow. I cannot identify any plans to modify road configurations to allow for the additional activity. <u>Pedestrians</u> The old pedestrian bridge from Stirling to Curtin Ave will have dramatically increased foot traffic from both this proposal and One Steel when developed. Consideration should be given to re-establishing Leighton railway station. <u>Parking</u> Foundry Court, Thompson Rd and Coventry St are currently extensively used for daily parking during the work week. This will be worsened with the proposed short/fall of 243 commercial /visitor parking bays to service the proposed public access amenities. This needs more consideration. <u>Building Heights</u> The high-rise towers will overlook and severely affect the privacy of our nearby properties. The approved planning scheme identifies the maximum building heights as 17 metres. This represents a developed RL of 33 metres as the existing RL is 16 metres. The proposed development rises to 43 metres which is 10 metres more than the approved planning scheme. The development should be confined to the heights prescribed in the approved planning scheme. <u>Stage 2</u> There is a large area nominated as Stage 2. The application for development should include this stage so that the cumulative effect on traffic parking and overshadowing from both stages can be assessed."
43	I am totally against the proposed high rise development at the old Matilda Bay Brewery site. There are already too many high rise developments in the area and it is adjacent to residential properties.
44	I write to inform you of my disbelief at and objection to the development application DAP003/22 on the site of the former Matilda Bay Brewery, at 130 Stirling Highway, North Fremantle. When I first looked up the details of this proposal I had to double-check that the address was in Fremantle – not Dubai! I have spent a lot of time living on the eastern seaboard of Australia, so have good experience of residing in and around tower blocks in seaside settings. I decided to take up residence in North Fremantle because of its reputation as being within a progressive and enlightened local government area which was not afraid to put considerations of lifestyle, equity, and community wellbeing against the narrow interests of property developers. I hope that my confidence in the Council in this regard is not misplaced. To have a single 10 story development in that location as proposed would represent a serious and irredeemable breach of trust with the community. To have three tower blocks, with the smallest of them being 10 storeys and the biggest 16 storeys and over 73 metres high would represent nothing more than a betrayal of the local community by the Fremantle Council. The great irony of this development proposal is that I relocated from the east coast to Fremantle in order to enjoy the more amenable, less congested coastal lifestyle afforded by North Fremantle. If this development were to proceed then I may as well move back over to the Gold Coast – I would have to put up with just the same inconvenience and intrusion of coastal tower blocks but have better access to public facilities. It is also difficult to imagine how the traffic arising from around 450 parking bays could possibly be absorbed in that location. Stirling Highway is already too busy and trying to get out of that area, particularly if needing to turn right, is difficult at present and would regularly descend into chaos with all of the additional cars this development would bring. Similarly McCabe Street barely copes with existing traffic at peak times and increased traffic flows would only make the existing dangerous driveway entries from many McCabe Street developments more hazardous. All I ask is that the Council honour their earlier commitment to permit only low rise development at this site – ideally no higher than the existing facade of the old Matilda Bay Brewery building – and reject this naked and egregious profit grab by a seemingly over-ambitious developer. I am not against redevelopment of the site, but whatever is done should be in keeping with the established character of the site and community and consistent with the limited road traffic capacity of that location.
45	I wish to register my very strong objection to the proposed development at 130 Stirling Highway, North Fremantle (DAP003/22), the site of the former Matilda Bay Brewery. My objections are based upon considerations of community amenity and traffic safety, as well as a desire to see some rigour and integrity in the City of Fremantle's planning processes. I note that the proposed development has of the order of 350 residential parking bays, in addition to more than 100 other bays for visitors. In the context of roads, the proposed development site represents an isolated appendage with minimal connection with the surrounding road network. It beggars belief how the already saturated road system in that section of Stirling Highway could absorb the peak period flows which would be generated by the additional several hundred vehicles which would emanate from the 130 Stirling Highway site. McCabe Street is already too busy at peak times, a fact which is glossed over with scant attention to reality in the developer's Town Planning Report. Unless McCabe Street is radically altered and side roads such as Coventry Parade, Pamment Street and Thompson Road, for

	example, are widened significantly and more traffic light controls installed upon an already congested section of Stirling Highway, one can only conclude that any decision to approve this development application will result in significant traffic congestion and ultimately to episodes of road trauma, which in turn could be directly stated back to the deliberations of the Council. I am further alarmed by the potential for the over-taxation of available road capacity as represented on the plans by the 'STAGE 2 Shown as INDICATIVE ONLY and subject to Future Development Application'. It is clearly evident that McCabe Street is already beyond capacity at its western end at peak times, with additional nascent developments from 11 to 21 McCabe Street only set to exacerbate this situation. Fremantle Council has already approved a number of unsafe road entries onto McCabe Street, necessitating perilous entry into the carriageway. Developments approved by the Council which inevitably result in higher traffic flows on McCabe Street will invariably lead to motor vehicle accidents, a situation which can be ameliorated only once the Council recognises the inherent physical limitations of McCabe Street (NB: blind entries at or near crests on curves are innately dangerous and the likelihood of accident will only increase directly as a result of increased traffic flows; other councils spend millions of dollars eliminating these 'black spots', while the City of Fremantle seems intent on creating them). I am also dismayed by the development application's apparent complete disregard for what had been the previously accepted height limits for development for that site. The mere fact that the City of Fremantle would entertain such a nakedly ambitious ambit proposal of this magnitude is suggestive of planning processes which are slipshod and ad hoc at best. I fail to understand the point of ratepayers funding the Council to develop supposedly sound and robust policies, and to make good faith lifestyle and investment decisions on the basis of those policies and processes, that then seemingly wilt at the first nudge by a rapacious, profit-driven developer. I would hope that the Council considers the ambition of profit-driven developers in the context of the needs and amenities of the established community. I further hope that the Council clearly recognises that a development of the magnitude mooted for 130 Stirling Highway is totally incompatible with the road infrastructure in that location. It is clearly evident that this development application should be rejected.
46	As a North Fremantle resident, this development will increase congestion and put existing strain on amenities. This is an insensitive, oversized design proposal to the existing landscape and heritage precinct of the area.
47	We have been invited as a nearby landowner to provide comment on the proposed development, specifically with respect to the requested variation; Maximum Building Heights. The request by Developers to obtain an increase in building heights to include towers of 16, 11 and 10 stories is in our view unacceptable. It ignores the existing landscape of relatively low rise Apartment Towers in the vicinity, limited to 6-7 stories and seeks to create maximum amenity with respect to views for the occupants of proposed new towers whilst completely negating the amenity and present views for those Apartment Blocks already existing eg the Taskers Complex. In addition, the way the three Towers are orientated on the Development Block, effectively overlap in such a way as to completely obstruct any line of sight between the towers for existing Residences. So, existing residents who purchased property aware that future development would happen, but reassured that existing planning regulations would limit any loss of views by way of height restrictions will be subjected to significant loss of amenity and inevitably significant loss of value for their property. We have no issue with development(s) similar in height to that existing, so long as care is taken to minimise impact on existing property owners and for the development to ""fit in"" with existing developments. Whilst not requested, we have concerns over issues not limited to increased tra, noise, parking etc which have worsened with the opening of the final Taskers Block and will only continue to worsen with existing new development further east on McCabe St as well as the proposed development on the corner of McCabe St and Stirling Hwy
48	Having grown up in Pannment St, North Fremantle, and now as a resident of Fremantle, I would like to submit my support for the proposed development of Matilda Bay Brewery site. It would be wonderful to see the area's potential unlocked. I am delighted to see the plan allows for generous open spaces and for people to move through the grounds on foot or bicycle. With family still living very close by, I could see this precinct becoming a local hub for us. Regards, Lisa Reeves
49	There is a lot to like with the development application with regard to open space, landscaping, community benefit, and commercial space. However, the scale and height of the buildings including shadowing is well outside current zoning height maximums and well outside of any exceptions that have been allowed for other developments. 10-stories to 16-stories is excessive even with the setbacks. 5 stories to 9 stories would still be above zoning height maximums, but also more in-line with other planning approval exceptions assuming appropriate setbacks, view, and shadowing considerations.

	Moreover, the semi-sharp angling of the towers and the full glass paneling will create significant glare and jarring contrast relative to the other developments in the area. This will be an important building in defining the future look and feel of North Fremantle so should embody more of the North Fremantle feel and culture. At a minimum there should be a reduction in glass glare and a softening of the overall look of the towers. Finally, there needs to be more consideration to traffic/transport. Given the proposed scale of the development, there is not nearly enough consideration given to the McCabe/Stirling intersection and little mention of the additional traffic and inevitable slowing and lines that will occur during certain periods post development due to the scale. A review of the Stantec report shows the low ratings and potential delays on Stirling Highway - a major and important roadway to keep moving freely. There has also been minimal consideration given to stage 2 in the assessment which would follow in a separate development application. There is likely to be further development on the north side of McCabe ("One Steel") of a similar nature that should be considered from a long term perspective. One of the key benefits to the site is the linkage to Leighton beach, public space, and the commercial proposals such as restaurants, tavern, and cafe. These aspects will create a vibrancy in the area that will benefit residents, beach goers, and nearby residents that have limited walking distance options for food and entertainment. It has the ability to serve as a local mini-hub in this capacity if done right. The new pedestrian crossing over Stirling Highway should be an explicit and contingent part of this application but is not as of the current lodging. This is a must for safety and accessibility. I'd urge the committee to look no further than iconic in Scarborough, a similar outsized development proposed by 3 Oceans that has been pulled or rejected multiple times due to "significant overdevelopment of the site" and poor public feedback. This has happened at the same time there have been many approvals for other towers that were ambitious but not nearly as outsized or visually jarring relative to the rest of the area. There is lot of potential with this Matilda Bay Brewing site development, but it should be rightsized and the tower aesthetics should be softened. Thank you for your consideration.
50	How exciting to hav such a responsible, communiy and individual minded Development company lift this wonderful location out of th grave. As an 81y.o long term resident and ex coucilor of Mosman park, I hav often wondered why this great location has sat languishing for so long. Having bought, sold and developed more properties than ide like to mention, my recent dealings with Parcel property at Norma, 40 Glyde st hav been a pleasure. This highly professional company really hav th community and individual at heart. They hav both th experience and passion to achieve th best outcome possible. Cant wait to see the final product. Cheers. Robert Ruse
51	I oppose the development because it will plonk hundreds of people and their vehicles in an area which is not suited to multiple high rise. The traffic and other public infrastructure cannot support it. The towers will not address the shortage of homes for people to live in, in Perth, because many if not most of them will be turned into Airbnbs by the owners.
52	I attended the on site inspection and information session and I found the proposed outcome to be an excellent development for this prominent location Great open landscaped areas for both private and public use with connectively through the ground floor mixed use pedestrian access to Stirling Highway A good mix of heights with view corridors through taller towers on smaller footprints with vehicle parking under... a great outcome and architecture well worth supporting
53	The height of the proposed building is a concern as it is really towering over the site and will affect the skyline. This height is absolute not what we want to become the standard in north fremantle, we have been an unique spot, low key and quirky. With only a relative small amount of residents. I know we can't stop progress and that is not necessary but it will have to fit in with the existing feel and look of the suburb. With this height also come more apartments, not sure if infrastructure is capable of absorbing 207 new apartments (not even considering other projects nearby) and their occupants. The traffic flow will be impacted immensely. Also carpark facilities for proposed restaurant and shop needs to be looked at as the streets nearby are already parked up heavily at the moment with the existing dwelling/commercial use mix. Also heard there is talk of a providore style shop, this is not what we need here in north fremantle as there is Black Truffle and MarketSpace that cater for those needs. We need a supermarket like the IGA in Claremont. Closest supermarkets are Mosman Park or Palmyra for weekly (not providore style) shopping. Insincerely the planning commission will take careful look at the submissions and will come to a fair result.
54	I fully support this development. It will certainly enhance and revitalise the old dilapidated industrial areas. I have also no issues on the height of the development. More should be done to encourage developers to redevelop North Fremantle.
55	OVERALL A site of this scale and complexity, especially given the important heritage aspects, needs more than just an architectural solution stamped upon it. Rather, it requires a carefully considered, pedestrian focused, urban design strategy in order to work successfully. Site planning is the key to success for any project of this nature and if it fails in this regard then then the project's basic premise should be considered as fatally flawed.

This one fails miserably. It is a heavily car orientated development with very poor pedestrian connectivity and/or amenity. The heights of the buildings are some orders of magnitude greater than those allowable by the relevant planning controls, ie the Structure Plan and LPP 3.1.1, and it displays all the negative hallmarks of overdevelopment. There are also numerous other indicators of poor design embedded in the proposal, as outlined in greater detail below. The following review is structured around the 10 Principles described in SP97.0 'Design of the Built Environment' and as utilised under SPP7.3 Vol 2 of the R-Codes 'Apartment Design'. CONTEXT The local context for this site is all about the coast and heritage, plus the unavoidable presence of the highway. The design proposal pays some respect to the retention of its non-aboriginal heritage, but largely ignores aboriginal heritage and the coastal context, including the implications of the harsh and often-extreme climatic conditions. No meaningful information has been provided with regard to the adjoining properties, including the recently approved Cornerstone development to the north. This information is essential in order to undertake a proper assessment of the full impact of the proposal. The lack of any information about Stage 2 is also a significant concern as it prevents any proper assessment of the implications of the development including, in particular, traffic impact and pedestrian connectivity, but also wind, over shadowing, solar reflection etc. LANDSCAPE The landscape plan indicates that the lower plaza is 6.0m below the upper main deck / plaza. This is not a comfortable relationship especially given the small scale of the lower plaza. The 'design' detailing is totally uninspiring, lacking 'program', sensitivity or any contextual sense of place. There is really no reason anyone would want to go there. The planter boxes are too small and yet too high to comfortably sit on... and there are too many hard and angular surface and ill-considered finishes. Many of the perspectives are unrealistic as they show large trees in shallow planter beds. They also indicate considerably more paving around the Brewery building than has been indicated in the deep soil calculations. Note this would further reduce the amount of 'true' deep soil provided for tree planting on site. It takes a skilled designer to be able to deliver the necessary soil depths for tree planting without creating a landscape dominated by ugly, domineering planter box walls. That hasn't been achieved from what I can see in this development. Notably, there is an absence of any site-specific cross-sections, which are required to explain where and how much compliant 'deep soil on podium' planting is being provided and what the implications are both visually and in terms of the impact of the walls on amenity. The same are required to illustrate how the depth necessary for the pool will be achieved and the implications regarding its surrounds. Similarly, there are no fencing details which are critical when any design includes swimming pools, or other water bodies. The heavy reliance upon trailing and climbing plants on both levels, as inferred in the perspectives, is also of concern. This strategy is destined to fail in such an exposed environment and probably sooner rather than later, ie this 'vision' will never be achieved. Furthermore, the species list doesn't reflect any considered allowance for this type of planting. The 'rivulet' at the upper level might be a nice idea but there is a high probability that it will be omitted prior to the building license stage, if not for cost reasons, then due to the difficulties relating to safety compliance. Legibility and ease of access have been sacrificed for the sake of architectural pattern making. Refer below for further comments on legibility. There are large tracts of paving on the upper deck which will be exposed to the wind and sun, the exacerbating the overall urban heat island effect and both making this environment uninhabitable.

Lack of deep soil where it really matters, ie in the upper plaza is also a serious shortcoming in the site planning and design strategy. It is also likely that a good proportion of the 'planting on podium' will not meet R-Codes Vol 2 'deep soil' requirements in terms of width and possibly also depth. However, there are inadequate details and/or sections to determine exactly what's going on. Notwithstanding the main problem is that all of the 'true deep soil' area is in the front verge which is largely wasted in terms of meeting the Vol 2 objectives since it is right up against the highway, directly exposed to high levels of noise, heat, fumes and wind making this a decidedly inhospitable environment for much of the year. BUILT FORM & SCALE The "Former Moolla Bay Brewery Structure Plan", which enshrines the allowable heights applicable to this site as per Local Planning Policy 3.11 "McCabe Street Area, North Fremantle - Height of New Buildings, has only recently been approved. As such it deserves the highest order of consideration that should be given on the "due regard scale". This proposal flagrantly ignores the planning framework as prescribed above. Tower 1 exceeds the maximum allowable height by close to 4½ times and all of the other towers generally sit somewhere between 2 to 2½ times over their respective prescribed maximum allowable heights. The attached elevation further demonstrates the sheer bulk and scale of this development compared to what has been considered, up until now, a tolerable upper limit of development clearly indicates that this project is significantly over developed for the site. The maximum building height, as required in the Structure Plan, illustrates that this development does not come anywhere near meeting the expectations of what might be considered 'orderly and proper planning'. Further evidence of this can be seen in the shadow diagrams in the Planning report, (pages 66-68). The lack of information about Stage 2 of the development also means that these diagrams are likely to significantly understate the real impact of overshadowing on neighbouring properties. Furthermore, the negative impact of overshadowing will not be limited to neighbouring properties. As can be seen from the shadow diagrams during winter, most of the Lower Plaza will be in shade for most of the day in winter. This will result in a particularly cold and inhospitable environment at this time of year before even taking into account the effect of wind. The curtain wall glazing and the employment of 'wintergardens' rather than conventional balconies will do little to ameliorate the impact of wind and in particular downdraughts, which a more conventional residential tower archetype achieves through the friction provided by balconies. No information could be found with regard to the proposed density of the development. As such this important planning control is also of concern. One aspect, or impact of this development that appears to have been completely overlooked is the impact of reflection from the sun on neighbouring properties and traffic, primarily on McCabe Street. This will likely be a major issue arising from the proposed development. The curtain wall glazing as shown for this development will further exacerbate this problem. FUNCTIONALITY

All traffic leaving the development exits onto McCabe Street. Probably sensible solution, but the DA documents do not appear to take into account the already approved developments in immediate vicinity (eg Cornerstone and the Seral). Nor does it address the likely required upgrades to the access the northern laneway, or the traffic lights, to accommodate the compound effect of the increase in traffic numbers, nor the inevitable implications on queuing as well as vehicular, bicycle and pedestrian safety. Note, there have already been a dozen traffic accidents at the Stirling Highway / McCabe Street intersection (over a 5-year period to Dec 2020). Whilst a minor detail it must also be questioned why a left arrow into McCabe off Stirling Highway, which just needs a simple change to the traffic lights, was not considered. There is no indication as to where the air conditioning condensates will be located. Typically, these can have a significant visual impact and need to be given careful consideration. SUSTAINABILITY The Sustainability report is highly generic in form, containing a string of noncommittal statements such as "the project is seeking to and achieve a minimum five star green star design and as built 31.3 self-assessed outcome". Whilst this might otherwise be considered to be a promising, it is a 'target', not a firm commitment, and as such cannot be entertained seriously or credited with having any real value without a firm commitment to this rating. There are plenty of other equally non-committal statements applying to many important issues in the report like 'proposed design strategy', 'expecting to include' and 'the design team are targeting'. None of these are commitments and as such they are effectively meaningless statements. One item of serious concern is that the Sustainability report only goes so far as to say that 'the design will consider the provision of electric vehicle parking and charging facilities within the car park'. The client and the design team need to be reminded that this is 2022 and electric vehicles (EVs) will represent a significant part of our future mobility. As such a firm commitment needs to be made up front for the supply and installation of adequate charging stations (nominally 20-25%) with provision for 100% expansion, including all necessary support infrastructure such as: transformer room sizing, supply cabling, an embedded energy network etc. There is very little area on the roof for the provision of PV cells, especially if these are competing for a space with air conditioning condensates, which notably have not been indicated on any plans. The Sustainability report also has a title 'Zero Waste' though there is no indication, from the small amount of information provided under that section, that anything like this goal will be achieved. In summary there are no substantive commitments regarding sustainability being offered in this development. This is simply unacceptable in this day and age. AMENITY The Wind Report states that the main pedestrian accessway on the Upper Plaza level is "likely exposed to very high wind activity that is likely unsafe for use". It is unclear if any of the recommendations in this report have been incorporated into the design as yet, or if the recommended wind tunnel testing or CFD modelling has been undertaken. Neither are apparent in the design, but their implementation would have a significant impact upon the design, quite probably requiring reassessment. No substantive reference could be found in any of the reports about the development's contribution to the Urban Heat island effect caused by the excessive use of reflective glass, hard paved surfaces, minimal true deep soil tree planting, nor is there any sign of any measures to ameliorate this issue. LEGIBILITY
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The lack of ease regarding pedestrian wayfinding as a major concern with this development. As best can be determined the main pedestrian area, the upper Plaza, is sitting on an elevated podium and, aside from being a very poor neighbour, represents a major challenge is say you wanted to go to the beach - whereby you have to walk down a 6.0m flight of stairs, or alternatively find and then catch a lift from inside one of the residential towers, with two out of these three lifts forcing you to walk through an undercover carpark to get back out again. There appears to be lift access inside the old brewery building, but it is behind a set of double doors and looks like this access could be closed after hours. SAFETY There's no pedestrian path along Coventry Lane on the development side and from memory it's a split road so there's nothing on the other side of the road anyway. You can't get out of the site as a pedestrian safely on the McCabe Street side either. The highway nominated pedestrian crossover is 'subject to a separate submission', ie assume there is none. Note this stretch of highway is extremely busy most of the time and extremely pedestrian unfriendly. Yet this is where the site's main assets, the beach and ocean, lie. It can be even worse on a bike, and god help the elderly (who will likely be a good percentage of the residents due to pricing). There's no clear demarcation of public, semi-private / residential community / communal and private zones, which will lead to CPTED issues. It honestly looks like one of the worst pedestrian environments I think I've seen in a long time. COMMUNITY The inclusion of a providore and co-working facilities are good measures. However, having over 2,000m2 of Cafés/Restaurants/Tavern appears to be rather excessive, especially as this is creating a large part of the carpark demand (nearly 200 of the 550 bays) which in turn is causing some of the poor interfaces and uncomfortable level changes within and beyond the site. The Community Needs Assessment report states that "There is a significant opportunity to increase permeability of the site and reduce the walk time for residents to the train station and beaches.". The site planning has resulted in anything but a permeable site and it is far from pedestrian friendly. This same report also states that "There is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialisation amongst residents." The lack of true deep soil and predominance of paving in the main upper plaza prevent this development from meeting this need. It is good that the two most prominent Maillda Bay Brewery buildings are being retained. However, a successful heritage strategy also requires a respectful attitude, both internally and externally to such heritage, and this doesn't appear to have been accomplished. Adding an extra level to the building fronting Stirling Highway and the decidedly imposing mass and bulk of the adjoining towers, plus the awkward interface at the ground level behind this building all seriously undermine the respectfulness of the relationship. The DA package is notably short on information with regard to exactly how the elevated levels of the car park podium interface with the heritage building. In a similar vein, judging from the lack of information shown on any plans, little consideration seems to have been given to the interface with the already approved

	Cornerstone development to the north. Insufficient information has been provided to be able to accurately assess the impact of this development at this interface. However, given the presence of the elevated car parks along this boundary it is unlikely to be a neighbourly gesture. AESTHETICS The architecture is at best inoffensive. However, it is disappointingly generic lacking any distinctive characteristics or genius loci - ie reference to site, The curtain wall glazing, and the use of 'wintergardens' rather than conventional balconies, lends it more of the appearance of a commercial tower rather than a residential building, which is inappropriate for the site and built form character. The perspectives as provided are somewhat seductive due to the luminescence or transparency of the towers. However, the practicalities of having to deal with the very high heat load from such a heavily glazed building will inevitably result in the need to use a heavily tinted glass type which will give the buildings an altogether different character, being far more solid and over-bearing. Some of the perspectives indicate large trees growing out of very shallow planter boxes which would probably not provide adequate structural support, given the predicted high wind speeds, let alone provide them with a sustainable volume of soil medium. Neither the roof plans nor the perspectives provide any indication of what visual impact the air conditioning condensers or the PV cells will have. It is clear from the elevations that very generous parapet has been provided at the top of each tower. However, PV cells require full access to sunlight and hence there is little point in having a tall parapet if it is necessary to elevate the PV cells to get access to the sun. CONCLUSION This proposal is fatally flawed a number of grounds, inter alia: • It is considerably out of context; • It is unneighbourly; • It falls well short of meeting many if not most of the criteria for design excellence; and • It ignores the basic parameters of orderly and proper planning. Based on the above it is humbly requested that the City of Fremantle reject the proposal as submitted for development approval.
56	Planning Report Please excuse the somewhat disjointed nature of this submission. Having to consider over 550 pages of project documents in the short time open for comment is an onerous task! 1.1 Pre Lodgement Consultation - No Consultation with the local community is poor practice and develops a sense of mistrust. Disappointed first we hear is Development application proposal and a very small window of opportunity to comment - The proposal and supporting documents extend to over 550 pages – defying anyone to fully consider all the information in the allowable time and make appropriate comment on all aspects presented, and weigh up the negatives (which are not well documented in the reports) Page 20 – The Balcony and Communal Spaces at the Eastern End of Tower 2 are too close the existing residential area and should be relocated

	4.1 Development Staging - Whole project should be considered (in one proposal) to enable the cumulative impacts of Noise, Parking, Shadowing, Traffic etc to be considered holistically 4.4.2 Food and Beverage There is no (local) community need for a tavern of 1300m² – It will be the largest tavern for some distance and bring associated parring and antisocial behaviour issues 4.5 Given the stairs / height difference, the connection between McCabe and Coventry Parade is Poor quality 4.5.1 – What measures are in place to ensure the link road through private property (from Coventry Parade to McCabe Place will continue to have public access? 4.6 Community Benefit The proposal states "A rigorous community needs assessment has been undertaken in support of the development to identify uses which are lacking within the North Fremantle locality and which would positively contribute towards establishing an active and vibrant environment." • Assuming the Urbis "North Fremantle Community Needs Assessment Document" is basis of this then ◦ No evidence of local residents consultation ◦ Does not consider the previously approved providore at 19-21 McCabe Street ◦ There is No "Community Cost / Benefits" and so called benefits are nebulous at best The "community Benefit Document should be rejected until local consultation has been conducted. (The public comments to this development application should not be considered local consultation) 5.3.1 Building Height The "Former Matilda Bay Brewery Site Structure Plan" was approved 6 October 2020, less than two years ago approved Zone I/L /I2 and I3 Maximum 17m high Development (with additional discretionary Height up to 33m). Zone E Maximum 20m high Development. The new "130 Stirling Highway, North Fremantle (Fmr Matilda Bay Brewery) – DAP003/22" The proposed development has approximate Height of 80m RL (noting the drawing provided don't show RL of the roof structure) and with a ground level at RL35.0 makes the development height of approx. 64.0m or TWICE the maximum previous discretionary Height <u>The overall height of the development is entirely non compliant with previously approved structure plan and is unacceptable.</u> Proximity to high frequency public transport (? Why is this a justification for increased height anyway?) The distance to north Fremantle train station platform for a pedestrian is understated at 650m. At its closest point to the North Fremantle Train Station (from the corner of Stirling Highway and Coventry Parade) it is over 800m to the train platform. The high frequency circle route bus is of limited utility to travellers to Perth city as requires multiple bus travel segments. Future Context of Locality The other developments of Serai Megara, Taskers and Siskas are considerably less height than this proposal. To state it is only marginally higher – when it is "twice" the height is misleading View Analysis There is no view analysis from the beaches to the south and southwest, from these locations the development will Dominate the landscape 5.3.3 Overshadowing Shadowing – Static comparison The Shadowing Diagrams provided in the Application for Development approval are biased and misleading. • The Development area for Stage 1 is being compared to the whole of Site for the planning to LPP4.11 so is not comparing like for like. • Future stages which occupy the remainder of the site, will have additional shadows! • If such comparison is to be used, then only the LPP 3.11 buildings for the same footprint as stage 1 must be used as comparison. (This is an example of how the project document are used only to support a position, not to provide objective comparisons).
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Shadowing Dynamic Considerations There will be a significant reduction in sunshine for properties to the south, Southeast and East. Viewing the solar diagrams for Perth Latitude, suggests that homes to SE will be in shadow for 1 to 1 1/2 hours extra every day through autumn winter and spring so a cumulative loss of sunshine of up to 300 hours per annum, all during the afternoon. This will impact thermal comfort, solar energy production and general liveability at a time of day that people are coming home from work, enjoying last of daylight hours. This is "estimated on basis" of an observer 1/2 way along Keel Place (as a mid point) as approx. mid point of the rocky bay area. Basis these estimates below, noting the reality will be worse as the Rocky bay area is lower than the current ground level of the development site. The tower shadows will join up in the afternoon, not Development Stage 1 Estimate All distances approximate - Observer to Tower 1 (height of 56m above ground level) is 120m distant, - Looking toward the development, the towers extend from the horizon to 25 degrees above (or nearly 30 %) of the distance from horizon to zenith. LPP 3.11 Building Estimate - For the same observer in Keel place, H3 area (allowed height of 17m) is 90 m distant. - Again looking toward the development, height limit extends from the horizon to 10 degrees above (or approx. 11 %) of the distance from horizon to zenith. Impact Sunlight will be lost at sun altitude of 25 degrees (this proposal) vs 10 degrees (LPP 3.11). The subsequent increase in shading time is 1.5 hours on June 21, reducing to 1 hour (everyday) by 22 September (or March 21). There will be other losses at other times of year, but the winter impact is most significant for the rocky bay area INCREASED LOST HOURS OF SUNLIGHT Some Winter and Autumn (YELLOW BOX) 75 deg 10 deg The Window comparison is misleading as it considers the whole project area for LPP 3.11 but only stage 1 of the development proposal. This volume of building should not be part of the comparison when comparing LPP 3.11 and the proposal Stage 1 Miss Spm Tower Shadow merge, levelled and moving North East 5.3.4 Community Benefit - The arguments for community benefit have not been derived from the community (there has been zero community consultation for this development) - The community did agree to LPP 3.11 – this should be taken as the community position. - The community has not been adequately consulted (zero consultation) to determine if there is support for discretionary height increase within the LPP - The proposed building height must be rejected 6.2 Wind Assessment This assessment is flawed, as it is based on inaccurate wind data (Swarbourne) and inadequate methodology – refer comments below under pedestrian wind report
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6.2 Sustainability Assessment No consideration of the construction phase of project to assess the whole of life cycle energy demands of the project is provided 6.5.2 Parking Review Parking is wholly inadequate The project is too far from North Fremantle train station (further than is stated in this document) The North Fremantle train station is subject to a review that could move it another 150m further away The high frequency "circle route bus" is not a efficient service for commuters to Perth City Residential Design Code Location "B" parking ratios should be used Additional comments below 6.5.3 Analysis summaries Traffic Impact studies are inadequate – they do not consider local roads The increased wait time to turn right onto Stirling Highway from Coventry Parade is unacceptable 6.7 Community Need benefit analysis There is no Cost / Benefit analysis There is no Balanced argument in the commentary There is no evidence of community consultation to determine what the community needs Cost to the community include - Increased traffic congestion - Increased parking congestion - Antisocial behaviour of departing patrons - Shading Conclusions The Project proposal should be rejected Further comments on supporting documents Architectural Drawings - No total height of the towers provided (RL) - No Heights with reference to actual ground levels on site so heights can be better understood in context to the current levels - Make assessment of the overall project challenging <u>Drawings should provide height relative to ground level and total overall height (RL) to enable informed review.</u> Perspective Images Page 1 – Misleading - show extensive green zones (trees) to the East of the development which are a) not there and b) occupy the site space of future stages This makes it look like the site is surrounded by trees – which it is not and nor are there any plans to do so. Same Image is copied into Page 39 of the "Application for Development approval" and is misleading Fail to show any images down Coventry parade, where there is a significant height difference to the current ground levels <u>Perspective Image from all aspect should be provided</u> <u>Images should reflect the realities of the site, and not include vegetation etc, that does not exist, or is not planned for. If planned, it should state this.</u> Parking Management (Plan) Baseline Residential Parking is too low - Study Uses Location A Parking Ratios from Residential Design Code Volume 2. - Presumed this is based upon parking allocation due to location within 250m of a high frequency bus route (appendix B 3.4).

- It is noted that the Bus 103 – which provided the best direct link to Perth City has been discontinued. This makes the journey more challenging requiring a bus change and considerable delay (I know because I use it). - The Circle route are not convenient for travel to the city of Perth (highest frequency destination?) as it requires a change of bus. - At its closest point to the North Fremantle Train Station (from the corner of Stirling Highway and Coventry Parade) it is over 800m to the train platform - It is also noted that consideration to moving the station 150m further south is being studied. - Train Station Platform Distance is too distant to use it for justification of using Location A parking ratios. The Study should use Residential Design Code Volume 2 Location B Parking requirements as baseline to better reflect the limited alternative (to own car) transport options. Even using the manifestly inadequate Location A, R-code requirements - There is still undersupply of parking at site (463 parking bays Vs statutory requirement for 546 bays), nearly a 20% deficit across the whole development - Unrealistic to expect each of the 2, 3 or 4 bedroom apartments parking requirements to be met by a single parking bay. - Some 60 of the Basement level parking bays are Tandem, which are only viable if allocated on basis 2 x bays allocated to a single unit (for at least 30 units). - Approx. 241 bays are allocated as Residential leaving (Basement and Mid-Level) leaving just 222 Bays to meet Residential Visitor and commercial parking requirements of 350 parking bays, an undersupply of 128 bays or 40%. Other Parking Issues - Paid parking at site will cause spill over to the adjacent residential areas which already have parking availability deficit (evidenced by high current levels of street parking) - Anticipate Council will need to issue and monitor "resident Parking Permits" - The proposed Parking Compliance and Enforcement (Section 4.5) and Safety and Security Measures (Section 4.6) fails to address any issues off site including neighbourhood feedback - Antisocial behaviour (e.g. patrons departing bars) is not addressed - Cost of enforcement on council – anticipate increased patrols to manage parking, behaviour - Parking Management Plan (attached to the submission) is wholly inadequate, in that it fails to address off site parking issues associated and due to the development including - Cumulative impacts of insufficient parking at other development sites located nearby is not considered – the project does not exist in a vacuum <u>The parking proposal for the site is unacceptable</u> Traffic Management Plan No traffic impact assessment (as stipulated in the approved "Farmer Matilda Bay Brewery Site Structure Plan" section 5.8) has been provided. Given the development proponents suggest that many patrons will arrive by ride services, what impact will this have on traffic levels in surrounding residential areas, in particular the community children's playground park at the corner of Thompson Rd and Foundry Court Section 2.6.2 – It is noted that the Bus 103 – which provided the best direct link to Perth City has been discontinued. This makes the journey more challenging requiring a bus change and considerable delay (I know because I use it). There will be more cars exiting the site – for the same reasons noted in the parking study comments previously The Bus Stops at North Fremantle Train Station are closer to 700m (from the corner of Stirling Highway and Coventry Parade) than the stated "about 500m south of the proposed development" The proponent seems to be inferring the train station is about 500m away – which is factually incorrect At its closest point to the North Fremantle Train Station (from the corner of Stirling Highway and Coventry Parade) it is over 800m to the train platform It is also noted that consideration to moving the station 150m further south is being studied. Table 6-7 shows the Coventry parade exit, turning right onto Stirling Highway as LOS "F" currently has a near 3 minutes delay at the moment, increasing to nearly 5 % minutes in Table 6.11. This will no doubt increase driver frustration and lead to increasing traffic incidents. <u>The Traffic Management Plan is unacceptable</u> Sustainable Design Report No consideration of the construction materials (Steel and Concrete) which both have considerable energy footprints Paragraph 3.2 - The proposed nominal Solar Generation of 80KW for the site can hardly be a "Key Design Feature" What % of site power demands does this represent?
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- How does metering change power demand? Paragraph 4.1 – 10% LED lighting is not a very high target <u>The sustainable design report should consider the life cycle of the building including the construction (energy) costs.</u> Heritage Impact Assessment No Comment Pedestrian Wind Assessment Section 2 - The Report Methodology States: In some situations, this knowledge and experience, together with literature, allow for a reliable, consistent, and efficient desktop estimation of pedestrian wind conditions without wind-tunnel testing. - The Report Methodology States "This qualitative approach provides a screening-level estimation of potential wind conditions and offers conceptual wind control measures to improve wind comfort, where deemed necessary. In order to quantify and confirm the predicted conditions or refine any of the suggested conceptual wind control measures, physical scale model tests in a boundary-layer wind tunnel would be required. - The Report Methodology States – Note that other microclimate issues such as those relating to cladding and structural wind loads, door operability, building air quality, noise, vibration, etc. are not part of the scope of this assessment. <u>Due to the limitation of the "qualitative" methodology the site should be assessed by wind tunnel modelling</u> Section 3 - There is a statement: "the site is located on western coast of Perth and is, therefore, less exposed to the prevailing easterly winds noted at the Perth International Airport. Meteorological data from Swanbourne Station which is situated closer to the coastline is, therefore, considered to be more representative for the site." - This site is actually very different to Swanbourne as the wind from the East blows unimpeded along the Swan River to the South of the Mosman Park Area. - The Cliffs at Rocky Bay to the East also create steep rise in topography (as is noted for summer westerly winds – Section 5.2) , increasing the surface wind speed considerably. This change in topography is not considered in this report This site, is on a narrow isthmus between the prevailing Westerly Winds off the Indian Ocean, and Easterlies from the Swan River The use of Swanbourne Data is not applicable to this site The effect of the cliffs in rocky bay on easterly wind (causing increased surface level winds) is not considered The effect of raising the ground level of the development above the current "natural ground level" is not considered <u>Data more reflective of the site should be used in the assessment and in wind tunnel modelling</u> Section 5 The report concludes <u>The exposure of the site to the prevailing winds</u> and limited shielding from neighbouring sites allows the proposed tower forms to capture the prevailing winds with the <u>potential for downwash</u> winds to be redirected towards the plaza areas and corner accelerate around the building corners The south-westerly to westerly winds are expected to interact with the north-west corner of Indian South (Tower 02) and corner accelerate, which can also channel through the space between Indian North (Tower 01) and Indian South (Tower 02). Due to the strength of the westerly winds, <u>these areas are likely not suitable for use</u> Section 5.3 The report recommends "The north-western corner of Tower 01 is exposed to the prevailing south-westerly to westerly winds which are expected to corner accelerate. Given the area is intended to include an outdoor deck with the pool area along the northern aspect the area would be required to be suitable for passive patron use. It is recommended that the perimeter consist of 1.5-1.8m high impermeable balustrades with a wraparound awning above to assist with potential downwash winds and corner acceleration." <u>Yet the development proposal is for an infinity pool.</u> Section 6
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	The wind conditions around the site can be quantified and the measures can be further refined through wind tunnel testing or CFD modelling of the proposed development site. <u>Given the exposure of the site to the prevailing winds, this is highly recommended</u> Overview of Wind assessment <u>The pedestrian Wind assessment is unacceptable as it is based on flawed data inputs (Swanbourne Data), and inadequate quantitative methodologies. The results are that higher wind speeds are anticipated at the location. The report should not be relied upon. The report has some serious adverse findings (despite understated wind speed and lack of quantitative methodologies). The adverse finding appears to be largely neglected in the plan proposal</u> Acoustic Report Strongly Disagree with section 6.2 of this report "COMMUNAL AREA Noise emissions associated with external areas will need to be considered in terms of noise impact to apartments within the development itself – which, in turn, will ensure noise impact to surrounding areas is managed." <u>Neighbours to the development will be considerably MORE affected in their outdoor environment compared with tower residents behind their highly acoustically insulated apartments.</u>
57	I reside at about 300m from the proposed development and am generally happy with the proposal. I would like to make the following 3 comments on the proposal. 1. Thompson Road Traffic. I understand that traffic flow will be allowed in a S to N direction into and thru the parking to McCabe street from Thompson Road. The development at the Matilda Bay Brewery Site should not allow increased traffic to use Thompson road which is already congested by traffic entering at Harvest road and then entering Thompson road which has cars parked on both sides meaning traffic cannot pass without with out one car giving way to the other. If this means preventing exit of vehicles from Thompson road S to Thompson Road N so be it. Any changes should not affect the operation of tracks at the Flour Mill. 2. Commercial Tenant Mix at the Development. The brochures heavily promote a brewery – large tavern and mentions a fresh food produce outlet. The issue I have with the Brewery –large tavern is that it will potentially attract a large numbers of visitors to the site which will add to parking an traffic congestion. The 'fresh food outlet' space should allow for the space of a compact 'super market' (IGA or the like) which has sufficient floor space for fruit vegetables gourmet and general groceries. The floor area as shown on the figure is 807 sqm mtrs which is so small. It should be at least 1200 sqm. The tavern at 650 sqm mtrs is nearly as large as is the adjoining restaurant at 350 sq Mtrs. The developers priority is here is clearly for visitors over the residents of North Fremantle. A proper food market is important as North Fremantle is devoid of any such facility and residents need to go to Fremantle or Mosman park to do ANY shopping of this type. This development and others in the precinct will increase the population of the area by about 1400 which will make this facility even more important. People in the precinct and surrounding area will not have to get in their cars every time they need supplies which would reduce traffic flow in the area. 3. Pedestrian – Public Open Space within the development. The plans presented at the public information session on the project at the N Fremantle Community centre on the 16th July indicate that the public open space within the development can only be accessed by two flights of stairs. This is not acceptable as it means this area is not smoothly connected and integrated with its surrounds. The level of this space needs to be altered and/or the connection the surrounding environment be via gentle ramps making a seamless connection.
58	The proposed development of the Matilda Bay Brewery site would be welcome if the design had considered more the needs of the North Fremantle community. There are a number of concerns in the proposal that require addressing before an acceptable outcome is reached. Height The Local Structure Plan endorsed by WAPC less than 2 years ago allowed for maximum heights between 7m and 33m. The proposal not only ignores the height boundaries within the lot (Tower 1 with a RL height of 73.4 lies in the 17m zone) the overall height is ludicrously excessive and is not in keeping with the character of the area. The eastern end of Tower 2 exceeds the height allowance of 11m at RL39.8. This part of the building has a rooftop terrace not shown on the south elevation drawing. Privacy to residents on the eastern boundary will be lost due to the rooftop terrace peering into their backyards. The proposal also omits perspectives from the southern aspect where the vast majority of north Fremantle residents live and would see the already sizable heritage building be dwarfed by towers. The South Elevation does not clearly show how the 6m height difference will look as built, considering how imposing the structure will be from the south.

	 Estimated height to Plaza Level RL22 that is supposed to be accessible to the community. Heritage The overpowering heights of the proposed towers do not respect the form and scale of the existing heritage building. The existing heritage building will be dwarfed. The external saw tooth roof aspects are completely gone. Traffic & Parking The 2021 census had North Fremantle's population at 3,847. Occupancy of Stage 1 of this development only, at an assumed 2 persons per apartment (2x207 = 414) will increase the population by more than 10%. Additional developments on McCabe St will increase the population yet again, increasing traffic and putting additional pressure on McCabe St. The "access" road from Thompson Road to McCabe St in the carpark seems inadequate to service existing North Fremantle residents who won't be able to turn right onto Stirling Highway from Coventry because of the increased traffic on McCabe flowing through. There has been no inclusion of the traffic impact on what is already a busy Thompson Road. At any given time of the day there are cars parked on the street effectively making it a single lane road where cars have to navigate through parked cars and wait for oncoming traffic. Additional traffic pressure will be certain, given that the access to the one way road through to McCabe St extends from the Intersection of Coventry Pde and Thompson Rd. This intersection will need to be changed to prevent accidents occurring before the McCabe Lane access "road" can be used. Having traffic surveys taken at 4-5pm rather than at peak hour 5-6pm no doubt has underestimated the traffic pressure in the evenings. Service vehicles will effectively block the east bound lane from other motorists as Coventry Parade is a single carriageway road separated by a median. There is a severe shortage of commercial/retail parking compared to R-Code stipulations. The already crowded neighbouring streets cannot support the shortfall of parking. Landscaping Much of the "landscaping" is hardscaped pavement with the reliance of planter boxes and trees installed on the podium level. How tall can these trees grow and how much canopy can they offer if they are able to grow in these confined unnatural conditions and assuming they have been selected to not have invasive root structures and have an adequate soil depth to accommodate 12 metre high trees? No substantial landscaping is indicated on the southern end of the development or a South Perspective. Sustainability A self certifying Green Star approach can not be taken seriously. Who are the developers accountable to if they are ticking their own boxes. As is evident with the omission of so many aspects of their DA submission, a self certifying approach will only serve to benefit the developers by appearing to provide a sustainable development without the cost or scrutiny of proper certification. When things like failure of tree canopies occur, will this still be seen as "Green Star" 5 years post development? Community Benefits & Accessibility The community needs assessment has ironically been made without any consultation with the community. Many in the community would argue that North Freeo has many bars and pubs already, so why would we need a large tavern? There are many cafes and restaurants in North Fremantle that were excluded from the "survey". Perhaps if they asked locals we could have provided a comprehensive list. We already have a providore (Black Truffle), though perhaps calling it a supermarket would have been less pretentious, and who said we needed an event space?
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	The argument of providing community benefits is questionable, considering we have not been consulted. Most of North Fremantle's residents live to the south of this development. If they considered walking to it, which is a fairly high supposition since most live within the Thompson Rd/river boundary they would be confronted with a 6 metre high wall (?) at the end of Thompson Road. If they cycled (this road is marked with cycle signs) they would have to dodge the additional cars traversing Thompson Road. They would then get to the end and wonder how they get up to the 6 metre high upper plaza where all the "community benefits" are. There are no clearly marked pedestrian/disability pathways for the "community" to access from the South.  
59	We are local residents who will be impacted by this development. As a general comment we have been given very little time to assess this application and it was quite difficult to ascertain exact heights and locations of parts of the proposal. There were similar issues with previous development proposals for this site. We wish to raise the following concerns; 1. The current development exceeds height limits substantially and is disproportionate to the local environment. It creates a number of impacts on the local area that we believe are not addressed in the proposal. 2. Shadowing is a dynamic issue and it appears to us that the developer has only addressed one time in the year in their assessment, being the winter solstice. We remain concerned that shadowing during spring and autumn will be more expansive and would think it is appropriate for the developer to address shadowing during these additional times in their submission. 3. There appears to be little done to identify the impacts of traffic associated with this site. In particular the impacts on both Thomson Road and McCabe Street, as well as entry/exit points onto Stirling Highway need to be considered in a more detail assessment. 4. There is insufficient parking incorporated in this development. Thomson Road and other streets in the vicinity are already difficult to navigate due to parked cars on both sides of the street. Garbage trucks in particular have issues already navigating the local roads. Parking will be exacerbated by this development when there is not sufficient parking on-site. The proposal by the developer to control on-site parking by charging will only exacerbate the problem off-site. 5. There is no on-site open green space provided for all these new local residents. The closest park is located at Thomson Road/Foundry Court and is quite small. Provision should be given to a generous grassed open park with trees on-site of this development. The current open space on-site is dominated by concrete and will be quite hot during most of the year if there is no breeze. 6. There does not appear to be anything in the proposal to address the impacts of fans and odours emanating from the underground service areas. Such fans etc could be quite high in proximity to surrounding houses. This should be addressed before approval. 7. A detailed assessment is required to ascertain if all runoff is contained on-site. The heights involved may result in flooding of adjacent properties. In conclusion the developer claims that this development will be a positive for the local community. Without addressing the above issues however this will not be the case and it will end up being a series of major problems left behind for existing residents and the council to resolve.

60	Firstly, I would like to acknowledge that re-activation of this site in a contextually sensitive manner would be most welcome. It is indeed a unique place to be shared and enjoyed. However, the development application provided is inappropriate in so many ways that it should not proceed without major revisions. Height The proposed height increases are more than 24 metres (73%) above maximum height limits prescribed in LPP 3.11 and far removed from the character and scale of the surrounding area. The proposed height increases also extend outside the zones H2 and H3 allowing for Additional Discretionary Heights under LPP 3.11. The eastern end of Tower 2 protrudes into zone G1 (maximum height 11 metres) at 27 metres high exceeding planning guidelines by 16 metres or 145%. These variations will negatively impact neighbouring residences and detract from the existing community environments. The existing Proposed Structure Plan for the site already considers its proximity to high-frequency public transport in determining maximum building heights. For the developers to provide this as a statement of compliance for both additional height and parking shortfalls appears to be an attempt at double or even triple accounting and should be excluded from considerations. The proposal asserts the scale of the proposed development is "only marginally larger or generally consistent with, or generally consistent with other recently approved (and constructed or under construction) developments". That is not correct. The proposed 16-storey, 57.4 metre tower is twice the height of approved large-scale developments at Serai Megara and 3x the Taskers Apartments on adjacent McCabe St. Good Design This scale creates significant Design considerations which the developers have failed to address. Residents of Thompson Rd will be 6 metres below "ground level" of the proposed development. Looking North they will be confronted by the full 43 meter high bulk of Tower 2's lowest section with the higher 57.4 metres section of this tower in their periphery. The only visual relief from this enormous built-structure will be a gaping tunnel carpark entry (proposed Access 2). This interaction with the surrounding area is far removed from Good Design. Another example is the Lower Plaza. The enclosed lower plaza lacks any connection with the site's heritage or coastal location. All perspectives dominated by generic, large-scale built structures. Linkage to the balance of site requires access to buildings or climbing 2 flights of stairs. Access 2 suffers a remarkable lack of Design consideration. On Coventry Pde, East and West bound traffic is separated by a median strip with established trees and thick foliage. The intersection of Coventry Pde / Thompson Rd is a 90 degree bend divided by this median strip. Traffic entering into the proposed Access 2 or travelling east on Coventry Pde will be exposed to increased risk of serious side impact collisions. Add pedestrians, cyclists and the introduction of 2-way traffic to this junction and it's only a matter of time before disaster strikes. The current proposed design is completely unacceptable from both a functional and safety perspective. Heritage The development will dwarf the "retained" Heritage structures to such an extent they are not in fact preserved at all. The proposed raising of the site to 6 metres above current ground levels results in the complete domination of the buildings from the northern approach. The proposed addition of a second-storey over the existing Office building renders that structure indecipherable and significantly detracts from the Factory facade. The demolition of the landmark sawtooth Workshop Wing and partial demolition of the Factory Building is inconsiderate of site's cultural heritage values. Sight Lines The scale of the proposed development will unacceptably impact sight lines from Buckland Hill, Monument Hill and Mount Lyell. The developer's assertion that the extent to which views are impacted is skewed heavily towards quantitative rather than qualitative measures. Residents and visitors will lose both water and sky views. Even from a quantitative perspective the proposed loss of views is twice that of a structure complying with LPP 3.11. Once lost these views are gone forever and precedence once set becomes the new baseline. Overshadow The Overshadowing analysis demonstrates a significant impact on neighbouring residences. Especially those in Pamment St and Coventry Parade (which despite developer's comments does include residences as well as light industry). The midday and 3PM analyses are inaccurate as the boundary walls illustrated in "compliant" models are absent from proposed increased height models. Additionally, no modelling of Stage 2 is provided. Community In relation to the claimed Community Benefit it should be noted that the process outlined in the Community Needs Assessment does not include any community engagement. None at all. Several Key Findings are factually incorrect and the claimed community benefits are unrealistic given the proposed development's significant failings. Despite the assessment's claims, North Fremantle is already well serviced by a wide variety of bars, cafes and restaurants. The amenities in adjoining Mosman Park, East Fremantle and Fremantle only add to this rich palette. Dedicated Function Centres are available at Guild Hall and North Fremantle Community Hall. All of these facilities are in keeping with the context and character of the existing community.
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	The proposed Tavern and Function Centre are of major concern. The scale of this far too large for the context. The presence of such a large-scale facility will foreseeably lead to anti-social behaviours, especially as the transport strategy seems to rely heavily on public transportation which is far from high frequency when these facilities close and introduces unwanted late-night pedestrian traffic to surrounding streets. Additional facilities will undoubtedly provide some benefit to the community but the scope and scale of the proposal is out of context and character with its surroundings. Community engagement is required to better inform the development proposal and deliver more relevant and contextually appropriate facilities. The Community Needs Assessment identifies only 3 key Public greenspaces in the immediate vicinity and asserts "There is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialisation amongst residents, and that can incorporate relaxation for a more localised resident catchment". This is a gross misrepresentation - ignoring the many existing parks / reserves in the immediate vicinity including 2 existing Parks on Burford Place and most notably the entirety of the Leighton Beach, Mosman Beach and Port Beach areas to the west. That said a straw poll survey of local residents suggests that additional open space would be embraced by the community. Unfortunately, the Landscape Plan makes unrealistic claims to a "Significant contribution to the local tree canopy and landscaping". Such claims are poorly substantiated. The proposed development's Public Realm "green" spaces rely almost entirely on small planter beds for relief from extensive hard paved areas. This is the only available option as the plazas are built on concrete foundations to achieve their elevation of 6+ metres over the existing ground level. The illustrated shade trees are unrealistic given the lack of deep soil and lower level shading. The only greenspace likely to actually support large trees is immediately adjacent to Stirling Hwy – retaining existing trees only and hardly an environment encouraging "recreation, relaxation, physical activity, socialising, and building social capital." The community is highly unlikely to embrace these spaces over the existing parks and beaches in the area. Especially considering the provided Wind Assessment states "the upper plaza level and terraces are generally exposed to the prevailing regional winds, which is likely to impact pedestrian comfort and safety." Treatment strategies outlined do not seem to be aligned to the Landscape Architecture with a notable absence of these measures from the architect's depictions. In fact, the proposed Arbour walkway appears to exacerbate the expected wind flow patterns in westerly and south-westerly winds. Pedestrians Pedestrian connections throughout the precinct are very poor and despite the developer's claims will do little or nothing to improve access to the beach, river or public transport. The split level proposal disrupts the promised east-west and north-south flow and also creates a heavy reliance upon stairs to move throughout the complex. The eastern boundary of Stage 1 will be 6 meters above the adjoining boundary of Stage 2. It is unclear how this disparity will be resolved but the current submission leads one to conclude a reliance on yet more stairs. The "significant opportunity" to improve access to the beach exists without this development. Discussions with council confirm that the responsible body, Main Roads, has no plans to improve this function over the next decade. It seems unlikely that the Developer's commitment to assist the working group in future discussions will extend that far or even beyond their commercial interests, i.e. sale of the last apartment. Contractual and financial commitments from the Developer are required. Interaction between pedestrians and cars within the development is ill considered creating a dangerous environment for both. Pedestrian access to the site via Thompson/Coventry Parade requires pedestrians to navigate cars entering Access 2. Access from Stirling/Coventry requires pedestrians to walk through 17 external parking bays. This will hardly encourage pedestrian flow and utilisation by the public. Transport The Transport Impact Assessment fails to adequately consider surrounding areas. e.g. Thompson Rd is classified as 2 lanes, 5.5 metres in each direction. In fact – in the section closest to the proposed development the road is significantly narrower and typically subject to cars parked on both verges effectively reducing it to a single lane. Additionally, the Traffic Impact Assessment fails to identify this stretch of Thompson Street is a popular "marked cycle route" and consider the high volume of bicycle traffic. The assessment does identify that turning right at the intersection of Coventry Pde / Stirling Hwy is already beyond functional limits. It also identifies that this intersection will be placed under additional stress by the proposed development but fails to commit a design solution. The developer needs to make a contractual and financial commitment to alleviate this negative impact. Parking Considering parking, the developer identifies a major shortfall of 243 commercial bays and total combined shortfall of 86 bays. The statements of compliance provided are totally insufficient to justify these large shortfalls.
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	As cited earlier the SPP 3.11 already accounts for proximity to public transportation as justification for higher density zoning for the site. To leverage this to justify a further significant shortfall in parking is totally unacceptable and certainly impractical in execution. Their compliance statement citing shared use and that peak use periods will not overlap is pure fantasy. Peak times for proposed hospitality facilities will not coincide with high frequency Public Transport services with less frequent services operating during evenings and on weekends. Patronage will rely heavily upon private vehicles. These peak times will likely coincide with maximum demand for resident and visitor parking. Given the enormous shortfall in commercial space and overlap with residential/visitor demands parking provisions are grossly inadequate. Furthermore, overflow parking will spill into surrounding streets creating dangerous pedestrian / vehicle interactions and introducing unwanted foot traffic into existing residential areas. Inadequate parking proposed is a matter of safety for patrons and both new and existing residents and the parking management plan must be re-designed. The treatment of heritage buildings is commented upon earlier in this document. The scale of the development looms over the heritage structures to such an extent that "preservation" is not really achieved. The developer should be required to re-think and scale-back its approach to be considered for any leniency in parking requirements. The inclusion of a kiss and ride facility will no doubt be appreciated by the designated driver whom will go on to occupy one of limited commercial bays or park in nearby streets. The developer should provide some empirical analysis based on audited data to substantiate its claims on the impact of this facility to parking requirements. I expect the statistics to tell us that the designated driver is likely responsible for the safe transport of just one significant other not extended groups as asserted by the developer. I base this statement on the most ABS 2016 Census Data for North Fremantle which indicates an average of 2.3 people per household. It should also be noted that this facility is located at the far end of the development requiring those dropped off to traverse almost the entire complex and several flights of stairs. More likely the driver will be inclined to drop passengers on Coventry Parade adding to an already confusing use of the eastbound lane where vehicular traffic, 17 parking bays, pedestrians and emergency services are already required to co-exist before navigating the dreadfully dangerous Access 2 / Thompson Rd junction. Conclusion The proposed development is a huge departure from the existing structure plan endorsed by the City of Fremantle and WAPC exceeding the prescribed overall maximum heights by 24 metres and ignores required location of maximum heights within the site. Its scale and design totally lacks consideration of the context and character of surrounding area. The proposed structures massively overwhelm the existing Heritage Buildings denying future generations of the community these landmark elevations. The proposed elevation of the site to 6 metres above current levels, construction of a second storey on the Office Buildings and destruction of Factory Building and Workshop Wings exemplify the lack of consideration for the Heritage Buildings in the proposed design. A complete lack of community consultation has delivered an ill-conceived plan for large scale commercial premises that will only serve to fuel anti-social behaviours. The proposed multi-level plaza approach delivers poor landscape architecture and poorly designed interfaces with neighbouring streets including a 43 metre high facade at the northern end of Thompson Rd. This design will never deliver the community benefits the developer uses to justify massive deviations from existing LPP 3.11. The proposal's Poor Design, Poor Traffic Management and Insufficient Parking will negatively impact the local community by creating dangerous interactions between pedestrians, cyclists and motorists. Proposed carpark Access 2 demonstrates this poor design in aggregate. It is proposing the worst and most dangerous intersection of these user groups I have ever seen. Parking deserves specific mention. A shortfall of 243 commercial bays is unthinkable yet this is what the developer proposes. The Compliant Statements provided by the developer comprise a combination of double-accounting and unsubstantiated claims alongside request for special dispensation in recognition of their completely unsatisfactory treatment of Heritage Assets. The foreseeable impact on neighbouring streets is a significant public safety concern. As submitted the proposed design is of poor standard and completely unacceptable. Further community consultation and overall compliance with existing SPP 3.11 is required to move forward.
61	Build form and scale; I am concerned about the application to increase the height of the buildings and the effect this will have on "loss of sky" and overshadowing.

	Functionality: the long promised vehicle access from Thompson Road to McCabe Street is included in the plan but I note with concern that the access will be controlled by the future Body Corporate. I believe that this is not at all desirable and the plan to have this access via carpark access etc will prove to be unworkable and will be closed at a future date. I am sure that any easement proposed could be overridden and withdrawn in the future. Safety: The traffic volumes and flows are already in a state of chaos at time in the vicinity of the proposal. This can only become more of a concern if the development is approved. The proposed restaurants, cafes and function facilities will only compound the problem.
62	I strongly oppose the proposed development at 130 Stirling Highway North Fremantle - DAP003/22 My main concerns are: The proposed HEIGHT of the buildings which far exceed the current height restrictions. The impact on surrounding roads with the INCREASED TRAFFIC load on an already overloaded system. I am not opposed to infill development as long as it is done within keeping of the sensibility of the area. The proposed heights and density of the development do not fit with the North Fremantle aesthetic and would set a dangerous precedent. Being such a narrow strip of land between the river and the sea the buildings would have a huge negative visual and overshadowing impact on both the river & sea. It is reminiscent of the Observation City/Rendezvous building that blights our coastline. I understand the need for infill development to make use of existing infrastructure but the size of this development will totally overwhelm the existing infrastructures creating many more problems.
63	Leighton beach is my favorite beach in Perth but I've always been disappointed about the lack of anything to do there besides go to the beach and then leave to go to a neighbouring suburb for entertainment or food. This appears to be a quality development, and one that I hope kickstarts a trend in activating the empty land in the area with mixed-use developments."
64	I strongly oppose the proposed development at 130 Stirling Highway north Fremantle - DAP003/22. My objections are: The heights of the proposed buildings which far exceed the current height restrictions. The impact of the huge increase in traffic to an already overloaded road network. Privacy issues with overlooking surrounding residences. I am supportive of controlled infill development if done proportionately and sympathetically to the surrounding area. This development is neither of those and will be to the detriment of all that use and enjoy the unique area that is so close to both the river and the sea.
65	3 Oceans development on the Masilda Bay Brewery site. Community It is difficult to see how 2000 square metres of tavern, cafe and restaurant space can be considered community benefits when they are commercial spaces which are there for profit. Surely we have enough pubs in Fremantle. A pedestrian overpass over Stirling Highway would certainly improve two way safe pedestrian access to Leighton Beach. This would indeed be a true community benefit and could even have an upside for commercial activities in the complex. Is there a children's playground or creche or is this an 'adults only' development. 23% of WA's population are children according to the last census. Functionality and Build Quality Parking bay numbers provided in the proposal are inadequate and below the number of minimum bays under the building code. This is disgraceful. How many EV charging points are being installed if 400 plus cars are being housed. Landscape Will runoff from paths and pedestrian walks be filtered and used on the hanging gardens? The green credential goal is good but the detail is lacking. Construction How long will this development take to build? There are two stages and the second stage will not commence until the first is completed. This could mean years of noise and disruption for local residents where parking and narrow streets already cause traffic issues. 2000 plus people are supposed to work on this construction. No mention of how the planners will reduce the impact of this workforce on surrounding properties. Traffic The traffic arrangements in the proposal are vague. Control of access from Thompson Rd through to McCabe Street appears to be under the control of the future body corporate. This is not acceptable.

	The proposal implies that changes will be made to the intersection of McCabe Street and Stirling Highway. This again lacks certainty. Traffic is a major problem which the developers are downplaying. Built Form and Scale I am amused that the developer states that water views are more valuable than sky views. His thoughts, not everyone's. The loss of sky for the existing properties has not been addressed adequately and the proposal does not even comply with the current building height limits. Aesthetics I remember The Ford Motor Company building from my early childhood. It was a landmark building then. The proposal does not feature the original building as anything more than a facade with a nod to its later use as a brewery. I think it deserves a lot more thoughtful recognition of its history than the current proposal will deliver.
66	I object to the development for the following reasons: 1. The section of Stirling highway adjacent to the site is already busy and dangerous at peak hour. Adding a very high density of housing and business at the McCabe street intersection will exacerbate the traffic conditions. Coventry Parade is to close to McCabe street and to add additional traffic lights at this intersection is not a viable option. Coventry Parade would need to be closed to north bound right turning traffic. 2. The architecture is not in keeping with that of Fremantle and is a mix of non-descript semi modern institutional rubbish. Full height glazing without sun screening, even if it is tinted, does not project a design for low energy and those held by the majority of people residing in Fremantle. 3. It is dangerous for pedestrians crossing Stirling highway near the site. A Stirling Highway underpass or over pass should be included as a basic public safety initiative. 4. The develop height is not in keeping with other North Fremantle approved uses and will materially impose on sunlight to nearby properties. The height must be restricted to a maximum of 4 levels.
67	Is the intent to reduce the width of the East bound carriageway of Coventry Parade? While there is some scope to do so, the median strip vegetation would need to be carefully managed as it currently overhangs the carriageway in some places. Glass curtain walls seem inappropriate for the residential area and are more like a CBD building. I can live with 10/11 floors, but the 16 storey main tower is too tall for the area and sets a dangerous precedent for even taller buildings in the future. Our yard is now overlooked by the recently completed apartment block at Taskers. Whilst it is difficult to understand the extent of the overlooking and shadowing from the proposed towers into the Rocky Bay estate and adjacent streets, a 16 storey tower would exacerbate any such issues. The council needs solid legal regulation of the "Thompson Street extension" within the building proposal. Once the building is complete and ownership and management move to multiple owners and a strata management company, I believe there will be pressure to stop the through traffic. As a local resident who often turns right (about 50% of outbound journeys) from Coventry Parade onto Stirling Hwy, this is a significant concern. The traffic forecasts indicate that making that turn will become increasingly difficult in future years. There appears to be no provision for a loading area/s. Both the providore and tavern would require significant capability for both the delivery of goods and the storage/removal of waste. The restaurant and cafe would also have requirement for delivery and waste management. If the proposal is to use the area along the eastern wall of the carpark, it seems to be a long way from the commercial premises that it supports and there is very limited access between that car park and the commercial premises.
68	A list of issues I consider important are below 1) Height – at 16 stories this proposal is significantly higher than current developments and as such blocks the views of many residents of neighbouring suburbs of East Fremantle and Bicton. It is very likely most such residents are un-aware of this and future developments in North Fremantle. - The earlier development for Taskers and Siskas (3 – 7 storeys) at 9 – 13 McCabe Street is an example in which significant views were lost from Bicton and East Fremantle without most the residents being aware until the building actually commenced. - This proposal states it is only stage one, it also states as a justification numerous other high level developments are planned north and south of it with the result in time a wall of high rise will block almost all the ocean view from Bicton and East Fremantle. 2) Traffic – This development with result in a large increase in local traffic along the current quiet and narrow Thompson St, as tenants and visitors of this development will tend to do the rat run along Thompson St rather than have to enter onto the traffic jam that Stirling Highway ALREADY is.

	If traffic management is in fact being considered for the exists onto Stirling Highway from McCabe St and Coventry Parade, then this would contradict the agreements presented in this planning approve that Main Roads was advise no changes where required! Finally traffic along the adjacent section of Stirling Highway is already very heavy and only going to get worse once new traffic bridge has been completed and adjacent building proposals go ahead. In fact traffic is such a large consideration in this section of the Highway it would seem reasonable all planning bodies, including main roads come up with a traffic solution before this or nearby large development proposals are approved. 3) Environmental – Given Fremantle Councils hard line on environmental aspects of all developments any approval of a 15 story glass high rise building would seem contradictory and could be used as a precedent when the council is presented with future applications. 4) Poor argument – The statement in proposal that many other similar development proposals are in the works for adjacent land north and south is a poor reason in support of this current proposal.
69	Proposed tavern The current North Freo community is tightknit and according to 2021 ABS census two thirds of households in the area are families. Taverns are an inappropriate amenity for the local community and attract unwanted anti-social behaviour. In addition to this, taverns create unwanted noise which the prevailing breezes push towards the neighbouring homes, particularly in evening hours. Whilst the residents of the proposed development may have access to double glazing to minimise noise, it should not be assumed that the homes in the immediate surrounding area do have double glazing. Insufficient noise mitigation strategies have been included in the development proposal and the materials used in construction will serve to reflect noise towards the neighbouring properties. We know the noise travels as I have previously logged noise complaints with the council in relation to noise coming from this site, and from the single dwelling which used to reside at 4 McCabe prior to being demolished a couple of years ago. Traffic The immediate surrounding roads (Stirling, McCabe, Coventry, Thompson, Alfred) are already bursting under the current load of vehicles, especially during peak hours. This is indisputable, despite what the prepared traffic report may suggest. We know this because we live here. Given the number of other high rise developments already either approved to proceed (eg. Sera), recently completed (Siskas) or proposed for approval (One McCabe) the key traffic entry and exit points in the area need a drastic upgrade before this development should be considered for approval. From a safety angle, failure to prioritise these essential transportation system upgrades will unquestionably result in desperate attempts to cross traffic which undoubtedly will lead to accidents. Parking Many of the surrounding homes in the neighbourhood don't have a garage (presumably due to the vintage of the dwellings), so street parking is already barely sufficient for existing residence. Whilst the proposal has catered for residential parking which may meet the council's requirements, the parking bay ratio for the tavern and providore seem insufficient and there simply is nowhere else locally that spare parking capacity exists. To this point, if nothing was to change to the existing parking pay ratio requirements, local residence would have to receive special parking stickers permitting street parking whilst visitors to this development should not be permitted to street park. We simply cannot entertain the idea of the development not being entirely responsible and catering for sufficient vehicle bays for a worst case volume capacity. Motorcycle / scooter bays must unquestionably be available and form part of the parking proposal. Pedestrian crossing The pedestrian crossing from this site, over Stirling Hwy is insufficient and every effort should be made to provide an over/underpass to access the existing Leighton yards pedestrian bridge. The proposal should not be considered approval without this. Proposed Maximum Heights Given the proximity of this development to neighbouring residential homes, there can simply be no circumstance, loophole or referenced precedence which can allow this, or any future proposed development to exceed the existing, exceedingly generous LPP 3.11 Maximum height limits. My family have very genuine concerns around privacy loss from multiple towers soaring above our residential home – even if the proposal was to be amended to comply with the LPP 3.11 Maximum height limits. What will the council enforce to protect the existing neighbourhood (existing rate payers)? Overshadowing The council must do absolutely everything within their design guidelines and local planning policies to protect the existing neighbourhood (existing rate payers). One of the many reasons North Freo residents live where we do is because of the natural amenity and sun-drenched climate. No one wants to live in the shadow of a gold coast style high rise tower.
	RL referred to in the proposal – that Relative Level must comply with existing natural ground level, however in the proposed development they have manipulated the RL to artificially and illegally raise the ground level higher, which in turn raises the overall height of the building and further impacts overshadowing and privacy concerns previously raised in this section. Marginal height concession must not be permitted under any circumstances given the proximity of this development to neighbouring residential homes At a point in the future when a dramatically modified development proposal which meets all planning criteria and addresses neighbourhood concerns is approved, how will the council audit the maximum height of the physical buildings to assure building compliance? The threat of these looming towers is already having a detrimental effect on property valuations. I have recently had a valuer through my property and this specialist noted the proposed development as a key contributor to the deflated valuation I received for my property. This is a material financial impact for my family. Whilst Stage 2 is not currently proposed, how do council factor in heights and relative levels when stage 2 is not yet proposed Setbacks The local planning scheme and prescribed setbacks do not do enough to protect existing local residence from adjoining buildings of this scale. At all times, the council and developers must be sympathetic to the existing neighbourhood. Design The design is very boring and will age quickly, diluting the market value of surrounding properties No play grounds were incorporated into the proposed community amenities (public spaces), despite two thirds of North Fremantle being families according to 2021 ABS census The Community needs analysis appears poorly researched, for example there's no mention of a local grocery shop which is already lacking in North Freo. Any local knows this. A local grocery shop must be a mandatory inclusion in light of the density uplift to the area. Sun Reflection/Refraction off the buildings – using Taskers Falcon residence as an example, we already have times of the day, at certain times of the year, when quite literally blinding sun reflects off the glass from the Taskers buildings. The predominantly glass material used in the proposed towers is likely to create this same debilitating effect on the neighbourhood Wind tunnel effects the design will promote wind tunnel effects, which during storms, will accelerate the winds, which are already extreme from living on the coast. I have already replaced fence panels in the last 5 years (receipts available upon request). Environmental Impact The design is not in harmony with the surrounds and will have a detrimental impact on the environment. Landscaping fully mature trees should be used to maximise the noise and wind deflection For any future development on this site, Dilapidation Reports must be mandatory and cost covered by the developer. Waste disposal How will the garbage collection work? Under no circumstances can the proposal assume that garbage can be collected from the verge, like existing neighbourhood residence do, they must ensure garbage collection happens within the parking structure of the site. There is insufficient space in the neighbourhood. Effects of light pollution from "building lights" on neighbours what will be done to minimise this?
70	1. <u>Building Heights</u> Firstly, we would like to note that we support Fremantle's Local Planning Scheme for the Matilda Bay Brewery site, as formulated in 2008:

	"Under the provisions of LPP 3.11 the site is subject to varying building heights ranging from 14m to the west (Zone J), 17m to 33m in the centre (Zones H1 and H2) and 29m to the northeast (Zone E). In this regard, the proposed development is contained to Zone J and portions of Zones H1 and H2." The current plan indicates that the tallest building planned is some 73m high, which apparently ignores the reasoning behind the previous study and pretends to follow a State Planning desire for a greater population density as an excuse. 2. <u>McCabe Street & Stirling Highway Intersection</u> The McCabe Street junction with Stirling Highway has increased in importance quite considerably over the past 25 years and has regularly experienced congestion both during school and work traffic peak periods. It is currently a major route for both residents and visitors, plus school traffic, from the southern part of Mosman Park to and from Fremantle and the southern & eastern suburbs of Perth, plus a certain percentage heading north. Additionally, since the central raised median strip was added to Stirling Highway outside the Creation Landscapes entrance a varying but significant number of vehicles (including trucks and vehicles with trailers) travel south along the highway, turn left into McCabe Street and then U-turn in order to make a right turn back to the highway and thus access Creation Landscapes premises; this during the working day. The bottom section of app 120m is reasonably wide (3 ~ 4 lanes) whilst the rest of the road ascending past the Taskers development is only two lanes. However, this is a relatively narrow section of road, constrained by banks on each side and with a small footpath on the northern side. The section leading past Taskers is generally considered to be quite dangerous as not only are there a couple of car bays outside the complex, but the main vehicular entrance exits onto a blind bend in the road. This is also compounded by the intersection with Tyrone Street a few metres further on. The present capacity of this road might be assessed as average or as at maybe 40-50% usage. The current proposal for the Matilda Bay Brewery site would be required to provide 548 new car parking spaces into the Matilda Bay site, plus a likely similar number for the OneSteel site on the northern side of the McCabe Street / Stirling Highway intersection. Given that the southern Coventry Place access point would make a right turn onto the highway at that point very difficult, as noted by the developers, then the additional traffic flow increases substantially via McCabe Street. The OneSteel site has the possible option of using the Vlamming Parade junction, however, this is likely to require the addition of traffic lights, which will do little to improve traffic flow on the highway. The Matilda Bay Brewery development does not have a frontage onto McCabe Street thus the McCabe Place access point has few, if any, alternatives. However, the OneSteel site borders McCabe Street along its full southern boundary. It is therefore requested that the City of Fremantle, the Town of Mosman Park (plus the Developers) and the Department of Transport and Main Roads undertake an extensive Traffic Management Safety Audit to assess the intersection and the lower section of McCabe in the light of current traffic levels, the design of the Matilda Bay Brewery plans and also a potential OneSteel development (as provisionally outlined earlier this year) and bearing in mind that, designed early enough, the OneSteel access point can be flexible (maybe incorporating a roundabout). 3. <u>Overshadowing</u> The Application for Development Approval includes several plans indicating the mid-winter shadowing effects of the various tall buildings planned for the site. The Application also (almost callously) dismisses this aspect of the design as insignificant or only slightly increasing the problem over the situation as it currently exists. The Application in this context, does not appear to take into consideration the currently very desirable concept of solar passive development of future dwellings nor that of solar power generation. There are currently several existing properties fitted with solar panels relatively close to the site boundary. The shadowing effect will cause a loss of this particular amenity to those properties affected, regardless of whether they are businesses or residential, and bear in mind that most businesses today are also attempting to minimise their carbon footprint. Perhaps such developments should be required to contribute to the on-going power bills of their over-shadowed neighbours over the expected lifespan of the development? Alternatively, perhaps they should be required to provide or contribute substantially to community scale energy storage (solar batteries) on this site? 4. <u>Pedestrian Connectivity</u> The Application also refers to a possible pedestrian overpass from the new development over the road to the western side of Stirling Highway, adjacent to the existing railway overpass bridge. In the context of desirable pedestrian access to the beach and also in respect to bicycle traffic access to the Curtin Avenue bicycle paths, this overpass should be considered an essential component of the Phase 1 development. Whilst discussing the pedestrian overpass and recognising that this suggestion really has nothing to do with the Mosman Bay Brewery developers, we regard the provision of an extension to this bridge over Curtin Avenue has a large degree of imperative, on safety grounds; due to the speed and frequency of traffic passing the area. 5. <u>Public Open Space</u> The Application has indicated that a certain amount of landscaping has been included in the proposal, including some 52 new trees, which is obviously a significant improvement over the current situation. However, there does not appear to be any effort to integrate a bush component in the plan. Additionally, there is no mention of the availability of public open space (parks & ovals) in the area which might be used by residents for sport, walking, dogs, etc. It is apparent that most of such local amenities are under the control of the Town of Mosman Park, including the dog beach, immediately across the foot bridge to the ocean. The upkeep for maintaining these facilities is covered by the ratepayers of Mosman Park and, while there are probably no precedents in this regard, it might be appropriate if some sort of "facility fee" was negotiated to assist Mosman Park in covering these potentially additional costs.
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	6. <u>Train Accessibility</u> The gap between Victoria Street station and North Fremantle station is one of the largest on the entire Perth ~ Fremantle line and, given an increasing population in the McCabe Street / Stirling Highway junction area, it might be pertinent to also review the positioning and number of stations in the area.
71.	OVERVIEW The proposed development of the Matilda Bay brewery site will be a welcomed addition to the North Fremantle precinct. The community will benefit from the mixed-use facilities adding vibrancy to the area, with café, restaurant, providers, and offices. The apartment proposal however is not desirable with a 16, 11 and 10 storey towers with 207 apartments. KEY OBJECTION 16 Storey Tower dominating the aesthetics of North Fremantle. The City of Fremantle prides itself on the history of the port and heritage of the area and has supported and created aesthetically pleasing developments throughout North Fremantle, including Leighton Beach, Northbank and Taskers apartments. The city has previously approved developments with suitable height levels respecting and paying homage to the heritage of Fremantle and creating vibrant, progressive communities. The addition of a 16-storey tower in heartland North Fremantle would be a great travesty to the area and aesthetically offensive in a heritage precinct. The City of Melville has succumbed to development pressures and approved towers in Applecross that dominate the area and have no consistency with other apartment buildings within the catchment. This is an example of what North Fremantle could become should a large tower meet approval. SUMMARY I request the City of Fremantle maintain their building policy limiting developments with excessive heights, respecting the heritage of the area to support the creation of a valued community precinct for the residence of North Fremantle.
72.	Rise Urban has been engaged to review and provide comment on the development application for the redevelopment of the Matilda Bay Brewery site at Lots 5, 12, 219-221, 253 and 314 (130) Stirling Highway, North Fremantle. The following sets out our independent and expert opinion of the proposal in relation to the existing planning framework, based on our extensive knowledge of the site and surrounding area. Introduction The Matilda Bay Brewery holds heritage significance, however now represents an inefficient use of land as recognised by the City of Fremantle when the site was included in the "Development" zone in Local Planning. Scheme 4 (LPS 4): There is an opportunity to redevelop the site to sensitively respond to its unique setting between river and sea, as well as the heritage-listed buildings on the site. We are of the view that the development concept presented by the applicant for this site goes beyond the vision and intent of the existing planning framework, as evidenced by multiple fatal flaws with the proposal that we discuss in detail in this submission. Land Uses The proposal includes multiple non-residential land uses, being "avern", "restaurant", "exhibition centre", "reception centre", "shop", "office" and "health studio". It is noted that the office and health studio uses are not listed in the application and are not included in the parking calculations, but are shown on the plans as "gym & pilates" and "co-working". The site is located in the "Development" zone under LPS4, in which all land uses are subject to Note 2 of the Zoning table, which is as follows: "Development and use of land is to be in accordance with an approved structure plan or local development plan prepared and adopted under parts 4 and 5 of the Planning and Development (Local Planning Schemes) Regulations 2015, Schedule 2. See also Schedule 5 in Part 6 for interim and additional requirements and also Schedule 9 for Development Plan requirements." The Former Matilda Bay Brewery Site Structure Plan zones the majority of the development site "Residential" other than the western building and a small pocket adjacent to the Coventry Parade/Thompson Road intersection, which are zoned as "Mixed Use". Exhibition centre, reception centre, shop, office and health studio uses are proposed within the Residential zone, however each of these uses are Not Permitted (X uses) in Residential zones.

As LPS4 (Note 2 above) specifically states that uses are "to be in accordance" with the Structure Plan, the head of power for land use assessment for this site is via LPS4. Therefore, pursuant to clause 67(1) of Schedule 2 – Deemed Provisions of the Planning and Development (Local Planning Schemes) Regulations 2015, these uses are not capable of approval. Clause 5.1.2 of the Structure Plan confirms this interpretation. The application proposes to "reallocate" the zones to suit the building design. This cannot be done via a development application, and instead requires an amendment to the Structure Plan due to the zones being given a head of power by LPS4. We are of the opinion that these uses must be removed from the proposal for it to be capable of approval. Height Section 5.3 of the Structure Plan provides that maximum building heights "shall generally be in accordance with" the City's Local Planning Policy 3.11. We understand that the height limits in LPP 3.11 were derived via an extensive, site-specific review of the site and surrounds, which included identification of key vistas and view corridors by experts in this field. The height limits were accepted by both the City and the State Administrative Tribunal at the time, and remain representative of the City's desired built form outcome for this area. The proposed development includes three residential towers, with heights as follows: <table> <tr> <th>Buildings</th><th>Proposed height (storeys)</th><th>Proposed height (metres above Stirling Hwy)</th><th>Height limit (Local Planning Policy 3.11)</th><th>Proposed height as percentage of limit</th></tr> <tr> <td>Building 01</td><td>19 storeys</td><td>62.4m</td><td>14m (west portion)</td><td>446%</td></tr> <tr> <td></td><td></td><td></td><td>17m (east portion)</td><td>367%</td></tr> <tr> <td>Building 02</td><td>14 storeys</td><td>48.4m</td><td>17m (33m subject to criteria)</td><td>285%</td></tr> <tr> <td>Building 02 (podium)</td><td>8 storeys</td><td>27m</td><td>17m</td><td>159%</td></tr> <tr> <td>Building 03</td><td>13 storeys</td><td>43m</td><td>17m (33m subject to criteria)</td><td>253%</td></tr> <tr> <td></td><td></td><td></td><td>20m (east portion)</td><td>215%</td></tr> </table> We have based measurement of the height of all parts of the site from Stirling Highway, being the primary frontage of the development site and also level with the entirety of the development site currently and when the height limits for the site were first adopted. The proposal does not meet criteria a) and h) of the Policy for areas H2 and H3, which enable the 17m height limit to be increased to 33m, as it does not propose to cede any public open space to the Crown nor any affordable housing. The Policy states that the Council may exercise its discretion to increase the height limits "subject to the proposed development demonstrating that it complies with all of the following criteria". This does not enable alternative justification to be provided where criteria have not been met, and therefore the correct height limit to apply is 17m. The table above confirms that the development is overheight. The following sections detail the discretion available to the City with regard to height, and confirms that the magnitude of the height has not been appropriately justified, and in our view is incapable of being justified. Structure Plan It is noted that the Structure Plan applies a degree of flexibility to the height limits through the term "generally in accordance". However, we do not believe that a height variation of twice or 4.5 times the height limit can reasonably be argued to be "generally in accordance" with that limit. All buildings (except the Building 02 podium) are over twice the height limit, and are therefore inconsistent with the Structure Plan. Local Planning Scheme 4 Clause 4.8.1.1 and Item 3.2, Local Planning Area 3, Schedule 7 of LPS 4 each provide pathways for height variations to be approved subject to four criteria each being met. The proposal does not meet criterion a) of clause 4.8.1.1 and criterion 2 of Item 3.2, as its height and					Buildings	Proposed height (storeys)	Proposed height (metres above Stirling Hwy)	Height limit (Local Planning Policy 3.11)	Proposed height as percentage of limit	Building 01	19 storeys	62.4m	14m (west portion)	446%				17m (east portion)	367%	Building 02	14 storeys	48.4m	17m (33m subject to criteria)	285%	Building 02 (podium)	8 storeys	27m	17m	159%	Building 03	13 storeys	43m	17m (33m subject to criteria)	253%				20m (east portion)	215%
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resulting visual impact on key views between the Swan River and Indian Ocean, as well as from Stirling Highway, Buckland Hill and Mount Lyell will be detrimental to the visual amenity of the locality, noting its existing low to medium rise development context. In addition, the visual amenity of the locality when viewed from the Indian Ocean is characterised by the Dingo Flour building to the south of the site. Approval of any building that is visibly taller than the Dingo Flour building in North Fremantle will have a significant and irreversible impact on the cultural significance and visual aesthetic of this building, thereby detrimentally impacting the visual amenity of greater North Fremantle. The proposal does not meet criterion b) of clause 4.8.1.1 and criterion 1 of Item 3.2 as it is more than double the height of the tallest existing and approved developments in the locality. This difference does not graduate the scale of the proposed buildings with other buildings in the locality, and is not consistent with predominant height patterns of adjoining properties and the locality generally. The proposal does not meet criterion d) of clause 4.8.1.1 and criterion 4 of Item 3.2 as it does not meet the height requirements of LPP 3.1.1, or the criteria available within the Policy to vary some of those height requirements, as demonstrated in the table above. Therefore, the pathways provided in LPS4 that enable development in excess of the established height limits to be approved are not available for this proposal, as it does not meet the criteria on which those pathways are contingent. Local Planning Policy 3.6 – Heritage Areas Section 3.6 of the City's Local Planning Policy 3.6 – Heritage Areas applies to new buildings in heritage areas. The intent and design guidance of this section encourage the bulk and scale of development to be consistent in relation to the street pattern, and maintain a setting that is consistent with the original streetscape. The Matilda Bay Brewery building has a maximum height of 17m and is taller than all buildings visible from Stirling Highway and Coventry Parade adjacent to the building. Buildings 01 and 02 behind have heights of 62.4m and 48.4m respectively. These heights are not consistent with the established scale of this building, and are therefore inconsistent with the Policy. In fact, the Heritage Impact Statement provided with the application acknowledges this: "The proposed 3 Towers are inconsistent with the policy guidelines for new development and additions to contributory buildings." Other issues The application also provides other justification for the extra height. We disagree with this justification on the following grounds: • Whilst locating high density developments in close proximity to public transport in order to maximise value capture is a sound planning principle, it is invalid justification for extra height on large sites where it is possible to redistribute built form to provide more floor area closer to the ground. Given the size of the site, it is possible for this to be done. • The proposed "slender and articulated" architectural form is a reference to the common podium and tower design utilised for high density developments in Perth. The established height limits for the site are too low to enable this architectural form to be developed on the site, and therefore in order for this justification to be valid, the height limits in the planning framework would need to be amended to accommodate this development typology, given that they currently preclude it. • The future context of the locality is established by the planning framework, which the development does not comply with, rather than surrounding developments. Notwithstanding, the proposal is over twice the height of any nearby development. A potential future development on a nearby site that has not been applied for, let alone approved is also not valid justification for extra height. • The proposed public plaza and forecourt are invalid justification as there is no guarantee that they will provide benefit for the local community in perpetuity, as they are not proposed to be ceded to the State. In addition, most of the proposed uses to activate the plaza and forecourt are not capable of approval under LPS4 as previously noted. • Some proposed "community benefits" do not actually benefit the community, such as: - o The contribution to the local tree canopy, as the proposal does not go significantly above and beyond the baseline requirements of SPP 7.3;	
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o The building design, as high quality buildings are a baseline requirement of SPP 7.3, and the design is contingent on the height variation, rendering this a circular argument; o Diverse housing choice, as this only benefits people living in the development; and o Some community-focused land uses, which are incapable of approval in their proposed location. Conclusion The only valid justification provided to vary the height limit is the fact that the heritage building on the site is proposed to be retained, restored and adaptively reused, in accordance with clause 12 of the Deemed Provisions. The City's Local Planning Policy 2.20 specifically notes that the City will assess "whether the relationship between a development proposal and the outcomes for a heritage place or area that would result from the proposed development, if it was approved, justify the exercise of discretion to vary any Scheme site or development requirement under the provisions of clause 12 of the Deemed Provisions." Due to the abovementioned areas of noncompliance and lack of cogent justification, the benefits associated with the heritage restoration are not commensurate to a height variation of 2-4.5 times the maximum height. Therefore, the exercise of discretion is not justified in this instance. In summary, the development does not meet the height requirements for the site, does not meet the various criteria provided by the planning framework to justify the extra height beyond a minor increase owing to the heritage restoration, is inconsistent with the City's design guidance for new developments in heritage areas, and any flexibility provided by terminology in the planning framework is not flexible enough to justify the magnitude of the height variation proposed. On these grounds, the proposed height of the development warrants refusal of the development application. Plot Ratio Due to the extra height, the proposed plot ratio is 2.19 – in excess of the maximum of 2.00. We disagree with the applicant's removal of the restored heritage building from the plot ratio calculation as plot ratio is to be calculated in accordance with the definition in State Planning Policy 7.3 – Residential Design Codes – Apartments (SPP 7.3), which does not enable this removal. Objective 2.5.1 of SPP 7.3 is as follows: "The overall bulk and scale of development is appropriate for the existing or planned character of the area." Due to the reasoning that we have provided above to reach our conclusion that the excess height warrants refusal of the development application, the proposal does not meet this objective. Although clause 12 of the Deemed Provisions enables this requirement to be varied, the City retains the option not to vary this requirement. As concluded above, the heritage conservation benefits are not commensurate to the extra height and plot ratio being proposed, and therefore we are of the view that the City should not vary this requirement. For this reason the proposal is effectively to overdevelop the site, and the development application should also be refused on those grounds. Link Road The Structure Plan map shows a road bisecting the overall site. It is understood that this link road is essential to alleviate traffic congestion and demand on the McCabe Street / Stirling Highway intersection, which is already heavily congested during peak periods. While clause 5.5.1 of the Structure Plan provides scope to vary the exact location of this link road, clause 5.5.2 specifically requires the link road to be ceded to the Crown for management by the City at the first stage of development. We disagree with the justification provided that use of the two access points to the ground floor car park constitutes a "link road" for the purposes of the Structure Plan as it is proposed to remain under the control of the strata body, and is therefore not a road as it will not be ceded to the Crown. It is acknowledged that an easement in gross for this access is proposed, however this does not provide the same certainty that the access will remain in perpetuity that a public road provides, and will not be constructed to the same level of amenity, functionality and accessibility as a public road. For example, the width (7.7m) does not meet Liveable Neighbourhoods standards, there are no footpaths or verge landscaping, and there is no potential for utility services to be extended through the road reserve.
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There are further issues associated with this aspect of the proposal, being: • Lack of provision of an exit to Coventry Parade does not provide the full north-south access through the site envisaged by the Structure Plan, thereby negatively impacting the community by not delivering the improved accessibility for the area agreed at Structure Plan stage; and • Control of the road by the strata body will prejudice access arrangements for the Stage 2 development to the east of the proposal, should it occur. As no details of the Stage 2 development have been provided, it is impossible to know whether the single point of access proposed will be sufficient to handle demand. The only way to ensure that sufficient access can be provided to that site is by providing it with frontage to a public link road. It is acknowledged that clause 27 of the Deemed Provisions provides that a decision maker "is to have due regard to, but is not bound by, the structure plan" when deciding an application, and therefore this component of the Structure Plan can be varied. The application attempts to justify this removal on the basis that it "allows for a more flexible design response to be provided, which responds to the desired nature, form and function of the internal access road. That is, the development places a strong emphasis on the pedestrian experience and seeks to enhance and connectivity, with the design of the internal movement network being designed to minimise the potential for vehicle and pedestrian conflict, through the creation of shared spaces." This justification effectively amounts to the link road being designed out in order to accommodate the proponent's preferred site design, which includes significant pedestrian oriented spaces. While provision of pedestrian-oriented spaces throughout the site is a good outcome, it is not valid justification for removal of the link road as a link road could be used to provide pedestrian connectivity as well. There is sufficient space on the overall site (particularly to the east of the development site) to provide a public link road, which could be constructed as an extension of the shared space drop off access area shown on the landscape concept plans. In addition, this justification is site-centric and does not consider the connectivity impacts on the broader community. The proposed access is less likely to be used by the community as its design presents as private access to a basement car park from both McCabe Place and Coventry Parade, and also does not provide full connectivity to begin with. We are of the view that the link road is a critical component of the Structure Plan – particularly as LPS4 requires the link road to be included in the Structure Plan. Even though removal of the link road could be approved, the application does not sufficiently demonstrate why it should be approved. Therefore, the application should not be approved unless it is amended to provide a public link road through the site, or the Structure Plan is amended to remove the public link road first, which should only be done with full consideration of the broader traffic impacts for the surrounding area, including the McCabe Street / Stirling Highway intersection. Parking The development application proposes 340 residential car bays (a surplus of 114 bays) and 122 car bays for all non-residential uses and residential visitor parking, which the application claims is a 200 bay shortfall. However, the application does not include the proposed office and health studio uses in its car parking calculations. These uses trigger further car bay requirements that have not been taken into account, so the true shortfall is over 200 bays for non-residential uses. The application also claims that there is a net shortfall of 86 bays, which is not relevant as the proposal is to allocate 114 bays above the minimum for residential uses only, thereby proposing a 200(+) bay shortfall in total as residential bays will not be accessible to non-residential users. We acknowledge that the proposal meets some criteria of clause 4.7.3.1 of LPS 4, which enables the City to relax parking requirements due to the proximity of the site to public transport, the proposed heritage restoration and the potential for reciprocal use of bays due to non-residential uses operating at different times of day. We question whether these reasons to relax the parking requirement sufficiently justify the magnitude of the proposed 200(+) bay shortfall, being two thirds of the required non-residential parking. We are concerned that the combined function of the restaurant, tavern and reception centre will create demand for well over 122 vehicles at peak times, and also unfairly restrict residential visitor parking availability at these times.
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The Parking Demand Assessment submitted as part of the application (appended to the Parking Management Plan) anticipates a peak demand of 181 car bays, which is approximately 50% in excess of the number of bays proposed to be provided. The justification provided that the tavern's capacity would reduce during a function should not be accepted by the City, as the tavern and function centre are located in two separate spaces and it is therefore entirely possible for them to operate simultaneously. To illustrate our concern another way, the Parking Demand Assessment anticipates a combined capacity of 646 people for these uses, excluding employees and residential visitors. This would increase to over 700 after including those users. A 700 person capacity equates to an average of 5.7 people per car, which is not possible. In fact, at an average of 3 people per car, which we believe is possible, 334 people (approximately half) would need to use rideshare or public transport. We do not believe that this is likely to occur considering that the "premium nature of the development" is more likely to attract people who drive, and overflow parking on nearby residential streets is much more likely to occur as a result. We do not believe that the public transport and reciprocal use criteria included in clause 4.7.3.1 of LPS 4 were intended to enable car parking provision for non-residential uses to be halved. The proposal to provide 340 residential bays, over and above the required 226 bays, provides capacity to reallocate bays from residential to non-residential uses. Considering that the applicant's Parking Demand Assessment admits that demand will exceed supply for non-residential parking by 59 bays at peak periods, we request that the City requires the applicant to reallocate at least 59 residential bays to the non-residential uses in order to ensure that the community will not be impacted by the shortfall, and ensure that the magnitude of the shortfall is commensurate to the criteria available for the City to use to reduce car parking requirements. Building Separation and Interface Section 2.7 - Building Separation of SPP 7.3 provides acceptable outcomes of separations of 24 metres between habitable rooms and balconies and 12 metres from property boundaries for buildings. The proposed separations of 14m and 16m between buildings and 9.8m and 10.5m to the northern lot boundary do not meet these outcomes above the sixth storey (due to the sleeved car parking). We are of the view that these separations are insufficient to meet the objectives of section 2.7 as follows: <table border="1"> <thead> <tr> <th>Objective</th><th>Comment</th></tr> </thead> <tbody> <tr> <td>New development supports the desired future streetscape character with spaces between buildings.</td><td>As previously discussed, the proposed scale of the towers is inappropriate for the site. Siting the towers this close together in a triangular shape restricts sight lines between them. From some cardinal angles (as shown on the elevation plans) multiple buildings appear as a large, conjoined block, which does not meet this objective. In addition, the reduced separation from the northern lot boundary, combined with the height of each building, is likely to impact the amenity and privacy of those adjoining lots.</td></tr> <tr> <td>Building separation is in proportion to building height.</td><td>The building separation distances are approximately 20-30% of the proposed building height. In a location with prominent views of such importance to define height limits, this will not enable the buildings to be seen as wholly separate.</td></tr> <tr> <td>Buildings are separated sufficiently to provide for residential amenity including visual and acoustic privacy, natural ventilation, sunlight and daylight access and outlook.</td><td>All facades facing other buildings are glazed and include extensive sections with habitable rooms, including bedrooms which require the most privacy. Sufficient privacy is not achieved by the proposed separation distances.</td></tr> </tbody> </table> Conclusion Ultimately, the planning framework does not contemplate a development like this being proposed in this location. In scenarios like this it would usually be appropriate to review the planning framework in consultation with the community, in order to reassess the vision and intent for the locality and then review development controls if necessary, prior to approving a development application proposing such significant variations. This has not occurred in this instance, and it is poor planning practice to set aside the current planning framework on an ad hoc basis such as what is being proposed.		Objective	Comment	New development supports the desired future streetscape character with spaces between buildings.	As previously discussed, the proposed scale of the towers is inappropriate for the site. 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The scale of the proposal, in particular the height of the buildings, is inappropriate for the location, as evidenced by its incompatibility with the planning framework. The public link road should also be provided and ceded in order to secure the level of access through the overall site that was agreed with the community and landowner at Structure Plan stage. In the scenario that the height and plot ratio issues were to be resolved and public link road provided, the car parking provision and separation between towers would also need to be reviewed and resolved. Put succinctly, the proposal represents overdevelopment of the site. The issues with the proposal that we have raised as part of this advice are fatal flaws, and cannot all be resolved without a complete redesign of the development. On these grounds, we are of the view that this development application should be refused for the reasons raised in this advice.	
73	My name is (x) and with my wife (x) we own the residence at number (x) Coventry Parade and the residences at (x) & (x) Thompson Road. We are therefore quite possibly some of the most directly affected residents of Nth Fremantle, by the proposed development of what the developer calls the Matilda Bay Brewery Site. Historical recognition of the Ford Factory architecture Naming the project as on the Matilda Bay Brewery site is misleading, because the significant architectural legacy that exists on the site is from the original building design and function as a Ford Motor Company assembly factory. Stirling highway art deco facade. North Fremantle, Fremantle and Perth (as the capital city of WA) should, and I believe does, recognise the significant "architectural heritage" inherent within the Ford Factory buildings still remaining in relatively good condition on the proposed development site. It is therefore disappointing and surely unacceptable, for the Stirling Highway facade of the original Ford building to have a second storey added that substantially alters the architectural integrity of the original Art Deco building. The second storey added provides yet another 350 square metres of uncalled for and unnecessary restaurant space to the total of over 2000 square metres of commercial space, that in itself is questionable as being appropriately located within this development. The current design provides no justification for re-working the existing "heritage" Stirling Highway facade with an additional storey added. Coventry Parade concerns. The proposal to demolish 4 bays of glazed industrial facade (about 20 metres) at the East end of the Coventry Parade factory elevation, again changes the proportion of the old Ford factory building that is an integral part of the North Fremantle character and history. The only reason for demolishing the 4 bays of the existing Southern factory facade is because these 4 bays would project into the proposed residential Tower Block Two. However, it is fully possible for this Tower to be set back or re-designed in order to preserve the proportion and architectural heritage value of the existing Coventry Parade Ford Factory facade. The height of Tower Block Two adjacent to Coventry Pde, (RL 16.0 to RL 39.8) should be reduced significantly and set back (or stepped back) from Coventry Pde such that the position of Tower Two on the site does not cause the 4 bays of the existing Ford Factory facade to be demolished. Tower Block Two requires significant re-location and building re-design. Design respect for the architectural heritage qualities inherent in the glazed industrial factory facade along Coventry Parade is ignored. Interface with Thompson road and North Fremantle community Where Thompson Road comes to an end at the South East corner of the Ford Factory site, there is an opportunity for the open space at RL16 within the new development, and from the Thompson Road end of the community into the development, to interface with a positive benefit to the new development and to the North Fremantle community. Instead of attempting to design an interface with North Fremantle, and the developers own proposed triangular park at the Thompson Rd / Coventry Pde corner, there is facing Thompson Road a 6 metre high electrical services brick wall, an opening into the car parking basement at RL16 (for traffic coming from Coventry Parade and Thompson road) and two fire booster enclosures; plus a 23.8 high Tower Block Two building with no green planting in front on Thompson Rd, blocking physical and visual access from the intersection with Thompson Road. The proposed pedestrian and local access into the courtyard of the development at RL16 is via a new entry that is badly located where the 4 existing glazed factory bays have been unnecessarily demolished, and at a point along Coventry Parade that is difficult to access given its location and design: to access this, people will need to cross the end of Thompson road and walk west along Coventry Parade (all with increased car traffic). The alternative entry from the triangular park for Nth Fremantle residents, is up a 6 metre set of stairs to get to the Podium Level at RL 22, and then down a 6 M set of stairs to get into the development courtyard. The interface with North Fremantle at the junction with Coventry Parade and Thompson Road is badly thought through in favour of locating a 23.8M Tower Block on that junction instead of setting it back to create the interface that could be green and dynamic with benefits for the development and the North Fremantle community. Tower Two overshadowing The proposed 23.8 metre low rise portion of the 47metre "Tower One" proposed 23.8 metre low rise portion of the 47metre "Tower Two" building. . . (7 to 8 stories depending on your definition of a storey, height.) at the South East corner of the site (opposite The end of Thompson Rd) only 4.5 metres set back from the Coventry Pde boundary, is out of any acceptable scale that could be said to interface with

	the existing residential buildings on the corner of Thompson Rd and Coventry Pde. As clearly demonstrated by the developers own overshadowing diagrams the Tower Two building will result in unacceptable overshadowing of the existing residential buildings on the South side of Coventry Pde. Excessive commercial space and no traffic via Thompson road. If the large area of commercial space being proposed within the development is approved, it will result in significantly increased traffic down Coventry Parade and through North Fremantle via Thompson Road. There is already a hazardous situation where the eastern end of Coventry Parade and northern end of Thompson road cross, and this would be difficult to resolve if traffic was streaming north up Thompson road into the development. We strongly believe that the answer to interfacing and integrating the proposed development into North Fremantle is to NOT have any car access into or from the development from Coventry Parade or Thompson Road (local Nth Fremantle traffic up and down Thompson Rd and Coventry Parade would remain). This substantially solves the crossover of cars and people on the South side of the proposed development and would result in Coventry Parade, the new triangular park and Thompson Road becoming a green / local traffic interface with the new development; this would enhance the visual enjoyment of the magnificent Ford Factory South facing glazed façade, while making activation of the uses through and within that façade a reality. All vehicle traffic in and out of the development should be from McCabe Street. Finally This new proposed development with its three Tower Blocks and Podium design has ignored the previous 2015 structure plan developed by consultation with The North Fremantle community and the City of Fremantle Planning department. The new proposal has much more height to the buildings than recommended in the 2015 structure plan with little to no dynamic re-purposing of the existing "architectural heritage" buildings, very poor interfacing of the development with the North Fremantle built environment and almost no real benefit to the existing or long term North Fremantle community. Car Parking provision and Traffic are certainly requiring more study and justification: The developers should receive a refusal for this proposal with at least one of the many refusal conditions being that community consultation should now take place before re-submitting a revised and well thought through design.
74	Refer Submission ref. 71 above, identical
75	As a close neighbour to the proposed development for the above site I have attended meetings and gained a basic understanding of what is being planned. I have several grave misgivings as to the scale and structure of the development which I would like to bring to the attention of the Developer, Fremantle Council, the Architect and Landscape Architects. Will state these in no particular order of priority as I consider them all to be of prime importance. - The building height taken from ground level is misrepresented as there is a sizable plinth which in fact raises the tallest tower to a height of 21 storeys not the stated 18 which in itself is above the 14 storey limit I believe is the allowable limit for the site. - Overshadowing will be a major problem particularly for properties to the south of the complex in winter as it will block all direct sunlight. The existing properties to the east will also be majorly impacted all year round. Modelling needs to be done to show the impact of overshadowing for the whole year for all directions. - The interconnection of the 4 towers proposed appears to be via several long sets of stairs which does not make for a usable easy access open area. There do not appear to be ramps or facilities for those not able to use stairs. Stairs do not enhance the cohesiveness of an open space. - The stairs shown on the illustrations entering the complex via Coventry Parade are inaccessible unless there is a footpath and parking. The southern façade of the complex provides little integration or connection to the existing suburb. - The shortening of the existing assembly line building should not happen as it is integral to the authenticity of the heritage site. This integrity should be retained at all costs. - The proposal to have a through road connecting from Thompson Road to McCabe Street passing underneath the development via the proposed carpark is ludicrous. Firstly it will be highly dangerous and secondly Thompson Road is already too small for its current volume of traffic. It has a high degree of on-street parking as being an older suburb, many houses do not have driveways, off street parking or garages. Access to McCabe Street needs to be looked at very carefully as it is a narrow street which already has considerable traffic and high rise buildings which enter it on a bend!! And there are other developments about to be built adding to the stress on this road system as it is. - The number of parking bays proposed for the development is inadequate – roughly about half of what should be provided to cater for the number of dwellings and facilities being proposed.

	- The façade of the Ford Factory should be retained and not compromised by the addition of a second storey which changes the appearance so as to render it unrecognisable. It destroys the heritage value of the building which is an integral part of North Fremantle. - There appears to be little in the form of green landscaping or deep planning. Most of the large open areas appear to be paved which does not fit with the current trend away from such barren unfriendly built environments. As it currently appears on the illustrations it is a hot in summer and cold wet and windy in winter area with little to recommend it. Thank you for the opportunity to comment on this proposal.
76	I have grown up in North Fremantle being a resident at both 4 Coventry Pde and 102 Thompson north Fremantle and have future plans to build at 4 Coventry pde. While I welcome the proposal to develop at the old brewery site, I am extremely concerned about the proposed development. My key concerns are set out below. Height: This is my biggest and is the most obvious concern with the current proposal. The current maximum height for the site is 33m. This is the height that is considered the maximum appropriate height. 33m is a number that has been conceived through a considered government process. Any acceptance of a height above this level must have extremely good justification and have results that are in the best interest of the community, not the developer. Enforcing the maximum 33m height would avoid the development have an unacceptable shift in the aesthetics and amenity of the area for both local residents and the broader community. The increase in population density under the current proposal is quite staggering in the context of the neighbourhood. While I support higher density living, I feel the heights and density go beyond what the planning guidelines are meant to protect. Further to the total proposed height, is where the height is measured from. There is a considerable difference in height between McCabe st and Coventry pde. The current proposal draws the height level from McCabe st. The maximum height should have regard to street level at Coventry pde so as not to exacerbate the impact of the height on residents and this side of the development. The current proposal with the building location and excessive height also has overshadowing and potential overlooking issues for existing residents which would not be considered acceptable in normal circumstances. These issues are avoidable if sticking to the planning guidelines. The guidelines are there for a purpose! Parking: The design of many of the local houses has no off street parking. Parking in the local area has become challenging since opening of a number of gyms and small businesses. This make parking an existing issue. The new development would add additional parking pressure! It is idealistic to think that high density living will attract people who have less dependence on cars. This suburban location is not located businesses, not near train stations (it is a 10 minute walk). While it is near bus stations, this locations true appeal is lifestyle with extremely good access to the beach. With a large number of dwellings, and only minimal parking proposed, parking could become a major issue! Residents will have visitors. And with lots of dwellings, the number of visitors could be considerable. Further, the proposed commercial and entertainment spaces at the development would add further parking pressure, impacting on existing residents who have no off street parking option would be unacceptable. Please review the planned parking arrangements and ensure there is more than just the minimum required parking, particularly for visitor and commercial use. Pedestrian access: Lastly, pedestrian access around the proposed development appears to be poorly thought through. This aspect should be revised. Car access: I support restricting access in/out of the development to McCabe st where there is traffic light access to Stirling highways. This has come up a number of times and is the sensible and safe option. The McCabe st – Stirling Hwy intersection may require upgrade with potential increased traffic load from this proposal as well as other apartments and potential development.
77	As a resident of Fremantle I am very strongly opposed to the proposed development. The proposed towers are too high and will impact the amenity of the area for the thousands of perth residents using the foreshore and beaches for mental and physical health. The introduction of this many additional residents in the narrow corridor will contribute to congestion in an area that is already a bottleneck. I am supportive of sustainable development but this is not. Please make a good decision.
78	While we recognize the desirability of developing the Matilda Bay Brewery site, the proposals put forward by 3 Oceans raise a number of concerns: 1. We are opposed to varying the maximum building heights requirements, and request that these requirements be strictly adhered to. To proceed with the 3 Oceans proposal would result in significant overshadowing and privacy concerns, especially for existing properties in the three cul-de-sacs off Foundry Court: it is noted that Tower 2 (11 storeys) has an open roof top terrace directly overlooking these properties.

	2. There appears to be a shortfall of parking bays, which serve not only residential towers, but also the general public accessing the proposed café/restaurant and other facilities, as well as commercial vehicles servicing them. Street parking, especially along the two one-way streets comprising Coventry Parade, is already under stress, especially during week days. The northern end of Thompson Road currently also experiences traffic flow and parking stress. A reduction in the height of the towers would help to address this problem, but in any case the parking bay requirements for the above should be strictly adhered to. 3. It would be helpful if the proposal included Stage Two, to assess how it would impact on the concerns raised above. We respectfully request that these concerns be addressed.
79	"Overall fantastic to see a DA over the site. Comments for improvements as follows: SPP 7.3 - Recommend that additional community benefits are considered in trade for development incentives. - Provide public pedestrian access to viewing deck in one tower - Provide additional cultural space with a civic use that sees a Government funded museum/gallery move from Fremantle to North Fremantle (currently NF has nil substantial civic spaces). For example, this might include a history of North Fremantle and its industrial heart. - SPP 3.6 - Recommend proper community consultation is carried out to determine the local preference for what may go into the cultural space mentioned above. This is a genuine opportunity to also attract tourists and generate spend in the commercial precinct. General - The map with Local Community Facilities in the Urbis report fails to acknowledge the NF Bowling Club and Social Farm. This demonstrates the lack of true local knowledge and community engagement. Recommend a condition is applied which requires improvement to social infrastructure in the local community through a per lot development levy or POS contribution that can be directed to the Pockes Park where the NF Bowling Club and Social Farm are located. - Note there is no Dev. Contributions Plan for the NF precinct (which there should be), the only way to levy for local infrastructure funding outside the development is via a condition on the DA. Is there a plan for a DCP? If not why not? - The 14 Mature trees to be doubled and species selection to include Norfolkis - Lack of diversity with no townhouse options, why? - Lack of consideration on Smart Cities and no Safety and Security, a serious issue in the NF area - Poor pedestrian interface on southern boundary - Additional consideration of beach users in the facilities provided with requirement for infrastructure on the west end of bridge as result of additional users (showers and outdoor gym as a minimum) - Work with Main Roads to improve the bridge access and interface, footpaths with Stirling Hwy (as part of Stage 1 development) Final point is to reduce the DA length to 2 years from 4 and provide incentives to ensure substantial commencement within 18 months.
80	I am a resident living at (x) Coventry Parade, North Fremantle, and am writing to lodge my strong objection to the proposed 16 storey mixed use development at 130 Stirling Highway, North Fremantle (Former Matilda Bay Brewery site). My home is located directly opposite the development site on Coventry Parade. The reasons for my objection are provided below. 1. POOR URBAN DESIGN AND INTERFACE WITH COVENTRY PARADE The proposed urban design is very poor, including the design of the internal public open spaces and interface with Coventry Parade, as well as the access to and from the site (as discussed further below). The internal public open space area is of a poor design, comprising limited deep soil areas and poor quality landscaping including significant paved area that will contribute to heat island effect and creates an uninviting space. The height and layout of the buildings will also have an adverse impact on the amenity of the open space area, resulting in limited access to sunlight and potential wind tunnel effects. The design of the interface with Coventry Parade has not considered the adjoining streetscape or public realm, or adjoining community. More specifically, the development has not been designed to integrate with the existing community to the south of the development site. The two storey podium at the corner of Coventry Parade and Thompson Parade presents as a wall to the adjoining community (at a location which offers the best opportunity for integration), and will have a significant adverse impact on the amenity of the streetscape, offering limited opportunity for ground floor activation or integration between the public and private realm. The location and design of the main public entry point on Coventry Parade does not appear inviting, and has not considered the heritage values and community values associated with the existing glass façade of the existing building on Coventry Parade. Further to this, I wish to lodge my strong objection to the demolition of any portion of the existing glass façade along Coventry Parade, and do not consider the proposed design to warrant its removal. The removal of any portion of this glass façade will have an adverse impact on the heritage values and character of the streetscape. This glass façade is highly valued by the local community (as identified in the community consultation undertaken for the original Former Matilda Bay Brewery Structure Plan), and I would like to see the full extent of it retained if possible. Overall the proposed urban design is considered very poor, and will result in a missed opportunity for our community and future residents of the development site. 2. BUILDING HEIGHT AND OVERSHADOWING The proposed 16 storey, 11 storey and 10 storey buildings are a significant variation to what is permitted under the relevant planning framework (namely the building heights and overshadowing), and are not considered appropriate or acceptable, due to the impacts on the amenity of the site, adjoining properties and surrounding area. As stated above, the proposed building heights and site layout will have an adverse impact on the amenity of the internal public open space, due to the resulting overshadowing impacts and potential wind tunnel effect. The proposed building height will also result in overshadowing of the adjoining residential properties to the south which does not comply with the R-Codes Volume 2 requirements. In particular, it appears the residential property at No. 4 Coventry Parade will have no access to sunlight on June 21. This will have a significant impact on the amenity of the property and quality of life of residents, and is not considered acceptable or justifiable given the overall design of the site and non-complying elements. In addition, the proposed building at the corner of Coventry Parade and Thompson Road is the equivalent of a seven storey building (minimum) which has been very poorly designed, with two storey podium and no ground floor activation, resulting in a very poor interface with the adjoining streetscape and community. 3. CAR PARKING AND ACCESS The proposal comprises residential and shared residential/commercial bays only, which does not comply with the applicable requirements, and is considered completely unacceptable given the nature and scale of the development and commercial uses on site. The proposed car parking shortfall is completely unacceptable for the following key reasons: • There are no dedicated commercial bays proposed which is unfathomable and completely unacceptable from a planning perspective, considering the nature and scale of proposed development and commercial uses. • There is very limited opportunity for reciprocity between the residential and commercial uses, whereby the peak visitor periods for restaurant, café, tavern and function space would coincide with peak residential and visitor times on weekdays and weekends, which is when more residents are home and not at work, and residential visitors are most likely to come. • The surrounding streets and neighbourhood has no capacity to accommodate any car parking overflow from the development site.

	- The public transport options in proximity to the site are limited, with the nearest train station being further than 800m from the development site. It is also not considered likely many visitors will travel to the site via the available bus services, in reality. - The car parking shortfall will therefore have a significant impact on the adjoining streets and area. The proposed vehicle access arrangements are also considered inappropriate for the site and this scale of development, with the main vehicle access point being from Coventry Parade through a building, and no indication of what the Stage 2 development will propose. I am not a traffic engineer or urban designer, but consider this to be a very poor access arrangement and question whether it would comply with the principles of good design and Liveable Neighbourhoods requirements. 4. SCALE AND NATURE OF COMMERCIAL USES The proposed commercial tenancies and non/residential uses are considered an overdevelopment of the site, which cannot be accommodated on the site without provision of the required car parking bays (as outlined above). The proposed scale of the commercial tenancies are completely out of context of the area, and do not consider the character of the surrounding community. The existing commercial developments in North Fremantle are predominantly small scale, service the local community, and located around the Town Centre, over 1km south of the development site. Historically, North Fremantle has not supported larger scale commercial developments, particularly in locations with poor access, such as the supermarket that opened in the 1980s-90s on Stirling Highway near the corner of Alfred Road, which ended up being modified into separate smaller scale tenancies. Since then, there have been a limited number of proposals for new large scale commercial developments in the area, given the commercial realities. The proposed tavern is considered completely inappropriate for the site and I wish to lodge my strong objection to this element of the proposal. A tavern in its nature is associated with anti-social behaviour and is not appropriate for this suburban residential area, and should not be supported in this location on this basis. I also question the commercial viability of the café and restaurant spaces, given the scale and location, and assume there are no tenancy agreements in place. If not, there is no certainty around the future use of these spaces and any car parking shortfall is unjustifiable. Lastly, the proposed use of the existing warehouse on Coventry Parade as a function centre (on the upper floor) is not supported due to the limited activation this offers. The use of this space as function centre is poor use of this building which is considered to have significant heritage and community values. This represents a missed opportunity for the adaptive re-use of this building, potentially as residential units that would offer an improved interface with the adjoining residential community to the south, and provide for some housing diversity on the site. In summary, the proposed scale and nature of the proposed commercial/non-residential uses are not considered appropriate for the site, being incompatible with the surrounding suburban context and character of the area. 5. POOR QUALITY TECHNICAL REPORTING The development application comprises technical reporting that is flawed and/or contain inaccuracies, including the following: - The planning report does not identify the residential properties located opposite the site on Coventry Parade that will be most affected by the proposal. Specifically in relation to the overshadowing impacts whereby the non-compliant development will result in my residence at 4 Coventry Parade having almost no access to sunlight on 21 June, which is a significant and unacceptable impact on my quality of life. - The traffic reporting states that the proposed reciprocal parking arrangements and commercial car parking shortfall is justifiable due to opportunities for reciprocity between the residential and commercial uses. However, this is simply untrue for these types of commercial uses, whereby the peak visitor periods for restaurant, café, tavern and function space would be outside standard business hours on weekdays and weekends, which is when more residents are home and not at work, and coincide with peak residential visitor hours. There is therefore very limited opportunity for reciprocity between the residential and commercial uses. The car parking shortfall will have a significant impact on the adjoining area, which has no capacity to accommodate any parking overflow, and is therefore unacceptable. - The community needs and benefit analysis is a desktop study only and does not include any research or assessment or analysis of what the people who live in the community actually want or need. Given the authors have not interviewed a single person living or working in the community, or any members of the North Fremantle Community Association, to identify the needs and wants of the community, and how they may benefit from the proposal, the reporting and research methodology is considered flawed and this document should be completely disregarded accordingly. - The south elevation contained in the development plans does not appear to accurately reflect the development shown on the floor plans, and is therefore considered misleading. The south elevation and all development plans should be reviewed and updated to accurately reflect the proposal. CONCLUSION
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	For the reasons outlined above, it is not considered the proposed development is appropriate for the site, or warrants the City's or JDAP's support. Specifically due to the poor urban design and Coventry Parade interface, excessive building height and car parking shortfall, as well as the adverse impacts on the amenity of adjoining properties and surrounding community resulting from these factors. Accordingly, I respectfully request the authorities do not approve this application in its current form. Thank you for the opportunity to submit my objection to the proposed development, and be considered in the decision making process. It will be appreciated if you could please contact me on the details provided below, when this development application is to be considered by the City's Planning Committee, Council and/or the Metro Inner-South JDAP. Thank you kindly.
81.	1. PARKING: The proposed plan seems to encompass almost 2,000 square metres of Public taverns etc which under the present bylaws require nearly 500 parking bays, with only some 180 provided in the present plans. There is clearly not enough car parking allocated given the extent of residential and commercial space all supposedly co-sharing the total of car bays. 2. TOWER TWO: The "Tower Two" building is too close to Coventry Parade. The developers own overshadowing diagrams show that "Tower Two", at a total of 47m high (14 stories), has unacceptable overshadowing to the existing houses/ buildings facing Coventry Parade.
82.	I, (x), together with my husband (x) have built, own and reside in the residence at (x) Thompson Road at the corner of Thompson Road and Coventry Parade, opposite the proposed Matilda Bay Brewery development site. We therefore stand to be directly affected by the proposed development across Coventry Parade from our dwelling. Comments: While we welcome an appropriate development of this heritage site, we are not in favour of the following aspects of the proposed development, and provide alternate solutions that address our concerns: 1. Variance to maximum building heights: The proposed excessive height Tower Block Two, planned to directly abut Coventry Parade north side, (RL 16.0 to RL 39.8) is out of scale and will result in unacceptable overshadowing of residences on the south side of Coventry Parade, including ours. <i>Tower Block Two height should be significantly reduced.</i> Further, the proposed placement of Tower Block Two will require the demolition of 4 bays of vintage industrial glazing of the existing building at the East end of the Coventry Parade factory elevation directly opposite our dwelling, which will completely destroy the character of the heritage architecture we designed our own residence to reflect. The original façade of the building can be preserved and overshadowing issues can be reduced by <i>setting back the placement of Tower Block Two towards the north of the proposed development site.</i> 2. Lack of integration with Thompson Road and North Fremantle residential neighborhood: The proposed design does not take advantage of potential open space at RL16 within the new development, to allow the new development to integrate with the North Fremantle community. To the contrary, we are faced with a high electrical services brick wall, an entrance to a car parking basement at RL16, two fire booster enclosures, and an unacceptably high Tower Block (see above). The proposed Coventry Parade entrance to the new development is poorly designed and difficult to access. The alternative entry from the triangular park for Nth Fremantle residents, is very awkward involving a 6 metre set of stairs to get to the Podium Level at RL 22, and then down another 6 metre set of stairs to get into the development courtyard. <i>The entry and placement of a 23.8M Tower Block at the junction of Thompson Road and Coventry Parade is antithetical to integration with the surrounding residential neighbourhood, and should be redesigned.</i> 3. Unacceptable traffic implications of proposed development: Significantly increased traffic on Coventry Parade and Thompson Road will result from the commercial components of the proposed Matilda Bay Brewery Site development site. The intersection of Coventry Parade and Thompson Road is already hazardous with current traffic flow, which would be significantly exacerbated by the proposed increase in traffic volume. Insufficient attention has been paid to these significant traffic issues raised by the current plan. <i>All vehicle access into or from the new development should be from McCabe Street, where these issues do not exist.</i> 4. Disregard of previous plans for the site development: In 2015, extensive community consultation by the City of Fremantle Planning Department resulted in a mutually acceptable proposal that <i>respected architectural heritage, honoured the relationship with the surrounding residential community and incorporated an appropriate physical interface with the local environment.</i> The current plan has ignored the progress made in the previous planning exercise, disregarding the architectural heritage and value of the existing buildings, proposing excessive commercialization and out-of-scale designs that provide little benefit to the North Fremantle community. In summary the developers should be refused this proposal, and should be encouraged to <i>engage in genuine consultation with the North Fremantle community, which would result in a much more appropriate design and well-integrated development.</i>
83.	1:building height is not within the cities building code and if passed would have a negative impact on my unit at McCabe st

	2 :gap between towers needs to be greater 3:towers are tacky as different owners could choose different settings and colour 4 :would prefer the whole site to be included in approval process as my McCabe st unit will be impacted more by the next stage < n/e corner > which is directly opposite.
84	I write to object to the proposed 16 storey mixed use development at the Matilda Bay / Ford Factory site. The proposal completely ignores the existing LPP and does not adequately address the developments interface and impact on the adjoining North Fremantle fabric: 1. Overshadowing - significant increase of overshadowing given the increased scale proposed, creating unacceptable outcome for multiple residences to Coventry and Thompson road, sunlight is blocked from sunrise until afternoon on June 21 severely impacting the amenity of numerous residences. 2. The community interface towards Coventry and Thompson road is hard to read on the drawings provided, no perspective view? This is a really important interface with North Fremantle via Thompson Road and seems to be fronted with Fire boosters, Electrical services and a carpark entry being the very thing you see at the end of Thompson Road. A more discrete carpark entry should be encouraged, possibly using the small wedge of land left at the end of Coventry Parade LOT 219, and instead prioritize pedestrian access or facility at this location instead of the services and carpark 'back door' as the community interface? 3. The proposed community facilities seems very large and question the viability of such large restaurants, function spaces etc. in this difficult to access location. 4. Carparking for community facilities seems to be very inadequate. How does commercial share dedicated residential bays, as the time of use overlaps for weekends and evenings? Provide parking seems very limited also, addressing a very minor street frontage and note this is currently a hard corner to get in and out of given the Stirling highway traffic and suspect this development would impact badly. 5. Little understanding of stage 2, with this proposal establishing unacceptable precedents completely disregarding guides and rules in place, that were established for good reason. This if approved would set precedence of high rise for future surrounding developments. Given the above I do not support such a significant deviation and blatant disregard of the current LPP.
85	Matilda Bay brewery comment: 1)Traffic, tod without a train station. Must reopen Leighton station. Both north fremantle and Victoria street train stations are too far away for high rise tod developments. 2)Must require an overpass for cyclists and pedestrians over Stirling hwy to Leighton foot bridge 3)Must extend this foot bridge over Curtin Av as lights would render the regional freight road to port unworkable 4)Demand for recreational space will largely fall to ToMP river park, golf course, ovals and beach. Upkeep should be shared. Tomp already are deemed insufficient pos. With an urban development planned in the foreshore reserve Mosman Beach and South Cottesloe, the planned height for this high rise and neighbouring must conform to existing zoning heights. Please advocate for no more urban developments on foreshore reserve which should remain in public ownership. 5) The Carcantment Hill to Buckland Hill has an extensive Aboriginal significance being the resting site of the Wargle , the cross continent dreaming of the seven sisters, the dingo and crocodile dreaming stories. The best way to preserve the culture is to restore an ecological cultural linkage along the coast and through to the river and the hills. 6)The heights proposed at the Matilda Bay can not be approved unless significant changes are made to the access to and from Stirling hwy to McCabe street, the Leighton train station is opened, the Leighton footbridge is extended over Stirling Hwy and Curtin Av as a psp and the urban development at Lot 556 Curtin Av is abandoned for the community plan, a contribution to the recreational areas of MP are negotiated.
86	The development will demolish a large part of the original building. It should only refurbish the original building and not demolish any part of it. Further it is out of scale and character. The fact this is in Fremantle makes it worse and the application approval of this development will hinder Fremantle's character. This development suits the plethora of other beach locations available in Perth, not the one heritage location our city has. In my opinion it should be rejected or made more sympathetic to the area without any heritage demolition.
87	Element on behalf of Exal Group (the Client), is pleased to provide the following submission in relation to the Mixed-Use Development Application (DA) proposed at 130 Stirling Highway, North Fremantle (the subject site) currently being advertised by the City of Fremantle (City). The Client is the landowner of Lot 2 (No.140) Stirling Highway, North Fremantle, directly north of the subject development. As the City is aware, the Client is in the process of preparing and finalising a Precinct Structure Plan

	(PSP) for 140 Stirling Highway and has met with the proponents on various occasions to discuss at a high level their development plans for the subject site. The Client is generally very supportive of the proposed development with respect to its building height, scale and land use diversity and looks forward to the development being approved to create a vibrant precinct in conjunction with the development of the 'One McCabe' project on Exal's land to the north. It is, respectfully requested however, that a condition be imposed to ensure that the proponents provide an equitable and fair contribution to the provision of a round-a-bout on McCabe Street to accommodate the additional traffic demand created by this development proposal. In addition, broader consideration be given to the sites contribution to public infrastructure to improve connectivity within the precinct. Discussion Building Height The development is proposing a building height ranging between 10-16 storeys. The proposed building height is supported given the following: • The height is appropriate to this location given the emerging development surrounding this precinct, its existing and future amenity and the ability for the site to accommodate scale without undue impact on amenity. The height is not considered to be out of scale and will assist in creating an improved corridor outcome to Stirling Highway. • The site is positioned on a designated urban corridor being Stirling Highway which under Perth and Peel @ 3.5 Million is advocated for supporting higher density development. • The site has immediate accessibility to high frequency public transport and is a high amenity location. The site has excellent proximity to Leighton Beach, the Swan River, Fremantle CBD and various public open space areas that provide higher levels of amenity which generally support and are advocated for high density development outcomes. • The proposed additional height is creating limited to no view impacts. • The site has already been recognised as a location suitable for high density and mixed-use development where the additional height generated will allow for a more active ground floor, retention of a wonderful heritage asset and creation of a vibrant sustainable precinct for the enjoyment of the community. • The proposed height is enabling an extensive public realm to be created. This has opened up the site and is promoting a legible, well-connected precinct. For the reasons given, the building is considered appropriate to its location and should be supported. Bulk and Scale The development is proposing a plot ratio of 2.19 or 1.9 excluding the heritage elements, which is an entirely appropriate plot ratio for a development in a precinct such as this. The proposed bulk and scale is supported for the following reasons: • The development is significantly broken up into various elements. This greatly reduces building mass on the street and surrounding properties. • The building mass is separated from existing lower density residential with the higher tower element positioned towards Stirling Highway to further assist in mitigating bulk and scale. • The façade and architectural character of the towers is supported. It is considered the material palette and rounded edges of each tower provides an appropriate form and will create a pleasant built environment that should be encouraged. For the reasons given, the bulk and scale is considered appropriate and represents a desirable built form and should be supported. Land Use Diversity
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	It is understood that approximately 4,000m² of commercial space is being provided. This will include various food and beverage tenancies, community spaces and a fresh food market. The mix of land uses proposed is strongly supported. These land uses will help activate and attract people to the precinct. This is a significant need in this location, particularly given the proximity the site has to both the beach and Swan River. Supporting active land uses should be encouraged so that these public areas can be enjoyed by the community with a destination for entertainment and activity. Traffic and Movement: As previously discussed with the City, the proposed PSP for 140 Stirling Highway will entail the provision for a round-a-bout at the midpoint between the two (2) sites. This will benefit both precincts as well as improve traffic flow along McCabe Street. Under the existing Matilda Bay Local Structure Plan (LSP) that was endorsed by the Western Australian Planning Commission on 6 October 2020, there is a clear acknowledgement under clause 4.2 that the City may impose development contributions relating to the upgrading of road and related infrastructure. This is further discussed under clause 3.11 which also outlines that the developer will fund certain works that are required. It is also noted under the LSP, McCabe Place was never intended to accommodate right-turn movements onto McCabe Street. It is considered this will further add to the traffic generation at this access point. Furthermore, the supporting traffic report submitted with the LSP, prepared by Aurecon had originally only modelled the provision for 500m² of non-residential floorspace. The Stage 1 DA has shown approximately 4,000m² of commercial floorspace noting some of these land uses are primarily dedicated for the existing residents. Notwithstanding this, as outlined within the traffic impact assessment (TIA), the traffic generation rates for commercial land uses are greater than a dwelling, and therefore, the anticipated traffic generation has the potential to be higher than forecasted within the LSP. Whilst the McCabe Street/McCabe Place intersection performs at an acceptable level of service for all scenarios, the traffic study has determined by 2024, 762 vehicle movements will occur in the PM peak period and 364 vehicle movements in the AM peak. This is a sizeable amount of traffic movements that will eventually benefit from the provision of a round-a-bout being provided. In addition, and as recognised within the DA report, due to the high volumes of traffic along Stirling Highway, there will be a greater reliance on the McCabe Place / McCabe Street intersection to accommodate right-out and right-in (for northbound travellers) movements due to the congestion along Stirling Highway impacting the convenience of utilising Coventry Parade (Access 2) to enter and exit the site. This will further increase patrons reliance on exiting and entering from McCabe Street / McCabe Place to access/egress from the site. In turn, this will contribute to the round-a-bout use by this site, potentially more so than what has been forecasted within the TIA. Given the reasons above, there is a very clear contribution that the development adds to the traffic load into and onto McCabe Street from the subject development. Whilst it is acknowledged, this development is not likely to be the 'tipping point' to warrant the provision of a round-a-bout, there is equal benefit in such infrastructure being provided as this development is clearly going to contribute to the traffic load along McCabe Street in both Stage 1 and 2. Therefore, this development proposal should be required to provide a contribution to the provision of the round-a-bout on McCabe Street in an equitable manner as flagged by the LSP. Whilst the exact amounts of a fair and equitable contribution need to be determined in consultation with the City and the proponent, it is noted that the development varies significantly from the approved LSP and the developer has elected to submit a Development Application without amending the LSP to reflect the scale of development proposed. We also note that the regulatory authorities have allowed for structure planning to occur on a site by site basis without a holistic review of the traffic implications.
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	or taken the opportunity provided within the existing LSP to require contributions to road upgrades. It is considered inequitable for the burden of all such costs to be borne by Exal just by simply being the final developer to undertake comprehensive planning for its site. We therefore believe that there is clear nexus between the development proposed and the need for the upgrading of the road infrastructure, and clearly the ability for a condition to be applied under the LSP. We therefore request for the development application to be burdened by a condition that requires the contribution towards the round-a-bout at McCabe Street / McCabe Place. In order to determine an equitable contribution, it is considered there needs to be analysis completed for both developments. Using the 2024 peak periods at the McCabe Street / McCabe Place intersection, the proponents have stated a total of 1,726 movements will occur. The preliminary traffic study completed for 140 Stirling Highway has determined a total of 2,747 movements (an additional 1,021 vehicle movements compared to Matilda Bay). In total 4,473 vehicle movements are forecasted in the peak period between 2024-2025 between both sites. Based on this analysis the subject development is contributing approximately 39% of the total traffic generation at the McCabe Street / McCabe place intersection. In this respect, pending that there is no forecasted government contribution, this would be considered a reasonable percentage of contribution. Finally, a development of this scale will attract a wide array of patrons in addition to the proposed residents. We would also suggest consideration being given to a contribution being made to improve connectivity and legibility surrounding the precinct. Conclusion The proposed development is an exciting prospective opportunity and will significantly help contribute to the vibrancy and activation of North Fremantle. On behalf of the Client this development is generally supported. However, we believe there is a nexus for the City to request a contribution for the McCabe Street round-a-bout given its anticipated importance in accommodating vehicle access and egress for this development. In this respect, it should not just be the responsibility of our Client to fund the entirety of the round-a-bout as there is equal benefit in this piece of infrastructure being provided.
88	We oppose this development. We received a letter from the City of Fremantle dated 20 November 2020 titled: FORMER MATILDA BAY BREWERY STRUCTURE PLAN – FINAL DECISION OF WESTERN AUSTRALIAN PLANNING COMMISSION (WAPC) This proposal is a doubling again of the generous height provision the developer was granted and finalised via the revised LPP3.1.1. It is overdevelopment of the site on a significant scale with three tall towers and an additional 5 storey block with above ground multi story car parking. The massing and height of the development as proposed, including elevated podium public space on top of a car park, instead of on-ground, green open provision, is not appropriate to its setting, clashing with and overpowering its lower rise local environment and coastal setting. At the scale proposed, this development neither enhances the distinctive characteristics of North Fremantle nor responds to local community needs. Heritage is dwarfed by the scale of what looks more like a multi tower office block. Private property in close proximity, particularly to the south, will be subject to shadow for an unreasonably long part of the day, and natural sunsets will end for those located to the south east and east. Then there is the reflection of the sun from the multi tower and therefore multi-faceted external glass finish.

	There do not appear to be any plans for enhancement of road or rail infrastructure around to cope with the increased volumes of people and traffic. There is insufficient parking provision. It is not pedestrian friendly and does not have adequate safe access planned across the busy Stirling/ McCabe Intersection and down to the railway station. The output of traffic and other consultants paid for by the developer needs to be treated with caution. Phase One can only reasonably be considered with full visibility on Phase Two. Otherwise, what future proposals would come next if existing rules or guidelines are not considered applicable to the developer? This proposal should also be considered in combination with what is planned for the former OneSteel site across the road? The substantive additional scale, well in excess of what was only recently finalized, will result in local residents being subjected to unreasonable additional construction time with all the associated noise/traffic/dust and disruption. Density codes in this area should be reconsidered. It is curious that in this vast state with a relatively small population, a Perth-centric obsession with density is resulting in people being piled on top of each other to this extent, and that it is done so in an area that does not really have infrastructure capable of supporting the scale of surrounding density increase. Three Oceans have gone to considerable expense to develop this proposal so soon after the revised LPP was finalized which unfortunately suggests they have confidence that the scale of their proposal, or something close to it, will be approved, if not at local government level than via the JDAP or SDAU process. A family home or investment property is likely the largest and longest-term commitment made by Australians. It is therefore reasonable to expect future planning is fully transparent, democratic, and laid out years in advance. It is also reasonable for taxpayers to expect that the rules and guidelines will be followed, as they are expected to do, and that their way of life is not stressed or unduly impacted by the influence of big money bringing downtown-scale high rise literally to the edge of their suburban back yards.
89	Regarding the submission, any development beyond the existing scheme should not be considered. Any bonuses granted for anything beyond the areas planning should definitely not be considered. heights & view lines should be strictly adhered to for future generations. Additionally, it is historically concerning that such emphasis is given to the fact that it was a Brewery for such a relatively short time in the buildings history beginning 1929. Essentially the emphasis should be placed on this fact, rather than the brewery angle that formed such a small part of its history and is/was beyond the building's beginnings. Height & scale are always an ominous feature of such proposals with emphasis on the structure and not where it sits or how it relates to its surroundings both now and in the future. In short, the proposal as it is not supported for the above reasons.
90	We currently own a house in Parnment Street approximately 200 metres due south of the Matilda Bay site and we strongly oppose the proposed development of this site in its current form for the following reason: - The excessive number of people proposed to either reside in or visit this development will greatly impact the current traffic and parking situation on the the existing road system of the area. The proposed number of residents for this site would be approximately an additional 30% of the current population of the whole of North Fremantle which in turn would be 30% more people on less than .05% of the total land area of North Fremantle. This alone would have a huge impact on the movement of traffic and the parking for the existing residents along the streets surrounding the site. It is also estimated that the patron capacities for the Tavern and Restaurant could exceed 1200 people. The current parking bay allowance for visitors to this site is well below this figure and therefore would create an overflow situation into the surrounding streets which is totally unacceptable and very impractical. There is also mention in the proposed development plan that many visitors would access the area using public transport, this is an unrealistic view and nothing short of a pipe dream. We support the idea of new developments for the Fremantle area but we truly believe this development is far too large in size for the land area it is proposed for and it would therefore create an enormous array of issues for the surrounding residents.
91	SUBMISSION: 130 STIRLING HIGHWAY, NORTH FREMANTLE (FMR MATILDA BAY BREWERY) - DAP003/22 The Chairs of the Councils of Owners in the Taskers residential complex make this submission on behalf of owners within the following strata plans: • Tekona SP70417 (6 Tasker Place) • Siskas SP75075 (11 McCabe Street) • Falcon SP62768 (9 McCabe Street) • Regent SP68156 (2 Tasker Place) • The Villas (9 Tasker Place) Note, the above buildings and Strata Plans, represent close to 300 residents which is a significant crosssection of the North Fremantle Community.

	The following submission is structured against the ten principles outlined in the Western Australian State Planning Policy 7.0 - Design of the built environment as utilised for assessment under the State Planning Policy 7.3 Residential Design Codes Volume 2 – Apartments. These documents prescribe the design quality guidance for specific types of planning and development proposals. 1. Context and Character Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place. The local context for this site is centred on the coast and heritage, coupled with the presence of the major arterial road, Stirling Highway. The design proposal pays some respect to the retention of its non-aboriginal heritage, but largely ignores aboriginal heritage and the coastal context, including the implications of the harsh and often-extreme climatic conditions. The lack of any information about Stage 2 is also a significant concern as it prevents a holistic assessment of the implications of the development including, in particular, traffic impact and pedestrian connectivity, but also wind, over shadowing and solar reflection. No meaningful information has been provided regarding the adjoining properties, including the recently approved Cornerstone development to the north. This information is essential in order to undertake a proper assessment of the full impact of the proposal. 2. Landscape Quality Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context. The landscape plan indicates that the lower plaza is 6.0m below the upper main deck and plaza. This is not a comfortable relationship given the small scale of the lower plaza. The 'design' detailing does not bring together the landscape or buildings and does not display any contextual sense of space or visual interest and appeal. For example, the planter boxes appear too small and yet too high to comfortably sit on. Additionally, there are various hard and angular surfaces and finishes that do not convey comfort or visual appeal. Many of the perspectives are unrealistic as they show large trees in shallow planter beds. They also indicate considerably more paving around the Brewery building than has been indicated in the deep's calculations. Importantly, this would further reduce the amount of available deep soil provided for tree planting on site. There is also a shortcoming in site planning and design with respect to the lack of depth of suitable soil in the upper plaza. It is also likely that a substantial proportion of the 'planting on podium' will not meet R-Codes Vol 2 'deep soil' requirements in terms of width and possibly also depth. However, there are inadequate details and/or sections to confirm this. Notwithstanding the key issue is that all of the 'true deep soil' area is in the front verge which is largely wasted in terms of meeting the Vol 2 objectives since it backs up against the highway, directly exposed to high levels of noise, heat, fumes and wind. Notably, there is an absence of any site-specific cross-sections, which are required to explain where and how much compliant 'deep soil on podium' planting is being provided and what the implications are both visually and in terms of the impact of the walls on amenity. The same are required to illustrate how the depth necessary for the pool will be achieved and the implications regarding its surrounds. Similarly, there are no fencing details which are critical when any design includes swimming pools, or other water bodies. The heavy reliance upon trailing and climbing plants on both levels, as inferred in the perspectives, is also of concern. This strategy is likely to fail in such an exposed environment and the species list does not reflect any considered allowance for this type of planting.
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The 'rivulet' at the upper level is an interesting concept but there is a high probability that it will be omitted prior to the building license stage, if not for cost reasons, then due to challenges related to safety compliance. There are large tracts of paving on the upper deck which will be exposed to the wind and sun, likely exacerbating the overall urban heat island effect and making this environment uninhabitable. 3. Built Form and Scale Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area. The elevation demonstrates the sheer bulk and scale of this development compared to what has been considered, up until now, a tolerable upper limit of development in the area. On face value, the project appears significantly over developed for the site. The maximum building height, as required in the Structure Plan, illustrates that this development does not meet reasonable expectations of 'orderly and proper planning'. Further evidence of this can be seen in the shadow diagrams in the Planning report (pages 66-68). The lack of information about Stage 2 of the development also means that these diagrams are likely to significantly understate the real impact of overshadowing on neighbouring properties. The negative impact of overshadowing will not be limited to neighbouring properties. As can be seen from the shadow diagrams during winter, most of the Lower Plaza will be in shade for most of the day in winter. This will result in a particularly cold and inhospitable environment at this time of year before even taking into account the effect of wind. The curtain wall glazing and the employment of 'wintergardens' rather than conventional balconies will do little to ameliorate the impact of wind and, in particular, downdraughts, which a more conventional residential tower archetype achieves through the 'friction provided by balconies. One impact of this development that appears to have been completely overlooked is the impact of reflection from the sun on neighbouring properties and traffic, primarily on McCabe Street. The curtain wall glazing as shown for this development will further exacerbate this problem. The 'Former Matilda Bay Brewery Structure Plan', which enshrines the allowable heights applicable to this site as per Local Planning Policy 3.11 'McCabe Street Area, North Fremantle - Height of New Buildings, has only recently been approved. As such it deserves the highest order of consideration that should be given on the 'due regard scale'. This proposal ignores the planning framework as prescribed above. Tower 1 exceeds the maximum allowable height by close to 4½ times and all of the other towers generally sit somewhere between 2 to 2½ times over their respective prescribed maximum allowable heights. No information could be found regarding the proposed density of the development. As such this important planning control is also of concern. 4. Functionality and Build Quality Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle. All traffic leaving the development exits onto McCabe Street. This is the most logical approach to traffic management, however the development documents do not appear to take into account the already approved developments in the immediate vicinity (e.g. Cornerstone and the Seral). Nor does it address the likely required upgrades to access the northern laneway, or the traffic lights, to accommodate the compound effect of the increase in traffic numbers, and the inevitable implications on queuing as well as	
vehicular, bicycle and pedestrian safety. Note, there have already been twelve traffic accidents at the Stirling Highway and McCabe Street intersection (over a 5-year period to Dec 2020). 5. Sustainability Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes. The Sustainability report is highly generic in form, containing several non-committal statements such as "the project is seeking to and achieve a minimum five star green star design and as built 31.3 self-assessed outcome". Whilst this is a promising target, it is not a firm commitment and as such cannot be attributed any real value without a firm commitment to this rating. There are multiple equally non-committal statements applying to many important issues in the report like 'proposed design strategy', 'expecting to include' and 'the design team are targeting'. It is important to understand how these claims will be evidenced and validated. One item of serious concern is that the Sustainability report only superficially notes 'the design will consider the provision of electric vehicle parking and charging facilities within the car park'. A clear societal trend is that electric vehicles are increasingly comprising a significant part of our future mobility. As such a firm commitment needs to be made up front for the supply and installation of adequate charging stations (nominally 20-25%) with provision for 100% expansion, including all necessary support infrastructure such as: transformer room sizing, supply cabling, an embedded energy network and so on. The Sustainability report also has a title 'Zero Waste', however there is no detail on how this goal will be achieved, giving little confidence in how this goal would be achieved. In summary there are no substantive commitments regarding sustainability being offered in this development. This is simply unacceptable given the community and government demands for sustainability and environmental responsibility. 6. Amenity Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy. The Wind Report states that the main pedestrian accessway on the Upper Plaza level is "likely exposed to very high wind activity that is likely unsafe for use". It is unclear if any of the recommendations in this report have been incorporated into the design as yet, or if the recommended wind tunnel testing or CFD modelling has been undertaken. Neither are apparent in the design, but their implementation would have a significant impact upon the design, quite probably requiring reassessment. No substantive reference could be found in any of the reports about the development's contribution to the Urban Heat Island effect caused by the excessive use of reflective glass, hard paved surfaces, minimal tree deep soil tree planting, nor is there any sign of any measures to ameliorate this issue. 7. Legibility Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around. The lack of ease regarding pedestrian wayfinding is a major concern with this development. As best can be determined the main pedestrian area, the upper Plaza, is sitting on an elevated podium and represents a major challenge for residents if they wished to go to the beach. It is unclear how residents would access the beach, or indeed McCabe Street, when walking – presumably through a combination of stairwells, lifts and/or egress through undercover carpark just to exit the complex then cross Stirling Highway.	

	8. Safety Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use. There is no pedestrian path along Coventry Lane on the development side and there is no exit from the site as a pedestrian on the McCabe side either. Critically, the highway nominated pedestrian crossover is 'subject to a separate submission', i.e. assume there is none. Note this stretch of highway is extremely busy most of the time and extremely pedestrian unfriendly. Yet this is where the site's main assets, the beach and ocean, lie. It is even more challenging for cyclists and elderly pedestrians. It is essential the pedestrian management and access over Stirling Highway be addressed before a development of this magnitude should be considered. The existing 45° parking arrangement in Coventry Place, which is close to the intersection with Stirling Highway, is shown as being retained on the proposed development plans. Given the significant projected increase in traffic numbers and the well understood hazards with poor sight lines when trying to reverse from 45° parking, this is unlikely to be a safe or workable solution in future. 9. Community Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction. The inclusion of a providers and co-working facilities are good measures. However, having over 2,000m² of Cafés, restaurants and tavern, appears to be excessive, particularly as this creates a large part of the carpark demand (nearly 200 of the 550 bays) which in turn is causing some of the poor interfaces and uncomfortable level changes within and beyond the site. Further, this will exacerbate the traffic management challenges highlighted previously. The Community Needs Assessment report states "there is a significant opportunity to increase permeability of the site and reduce the walk time for residents to the train station and beaches". The site planning has resulted in anything but a permeable site and it is far from pedestrian friendly. The same report also outlines "there is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialisation amongst residents". The lack of true deep soil and predominance of paving in the main upper plaza prevent this development from meeting this need. It is pleasing to see the two most prominent Matilda Bay Brewery buildings are being retained. However, a successful heritage strategy also requires a respectful attitude, both internally and externally to such heritage, and this doesn't appear to have been accomplished. Adding an extra level to the building fronting Stirling Highway and the imposing mass and bulk of the adjoining towers, coupled with the awkward interface at the ground level behind this building undermine the respectfulness of the relationship. The development application package is notably short on information with regard to exactly how the elevated levels of the car park podium will interface with the heritage building. In a similar vein, judging from the lack of information shown on any plans, little consideration seems to have been given to the interface with the already approved Cornerstone development to the north. Insufficient information has been provided to be able to accurately assess the impact of this development at this interface. However, given the presence of the elevated car parks along this boundary it is unlikely to be a neighbourly gesture. 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.
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	The architecture is disappointingly generic lacking any distinctive characteristics or genius loci - i.e. reference to site. The curtain wall glazing, and the use of 'wintergardens' rather than conventional balconies, lends it more of the appearance of a commercial tower rather than a residential building, which is inappropriate for the site, location and built form character. The perspectives as provided are somewhat seductive due to the luminescence or transparency of the towers. However, the practicalities of having to deal with the very high heat load from such a heavily glazed building will inevitably result in the need to use a heavily tinted glass type which will give the buildings an altogether different character, being far more solid and over-bearing. Some of the perspectives indicate large trees growing out of very shallow planter boxes which would probably not provide adequate structural support, given the predicted high wind speeds, let alone provide them with a sustainable volume of soil medium.
92	Scale The scale of the proposed development is, in our view, completely out of context with the character of North Fremantle and its sheer size is also out of context with respect to the existing high-density developments both completed and proposed to be built in the immediate proximity. The development overpowers the heritage structure on site which is completely contrary to the purpose of heritage preservation. From what we can determine from the elevations, even the smallest of the three towers is higher than the Siskas apartment building on McCabe Street. We understand that the height limit in the current Structure Plan is 33 metres AHD. Ground floor of the subject site is noted as RL 16.0, meaning, to comply with the Structure Plan the maximum height would be 17 metres above ground level (Stirling Hwy level) which equates to 5 to 6 levels of building height. The 3 buildings on the current proposal (Stage 1) are: - Tower 1 – RL 73.4 metres (+ parapet), being at least 56.4 metres (+ parapet) in excess of the allowed height. - Tower 2 – RL 59 metres (incl. parapet) being 42.0 metres (incl. parapet) in excess of the allowed height. - Tower 3 – RL 59 metres (incl. parapet) being 42.0 metres (incl. parapet) in excess of the allowed height. "Tower Two" is too close to Coventry Parade. With the equivalent of 7 + storeys (23.8 metres) being only 4.5 metres off the Coventry Parade boundary, this is overpowering. The developers own overshadowing diagrams show how the total height of "Tower Two", being approximately 47 metres high (14 storeys), has unacceptable overshadowing to the existing houses and buildings facing Coventry Parade. The Southeast corner of the site with "Tower Two" blocking any real attempt at an interface with the existing North Fremantle community, and also blocks access from the developments internal "Public Courtyard" out to the proposed triangular park, where the succulent nursery is located at the moment requires a considerable amount of redesign. At the very least "Tower Two" should be terraced and reduced in height and located further east while being pushed back much further than 4.5 metres from the Coventry Parade boundary. There is altogether too much commercial space i.e. 3,794 square metres of which 2,800 square metres is Tavern, Restaurant and Function Event Space. We do not believe that "barn" style drinking venues are appropriate in the middle of a residential precinct. By way of comparison, the new Gauge Road Brewery on B Shed is approximately 2,500 square metres and is licensed to hold 1,500 patrons and on its busiest days serves over 2,500 meals per day. Based on the above, it is reasonable to anticipate that the operator of the Tavern at this site, would apply for a licence to accommodate 600 to 700 patrons. This would be disastrous for the North Fremantle residential precinct and should not be permitted under any circumstances. Parking There is a gross shortage of car bays available in contrast to the 'Vehicle Parking Requirements' stipulated in the City of Fremantle Local Planning Scheme # 4.

By way of example the commercial component of the proposed development comprises:

Provedore – 807 sqm
Tavern – 1,300 sqm
Restaurant – 750 sqm
Café – 237 sqm
Function Event Space – 750 sqm
Total commercial area – 3,794 sqm

Visitor / Public Car bays Provided
107 ground floor undercroft bays
15 angled bays off Coventry Road

These bays are intended to be shared between the business and patrons of the commercial areas and residential visitors for 207 apartments.

Traffic Impact

We have reviewed the Traffic Impact Assessment study for both Stages 1 and 2.

There are many existing residents in North Fremantle that use Coventry Parade to exit right onto Stirling Highway.

Focusing on that part of North Fremantle outlined in red below, bounded by Stirling Highway, the Swan River, John Street and Coventry Parade, there is only one controlled intersection (traffic lights) enabling a right-hand turn onto Stirling Highway, which is at the Alfred Road intersection.

These traffic lights are extremely busy and generally in the peak AM and PM periods only 3 to 4 cars will be able to make the right hand turn onto Stirling Highway in a single light change. As such, many residents will use one of the only other four (4) roads that allow a right-hand turn (all being uncontrolled) at, Harvest Road, Leslie Road, Craig Street and Coventry Parade.

The Traffic Impact Assessment study concludes:

"The Stirling Highway/Coventry Parade intersection generally operates at an acceptable level of service for all scenarios with the exception of the right turning movements from Coventry Parade which is expected to experience significant delays. This is due to the high volumes of traffic along Stirling Highway as well as the lack of a central median for a staged crossing which increases the difficulty for this movement. Due to the difficulty and delays associated with this movement, it is very likely that development traffic will utilise the signals at McCabe St for right turns, which is reflected in the trip distribution. There are potential opportunities to modify this intersection to allow for a left-in-left-out and right turn in configuration in order to improve traffic operations at this intersection as well as the Stirling Highway/McCabe Street intersection. It is suggested that this be investigated as part of a wider precinct traffic assessment."

The study predicts timing delays of up to 754.6 seconds (over 12.5 minutes) in the AM period and 237.3 second (4 minutes) in the PM period for right hand turns onto Stirling Highway from Coventry Parade.

Table 6-18 Stirling Highway/Coventry Parade Intersection – Scenario 5:

Intersection Approach	AM				PM			
	DOS	Delay (s)	LOS	95% Back of Queue (m)	DOS	Delay (s)	LOS	95% Back of Queue (m)
Stirling Highway (S)	T 0.964	3.4	A	7.2	0.505	0.5	A	4.9
	R 0.964	38.1	E	7.2	0.505	53	F	4.9
Coventry Parade (E)	L 0.011	9.1	A	0.4	0.029	14.5	B	1.1
	R 1.266	754.6	F	29.3	0.659	237.3	E	13.5
Stirling Highway (N)	L 0.443	5.6	A	0	0.645	5.6	A	0
	T 0.443	0.1	A	0	0.645	0.1	A	0
All vehicles	1.266	4.6	NA	29.3	0.659	1.5	NA	13.5

Clearly this is unacceptable and perhaps, irrespective of the size and density of any proposed development on the Matilda Bay Brewery site that is approved, there will be the need to extend Thompson Road through to join with McCabe Place, thus providing access to the McCabe Street traffic lights and reducing the reliance to turn right onto Stirling Highway at uncontrolled intersections.

Amenity

The Wind Report states that the main pedestrian accessway on the Upper Plaza level is 'likely exposed to very high wind activity that is likely unsafe for use'. It is unclear if any of the recommendations in this report have been incorporated into the design as yet, or, if the recommended wind tunnel testing or CFO modelling has been undertaken. Neither are apparent but their implementation could have significant impact upon the design.

Legibility

We don't believe that the design is well connected, and the pedestrian pathways are ill defined.

Community A Provedore and co-working facilities are good inclusions, however, as mentioned above, we do not believe that a "barn style" drinking venue, 2 large Restaurants (at 350 square metres each) and a very large Function Centre are appropriate uses in the middle of a residential precinct.

The Community Needs Assessment report states that "There is a significant opportunity to increase permeability of the site and reduce the walk time for residents to the train station and beaches." The site planning has resulted in anything but a permeable site and it is far from pedestrian friendly. This same report states that "There is a gap in the provision of smaller, more passive greenspaces that can facilitate higher levels of socialization amongst residents."

It is good that the two most prominent Matilda Bay Brewery buildings are being retained and improved.

Aesthetics

This topic is purely subjective and, in our view, not worthy of comment. State Planning Policy 7.0 Assessment

Looking at the proposed development in contrast with the State Planning Policy 7.0, we provide the following assessment / rating:

6. POLICY OUTCOMES

In the context of State Planning Policy 7.0 Design of the Built Environment (WAPC, 2019) SPP 7.0 Design

Principles, the outcomes listed below specify the role of planning and development in contributing to the overall objectives of this policy. The outcomes can be achieved through addressing the policy measures and meeting the objectives in the Precinct Design Guidelines. They can be used to guide discretion in policy application and provide a basis for its evaluation.

[illegible]

Finally, we would like to state that it appears somewhat futile to review and comment on Stage 1, in the absence of any plans / design parameters or direction from the City of Fremantle with respect to Stage 2.

Surely the density issues and traffic problems are only going to be exacerbated.

Add to this what high-density projects already exists in the area, such as, Taskers and the now approved Serai project at 19 – 21 McCabe Street and, what is likely to be developed on the former One Steel site ("One McCabe") on the opposite corner of McCabe Street and Stirling Highway. It appears a certainty that what was once a beautiful mixed-use precinct, will be permanently desecrated.

If all of these developments proceed as currently proposed, the population of the precinct will explode by 50%, yet there are no proposed upgrades to roads, traffic controls, parking and only limited additional public open spaces and general amenity for existing residents.

In summary, it is not the aesthetic of the proposed development that we are objecting to, it is the size, scale and likely substantial negative impacts of the development on the existing community in North Fremantle.

93	(x) and I are owners and residents of an apartment in the Falcon building on McCabe Street.
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When we were deciding where to buy a home to begin our lives together, there was no question that we would always live at Lighthouse Beach in North Fremantle. The respect that the development in this area has for the historical residences, heritage significance, and maintenance of the quiet ocean-side lifestyle were significant incentives to purchasing a home here. We are young professionals with a forward-looking perspective on the development of the greater Fremantle area, knowing that North Fremantle will become a valuable residential precinct supporting the rejuvenation of the historic Fremantle Port and City Centre. Notwithstanding, we believe the proposed development is of a scale that completely contradicts the direction of the local planning and development strategy, and the character and amenity of the residential precincts at North Fremantle. We are fundamentally opposed to development which doubles the building height limit and would forever impact the overall aspect of the Perth coastline.

The Applicant has provided a detailed report within the proposal which reviews the anticipated community benefits and risk assessments that have been undertaken thus far. Although significant work has been done by the Applicant, there are concerning gaps in their assessment which should be given due consideration.

Compliance with Existing Structure Plan

The planmaker who then references the process to acquire the property and the approval of the structure plan including consultation with the city of Fremantle. The precinct design, however, does not make any consideration to the height limits clearly defined in the structure plan and only references that the proposed footprint is compliant mostly in the R160 zoning area. The Applicant's reasoning for exceeding the height limit is that the building is a 'special building' and that the City of Fremantle McCabe Street. Using this previous development approval as justification for a building of double the height is drawing an unrealistic correlation. The inference that a development compliant with the structure plan would be inherently boxier is a statement made only to support the significant height increase. The inference is based on an architectural design which would meet the other requirements of the structure plan.

[View Analysis](#)

The views assessment conducted by the Applicant is not particularly thorough and disregards the obstruction that will impact many residents in adjacent properties along McCabe and Thompson Streets. The justification for the obstruction seems to lean heavily on the ambiguity of the statement that "views of water" are valued higher than "views of land", indicating that the lack of obstruction of views of Swan River justifies the massive obstruction to ocean views.

Site Assessment – Contamination, Groundwater, Geotechnical

Insufficient investigation has been conducted into potential for contamination from previous land uses, especially given the potential excavation required to build the parking structure. References to the impact of groundwater movement are entirely conceptual and indicate a lack of assessment on the underlying geology. Geotechnical considerations are also missing, which are necessary to evaluate the magnitude of the construction impact on the vibration transfer to eastern properties through the immediate bedrock.

Parking and Traffic

The Applicant's car parking proposal is misleading and relies heavily on bays which are shared between the commercial and residential use through a vague reciprocal arrangement. This is likely to result in spill-over onto current side roads which already experience over-crowding of parked vehicles. Over-reliance on groups visiting the commercial areas using ride-share or carpooling is not a plan, it is a hope.

	The applicant refers to "kiss and ride" bays several times in this proposal. Simply terming these "drop-off bays" would be much more appropriate language, and these bays would not alleviate enough parking requirement to justify the significant shortfall in designated bays. The traffic assessment indicates that the southern access will be an entry only to prevent vehicles from using the private access as a thoroughfare, but this will likely still occur from the south with traffic avoiding the difficult right turn onto Stirling Highway and driving south to north to utilise the traffic lights on McCabe. If the intent for the McCabe/Stirling precinct is to develop Stage 1 and 2 at 130 Stirling Highway and the towers proposed for 1 McCabe, this would essentially increase the population of North Fremantle by another 50%. This increase would be unsupportable without significant upgrade works to Stirling Highway, the McCabe Street intersection, and the pedestrian access through the area. The community needs assessment also notes that there is a predicted increase in population of residents over 55 years old. This population generally holds a consistent view on the overall development of the North Fremantle area and a negative opinion on development of high-rise buildings, which should be adequately considered. Alternative Development Opportunities and Community Benefits The developer states that their core intent is to improve the public realm in the area, however the connectivity they describe is only between two residential roadways. There remains the hard border of Stirling Highway which is not suitable for significant pedestrian traffic and its upgrade is not mentioned here. Although this development takes advantage of the urban corridor provided by Stirling Highway, it also should meet the aesthetic of the Greater Perth coastline. There is ample opportunity along the Stirling Highway corridor inland from the coast for high-density developments which suit the surrounding suburbs and have better access to public transport closer to the city. Under the Perth and Peel Planning Framework to meet the demands of a population of 3.5 million, consideration should be taken to preservation of the unique coastal landscape that Perth has managed to maintain through limiting construction of high-rise buildings. The overall height of buildings along the coast respects their proximity to the ocean by not towering over, but allowing the natural topography of the city to provide clear unencumbered views to so many of its residents. The uniqueness of Perth's low-lying coastal building structure would be irreparably diminished by construction of the proposed high-rise buildings. An obvious example of this is at Scarborough Beach where one high-rise stands out in unsightly juxtaposition with the rest of the development along the coast. There is no question that development of the 130 Stirling Highway site could bring significant community benefits to North Fremantle, however this can be done without such a drastic change to the Perth coastline and the residential profile of the area. A residential development of more modest height, respecting the current residents and planning strategy of the surrounding area would be much more fitting and could still provide many of the proposed community benefits. The addition of cafes, a providore, and perhaps a park managed by the City would provide a most welcome community uplift to North Fremantle. We appreciate your consideration of this submission when assessing the proposed development of 130 Stirling Highway, North Fremantle.
94	There should not be vehicle access from Thompson Road. The extra traffic generated by the large commercial space, the restaurant, and the bar cannot be safely managed by the local roads. It would be better to have a pleasant pedestrian avenue where Thompson Road comes to an end at the South East corner of the Ford Factory site. To do this Tower two needs to be set back allowing the whole of the factory glass facade to remain. This way the local roads can cope and there would be an open view of the old factory. Local residents could easily access amenities this way so it would feel like part of the community.

	The excessively high Tower Two will result in serious overshadowing of properties at the corner of Thompson Road and Coventry Parade. It will also result in the loss of part of the Ford Factory glazing that is so much part of our North Fremantle Heritage. These issues could be addressed by moving the block back and having some much-needed green space in front of it. The tower is also far too high. The provision of parking needs to be re-examined. If the idea is that people traveling along Stirling Highway will use the commercial areas there needs to be somewhere for them to easily park. Similarly, the restaurant and bar need parking. Yes people should use public transport but the reality is they don't.
95	Please find enclosed my submission regarding the above Development Application, and note that I do NOT support the application. I refer to the State Planning Policy 7.0 and my comments supporting my opposition to this development. Context and Character Whilst I would expect any residential development on the site to be of a modern nature, I struggle to see how the proposed building physically relates to any part of the North Fremantle area, let alone the existing Matilda Bay Brewery Building. The development really looks like something one would expect to find at the Elizabeth Quay site or in Singapore. There is also absolutely no link with the heritage building apart from the physical location. It is obscene that the developers could make a statement that "quote": "That is, the heritage buildings remain the focal point of the development, with the setback of the towers generally not visible at the street level." They cannot possibly expect anyone to believe this statement as the proposed building absolutely will dominate the site and dwarf the existing heritage building and to suggest that this mitigates the additional height proposed for the towers is simply not acceptable and should not be allowed. I also note that there are no plans provided for the Stage 2 and this is a great concern as it does not allow for the proper assessment of this development in FULL comparison to all surrounding buildings particularly in relation to the volume of traffic emanating from the developments and the impact on infrastructure, as well as wind, over shadowing and just as important the solar reflections from this development as well as anything proposed for Stage 2. Their proposed changes to the heritage building do not enhance the existing building in any way and I would hope the Council can see this. Too often, and time and time again Developers make such statements in their proposals which when approved we see the overall destruction of the very building that is part of the history of the area and unfortunately this is what will happen to the heritage building if this proposal is approved. There are numerous examples of such destruction to heritage buildings around the city made to appease developers. (eg: 64 High Street Fremantle: the tin Shack built a lot this building is one that comes to mind). The proposed second level over the heritage building will in effect destroy the feel of the building and will give the appearance of an umbrella being built over the building and is extremely disrespectful to the original building. This proposal for an additional 350m2 is not justified considering the amount of commercial/hospitality/retail space proposed and would be a recipe for disaster for the hospitality business going into this space. I do not believe that the developer's reasoning, as quoted below are justification for their request for approval to approve the height requirements need for their development. "As such, the provisions of Clause 12 of Schedule 2, Part 3 of the Planning and Development (Local Planning Schemes) Regulations 2015 is relevant, which states: 12. Variations to local planning scheme provisions for heritage purposes (1) The local government may vary any site or development requirement specified in this Scheme to – (a) facilitate the built heritage conservation of a place entered into the Register of Places under the Heritage of Western Australia Act 1990 or listed in the heritage list; or (b) enhance or preserve heritage values in a heritage area. As the development seeks to enhance and preserve the heritage values of the area, through restoration of the existing heritage buildings for public use, it is considered a variation to the applicable building height requirements is justified, given the demonstrable broader community benefit." The height Policy for this site is a maximum of 33 metres from the existing ground level and there is no justification to have this varied. I would implore the Assessment Panel NOT to approve any request to increase this height provision. I believe the proposed development would be a R160 code which is far too dense for the area and a code of R80 would be more reasonable for the area. Landscape Quality

I am disappointed with the landscaping proposed for the development and believe it does not provide for sufficient deep soil planting. The drawings show shallow planter boxes with large trees which is unrealistic and leads to the point I reiterate from above, that there is not sufficient deep soil planting. The majority of the Public Open Space appears to be hard surface concrete and this does not encourage use and I feel is insensitive to the area. There are large tracts of paved areas on the upper deck which will have direct exposure to the elements (sun, wind and rain) and the lack of any true deep soil green canopy will not make these areas pleasant to be in and virtually uninhabitable during high summer and winter. I don't believe the planting on the Podium would meet the R-Codes "deep soil" requirements. I am also not convinced that the trailing and climbing plants proposed within perspectives will work. I have never seen this type of planting work on developments and it proves even further that an adequate landscaping Plan is deficient in this proposal. The plans are difficult to read at times and I can not determine whether there is deep soil planting along the southern aspect, ie Coventry Parade, but this does not take away the point that this type of planting should be a not negotiable throughout the podium areas. The Arbor 4.5.3 speaks of a constant shaded structure lined with trees and rivulet. Referencing again deep root soil planting, I don't see how their plan can work and through the Matilda Square area without proper provision for the aforementioned. Of particular concern is the proposed "rivulet" at the upper level. Any waterway would need to meet safety compliance and it will very likely be omitted. Built Form and Scale The Development Application talks about emerging multi-residential developments and clearly hopes to capitalise on this point for all the wrong reasons. The sheer bulk and scale of this development really does indicate that it will be a significant over development of this site. As mentioned earlier Policy dictates that one tower of 10 storeys (33 metres) is what is required on this site. History has shown that gross deviation from these guidelines sets a dangerous precedence for future high rise and unsympathetic developments and if the DAP approves this proposal, we will see each additional development stretch the boundaries and guidelines for the area. I find it disconcerting that no plans are available for the Stage 2 as this means the existing diagrams are more than likely to understate the significance of overshadowing on the surrounding properties along with this development. For example, most of the Lower Plaza would be in shade for the majority of the day during winter, which along with the wind flowing through this area will create a cold and unwelcoming environment. Another serious point is the reflection from the sun on the neighbouring properties and just as importantly the traffic using McCabe Street and Stirling Highway. The sheer scale of the development will result in a large wind down wash throughout the development along with a wind channel effect between the towers and surrounding properties. I don't believe the strategies mentioned would realistically be sufficient to ameliorate this problem. Functionality and Build Quality Perhaps one of the most important and yet disconcerting aspects of the development is that the sheer scale will result in a large volume of vehicular traffic exiting via McCabe Street, along with to my understand entry to the development, then the additional entry via the Thompson Rd/McCabe Place extension. Firstly, the Development Assessment has not taken into account the existing approved developments (Cornerstone and Seral) in the immediate vicinity or the Stage 2 development. Any assessment must consider these developments. There are 207 units proposed within this development and it is not unreasonable to expect at least that number of vehicles moving in and out of this development twice daily. There is of course the other concern that with the extension of McCabe Place into Thompson Road to allow for vehicular flow into the development, this will most definitely result in increase traffic flow along Thompson Road from Alfred Road Traffic lights, along with the other roads linking Stirling Highway to Thompson Road. Obviously this will create problems with traffic movement within this area ie speeding vehicles and congestion. There are a lot of families with small children living in the area and some of those children do play in the street, so this will be a recipe for disaster along with the danger posed to cyclists and pedestrians. I witness a lot of vehicles on a daily basis not respecting the speed limits along these streets, increasing the traffic flow along with the frustration of residents not being able to quickly access the development will lead to an accident. The Council has already advised that Main Roads are not proposing any upgrade of the Stirling Highway/McCabe Street intersection in the near
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future, so with the traffic expected from this development along with Stage 2 and the approved developments not yet constructed, vehicular traffic will be a problem. It is a problem that this development does NOT address. The Application also mentions that 56% of the site being dedicate to publicly accessible open space, unfortunately virtually all this space is concrete. Not what I would call inviting, when we have beaches, parks, foreshore and the river in walking distance and much more inviting and enjoyable. Sustainability Whilst there are some good points detailed in " 6.3. SUSTAINABILITY ASSESSMENT" Page 76 of Application for Development Approval, it is only a generic form, what real guarantee do we have that these points will met or even that the developers will follow through on these points. A lot of the time these statements are made, then as construction progresses, the developer will cast them aside to cut costs and improve profit. For example the issue of Electric vehicles is an important one in today's world and a total commitment to setting up charging stations really should be a non negotiable for this type of development. I also find it interesting that a "Zero Waste" and their statement "75%+ Recycling in operation" is interesting and I haven't been able to find out how this will be achieved. These statements really sound like a politician's promise and in today's world with so much emphasis on recycling and other environmental issues I would expect an absolute commitment and concrete plan be attached to achieve them. Amenity I am concerned about the overall effect the "Urban Heat Effect" will have on this development. There is an extensive use of reflective glass within the development and my comments under "Built Form and Scale are also pertinent here along with the extensive use of hard paved surface for the Public Space and Resident's access space. There is minimal true deep soil planting on this development. This development does not present as being environmentally sympathetic and will be susceptible to extremes in weather. The wind issue is also of major concern around the main pedestrian access way on the Upper Plaza Level and it is unclear any recommendations within The Wind Report will be or have been implemented. It is concerning that these reports are enclosed within the application but no evidence of their inclusion within the design. Can these not be included as a part of any DAP Assessment? Legibility Whilst site lines between the ocean and the river appear to allow for panoramic views from and for the apartments, the overall pedestrian plan for the development really appears to be disjointed with the different podium levels and stair access ways. It simply does not flow. It appears some of this relates to the developer wanting to in effect raise the base level of the apartments across the whole development instead of using the actual ground level as the start level for each tower. They appear to want every level to have a panoramic ocean or river view, whilst good in principle, it means that the actual height and number of storeys for the towers are greater than what is quoted within the plans eg the Tower 2 whilst proposed at 11 storeys is in effect 14 storeys I believe. Negotiating a 6m flight of stairs to move to different areas within the open areas of the development is not to be considered "easy access". Safety This development is not what would be called pedestrian friendly and it is not an area that would attract people to walk around. All areas are hard surface and the majority are not under a green cover. It is disappointing that the Developer constantly mentions that 66% is dedicated to publicly accessible open space, however as I mentioned before these areas are basically hard surfaces. The plans mention CCTV coverage but that does really provide immediate safety and in all seriousness the development would only be frequented to residents or public attending specific hospitality areas. There are no areas that would attract the public for a "Sunday Walk". All pedestrian access appears to be via the Stirling Highway entrance unless they are dropped off via the McCabe Place entrance via vehicle ie Uber, taxi. There also does not appear to be a pedestrian pathway along Coventry Parade.

	Then of course any pedestrians requiring access to the beach need to negotiate the traffic lights at McCabe Street, or walk along Stirling Highway almost to the North Fremantle train station and the cross at the recently installed traffic light pedestrian crossover. There are no plans from the City of Fremantle or Main Roads to build a pedestrian Bridge across Stirling Highway. This is not a safe situation and would present more of a challenge to the elderly, very young or disabled persons. Community It is pleasing to see that there is provision/inclusion for a Provedore to meet the needs of Tower residents. There is a rather excessive amount of area dedicated to Cafes, restaurants and Taverns. Especially considering there is insufficient allocation for parking for these facilities. These areas really need to be reduced as I can honestly see that the tenancies will be short lived from poor patronage. It is not what anyone would consider a "hub". Pedestrian access to the development is poor as is access around the "public access" areas. It is interesting that the Community Needs Assessment report talks about "A significant opportunity to increase permeability of the site and reduce the walk time for the residents to the train station and beaches". The site is far from permeable and this statement in no way reflects this idea for beach or train station access. This same report also states "There is a gap in the provision of smaller, more passive green spaces that can facilitate Higher levels of socialisation amongst residents". The complete lack of deep soil planting and the predominance of hard course paving in the Plaza truly contradict this comment. Our historical centre of North Fremantle really does provide a better entertainment area. It is pleasing but very important that the heritage Matilda Bay buildings are retained, but they should not be altered, internally or externally, that is the true reflection of a successful heritage plan. The addition of the extra level to this building fronting Stirling Highway, and the sheer mass and bulk of the proposed towers along with the disjointed ground level hard areas behind the heritage buildings seriously detract the relationship between the old and the new. Aesthetics The proposed towers really do not relate in any way to the existing landscape. They are simply three apartment towers dropped onto a small site. The lack of any conventional balconies has in effect given an air of an office building or hotel complex, thus contributing to any lack of link to the ocean or river. The proposed towers will be subject to extremes in heat and sun and would require heavily tinted glass which will contribute to the reflection and glare issues I have mentioned earlier. I would have expected a design more sympathetic to the site and the North Fremantle area and totally disagree with the developers statement that "The design creates a vibrant and sustainable living community for all ages village that enhances the community and revitalises the historic gateway into North Fremantle." I really don't believe it achieves any of these ideas. A smaller more sympathetic design would achieve greater results as well as a greater sense of community
96	This proposed development has the potential to impact on the local amenity in a significantly negative way. Site planning is the key to success for any development such as this and it significantly fails in this requirement, as it is a very car orientated development with poor pedestrian connection and amenity, local streets will be impacted and the height of the towers will have a negative impact on the surrounding community. - Next to no consultation with the local community is poor practice and develops a sense of mistrust. Disappointingly we first heard of the Development Application proposal with a very small window of opportunity to comment 1. Height Limits What is proposed in Tower 1 is a height of 80 m (16 stories plus 2 car decks in the podium), with a second tower of 47.5 m. This proposed development is nearly double the existing height limits and is totally unacceptable. Current Planning limits allow for view corridors across a number of zones, the highest zone permits a tower of 33m from the existing ground level, with a second tower of 25m. The proposed development is nearly double that of existing height limits and is totally unacceptable. North Fremantle has existing areas of R60 - R80, such as North bank which is acceptable.

	The proposed development is based on R160 which is at odds with all other areas of North Fremantle. This development does not fit in any way within existing R codes. 2. Heritage The addition of a second floor for commercial use in the heritage building facing Stirling Highway is unnecessary and very disrespectful to the original heritage building especially when combined with the demolition of a section of the heritage building along Coventry Parade. The addition of a second level in the building along Coventry Parade is also disrespectful, and unnecessary given the large commercial spaces already available. There are inadequate setbacks for planned buildings from the heritage building. Buildings on the south side should be moved further east. 3. Parking In the plans the parking provisions for personnel and patrons for the commercial areas of the development are totally inadequate; 122 parking bays have been provided VET 349 are required under the planning guidelines. This lack of parking for the commercial sites will contribute to more cars parked along Thompson Rd and the surrounding streets adding further congestion to already busy and congested area which will severely impact current residents. There is an assumption (guess) that only 10% residents will use the southern entrance to the carpark from Coventry Parade. Visitors from the south to the commercial area are likely to seek parking from the south side of the development; if arriving along Stirling Highway they will face a right hand turn across the highway into Coventry Parade - a very difficult crossing during most times of the day, therefore many will attempt to approach the commercial area by driving north on Thompson Road which is a narrow road with a lot of local car movements and pedestrians, including children who live along that road. 4. Traffic While Stage 1 is currently under discussion it needs to be considered in the context of the whole area, i.e., Stage 1 and 2 as well as the adjacent OneSteel site. The cumulative impact of these areas of development, on current indications include approx. 500 accommodation units in Stages 1 and 2, and about 180 - 200 units on the OneSteel site which means about 1400 people in that area. The population of North Fremantle is currently about 3,500 people, so it means a massive 50% increase in population centered in one relatively small area, with traffic movement centered on adjacent streets and intersections that would not be able to handle such a massive growth either safely or efficiently. Not to mention impacting severely on the amenity of current residents. There is a basic need to review the whole traffic plan for Stirling Highway/McCabe Street intersection and adjacent streets before this development is even considered. Cars can enter the carpark from the Coventry Parade entry and drive through to exit on to McCabe Street. This has the potential to be a major throughfare, with Thompson Road being used as the entry point, again impacting on an already busy congested road. There is no indication of traffic arrangements at the corner of Thompson Road and Coventry Parade, a truncated road, which has the potential to be a dangerous intersection. 5. Interface with local community The heights on the plans are based on ground levels on McCabe Street, which is many meters higher than the ground levels on the Coventry Parade side. As a result, the podium over the carparks reveals a wall of eleven meters, with 2 sets of stairs to enter the development from Coventry Parade. And above it a stark wall of a building of many stories immediately facing those approaching from the south. This lacks connectivity with the local community. There needs to be setbacks from the building line, or at least stepped development of a building of significantly reduced height. There is no footpath along the north side of Coventry Parade. Visitors to the commercial area will be forced to walk along Coventry Parade that will have a much greater volume of traffic. As nearby residents, we might welcome small hospitality spaces, but the massive areas designated in the plans are unwelcome as they will result in so many negative externalities on our amenity. Preference should be given to smaller community based facilities which will benefit the local neighbourhood. 6. Overshadowing There is a lack of detail on the impact of overshadowing on current residents both to the south, and to the east and as a result there are many residences which will be affected. The developers must provide models that show clearly overshadowing for all times of the year, and day. 7. Landscape and Environment The plaza area is mainly concrete which will be extremely hot in summer. Most of the open space is listed to be in Stage 2; there are no assurances that this will ever eventuate. There appears to be no connection between the development and the local area and the nearby ocean, and the coastal climate.
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97	If, I have been a resident in North Fremantle for 25 years and am utterly appalled by the mammoth development proposed by 3 Oceans at the old Matilda Bay Brewery site. The development is far too big. The building heights are ridiculous and will have a severe impact on existing low level dwellings on the south side creating shadows and impacting the privacy of yards. Currently the north ward has about 2 and a half thousand residents. When this project and all its stages are complete it will add another 1400 residents to the area. That is totally preposterous! And the support for them will be a massive tavern and an expensive pantry goods store? What genius came up with that? How about a small IGA? Then there's the traffic problems it will create. Even the first few hundred residents expected with the completion of stage one alone will create a diabolical situation on Stirling Hwy with all the extra traffic. Everyone in the Western Suburbs already curses the drive through Claremont at peak hour.. we will be creating the same issue in North Fremantle. The other issue will be the rat runs people then make through suburban streets to avoid the chock a block highway. Rat runs in North Fremantle are dangerous due to the street parking situation on often narrow streets. There is also little consideration (beyond tokenism) in the design given to connectivity to the surrounding neighbourhood. The elevation at Coventry Parade and a wall with steps up to the precinct make it seem very closed off in the plans. The podium element of the design doesn't help either. The public green space looks like it's mostly concrete paths with planter boxes. What about deep rooted greenery? 3 Oceans says on its website the development will create a new civic heart. I am not sure how massive towers of posh flats with a huge upmarket drinking barn does that but I guess it depends on where you have lived in life. That intention does say it all though.. a new civic heart.. it says we don't care about the existing civic heart of North Fremantle. We don't care about contributing to the existing heart of North Fremantle. We will just create our own enclave.. living in a bubble called the Assembly.
98	1. Objections: Height Limits Current Planning limits were based on a holistic view of the development of the total area, including both the Matilda Bay Stage 1 and 2, as well as the adjacent Onestep site. These limits allow for view corridors across a number of zones, the highest zone permits a tower of 33m from the existing ground level, with a second tower of 25m, others vary from 17m to 20m. What is Proposed in Tower 1 is a height of 64m (16 stories plus 2 car decks in the podium) and in position north of the highest zone above, with a second tower of 47.5 m. This proposed development does not come anyway near to existing height limits. Issues of overlooking, privacy and shadowing of neighbouring properties must be considered. From the windows of apartments at higher levels people will clearly see into the backyards of most properties in the Rocky Bay area, and the residences in Pamment Street and adjacent Thompson Road. 2. Objections: Impact on Traffic, Parking and Safety Again the impact of traffic, parking and safety must be considered in the potential development of the whole area – not just the Stage 1 of Matilda Bay. Parking and traffic congestion with such a large development would be horrendous – parking is already at a premium in the local streets, and access to Stirling Highway difficult. If the development ends up with over 1000 additional people in the area, this brings along a major increase in vehicles in the area. If Thompson Road is again open to McCabe street, the once peaceful Thompson Road will become a raceway – with a substantial decrease in safety to nearby residents. There is an essential basic need to review the whole traffic plan for Stirling Highway/McCabe Street intersection and adjacent streets before this development is even considered. Parking provisions for personnel and patrons for the commercial areas of the development are totally inadequate; 122 bays provided, while 349 are required under the planning guidelines. 3. Objection: Commercial Development The proposed commercial development of the project has the potential to impact the greater Fremantle area. At a time when small business is struggling, another large "cappuccino" strip at Matilda Bay would negatively impact the Fremantle businesses. It also comes at a time when the Fremantle council is trying to redevelop Fremantle as a viable tourist and commercial centre. A few small cafes and restaurants would be more in keeping for the residential needs. Further, the proposed commercial development will negatively impact the immediate residential area with respect to additional visitors to the area, again compounding the traffic, parking and safety issues that already exist in the area. 4. Objection: Landscape and Environment

	As proposed, the plaza area is mainly concrete which will be extremely hot in summer, with little open space of natural greenery (a few pot plants do not count). Additionally most of the open space is listed to be in a possible future Stage 2 which may not eventuate. More open space and natural greenery should be designated in Stage 1. There appears to be no connection between the development and the local area and the nearby beautiful ocean, and the coastal climate. 4. Objection: Heritage Current proposal makes a joke of the heritage value of the Matilda Bay/Ford Factory building. It completely overpowers and devalues its heritage importance. Heritage sites around the world are made into significant buildings ranging from Museums, Art Galleries to places of respect and history. The overall project appears to be driven by maximum money return to the developers, with little importance placed on the needs and requirements of the current and future residents of the area.
99	We strongly oppose the development in its current form. By way of general comment, current planning guidance for the site (DG18 and LP3.11) resulted from extensive community consultation and was a lengthy and time consuming process for the North Fremantle community. The current proposal ignores much of what was developed and is disappointing in the extent to which it seeks concessions while providing no benefit to either the local community or the many West Australians that utilise this area of the coast and road network. The areas listed below are of particular concern. Height - The policy for the site has a maximum of 33 metres from existing ground level but the tallest building proposed is 64 metres; this is almost twice that allowed in the policy. All the other towers proposed exceed the height limits set in the policy. - The policy also dictates placement of blocks to preserve view lines, these have been ignored by the developers. While there has been one new building built along McCabe St since guidance was developed (the Siskas building on McCabe St on the eastern edge of the Taskers' development) and one has received approval (the Seral, to the east of Siskas, yet to be commenced) these sites do not impact the considerations behind the view corridors and they should be preserved. Overshadowing - The proposed towers will significantly overshadow residential areas to the east and south. Further modelling is required but even on the document submitted, the overshadowing is excessive and will severely impact those residents. Traffic: - The traffic impacts require more information. - While the impact of the proposed development on McCabe St is reasonably well understood, this is not the case with Thompson Rd. Thompson Rd is already under real traffic stress and is not capable of "dispensing" traffic from the development. - Thompson Rd would be further affected by the use of service vehicles into the southern side of the development via Coventry Rd. - We understand that the Council will be undertaking a traffic survey to inform their response to the development. The study needs to consider the full length of Thompson Rd ie below the Craig St intersection, as the real impact of the development will be felt along the whole route in and out of the suburb. Heritage.

	• The former Ford Factory is a landmark building, strongly associated with the character of North Fremantle similar in significance to Dingo Flour and forms part of the visual Leighton coastline. The current design does not respect the site's Heritage and the placement of a second floor on top of the former Ford Factory building is particularly offensive. It distorts the building and should be avoided or reconsidered at the very least. Access and Connection • As configured, the site will rely largely on access via car. Public transport routes are not available to the extent claimed: the Stirling Highway buses are not regular or route orientated enough to be widely patronised; the North Fremantle train station is actually some distance away and difficult to walk to; footpaths are minimal and dangerous (non-existent down the lower end of McCabe St); while cycling either on McCabe St or near the site is also extremely dangerous due to no separation between pedestrians, cycles and vehicles. • The three story podium on the southern side is both a physical and visual barrier, and disconnects the site from the majority of North Fremantle. Viewed from the south, the development will dominate the local landscape. Public Amenity • Generally the application provides little public amenity. • It is difficult to see how the public spaces would actually work: the location is very exposed to the elements and there is nothing in the plan that realistically addresses this. While the landscaping pictures are nice, they don't bear a great deal of resemblance to anything that might be put there, eg shady trees are shown but could not be grown on the site as developed, there is water and streams but no safety barriers, people are shown strolling around somehow without being wind blasted (?) • The concept of a Tavern is inconsistent with the character of the local area. A small bar would be more than sufficient and better suit the North Fremantle lifestyle. Similarly the model of cafe/small providore has done well in North Fremantle and would be more suitable than the proposed large "Providore". The idea that a large tavern and providore on an isolated commercial site with limited public access that is surrounded by high rise residential would somehow translate into a destination for either locals or visitors is optimistic at best. • The area is however in need of a supermarket and this could be met by a (small) IGA and would be well patronised by local residents. Finally, while this application relates only to the Matilda Bay site, it cannot be considered without reference to the planned Serai development and the expected development on the One Steel site. These developments will add almost as many people into North Fremantle as the current population and have a significant impact on traffic, environment and character of the area. Taken as a whole, the Council needs to reexamine the current zoning and consider reduction to a more people friendly R80 instead of the current R160 for any future development. While outside the scope of current submissions, this is particularly true of the future of Port Beach area where development occurring on the scale being experienced here would have long lasting and negative impacts.
100	Identical submission to No. 98
101	Hi Freo Panning, felt physically ill after last Saturday info session @ Nth Freo Community Hall- there is no North Freo character or design feature to recommend massively overbuilt site with multiple towers. Looks more like a badly designed Las Vegas convention centre, was difficult to see the human scale homes for people to grow, learn, interact, have families, grow old- most horrifying was the absence of one natural 'garden' feature, particularly the complete absence of any soft landscaping with no deep rooting zone for trees; nowhere for even resident to interact with environment or nature. Biophilic minimum requirements, where conserved watering turns the entire building into cooling local feature should be mandatory; Im horrified that the 'public open spaces' have been subsumed into site-internal alleyways to separate massively over size & overheight towers. Without biophilic planting requirement he additional heat in climate change heating summers will raise temperature in this suburb in heatwaves; how does that 'return to the community'? North Fremantles' observation city looming. No loss of winter daylight to local residences. Every dwelling losing any privacy amenity needs adequate consideration & financial compensation both to physically redress with trees & built/ garden structures as well as loss of property value - a standard survey/measure carried & administered by city of Fremantle to address each amenity & property value loss, paid by developer ie loss of amenity value increases with every storey. Don't overshadow morning sun on our beaches.

	REMOVE the 3storey podium of car parks, RETAIN natural ground levels with no site level raised from highest point over entire area. Coventry Parade is not overflow amenity for developer. Royal George Freo originally massive tower planned for car-stacker in multiple storey car park. Calculate person& vehicle traffic flow & reduce with train. Similar LIV apartments gave 3yrs Leisure centre membership with each apartment Freo make tower developers include 10year smart rider with each bedroom Maintained grassed areas, even as new Freo City centre maintains grassed ramp up to new civic centre, giving disabled/ pram public access from natural Coventry parade ground levels the entire length of Coventry parade to create completely pedestrian penetrable accessible boundary to all North Fremantle. NO CLIFF-FACE PEDESTAL NO STAIRWELLS TO ACCESS SITE from Nth Freo. Carbon neutral oandinternational liveability certification to apply to all towers- I want to know these towers are not destroying our lives, beautiful beach environment & future liveability. Does tower provide secure undercover bicycle storage per bedroom? I have bike & deadlly treadle need two bike parks per bedroom- is developer sponsoring bike shop/ hire as well as alcohol? How can we encourage/ mandate liveability& environment? Current cliff face boundary completely cuts off suburb from glass mountains, not acceptable. Green engineer towers like the 'second Dubai' to cool itself. Mandate universal design for entire site; my father too frightened to live above ground in his old age due to repeated lift breakdown/ power failures trapping him in previous Sydney apartments. Natural ground level grasses park area with mandated tree/ childrens play area requirement. How will triple towers function for residents if increased heatwaves & pandemics become the norm? What happens in increased massive downpours or cyclonic rain falls moving south? Is there water catchment/preservation plans for flooding? Is our suburb future-proofed? Require Matilda Bay & One steel sit developers each to pay half of Leighton beach rail station reinstatement, that would really be giving back to the community by offsetting the massive traffic accompanying 'luxury' towers with 20% population increase for North Fremantle. Previously considered drainage sumps like Buckland hill will become massively more valuable as recreational parkland; require developers to invest park infrastructure & maintenance. North Freo is noticeably more full of residents since covid, everyone has a dog- where do all these residents walk their toy poodles? I saw a woman in central Paris 5 toy poodles using large grassed road reserve to run dogs; even road reserves become valuable in densely populated areas. Consent on each apartment title to permanently restrict cars ratio to bedrooms, with no shared car park bay allowance for what looks like massive beer barn/ 'venues' NOTAVERN - keep human scale by including multiple small venues eg licensed cafes not entertainment centre/casino complex. Really enjoy how Sydney eastern beach suburbs have density but retained the undulating lie of the land by restricting to 3 stories up to 5 on main roads. Want to keep sense of valley drops below escarpments and ridges
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	Dmg put some trees landscaping in there: give up genuine deep rooted vegetated public open space. Walking Cyprus hill river cliffs- used to live there- I miss what used to be a gentling eye-glance of calming natural landscape silhouette in the public hiking views - can we not turn into Hong Kong? How is this & one steel tower developments designed to fit into natural landscape, local community, or Leighton peninsula plan? So disappointed with what could have been an exciting green addition to our suburb & not just towering inferno...
102	I wish to raise the following concerns about the proposed development at the Matilda Bay Brewery site 1) Overshadowing The proposed 23.8 metre low rise portion of the 47metre "Tower Two" building ... (7 to 8 stories depending on your definition of a storey height) at the South East corner of the site (opposite The end of Thompson Rd) only 4.5 metres set back from the Coventry Pde boundary, is out of any acceptable scale that could be said to interface with the existing residential buildings on the corner of Thompson Rd and Coventry Pde. As clearly demonstrated by the developer's own overshadowing diagrams the Tower Two building will result in the unacceptable overshadowing of the existing residential buildings on the South side of Coventry Pde. 2) Traffic issues in Thompson Road/Coventry Parade If the large area of commercial space being proposed within the development is approved, it will result in significantly increased traffic down Coventry Parade and through North Fremantle via Thompson Road. There is already a hazardous situation where the eastern end of Coventry Parade and northern end of Thompson road cross, and this would be difficult to resolve if traffic was streaming north up Thompson road into the development. The answer to interfacing and integrating the proposed development into North Fremantle is to NOT have any car access into or from the development from Coventry Parade or Thompson Road (local Nth Fremantle traffic up and down Thompson Rd and Coventry Parade would remain). This substantially solves the crossover of cars and people on the South side of the proposed development and would result in Coventry Parade, the new triangular park and Thompson Road becoming a green/local traffic interface with the new development: this would enhance the visual enjoyment of the magnificent Ford Factory South facing glazed façade, while making activation of the uses through and within that façade a reality. All vehicle traffic in and out of the development should be from McCabe Street. 3) Stirling highway art deco façade protection The current design provides no justification for re-working the existing heritage Stirling Highway façade with an additional storey added. 4) Summary This new proposed development with its three Tower Blocks and Podium design has ignored the previous 2015 structure plan developed by consultation with The North Fremantle community and the City of Fremantle Planning department. The new proposal has much more height to the buildings than recommended in the 2015 structure plan with little to no dynamic re-purposing of the existing "architectural heritage" buildings, very poor interfacing of the development with the North Fremantle built environment and almost no real benefit to the existing or long term North Fremantle community. Car Parking provisions and traffic management issues certainly require more study and justification. The developers should receive a refusal for this proposal with at least one of the many refusal conditions being that community consultation should now take place before re-submitting a revised and improved design.
103	As a long-term resident of North Fremantle, I have great affection for the history and the value of the neighbourhood of the suburb and am feeling uncomfortable with the proposal on many accounts. It is disturbing that there can be such a broad diversion from the originally accepted Structure Plan for the site of 2015. • "A liveable neighbourhood should foster a sense of community and strong local identity and a sense of place." • The accepted built height limit as per the Local Planning Policy 3.11 is 33m and to suggest a plan reaching a maximum height of 64m, is gross overdevelopment of the site. This has the potential to overwhelmingly increase the population and traffic load of the suburb. • Such tall structures affect the visual landscape and also importantly, would dominate and overshadow the houses in Coventry Parade. Heritage Value The Matilda Bay Brewery has been the entry to the suburb leading into the heritage city of Fremantle. It is an icon in structure and commercial history that reflects the North Fremantle grass roots personality. Its heritage value has the pride of the community and city. • The design in my opinion gives a token gesture to the importance of valuing the heritage building by dwarfing it firstly with the raised plaza and podium and by adding another structure on top of it which reduces its significance on the site.

	• Offering entertainment possibilities for the residents and the public has appeal but not by an unlimited amount. Having the top level for function/event tavern area, thereby duplicating the 1750m2 underneath is excessive and altogether alters the focus of the site as a diverse mix of residences with amenities for residents and community. It does not respect the site. This is not sensitive reuse of retained heritage. Community Welcome • The interface with North Fremantle is not open and welcoming from Coventry Parade with a height above the street of an 11m differential to the podium. This is a poor amenity to pedestrians and a visual barrier to the community of North Fremantle. • I have a particular interest in accessibility for those with mobility problems and I envisage difficulties safely using the carparking spaces along Coventry Parade being forced onto the road and then having to gain access to a residential lift in order to get to the Provodore. The Built Environment • The plans as shown do not have a good focus on ameliorating a heat sink effect of areas of hard pavement and tall metal structures. Plans show little focus to green and softer areas so important to people living in a high-density environment. • Grassed areas and small communal gardens with potential for vegetable or herb growing, as well as sustainable deep-rooted trees, would also lessen the harshness of the sheer face of the apartment blocks which with aluminium louvres present a formidable visual impact. • The parking places offered for people entering the site for entertainment in the tavern or restaurant, seem inadequate for expected demands.
104	1. Scale (height) of development is out of character with North Fremantle. 2. Proposed tower heights far exceed the existing Fremantle planning scheme limits, especially when taken from existing ground levels. 3. Shadowing from these buildings needs to be assessed as the available photographs do not fully indicate the impact. 4. No details are available for Stage 2 which makes this comment on the 'development' footprint, height and bulk of the buildings incomplete. 5. Parking for commercial premises does not comply – there is a big shortfall. Given the size of the proposed tavern, restaurant, food providore and café premises, the traffic from and parking required for such businesses have not been addressed satisfactorily in the DA. 6. People and Traffic: With potentially 1100 people living on this site (Stage 1 and Stage 2 of 500 residential units, x 2.2 ave people per residence) this is a massive increase in terms of impact from vehicles and resulting traffic and transport usage. When combined with a further potential 500 people in 180-200 residential units at the One Steel site right across the road, it would seem that around 30% more people will live in North Fremantle in those two sites situated on Stirling Highway on the narrowest piece of land between the Swan River and the ocean. With car ownership likely to be 1-2 vehicles per residential unit, more than 1000 extra vehicles will 'live' in this relatively small area. Coventry Parade, McCabe St and Stirling Highway will be under significant pressure and no doubt will become bottlenecks. Car access potential for the future is further squeezed because of the railway line. 7. North Fremantle is not well serviced by access roads out of the area. One of the key arteries (Thompson Road) is already heavily used and should not but subjected to further demand. It especially should not be able to be a 'rat run' through North Fremantle resulting from future high density residential developments.
105	In summary we object to the height and scale of the proposed development and the negative impact this development will have on the North Fremantle community Context and Character Proposed development fails to preserve the character and integrity of the heritage Ford Factory building. • Heritage building is overpowered by the scale to the development • Second storey structure over the building is disrespectful to the architecture of the heritage building • Demolishing a portion of the east end industrial glass façade along Coventry Parade destroys the integrity of the heritage building Landscape and Quality Proposed development will tower over the landscape and existing structures. • Visual impact on the landscape walking over the rail footbridge will be disproportionate with remaining landscape

	 - Visual impact on the landscape along Leighton Beach will be disproportionate with remaining landscape Community Proposed development fails to address local community needs for the heritage site. Our preference is for: - A more traditional and accessible open space use of the heritage building for community purposes (such as art galleries and museums as a tribute to the aboriginal, colonial, and early industrial history of the area). - A greater focus on family friendly residential living with recreational areas and facilities that would provide community benefit across diverse ages groups. Build Form and Scale Proposed development form and scale of the building does not meet planning guidelines. - Tower heights are not compliant with planning policy or previous approved structure - Development encroaches into required 10m boundary separation between the development and neighbouring properties - Overshadowing from towers will impact backyards and gardens of neighbouring properties
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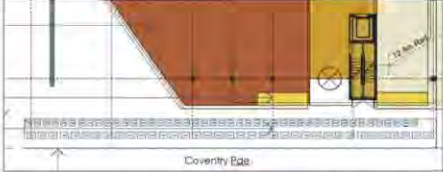
106	 As a local resident for 27 years, I feel very strongly against the current development proposal. It does not meet or comply with the FCC local structure planning policy 2.11 McCabe St which was adopted 26th August 2015. Built Scale & Form Exceeds height limits massively and does not consider the local environment & community. It rises 25metres from boundary set back of 4.5 metres on South Eastern end of Coventry St & Thompson Rd. A suggestion, the developer should abide by FCC local structure Planning policy & push the development 10metres from the Boundary, to reduce the overwhelming height. The developer is not considerate of the local community, the overshadowing of local residents, it does not respond or enhance the distinctive character of the local area. This is not attractive and it's extremely invasive. Plantings of Trees & understorey on a 10metre set back would soften the buildings, reduce the overshadowing a little and mitigate somewhat, the severity of the height and bulk. Even walking up Thompson Rd the buildings will feel overwhelming, which shows no thought has gone in to the local community and their feelings. Also the taller building attached which is set back approx. 35metres from the boundary & approx. 63metres high. Transport/Traffic Management/vehicular access/pedestrian access/safety Has there been any traffic impact and modelling since the previous traffic management plan which I believe occurred before 2010??? Stirling Hwy is an extremely busy road, so it's very difficult to enter and drive North, with all the extra traffic it will be almost impossible to get a break in the traffic. A serious safety concern. A development based on FCC local structure plan, must have left & right turning lanes coming from Stirling Hwy on to Coventry before being approved, to prevent residents from this development using Thompson Rd which always extremely dangerous, as there is parking both sides of the street, with almost no areas to pull off. Also when McDowan Government made rail users pay for parking, people started parking along Thompson & side streets instead of paying \$2.00 which causes problems for the surrounding area. Which impedes on all of us including the people from the new development, as I know most of them will come up Thompson Rd. Harvest Rd is the only place with a turning lane, (one at John Street is mainly for the primary school). No thought has been given to the safety of the community and chaos that will eventuate, with more residents entering Harvest Road. There is no pedestrian access along the lowering Northern side of Coventry. Walking up Thompson rd. on the eastern side, the path stops at crnr of Foundry Court, so one would need to walk across to western side to access a path north. Then they would be required to walk across the Thompson rd again to the east again to access the excessive amount of steps to get to the Promenade of the Development. This is not conducive to the local resident's sense of community. The footpath should be extended, if the development is 10metres from the boundary maybe a meandering path (instead of stairs) would be possible, with planting of trees either side and security lighting. (A similar path is in Mosman Park at the seven sisters seats park leading from the river). Also there is no disable access, which
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	could be achieved by a lift, from Coventry to the Promenade, Plaza area. Possibly still keep the stairs, as an entry point. As well a footpath must be built along Coventry (Northern Side) for access to the western side, facing Stirling Hwy. This is a safety issue as it stands in its current form. This plan shows no pedestrian connectivity. The same applies to pedestrian access across to the beach, it takes a long time for the lights to change for pedestrians. I think with all the developments in the area including this one, will cause even more traffic accidents, people turning into Coventry, entering and exiting McCabe & build-up of traffic on both Stirling Hwy & McCabe. Parking If this development goes ahead there will not be sufficient parking as the parking for the Tavern and other commercial businesses have less than 1/3rd of required parking from my understanding of these plans. There may be enough for residents and visitors only. During the week the northern end of Thompson, Coventry & Pimment St the parking is always very busy. Landscaping There seems to be no attempt made to reduce the impact of heat in this development with only a few token trees in pots & metal (?) structures with creepers especially in the Promenade, which will most probably die to the extreme heat from buildings and the promenade. May I suggest the developers and landscape architect travel to the city and look at the green area near the Art Gallery and get a few ideas for landscape design. I believe wind tunnels will form all year due to the design of the buildings. Maybe native trees on the west facing areas (in a curve) & dotted around the area, could mitigate some of the heat & wind tunnels. Also vertical planting on at least some of the buildings, like those used over east on the side of Car Parks. From photos ??? it doesn't seem to show any grassed areas or vertical planting to reduce the heat impact. Where would locals and residents interact and socialise, other than in Tavern or cafe. I know myself and nearby residents meet in our local park regularly, it's a lovely place to socialise and relax, with all the trees, grass, shrubs, tables, benches, water fountain, bbq, and children's playground. If nothing like this is available then our park which is extremely busy in Summer time will be even busier. They should be allowing green, relaxing places like this in the development. Context & Character This development does nothing to enhance the characteristics of the local area. I think there is immense use of glass which may cause many problems with reflecting on to residents, walkers, drivers etc. This is something that needs to be addressed. Sustainability I can't see anything in this design that shows in any way sustainability, NO positive environmental, social outcomes, but maybe economic for the developers & Tavern. Legibility That's doubtful except for the residents but maybe not for the rest of the community.
107	I have the following concerns regarding this development: Traffic management. McCabe St is a single lane tributary road feeding into Stirling Highway. It is already a busy road with plans for further apartment developments along it. There is often significant issues around the Taskers complex driveway and pull in zone. Having further large volume of entries to McCabe St closer to the lights at Stirling Hwy would add significant risks. The alternative exits into Coventry Pde would also make some very narrow residential streets into high volume thoroughfares. The traffic in this section of Stirling Hwy is also busy with significant holdups around the very narrow crossings over the trainline. Once again there is limited opportunity for widening the highway in this region or for providing an alternative link between Claremont and Fremantle. Parking. The development does not include adequate parking for the multiple high volume public amenities planned. Drop off and pickups for a busy childcare would be hazardous and longer term parking for restaurants, cafes etc inadequate.

	Noise. The inclusion of noisy bars and roof top entertainment in an existing residential area will have a significant negative effect on the quality of life for nearby residents. Height. The significant height overreach will impact the attractiveness of the area. There has already been many discussions against high rise along the coast and ensuring it does not become another Gold coast. This proposal is almost twice the maximum discretionary height limit and if approved would encourage other developments to demand the same opportunities. This level of high rise benefits the developers over the surrounding residents and would make this region of North Fremantle into an unattractive over crowded suburb.
108	Tavern and Restaurant I understand the capacity of these venues could be approximately 1,000 and 453 respectively. The calculations and my assumptions follow further below, but the North Fremantle and the City of Fremantle community do not need or want venues of this size! Even more so, when there is grossly inadequate parking, nor easy access to alternative modes of transport. I very much doubt any prospective tenant and/or patron – whatever the business type – will consider a venue within this site for these reasons alone. Excavation, parking and services For such an enormous site, with few neighbouring restrictions, it's hard to understand why the site isn't being excavated to a depth which will accommodate ALL and ample (commercial, residential and visitor) parking requirements, as well as fulfil all service requirements, including on site waste management. Thompson Road and other nearby streets (e.g. Pimment Street) already have <u>very limited</u> off street parking, which is shared between commercial and residential tenants. The parking on these streets <u>MUST</u> be maintained for the exclusive use of these residents and ratepayers and CANNOT be occupied as a result of unacceptably insufficient (approx. 250 short) commercial and residential visitors parking bays. The current proposal for offsite FOGO rubbish collection along Coventry Parade, is another extremely concerning, ill-considered and anti-community feature of this development. Coventry Parade will effectively become an exclusive, unsightly and extremely noisy service road. The poor residents who live on the south side will be subject to the interminable flow of vehicles and delivery trucks, including the weekly collection of rubbish. The development desperately needs to address greater access to alternative modes of transport, including footpaths, a footbridge and cross walks over the Highway and McCabe Street; cycle ways and public transport. The Public Transport Authority and the Council will eventually need to seriously consider the increased and concentrated population density in the McCabe, Stirling Hwy, Coventry Parade triangle, including the need to improve access to public transport (perhaps reinstate Leighton Train station); and the inevitable increase in road traffic in the area, particularly Thompson Road and other residential streets which will be used as thorough fares. It's important to note that safety of children (attending the nearby school/pre-schools and parks), pedestrians and cyclists will also be in jeopardy. Stirling Highway is already a bottle neck during peak times. How will the additional cars enter and exit the Highway without additional traffic lights? The North Fremantle community is (and I anticipate any resident of this and future neighbouring sites will be) desperately in need of local amenities like: - a quality, independent supermarket: for example, IGA or Farmer Jacks; - Genuine artisanal food serviced from an independent bakery, patisserie and/or genuinely good coffee shop/cafes (e.g. 'Community Coffee', where they could possibly roast coffee fresh on site and within the heritage building). Here, visitors could purchase coffees, locally baked products (bread, pastries, cakes, homemade pies etc) to carry across to the beach or walk down to the river; - A family owned bottle shop like Old Bridge Cellars or Wise Wine Store - A small wine bar catering for the local and North Free residents and discerning patrons (think Mrs Browns, Young George, Strange Company, Pep's) – nothing that will create a disturbance or anti-social behaviour (an inevitability with a MASSIVE tavern!) - Why not set up a smaller microbrewery and/or boutique distillery (possibly utilising the current facilities, if still working). The local community definitely does NOT need any chain store(s) committing crimes against cuisine (e.g. Coles, Woolworths, Bakers Delight, Subway or similar). Other amenities that would very much appeal to the community in this location are: - A pharmacy - A newsagency and/or post office

• Drycleaners • A well serviced fitness centre with classes (e.g. spin/RPM, circuit training etc.) for both residents and the public • Small character filled spaces to attract discerning patrons who will be able to appreciate the picturesque setting of North Fremantle overlooking Leighton Beach out to Rottnest in one direction and the Swan River in the other. Without access to facilities like the above, is extremely short-sighted and only serves to exacerbate car reliance and traffic congestion. It also discriminates against the elderly (e.g. downsizers) who may no longer able to drive. It's a unique location that needs to be preserved for current and future generations to appreciate. Other points I wished to raise, but have run out of time, follow: There appears to be a complete dearth of soft landscaping and deep soil; meaning that the planting of large, deep rooted trees, to provide shade, wind breaks, noise mitigation, bird and animal habitats, public space and general amenity will be almost impossible. Extensive paving on the upper deck, where it will be exposed to the hot sun, will reduce usage during the summer months as well as increase the dependence on artificial climatic control. The landscaping appears to be dominated by unnecessary planter boxes. Height: • The height of the residential towers far exceed maximum building heights. • Disrespectful of the local community and disregards the interests of nearby residents • Overshadowing Eleven Metre Podium Heritage: • Demolition of some of the glass walls of the heritage building. • 2nd floor on top of the heritage building is insensitive in design, negating any consideration of the aesthetics or history of the original building <u>Calculations and assumptions for the proposed tavern and restaurant:</u> I appreciate the patron capacity of the proposed tavern and restaurant in part of the development is difficult to predict given this is something ultimately determined by a liquor licence. However, I note that the maximum number of persons accommodated pursuant to the National Construction Codes Part D1.13 Area per person according to use, the following applies: <table> <tr> <td>Restaurant:</td> <td>1 m² per person</td> </tr> <tr> <td>Bar Standing:</td> <td>0.5 m² per person</td> </tr> <tr> <td>Bar other:</td> <td>1 m² per person</td> </tr> </table> We do not know how the tavern and restaurant operator(s) would divide their standing and seated patrons, but I have used the capacity of comparable sized tavern/restaurant venues already existing in Fremantle. 1. Tavern: Licenced area: 1300 m² (two levels) x 65% (representing the licenced floors pace of the premises with the remainder being non-patron areas such kitchen, toilets, store rooms etc) = 845. If assuming a split of patrons with 30% sitting and 70 % standing, the overall ratio equates to 0.85 m² per person. Therefore 845/0.85 = 994 people. 2. Restaurant: Area: 700 m² (two levels). Using 1 m² per person standard for restaurants under the NCC and also using the 65% floor space for patrons sitting to dine, the capacity works out to be 455 patrons. Turn it into a Foodie's Mecca with high quality and carefully curated independent shops and stalls, dozens of vendors selling the just fresh-picked fruit and veg and other produce from regional farmers, including top-quality meat, the freshest fish from local fishmongers, Genuine artisanal food: locally baked products (bread, pastries, cakes, homemade pies), cured, salted and smoked meats, pickles, olives, oils and vinegars, and pretty much anything else cheese purveyors and dairy, loads of international food, ice-cream with flavours which are 100% natural, Shoppers can also sit down to a genuinely good coffee, at one of the charming surrounding cafes or perhaps even freshly roasted on site within the heritage building, they could even head across to a distillery and/or microbrewery possibly utilising the current facilities (if still working),	Restaurant:	1 m ² per person	Bar Standing:	0.5 m ² per person	Bar other:	1 m ² per person	
Restaurant:	1 m ² per person						
Bar Standing:	0.5 m ² per person						
Bar other:	1 m ² per person						

Guests can purchase food from the stalls and/or food trucks to satiate their hunger while going through the market. Enjoy an early morning coffee and croissant, sit at a counter of any of the tiny gourmet restaurants/shops, eat a continental roll, sit at a sushi bar located in the market to taste the locally-made sushi and sashimi, prepared in the traditional manner, sip on champagne and eat freshly shucked oysters, and purchase garden plants and fresh flowers. Rather than end up with another Freo Markets, the goal would be to create a place for locals and tourists alike - worth visiting even if you have no intention of cooking anything yourself, a popular spot to stop for lunch; a special attraction gaining prominence among the general public and the restaurateurs from high quality establishments - a standard similar to the Spitalfields or Borough Markets in London; La Boqueria in Barcelona; Union Square Market in New York or Queen Victoria Market in Melbourne – an amazing market welcoming visitors every day, which could become one of WA's, if not Australia's, top landmarks. Celebrity chefs could use the space for cooking demonstrations. There could be school tours that teach local kids about seasonality, healthy eating and education programs, including one that helps people learn about composting; or just help people to discover, reconnect and appreciate the origin and quality of good food. Working directly small independent, local producers, businesses and farmers with a strong ethos of ensuring high quality and fair prices. Focusing on high quality food the market offers local people an alternative to the supermarket and a chance to purchase locally sourced, affordable produce. Great place to take lunch and watch the world go by.	
109 As 20 year residents of nearby Parnment St, the proposed development as it stands seems wholly unsatisfactory in numerous regards and is a cause of concern for us. The heights of the proposed towers - well beyond the standard prescribed limits as well as the original recommendations of Fremantle Council's own planners - are wildly out of character with the surrounding neighbourhood and would form an imposing and domineering presence into the future. Similar in height to the much maligned Observation City development in Scarborough, it is worth noting that that has not diminished in its jarringly out-of-scale appearance or gained in popularity as a landmark as the years have gone by. As the dwellings on our street are all built to the edges of their small blocks, the only glimpse of the outdoors comes looking directly north or south. And it's the view north we value most with the opportunity for northern sun in the winter and a small slice of blue sky. This proposal will fill most of that limited outlook. The justification of the Developers that height concessions should be granted due to the 'Community Benefits' they offer to the local community within their proposal fall flat. The three chief 'Benefits' proffered by the developers appear to be; 'public open space1', 'an upmarket providore2', and a 'tavern3': 1. 'Public open space'; Setting aside the proposed lawned/landscaped verge abutting the Stirling Highway (the proximity of which would discourage anyone from spending recreational time there) the chief 'open/green space' described in plan drawings and artists impressions amounts to an extensive paved area between large buildings with an 'arbour' overhead. To our mind, this is ill conceived. Hot and exposed in the summer, often shadowed in the winter and rated as very exposed to wind by the engaged researchers, it contributes very little in the way of 'greening' the area, providing 'natural' spaces, deep rooted trees or foliage. For a development that boasts 'carbon offsets', this seems a missed opportunity to do more toward that claim and it seems a stretch to describe it as a 'green space'. With a nearby park and Leighton Beach across the road it's hard to imagine an existing local resident seeking to spend time in this space. In this way, it could hardly be considered a 'benefit' to the community and therefore any concessions based on this aspect of the design are misplaced. South elevation rooftop of EXISTING Matilda Bay Brewery building View North from mid Parnment St. A strip of sky and winter sun - a much loved reprieve from otherwise built surrounds. Soon to be filled in? Existing north outlook Applying South Elevation from proposal plans Matt Kronberger & Lowana Bibby 10 Parnment St, North Fremantle	

	2. 'An upmarket provider': As noted in the commissioned Community Needs Assessment, for many years North Fremantle residents have bemoaned the absence of a supermarket, driving to central Mosman Park, East Fremantle or Fremantle to access groceries. However, this desire for a supermarket should not be confused with the proposed 'upmarket provider'. Facilities of this nature we already have in the Black Truffle and MKT Spaces; we don't need another one. The 'Foodies IGA' and bakery at the 1 Davies Rd development in Claremont demonstrates how a supermarket could be incorporated into an apartment development. (The 6 or 7 stories of that development is also much more community-friendly than the intimidating scale of the 130 Stirling Hwy proposal). 3. 'A Tavern': North Fremantle has no lack of alcohol vendors - since the original Community Feedback was commissioned, new venues have opened and bars and restaurants are now able to serve alcohol without a meal and sell takeaway liquor. The small bars congregated around North Fremantle's commercial hub are well located and well suited to the flavour of the neighbourhood. This is not a 'flea barn'/Big tavern suburb. Taverns located within residential areas are notorious for their noise, traffic congestion and anti-social behaviour. I've yet to meet a local resident (especially those closest to the development) who desires a large tavern in their neighbourhood. Again, as it is not a want of the Community, it can hardly be considered a provision for which the developer receives concessions on their proposal. Parking provision at this development is insufficient; the assumptions of the developers about the extent to which public transport will be embraced by visitors to the site are overstated. Very few attendees will make the 800m trek from the North Fremantle train station with any regularity and bus use remains very lightly patronised. Car ownership remains a mainstay of West Australians and we should expect that each of the residences will attract at least 1 vehicle. Some of the calculations used by the Developer assume less than 1 car per 1 bedroom apartment and just 1 car per 2 bedroom apartments; we believe that is an underestimation. Additionally, parking assumptions are calculated on a 'worst case scenario' whereby 100 people are attending an event (presumably in one of the tavern, function or restaurant) but the tavern alone appears to cater to hundreds, if not many hundreds, of patrons. Greater clarity needs to be provided regarding the tavern; how many patrons is it designed to hold? Judging the square-metre-age against similar sized venues it appears it may be up to high 100's or even 1000 people; where will these people park? In what manner will they arrive at the venue and - more critically - leave (at midnight, with drinks under the belt)? Another concern is waste management; surely a development of this scale can arrange to have their waste managed onsite, within the boundaries of the development. We are concerned about the proliferation of SULO bins on Coventry Parade. This illustration from the Waste Management Plan shows over 80 bins lining the street. It's difficult to determine from the drawing but one assumes that the bins either occupy potential parking spaces or form an unsightly and passage-blocking 'welcome' at the South Eastern entry points of the development. Planners should be aware that in winter months stormy weather off the ocean often barrels down East-West aligned streets like Coventry Parade overturning bins awaiting morning collection. The mess that this many bins would create would be substantial.  Figure 7: Presentation of FOGO (140 L) and commingled recycling (360 L) bins on the verge along Coventry Pde It was already a concern of ours that the face that the development shows to North Fremantle at the Coventry St/Thompson Rd (SE) corner is rather unfriendly. Details about the appearance of the 'podium' base lack clarity but it appears that it will likely be an imposing sheer wall of some scale with 2 flights of stairs needing to be climbed to enter the property - hardly a seamless integration. Combined with a carpark entry, power junction and a row of bins once a week, the SE side of the development feels more like a 'services area' and gives something of an unsightly 'cold shoulder' to the existing residents in this zone.
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	In short, the scale of this development - especially height - is unreasonably imposing and the 'Community Benefit' in its current form is very limited from our perspective. Parking and traffic congestion is destined to be an issue in the plan's current form. The commercial and function spaces are vast; could not part of that allocation, along with the retention of the rear of the existing warehouse accommodate apartments and offset the height of the towers?
110	INTRODUCTION It is now seven years since previous discussions about this site and NFCA input into Council Guidelines for the 2015 Structure Plan. On that occasion the NFCA conducted a workshop to provide input into the community consultation process. This workshop, attended by fifty members of the North Fremantle community, was documented in a 24-page report that included a summary in the form of a Community Vision. This exercise was also an input into the 2015 Structure Plan. We would like to make it clear that at that time no proposal was in place and the community was responding to a Planning Policy only. We would also like to make it clear that since 2015 there has been no consultation with NFCA by Rowe group or the owners about any aspect of this application prior to lodgement with the Council. The first we knew about the proposal was from the Council asking for Submissions. We note that the 2020 Structure Plan includes a statement P51 that could be read as if the NFCA would be among the parties consulted before the Application was presented to Council. This did not happen. Time constraints have meant that a similar exercise could not be undertaken for the present application, but the community's vision is unlikely to have altered in the meantime. This submission will therefore, firstly, assess the proposal against the principles established by the community in February 2015, then deal more fully with specific issues. <i>Is legible, permeable, and well-connected, with strong linkages to river and sea.</i> The proposal fails on almost all of these criteria. There is no indicated access to the river, and access to the sea requires negotiating two sets of steps onto the podium and two sets down to Stirling Highway, where a possible future pedestrian crossing is indicated (though unlikely to be approved by MRWA). Connection to the North Fremantle community faces similar obstacles, including an entry to Coventry Parade, which lacks a footpath. <i>Has a public realm that is attractive, vibrant and 'friendly'—with lots of trees, high amenity public open spaces, and people and cycle-friendly streets.</i> The lower plaza will be in shade, especially during the winter months. The upper will be exposed to high winds in summer and the hard surfaces and reflective glass will not in reality be ameliorated by large shade trees. The trees shown in the perspectives, normally deeprooted species, are in planter boxes and are unlikely to achieve the stature illustrated. <i>Reflects and contributes positively to the area's cultural heritage, character and sense of place.</i> The treatment of the heritage building is highly insensitive. Its stature is seriously diminished by the tower block immediately behind it. The added floor removes the distinctive saw-tooth roofs and the triangular pediments. Tower blocks are completely alien in a fine-grained suburb such as North Fremantle, which is above all a neighbourhood of individual dwellings with abundant opportunities for human interactions. It is highly doubtful whether the plazas as presented will provide any such opportunities for interactions with locals, or even between owners of the units. <i>Is welcoming, integrated, cohesive, interesting and lively.</i> The two-storey podium forms a hard and unwelcoming edge to the development, transmitting a message of 'stay out' rather than 'welcome inside'. To be attractive to the surrounding community it should be either a destination in itself or a path to somewhere. As observed

above, it certainly does not offer a route to the beach. There is no indication of any explicit attempt to integrate the development into the community. It's 'liveliness' is heavily oriented towards outsiders with its 2000+ square metres of restaurants, tavern, function room and so on. <i>Celebrates diversity in form and function with a variety of built form, housing, land use and demographics that will contribute to a more vibrant, prosperous and liveable neighbourhood.</i> With respect to this the development is a lost opportunity to be a seamless extension of the North Fremantle Community. 'Diversity' is in the form of different sized tower blocks, rather than a diverse set of buildings that offer homes suitable for families and the aged, as well as the young and fit. Lower buildings along the eastern margin are a 'street' but they are an outlier rather than being part of an interesting mixed development. The architecture is generic, lacking any particular reference to the local environment or built forms. It is a bland, dominating group of apartments that could be anywhere. SPECIFIC ISSUES The following are major concerns with the current proposal that require design change: Podium design Taking the level of McCabe Street and extrapolating it across the site to Coventry Parade is unacceptable. Obliterating the natural topography is yet another aspect affecting heritage and character of the suburb: The principles of permeability and legibility in good design are not met. This design results in: - Poor Pedestrian/ Cycle access from North Fremantle – 6 metres of steps up and down again - A 6 metre "services" and over height building interface with the North Fremantle Community at Coventry Parade/Thompson Road corner. - The access in the middle of Coventry Parade is not where it is needed. - The major point of arrival of this Community (and the region) on foot or cycle is the Thompson Road/Coventry Parade corner. This connects to all the best recreational/commuter cycle routes to and from Fremantle and Mosman Park. At the point where the North Fremantle community would access the site there is no welcome, no obvious access, and no connection to a proposed green space POS triangle on the opposite side of the road. We want a welcoming access at ground level and an easy movement through the site via green spaces with ground level soft landscaping. Impact on internal POS. The perspective drawings of the court in front of the proposed Provodore do not communicate the fact that immediately behind this space is a 6 metre retaining wall and overwhelming height buildings overpowering and overshadowing the POS. Is this a space anyone will want to be in? No. - The Podium design also leads to internal spaces that contain little ground level "soft" landscaping or deep-rooted plants. There is too much concrete, planting in concrete boxes with shallow soil dependent on technical support for their growth. - The Podium design also leads to a hot windy, hostile space between the buildings. These are spaces people will want to traverse quickly not linger in. These are not intimate spaces between buildings with comfort, shade trees and diversity that will invite people in, particularly children and the elderly.
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Traffic and Parking The density/Rt coding of R160 allowed on this site is not appropriate considering the road system and the pressure it is already under. The physical limitation of the Leighton Peninsula and the transport corridors it has to accommodate are overstretched already. The 20 year delay in starting the planning to shift the Container Port sees North Fremantle overwhelmed by truck traffic for years ahead when that traffic should have been gone by now. The State Government is not investing in more bridges over the Swan upstream to spread the load of North-South traffic or any sensible forward Regional Planning and transport infrastructure such as light rail etc. In this scenario the State Government Directions 2031 infill targets are not supported by investment in planning or infrastructure therefore the targets are irresponsible and burden existing residents unfairly. The "Future of Fremantle" study does not take the whole Leighton Peninsula into account and as such will result in a limited view on the future of sites south of Alfred Road. With much of North Fremantle built before cars, without off street parking, the pressure on local streets from this development and others on McCabe Street will be unbearable. There is no overspill capacity in local streets. The gymnasium allowed on Coventry Parade fills that street with cars every morning. Parking – there should be no reduction in the amount of car parking required for this development and the Commercial uses must be reduced in size, both to respect the heritage buildings and reduce the generation of more traffic requiring parking. The cumulative impact of traffic and parking for this site as well as the Tubemakers site, the Taskers site and the recently approved Cornerstone are all part of the local context that must be taken into account. The existing 45° parking arrangement in Coventry Place, which is very close to the intersection with Stirling Highway, is shown as being retained on the proposed development plans. Given the significant projected increase in traffic numbers and the well understood hazards with poor sight lines when trying to reverse from 45° parking, this is unlikely to be a safe or workable solution in future. Height and Overshadowing We object to the disregard for the height limits set in the Council Policy and Structure Plan. There must be no buildings over the required height for this site. The "Former Mullda Bay Brewery Structure Plan", which enshrines the allowable heights applicable to this site as per Local Planning Policy 3.11 "McCabe Street Area, North Fremantle - Height of New Buildings, has only recently been approved. As such it deserves the highest order of consideration that should be given on the "due regard scale". This proposal ignores the planning framework as prescribed above. Tower 1 exceeds the maximum allowable height by close to 4½ times and all of the other towers generally sit somewhere between 2 to 2½ times over their respective prescribed maximum allowable heights. The current proposal is reminiscent of the Perth City centre. It does not relate to the scale and character of North Fremantle. It is not suburban. Such overdevelopment trivialises the heritage buildings on the site and the related industrial site at the Dingo Flour Mill. The scale of the Dingo has always been the marker of North Fremantle, the sign you see out at sea that Fremantle is near. That is the height character of the area. Overshadowing of houses on Coventry Parade is not acceptable and the building on the
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	corner of Coventry and Thompson must be redesigned to reduce the height, provide a greater setback and a friendly interface at ground level, not a services cabinet. Respect for Built Heritage It is vital to retain as much of the heritage buildings as possible. This is the last remaining representative of a suite of major founding industries situated around Rocky Bay and serviced by the Rocky Bay rail line. The rail line extended from the Port via the Dingo Flour mill, then serviced the Ford Factory, The State Engineering Works, The Mt Lyell fertiliser factory and the CSR sugar refinery. All the other sites have been redeveloped and do not retain one item of Heritage to remind us of this founding site of W.A's industrial heritage. Despite lobbying the CEO of Landcorp (Development WA) at the time Minim Cove subdivision was being designed the government did not retain a small railway cutting that could have evoked the existence of that railway and all the associated industrial history. The upper level restaurant should be deleted and the Stirling Highway frontage kept at one level. We do not support the removal of the Assembly area. What remains of the Ford Factory Assembly area should be retained to show the process of early car manufacturing demonstrating our link to a movement of world importance. This plant is similar to those in Geelong, Melbourne and in the US. We support the retention of the full extent of the glass walled building on Coventry Parade. The final 4 bays should not be removed and the pedestrian access to the site moved closer to the corner of Thompson Road, and Coventry Parade where it is better situated for reasons explained above. The space around the heritage building should connect to POS at ground level not on elevated podium. Respect for Natural Heritage The Seven Sisters and Buckland Hill (which is one of them) is an area of outstanding European and Aboriginal heritage significance (See Vlamingh Parklands) Many of the Seven Sisters' hills have been quarried but these limestone hills are still a living symbol of the heritage of Fremantle, the construction of the Port and our heritage buildings. As such these hills should retain their primacy in the landscape. The character of North Fremantle is defined by the encirclement of the Leighton peninsula by these hills that helped build the State. When North Fremantle was created as an independent municipality in 1895 it included Buckland Hill. These hills actually mark in landscape terms the end of Fremantle, the change in character between Fremantle and the Western Suburbs. It is therefore a travesty to allow buildings of this height to become the defining feature of North Fremantle and Fremantle, rather than the landscape itself. Inappropriate Commercial uses, lack of True Community Benefit The Community Needs assessment document is of doubtful value, when it apparently has been written without any consultation with members of the North Fremantle community.
	A small Provedore, Café and Restaurant could be of benefit but the scale of the proposed businesses is excessive and the setting uninviting and difficult to access. The Tavern use is not supported, and could lead to community safety issues late at night in the neighbourhood. The early Heritage of the building is as a Ford Factory not a brewery. The character of NF businesses is small scale, creative and quirky. Businesses like this would benefit the community as would some easily accessed green spaces at ground level to move through on the way to the businesses. As outlined in the section on Built Heritage, the restaurant use must be limited to the ground floor of the office building to preserve it's character and the Assembly building should be retained. The glass sided building should be retained in full and re imagined as residential or working space. Stormwater and drainage There used to be a pipe outfall into Rocky Bay from this site. This must be conclusively deleted. How will stormwater from this site be accommodated when there is so little porous landscaping. What is the injection process referred to and will this compromise ground water quality. We would prefer a more natural way of dealing with runoff via more soft landscaping rather than a highly technical solution that may fail. We are now subject to extreme weather and deluge rainfall that cause unusual flooding events. CONCLUDING STATEMENT In conclusion the NFCA believes that the project should be completely re designed with the objective of respecting the character of North Fremantle and making the development an extension of the community, by providing a welcoming entry at the corner of Coventry Pde. and Thompson Road, as a destination people would want to visit and move through at ground level with inviting green spaces and small-scale businesses, workplaces and diversity of housing types. ---In short, create a proper diverse neighbourhood that in the terminology of Planners is "Place Making". This submission reflects input from a Public Meeting held by the NFCA on 16th July 2022, and a series of public workshops in 2014/15.
111	Friends of Mosman Park Bushland are a group of community volunteers who freely give up their time to care for our local bushland every week. Our beach revegetation alongside Leighton with the Town of Mosman Park (ToMP) has proved that restoration and strengthening of ecological linages does work. With only a willy wagtail and black shouldered kite ever seen there, before restoration in 2012, it is now alive with honey eaters and fairy wrens are now seen at the larger Leighton beach dune. We are concerned of the impact the size of this development will have for: 1) Demand for recreational space while maintaining ecological values. Demand for recreational space will largely fall to ToMP river park, golf course, ovals and beach. Upkeep should be shared. ToMP already are deemed insufficient public open space. With an urban development planned in the foreshore reserve Mosman Beach and South Cottesloe (Lot 556 Curtin Ave), the One Steele site then there must be a contribution to the upkeep of surrounding public open spaces in ToMP. The Stirling highway developments are a good reason Lot 556 must remain as public realm. 2) Aboriginal heritage values.

	The Canontment Hill to Buckland Hill has an extensive Aboriginal significance being the resting site of the Wargle, the cross continent dreaming of the seven sisters, the dingo and crocodile dreaming stories. The best way to preserve the culture is to restore an ecological and cultural linkage along the coast and through to the river and the hills so the vista from the highway and escarpment. We question how this developments changing the landscape here will fit with the Aboriginal cultural values. Please note that a PSP underpass at Wellington Street to the beach was an issue for Department of Planning because of the heritage values there so plans for an underpass or relocation of the train station should be cautiously considered. This issue paper is no longer on the DPLH website but I do have it if required. 3)Traffic: If this development is classified as a Transit Oriented Development (TOD), then the Leighton Station must reopen to reduce traffic impact.. Both North Fremantle and Victoria street train stations are too far away for high rise TOD and residents will not persevere with public transport. McCabe street has increased in traffic considerably. This is especially noticeable at school drop off times for the numerous private schools who use this road. With further developments proposed in Mosman Park it seems an unreasonably large development. The once clear vista to the ocean and Fremantle along McCabe street has been obscured by a low high rise on McCabe street. The size of this development will further reduce the daily connection to nature and the ocean that commuters enjoy on McCabe Street. 4)The plan has an overpass which is not for approval at this stage. However, it must be a requirement now as an overpass for cyclists and pedestrians over Stirling hwy to Leighton foot bridge. 5) This foot bridge must extend over Curtin Av as lights would render the regional freight road to port unworkable. An option to exit at the Fremantle to Perth PSP should still be required. 6) Heights: The heights proposed at the Matilda Bay can not be approved unless significant changes are made to the access to and from Stirling hwy to McCabe street, the Leighton train station is opened, the Leighton footbridge is extended over Stirling Hwy and Curtin Av as a psp and the urban development at Lot 555 Curtin Av is abandoned for the community plan, a contribution to the recreational areas of MP are negotiated. The overshadowing will cause inequity for neighbours and all those early beach goers.
112	The proposal as planned in my view is insensitive to the site and in particular the height of the proposed Towers. The development At Leighton beach is more in keeping with the environment and demonstrates For developers the prospect of a reasonable return without impacting other stakeholders given the scale for which approval is sort. I can only imagine the height proposed above current regulations is a tactic to allow some agreement On a reduced scale, but above current regulations. The glossy document provided by the developers at the conclusions section sets out to justify the proposal and presumably no need on such a scale. Frankly a number of the insertions are open to debate. The most obvious beneficiaries Will be the developers and the council. The impact on residents Will be significant in terms of privacy, traffic/parking and shadows, and The logistics required to Service and support A development of this size And when combined with the different business needs of each tenant. I was also surprised at their comment regarding affordable housing. We have just returned home from 27 years in the UK where such a requirement is normal. As you are no doubt aware the city of Stirling is looking at this matter with a view to the introduction of such a requirement. I believe there is little justification for varying The current regulations from those set so recently and presumably well thought through. This Location is prime Real Estate and along the coastline is a focus for development and you have an opportunity to influence the need for Sensitive proposals along the lines of the MIRVAC Development rather than some of the disasters in Queensland. In summary I am apposed to the development as planned and any variation to current regulations. Your council do an outstanding job for ratepayers and should not be swayed from this task simply on the basis of some glossy Submission with Number of debatable conclusions.