

# Road Benefit Investigation

## Southern Link Road

CW1109700



Prepared for  
City of Canning

21 May 2020

## Contact Information

### Cardno (WA) Pty Ltd

ABN 77 009 119 000

11 Harvest Terrace  
 West Perth WA 6005  
 Australia

www.cardno.com

Phone +61 8 9273 3888

Fax +61 8 9486 8664

## Document Information

|                |  |
|----------------|--|
| Prepared for   | City of Canning                                    |
| Project Name   | Southern Link Road                                 |
| File Reference | CW1109700_TR_R_A_<br>SouthernLinkRoad_V1AW_<br>RJC |
| Job Reference  | CW1109700  |
| Date           | 21 May 2020  |
| Version Number | C  |

Author(s):



Andreas Wang  
 Team Leader, Transport Planning

Effective Date 21/05/2020

Approved By:



Ray Cook  
 Business Leader, Traffic and Transport Planning

Date Approved 21/05/2020

## Document History

| Version | Effective Date | Description of Revision | Prepared by | Reviewed by |
|---------|----------------|-------------------------|-------------|-------------|
| Rev A   | 04/03/2020     | Draft                   | AW          | RJC         |
| Rev B   | 13/05/2020     | Draft Final             | AW          | RJC         |
| Rev C   | 21/05/2020     | Final                   | AW          | RJC         |

© Cardno. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

This document is produced by Cardno solely for the benefit and use by the client in accordance with the terms of the engagement. Cardno does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

## Table of Contents

---

|   |  |    |
|---|--|----|
| 1 | Introduction   | 1  |
|   | 1.1 Background   | 1  |
| 2 | Policy Context Review  | 4  |
|   | 2.1 Metropolitan Region Scheme (MRS)                             | 4  |
|   | 2.2 City of Canning – Town Planning Scheme No. 40                | 5  |
|   | 2.3 Canning City Centre Activity Centre Plan (CCCACP)            | 6  |
| 3 | Current Transport and Movement Issues                            | 8  |
|   | 3.1 Albany Highway   | 8  |
|   | 3.2 Level Crossings  | 10 |
|   | 3.3 Canning River Crossings                                      | 12 |
|   | 3.4 Limited East-West Connections within the Canning City Centre | 13 |
|   | 3.5 Missing Links  | 14 |
| 4 | Review of Crash Data   | 15 |
|   | 4.2 Albany Highway Crash Data                                    | 16 |
|   | 4.3 Liege Street Crash Data                                      | 18 |
|   | 4.4 Grose Avenue Crash Data                                      | 20 |
|   | 4.5 Estimated Crash Cost Saving                                  | 21 |
| 5 | Operational Transport Modelling (VISSIM)                         | 22 |
| 6 | Sevenoaks Street Extension (ROM24)                               | 24 |
| 7 | Summary and Conclusions  | 25 |

## Tables

---

|           |  |    |
|-----------|--|----|
| Table 3-1 | Summary of Recommended Road Improvements                                 | 14 |
| Table 4-1 | Summary of Crashes on Albany Highway (Midblock and Intersection Crashes) | 17 |
| Table 4-2 | Summary of Crashes on Liege Street (Midblock and Intersection Crashes)   | 19 |
| Table 4-3 | Summary of Crashes on Grose Avenue (Midblock and Intersection Crashes)   | 21 |
| Table 5-1 | VISSIM Model Outputs   | 23 |

## Figures

---

|            |  |    |
|------------|--|----|
| Figure 1-1 | Southern Link Road Alignment (Source: City of Canning)   | 1  |
| Figure 1-2 | Southern Link Road – Indicative Stage 3 Alignment  | 2  |
| Figure 1-3 | Gerard Street Extension  | 3  |
| Figure 2-1 | Metropolitan Region Scheme - Map 20 Langford (Amended 22 <sup>nd</sup> October 2019)               | 4  |
| Figure 2-2 | City of Canning Town Planning Scheme No. 40  | 5  |
| Figure 2-3 | Canning City Centre Activity Centre Plan   | 6  |
| Figure 2-4 | CCCACP Precinct Plan   | 7  |
| Figure 3-1 | Average Road Network Delays for Weekday PM Peak Hour (Source: Google Maps)                         | 8  |
| Figure 3-2 | Average Road Network Delays for Saturday Midday Peak Hour (Source: Google Maps)                    | 9  |
| Figure 3-3 | Level Crossing at William Street / Sevenoaks Street / Railway Parade                               | 10 |
| Figure 3-4 | Level Crossing at Wharf Street / Sevenoaks Street / Railway Parade                                 | 11 |
| Figure 3-5 | Canning River Crossings Adjacent to Canning City Centre  | 12 |
| Figure 3-6 | Road Connections within the Canning City Centre  | 13 |
| Figure 4-1 | Visual Summary of Crashes within Study Area (1st January 2014 to 31st December 2018)               | 15 |
| Figure 4-2 | Visual Summary of Crashes on Albany Highway (1st January 2014 to 31st December 2018)               | 16 |
| Figure 4-3 | Visual Summary of Crashes on Liege Street (1st January 2014 to 31st December 2018)                 | 18 |
| Figure 4-4 | Visual Summary of Crashes on Grose Avenue (1st January 2014 to 31st December 2018)                 | 20 |
| Figure 5-1 | Canning City Centre VISSIM Micro-Simulation Model Network and Extents – without Southern Link Road | 22 |
| Figure 5-2 | Canning City Centre VISSIM Micro-Simulation Model Network and Extents - with Southern Link Road    | 23 |

# 1 Introduction

Cardno have been commissioned by the City of Canning (“the City”) to undertake a traffic study of the needs of the proposed Southern Link Road, which forms a key part of the future Canning City Centre transport network.

The structure of this report is:

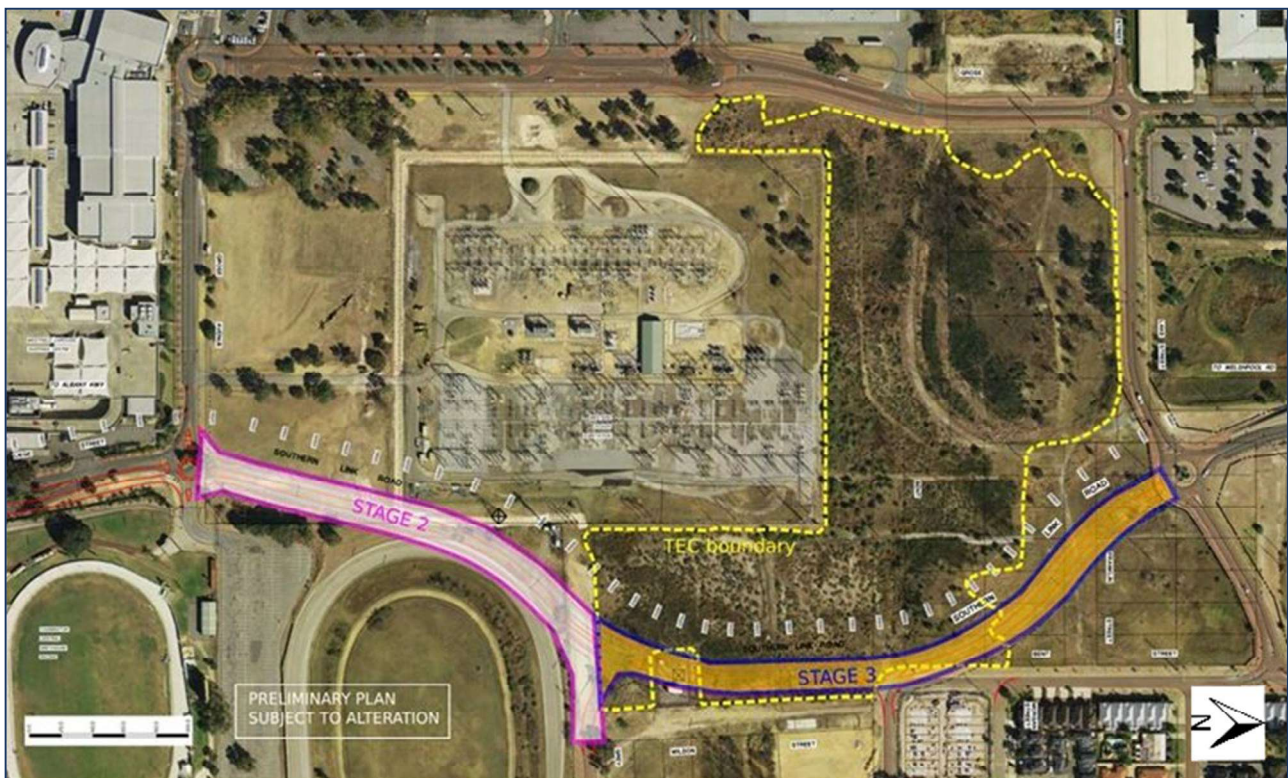
- > Section 1 – Introduction and Background
- > Section 2 – Policy Context Review
- > Section 3 – Current Issues
- > Section 4 – Review of Crash Data
- > Section 5 – Operational Transport Modelling
- > Section 6 – Sevenoaks Street Duplication (ROM24)
- > Section 7 – Summary and Conclusions.

## 1.1 Background

The proposed Southern Link Road is located within the Canning City Centre and when fully constructed, will provide a link between Liege Street and Gerard Street.

The proposed alignments of Stages 2 and 3 of the Southern Link Road are shown in **Figure 1-1**.

Figure 1-1 Southern Link Road Alignment (Source: City of Canning)



Source: <https://www.canning.wa.gov.au/about-us/our-future/major-projects/canning-city-centre/southern-link-road>

The Southern Link Road will be constructed in a number of stages. Construction of Stage 2, linking Grose Avenue and Liege Street to Station Street and Grey Street, was completed in late 2019 (refer **Figure 1-2**).

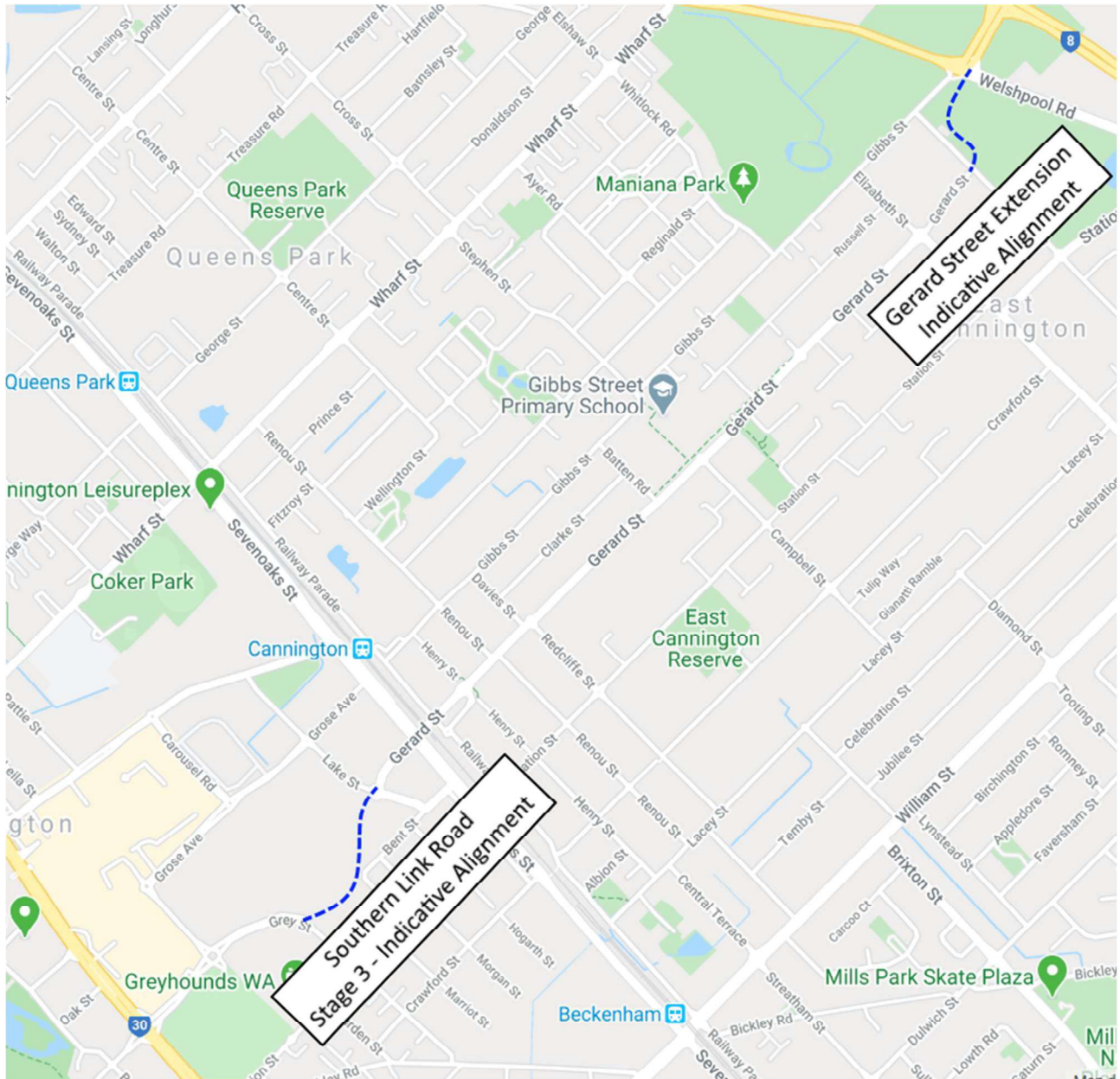


Figure 1-2 Southern Link Road – Indicative Stage 3 Alignment



Ultimately, the Southern Link Road will connect to Gerard Street, and the northern section of Gerard Street is ultimately proposed to be extended to Welshpool Road, where it is proposed to connect to McDowell Street. It is noted that the alignment of this extension and the intersection form at Welshpool Road / McDowell Street is subject to further studies and approvals. The Gerard Street extension is shown in **Figure 1-3**.

Figure 1-3 Gerard Street Extension



**1.1.1 Southern Link Road - Stage 3 Alignment**

Stage 3 includes the extension of the Southern Link Road further to Gerard Street, thereby providing a direct connection between Gerard Street and Liege Street.

As shown in **Figure 1-1**, the Stage 3 alignment is proposed to go through a section of land classed as Threatened Ecological Community (TEC). To reduce any impacts on the TEC site, land and vegetation, the City has modified the proposed alignment from a straight alignment to a curved alignment, reduced the width of the road, and ensured that the proposed alignment primarily goes through degraded vegetation.

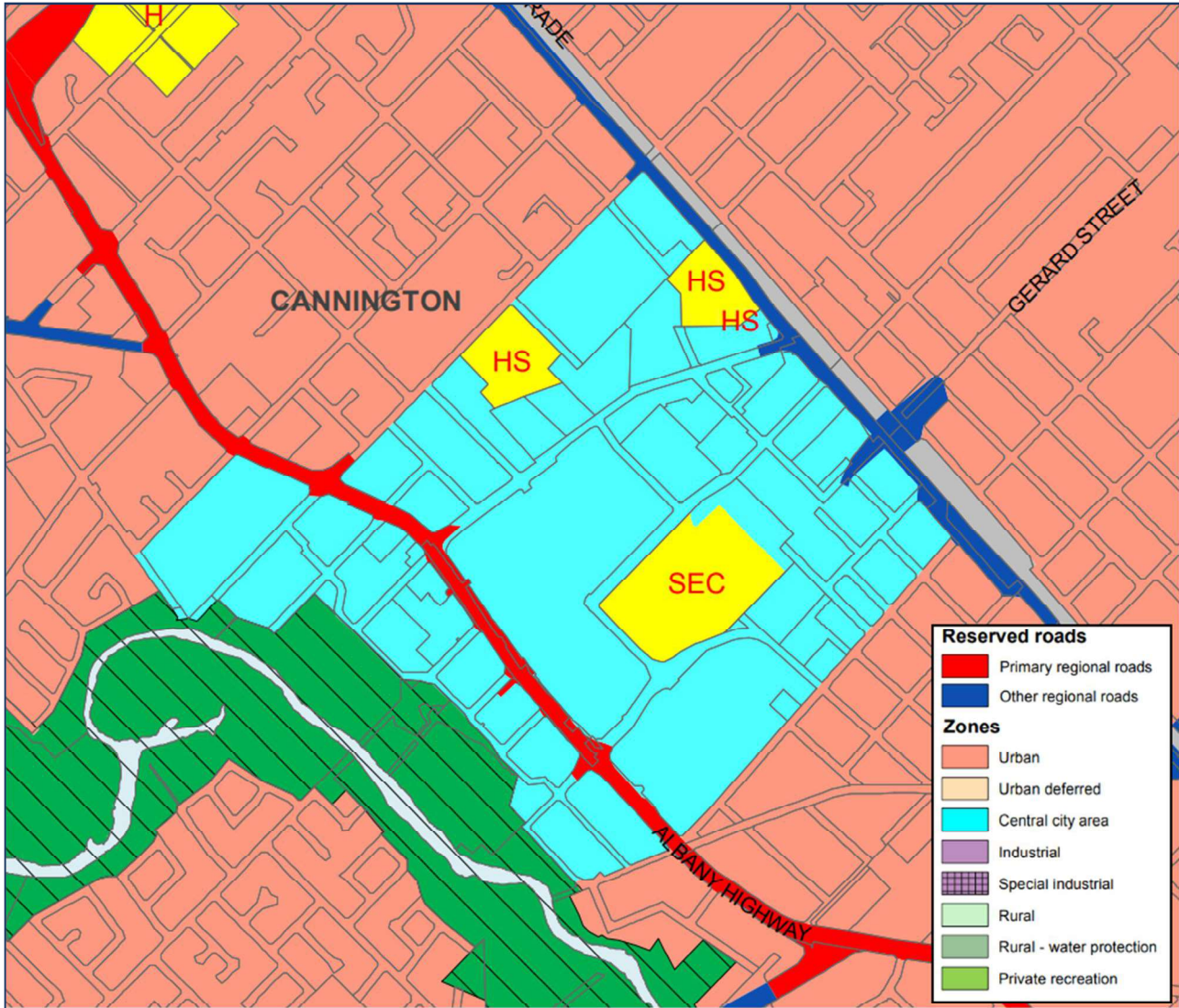


## 2 Policy Context Review

### 2.1 Metropolitan Region Scheme (MRS)

The MRS defines the future use of land and provides legal basis for planning in the Perth metropolitan region. Under the MRS, the proposed Southern Link Road alignment is zoned as “Central City Area” which allows the Local Government Authority (LGA) to develop local planning policies for the area.

Figure 2-1 Metropolitan Region Scheme - Map 20 Langford (Amended 22<sup>nd</sup> October 2019)

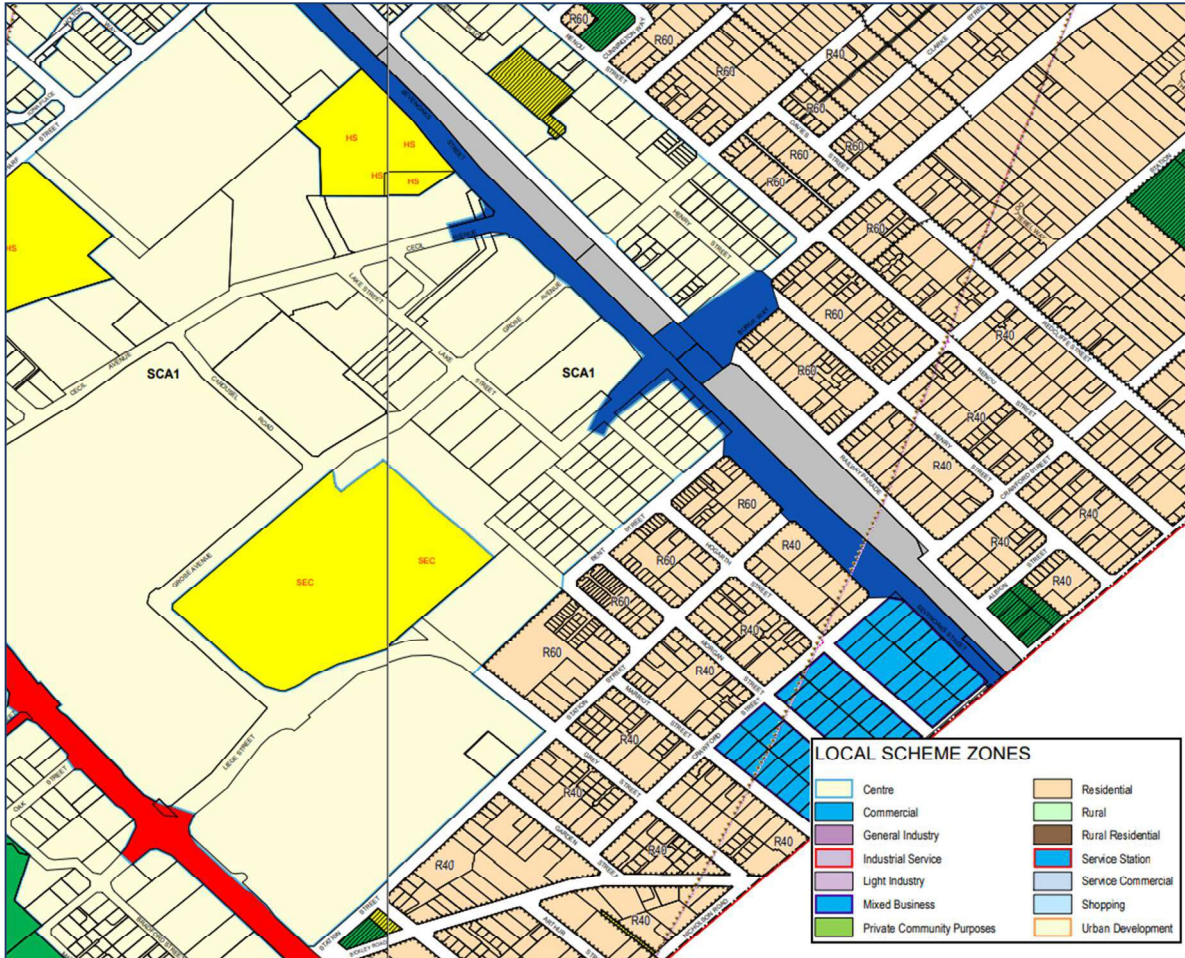




## 2.2 City of Canning – Town Planning Scheme No. 40

As shown in **Figure 2-2**, the entire Canning City Centre is zoned as “Centre” under the City of Canning Town Planning Scheme No. 40. This allows the City to develop a City Centre Activity Centre Plan, which allows further detailed planning of the area.

Figure 2-2 City of Canning Town Planning Scheme No. 40

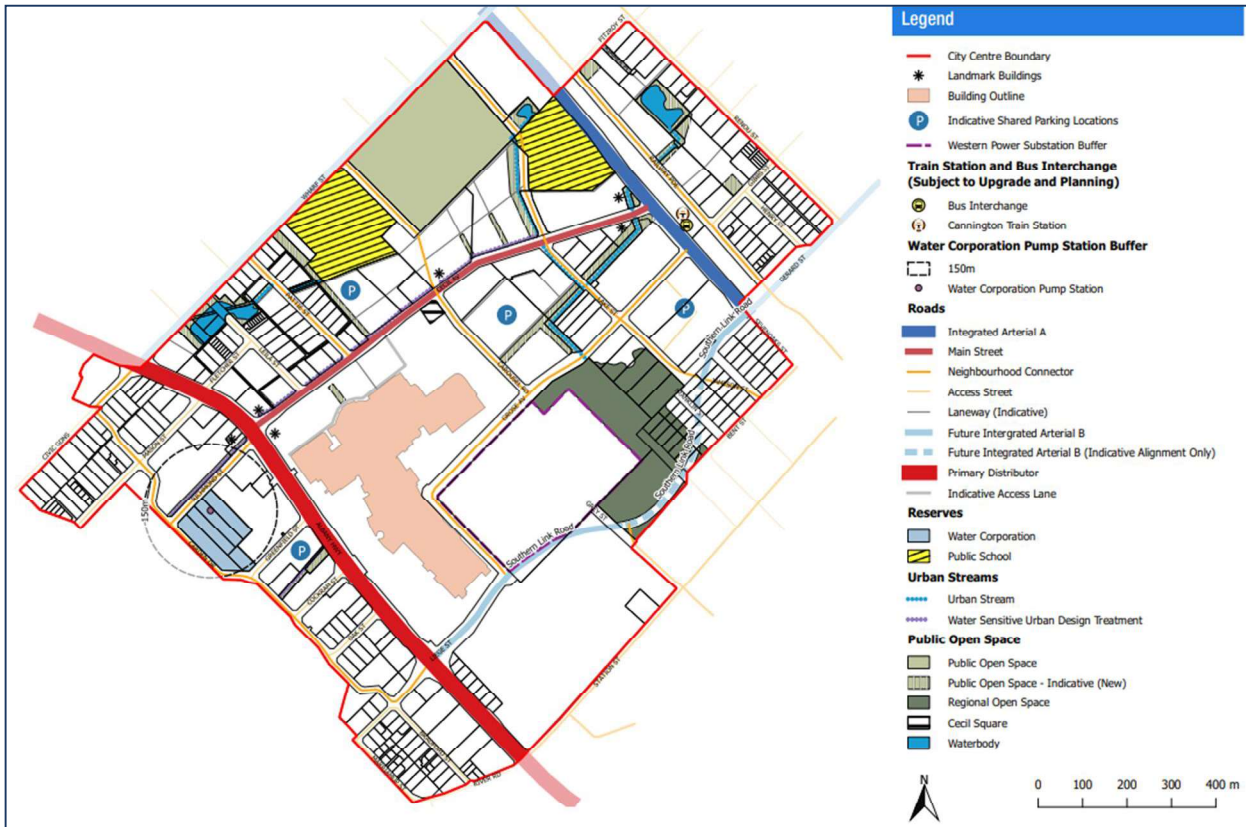


### 2.3 Canning City Centre Activity Centre Plan (CCCACP)

As described in the Canning City Centre Activity Centre Plan – Part One Implementation, the Activity Centre Plan was developed in order to “... guide the strategic development of the Canning City Centre (CCC) as a Strategic Metropolitan Regional Centre under State Planning Policy 4.2 – Activity Centres for Perth and Peel. The CCC, (referred to as the Cannington Strategic Metropolitan Centre in SPP 4.2) is identified as a ‘Major Growth Area by 2031’ with the Cannington Train Station being a major transit-oriented development location”. The CCCACP was approved by the Western Australia Planning Commission (WAPC) in October 2017.

The CCCACP is shown in **Figure 2-3** and shows the Southern Link Road from Liege Street to Gerard Street, as well as a number of other proposed local road upgrades.

Figure 2-3 Canning City Centre Activity Centre Plan

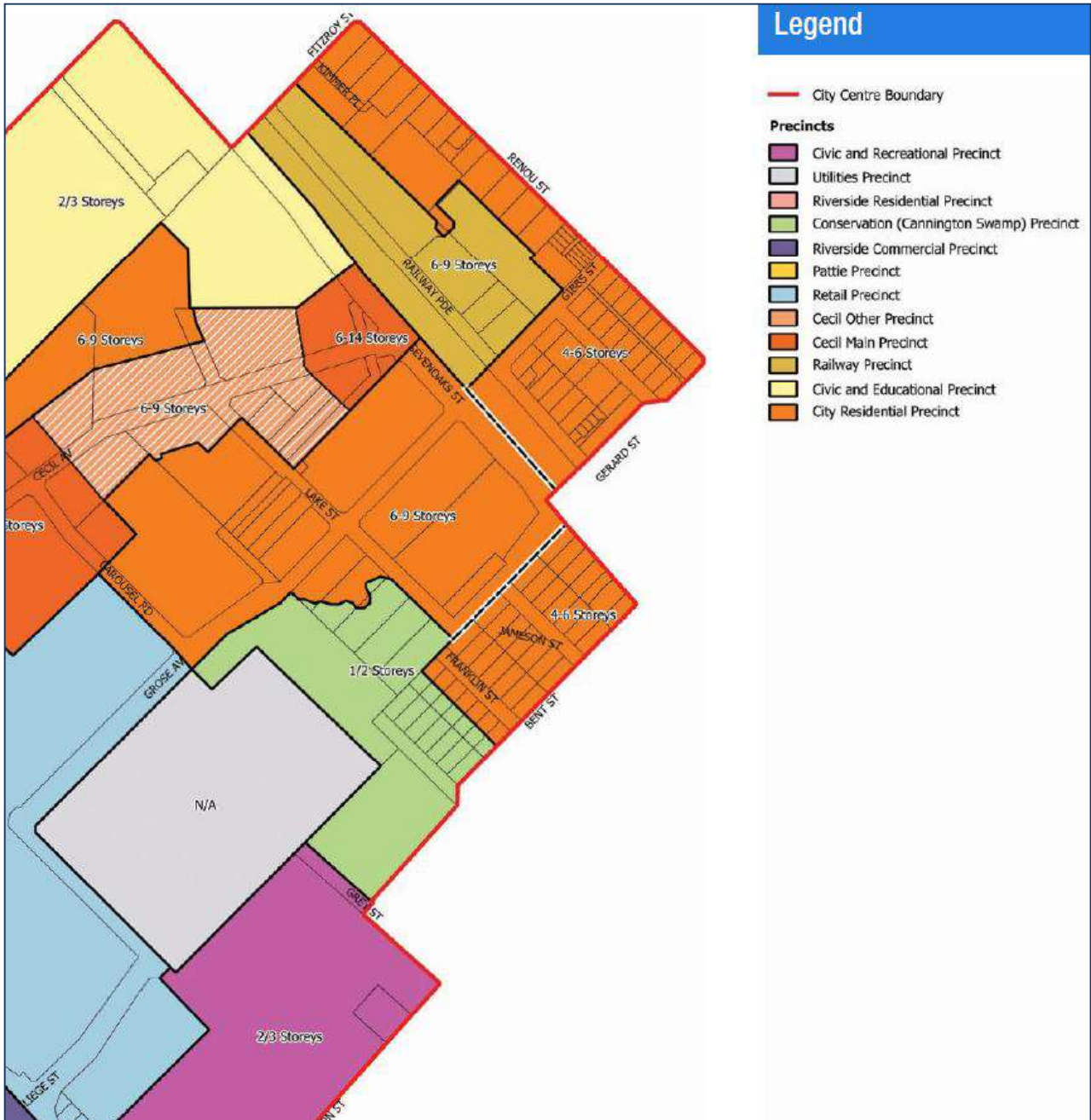


Source: <https://www.canning.wa.gov.au/CanningWebsite/media/Files/My-City/Canning-City-Centre/Canning-City-Centre-Activity-Plan-Web-Version-April-2018.pdf>



As shown in **Figure 2-4**, Stage 3 of the Southern Link Road will be located in the “Conservation (Cannington Swap) Precinct”. The only permissible land uses within this Precinct are “Conservation”, which means that no development (other than for the purposes of enhancing the assets) is allowed within this Precinct, although structures such as viewing platforms and walkways may be supported with approval from the relevant authorities.

Figure 2-4 CCCACP Precinct Plan



Source: <https://www.canning.wa.gov.au/CanningWebsite/media/Files/My-City/Canning-City-Centre/Canning-City-Centre-Activity-Plan-Web-Version-April-2018.pdf>



### 3 Current Transport and Movement Issues

The transport network servicing the Canning City Centre is subject to a number of transport and movement constraints, each of which are described further in the following sections.

#### 3.1 Albany Highway

Albany Highway, which is classified as a Primary Distributor road and has 3 lanes in each direction, runs through the southern section of the Canning City Centre and includes a number of closely-spaced signalised intersections.

As shown in **Figure 3-1** and **Figure 3-2**, Albany Highway and the connecting lower order roads currently experience a high level of network delays during the weekday PM peak hour, as well as during the Saturday midday peak hour. This is primarily due to the high volumes of competing traffic demands at the closely spaced signalised intersections along Albany Highway, as well as the high levels of retail activity within the Canning City Centre area during these times.

Figure 3-1 Average Road Network Delays for Weekday PM Peak Hour (Source: Google Maps)

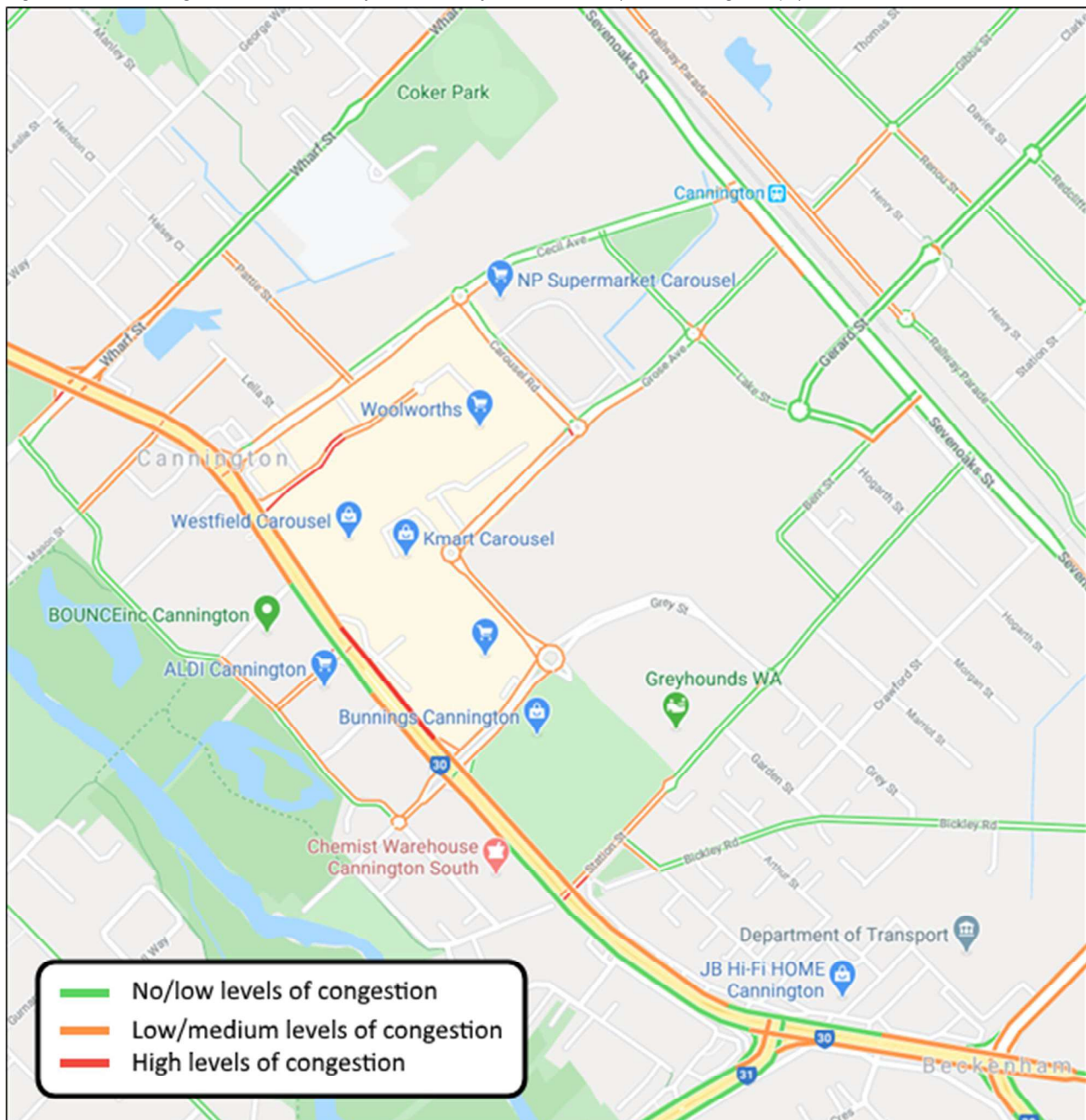
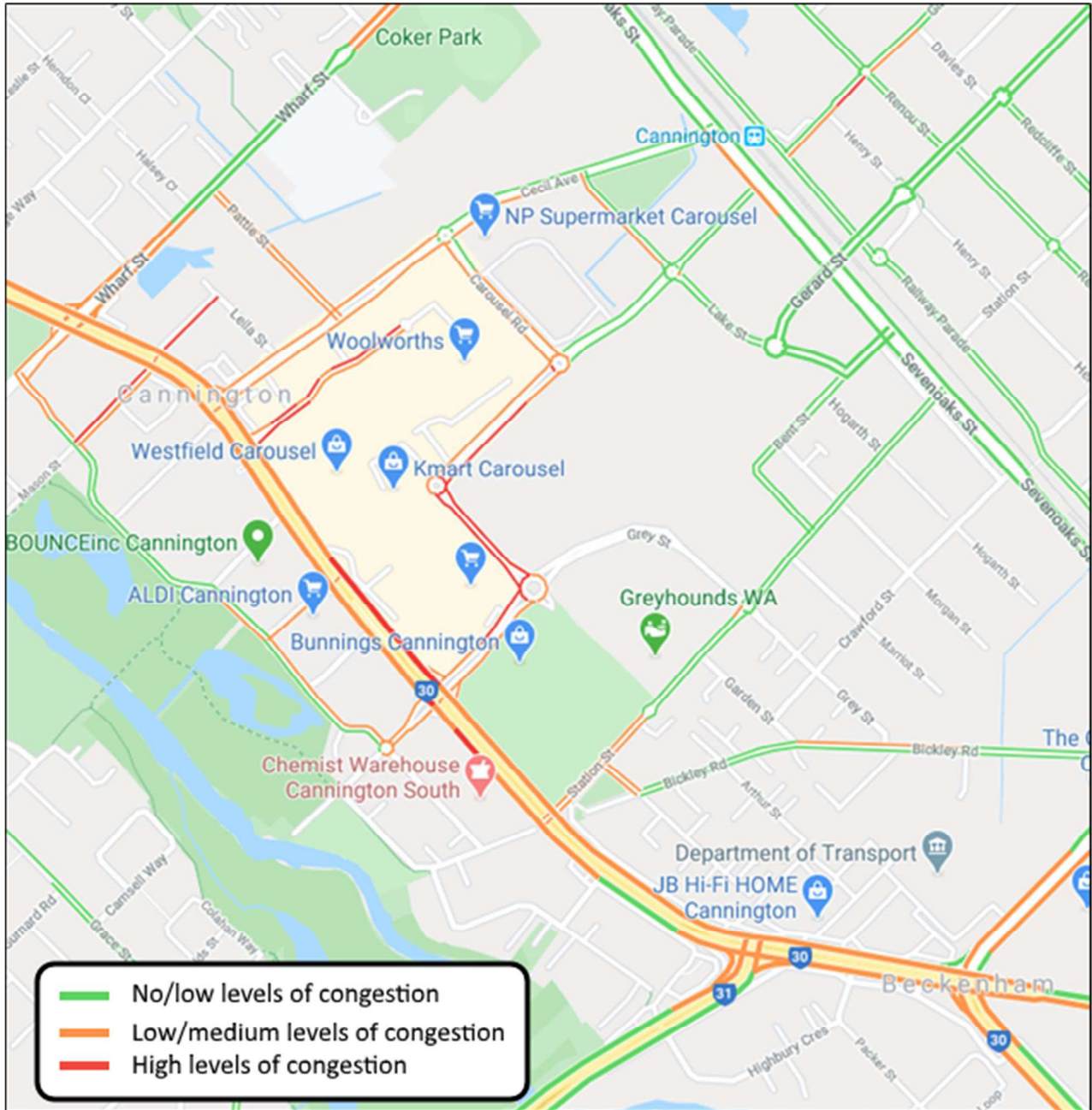


Figure 3-2 Average Road Network Delays for Saturday Middy Peak Hour (Source: Google Maps)





### 3.2 Level Crossings

The Armadale passenger rail line runs through the northern section of the CCC, resulting in at-grade level crossings at the intersections of William Street / Sevenoaks Street / Railway Parade (refer **Figure 3-3**) and Wharf Street / Sevenoaks Street / Railway Parade (refer **Figure 3-4**). As the Wharf Street level crossing is in close proximity to the signalised intersection of Sevenoaks Street / Railway Parade / Wharf Street, combined with the high frequencies of the train services during the peak hours, this can result in substantial delays at this intersection, with anecdotal evidence suggesting that some movements can be delayed by up to 10 minutes at the intersections.

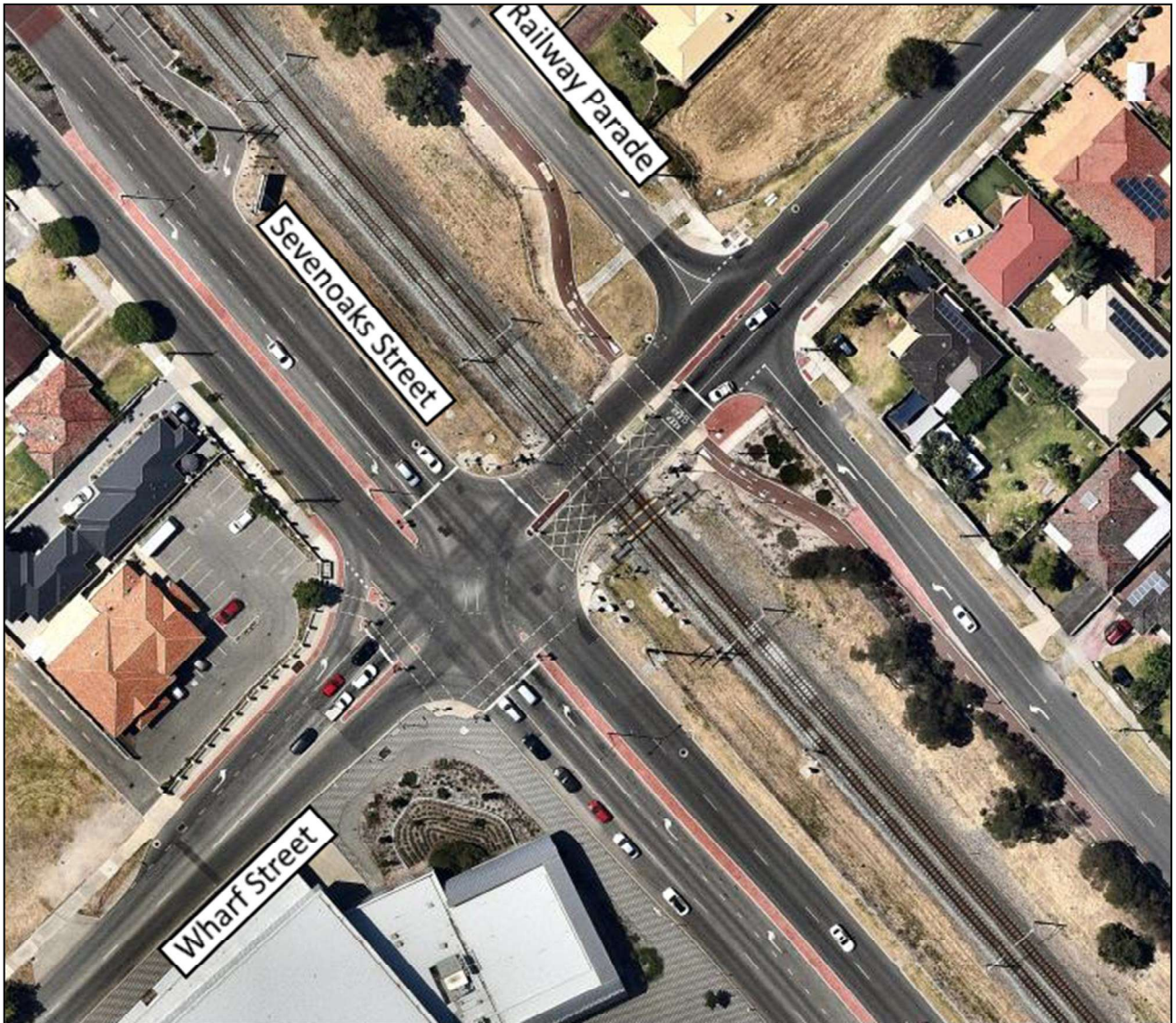
While these level crossings (along with the Hamilton Street level crossing) will be removed as part of the Metronet Level Crossing Removal project, investigations are still underway to determine the most suitable way to remove these crossings and there are no confirmed timeframes for when this project will be delivered.

Figure 3-3 Level Crossing at William Street / Sevenoaks Street / Railway Parade





Figure 3-4 Level Crossing at Wharf Street / Sevenoaks Street / Railway Parade

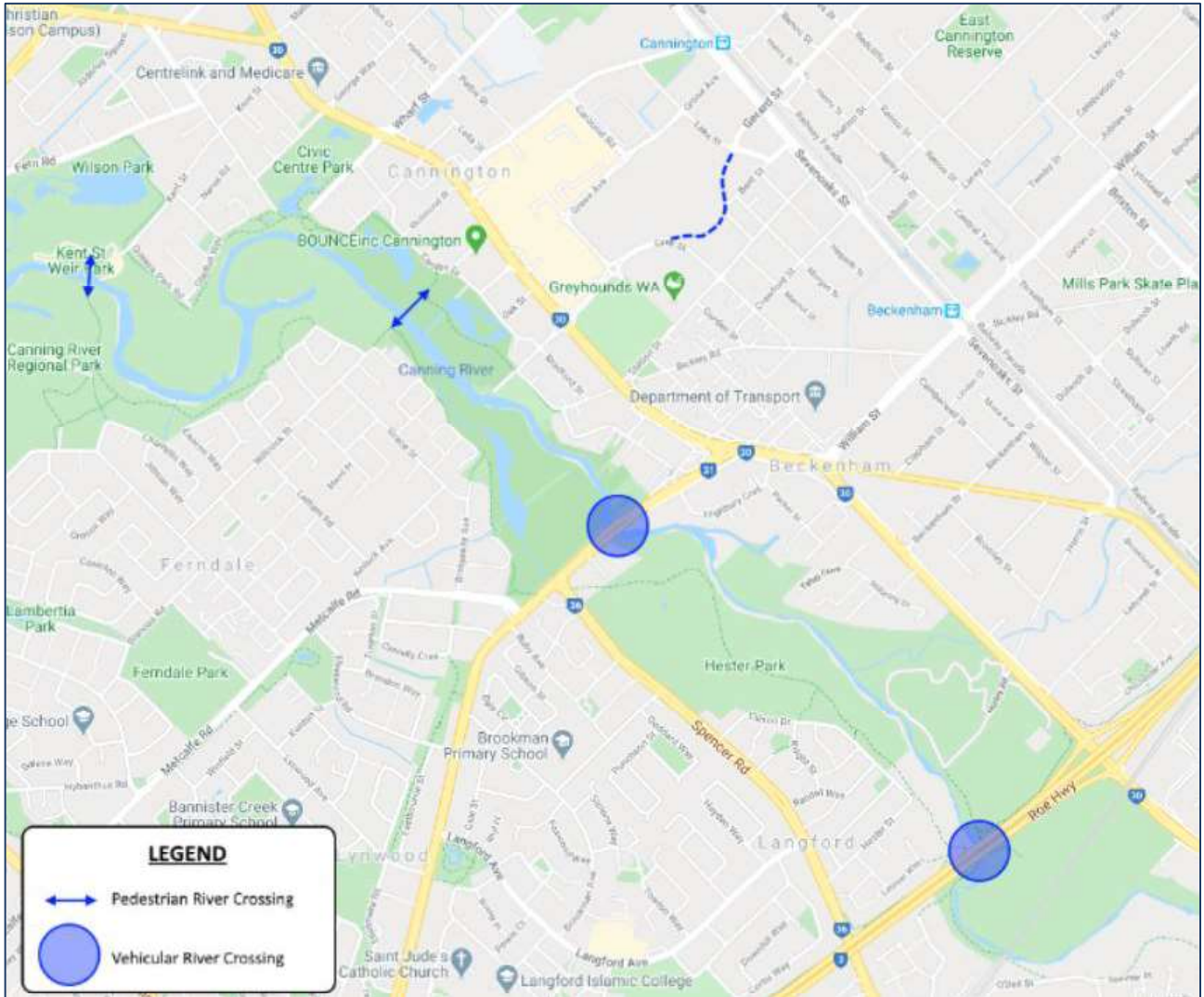


### 3.3 Canning River Crossings

The Canning River is located approximately 400m south-east of Albany Highway and forms a natural barrier to the transport and movement network in the area. As shown in **Figure 3-5**, the nearest river crossing in the area is at Nicholson Road, with the next river crossing located approximately 2km further east at Roe Highway.

Pedestrian river crossings are also provided south of Carden Drive and at the Kent Street Weir Park.

Figure 3-5 Canning River Crossings Adjacent to Canning City Centre





### 3.4 Limited East-West Connections within the Canning City Centre

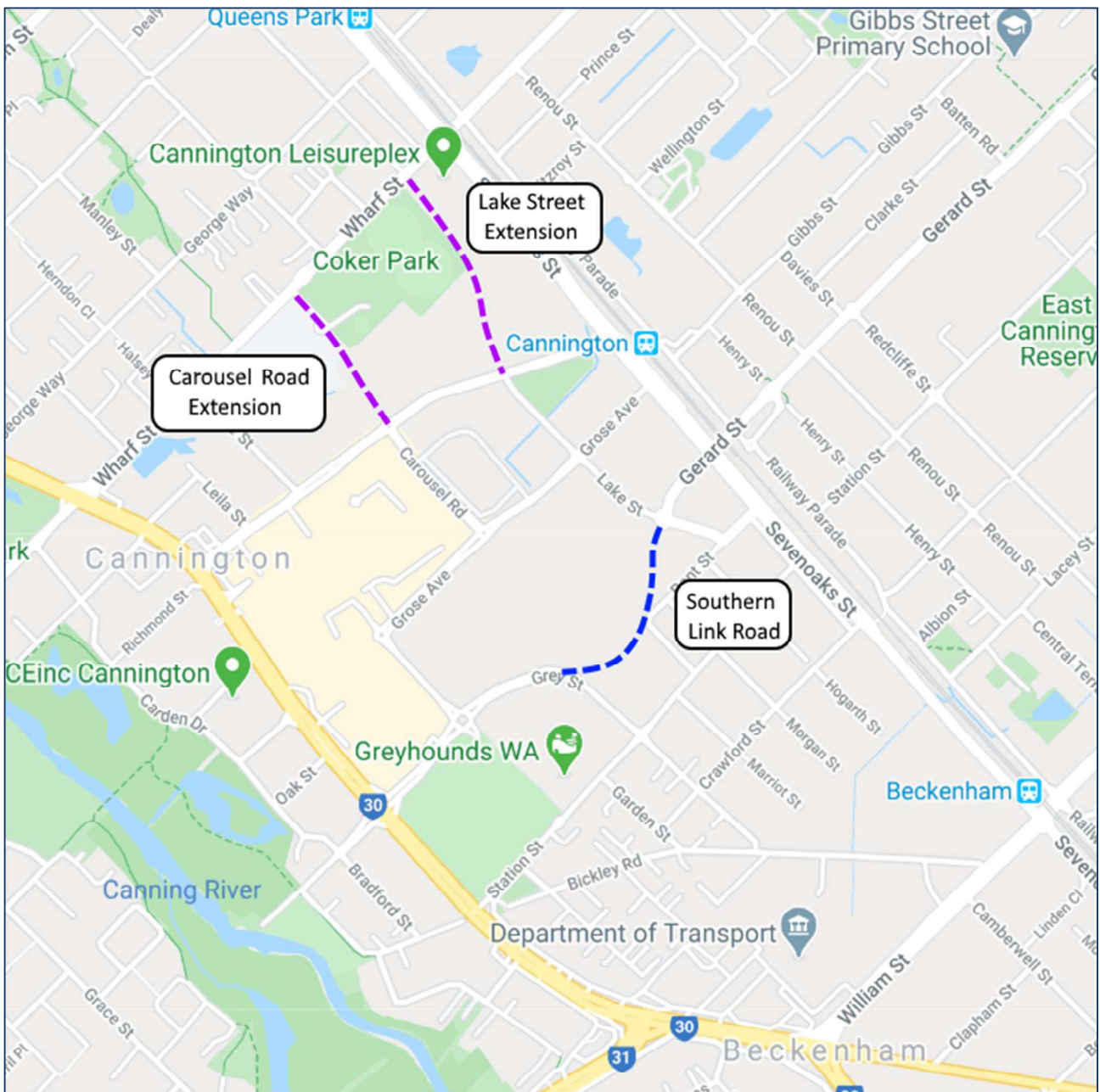
There are currently only a limited number of east-west connections within the Canning City Centre. The major east-west connections through the City Centre area are Albany Highway and Sevenoaks Street, although it is noted that the Sevenoaks Street connection to the east (through the City of Gosnells) has not yet been constructed.

To the west, the minor east-west connections include:

- > Pattie Street;
- > Carousel Road Extension (not yet constructed); and
- > Lake Street Extension (not yet constructed).

To the east, the recently constructed Stage 2 of the Southern Link Road provides a key east-west connection in the area.

Figure 3-6 Proposed Minor East-West Road Connections within the Canning City Centre





### 3.5 Road Improvements and New Links

As described in the City of Canning – Integrated Transport Strategy (July 2015), a number of district and local road improvements were recommended in order to improve access to the Canning City Centre and permeability of the transport network. The recommended road improvements are summarised in **Table 3-1**, along with a description of the current status of each of the recommended improvements.

Table 3-1 Summary of Recommended Road Improvements

| Project   | Works            | Current Status                                      |
|---|------------------|---|
| Sevenoaks Street – Upgrade to dual carriageway      | Road Improvement | Not commenced                                       |
| Cecil Avenue (Albany Highway-Sevenoaks Street)      | Road Improvement | Stage 1 – Completed<br>Stages 2 + 3 – Not commenced |
| Liege Street (Albany Highway-Grose Avenue)          | Road Improvement | Completed   |
| Lake Street (Grose Avenue-Southern Link Road)       | Road Improvement | Not commenced                                       |
| Lake Street (Cecil Avenue-Grose Avenue)             | Road Improvement | Not commenced                                       |
| Lake Street Extension (Wharf Street-Cecil Avenue)   | New Link         | Not commenced                                       |
| Southern Link Road (Lake Street—Grose Avenue)       | New Link         | <b>This Project</b>                                 |
| Pattie Street (Wharf Street to Cecil Avenue)        | Road Improvement | Not commenced                                       |
| Gerard Street extension to Welshpool Road           | New Link         | Not commenced                                       |
| Carousel Road (Cecil Avenue—Grose Avenue)           | Road Improvement | Not commenced                                       |
| Carousel Road Extension (Wharf Street-Cecil Avenue) | New Link         | Not commenced                                       |

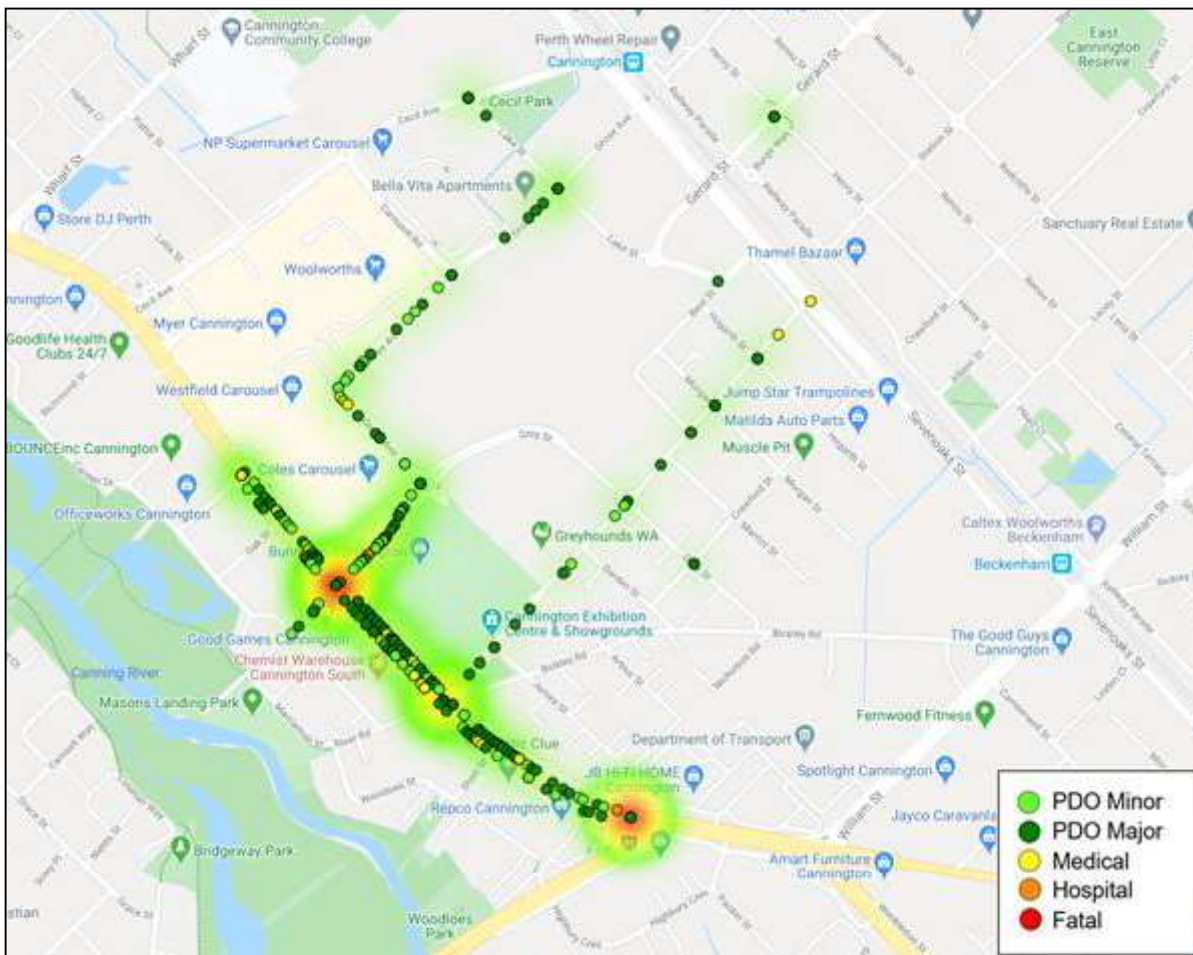
As shown in **Table 3-1** there are still a number of road improvements that have not yet commenced. As these upgrades are complementary to each other, further network benefits will be realised as these upgrades are delivered.

## 4 Review of Crash Data

Cardno sourced crash data for the key adjacent roads and intersections from Main Roads Western Australia for the 5-year period between 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2018, which showed a total of 933 crashes had occurred within the study area for this period.

The crash data was mapped also spatially with a GIS interface to visually summarise the data. The resulting spatial map of the crash data is shown in **Figure 4-1**.

Figure 4-1 Visual Summary of Crashes within Study Area (1st January 2014 to 31st December 2018)



### 4.1 Albany Highway Crash Data

The crash data for Albany Highway is summarised spatially in **Figure 4-2** and detailed in **Table 4-1**. The crash data suggests that the majority of all crashes (595 out of a total of 933 crashes) within the study area had occurred on Albany Highway, with the most severe crashes having occurred at the intersections of Albany Highway / Liege Street and Albany Highway / Nicholson Road. This is likely due to the large volumes of traffic using Albany Highway (approximately 65,000 vehicles per day), the relatively close spacing of the signalised intersections, and the number of conflict points at each of the signalised intersections.

As the Southern Link Road is not expected to increase traffic volumes on Albany Highway, the crashes along Albany Highway are not considered likely to change as a result of the Southern Link Road.

Figure 4-2 Visual Summary of Crashes on Albany Highway (1st January 2014 to 31st December 2018)

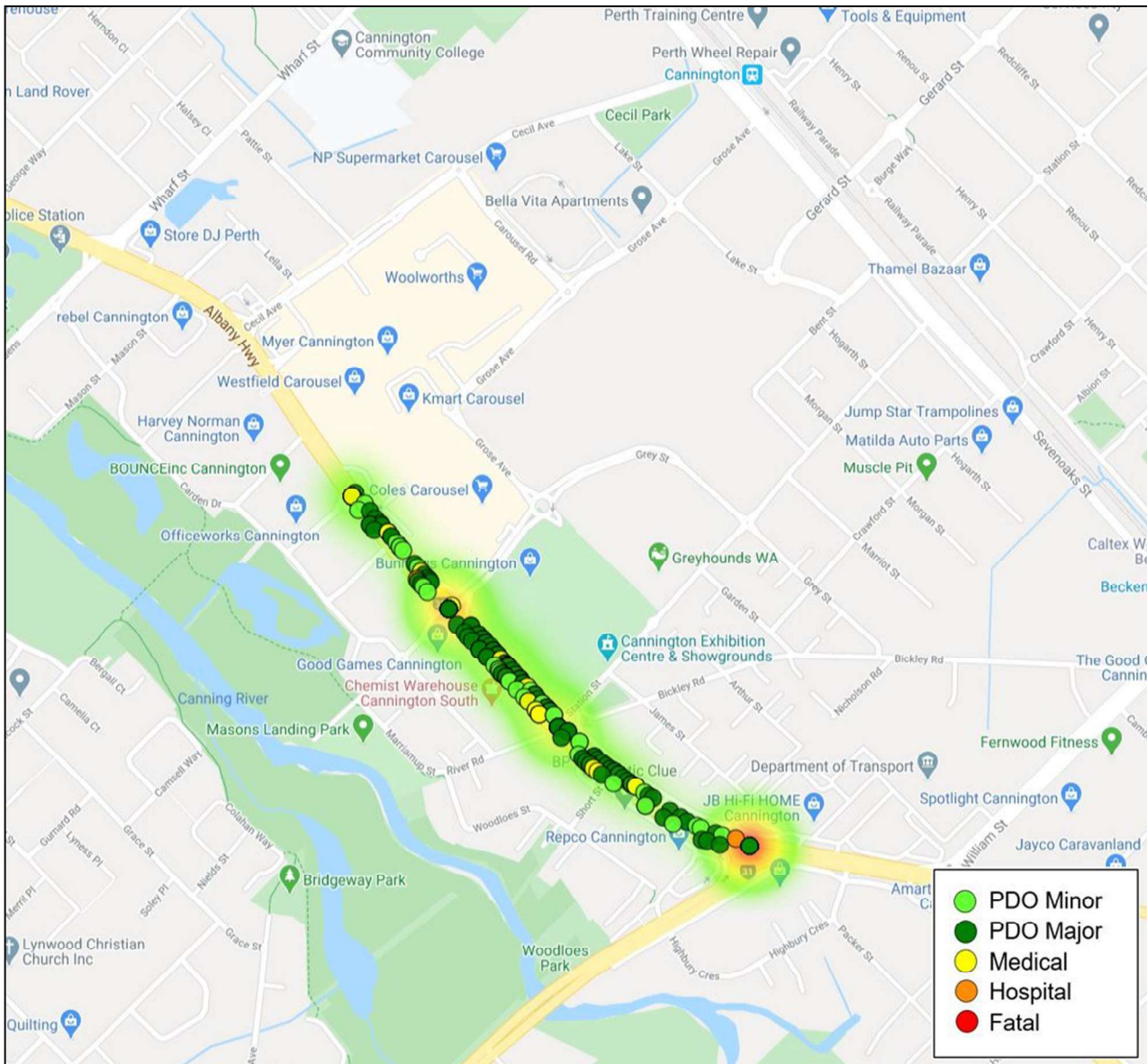




Table 4-1 Summary of Crashes on Albany Highway (Midblock and Intersection Crashes)

| Type of Crash (RUM Code) | Fatal | Hospital | Medical   | Major Property Damage | Minor Property Damage | Total Crashes |
|--------------------------|-------|----------|-----------|-----------------------|-----------------------|---------------|
| Rear End                 | -     | 3        | 58        | 230                   | 127                   | <b>418</b>    |
| Right Turn Thru          | -     | 2        | 5         | 29                    | 7                     | <b>43</b>     |
| Right Angle              | -     | -        | 5         | 28                    | 7                     | <b>40</b>     |
| Hit Object               | -     | -        | 2         | 4                     | -                     | <b>6</b>      |
| Sideswipe Same Direction | -     | 1        | 1         | 43                    | 34                    | <b>79</b>     |
| Hit Pedestrian           | -     | 1        | -         | -                     | 1                     | <b>2</b>      |
| Non-Collision            | -     | 1        | 2         | -                     | 1                     | <b>4</b>      |
| Unspecified              | -     | -        | -         | 2                     | 1                     | <b>3</b>      |
| <b>Total</b>             | -     | <b>8</b> | <b>73</b> | <b>336</b>            | <b>178</b>            | <b>595</b>    |

## 4.2 Liege Street Crash Data

The crash data for Liege Street is summarised spatially in **Figure 4-3** and detailed in **Table 4-2**. The crash data shows that a total of 192 crashes were recorded to have occurred on Liege Street, with the vast majority of those crashes occurring on the north-eastern approach of the intersection of Albany Highway / Liege Street.

Over 50% of the crashes occurring on Liege Street were classified as “rear end” crashes and are most likely due to the stop-start nature of traffic due to the signalised intersection at Albany Highway / Liege Street.

As the Southern Link Road is not expected to increase traffic volumes on Liege Street, the crashes along Liege Street are not considered likely to change as a result of the Southern Link Road.

Figure 4-3 Visual Summary of Crashes on Liege Street (1st January 2014 to 31st December 2018)

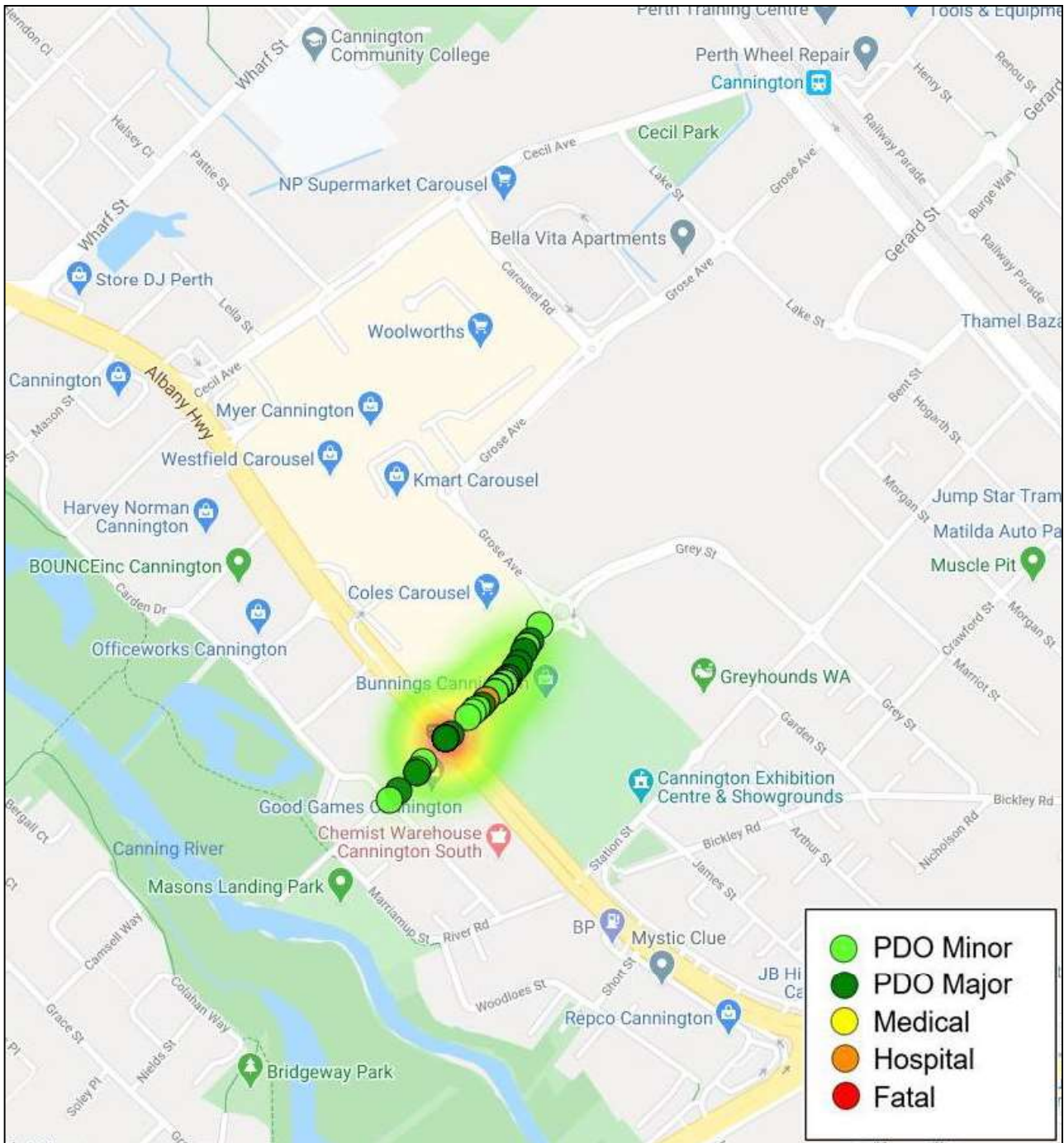


Table 4-2 Summary of Crashes on Liege Street (Midblock and Intersection Crashes)

| Type of Crash (RUM Code) | Fatal    | Hospital | Medical   | Major Property Damage | Minor Property Damage | Total Crashes |
|--------------------------|----------|----------|-----------|-----------------------|-----------------------|---------------|
| Right Angle              | -        | -        | 3         | 16                    | 15                    | <b>34</b>     |
| Non-Collision            | -        | 1        | -         | -                     | -                     | <b>1</b>      |
| Right Turn Thru          | -        | 2        | -         | 6                     | 1                     | <b>9</b>      |
| Rear End                 | -        | 1        | 17        | 54                    | 38                    | <b>110</b>    |
| Sideswipe Same Direction | -        | 1        | -         | 20                    | 12                    | <b>33</b>     |
| Hit Object               | -        | -        | -         | 1                     | -                     | <b>1</b>      |
| Unspecified              | -        | -        | -         | 1                     | 3                     | <b>4</b>      |
| <b>Total</b>             | <b>-</b> | <b>5</b> | <b>20</b> | <b>98</b>             | <b>69</b>             | <b>192</b>    |



### 4.3 Grose Avenue Crash Data

The crash data for Grose Avenue is summarised spatially in **Figure 4-4** and detailed in **Table 4-3**, and shows that the crash data shows that a total of 48 crashes were recorded on Grose Avenue.

As shown in **Figure 2-3**, Grose Avenue is classified as a “Neighbourhood Connector” road in the CCCACP and therefore is primarily intended to have a local function. This is reflected in the design of Grose Avenue, which includes a large number of car park entries/exits to the Westfield Carousel Shopping Centre, several sections of on-street parking and pedestrian crossing facilities. However, due to the lack of alternate connections, it is currently also being used by regional traffic as a connection to Albany Highway.

The Southern Link Road is therefore needed to provide an alternate connection that can be used by regional traffic instead of Grose Avenue, which will therefore reduce the traffic volumes on Grose Avenue and hence also reduce the number of crashes occurring on Grose Avenue.

Figure 4-4 Visual Summary of Crashes on Grose Avenue (1st January 2014 to 31st December 2018)

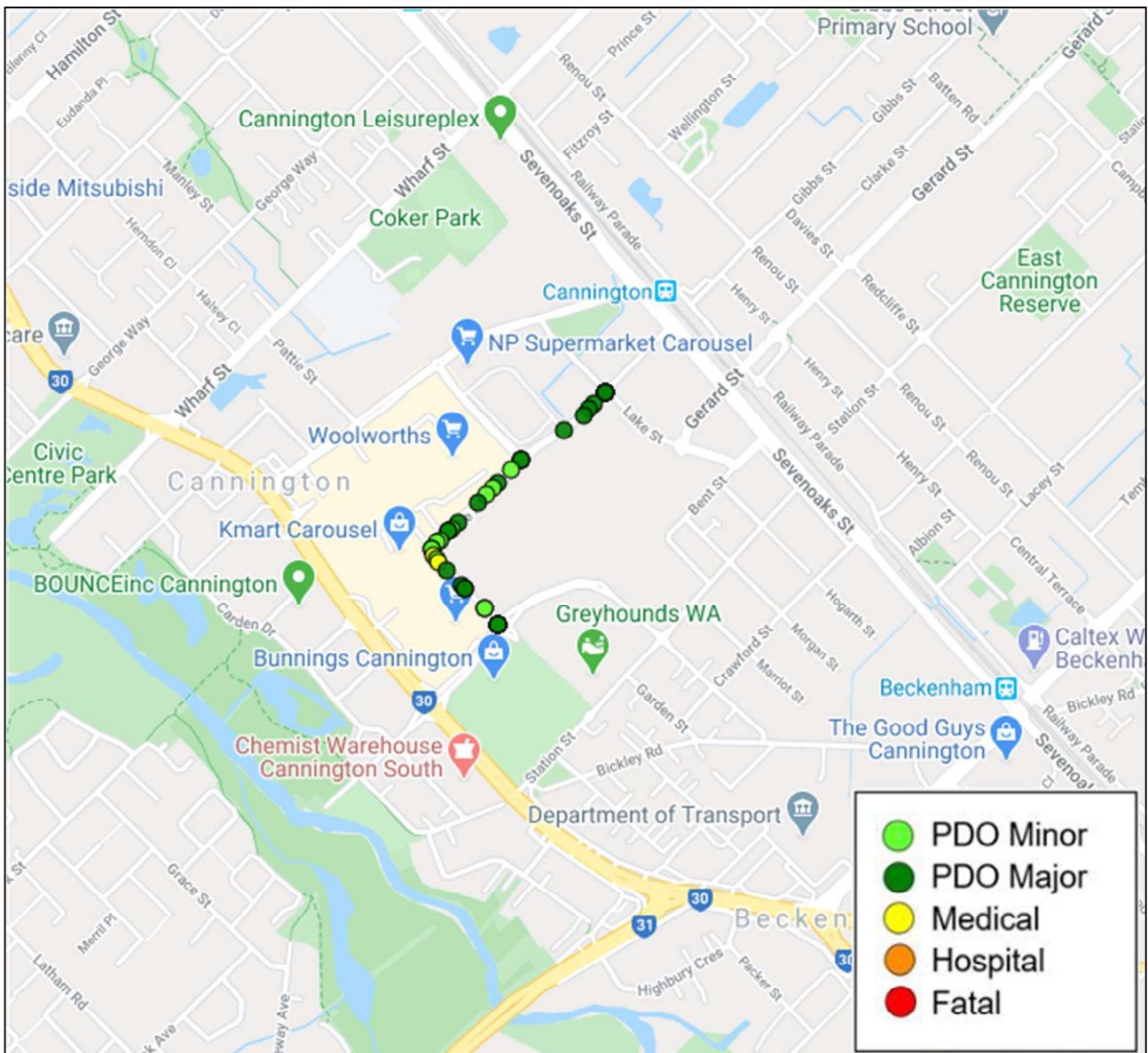


Table 4-3 Summary of Crashes on Grose Avenue (Midblock and Intersection Crashes)

| Type of Crash (RUM Code) | Fatal | Hospital | Medical | Major Property Damage | Minor Property Damage | Total Crashes |
|--------------------------|-------|----------|---------|-----------------------|-----------------------|---------------|
| Sideswipe Same Direction | -     | -        | -       | 4                     | 1                     | 5             |
| Right Angle              | -     | -        | -       | 10                    | 5                     | 15            |
| Rear End                 | -     | -        | 4       | 9                     | 10                    | 23            |
| Hit Object               | -     | -        | -       | -                     | 1                     | 1             |
| Non-Collision            | -     | -        | -       | -                     | 1                     | 1             |
| Right Turn Thru          | -     | -        | -       | -                     | 1                     | 1             |
| Unspecified              | -     | -        | -       | -                     | 2                     | 2             |
| <b>Total</b>             | -     | -        | 4       | 23                    | 21                    | 48            |

#### 4.4 Estimated Crash Cost Saving

The reduction in crash costs for Grose Avenue resulting from the Southern Link Road has been estimated from the crash type/severity costs from the Main Roads WA Crash Analysis Reporting System (CARS). The crash reduction factors associated with each type of crash were also estimated from the CARS, but adjusted based on the vehicle volumes assumed to redirect to the Southern Link Road instead of Grose Avenue. For example, crash types such as “Leaving Driveway”, “Leaving Parking” and “Pull Out – Rear End” were not assumed to be reduced as a result of the Southern Link Road.

Based on the above assumptions, it is estimated that the Southern Link Road will provide a crash reduction saving of \$1M (undiscounted) over a 20-year period.

## 5 Operational Transport Modelling (VISSIM)

Cardno has used the Canning City Centre VISSIM micro-simulation model previously developed for the area to evaluate the estimated network benefits resulting from Stage 3 of the Southern Link Road. The micro-simulation model network, without the Southern Link Road, and boundaries are shown in **Figure 5-1**.

Figure 5-1 Canning City Centre VISSIM Micro-Simulation Model Network and Extents – without Southern Link Road



The model was originally developed in 2015 and used to as part of the transport assessment for the Westfield Carousel Shopping Centre expansion. The model therefore covered the Thursday PM peak hour (16:30 – 17:30) and Saturday midday peak hour (11:30 – 12:30) as these time periods were identified to be the busiest peak hours for both the shopping centre and road network.

Additional information relating to the VISSIM model development, including model calibration, validation, and assumptions, can be provided upon request.

To simulate the impact of the Southern Link Road, it was coded in the model network as a single-lane road with a posted speed limit of 50 km/h. The VISSIM network with the Southern Link Road is shown in **Figure 5-2**.



Figure 5-2 Canning City Centre VISSIM Micro-Simulation Model Network and Extents - with Southern Link Road



The VISSIM model outputs for key network metrics (eg. average vehicle speeds, delays and stops) are summarised in **Table 5-1** and shows minor improvements to the key network metrics such as average vehicle speeds, average delays and the number of average vehicle stops. The benefits associated with the Southern Link Road will likely further improve as additional local and distributor road upgrades are completed.

Table 5-1 VISSIM Model Outputs

| Network Metric                  | Thursday PM Peak           |                         | Saturday Midday Peak       |                         |
|---------------------------------|----------------------------|-------------------------|----------------------------|-------------------------|
|                                 | Without Southern Link Road | With Southern Link Road | Without Southern Link Road | With Southern Link Road |
| Average Vehicle Speed (km/h)    | 23.30                      | 24.74                   | 24.1                       | 24.2                    |
| Average Vehicle Delay (sec)     | 156.8                      | 140.3                   | 141.3                      | 140.2                   |
| Average Number of Vehicle Stops | 2.58                       | 2.53                    | 2.40                       | 2.38                    |

### 5.1.2 Travel Time Saving

As the Southern Link Road will reduce the length of the route between Gerard Street and Liege Street by approximately 400m and assuming that the Southern Link Road will have a posted speed limit of 50km/hr and an average value of time of \$15.90/hr\*, it is estimated that the Southern Link Road will provide a total travel time saving of approximately \$7M (undiscounted) over 20 years.

\* Source: the value of time was based on the Transport for NSW publication "Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives – Transport Economic Appraisal Guidelines" which estimated the value of time in 2016 to be \$14.83/hr. Adjusted for inflation, this equals \$15.90/hr for 2020.

## 6 Extension of Sevenoaks Street Duplication (ROM24)

The extension of the Sevenoaks Street duplication from Crawford Street to Albany Highway was modelled in the Main Roads Western Australia Regional Operations Model 24 (ROM24) for the horizon years 2021 and 2031 to investigate potential changes to regional traffic flows as a result of the duplication, as well as changes to traffic flows along the Southern Link Road.

The model results are summarised **Table 6-1** and generally suggest that the extension of the Sevenoaks Street duplication would provide some localised benefits in terms of providing a more direct connection between Gosnells to the Canning City Centre.

However, as the model results suggest that the impacts to the traffic flows will range between 200 to 800 vehicles per day for the 2021 scenario and 300 to 1,400 vehicles per day for the 2031 scenario, further economic assessment is considered to be required to confirm whether the benefits from the Sevenoaks Street duplication are economically viable (i.e. Benefit-Cost Ratio higher than 1.0).

Table 6-1 Summary of Forecast Daily 2-Way Traffic Volumes for 2021 and 2031, without/with Sevenoaks Street Duplication

| Road               | Section                   | 2021                                 |                                   | 2031                                 |                                   |
|--------------------|---------------------------|--------------------------------------|-----------------------------------|--------------------------------------|-----------------------------------|
|                    |                           | Without Sevenoaks Street Duplication | With Sevenoaks Street Duplication | Without Sevenoaks Street Duplication | With Sevenoaks Street Duplication |
| Albany Highway     | East of Liege Street      | 55,300                               | 55,100 (-0.4%)                    | 62,900                               | 62,600 (-0.5%)                    |
|                    | West of Sevenoaks Street  | 11,200                               | 10,700 (-4.5%)                    | 12,800                               | 12,200 (-4.7%)                    |
| Sevenoaks Street   | West of William Street    | 17,000                               | 17,500 (+2.9%)                    | 21,100                               | 21,600 (+2.4%)                    |
|                    | West of Albany Highway    | 12,800                               | 13,600 (+6.3%)                    | 14,800                               | 16,200 (+9.5%)                    |
|                    | West of Station Street    | 20,000                               | 20,400 (+2.0%)                    | 23,800                               | 24,100 (+1.3%)                    |
| William Street     | South of Sevenoaks Street | 12,800                               | 12,600 (-1.6%)                    | 16,600                               | 16,000 (-3.6%)                    |
|                    | North of Sevenoaks Street | 14,600                               | 14,500 (-0.7%)                    | 17,200                               | 17,100 (-0.6%)                    |
| Southern Link Road | North of Liege Street     | 13,900                               | 14,100 (+1.4%)                    | 20,600                               | 20,700 (+0.5%)                    |

## 7 Summary and Conclusions

---

Cardno has undertaken a traffic study of the proposed Southern Link Road, which forms a key part of the future Canning City Centre transport network. As part of this study, the following conclusions have been reached:

- > The Southern Link Road is part of a suite of local and regional road upgrades that were recommended in the City of Canning – Integrated Transport Strategy (July 2015) in order to improve access to the Canning City Centre and permeability of the transport network.
  - The Southern Link Road is one of the proposed key upgrades to the local road network as it will ultimately provide a direct north-south connection between Orrong Road and Albany Highway, both classified as Primary Regional Roads within the Metropolitan Region Scheme.
  - The Southern Link Road will provide an alternative north-south road linked over the railway line, and therefore result in reduced traffic volumes and delays at the Wharf Street and William Street level crossings.
- > The alignment of Stage 3 of the Southern Link Road is proposed to go through a section of TEC-classed land. To reduce any impacts on the TEC land, the City has modified the proposed alignment from a straight alignment to a curved alignment. This will also ensure that the proposed alignment primarily goes through degraded vegetation.
- > Assessment of the crash data between 1<sup>st</sup> January 2014 to 31<sup>st</sup> December 2018 for the study area suggests:
  - The majority of crashes (595 out of 933 crashes) occurred on Albany Highway and the most severe crashes occurred at the intersections of Albany Highway / Liege Street and Albany Highway / Nicholson Road.
  - 48 crashes have occurred on Grose Avenue. Grose Avenue is classified as a “Neighbourhood Connector” road in the CCCACP and therefore is primarily intended to have a local function. However, due to the lack of alternate connections, it is currently also being used by regional traffic as a connection to Albany Highway.
    - The Southern Link Road is therefore needed to provide an alternate connection that can be used by regional traffic instead of Grose Avenue, which will therefore reduce the traffic volumes on Grose Avenue and hence also reduce the number of crashes occurring on Grose Avenue.
- > The Canning City Centre VISSIM micro-simulation model previously developed for the area was used to evaluate the estimated network benefits resulting from the Southern Link Road. The model results suggested that Stage 3 of the Southern Link Road will result in improvements to the key network metrics such as average vehicle speeds, average delays and the number of average vehicle stops.
  - The benefits associated with the Southern Link Road will likely further improve as additional local and distributor road upgrades are completed.
  - The Southern Link Road is estimated to carry 13,900 vehicles per day in 2021 and 20,600 vehicles per day in 2031 respectively.
    - If the Southern Link Road is not constructed, this traffic growth will instead occur on other local roads, such as Cecil Avenue, Grose Avenue and Station Street.
- > The Sevenoaks Street duplication was found to provide some localised benefits in terms of providing a more direct connection between Gosnells to the Canning City Centre. However, further economic assessment is considered to be required to confirm whether the benefits from the Sevenoaks Street duplication are economically viable.