

ASSET POINT

LOT 2349 GUARA DR TRAFFIC IMPACT ASSESSMENT

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1.0 INTRODUCTION

1.1 BACKGROUND

Asset Point (AP) is proposing to develop Lot 2349 Guara Dr, Sunset Beach (Lot), a northern suburb of Geraldton. The nature of the development is still under review by the proponent but is likely to comprise between 48 – 50 residential lots ranging in size between approx. 400 – 700m² and will be consistent with the **Sunset Beach Precinct Plan (CGG – February 2014)** (Appendix A) preferred precinct plan; that is providing high-quality housing opportunities. As part of the development process, Greenfield Technical Services (Greenfield) has been engaged by AP to prepare a Traffic Impact Assessment for the Lot. The purpose of this document is to provide commentary and analysis on the potential traffic and transport impact that the development of this site may have on the surrounding roads and transportation networks.

This traffic impact study has been developed with general reference to the guidelines as shown in *Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines- Part 4 (Individual Developments)*.

Post completion of Rev 0 of this TIA, Landwest provided a draft of the Structure Plan application providing the proposed lot and road layout of the development. Sections 1.3.1, 5.2 and 6.0 of this TIA have been updated in Rev 1 to capture this additional information.

1.2 ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used throughout this report.

AP	Asset Point, the proponent
Dr	Drive
Hwy	Highway
Lot	Lot 2349 Guara Dr
MRWA	Main Roads WA
RAV	Restricted Access Vehicle; a vehicle that exceeds a statutory mass or dimension limit as prescribed in the Road Traffic (Vehicles) Regulations 2014. RAV can only operate on roads approved by MRWA, under either an Order (Notice) or permit.
Rd	Road
Slk	Straight Line Kilometre; a lineal reference system used to denote a location along a road from an agreed reference point
TIA	Traffic Impact Assessment; a structured assessment of the potential impact of a traffic movement or movements along a defined area

1.3 SITE LOCATION

The proposed development comprises a currently vacant parcel of land that is approx. 4.6ha in an area known as Lot 2349 Guara Dr (the Lot). The Lot is bounded by the North West Coastal Hwy (NWCH) and its associated road reserve to the east, the Chapman River to the south-east, residential properties to the south and west and public open space to the north which is currently used by the Spalding Horse and Pony Club.

The access to the Lot is to be via the eastern end of Guara Dr (5050100) and the northern end of Nyrang Rd (5050101).



Figure 1: Location and layout of the proposed development

1.3.1 Structure Plan

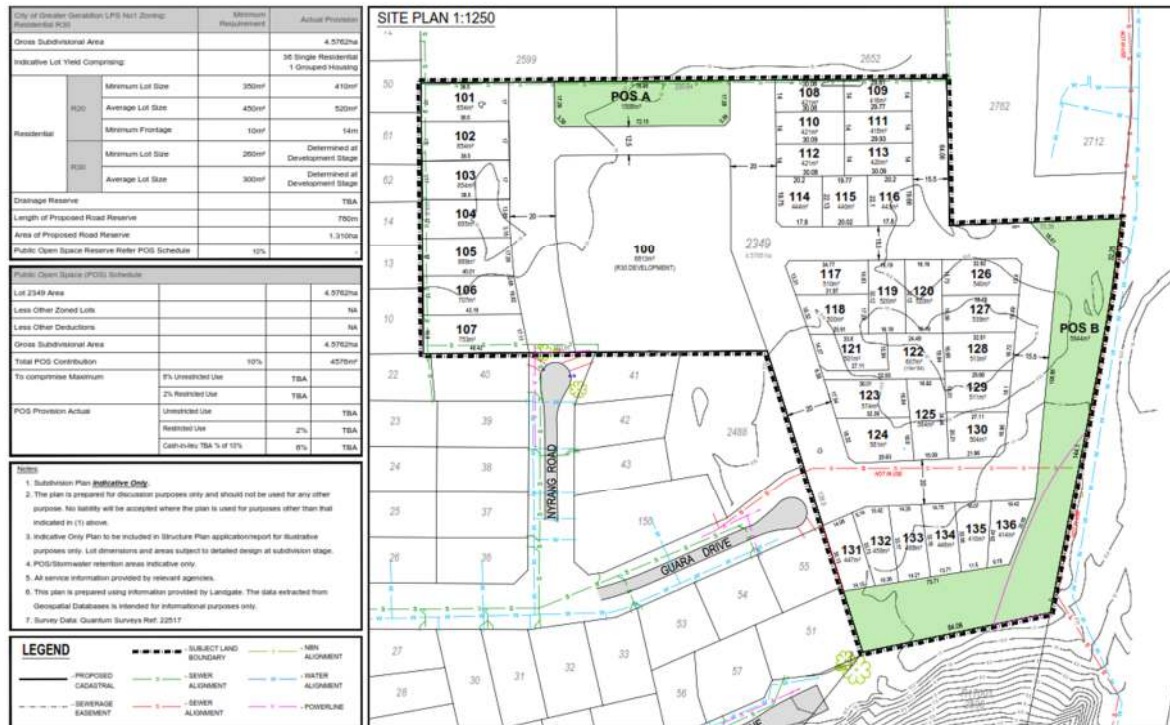


Figure 2: Proposed structure plan

The proposed Zoned structure plan shows a total of 37 lots within the development. It also shows that Nyrang Rd will be extended to the north and Guara Dr extended to the east. There will also be several other road segments constructed to service the lots.

Road	Function	Indicative Road Reserve Width	Indicative Road Pavement Width	Footpath Width
A, B, C	Type C	17.2m - 20m	7m – 7.2m	2m
D, E, F	Type D	12.5 – 15.5m	5.5m – 6m	2m

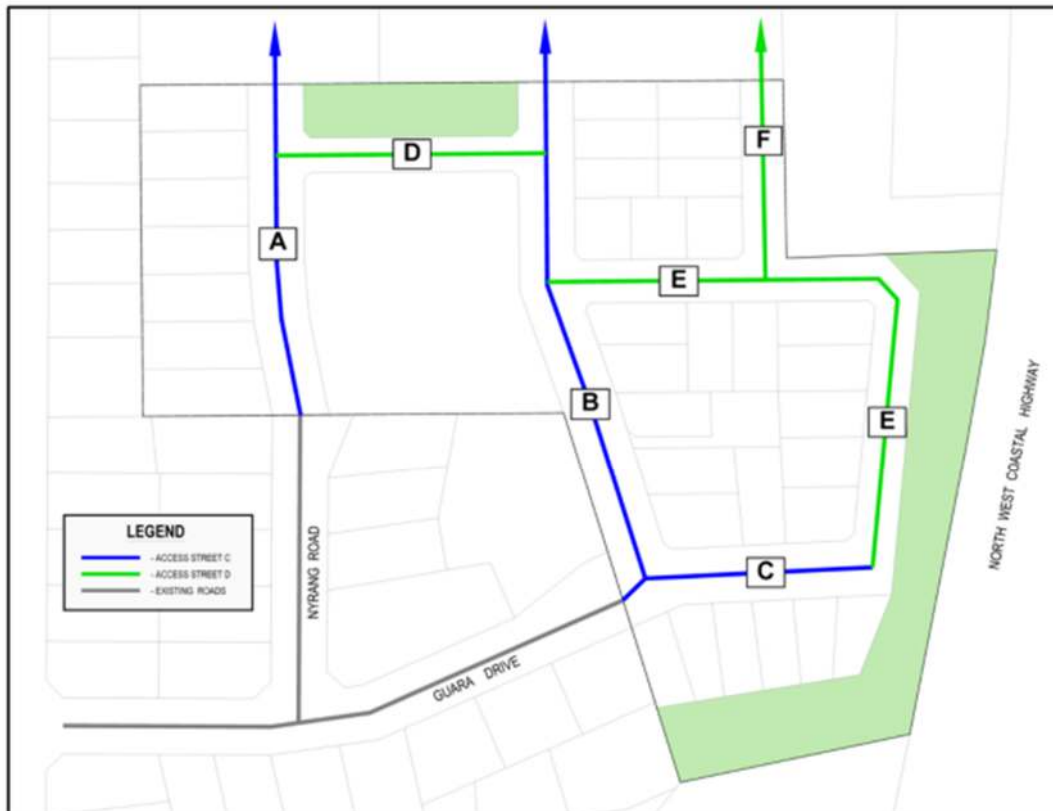


Figure 3: Proposed internal road network, road reserve and carriageway widths

As per the above figure, the road segments denoted A, B and C will have a pavement width that is relatively consistent with the existing Nyang Rd and Guara Dr roads.

For segments D, E and F, these are proposed to have a pavement width of 5.5 – 6m. This is generally considered to be fit-for-purpose with possibly the exception of segment D. Segment D will service the group dwelling (Lot 100) and depending on the specific configuration and layout of the infrastructure on this lot, there may be a need to increase the width of this pavement slightly to better accommodate the expected higher volume of traffic accessing a group dwelling compared to a single dwelling. The pavement width may need to be similar to roads A, B & C.

In general, without any specific details of the properties that will be developed on each lot, the nominated road reserve widths appear that they will provide sufficient width to construct the necessary road carriageways.

1.4 ADJACENT LAND USE

The proposed development is with an area zoned “Urban Development” as shown in the **City of Greater Geraldton Local Planning Scheme No. 1 (Scheme Maps Sheet 2)** (Appendix B).

1.4.1 Road Corridor - NWCH

1.4.2 Existing Residential Properties

- 11 properties accessed directly from Guara Dr
- 7 properties accessed directly from Nyrang Rd
- 6 properties accessed directly from Chapman Rd

1.4.3 Public Open Space

The Lot also has a boundary with other public open spaces on the southern side being the buffer zone of the Chapman River.

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2.0 EXISTING SITUATION

2.1 EXISTING ROAD NETWORK

All roads in the vicinity of Guara Dr are local roads under the care and control of the CGG. A brief commentary of the current configuration and standard of each road within the route follows below.

2.1.1 Guara Dr

Guara Dr commences at the intersection with Chapman Rd Svc Rd (5050342), terminates at a cul-de-sac on the eastern end and has a largely east/west alignment. The road comprises a sealed and kerbed two-lane carriageway that is approx. 220m in length. The carriageway is typically approx. 6 – 7m wide kerb to kerb.

The road does not have any speed signs however as it is in a built-up area, the 50km/hr speed limit applies.

Access to and from Guara Dr to the surrounding road network is via Chapman Rd Svc Rd and then Chapman Rd Svc Rd Access (5050428) which intersects Chapman Rd at approx. Slk 5.61.

2.1.2 Nyrang Rd

Nyrang Rd commences at the intersection with Guara Dr, terminates at a cul-de-sac on the northern end and has a largely north/south alignment. The road comprises a sealed and kerbed carriageway that is approx. 110m in length. The carriageway is typically approx. 6 – 7m wide kerb to kerb.

The road does not have any speed signs however as it is in a built-up area, the 50km/hr speed limit applies.

2.1.3 Chapman Rd Svc Rd Access & Chapman Rd Svc Rd

Chapman Rd Svc Rd Access is a short (approx. 20m) segment of a two-lane sealed and kerbed carriageway connecting Chapman Rd Svc Rd with Chapman Rd. The intersection with Chapman Rd comprises a basic T-Junction. There is no signage or line marking at the intersection however there is a "Local Traffic Only" sign at the entry to Chapman Rd Svc Rd Access.

Chapman Rd Svc Rd is of a similar configuration and standard to Guara Dr. Specifically, it is a two-lane sealed and kerbed carriageway that has a north/south alignment. It commences at the intersection with Guara Dr and runs south approx. 170m to the end terminus being a cul-de-sac south of Park Av.

2.1.4 Chapman Rd

Chapman Rd is a major road in the Geraldton area commencing at the intersection with Cathedral Av / Lester Av and extending in a northerly direction to its end terminus being the intersection with North West Coastal Hwy; a length of approx. 12.15km. The segment of this road that is of interest to the development of the Lot is between Crowtherton St and Bosley St/Chapman Valley Rd (approx. Slk 5.26 – 6.13).

This segment of road comprises a sealed and kerbed two-lane carriageway with a carriageway width of approx. 8m kerb to kerb. Immediately adjacent to the intersection with Chapman Rd Svc Rd Access, the carriageway widens to approx. 14m to accommodate a LEFT turning pocket treatment for vehicles travelling NORTH on Chapman Rd turning LEFT into Swan Dr. The Swan Dr intersection is located approx. 55m north of the Chapman Rd Svc Rd Access intersection.

Immediately to the south of the Chapman Rd/Chapman Rd Svc Rd Access intersection is a two-lane bridge crossing the Chapman River (Slk 5.42). Immediately south of the bridge, there is a T-Junction access to Spalding Park (eastern side of Chapman Rd Slk 5.33) and slightly further south the Crowtherton St / Chapman Rd roundabout. The presence of the various intersections, the roundabout, the bridge and the curvilinear horizontal alignment of Chapman Rd creates a busy road environment within a small segment of the road (approx. 400m).

There is a single solid barrier centre line between approx. Chapman Rd Slk 5.33 – 5.79 with a break for this intersection and there is a broken edge line across the Chapman Rd/Chapman Rd Svc Rd Access intersection.

Chapman Rd has a posted speed limit of 60km/hr at the intersection of Chapman Rd Svc Rd Access.

Based on the traffic data provided in section 2.3 and Greenfield's knowledge of this road, it is likely that this road is nearing its traffic volume capacity in some segments, particularly during peak periods. This is causing localised areas where queuing is prevalent. The capacity issues are a function of the connectivity that the road provides, the two-lane configuration and the numerous accesses to the road. Any significant change at an existing intersection along Chapman Rd particularly where a large number of additional turning movements may be created relative to the existing turning movements needs to be given appropriate consideration.

2.2 RAV NETWORK

Neither road (Nyrang Rd or Guara Dr) nor the adjoining Chapman Rd is part of the MRWA RAV network. As such, only "as-of-right" vehicles up to 19m long are permitted to access Guara Dr, Nyrang Rd and Chapman Rd.

2.3 EXISTING TRAFFIC DATA

Greenfield enquired with the CGG as to the availability of measured traffic data in the area. Unfortunately, there was no recorded traffic data for Guara Dr or Nyrang Rd.

The closest traffic count data available is summarised in the table below. Refer to Appendix C for the data provided by the CGG.

Location (Year)	Annual Average Daily Traffic - AADT (veh/day)			Peak Hourly Vehicle Volume (time of peak)	% Heavy Vehicles
	Northbound	Southbound	TOTAL		
Chapman Rd ~ Slk 5.15 (2021/22) (CGG data)			4,392	Both ways 937 (8 am)	2.7 (both ways)
Chapman Rd ~ Slk 6.15 (2022/23) (CGG data)			1,422	Both ways 150 (6 pm)	2.8 (both ways)
Chapman Rd Slk 6.94 (2020/21) (MRWA data)	2,620	2,573	5,193	NB: 315 (4:30 pm) SB: 380 (7:45 am)	4.2 (NB: 6.0 SB: 2.4)

Table 1: Existing relevant traffic data on Chapman Rd from MRWA and CGG

Unfortunately, there is no recorded data for the intersection of Chapman Rd / Chapman Rd Svc Rd Access. Considering the data available, the most representative traffic counts from the table above are likely those

collected by the CGG (Chapman Rd Slk 5.15 and Slk 6.15). The data provided by CGG was in a different format to that available from MRWA and therefore some granularity is missing from the CGG data.

Greenfield considers that the data from Slk 5.15 is likely to somewhat overstate the actual traffic at the Chapman Rd / Chapman Rd Svc Rd Access intersection as this location is just south of the Crowtherton St intersection which would carry a portion of this traffic for vehicles accessing properties south of the Chapman River. Similarly, Greenfield considers that the data from Slk 6.15 likely somewhat understates the actual volumes at the intersection as it is north of the Bosley St roundabout.

For this assessment, Greenfield has adopted a conservative approach by selecting the data from the Slk 5.15 traffic count as being most representative of the traffic at the intersection.

2.3.1 Traffic at Chapman Rd / Chapman Rd Svc Rd Access Intersection

For a consideration of the warrants for any turning treatments at the intersection of Chapman Rd and Chapman Rd Svc Rd Access, the existing and proposed future traffic volumes are required.

Currently, there are approx. 38 separate lots that are accessed via roads connecting to Chapman Rd Svc Rd Access. Whilst actual traffic movements will vary depending on the needs of the occupants of each lot, for this assessment, it is estimated that on average, a total of three (3) return trips will be made from each property (six total movements). These trips are assumed to be typically concentrated around morning, midday and afternoon/evening.

These assumptions are shown in the table below

Traffic Type at Chapman Rd / Chapman Rd Svc Rd Access	CURRENT TRAFFIC: Total movements per day
Total current traffic volumes	228 (average of 6 movements for each lot, 38 existing lots)
Total peak hour traffic volumes	38 (average of 1 movement per lot, 38 existing lots)

Table 2: Summary of estimated existing traffic at Chapman Rd / Chapman Rd Svc Rd Access

2.4 EXISTING INTERSECTIONS

There are five intersections with the potential to be affected by the development as summarised below.

1. Guara Dr / Nyrang Rd

- Simple T-Junction with Guara Dr as the through road.
- There is no signage or line marking at this intersection

2. Chapman Rd Svc Rd / Chapman Rd Svc Rd Access

- T-Junction with Chapman Rd Svc Rd being the through road. Vehicles accessing Guara Dr from Chapman Rd are required to turn LEFT into Chapman Rd Svc Rd from Chapman Rd Svc Rd Access.
- There is no signage or line marking at this intersection

3. Chapman Rd Svc Rd Access / Chapman Rd

- This intersection comprises a treatment similar to a MRWA Simple Right (SR) and Simple Left (SL) turn treatment.
- The Safe Intersection Sight Distance (SISD) for this intersection is approx. >180m to the north and only approx. 130m to the south. The minimum required SISD for a car based on a 60km/h speed is approx. 130m.

- There is no signage at this intersection. There is a solid centreline and a broken edge line on Chapman Rd.
- It is important to note that Chapman Rd Svc Access is only approx. 13m long. Therefore, intersections 2 and 3 are only 13m apart which has the potential to create some congestion issues during peak traffic movements at these intersections.

Note, approx. 70m to the south of this intersection, the LEFT turning pocket for vehicles travelling north on Chapman Rd turning into Swan Dr commences. The turning pocket is fully developed in width approx. 40m south of this intersection and given that Swan Dr is north of this intersection, the turning pocket continues adjacent to the Chapman Rd Svc Rd Access / Chapman Rd intersection. This turning pocket is described in the commentary in point #4 below.

4. Chapman Rd / Swan Dr

- This intersection comprises a LEFT turning pocket for vehicles travelling north on Chapman Rd turning LEFT into Swan Dr. The intersection is located approx. 55m north of the Chapman Rd / Chapman Rd Svc Rd Access.
- The intersection includes a Chevron Sign on the eastern side of Chapman Rd, a broken edge line and a broken hold line.

5. Chapman Rd / Crowther St

- This intersection comprises a roundabout and is located approx. 370m south of the Chapman Rd / Chapman Rd Svc Rd Access intersection. The roundabout has splitter islands on all three legs.

2.5 CRASH DATA

Crash data was obtained from the Main Roads WA Crash Map system; data was available for the period 1/1/2018 – 31/12/2022.

No crashes were reported during this period for Guara Dr, Nyrang Rd, Chapman Rd Svc Rd or Chapman Rd Svc Rd Access.

Seven crashes were reported on Chapman Rd between Crowther St and Bosley St/Chapman Valley Rd however none were at the intersection with Chapman Rd Svc Rd Access. The seven crashes comprised:

- Four right-angle crashes
- Three rear-end crashes

Refer to Appendix D for the detailed summary and crash maps.

3.0 PROPOSED DEVELOPMENT

3.1 OVERVIEW

The development of the Lot is expected to comprise the construction of 36 single residential lots and 1 grouped housing lot as shown in the Structure Plan (section 1.3.1) varying in size between 400 – 7,000m² along with various areas allocated as public open space.

The access to the facilities to be constructed on the Lot is expected to be via a private access road joining the eastern end of Guara Dr and the northern end of Nyrang Rd. Refer to Section 1.3.1 for the proposed road layout.

3.2 PREVIOUS USE

Guara Dr and the surrounding roads are currently used for local traffic accessing the nearby properties and facilities. Guara Dr is likely to only be used by traffic accessing local properties. Chapman Rd provides north/south connectivity between the Geraldton CBD and various northern suburbs so the traffic will comprise vehicles accessing local properties as well as through traffic.

3.3 TIMELINE

The planning for the development of the Lot is currently in progress. The proponent estimates that construction may take approx.. 6 – 9 months and, pending approvals, may commence in the 2nd half of 2024.

3.4 HOURS OF OPERATION

The nature of the development planned on the Lot means that vehicles will access the Lot on a 24-hour per day basis.

3.5 VEHICULAR ACCESS

Vehicle access to the Lot will be via the eastern end of Guara Dr and the northern end of Nyrang Rd. There is likely to be a small length of new road within the Lot to facilitate access to the various individual properties. The connection of the new roads to the existing road network will need to be designed by the proponent and approved by the CGG.

3.6 VEHICLE PARKING

Given the nature of the development planned on the Lot, there is no need for any vehicle parking outside the boundaries of the Lot. As part of the normal development approval process, once the detail for the internal layout of the Lot is developed, this will be reviewed by the CGG against relevant technical codes and standards. This review will consider whether the proponent's internal layout has provided sufficient parking space for the size and nature of the development.

4.0 CHANGES TO THE SURROUNDING TRANSPORT NETWORK

There are no known planned changes to the surrounding transport network in the vicinity of the proposed development.

5.0 ANALYSIS OF TRANSPORT NETWORK

Traffic analysis has been undertaken of Gurara Dr, Nyrang Dr, Chapman Rd Svc Rd, Chapman Rd Svc Rd Access and Chapman Rd in the vicinity of the proposed development.

5.1 KEY ASSUMPTIONS

The key traffic assumptions for this development are as follows:

- Only light vehicles (Austroads Classes 1 & 2) will access the Lot.
- Traffic entering the Lot will do so via a new road network internal to the Lot adjoining the northern end of Nyrang Rd and the eastern end of Guara Dr.
- Vehicles accessing Guara Dr or Nyrang Rd will approach Chapman Rd Svc Rd Access on Chapman Rd from both the north and the south. Vehicles exiting Guara Dr via Chapman Rd Svc Rd Access will turn LEFT or RIGHT onto Chapman Rd.
 - Given the location of the Lot relative to the Geraldton CBD, it is estimated that approx.. 70% of the expected vehicle movements from the Lot will be to the south.
 - The corollary of this is that a similar percentage of vehicle movements to the Lot will also approach from the south.

5.2 TRAFFIC GENERATION

Traffic accessing the Lot will mainly comprise vehicles accessing the residential lots as well as a small number of vehicles accessing the public open spaces on an ad-hoc basis. Whilst the exact movements daily will vary depending on the occupants of each lot, it is assumed that on average, a total of three (3) return trips will be made from each property (six total movements). These trips will be typically concentrated around morning, midday and afternoon/evening.

Therefore, the additional traffic volume onto Chapman Rd and specifically travelling through the Chapman Rd / Chapman Rd Svc Rd Access as a result of the development of this Lot will be as follows in Table 3.

Please note that the traffic volume figures below have NOT been updated to reflect the structure plan provided from Rev 1 of this document onwards. This is because the assumptions made up until Rev 1 of the document were for a total of 50 lots rather than the actual 37 lots that are proposed. However, we note that the one group housing lot proposed in the structure plan (Lot 100) is the equivalent of approx. 10 – 12 standard single lots and therefore the original estimate of 50 single dwelling lots is still consider representative. Based on information from AP, Lot 100 may have approx. 15 – 17 grouped housing lots.

Traffic Type	ESTIMATED FUTURE TRAFFIC
	Total movements per day
Total additional traffic volumes	300 (6 movements for each lot, 50 lots)
Total peak hour traffic volumes	50 (1 movement per lot during peak hour, 50 lots)

Table 3: Summary of estimated additional traffic expected as a result of the Lot development

Please note that the above is considered a conservative estimate (higher than likely actual) of the total number of additional vehicles generated by the development. Furthermore, as the lots are fixed in size and zoned residential, there is unlikely to be any significant growth in traffic volumes over time from the estimates provided above. Equally, there is not expected to be any significant growth in traffic volumes on Guara Dr, Chapman Rd Svc Rd or Chapman Rd Svc Rd Access as the existing lots are typically fully developed.

Considering an estimated nominal traffic growth rate on Chapman Rd Pde of 1.5%pa and using the conservative traffic estimates from Slk 5.15 (assuming a 50% split of total existing traffic north and south), the estimated future traffic volumes as a result of this development in the context of the estimated future traffic volumes on Chapman Rd in 10 years are summarised in the table below.

Location	Additional Traffic Volumes		Estimated 2033 Traffic with development and 1.5% nominal growth rate Future Traffic		% change in estimated future traffic due to proposed development	
	Total	Peak	Total	Peak	Total	Peak
Chapman Rd (south-bound)	210	35	2759	579	8%	6%
Chapman Rd (north-bound)	90	15	2639	559	4%	3%
Chapman Rd (total)	300	50	5397	1137	6%	5%

Table 4: Estimated future traffic on Chapman Rd post development of the Lot

Using these assumed traffic movements and volumes and nominal growth rate, the impact on the total traffic volumes on Chapman Rd from the proposed development of the Lot is an increase of approx. 6% in total traffic (both directions). Whilst this is fairly minor, given the existing traffic capacity issues in the area and the proximity of the various intersections to the Chapman Rd/Chapman Rd Svc Rd Access as well as the poor layout of the Chapman Rd Svc Rd Access to accommodate any significant traffic movements, this increase is likely to have a relatively significant impact to the transport infrastructure in the local area.

5.3 INTERSECTIONS

The three intersections that are of importance from a traffic engineering perspective are:

1. Chapman Rd / Chapman Rd Svc Rd Access.
2. Chapman Rd Svc Rd / Chapman Rd Svc Rd Access
3. Chapman Rd / Crotherton St roundabout

5.3.1 Chapman Rd / Chapman Rd Svc Rd Access

Comments on Existing Treatment and Traffic Volumes

As mentioned in section 2.4, at this intersection, the existing treatment comprises a SL/SR. An analysis of the intersection treatment warrants using the **MRWA Intersection Warrants Tool**, suggests that for the current traffic at this intersection (estimated figures from nearby traffic data), a BAL treatment and an AUR treatment are required on Chapman Rd. In other words, the existing intersection configuration does not meet the required warrant for the current traffic volumes.

Additionally, it is necessary to consider the warrants for the turning movements from the terminating road; i.e. traffic on Chapman Rd Svc Rd Access (the minor road) waiting to turn onto Chapman Rd. The **MRWA Intersection Warrants Tool** does not provide guidance on this. Rather, **Austroads Guide to Traffic Management Part 6** suggests that the warrants for applying turning treatments for the minor road should be determined through an operational performance evaluation.

The very short length of Chapman Rd Svc Rd Access eliminates any meaningful stacking distance for vehicles waiting to turn on Chapman Rd and hence any vehicles behind the first vehicle waiting to turn will begin to have an impact on traffic on Chapman Rd Svc Rd. The additional traffic from the Lot development will only increase the severity of the stacking distance at this intersection. As such, there is likely a warrant for a left turn pocket on Chapman Rd Svc Rd Access. However, the short length of Chapman Rd Svc Rd Access likely makes this impractical. An upgrade to this minor road turning treatment should be considered as part of the overall road layout to accommodate the current and future traffic movements.

Comments on Potential Treatment for Future Traffic Volumes

The estimated future traffic volumes at this intersection considering traffic from the Lot development (50 properties) as well as the existing 38 properties accessed via this intersection is summarised in the table below.

Traffic Type	ESTIMATED FUTURE TRAFFIC		
	Proceeding northbound on Chapman Rd (RIGHT turn onto Chapman Rd / LEFT turn off Chapman Rd) (30% of total)	Proceeding southbound on Chapman Rd (LEFT turn onto Chapman Rd / RIGHT turn off Chapman Rd) (70% of total)	Total onto Chapman Rd
Total additional traffic volumes (per day)	158	370	528 (6 movements for each lot, 88 lots)
Total peak hour traffic volumes	26	62	88 (1 movement per lot during peak hour, 88 lots)

Table 5: Summary of estimated total traffic at the Chapman Rd/Chapman Rd Svc Rd Access intersection including the traffic from the Lot development

As Table 5 shows, there is a significant (more than 1 vehicle per minute) that will be accessing the Chapman Rd/Chapman Rd Svc Rd Access during the peak period. As a result, without a significant upgrade, the additional traffic generated as a result of the Lot development will exacerbate the existing deficiencies and safety issues at the intersection.

When considering the impact of the estimated traffic from the proposed development of the Lot and the current existing traffic at the intersection (i.e. on Day 1 of the Lot development reaching its full capacity of blocks), the **MRWA Intersection Warrants Tool** suggests that a BAL and an AUR treatment is required.

When considering the impact of the estimated traffic from the Lot development and the forecast future traffic based on a nominal growth rate of 1.5%pa in 10 years, the **MRWA Intersection Warrants Tool** suggests that a BAL and CHR treatment is required.

Please note, the short length of Chapman Rd Svc Rd Access means that any vehicle turning LEFT from Chapman Rd from the north will need to turn through 180 deg to get onto Chapman Rd Svc Rd and then continue to the new development. This is not ideal but can be achieved in a light vehicle. However, for the maximum size as-of-right vehicle (19m long semi-trailer), this turning movement will not be possible.

The required intersection treatments would likely extend approx. 120m to the north (past the Swan Dr intersection) and approx. 130m to the south just before the Chapman River bridge. As a result, the required

treatments will have an impact on the existing LEFT turning pocket into Swan Dr. Specifically, the turning pocket will likely be required to be shifted to the west to accommodate the required treatments. Given the various road and intersection elements in this area, there is likely benefit to taking a holistic approach to redesigning the various intersections to be suitable for all the various traffic movements.

Intersection Summary Comments

Given that there are only approx. 38 existing properties that currently use the Chapman Rd / Chapman Rd Svc Rd Access intersection, adding 50 properties via the development of the Lot represents a significant increase in turning movements at this intersection. Furthermore, the existing intersection treatment does not currently meet the required warrant and therefore any additional increase in traffic will exacerbate potential traffic flow issues.

As such, the estimated turning movements at this intersection as a result of the development of the Lot are expected to warrant an upgrade to the existing intersection from a road safety and functionality perspective. Any upgrade will require the involvement of the CGG.

5.3.2 Chapman Rd Svc Rd / Chapman Rd Svc Rd Access

Comments on Existing Treatment and Traffic Volumes

As mentioned in section 2.4, at this intersection, the existing treatment comprises a T-Junction with Chapman Rd Svc Rd being the through road. An analysis of the intersection treatment warrants using the **MRWA Intersection Warrants Tool**, suggests that for the current traffic at this intersection (estimated figures from nearby traffic data), a BAL treatment and a BAR treatment are required. In other words, the existing intersection configuration (being a SR and SL treatment) does not meet the required warrant for the current traffic volumes.

Comments on Potential Treatment for Future Traffic Volumes

When considering the impact of the estimated traffic from the proposed development of the Lot and the current existing traffic at the intersection (i.e. on Day 1 of the Lot development reaching its full capacity of blocks), the **MRWA Intersection Warrants Tool** suggests that a BAL and BAL treatment is required. Note, given that the size of the Lot is fixed, there is no need to consider growth in traffic volumes at this intersection unless there are any other developments planned for the area accessed from Chapman Rd Svc Rd.

The required intersection treatments would require the widening of the sealed pavement. Given the short length of Chapman Rd Svc Rd Access and the interface of this intersection with the Chapman Rd / Chapman Rd Svc Rd Access, it is anticipated that there will be vehicles queuing along Chapman Rd Svc Rd waiting to turn onto Chapman Rd during peak periods. Vehicles approaching this intersection from the new Lot will queue on the northern leg of this intersection. As they queue up to turn onto Chapman Rd, there is a risk they will cut off access for a vehicle turning in off Chapman Rd that wants to access Park Av.

5.3.3 Chapman Rd / Crowther St

As mentioned in section 2.4, at this intersection, the existing treatment comprises a three-leg roundabout with splitter islands on each approach. A detailed assessment of the capacity and traffic movements through this intersection treatment is outside the scope of this report.

However, given the proximity of the Chapman Rd / Chapman Rd Svc Rd Access intersection to this roundabout, given the estimated number of vehicles generated by the development of the Lot at the Chapman Rd / Chapman Rd Svc Rd Access intersection, there may be an adverse impact on the capacity of the Chapman Rd / Crowther St roundabout as a result of queuing traffic waiting to turn RIGHT into Chapman Rd Svc Rd Access. This potential impact is likely to be more severe should the intersection

treatment warrants identified in section 5.3.1 not be implemented for the Chapman Rd / Chapman Rd Svc Rd Access intersection.

In this case, a more detailed traffic flow analysis of this roundabout and its capacity may be required.

5.4 PUBLIC TRANSPORT ACCESS

Chapman Rd is currently used by buses for public transport. The proposed development is not expected to have an adverse impact on the continued provision of this public transport. However, given the additional 50 properties, there may be an increased demand for public transport services.

5.5 PEDESTRIAN AND CYCLIST ACCESS

There is an existing pathway on the western side of Chapman Rd adjacent to the Chapman Rd / Chapman Rd Svc Rd Access. This pathway is not expected to be adversely impacted by this development.

There is an existing pedestrian crossing and centre median island crossing Chapman Rd approx. 80m north of the Chapman Rd / Chapman Rd Svc Rd Access.

There is also a pedestrian path crossing at the southern end of the Chapman River bridge.

5.6 ROAD ASSET MANAGEMENT

Based on a cursory visual inspection of the site and given that the proposed development of the Lot will involve only light vehicle traffic, Greenfield has not identified any specific concerns related to road asset management elements. Obviously, with additional traffic volumes, there will be a minor increase in pavement and surfacing loading however in the context of the existing traffic volumes, this is considered incidental and will be managed via the CGG's routine asset management and maintenance programs.

6.0 SUMMARY AND CONCLUSION

AP is proposing to develop Lot 2349 Guara Dr in Sunset Beach. The development is likely to comprise 37 lots each with an area of approx. 400 – 7,000m² along with various public open spaces. The development will be accessed via either Nyrang Rd or Guara Dr both of which are accessed via Chapman Rd Svc Rd and Chapman Rd Svc Rd Access, small local roads that adjoin Chapman Rd.

Based on the proposed size of the development, Greenfield estimates that there may be an additional approx. 50 vehicle movements in peak hour and an additional 300 total vehicle movements per day as a result of the Lot development at the Chapman Rd/Chapman Rd Svc Rd Access intersection.

This report has been prepared in accordance with the *WAPC Transport Impact Assessment Guidelines*. The following conclusions have been made regarding the potential impact on the road network and other existing and future traffic movements:

- In the context of the existing traffic volumes on Nyrang Rd and Guara Dr, the size of the development is significant. Given that there are only currently approx. 38 properties accessed from Chapman Rd Svc Rd Access, the development of the Lot will more than double the number of properties using this road.
- The estimated traffic volumes generated from the Lot are considered minor in the context of the existing and future estimated traffic volumes on Chapman Rd. However, Chapman Rd appears to already have some traffic capacity issues and the additional turning movements generated by the development of the Lot at the Chapman Rd/Chapman Rd Svc Rd Access are likely to have a more significant impact on the local transport infrastructure in the area.
- There are several concerns regarding the existing intersections in the area. Specifically:
 - Chapman Rd / Chapman Rd Svc Rd Access
 - The current treatment at this intersection does not meet the requirements. Any increase in traffic at this intersection will exacerbate the issue.
 - The potential traffic generated from the Lot development will increase turning movements at this intersection significantly. Based on the estimated traffic volumes assuming all 50 properties within the Lot are developed, there is likely a warrant to upgrade this intersection to an AUL and CHR.
 - Furthermore, the number of turning movements on the minor terminating road (Chapman Rd Svc Rd Access) likely warrants a left turn pocket. However, due to the short length of Chapman Rd Svc Rd Access, this is impractical. The turning treatments for the minor road need to be considered as part of the overall upgrade of the road layout in the area.
 - Chapman Rd Svc Rd / Chapman Rd Svc Rd Access
 - The current treatment at this intersection does not meet the requirements. Any increase in traffic at this intersection will exacerbate the issue.
 - The required treatment to accommodate the estimated future traffic volumes is a BAL / BAR.
 - Chapman Rd / Crowtherton St Roundabout
 - Given the proximity of this roundabout to the Chapman Rd / Chapman Rd Svc Rd Access intersection, there is a risk that queuing traffic at this intersection will adversely impact the capacity of the Crowtherton St roundabout. Further detailed traffic analysis may be required to properly assess this risk.
- Given the numerous road and traffic engineering elements in the area, any upgrade of the aforementioned intersections is likely to have an impact on other road elements in the area. In particular, any upgrades to the Chapman Rd / Chapman Rd Svc Rd Access intersection will need to consider how this impacts the existing turning pocket for northbound vehicles turning LEFT into

Swan Dr. An upgrade would also need to consider providing suitable turning treatments for the minor road (Chapman Rd Svc Rd Access) to minimise the impact of queuing traffic on Chapman Rd and Chapman Rd Svc Rd.

- Due to the numerous interfaces, the general location would likely benefit from a holistic approach to the necessary road upgrades to accommodate the proposed development. This will require close consultation with the CGG to further consider this.
- Given the extent of the upgrades required in the vicinity of the Chapman Rd / Chapman Rd Svc Rd Access intersection, there is likely to be a significant reconstruction of the road pavement and surfacing. For the pavement and surfacing that remains unchanged, the performance and condition of these assets should be monitored, and any defects identified, assessed and rectified in conjunction with the road asset owner promptly.

Any questions regarding this report should be addressed to Joshua Kirk, Principal Civil Engineer, Greenfield Technical Services (josh.kirk@greenfieldtech.com.au).

APPENDIX A – SUNSET BEACH PRECINCT PLAN

Sunset Beach Precinct Plan



Prepared by **Mackay Urbandesign**
and **Curtin University**

February 2014



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1.0 BACKGROUND

The precinct planning for the Sunset Beach precinct was undertaken between April and July 2013 as a response to the outcomes of the '2029 and Beyond: Designing our City' project process undertaken by the City of Greater Geraldton.

Part of the City of Greater Geraldton's long-term vision is to continue to proactively plan for the population growth that is already occurring. By doing so the City of Greater Geraldton can ensure the infrastructure, services and amenities it delivers are more sustainable and will provide the community with a liveable and vibrant City. In the future, the City of Greater Geraldton will continue to be the focal point for growth in the region and will contain significant district centres to the north and the south.

Such a substantial growth in population warrants more sustainable urban design and strategic planning to ensure that optimal planning decisions made today will provide a positive and dynamic legacy for future generations.

Future settlement patterns will require greater emphasis to be placed on the role of activity centres as local and district hubs for commercial and social interaction within the community. Activity centres should also support and encourage active transport (walking and cycling) and, where possible public transport, which would allow the activity centres to function as Transit Oriented Developments (TODs). Such centres create more sustainable urban environments and travel habits based on public transport and non-motorised modes of transport, as businesses, residences and other amenities are clustered together along a transit route. Transit supportive activity centres promote a number of elements to create liveable places including the efficient use of land, energy efficiency, pedestrian activity and social interaction; hence such urban forms assist in achieving more sustainable development.

Urban activity centres and TOD's are characterised by higher density housing, shops and workplaces closely associated with high quality and frequent public transport services. They contain a mixture of residential, commercial and employment-generating developments, encourage the use of public transport, cycling and walking, and have suitably high development density to encourage local activity and maintain a "sense of place". They also promote cultural exchange and have safe and attractive streets for the community.

The challenge in the City of Greater Geraldton is to identify the existing and future activity centres that can contribute to Geraldton becoming a network of interconnected activity centres, and how currently under-performing activity centres and their surrounding catchments can be enhanced, with input and support from local communities to become important components of a more sustainable and liveable city.

The Sunset Beach precinct is one such area that is able to play an important role in the growth of Greater Geraldton. It is also an area that needs planning and urban design input to identify and guide the improvements required for it to attract urban renewal investment and secure its future, and the precinct

planning process is the first step in identifying what and where those improvements within the Sunset Beach precinct might be. The extent of the Sunset Beach precinct was notionally an area that contained the 400m radius walkable catchment of the existing local centre, and is shown in **Figure 1**. Within the notional study area, the precinct planning focused on a principal core area centred on the existing centre, the notional extent of which is indicated in **Figure 2**.

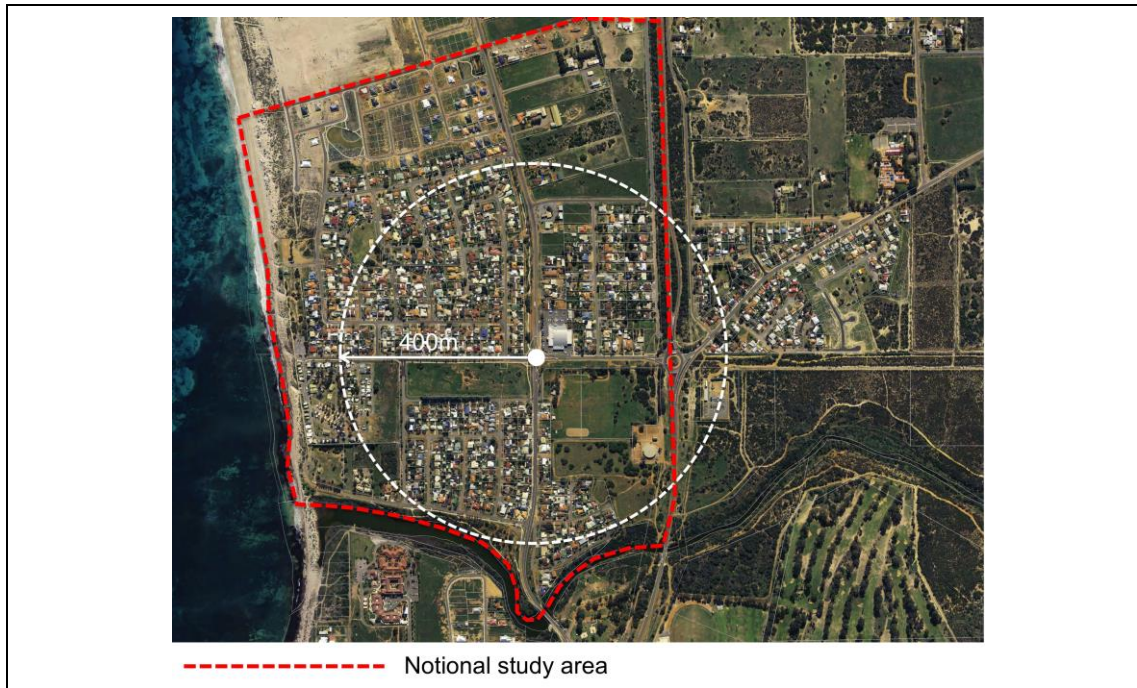


Figure 1: Notional study area

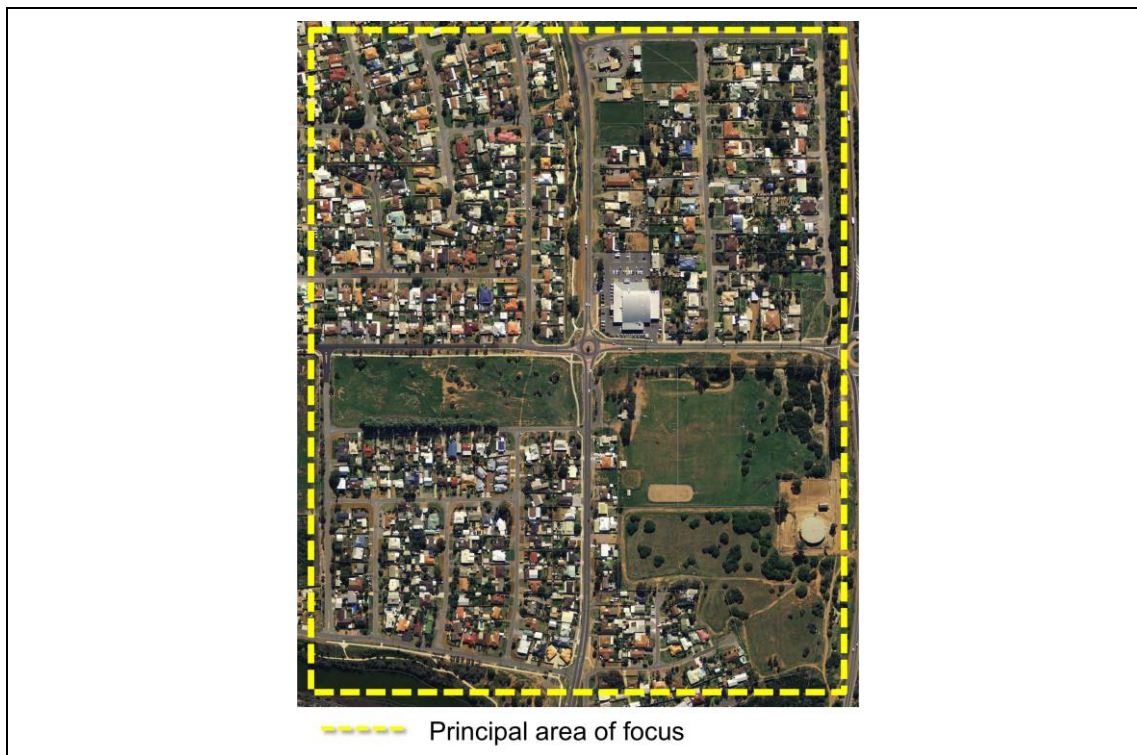


Figure 2: Principal area of focus

2.0 PRECINCT PLANNING PROCESS

To achieve a precinct plan that would be relevant to, and supported by the local community, the City of Greater Geraldton recognised the process required a significant level of community engagement.

The engagement process revolved around a series of community engagement workshops held at the Geraldton Camp School just to the south of the Sunset Beach precinct between April and July 2013.

At the first workshop the participants, drawn from the local community and relevant stakeholder organisations, were provided with background information about the Sunset Beach precinct as well as current best-practice principles in regard to sustainable planning and urban design. Participants were also taken by bus to the existing Sunset Beach centre to stimulate discussion about the experience of the place around them. The majority of the workshop was dedicated to enabling the wide range of participants to provide their views on the Sunset Beach precinct. To provide a structure to their input, the community participants were asked questions such as:

- What would an ideal community of the future look like and how would it feel to live there?
- How would people in this ideal future community interact with each other?
- For such an ideal community to evolve at Sunset Beach, what existing elements would need to stay the same?
- What elements of Sunset Beach would need to change to enable an ideal community to evolve?
- What could be done to make the Sunset Beach centre come alive and buzz with human energy?

In addition, urban design analysis was undertaken for the Sunset Beach precinct that identified a range of issues in relation to the structure and character of the place.

Based on the participants' answers to the workshop questions and the findings of the urban design analysis, a preliminary set of scenario plans were prepared for presentation back to the participants at a second workshop in June 2013. After the presentation at the second workshop, the participants provided feedback on each of the precinct planning scenarios to enable them to be subsequently refined into a preferred scenario that aimed to achieve an approach that best matched the participant feedback.

The subsequently refined plans and ideas were again presented to the community participants at a third workshop in July 2013, by which time there was broad agreement on the direction of the precinct planning.

3.0 URBAN DESIGN ANALYSIS

To help inform the precinct planning process, a series of maps was produced to illustrate a range of considerations in respect to the overall structure of the Sunset Beach precinct.

Figure 3 illustrates how the existing place is perceived as a series of separate communities rather than a singular community, because the urban pattern of Sunset Beach is interrupted by swathes of open space and wide road reserves with limited pedestrian amenities. The Chapman River further separates Sunset Beach from adjacent communities to the south, whilst the North West Coastal Highway creates a barrier to the East.

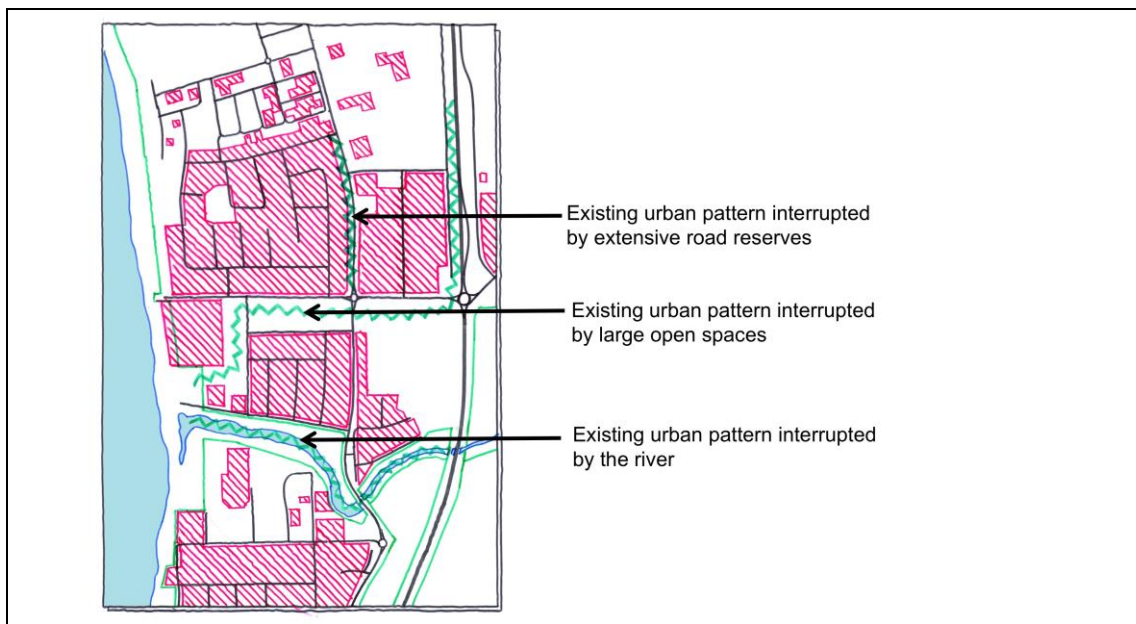


Figure 3: A place of divided communities

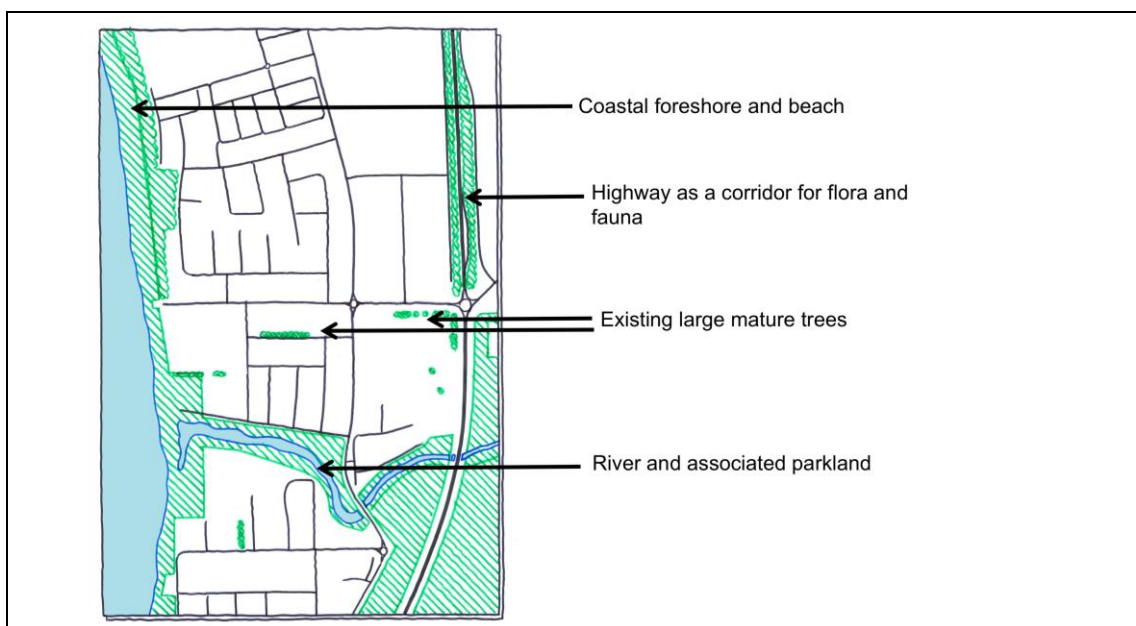


Figure 4: A place with green assets

Figure 4 illustrates the location and extent of significant ‘green’ assets within and around the precinct. The dune system of the coastal foreshore, the Chapman River and the remnant bushland in the North West Coastal Highway reserve effectively provide a landscape frame to Sunset Beach on three sides. Within the precinct, there are some significant stands of existing trees, particularly along the south side of Chapman Valley Road near the intersection with North West Coastal Highway.

Figure 5 illustrates that Sunset Beach has limited vehicle permeability, especially in comparison to a well-connected traditional street pattern. The lack of vehicle permeability arises from a subdivision pattern that utilises dead ends, as well as wide and long street blocks. The large tracts of parkland and other undeveloped spaces also accentuate the lack of permeability.

The consequence of poor vehicle permeability is that it focuses traffic onto a limited number of intersections and reduces the potential for good pedestrian permeability along well-lit and shady streets that offer passive surveillance from cars and adjacent properties.



Figure 5: Limited permeability

Figure 6 illustrates the relative potential for land value based on the desirability of location for both residential and commercial land uses. The mapping indicates how the potential value of land increases in proximity to the ocean and the river (as a response to high residential amenity), the centre (as a desired location redevelopment at a higher density) and major roads (as a response to businesses seeking a location with high exposure to passing trade). In simple terms, **Figure 6** is essentially a map of where land uses want to be if given the chance.



Figure 6: Potential relative land values

Figure 7 illustrates the limited extent of the existing walkable catchment to the Sunset Beach centre. In comparison to a well-defined ‘pedshed’ of a good pedestrian catchment, the Sunset Beach pedshed has significant chunks missing as a result of the relatively long street blocks and the large area of undeveloped space to the south of the centre. As a consequence, a higher proportion of local visitors to the centre are likely to drive.

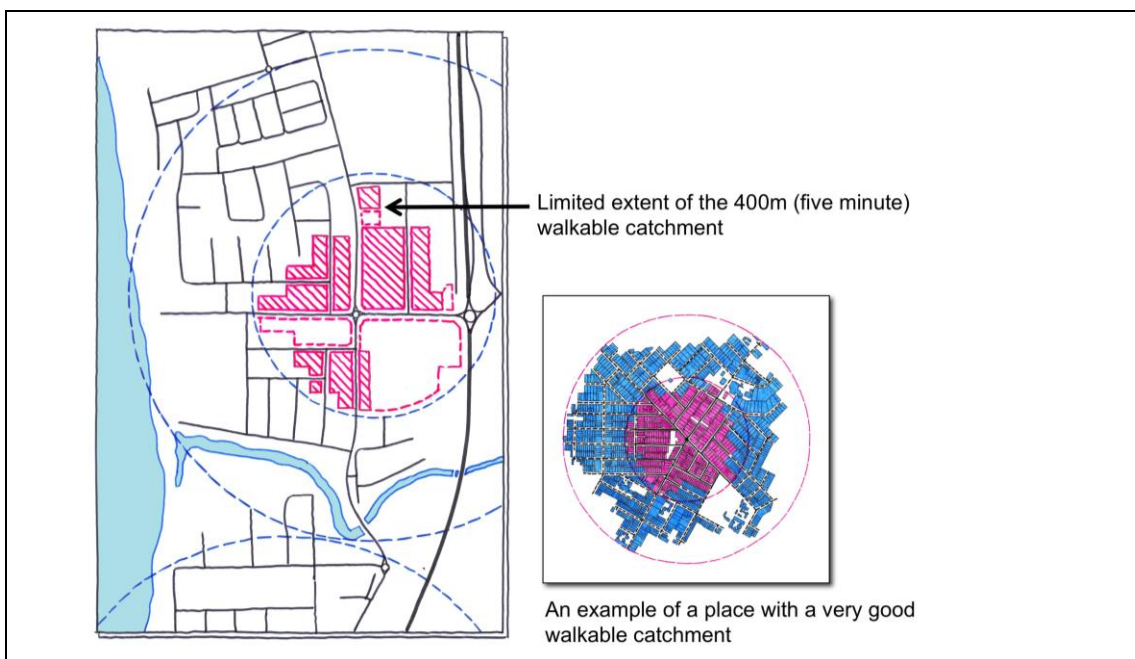


Figure 7: Centre walkability

Figure 8 illustrates where the most significant pedestrian routes are likely to be based on desire lines to the regional green assets such as the beach and the river foreshore, and to the centre. These are the streets where footpaths, street trees and opportunities for passive surveillance from adjacent dwellings should be considered as a priority.

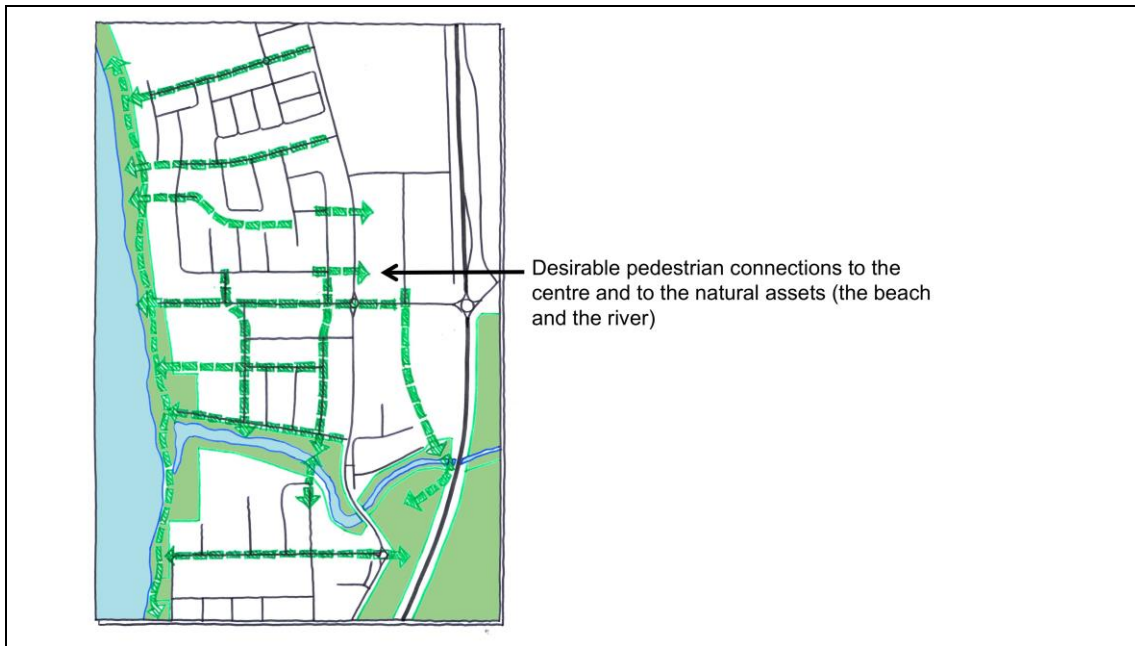


Figure 8: Pedestrian desire lines

In addition to the pedestrian desire lines to the regional green assets and the centre, **Figure 9** illustrates the likely pedestrian desire lines to bus stops associated with the future north-south high-frequency public transport spine identified in the 'Geraldton 2029 and Beyond: Designing our City' planning process for the city as a whole. Again, these pedestrian routes should be seen as the priority opportunities for footpaths and street trees. These routes could also inform where higher density residential development could be more appropriately located within an easy walk of public transport.

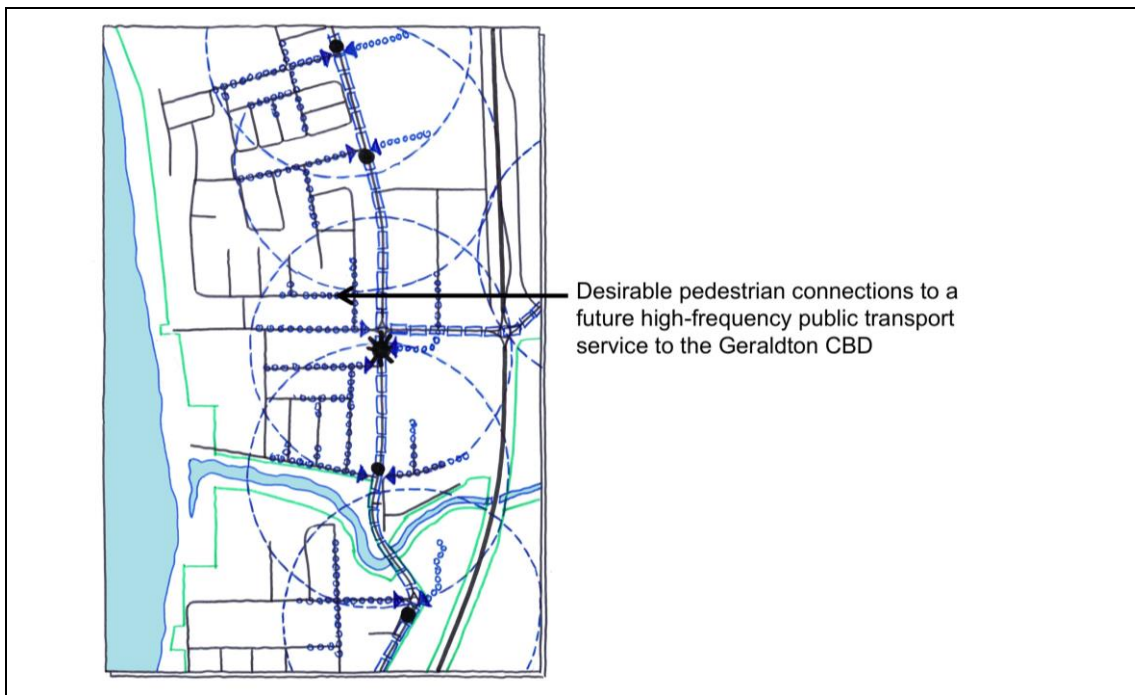


Figure 9: Walkability to future public transport

In addition to the above mapping, photographs of the study area were used to highlight both positive and negative aspects of the current state of the Sunset Beach precinct, some of which are reproduced in **Figures 10 and 11**.



Figure 10: Images of green assets and existing housing stock with character



Figure 11: Images of elements that detract from the Sunset Beach experience

4.0 GENERAL URBAN DESIGN PRINCIPLES

In response to the workshop participants' concerns and aspirations in relation to the Sunset Beach precinct, and with reference to the urban design analysis, and best practice in planning and urban design, the following suite of high-level principles was established for the Sunset Beach precinct planning process and the resultant precinct plan:

- Make the street and path networks more interconnected and understandable.
- Encourage the redevelopment or improvement of unsightly uncared-for spaces.
- Plan places to be friendly to pedestrians and cyclists, and to encourage motorists to slow down.
- Prioritise pedestrian amenity (such as footpaths, and shade trees) to encourage walking as a pleasant and comfortable alternative to car use.
- Improve pedestrian and bike access to the beach and the Chapman River foreshore.
- Incorporate quality landscape, especially trees, into the design of streets and public spaces.
- Establish community spaces where members of the community can meet, relax, interact with each other and hold community events.
- Establish places and activities that are worth walking to and will encourage pedestrian movement.
- Provide better play spaces for children and youths.
- Capitalise on the movement network to support the establishment of a greater range of local shops and services and the creation of more local jobs.
- Create a place that is better able to support a more frequent public transport service.
- Increase the diversity of homes within the area to provide different and relevant housing choices for different people.
- Focus development with higher residential densities in the core area adjacent to the village centre and close to public transport.
- Encourage redevelopment where it can provide passive surveillance opportunities to adjacent parkland.
- Identify a broader use of parks to make them more attractive and useable to everyone, and distribute park facilities to help differentiate the role of each park.
- Reinforce the identity of Sunset Beach through the use of landscape or landmark buildings or both at the main entrances to the precinct.

- Utilise funds from the development of any public land to improve recreational infrastructure, including any relocated elements such as the Pony Club.

5.0 SCENARIO TESTING

Having established a suite of general urban design principles, the next step in the Sunset Beach precinct planning process was to explore, through a series of planning scenarios, the implications of different intensities of future development. Four scenarios were identified, these were:

- Scenario 1: 'Do nothing'
- Scenario 2: 'Tentative'
- Scenario 3: 'Progressive'
- Scenario 4: 'Advanced'

5.1 Scenario 1: 'Do Nothing'

The premise behind Scenario 1 was to leave the area as it is for the foreseeable future and prioritise CGG funding and efforts into improving other areas with a greater community need and desire for change. As a consequence, there would be no rezoning to existing land, and no provision of new infrastructure of any significance. Whilst there may be some improvements to existing buildings over time, any improvements would likely be modest and isolated, driven by a particular owner's desire to expand, redevelop or renovate rather being driven by a common vision for the area.

Whilst there was little community support for 'doing nothing', it is still important to include Scenario 1 in the set of scenarios. Scenario 1 hasn't been illustrated for the simple reason that there are no proposed planning changes from the existing situation.

5.2 Scenario 2: 'Tentative'

The premise behind Scenario 2 was to identify what could be considered as the minimum amount of intervention to support the delivery of basic improvements to services and infrastructure, whilst minimising the impact on the existing nature of the place.

In summary, Scenario 2 envisaged a modest amount of development on public land to help fund infrastructure improvements such as streetscape improvements to the principal road network, the provision of a village green and a relocation of the beachside tourist facility to increase the width of the currently eroding coastal foreshore.

In detail, the precinct planning process identified a range of potential initiatives to improve the Sunset Beach precinct. These initiatives are summarised below, and are identified in **Figures 12 and 13**.



Figure 12: Scenario 2 – broader precinct

At the broader precinct scale, the potential initiatives for Scenario 2 include:

1. A new small village development with retail and mixed-use development centred on a new village green space. The scale of the development would be such that the retail component would be more likely to be small independent retailers rather than an additional supermarket chain.
2. Partial redevelopment of the vacant land (currently occupied by the Pony Club) to the east of Chapman Road as a residential subdivision with a diversity of housing types to help support the village centre.
3. Intensification of the southern portion of the 'special use' area, currently set aside for rural type businesses, with development of both residential and commercial areas. The intent being the residential area acts as an interface with the existing residential areas to the south and west and the commercial area faces the North West Coastal Highway where it would benefit from passing trade.
4. Rezoning of properties along principal streets and around major park edges to enable medium-density developments to help increase the size of the local resident community to a point where new local services can be sustained, and to renew and improve the existing streetscapes.
5. Selective rezoning of strategic lots to enable new pedestrian connections by securing new public land through the redevelopment process in exchange for increased development rights, or to improve the quality and safety of existing pedestrian access ways by enabling new development that can provide better passive security of the pedestrian access ways.
6. Rezoning of the older existing residential areas (not the recent subdivision to the north) to enable duplex development and, thus, stimulate reinvestment in the place and increase the size of the local resident community to a point where new local services can be sustained.
7. Relocating the tourist area eastwards away from the beach to increase the width of the currently eroding foreshore dunes and help secure the longer-term viability of the facility.

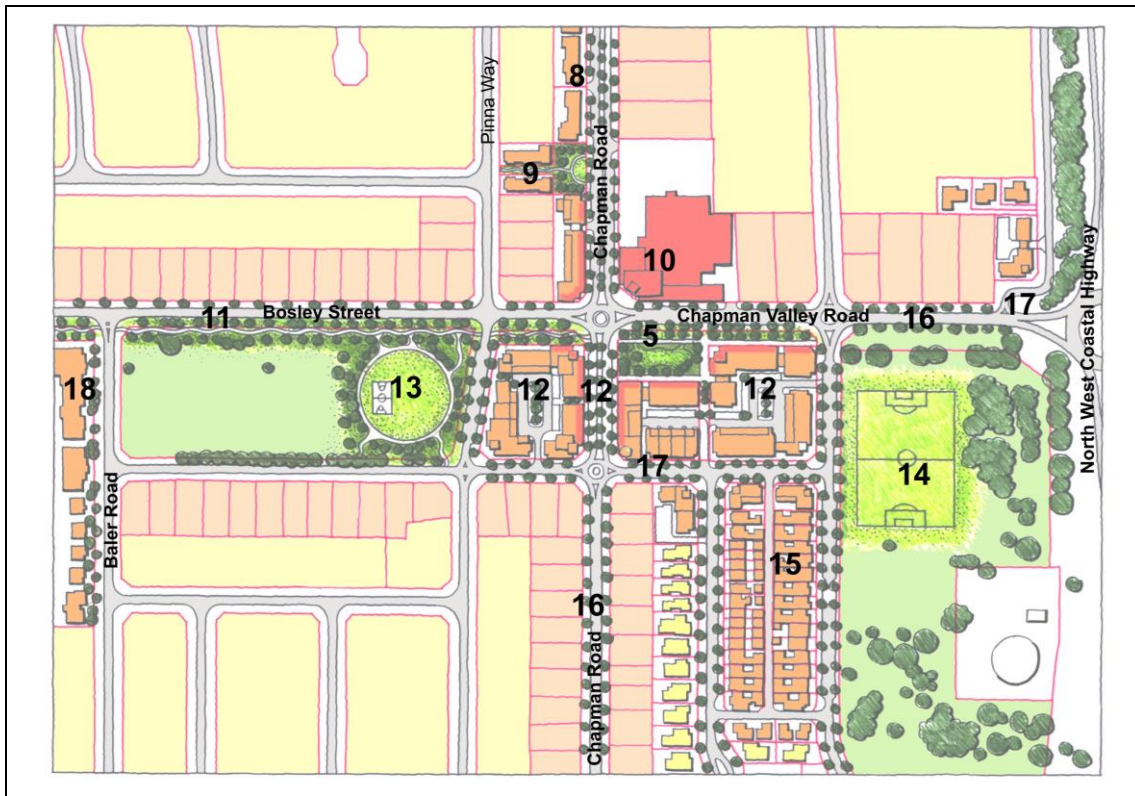


Figure 13: Scenario 2 – precinct core

Within the core area of the precinct, the potential initiatives for Scenario 2 include:

8. Realign Chapman Road north of the Bosley Street intersection to create developable lots on the western side. The realignment of the roadway eastwards could potentially create a strip of land on the western side of the road that is wide enough to be subdivided into developable residential and mixed-use lots.
9. Redevelop two adjacent lots somewhere along Pinna Way to enable the redevelopment to incorporate a pedestrian access way that provides the residents to the west with a 'shortcut' to the existing shops and future village centre.
10. Potentially expand the existing shopping centre towards the street and thereby, create a pedestrian friendly interface with Chapman Road.
11. Plant significant street trees, widen the southern verge, and improve the landscape to turn Chapman Valley Road and Bosley Street into a linear park/boulevard that leads to the beach.
12. Car parking associated with the village centre to be located either on-street or contained behind village centre buildings to maximise pedestrian amenity.
13. Establish a high amenity park space for passive recreation and children's play directly to the west of the village centre.

14. Establish a significant amount of the vacant land to the east of Chapman Road as dedicated parkland with potential for incorporating a local playing field.
15. Opportunities for new housing to address, and provide passive surveillance of, the eastern parkland.
16. Establish a street tree-planting program with priority given to the major streets, but with the potential to be extended to other streets subject to the availability of funds from the sale and development of vacant public land.
17. New road connections to provide better connectivity between existing residential areas and between existing and new areas. Better connectivity will also help to disperse local traffic and take the pressure off Chapman Road.
18. New development associated with the eastward relocation of the tourist area. The new development has the potential to be higher quality short-stay accommodation, rather than current caravan and portable accommodation, and could provide passive surveillance opportunities of Baler Road and the adjacent open space.

The response from the community members at the feedback workshop was mixed. Whilst there was general support for development and support for some of the specific initiatives, significant concern was expressed as to whether the proposed extent of interventions would be enough to deliver a 'step change' in the level of amenity. For example, some workshop participants would have preferred to see a centre development that incorporated a supermarket to provide competition to the existing operator, whilst other workshop participants were concerned that there were insufficient development opportunities to help fund park and street improvements throughout Sunset Beach.

5.3 Scenario 3: 'Progressive'

The premise behind Scenario 3 was to identify how much intervention would be required to support the delivery of the full range of services and infrastructure improvements that the community participants desired, whilst minimising the impact on the existing nature of the place.

In summary, Scenario 3 envisaged a significant amount of development on public land to help fund the infrastructure improvements identified in Scenario 2 as well as significant improvements to parkland and the establishment of a new beachside park.

In detail, the precinct planning process identified a range of potential initiatives to improve the Sunset Beach precinct. These initiatives are summarised below and are identified in **Figures 14 and 15**.



Figure 14: Scenario 3 – broader precinct

At the broader precinct scale, the potential initiatives for Scenario 3 include:

1. A larger village development with retail and mixed-use development centred on a new town square. The scale of the development would be sufficient to include a mix of retailers ranging from small independent retailers to an additional supermarket with the intention of promoting competition.
2. Significant redevelopment of the vacant public land to the east and west of Chapman Road to provide a range of high quality housing opportunities, many of which could have an aspect across new high quality parkland.
3. Intensification of the southern portion of the 'special use' area, currently set aside for rural type businesses, with development of both residential and commercial areas. The intent being that the residential area acts as an interface with the existing residential areas to the south and west and the commercial area faces the North West Coastal Highway where it would benefit from passing trade.
4. Rezoning of properties along principal streets and around major park edges to enable medium-density developments to help increase the size of the local resident community to a point where new local services can be sustained, and to renew and improve the existing streetscapes.
5. Selective rezoning of strategic lots to enable new pedestrian connections by securing new public land through the redevelopment process in exchange for increased development rights, or to improve the quality and safety of existing pedestrian access ways by enabling new development that can provide better passive security opportunities of the pedestrian access ways.
6. Retention of the low-density lifestyle in the older residential areas to ensure a supply of family-orientated housing.
7. Establish a new family-orientated beach node at the end of Swan Drive, including an upgrade of the existing open space and the provision of lawn and barbecues. The beach node could also include a café kiosk or adjacent restaurant facilities or both as a part of the redevelopment and upgrade of the caravan park into a tourist resort.

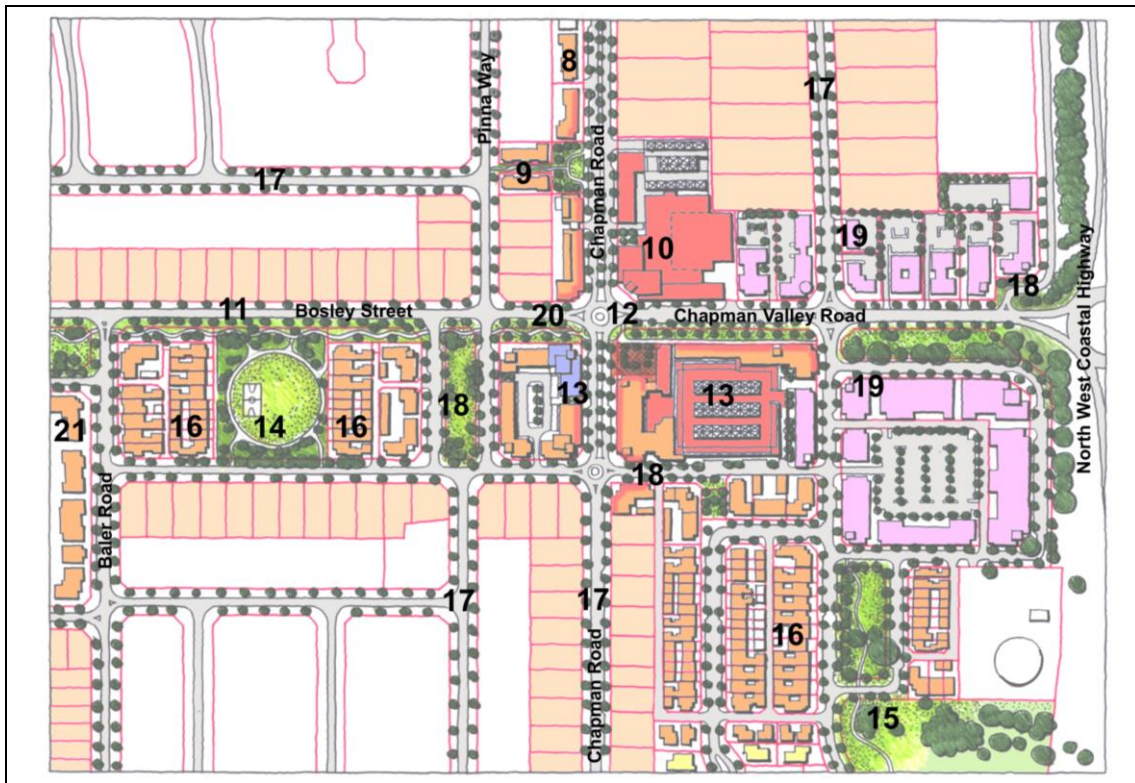


Figure 15: Scenario 3 – precinct core

Within the core area of the precinct, the potential initiatives for Scenario 3 include:

8. Realign Chapman Road north of the Bosley Street intersection to create developable lots on the western side. The realignment of the roadway eastwards could potentially create a strip of land on the western side of the road that is wide enough to be subdivided into developable residential and mixed-use lots.
9. Redevelop two adjacent lots somewhere along Pinna Way to enable the redevelopment to incorporate a pedestrian access way that provides the residents to the west with a 'shortcut' to the existing shops and future village centre.
10. Potentially expand the existing shopping centre towards the street and create a pedestrian friendly interface with Chapman Road.
11. Plant significant street trees, widen the southern verge, and improve landscape to turn Chapman Valley Road and Bosley Street into a linear park/boulevard that leads to the beach.
12. Creation of a town square with high quality finishes, al fresco opportunities and shady places for people to sit and meet each other.
13. Car parking associated with the village centre located either on-street or contained in covered decked parking under or over the shops to maximise pedestrian amenity.

14. Establish a high amenity park space for passive recreation and children's play directly to the west of the village centre.
15. Establish some of the vacant land to the east of Chapman Road as a dedicated park with a landscaped parkland connection to the Chapman River foreshore.
16. Provide opportunities for new housing to address, and provide passive surveillance of, the improved eastern and western parklands.
17. Establish a street tree-planting program for all streets that provide for pedestrian connectivity.
18. New road connections to provide better connectivity between existing residential areas and between existing and new areas. Better connectivity will also help to disperse local traffic and take the pressure off Chapman Road.
19. Establish an office-based employment area with easy access to the North West Coastal Highway to compliment the new town centre, expand the range of local services and provide more local employment opportunities.
20. Provide a modest community hall facility in the heart of the centre facing the new town square.
21. New residential development adjacent to the eastward relocation of the tourist area. The new development could provide an interface between the short-stay residents to the west and the park to the east, and could provide passive surveillance of both Baler Road and the adjacent Bosley Street parkland.

5.4 Scenario 4: 'Advanced'

The premise behind Scenario 4 was to identify how much development would be proposed if the area was a new greenfield site without the constraint of an existing community, and if development was to occur at an intensity consistent with contemporary planning practice.

In summary, Scenario 4 envisaged the maximum amount of development on public land to help fund all of the infrastructure improvements identified by the participants at the first workshop.

In detail, the precinct planning process identified a range of potential initiatives to improve the Sunset Beach precinct. These initiatives are summarised below, and are identified in **Figures 16 and 17**.



Figure 16: Scenario 4 – broader precinct

At the broader precinct scale, the potential initiatives for Scenario 4 include:

1. A significant village development with retail and mixed-use development centred on a new town square. The scale of the development would be sufficient to include a mix of retailers ranging from small independent retailers to an additional full-size Coles/Woolworths supermarket that would attract other major retailers to collocate.
2. Significant redevelopment of the vacant public land to the east and west of Chapman Road to provide a range of high quality housing, parkland, to augment the retailing and create a cohesive and diverse village.
3. Intensification of the southern portion of the 'special use' area, currently set aside for rural type businesses, with development of both residential and commercial areas. The intent being that the residential area acts as an interface with the existing residential areas to the south and west and the commercial area faces the North West Coastal Highway where it would benefit from passing trade.
4. Rezoning of properties along principal streets and around major park edges to enable medium-density developments to help increase the size of the local resident community to a point where new local services can be sustained, and to renew and improve the existing streetscapes.
5. Selective rezoning of strategic lots to enable new pedestrian connections by securing new public land through the redevelopment process in exchange for increased development rights, or to improve the quality and safety of existing pedestrian access ways by enabling new development that can provide better passive security of the pedestrian access ways.
6. Modest rezoning of the existing residential areas to stimulate reinvestment and redevelopment of large lots into family-orientated housing but on smaller lots.
7. Establish a Commercial/Employment corridor orientated towards the North West Coastal Highway to provide business exposure, which connects the village centre to the commercial part of the special use area to the north.
8. Establish a new family-orientated beach node at the end of Swan Drive, including an upgrade of the existing open space and the provision of lawn and barbecues. The beach node would also include a café kiosk or adjacent restaurant facilities or both as a part of the redevelopment and upgrade of the caravan park into a tourist resort, which could also incorporate a parkland spine that provides direct pedestrian access to the beach node from Bosley Street.

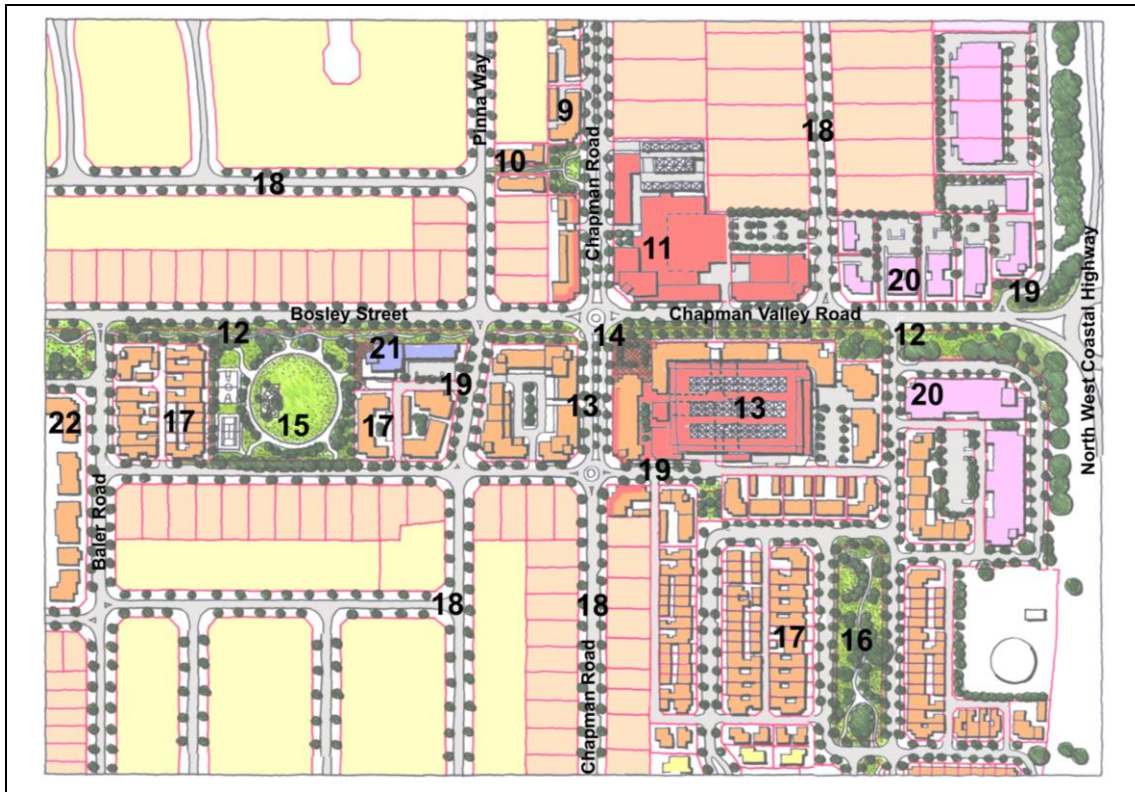


Figure 17: Scenario 4 – precinct core

Within the core area of the precinct, the potential initiatives for Scenario 4 include:

9. Realign Chapman Road north of the Bosley Street intersection to create developable lots on the western side. The realignment of the roadway eastwards could potentially create a strip of land on the western side of the road that is wide enough to be subdivided into developable residential and mixed-use lots.
10. Redevelop two adjacent lots somewhere along Pinna Way to enable the redevelopment to incorporate a pedestrian access way that provides the residents to the west with a 'shortcut' to the existing shops and future village centre.
11. Potentially expand the existing shopping centre towards the adjacent streets and create a pedestrian friendly interface with both Chapman Road and Chapman Valley Road.
12. Plant significant street trees, widen the southern verge, and improve landscape to turn Chapman Valley Road and Bosley Street into a linear park/boulevard that leads to the beach.
13. Car parking associated with the village centre located either on street or contained in covered decked parking under and/or over the shops to maximise pedestrian amenity.

14. Create a town square with high quality finishes, al fresco opportunities and shady places for people to sit and meet each other.
15. Establish a high amenity park space for passive recreation and children's play directly to the west of the village centre.
16. Create a high quality landscaped parkland corridor connecting the village centre to the Chapman River foreshore.
17. Provide opportunities for new housing, potentially including retirement housing, to address and provide passive surveillance opportunities of the parkland corridor to the river and the western community park.
18. Establish a street tree-planting program for all streets that provides for pedestrian connectivity.
19. New road connections to provide better connectivity between existing residential areas and between existing and new areas. Better connectivity will also help to disperse local traffic and take the pressure off Chapman Road.
20. Establish an office-based employment area with easy access to the North West Coastal Highway to compliment the new town centre, expand the range of local services and provide more local employment opportunities.
21. Provide a new community hall and associated facilities adjacent to the western parkland on Bosley Street with close proximity to the village centre.
22. New residential development adjacent to the eastward relocation of the tourist area. The new development could provide an interface between the short-stay residents to the west and the park to the east, and could provide passive surveillance of both Baler Road and the adjacent Bosley Street parkland.

5.5 Community Feedback

The community members who attended the community feedback workshop on the 10 June 2013 provided extensive comments on each of the four scenarios. In summary, the feedback from the workshop participants was that:

- Doing nothing was not a popular option. Participants recognised that there was clearly room for improvement.
- Reinvestment in the area is good as long as it's not overdone.
- There was a preference for a decent sized village centre with a range of facilities.
- There was a desire to keep development to no more than two storeys in the residential areas; there were mixed views on rezoning of the existing areas.

- There was a strong desire to maintain or improve access to the river and beach.
- There was strong support to upgrade the caravan park and move it further away from the beach to enable a more continuous and usable foreshore.
- More trees, especially in the streets would fundamentally change and improve the character and the amenity of Sunset Beach, and there was a strong preference for native species.
- Streetscape is really important – pedestrian footpaths, trees, lighting, landscape, provision for on-street car parking, etc
- The City should ensure that parks include provision for activities and recreational uses rather than just leaving them as empty spaces.
- The Pony Club land would be better used for uses that directly benefit the community.
- The City should introduce traffic calming measures to reduce traffic speeds and tame aggressive driver behaviour.
- The planning for the new village centre should provide a town square or village green as a place for the community to meet and to provide a greater range of shops, cafes and other activities.
- There should be a connected network of pedestrian/cycle paths particularly down the coast.
- The bus services need to be more direct and more frequent.
- There should be provision for over-sized parking bays for caravan visitors (grey nomads) who provide valuable patronage at local services.
- The City should use the proceeds from development to fund local improvements, rather than direct the funds to other parts of the city.
- There needs to be something special at the arrival points to welcome visitors and provide a sense of identity to the local community.
- There needs to be different types of housing for different people, particularly the aged. New higher density housing should be focussed around the amenity of centres and parks.
- The land adjacent to the village centre is an ideal location for a retirement village, but not in the conventional format of a walled enclosure, and that has a seamless integration with the rest of the village (which is the current trend in the retirement industry).

From the above feedback, it became apparent that Scenario 4 was almost a perfect fit with the community members' comments.

6.0 PREFERRED PRECINCT PLAN

The preferred precinct plan broadly consists of Scenario 3, albeit with a few extra elements.

6.1 Precinct Structure



Figure 18: Preferred precinct plan structure

The principal elements of the preferred precinct plan, as indicated in **Figure 18**, are:

1. A larger village development with retail and mixed-use development centred on a new town square. The scale of the development would be sufficient to include a mix of retailers ranging from small independent retailers to an additional supermarket with the intention of promoting competition.

2. Significant redevelopment of the vacant public land to the east and west of Chapman Road to provide a range of high quality housing opportunities, many of which could have an aspect across new high quality parkland.
3. Retention of the 'Special Use' area as identified in the Glenfield Structure Plan for residents to operate the type of large-scale home based businesses that would be inappropriate in a normal urban residential area. *Note: this was advised by the City of Greater Geraldton after the initial workshop process to ensure a supply of land for the existing 'special uses' and to avoid undermining the Sunset Beach neighbourhood centre with an oversupply of commercial land.*
4. Rezoning of properties along principal streets and around major park edges to enable medium-density developments to help increase the size of the local resident community to a point where new local services can be sustained, and to renew and improve the existing streetscapes.
5. Selective rezoning of strategic lots to enable new pedestrian connections by securing new public land through the redevelopment process in exchange for increased development rights, or to improve the quality and safety of existing pedestrian access ways by enabling new development that can provide better passive security opportunities of the pedestrian access ways.
6. Retention of the low-density lifestyle in the older residential areas to ensure a supply of family-orientated housing.
7. Establishment of a new family-orientated beach node at the end of Swan Drive, including an upgrade of the existing open space and the provision of lawn and barbecues. The beach node could also include a café kiosk or adjacent restaurant facilities as a part of the redevelopment and upgrade of the caravan park into a tourist resort.

6.2 Central Area

The principal elements of the central area of the preferred precinct plan as indicated in **Figure 19** are:

8. Realignment of Chapman Road north of the Bosley Street intersection to create developable lots on the western side. The realignment of the roadway eastwards could potentially create a strip of land on the western side of the road that is wide enough to be subdivided into developable residential and mixed-use lots.
9. Redevelopment of two adjacent lots somewhere along Pinna Way to enable the redevelopment to incorporate a pedestrian access way that provides the residents to the west with a 'shortcut' to the existing shops and future village centre.

10. Potential expansion of the existing shopping centre towards the street to create a pedestrian friendly interface with Chapman Road.
11. Significant street tree planting, a widening of the southern verge, and improved landscaping to turn Chapman Valley Road and Bosley Street into a linear park/ boulevard that leads to the beach.
12. Creation of a town square with high quality finishes, al fresco opportunities and shady places for people to sit and meet each other.
13. Car parking associated with the village centre located either on street or contained in covered decked parking under or over the shops to maximise pedestrian amenity.
14. Establishment of a high amenity park space for passive recreation and children's play directly to the west of the village centre.
15. Establishment of the remaining vacant land to the east of Chapman Road as a dedicated park with a landscaped parkland connection to the Chapman River foreshore.
16. Opportunities for new housing to overlook and provide passive surveillance of the eastern parkland.
17. Establishment of a street tree-planting program for all streets that provide for pedestrian connectivity.
18. New road connections to provide better connectivity between existing residential areas and between existing and new areas. Better connectivity will also help to disperse local traffic and take the pressure off Chapman Road.
19. Establishment of an office-based employment area with easy access to the North West Coastal Highway to compliment the new town centre, expand the range of local services and provide more local employment opportunities.
20. Provision of a modest community hall facility in the heart of the centre facing the new town square.
21. New residential development adjacent to the eastward relocation of the tourist area. The new development could provide an interface between the short-stay residents to the west and the park to the east, and could provide passive surveillance of both Baler Road and the adjacent Bosley Street parkland.
22. Provision of over-sized parallel bays on Chapman Valley Road for visiting caravan tourists (Grey Nomads). The location (indicated in more detail in **Figure 20**, is conveniently accessed from the North West Coastal Highway, close to the village centre, and the roundabout at Chapman Road that provides a turn-around facility.

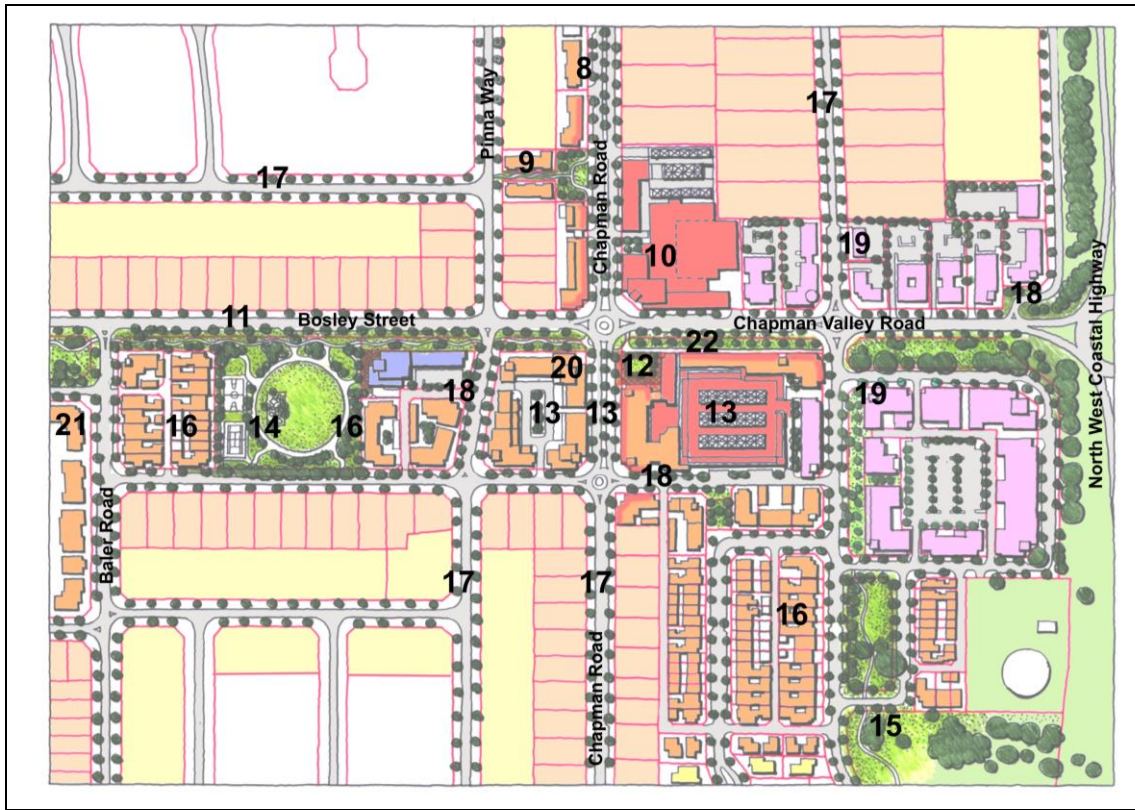


Figure 19: Preferred precinct plan central area

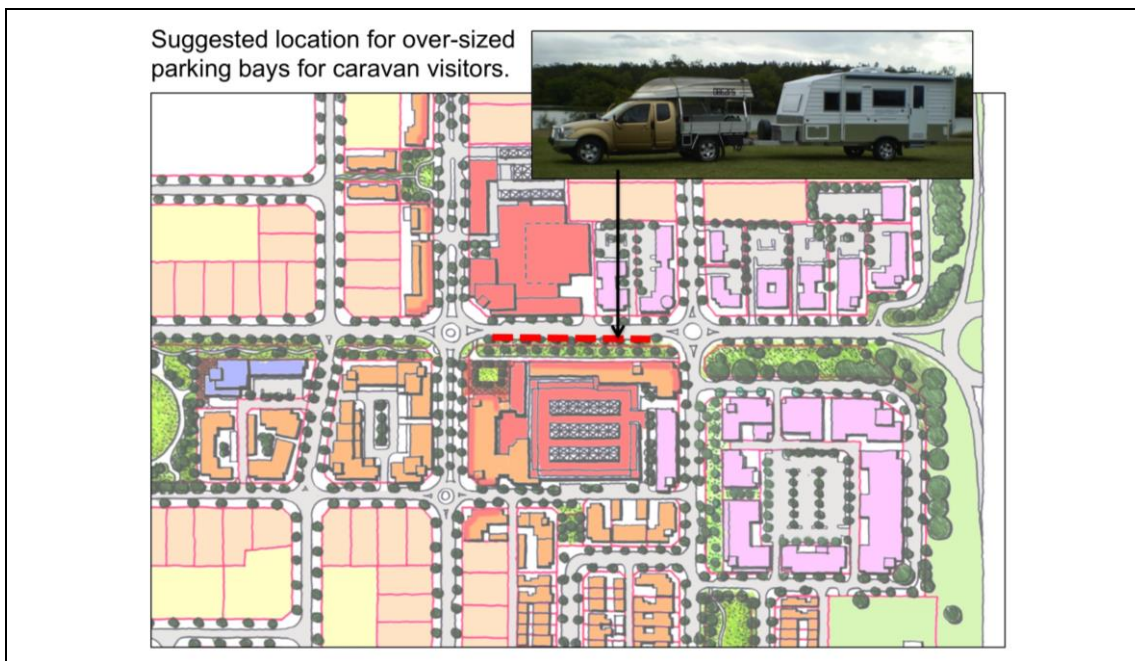


Figure 20: Visitor bays for caravans

6.3 Housing Diversity

A key message from the local community and from the precinct planning process was the need for a greater diversity of housing to accommodate a diverse range of housing needs. Whilst the conventional family house is well represented in the Sunset Beach area, there is a lack of smaller and more affordable housing types for both younger and older people.



Figure 21: Typical small lot housing types for new development near centres



Figure 22: Typical mid-size housing types for new residential areas

The development industry in WA is getting better at providing alternative houses, and a sample of the range of housing types that are being constructed in suburban settings is illustrated in **Figures 21, 22 and 23**. However, some of these housing types require a specific lot size, so some of these house types, particularly those that require access to a rear lane, may only be applicable to the future subdivision areas and other larger redevelopment sites in the Sunset Beach area.



Figure 23: Typical medium-density apartment housing on small to medium sized lots

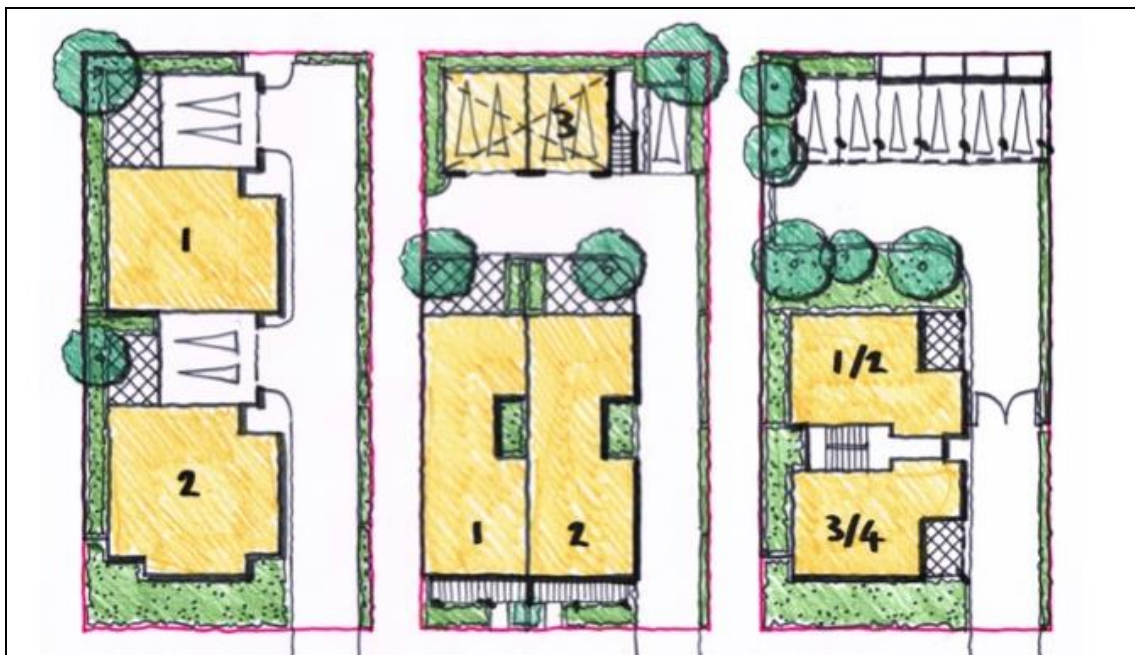


Figure 24: Different configurations for redevelopment of a typical existing lot

The precinct planning process investigated how a typical existing lot in the Sunset Beach area might be redeveloped, to demonstrate that there are

alternative building forms to the conventional duplex (a house behind a house) arrangement. **Figure 24** shows a typical duplex arrangement and, how either two houses or four apartments could be developed as an alternative and deliver a good streetscape as well.

In addition to the redevelopment of the residential areas around the neighbourhood cores, the neighbourhood cores themselves offer the opportunity for alternative housing types in the form of mixed-use development with apartments above the shops and office suites. Examples of successful neighbourhood-scaled mixed-use development in other places are depicted in **Figure 25**.



Figure 25: Example of mixed-development at a neighbourhood centre scale



Figure 26: Potential location of an 'open' retirement complex

A significant number of the local community participants in the precinct planning workshops expressed concern about the lack of retirement options given the older age range of the current residents. A potential response to this issue is to consider the use of some of the vacant land to the south of the proposed village centre as a retirement development (refer to **Figure 26**), however not in the conventional format of a walled enclosure, but as a seamless integration with the rest of the village, which is actually the current trend in the retirement industry.

Whilst the provision of smaller dwelling types is necessary to increase the diversity of housing choice, it can be taken too far. As such, it is important to ensure that larger family-orientated homes are retained as part of the housing mix in Sunset Beach. An outcome of the precinct planning process is a recommendation to retain some of the existing areas for large lots and, thus, prevent further subdivision. The suggested areas to be retained for larger family-orientated homes are identified in **Figure 27**.

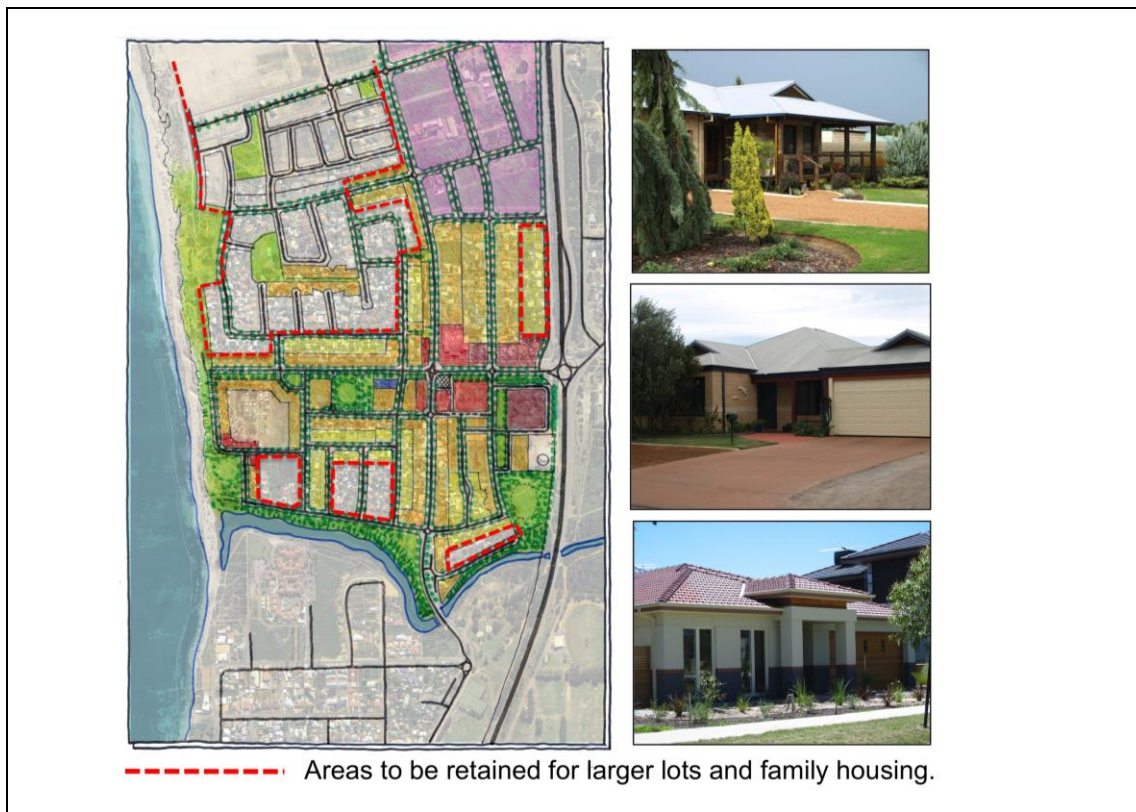


Figure 27: Areas retained for family-orientated single dwellings

6.4 Streetscape Improvements

The funds that are realised from the development of vacant public land could be used to help fund significant improvements to the public domain, for which the City of Greater Geraldton has a responsibility.

A higher standard of public domain:

- Is more likely to attract new investment to the area
- Provides confidence to existing and prospective residents that Council is committed to the Sunset Beach area
- Encourages walking as a comfortable and attractive alternative land use
- Improves community formation and interaction between local residents.

Given that there is a significant cost to local government in respect to the improvement of streetscapes, it may be prudent to prioritise which streets provide the greatest value in respect to better pedestrian and visual amenity.

The priority streets should be those that:

- Lead to significant pedestrian destinations such as the village centre, the beach, the river and bus stops
- Are currently significantly blighted by wide reserves and higher traffic volumes
- Signify an entry point into the Sunset Beach area.

An initial appraisal undertaken in the precinct planning process of the streets in the overall Sunset Beach precinct has indicated that the priority streets should be those identified in yellow and blue in **Figure 28**.



Figure 28: Priority streets for streetscape improvements

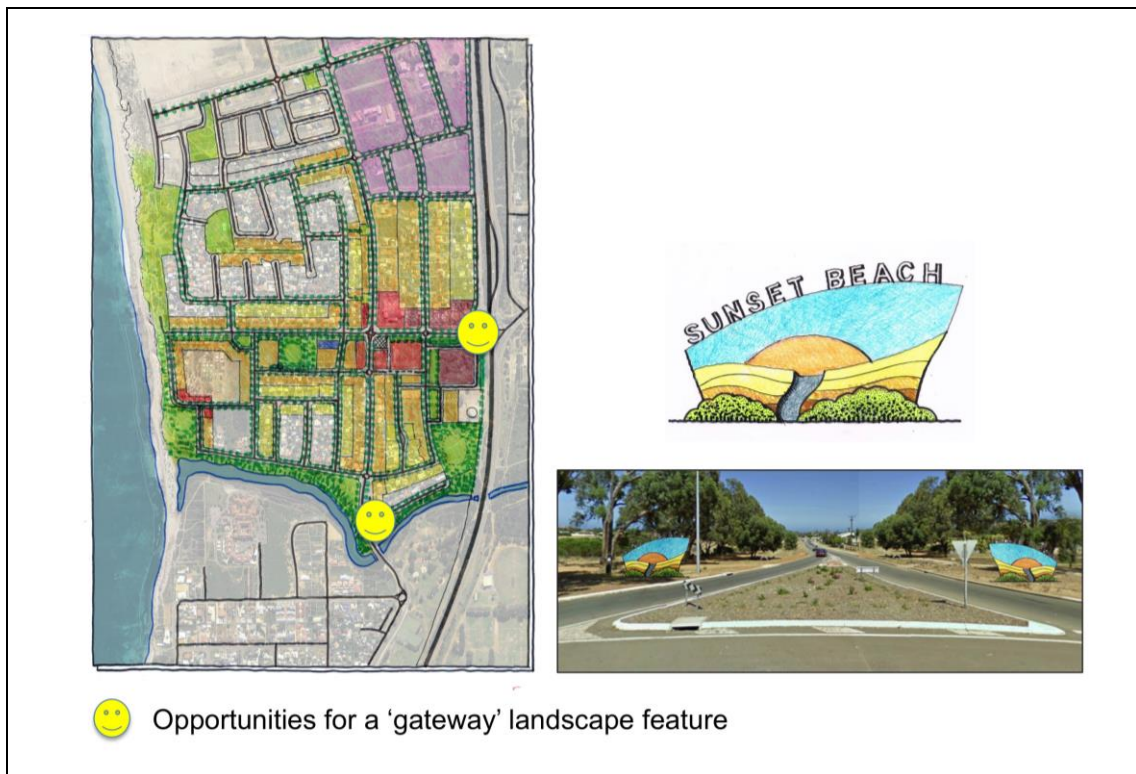


Figure 29: Gateway locations to the Sunset Beach area

In addition to the streets identified in **Figure 28**, there are three entry points to the Sunset Beach precinct area that are suited to the provision of an entry statement that announces visitors' arrival at Sunset Beach. These 'gateway' locations are identified in **Figure 29**.

Streetscape improvements can be relatively simple and, depending on the exact location might involve a combination of:

- Planting street trees
- Laying footpaths
- Establishing a native nursery for hardy groundcover plants to supply residents who are prepared to plant and maintain their verges
- Introducing on-street parking bays to reduce the carriageway width and the ambient speed of traffic
- Introducing cycle lanes to reduce the carriageway width and the ambient speed of traffic
- Introducing kerb nibs at intersections to reduce the pedestrian travel distance across carriageways
- Providing median islands at crossing locations with higher pedestrian numbers and on busier pedestrian routes
- Encouraging redevelopment with smaller front setbacks and windows facing the street
- Locating power lines underground and introducing new light poles.

An example of how the streetscape might be improved along Chapman Road is suggested in **Figure 30**.



Figure 30: Example of how streetscapes could be improved

6.5 Parkland Improvements

In addition to streetscape improvements, the City of Greater Geraldton has a high capacity to improve the quality of the parkland within the Sunset Precinct.

Park improvements may range from simple initiatives such as providing more park furniture (seating, bins etc) and planting more trees for shade, to significant park upgrades that include the provision of community gardens, sports infrastructure, play equipment and shade structures and creating parks with multiple uses.

Given that there are a number of different existing and potential areas of parkland of different scales in Sunset Beach, there is a strong logic to differentiate between them by ensuring they have distinctly different uses.

The diversity of parkland types may include:

- Multiple-use parks with flexible spaces for a variety of uses
- Riverside parkland with an emphasis on walk/cycling trails and natural habitat to support biodiversity
- Beachside parkland with lawns and family facilities
- A piazza/town square space in the village centre
- Small local parks with children's play equipment
- Larger local parks with kick-about space
- Specialised parkland such as 'community gardens'.

The potential locations for some of the above parkland types are illustrated in **Figure 31**.



Figure 31: Diversity of park types and uses

Additionally, some of these recreational activities can be co-located in the same park to create a dominant and well-used park. Examples of the types of landscape spaces and activities that could work together in a multiple-use parkland to the west of the village centre are indicated in **Figure 32**.



Figure 32: Example of spaces and functions in a multiple-use park

Figure 33 provides an indication as to the type and scale of space that could be integrated into the planning and design of the future village centre near the intersection of Chapman Road and Chapman Valley Road.



Figure 33: Potential for a town square

The foreshore reserve at the western end of Swan Drive is an excellent opportunity to establish a family-orientated foreshore park of regional significance for both locals and tourists, as suggested in **Figure 34**.



Figure 34: Potential for a significant beach park

A number of community members who attended the precinct planning workshops identified a desire for an area of public space within Sunset Beach to be set aside for community gardens, to promote community interaction and

enable people to grow their own produce. **Figure 35** identifies a couple of potential locations for the establishment of a community garden.



Figure 35: Potential locations for a community garden

6.6 Pedestrian and Cyclist Network Improvements

With rising fuel prices, a growing awareness of the environmental impact of car use, and increasing level of obesity in the broader community, there is a growing realisation that there is a need to provide for walking and cycling as an alternative to travel by car and to encourage healthier lifestyles.

From the precinct planning perspective, this means ensuring that there is a well-connected and permeable network of pedestrian and cycle paths. In parts of the precinct the existing road network is relatively well connected. However future development of portions of the vacant land provides the opportunity for new streets that can improve local connectivity. In other parts of the precinct, specific design solutions may be required in strategic locations - such as opposite the existing shopping centre on Chapman Road - to provide pedestrian connectivity where none currently exist.

In addition to forging new street and other pedestrian and cyclist connections, the quality of the pedestrian and cyclist experience needs to be high in order to make walking and cycling an attractive alternative to driving. Given the cost of improving the streetscape (providing footpaths, improving intersections and crossing point, landscaping and planting street trees, it is important to prioritise the streets that connect destinations (such as parks and the village centre) and create a legible connected network. In addition to the priority streets identified for streetscape improvement (illustrated in **Figure 28**), the precinct planning process has identified a suggested network of priority routes for the provision of shared paths (pedestrians and cyclists) and other key pedestrian routes, which is illustrated in **Figure 35**. Naturally, there is a strong correlation between these routes and the priority streets for streetscape improvements.

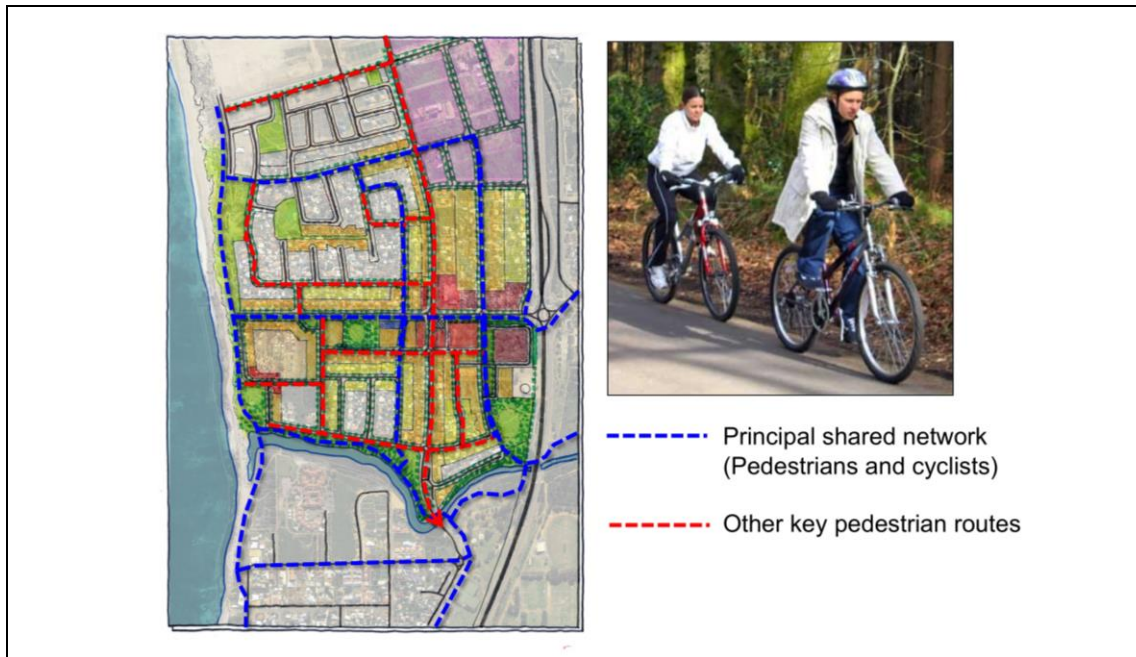


Figure 36: Principal pedestrian and cycle routes through Sunset Beach

Particular attention needs to be given towards pedestrian connectivity to the beach and the river, both in respect to creating additional connections or improving the amenity of existing connections as indicated in **Figure 37**. A particularly important pedestrian and cyclist connection in respect to the beach is the establishment of a new foreshore path between the river mouth and the end of Bosley Street. To achieve this, the caravan park needs to be relocated eastwards to provide sufficient foreshore to achieve the link (refer to **Figure 38**). Moving the caravan park will also protect it from the periodic erosion of the adjacent foreshore.

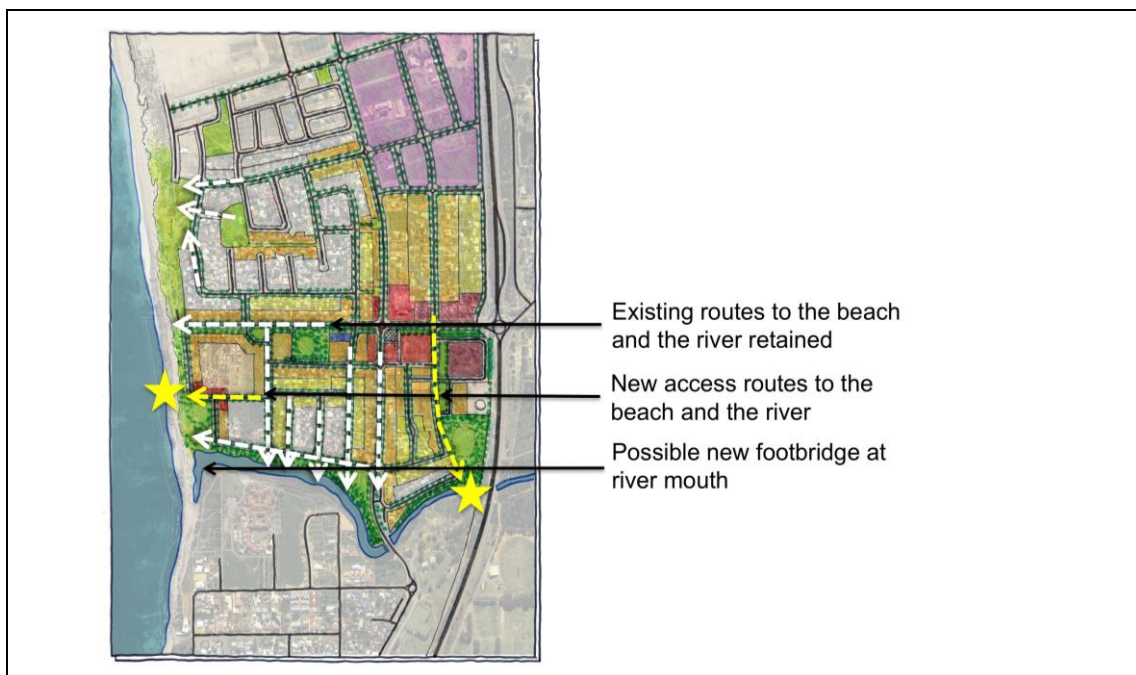


Figure 37: Improvement of pedestrian access to the beach and river

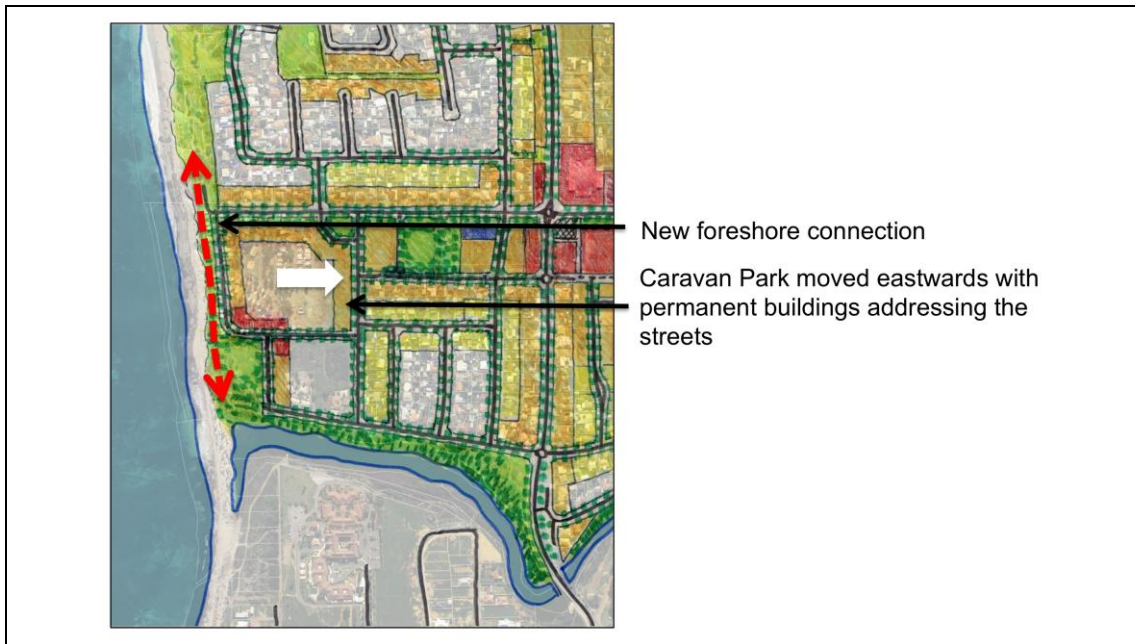


Figure 38: Establishing an important coastal connection

In respect to street connections, an important component of improving pedestrian and cyclist amenity is the management of traffic behaviour to reduce ambient traffic speeds. **Figure 39** identifies a number of different approaches to traffic 'calming' such as reducing carriageway widths, encouraging on-street parking (mobile traffic calming), and introducing splitter islands and pinch points.



Figure 39: Examples of traffic calming initiatives

6.7 Public Art

Public art is a good way of expressing a sense of place and helping a community to identify with where it lives. Public art is at its most effective when local artists produce the artwork working with community members, and when the artwork is integrated into the fabric of a place. Examples of the integration of public art are illustrated in **Figure 40** and include:

- Murals on existing blank and highly visible walls
- Sculptures that double as seating or play/climbing equipment for children
- Decoration of infrastructure items such as bins, signs and lamp poles
- Paving murals in focal areas such as parks and neighbourhood centres.

A public art program in the Sunset Beach precinct would be an ideal compliment to the other ideas suggested in the precinct planning process.



Figure 40: Example of the integration of public art to express a community's identity

6.8 Public Transport

As Greater Geraldton grows and the cost of car ownership rises, public transport will place an increasingly important role on how people travel around the city. The precinct planning process explored how a more direct bus route might serve Sunset Beach as part of a high frequency north-south bus route linking the future suburbs to the north and northeast back to the Geraldton city centre via Sunset Beach (refer to **Figure 41**), rather than the current low-frequency service that meanders slowly through the residential areas. A more direct service would provide a more attractive and convenient means of access to neighbouring places such as Bluff Point, and onwards to the Geraldton city centre and the tertiary education and health precinct.

Whilst these are suggested routes it should be noted that, ultimately, the Public Transport Authority has responsibility for determining bus routes.

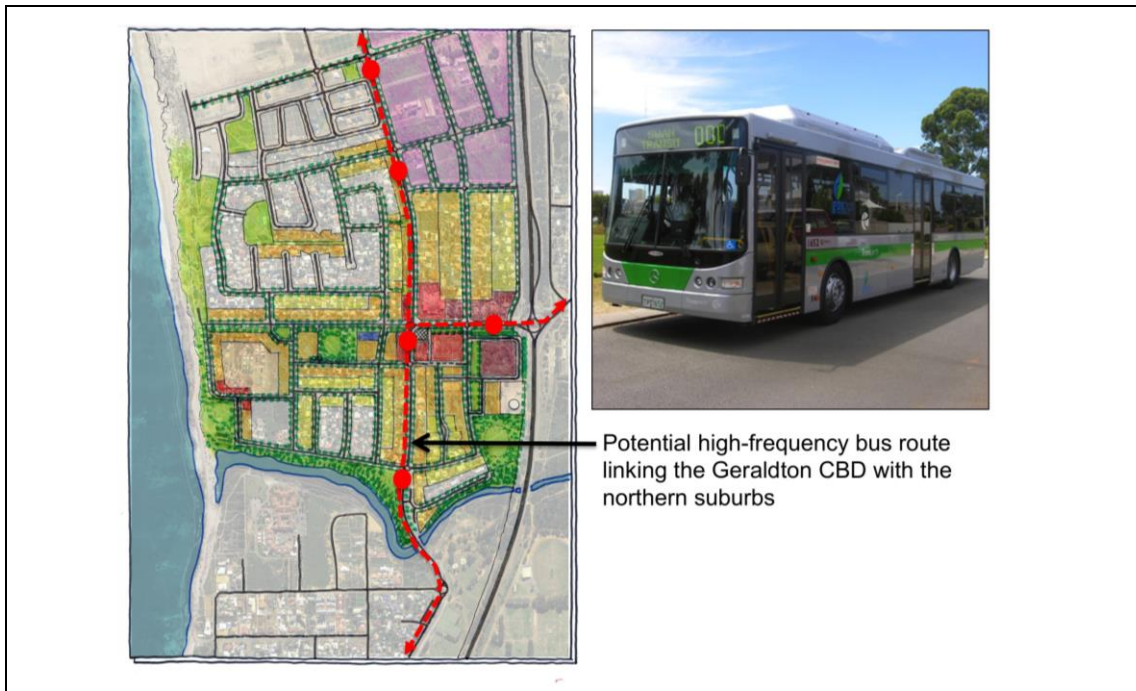
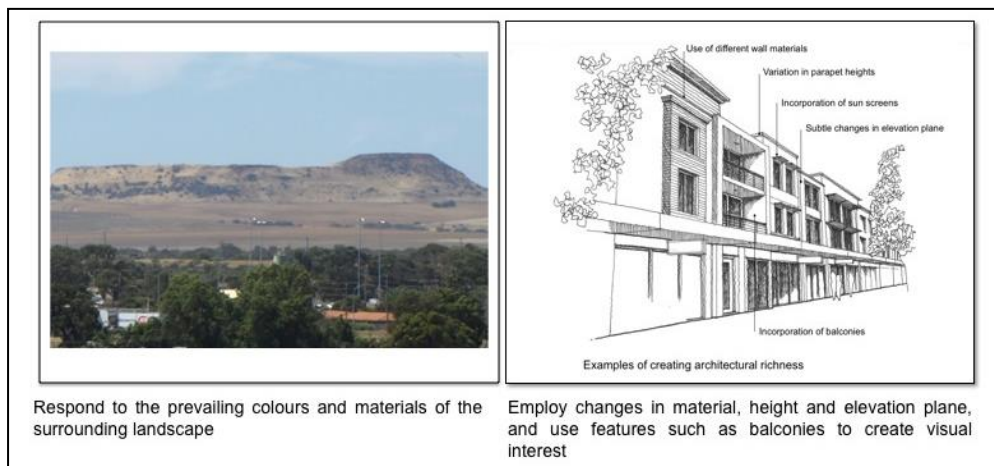


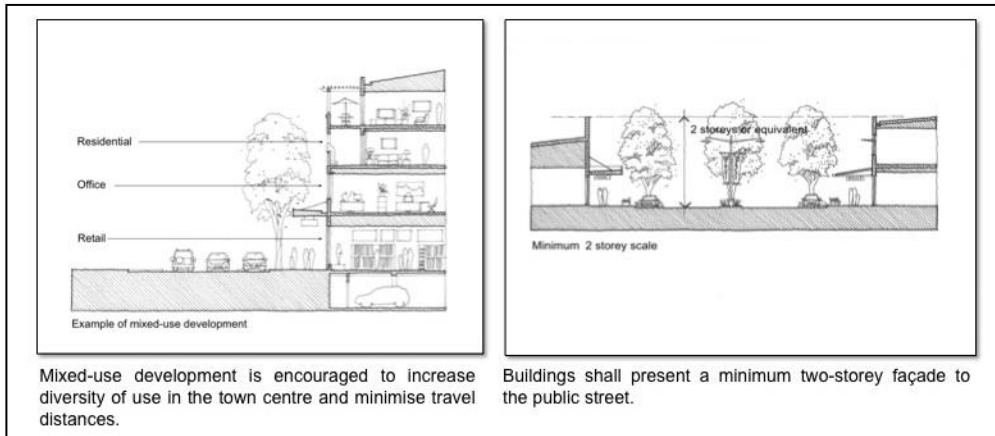
Figure 41: Potential high-frequency bus routes through the Sunset Beach precinct

6.9 Urban Design Principles for Activity Centres

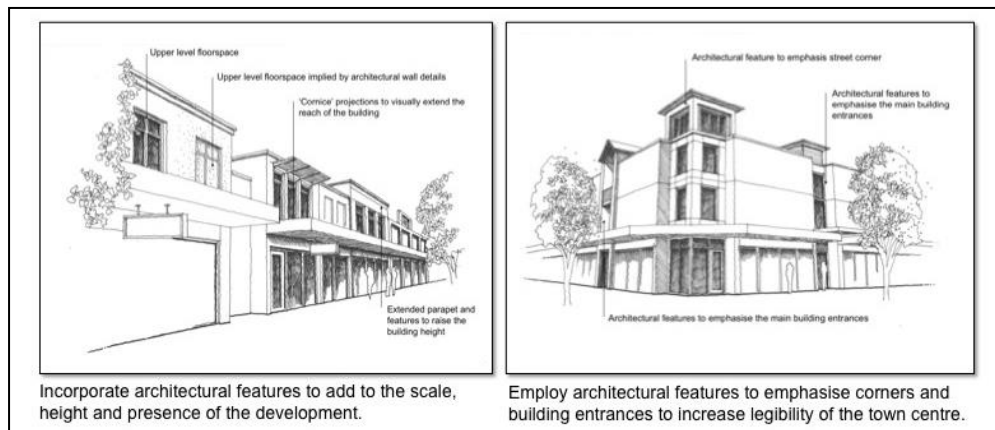
It is important that new development in the activity centres, particularly those with a primary retail focus (such as Sunset Beach) contributes to a streetscape that is pedestrian friendly and recognisable as a centre environment. To help achieve these aims, the following urban design principles for buildings in activity centres are suggested:



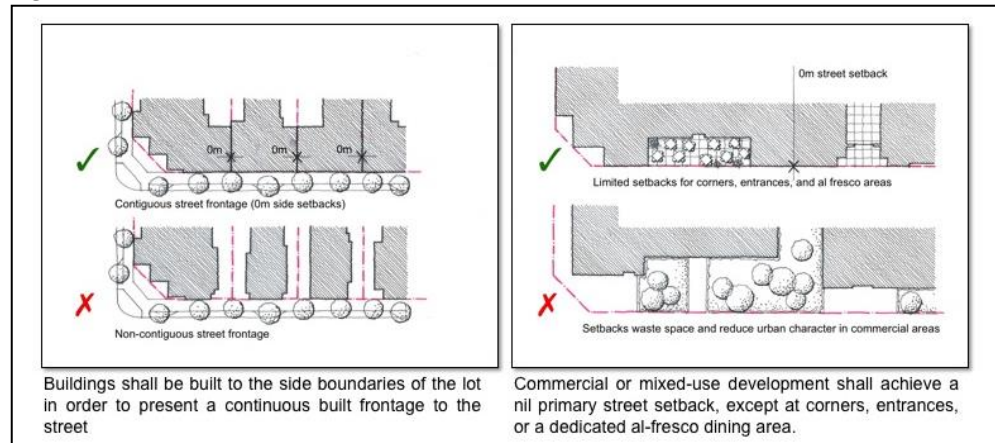
Figures 42 and 43



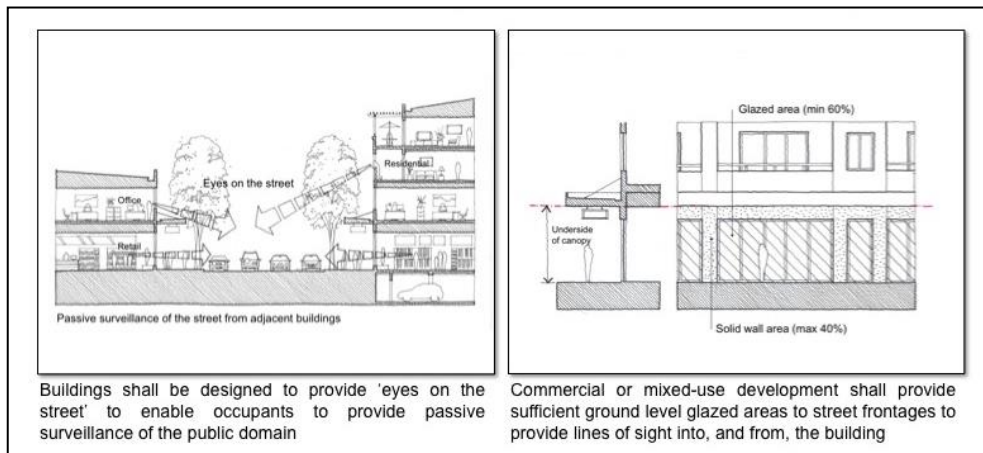
Figures 44 and 45



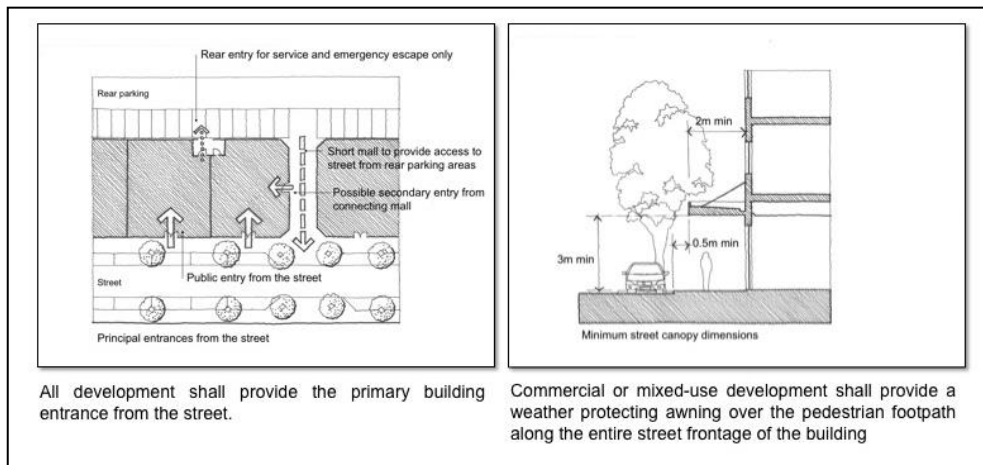
Figures 46 and 47



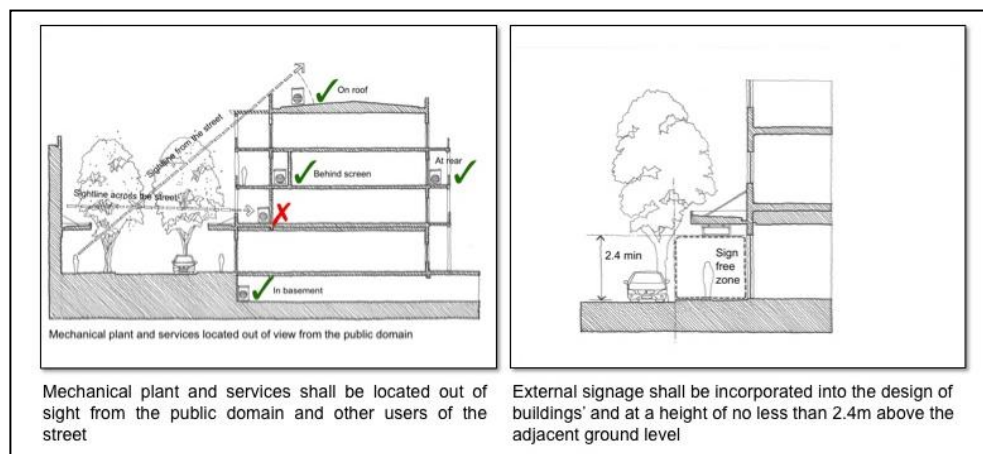
Figures 48 and 49



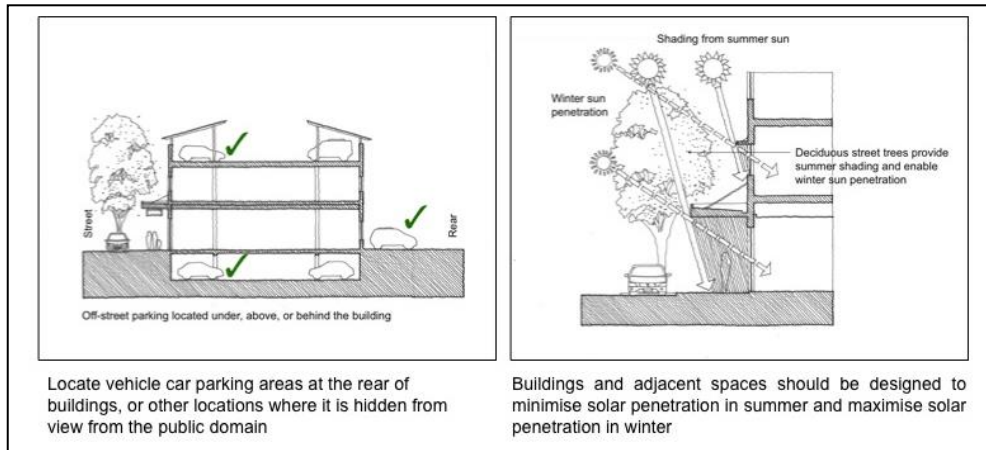
Figures 50 and 51



Figures 52 and 53



Figures 54 and 55



Figures 56 and 57

Adherence to such guidelines in the planning and design of the built form for activity centres is likely to result in the sort of high-quality and pedestrian friendly environments illustrated below:



Figure 58: Examples of good activity centre design

7.0 IMPLEMENTATION

Responsibility for coordinating the implementation of the precinct planning initiatives lies principally with the City of Greater Geraldton. However, the delivery of improvements will be the responsibility of a broader range of stakeholders that includes the City, State Government agencies (such as Main Roads WA) and private landowners.

The first step is for the City of Greater Geraldton to formally adopt this report under its regulatory planning framework. The fact that the precinct planning was undertaken with significant community input should provide the City with the confidence that it has an appropriate level of community support for the planning direction identified through the precinct planning process.

Once adopted, the City of Greater Geraldton should review the regulatory planning framework and identify any existing provisions in documents such as the Town Planning Scheme or Local Planning Policies that are in conflict with the precinct plan and seek to make changes to the documents to achieve consistency.

At the same time, the City of Greater Geraldton should identify the process for the disposal of public land including liaison with the Department of Lands and identification of a tender process that is consistent with the regulations governing local government. At a more detailed level, the City of Greater Geraldton should engage with State Government stakeholders on issues such as the reallocation and sale of redundant road reserve and the modification of intersections.

Prior to disposal of vacant land, it would be prudent for the City of Greater Geraldton to undertake the process of subdivision to ensure that the City retains a high level of control over the built outcome, rather than selling the land en-globo and relying on the purchaser to do what is expected. This would result in more cost to the City upfront in planning costs but the sale of land in smaller parcels is likely to achieve significantly higher rates per square metre than an en-globo sale. This approach also does not preclude the City from becoming more involved in the development process if it wishes by either managing the land development process itself or through a joint venture partner.

At a project level, the City of Greater Geraldton should prioritise the improvements it can make in the Sunset Beach precinct, using the proceeds from land sales, develop a program, and identify funding in its forward works budget.

Finally, it should be remembered that the revitalisation process is a long-term process and that significant changes can't be expected in the short term. The important thing is to have a plan, patience and a commitment from as many stakeholders as possible to bring the plan to fruition. This precinct planning process is only the first step in what will be a long but worthwhile journey.

APPENDIX B – CGG LOCAL PLANNING SCHEME EXTRACT



- LEGEND**
- LOCAL SCHEME RESERVES**
- Public Open Space
 - Environmental Conservation
 - Foreshore
 - Railways
 - Primary Distributor Road
 - District Distributor Road
 - Civic and Community
 - Public Purposes

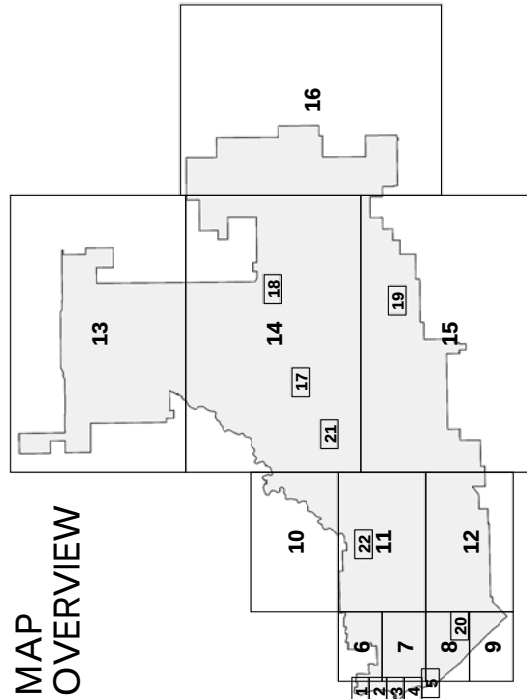
- ZONES**
- Residential
 - Urban Development
 - Rural Residential
 - Rural
 - Light Industry
 - General Industry
 - Settlement
 - Commercial

- Service Commercial
- Regional Centre
- Mixed Use
- Tourism
- Local Road

- OTHER**
- Additional Use
 - Restricted Use
 - Special Use
 - R-Codes
 - Scheme Boundary
 - Local Government Boundary
 - Townsite Boundary
 - Waterway

- SCA1 Moresby Range
- SCA2 Wastewater Treatment Plants
- SCA3 Geraldton Airport
- SCA4 Meni Waste Disposal Facility
- SCA5 Greenough Flats
- SCA6 Flood Prone
- SCA7 South Greenough to Cape Burney Coastal Planning Strategy

MAP OVERVIEW



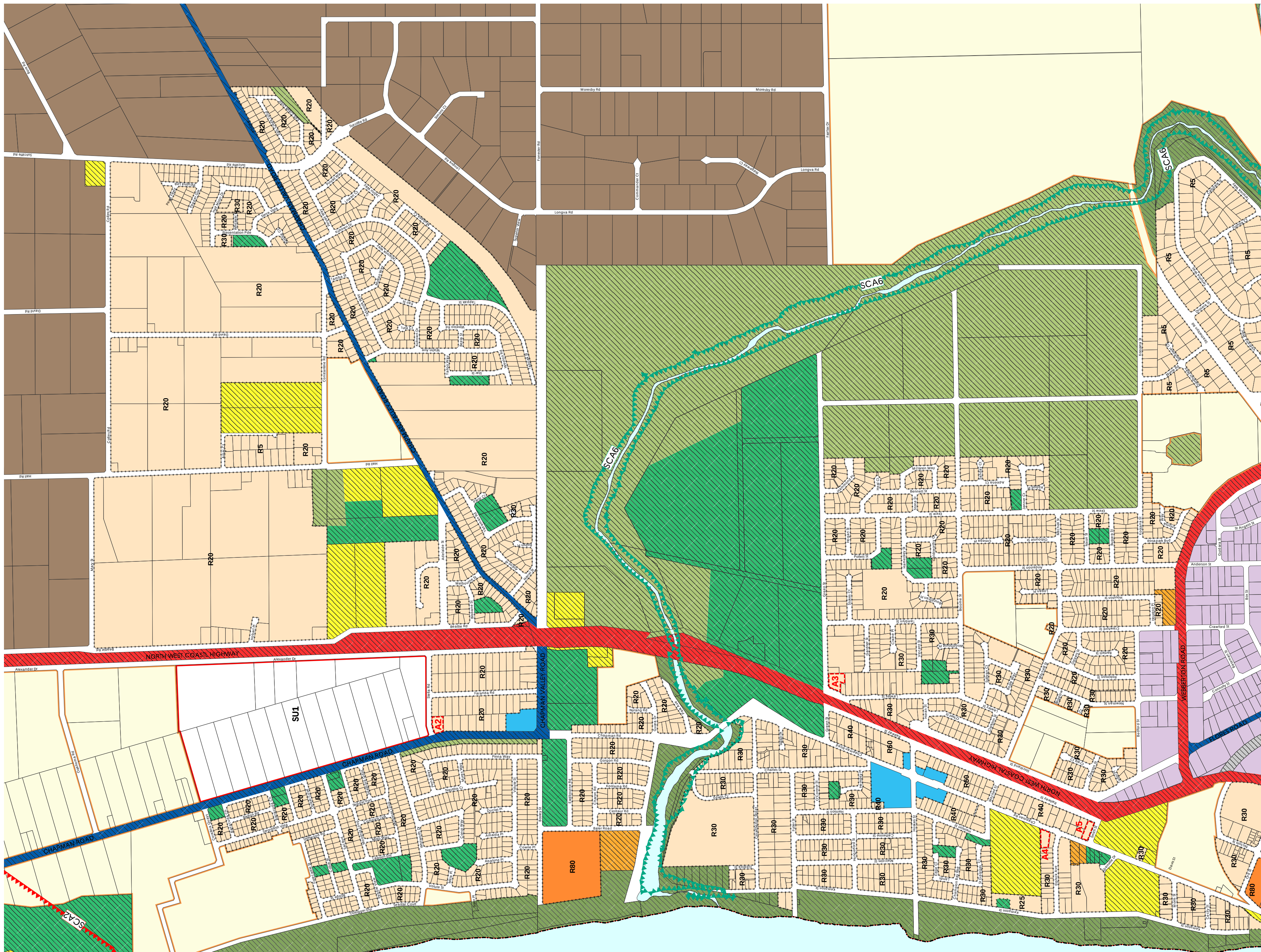
Projection:
MGA 94 Zone 50

Scale:
1:10,000 @A1

Gazettal Date:
11-Dec-15

Updated:
18-Mar-19

Details:
LPS Amendment No. 6



APPENDIX C – CGG PROVIDED TRAFFIC DATA

MetroCount Traffic Executive
Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-188 -- English (ENA)

Datasets:

Site: [Chapman Road] 83m North of Bosley Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 13:57 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022,
Zone:
File: Chapman Road 0 2022-08-30 1405.EC1 (Plus)
Identifier: E185N0A4 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022 (45.2006)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 64000 / 66543 (96.18%)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-188

Site: Chapman Road.1.2NS

Description: 83m North of Bosley Street

Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022

Scheme: Vehicle classification (ARX)

Filter: CIs(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages 1 - 5	1 - 7
0000-0100	0.0	0.9	0.4	1.9	3.5	8.2	11.0	1.3	3.5
0100-0200	0.2	1.7	1.3	2.0	1.2	4.7	4.5	1.3	2.2
0200-0300	0.0	1.4	1.1	1.4	0.3	2.7	2.5	0.9	1.4
0300-0400	1.3	2.9	3.3	3.6	4.3	3.5	2.5	3.1	3.1
0400-0500	0.0	4.7	6.4	6.9	12.2	3.8	3.0	6.0	5.3
0500-0600	0.7	23.9	24.1	21.7	21.5	8.3	7.0	18.8	15.8
0600-0700	1.5	58.1	48.9	52.3	56.8	19.3	15.7	44.4	37.2
0700-0800	6.7	108.4	97.9	102.3	110.2	47.0	36.7	86.7	74.7
0800-0900	15.5	124.1	116.0	137.0	143.5	91.7	65.3	108.9	100.8
0900-1000	7.5	107.9	105.4	117.7	118.3	115.3	104.2	93.1	97.5
1000-1100	12.8	114.7	101.4	113.3	132.0	141.0	143.2	96.2	108.4
1100-1200	12.0	118.4	101.6	106.0	139.0	149.2	135.7	96.6	108.8
1200-1300	15.8	108.1	109.0	121.4	135.0	119.8	130.8	99.2	106.2
1300-1400	12.6	111.4	96.0	96.0	136.7	129.5	110.5	89.2	97.2
1400-1500	102.7	114.1	108.0	99.1	141.5	118.5	109.3	112.3	112.7
1500-1600	127.0	117.4	117.9	118.6	140.2	127.5	109.8	123.7	122.4
1600-1700	131.9	125.7	124.0	135.0	138.0	108.3	95.7	130.7	123.2
1700-1800	131.1	124.6	134.3	139.1	149.2	125.3	86.7	135.3	127.6
1800-1900	64.9	66.6	68.9	83.0	91.8	81.5	11.2	74.5	67.2
1900-2000	34.4	36.3	45.4	58.3	45.8	31.0	6.2	43.6	36.9
2000-2100	23.7	24.0	24.7	29.0	34.2	27.7	1.5	26.8	23.6
2100-2200	16.4	17.0	17.4	18.2	21.3	24.8	0.2	18.0	16.5
2200-2300	6.1	9.0	9.3	12.5	16.0	15.3	0.2	10.4	9.7
2300-2400	2.6	4.6	5.4	6.7	9.7	11.8	0.0	5.6	5.7
Totals									
0700-1900	640.5	1341.6	1280.3	1368.6	1575.3	1354.7	1139.0	1246.4	1246.9
0600-2200	716.5	1477.0	1416.7	1526.4	1733.5	1457.5	1162.5	1379.2	1361.1
0600-0000	725.3	1490.6	1431.4	1545.5	1759.2	1484.7	1162.7	1395.2	1376.5

0000-0000	727.4	1526.0	1468.1	1583.0	1802.2	1515.8	1193.2	1426.7	1407.8
AM Peak	0800 15.5	0800 124.1	0800 116.0	0800 137.0	0800 143.5	1100 149.2	1000 143.2		
PM Peak	1600 131.9	1600 125.7	1700 134.3	1700 139.1	1700 149.2	1300 129.5	1200 130.8		

* - No data.

MetroCount Traffic Executive

Speed Statistics

SpeedStat-190 -- English (ENA)

Datasets:

Site: [Chapman Road] 83m North of Bosley Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 13:57 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022,
Zone:
File: Chapman Road 0 2022-08-30 1405.EC1 (Plus)
Identifier: E185N0A4 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022 (45.2006)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 64000 / 66543 (96.18%)

Speed Statistics

SpeedStat-190

Site: Chapman Road.1.2NS
Description: 83m North of Bosley Street
Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022
Scheme: Vehicle classification (ARX)
Filter: CIs(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 64000
Posted speed limit = 60 km/h, Exceeding = 4034 (6.303%), Mean Exceeding = 66.03 km/h
Maximum = 156.1 km/h, Minimum = 10.0 km/h, Mean = 40.4 km/h
85% Speed = 54.00 km/h, 95% Speed = 61.20 km/h, Median = 40.77 km/h
20 km/h Pace = 28 - 48, Number in Pace = 36381 (56.85%)
Variance = 157.18, Standard Deviation = 12.54 km/h

Speed Bins (Partial days)

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 10	0 0.000%	0 0.000%	64000 100.0%	0.00	0.00	0.00
10 - 20	2999 4.686%	2999 4.686%	61001 95.31%	0.00	0.00	0.00
20 - 30	11642 18.19%	14641 22.88%	49359 77.12%	0.00	0.00	0.00
30 - 40	15825 24.73%	30466 47.60%	33534 52.40%	0.00	0.00	0.00
40 - 50	20229 31.61%	50695 79.21%	13305 20.79%	0.00	0.00	0.00
50 - 60	9271 14.49%	59966 93.70%	4034 6.303%	0.00	0.00	0.00
60 - 70	3161 4.939%	63127 98.64%	873 1.364%	0.00	0.00	0.00
70 - 80	769 1.202%	63896 99.84%	104 0.163%	0.00	0.00	0.00
80 - 90	78 0.122%	63974 99.96%	26 0.041%	0.00	0.00	0.00
90 - 100	15 0.023%	63989 99.98%	11 0.017%	0.00	0.00	0.00
100 - 110	2 0.003%	63991 99.99%	9 0.014%	0.00	0.00	0.00
110 - 120	1 0.002%	63992 99.99%	8 0.013%	0.00	0.00	0.00
120 - 130	0 0.000%	63992 99.99%	8 0.013%	0.00	0.00	0.00
130 - 140	4 0.006%	63996 99.99%	4 0.006%	0.00	0.00	0.00
140 - 150	3 0.005%	63999 100.00%	1 0.002%	0.00	0.00	0.00
150 - 160	1 0.002%	64000 100.0%	0 0.000%	0.00	0.00	0.00
160 - 170	0 0.000%	64000 100.0%	0 0.000%	0.00	0.00	0.00
170 - 180	0 0.000%	64000 100.0%	0 0.000%	0.00	0.00	0.00
180 - 190	0 0.000%	64000 100.0%	0 0.000%	0.00	0.00	0.00
190 - 200	0 0.000%	64000 100.0%	0 0.000%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

Limit		Below		Above	
0	60 (PSL)	59966	93.7%	4034	6.3%

MetroCount Traffic Executive Class Speed Matrix

ClassMatrix-189 -- English (ENA)

Datasets:

Site: [Chapman Road] 83m North of Bosley Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 13:57 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022,
Zone:
File: Chapman Road 0 2022-08-30 1405.EC1 (Plus)
Identifier: E185N0A4 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022 (45.2006)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 64000 / 66543 (96.18%)

Class Speed Matrix

ClassMatrix-189

Site: Chapman Road.1.2NS

Description: 83m North of Bosley Street

Filter time: 13:58 Monday, 4 July 2022 => 18:46 Thursday, 18 August 2022

Scheme: Vehicle classification (ARX)

Filter: Cls(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Class													
	MC	SV	SVT	TB2	TB3	T4	ART3	ART4	ART5	ART6	BD	DRT	Total
km/h	1	2	3	4	5	6	7	8	9	10	11	12	
10- 20	419	2486	5	15	20	51	.	.	.	3	.	.	2999 4.7%
20- 30	2048	9258	45	112	93	70	.	2	4	9	1	.	11642 18.2%
30- 40	153	15333	175	98	32	17	.	6	7	4	.	.	15825 24.7%
40- 50	68	19764	231	127	29	3	4	3	.	.	.	.	20229 31.6%
50- 60	23	8821	6	317	91	3	4	1	4	1	.	.	9271 14.5%
60- 70	17	2955	.	180	8	.	.	1	.	.	.	.	3161 4.9%
70- 80	2	651	.	110	1	1	3	1	.	.	.	.	769 1.2%
80- 90	1	53	.	24	.	.	.	.	.	.	.	.	78 0.1%
90-100	.	9	.	6	.	.	.	.	.	.	.	.	15 0.0%
100-110	.	1	.	1	.	.	.	.	.	.	.	.	2 0.0%
110-120	.	1	.	.	.	.	.	.	.	.	.	.	1 0.0%
120-130	.	.	.	.	.	.	.	.	.	.	.	.	0 0.0%
130-140	.	4	.	.	.	.	.	.	.	.	.	.	4 0.0%
140-150	.	3	.	.	.	.	.	.	.	.	.	.	3 0.0%
150-160	.	1	.	.	.	.	.	.	.	.	.	.	1 0.0%
Total	2731 4.3%	59340 92.7%	462 0.7%	990 1.5%	274 0.4%	145 0.2%	11 0.0%	14 0.0%	15 0.0%	17 0.0%	1 0.0%	0 0.0%	64000

MetroCount Traffic Executive Class Speed Matrix

ClassMatrix-16 -- English (ENA)

Datasets:

Site: [Chapman Road] 200m South of Crowtherton Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 10:23 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021,
Zone:
File: Chapman Road 0 2021-08-27 1005.EC1 (Plus)
Identifier: FJ866WYA MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 10:24 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021 (35.9873)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 158145 / 158338 (99.88%)

Class Speed Matrix

ClassMatrix-16

Chapman Road.1.2NS

Description: 200m South of Crowtherton Street

Filter time: 10:24 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021

Scheme: Vehicle classification (AustRoads94)

Filter: CIs(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Class												
	SV	SVT	TB2	TB3	T4	ART3	ART4	ART5	ART6	BD	DRT	TRT
	1	2	3	4	5	6	7	8	9	10	11	12
km/h												
10- 20	719	2	1	8	24	.	.	.	3	.	.	.
20- 30	550	15	19	12	5	1	.	.	1	.	.	.
30- 40	7859	302	159	147	39	12	17	6	10	.	1	.
40- 50	113677	2139	898	1855	137	16	72	18	22	.	2	.
50- 60	27293	368	178	686	5	.	11	6	4	.	.	.
60- 70	641	6	2	18	.	.	.	.	.	.	.	.
70- 80	60	.	1	2	.	.	.	.	.	.	.	.
80- 90	10	.	.	.	.	.	.	.	.	.	.	.
90-100	2	.	.	.	.	.	.	.	.	.	.	.
100-110	11	.	.	1	.	.	.	.	.	.	.	.
110-120	2	.	2	.	.	.	1	.	.	.	.	.
120-130	82	.	.	.	.	.	.	.	.	.	.	.
130-140	2	.	1	.	.	.	.	.	.	.	.	.
140-150	1	.	.	.	.	.	.	.	.	.	.	.
150-160	.	.	1	.	.	.	.	.	.	.	.	.
Total	150909	2832	1262	2729	210	29	101	30	40	0	3	0
	95.4%	1.8%	0.8%	1.7%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

MetroCount Traffic Executive

Speed Statistics

SpeedStat-17 -- English (ENA)

Datasets:

Site: [Chapman Road] 200m South of Crowtherton Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 10:23 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021,
Zone:
File: Chapman Road 0 2021-08-27 1005.EC1 (Plus)
Identifier: FJ866WYA MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 10:24 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021 (35.9873)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 158145 / 158338 (99.88%)

Speed Statistics

SpeedStat-17

Site: Chapman Road.1.2NS
Description: 200m South of Crowtherton Street
Filter time: 10:24 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021
Scheme: Vehicle classification (AustRoads94)
Filter: CIs(1-12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100) Lane(0-16)

Vehicles = 158145
Posted speed limit = 60 km/h, Exceeding = 846 (0.535%), Mean Exceeding = 71.32 km/h
Maximum = 153.9 km/h, Minimum = 10.0 km/h, Mean = 46.4 km/h
85% Speed = 50.58 km/h, 95% Speed = 53.46 km/h, Median = 46.44 km/h
20 km/h Pace = 37 - 57, Number in Pace = 152614 (96.50%)
Variance = 28.32, Standard Deviation = 5.32 km/h

Speed Bins (Partial days)

Speed	Bin	Below	Above	Energy	vMult	n	vMult
0 - 10	0 0.000%	0 0.000%	158145 100.0%	0.00	0.00	0.00	0.00
10 - 20	757 0.479%	757 0.479%	157388 99.52%	0.00	0.00	0.00	0.00
20 - 30	603 0.381%	1360 0.860%	156785 99.14%	0.00	0.00	0.00	0.00
30 - 40	8552 5.408%	9912 6.268%	148233 93.73%	0.00	0.00	0.00	0.00
40 - 50	118836 75.14%	128748 81.41%	29397 18.59%	0.00	0.00	0.00	0.00
50 - 60	28551 18.05%	157299 99.47%	846 0.535%	0.00	0.00	0.00	0.00
60 - 70	667 0.422%	157966 99.89%	179 0.113%	0.00	0.00	0.00	0.00
70 - 80	63 0.040%	158029 99.93%	116 0.073%	0.00	0.00	0.00	0.00
80 - 90	10 0.006%	158039 99.93%	106 0.067%	0.00	0.00	0.00	0.00
90 - 100	2 0.001%	158041 99.93%	104 0.066%	0.00	0.00	0.00	0.00
100 - 110	12 0.008%	158053 99.94%	92 0.058%	0.00	0.00	0.00	0.00
110 - 120	5 0.003%	158058 99.94%	87 0.055%	0.00	0.00	0.00	0.00
120 - 130	82 0.052%	158140 100.00%	5 0.003%	0.00	0.00	0.00	0.00
130 - 140	3 0.002%	158143 100.00%	2 0.001%	0.00	0.00	0.00	0.00
140 - 150	1 0.001%	158144 100.00%	1 0.001%	0.00	0.00	0.00	0.00
150 - 160	1 0.001%	158145 100.0%	0 0.000%	0.00	0.00	0.00	0.00
160 - 170	0 0.000%	158145 100.0%	0 0.000%	0.00	0.00	0.00	0.00
170 - 180	0 0.000%	158145 100.0%	0 0.000%	0.00	0.00	0.00	0.00
180 - 190	0 0.000%	158145 100.0%	0 0.000%	0.00	0.00	0.00	0.00
190 - 200	0 0.000%	158145 100.0%	0 0.000%	0.00	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

Limit	Below	Above
0 60 (PSL)	157299 99.5%	846 0.5%

MetroCount Traffic Executive Vehicle Counts

VehicleCount-15 -- English (ENA)

Datasets:

Site: [Chapman Road] 200m South of Crowtherston Street
Attribute: North to South
Direction: 7 - North bound A>B, South bound B>A. **Lane:** 1
Survey Duration: 10:23 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021,
Zone:
File: Chapman Road 0 2021-08-27 1005.EC1 (Plus)
Identifier: FJ866WYA MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v5.02)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 10:24 Thursday, 22 July 2021 => 10:05 Friday, 27 August 2021 (35.9873)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North, Lane = 0-16
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 158145 / 158338 (99.88%)

*** Wednesday, 28 July 2021 - Total=6746, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
7	9	3	12	15	75	215	448	698	418	445	427	433	395	521	594	594	641	347	161	126	98	48	16
0	3	1	1	3	8	18	63	211	107	114	99	111	99	106	146	144	180	97	49	26	28	13	7
3	0	0	0	3	18	48	91	197	100	100	103	102	105	115	172	153	172	104	40	36	27	12	5
1	6	1	4	5	25	68	121	156	105	97	119	107	99	156	128	162	161	76	33	41	21	16	3
3	0	1	7	4	24	81	173	134	106	134	106	113	92	144	148	135	128	70	39	23	22	7	1
AM Peak 0745 - 0845 (737), AM PHF=0.87 PM Peak 1630 - 1730 (649), PM PHF=0.90																							

*** Thursday, 29 July 2021 - Total=7104, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
6	9	5	10	16	78	206	421	771	417	425	479	492	467	549	601	637	601	354	218	156	115	49	22
3	2	3	0	3	6	21	58	230	93	108	109	137	125	116	130	147	212	89	70	42	31	11	12
1	5	0	4	1	16	33	68	212	103	93	112	135	113	126	169	171	158	104	67	44	31	17	6
0	1	0	1	7	27	63	136	184	115	124	113	99	116	145	156	161	118	92	44	38	27	13	2
2	1	2	5	5	29	89	159	145	106	100	145	121	113	162	146	158	113	69	37	32	26	8	2
AM Peak 0745 - 0845 (785), AM PHF=0.85 PM Peak 1615 - 1715 (702), PM PHF=0.83																							

*** Friday, 30 July 2021 - Total=7212, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
7	11	7	5	14	70	192	412	738	476	504	470	529	276	448	657	642	624	449	221	173	162	88	37
1	1	1	0	2	1	24	54	208	108	123	120	138	98	55	151	158	170	122	70	50	40	28	8
4	2	2	0	2	18	31	78	215	109	128	115	123	52	69	176	171	176	124	57	51	47	26	15
1	3	3	0	7	26	50	117	176	126	132	114	127	69	157	142	143	147	108	46	43	33	21	9
1	5	1	5	3	25	87	163	139	133	121	121	141	57	167	188	170	131	95	48	29	42	13	5
AM Peak 0745 - 0845 (762), AM PHF=0.89 PM Peak 1515 - 1615 (664), PM PHF=0.88																							

*** Saturday, 31 July 2021 - Total=6463, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
20	18	9	7	11	30	77	158	384	557	533	624	616	567	491	445	464	448	366	222	136	133	80	67
8	6	3	2	1	4	11	19	65	122	120	157	169	143	133	115	114	111	111	64	31	29	21	15
5	3	2	2	0	5	13	38	84	133	131	136	150	139	122	111	131	103	92	70	36	25	18	19
5	6	2	2	4	10	25	49	113	140	147	162	156	144	112	111	118	97	79	39	39	46	21	18
2	3	2	1	6	11	28	52	122	162	135	169	141	141	124	108	101	137	84	49	30	33	20	15
AM Peak 1130 - 1230 (650), AM PHF=0.96 PM Peak 1200 - 1300 (616), PM PHF=0.91																							

*** Sunday, 1 August 2021 - Total=5148, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
47	32	14	6	12	31	63	131	252	399	450	498	566	489	417	424	368	371	241	147	87	70	18	15
12	11	7	2	4	0	7	25	38	88	110	126	168	125	124	109	104	100	65	31	21	14	5	3
9	5	4	3	2	6	14	31	61	93	125	126	137	127	75	94	79	87	71	39	25	25	4	7
15	9	2	0	3	10	17	37	75	90	115	117	134	117	106	106	85	83	54	46	22	17	4	2
11	7	1	1	3	15	25	38	78	128	100	129	127	120	112	115	100	101	51	31	19	14	5	3
AM Peak 1145 - 1245 (568), AM PHF=0.85 PM Peak 1200 - 1300 (566), PM PHF=0.84																							

*** Monday, 2 August 2021 - Total=7006, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
4	4	4	8	22	69	246	473	803	462	416	443	437	427	524	650	679	593	329	179	114	72	34	14
3	3	0	0	2	4	30	66	225	117	112	130	108	109	102	145	162	170	118	48	41	15	20	6
1	0	2	0	0	23	41	104	231	91	104	107	100	92	101	185	175	170	79	53	24	27	8	1
0	1	0	2	7	20	86	137	207	123	106	106	115	132	159	160	157	141	75	52	30	16	2	3
0	0	2	6	13	22	89	166	140	131	94	100	114	94	162	160	185	112	57	26	19	14	4	2
AM Peak 0745 - 0845 (829), AM PHF=0.90 PM Peak 1615 - 1715 (687), PM PHF=0.93																							

*** Tuesday, 3 August 2021 - Total=7125, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

11	4	3	6	21	83	214	431	833	459	412	429	453	438	526	651	645	657	394	171	165	71	31	17	
4	3	0	2	1	6	27	50	257	125	120	109	114	100	108	174	135	186	128	42	51	14	6	5	3
3	1	1	1	5	19	33	101	245	115	89	107	121	106	111	165	165	193	106	58	47	18	17	6	3
2	0	1	0	10	21	76	121	205	115	100	111	115	126	160	168	159	142	103	37	38	22	4	4	1
2	0	1	3	5	37	78	159	126	104	103	102	103	106	147	144	186	136	57	34	29	17	4	2	0
AM Peak 0745 - 0845 (866), AM PHF=0.84 PM Peak 1630 - 1730 (724), PM PHF=0.94																								

* Wednesday, 4 August 2021 - Total=7520, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
7	9	4	9	18	73	241	517	878	413	400	453	425	458	577	643	702	704	402	259	142	110	56	20
3	4	1	1	3	8	27	62	271	120	105	99	97	100	112	159	174	195	117	63	58	34	20	5
3	0	1	1	0	26	47	112	241	103	99	116	120	120	134	167	178	188	123	78	36	24	22	10
1	4	1	1	8	17	74	136	213	84	93	113	99	112	157	158	172	173	89	68	27	31	11	2
0	1	1	6	7	22	93	207	153	106	103	125	109	126	174	159	178	148	73	50	21	21	3	1
AM Peak 0745 - 0845 (932), AM PHF=0.86 PM Peak 1645 - 1745 (734), PM PHF=0.94																							

* Thursday, 5 August 2021 - Total=7833, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
9	15	7	7	18	79	227	487	920	469	463	453	478	473	602	677	705	718	440	251	162	92	56	25
2	3	1	2	1	5	22	79	261	120	122	86	114	105	132	167	159	208	136	80	36	31	10	6
6	3	4	0	2	25	42	94	262	124	112	116	157	110	141	172	173	193	123	69	46	23	18	7
0	6	1	1	10	25	79	132	232	116	109	119	112	131	162	156	184	179	83	43	43	21	14	8
1	3	1	4	5	24	84	182	165	119	120	132	95	127	167	182	189	138	98	59	37	17	14	4
AM Peak 0745 - 0845 (937), AM PHF=0.89 PM Peak 1630 - 1730 (774), PM PHF=0.93																							

* Friday, 6 August 2021 - Total=7999, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
9	8	7	8	23	71	223	479	921	496	493	484	518	491	560	724	696	634	484	269	174	126	72	29
4	5	1	1	4	4	22	68	250	131	100	121	118	121	126	182	165	174	139	98	49	41	22	9
2	1	5	0	4	15	49	112	283	129	110	116	123	95	135	213	182	169	140	72	40	33	19	12
2	2	0	0	4	26	65	137	211	120	145	118	144	128	136	183	169	141	107	53	48	36	12	5
1	0	1	7	11	26	87	162	177	116	138	129	133	147	163	146	180	150	98	46	37	16	19	3
AM Peak 0800 - 0900 (921), AM PHF=0.81 PM Peak 1445 - 1545 (741), PM PHF=0.87																							

* Saturday, 7 August 2021 - Total=6406, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
32	20	3	6	15	39	96	190	382	508	549	591	564	523	515	453	435	433	321	220	202	138	106	65
13	7	2	1	3	14	23	67	106	154	141	159	129	136	120	117	101	86	72	47	34	26	14	21
8	3	1	1	1	13	19	27	83	143	138	161	126	137	130	118	114	116	90	61	43	31	33	9
7	2	0	1	2	14	35	68	115	131	129	145	144	138	123	118	101	101	72	48	58	41	28	21
4	8	0	3	9	9	28	72	117	128	128	144	135	119	126	97	103	115	73	39	54	32	19	21
AM Peak 1115 - 1215 (609), AM PHF=0.95 PM Peak 1200 - 1300 (564), PM PHF=0.89																							

* Sunday, 8 August 2021 - Total=5169, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
50	36	21	7	12	30	69	106	278	403	447	502	513	443	461	408	372	368	270	168	109	62	20	14
21	16	4	2	1	3	14	14	48	82	123	126	126	115	109	116	93	95	82	56	27	18	7	1
12	6	6	4	2	7	13	25	66	90	88	126	133	124	120	101	89	101	78	47	35	18	6	4
9	6	7	1	2	8	21	27	79	95	118	113	129	92	130	81	89	90	59	26	28	14	4	3
8	8	4	0	7	12	21	40	85	136	118	137	125	112	102	110	101	82	51	39	19	12	3	6
AM Peak 1145 - 1245 (525), AM PHF=0.96 PM Peak 1200 - 1300 (513), PM PHF=0.96																							

* Monday, 9 August 2021 - Total=6919, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
5	5	7	10	22	72	190	471	833	445	473	456	433	447	493	642	608	615	292	156	95	80	46	23
2	2	2	1	2	6	21	68	233	137	136	128	119	115	108	155	155	160	91	37	22	26	14	10
1	1	1	1	2	22	41	103	234	109	100	104	89	116	105	168	120	186	84	54	32	24	15	5

AM Peak 1145 - 1245 (549), AM PHF=0.93 PM Peak 1200 - 1300 (548), PM PHF=0.94

* Monday, 16 August 2021 - Total=6783, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
10	5	5	12	20	70	191	420	740	429	426	471	435	471	494	554	625	613	362	202	95	88	35	10
4	2	0	2	4	1	20	62	199	97	97	108	111	125	127	157	149	190	115	57	20	29	16	5
0	2	2	2	3	21	35	75	222	111	116	126	109	119	104	127	167	167	111	57	30	25	8	1
5	0	1	2	5	25	61	121	177	88	105	120	96	103	106	147	149	144	84	43	23	20	3	0
1	1	2	6	8	23	75	162	142	133	108	117	119	124	157	123	160	112	52	45	22	14	8	2
1																							1

AM Peak 0745 - 0845 (760), AM PHF=0.86 PM Peak 1615 - 1715 (666), PM PHF=0.88

* Tuesday, 17 August 2021 - Total=6984, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
7	8	8	16	70	230	439	771	457	460	405	461	433	480	617	624	609	384	201	134	99	45	18	
5	2	4	1	2	7	26	64	227	133	109	104	115	102	104	154	158	151	117	61	34	28	16	7
1	2	1	1	2	18	42	101	242	102	110	101	110	123	112	144	143	204	119	57	43	30	19	5
0	3	1	0	5	22	73	107	155	117	121	90	113	107	116	169	171	128	79	44	42	19	5	2
1	1	2	6	7	23	89	167	147	105	120	110	123	101	148	150	152	126	69	39	15	22	5	4
1																							1

AM Peak 0745 - 0845 (791), AM PHF=0.82 PM Peak 1630 - 1730 (678), PM PHF=0.83

* Wednesday, 18 August 2021 - Total=1400, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
10	7	5	10	18	72	218	477	262	141	144	17	13	1	1	2	0	2	0	0	0	0	0	0
4	3	1	0	2	7	29	71	152	26	36	13	13	1	1	1	0	0	0	0	0	0	0	0
4	3	1	0	1	21	42	98	32	37	39	3	0	0	0	1	0	0	0	0	0	0	0	0
1	1	1	2	10	26	69	112	30	37	42	1	0	0	0	0	0	2	0	0	0	0	0	0
1	0	2	8	5	18	78	196	48	41	27	0	0	0	0	0	0	0	0	0	0	0	0	0
1																							0

AM Peak 0715 - 0815 (558), AM PHF=0.71 PM Peak 1200 - 1300 (13), PM PHF=0.25

* Thursday, 19 August 2021 - Total=9, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	0	0	2	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0																							0

AM Peak 0915 - 1015 (2), AM PHF=0.25 PM Peak 1600 - 1700 (2), PM PHF=0.50

* Friday, 20 August 2021 - Total=3, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																							0

AM Peak 0000 - 0100 (0), AM PHF=1.00 PM Peak 1330 - 1430 (2), PM PHF=0.50

* Saturday, 21 August 2021 - Total=3, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																							0

AM Peak 1115 - 1215 (2), AM PHF=0.50 PM Peak 1200 - 1300 (1), PM PHF=0.25

* Sunday, 22 August 2021 - Total=1, 15 minute drops

[illegible]

* Monday, 23 August 2021 - Total=15, 15 minute drops

	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	33
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3

AM Peak 1100 - 1200 (1), AM PHF=0.25 PM Peak 2300 - 2400 (13), PM PHF=0.54

* Tuesday, 24 August 2021 - Total=326, 15 minute drops

	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
	4	0	3	1	24	76	66	98	17	14	4	1	0	0	2	0	14	0	0	0	1	0	0	0
	1	0	3	0	4	8	21	11	1	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0
	1	0	0	0	2	19	14	23	3	0	2	0	0	0	0	0	14	0	0	0	1	0	0	0
	2	0	0	1	1	4	24	20	39	0	13	1	0	0	0	0	0	0	0	0	0	0	0	0
							25	11	22	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM Peak 0800 - 0900 (98), AM PHF=0.63 PM Peak 1630 - 1730 (14), PM PHF=0.25

* Wednesday, 25 August 2021 - Total=22, 15 minute drops

[illegible]

* Thursday, 26 August 2021 - Total=8, 15 minute drops

	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	0	0	0	1	3	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

AM Peak 0530 - 0630 (3), AM PHF=0.25 PM Peak 1530 - 1630 (2), PM PHF=0.25

* Friday, 27 August 2021 - Total=2 (Incomplete) , 15 minute drops

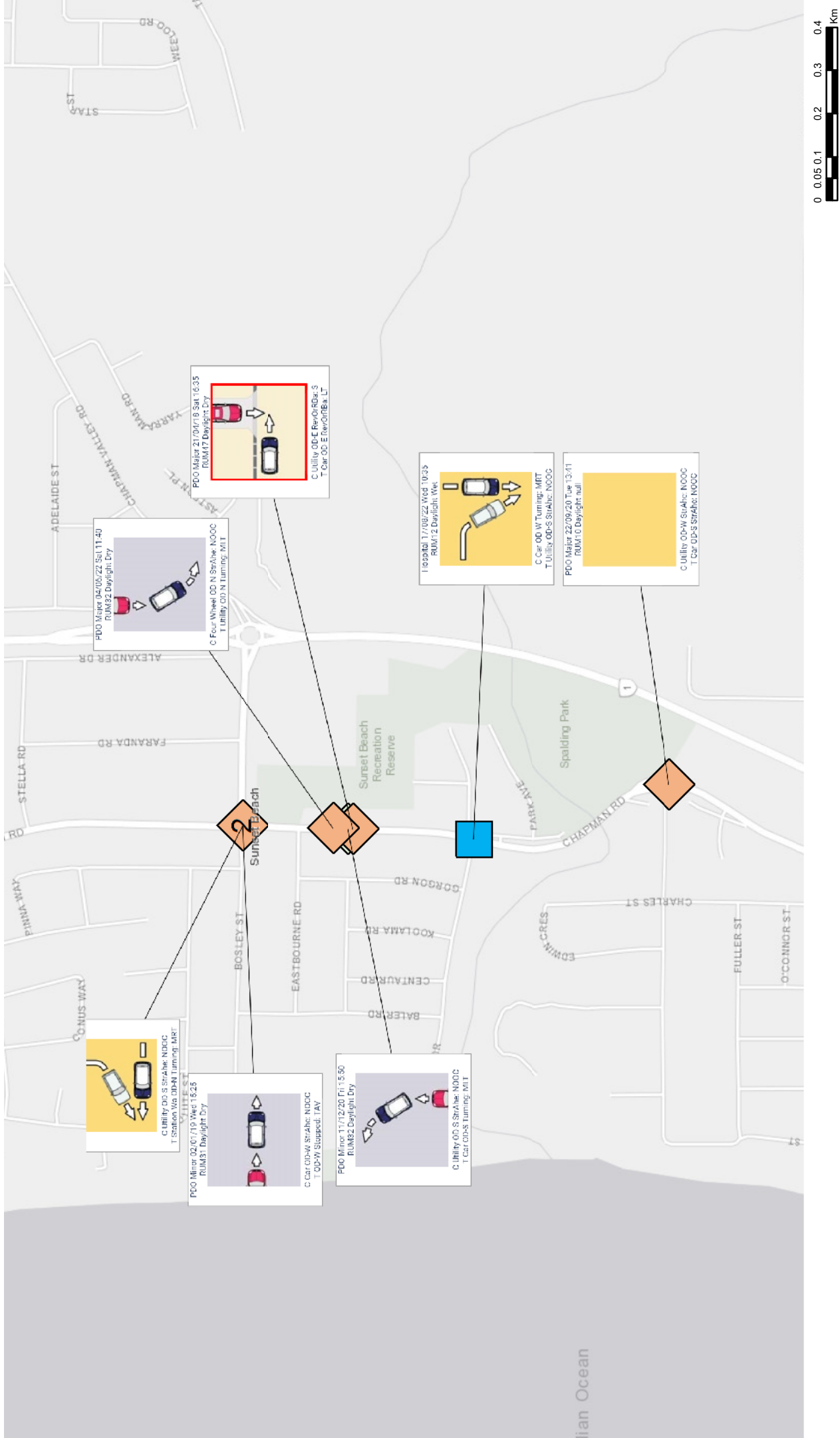
[illegible]



APPENDIX D - CRASH DATA



Crash History



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Detailed Crash History

Selected Areas	
5050008 (Chapman Rd) (5.25 to 6.14)	
Parameter	ValueDescription
From Date	01/01/18
To Date	31/12/22
Crash Type	ALL
Severity	ALL
Include Descriptions?	Yes

Road	Road Name	SLK	CWY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point	
5050008	Chapman Rd	5.25	S	5.25	CROWTHER TON ST (021806)	22/09/2020	Tuesday	1341	PDO Major	2020798063	Intersection	Daylight		60	Give Way Sign	Roundabout				Right Angle	On Cway	10:Inx: Other	Colliding	Utility	W - CROWTHER TON ST		Straight Ahead: Not Out Of Control				
5050008	Chapman Rd	5.25	S	5.25	CROWTHER TON ST (021806)	22/09/2020	Tuesday	1341	PDO Major	2020798063	Intersection	Daylight		60	Give Way Sign	Roundabout				Right Angle	On Cway	10:Inx: Other	Target	Car	S - CHA PMA N RD	N - CHA PMA N RD	Straight Ahead: Not Out Of Control				Side
Crash Description: Chapman Rd at Crowtherton St																															
5050008	Chapman Rd	5.67	S	5.67	SWAN DR (010552)	17/08/2022	Wednesday	1035	Hospital	2022342505	Intersection	Daylight	Wet	60	Give Way Sign	3-way Intx (T-junction)	Straight			Right Angle	12:Inx: Right - Thru	Colliding	Car	W - SWA N DR	S - CHA PMA N RD	Turning: To Make Right Turn					
5050008	Chapman Rd	5.67	S	5.67	SWAN DR (010552)	17/08/2022	Wednesday	1035	Hospital	2022342505	Intersection	Daylight	Wet	60	Give Way Sign	3-way Intx (T-junction)	Straight			Right Angle	12:Inx: Right - Thru	Target	Utility	S - CHA PMA N RD	N - CHA PMA N RD	Straight Ahead: Not Out Of Control					Side
Crash Description: Vehicle 1 - a grey Nissan Patrol utility REGO1 - was travelling northbound along Chapman Road in Sunset Beach. As Vehicle 1 was passing the intersection of Swan Drive, Sunset Beach Vehicle 2 - a white Kia Cerato sedan REGO2 - pulled out in front of Vehicle 1 from a 'give way' line turning right onto the southbound lane of Chapman Road. Vehicle 2 did not properly give way to Vehicle 1 which had right of way and as a result Vehicle 1 collided with the front right panel of Vehicle 2.																															
5050008	Chapman Rd	5.92	S	5.92		21/04/2018	Saturday	1635	PDO Major	2018112595	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Straight			Right Angle	On Cway	47:Manoeuv: Leaving Driveway	Colliding	Utility	E	W	Reversing Or Rolling Back: Straight				
5050008	Chapman Rd	5.92	S	5.92		21/04/2018	Saturday	1635	PDO Major	2018112595	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Straight			Right Angle	On Cway	47:Manoeuv: Leaving Driveway	Target	Car	E	N	Reversing Or Rolling Back: Left Turn				Side
Crash Description: Chapman Rd 110m South of Eastbourne Rd																															
5050008	Chapman Rd	5.93	S	5.93		11/12/2020	Friday	1550	PDO Minor	2020936350	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Curve			Rear End	On Cway	32:Same Dim: Same Lane Left Rear	Colliding	Utility	S	N	Straight Ahead: Not Out Of Control				
5050008	Chapman Rd	5.93	S	5.93		11/12/2020	Friday	1550	PDO Minor	2020936350	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Curve			Rear End	On Cway	32:Same Dim: Same Lane Left Rear	Target	Car	S	W	Turning: To Make Left Turn				Rear
Crash Description: Chapman Rd 100m South of Eastbourne Rd																															
5050008	Chapman Rd	5.96	S	5.96		04/06/2022	Saturday	1140	PDO Major	2022227252	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Straight			Rear End	On Cway	32:Same Dim: Same Lane Left Rear	Colliding	Four Wheel Drive (Not Car Design)	N	S	Straight Ahead: Not Out Of Control				
5050008	Chapman Rd	5.96	S	5.96		04/06/2022	Saturday	1140	PDO Major	2022227252	Midblock	Daylight	Dry	60	No Sign Or Control	Driveway	Straight			Rear End	On Cway	32:Same Dim: Same Lane Left Rear	Target	Utility	N	E	Turning: To Make Left Turn				Rear
Crash Description: Chapman Rd 70m South of Eastbourne Rd																															

Detailed Crash History



Road	Road Name	SLK	QTY	True Dist	Intersection	Date	Day	Time	Severity	Crash No.	Type	Light Cond	Road Cond	Speed Limit	Traffic Control	Road Feature	Road Alignment	Speed Factor	MR Nature	Location	RUM	Unit	Unit Type	From Dir	To Dir	Veh/Ped Move	First Object Hit	Second Object Hit	Third Object Hit	Target Impact Point	
5050008	Chapman Rd	6.14	S	6.14	CHAPMAN VALLEY RD & BOSLEY ST (002044)	02/01/2019	Wednesday	1525	PDO Minor	201905345	Intersection	Daylight	Dry	60	No Sign Or Control	4-way Intx	Curve			Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Colliding	Car	W - BOSLEY ST	N - CHA PMA N VALL EY RD	Straight Ahead: Not Out Of Control				
5050008	Chapman Rd	6.14	S	6.14	CHAPMAN VALLEY RD & BOSLEY ST (002044)	02/01/2019	Wednesday	1525	PDO Minor	201905345	Intersection	Daylight	Dry	60	No Sign Or Control	4-way Intx	Curve			Rear End	On Cway	31:Same Dirn: Same Lane Rear End	Target		W - BOSLEY ST	N - CHA PMA N VALL EY RD	Stopped: To Avoid Veh				Rear
Location: Chapman Rd at Chapman Valley Rd & Bosley St						Crash Description:										Vehicle Types: Car, Other															
5050008	Chapman Rd	6.14	S	6.14	CHAPMAN VALLEY RD & BOSLEY ST (002044)	07/12/2019	Saturday	1320	PDO Major	201937532	Intersection	Daylight	Dry	60	Give Way Sign	Roundabout	Curve			Right Angle	On Cway	12:inx: Right - Thru	Colliding	Utility	S - CHA PMA N RD	N - CHA PMA N RD	Straight Ahead: Not Out Of Control				
5050008	Chapman Rd	6.14	S	6.14	CHAPMAN VALLEY RD & BOSLEY ST (002044)	07/12/2019	Saturday	1320	PDO Major	201937532	Intersection	Daylight	Dry	60	Give Way Sign	Roundabout	Curve			Right Angle	On Cway	12:inx: Right - Thru	Target	Station Wagon	N - CHA PMA N RD	N - CHA PMA N RD	Turning: To Make Right Turn				Side
Location: Chapman Rd at Chapman Valley Rd & Bosley St						Crash Description:										Vehicle Types: Station Wagon, Utility															